



RailSaw Max User Manual

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Important Safety Notice

Failure to follow the instructions in this user manual may result in saw damage, blade damage, serious personal injury, or death. Only trained operators should operate or service this equipment. Always shut down the saw, disable the machine, relieve hydraulic pressure, and make sure the blade has stopped before servicing the saw or changing the blade.

Blade Installation

The blade can be installed by removing the front cover of the saw. The front cover is held by six bolts and requires a 3/4 inch wrench.



Remove the main blade bolt and the small pin bolts.



Remove the old saw blade and install the new blade.

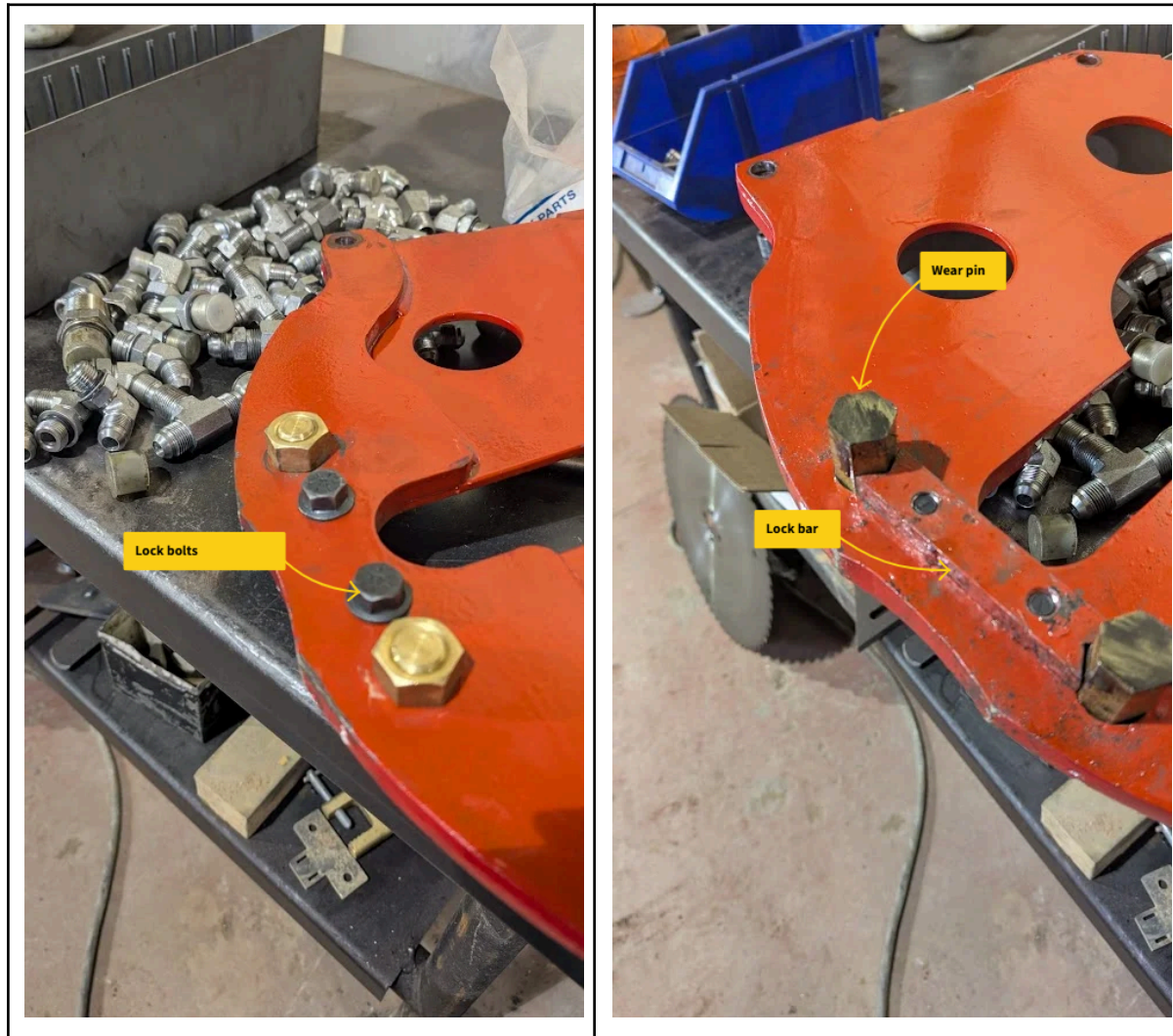
When installing the bolts, follow these torque recommendations:

1. Large bolt: 45 ft-lb. Do not over-tighten this bolt. Over-tightening can dish the saw blade and cause premature blade wear.
2. Small bolts: 30 ft-lb.

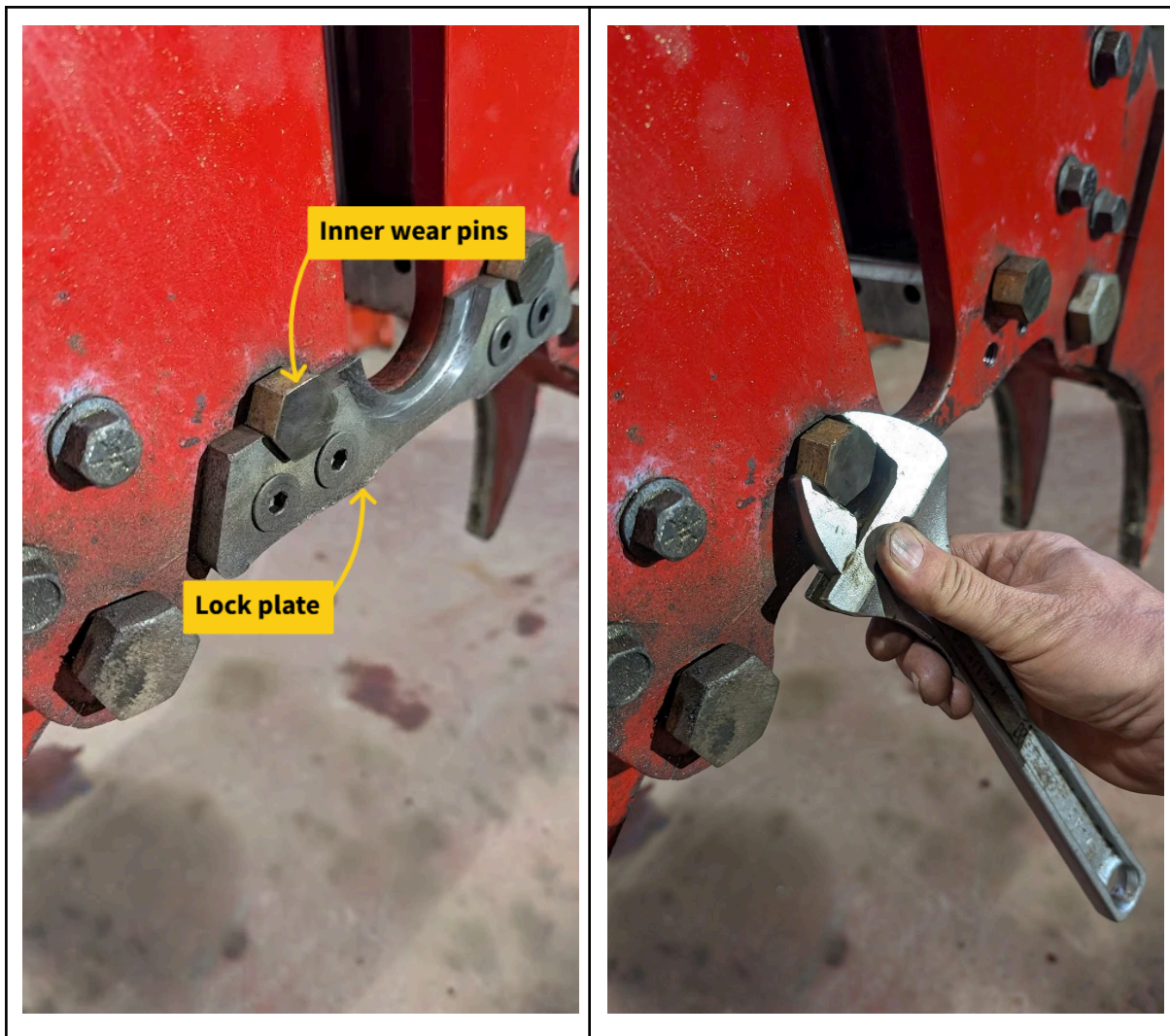
IMPORTANT: Make sure the new blade is installed in the correct orientation for the required rotation direction. Installing the blade backwards will destroy the teeth on first contact.

Replacing the Front Cover and Adjusting Wear Pins

The pins on the front cover must be adjusted when a new blade is installed and checked occasionally during use to maintain cut performance.



Remove the locking bolts and locking bar. Adjust the wear pins on the cover so they just touch the blade when the cover is in place. There is also a set of pins behind the blade that must contact the blade. First remove the lock plate.



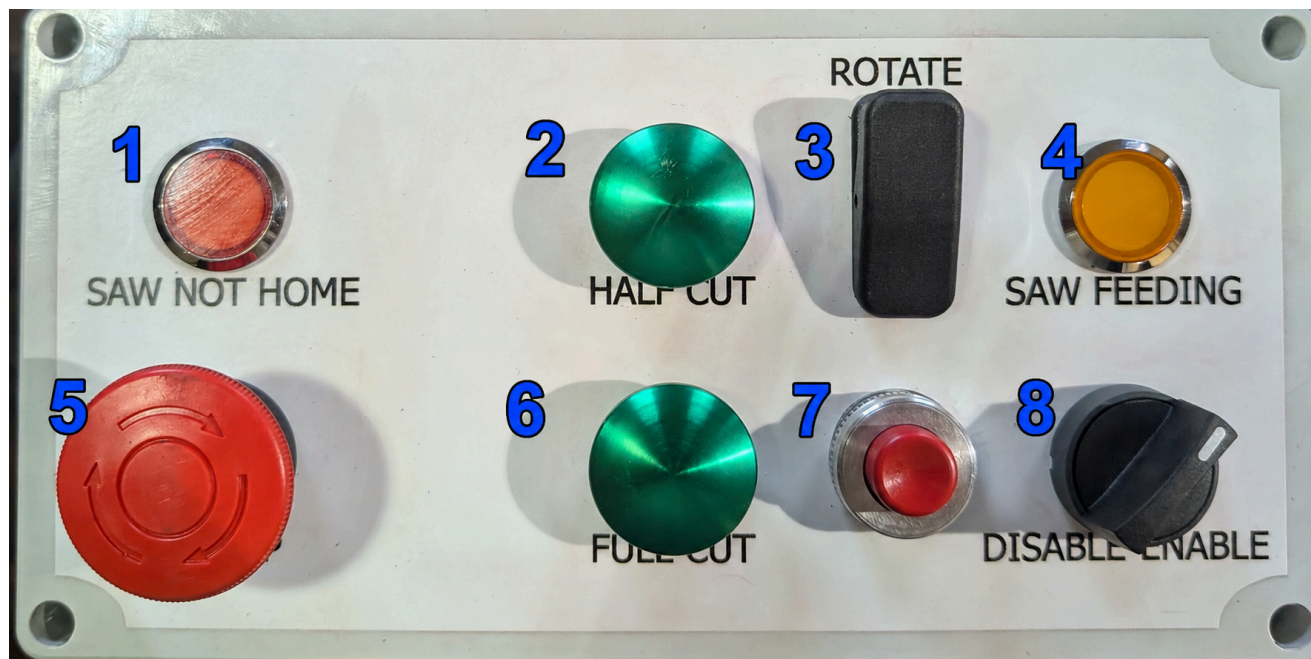
Adjust the pins until they just touch the blade, then reinstall the lock plate.

IMPORTANT: These pins hold the blade firmly in place when starting a cut. If the pins are not adjusted properly, blade life will be severely reduced. Check the pin adjustment several times per day and adjust as needed as the pins wear.

IMPORTANT: After adjustment, test blade rotation to make sure the blade spins freely and does not build heat. If the blade heats up, the pins are too tight against the blade. Loosen the locking bolt and adjust the pins slightly so they are not too tight.

IMPORTANT: These wear pins are required for proper saw operation. Do not run the saw without the wear pins installed and properly adjusted. Missing or incorrectly adjusted pins will severely reduce blade life.

Controls



#1 Saw-not-home light: This light is on when the saw is not in its home position.

#2 Half-cut button: Starts a half cut with automatic return.

#3 Function switch: Switches between rotate and open/close functions.

#4 Feed-speed indicator: Flashes at a rate that corresponds to feed speed while the saw is feeding. Faster flashing means faster feed.

#5 E-stop: Cuts power to the PLC and servo.

#6 Full-cut button: Starts a full cut with automatic return.

#7 Return button: Press at any time to return the saw home.

#8 Enable/disable switch.

Important Cutting Information

#1 Red LED - saw not home

If this light is on, do not attempt to pick up a rail.

YOU WILL DAMAGE THE BLADE. Disable and then re-enable the saw. The saw will return home and the light will go out.

#2 Half-cut button

Press this button to start a half cut. The saw will return automatically after finishing the cut.

#4 Green or yellow LED - feed indicator

This light flashes continuously when the saw is feeding. Faster flashing means faster feed.

#5 E-stop

Press this to stop a cut at any time and cut servo power.

#6 Full-cut button

Press this button to start a full cut. The saw will return home automatically after the cut is complete.

#7 Return button

Press this button to send the saw home at any time.

#6 Button - Manual Mode

Press and hold button #6 for 5 seconds to enable Manual Mode. Both LEDs will flash in sync. Buttons #2 and #6 can then be used to feed the saw up or down for manual positioning.

Red and Green LED Flash Codes

Blinking in sync: the saw is in Manual Mode. Use enable/disable to reset.

Blinking alternately: the saw has powered out and disabled itself, or the enable/disable switch is in disable mode. Use enable/disable to reset.

Special Note!

The saw must be rotating to feed. The feed buttons will not work if the saw is not turning. If the saw stops turning, it will automatically retract a short distance. Press the desired cut button to resume cutting.

Cutting Procedure

1. Pick up the rail and make sure it is tight in the grapple. Put the machine in neutral to help prevent slipping during the cut.
2. Select the desired cut: full cut or half cut.
3. Observe the green LED for steady flashing. This indicates that feeding is taking place.
4. If the saw stalls or jams, press the desired cut button to continue after the issue is corrected.

Tips and Precautions

1. Rail can be cut in any position, including upside down or on its side.
2. Full cuts should be done with the rail upright or fully on its side to ensure a complete, clean cut.
3. Do not pull the rail while cutting. The grapple could slip and damage the saw blade.
4. For a clean cut, try to cut the rail on the ground so the rail does not break away too soon.
5. Do not attempt an in-track cut if the rail is hot or under tension.
6. In-track cuts can be done without shoveling ballast by opening and closing the grapple and pressing down to get a full grip on the rail.
7. Make sure the rail is tightly gripped by the grapple before starting a cut to prevent movement while cutting.
8. Try to cut with the blade facing the operator so any problems can be seen before blade damage occurs.

9. Do not attempt to pull long strings of rail. This can damage the saw, the blade, or both.
10. You can pull up to 50 feet of rail without problems.
11. You can easily lift and pack a 40-foot rail.
12. Use Manual Mode when cutting ties.
13. Blade damage will occur if a cut is attempted while the rail is loose in the grapple.
14. The use of water mixed with cutting fluid greatly improves saw life
15. Always keep the blade turning until saw is fully retracted after a cut

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Installation Information:

Accumulator: Used to smooth pressure spikes in the hydraulic system, helping create a smoother cut.

Comes charged to a pressure of 1200 PSI.



Oil reservoir: Feeds the gearbox with oil and should be kept topped up.
Use good-quality 80/90 weight synthetic gear oil for best performance.



Motor control cable: Sends signals back and forth directly to the PLC controller used to control the motor.

M12 connector.



Sensor and ground cable: Sends sensor data, including home-limit and RPM sensor signals, to the PLC. It also carries the rotator 12 V solenoid power and ground to the saw and may supply a separate ground for the RPM sensor and home-limit switch.

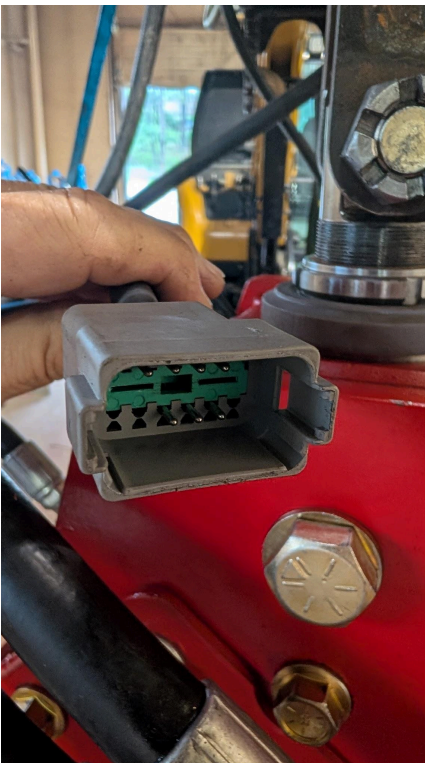
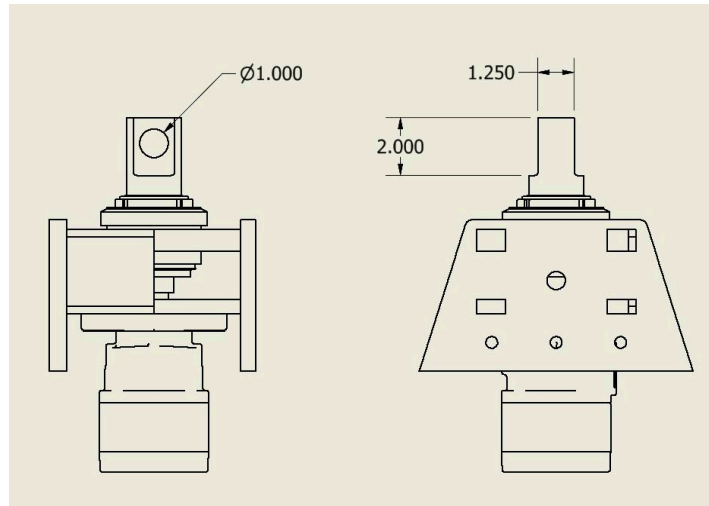
6-pin Deutsch or 12-pin connector.



60 volt Battery: Main power for the PLC and servo, use a healthy battery and replace when needed, the saw will start to malfunction when the battery is low, it may not return home correctly or feed correctly.

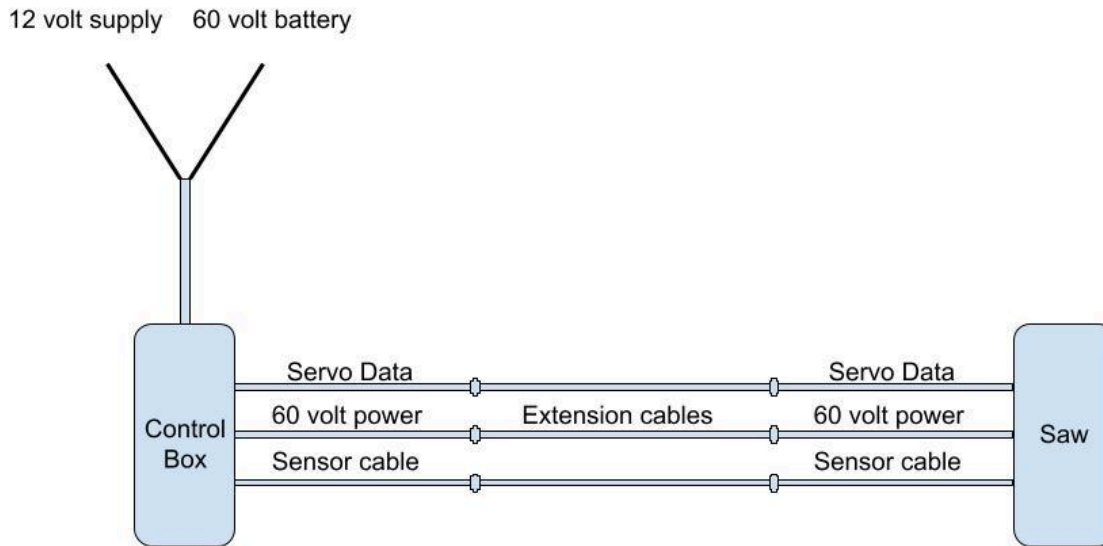


Universal joint: A universal joint to suit your equipment must be fabricated.



Deutsch sensor plug: It is possible to plug this in backwards please be sure the plug mates with its other half correctly

Block Drawing Electrical



Hydraulics checklist

- ☐ The saw requires a minimum of 10 GPM at this flow rate the saw will be quite slow but it will work.
- ☐ 15 to 20 GPM is preferred for best performance
- ☐ Hydraulic cooling is very important as hot oil will reduce performance and effect the servo performance and cause the servo to shut down in severe heat, ensure adequate cooling is present.
- ☐ Feed hoses to the motor should be #10 if possible to increase GPM and if quick connectors are used size them at a #10 as well to help with heat buildup.
- ☐ Do not use a 360 degree rotator, these rotators are not designed for continuous flow and cause high heat buildup the saw has a built in rotator which must be used.

- ☐ Two open center circuits are needed for the saw
- ☐ Main relief pressure should be no more than 2100 psi
- ☐ The hydraulic system should maintain a constant flow rate over time and should be tested before installing to ensure there is minimal GPM drop off during use
- ☐ Test both circuits for flow and use the higher flow set for the saw motor

Installation notes:

A universal joint must be fabricated to suit your machine, the joint must provide two axes of movement, if your equipment has a 360 degree rotator remove it.

Hang the saw from your equipment and plug in the extension cables and run them along the boom to the operator control station

Mount control box on the operator station in a convenient location, it must be removable so the box can be plugged in directly at the saw for doing precise cuts on a marked line also for testing and diagnosis, control box has some water proofing but a removable solution is best so that the box can be brought in out of the rain at the end of shift.

Mount battery holder using the screw holes provided in an easy to access location

Roll up access cable at operator station and store somewhere out of the way then plug in the operator box.

Connect the higher flow hoses from one circuit to the motor

Connect the lower flow set to the remaining ports these will control rotation as well as open and close

Test servo by plugging in the battery and releasing the E-stop switch, the servo should power up and return to home, enable the system with the enable switch then hold the full cut button down for 5 seconds, both LED's should begin to flash together, full cut and half cut buttons become manual jog buttons, press full cut to move the blade down and half cut to move it up, to get out of manual jog mode press the return button and the saw will return home.

Do a test cut without rail first, begin by actuating your hydraulics in the correct direction to start the saw turning, press either full cut or half cut and keep the saw turning, the saw should start to move down on its own and automatically return after the desired cut is complete, if the saw gets stuck or you stop the rotation it will retract a short distance and wait for a button press before continuing, **the saw will not feed if it is not rotating.**

To do a cut in rail grab the rail in any position and firmly squeeze it with the grapple, have the saw facing you to monitor progress or problems, constant squeeze pressure is not needed as the lock valves will keep the saw tight on the rail, start the saw turning and choose a cut then wait for it to complete, you can retract the saw any time by pressing the return button.

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