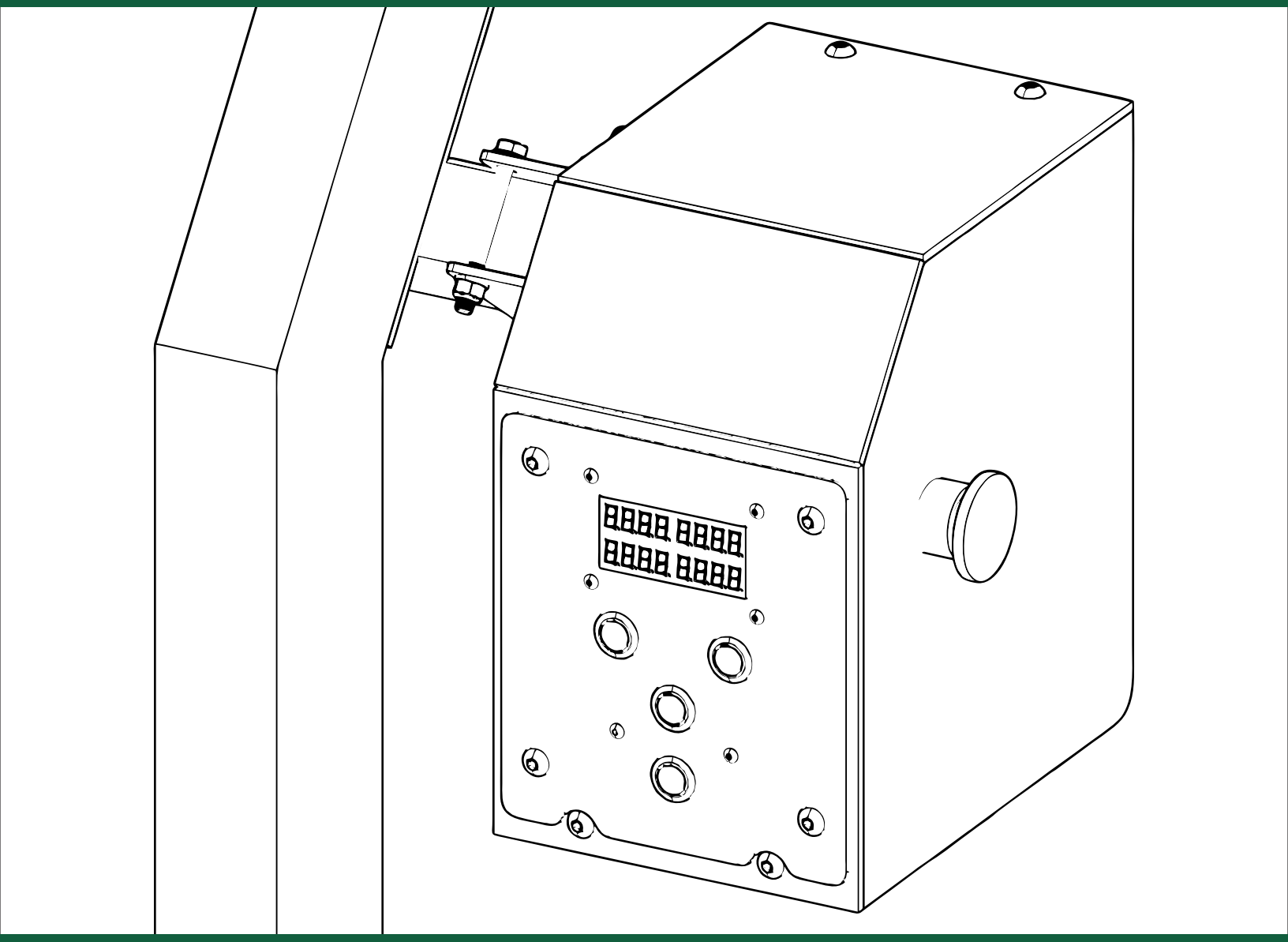
EPICSAW.COM

Power-LIFT



Installation and Operation

Power-LIFT

Installation and Operation

Tools Required

Hex Key	4mm & 5 mm
Wrench	8mm & 10 mm
Pin Punch	5 mm
Hammer	

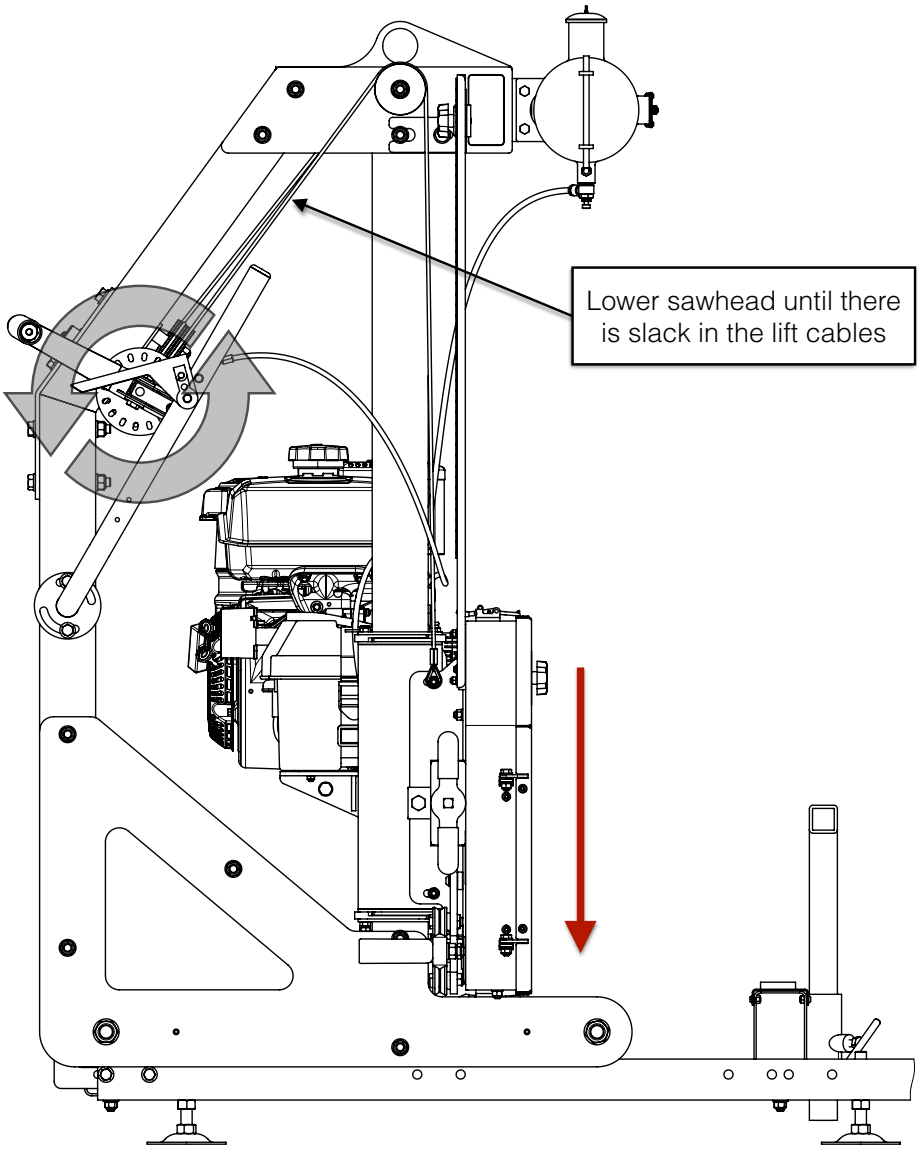
LOWER THE SAWHEAD

[From OEM Woodland Mills manual page 2]

Power Head Kit
HM130MAX™ and HM130 Sawmills with Electric Start

LOWER THE SAWHEAD

Before starting disassembly, lower the sawhead all the way to the bottom. Once the sawhead has reached its lowest point, continue turning the crank handle until there is some slack in the wire rope lift cables—but not so much slack that the cables come off the pulleys.

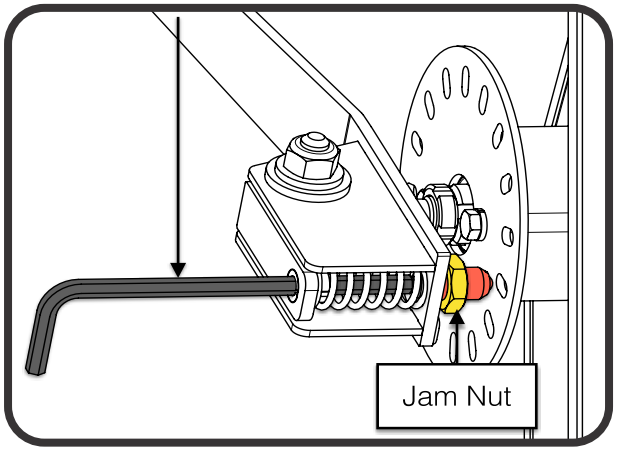


This takes the weight off the lift mechanism lead screw so it can be turned by hand in a later assembly step.

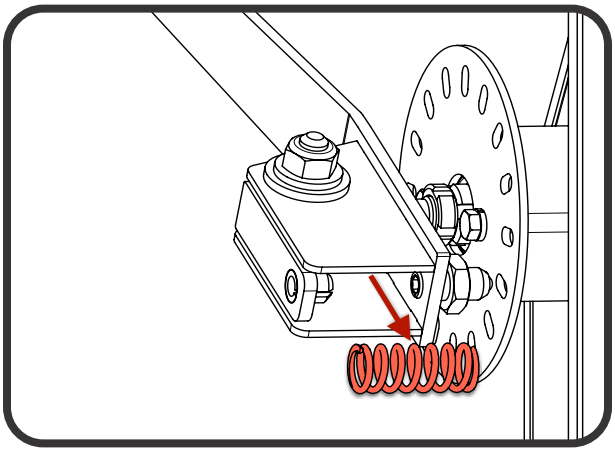
CRANK HANDLE REMOVAL

[From OEM Woodland Mills manual pages 4 & 5]

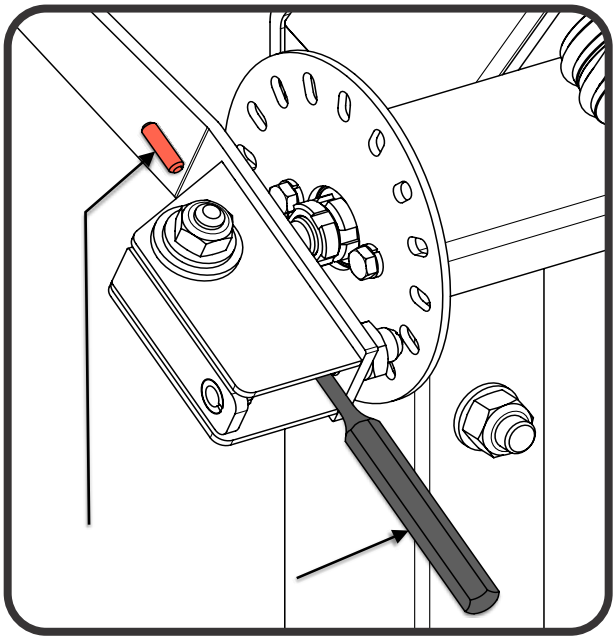
Remove the crank handle from the sawmill following the steps below.



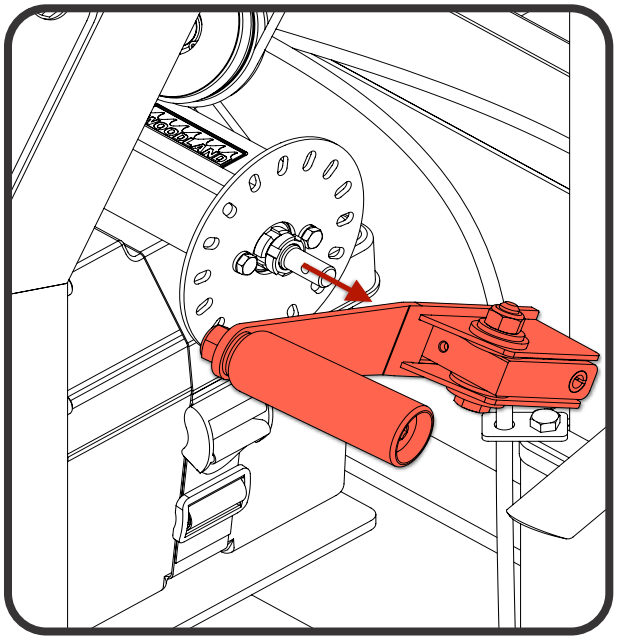
1. LOOSEN JAM NUT AND BALL PLUNGER



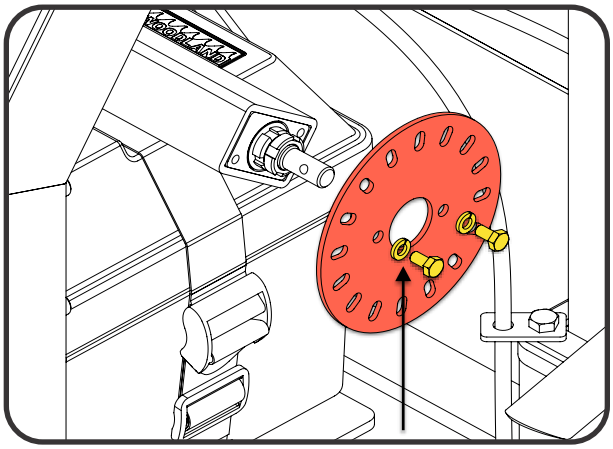
2. REMOVE COMPRESSION SPRING



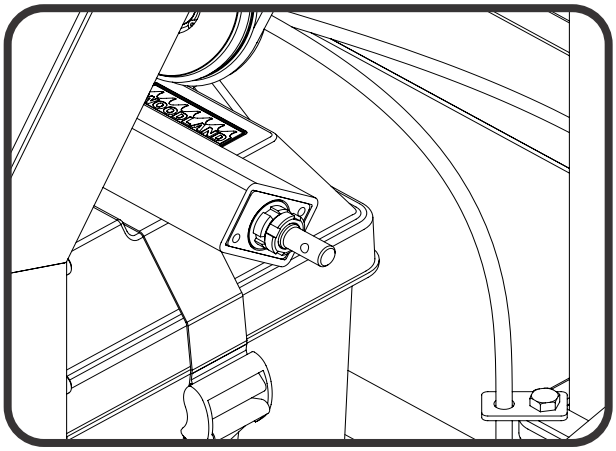
3. REMOVE SPRING PIN



4. REMOVE CRANK HANDLE ASSEMBLY



5. REMOVE INDEX PLATE

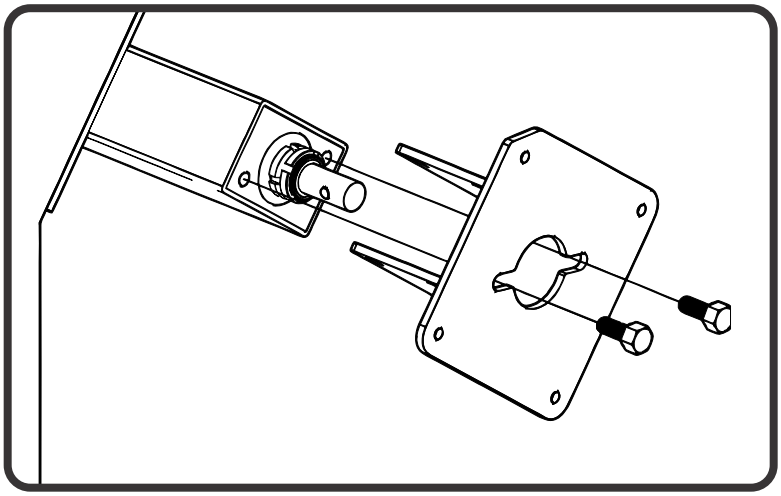


CRANK HANDLE REMOVAL COMPLETE

Power-LIFT Mount

- 1 -

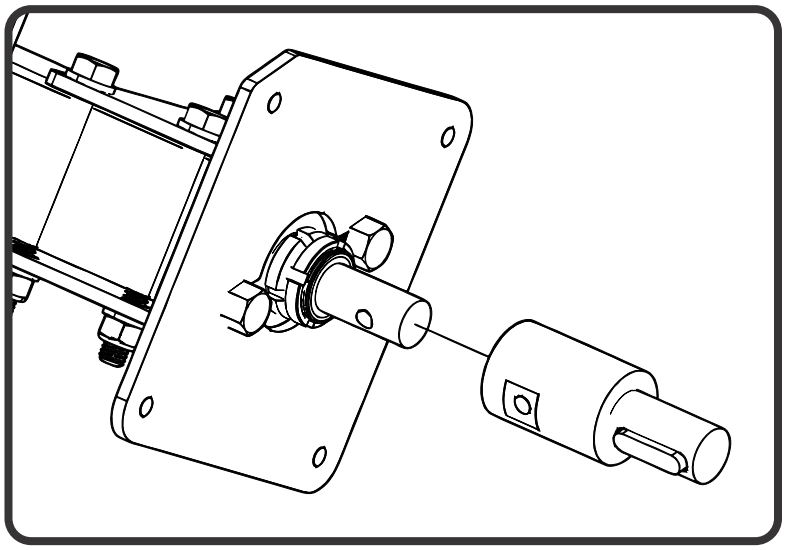
Slide the PowerLift Mounting Bracket over the sawmill Lift Mechanism Housing and secure using the included two (2) M6 x 16mm Bolts. Visually check that bracket is centered over Lift Mechanism shaft and tighten bolts. Verify "flat" corner is UP.

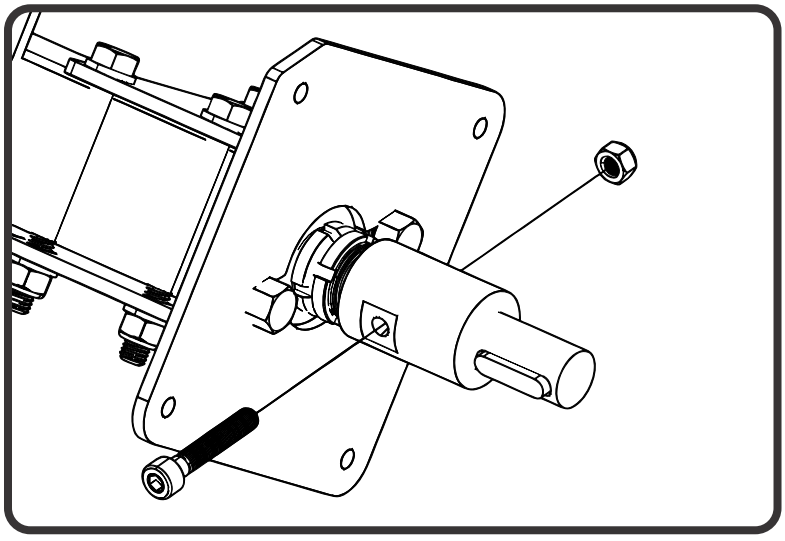


-2-

Slide the PowerLift Shaft Adapter over the Lift Mechanism shaft, keeping the cross bolt holes aligned. This will be a snug fit.

DO NOT HAMMER THE END!





-3-

Use the M5 x 30mm shaft bolt to attach the Shaft Adapter and secure with one (1) M5 lock nut.

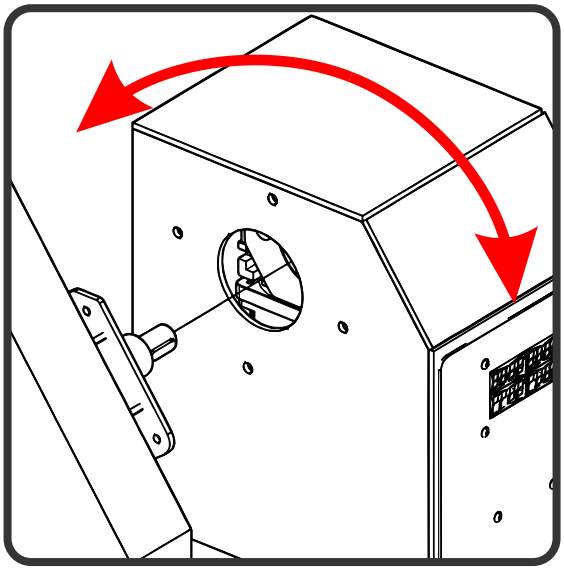
Due to variances during manufacturing, the holes may not perfectly align. In this case, it is acceptable to 'thread' the bolt into the aluminum shaft adapter.

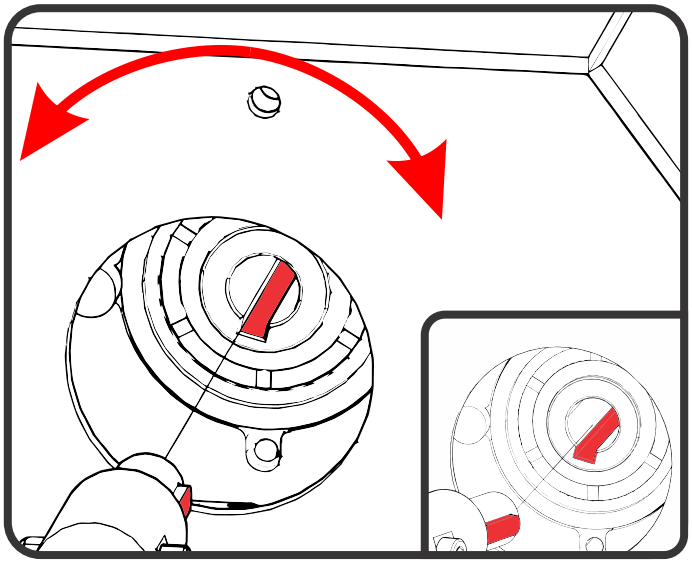
Power-LIFT Head Attachment

4

With the Shaft Key in place on the Shaft Adapter, begin to slide the PowerLIFT head onto the shaft adapter. Pay close attention to the Shaft Key Slot (see below)

You can rotate the PowerLIFT head to align the slot. Once aligned, completely slide the PowerLIFT head against the mounting bracket.

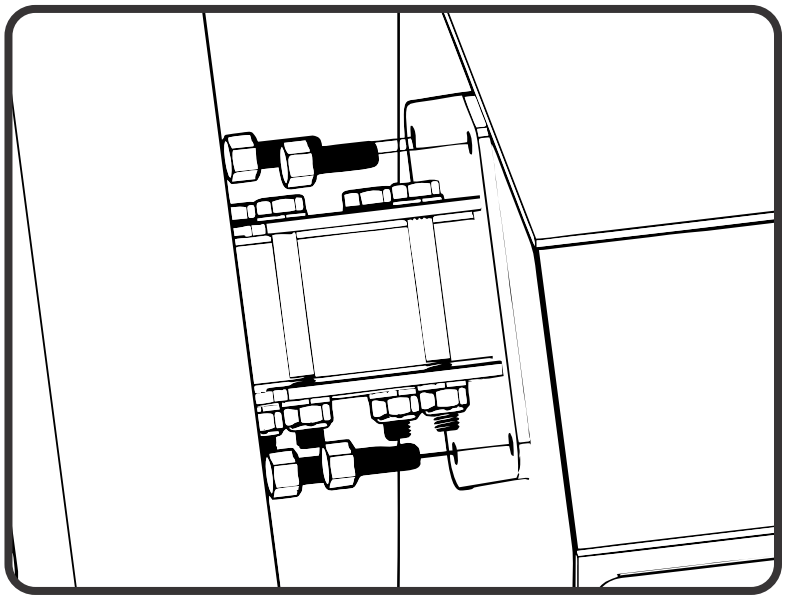




-5-

Use four (4) M6 SHORT hex bolts to secure the PowerLIFT head to the mounting bracket.

SNUG ONLY!
DO NOT OVER-TIGHTEN MOUNTING BOLTS



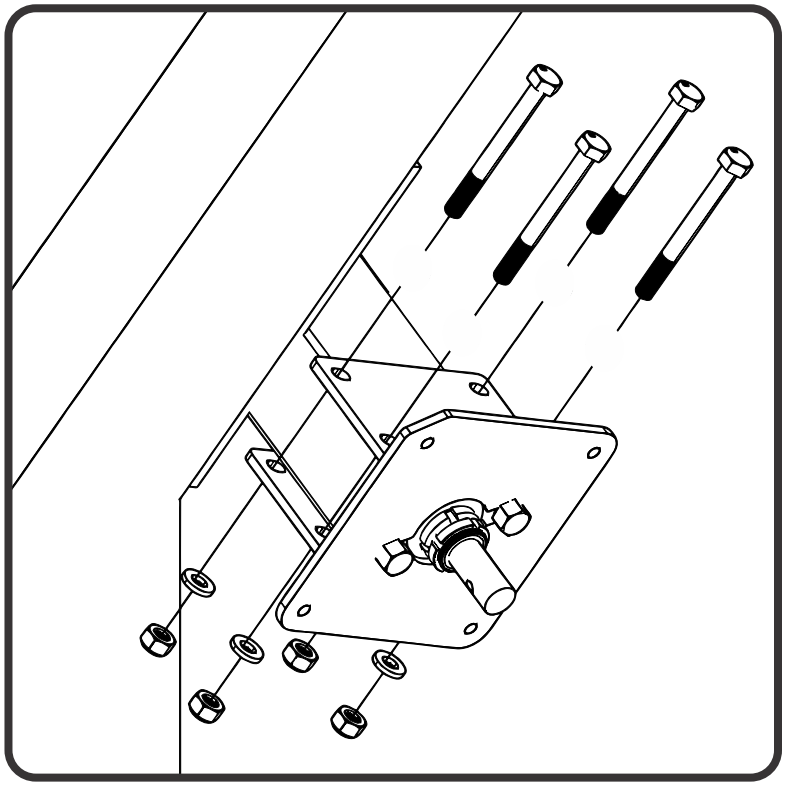
Power-LIFT Mount

(CONTINUED)

-6-

Finally,
Use four (4) M6 Long hex bolts and lock nuts to secure PowerLift Mounting Bracket.

Tighten to attach bracket to Lift Mechanism Housing without leaving any gap(squeeze tight).

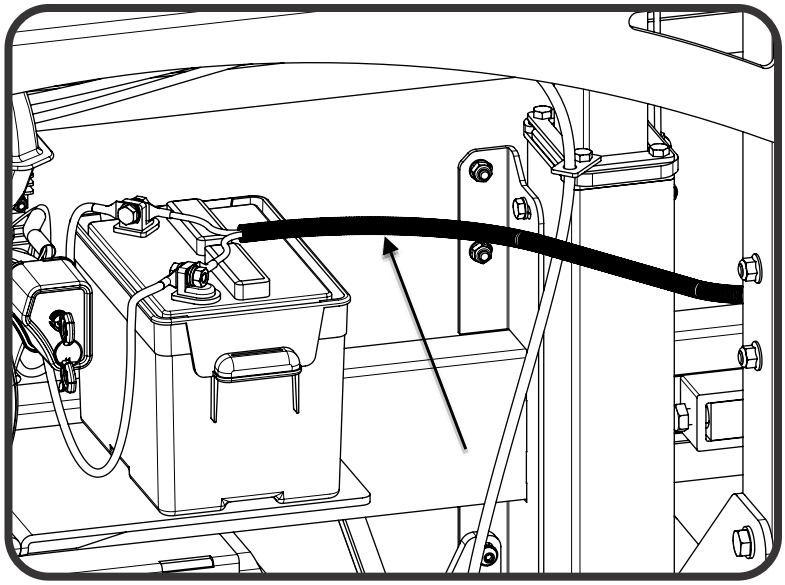


Power-LIFT Battery Connection

-7-

Route the PowerLIFT power cable as shown and connect the red & black terminals to your battery.

RED = POSITIVE
BLACK = NEGATIVE



Operational Features

The following operational features are available to assist you in producing the best quality lumber from your saw mill. Please become familiar with the options available and enable the features that will best suit your needs. More features will become available in the near future.

BUMP MODE

This is an incremental adjustment mode that allows you to make height adjustments with the aide of a set measurement value. The bump setting is located in the first menu position of Settings for easier access, and can be adjusted in 1/16" increments.

KERF COMPENSATION

When you set a bump value, you can also select kerf compensation to be applied to the first 'bump down' below the zero point. This will allow you to automatically take the kerf into account producing a repeatable board thickness. Kerf will only be applied to the first bump down, so you can increase your board thickness by an additional bump value without being affected by the kerf calculation twice. Kerf size can be adjusted in the settings menu and adjustments range from 0.042"-0.052" based on commonly available commercial blades.

SLACK COMPENSATION

In addition, Bump Mode has an additional feature called Slack Compensation, identified by the SLACK setting. Most sawyers operate with a specific rhythm of operation: Lower to thickness, Cut, Raise to clear, Return and Repeat...**

Some sawyers have to deal with 'cable slack'. To account for cable slack, the SLACK function will automatically address cable slack by lowering slightly below your bump set position and raising back up. The automatic slack take-up function is enabled by setting a take-up amount which is adjustable in 1/16" increments. This is the distance that the saw blade will be lowered, beyond your established bump setting to reduce slack. Once the saw head has been lowered that additional amount, it will automatically be raised back to the set height. You will always be cutting from a cable tensioned position to reduce saw-drop during a cut. To disable this function, lower the SLACK value in settings until the display shows 'OFF'.

CONSISTENCY IS KEY!

Consistency cannot be stressed enough, as any variance in your process will introduce variances to your boards over time. It is important to find an order of operation and stick with it!

Operating within bump mode(or any mode for that matter), it is suggested that you ZERO right before or right after each cut. This way you do not lose track of measurements. If you begin using the cable slack compensation method, continue to use it throughout the log, so variances do not begin to appear over time.

***some sawyers have found that the shake from applying full throttle to an idle engine is enough movement to shake the slack out of the cables just before a cut. This is not always the case.*

Power-LIFT Calibration

When your Power-LIFT arrives, it comes pre-calibrated based on my HM130MAX. While most will find the calibration accurate to start, over time the calibration will need to be updated. Over time the components of your saw mill will wear and cables may stretch or the eyes will change shape. The following procedure will assist you in calibrating your Power-LIFT.

You will need an accurate measuring device that is capable of measuring thousandths of an inch, and be able to measure board thickness as well as blade/cut kerf. You will also need a sacrificial board or use the end of a cant that you do not mind scribing the end(with the blade) for measurement. A digital caliper is recommended. All calibration steps will require a board/cant to be placed and ready to cut on the bed of your sawmill. You will be making small cuts, just deep enough to measure.

All measuring steps should be completed with the ENGINE OFF!

Begin by placing and securing your sacrificial board (minimum 4" thick).

Turn OFF KERF - Set SLACK to 0.25 - Set BUMPSET to 1.00

MEASURE KERF

To begin, the kerf of your cut/blade will need to be measured. Begin slightly above your board and use the bump function(with SLACK enabled) to lower to your first position.

Lower your saw to at least a half inch (1/2") from the top of your board. ZERO here.

In a clear and easy to reach area of the end of your board, make a light cut approximately 1/8"-3/16" deep near the top. You will measure the slot that the blade creates in order to find your current blade kerf.

TURN YOUR ENGINE OFF! Move the head back far enough that you can easily access the cut that you just made. Measure the width of your cut, **this is your BLADE KERF.. save this value for the next step**.

MEASURE ACTUAL TRAVEL

Since your previous cut was made using slack compensation, there should be no cable slack in this movement.

#1 MEASURING CUT - From your last cut location, **Lower your saw ONE BUMP (1" in total)** and make a light cut approximately 1/8"-3/16" and pull the saw back.

#2 MEASURING CUT - Lower your saw TWO BUMPS (2" in total) and make another light cut approximately 1/8"-3/16" and pull the saw back. **TURN YOUR ENGINE OFF!**

Measure the distance between these two cuts, and add your blade kerf.

FORMULA► THIS MEASUREMENT + BLADE KERF = ACTUAL TRAVEL

Read the current value of LIFTSTEP for the next step. You will be changing this value as needed, using the basic formula below. **(default: 500.0)**

#1 - First we **multiply LIFTSTEP by the requested 2" down-bump**.

[2.000 x LIFTSTEP = temp value] Example: 2.000 X 500.0 = 1000

#2 - Next, we divide that temporary value by the **ACTUAL TRAVEL** that the saw moved.

[temp value / ACTUAL TRAVEL = NEW LIFTSTEP] Example: 1000 / 1.975 = 506.329

(example showing actual travel measured as 1.975")

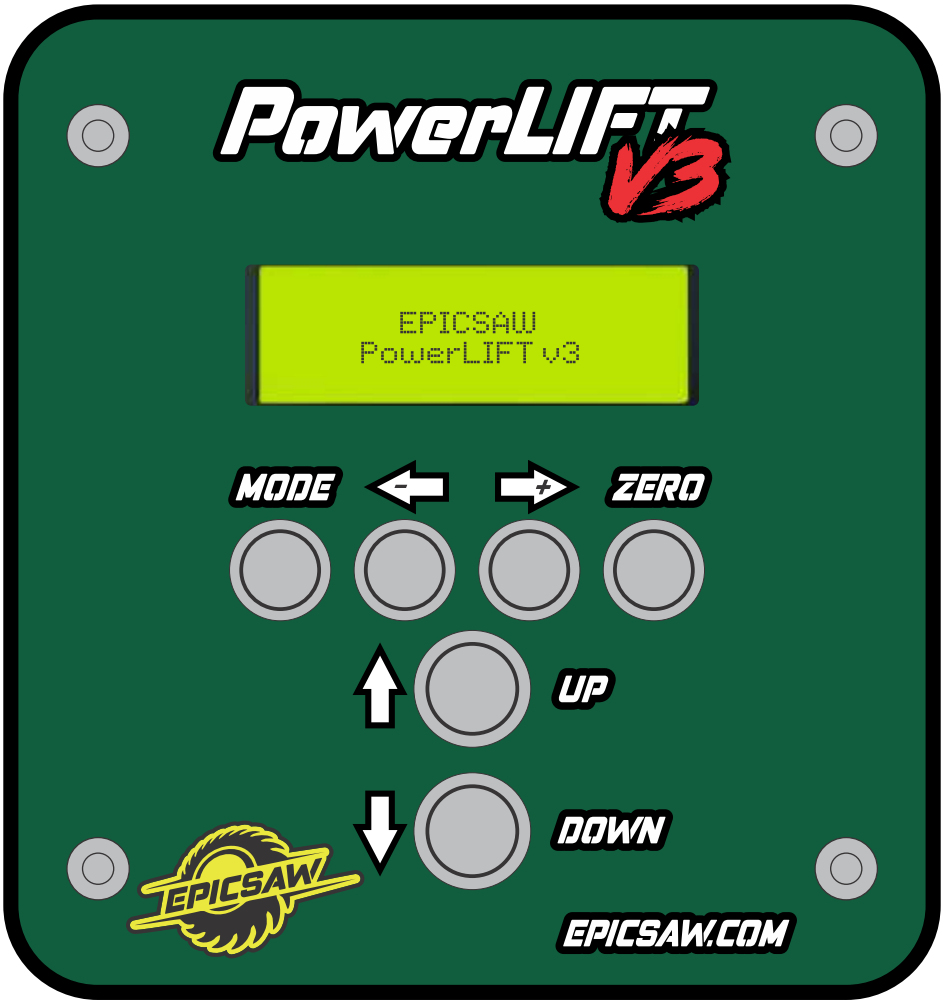
#3- Finally, we will **adjust LIFTSTEP to the NEW LIFTSTEP value** (round up)

EXAMPLE ONLY [Example: Set LIFTSTEP to 506.3] **EXAMPLE ONLY**

THE FORMULA► 2 x OLD-LIFTSTEP ÷ ACTUAL TRAVEL = NEW-LIFTSTEP

Changes to your LIFTSTEP should be fairly minor. Major value changes may indicate a math error.

PowerLIFT
CONTROL DESCRIPTION



MODE	The MODE button is used to cycle through each of the PowerLIFT operational modes, enter Settings, adjust mode presets, or access secondary menus.
- +	The ARROW +/- buttons are used to step through presets when in operational modes that offer presets. When in settings, the buttons are used to increase or decrease adjustable values.
ZERO	The ZERO button is used to set the workpiece measurement to zero at the current blade height. When in settings or a menu, the zero button is used to SELECT the indicated item.
UP / DOWN	UP/DOWN buttons are used to raise or lower the sawmill head in a manner dependent on the currently selected mode of operation. When in settings, the buttons are used to navigate up/down through the menu items.

PowerLIFT

LIFT MODE

LIFT MODE is a manual method of operation. There are no fancy functions, incremental operations, or compensation features. LIFT MODE is for basic manual movement of the sawmill blade traditionally during the initial setup and preparation by turning a log into a cant the traditional way. While measurements are shown and can be used to assist you in positioning, the planning and positioning of your cuts is strictly up to you. Other modes can assist in the initial log preparation, but this mode will only provide you with basic up and down motion for as long as you press/hold the up and down buttons.

If enabled, your battery voltage will also be displayed.

LIFT HOME

When in LIFT mode, you can also access the Lift Homing menu by holding down the MODE button for approximately one second, until the Lift Homing menu displays. At this time, you can proceed with performing a homing operation which will set the initial height reference for the blade height(above the bunks) measurement and the height will be displayed.

Homing will lower your sawmill head to the lowest position(where the sensor is mounted), to trigger that sensor. It will lower itself to trip the sensor, raise a little to clear the sensor, and repeat one more time. These two sensor ‘touches’ are sufficient enough to establish HOME position and set the Height value to the value entered into the Lift Offset setting.

Lift Homing must be done to establish the reference measurement for Height to show a measurement and for ABSOLUTE mode to function. Without a home reference, ABSOLUTE MODE will not function, and Height above the bunks will not register.

PowerLIFT
BUMP MODE

BUMP MODE is considered the most helpful function of the lumber-making process while using PowerLIFT. This incremental “per-board” mode takes all of the mental calculations, tedious fine adjustment, and scale-reading out of the process. Each “bump” will accurately position your saw for the next board with a single press of a button. All downward movements can also automatically compensate for the lift system cable slack by lowering beyond and raising back up directly to the position of your selected cut.

Four pre-sets are available that you can quickly select, so you can process lumber quickly and accurately. To adjust a preset value, simply hold the MODE button for approximately one second to access the quick-set menu to adjust the measurement, whether kerf is automatically applied, and whether cable slack compensation is performed. Once your preset changes are complete, simply press the MODE button again and you will be returned to where you left off to saw your board.

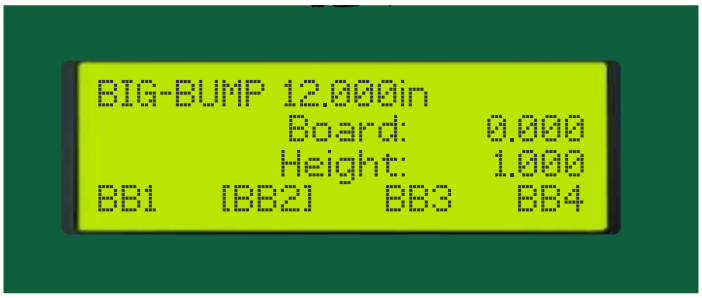
BUMP MODE is what is referred to as a ‘zero based’ function. When you make a cut(and remove the cut board), you are ‘at zero’(the top of the cant). So when you are ready to cut, you should press the ZERO button so PowerLIFT knows that you cut and ‘at zero’ again in regards to the cant position. You can ZERO at any time, but it is a good habit to zero as you start to cut. If you forget, you can still ZERO after the cut.

When at ‘zero position’ (0.000), pressing the UP button to raise your saw will only raise for as long as you hold the UP button(assuming preset for a ‘DOWN’ bump movement). This will allow you to only raise slightly so your blade can clear the cant without dragging. Once you return your saw to the beginning to cut again, one press of the DOWN button will first return your position to ‘zero’. This is why being ‘zero based’ as it saves time in positioning for the next cut. Once at zero, you can change presets or simply press DOWN again to repeat the previous board size.

If you press ‘DOWN’ again, immediately after a down-bump, PowerLIFT will repeat a downward movement just as it did the first bump, doubling your preset measurement.

If you have already bumped down once(you are below zero), and you press the UP button, PowerLIFT will automatically return you to zero position(0.000).

PowerLIFT
BIG-BUMP MODE



BIG-BUMP MODE is similar to BUMP MODE, but leaves out some of the cutting related functions and operates without lumber-making in mind. BIG-BUMP is considered a ‘travel mode’ typically to position the saw head for the next log being loaded.

Since log sizes vary in our piles, four presets are also available in this mode. To adjust a preset value, simply hold the MODE button for approximately one second to access the quick-set menu to adjust the measurement. Once your preset changes are complete, simply press the MODE button again and you will be returned to where you left off to saw your board.

BIG-BUMP is typically used to reposition the saw head while we load the next log. While it is NEVER ADVISED to leave PowerLIFT completely unattended, the idea is to allow you to give your finger a rest from holding the UP button to raise the saw to the next log height.

BIG-BUMP increments are larger than lumber-making functions and does not apply kerf compensation by default. The idea is to press the up button once to lift the saw head a larger than usual distance in preparation for a fresh log to be milled ... while you watch instead of cranking constantly for a long period of time.

Some sawyers do use this mode for certain operations like repeated large cuts(beam making, etc).

PowerLIFT
ABSOLUTE MODE

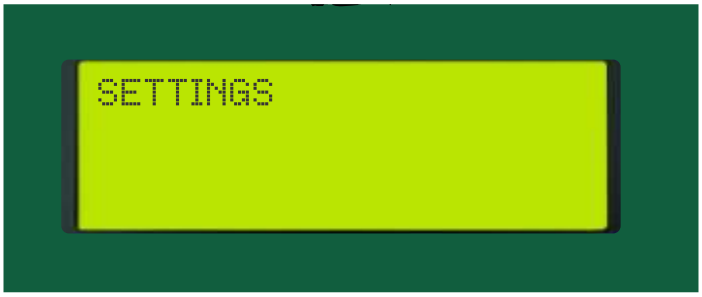
ABSOLUTE MODE adds the ability to position your saw to an exact height above the bunks in order to cut accurately sized lumber in relation to the bunks. ABSOLUTE MODE can also allow you to pre-plan as you square off your cant.

Four pre-sets are available in ABSOLUTE MODE. To adjust a preset value, simply hold the MODE button for approximately one second to access the quick-set menu to adjust the measurement, whether kerf is automatically applied, and whether cable slack compensation is performed. Once your preset changes are complete, simply press the MODE button again and you will be returned to where you left off to saw your board.

ABSOLUTE MODE presets can be changed to exact heights above the sawmill bed. This gives you the ability to leave exact sized lumber, removing the waste from the top, instead of leaving an odd sized remnant laying on the bunks due to not being able to lower the head as low as you may need.

ABSOLUTE MODE does not apply kerf compensation due to all measurements being from the bottom of the blade to the top of the bunks as there is no kerf in that measurement. All movements will be processed without consideration of which UP/DOWN button is pressed, as PowerLIFT automatically determines which direction of travel is needed prior to moving. Either button may be pressed in order to move to the selected preset. All downward movement will automatically have slack compensation applied, unless you have it disabled in the selected preset.

PowerLIFT SETTINGS



As you cycle through modes by pressing the MODE button, SETTINGS will allow you to enter the settings menu system. To enter the settings menu, press the ZERO button while on this 'SETTINGS' mode.

In the Settings Menu, you will find a multiple level menu system for configuring PowerLIFT for your sawmill, preferences, as well as PowerLIFT configuration for movement.

- Sawmill Setup - Contains settings for Kerf Width, Slack Compensation movement amount, Decimal/Fraction display, Units(Imperial/Metric), Voltage Display Calibration, as well as preset settings for all modes.
- PowerLIFT Config - Lift Rate(speed), Lift Step(movement calibration), Lift Accel(how quickly moves begin and end), Lift Off(Offset-measurement between blade-bunks AFTER homing), Lift-PU(Pullup-distance to raise after triggering reference sensor)
- PowerFEED Config - N/A

Any time changes are made in any of the settings menus, you MUST scroll down to 'Back' or 'Exit Settings' for those changes to be applied.

Navigate the menu system using the UP & DOWN buttons, using ZERO to select and Left/Right arrows to adjust values.

PLEASE DO NOT ADJUST SETTINGS THAT YOU ARE UNFAMILIAR WITH. IF YOU HAVE QUESTIONS ABOUT A SETTING, PLEASE ASK. IF YOU DAMAGE YOUR POWERLIFT BY USING AN INCORRECT SETTING, YOU MAY VOID YOUR WARRANTY.