HM136MAX™ PORTABLE SAWMILL

HONDA GX630

20.8 Horsepower Engine with Electric Start

OPERATOR'S MANUAL

0008288-M-EN: Rev A
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WOODLAND MILLS

DISCOVER THE WOODLAND™

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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.

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
	Lifting hazard
	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. Check the engine oil level.
8. Start and operate the engine according to the provided engine manual.
9. Depress the throttle to bring the blade up to speed—the throttle should be fully depressed while the saw is under load.
10. Roll the head assembly slowly along the track and against the lumber to make the cut.
11. Trim off the rounded sides of the log.
12. When the log is squared-off, boards or posts can be cut to standard or custom specifications.
13. 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.

WARNING!

Check the oil level before each use. *Change the engine oil if it is above the maximum level*. There is a risk of contamination due to the short-cycle operations common during milling where the oil may not reach normal operating temperature (212°F / 100°C).

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.

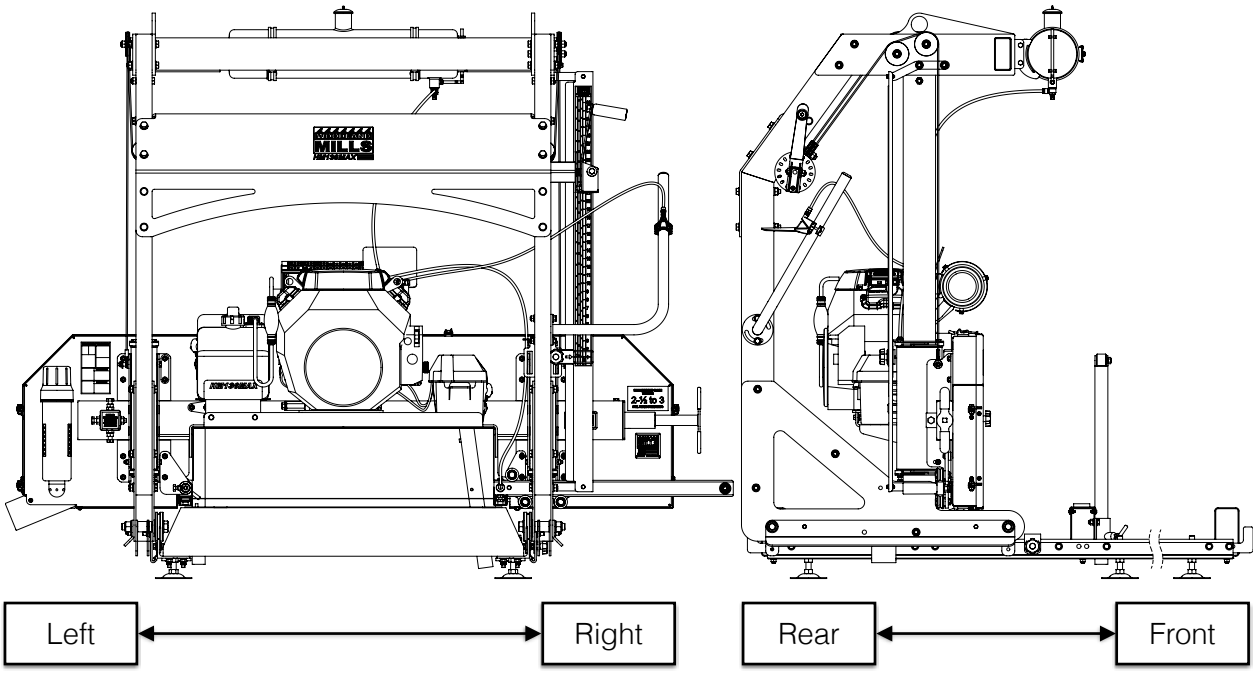
WARNING!

Check the oil level before each use. *Change the engine oil if it is above the maximum level*. There is a risk of contamination due to the short-cycle operations common during milling where the oil may not reach normal operating temperature (212°F / 100°C).

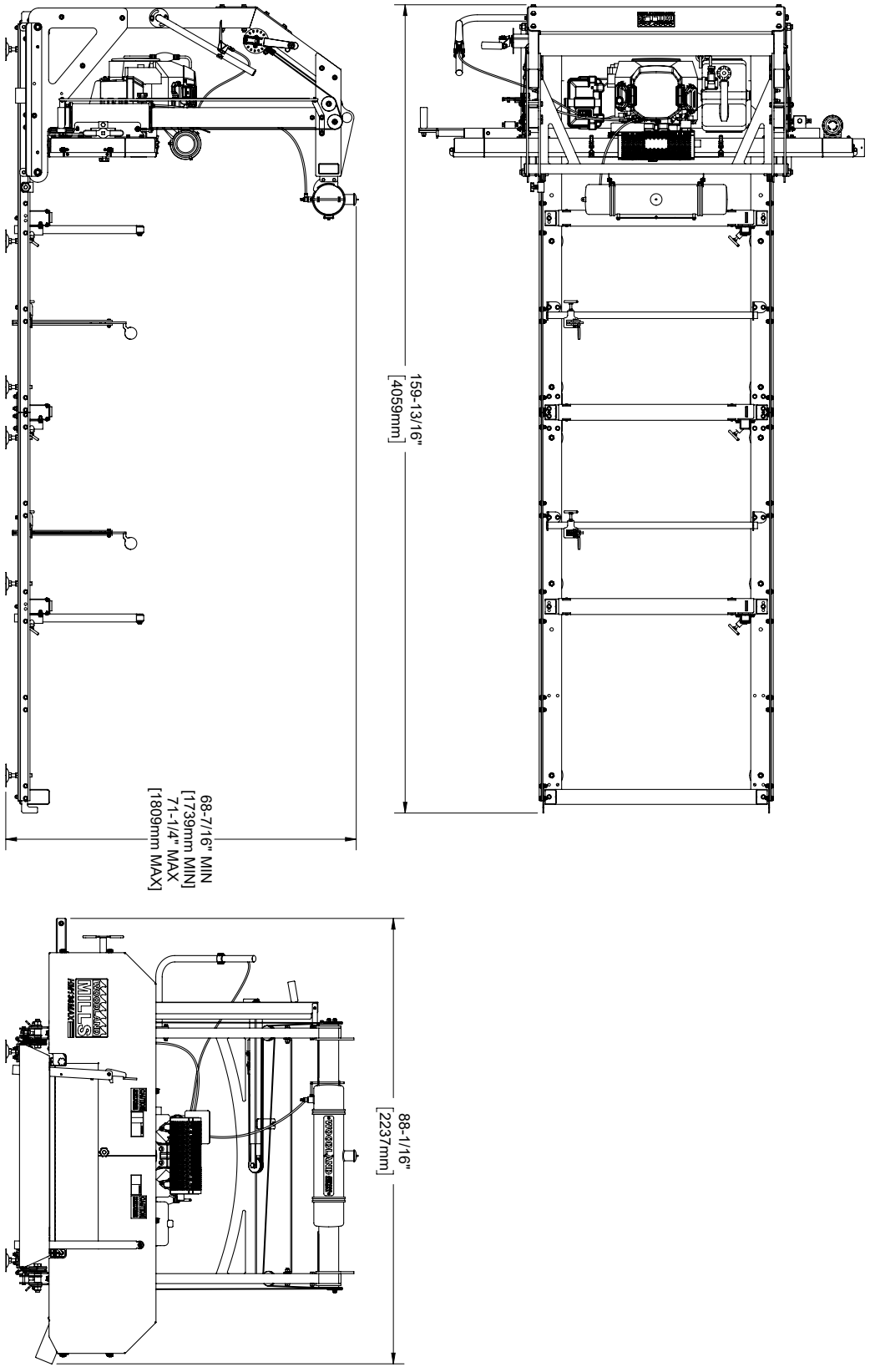
TECHNICAL SPECIFICATIONS

The HM136MAX Pro sawmill comes with a 20.8 horsepower electric-start engine.

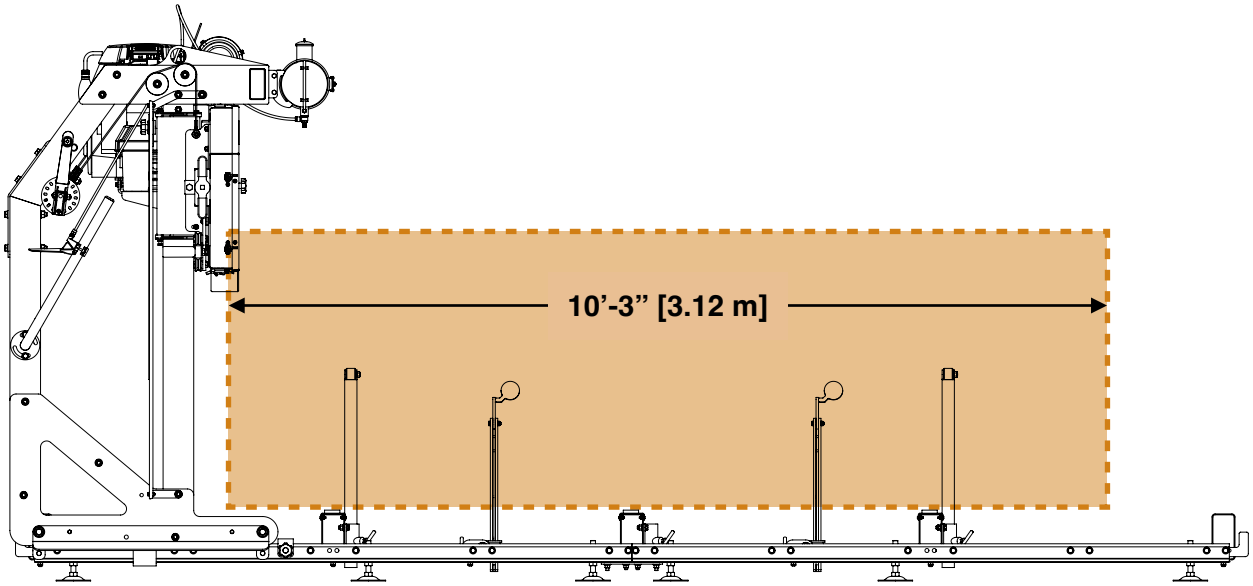
Item	HM136MAX Pro Specification
Gasoline Engine	20.8 hp Honda GX630 w/ High-Mount Muffler
Max Log Diameter	36 in [914 mm]
Max Board Width	36 in [914 mm]
Max Board Thickness	8-9/16 in [217 mm]
Blade Size	1-¼ x 174 in [32 mm x 4420 mm]
Track Length	153-½ in [3900 mm]
Track Width	45-¼ in [1150 mm]
Track Height Adjustability (top of bunk)	7-⅞ to 10-⅝ in [200 to 270 mm]
Product Weight	1280 lb [581 kg]
Shipping Weight	1556 lb [706 kg]

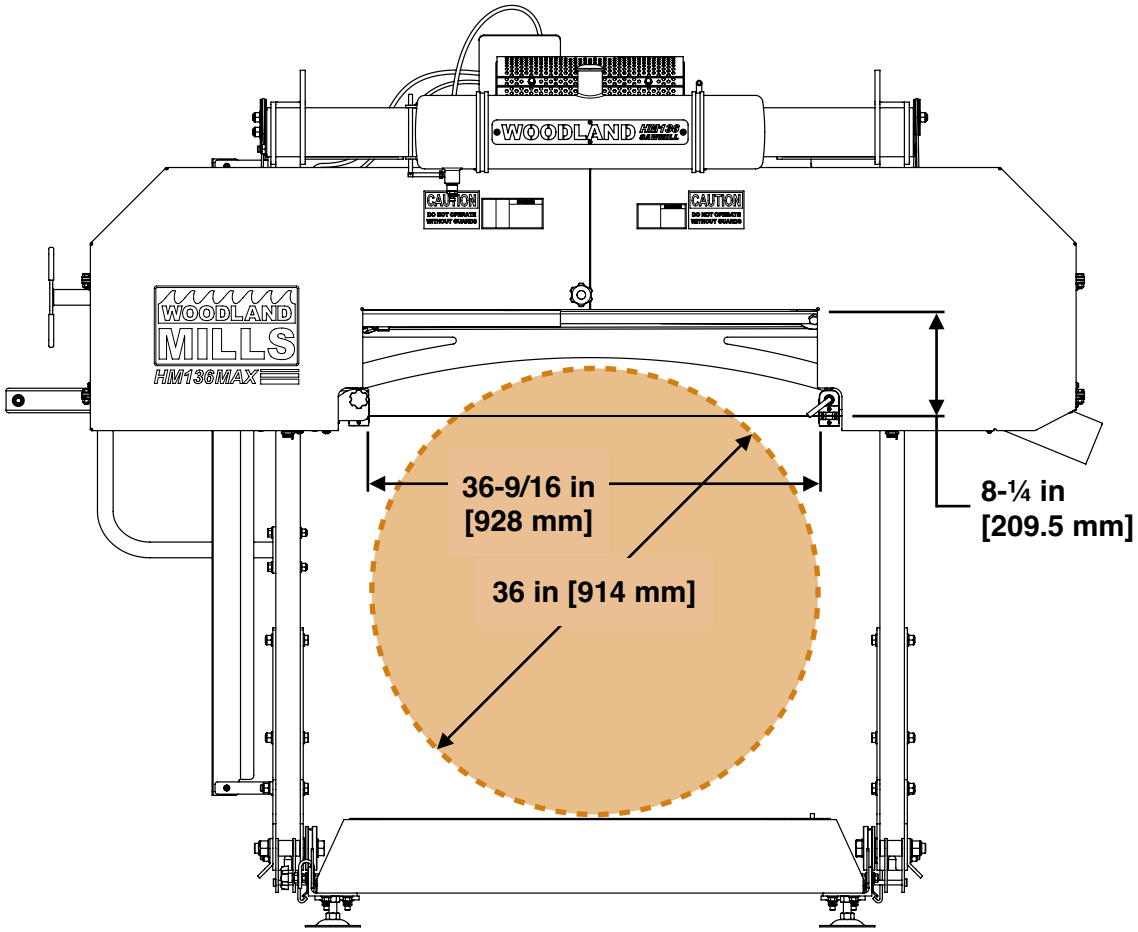


OVERALL DIMENSIONS



LOG/THROAT DIMENSIONS

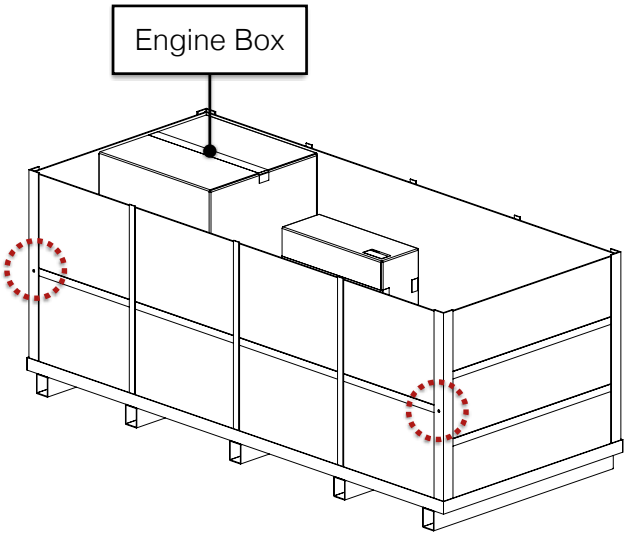




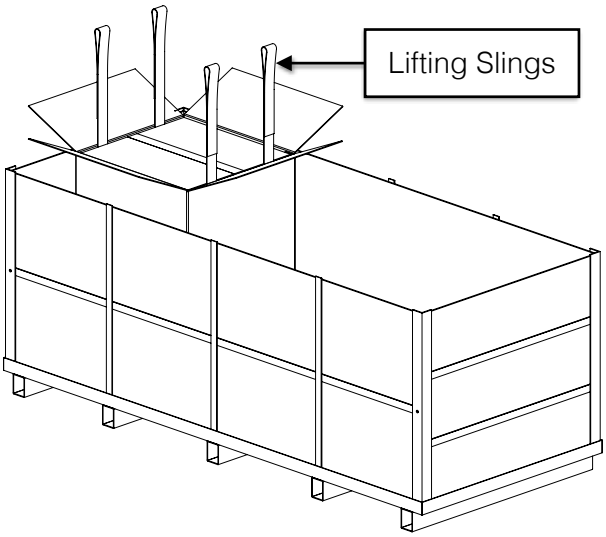
UNPACKING

Unpack the contents of the crate except for the sawhead, the large square engine box in the back corner, and the long boxes under the back of the sawhead that contain the sections of track.

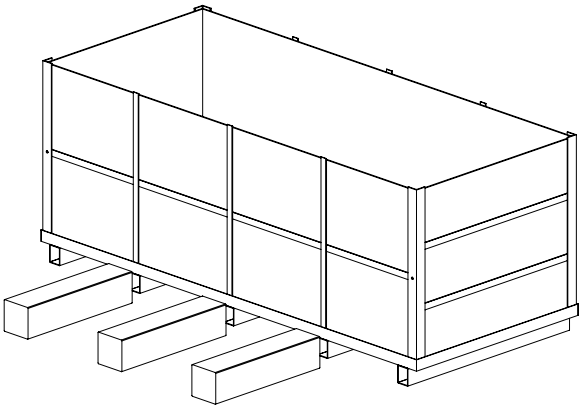
The engine box is nested inside a larger outer box that contains two (2) lifting slings to assist with pulling the engine out of the crate. The engine box weighs approximately 110 lb [50 kg] and precaution needs to be exercised when removing it from the crate.



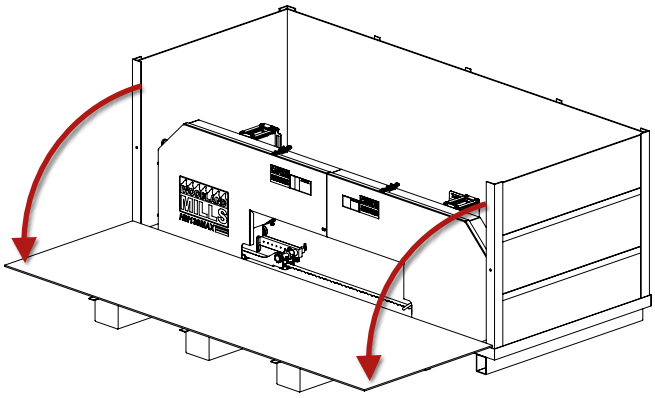
1. REMOVE THE BOLTS FROM BOTH SIDES OF THE FRONT CRATE WALL.



2. LIFT THE ENGINE BOX FROM ITS OUTER BOX USING THE PROVIDED LIFTING SLINGS.



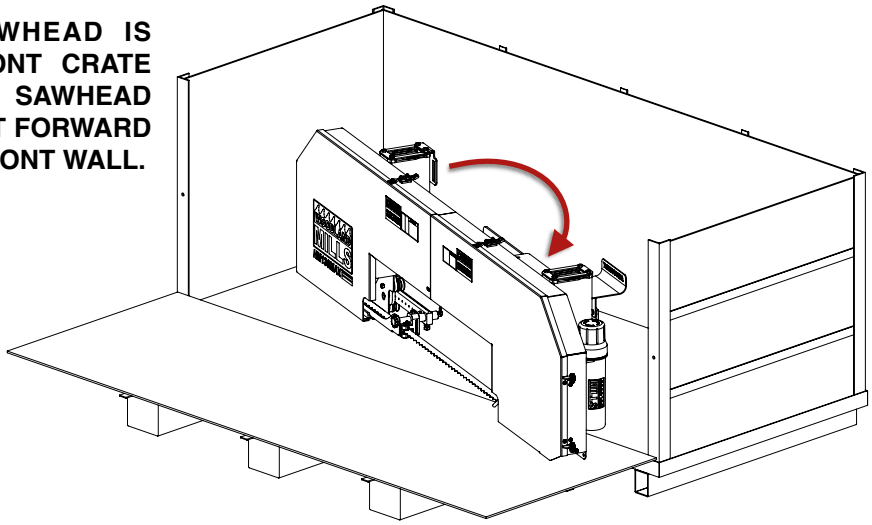
3. PLACE SOME SCRAP LUMBER IN FRONT OF THE CRATE ROUGHLY THE SAME HEIGHT AS THE BOTTOM OF THE CRATE.



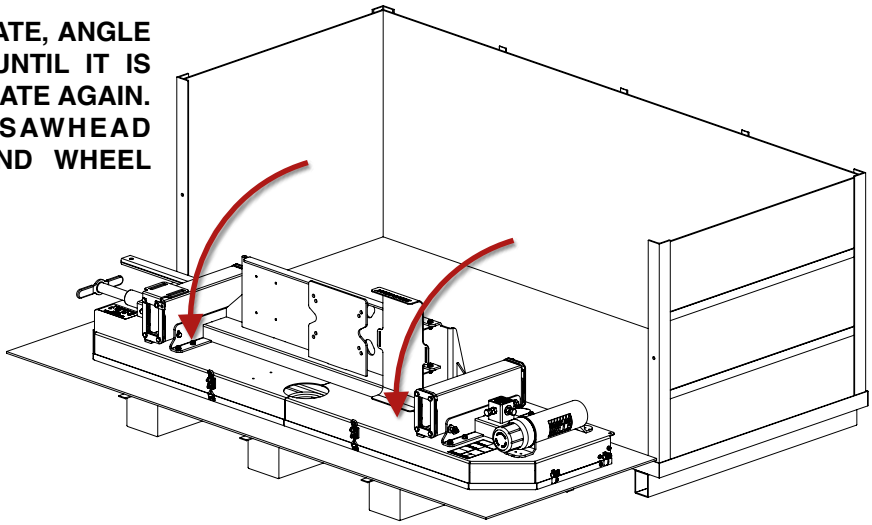
4. BEND THE FRONT CRATE WALL DOWN AND LAY THE FRONT CARDBOARD INSERT OVER TOP.

****The sawhead weighs in excess of 350 lb [167 kg]. Use caution when removing the sawhead from the crate or it could cause injury if moved hastily. Seek the assistance of a second person and/or use a tractor if available.****

5. **THE ASSEMBLED SAWHEAD IS WIDER THAN THE FRONT CRATE OPENING. ANGLE THE SAWHEAD AS SHOWN AND WALK IT FORWARD OUT ONTO THE BENT FRONT WALL.**

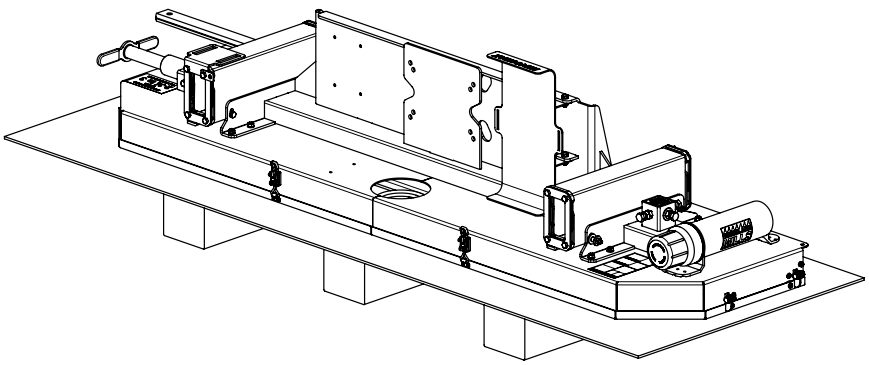


6. **ONCE OUTSIDE THE CRATE, ANGLE THE SAWHEAD BACK UNTIL IT IS PARALLEL WITH THE CRATE AGAIN. THEN ROTATE THE SAWHEAD DOWN ONTO THE BAND WHEEL HOUSING.**



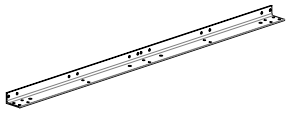
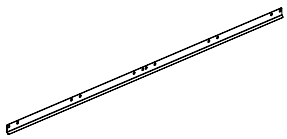
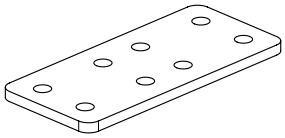
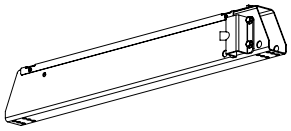
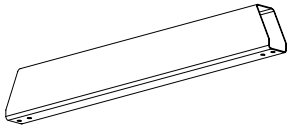
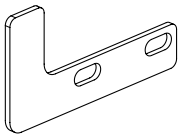
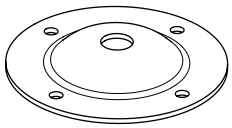
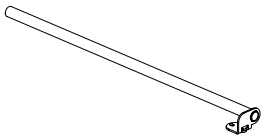
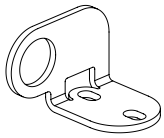
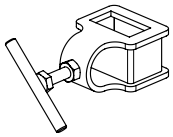
7. **PULL THE CRATE OUT FROM UNDER THE SAWHEAD.**

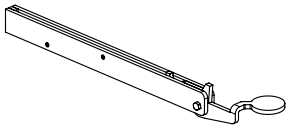
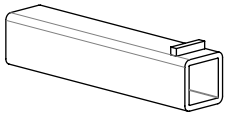
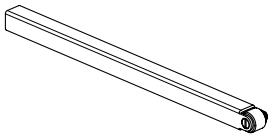
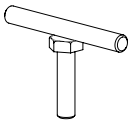
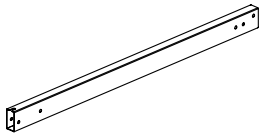
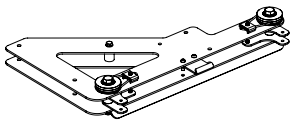
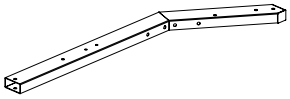
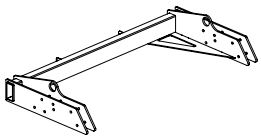
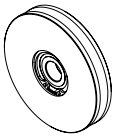
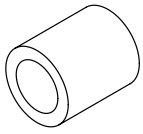
   THE CRATE CAN BE DISCARDED.

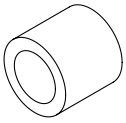
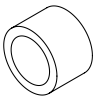
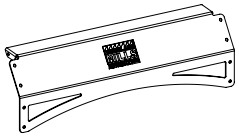
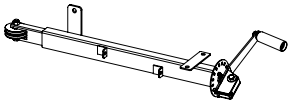
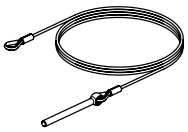
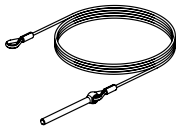
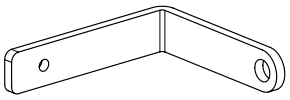
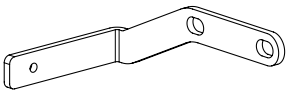
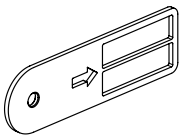


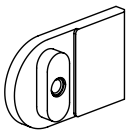
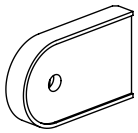
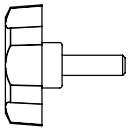
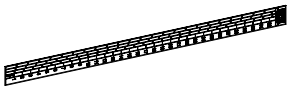
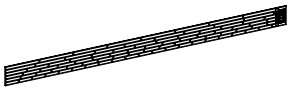
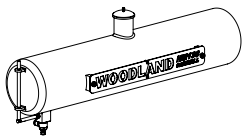
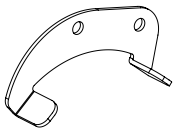
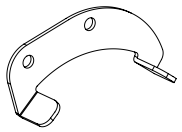
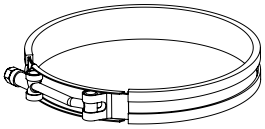
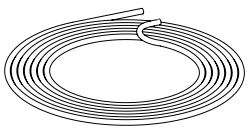
COMPONENT LISTS

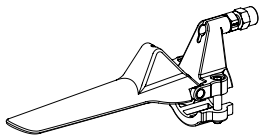
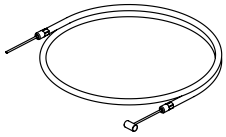
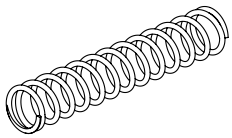
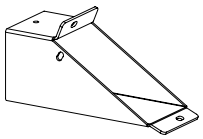
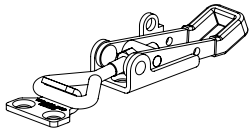
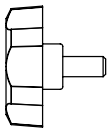
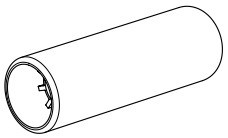
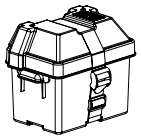
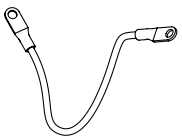
Verify all component and hardware quantities are correct prior to assembling the sawmill.

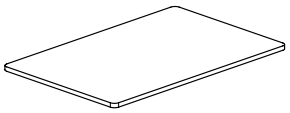
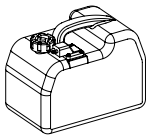
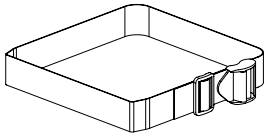
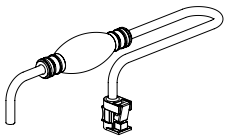
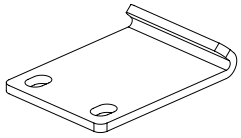
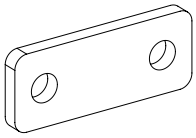
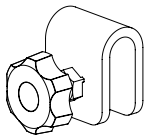
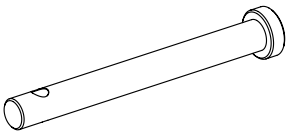
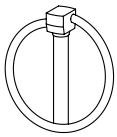
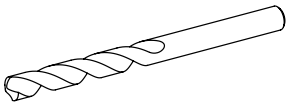
4x	Track Rail [0001073]	
4x	Anti-Tip Rail [0003620]	
2x	Reinforcement Plate [0001072]	
3x	Bunk Assembly	
2x	End Bunk [0003606]	
4x	Carriage Stop [0001055]	
12x	Levelling Foot Base [0001071]	
2x	Log Clamp Shaft/Bracket Weldment [0003611]	
2x	Log Clamp Shaft Bracket [0010129]	
2x	Log Clamp Receiver Assembly	

2x	Quick-Lock Log Clamp Assembly	
2x	Key Stop Log Support [0001465]	
2x	Log Support w/ Roller Assembly	
3x	T-Bolt M10 X 40 mm [0001059]	
2x	Front Post [0003651]	
2x	Carriage Leg Assembly	
2x	Back Post [0008357]	
1x	Cross Beam [0008359]	
5x	Pulley [0001099]	
1x	Spacer (20.5 mm Lg) [0003251]	

1x	Spacer (16.5 mm Lg) [0009502]	
6x	Spacer (12 mm Lg) [0002812]	
2x	Spacer (5 mm Lg) [0002813]	
1x	Dashboard [0003654]	
1x	Lift Mechanism Assembly	
1x	Lift Cable R (Right Side) [0003026]	
1x	Lift Cable L (Left Side) [0003025]	
1x	Scale Support [0002040]	
1x	Lower Log Scale Support Bracket [0008639]	
1x	Upper Log Scale Support Bracket [0008642]	
1x	Scale Indicator Arrow [0002099]	

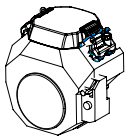
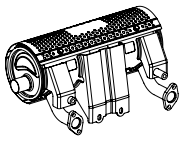
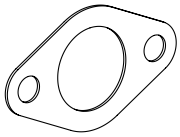
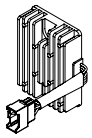
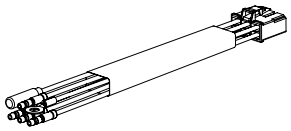
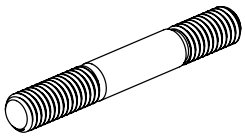
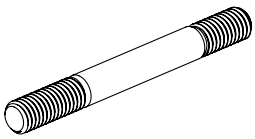
1x	Scale Indicator Bracket [Rear] [0002097]	
1x	Scale Indicator Bracket [Frnt] [0002098]	
1x	Knob M8 X 25 mm [0002764]	
1x	Magnetic Scale (1–1-¼") [0003690]	
1x	Magnetic Scale (1-½—4") [0003691]	
1x	Lubrication Tank Assembly	
1x	Tank Bracket (Left) [0007795]	
1x	Tank Bracket (Right) [0007794]	
2x	Bolt Clamp [0007528]	
1x 1x	Tubing [0009895] [0009896]	
1x	Push Handle [0004511]	

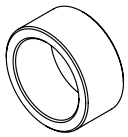
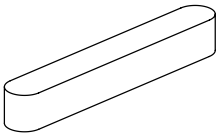
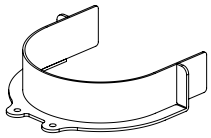
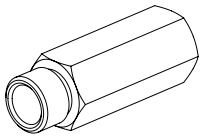
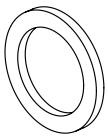
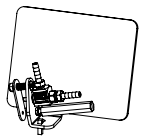
1x	Throttle Handle Assembly	
1x	Throttle Cable [0009897]	
2x	Compression Spring [0005578]	
1x	Dust Chute [0008966]	
2x	Latch [0002248]	
1x	Knob M8 X 17 mm [0001659]	
1x	Handle Grip [0004199]	
1x	Battery Box Assembly	
1x	Negative Battery Cable (Black) [0010296]	
1x	Positive Battery Cable (Red) [0010297]	

1x	Battery Pad [0009821]	
1x	Fuel Tank [0003591]	
1x	Cinching Strap [0005734]	
1x	Fuel Line [0009461]	
2x	Anti-Tip Bracket [0003621]	
[2x]	Anti-Tip Bracket Spacer [0003622]	
1x	Sawhead Stop [0009831]	
4x	Lock-Down Pin [0001394]	
4x	Linch Pin [0004720]	
1x	Drill Bit (10 mm) [0004742]	

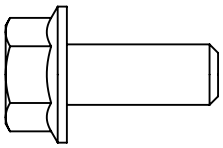
ENGINE & MUFFLER COMPONENTS

The Honda GX630 engine and muffler come shipped in separate boxes inside the sawmill crate. **Items highlighted in Honda red** are Honda OEM components and are included in the engine and muffler boxes.

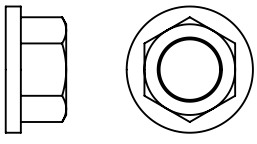
1x	Honda GX630 Engine	
1x	Honda High-Right Muffler [0009970]	
2x	Exhaust Gasket [0010120]	
1x	Regulator/ Rectifier	
1x	Regulator/ Rectifier Wiring Harness	
1x	M8 X 1.25 Stud 60 mm Long [0010117]	
1x	M8 X 1.25 Stud 75 mm Long [0010118]	

1x	Clutch Spacer [0003509]	
1x	Key (¼ X ¼ X 1-¾") [0003643]	
1x	Clutch Assembly	
1x	Clutch Guard [0003641]	
1x	Oil Drain Extension [0008072]	
2x	M20 Sealing Washer [0008073]	
1x	Auto-Lube Assembly	

2x	FHH-MBJ075FCJ M8 X 1.25 X 20 mm FLANGED HEX BOLT



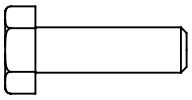
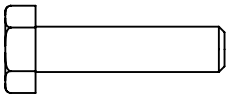
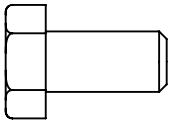
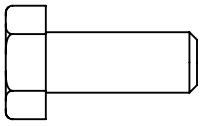
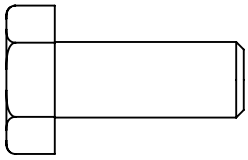
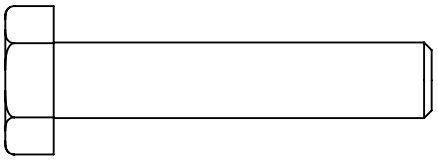
6x	FHN-MBJCH M8 X 1.25 FLANGED NUT

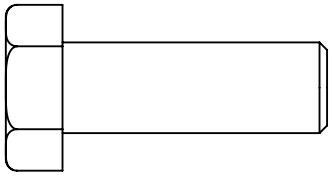
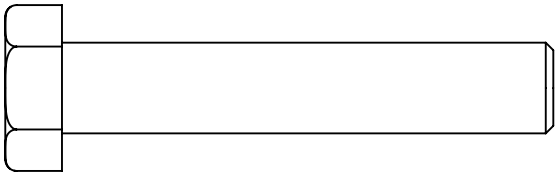
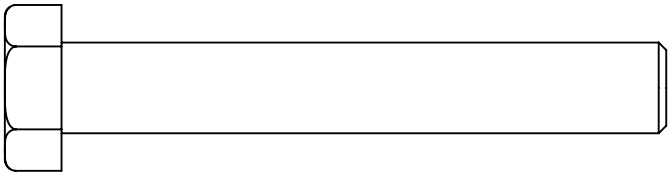
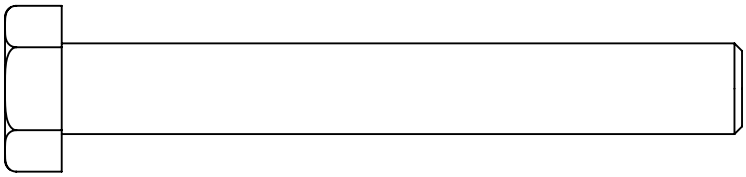
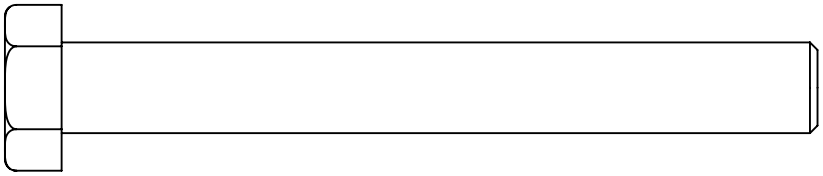
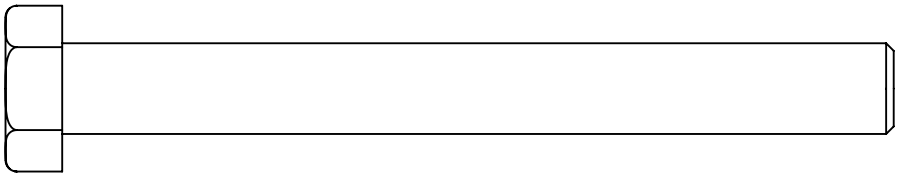


TO-SCALE HARDWARE

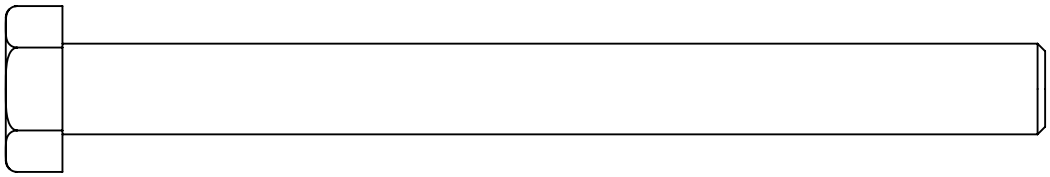
BOLTS & SCREWS

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.

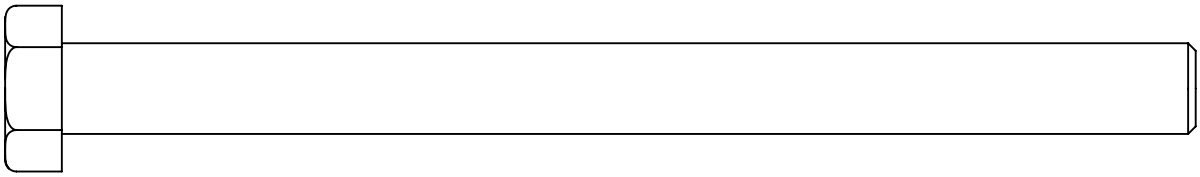
3x	**HHB-MBE075FCJ**	**M6 X 1 X 20 mm HEX BOLT**
		
2x	**HHB-MBE080FCJ**	**M6 X 1 X 25 mm HEX BOLT**
		
4x	**HHB-MBJ071FCJ**	**M8 X 1.25 X 16 mm HEX BOLT**
		
2x	**HHB-MBJ075FCJ**	**M8 X 1.25 X 20 mm HEX BOLT**
		
1x	**HHB-MBM080FCJ**	**M10 X 1.5 X 25 mm HEX BOLT**
		
4x	**HHB-MBM105FCJ**	**M10 X 1.5 X 50 mm HEX BOLT**
		

1x	HHB-MBR090FCJ	M12 X 1.75 X 35 mm HEX BOLT
		
2x	HHB-MBR120PCJ	M12 X 1.75 X 65 mm HEX BOLT
		
9x	HHB-MBR135PCJ	M12 X 1.75 X 80 mm HEX BOLT
		
8x	HHB-MBR145PCJ	M12 X 1.75 X 90 mm HEX BOLT
		
1x	HHB-MBR155PCJ	M12 X 1.75 X 100 mm HEX BOLT
		
4x	HHB-MBR165PCJ	M12 X 1.75 X 110 mm HEX BOLT
		

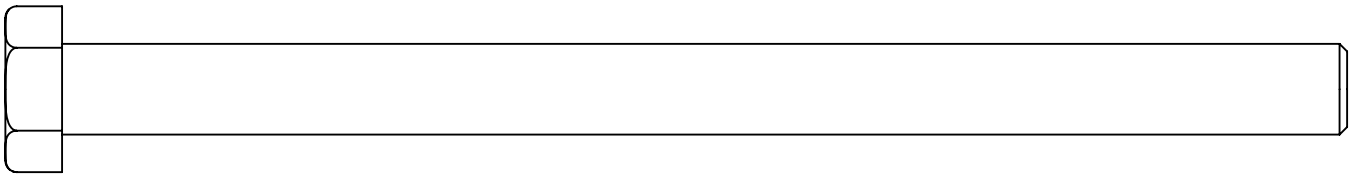
6x	HHB-MBR185PCJ	M12 X 1.75 X 130 mm HEX BOLT



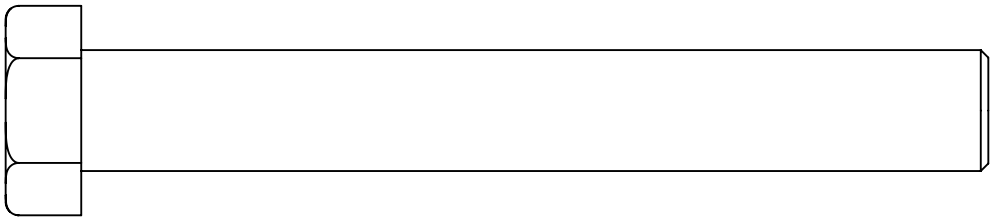
1x	HHB-MBR205PCJ	M12 X 1.75 X 150 mm HEX BOLT



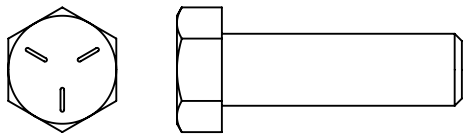
1x	HHB-MBR225PCJ	M12 X 1.75 X 170 mm HEX BOLT



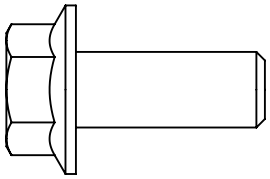
12x	HHB-MCA175FCJ	M16 X 2 X 120 mm HEX BOLT

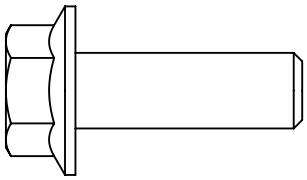
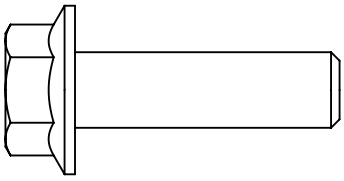
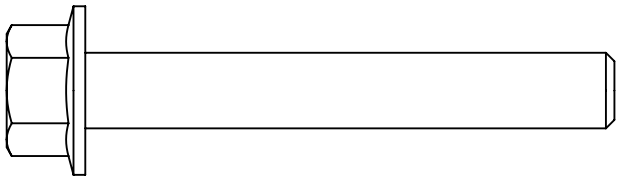
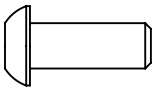
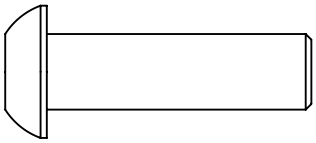
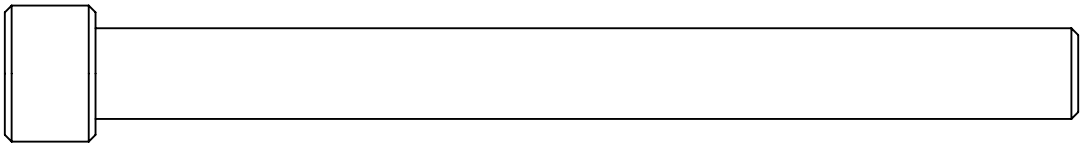


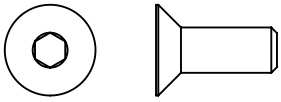
1x	HHB-UBV025FGE	⅜-24 X 1-¼ in GRADE 5 HEX BOLT



56x	FHH-MBM080FCM	M10 X 1.5 X 25 mm FLANGED HEX BOLT



8x	FHH-MBM085FCM	M10 X 1.5 X 30 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
		
3x	BHS-MBE071FCM	M6 X 1 X 16 mm BUTTON HEAD SCREW
		
4x	BHS-MBM090FCM	M10 X 1.5 X 35 mm BUTTON HEAD SCREW
		
1x	SHC-MBR185FCP	M12 X 1.75 X 130 mm SOCKET HEAD CAP SCREW
		

8x	**PFH-MAW059FCM**	**M4 X 0.7 X 10 mm PHILLIPS FLAT HEAD SCREW**
		
4x	**HFH-MBE071FCM**	**M6 X 1 X 16 mm HEX FLAT HEAD SCREW**
		

SCALES

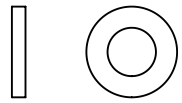
Ruler scales are also provided below to double-check bolt and screw lengths when necessary.

CENTIMETRES / MILLIMETRES

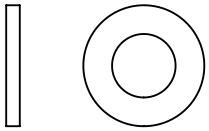
INCHES

WASHERS

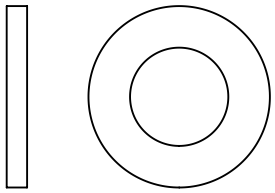
14x	FTW-MBE000AJ M6 FLAT WASHER



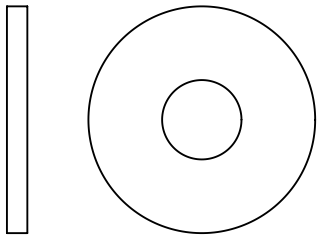
4x	FTW-MBJ000AJ M8 FLAT WASHER



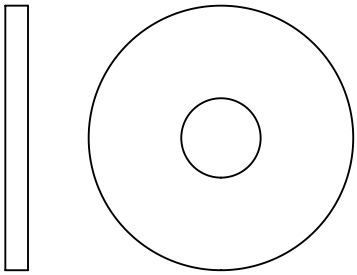
64x	FTW-MBR000AJ M12 FLAT WASHER



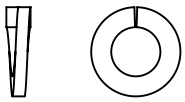
8x	FDW-MBM079000AJ M10 X 30 mm OD FENDER WASHER



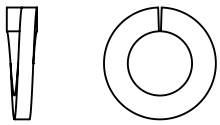
2x	FDW-MBM084000AJ M10 X 35 mm OD FENDER WASHER



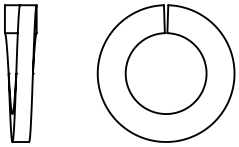
1x	SLW-MBEAJ M6 SPLIT LOCK WASHER



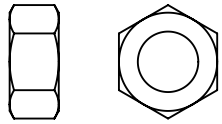
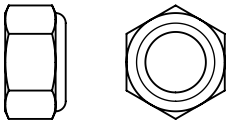
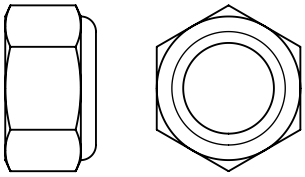
2x	SLW-MBJAJ M8 SPLIT LOCK WASHER

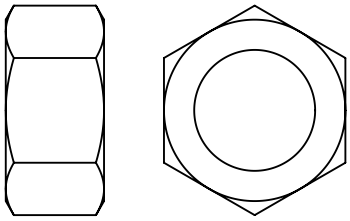
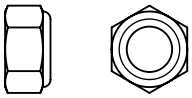
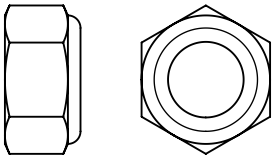
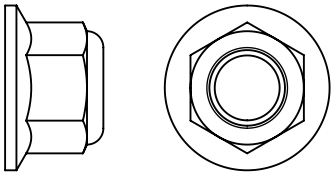


1x	SLW-MBMAJ M10 SPLIT LOCK WASHER



NUTS

2x	**HXN-MBJCH M8 X 1.25 HEX NUT**
	
4x	**HLN-MAWCH M4 X 0.7 LOCK NUT**
	
4x	**HLN-MBJCH M8 X 1.25 LOCK NUT**
	
34x	**HLN-MBRCH M12 X 1.75 LOCK NUT**
	

36x	**HXN-MCACH M16 X 2 HEX NUT**
	
11x	**HLN-MBECH M6 X 1 LOCK NUT**
	
5x	**HLN-MBMCH M10 X 1.5 LOCK NUT**
	
86x	**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

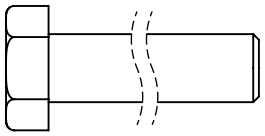
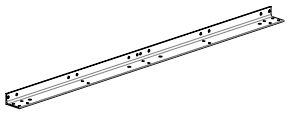
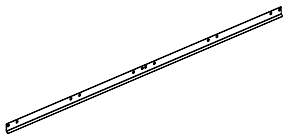
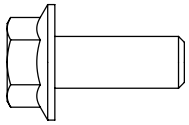
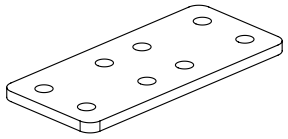
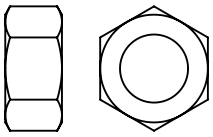
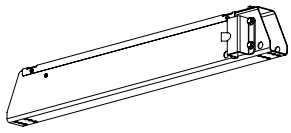
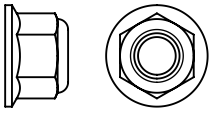
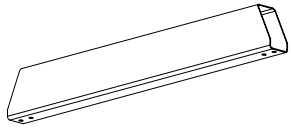
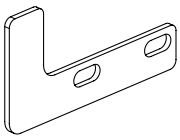
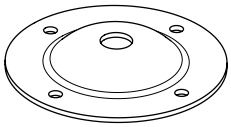
During several of the assembly steps, more than one socket or wrench of the same size may be required to assemble the hardware. A socket or box wrench in combination with an adjustable wrench can be utilized if multiple same size tools are in limited supply.

BOLT TORQUE WARNING!

When assembling the sawmill, do not torque the bolts to hardware Class/Grade specifications. Snug the hardware, then tighten a further ¼—½ turn. Tightening bolts to torque spec can crush metal tubing, ruining the components.

2. TRACK

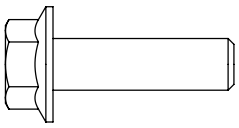
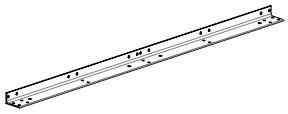
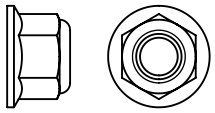
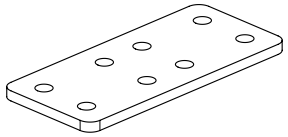
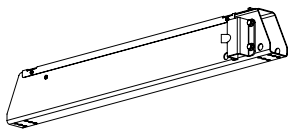
Assemble the track with the provided components and hardware listed in the table below. It is important to assemble and level the track on a firm foundation before tightening all of the hardware and should ideally be 3-½—4 in [90—100 mm] off the ground. This will allow for easy cleanup of sawdust and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

12x	M16 X 120 mm Hex Bolt		4x	Track Rail	
16x	M10 X 35 mm Flanged Hex Bolt		4x	Anti-Tip Rail	
24x	M10 X 25 mm Flanged Hex Bolt		2x	Reinforcement Plate	
36x	M16 Hex Nut		3x	Bunk Assembly	
40x	M10 Flanged Lock Nut		2x	End Bunk	
			4x	Carriage Stop	
			12x	Levelling Foot Base	

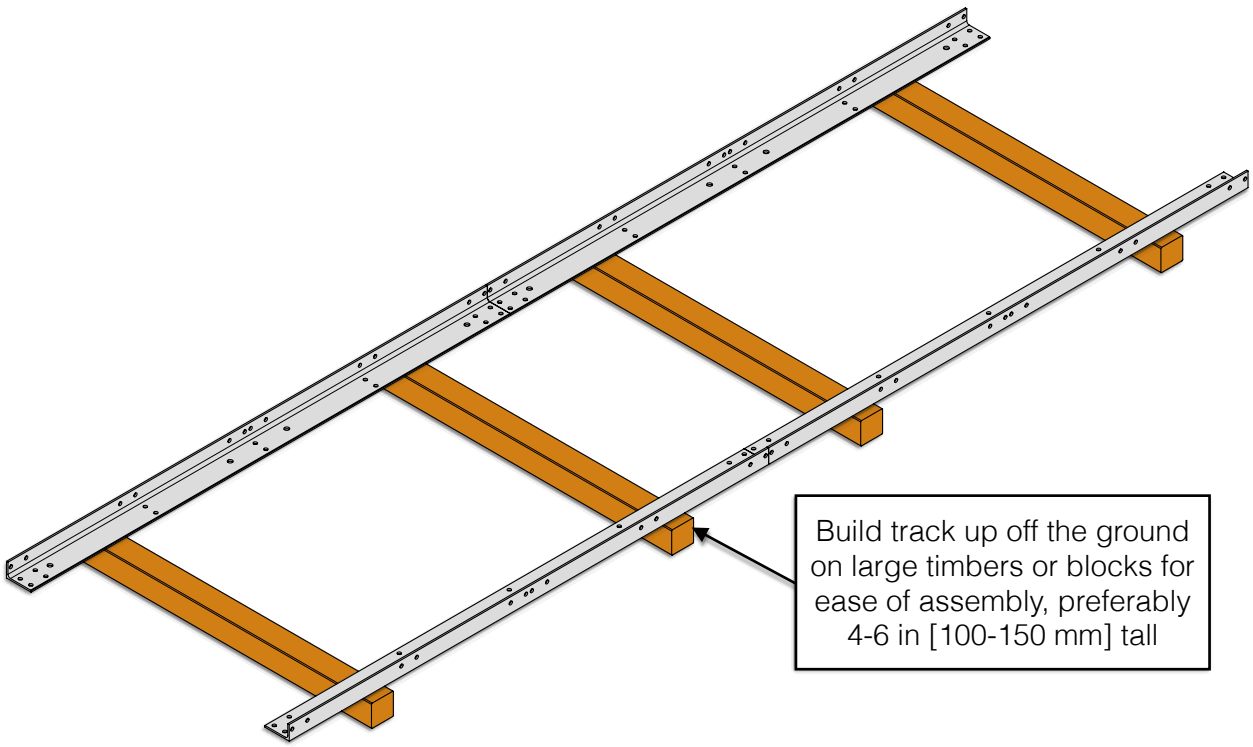
If a Woodland Mills sawmill trailer was purchased with this sawmill, skip this track assembly section and follow the track assembly instructions in those manuals.

RAILS & CENTRE BUNK

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

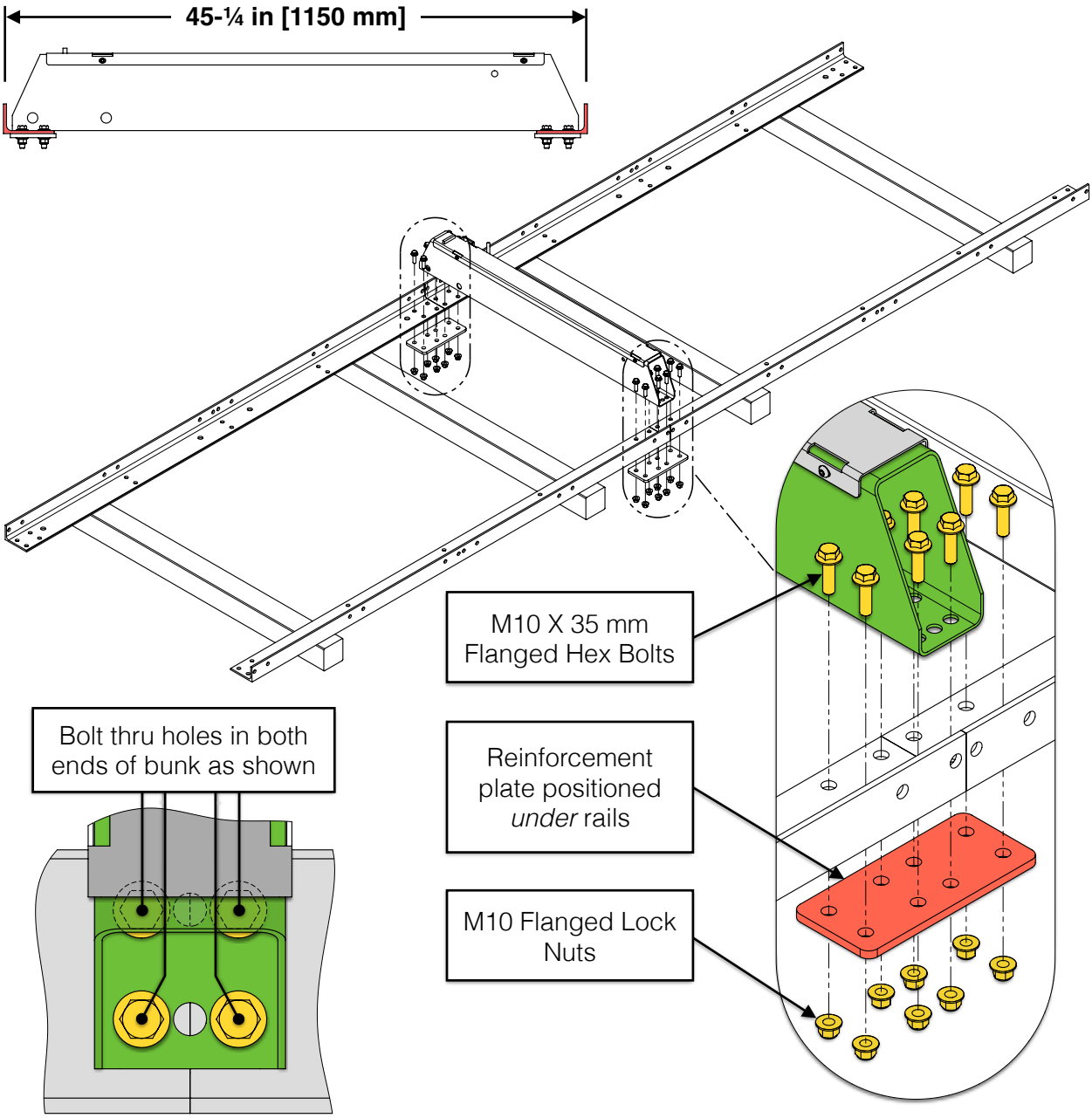
16x	M10 X 35 mm Flanged Hex Bolt		4x	Track Rail	
16x	M10 Flanged Lock Nut		2x	Reinforcement Plate	
			1x	Bunk Assembly	

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.



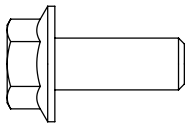
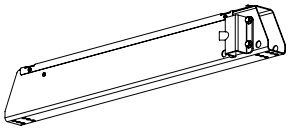
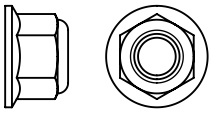
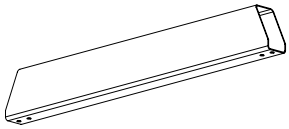
Next, assemble the bunk assembly over the rail joints with a reinforcement plate *under* the rails on both the left and right sides. Use eight (8) M10 X 35 mm flanged hex bolts and M10 flanged lock nuts per side.

Keep the outer faces of the rails 45-¼ in [1150 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.

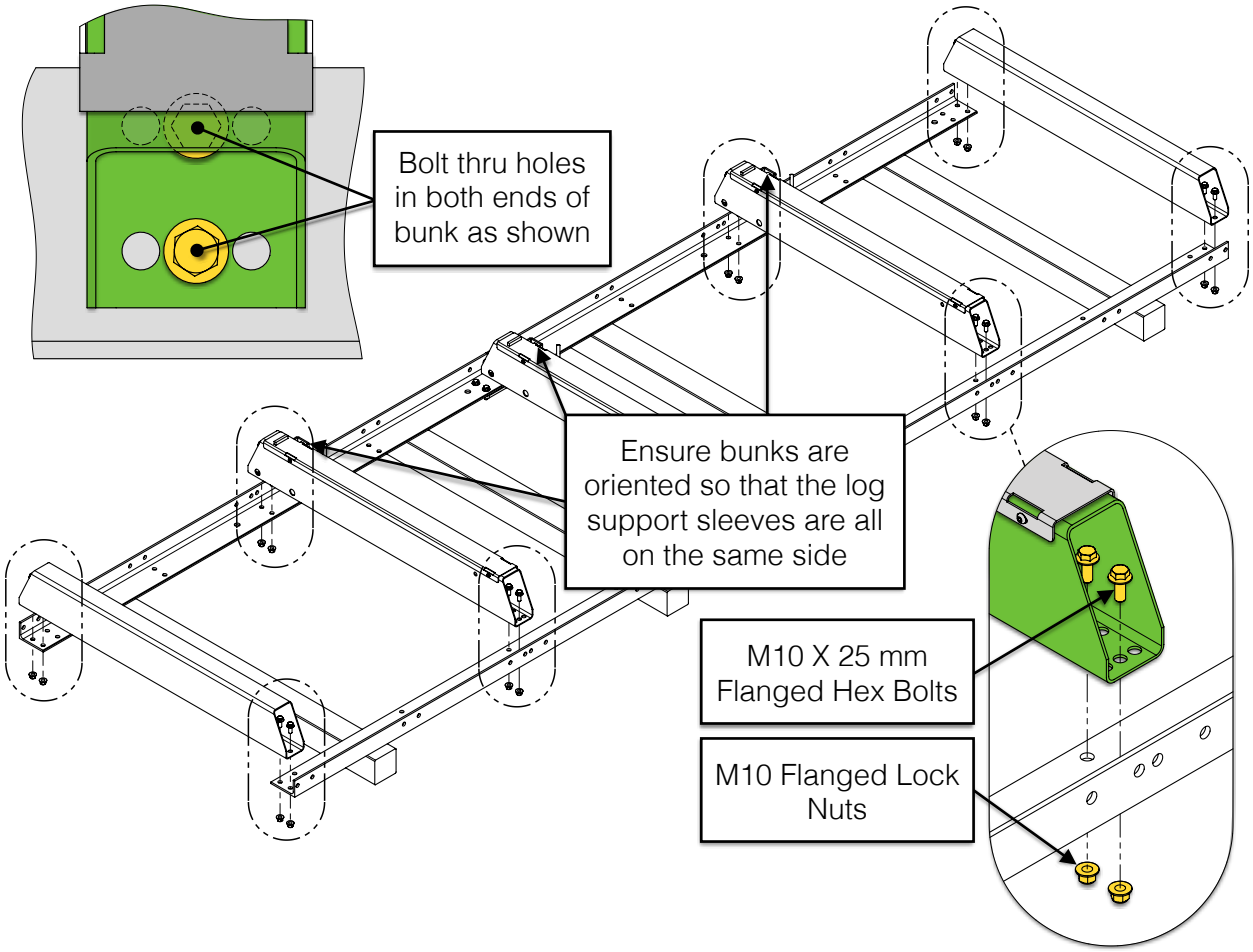


MID & END BUNKS

Assemble the remaining bunk assemblies 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	Bunk Assembly	
16x	M10 Flanged Lock Nut		2x	End Bunk	

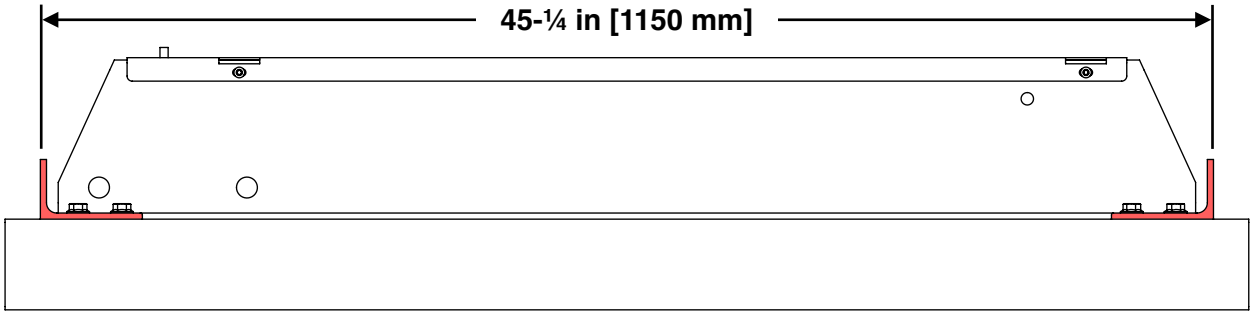
Use sixteen (16) M10 X 25 mm flanged hex bolts and M10 flanged lock nuts (4 per bunk) at all end & mid bunk locations. Snug the hardware in the same manner as the centre bunk.



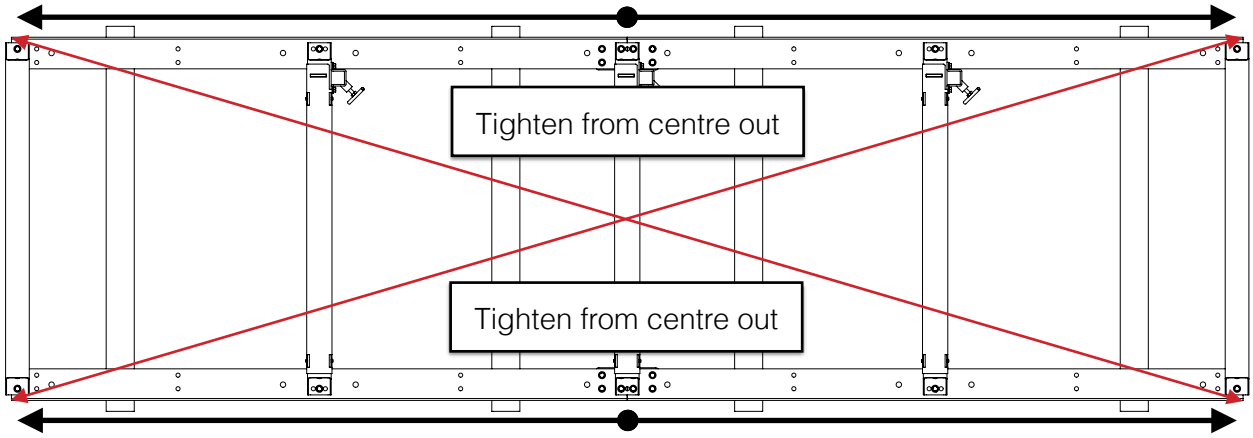
SQUARING THE TRACK AND SETTING THE WIDTH

The assembled track measures 45-¼ in [1150 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.



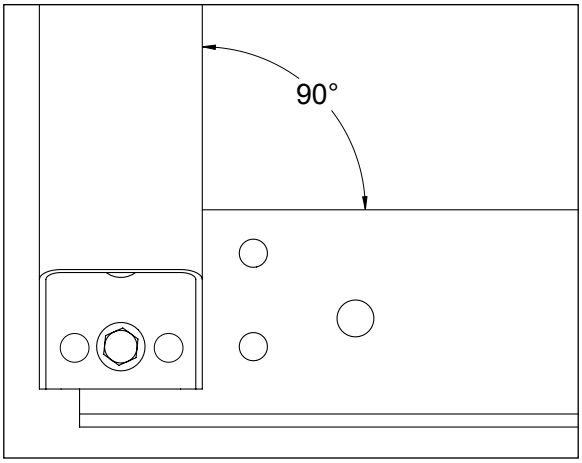
When the width is uniform along the full track length, check it for square by measuring diagonally from rail tip-to-rail tip as shown with the **red arrows** below.



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.

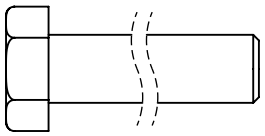
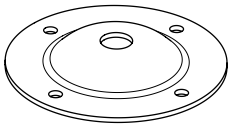
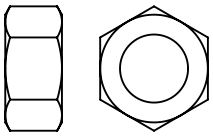
Double-check the track width and squareness after tightening. Readjust if necessary.



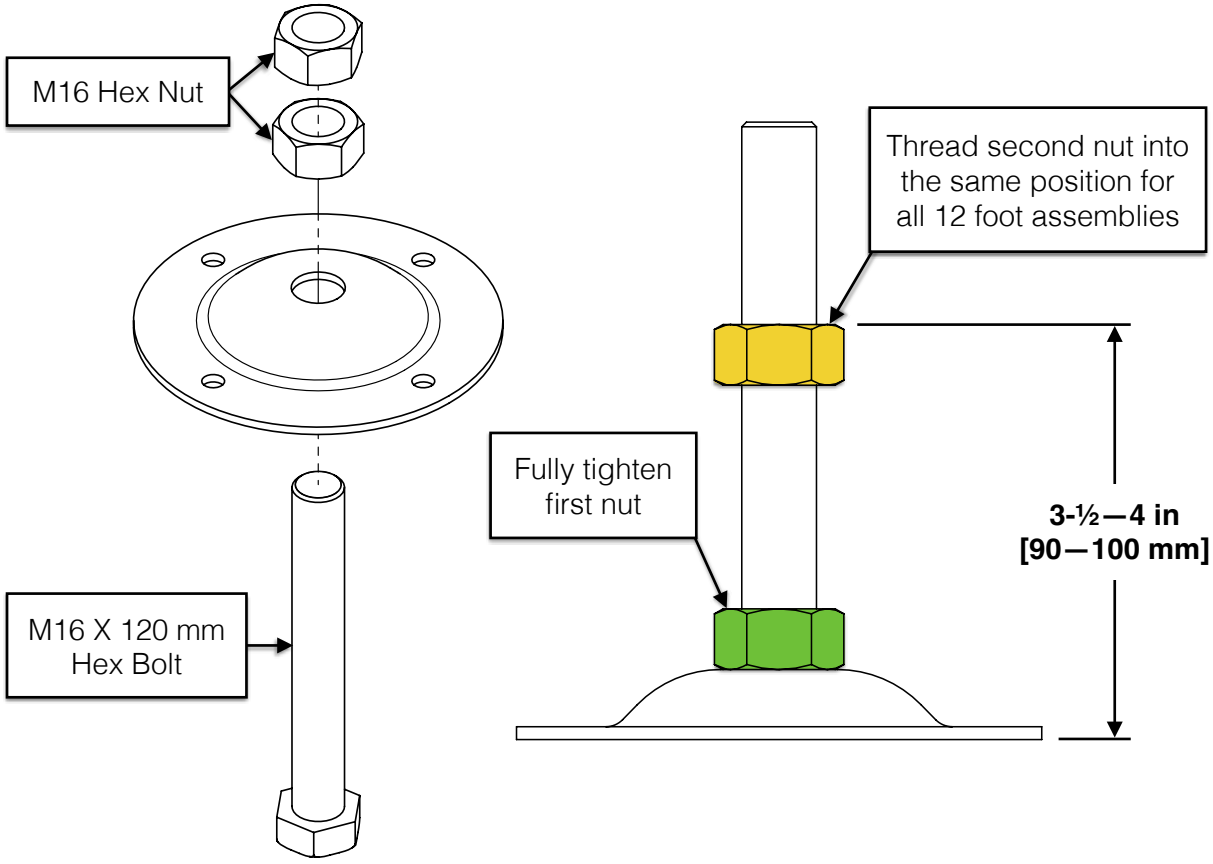
END BUNKS SQUARE TO RAILS

LEVELLING FEET

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

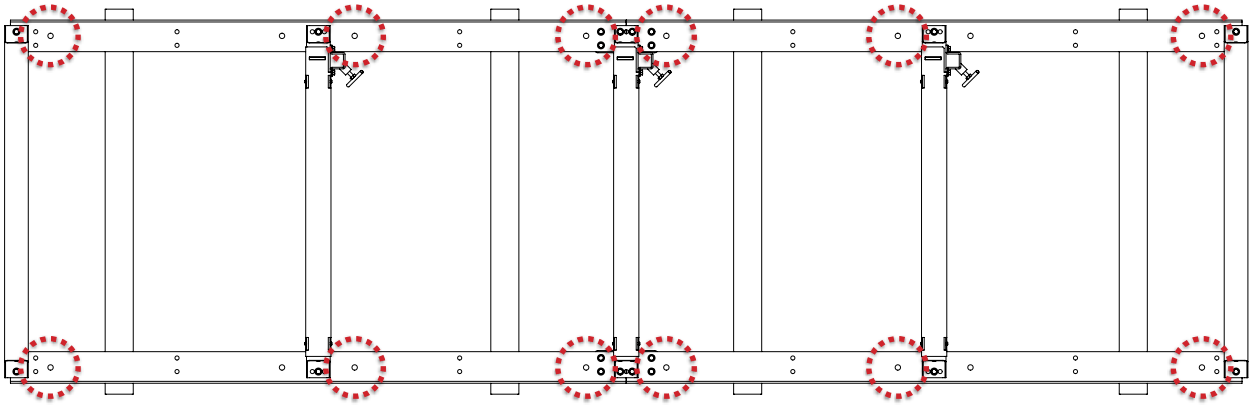
12x	M16 X 120 mm Hex Bolt		12x	Levelling Foot Base	
36x	M16 Hex Nut				

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.

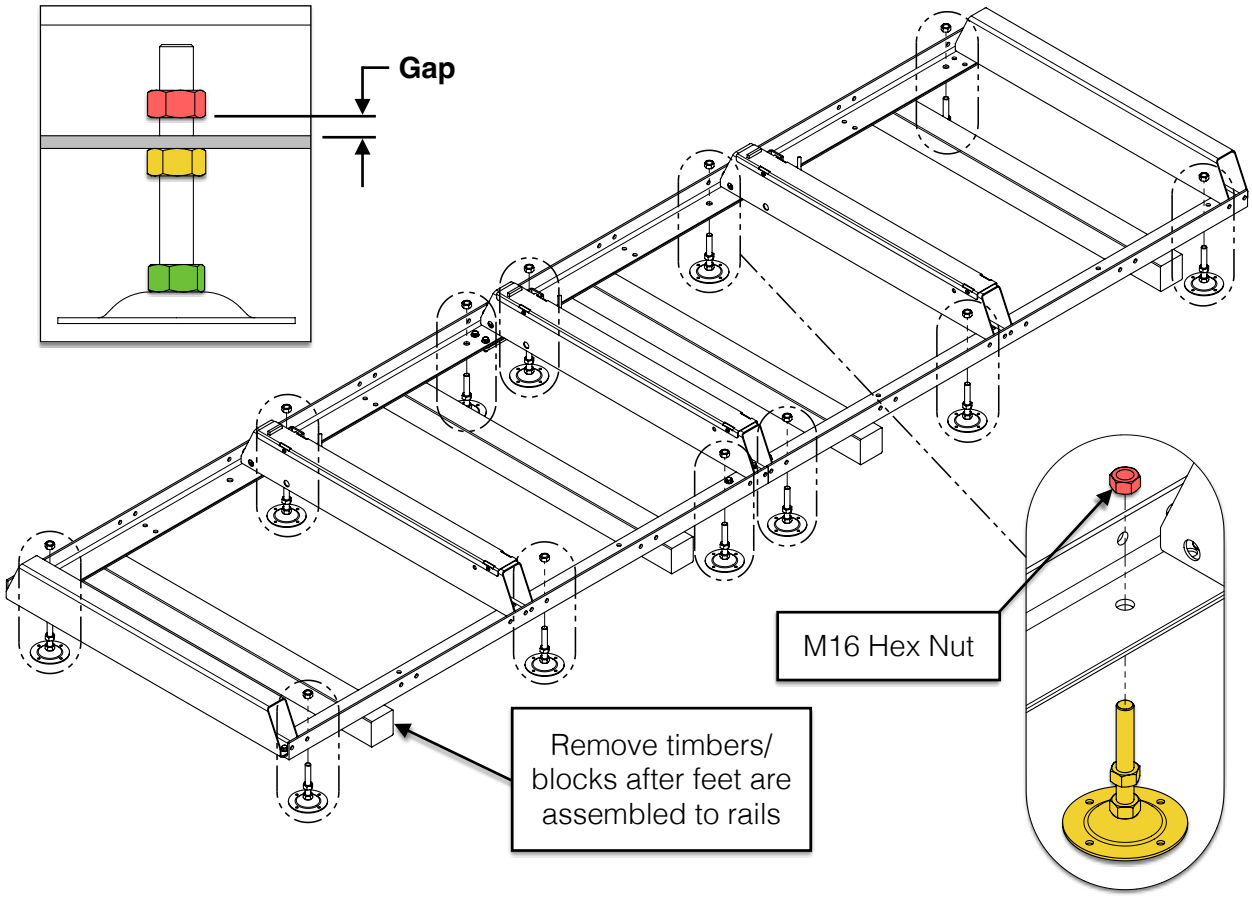


Fully tighten the bottom nut and position the second nut roughly 3-½—4 in [90—100 mm] from the bottom of the foot base. Ensure the position of the second nut is the same for all twelve (12) levelling foot assemblies.

Attach the twelve (12) levelling feet assemblies to the rails at the locations shown below.



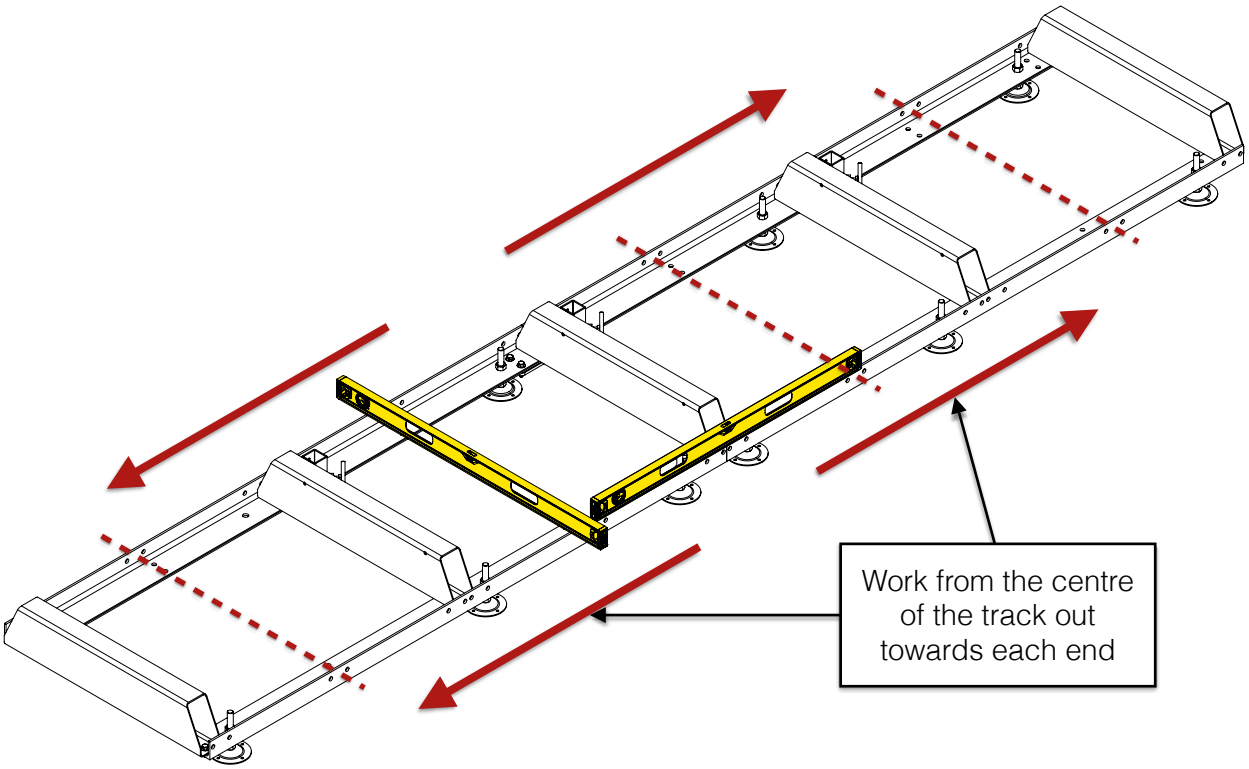
Assemble the levelling feet up through the bottom of the rails and thread an M16 hex nut onto each of the M16 X 120 mm hex bolts. Do not tighten the nut. Leave it loose enough so a noticeable gap exists between the nut and the rail to allow for track levelling in a later step.



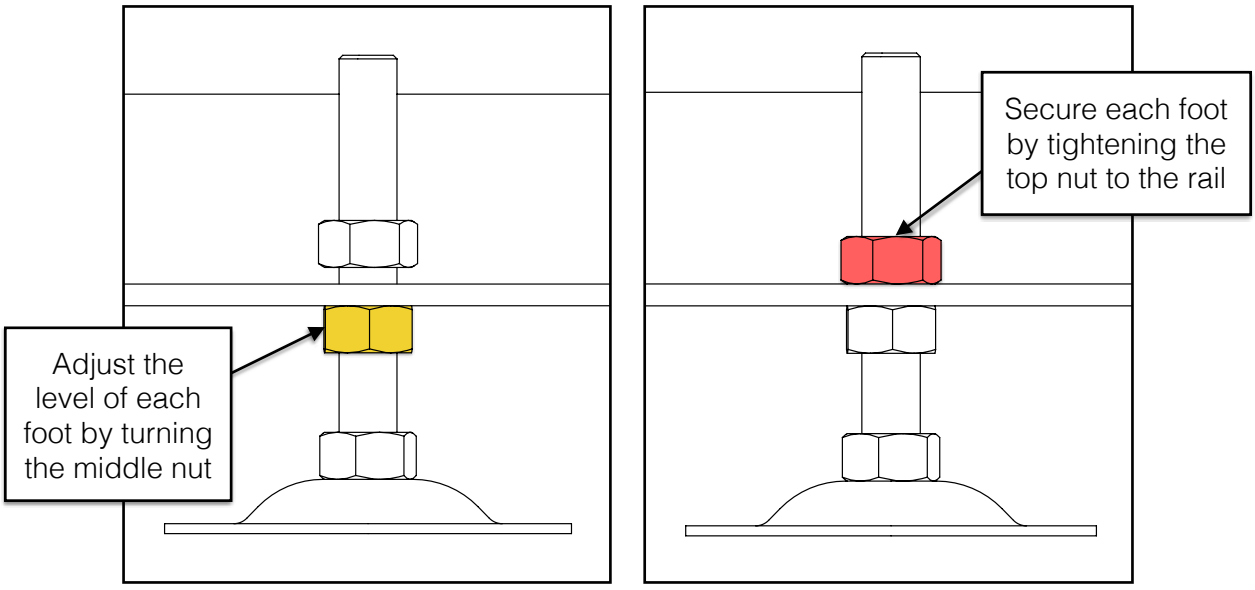
With the feet loosely assembled to the rails, remove the timber/block supports so the full weight of the track is resting on middle nuts of the levelling feet.

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.

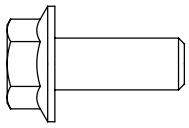
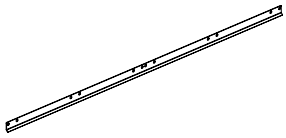
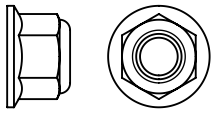


Turn the middle nut on each foot to fine-tune the level. Once level, secure each foot to the rail by tightening the M16 top nut.

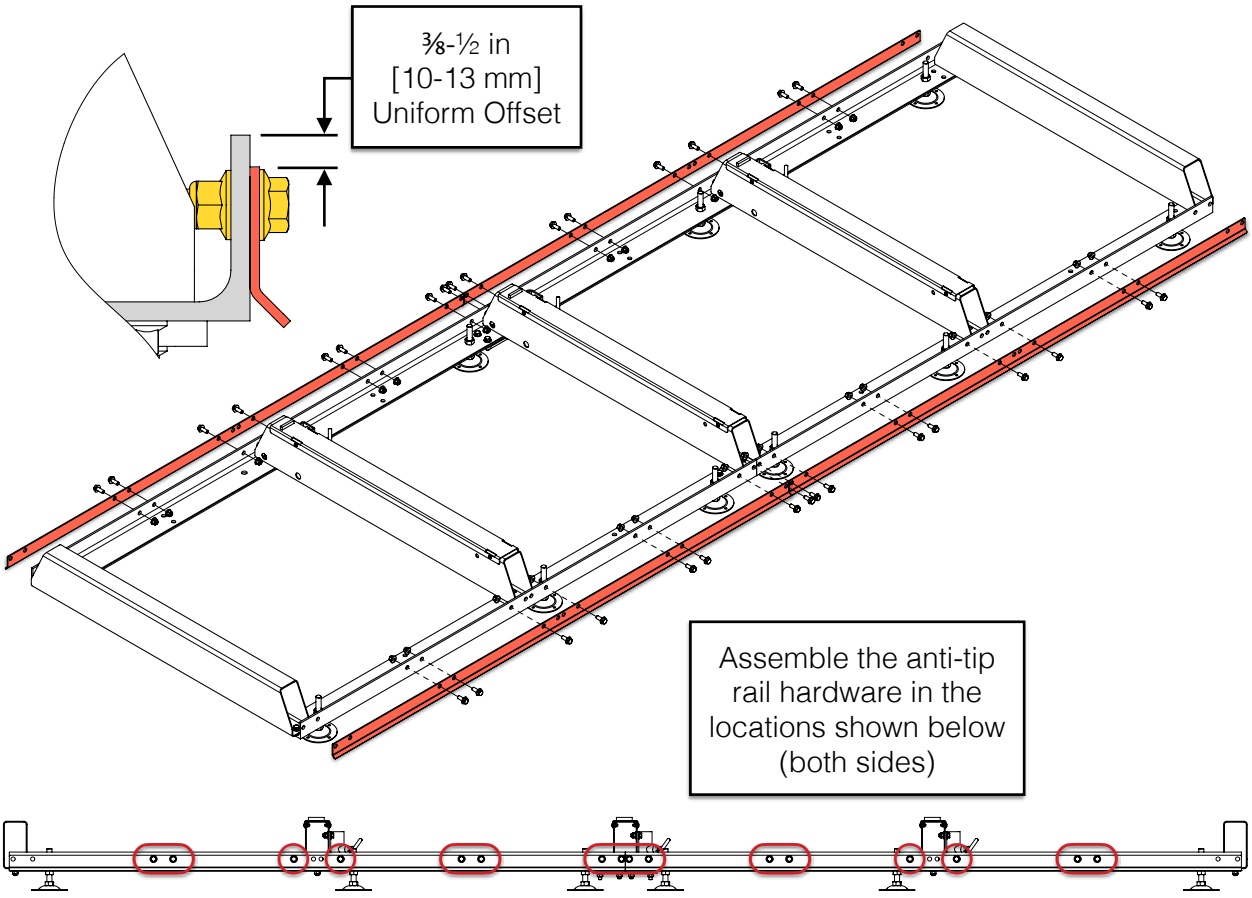


ANTI-TIP RAILS

Assemble the anti-tip rails to the *outside* faces of the track rails using the components and hardware listed in the table below.

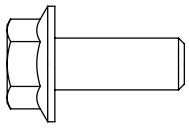
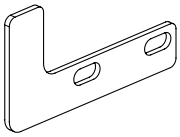
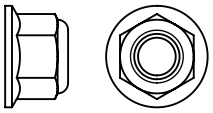
32x	M10 X 25 mm Flanged Hex Bolt		4x	Anti-Tip Rail	
32x	M10 Flanged Lock Nut				

Use eight (8) M10 X 25 mm flanged hex bolts and M10 flanged lock nuts to assemble each anti-tip rail to the *outside* of the track rails. Only install the hardware in the locations specified.

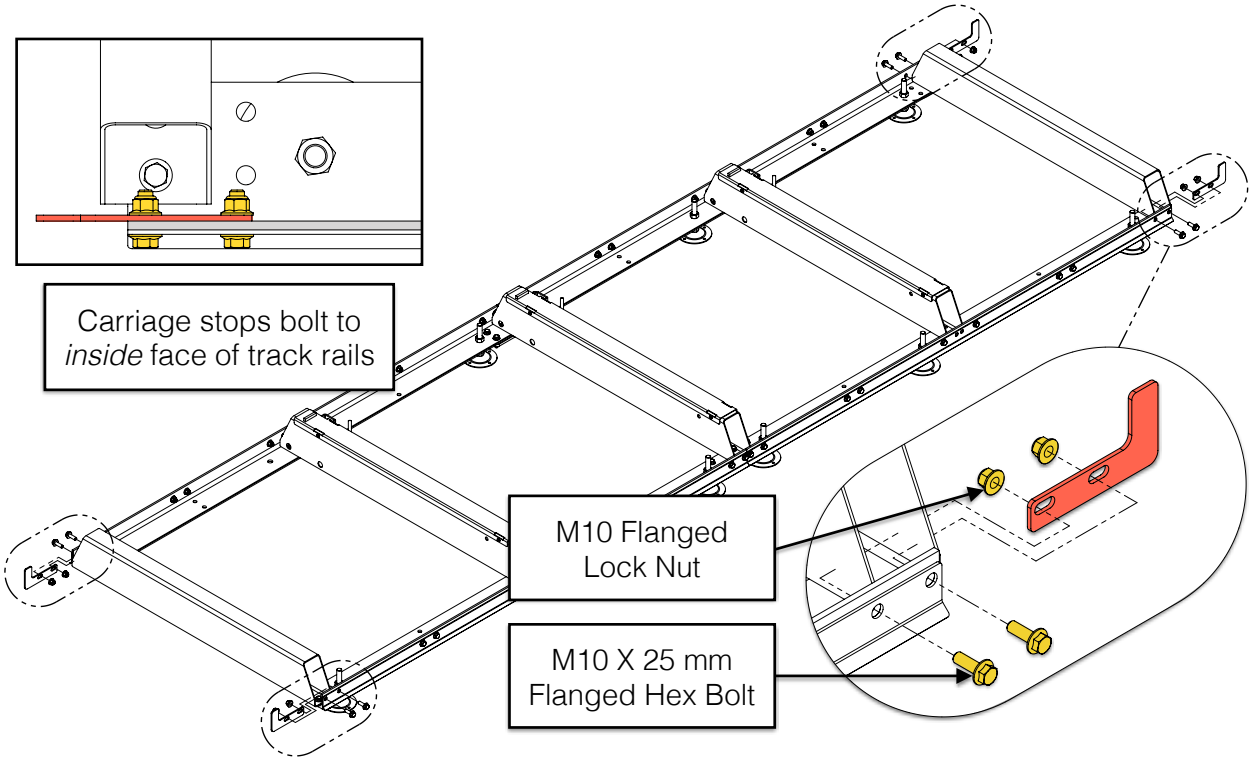


CARRIAGE STOPS

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

8x	M10 X 30 mm Flanged Hex Bolt		4x	Carriage Stop	
8x	M10 Flanged Lock Nut				

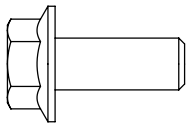
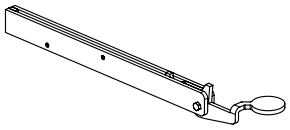
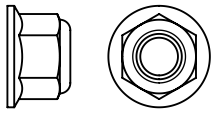
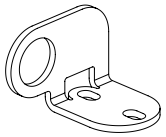
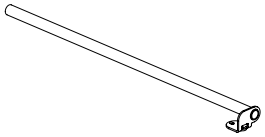
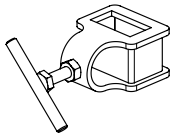
Use two (2) M10 X 30 mm flanged hex bolts and M10 flanged lock nuts to assemble each carriage stop to the *inside* of the track rails.



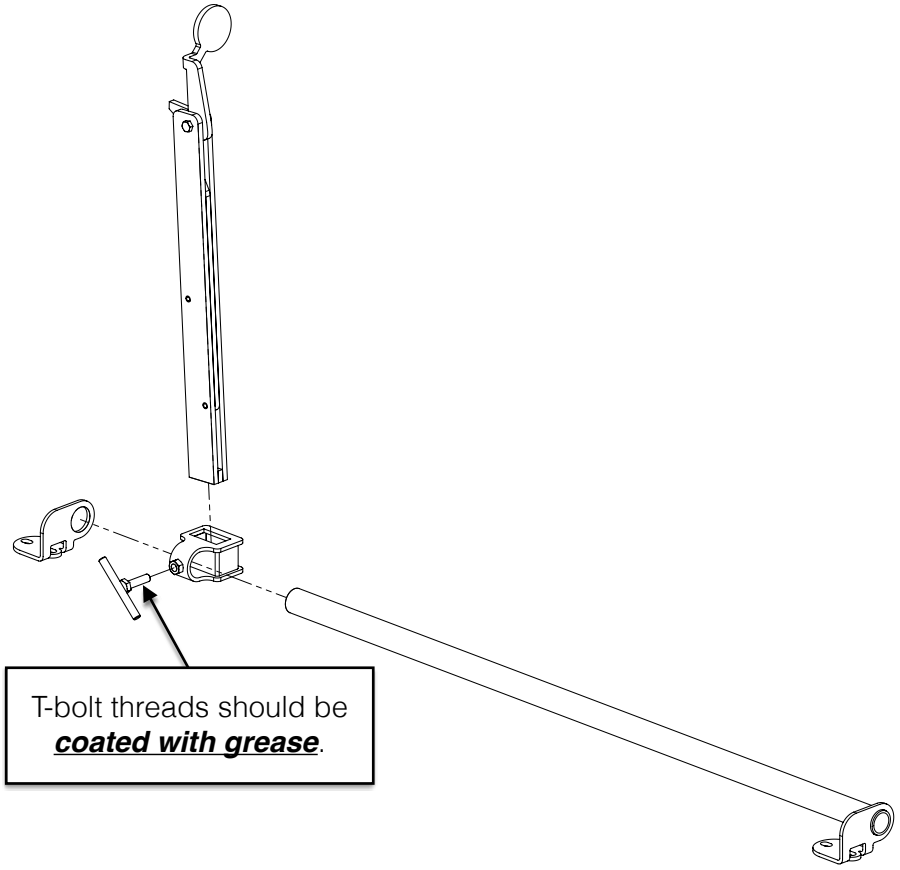
Leave the carriage stops off one end if the sawmill head will be manually lifted onto the track. See section *PLACING THE HEAD ON THE TRACK (METHOD 2)*.

LOG CLAMPS

Assemble the log clamps using the components and hardware listed in the table below. The HM136MAX Pro comes with two (2) log clamp assemblies.

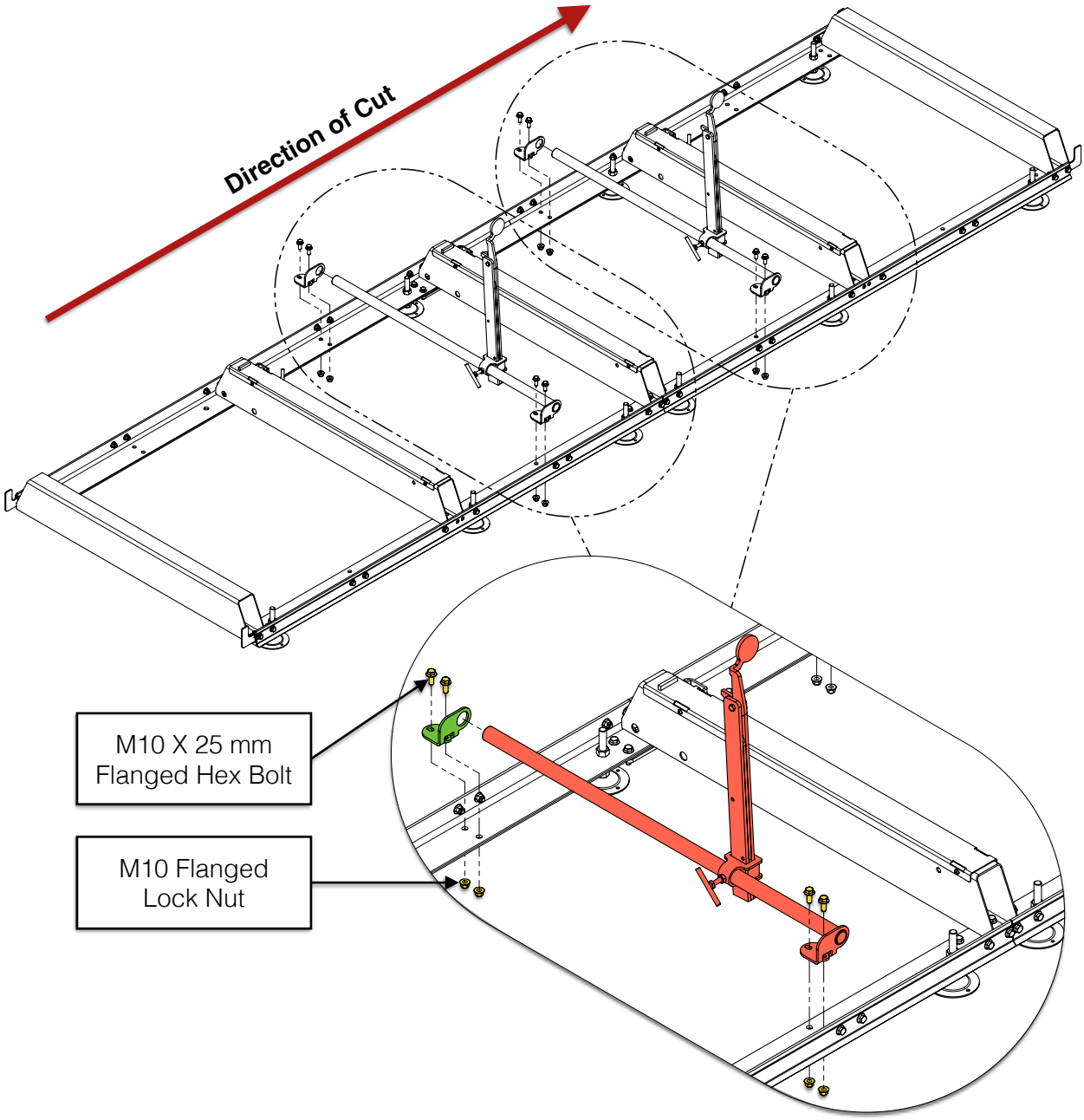
8x	M10 X 25 mm Flanged Hex Bolt		2x	Quick-Lock Log Clamp	
8x	M10 Flanged Lock Nut		2x	Log Clamp Shaft Bracket	
2x	Log Clamp Shaft/Bracket Weldment		2x	Log Clamp Receiver w/ T-Bolt	

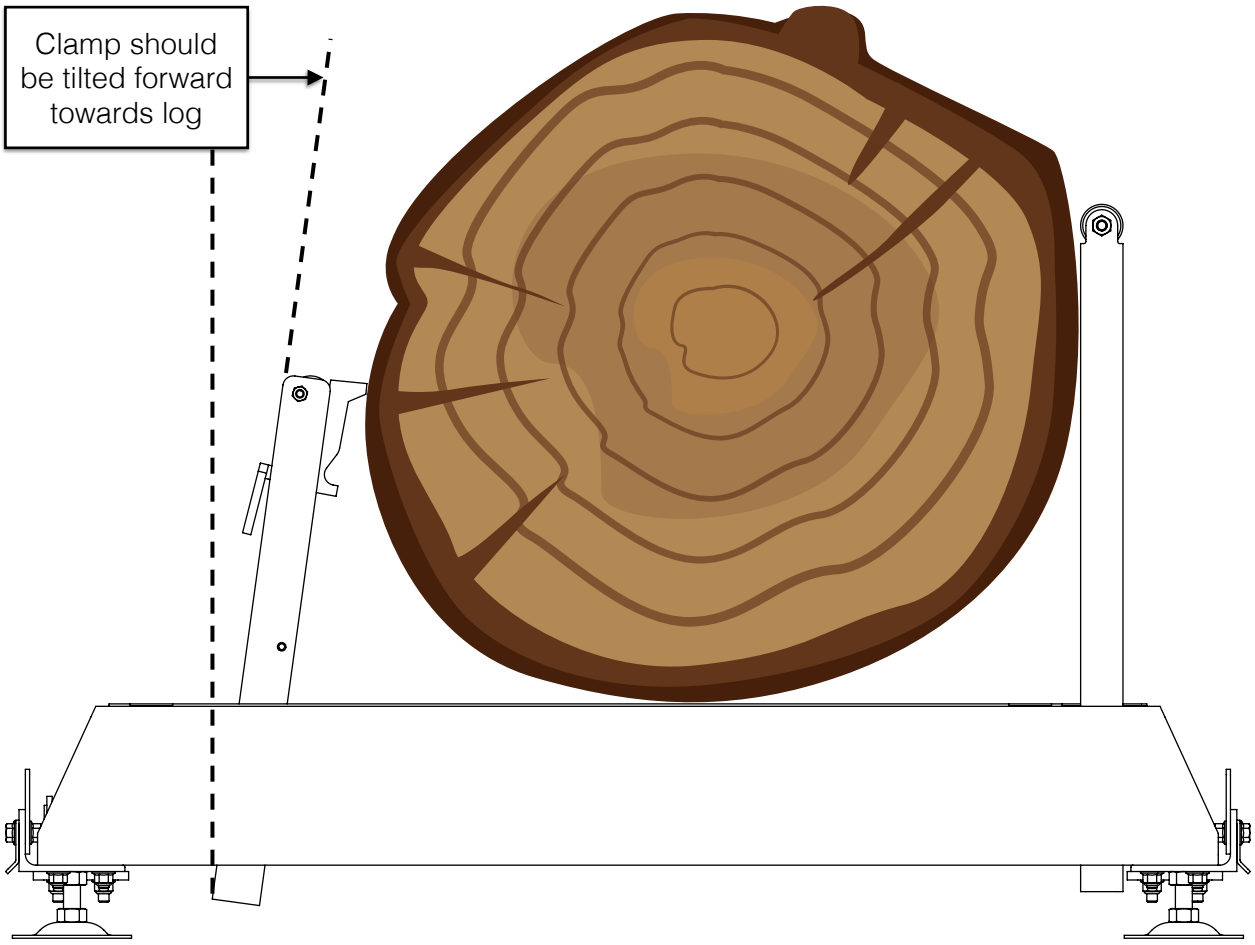
Slide the log clamp receiver with T-bolt over the shaft. Slide the log clamp into the receiver so that it angles away from the shaft weldment. Slide the shaft bracket over the end of the shaft.



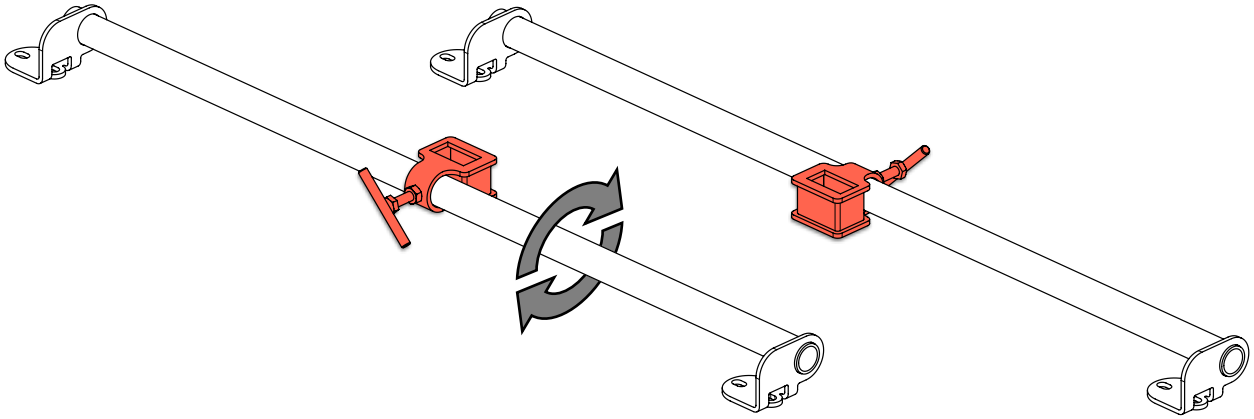
Attach each log clamp assembly to the rails as shown below using four (4) M10 X 25 mm flanged hex bolts and M10 flanged lock nuts.

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.



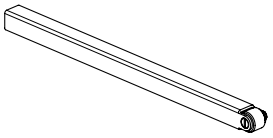
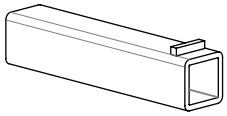


Ensure the log clamp tilts *towards* the log when clamping. If it tilts *away* from the log, remove the log clamp from the receiver, loosen the T-bolt, reverse the receiver on the shaft by rotating it 180°, and retighten the T-bolt. Insert the log clamp back into the receiver.

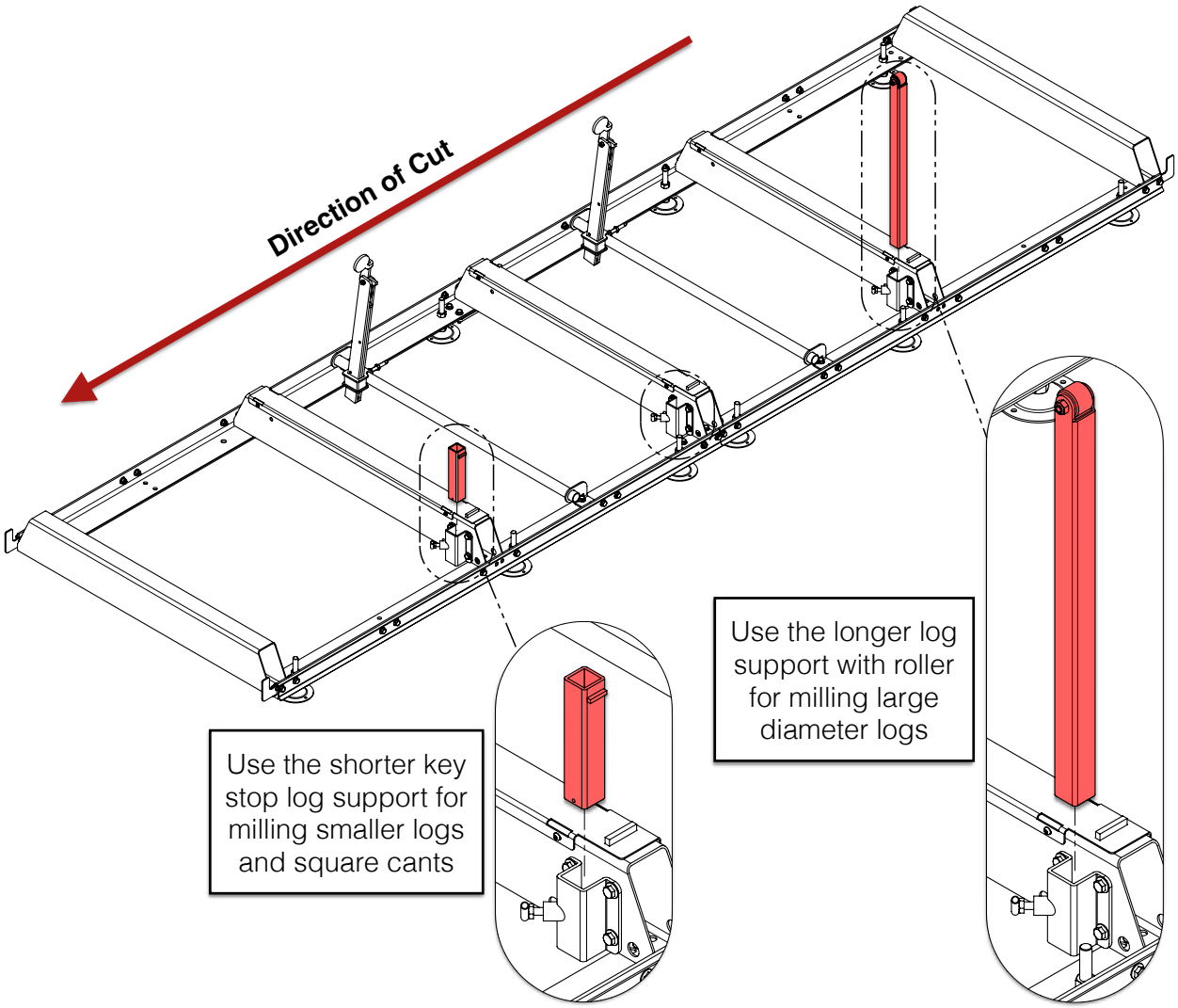


LOG SUPPORTS

Assemble the log supports into the sleeves bolted to the log bunks using the components listed in the table below.

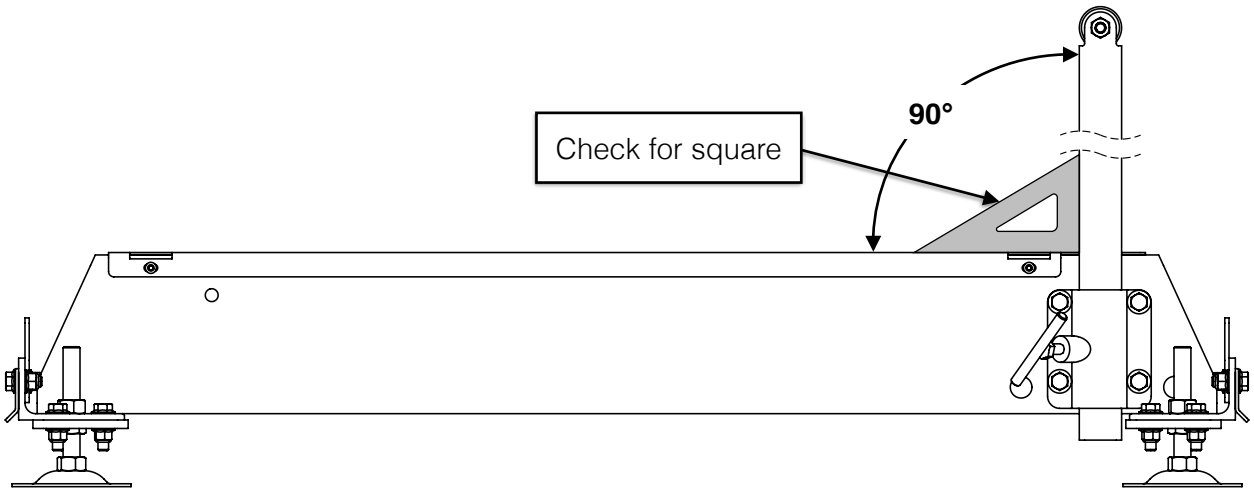
2x	Log Support w/ Roller		2x	Key Stop Log Support	

The log supports can be installed into any bunk with a sleeve by simply sliding them down through the top of the sleeve and securing them with the T-bolt.

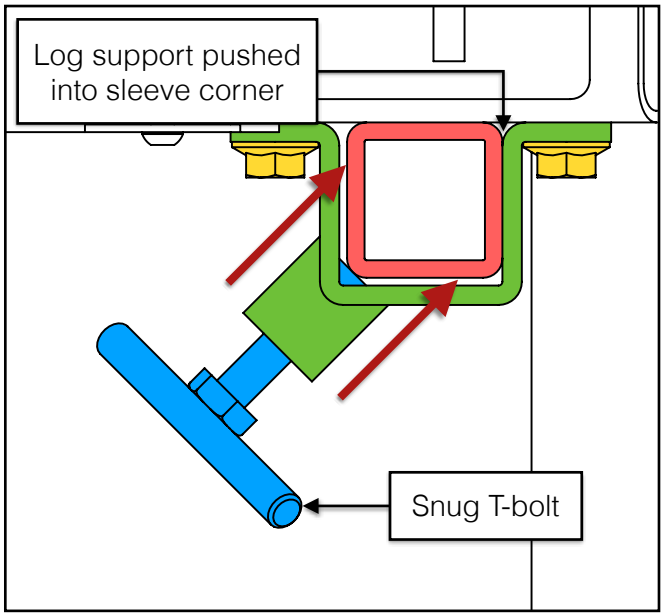


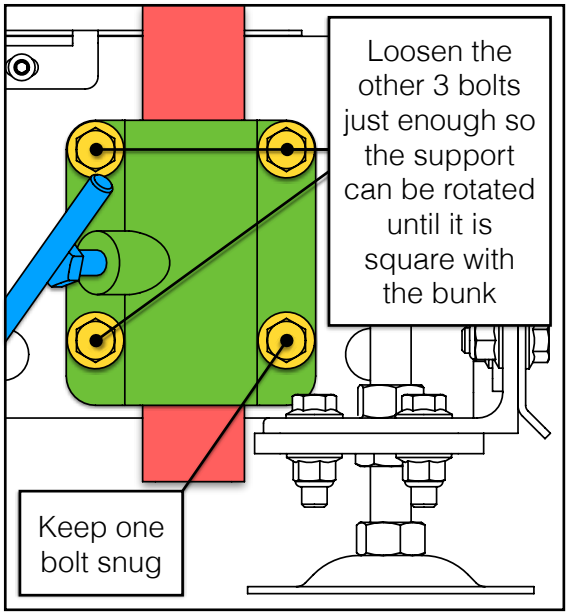
The bunk sleeves can be adjusted to square the log support to the top face of the bunk if necessary. See next page for directions

If the log support is not square (90°) to the top surface of the bunk when the T-bolt is tightened, the post sleeve bracket can be adjusted to square the support.



Snug the T-bolt to push the log support into the corner of the bunk sleeve. Check for squareness. If the angle is not 90°, loosen three (3) of the bolts that secure the log support sleeve to the bunk. Gently tap the log support until it rotates enough to where it is square with the bunk.



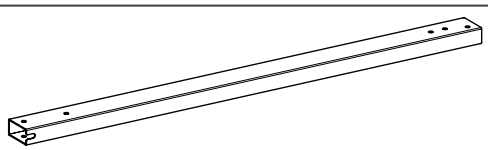


Once the log support is square with the top of the bunk, tighten the four (4) log sleeve bolts. Secure the log support tightly with the T-bolt. Repeat the process for the centre and mid bunks as necessary.

3. SAWMILL HEAD ASSEMBLY

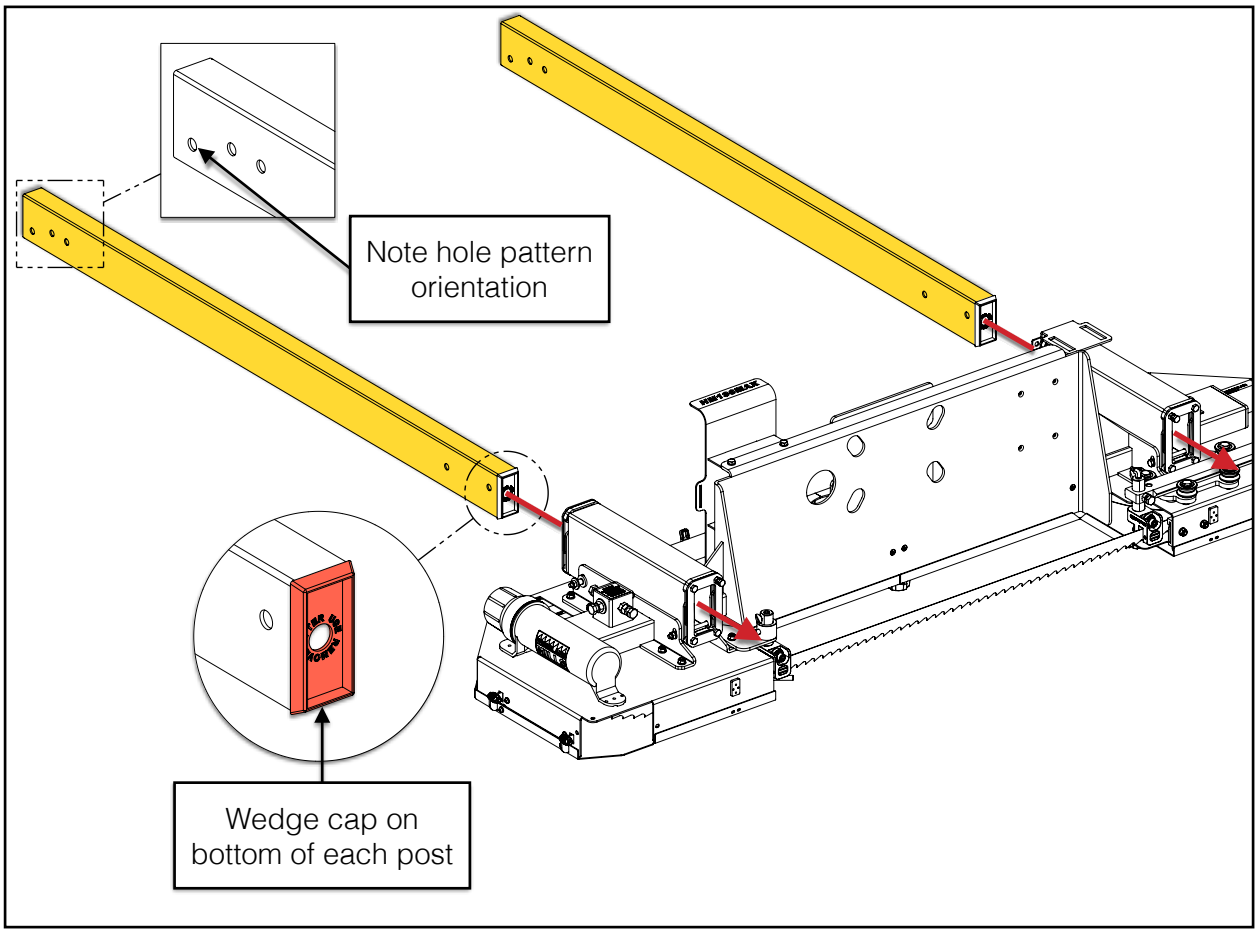
The sawmill head assembly is built in multiple steps. Follow the sub-sections below using the parts table at the top of each sub-section to gather the necessary components for each step.

FRONT POSTS

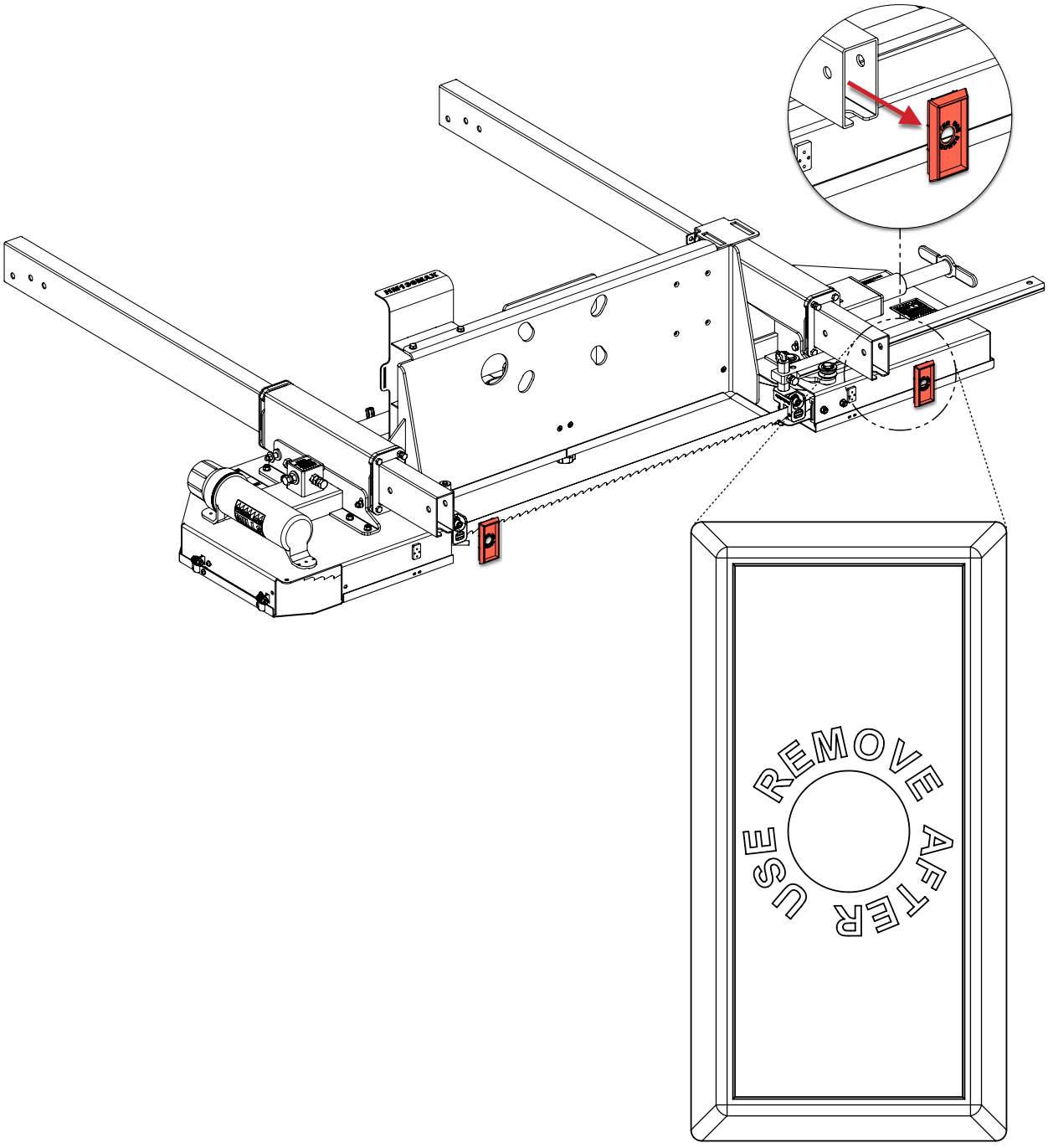
2x	Front Post	

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.

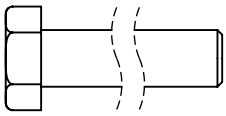
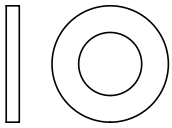
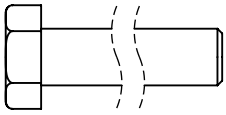
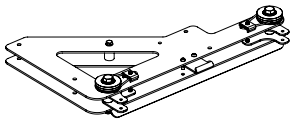
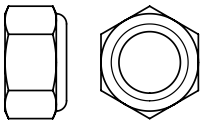
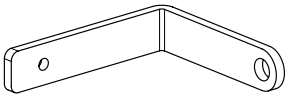


Remove the wedge-shaped caps from the bottom of both posts. They are only required for front post assembly.

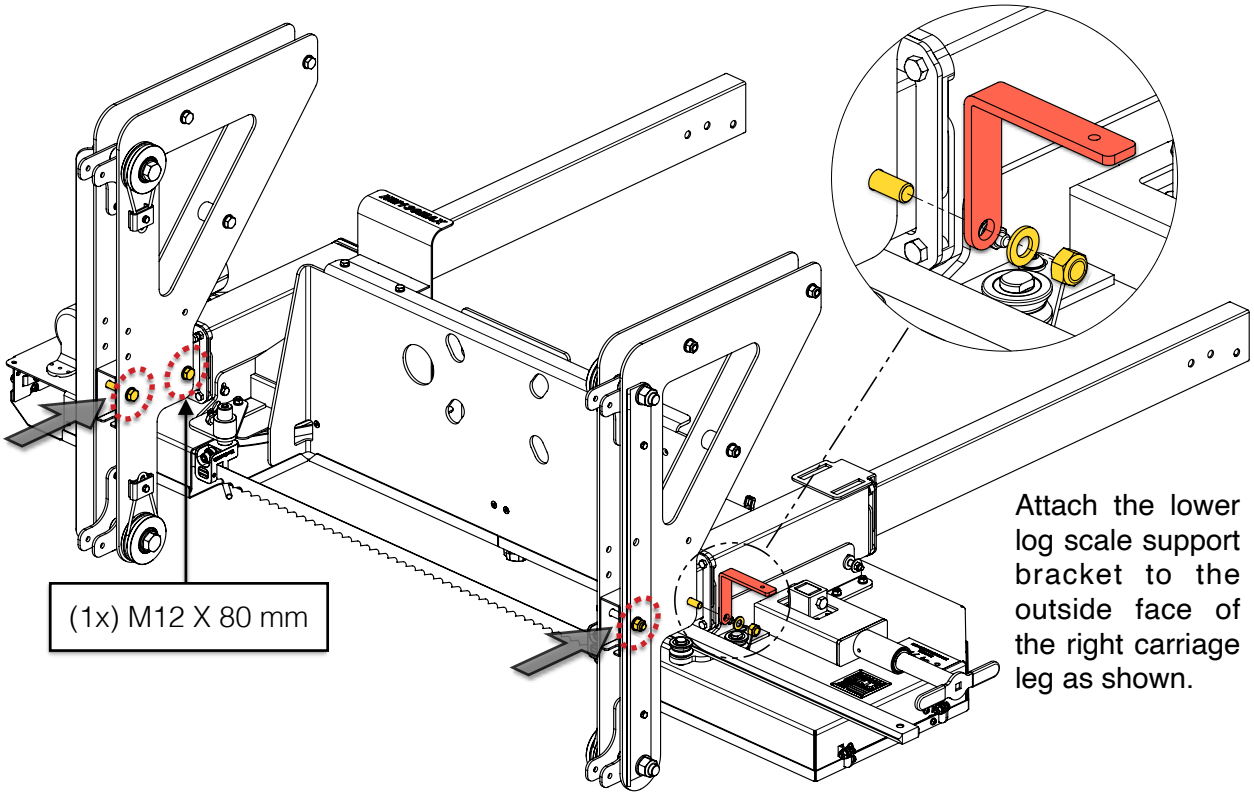


CARRIAGE LEGS

The carriage leg sub-assemblies come loosely assembled. Final tightening of these bolts will be done in a later step.

3x	M12 X 90 mm Hex Bolt		8x	M12 Flat Washer	
1x	M12 X 80 mm Hex Bolt		2x	Carriage Leg Sub-Assembly	
4x	M12 Lock Nut		1x	Lower Log Scale Support Bracket	

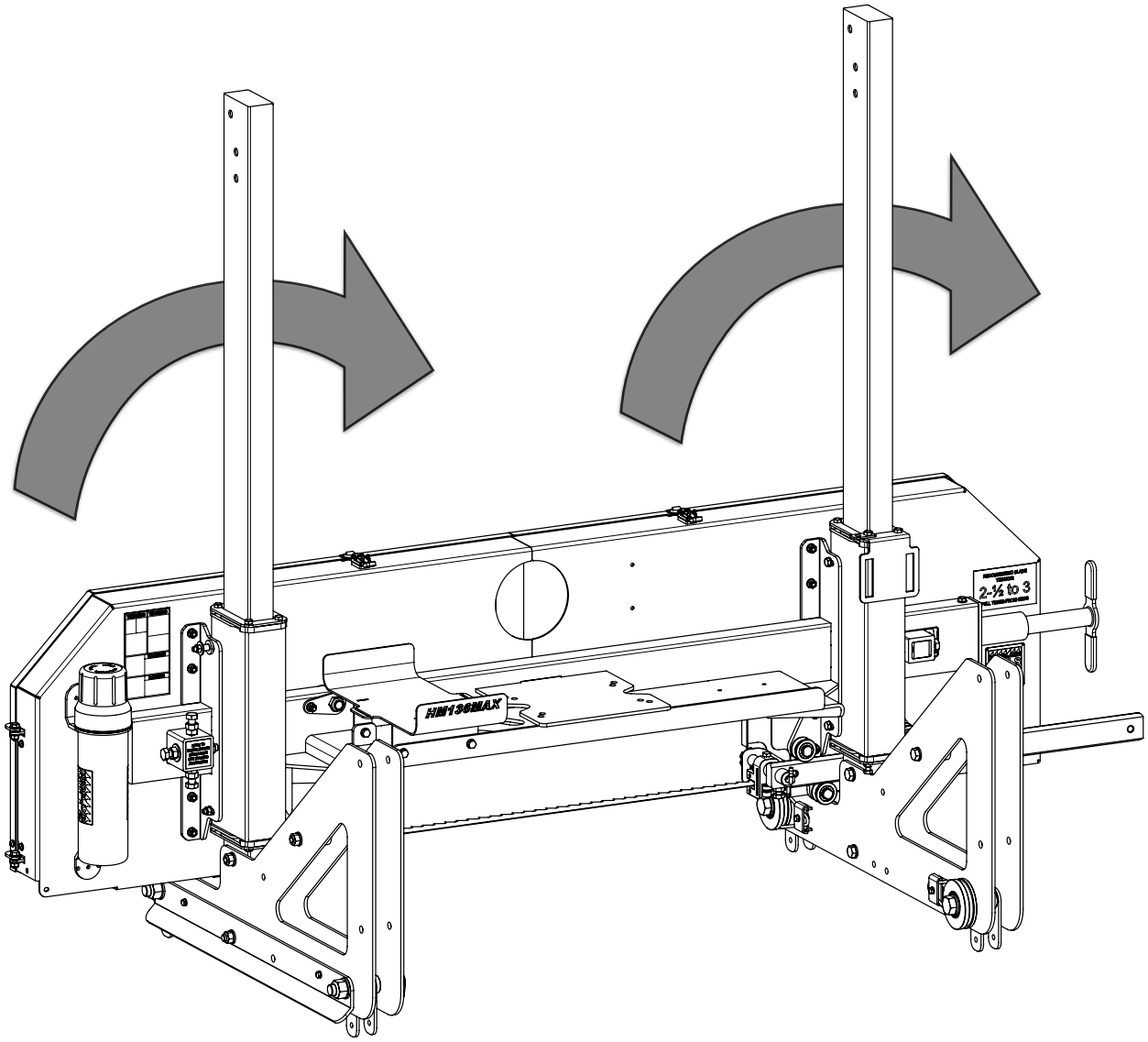
Attach the carriage leg assemblies to the front posts with three (3) M12 X 90 mm bolts, one (1) M12 X 80 mm bolt, four (4) M12 lock nuts, and eight (8) M12 flat washers. Ensure the bolts point outward. Snug these bolts enough so the plates are flush with the posts but do not fully tighten them. Push the posts in until the black side plates touch the post sleeves.



Attach the lower log scale support bracket to the outside face of the right carriage leg as shown.

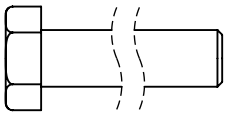
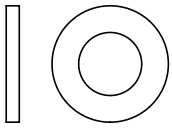
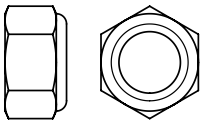
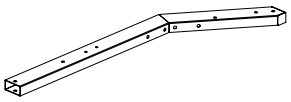
STANDING THE SAWHEAD UPRIGHT

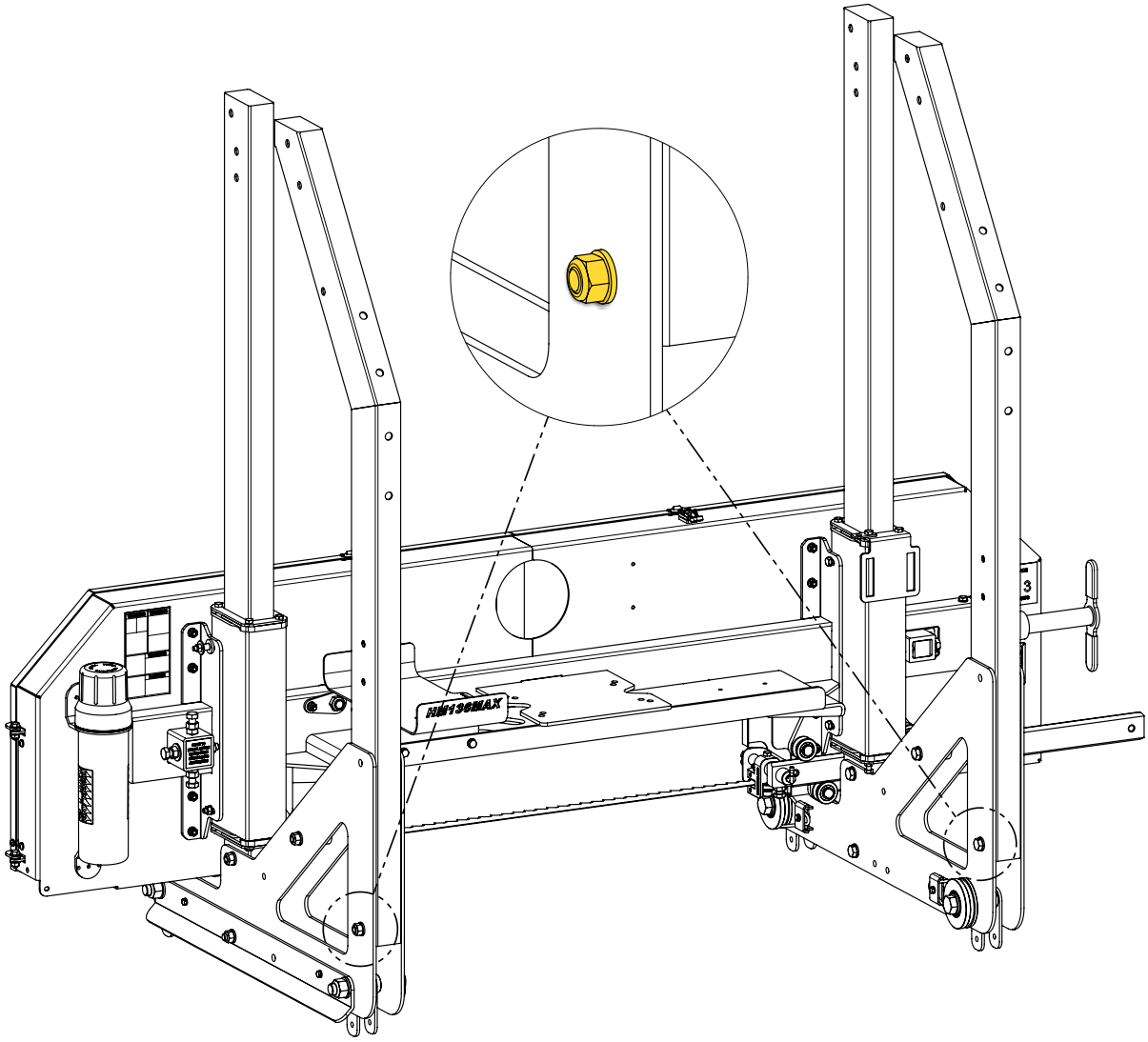
With the help of another person, stand the sawhead upright by rotating it around the rounded profiles at the front of the carriage legs. Do not set the sawhead on the track until instructed to do so later in the assembly process.



REAR POSTS

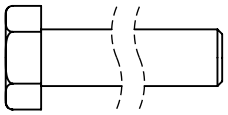
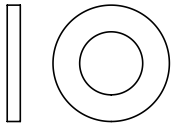
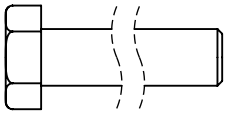
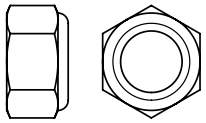
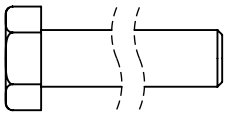
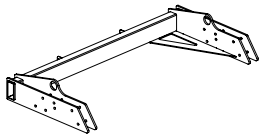
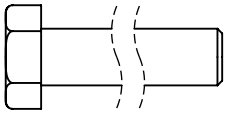
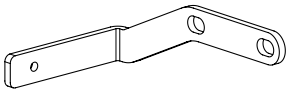
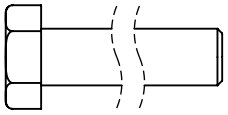
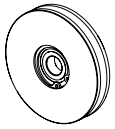
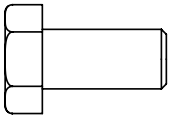
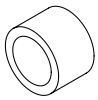
Using the hardware listed below, attach the rear posts between the carriage leg plates using one (1) M12 X 80 mm bolt, lock nut, and two (2) flat washers per post.

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



CROSS BEAM & HEAD STOPS

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

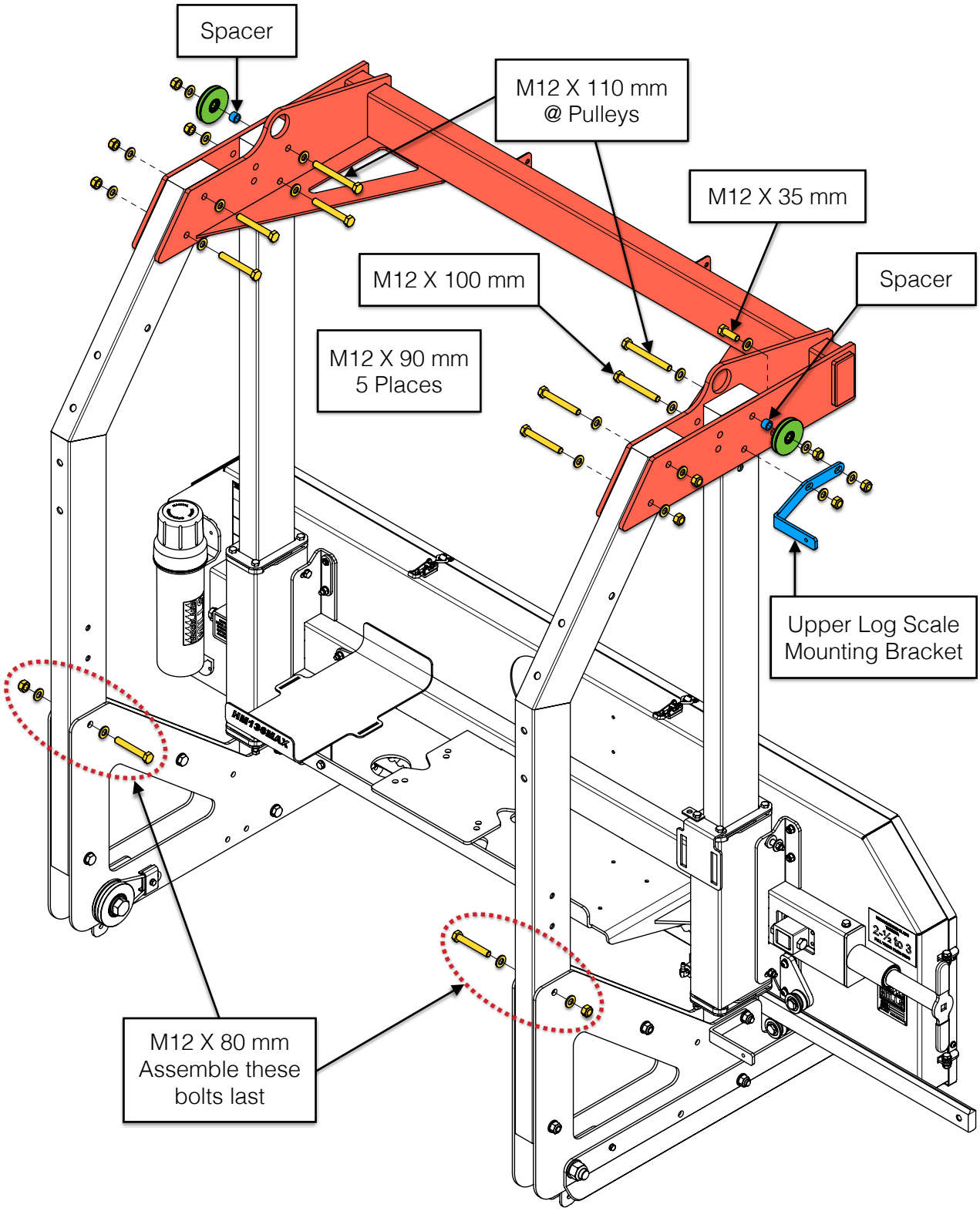
4x	M12 X 110 mm Hex Bolt		30x	M12 Flat Washer	
1x	M12 X 100 mm Hex Bolt		15x	M12 Lock Nut	
5x	M12 X 90 mm Hex Bolt		1x	Cross Beam	
2x	M12 X 80 mm Hex Bolt		1x	Upper Log Scale Mounting Bracket	
2x	M12 X 65 mm Hex Bolt		4x	Pulley	
1x	M12 X 35 mm Hex Bolt		4x	Spacer [12 mm Lg]	

With the help of a second person, slide the cross beam over the carriage posts. Use two (2) M12 X 110 mm bolts (with pulleys and spacers) and five (5) M12 X 90 mm bolts to fasten it in place.

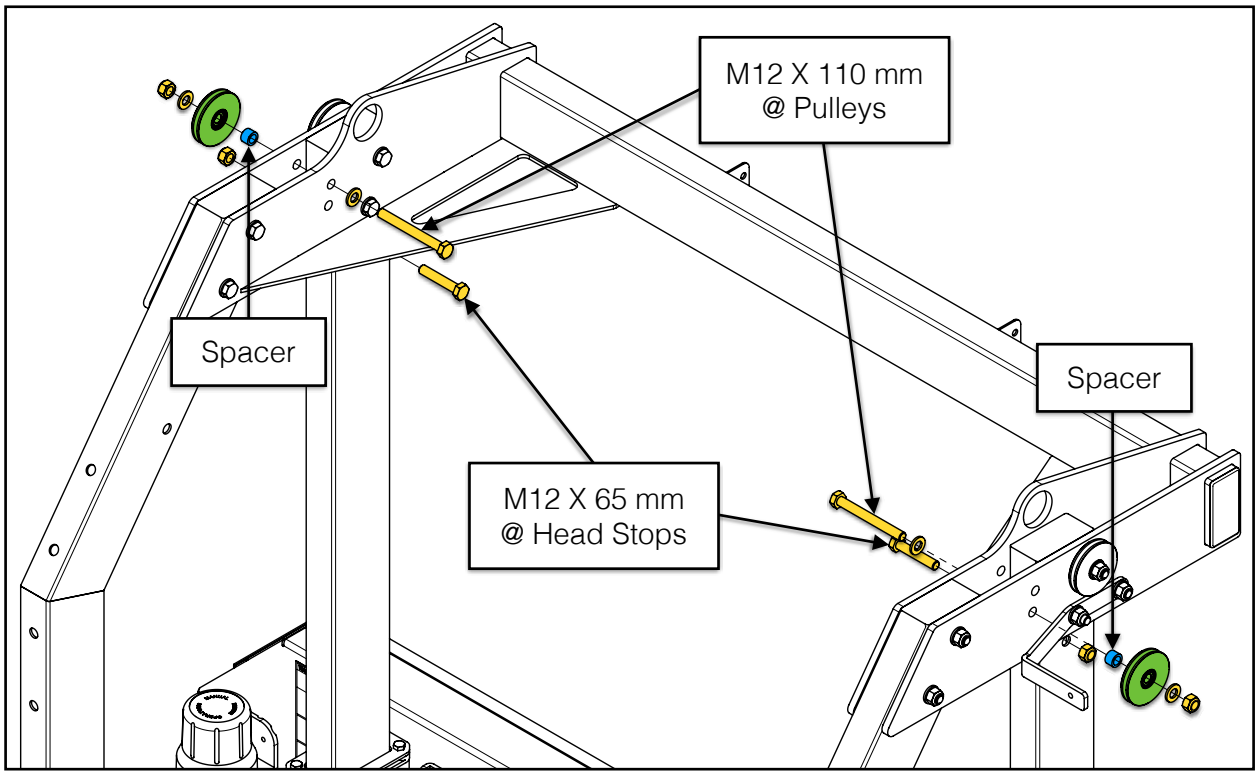
Install the upper log scale mounting bracket on the right-side below the pulley using the M12 X 100 and M12 X 35 mm bolts. Finally, install two (2) M12 X 80 mm bolts at the top of each carriage leg.

Use an M12 flat washer under every bolt head and lock nut.

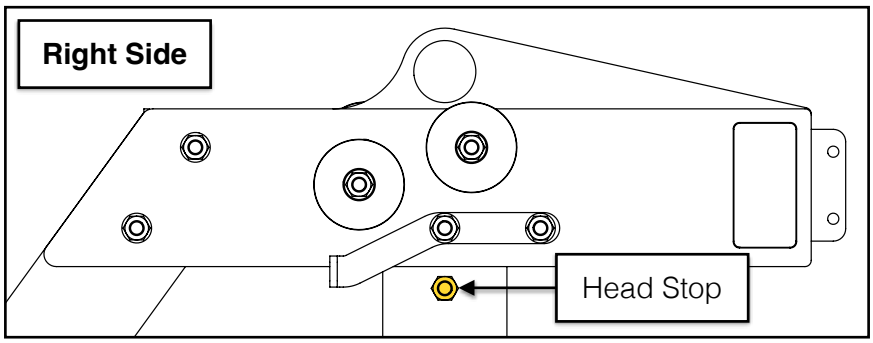
Do *not* fully tighten these bolts at this time.

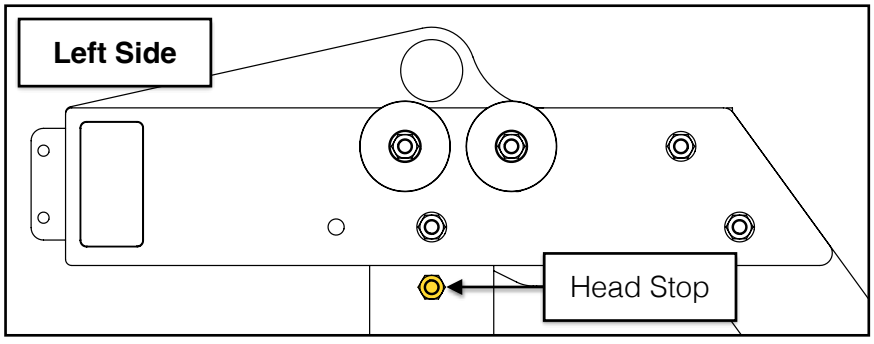

Spacer
M12 X 110 mm
@ Pulleys
M12 X 35 mm
M12 X 100 mm
Spacer
M12 X 90 mm
5 Places
Upper Log Scale
Mounting Bracket
M12 X 80 mm
Assemble these
bolts last

Use two (2) M12 X 110 mm bolts (with spacers) to fasten the second set of pulleys in place and two (2) M12 X 65 mm bolts for the head stops.



Ensure one of the flat faces of the M12 X 65 mm head stop hex bolts is parallel with the bottom edge of the cross beam.



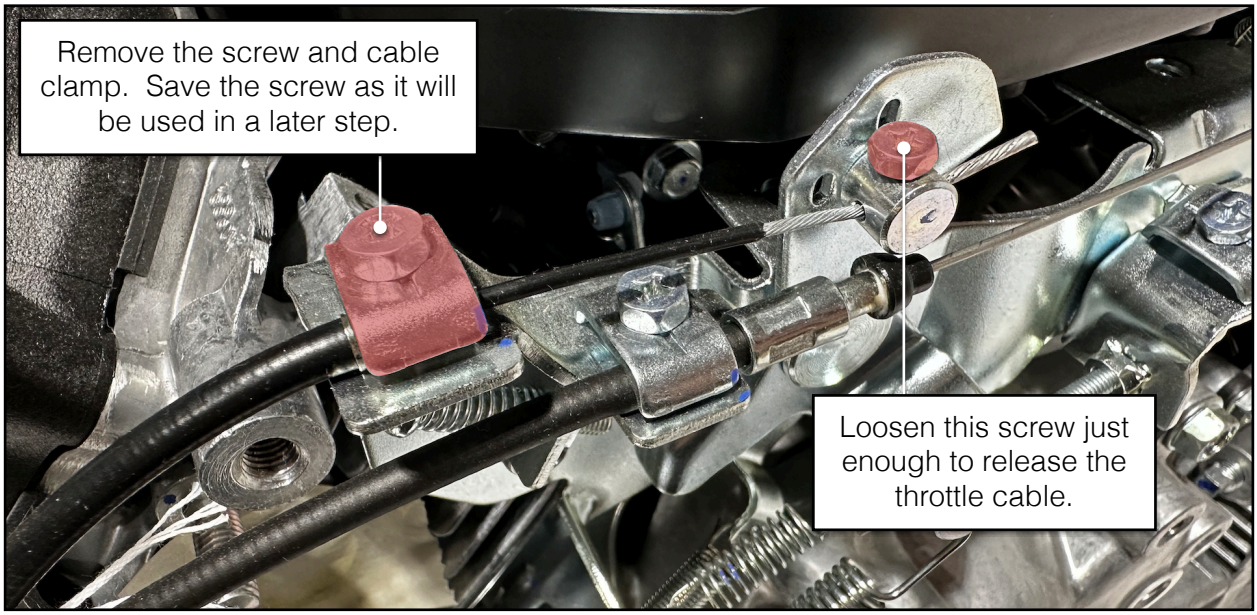


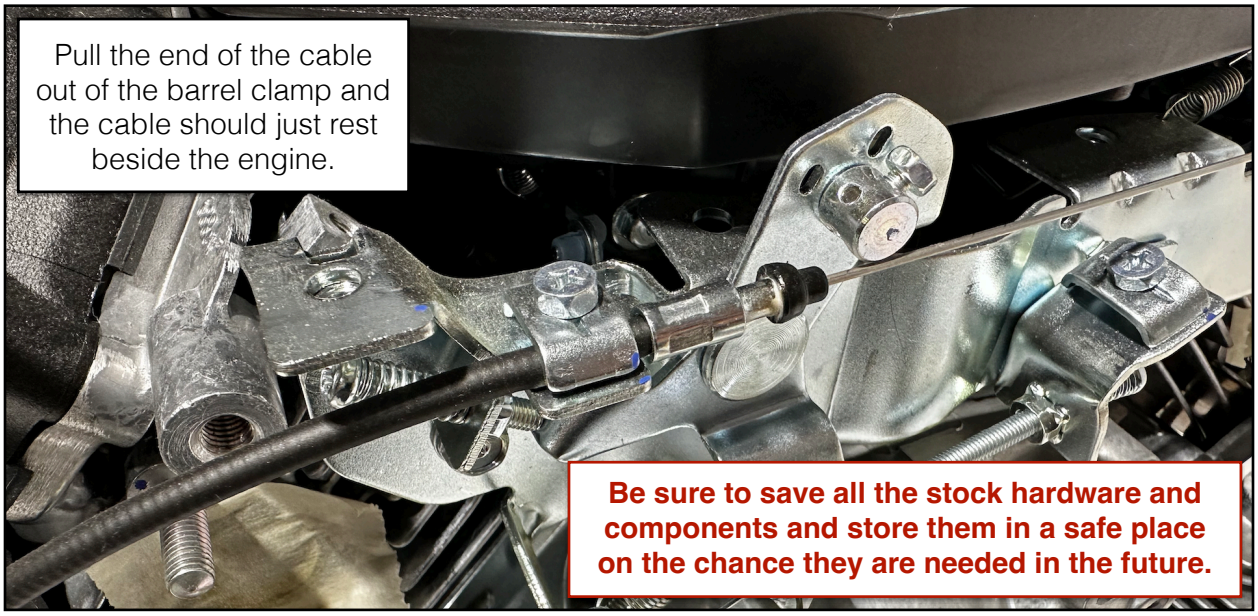
ENGINE

OEM THROTTLE CABLE REMOVAL

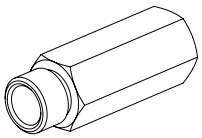
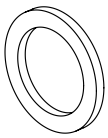
The Honda GX630 engine and high-right muffler ship in separate boxes. Before any components can be assembled to the engine, the stock engine throttle cable needs to be disconnected first.

Remove the uppermost cable clamp and M5 X 16 mm Phillips hex screw from the remote control linkage on the engine. Set the cable clamp aside, but save the M5 screw as it is required for the auto-lube installation in a later step.



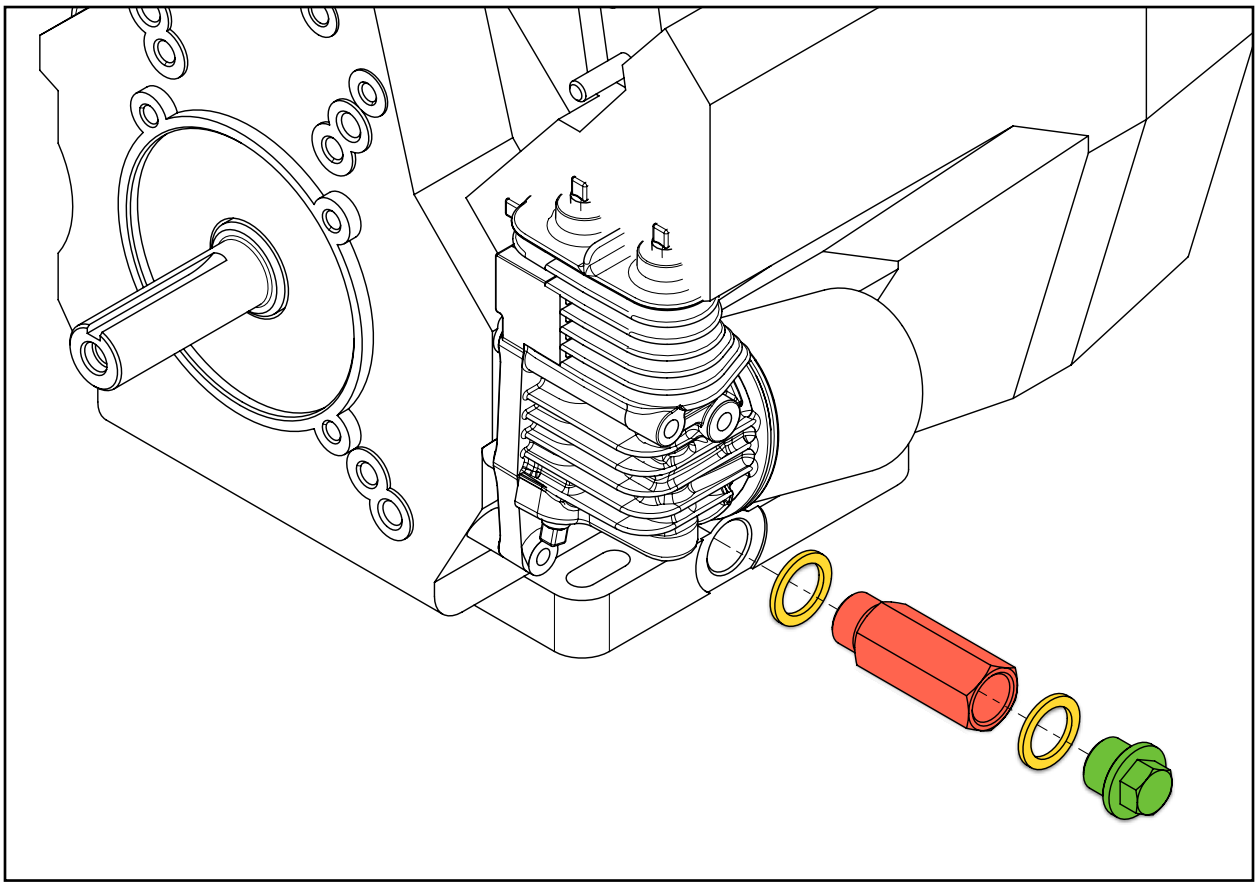


OIL DRAIN EXTENSION

1x	Oil Drain Extension		2x	M20 Sealing Washer	

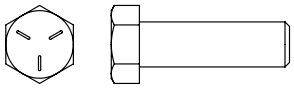
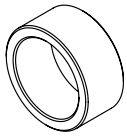
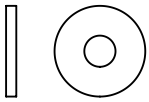
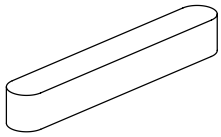
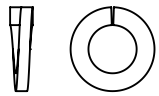
Remove the oil drain plug from the *right*-side of the engine. Note that some residual oil may run from the orifice. Tilt the engine away from the drain plug to prevent it from dripping.

Assemble the Honda oil drain plug to the brass oil drain extension using an M20 sealing washer. Then assemble the plug/extension to the engine block in the location shown.



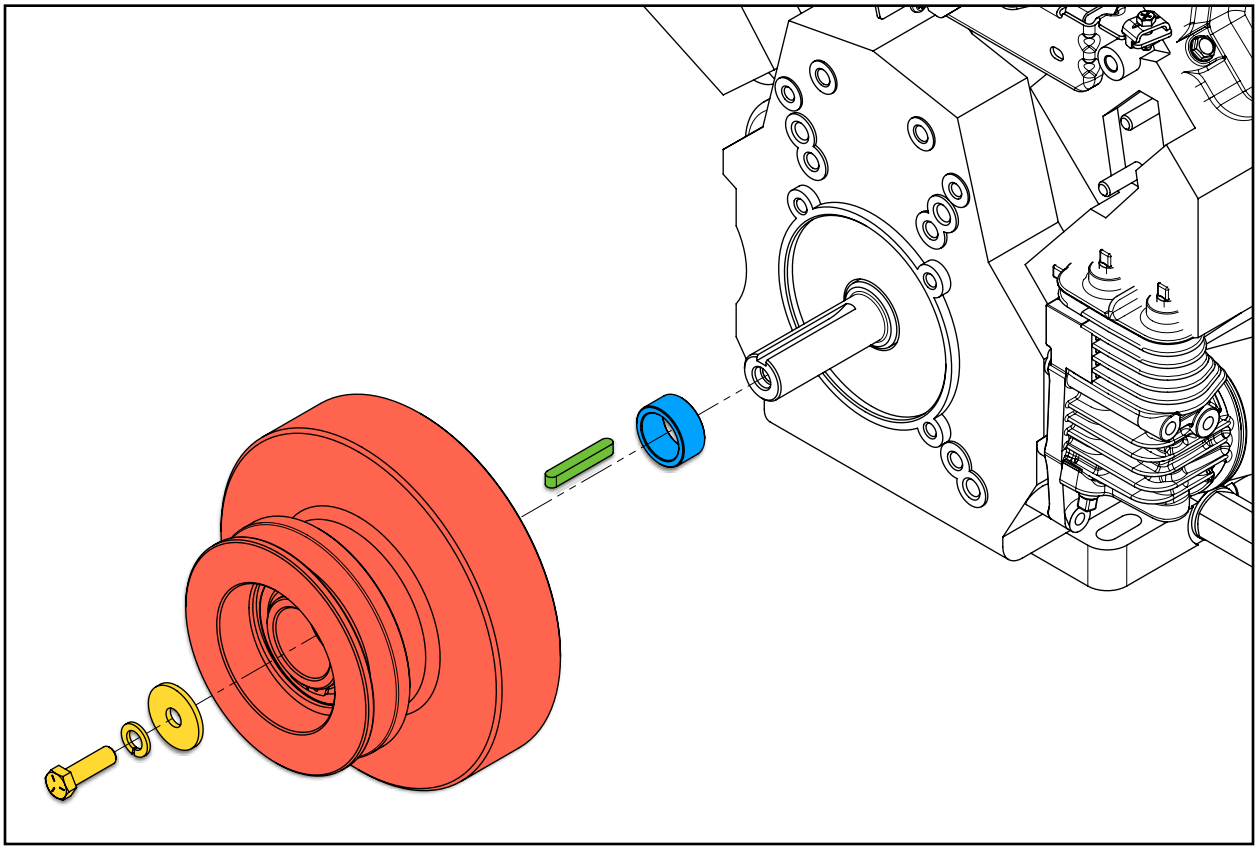
****Take care to not over-tighten the oil drain extension. The engine block is aluminum and over-tightening could damage the threads.****

CLUTCH

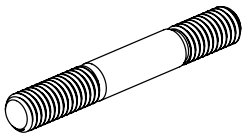
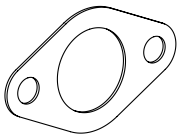
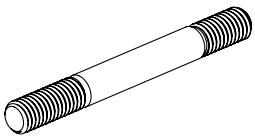
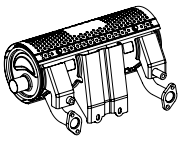
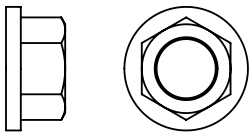
1x	⅜-24 X 1-¼ in Hex Bolt		1x	Clutch Spacer	
1x	M10 X 35 mm Fender Washer		1x	Key (¼ X ¼ X 1-¾")	
1x	M10 Split Lock Washer		1x	Clutch Assembly	

Slide the clutch spacer over the output shaft on the engine first. Seat the key into the keyway and then slide the clutch assembly over the shaft/key all the way until it stops at the spacer.

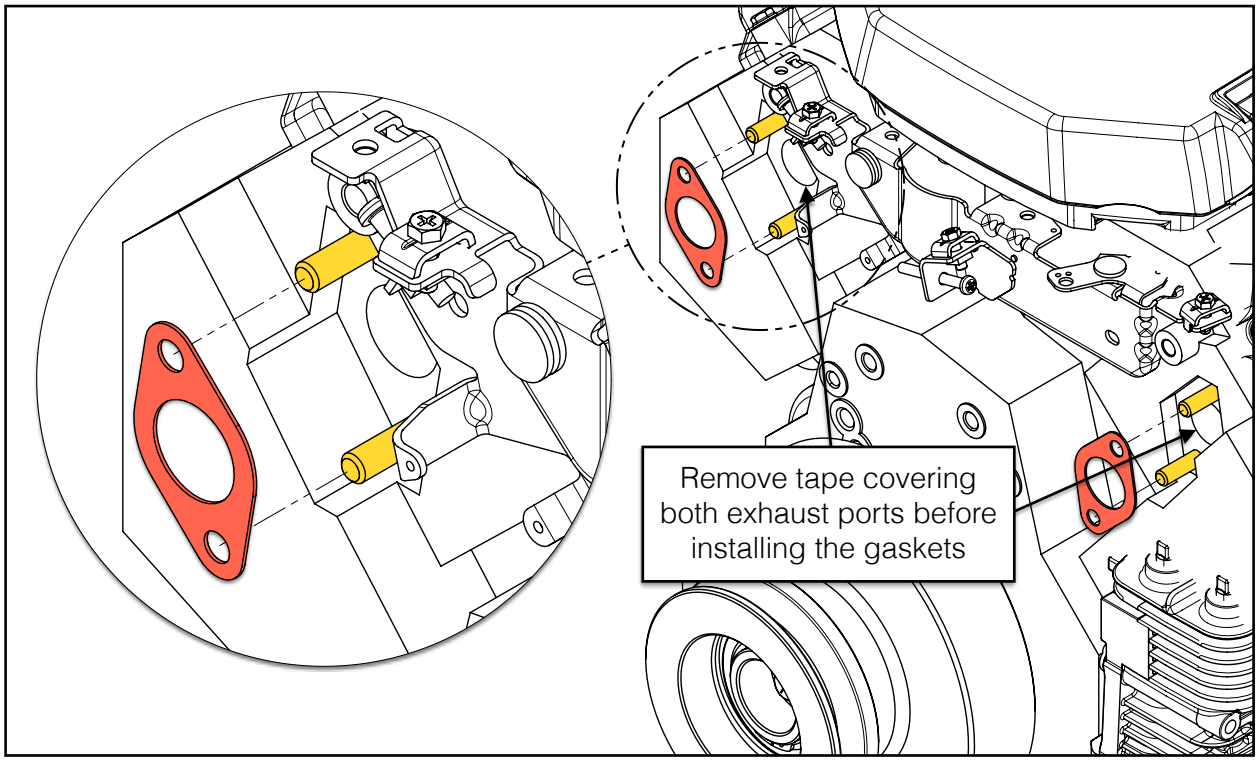
Secure the clutch to the output shaft using the ⅜-24 X 1-¼ in hex bolt, M10 split lock washer, and M10 X 35 mm fender washer.



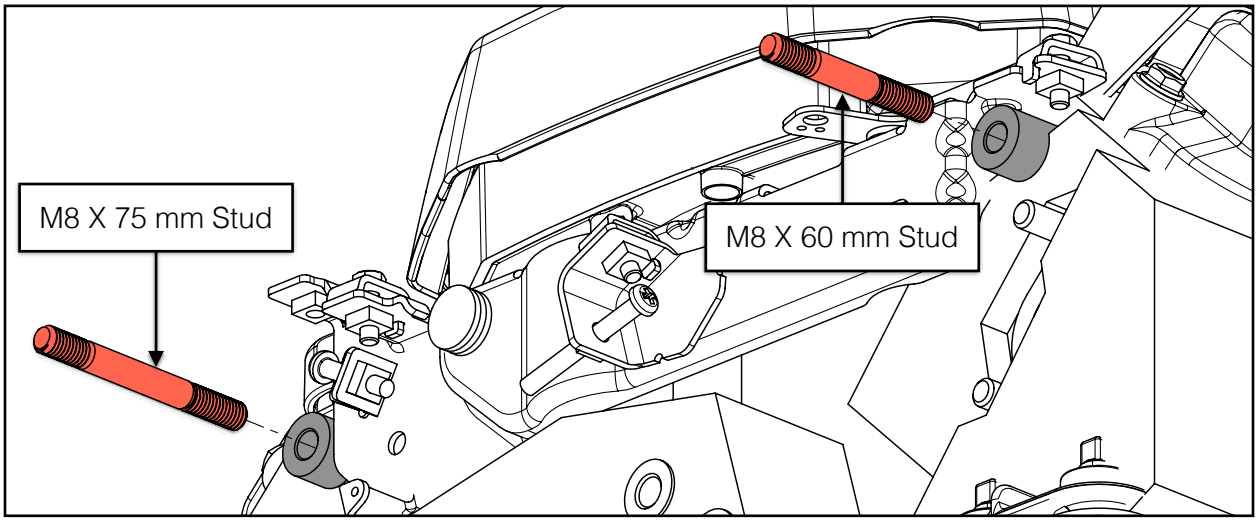
HIGH-MOUNT MUFFLER

1x	M8 X 1.25 Stud 60 mm Long		2x	Exhaust Gasket	
1x	M8 X 1.25 Stud 75 mm Long		1x	Honda High-Right Muffler	
6x	M8 Flanged Hex Nut				

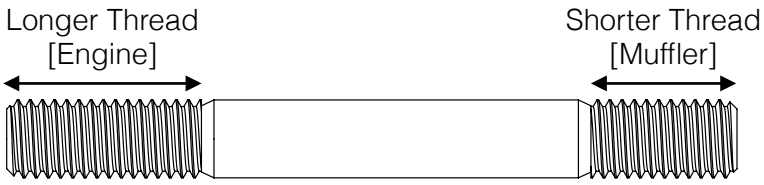
Install a gasket onto each pair of threaded studs on both engine exhaust ports.



There are two (2) studs that thread into bosses on the engine chassis near the remote control mechanism: an M8 X 75 mm long stud and an M8 X 60 mm long stud. The graphic below illustrates which length of stud belongs on which side side of the engine.

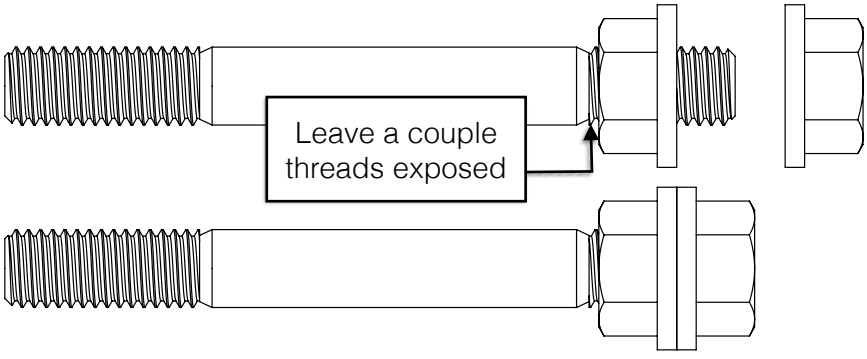


Each stud has a long thread (engine-side) and a short thread (muffler-side).



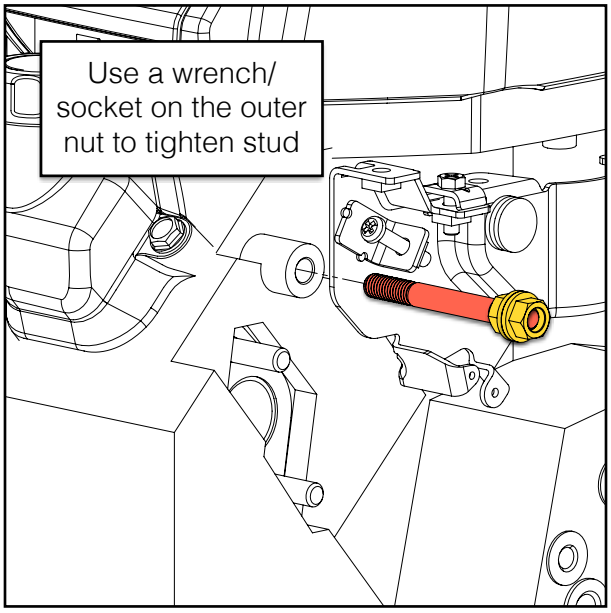
To thread a stud into the engine chassis, thread one M8 flange nut backwards onto the *shorter stud thread* (muffler side) as shown below. Do *not* thread it all the way to the start of the thread —leave a couple threads visible to prevent damaging the stud and nut.

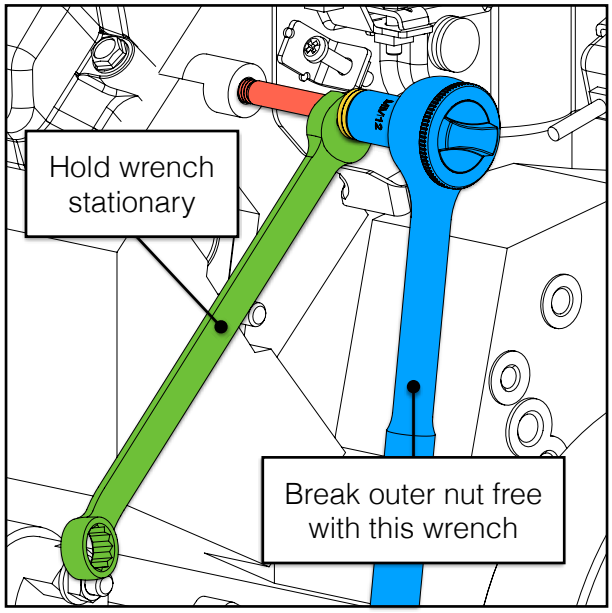
Thread a second nut onto the stud until they jam together.



With the nuts jammed together, use a 12 mm wrench/socket on the outer nut to thread the stud into the boss on the engine chassis as shown on the next page.

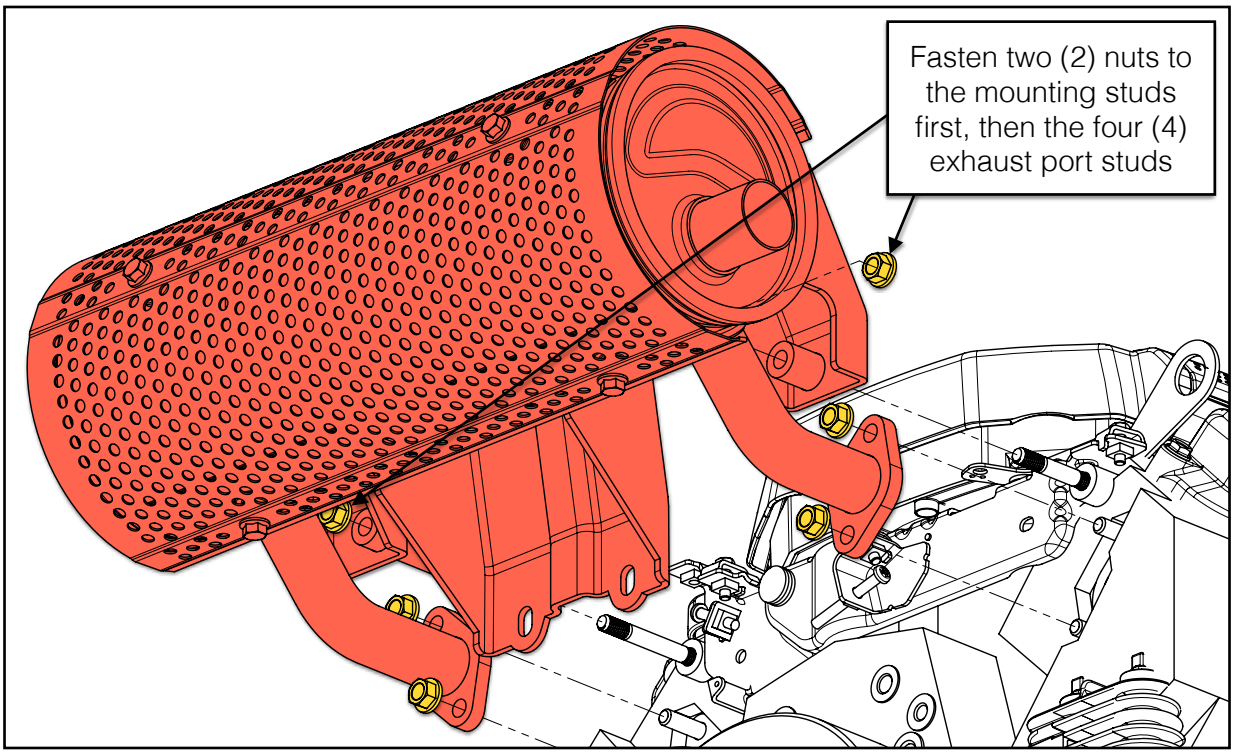
Tighten the studs hand-tight. Do *not* over-torque the studs or the aluminum engine mount could be damaged. This damage is *not covered under warranty*.



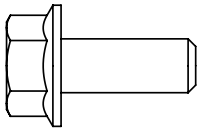
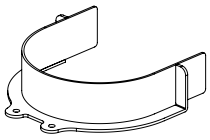


To remove the nuts from the stud, hold the backwards nut stationary with a 12 mm wrench and use another 12 mm wrench/socket to break the outer nut free. Once loose, unthread both nuts from the stud. Repeat the process for the remaining stud.

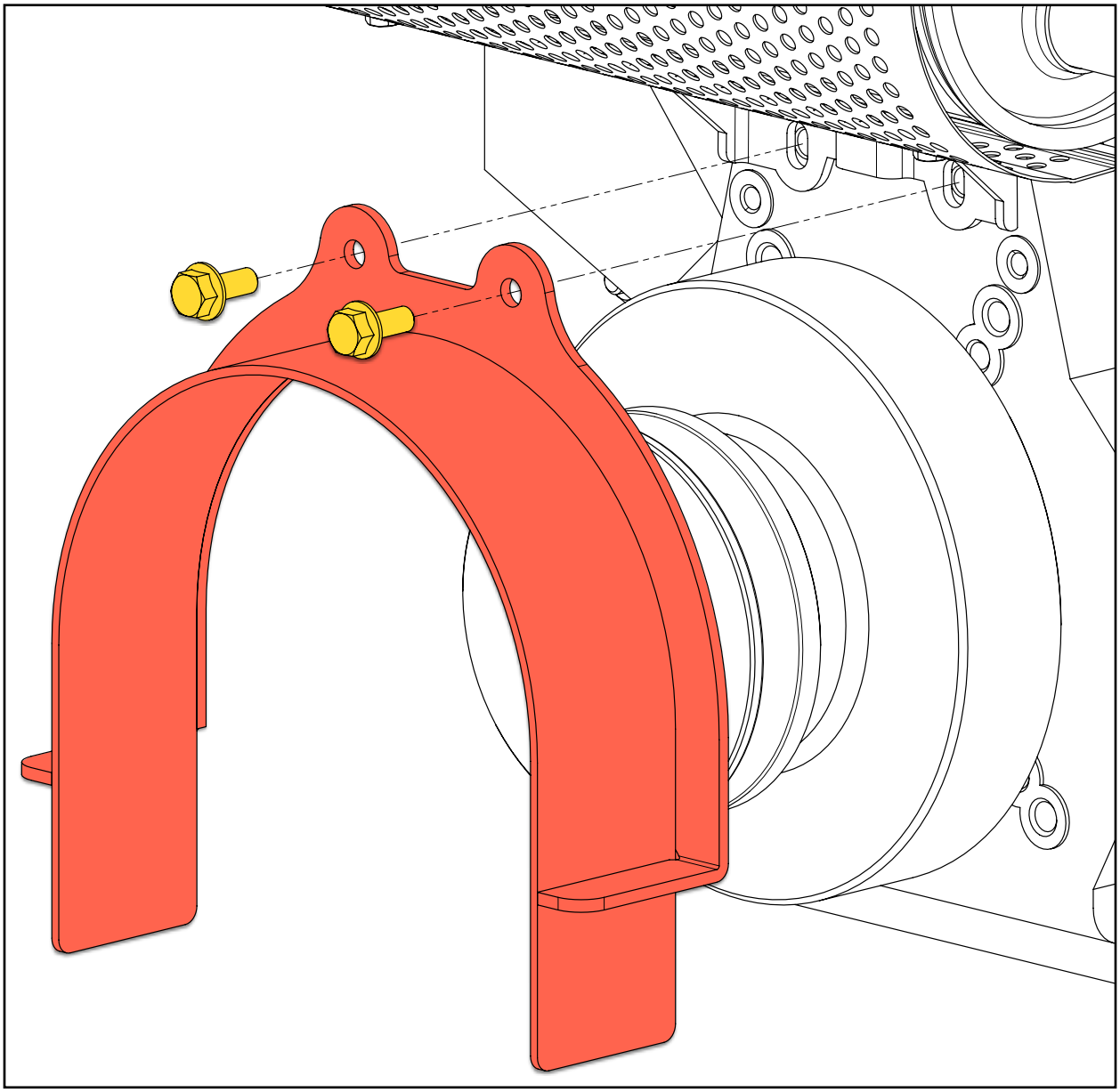
Finally, secure the high-mount muffler to the engine using the six (6) M8 flanged nuts.



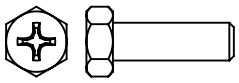
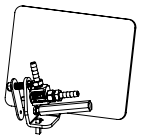
CLUTCH GUARD

2x	M8 X 20 mm Flanged Hex Bolt		1x	Clutch Guard	

Bolt the clutch guard to the engine using two (2) M8 X 20 hex bolts, passing through the slots in the muffler mounting bracket.

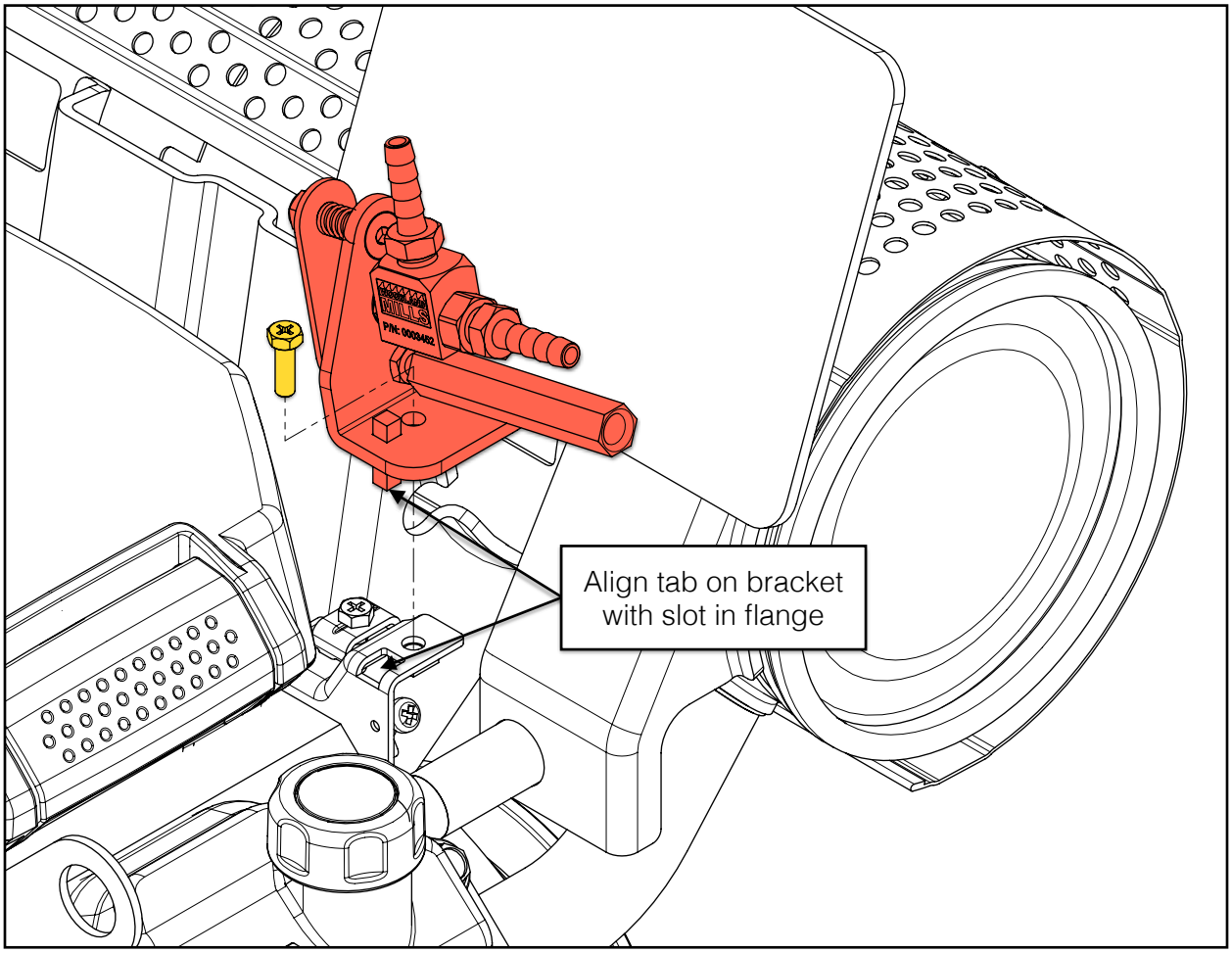


AUTO-LUBE SYSTEM

[1x]	M5 X 16 mm Phillips Hex Screw		1x	Auto-Lube Assembly	

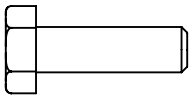
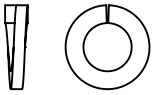
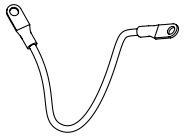
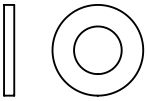
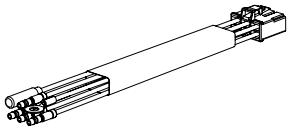
Assemble the auto-lube assembly to the flange on the remote control linkage where the cable clamp and M5 X 16 mm screw were removed in a previous step.

Be sure the square tab on the auto-lube bracket lines up with the slot in the flange in the remote control linkage as shown below. Secure the auto-lube assembly with the M5 X 16 mm screw. Fully tighten the screw.

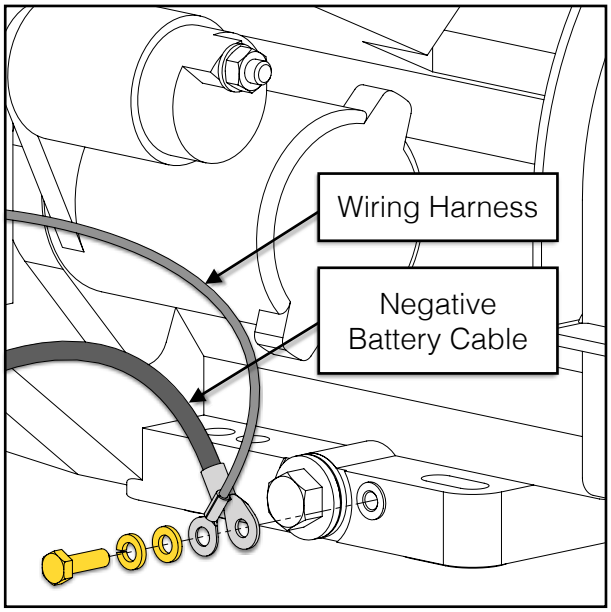


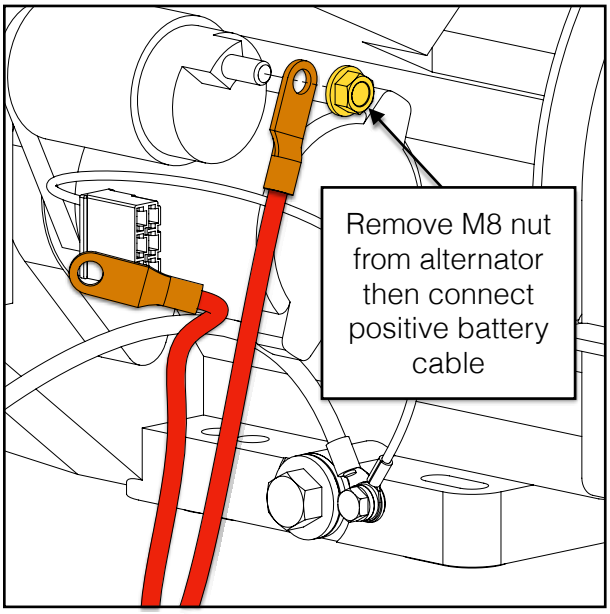
WIRING (REGULATOR/RECTIFIER & BATTERY)

Connect the wiring harness and negative battery cable to the engine block using the hardware and components listed below.

1x	M6 X 20 mm Hex Bolt		1x	Negative Battery Cable (Black)	
1x	M6 Split Lock Washer		1x	Positive Battery Cable (Red)	
1x	M6 Flat Washer		1x	Honda Regulator/ Rectifier Wiring Harness	

The negative battery cable and the regulator/rectifier wiring harness ring terminal (black wire) need to be secured to the engine block—next to the right-side oil drain plug—using the M6 X 20 mm hex bolt, M6 split lock washer, and M6 flat washer.

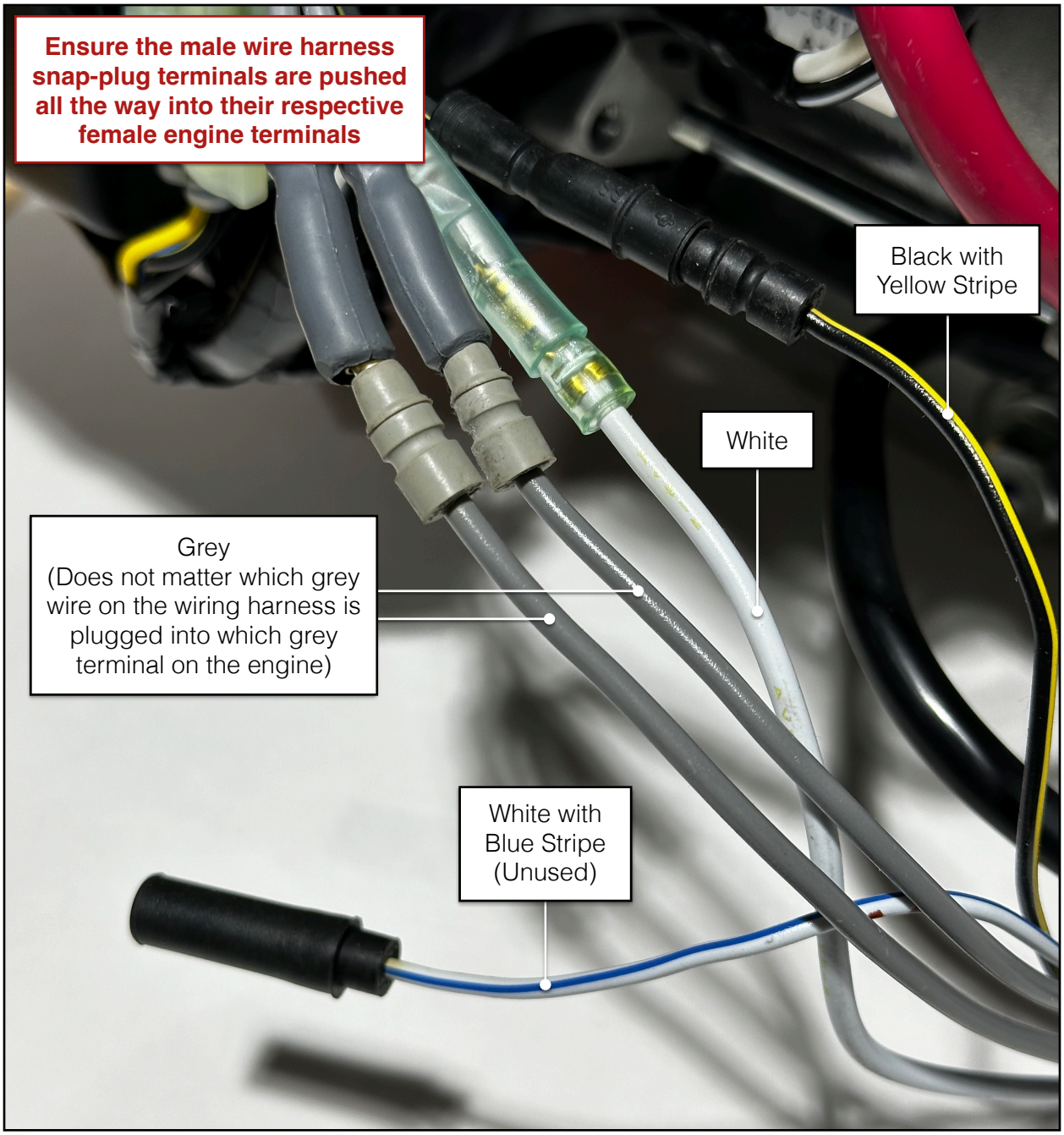




Connect the positive battery cable to the alternator. Remove the M8 spinning washer nut from the alternator, slide the battery cable terminal over the thread, and reinstall and tighten the nut.

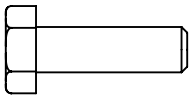
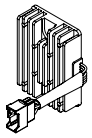
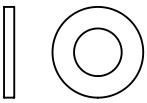
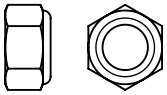
Connect the remaining four (4) male snap-plug terminals to the their corresponding female terminals on the engine based on the wire colour.

It does not matter which grey wire on the wiring harness is plugged into which grey wire receptacle on the engine—only that the grey wires are paired with grey wires, white with white, and black/yellow with black/yellow.



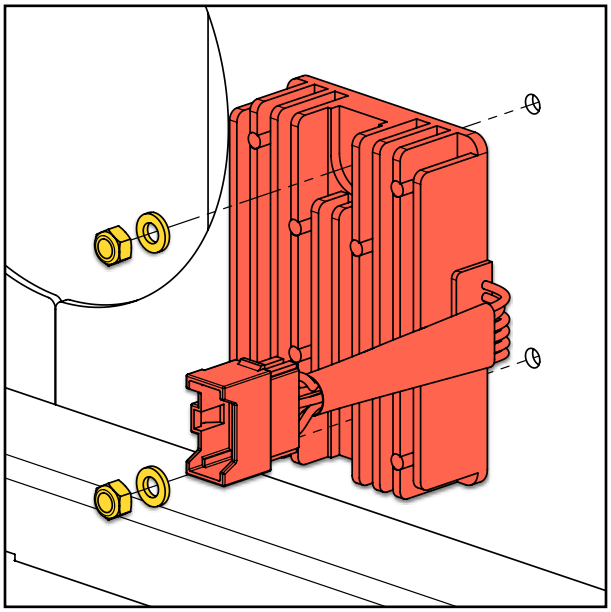
REGULATOR/RECTIFIER

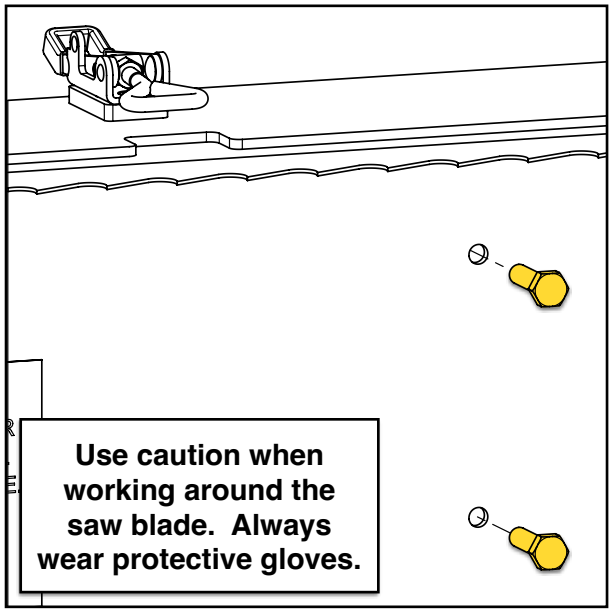
There are two parts to the regulator/rectifier: the wiring harness and the regulator/ rectifier heatsink assembly.

2x	M6 X 25 mm Hex Bolt		1x	Honda Regulator/ Rectifier	
2x	M6 Flat Washer				
2x	M6 Lock Nut				

Open the band wheel housing and assemble the regulator/rectifier heatsink assembly to the back (outside) of the band wheel housing using two (2) M6 X 25 mm hex bolts, two (2) M6 flat washers, and two (2) M6 lock nuts.

Ensure the heatsink is oriented so that the cable and connector exit on the right-side.

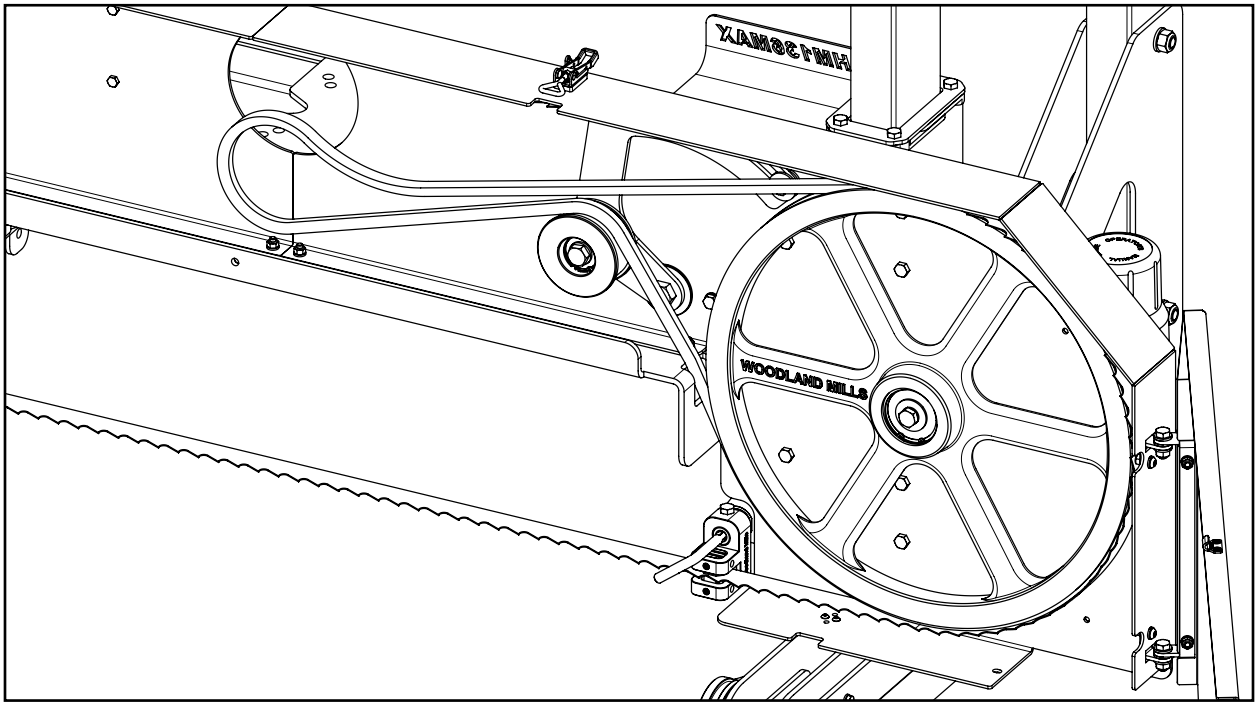




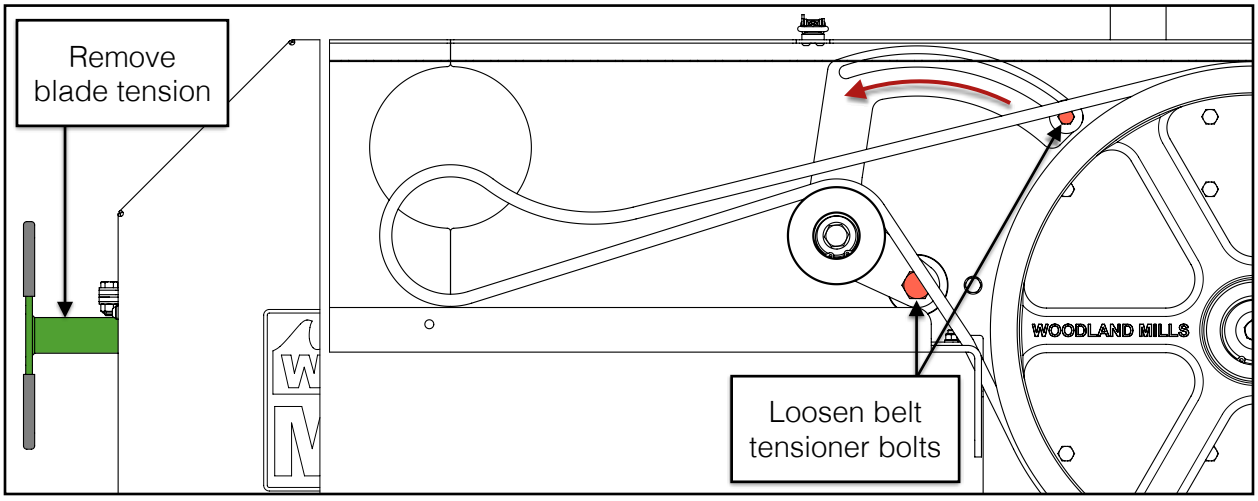
With the wiring harness and battery cable installed, the engine can now be assembled to the sawhead.

ENGINE-TO-SAWHEAD

Before the engine can be mounted to the sawhead, tension needs to be removed from the blade and the belt tensioner loosened. Open the band wheel housing doors to gain access to the belt tensioner and drive belt.

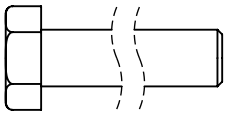
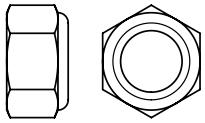
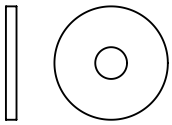
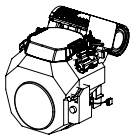


First, remove tension from the blade by turning the tension handle counter-clockwise three (3) full turns. Next, slightly loosen the two bolts on the belt tensioner using a 24 mm and 13 mm wrench/socket. Loosen the bolts just enough so that the tensioner will move.

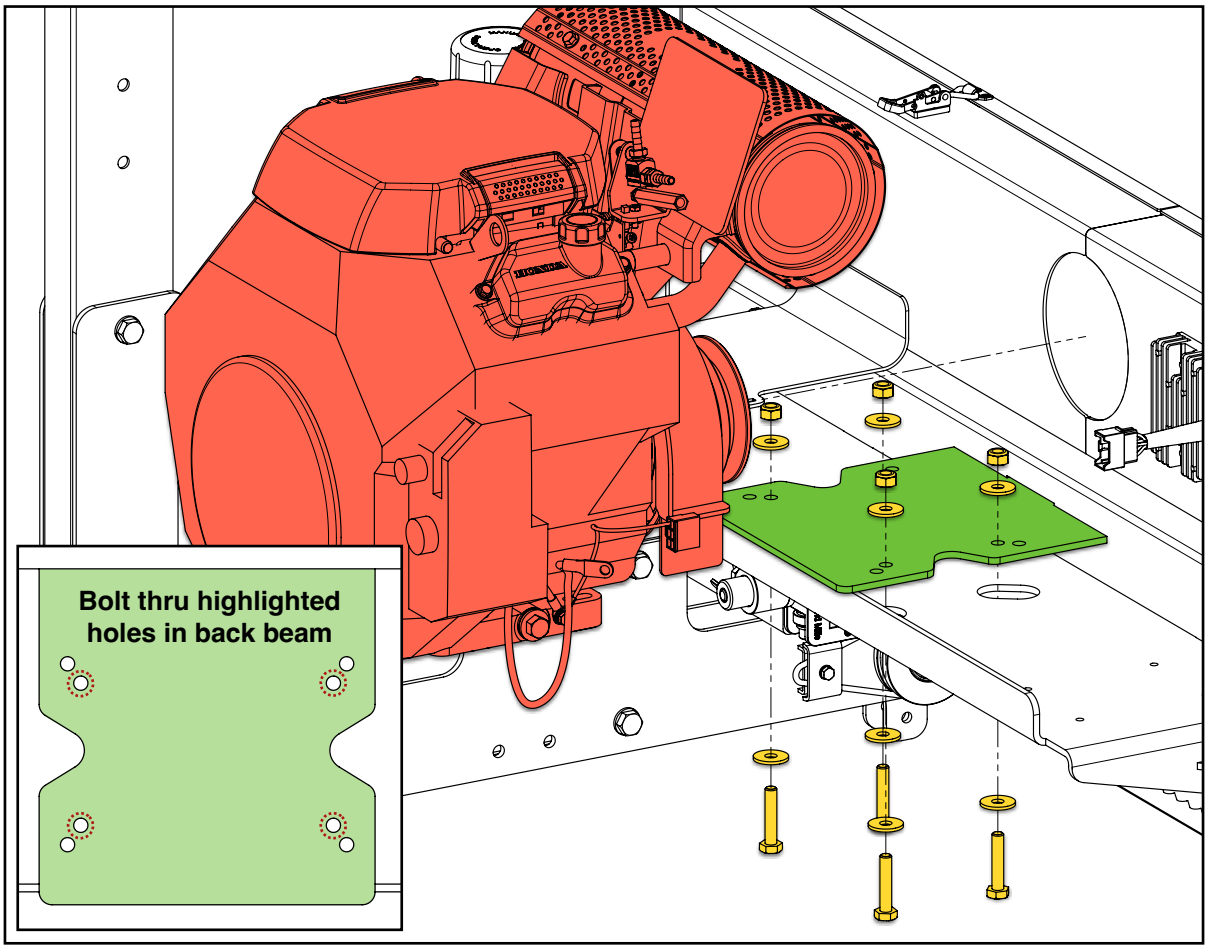


Rotate the belt tensioner as far to the left as it will go as shown above.

Assemble the engine to the sawhead using the hardware listed in the table below.

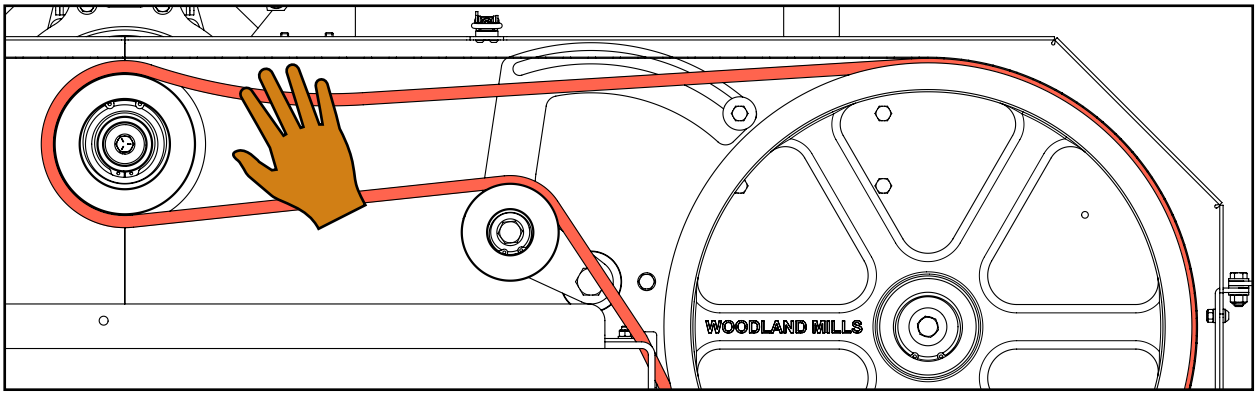
4x	M10 X 50 mm Hex Bolt		4x	M10 Lock Nut	
8x	M10 X 30 mm Fender Washer		1x	Engine Assembly	

Lift the engine up onto the centre mounting plate on the back beam using four (4) M10 X 50 mm hex bolts, eight (8) M10 X 30 mm fender washers, and four (4) M10 lock nuts. Do *not* fully tighten the hardware until instructed.

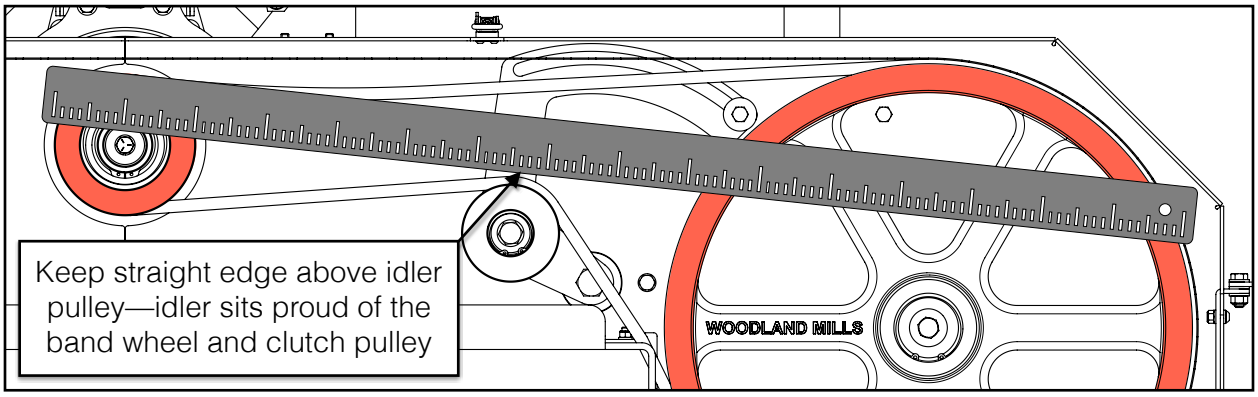


****The engine assembly weighs approx. 144 lb [65 kg]. Ask for assistance and take precaution when lifting the engine on to the back beam.****

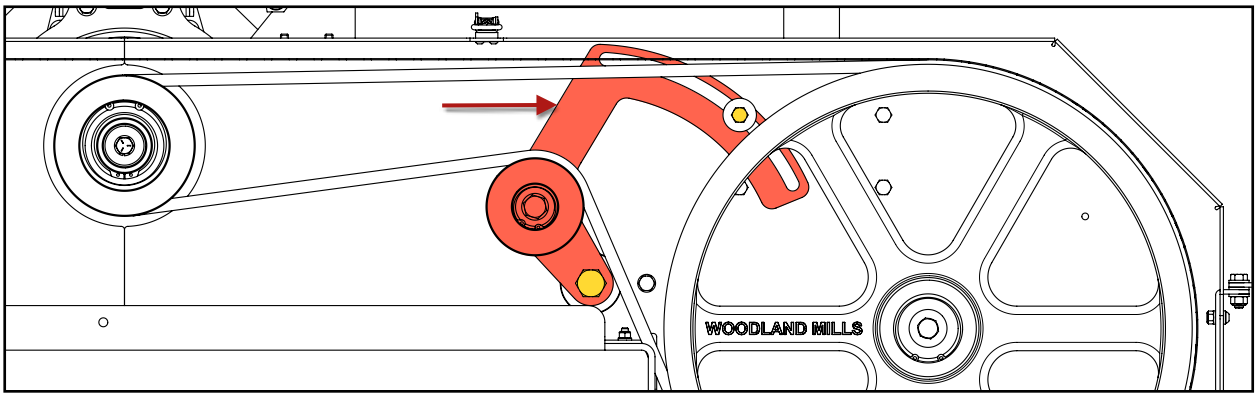
With the clutch pulley protruding into the band wheel housing, carefully roll the belt over the clutch pulley and under the saw blade. ***Wear protective gloves during all drive belt installation and idler pulley adjustment steps***.



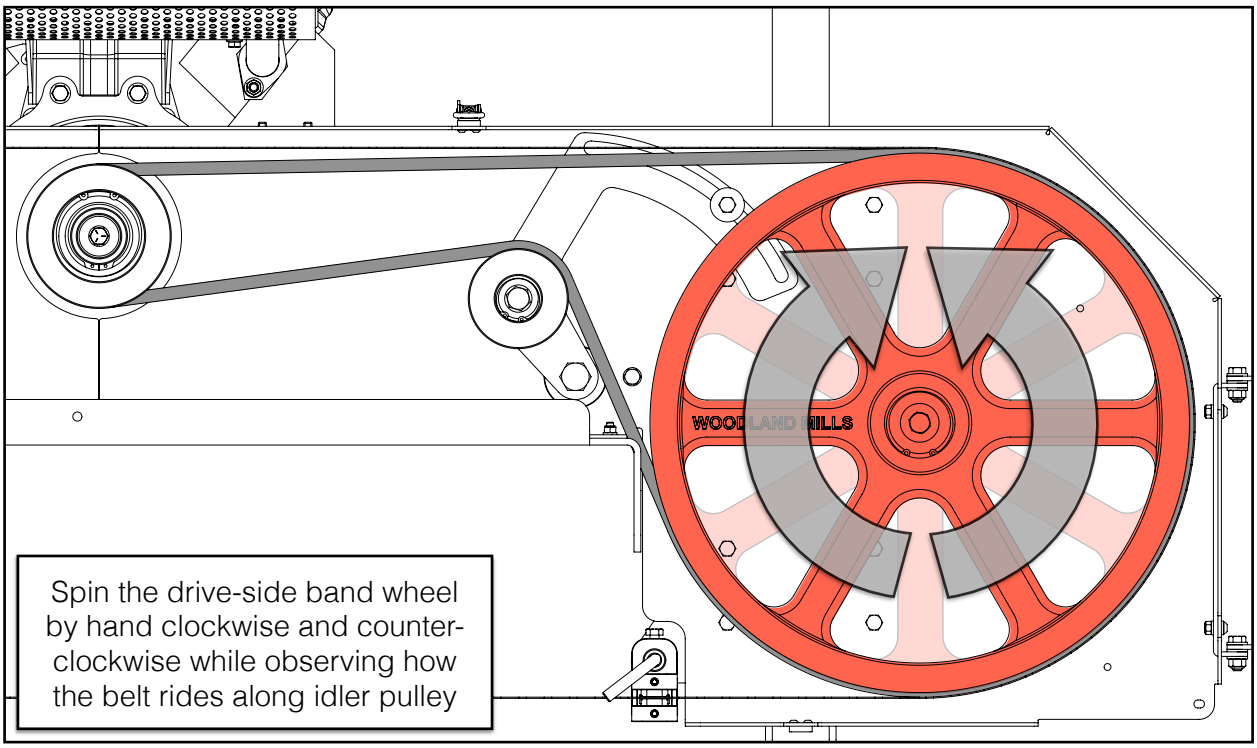
Reapply tension to the blade with the green tension handle. Then hold a straight edge (approx. 40 in [100 cm] long) over the drive-side band wheel and clutch pulley. Adjust the engine position until the outer faces (highlighted below) of the pulley and band wheel are aligned. Once aligned, fully tighten the engine mounting hardware.



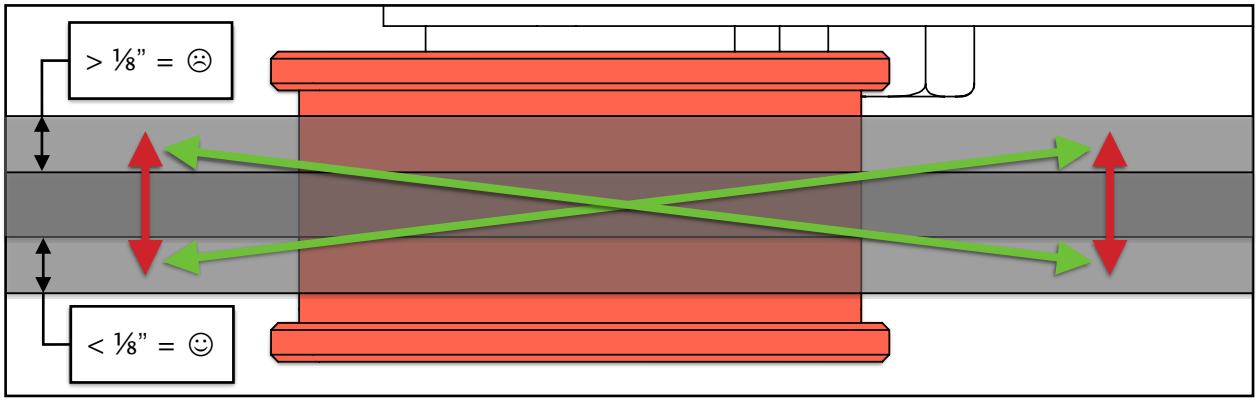
With the engine position locked down, push the belt tensioner firmly to the right as far as it will go and then tighten the upper bolt (13 mm) followed by the larger lower bolt (24 mm).



With the drive belt installed and tensioned, spin the drive-side band wheel by hand in one direction a few rotations and then in the opposite direction for a few rotations.



Repeat this a few times while observing the belt movement on the pulley. As the band wheel changes direction, the belt should stay in approximately the same location on the idler pulley.

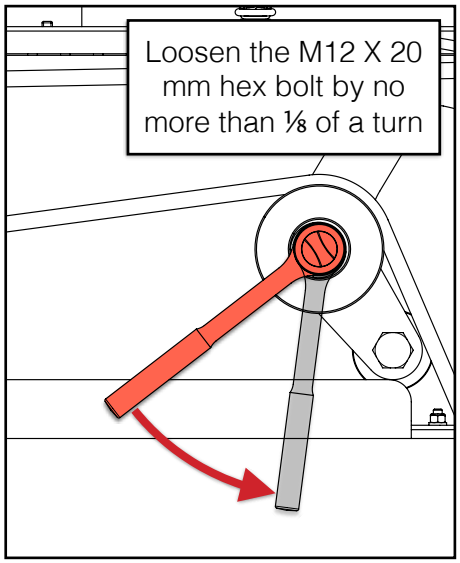


If the belt moves in or out more than ⅛" [3 mm], the idler pulley pitch requires adjustment.

****Note: the belt does not need to be centred on the pulley. It only needs to remain in its approximate original location when the band wheel spin direction changes.****

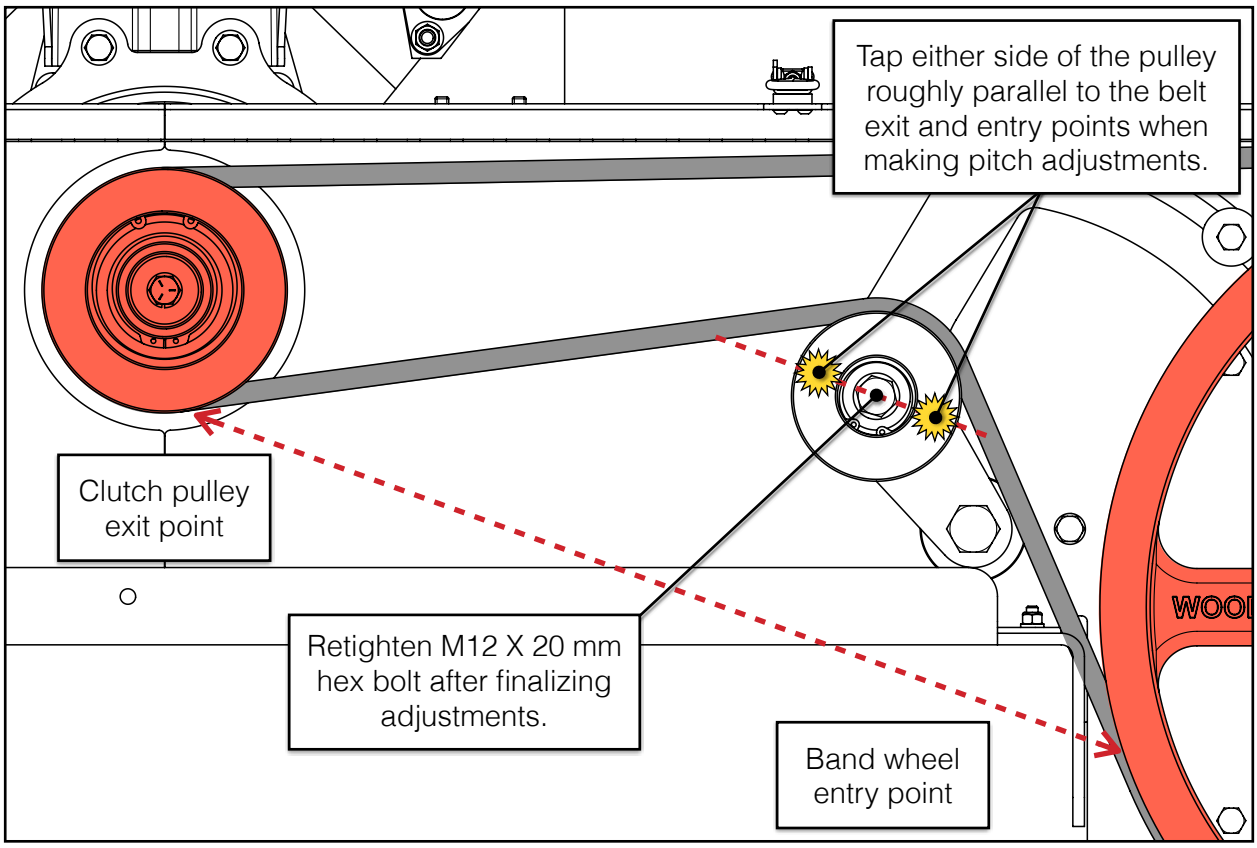
If the belt movement is within proper range, skip the next page.

The idler pulley is adjusted by loosening the centre bolt by no more than ⅛ of a turn so that the pulley can move when tapped with a mallet. This allows the pulley to move in all directions yet stay firm enough to hold its position during further tests.



The goal is to better align the idler pulley with the exit point on the clutch pulley and the entry point of the drive-side band wheel.

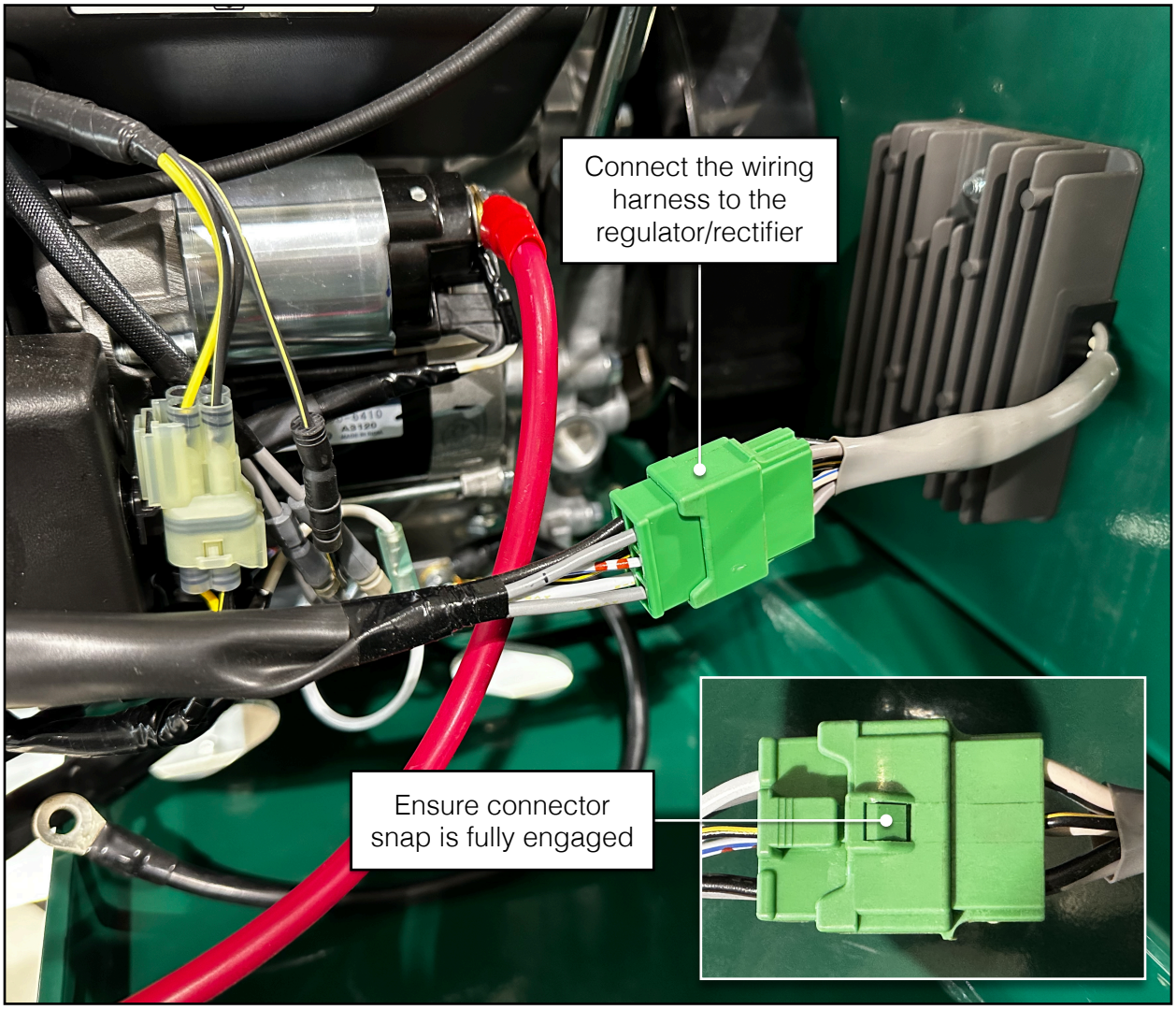
It normally takes a few cycles of adjustment and testing. It is recommended to start by angling the idler pulley towards either the clutch pulley or the band wheel and observe the belt's movement. If the belt movement increases, tap it the other way and re-test. After a few quick taps and re-tests the belt will find the sweet spot where it rides inline when the band wheel is rotated one direction and then the other.



Once belt alignment is achieved, tighten the centre bolt. Be sure to hold the position of the pulley while tightening the bolt.

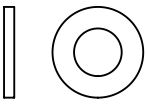
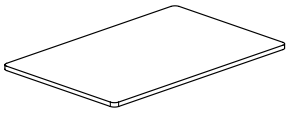
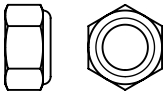
Close the band wheel doors and secure the top two (2) latches.

Back at the engine, connect the wiring harness and regulator/rectifier together with the large green connector until the snap clicks.



BATTERY BOX

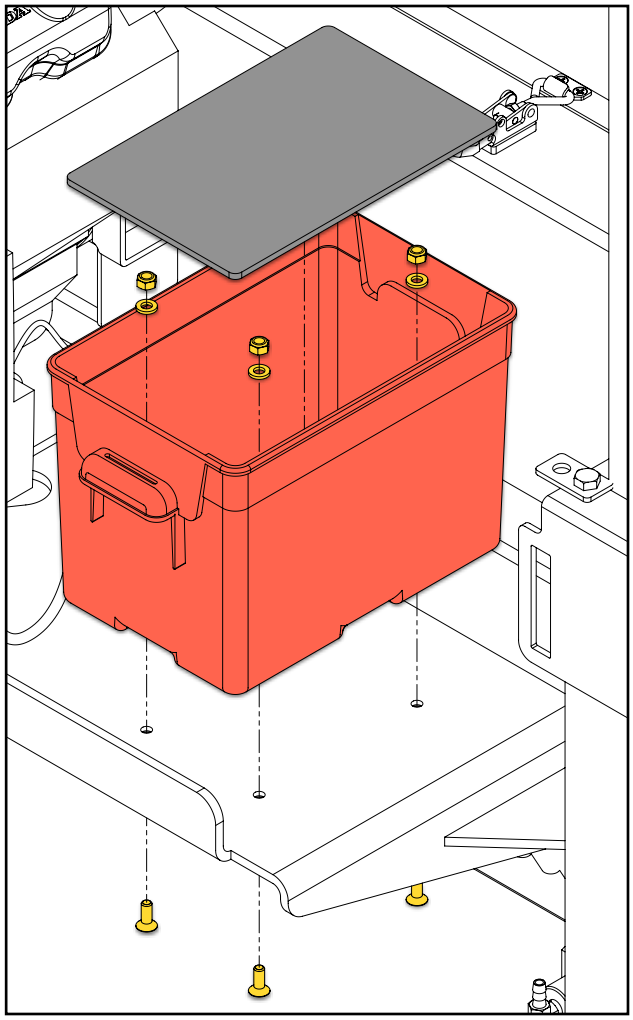
Assemble the battery box to the sawhead using the components and hardware listed in the table below.

4x	M6 X 16 mm Flat Head Screw		1x	Battery Box Assembly	
4x	M6 Flat Washer		1x	Rubber Battery Pad	
4x	M6 Lock Nut				

Separate the battery box assembly into its individual components and assemble the bottom to the sawhead on the right-side of the engine using four (4) M6 X 16 mm flat head screws, four (4) M6 flat washers, and four (4) M6 lock nuts.

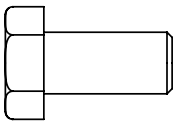
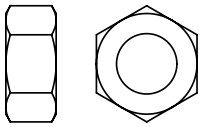
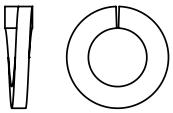
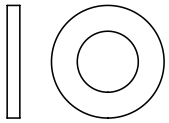
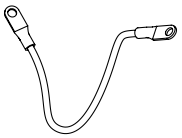
Set the rubber battery pad into the bottom of the battery box. This will prevent the mounting hardware from making contact with the battery once it is installed.

Leave the battery lid and strap off until the battery is installed in the next step.



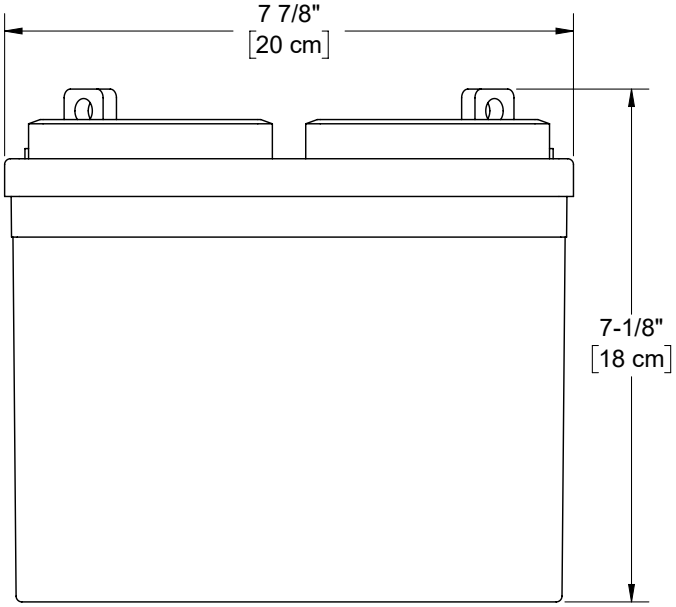
BATTERY CONNECTIONS

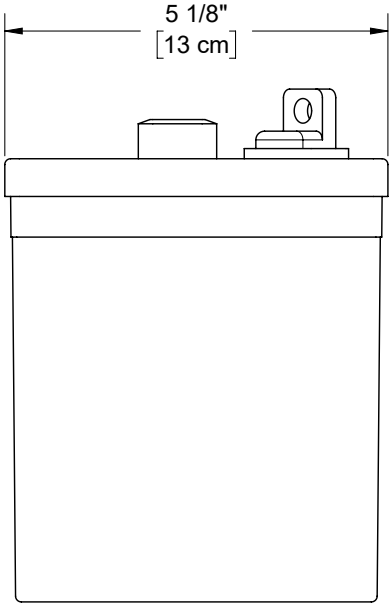
With the hardware listed below, connect the battery cables to a battery.

2x	M8 X 20 mm Hex Bolt		2x	M8 Hex Nut	
2x	M8 Lock Washer		[1x]	Negative Battery Cable (Black)	
4x	M8 Flat Washer		[1x]	Positive Battery Cable (Red)	

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

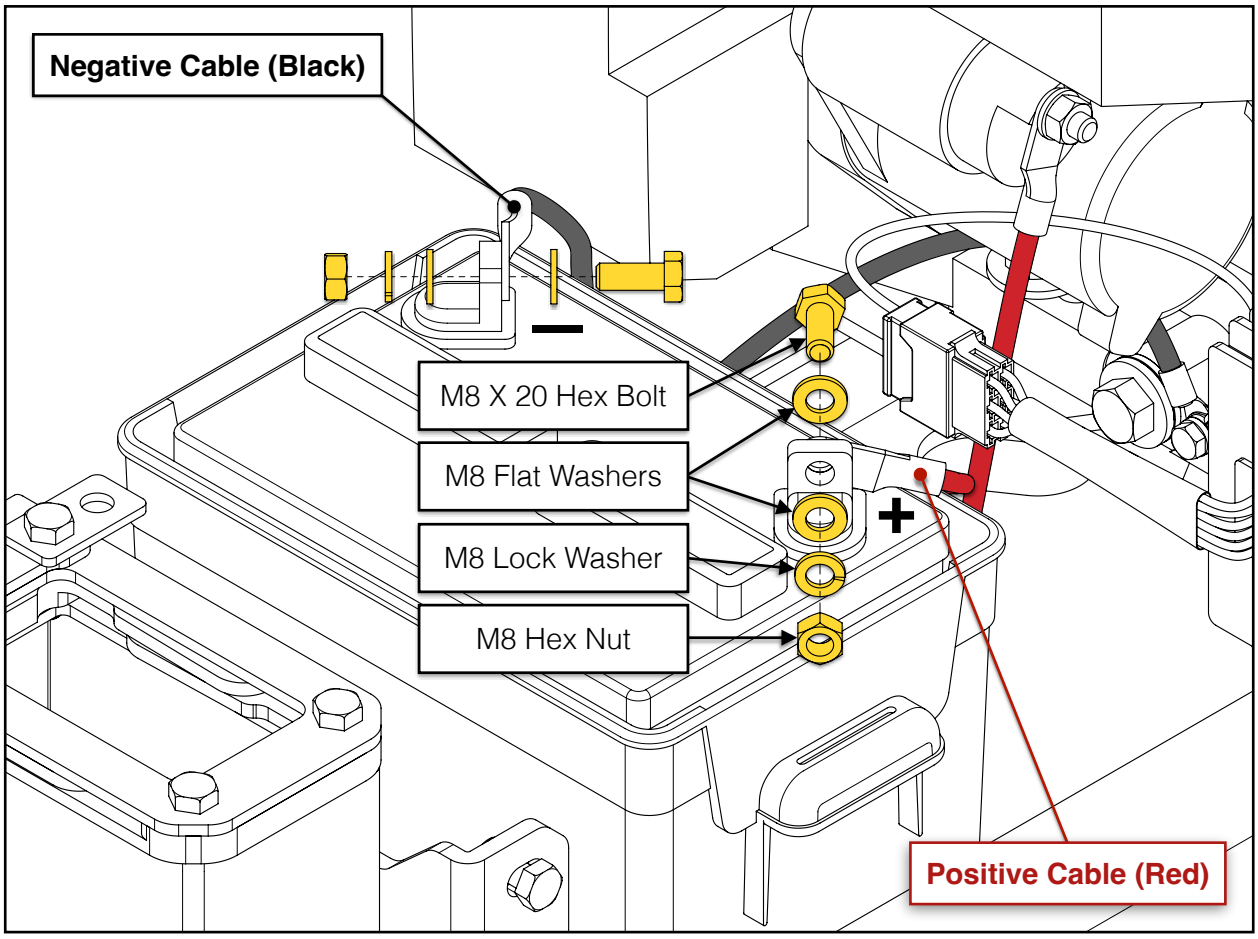
Size	Voltage	Cold Cranking Amps
U1 7-⅞ L x 5-⅛ W x 7-⅛ H in [20 L x 13 W x 18 H cm]	**12 V**	**250** Min (**300+** Recommended)





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.****



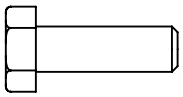
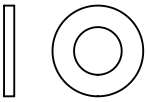
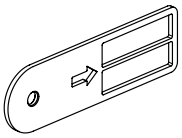
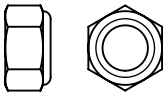
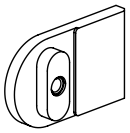
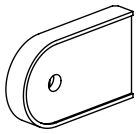
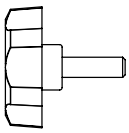
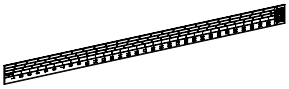
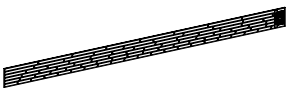
Once the connections are made, set the battery box lid on top ensuring the battery cables route down and out the openings in the side. Use the strap to secure the top and bottom halves of the battery box.

LOG SCALE

ATTENTION WOODLANDER™ OWNERS!

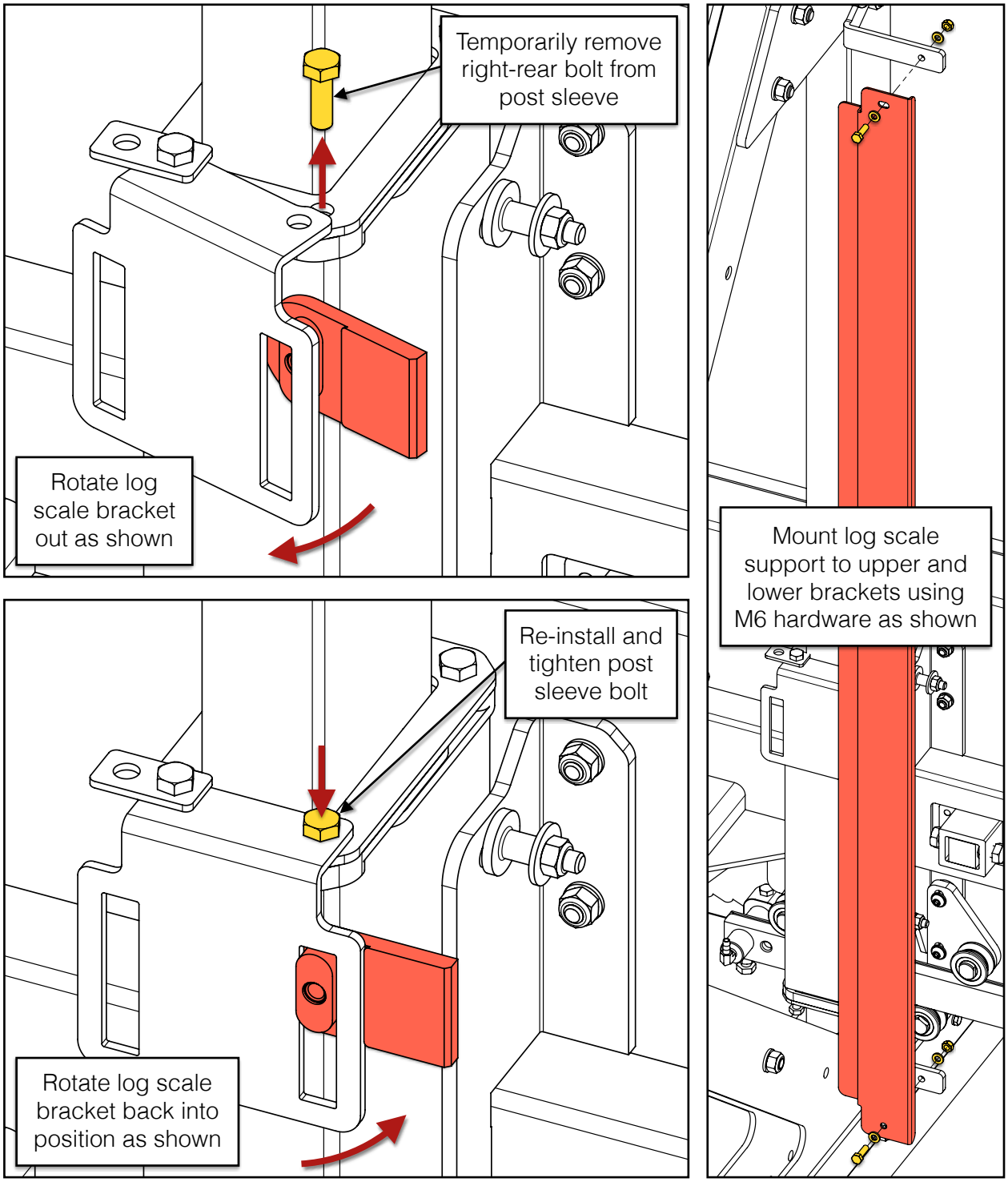
If the sawmill is going to be installed on a Woodlander™ trailer, the log scale bracket can be flipped 180° for easier viewing due to the increased height. Read page 77 *before* starting the log scale assembly.

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

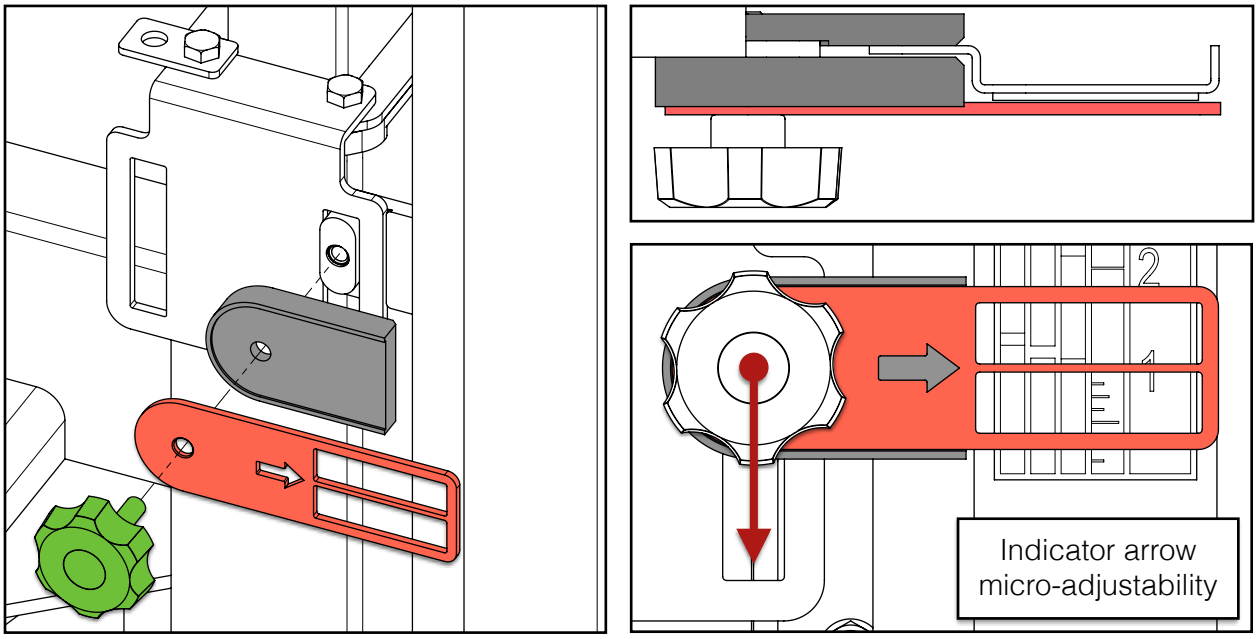
2x	M6 X 20 mm Hex Bolt		1x	Scale Support	
2x	M6 Flat Washer		1x	Scale Indicator Arrow	
2x	M6 Lock Nut		1x	Scale Indicator Bracket [Rear]	
			1x	Scale Indicator Bracket [Front]	
			1x	Knob M8 X 25 mm	
			1x	Magnetic Scale (1–1-¼")	
			1x	Magnetic Scale (1-½—4")	

Temporarily remove the right-rear bolt from the top of the right post sleeve as shown on the next page. Rotate the log scale bracket and then assemble the rear scale indicator bracket into the rectangular slot from behind the bracket. Rotate the bracket back and reinstall the screw.

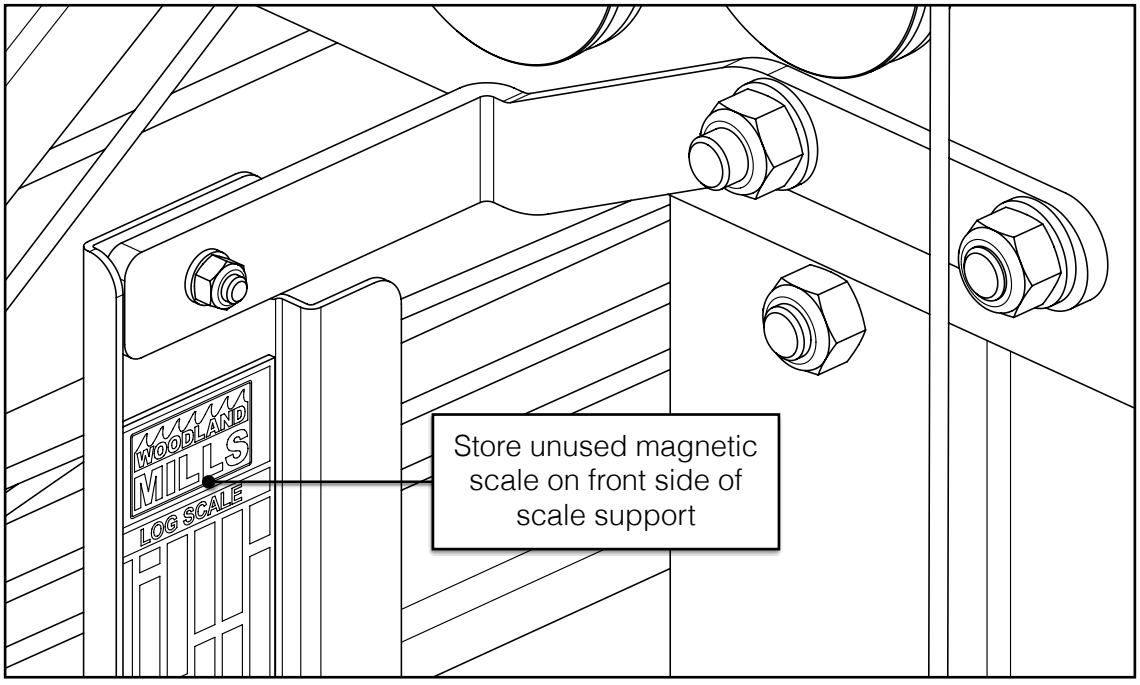
Install the log scale support to the upper and lower brackets on the right-side using two (2) M6 X 20 mm bolts, four M6 flat washers, and two (2) M6 lock nuts.



Assemble the front indicator bracket and indicator arrow to the rear indicator bracket using the M8 threaded knob. The left side flange of the scale support needs to be sandwiched between the rear and front scale indicator brackets.



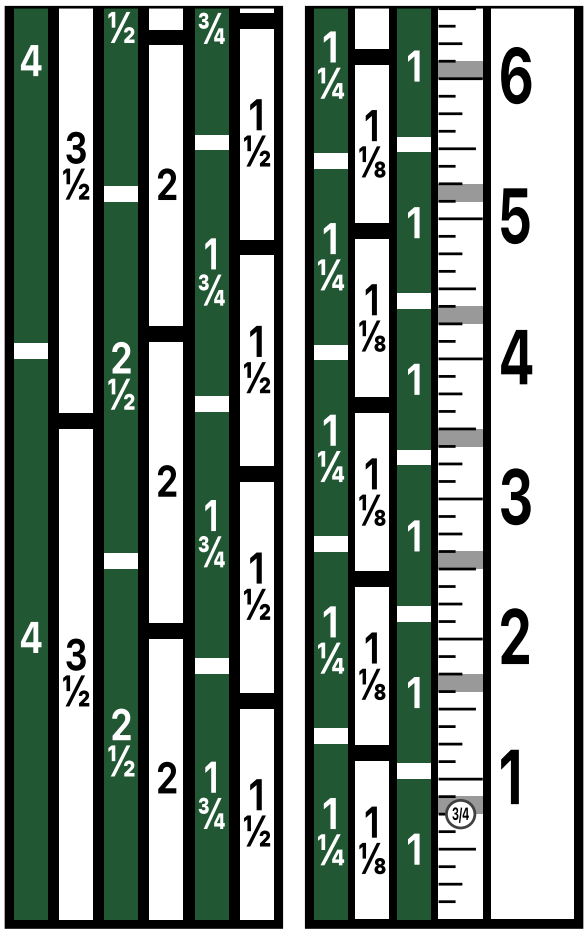
Store the other magnetic scale on the front side of the scale support when not in use.



The sawmill comes with two (2) different magnetic scales: one with 1-½" to 4" graduations; and one with 1" to 1-¼" graduations, including a full ruler with ⅛" [~3 mm] divisions. Each scale measures 32 in [813 mm] long.

1-½ to 4" Scale

The 1-½ to 4" scale contains graduations between 1-½" [38 mm] and 4" [101 mm], with allowances for blade kerf between each of the segments.

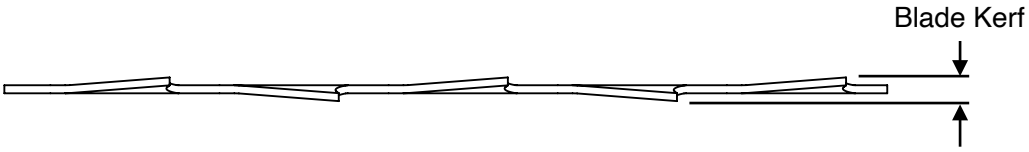


1 to 1-¼" Scale

The 1 to 1-¼" scale contains graduations between 1" [25 mm] and 1-¼" [32 mm], with allowances for blade kerf between each of the segments.

There is also a ruler running down the right side that measures 32" [813 mm] long with ⅛" [~3 mm] divisions.

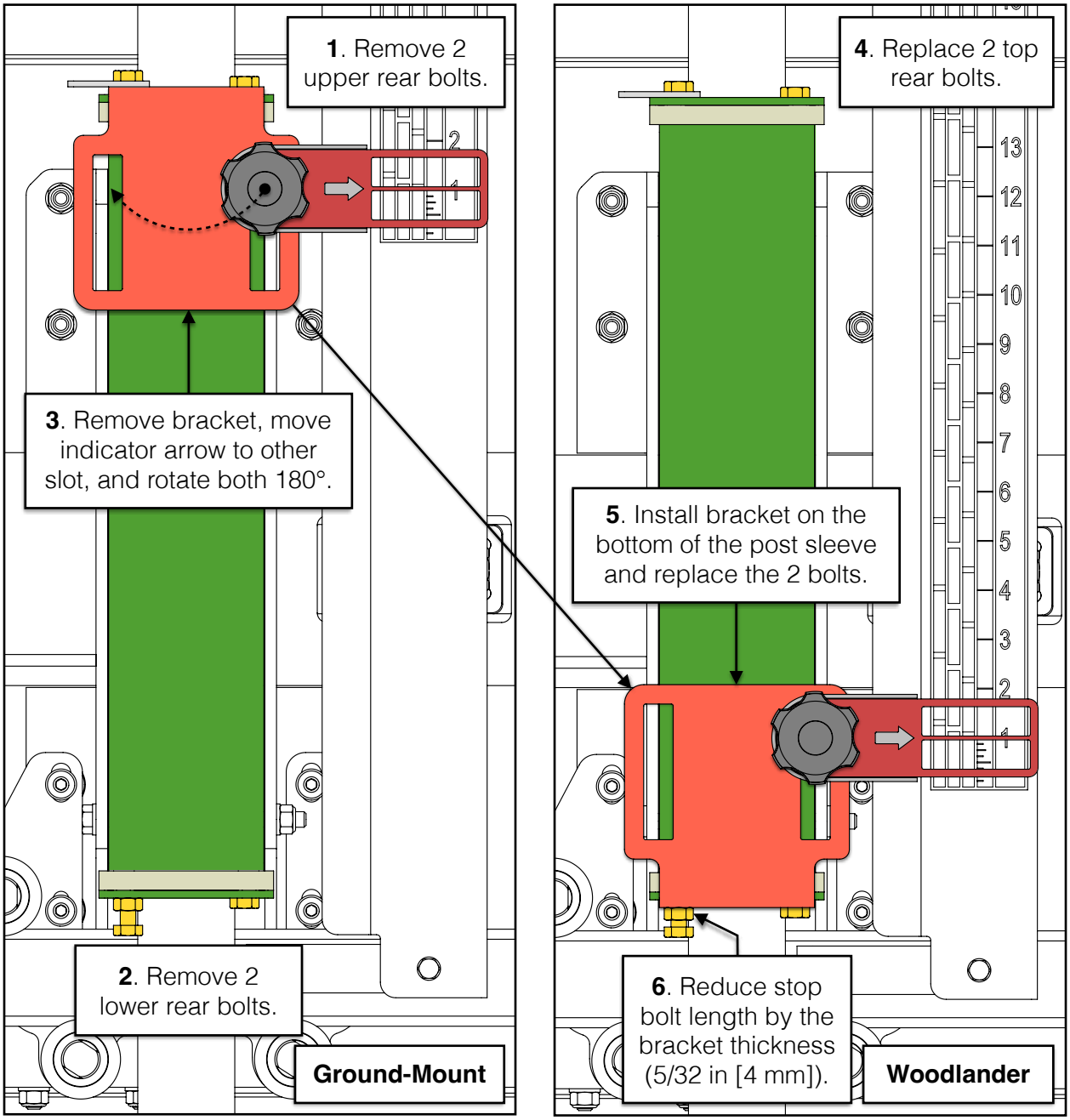
There are highlighted grey marks for ¾" [19 mm] board cuts on the ruler.



The fractional graduations on both magnetic scales make allowances for a ⅛ in [~3 mm] blade kerf between segments.

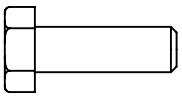
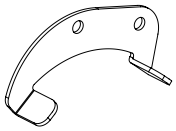
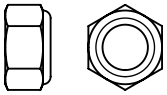
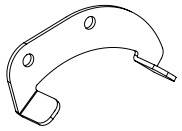
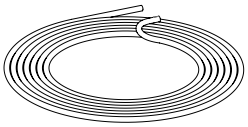
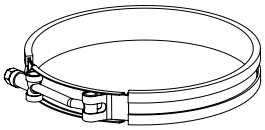
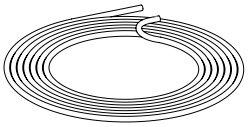
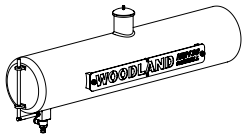
WOODLANDER™ LOG SCALE SETUP (OPTIONAL)

If the sawmill is going to be installed on a Woodlander™ trailer, the log scale bracket can be flipped 180° and mounted to the bottom of the post sleeve for easier viewing due to the increased track height. This is not required—it is strictly optional.

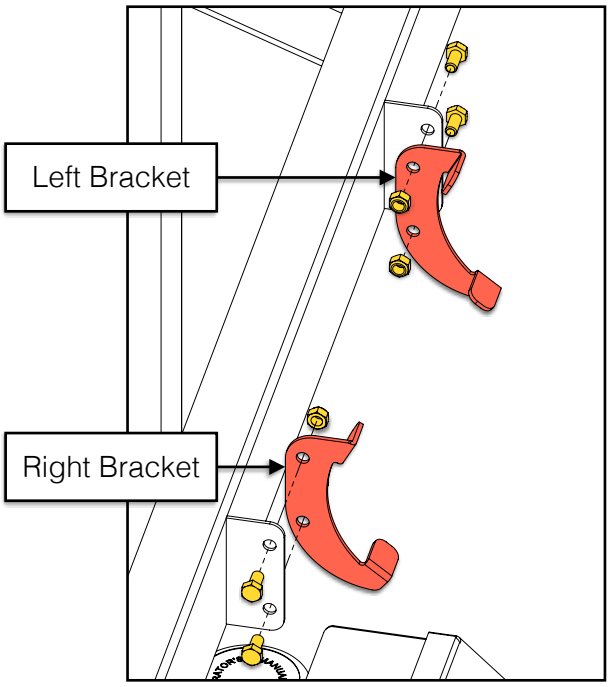


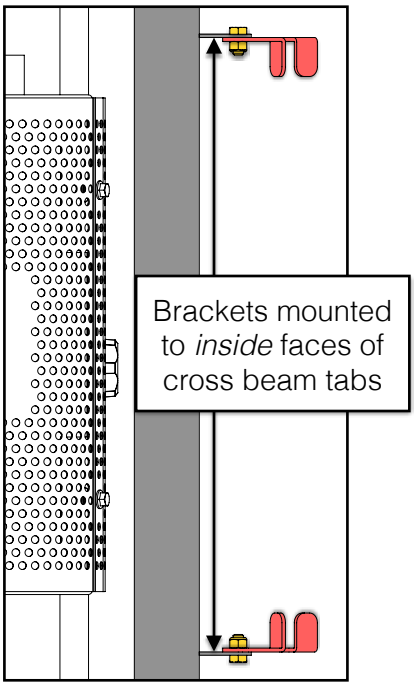
LUBRICATION TANK & TUBING

With the components and hardware listed below, assemble the lubrication tank to the front of the cross beam and route the plastic tubing.

4x	M8 X 16 mm Hex Bolt		1x	Lubrication Tank Backet [Left]	
4x	M8 Lock Nut		1x	Lubrication Tank Backet [Right]	
1x	Tubing: Tank-to-Valve [Shorter]		2x	Bolt Clamp	
1x	Tubing: Valve-to-Guide Block [Longer]		1x	Lubrication Tank Assembly	

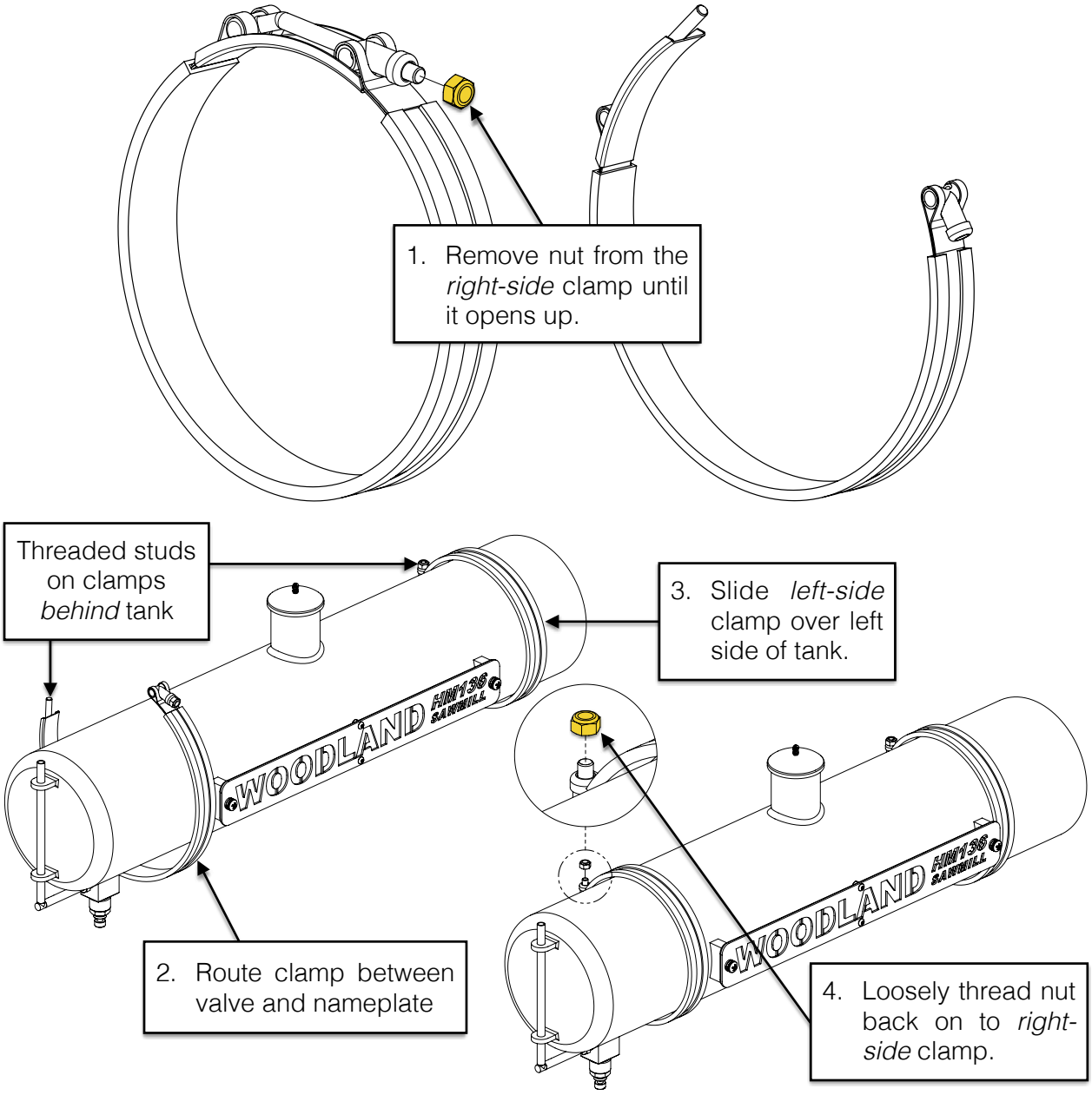
Assemble the left and right lubrication tank brackets to the *inside* faces of the cross beam tabs using four (4) M8 X 16 mm bolts and lock nuts, ensuring the bolts point inward. Do *not* tighten the hardware until instructed.



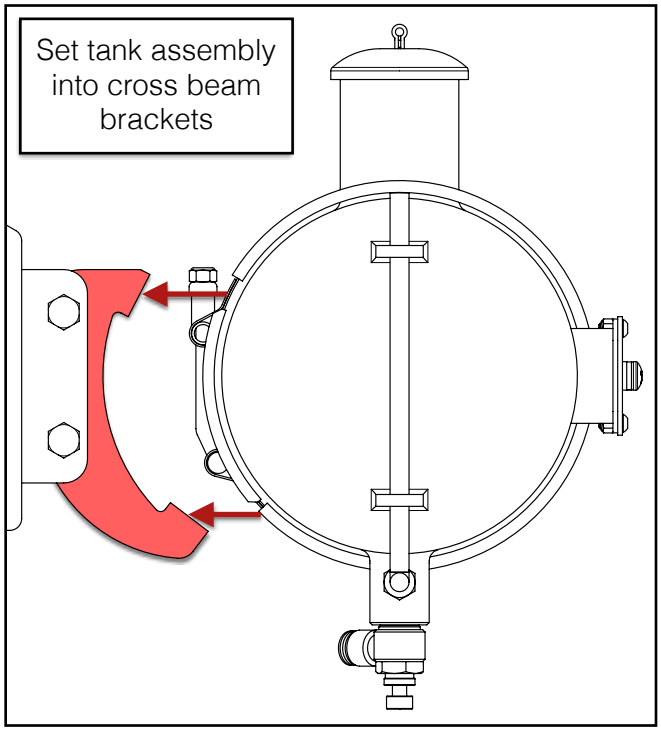


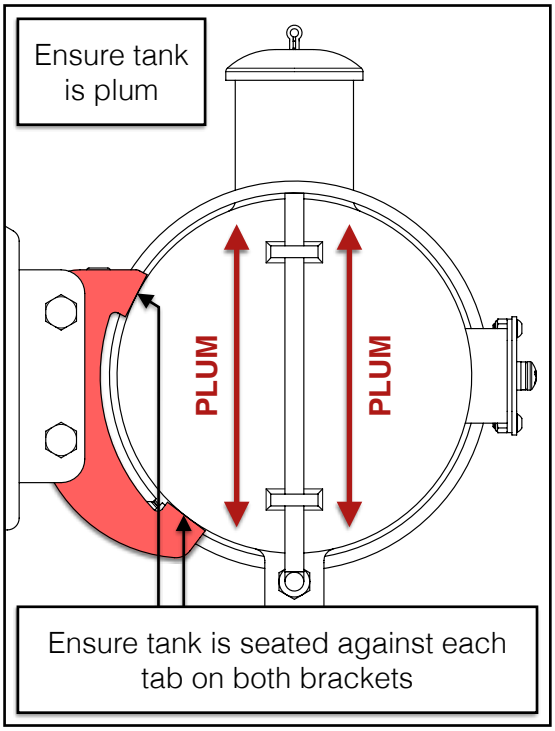
Before the lubrication tank can be attached to the cross beam, the bolt clamps need to be assembled to the tank as follows:

1. Remove the nut from *right-side* clamp so that the clamp opens up.
2. Slide the *right-side* clamp up from the bottom of the tank, going between the nameplate and the valve until it wraps around the tank.
3. Slide the *left-side* clamp over the left side of the tank (the nut does not need to be removed from this clamp).
4. Thread the nut back on the *right-side* clamp to close the loop but leave it loose.

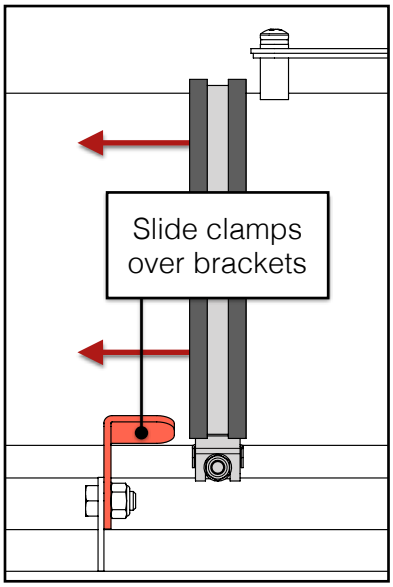


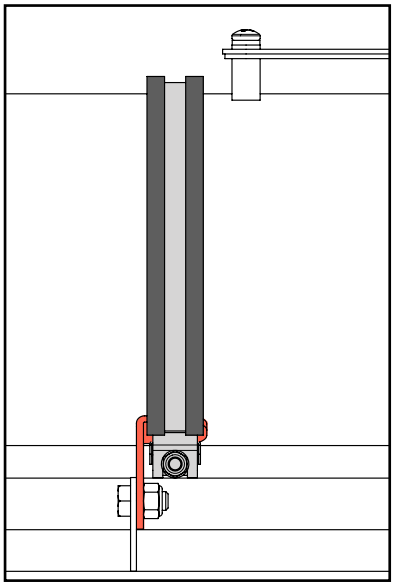
Set the tank assembly into the brackets on the cross beam, ensuring the tank is plum so water will drain freely. The tank must be held in place by hand until the clamps are in place.

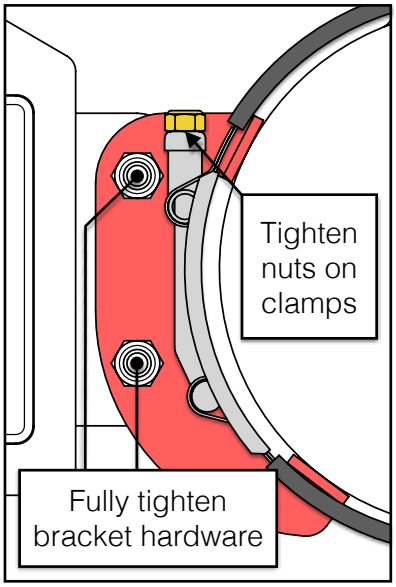




Slide the tank clamps over the tabs on the tank brackets on both sides. Verify the tank is still plum and then tighten the nuts on the clamps. Then fully tighten the bracket hardware until the tank is secure.



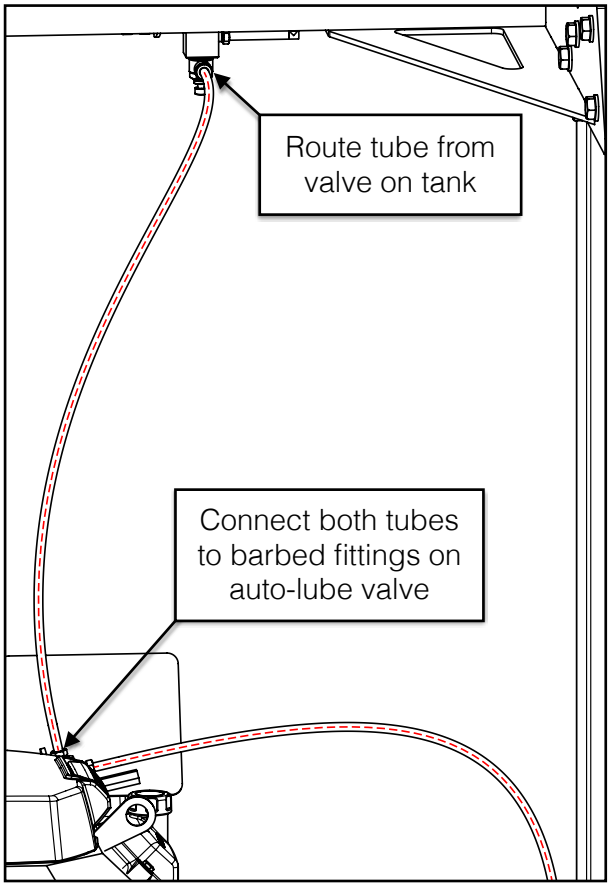


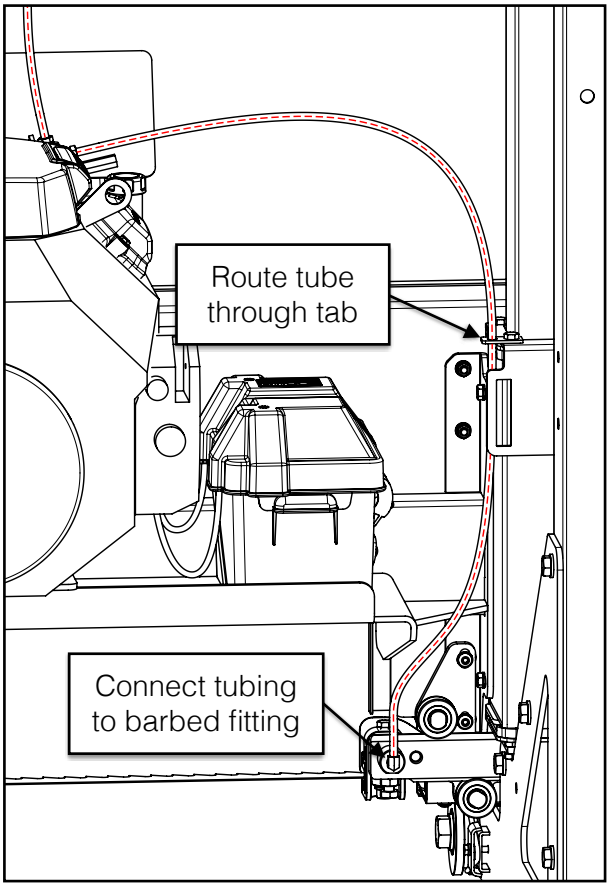


****Do not over-tighten the clamps or the tank could be damaged.****

Route the *tank-to-valve* tubing (shorter tube) 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.

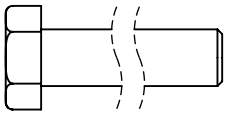
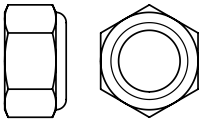
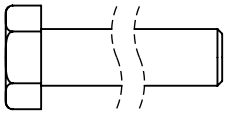
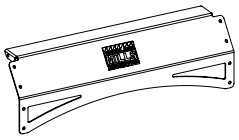
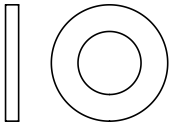
Route the *valve-to-guide block* tubing (longer tube) from the horizontal barbed fitting on the auto-lube valve, through the tab on the post sleeve, then down to the barbed fitting on the guide block holder shaft.



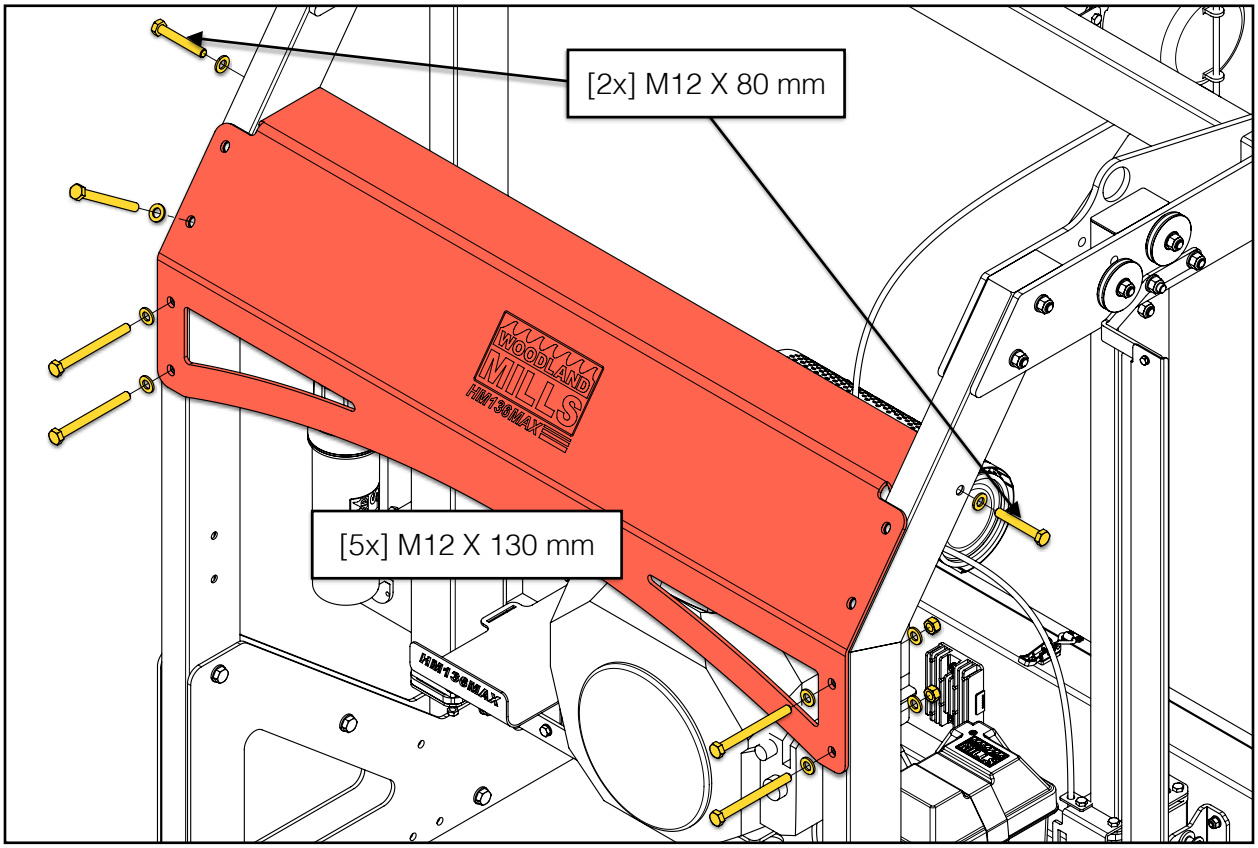


DASHBOARD

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

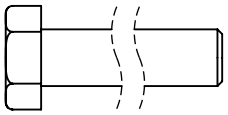
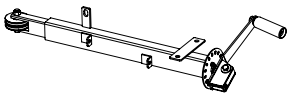
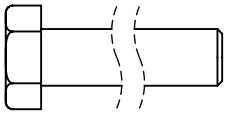
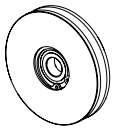
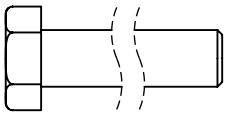
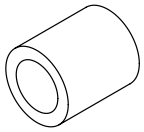
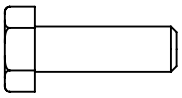
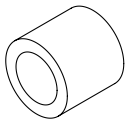
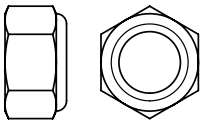
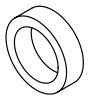
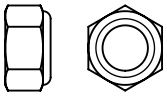
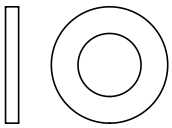
5x	M12 X 130 mm Hex Bolt		7x	M12 Lock Nut	
2x	M12 X 80 mm Hex Bolt		1x	Dashboard	
14x	M12 Flat Washer				

Assemble the dashboard to the rear carriage posts with five (5) M12 X 130 mm bolts, two (2) M12 X 80 mm bolts, and seven (7) M12 lock nuts. Use an M12 flat washer under every bolt head and lock nut. Do *not* fully tighten these bolts at this time.



LIFT MECHANISM

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

1x	M12 X 170 mm Hex Bolt		1x	Lift Mechanism Sub-Assembly	
1x	M12 X 150 mm Hex Bolt		3x	Pulley	
1x	M12 X 130 mm Hex Bolt		1x	Spacer [20.5 mm Lg]	
1x	M10 X 25 mm Hex Bolt		1x	Spacer [16.5 mm Lg]	
3x	M12 Lock Nut		1x	Spacer [5 mm Lg]	
1x	M10 Lock Nut				
6x	M12 Flat Washer				

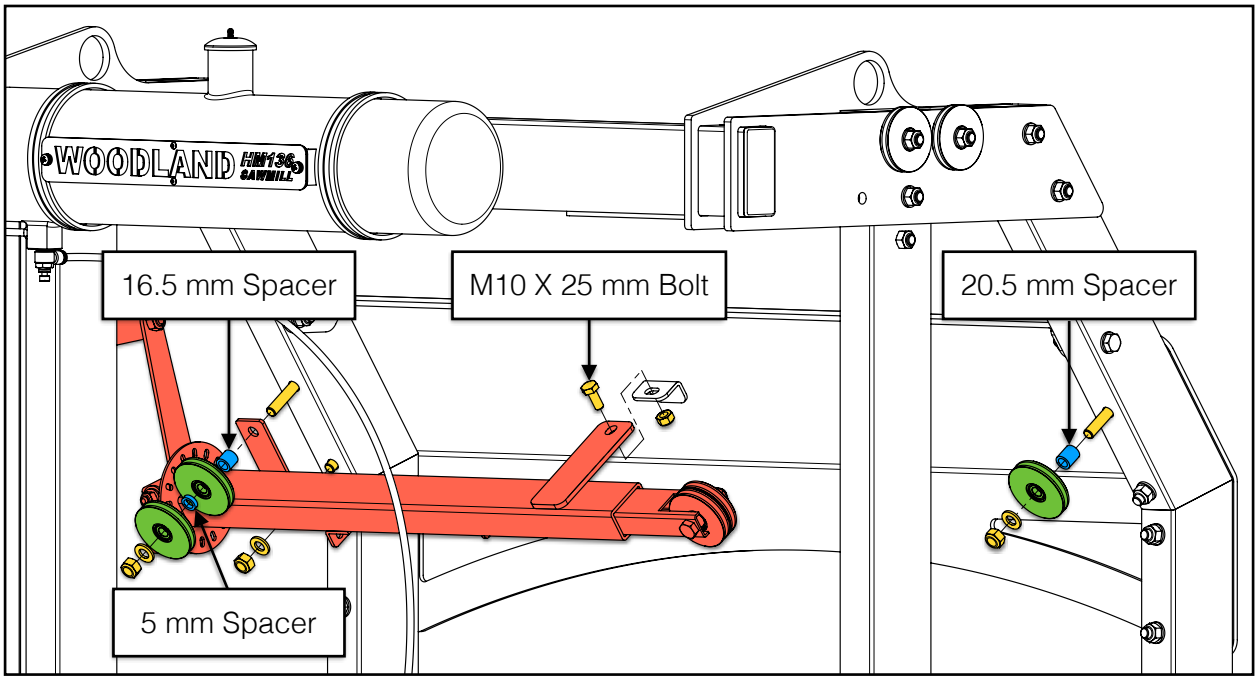
Attach the lift mechanism assembly to the underside of the right-rear carriage post as shown on the next page.

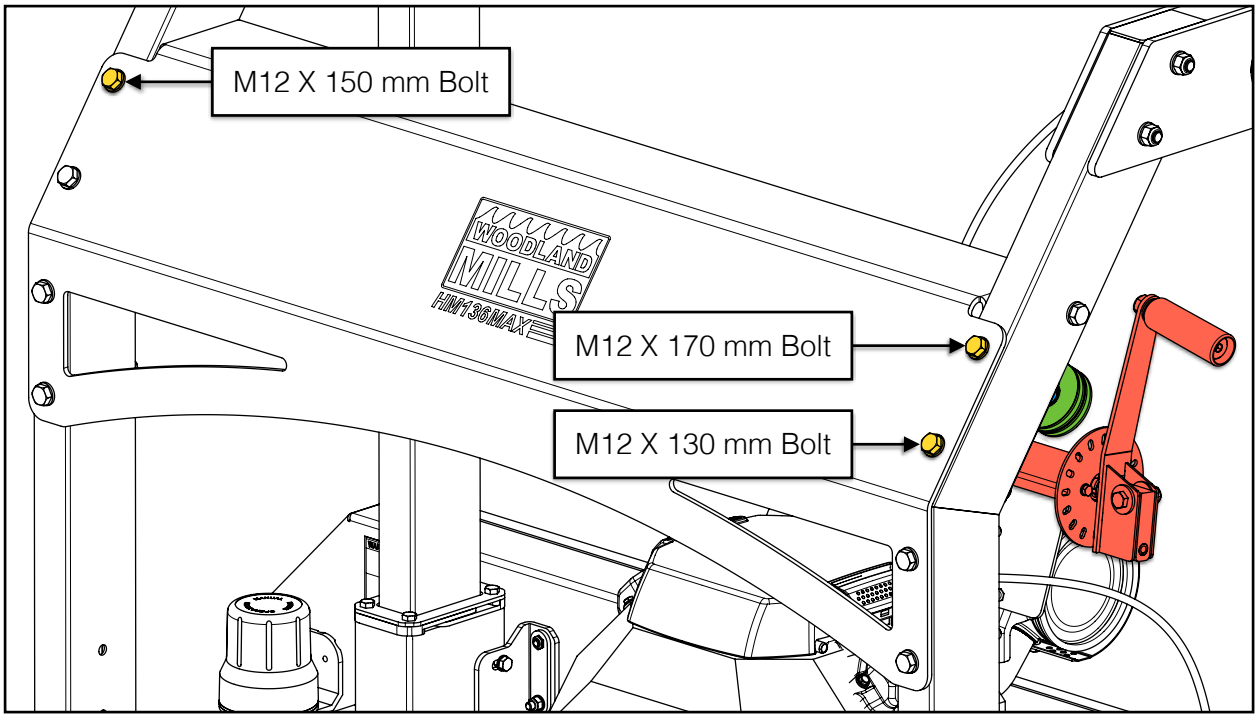
Use one (1) M12 X 170 mm bolt and two (2) spacers (16.5 mm spacer between the lift mechanism mounting tab and the first pulley; 5 mm spacer *between* the pulleys) in the upper-right dashboard hole. Use one (1) M12 X 130 mm bolt in the lower-right dashboard hole. Use an M12 flat washer under each bolt head and lock nut.

Secure the centre mounting tab to the inside of the dashboard using an M10 X 25 mm bolt and M10 lock nut.

On the left rear post, assemble the final pulley using one (1) M12 X 150 mm bolt and one (1) 20.5 mm spacer. Use an M12 flat washer under the bolt head and lock nut.

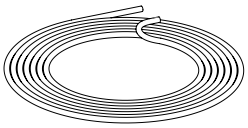
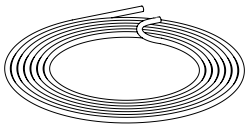
Do *not* fully tighten these bolts at this time.





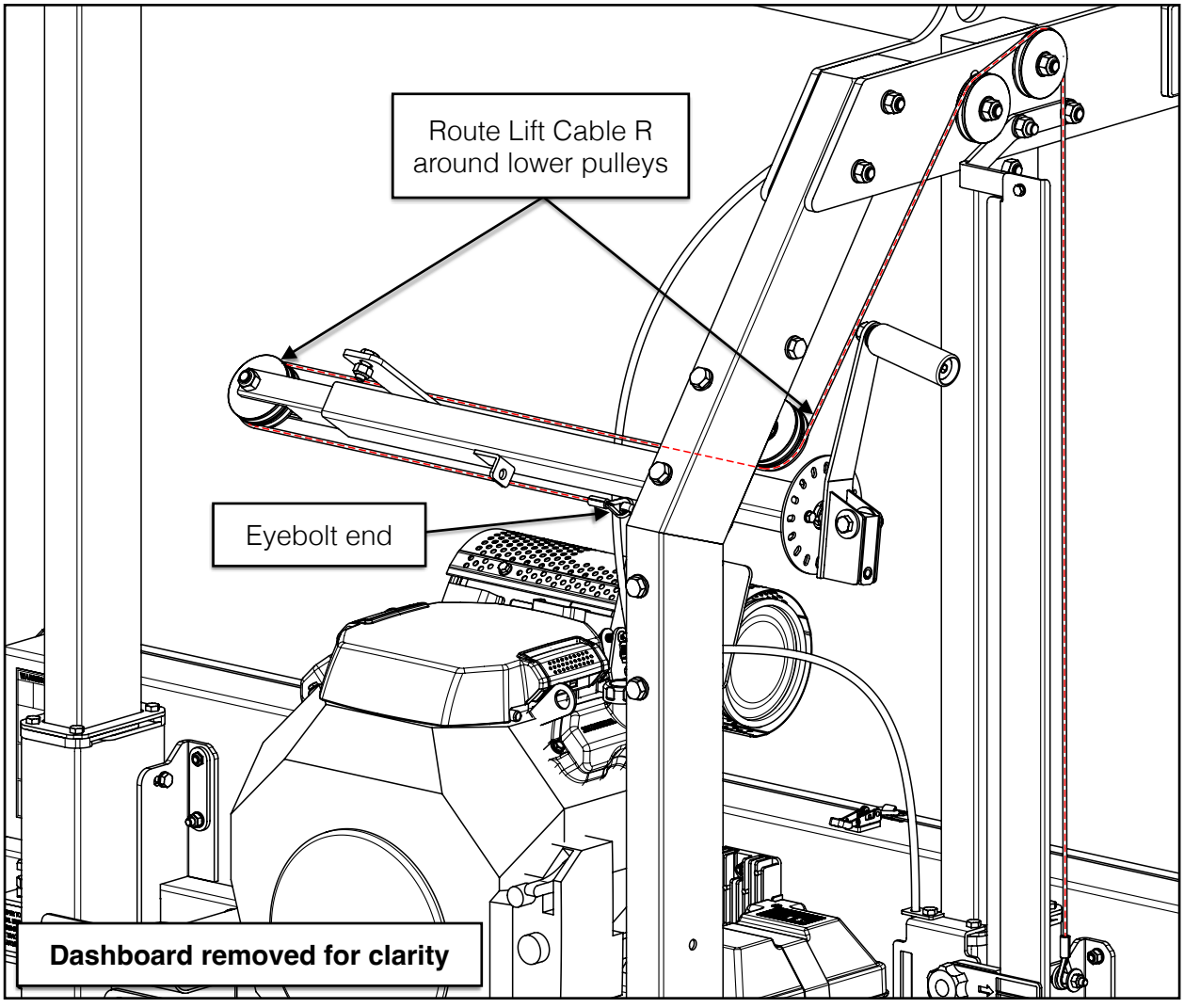
LIFT CABLE ROUTING

Route the lift cables listed below.

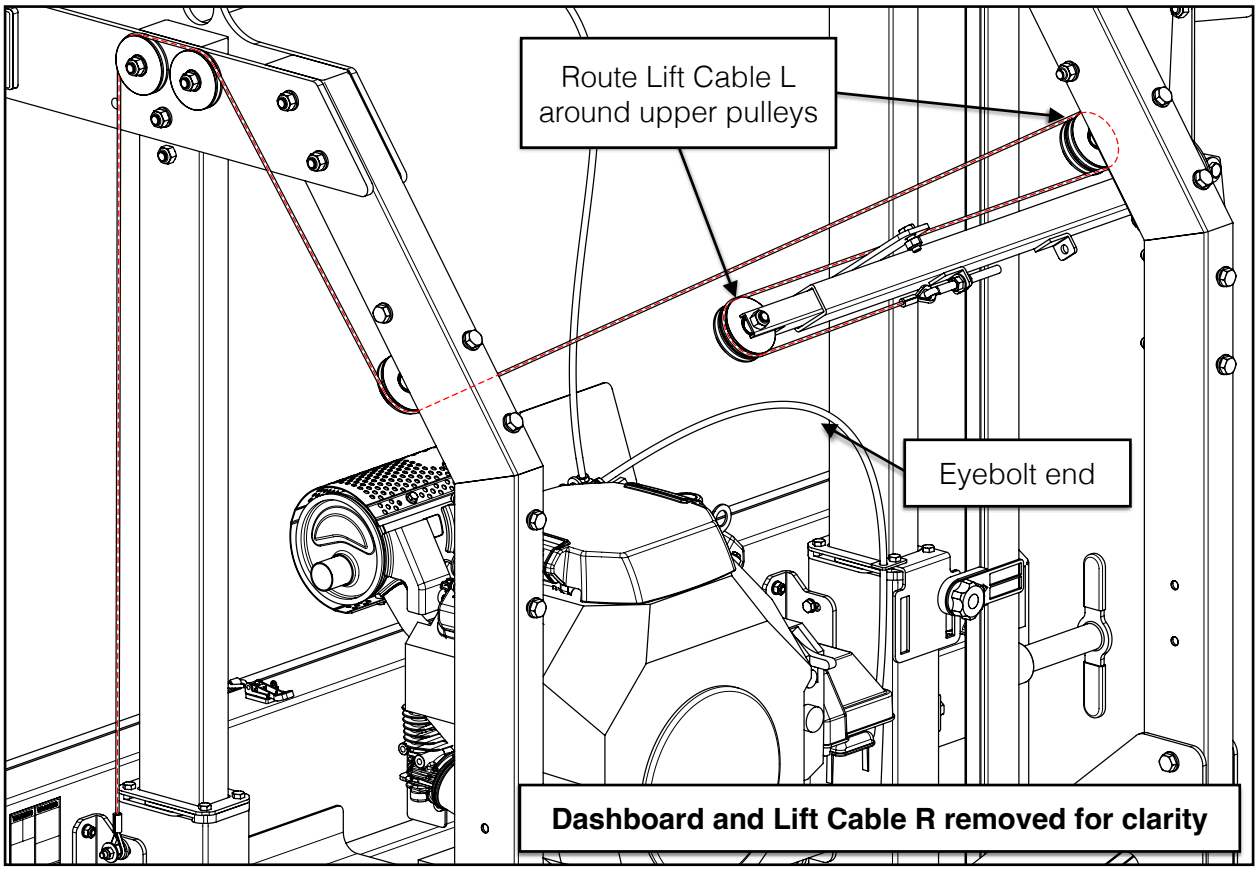
1x	Lift Cable R [Right Side]		1x	Lift Cable L [Left Side]	

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 R (right side) as shown below.

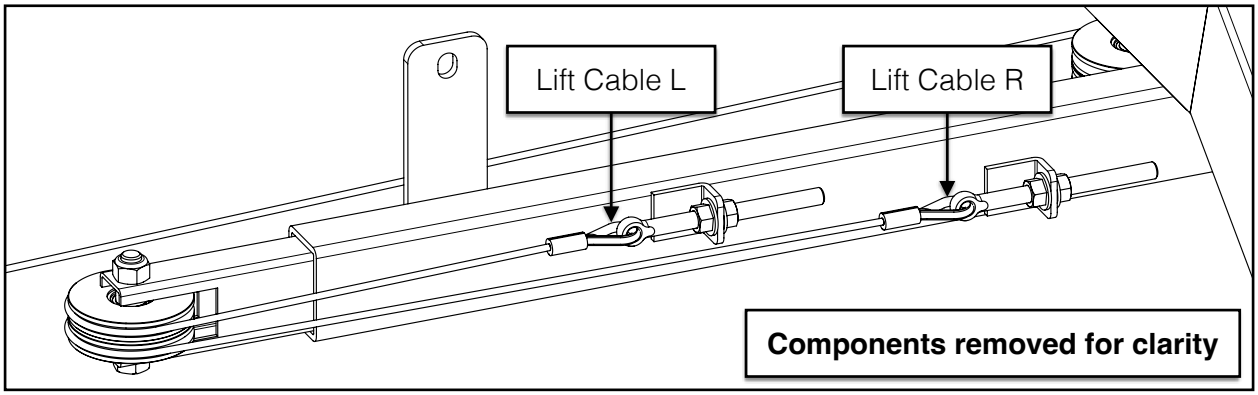


Route lift cable L (left side) as shown below.



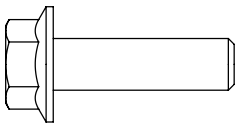
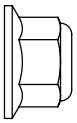
Unthread one (1) M10 flanged nut from each eyebolt, then insert the eyebolt into the bracket on the bottom side of the lift mechanism housing. Secure the eyebolt to the bracket with the M10 flange nut that was removed, sandwiching the bracket between both flange nuts.

Repeat the process for the other lift cable. Do not fully tighten this hardware.

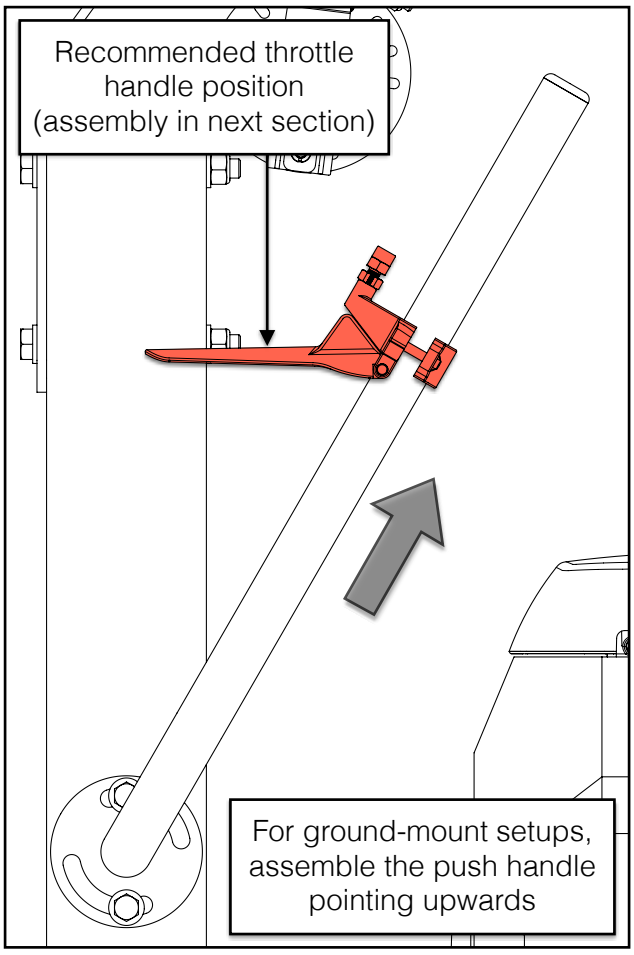


PUSH HANDLE

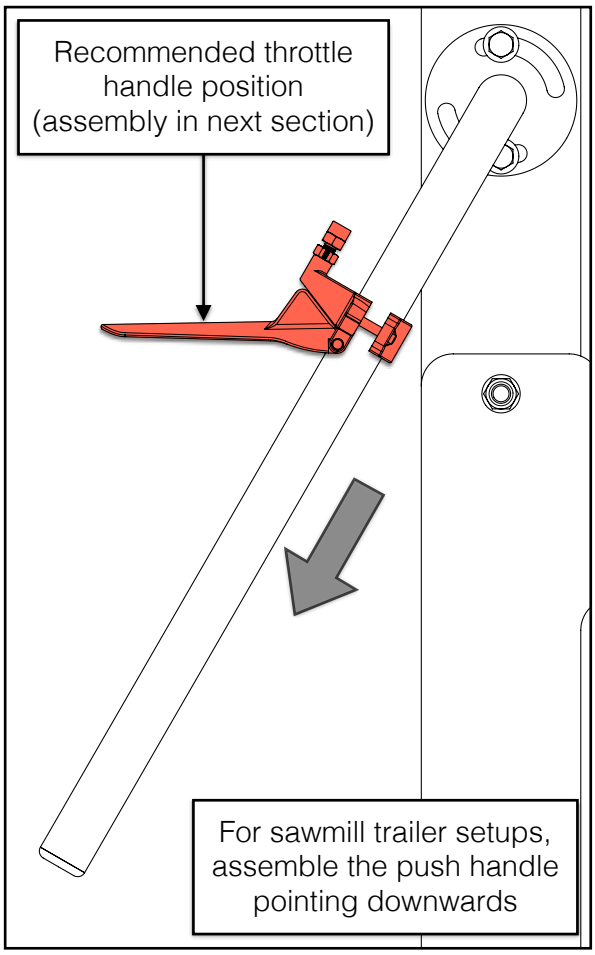
With the hardware listed below, assemble the push handle to the right rear carriage leg.

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**).

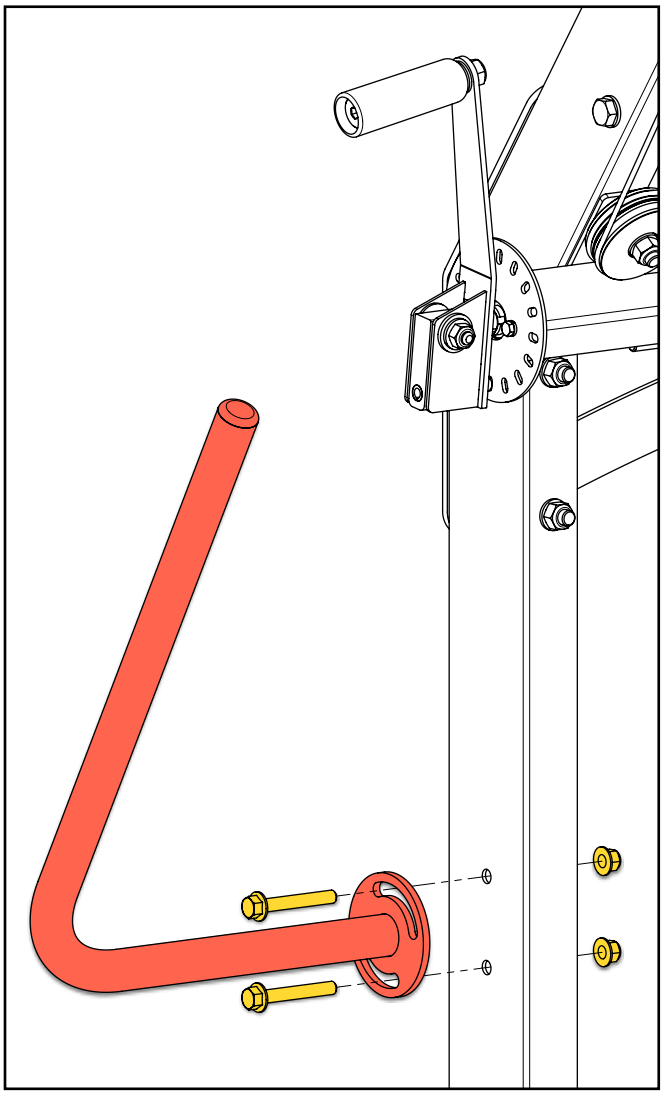


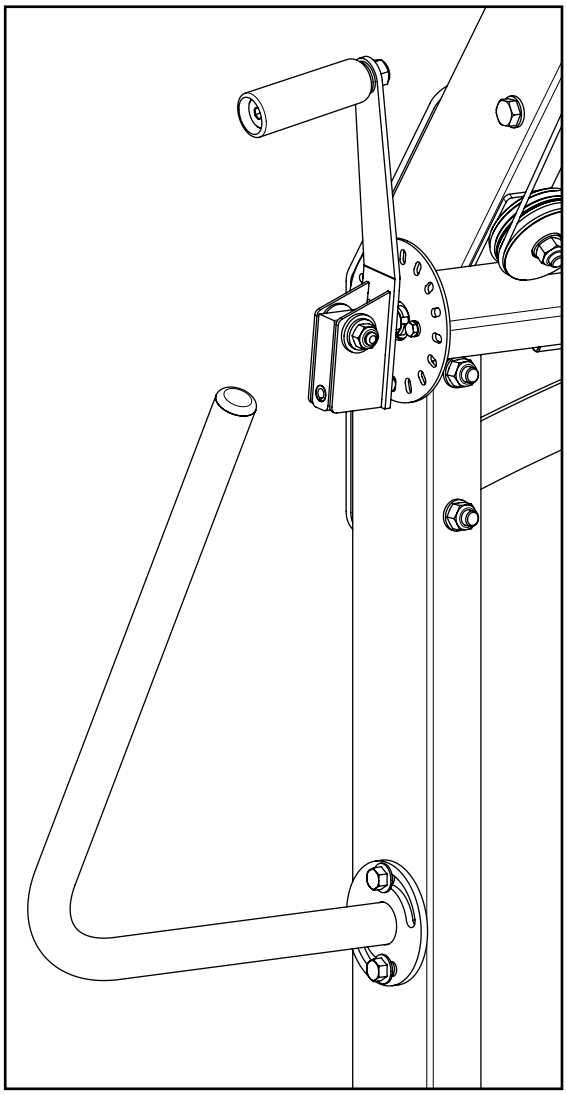
Ground-Mount Push Handle and Throttle Handle Recommended Position



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.

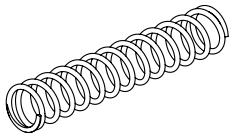
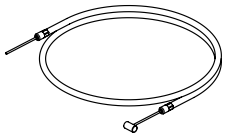
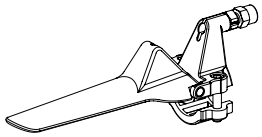




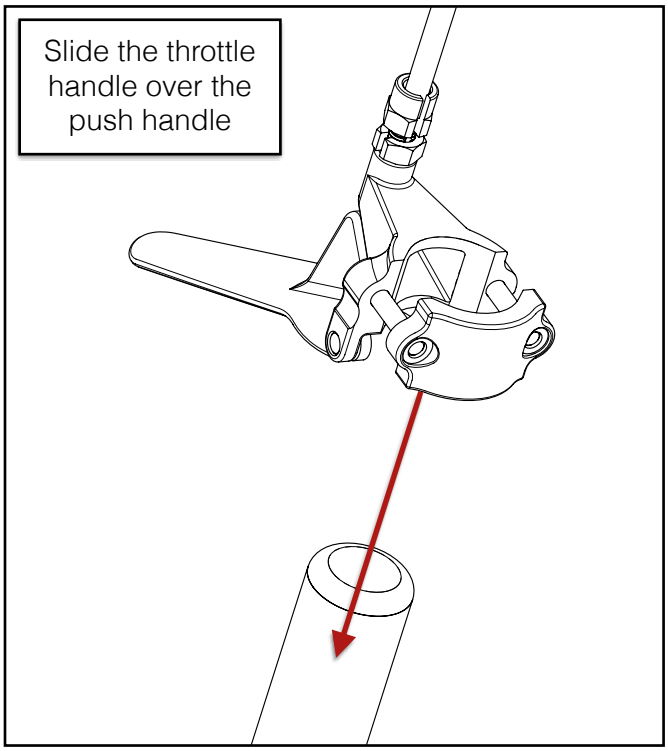
The push handle can be adjusted/rotated forwards or backwards to suit the ergonomics of the operator in either ground-mount or sawmill trailer configurations.

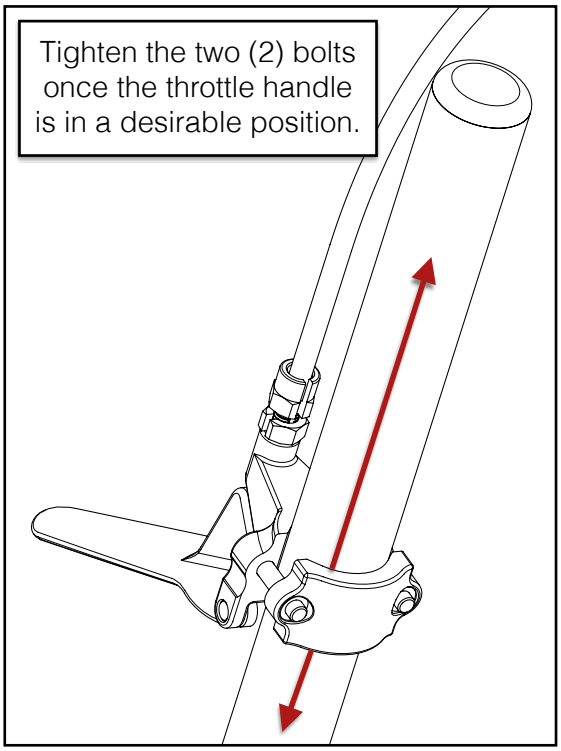
THROTTLE HANDLE AND CABLE

The throttle handle and its mounting hardware come loosely assembled with the throttle cable attached.

2x	Compression Spring		1x	Throttle Cable	
			1x	Throttle Handle Assembly	

The throttle can be positioned anywhere along the length of the push handle as desired by the operator. Tighten the two (2) bolts to secure the throttle handle.

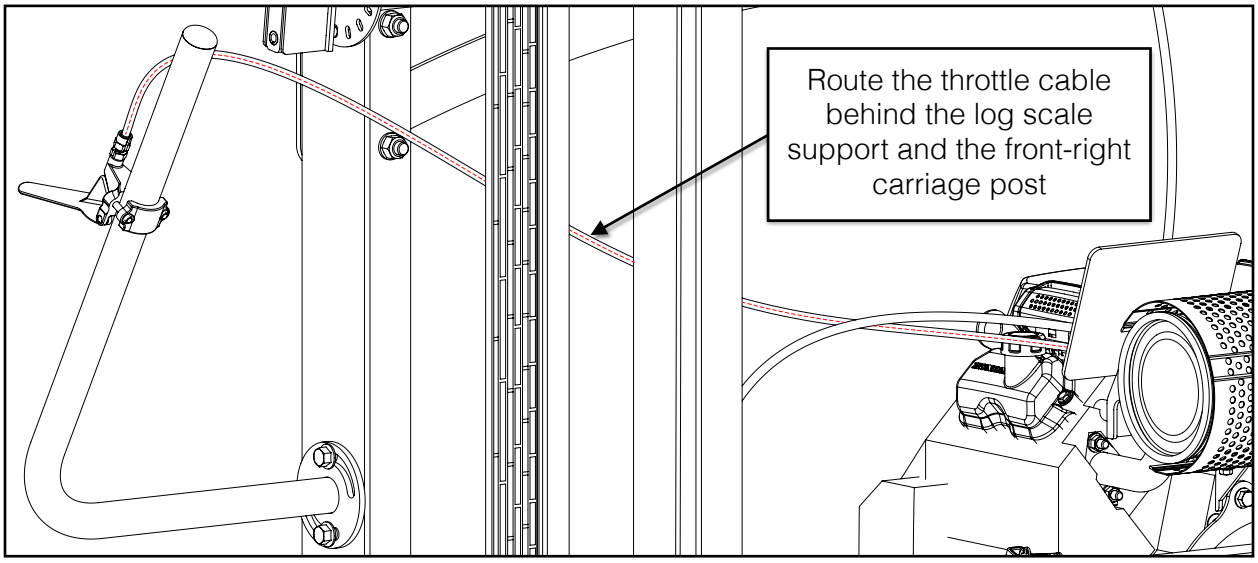




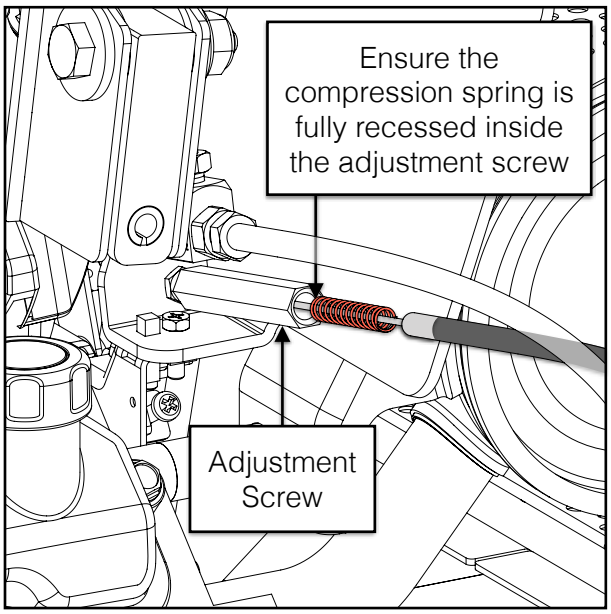
WARNING!

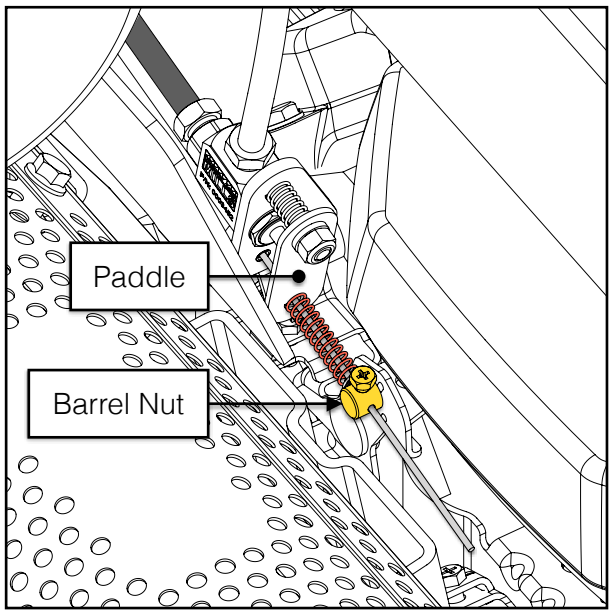
Do not over-tighten the bolts or the throttle handle could be bent and damaged. Tighten the bolts just enough so that the handle does not slide up or down on the push handle.

The throttle cable routes from the handle, behind the log scale support and front-right carriage post, and to the engine as shown below.



Slide one of the compression springs over the open end of the throttle cable and feed the end of the cable through the adjustment screw on the auto-lube assembly. Be sure the spring is fully recessed down into the adjustment screw.

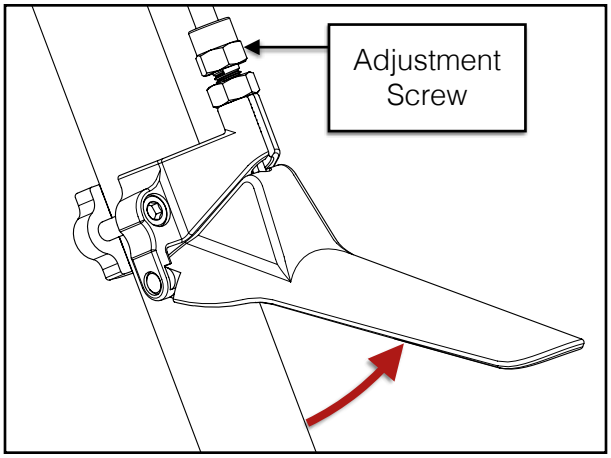




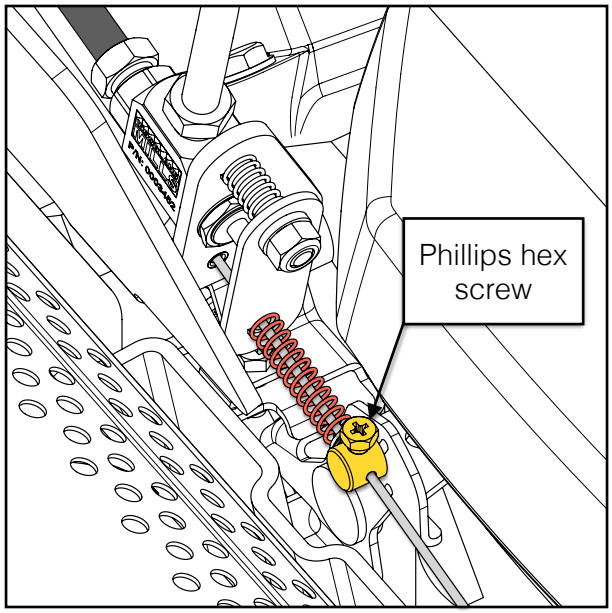
Continue to route the unsheathed cable through the hole in the bottom of the paddle and then slide the second compression spring over the end. Feed the cable through the hole in the barrel nut on the engine where the OEM throttle cable was originally installed.

Take the slack out of the throttle cable pulling the unsheathed end of the cable until the throttle handle is all the way up until it stops (Idle Position). Ensure each end of the throttle cable sheath is fully nested into the adjustment screws on both the throttle handle and the engine's auto-lube assembly.

Use pliers to pull the unsheathed end of the cable until it is tight. Tighten the Phillips hex head screw while the cable is being pulled tight to secure it.

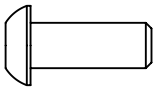
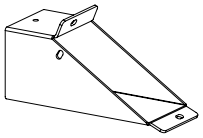
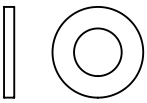
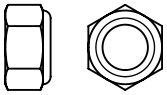


IDLE POSITION



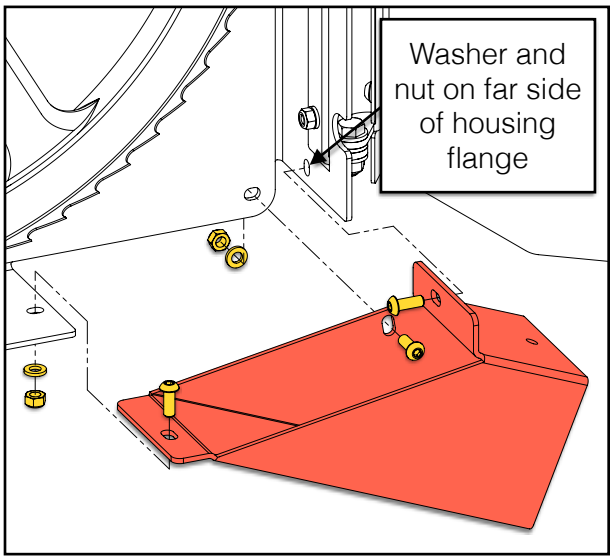
DUST CHUTE

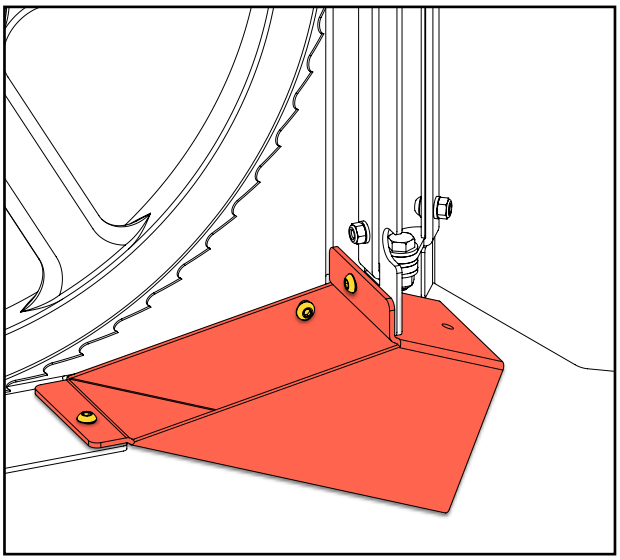
Using the hardware and components listed below, assemble the dust chute to the lower left-side of the band wheel housing.

3x	M6 X 16 mm Button Head Screw		1x	Dust Chute	
3x	M6 Flat Washer				
3x	M6 Lock Nut				

Assemble the dust chute to the *inside* of the flanges on the lower-left side of the band wheel housing using three (3) M6 X 16 mm button head screws, three (3) M6 flat washers, and three (3) M6 lock nuts.

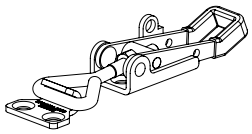
Fully tighten all the hardware from this step.



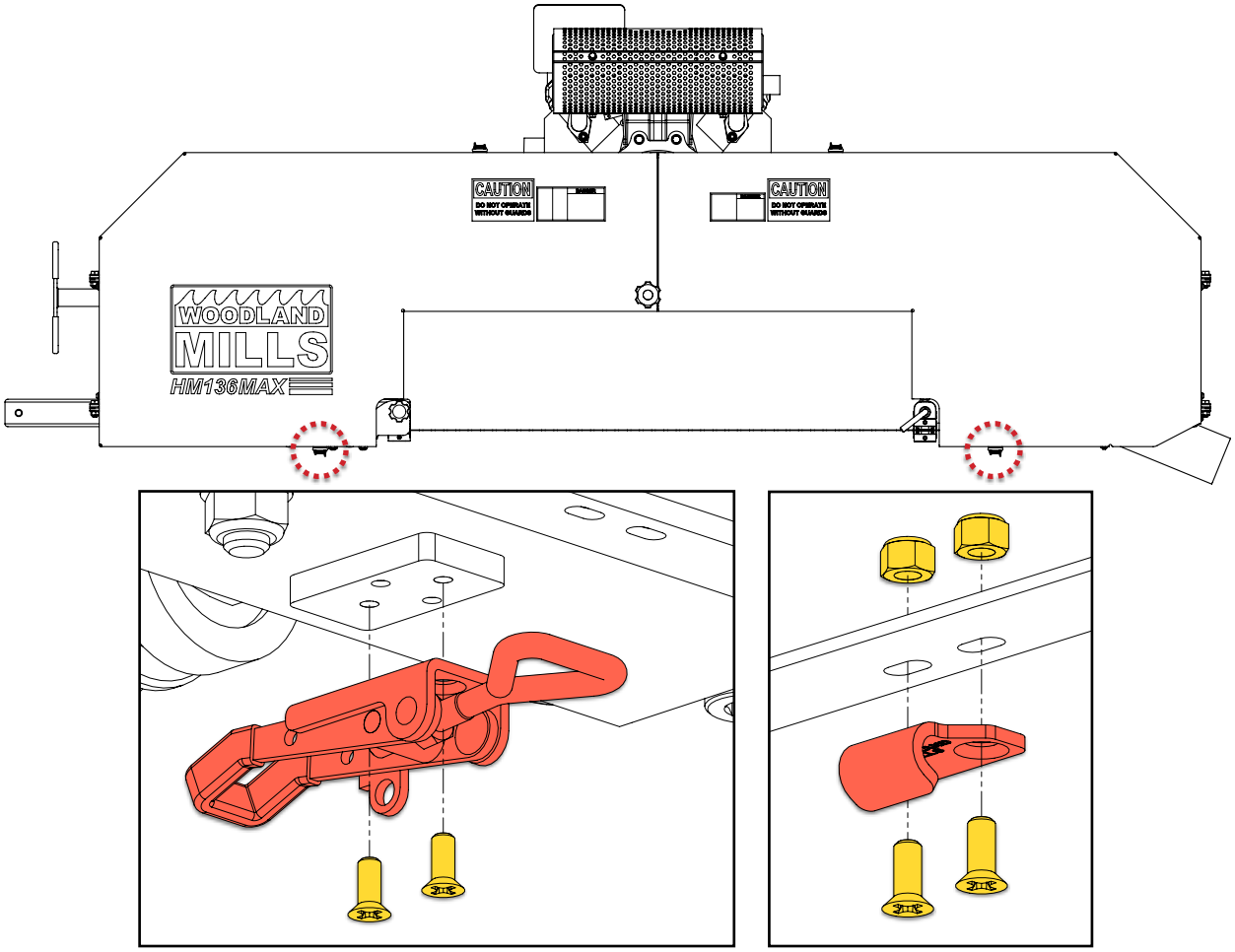


BAND WHEEL DOOR LATCHES

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

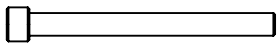
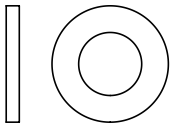
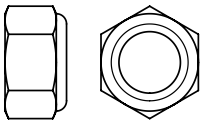
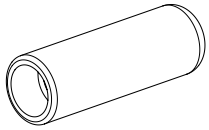
8x	M4 X 10 mm Phillips Flat Head Screw		2x	Latch	
4x	M4 Lock Nut				

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.

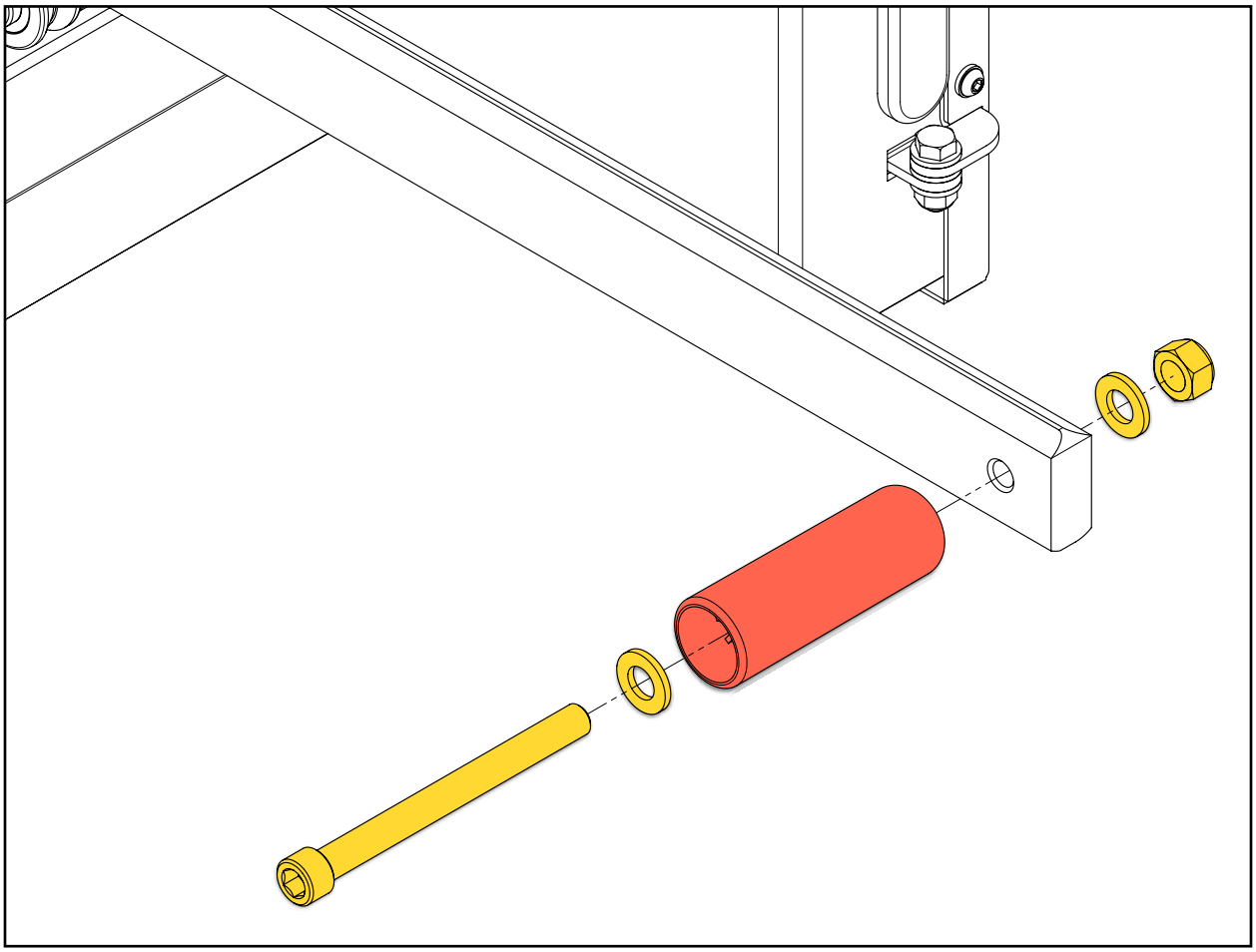


ADJUSTABLE BLADE GUIDE HANDLE

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

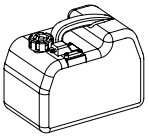
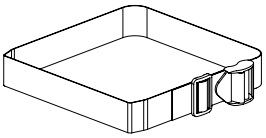
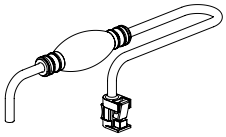
1x	M12 X 130 mm Socket Head Cap Screw		2x	M12 Flat Washer	
1x	M12 Lock Nut		1x	Handle Grip	

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.



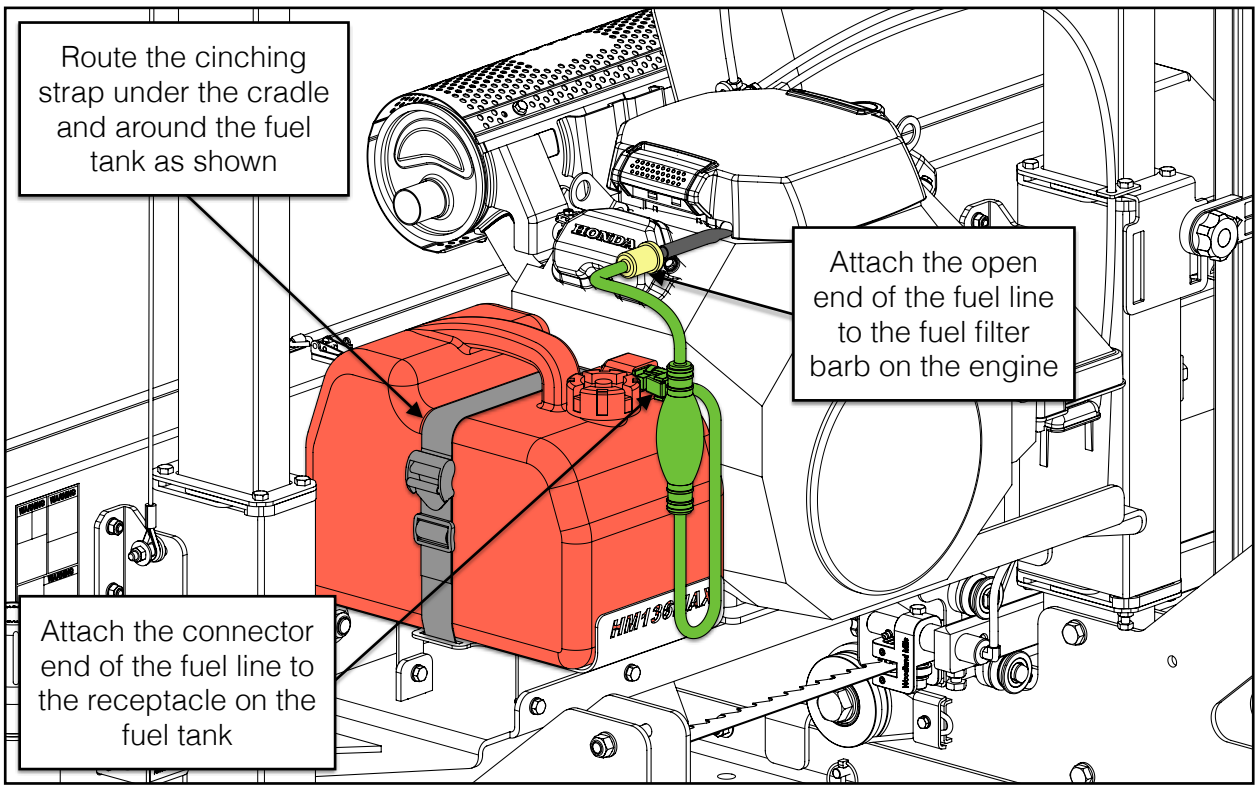
FUEL SYSTEM

Using the components listed below, assemble the fuel tank into the cradle on the left side of the engine.

1x	Fuel Tank		1x	Cinching Strap	
1x	Fuel Line				

Thread the cinching strap down through one of the slots, under the cradle, and then up through the slot on the opposite side.

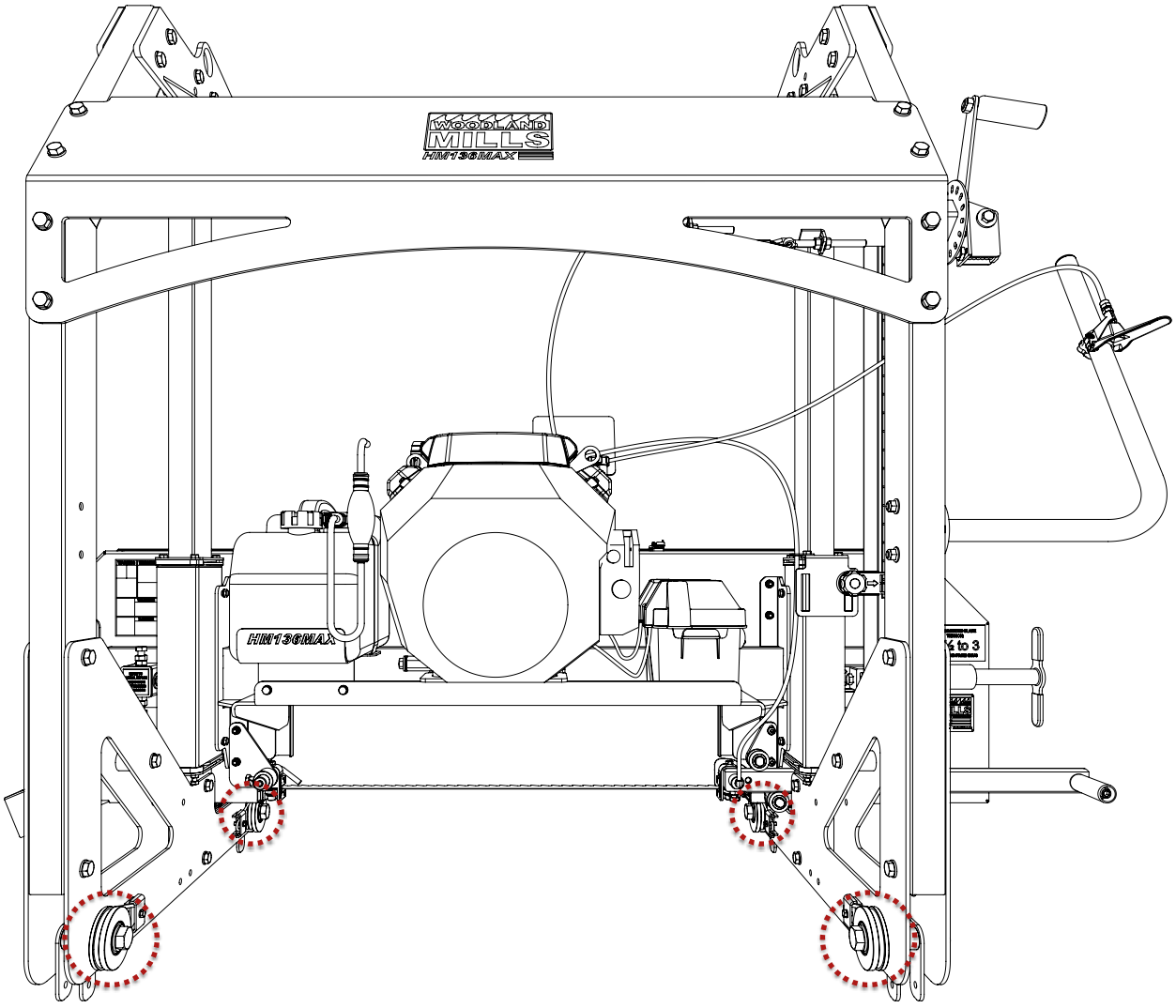
Set the fuel tank into the cradle, route the cinching strap under the cradle and through both slots, wrap it around the tank—ensuring it passes *through* the tank handle, and then adjust the strap until it secures the tank tightly to the cradle.



Plug the end of the fuel line with the connector into the fuel tank receptacle and then slide the open end of the fuel line hose onto the fuel filter barb on the engine.

TIGHTEN CARRIAGE WHEEL BOLTS

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

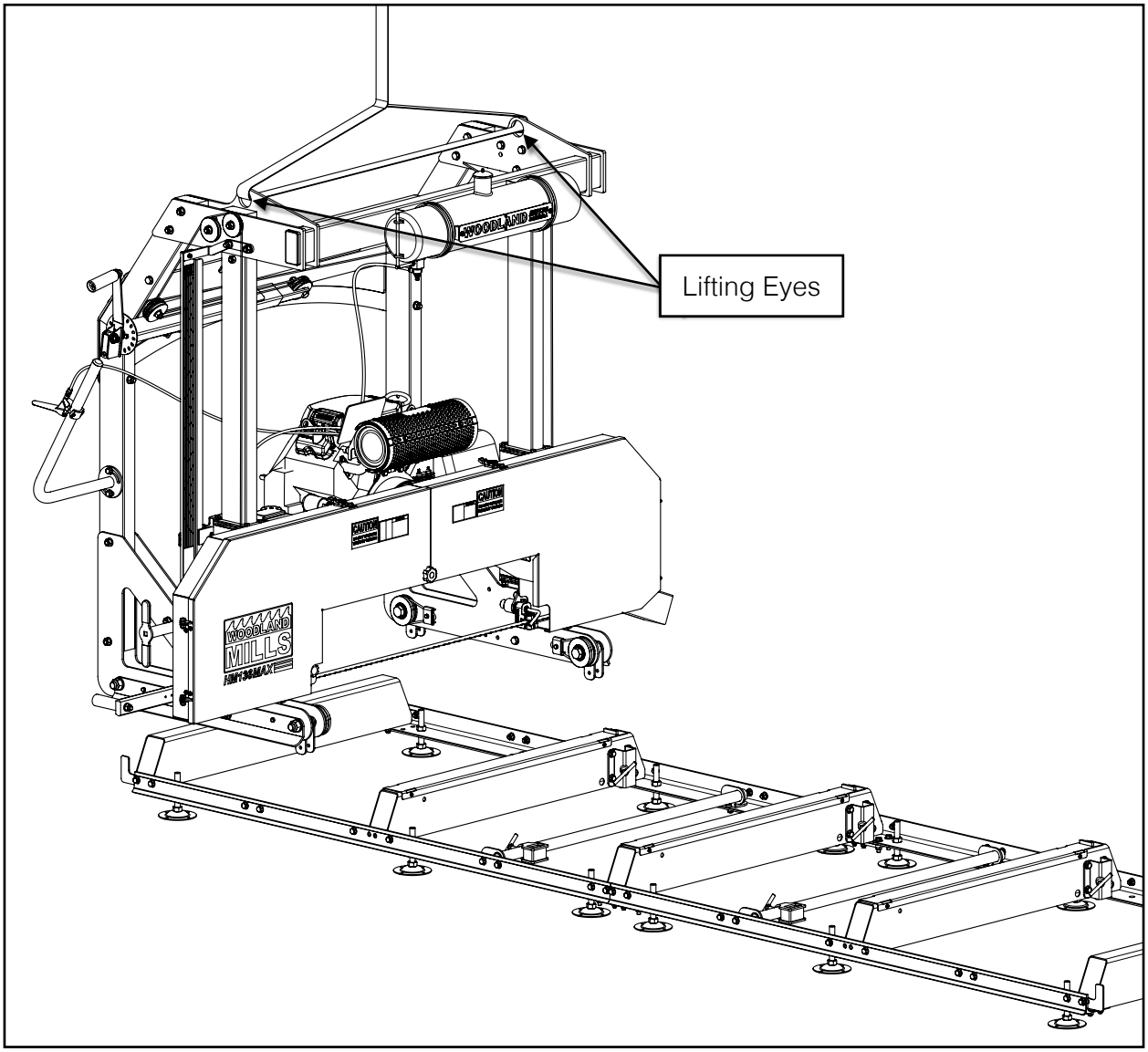


5. PLACING THE HEAD ON THE TRACK

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: LIFTING

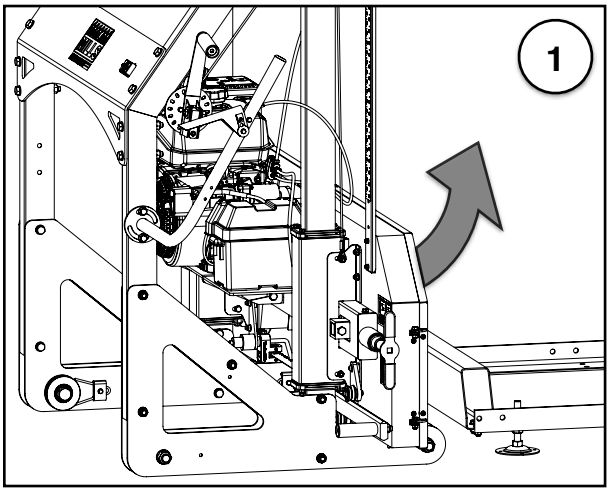
If a tractor or forklift is available, the head can be lifted onto the track with a lifting sling or chain with a minimum rating of 1000 lb. [450 kg]. Attach the lifting strap/chain to the lifting eyes, raise the head up, and rest it on the track so that the grooves in the carriage wheels seat onto the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

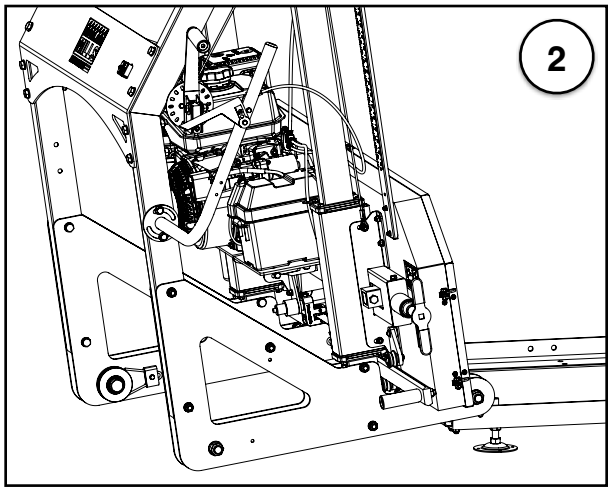


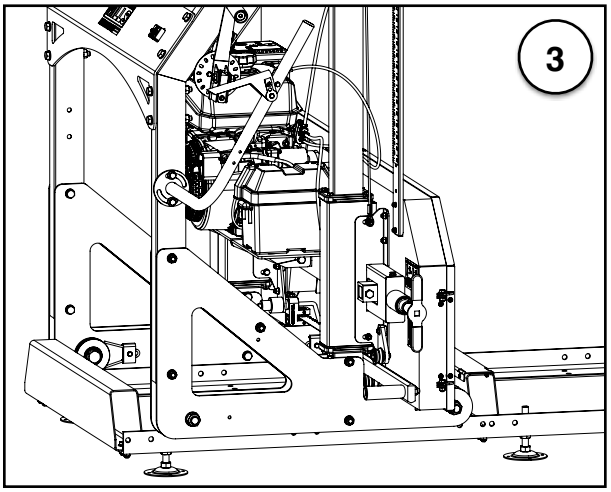
METHOD 2: WALKING

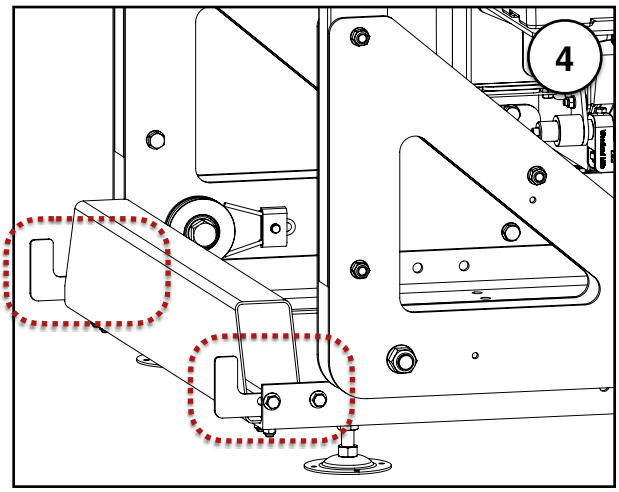
At least two people are required for this step. Start by removing the two (2) carriage stops from one end of the track. The head can be walked over to the track until positioned behind it (**Figure 1**). Once in this position, tilt the head backwards so that the front two wheels are off the ground. Walk 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**).







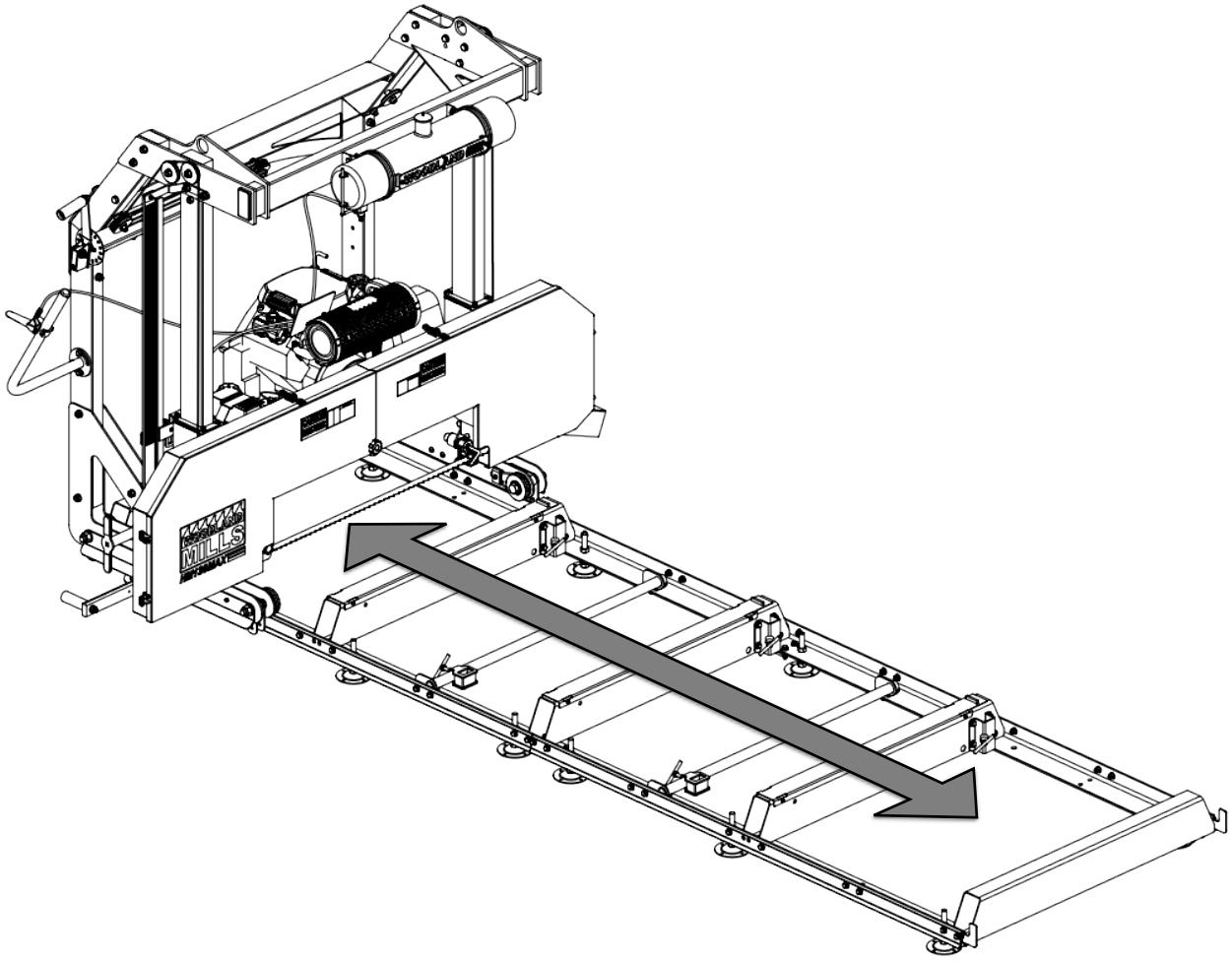


With the sawmill head assembly now resting on the track, grab hold of the one side of the cross beam and perform a shake-down of the head. Shaking the head will help settle the components into their proper position that may have become misaligned either due to tolerances during the assembly process or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

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

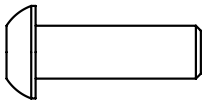
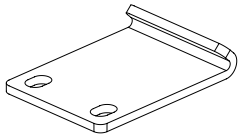
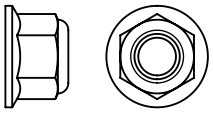
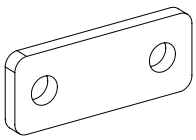
ROLLING THE SAWMILL HEAD ASSEMBLY

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.



ANTI-TIP BRACKETS

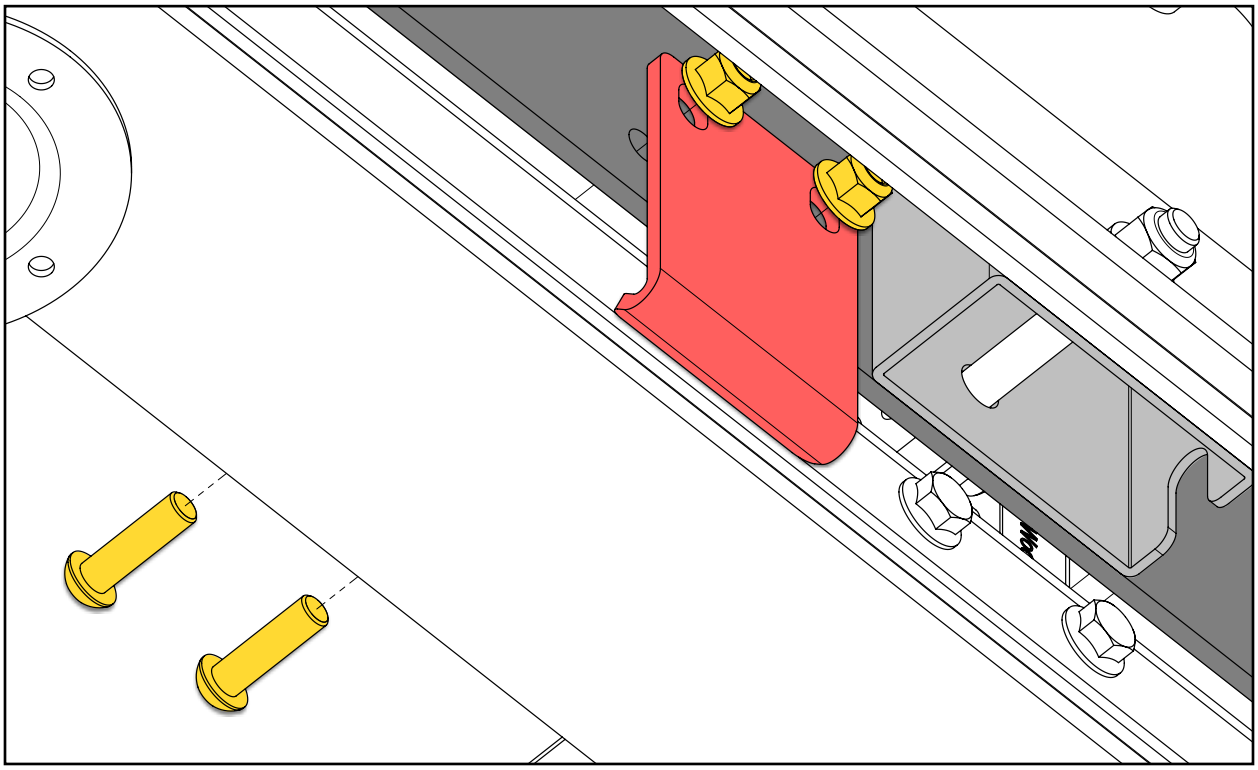
Using the hardware and components listed below, assemble the anti-tip brackets to the *inner* carriage side plates.

4x	M10 X 35 mm Button Head Screw		2x	Anti-Tip Bracket	
4x	M10 Flanged Lock Nut		[2x]	Anti-Tip Bracket Spacer	

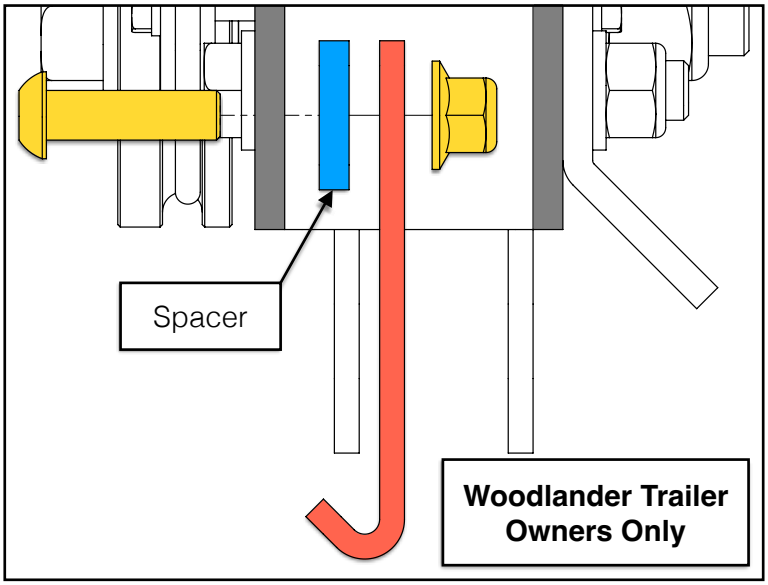
****Note: If the sawmill is going on a Woodlander trailer, the bracket spacer needs to be installed between the bracket and the carriage side plate. See next page for details.****

For ground-mount track installations, use two (2) M10 X 35 mm button head screws and two (2) M10 flanged lock nuts to secure each anti-tip bracket to the outer face of the *inner* carriage side plate.

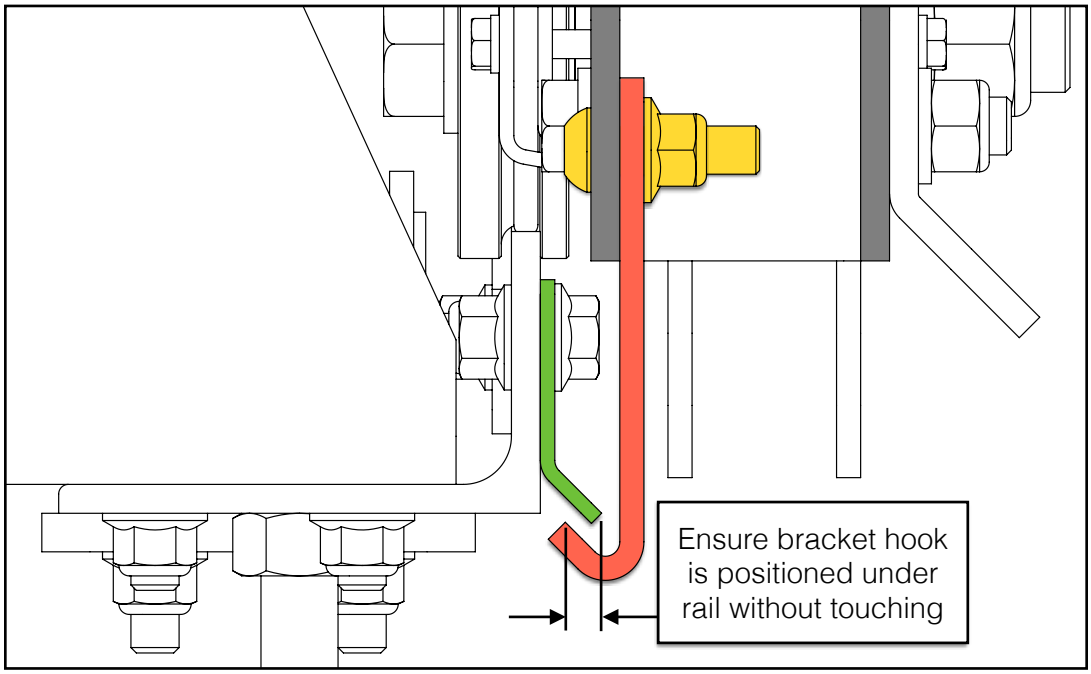
Do *not* fully tighten the hardware until instructed to do so on the next page.



If the sawmill is going to be installed on a Woodlander trailer, a spacer needs to be assembled between the bracket and carriage side plate to accommodate the thickness of the trailer side plates.



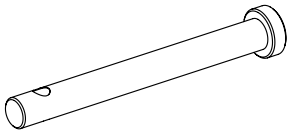
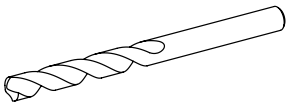
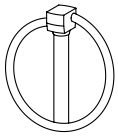
With the brackets loosely installed, run the sawmill up and down the track. Ensure the bracket does not make contact with the anti-tip rails on the track as the carriage rolls.



The hook end of the bracket only needs to be underneath the rail lip edge to be effective. Once the bracket is positioned correctly, fully tighten the hardware.

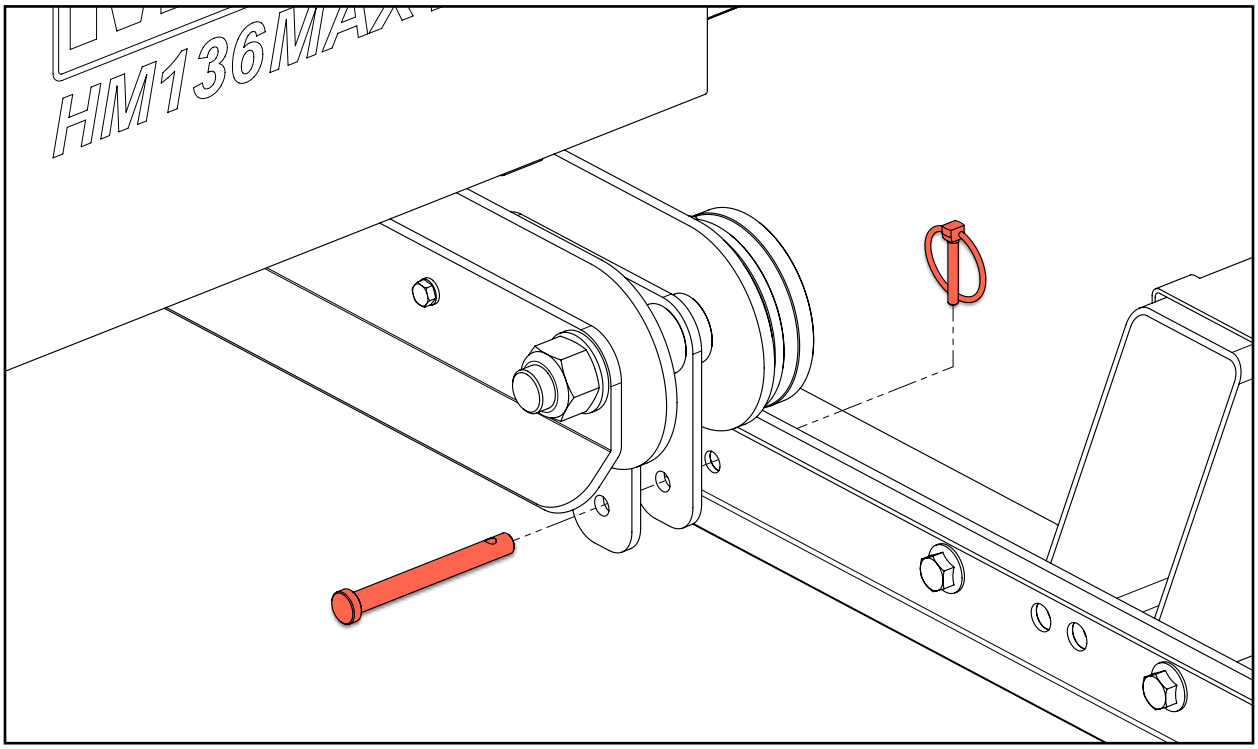
TRAILER LOCK-DOWN PINS

The HM136MAX sawmill includes the lock-down components and hardware for installation on a Woodlander™ trailer.

4x	Lock-Down Pin		1x	Drill Bit	
4x	Linch Pin				

On a ground-mount sawmill installation, it is not necessary to drill holes and lock-down the sawmill when not in use. The ***SAWHEAD STOP*** (see next page) should suffice for most ground-mount setups.

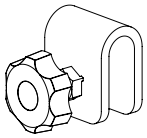
However, a ground-mount sawmill can be locked-down if the operator desires by drilling four (4) holes through the anti-tip and track rails at each pair of lock-down brackets on the sawhead. Before drilling, ensure the proposed pin locations will not interfere with the track hardware.



If the sawmill is going to be installed on a Woodlander trailer, see section, ***LOCKING DOWN THE SAWMILL HEAD***, in the Woodlander™ Operator's Manual.

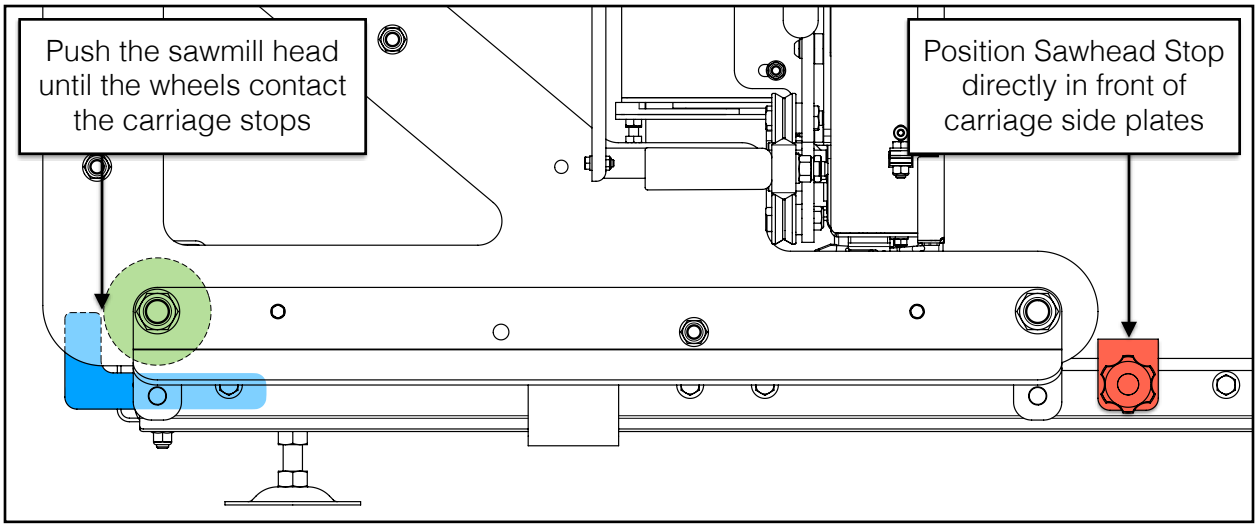
SAWHEAD STOP

The sawhead stop is a clamping device that prevents the sawhead from rolling when the sawmill is not in use.

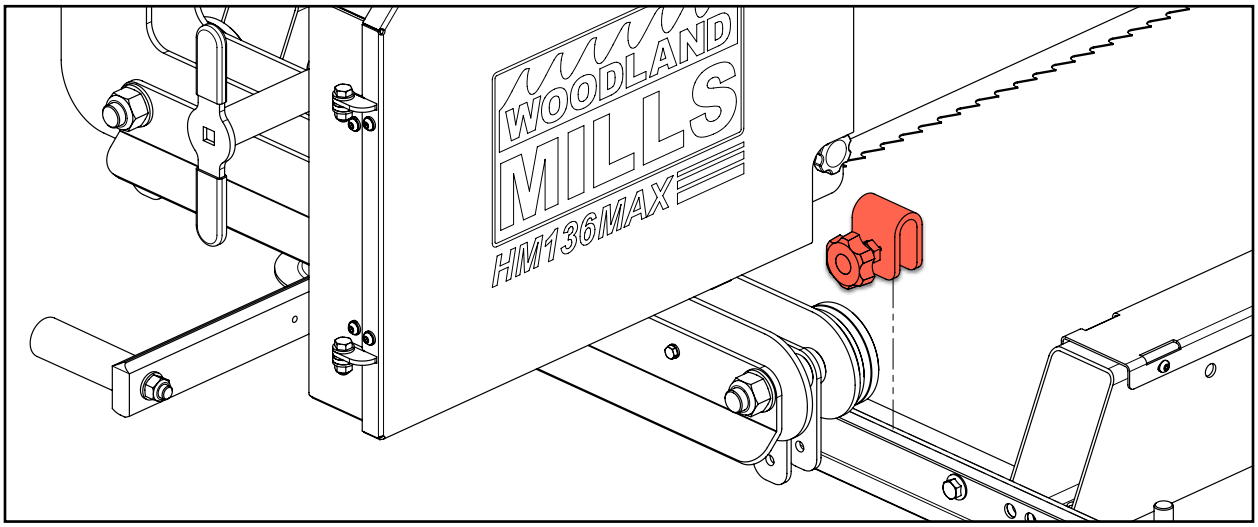
1x	Sawhead Stop	

****The Sawhead Stop is *not* a substitute for using the lock-down pins while transporting the sawmill on a Woodlander™ trailer****

The head needs to be pushed all the way to one end of the track until the carriage wheels make contact with the carriage stops.

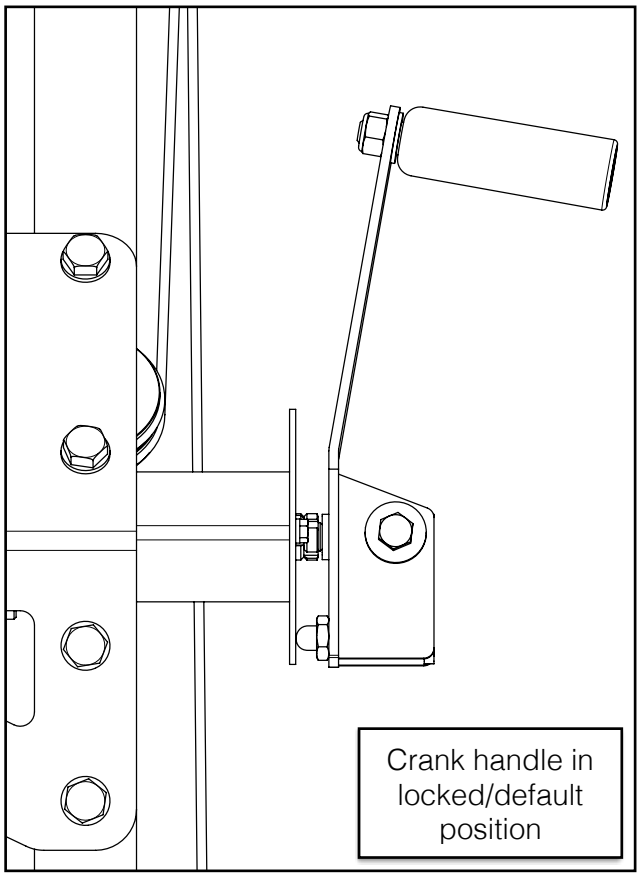


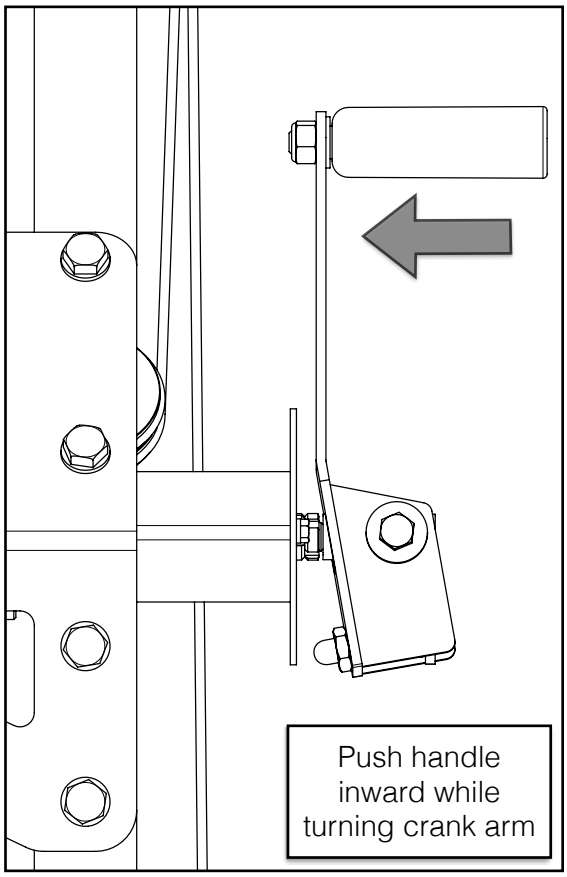
Place the sawhead stop over the track rail directly in front of the carriage side plate. Tighten the knob to lock it in place.

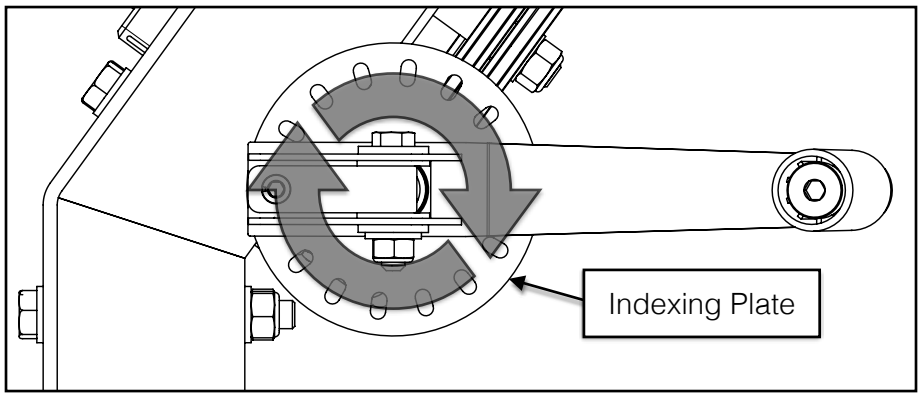


RAISING & LOWERING THE SAWHEAD

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.

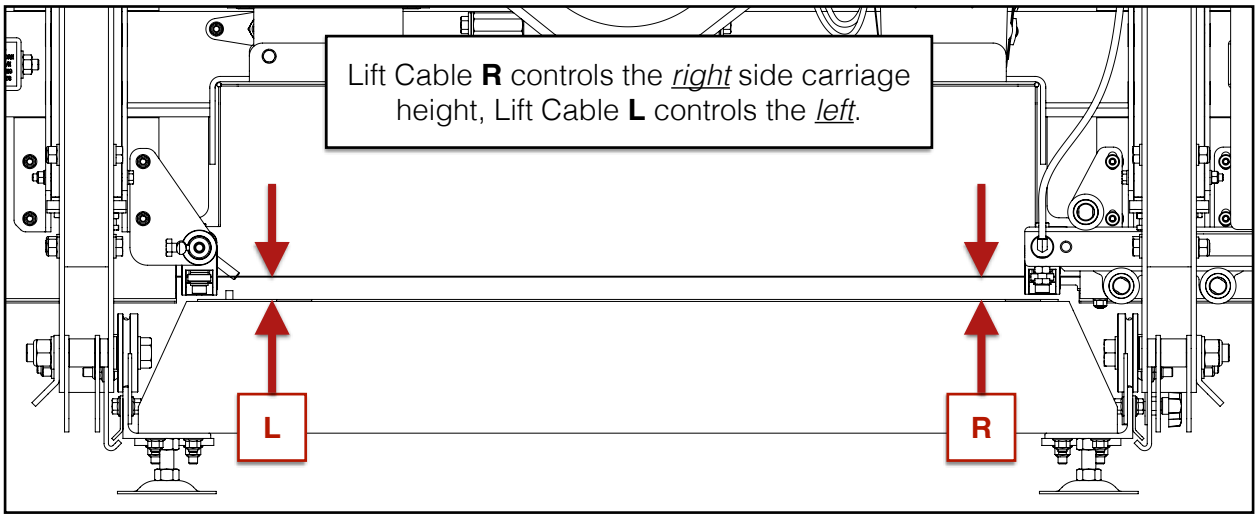






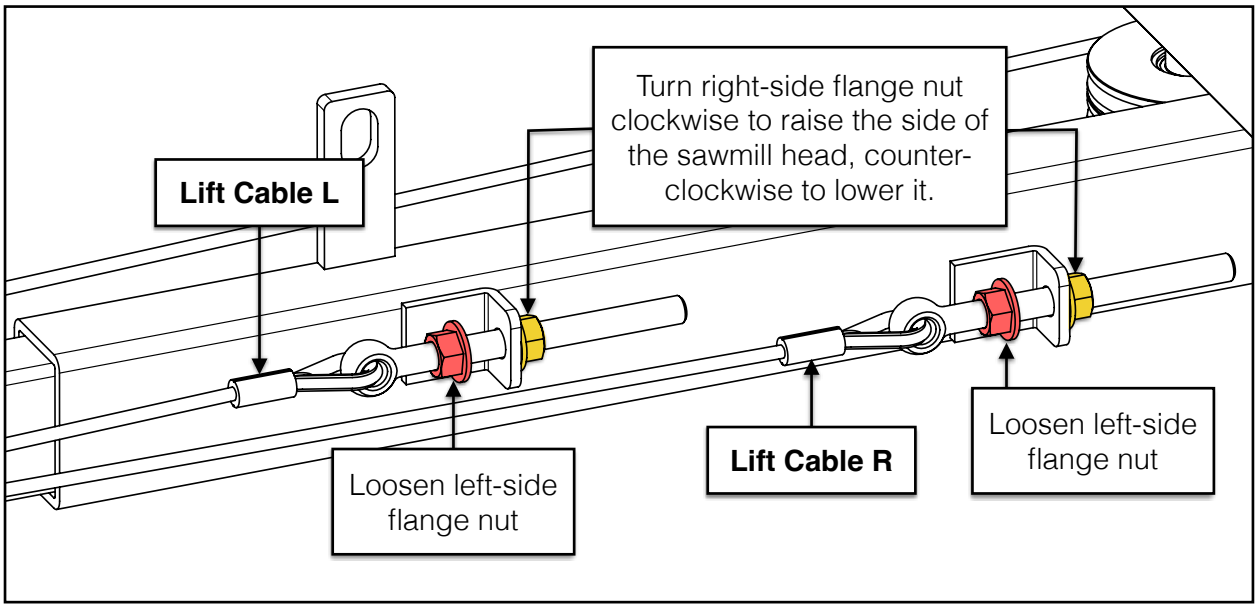
LEVELLING THE SAWMILL HEAD ASSEMBLY

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



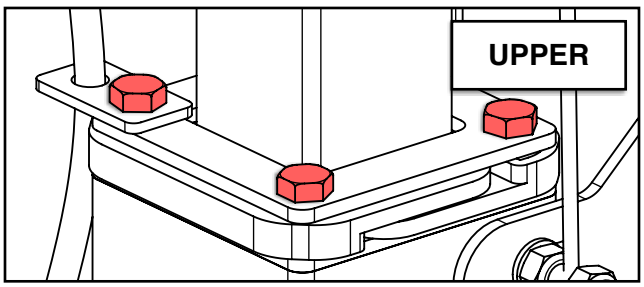
Loosen the left-side flange nuts on the lift cable eyebolts first. Turn the right-side flange nuts clockwise to raise one side of the sawmill head assembly, or counter-clockwise to lower it. Double-check the blade height as discussed in the previous step.

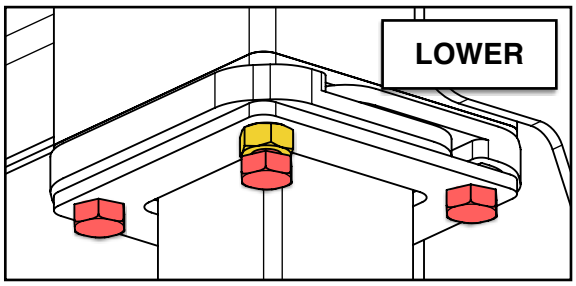
Once the measurements on both sides are equal and the sawmill head is level, tighten the left-side flange nuts securely against lift mechanism brackets.



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.



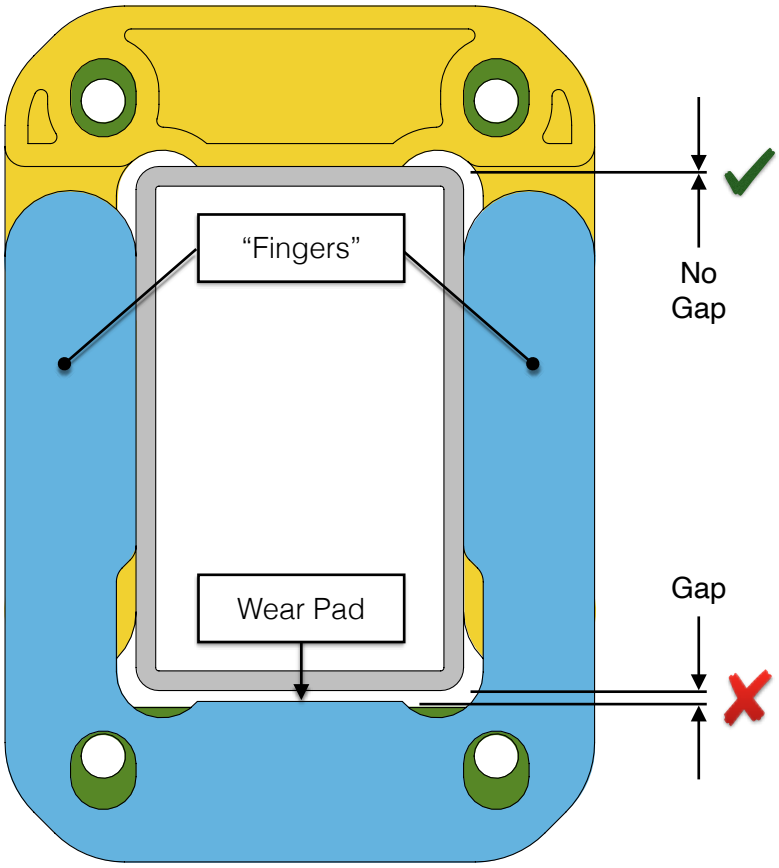


Push the bushings together (front-to-rear) so that there is no gap between the bushing wear pads and the front/rear faces of the post as shown below.

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.

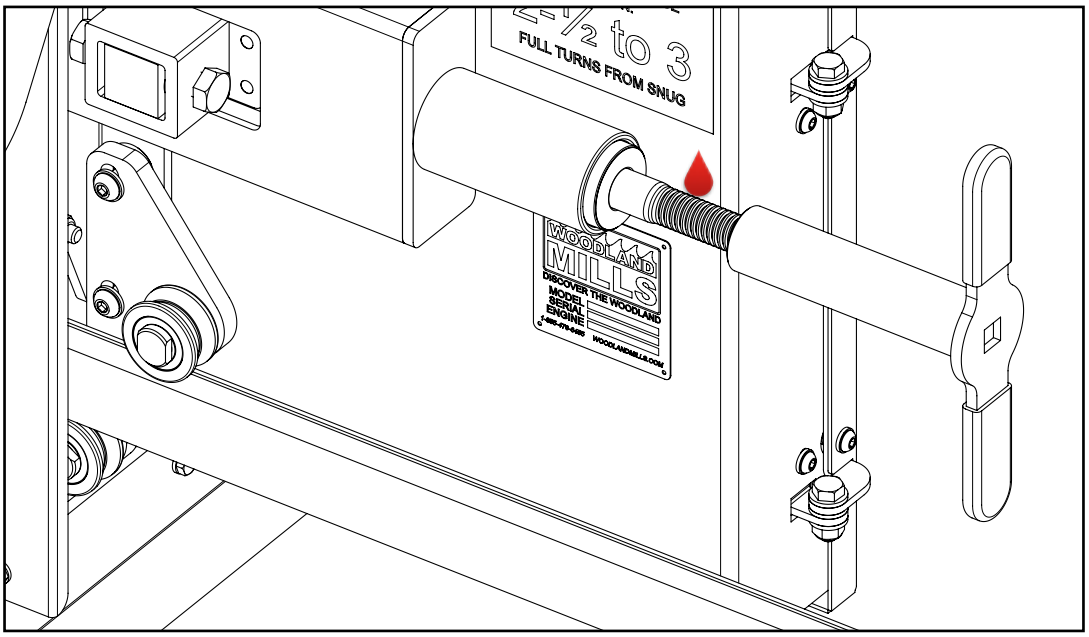
The bushing holes are slotted to allow for this future adjustment.



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***."

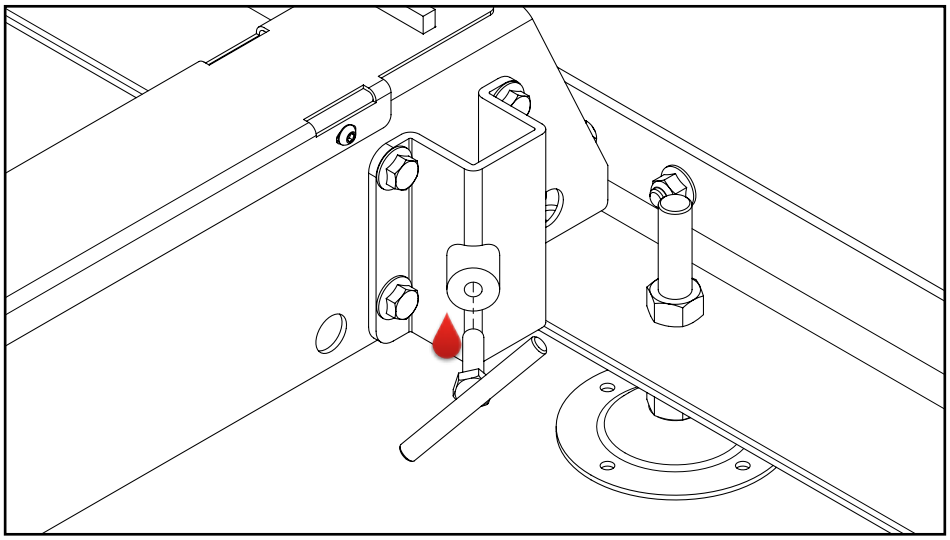
GREASING THREADS

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



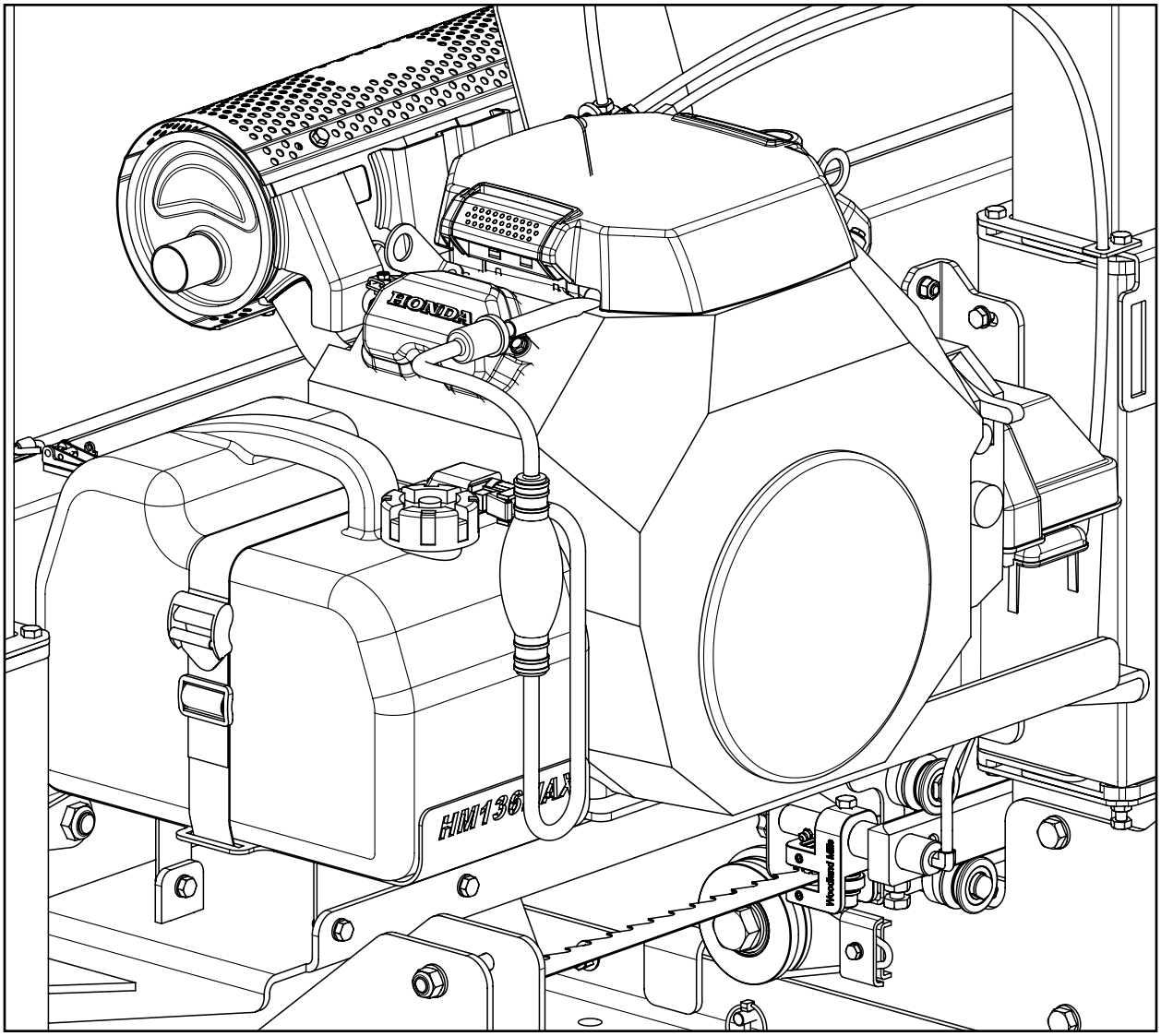
****Note: It is very important to take the tension off the blade by turning the T-handle in the counter-clockwise direction when the sawmill is not in use. Failure to do so can result in flat spots on the rubber belts. These flat spots will cause the mill to vibrate excessively during subsequent uses.****

Add grease to all T-bolt threads on the sawmill track: three (3) on the bunks and two (2) on the log clamp assemblies.



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.



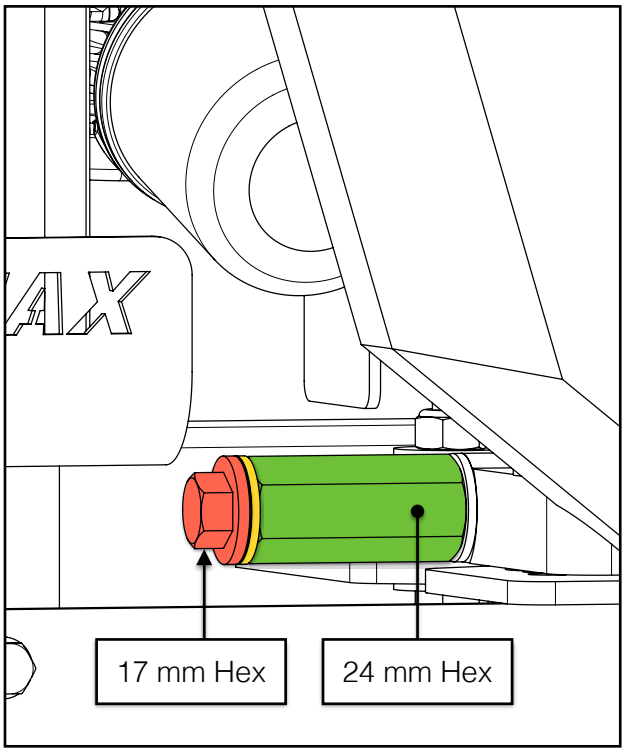
When changing the engine oil, follow the instructions on the next page.

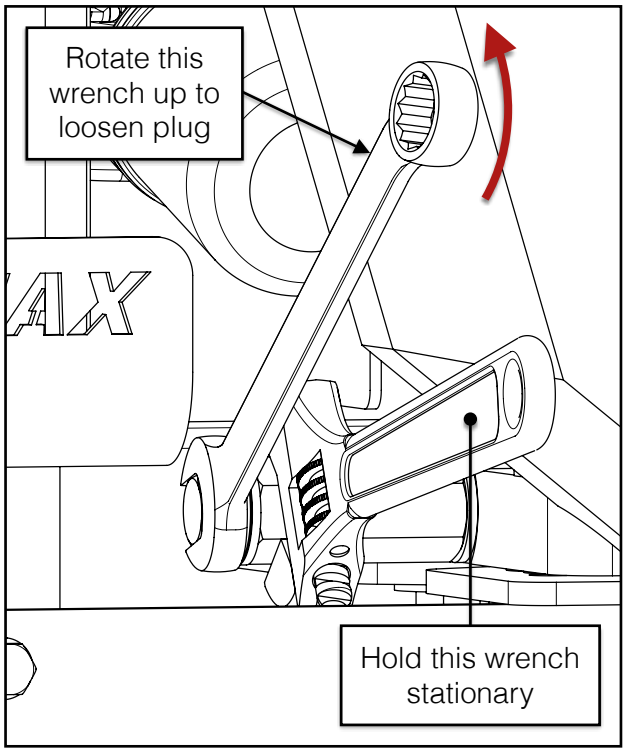
WARNING!

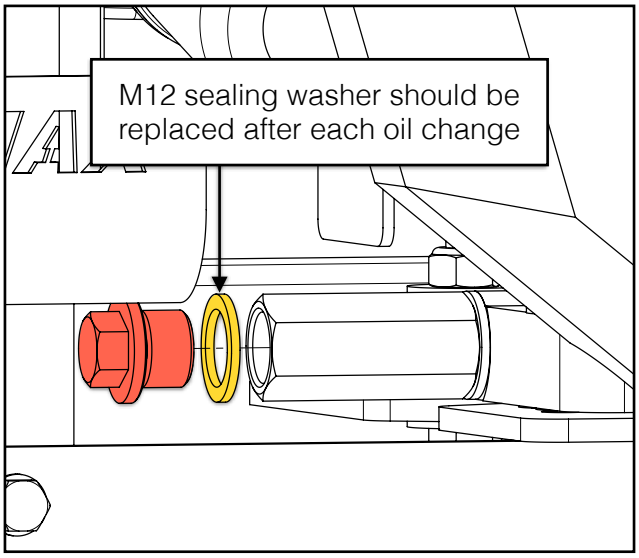
Check the oil level before each use. *Change the engine oil if it is above the maximum level*. There is a risk of contamination due to the short-cycle operations common during milling where the oil may not reach normal operating temperature (212°F / 100°C).

The brass oil drain extension was designed to make oil changes easier. When removing the drain plug to change the oil, first remove the fuel tank for ease of access.

Using a wrench to hold the brass extension stationary while using a second wrench to loosen the drain plug. Failure to follow this procedure could damage the threads in the aluminum engine block and void the warranty.





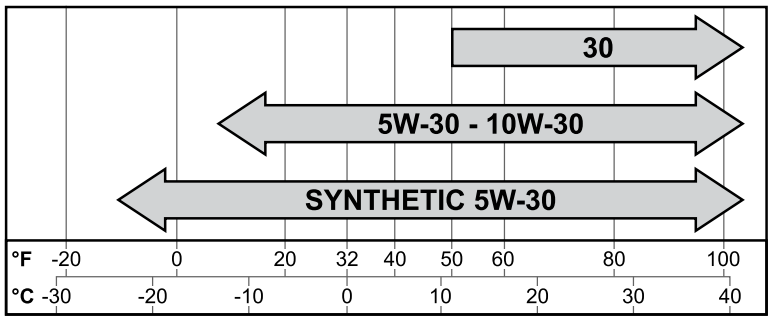


Repeat the process in reverse to re-install the drain plug. Remember to hold the brass extension stationary with a second wrench when tightening the plug.

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 4-stroke engine oil that meets or exceeds the requirements for API service category SJ or later (or equivalent). For the type of oil based on the operating ambient air temperatures, see the chart below:

Engine	Model	Horsepower	Capacity	
			US Quarts (qt)	Litres (L)
Honda	GX630	20.8 hp	1.80	1.7



SAE 10W-30 or **5W-30** is recommended for general use. Use a full synthetic **5W-30** for starting/operating temperatures between 5°F [-15°C] and -13°F [-25°C].

****Note: The engine is 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:

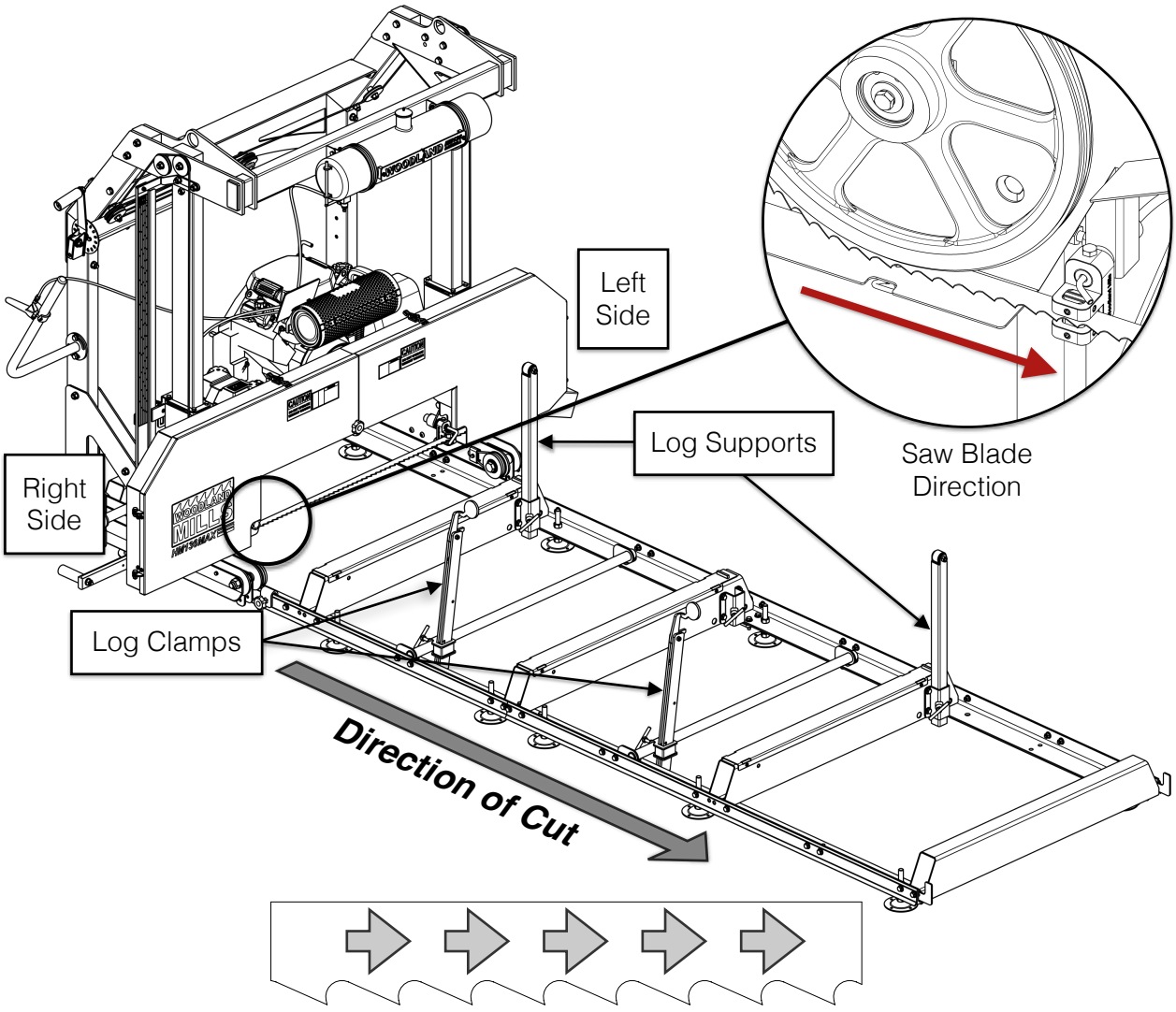
   34°F (1°C) and warmer: Water with 1 tsp (5 mL) of liquid dish soap per tank.
   32°F (0°C) and colder: Winter windshield washer fluid.

****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. To start the engine and begin milling: pull the choke out and turn the gas on. Start the engine by turning the key. Once the engine starts, push the choke in slowly and let the engine warm up for 1 minute. ***Always mill at full throttle***.
7. After the first hour of use, inspect the drive belt tension and adjust if required. Refer to this 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.



Saw Blade Teeth Orientation

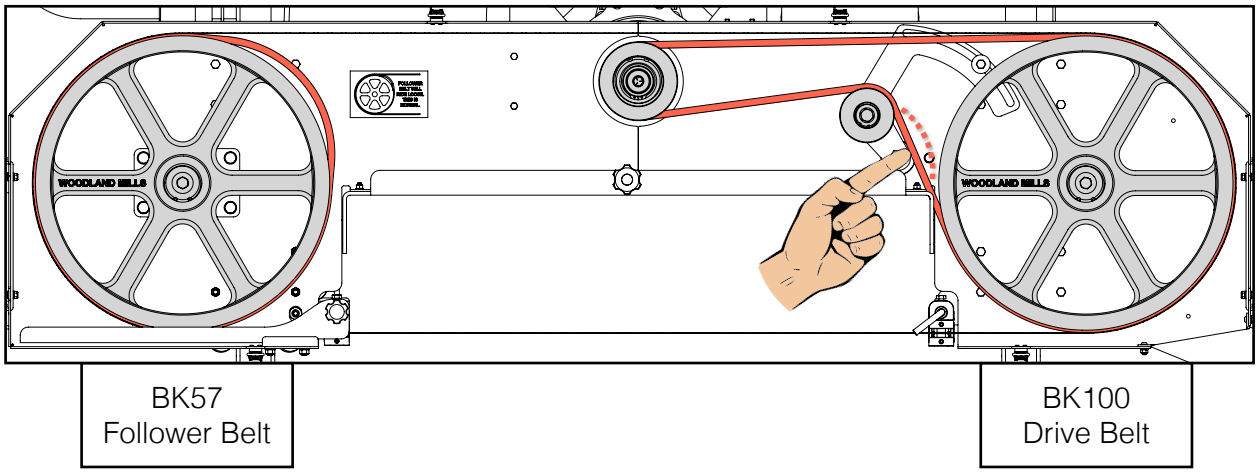
Always ensure the saw blade teeth are orientated such that they are cutting *into* the wood and not being dragged backwards across it. Some blade manufacturers ship their saw blades inside out (backwards) due to manufacturing processes and they must be flipped prior to installation.

****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.

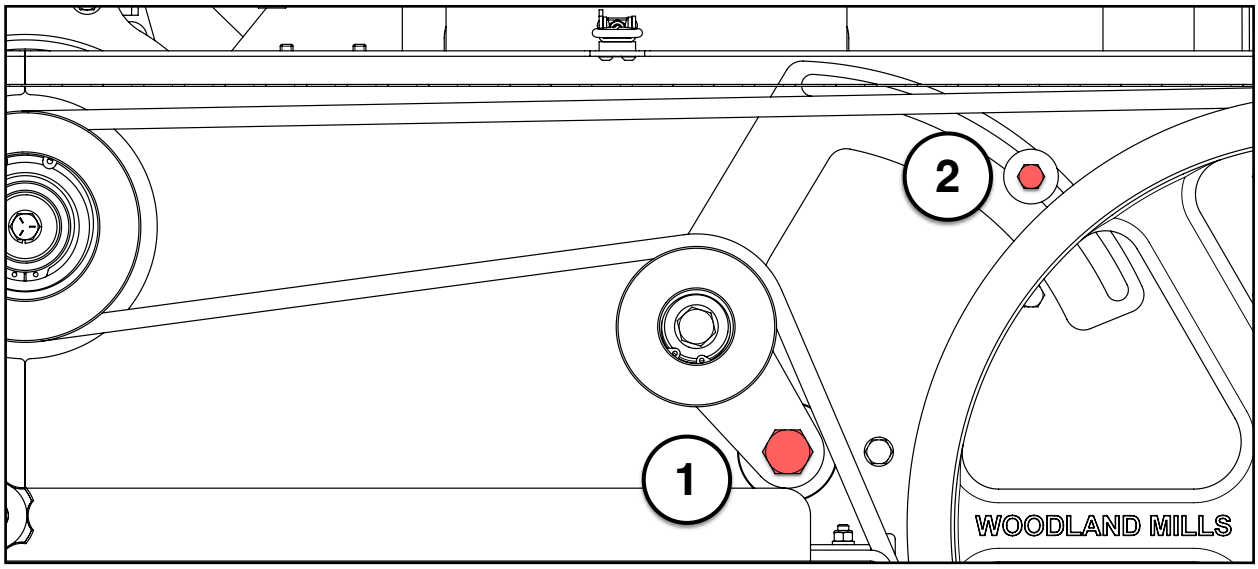
To check the drive belt tension, push against it firmly and measure the deflection. There should be no more than ¼ in [6 mm] of movement. If the belt deflection exceeds this amount it will need to be tightened as described below.



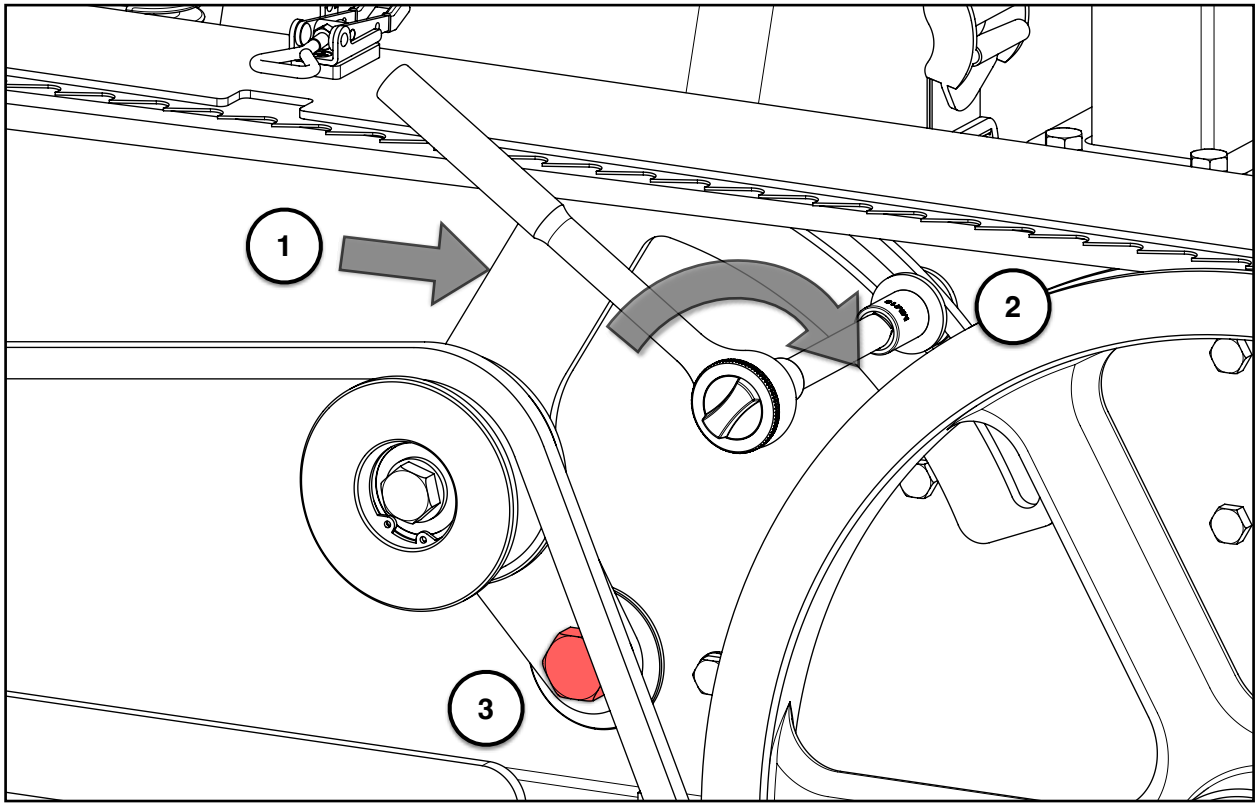
****Never attempt to adjust the belt tension with the engine running. As a safety precaution, remove the spark plug cap.****

Start by loosening the M16 hex bolt (**1**) that secures the belt tensioner mechanism to the sawhead. Then loosen the M8 bolt (**2**) in the curved slot. The nuts for both bolts are secured in place by anti-rotation plates on the back side of the housing and, therefore, do not require a second wrench or socket.

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

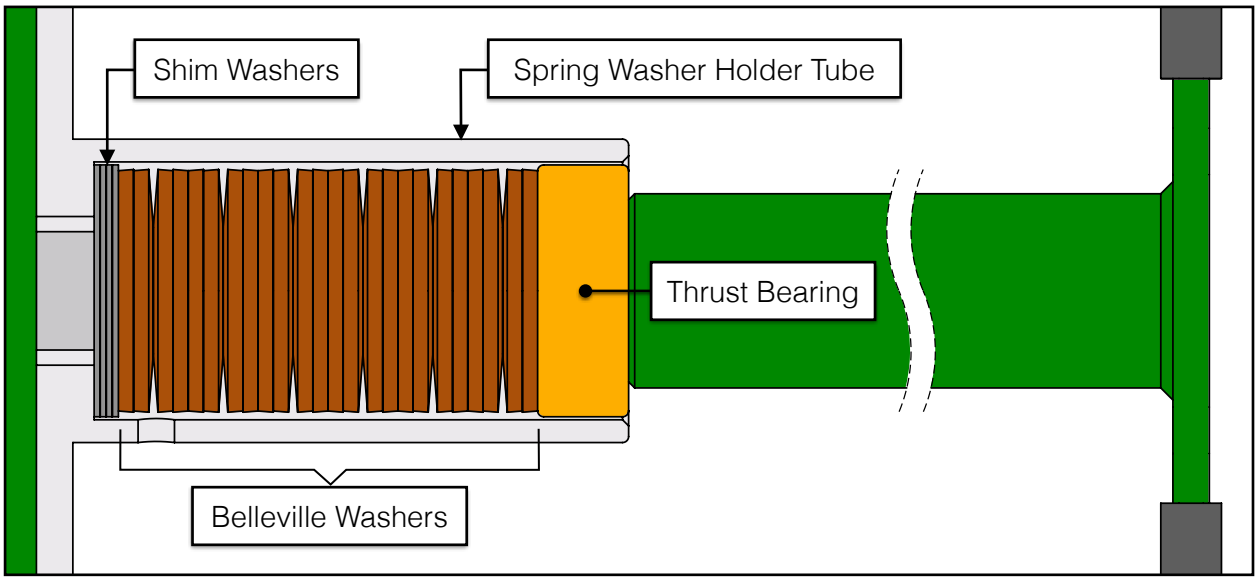


Once both bolts are loose, firmly push the belt tensioner towards the band wheel until the belt is tight (**#1**), then tighten the upper bolt in the curved slot in a clockwise direction using a 13 mm socket (**#2**). Re-check the belt tension to ensure a maximum of ¼ in [6 mm] deflection and then tighten 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.



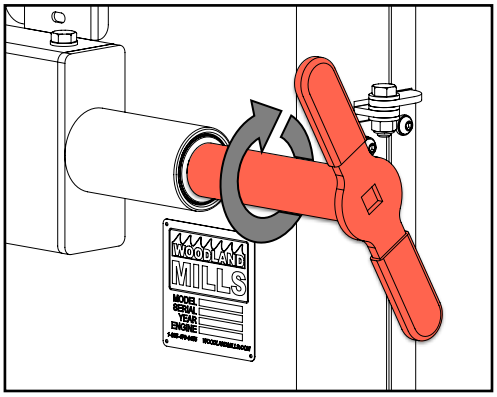
Below is a table comparing the positive and negative effects of low and high blade tension.

Low Tension 2→2-½ Turns	Recommended Tension 2-½→3 Turns	High Tension 3→3-½+ Turns
• Unpredictable tracking	• Holds tracking properly	• Accelerated belt wear
• Wavy cuts	• Cuts accurately. Optimal blade life	• Unpredictable tracking
• Blades rely more on guides	• Optimal bearing life	• Overheated blades. Blade breakage
	• Optimal belt life	• Accelerated bearing wear

TENSIONING METHOD

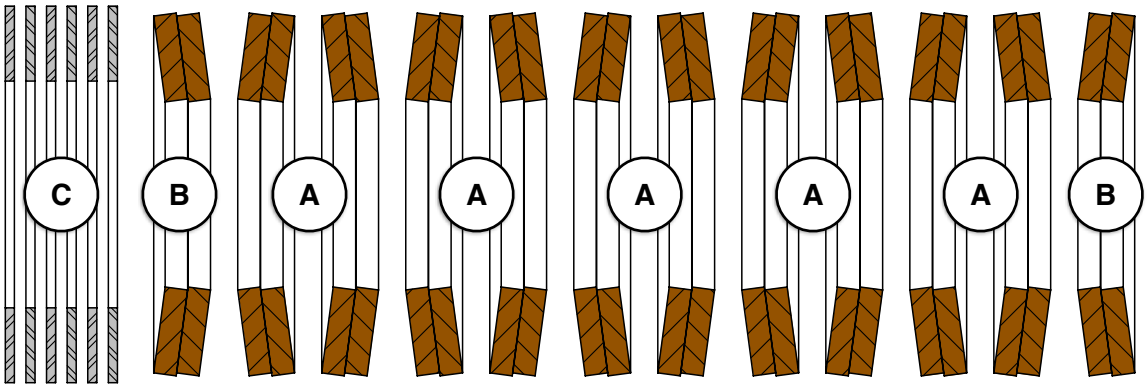
Count Turns: Spin the tension handle to remove slack in the blade and snug the handle up to the thrust bearing. From this point, 2-½ to 3 full turns will put the blade tension within the recommended range.

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



BELLEVILLE WASHER STACK

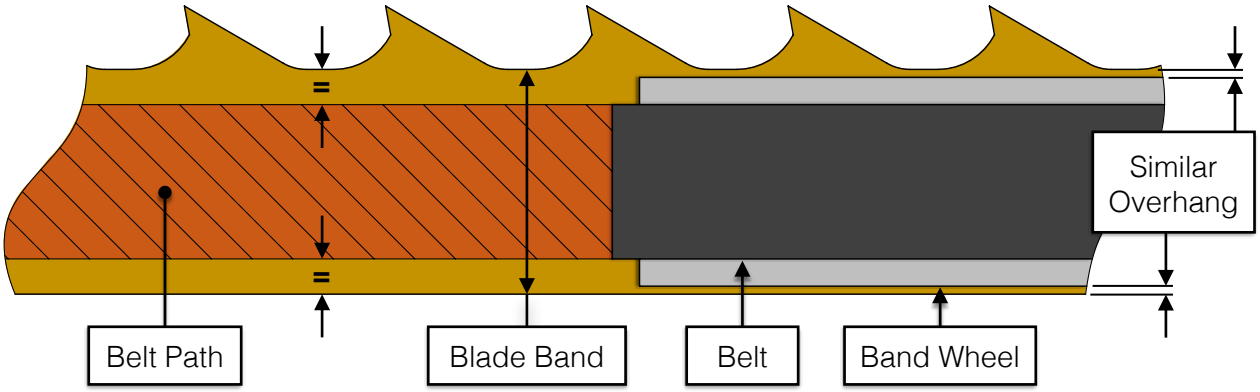
If the spring washer holder is removed for maintenance (e.g. greasing or replacement), ensure the twenty-four (24) Belleville washers inside are oriented and installed as shown below. There are five (5) groups of four washers (4)—each containing two (2) opposing nested pairs Ⓐ—with a single nested pair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

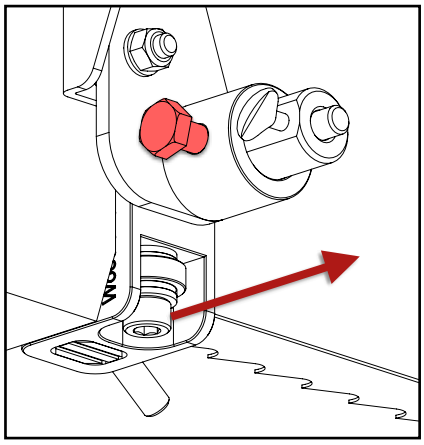
- Excessive blade guide bearing wear
- Wavy cuts caused by uneven tension within the blade
- Overheating blades / blade breakage
- Excessive belt wear
- Blade will not stay on the belts

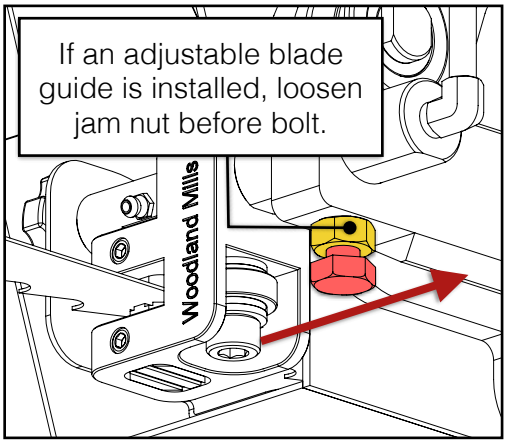
Important Points:

- 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.



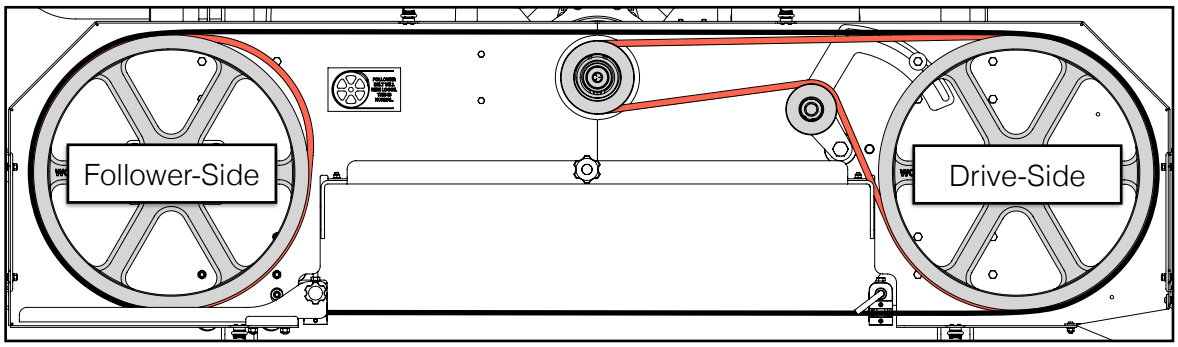


3. Install a blade if one is not already installed.
4. Fully tension the blade by snugging the tension handle to the thrust bearing and rotate it a further 2-½ to 3 full turns.
5. Start rotating the band wheels by hand in the direction of cut observing how the blade moves *forward* or *rearward* on the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

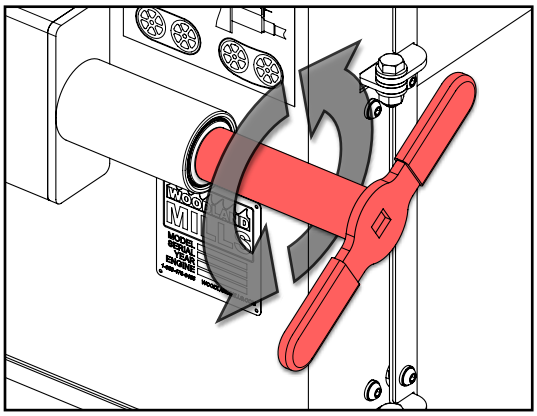
****If the blade looks as if it is going to come off during hand rotations—STOP—and proceed to the *Follower-Side* or *Drive-Side Adjustment* as required.****

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.

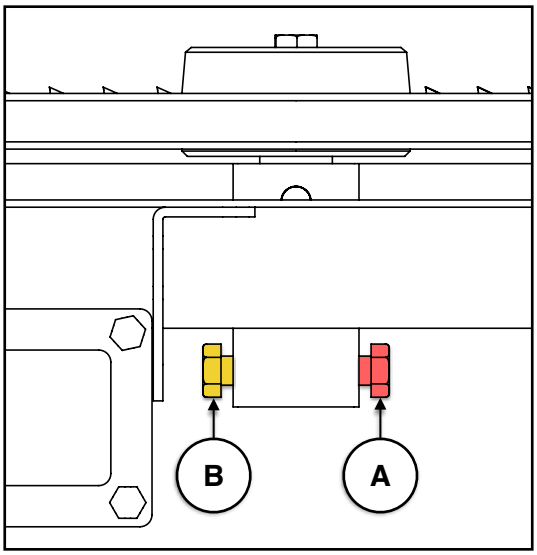


FOLLOWER-SIDE ADJUSTMENT



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 Ⓐ ¼ turn.

ii. Tighten the left-side bolt Ⓑ to clamp the follower shaft back in place.

—OR—

REARWARD

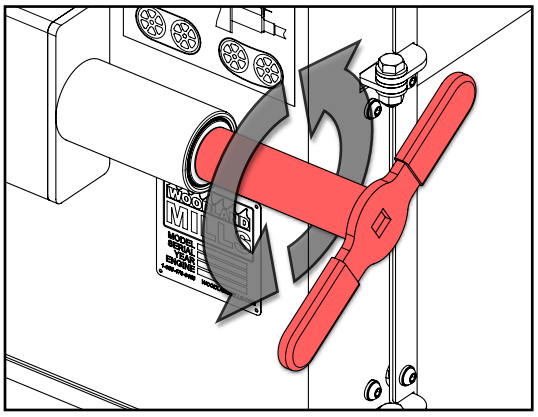
To move the blade *rearward* on the belt:

i. Loosen the left-side bolt Ⓑ ¼ turn.

ii. Tighten the right-side bolt Ⓐ to clamp the follower shaft back in place.

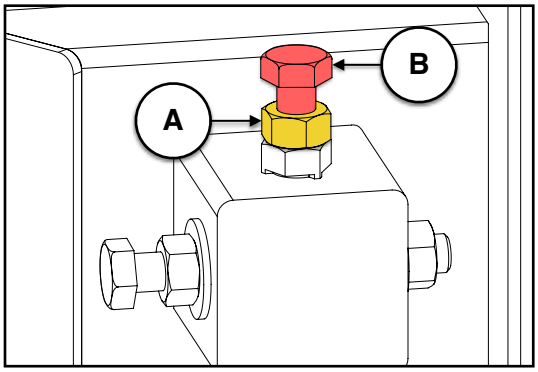
3. Repeat the ***Test Procedure*** to see if further adjustment is needed.
4. Repeat the follower-side adjustment steps and test procedure as many times as necessary until the blade is tracking properly.

DRIVE-SIDE ADJUSTMENT

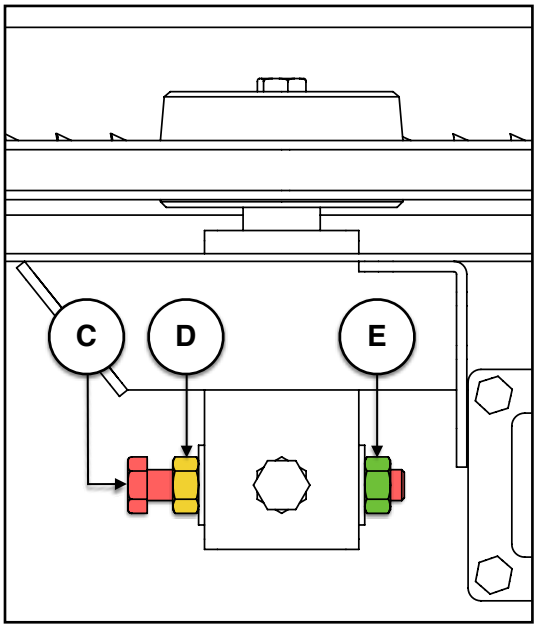


1. Back off the blade from full tension by three (3) full turns of the tension handle.

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



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



4. Adjust the blade position:

FORWARD

To move the blade *forward* on the belt:

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

—OR—

REARWARD

To move the blade *rearward* on the belt:

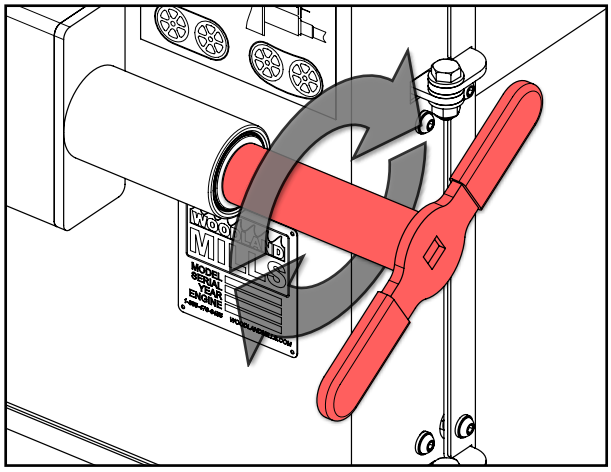
i. Hold the horizontal bolt Ⓒ stationary with a wrench.
ii. Loosen the left-side nut Ⓓ ¼ turn.
iii. tighten the right-side nut Ⓔ.

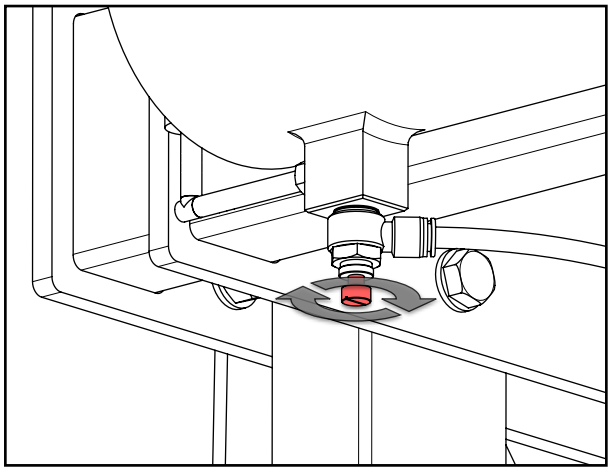
5. Re-tighten the upper bolt Ⓑ followed by the upper jam nut Ⓐ.
6. Repeat the ***Test Procedure*** to see if further adjustment is needed.
7. Repeat the drive-side adjustment steps and test procedure as many times as necessary until the blade is tracking properly.

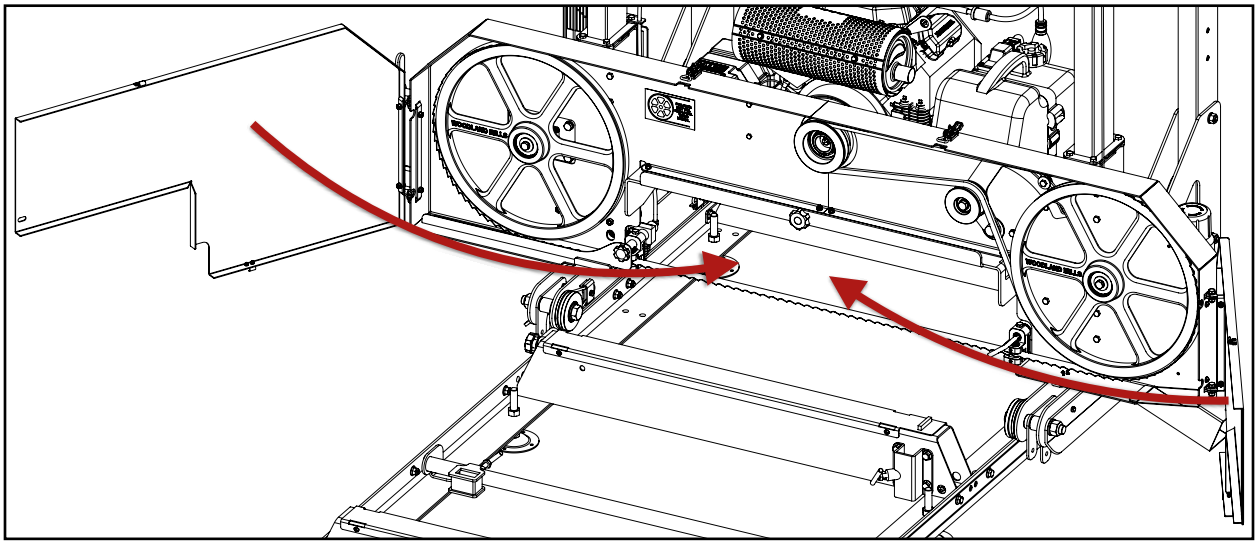
TRACKING RUN-IN

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***.

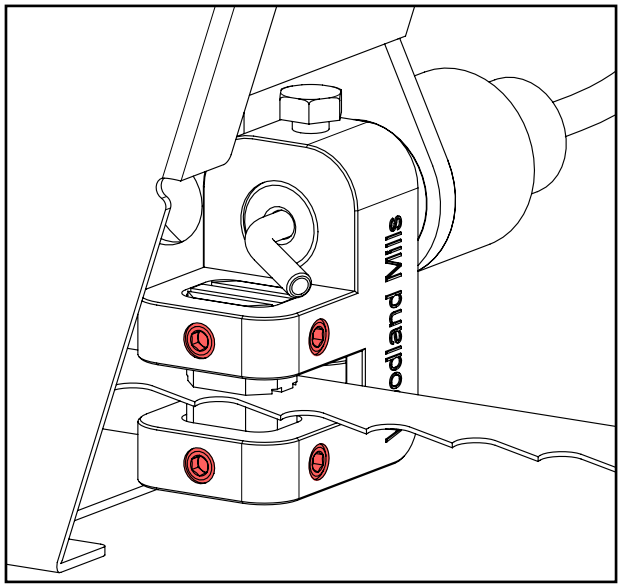




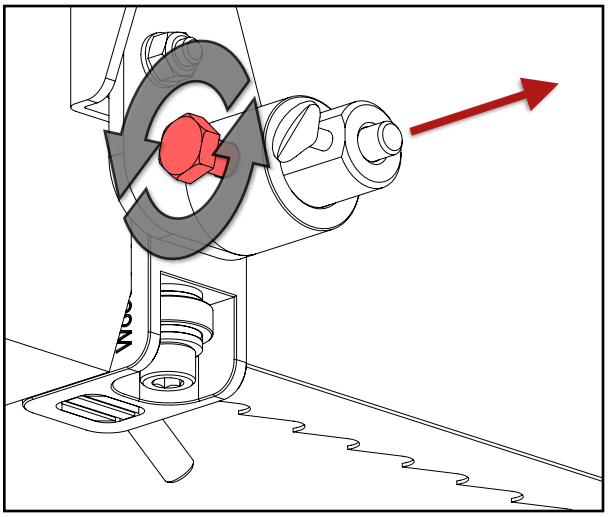


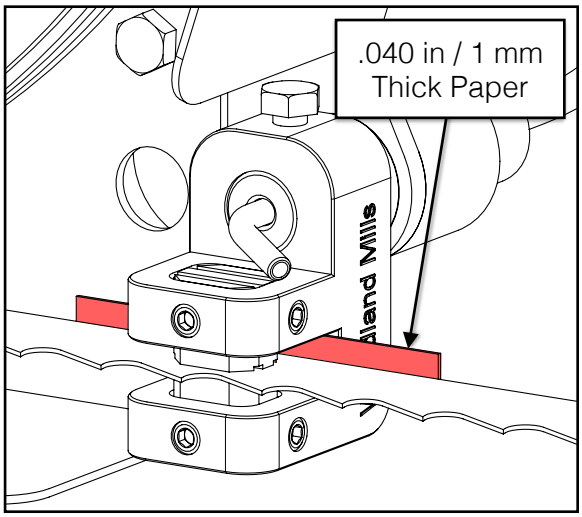
BLADE GUIDE ADJUSTMENT

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.

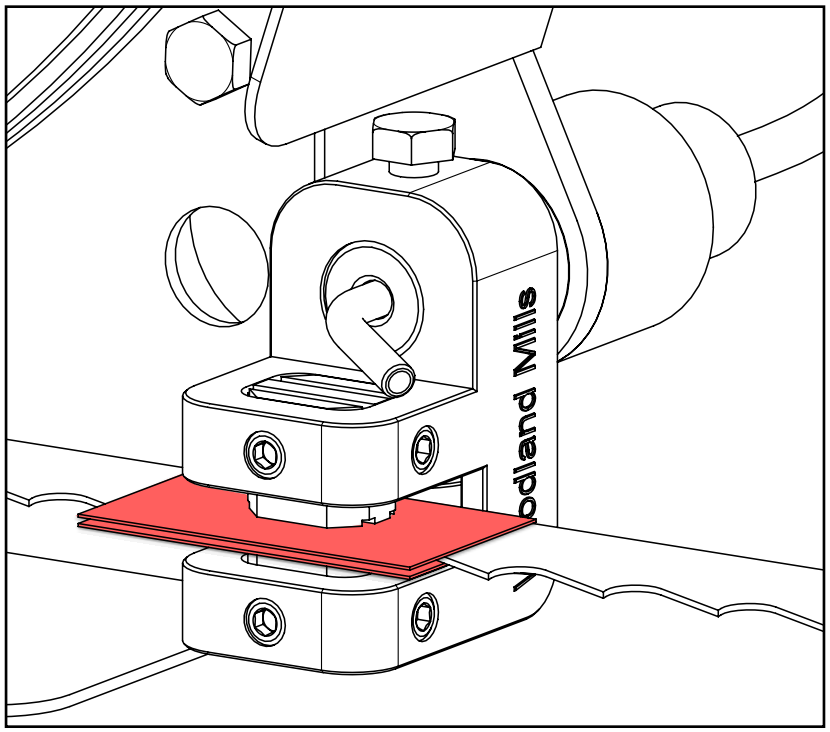


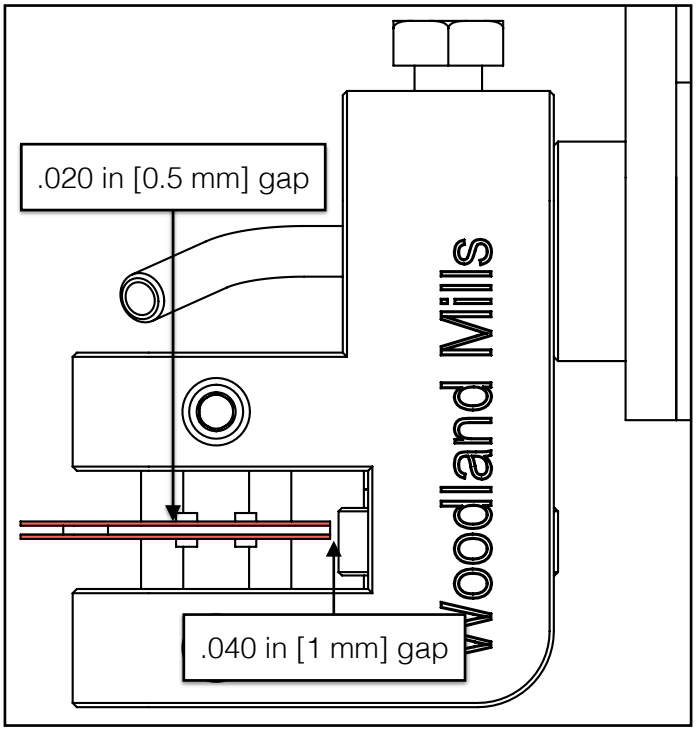
Loosen the blade guide assembly bolts on both guide block holders so that the round shaft is free to slide back and forth. Position it so that there is a thick paper-sized gap (.040 in or 1 mm) between the bearing and the back of blade. Re-tighten the bolt against the flat on the shaft to secure the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





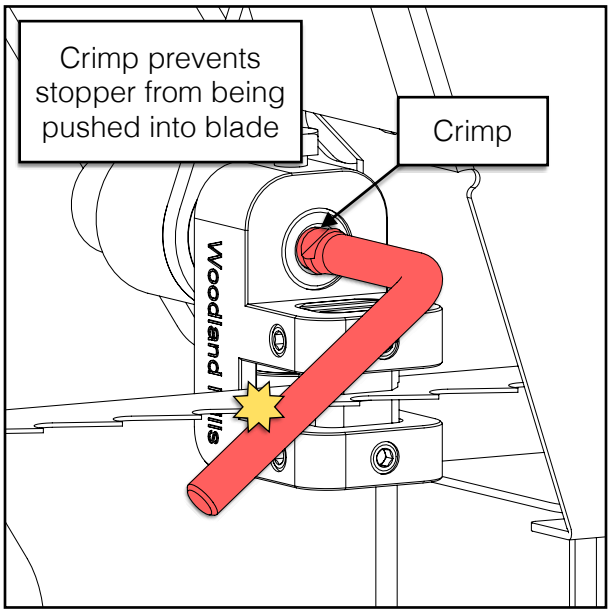
Using a feeler gauge or thick piece of paper (.020 in / 0.5 mm), place it between the blade and both guide blocks and then tighten the set screws.

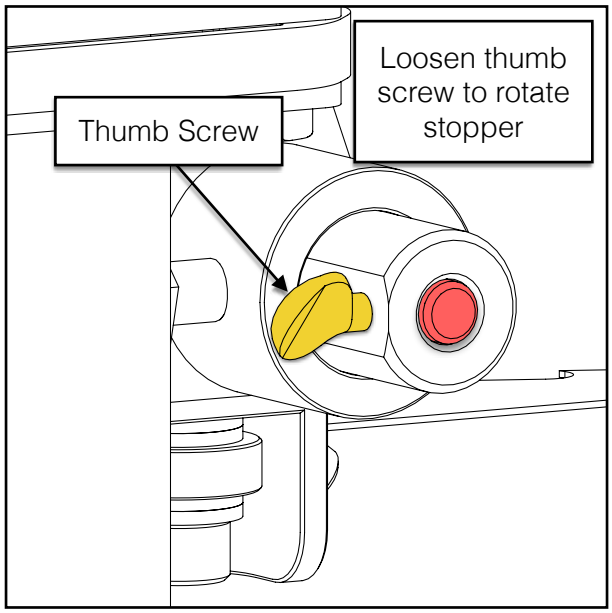




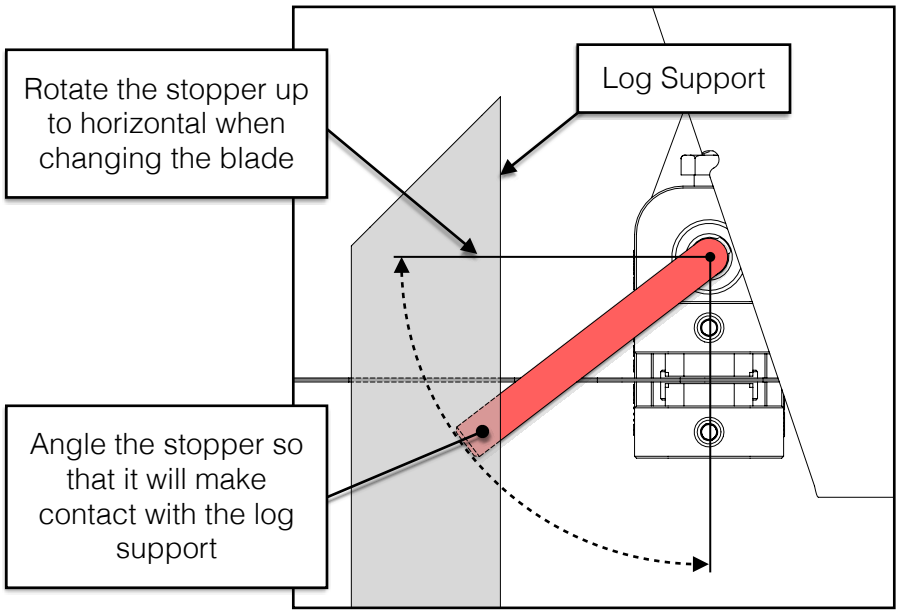
BLADE STOPPER ADJUSTMENT

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.



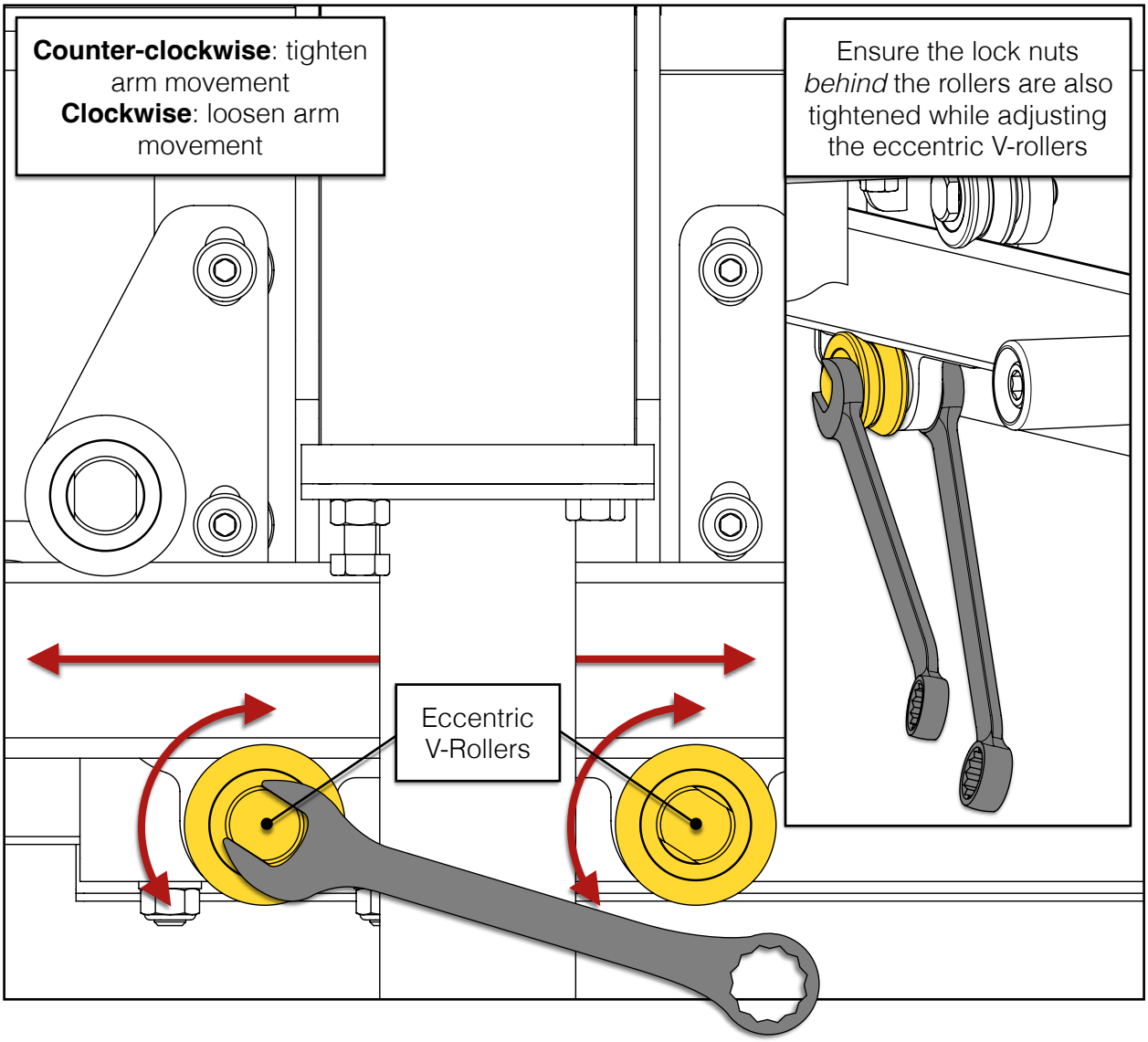
Steps:

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

ADJUSTABLE BLADE GUIDE CALIBRATION

ECCENTRIC V-ROLLER ADJUSTMENT

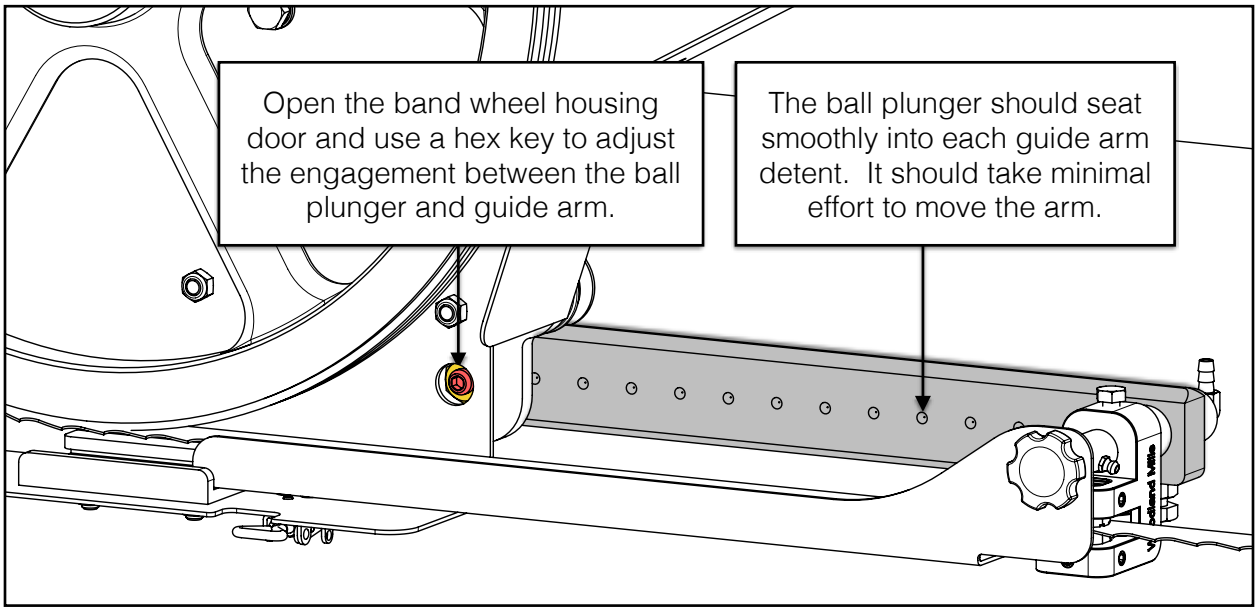
Slide the adjustable blade guide (ABG) arm in and out to check that it moves smoothly between the V-rollers. If it feels too loose or too tight, adjust the bottom eccentric rollers using a wrench. Turning them counter-clockwise will tighten the arm movement; turning them clockwise will loosen the movement.

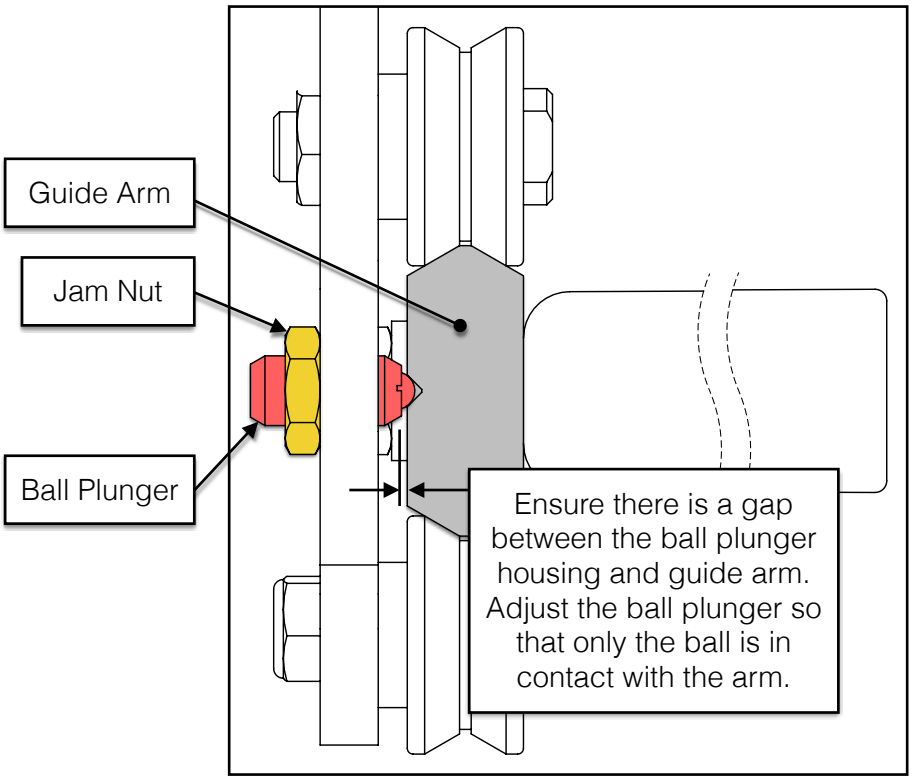


****Some components removed for clarity.****

BALL PLUNGER ADJUSTMENT

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



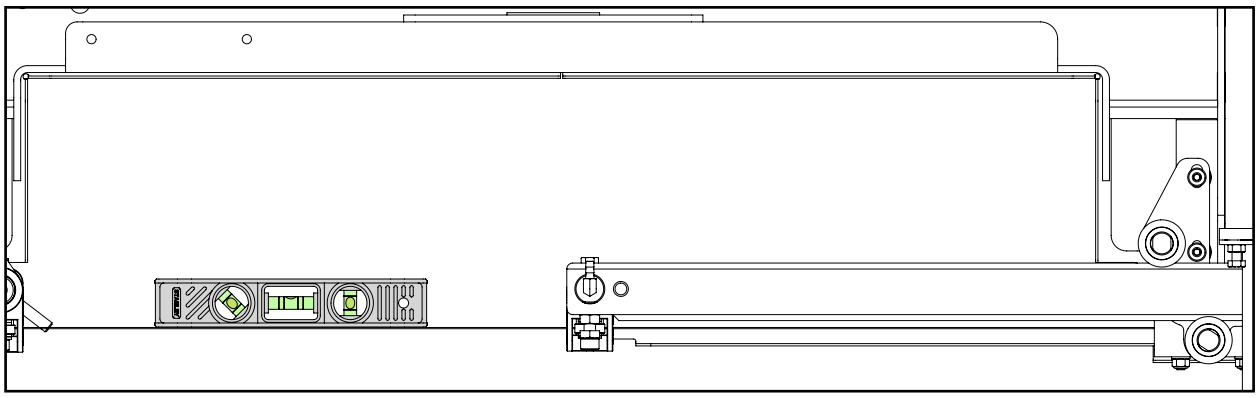


After adjusting the ball plunger, slide the guide arm in and out a few times to verify the movement feels smooth and that there is positive engagement between the ball plunger and guide arm detents. If not, adjust the ball plunger with the hex key again and repeat the process until satisfied.

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

CARRIAGE & GUIDE ARM ADJUSTMENT

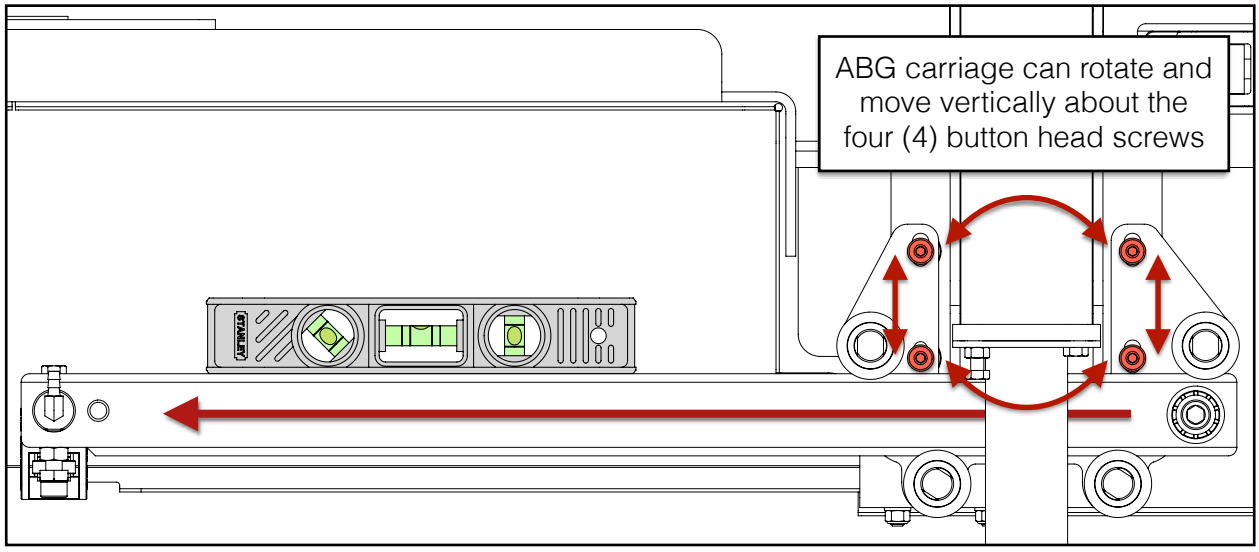
If the guide arm does not extend parallel with the blade, apply full tension to the blade and place a spirit level on the blade to check its level.



Loosen the four (4) button head screws just enough to the carriage can rotate. The slots in the carriage allow for up/down and rotational adjustment as shown below.

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

Adjust 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

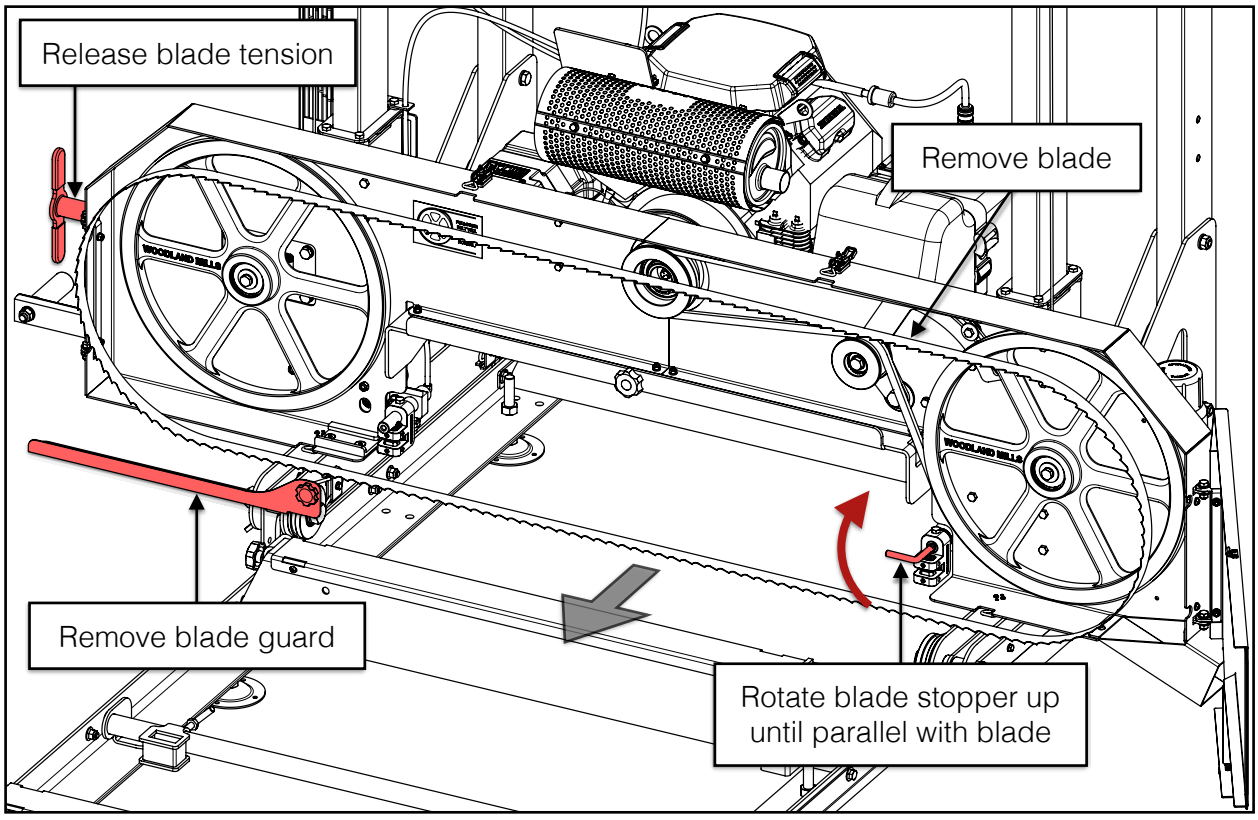
CHANGING THE BLADE

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.

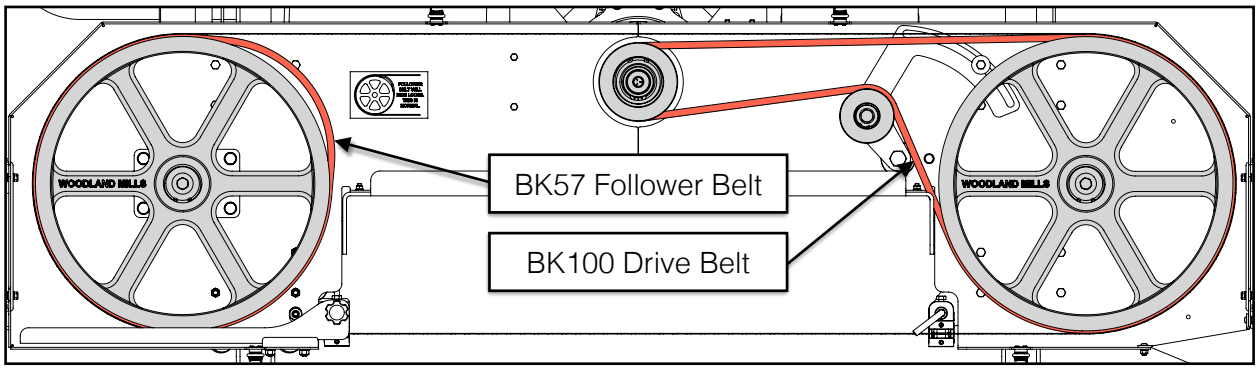
The blade is now sufficiently loose and can be easily pulled straight out the front.



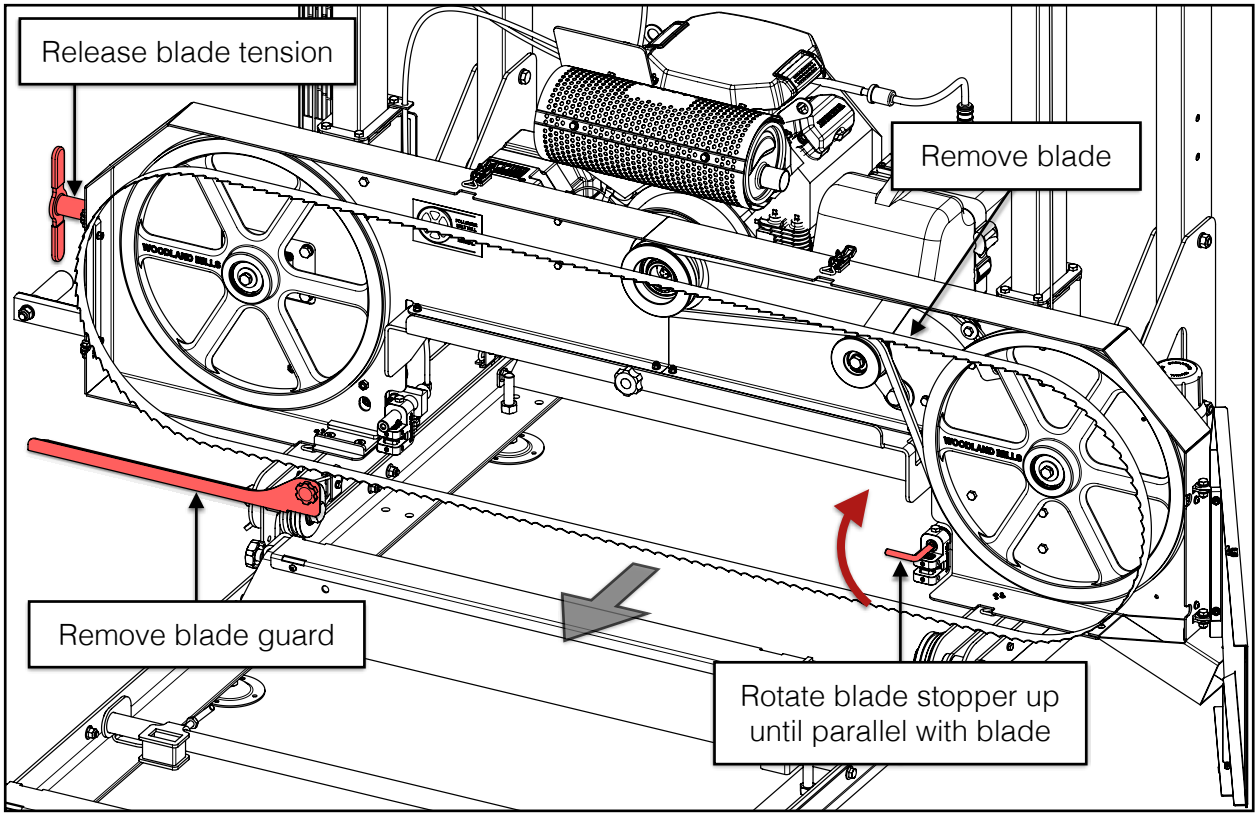
Install a new blade following the reverse order of steps and then set the proper blade tension. The tracking should not have to be adjusted after changing blades. See section, ***ADJUSTING THE FOLLOWER SIDE TRACKING***, for more information.

REPLACING BELTS

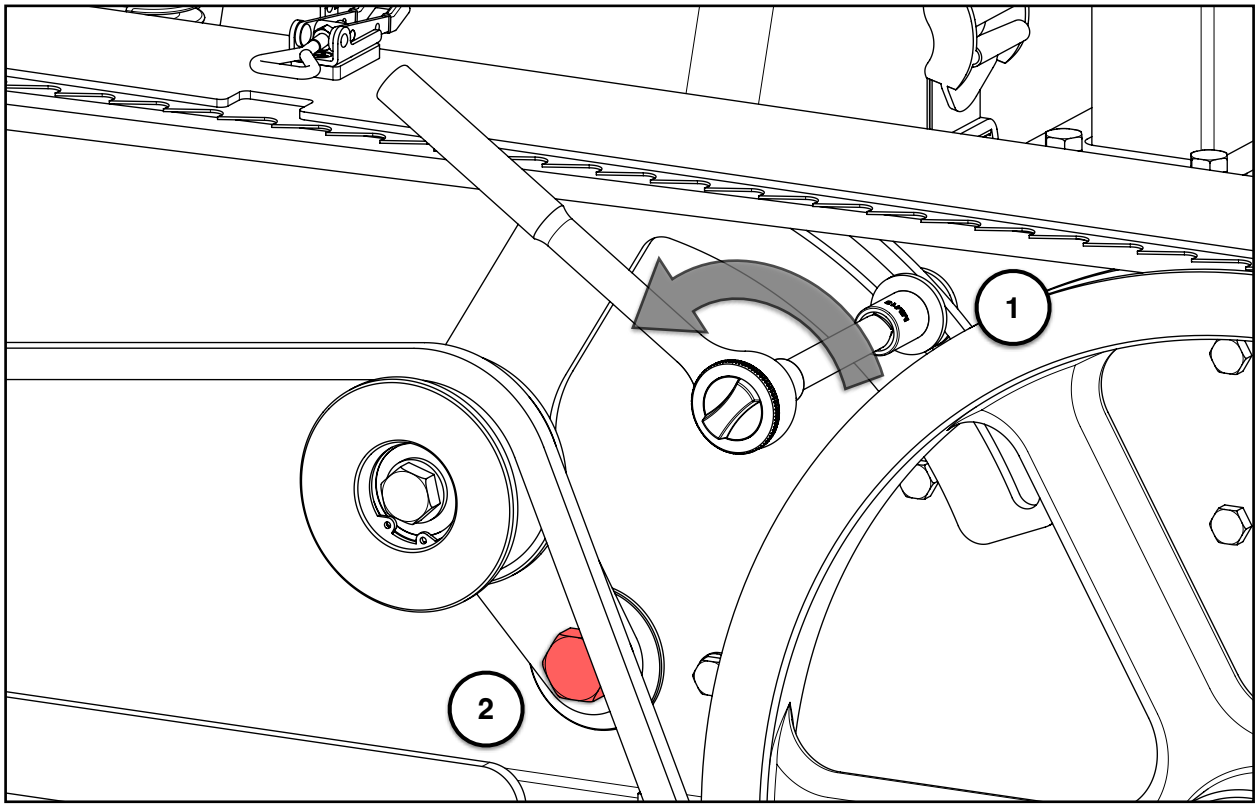
Never attempt to replace the belts with the engine running. As a safety precaution, remove the spark plug cap. Gloves and safety glasses must be worn when replacing the belts. There are two V-belts on the sawmill: a BK100 Kevlar belt on the drive side and a BK57 Kevlar belt on the follower side. The BK57 belt fits *loose* on the follower band wheel—this is normal.

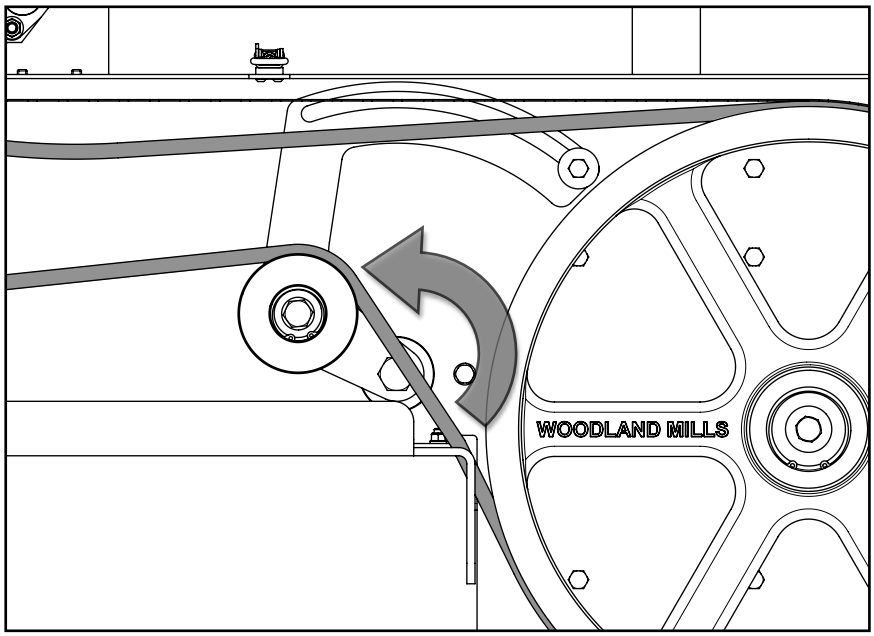


First, remove the blade following the procedure outlined in section, ***CHANGING THE BLADE***.



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.

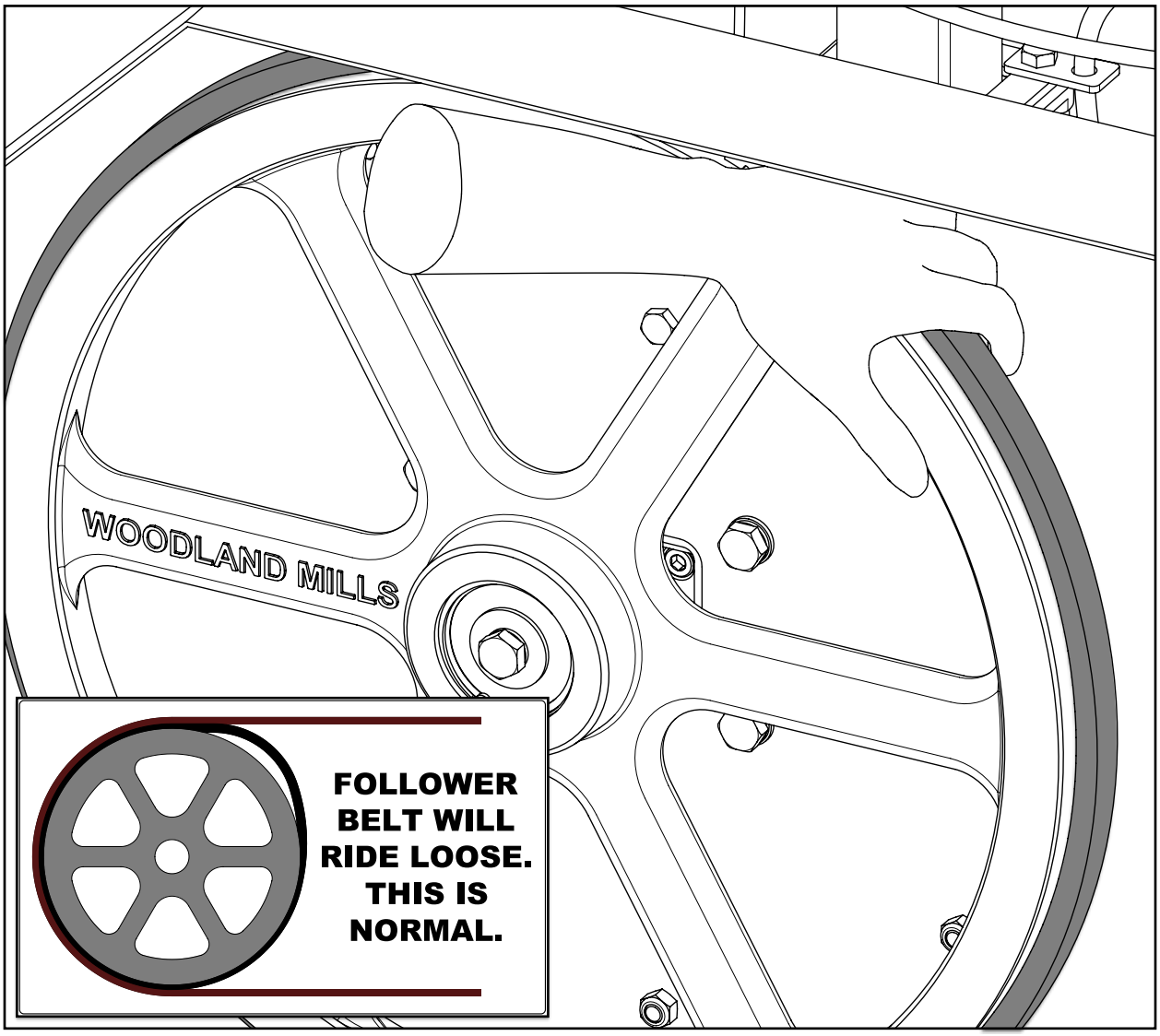




Once both bolts are loose, the belt tensioner will rotate counter-clockwise until the idler pulley comes to rest on the band wheel housing. The belt can now easily be removed by hand and a new belt installed.

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

The BK57 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.****

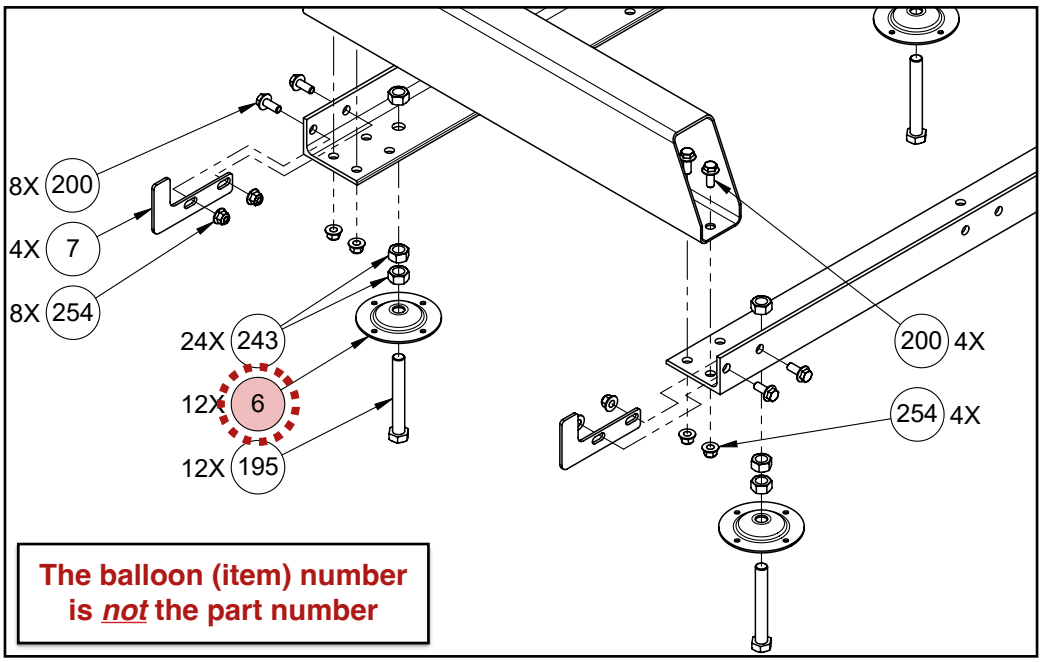
TROUBLESHOOTING

Problem/Issue	Possible Causes	Resolution Options
Producing wavy cuts	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.	1. Tighten blade. Refer to page 114. 2. Gap between guide blocks and blade are incorrect. Refer to page 121. 3. Adjust blade tracking. Refer to page 116. 4. Install new blade. Refer to page 127. Always use blade lubricant. 5. Install new blade. Refer to page 127. 6. Slow feed rate down and push head slower through log.
Last board is tapered or narrow in middle	1. Track is not level.	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	1. Logs are not clean. 2. Foreign objects in log.	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	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.	1. Tighten blade. Refer to page 116. 2. Gap between guide blocks and blade are incorrect. Refer to page 121. 3. Adjust blade tracking. Refer to page 116. 4. Install new belts. Refer to page 128. 5. Install new blade. Refer to page 127. 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 110 (#3). 9. Call Woodland Mills Technical Support.
Blades are breaking	1. Too many blade sharpenings. 2. Inadequate blade tension. 3. Improper blade guide set up. 4. Improper blade tracking. 5. Pushing mill too quickly.	1. Replace blade. Refer to page 127. 2. Binding between guide blocks when blade is too loose. Tighten blade. Refer to page 114. 3. Gap between guide blocks and blade are incorrect. Refer to page 121. 4. Adjust blade tracking. Refer to page 116. 5. Slow feed rate down and push head slower through log.
Blade is slowing down or stopping when milling	1. Inadequate blade tension. 2. Improper drive belt tension. 3. Pushing mill too quickly.	1. Tighten blade. Refer to page 114. 2. Belts are worn or too loose. Replace. Refer to page 128. 3. Slow feed rate down and push head slower through log.
Mill is not cutting or cutting very slowly	1. Dull blade. 2. Blade is on backwards.	1. Install new blade. Refer to page 127. 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	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.	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 128. 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 106.
Adjustable blade guide arm is difficult to move or too loose	1. Eccentric V-roller not adjusted properly. 2. Ball plunger over-engaged or not enough engagement. 3. Guide arm is not parallel with blade.	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 124. 2. Adjust the ball plunger. Refer to page 125. 3. Rotate the adjustable blade guide carriage until parallel with the blade. Refer to page 126.
Sawhead difficult to raise or lower	1. Sawhead not level. 2. Front posts not lubricated.	1. Level the sawhead by adjusting the lift cable ends under the lift mechanism. Refer to page 105. 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

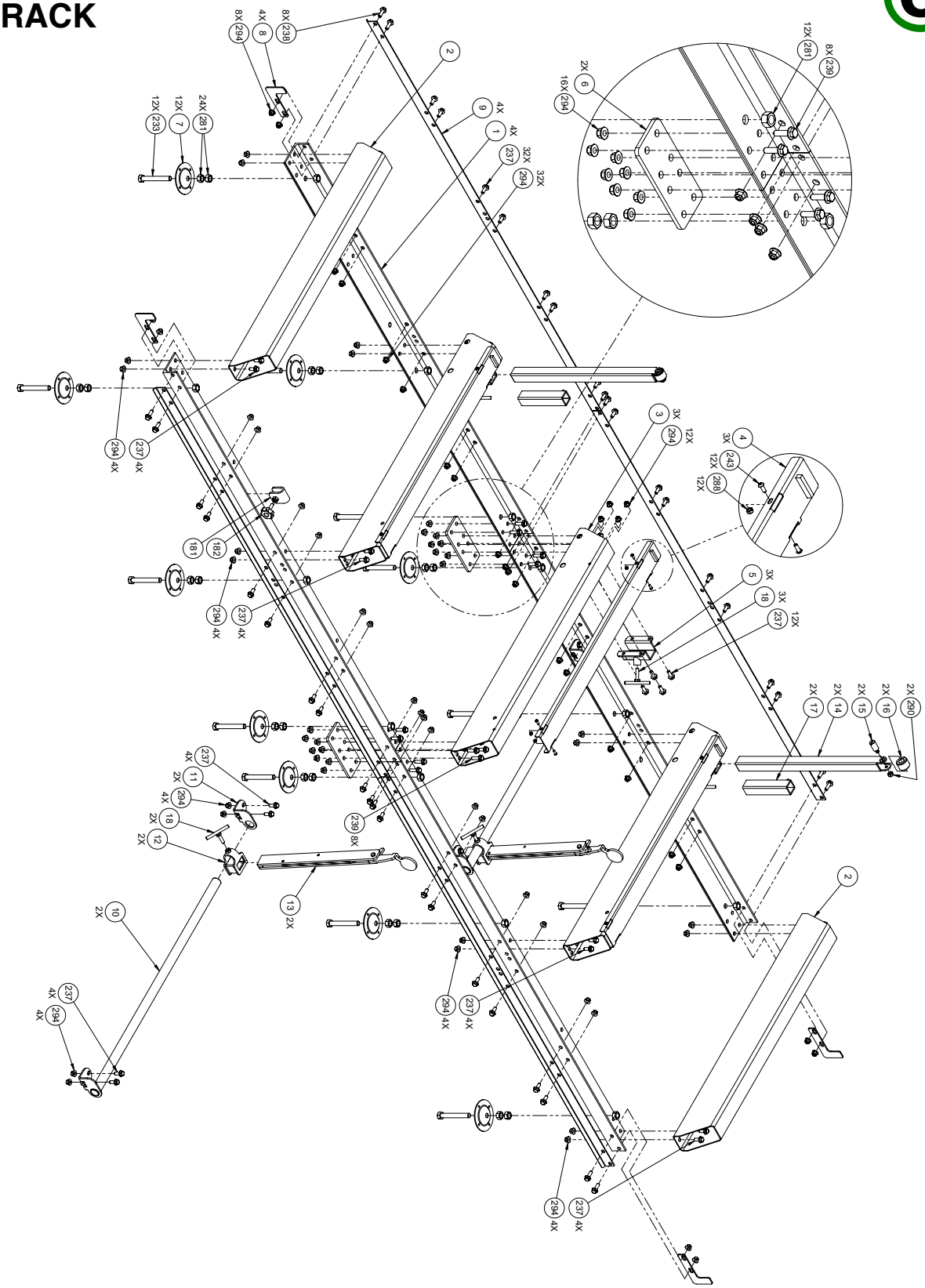
Item	Quantity		Part No.	Description
	14 hp	9.5 hp		
1	4	4	0001073	TRACK RAIL, 58.5 mm TALL
2	2	2	0001075	LOG BUNK, END
3	2	2	0001080	LOG BUNK, MID
4	1	1	0001084	LOG BUNK, CENTER
5	2	2	0001072	REINFORCEMENT PLATE, 90 X 200 mm
6	12	12	0001071	LEVELLING FOOT BASE
7	4	4	0001055	CARRIAGE STOP
8	1	1	0001062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

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

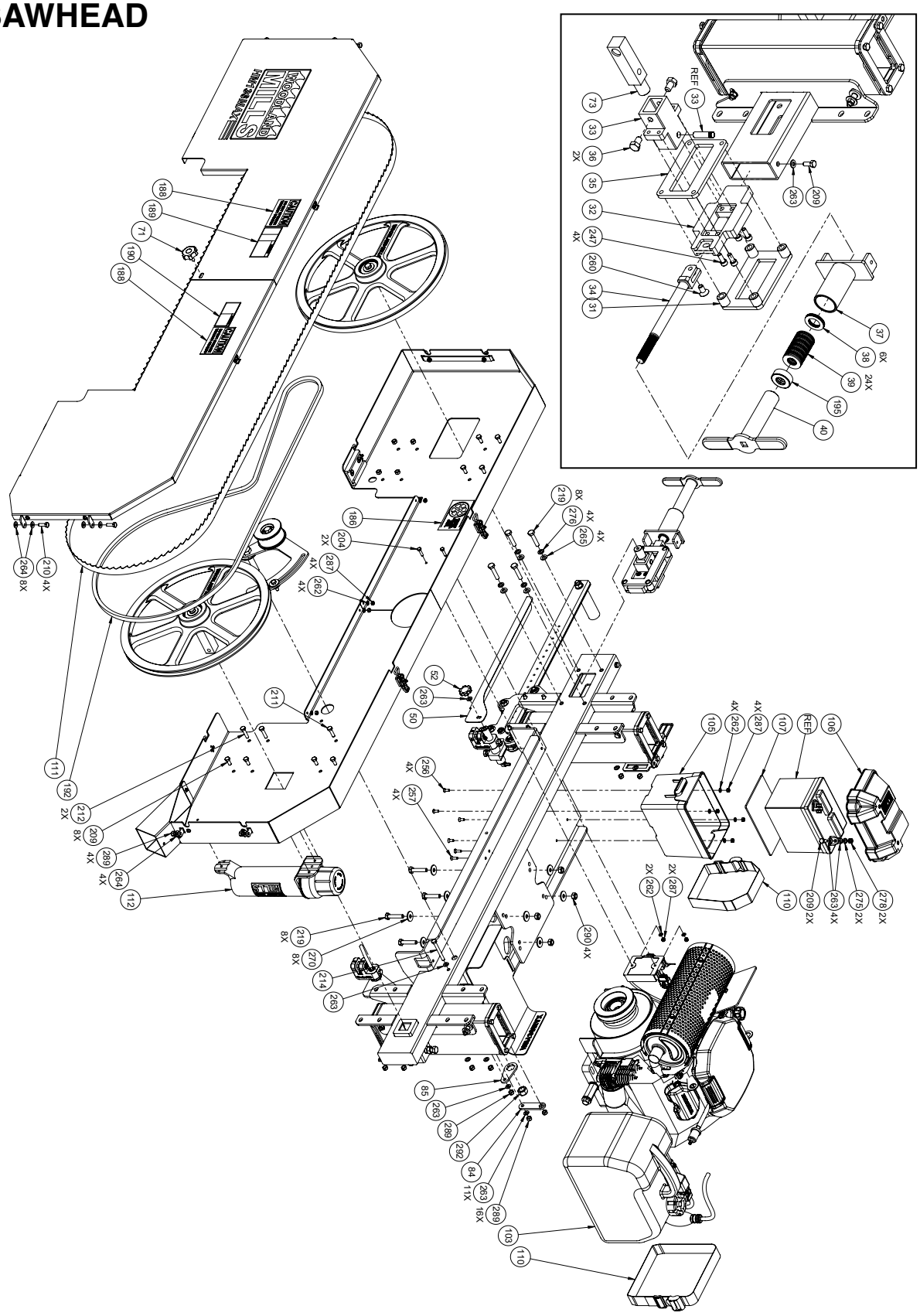
Contact Woodland Mills through the website or via phone/email. If possible, include the invoice or sales number from the purchased product so an associated account can be located. If the account has multiple addresses on file, please indicate to which address the replacement part(s) will be shipped.

EXPLODED ASSEMBLY VIEWS

TRACK



SAWHEAD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209
37
38 6X
39 24X
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71
190
188
264 8X
210 4X
186
204 2X
267 4X
262 4X
219 8X
276 4X
265 4X
211
111
192
212 2X
209 8X
289 4X
264 4X
112
32
263
50
105
262 4X
287 4X
107
REF
106
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257 4X
110
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263 4X
275 2X
278 2X
262 2X
287 2X
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214
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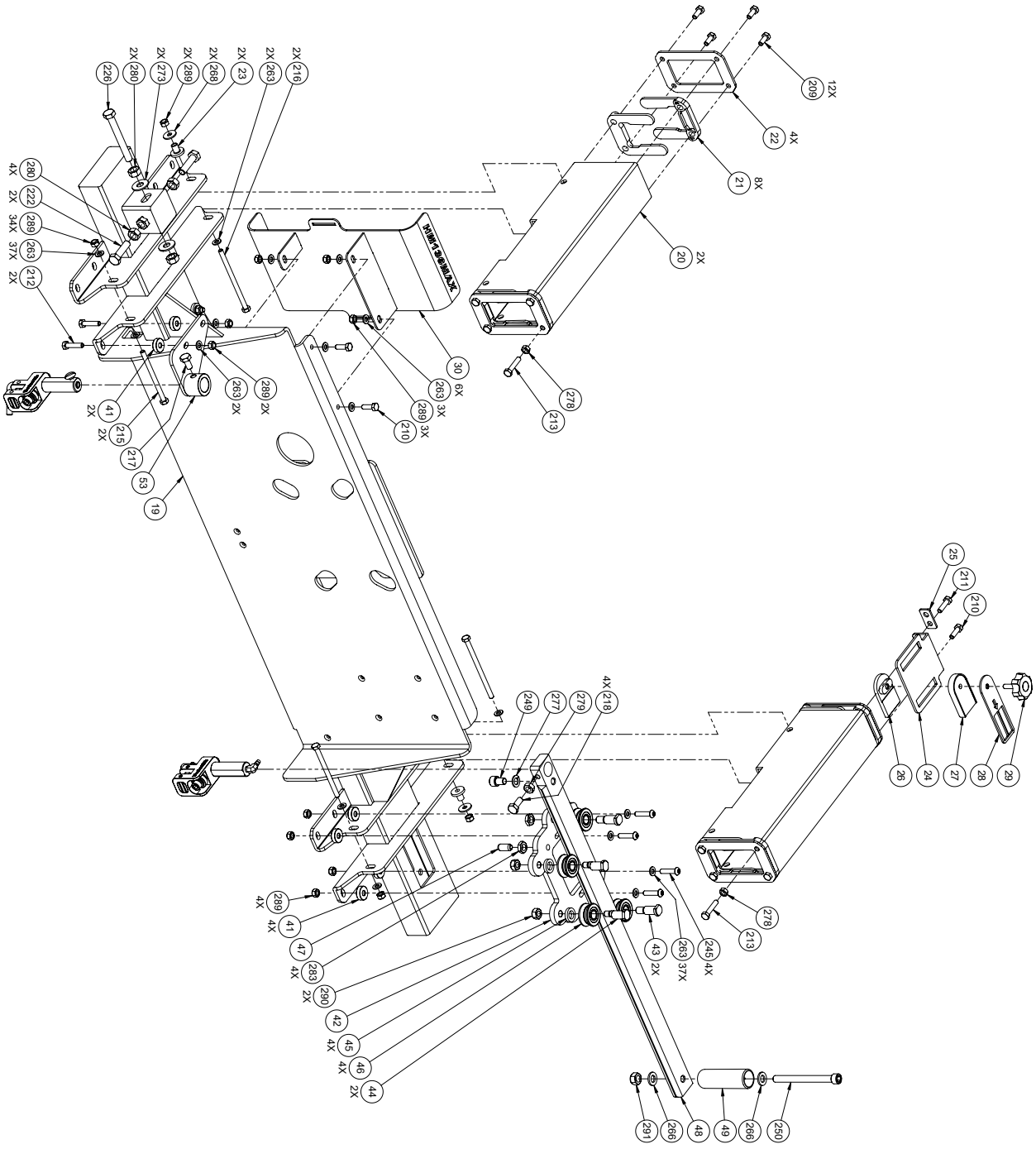
85
263
280
282
84 11X
263 16X
289
103
110

BACK BEAM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2X 222
34X 289
37X 263
2X 212
30 6X
263 3X
289 3X
210
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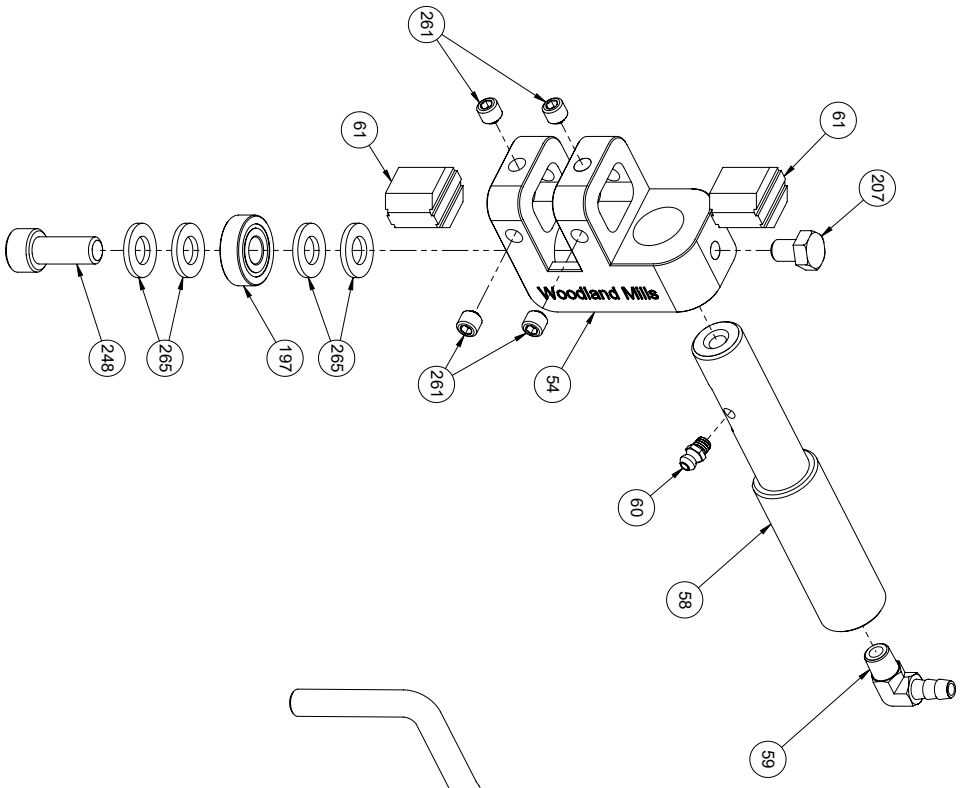
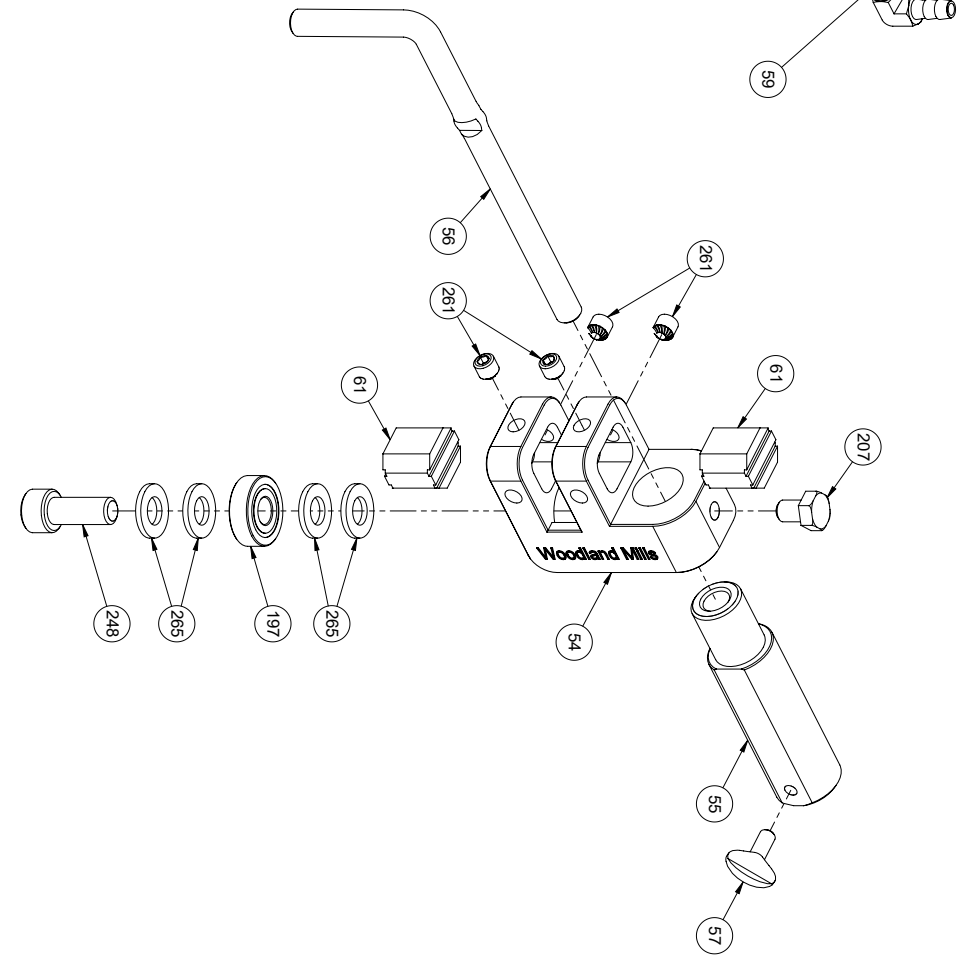
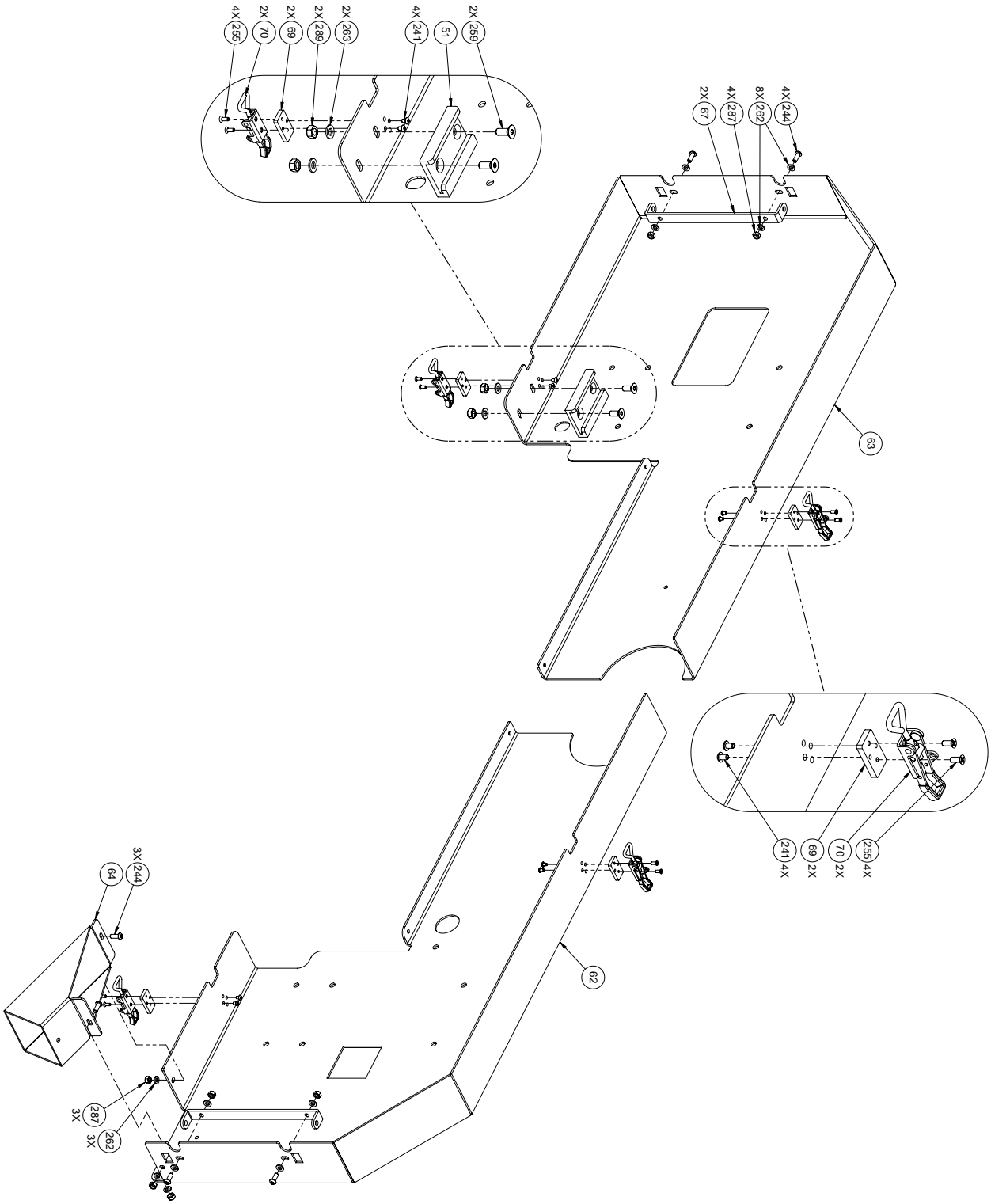
250

GUIDE BLOCK HOLDERS

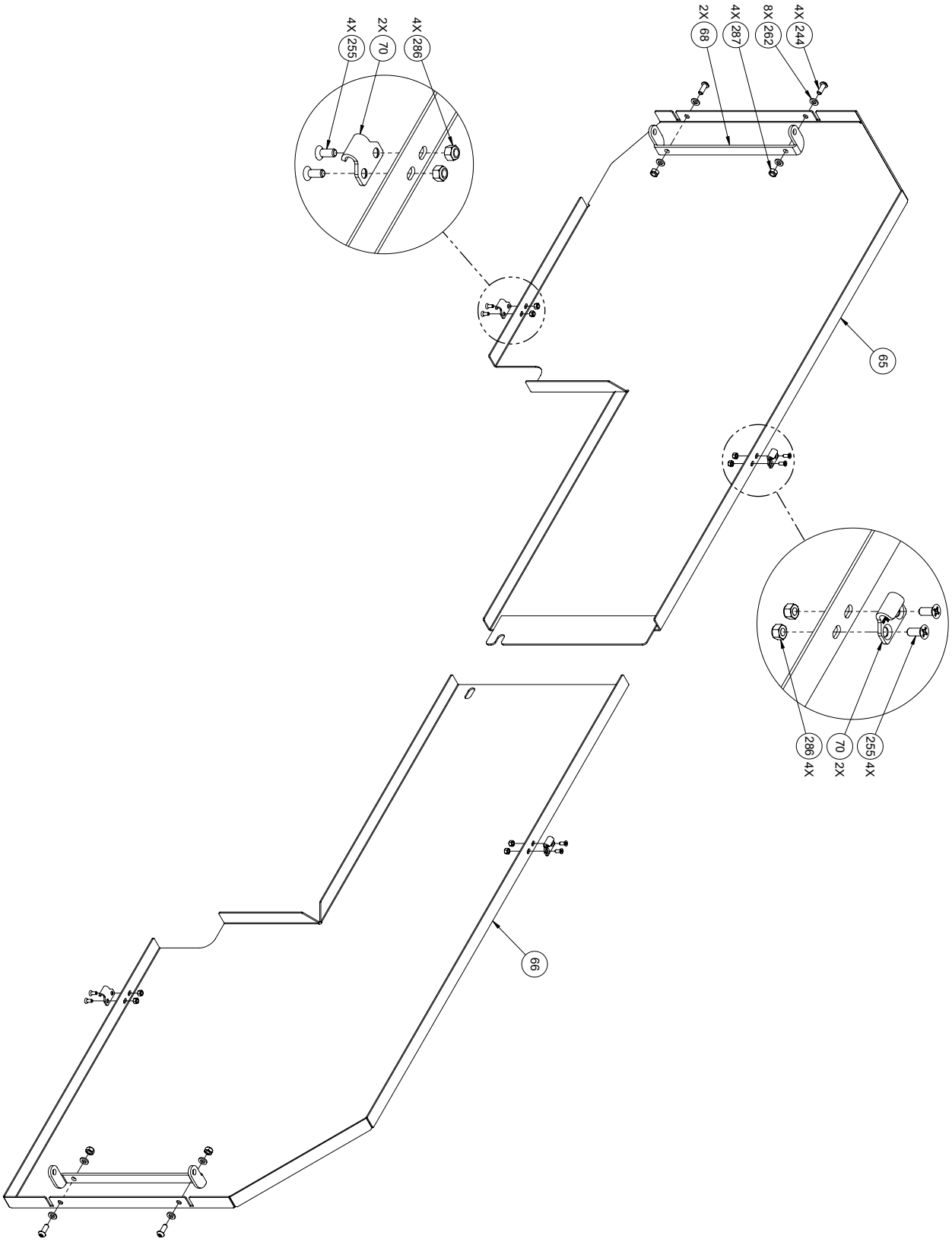




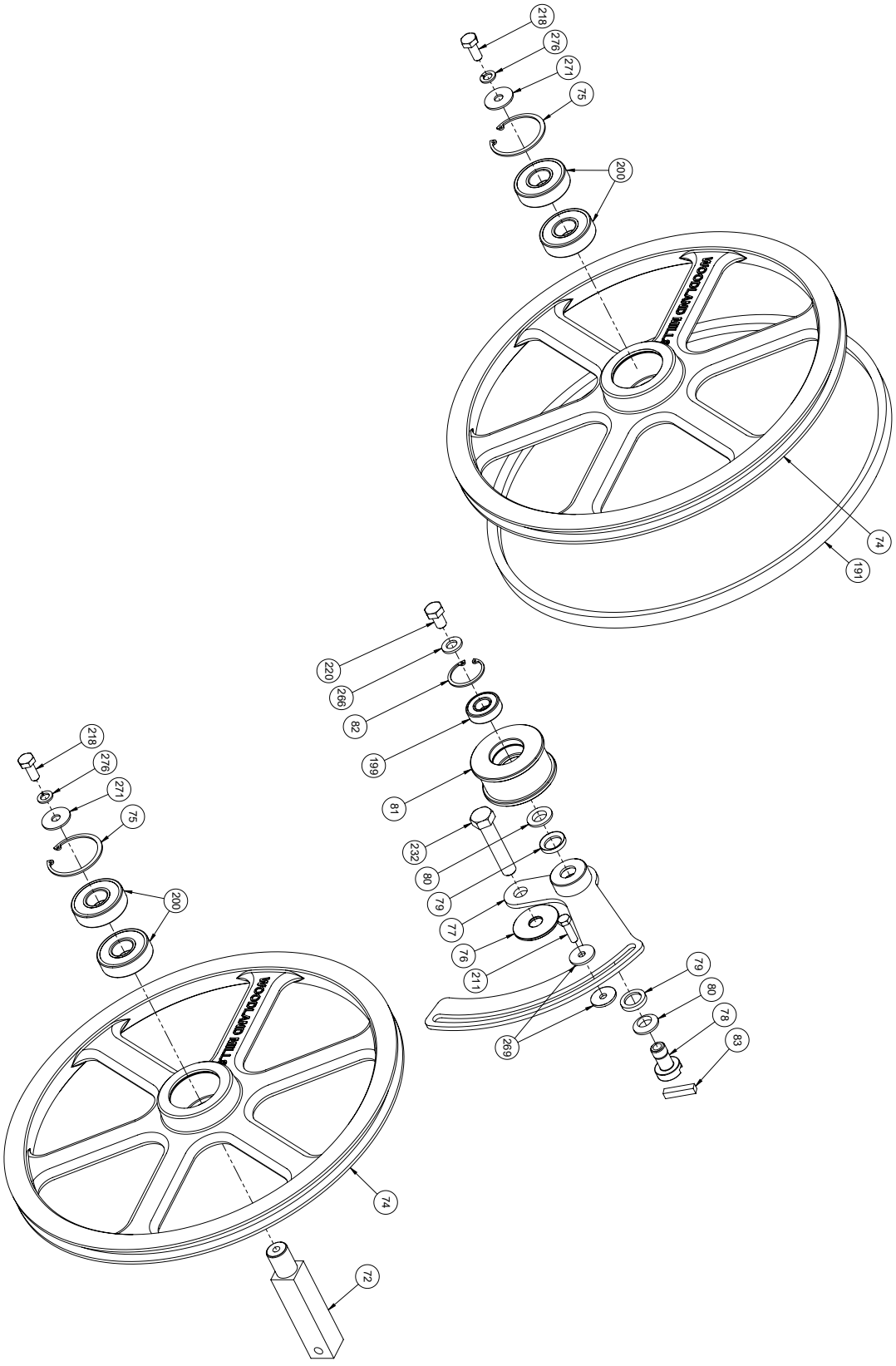
BAND WHEEL HOUSING



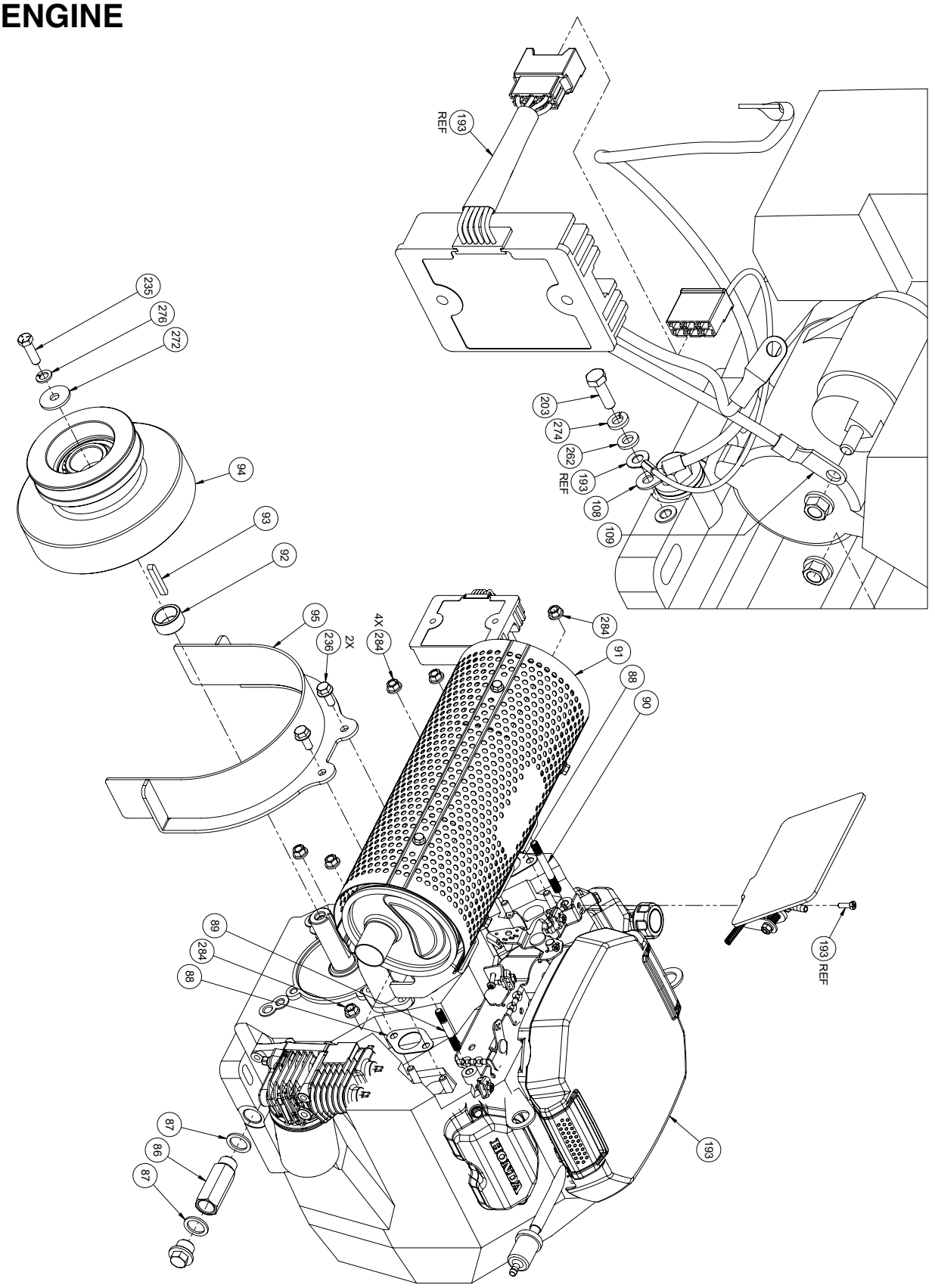
BAND WHEEL HOUSING DOORS



BAND WHEELS AND BELT TENSIONER



ENGINE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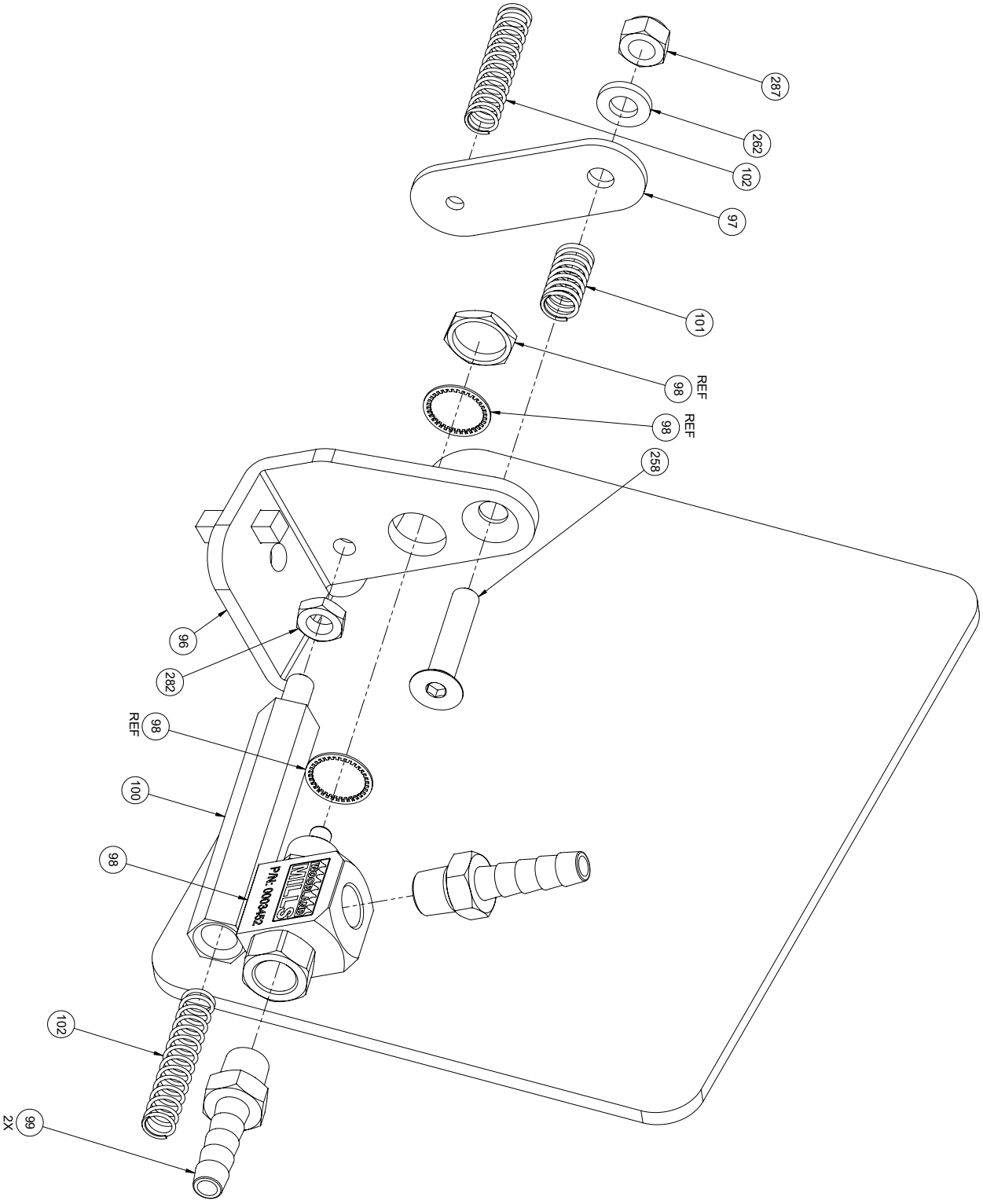
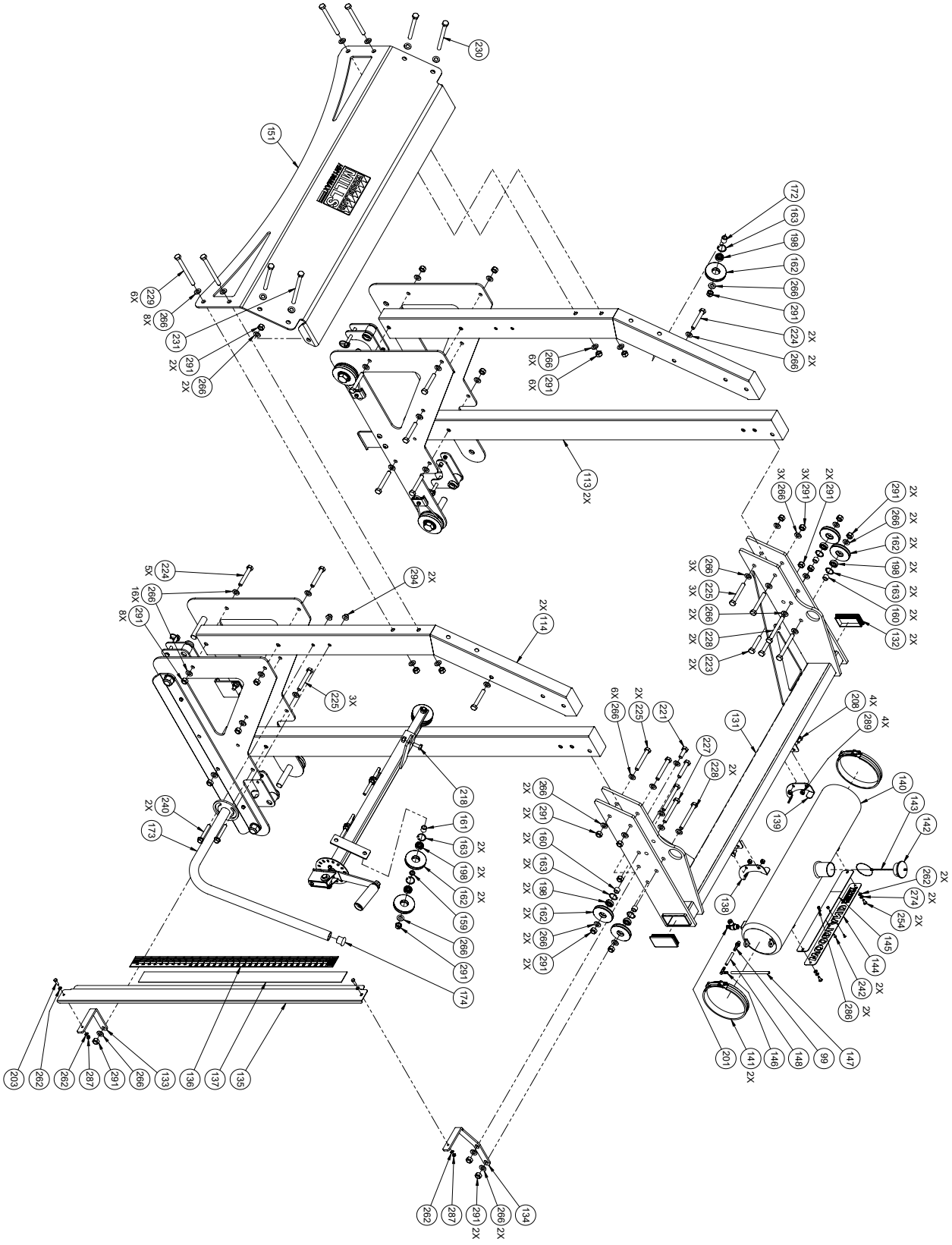
HONDA

AUTO-LUBE



CARRIAGE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291 6X
113 2X
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266 2X
162 2X
198 2X
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160 2X
132 2X
3X 266
3X 291
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3X 286
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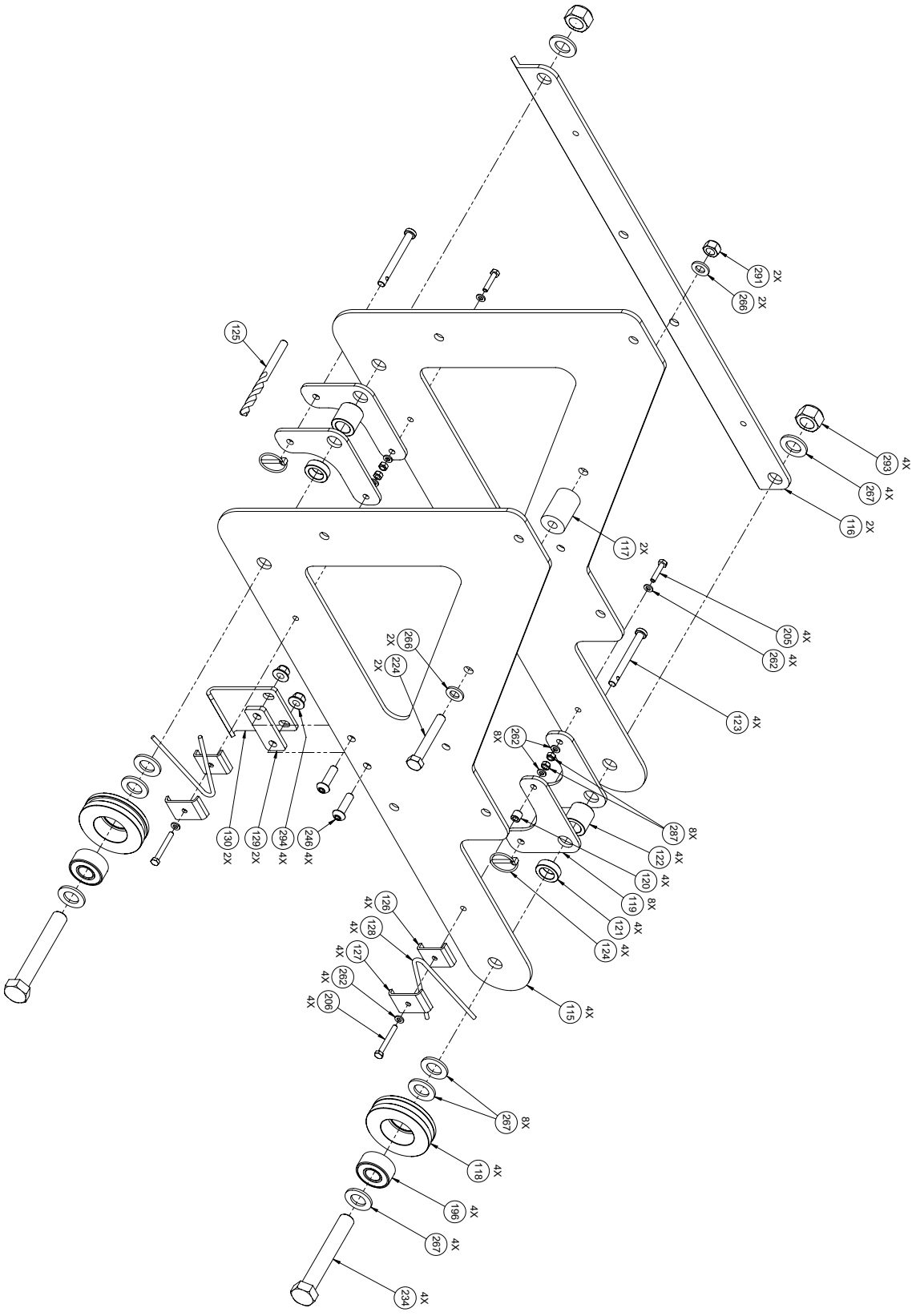
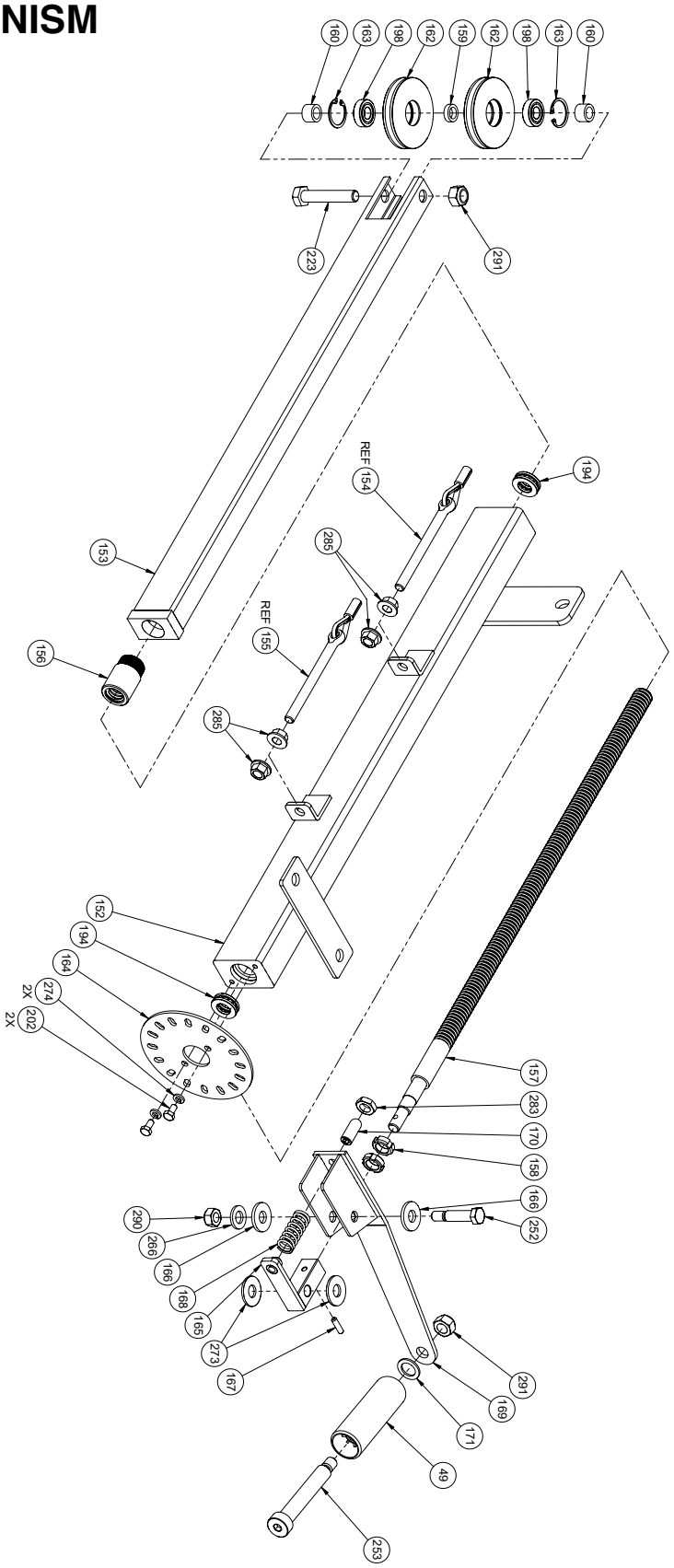
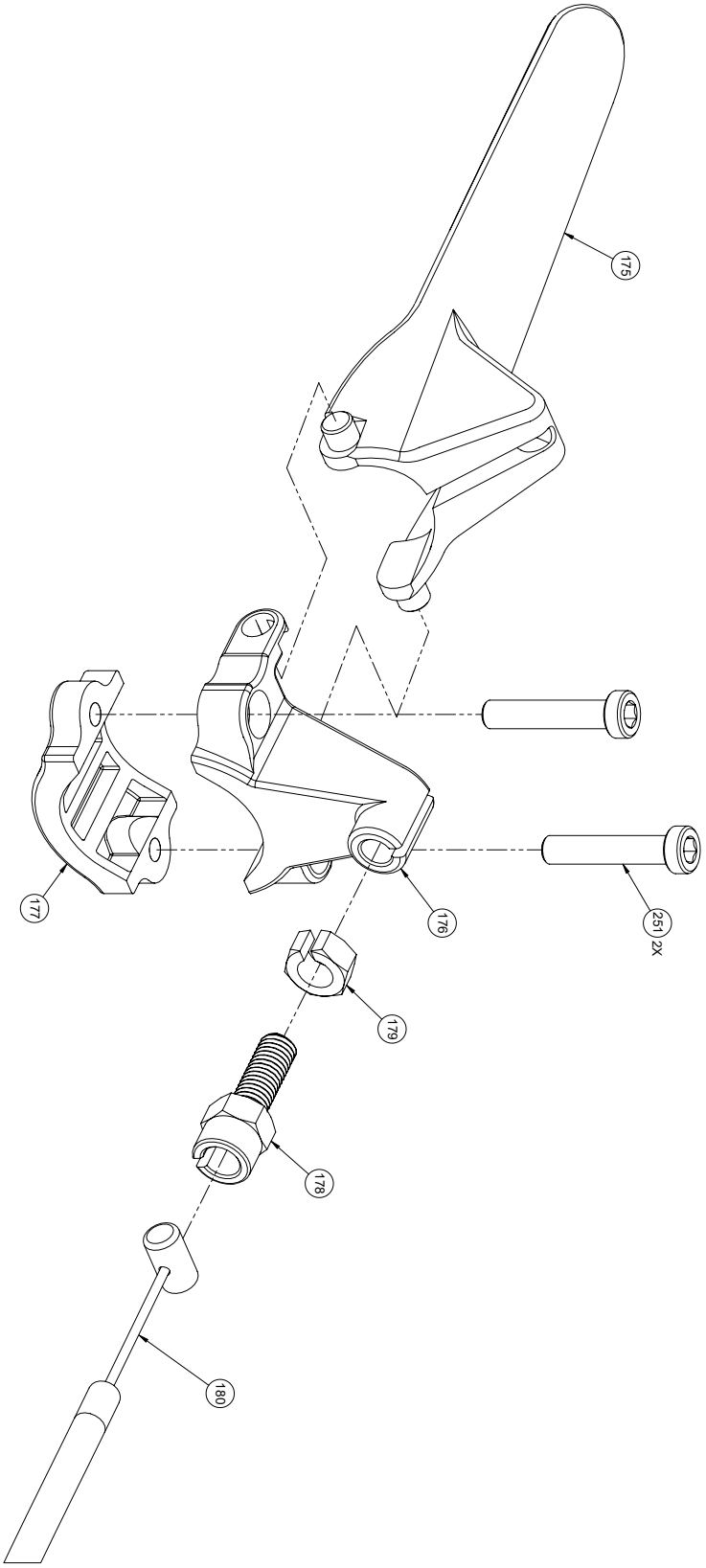
CARRIAGE LEG, WHEEL, AND SWEEPER



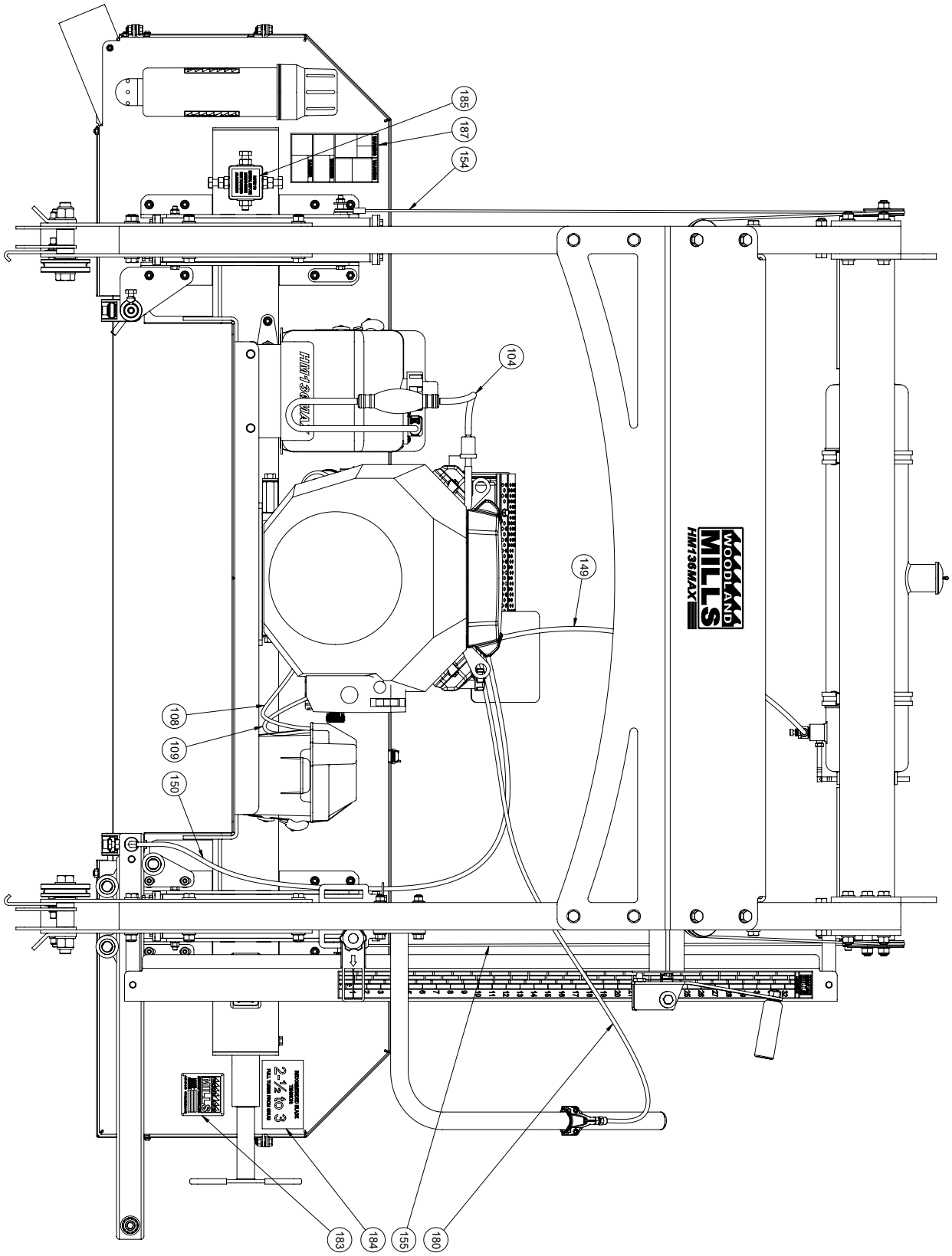
LIFT MECHANISM



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	0003606	LOG BUNK, END
3	3	0008294	LOG BUNK
4	3	0003609	LOG BUNK CAP
5	3	0009119	LOG SUPPORT SLEEVE
6	2	0001072	REINFORCEMENT PLATE, 90 X 200 mm
7	12	0001071	LEVELLING FOOT BASE
8	4	0001055	CARRIAGE STOP
9	4	0003620	ANTI-TIP RAIL
10	2	0003611	SHAFT WELDMENT, QUICK-LOCK LOG CLAMP
11	2	0001069	MOUNTING BRACKET, QUICK-LOCK LOG CLAMP
12	2	0001061	RECEIVER, QUICK-LOCK LOG CLAMP
13	2	0003613	QUICK-LOCK LOG CLAMP
14	2	0003616	LOG SUPPORT TUBE, ROLLER MOUNT, 644 mm LG
15	2	0009680	LOG SUPPORT ROLLER SHAFT, M10 X 1.5
16	2	0006062	LOG SUPPORT ROLLER, 20.3 ID X 40 OD X 30 mm LG
17	2	0001465	LOG SUPPORT, KEY STOP, 190 mm LG
18	5	0001059	T-BOLT, M10 X 1.5, 40 mm LG
19	1	0003623	BACK BEAM
20	2	0003624	POST SLEEVE
21	8	0004234	POST SLEEVE BUSHING, U-SHAPED, 50 X 80 mm POST
22	4	0003626	POST SLEEVE LOCKING PLATE, 50 X 100 mm POST
23	2	0008670	STEPPED SPACER, CABLE PICKUP
24	1	0008645	LOG SCALE MOUNTING BRACKET
25	1	0001020	LUBRICATION TUBING BRACKET, FLAT
26	1	0002097	SCALE INDICATOR ARROW BRACKET, REAR
27	1	0002098	SCALE INDICATOR ARROW BRACKET, FRONT
28	1	0002099	SCALE INDICATOR ARROW
29	1	0002764	KNOB, MULTI-LOBE, 48 mm OD, M8 X 1.25, 25 mm LG
30	1	0003672	GAS TANK CRADLE
31	1	0002052	RAPIDCHANGE MOUNTING PLATE, 160 X 100 mm
32	1	0002053	RAPIDCHANGE TENSION BLOCK, 160 X 100 mm
33	1	0002054	RAPIDCHANGE SHAFT SLEEVE
34	1	0005457	TENSION ROD, RAPIDCHANGE, TR18X3 THD, 220 mm LG
35	1	0002056	RAPIDCHANGE BACK PLATE, 160 X 100 mm
36	2	0002350	HEX BOLT, M12 X 1.25, 20 mm LG, 2.5 mm CHAMFER
37	1	0003116	SPRING WASHER HOLDER, RAPIDCHANGE, 120 X 50 mm
38	6	0002637	SPRING WASHER SHIM, 25 ID X 41.5 OD X 1 mm THK
39	24	0006088	BELLEVILLE WASHER, 20.4 ID, 40 OD, 2.5 THK, 3.45 mm TALL, 2111 lb WORKING LOAD
40	1	0005452	TENSION HANDLE, RATCHET MOUNT, OFFSET THD, 139 mm LG
41	6	0002023	SPACER, ADJUSTABLE BLADE GUIDE
42	1	0003681	ADJUSTABLE BLADE GUIDE ROLLER CARRIAGE, (4) 41 mm X 120° ROLLERS
43	2	0003525	TRACK ROLLER SHAFT W/ HEAD, CONCENTRIC, M12 X 1.75 THD
44	2	0003527	TRACK ROLLER SHAFT W/ HEAD, ECCENTRIC, M10 X 1.5 THD

Item	Qty	Part No.	Description
45	4	0003528	TRACK ROLLER SHAFT SPACER, 15 ID X 23 OD X 5 mm THK
46	4	0002657	TRACK ROLLER, V-GROOVE, 120°, 41 mm DIA X 20 mm WD
47	1	0002661	BALL-NOSE SPRING PLUNGER, HEX DRIVE, NON-LOCKING, M12 X 1.75, 26 mm LG
48	1	0003638	ADJUSTABLE BLADE GUIDE ARM, 120° TRACK ROLLERS, 740 mm LG
49	2	0004199	HANDLE, STRAIGHT, 35 mm DIA, 105 mm LG, M16 THRU
50	1	0003639	BLADE GUARD, ADJUSTABLE BLADE GUIDE
51	1	0003640	BLADE GUARD GUIDE, ADJUSTABLE BLADE GUIDE
52	1	0002667	KNOB, MULTI-LOBE, 38 mm OD, M8 X 1.25, 12 mm LG
53	1	0003632	GUIDE BLOCK HOLDER BRACKET, LEFT
54	2	0001093	GUIDE BLOCK HOLDER
55	1	0001096	GUIDE BLOCK HOLDER SHAFT, BLADE STOPPER
56	1	0009682	SAW BLADE STOPPER, CRIMPED, 54 mm LG
57	1	0006891	THUMB SCREW, SPADE-HEAD, SST, M6 X 1, 10 mm LG
58	1	0002663	GUIDE BLOCK HOLDER SHAFT, DRIP NOZZLE, GUARD MOUNT
59	1	0005116	FITTING, ELBOW, 90°, BARBED, 1/8 in NPT, 1/4 in HOSE
60	1	0002664	GREASE FITTING, STRAIGHT, 14 mm LG, M6 TPR THD, MODIFIED
61	4	0001090	GUIDE BLOCK
62	1	0008675	BAND WHEEL HOUSING, LEFT
63	1	0008676	BAND WHEEL HOUSING, RIGHT
64	1	0008966	DUST CHUTE
65	1	0003630	BAND WHEEL DOOR, LEFT
66	1	0003631	BAND WHEEL DOOR, RIGHT
67	2	0001954	BAND WHEEL HOUSING INNER HINGE BRACKET
68	2	0001955	BAND WHEEL HOUSING OUTER HINGE BRACKET
69	4	0003161	LATCH SPACER
70	4	0002248	ADJUSTABLE DRAW LATCH
71	1	0001659	KNOB, MULTI-LOBE, 48 mm OD, M8 X 1.25, 17 mm LG
72	1	0001104	DRIVE SHAFT, 30 mm SQ, 125 mm LG, 25 mm DIA
73	1	0001993	FOLLOWER SHAFT, RAPIDCHANGE, 30 mm SQ, 108.5 mm LG, 25 mm DIA
74	2	0001105	BAND WHEEL, 19 in
75	2	0004820	RETAINING RING, INTERNAL, 62 mm BORE (65 mm GROOVE)
76	1	0002017	BELT TENSIONER SHAFT SPACER
77	1	0002643	BELT TENSIONER ARM
78	1	0002644	BELT TENSIONER IDLER SHAFT
79	2	0005282	LEVELLING WASHER, FEMALE, M16
80	2	0005283	LEVELLING WASHER, MALE, M16
81	1	0002645	IDLER PULLEY, SPHERICAL ALIGNMENT, 33 mm WD, 80 mm DIA
82	1	0004816	RETAINING RING, INTERNAL, 40 mm BORE (42.5 mm GROOVE)
83	1	0002646	PARALLEL KEY, 8 X 8 mm, 37 mm LG
84	1	0002019	NUT LOCKING PLATE
85	1	0008628	TENSIONER LOCKING PLATE
86	1	0008072	OIL DRAIN EXTENSION, 56 mm LG, M20 X 1.5 THD
87	2	0008073	SEALING WASHER, M20
88	2	0010120	GASKET, EXHAUST PIPE, HONDA GX630/GX690
89	1	0010117	STUD, 60 mm LG, M8 X 1.25 [20 mm LG], M8 X 1.25 [15 mm LG]
90	1	0010118	STUD, 75 mm LG, M8 X 1.25 [20 mm LG], M8 X 1.25 [15 mm LG]
91	1	0009970	MUFFLER, HIGH-RIGHT, HONDA GX630/GX690
92	1	0003509	CLUTCH SPACER, HONDA GX630 Q-TYPE SHAFT, 1 in [25.4 mm] BORE
93	1	0003643	PARALLEL KEY, 1/4 X 1/4 in, 1-3/4 in LG

Item	Qty	Part No.	Description
94	1	0009924	CLUTCH ASSEMBLY, 1 in [25.4 mm] SHAFT, 5 in [127 mm] DIA PULLEY
95	1	0003641	CLUTCH HOUSING GUARD, SIDE FLANGES, HONDA GX630
96	1	0008238	VALVE MOUNT BRACKET, IN-LINE, 20.8 hp
97	1	0007411	VALVE ACTUATOR TAB, 20.8 hp
98	1	0003452	STEM VALVE, 1/8 in NPT FEMALE, 1/8 in STEM TRAVEL
99	3	0005127	FITTING, ADAPTER, BARBED, 1/8 in NPT MALE TO 1/4 in HOSE
100	1	0008246	CABLE ADJUSTMENT SCREW, 2 mm CABLE, 70 mm LG, M6 X 1
101	1	0004982	COMPRESSION SPRING, CLOSED GROUND ENDS, 8.5 mm OD, 0.9 mm DIA WIRE, 27 mm LG
102	2	0005578	COMPRESSION SPRING, CLOSED GROUND ENDS, 7.49 mm OD, 0.81 mm WIRE DIA, 40 mm LG, 0.21 lb/mm
103	1	0003591	FUEL TANK, 12 L [3.2 gal], 220 X 355 X 260 mm
104	1	0009461	FUEL LINE
105	1	0005558	BATTERY BOX BASE, U1 BATTERY SIZE, WM LOGO
106	1	0005559	BATTERY BOX LID, U1 BATTERY SIZE, WM LOGO
107	1	0009821	BATTERY BOX PAD
108	1	0010296	BATTERY CABLE, NEGATIVE (BLACK), 6 AWG, 14 in LG
109	1	0010297	BATTERY CABLE, POSITIVE (RED), 6 AWG, 14 in LG
110	2	0005734	CINCHING STRAP, 38 mm WD, 1050 mm LG
111	1	0003633	SAW BLADE, 7/8 in PITCH, 198 TEETH, 1-1/4 WD X 174 LG X .042 in THK
112	1	0001655	MANUAL TUBE
113	2	0003651	FRONT POST, 50 X 100 mm, 1568 mm LG
114	2	0008357	BACK POST, 50 X 100 mm
115	4	0008358	CARRIAGE SIDE PLATE
116	2	0009448	SIDE PLATE STIFFENER
117	2	0001102	SPACER, 13 ID X 33.5 OD X 50 mm LG
118	4	0001037	CARRIAGE WHEEL
119	8	0001990	HEAD LOCK-DOWN PLATE
120	4	0004142	SPACER, 6.5 ID X 12 OD X 10 mm LG, BLACK
121	4	0001967	SPACER, 20.5 ID X 32 OD X 10 mm LG, BLACK
122	4	0010126	SPACER, 20.5 ID X 32 OD X 30 mm LG, BLACK
123	4	0001394	LOCK-DOWN PIN, 9.5 mm DIA, 77 mm USEABLE LG
124	4	0004720	LINCH PIN, 4.5 mm DIA, 25 mm USEABLE LG, 32 mm LG
125	1	0004742	DRILL BIT, 10 mm, JOBBERS LG
126	4	0001019	WHEEL SWEEPER INNER BRACKET
127	4	0001017	WHEEL SWEEPER OUTER BRACKET
128	4	0001018	WHEEL SWEEPER CABLE
129	2	0003622	ANTI-TIP BRACKET SPACER
130	2	0003621	ANTI-TIP BRACKET
131	1	0008359	CROSS BEAM
132	2	0001661	PLASTIC END CAP, RECT, 100 X 50 mm
133	1	0008639	SCALE SUPPORT BRACKET, LOWER
134	1	0008642	SCALE SUPPORT BRACKET, UPPER
135	1	0008643	SCALE SUPPORT
136	1	0003690	MAGNETIC SCALE, 32 in, 1 TO 1-1/4 in, GREEN/WHITE
137	1	0003691	MAGNETIC SCALE, 32 in, 1-1/2 TO 4 in, GREEN/WHITE
138	1	0007794	LUBRICATION TANK BRACKET, RIGHT
139	1	0007795	LUBRICATION TANK BRACKET, LEFT
140	1	0007383	LUBRICANT TANK, 13 L [3.4 gal], NO TABS

Item	Qty	Part No.	Description
141	2	0007528	TIGHT-SEAL BOLT CLAMP, M6 X 1
142	1	0001132	TANK CAP
143	1	0005221	BEAD CHAIN, 3 mm BEAD, 140 mm LG
144	1	0003658	HM136MAX NAMEPLATE
145	1	0002038	NAMEPLATE BACKING
146	1	0005117	FITTING, ELBOW, 90°, BARBED, 6 mm ID TUBE, WHITE
147	1	0002809	SIGHT LEVEL TUBING, LUBRICATION TANK
148	1	0002691	LUBRICATION TUBING, TANK-TO-ELBOW, 2-3/16 in [55 mm] LG
149	1	0009895	LUBRICATION TUBING, TANK-TO-VALVE, 8 mm OD, 37 in [940 mm] LG
150	1	0009896	LUBRICATION TUBING, VALVE-TO-BLADE, 8 mm OD, 54 in [1372 mm] LG
151	1	0003654	DASHBOARD
152	1	0003660	LIFT MECHANISM HOUSING
153	1	0003661	LIFT MECHANISM EXTENSION ARM
154	1	0009893	WIRE ROPE LIFT CABLE W/ EYEBOLT, LEFT, 4 mm DIA, 157.5 in [4000 mm] LG
155	1	0009894	WIRE ROPE LIFT CABLE W/ EYEBOLT, RIGHT, 4 mm DIA, 113.0 in [2870 mm] LG
156	1	0009614	BRONZE NUT, LH TR20X4 FEM THD, M27 X 1.5 MALE THD, 46.5 mm LG
157	1	0003662	LEAD SCREW, TR20X4 THD, 510 mm LG THD
158	2	0006079	SLOTTED NUT, ROUND, M14 X 1.5
159	2	0002813	SPACER, 12 ID X 18 OD X 5 mm LG
160	6	0002812	SPACER, 12 ID X 18 OD X 12 mm LG
161	1	0009502	SPACER, 12 ID X 18 OD X 16.5 mm LG
162	9	0001099	WIRE ROPE PULLEY, 67 mm GROOVE, 28 mm BORE, 6001-2RS BEARING
163	9	0004813	RETAINING RING, INTERNAL, 28 mm BORE (29.4 mm GROOVE)
164	1	0002520	CRANK HANDLE INDEX PLATE, 125 mm DIA, SST
165	1	0002632	SELF-LOCKING CRANK HANDLE ARM LUG
166	2	0002675	SPACER, 12.5 ID X 30 OD X 3.3 mm LG
167	1	0004777	SPRING PIN, SLOTTED, 5 mm DIA, 20 mm LG
168	1	0004975	COMPRESSION SPRING, CLOSED GROUND ENDS, 0.720 in OD, 0.096 in DIA WIRE, 1.750 in LG, 86 lb/in RATE
169	1	0002633	SELF-LOCKING CRANK HANDLE ARM
170	1	0006040	SET SCREW, FULL ROUND, M12 X 1.75, 30 mm LG
171	1	0004214	SPACER, 16.5 ID X 25 OD X 2 mm LG, NYLON
172	1	0003251	SPACER, 12 ID X 18 OD X 20.5 mm LG
173	1	0004511	PUSH HANDLE, ADJUSTABLE, CLAMPING THROTTLE HANDLE
174	1	0001662	PLASTIC END CAP, ROUND, 32 mm OD
175	1	0004245	THROTTLE HANDLE GRIP
176	1	0004246	THROTTLE HANDLE TOP CLAMP, 32 mm TUBE
177	1	0004247	THROTTLE HANDLE BOTTOM CLAMP, 32 mm TUBE
178	1	0004248	CABLE ADJUSTMENT SCREW, SPLIT, 2 mm CABLE, M8 X 1.25, 22 mm LG
179	1	0005666	HEX NUT, CLS 8, M8 X 1.25, SPLIT
180	1	0006124	THROTTLE CABLE, 74 in [1880 mm] LG CABLE, 65 in [1650 mm] LG SHEATH
181	1	0009830	SAWHEAD STOP
182	1	0001698	KNOB, MULTI-LOBE, 48 mm OD, M10 X 1.5, 30 mm LG
183	1	0001839	LABEL, SERIAL NUMBER
184	1	0006993	LABEL, RECOMMENDED BLADE TENSION BY TURNS
185	1	0005688	LABEL, DRIVE-SIDE TRACKING
186	1	0004646	LABEL, FOLLOWER BELT
187	1	0002769	LABEL, DANGER/WARNING COLLAGE
188	2	0002766	LABEL, CAUTION: DO NOT OPERATE WITHOUT GUARDS

Item	Qty	Part No.	Description
189	1	0002770	LABEL, DANGER: MOVING PARTS CUT/CRUSH
190	1	0002771	LABEL, DANGER: BANDSAW BLADE WILL CUT
191	1	BK57	V-BELT, KEVLAR, BK57
192	1	BK100	V-BELT, KEVLAR, BK100
193	1	GX630	ENGINE, HONDA GX630, 20.8 hp, Q-TYPE SHAFT, HIGH-MOUNT MUFFLER
194	2	51102	THRUST BEARING, SINGLE DIR, 15 mm SFT, 28 mm HSG, 9 mm WD
195	1	51204	THRUST BEARING, SINGLE DIR, W/ HSG, 20 mm SFT, 40 mm HSG, 14 mm WD
196	4	5204-2RS	BALL BEARING, SEALED, ANG-CONT, DOUBLE ROW, 20 mm SFT, 47 mm HSG, 20.6 mm WD
197	2	6000-2RS	BALL BEARING, SEALED, 10 mm SFT, 26 mm HSG, 8 mm WD
198	9	6001-2RS	BALL BEARING, SEALED, 12 mm SFT, 28 mm HSG, 8 mm WD
199	1	6203-2RS	BALL BEARING, SEALED, 17 mm SFT, 40 mm HSG, 12 mm WD
200	4	6305-2RS	BALL BEARING, SEALED, 25 mm SFT, 62 mm HSG, 17 mm WD
201	1	SLS-03-08	FLOW CONTROL VALVE, RA, 3/8 NPT, 8 mm QUICK-CONNECT TUBE
202	2	HHB-MBE063FCJ	HEX HEAD BOLT, CLS 8.8, M6 X 1, 12 mm LG, FULL
203	3	HHB-MBE075FCJ	HEX HEAD BOLT, CLS 8.8, M6 X 1, 20 mm LG, FULL
204	2	HHB-MBE080FCJ	HEX HEAD BOLT, CLS 8.8, M6 X 1, 25 mm LG, FULL
205	4	HHB-MBE085FCJ	HEX HEAD BOLT, CLS 8.8, M6 X 1, 30 mm LG, FULL
206	4	HHB-MBE105FCJ	HEX HEAD BOLT, CLS 8.8, M6 X 1, 50 mm LG, FULL
207	2	HHB-MBJ063FCJ	HEX HEAD BOLT, CLS 8.8, M8 X 1.25, 12 mm LG, FULL
208	4	HHB-MBJ071FCJ	HEX HEAD BOLT, CLS 8.8, M8 X 1.25, 16 mm LG, FULL
209	22	HHB-MBJ075FCJ	HEX HEAD BOLT, CLS 8.8, M8 X 1.25, 20 mm LG, FULL
210	9	HHB-MBJ080FCJ	HEX HEAD BOLT, CLS 8.8, M8 X 1.25, 25 mm LG, FULL
211	3	HHB-MBJ085FCJ	HEX HEAD BOLT, CLS 8.8, M8 X 1.25, 30 mm LG, FULL
212	2	HHB-MBJ090FCJ	HEX HEAD BOLT, CLS 8.8, M8 X 1.25, 35 mm LG, FULL
213	2	HHB-MBJ095FCJ	HEX HEAD BOLT, CLS 8.8, M8 X 1.25, 40 mm LG, FULL
214	1	HHB-MBJ130PCJ	HEX HEAD BOLT, CLS 8.8, M8 X 1.25, 75 mm LG, 22 mm LG THD
215	2	HHB-MBJ165PCJ	HEX HEAD BOLT, CLS 8.8, M8 X 1.25, 110 mm LG, 22 mm LG THD
216	2	HHB-MBJ185PCJ	HEX HEAD BOLT, CLS 8.8, M8 X 1.25, 130 mm LG, 22 mm LG THD
217	1	HHB-MBM075FCJ	HEX HEAD BOLT, CLS 8.8, M10 X 1.5, 20 mm LG, FULL
218	4	HHB-MBM080FCJ	HEX HEAD BOLT, CLS 8.8, M10 X 1.5, 25 mm LG, FULL
219	8	HHB-MBM105FCJ	HEX HEAD BOLT, CLS 8.8, M10 X 1.5, 50 mm LG, FULL
220	1	HHB-MBR075FCJ	HEX HEAD BOLT, CLS 8.8, M12 X 1.75, 20 mm LG, FULL
221	1	HHB-MBR090FCJ	HEX HEAD BOLT, CLS 8.8, M12 X 1.75, 35 mm LG, FULL
222	2	HHB-MBR100FCJ	HEX HEAD BOLT, CLS 8.8, M12 X 1.75, 45 mm LG, FULL
223	3	HHB-MBR120PCJ	HEX HEAD BOLT, CLS 8.8, M12 X 1.75, 65 mm LG, 30 mm LG THD
224	9	HHB-MBR135PCJ	HEX HEAD BOLT, CLS 8.8, M12 X 1.75, 80 mm LG, 30 mm LG THD
225	8	HHB-MBR145PCJ	HEX HEAD BOLT, CLS 8.8, M12 X 1.75, 90 mm LG, 30 mm LG THD
226	1	HHB-MBR155FCJ	HEX HEAD BOLT, CLS 8.8, M12 X 1.75, 100 mm LG, FULL
227	1	HHB-MBR155PCJ	HEX HEAD BOLT, CLS 8.8, M12 X 1.75, 100 mm LG, 30 mm LG THD
228	4	HHB-MBR165PCJ	HEX HEAD BOLT, CLS 8.8, M12 X 1.75, 110 mm LG, 30 mm LG THD
229	6	HHB-MBR185PCJ	HEX HEAD BOLT, CLS 8.8, M12 X 1.75, 130 mm LG, 30 mm LG THD
230	1	HHB-MBR205PCJ	HEX HEAD BOLT, CLS 8.8, M12 X 1.75, 150 mm LG, 36 mm LG THD
231	1	HHB-MBR225PCJ	HEX HEAD BOLT, CLS 8.8, M12 X 1.75, 170 mm LG, 36 mm LG THD
232	1	HHB-MCA135PCJ	HEX HEAD BOLT, CLS 8.8, M16 X 2, 80 mm LG, 38 mm LG THD
233	12	HHB-MCA175FCJ	HEX HEAD BOLT, CLS 8.8, M16 X 2, 120 mm LG, FULL
234	4	HHB-MCF185PCJ	HEX HEAD BOLT, CLS 8.8, M20 X 2.5, 130 mm LG, 46 mm LG THD
235	1	HHB-UBV025FGE	HEX HEAD BOLT, GR 5, ⅜-24, 1-¼ in LG, FULL
236	2	FHH-MBJ075FCJ	HEX BOLT, FLANGED, CLS 8.8, M8 X 1.25, 20 mm LG, FULL

Item	Qty	Part No.	Description
237	68	FHH-MBM080FCM	HEX BOLT, FLANGED, CLS 10.9, M10 X 1.5, 25 mm LG, FULL
238	8	FHH-MBM085FCM	HEX BOLT, FLANGED, CLS 10.9, M10 X 1.5, 30 mm LG, FULL
239	16	FHH-MBM090PCM	HEX BOLT, FLANGED, CLS 10.9, M10 X 1.5, 35 mm LG, 26 mm LG THD
240	2	FHH-MBM125PCM	HEX BOLT, FLANGED, CLS 10.9, M10 X 1.5, 70 mm LG, 26 mm LG THD
241	8	BHS-MAW051FTA	BUTTON HEAD SCREW, CLS 10.9, M4 X 0.7, 6 mm LG, FULL
242	2	BHS-MAW059FCM	BUTTON HEAD SCREW, CLS 10.9, M4 X 0.7, 10 mm LG, FULL
243	12	BHS-MBE071FTA	BUTTON HEAD SCREW, SST, M6 X 1, 16 mm LG, FULL
244	11	BHS-MBE071FCM	BUTTON HEAD SCREW, CLS 10.9, M6 X 1, 16 mm LG, FULL
245	4	BHS-MBJ090FCM	BUTTON HEAD SCREW, CLS 10.9, M8 X 1.25, 35 mm LG, FULL
246	4	BHS-MBM090FCM	BUTTON HEAD SCREW, CLS 10.9, M10 X 1.5, 35 mm LG, FULL
247	4	SHC-MBJ075FCP	SHCS, CLS 12.9, M8 X 1.25, 20 mm LG, FULL
248	2	SHC-MBM080FCP	SHCS, CLS 12.9, M10 X 1.5, 25 mm LG, FULL
249	1	SHC-MBR071FCP	SHCS, CLS 12.9, M12 X 1.75, 16 mm LG, FULL
250	1	SHC-MBR185FCP	SHCS, CLS 12.9, M12 X 1.75, 130 mm LG, FULL
251	2	LSH-MBE085PCP	SHCS, LP, CLS 12.9, M6 X 1, 30 mm LG, 18 mm LG THD
252	1	HHS-MBM057090AJ	SHLDR SCREW, HEX HEAD, ALLOY, 11 X 35 mm LG SHLDR, M10 X 1.5 X 18 mm LG THD
253	1	SHS-MBR063145CP	SHLDR SCREW, SH, CLS 12.9, 16 X 90 mm LG SHLDR, M12 X 1.75 X 18 mm LG THD
254	2	PPH-MBE067FCE	SCREW, PPH, CLS 4.8, M6 X 1, 14 mm LG, FULL
255	16	PFH-MAW059FCM	SCREW, PFH, CLS 10.9, M4 X 0.7, 10 mm LG, FULL
256	4	HFH-MBE071FCM	SCREW, HFH, CLS 10.9, M6 X 1, 16 mm LG, FULL
257	4	HFH-MBE075FCM	SCREW, HFH, CLS 10.9, M6 X 1, 20 mm LG, FULL
258	1	HFH-MBE085PCM	SCREW, HFH, CLS 10.9, M6 X 1, 30 mm LG, 18 mm LG THD
259	2	HFH-MBJ075FCM	SCREW, HFH, CLS 10.9, M8 X 1.25, 20 mm LG, FULL
260	1	HFH-MBM075FCM	SCREW, HFH, CLS 10.9, M10 X 1.5, 20 mm LG, FULL
261	8	KCS-MBJ055TA	SET SCREW, KNURLED CUP POINT, SST, M8 X 1.25, 8 mm LG
262	53	FTW-MBE000AJ	FLAT WASHER, M6
263	37	FTW-MBJ000AJ	FLAT WASHER, M8
264	12	FTW-MBJ000NA	FLAT WASHER, M8, NYLON
265	12	FTW-MBM000AJ	FLAT WASHER, M10
266	66	FTW-MBR000AJ	FLAT WASHER, M12
267	16	FTW-MCF000AJ	FLAT WASHER, M20
268	2	FDW-MBJ073000AJ	FENDER WASHER, M8, 24 mm OD
269	2	FDW-MBJ079000AJ	FENDER WASHER, M8, 30 mm OD
270	8	FDW-MBM079000AJ	FENDER WASHER, M10, 30 mm OD
271	2	FDW-MBM083000AJ	FENDER WASHER, M10, 34 mm OD
272	1	FDW-MBM084000AJ	FENDER WASHER, M10, 35 mm OD
273	4	FDW-MBR080000AJ	FENDER WASHER, M12, 31 mm OD
274	5	SLW-MBEAJ	SPLIT LOCK WASHER, M6
275	2	SLW-MBJAJ	SPLIT LOCK WASHER, M8
276	7	SLW-MBMAJ	SPLIT LOCK WASHER, M10
277	1	SLW-MBRAJ	SPLIT LOCK WASHER, M12
278	4	HXN-MBJCH	HEX NUT, CLS 8, M8 X 1.25
279	1	HXN-MBMCH	HEX NUT, CLS 8, M10 X 1.5
280	4	HXN-MBRCH	HEX NUT, CLS 8, M12 X 1.75
281	36	HXN-MCACH	HEX NUT, CLS 8, M16 X 2
282	1	THN-MBECC	HEX NUT, THIN, CLS 4, M6 X 1
283	4	THN-MBRCC	HEX NUT, THIN, CLS 4, M12 X 1.75
284	6	FHN-MBJCH	HEX NUT, FLANGED, CLS 8, M8 X 1.25

Item	Qty	Part No.	Description
285	4	FHN-MBMCH	HEX NUT, FLANGED, CLS 8, M10 X 1.5
286	10	HLN-MAWCH	LOCK NUT, CLS 8, M4 X 0.7
287	32	HLN-MBECH	LOCK NUT, CLS 8, M6 X 1
288	12	HLN-MBETA	LOCK NUT, SST, M6 X 1
289	34	HLN-MBJCH	LOCK NUT, CLS 8, M8 X 1.25
290	10	HLN-MBMCH	LOCK NUT, CLS 8, M10 X 1.5
291	36	HLN-MBRCH	LOCK NUT, CLS 8, M12 X 1.75
292	1	HLN-MCACH	LOCK NUT, CLS 8, M16 X 2
293	4	HLN-MCFCH	LOCK NUT, CLS 8, M20 X 2.5
294	98	FLN-MBMCL	LOCK NUT, FLANGED, CLS 10, M10 X 1.5

NOTES

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