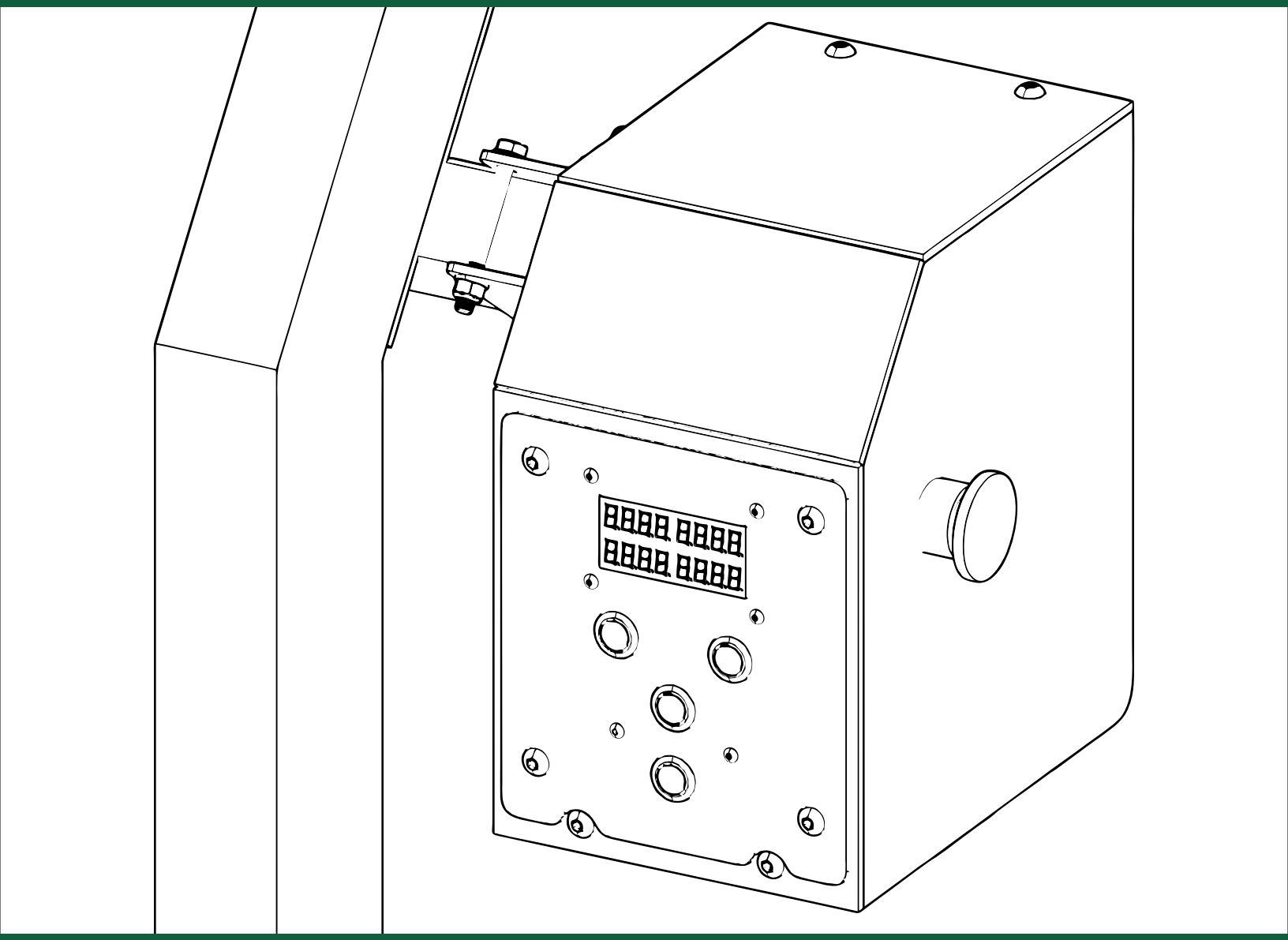
EPICSAW.COM

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	

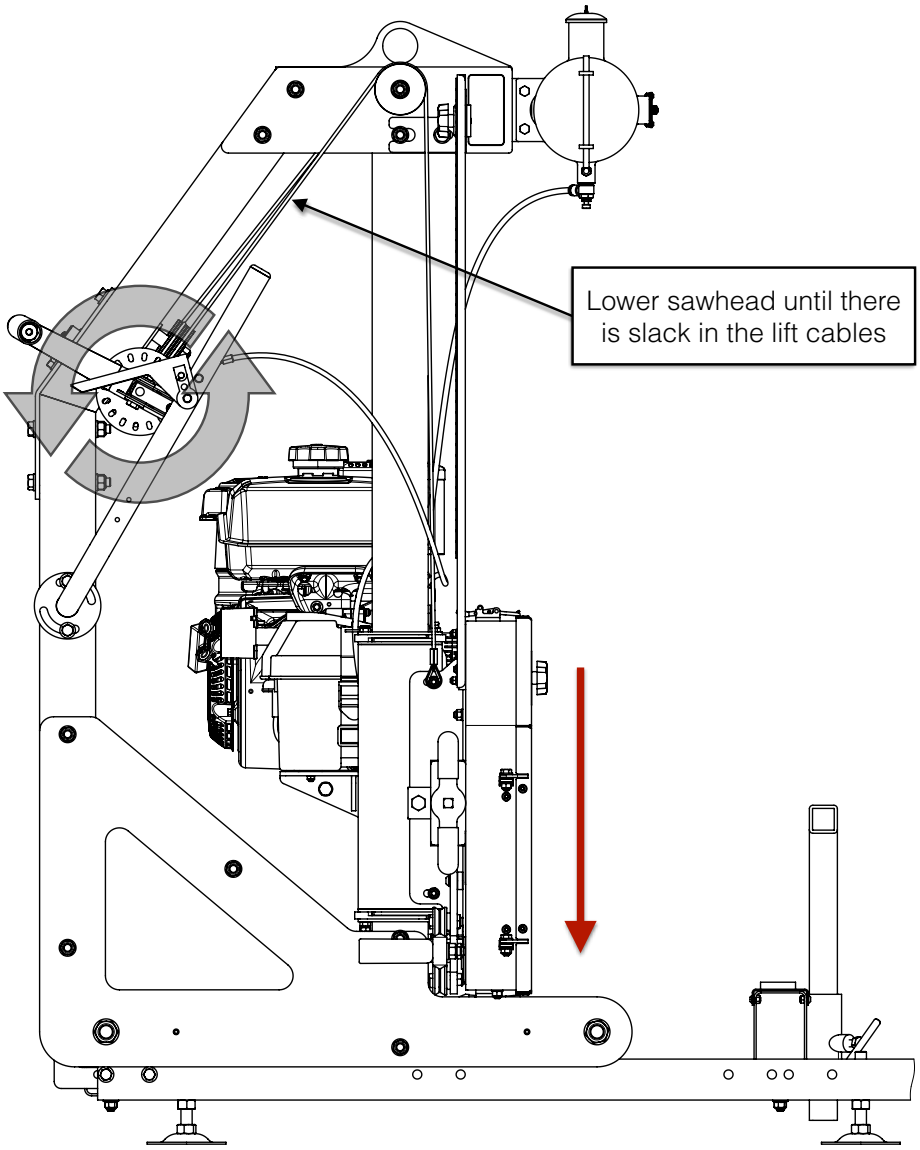
LOWER THE SAWHEAD

[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.

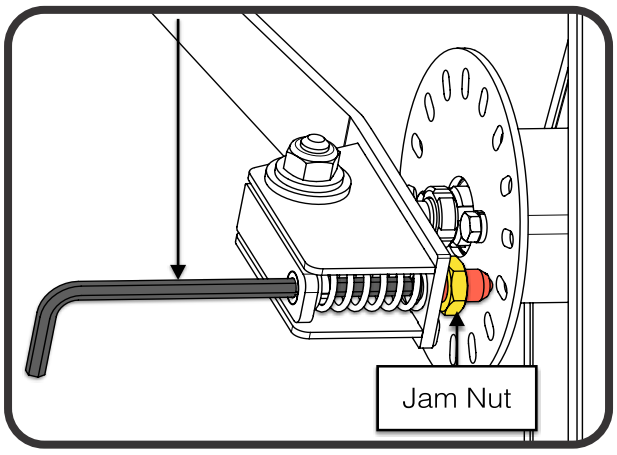


This takes the weight off the lift mechanism lead screw so it can be turned by hand in a later assembly step.

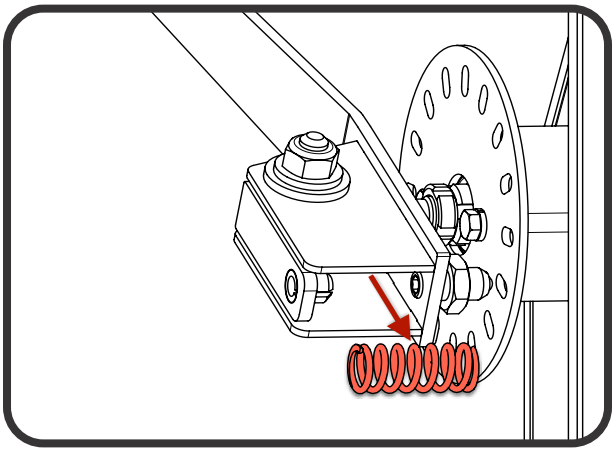
CRANK HANDLE REMOVAL

[From OEM Woodland Mills manual pages 4 & 5]

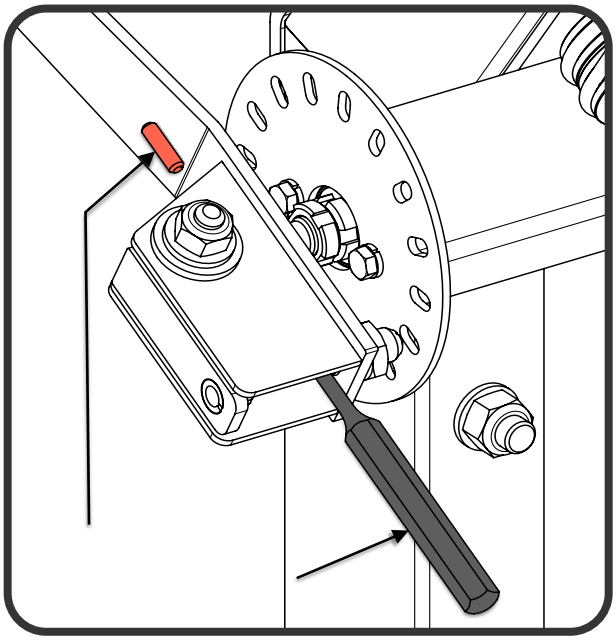
Remove the crank handle from the sawmill following the steps below.



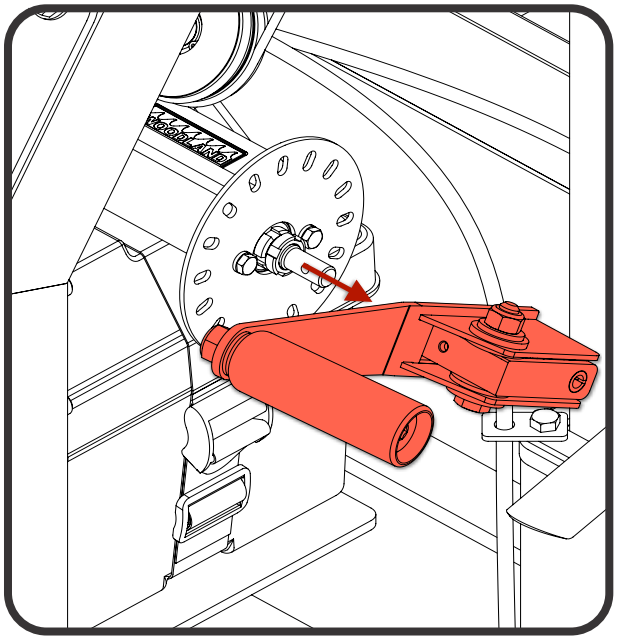
1. LOOSEN JAM NUT AND BALL PLUNGER



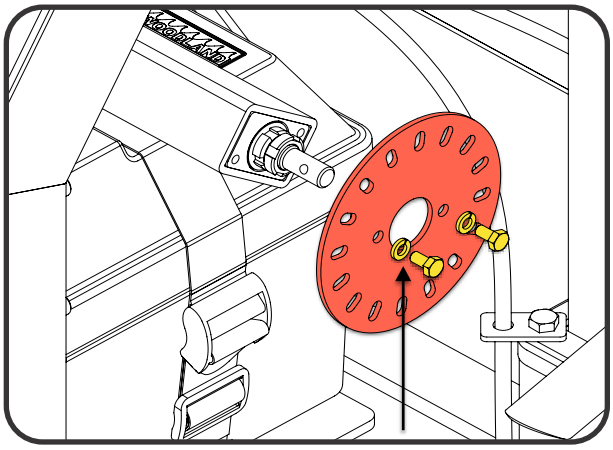
2. REMOVE COMPRESSION SPRING



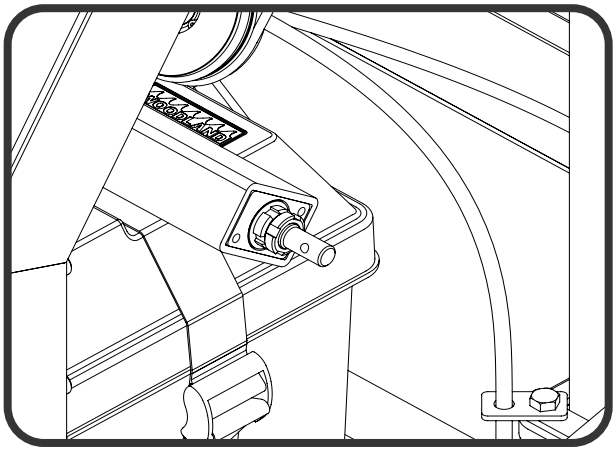
3. REMOVE SPRING PIN



4. REMOVE CRANK HANDLE ASSEMBLY



5. REMOVE INDEX PLATE

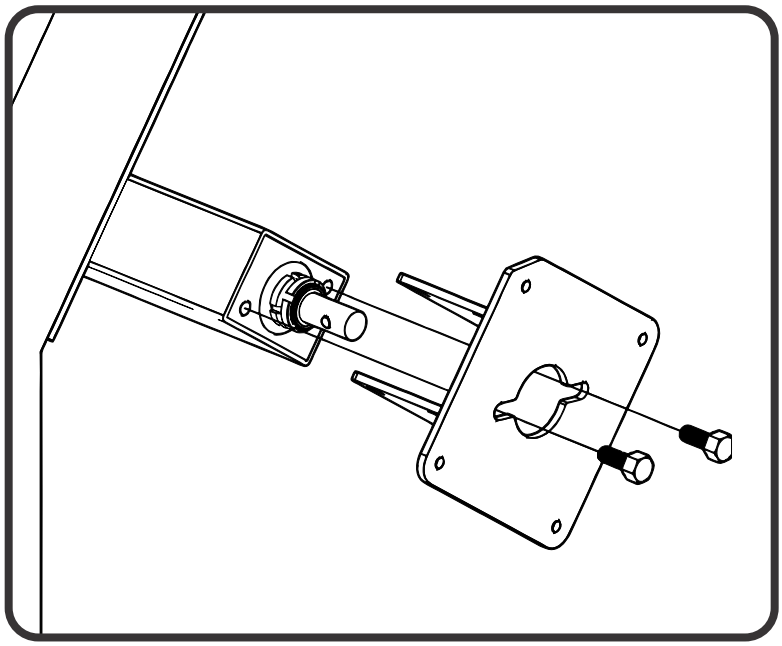


CRANK HANDLE REMOVAL COMPLETE

Power-LIFT Mount

- 1 -

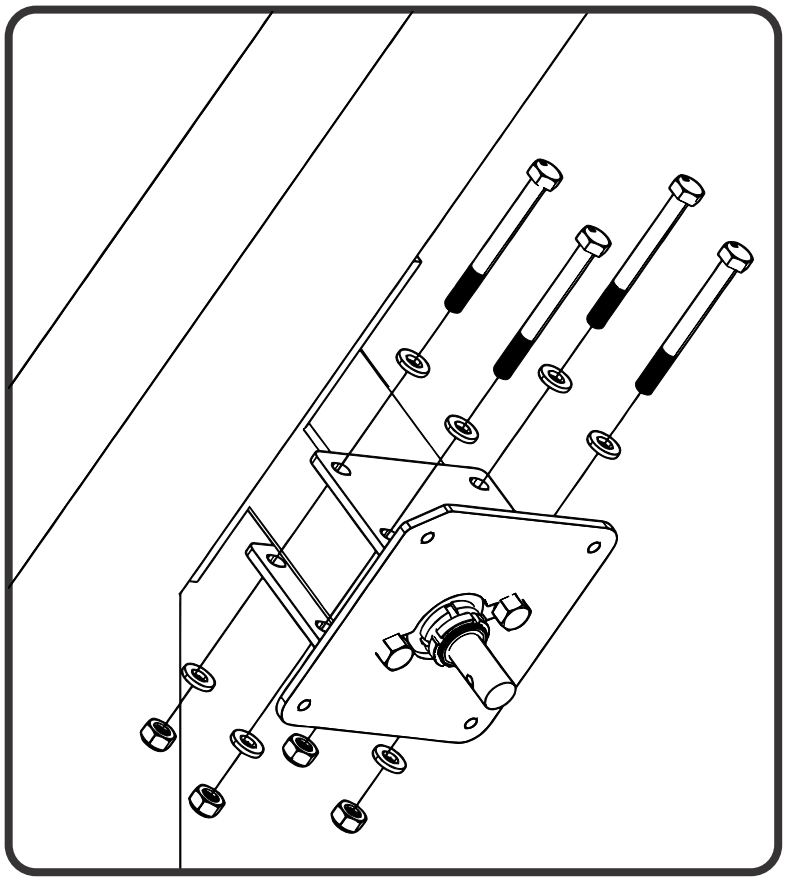
Slide the PowerLift Mounting Bracket over the sawmill Lift Mechanism Housing and secure using the included two (2) M6 x 16mm Bolts. Visually check that bracket is centered over Lift Mechanism shaft and tighten bolts. Verify "flat" corner is UP.



-2-

Use four (4) M6 x 60mm hex bolts, eight (8) M6 washers, and four (4) M6 lock nuts to secure PowerLift Mounting Bracket.

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

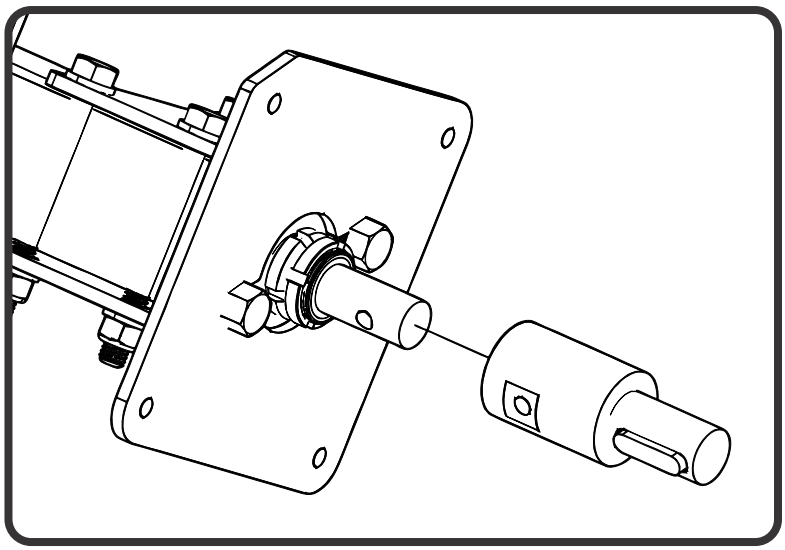


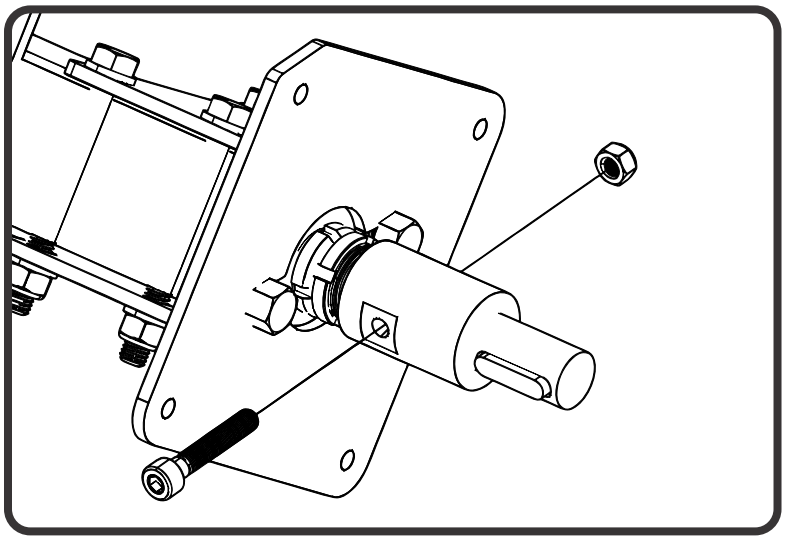
Power-LIFT Shaft Adapter

-3-

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!





-4-

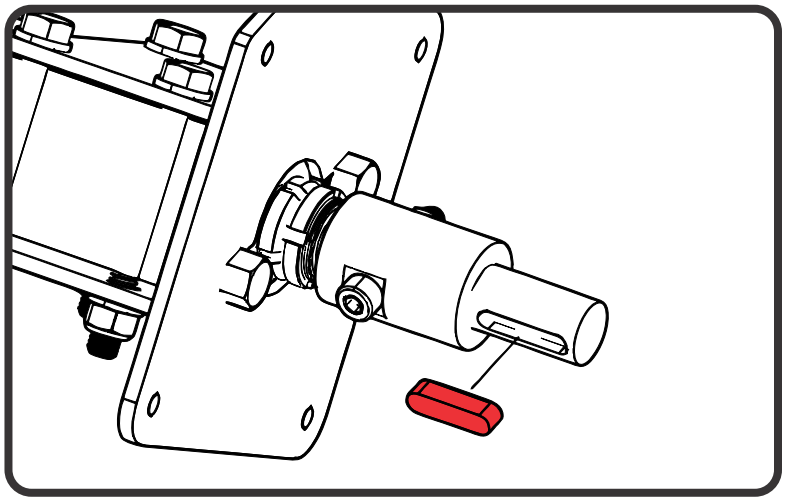
Use the M5 x 30mm shaft bolt to attach the Shaft Adapter and secure with one (1) M5 lock nut.

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.

-5-

Insert the Shaft Key into the slot on the Shaft Adapter in preparation for the next step.

PAY CLOSE ATTENTION!
IT'S A SNEAKY BUGGER
AND WILL TRY TO ESCAPE!

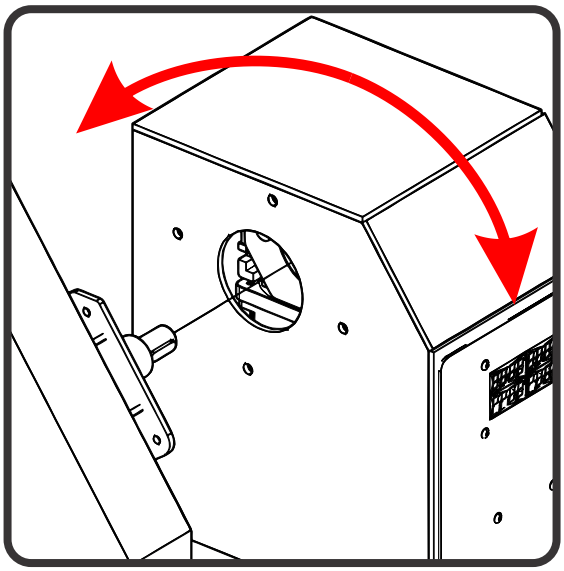


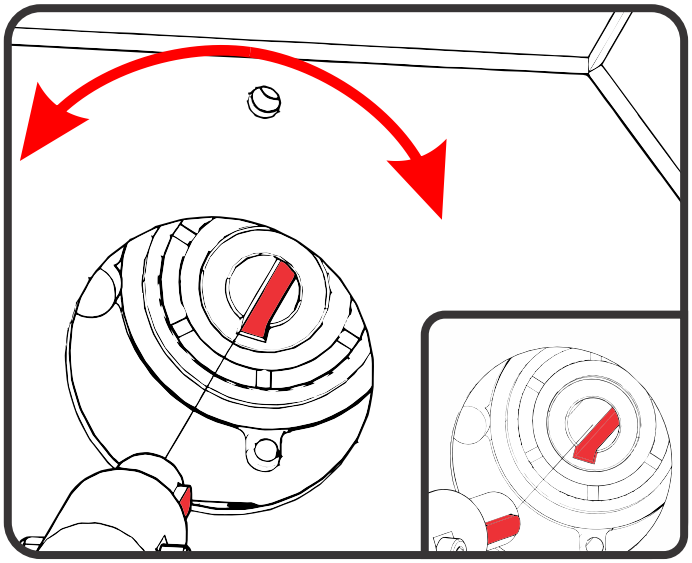
Power-LIFT Head Attachment

6

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)

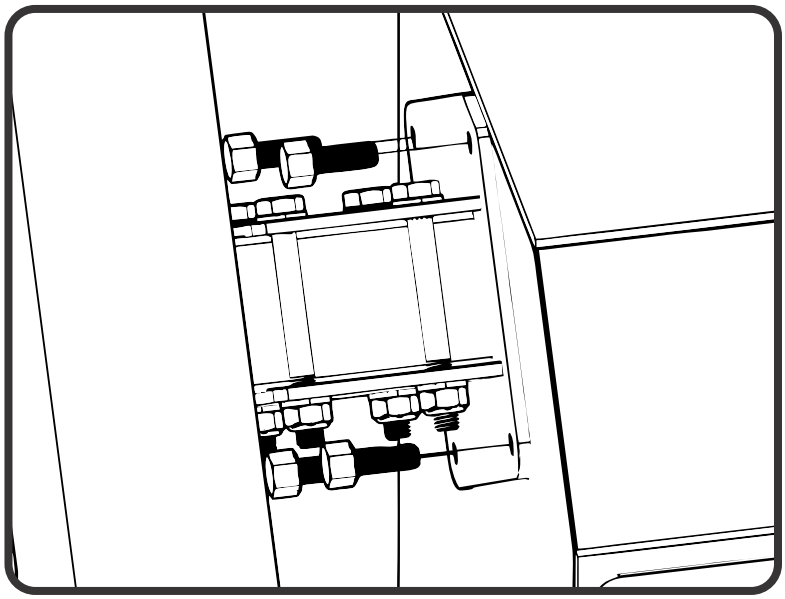
You can rotate the PowerLIFT head to align the slot. Once aligned, completely slide the PowerLIFT head against the mounting bracket.





-7-

Use four (4) M6 x 16 hex bolts to secure the PowerLIFT head to the mounting bracket.

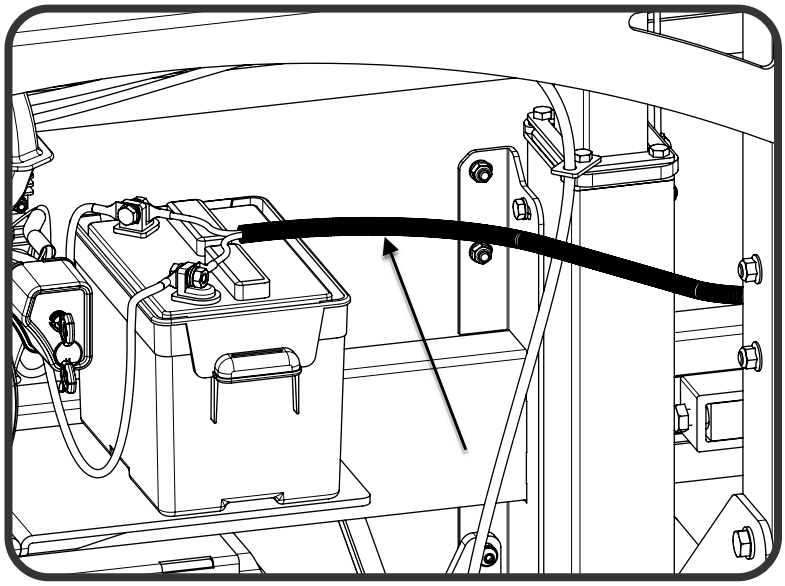


Power-LIFT Battery Connection

-8-

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

RED = POSITIVE
BLACK = NEGATIVE



OPTIONAL

[THIS STEP IS REQUIRED FOR POWERFEED INSTALLATION]

Since the EpicSaw System is modular, the PowerLIFT is pre-wired for an Engine Emergency Stop which can also be used to shut down your sawmill engine when the Emergency Stop button is depressed.

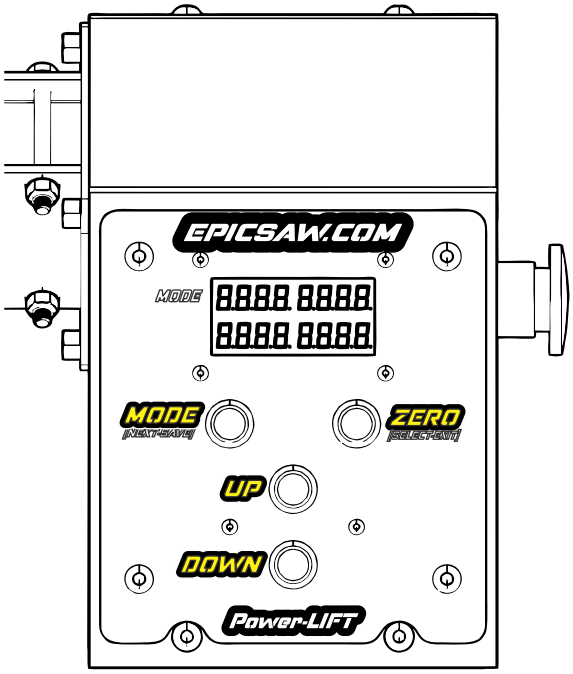
When this connection is made, your engine WILL NOT START/RUN when the PowerLIFT unit is turned off.

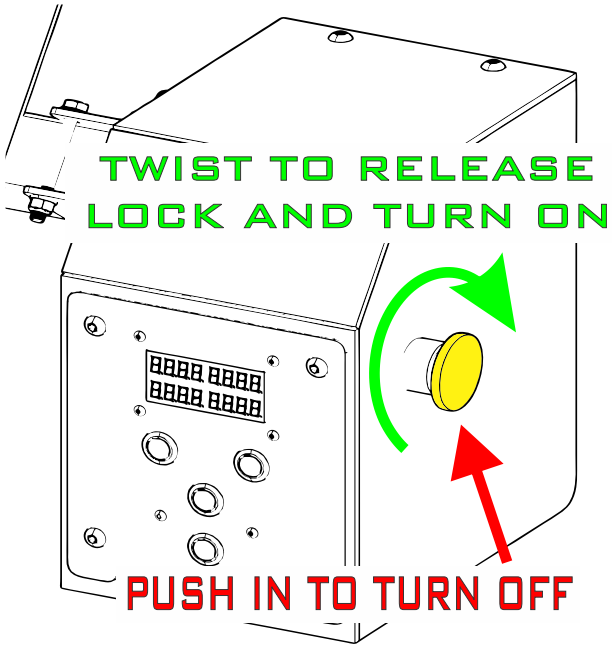
E-STOP SHUTDOWN CONNECTION

Connect the PowerLIFT wire labeled "SHUTDOWN" to the engine wiring harness white wire. This wire comes from the engine key switch and is attached by using the bullet connectors.

Locate the WHITE wire coming from the engine key switch harness to find the bullet splice connectors. Disconnect and insert the PowerLIFT 'SHUTDOWN' splice adapter in series with those connections. This will appear as a 'T' with the PowerLIFT 'SHUTDOWN' wire in the middle.

Switch Functions





MODE - The mode button is used to cycle between lift modes as well as to enter the settings menu. Continuing to press the mode button while within the settings menu will save the current changes and advance to the next selection.

ZERO - The zero button is used to 'ZERO' (0.0000) the current position of the saw head. It is also used to select SETTINGS mode or EXIT the settings menu without saving the current change, returning back to the main operation screen. If you accidentally adjust a value in the wrong setting, pressing the zero button will disregard the CURRENT adjustment value and return to the main operation screen.

UP / DOWN - The up and down buttons will operate the lift while in operation modes. They are also used to adjust values and enable/disable settings while in the settings menus.

EMERGENCY STOP (SIDE) - The large red emergency stop button on the side of the head will completely disconnect power any time it is depressed. The button will lock when pressed. To release the lock and apply power to the system, a small twist clockwise will release the lock and allow the button to return to extended position - this powers the switching relay and applies power to the whole system. If (optionally) connected to the engine via the SHUTDOWN wire, releasing the lock will also allow the engine to start normally. The engine WILL NOT start while the button is depressed(locked) and the engine is connected to the SHUTDOWN wire.

Operation Modes

LIFt **LIFT MODE**	This is a basic LIFT & LOWER mode meant for manual movement of the saw head height. Pressing UP or DOWN while in this mode will operate the PowerLIFT in raising or lowering the head.
bUMP **BUMP MODE**	This is an incremental adjustment mode. Using an adjustment value that you select in settings, the saw head height will adjust by that increment automatically with each press of the UP or DOWN buttons. **(details on the next page)**
SEttINGS **SETTINGS**	While this is displayed, pressing the ZERO/SELECT button will enter the settings menu, where you can change operational values such as the bump mode increments, saw kerf, enable features, or adjust internal settings.

More functions are expected to become available in future firmware updates

Operation Settings

bUMP SEt **BUMP SET**	This is where you pre-set the thickness increment used by Bump Mode. This value is set in 1/16” increments. **(contact me if you need smaller increments - firmware update required)**
KERF SEt **KERF SET**	This is where you can enable/set the measurement used for kerf compensation. Blade kerf values range from 0.042” - 0.052” based on commercially available blades. This can be disabled and will show ‘OFF’ when disabled. **(details on the next page)**
SLACK **SLACK**	This is where Slack Compensation feature is disabled/enabled(take-up distance set) for use when in Bump Mode. **(details on the next page)**

Additional Settings are described in following pages.

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.*

Additional Settings

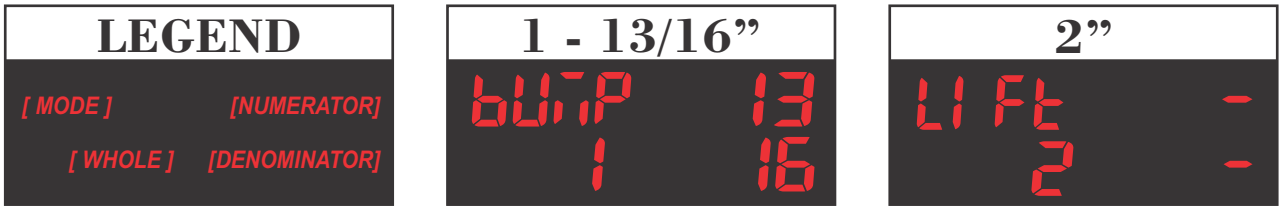
A fractional display is available as a convenience feature, but will not provide the same accuracy as decimal. Variances will occur while in manual Lift mode.

FRACTION

Power-LIFT is capable of displaying lift measurements in fractions. While bump/kerf are still in decimal format, the saw head position can be displayed as decimal or fractions in 1/16”, 1/32”, or 1/64” increments.

FRACTIONAL DISPLAY

Due to obvious display limitations, the display of fractions are split across multiple sections of the display area. While whole inches will always be shown, there are instances where the numerator or denominator of the fraction is 0, in the case of whole numbers. (displays “-”)



The following settings should be adjusted with care. The only time these values should be changed is during calibration or while resolving a technical issue.

LIFTRATE

This setting will adjust the speed in which the lift attempts to raise or lower the saw head. If incorrectly adjusted, the lift may stall and be unable to lift or lower. Damage is possible if incorrectly adjusted. This setting should only be adjusted under the direction of Tech Support.

LIFTSTEP

This setting will adjust how the lift motor operates in relation to the number of rotations(or steps) that are needed to correctly match the lift/lower measurement. **(details on the CALIBRATION page)**

LIFT ACCEL

This setting will adjust the rate of acceleration at the start/end of a lift or lowering move. If incorrectly adjusted, the lift may stall and be unable to lift or lower. This setting should only be adjusted under the direction of Tech Support.

MODE & ZERO BUTTONS

While the **MODE** button will cycle through each mode/setting, it also serves to **SAVE** any changes within the settings menu. Each time you press the mode button to the next item, any changes made **WILL BE SAVED**.

The **ZERO** button is also the EXIT button. While on a specific setting, by pressing the ZERO button, any change will be **DISCARDED** and you will be returned to the default LIFT mode of operation.

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

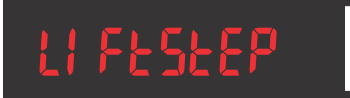
Since your previous cut was made using slack compensation, there should be no cable slack in this movement.

#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: 4250.0)**

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

[2.000 x LIFTSTEP = temp value] Example: 2.000 X 4250.0 = 8500

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

[temp value / ACTUAL TRAVEL = NEW LIFTSTEP] Example: 8500 / 1.975 = 8498.025

(example showing actual travel measured as 1.975")

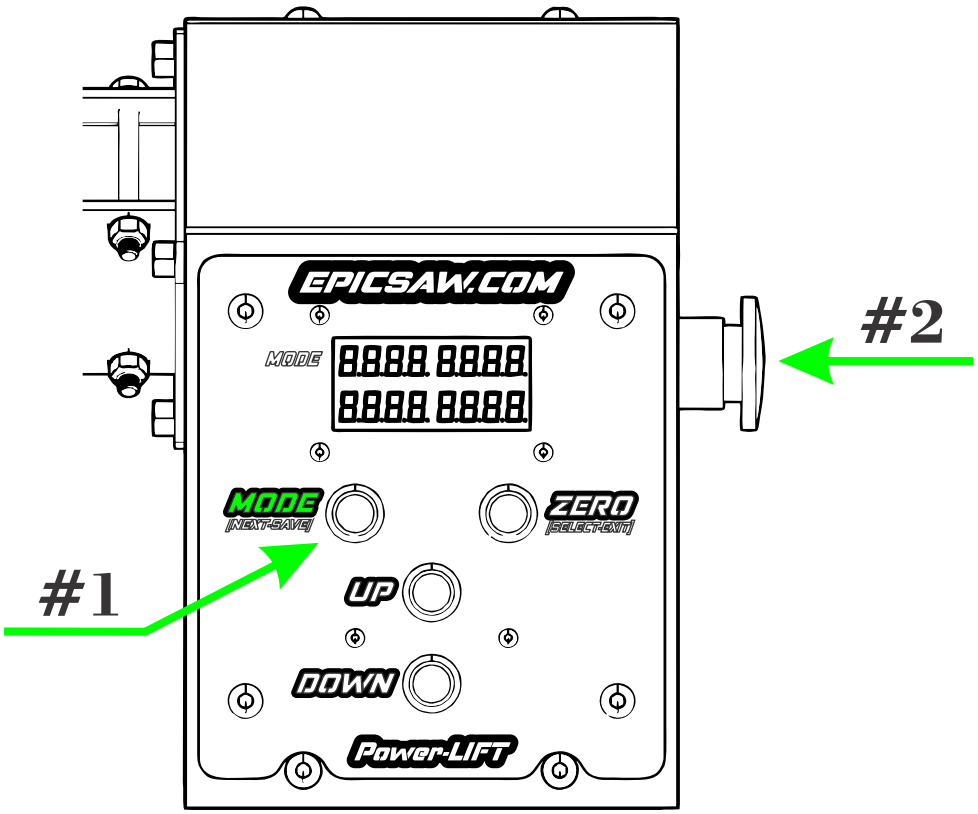
#3- Finally, we will **adjust LIFTSTEP to the NEW LIFTSTEP value** (round up)

EXAMPLE ONLY [Example: Set LIFTSTEP to 8498.0] **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.

Firmware Update Mode



When firmware updates are available for your PowerLIFT, the unit must be placed into Update Mode. To enter update mode, begin with the sawmill engine turned off, PowerLIFT turned off, and the sawmill head lowered completely.

#1 - HOLD the MODE button down
#2 - RELEASE the EMERGENCY STOP button to TURN ON.

When the unit powers on, the display will show UPdAtE on the display, at which time you may release the MODE button. Proceed to follow the firmware update instructions at this time. The PowerLIFT unit will automatically restart when the update is finished, returning to normal operation.