

Simple Networks

Safety, Operation, Maintenance & Parts Manual

SW for '97+ mills rev. A.00 - L.04



Safety is our #1 concern! Read and understand all safety information and instructions before operating, setting up or maintaining this machine.

February 1998

Form #887-CS

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SECTION 1 INSTALLATION

1.1 Required Tools and Steps

Required Tools Include:

- Medium Flat Blade Screwdriver
- Medium Phillips Screwdriver
- Stubby or Right Angle Phillips Screwdriver
- 7/16" Socket Ratchet with 3" Extension
- 1/2" Wrench or Socket Ratchet
- 1/8" Allen Wrench
- 3/8" Nut Driver
- Wire Cutters (preferably Diagonal)

Required Installation Steps Include:

- Battery Box Pre-Installation
- Sawmill Control Box Pre-Installation
- Wiring Installation
- Encoder Installation

1.2 Battery Box Pre-Installation

IMPORTANT! Make sure the mill is properly set up before performing setworks installation and/or operation.



WARNING! Failure to put front outrigger down before moving cutting head from the rest position (rear of the mill) may result in serious injury.

1. Return the saw carriage to the front of the mill.
2. Raise the cutting head to the 22 inch mark on the blade height scale.
3. Turn the sawmill control box key to the OFF (#0) position.
4. Unbolt and remove the top cover from the battery box and set aside. Remove the negative battery terminal from the battery post to disconnect power from the mill. Wrap a cloth or temporary insulating material around the terminal to ensure it does not contact the post during Setworks installation.



WARNING! Before performing any service to the sawmill control box panel, turn the key to the OFF position, disconnect the negative battery lead, and remove all rings, watches, etc.... Failure to do so may cause serious injury and machine damage.

1.3 Sawmill Control Box Pre-Installation

1. Unbolt and remove the rear power feed panel from the sawmill control box. Leave all wires connected.

See Figure 1-1.

2. Unbolt and remove the front panel from the control box. Leave all wires connected.
3. Unbolt and remove the top hinged cover from the control box. Set aside.

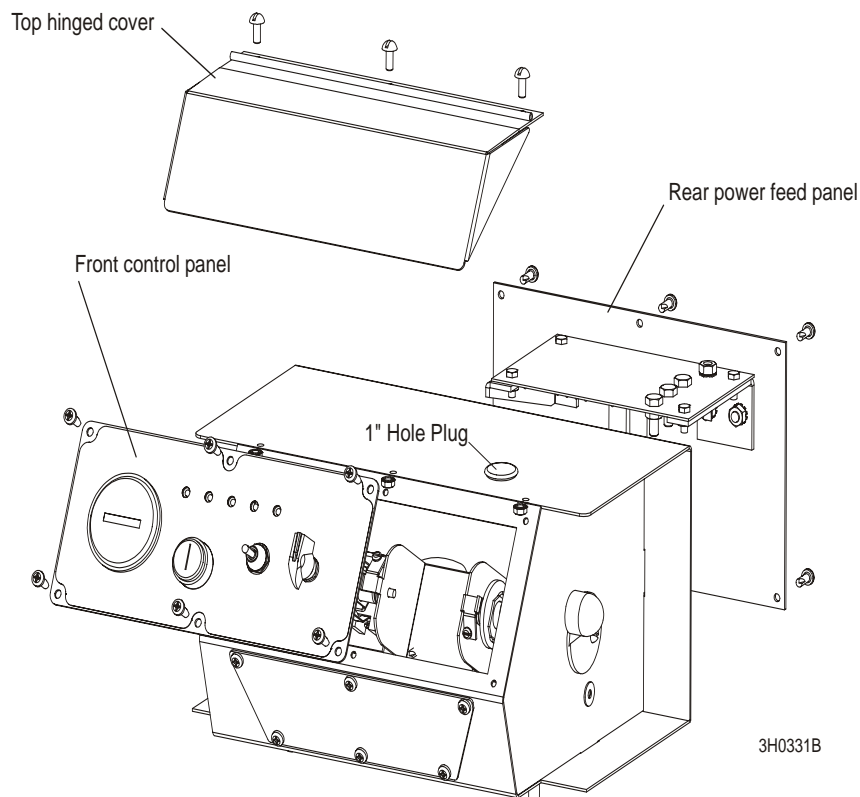


FIG. 1-1

4. Install the provided L-shaped bar clamp to the top of the control box. Position the bracket as shown. Use the four provided #10 flat washers and 10-24 x 1/2" screws to loosely secure in place from the bottom (do not tighten).

See Figure 1-2.

1

Installation

Sawmill Control Box Pre-Installation

5. Remove the plug from the 1" diameter hole in the top of the control box.

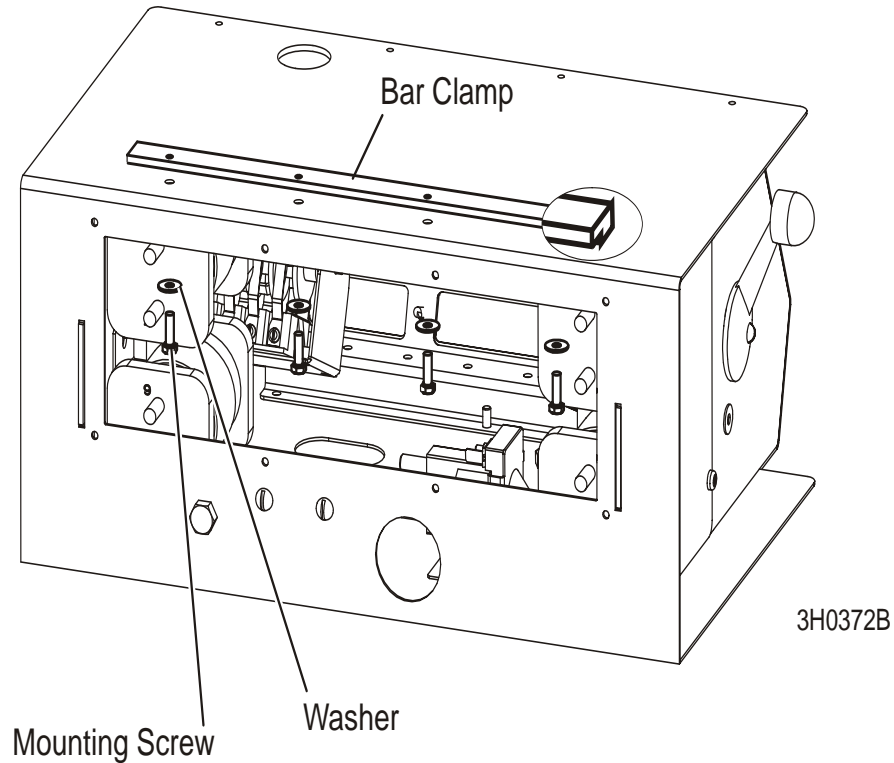


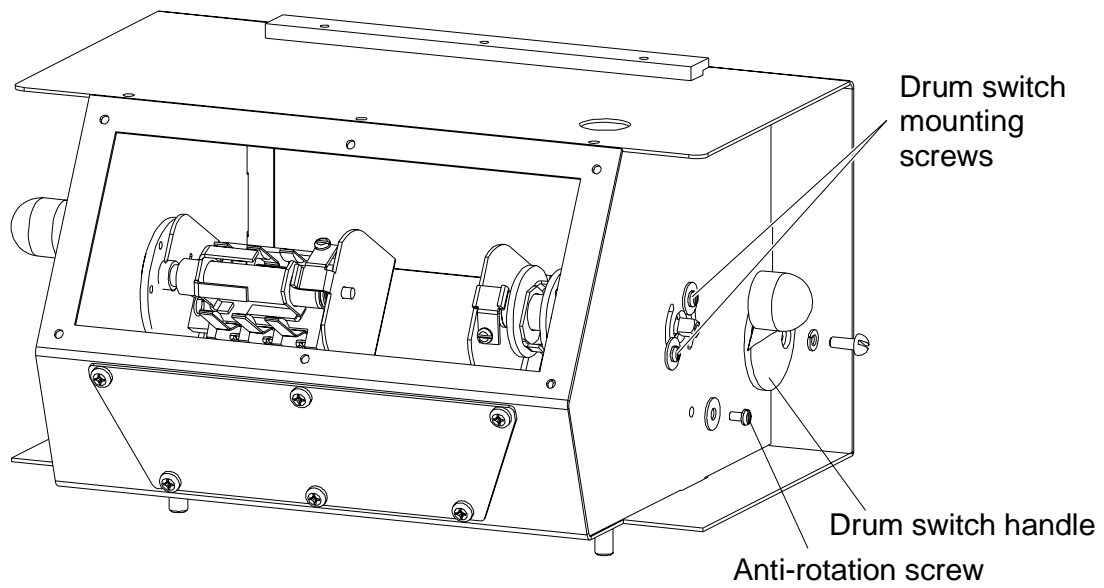
FIG. 1-2

NOTE: Setworks before 5/00 were provided with a grommet to fit the hole in top of the control box. It is recommended that this grommet not be installed and a piece of conduit used to wrap the wires routed through this hole from the Setworks control. [See Section 1.7](#) for conduit installation instructions.

6. Remove the anti-rotation screw from the right side of the control box.

See Figure 1-3.

7. Unbolt and remove the up/down drum switch handle from the right side of the control box. Loosen the two screws securing the up/down drum switch to the control box.



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FIG. 1-3

1

Installation

Wiring Installation for Standard Mills

1.4 Wiring Installation for Standard Mills



IMPORTANT! If you have a LT30, LT40, LT30HD, or LT40HD mill, follow the wiring installation instructions found in this section. If you have a LT30 Super, LT40 Super, LT30HD Super or LT40HD Super mill, follow the wiring installation instructions found in [Section 1.5 Wiring Installation for Super Mills](#).



WARNING! Before performing any service to the sawmill control box panel, turn the key to the OFF position, disconnect the negative battery lead, and remove all rings, watches, etc.... Failure to do so may cause serious injury and machine damage.

1. At the back of the up/down switch, locate the terminal with two orange wires connected (TRM1 or TRM5). Leave the orange jumper wire connected and disconnect the orange upper harness wire. Install the provided red wire labeled DRUM.

See Figure 1-4.

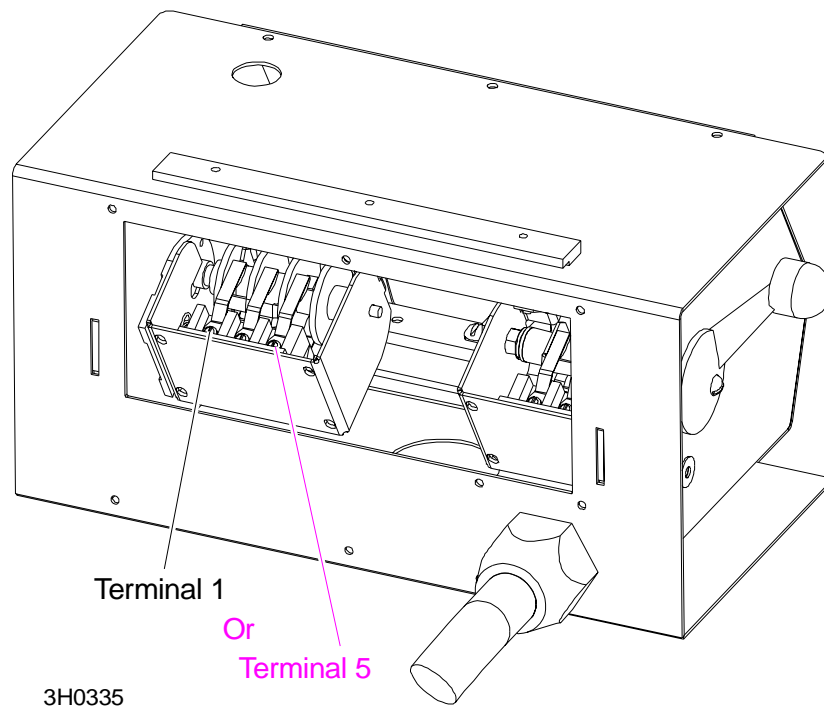
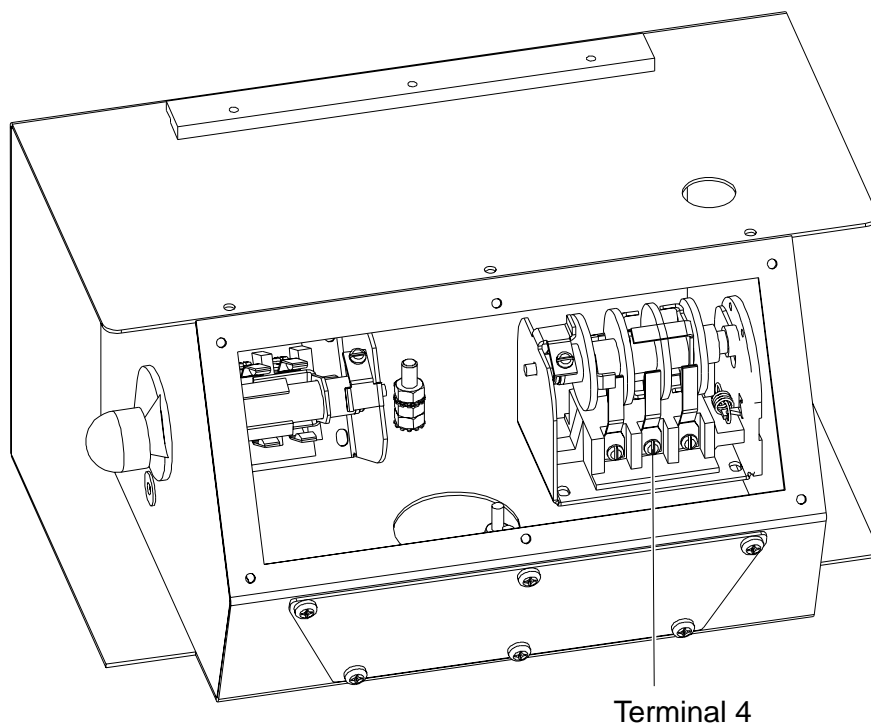


FIG. 1-4

2. On the front of the up/down drum switch, disconnect the existing black upper harness wire from TRM4. Leave the black jumper wire connected to TRM4 and install the provided black wire labeled DRUM.

See Figure 1-5.



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FIG. 1-5

3. Route the free end of black and red DRUM wires through the hole in the top of the control box.

1

Installation

Wiring Installation for Standard Mills

4. Connect the end of the orange wire removed from TRM1 or TRM5 to the provided orange wire labeled MOTOR. Use the provided #10-24 x 3/8" screw and #10-24 self-locking nut to secure together.

Connect the end of the black wire removed from TRM4 to the provided black wire labeled MOTOR. Use the provided #10-24 x 3/8" screw and #10-24 self-locking nut to secure together.

Slide one end of the provided 6" piece of noreprene over each connection. Bend the noreprene over to prevent connections from contacting each other and use a wire tie to secure the noreprene in place. Use a diagonal wire cutter to remove the excess ends of the wire tie.

See Figure 1-6.

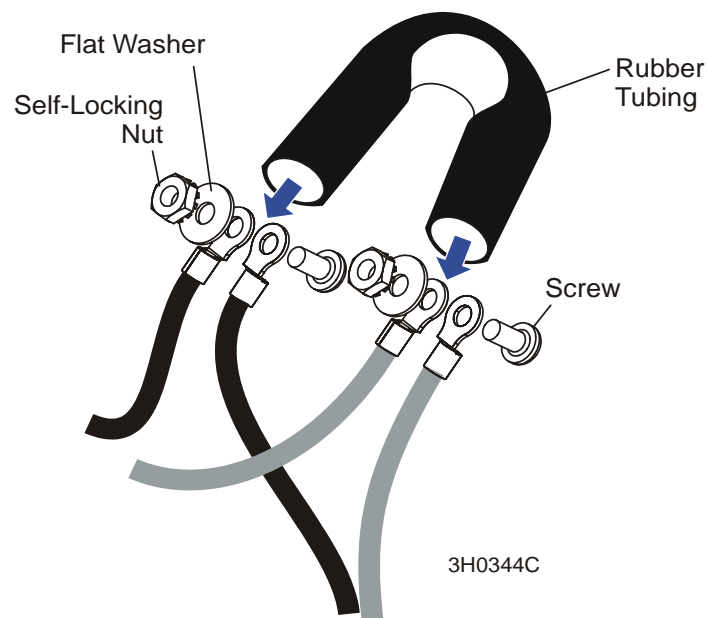


FIG. 1-6

5. Route the free ends of black and orange MOTOR wires through the hole in the top of the control box.

6. Make sure the existing 1/4-20 self-locking nut (which secures the existing wires on the back ground stud at the back of the control box) is tightened down all the way. Install the provided black wire labeled GND to the ground stud and secure in place with the provided 1/4-20 self locking nut. Tighten the nut all the way.

See Figure 1-7.

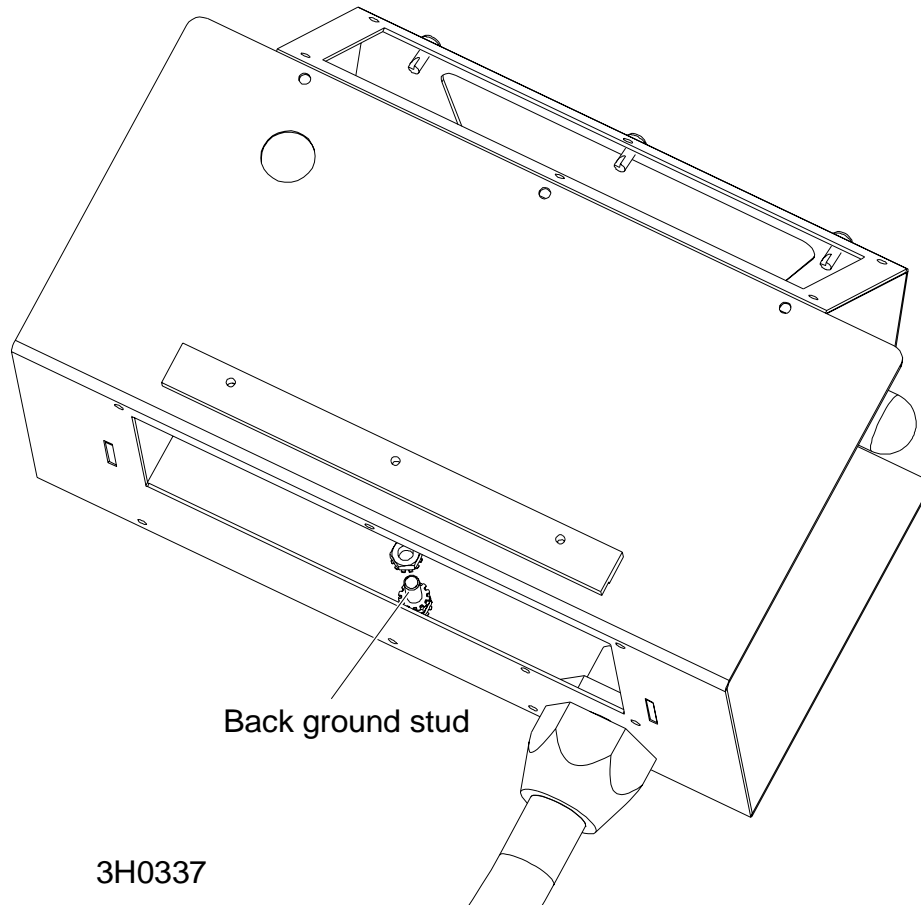


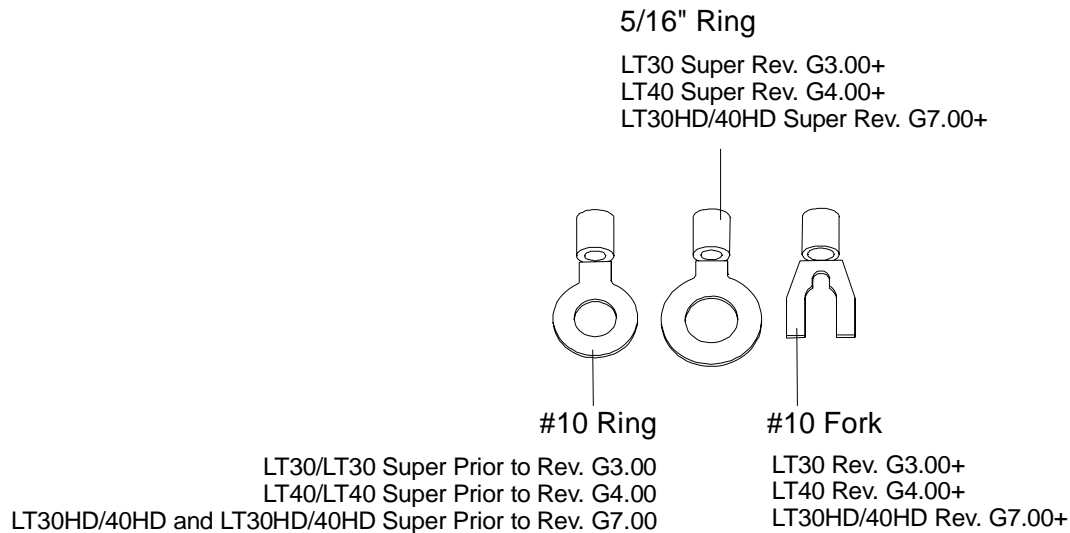
FIG. 1-7

1 Installation

Wiring Installation for Standard Mills

7. There are three red 12VDC wires provided. Only one of these wires will be used, depending upon your mill model. All three wires have a 1/4" ring terminal connected to one end. The terminals connected to the other end differ: a #10 ring terminal, a #10 fork terminal, and a 5/16" ring terminal as shown below.

See Figure 1-8.

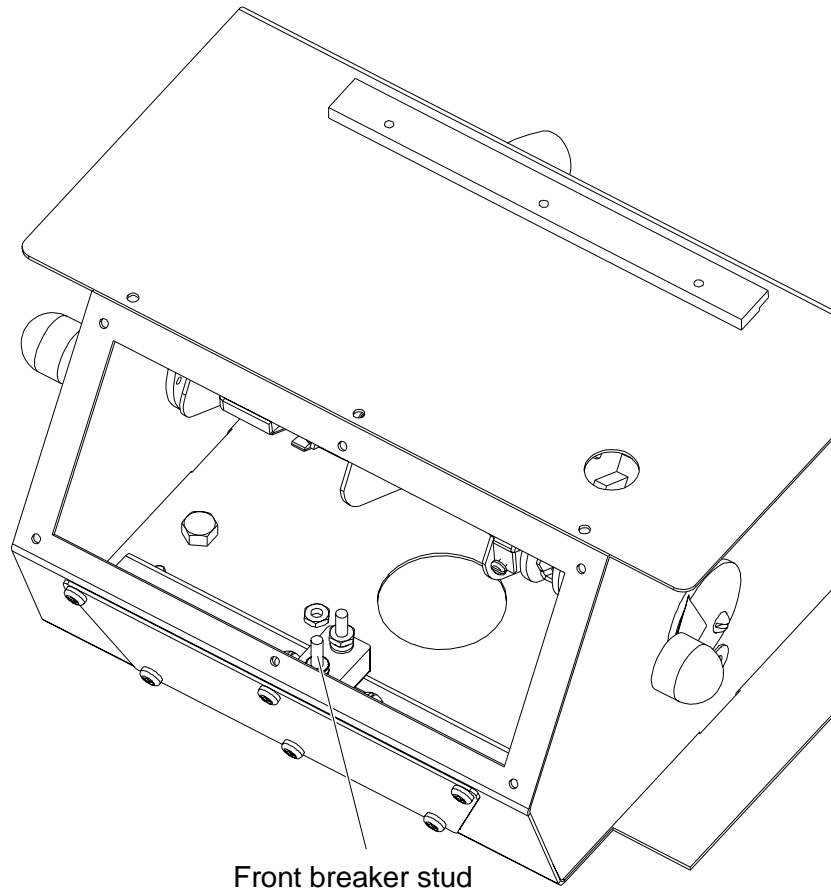


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FIG. 1-8

8. For mills prior to LT30 rev. G3.00, LT40 rev. G4.00, and LT30HD/40HD rev. G6.00, locate the provided red 12VDC wire with a #10 ring terminal. Remove the #10-32 nut from the breaker stud nearest the front of the control box. Leaving any pre-existing connections in place, install the #10 ring terminal to the breaker stud. Reinstall the #10-32 nut and tighten to secure in place.

See Figure 1-9.



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FIG. 1-9

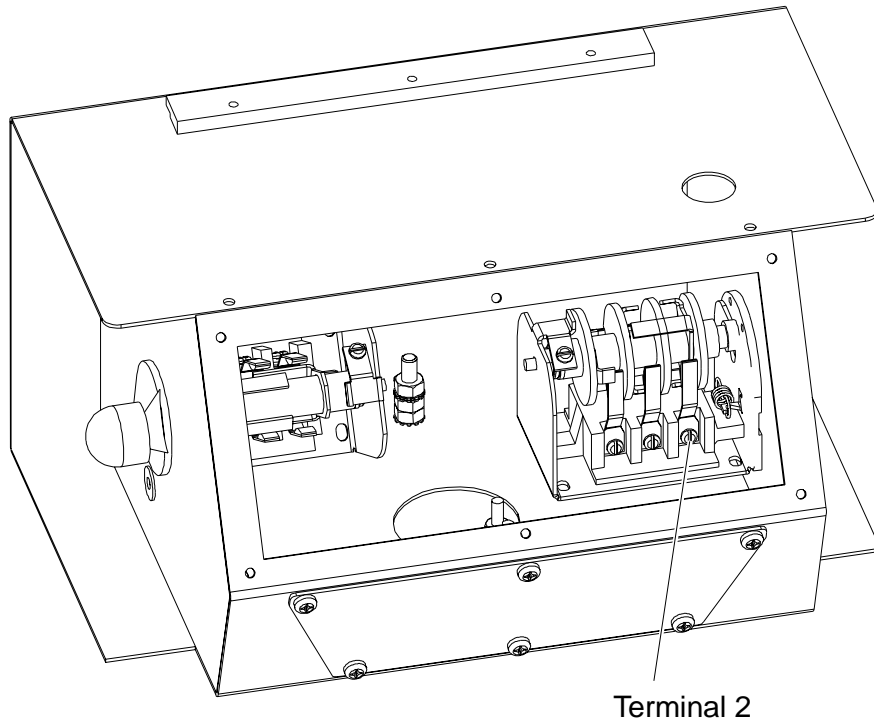
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Installation

Wiring Installation for Standard Mills

9. For mills LT30 rev. G3.00, LT40 rev. G4.00, and LT30HD/40HD rev. G7.00 and later, locate the provided wire with a #10 fork terminal. Loosen the screw on terminal 2 of the up/down drum switch. Leaving any pre-existing connections in place, install the #10 fork terminal to the up/down drum switch, terminal 2. Retighten the screw to secure in place.

See Figure 1-10.



Terminal 2

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FIG. 1-10

10. Route the free ends of the black GND wire and the red 12VDC wire (large terminal end) through the hole in the top of the control box.
11. Reinstall the washers and screws securing the drum switch to the control box. Reinstall the drum switch handle. Reinstall the anti-rotation screw.

12. For Networks rev. F.00+: Temporarily place the provided Networks control panel on top of the control box. Make the following wire connections to the Networks control panel.

- Red DRUM to UP
- Black DRUM wire to DWN
- Orange MOTOR to MTRL; tighten lock nut to 85 in-lbs
- Black MOTOR wire to MTRR; tighten lock nut to 85 in-lbs
- Black GND wire to GND; tighten lock nut to 85 in-lbs
- Red 12VDC wire to 12VDC; tighten lock nut to 85 in-lbs

See Figure 1-11.

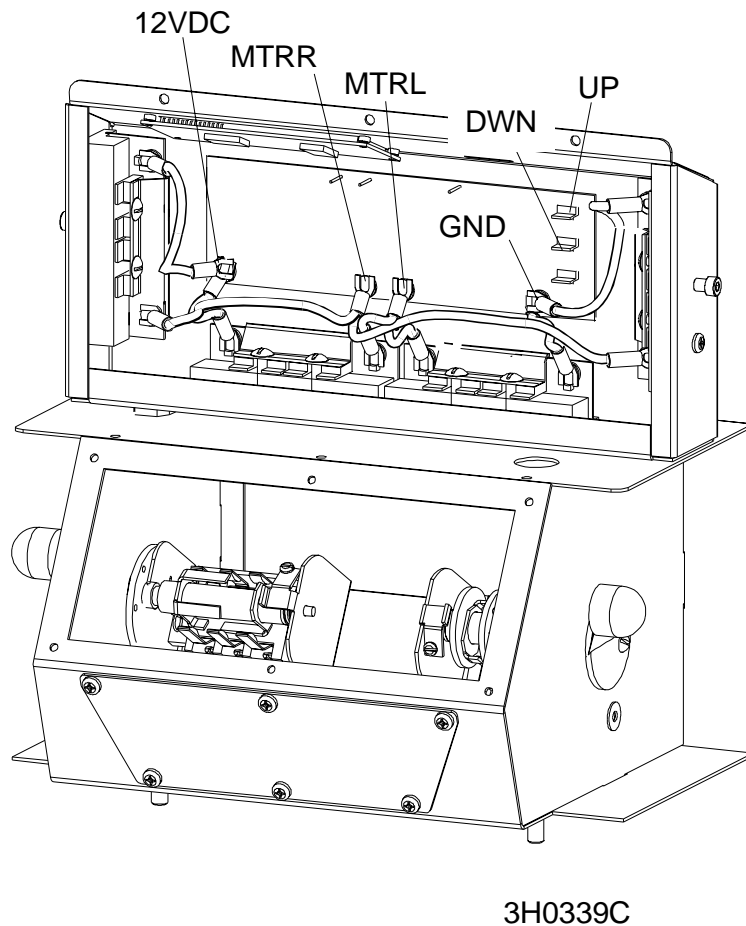


FIG. 1-11

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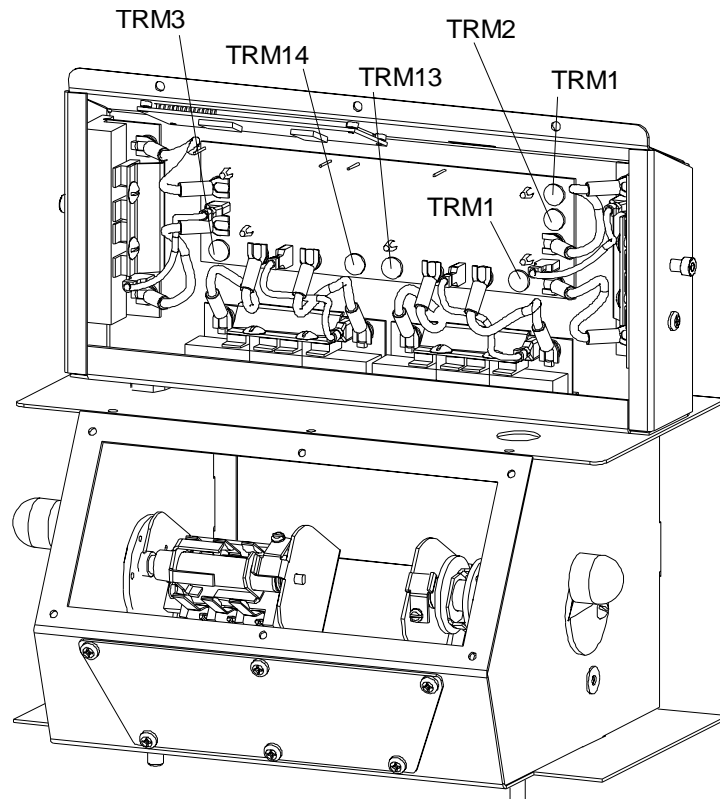
Installation

Wiring Installation for Standard Mills

13. For **Networks rev. A.00-D.00**: Temporarily place the provided Networks control panel on top of the control box. Make the following wire connections to the Networks control panel.

- Red DRUM to TRM1
- Black DRUM wire to TRM2
- Orange MOTOR to TRM13
- Black MOTOR wire to TRM14
- Black GND wire to TRM4
- Red 12VDC wire to TRM3

See Figure 1-12.



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FIG. 1-12

14. Proceed to [Section 1.6 Encoder Installation](#).

1.5 Wiring Installation for Super Mills



IMPORTANT! If you have a LT30 Super, LT40 Super, LT30HD Super or LT40HD Super mill, follow the wiring installation instructions located in this section. If you have a LT30, LT40, LT30HD or LT40HD mill, skip to [Section 1.4 Wiring Installation for Standard Mills](#).



WARNING! Before performing any service to the sawmill control box panel, turn the key to the OFF position, disconnect the negative battery lead, and remove all rings, watches, etc.... Failure to do so may cause serious injury and machine damage.

1. Locate the up/down drum switch solenoids located inside the control box as shown. Remove the nut and the existing red upper harness wire from the top post of the top solenoid. Be sure to leave the existing jumper wire in place. Reinstall the nut.

NOTE: If your up/down solenoid orientation is different than shown, the solenoid panel may be installed upside down. Remove the panel and rotate 180°.

2. Remove the nut and the existing black upper harness wire from the top post of the bottom solenoid. Be sure to leave the existing jumper wire in place. Reinstall the nut.

See Figure 1-13.

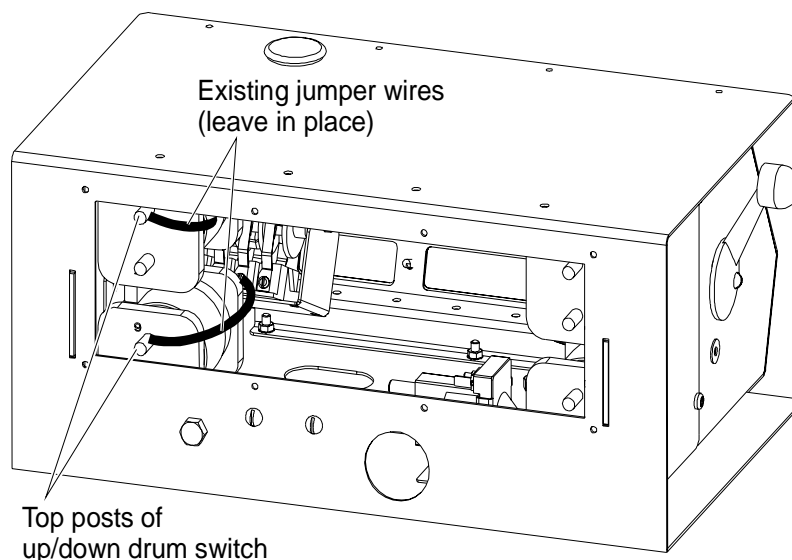


FIG. 1-13

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Installation

Wiring Installation for Super Mills

3. Connect the black wire removed from bottom solenoid to the provided black wire labeled MOTOR. Use the provided 1/4-20 x 3/8" screw and 1/4-20 self-locking nut to secure together.

Connect the red wire removed from the top solenoid to the provided red wire labeled MOTOR. Use the provided 1/4-20 x 3/8" screw and 1/4-20 self-locking nut to secure together.

Slide one end of the provided 6" piece of norprene over each connection. Bend the norprene over to prevent connections from contacting each other and use a wire tie to secure the norprene in place. Use a diagonal wire cutter to remove the excess ends of the wire tie.

See Figure 1-14.

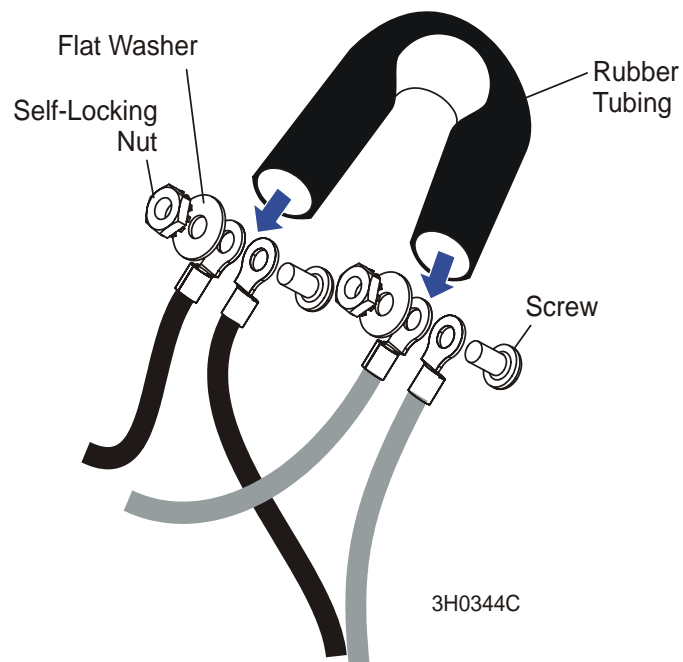
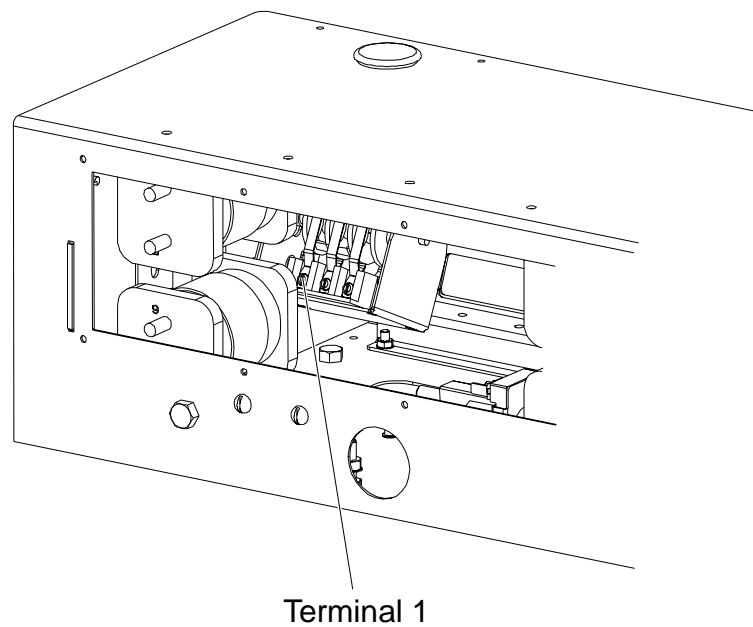


FIG. 1-14

4. Route the free ends of the black and red MOTOR wires through the hole in the top of the control box.
5. Connect the provided black wire labeled DRUM to terminal 1 (TRM1) on the back of the up/down drum switch. Be sure to maintain any existing connections.

See Figure 1-15.



3H0369

FIG. 1-15

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Installation

Wiring Installation for Super Mills

6. Connect the provided red wire labeled DRUM to TRM4 on the front of the up/down drum switch. Be sure to maintain any existing connections.

See Figure 1-16.

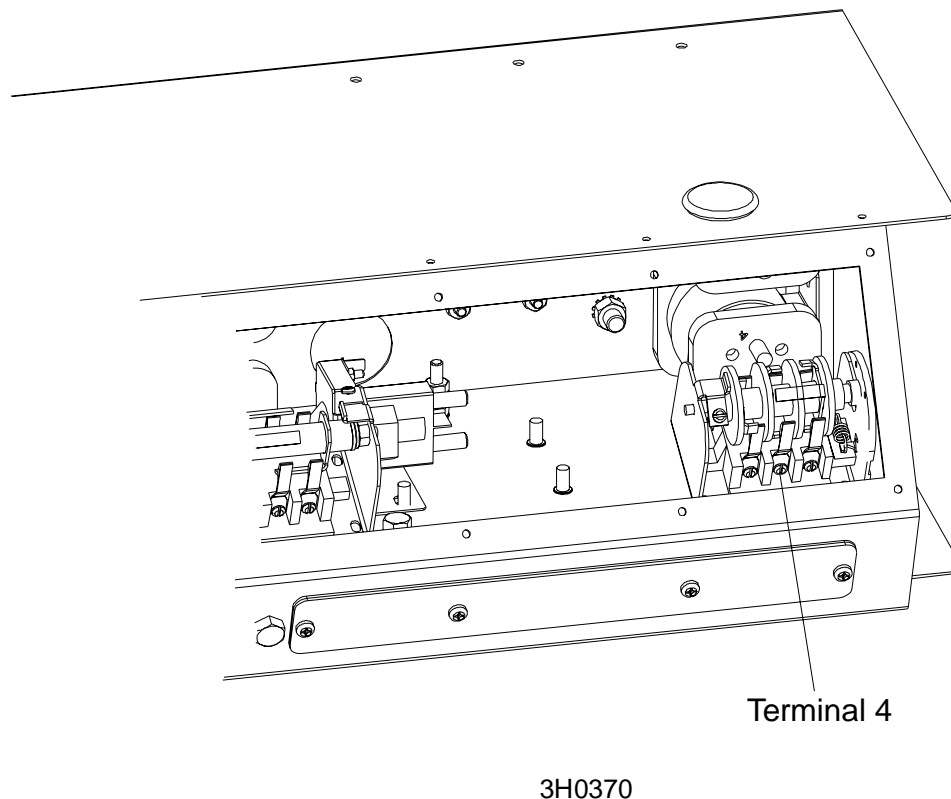


FIG. 1-16

7. Route the free ends of the black and red DRUM wires through the hole in the top of the control box.
8. Reinstall the washers and screws securing the drum switch to the control box. Reinstall the drum switch handle. Reinstall the anti-rotation screw.
9. Make sure the existing 1/4-20 self-locking nut (which secures the existing wires on the back ground stud at the rear of the control box) is tightened down all the way. Install the provided black wire labeled GND to the ground stud and secure in place with the provided 1/4-20 self-locking nut. Tighten the nut all the way.

See Figure 1-17.

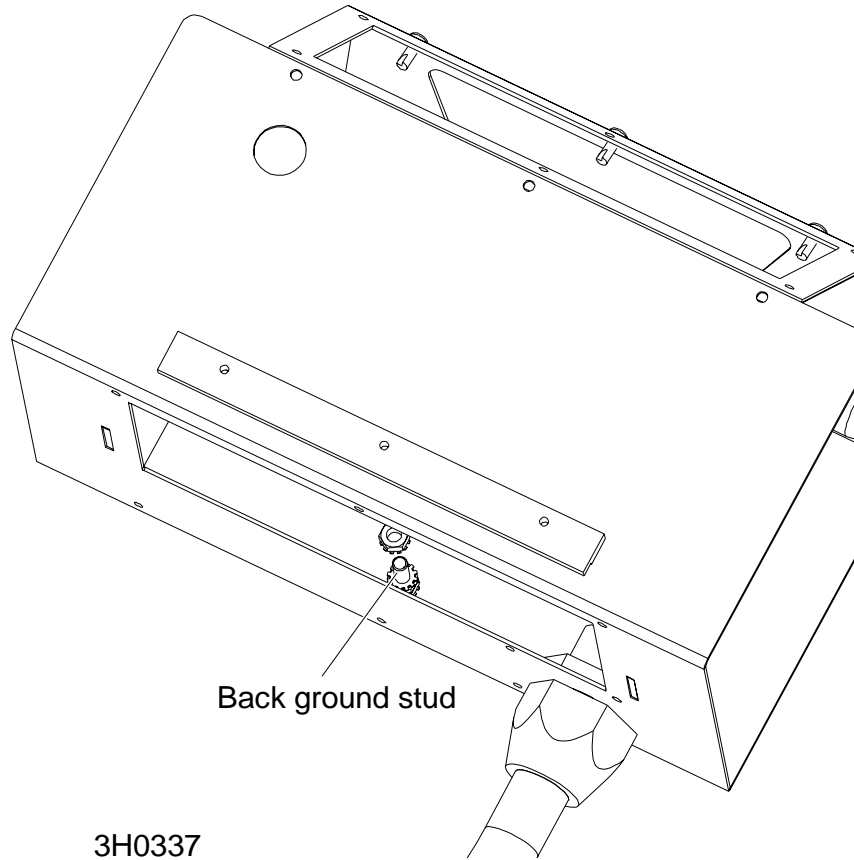
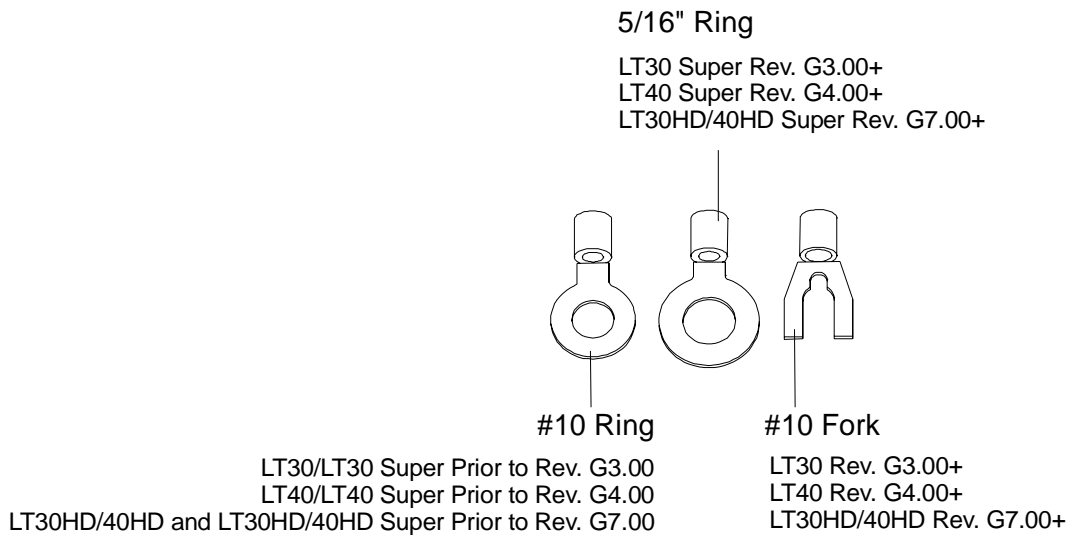


FIG. 1-17

1 Installation

Wiring Installation for Super Mills

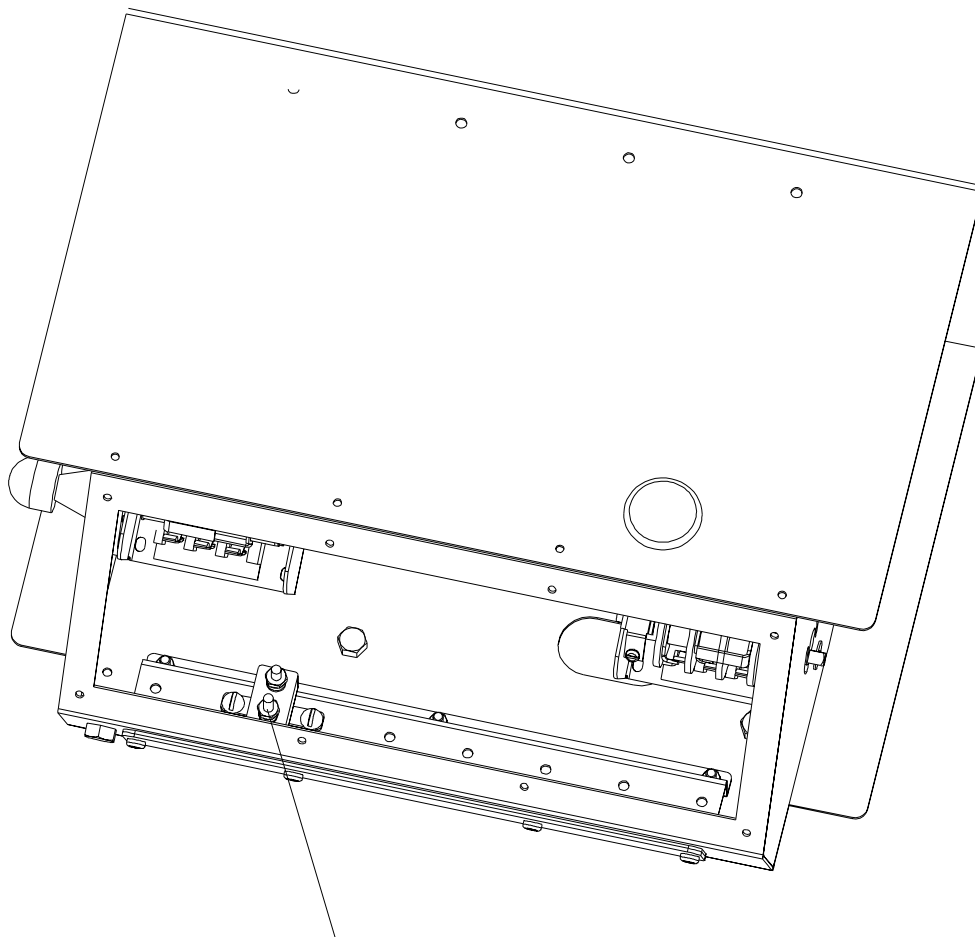
See Figure 1-18. There are three red 12VDC wires provided. Only one of these wires will be used, depending upon your mill model. All three wires have a 1/4" ring terminal connected to one end. The terminals connected to the other end differ: a #10 ring terminal, a #10 fork terminal, and a 5/16" ring terminal.



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FIG. 1-18

See Figure 1-19. For mills prior to LT30 Super rev. G3.00, LT40 Super rev. G4.00, and LT30HD/40HD Super rev. G7.00, locate the provided red 12VDC wire with a #10 ring terminal. Remove the 10-32 nut from the up/down breaker stud. Leaving any pre-existing connections in place, install the #10 ring terminal to the breaker stud. Reinstall the 10-32 nut and tighten to secure in place.



Front up/down breaker stud

3H0371

FIG. 1-19

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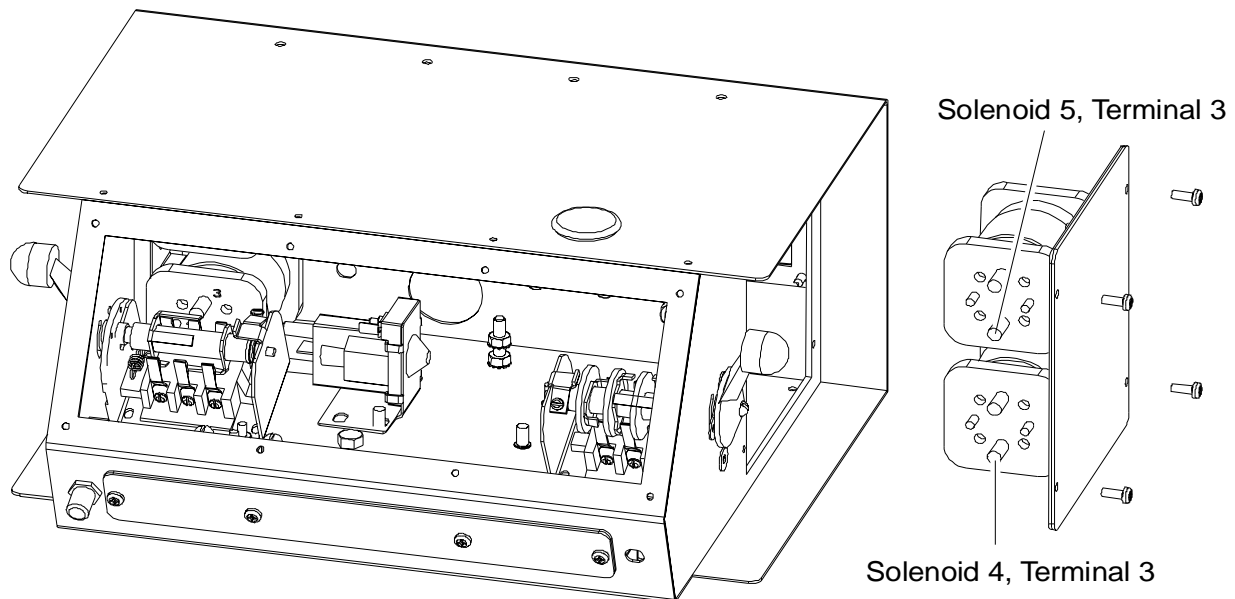
Installation

Wiring Installation for Super Mills

See Figure 1-20. For mills LT30 Super rev. G3.00, LT40 Super rev. G4.00, and LT30HD/40HD Super rev. G7.00 and later, locate the provided red 12VDC wire with a 5/16" ring terminal.

Remove the up/down side panel. Install the 5/16" ring terminal to terminal 3 of Solenoid 4 or 5. (For best results, install to solenoid terminal with only one pre-existing connection. Be sure to leave the pre-existing connection in place.) To install, remove the 5/16" hex nut and lock washer from solenoid terminal, install ring terminal to solenoid terminal, and replace lock washer and hex nut. Tighten to secure. Reinstall side panel.

IMPORTANT! When locating solenoids, be sure that side panel is oriented as shown below (4-studded side of solenoids should face front of control box).



3H0564

FIG. 1-20

10. Route the free ends of the black GND wire and the red 12VDC wire (large terminal end) through the hole in the top of the control box.

11. For Setworks rev. F.00+: Temporarily place the provided Setworks control panel on top of the control box. Make the following wire connections to the Setworks control panel.

- Black DRUM wire to UP.
- Red DRUM wire to DWN
- Black MOTOR wire to MTRL; tighten lock nut to 85 in-lbs
- Red MOTOR wire to MTRR; tighten lock nut to 85 in-lbs
- Black GND wire to GND; tighten lock nut to 85 in-lbs
- Red 12VDC wire to 12VDC; tighten lock nut to 85 in-lbs

See Figure 1-21.

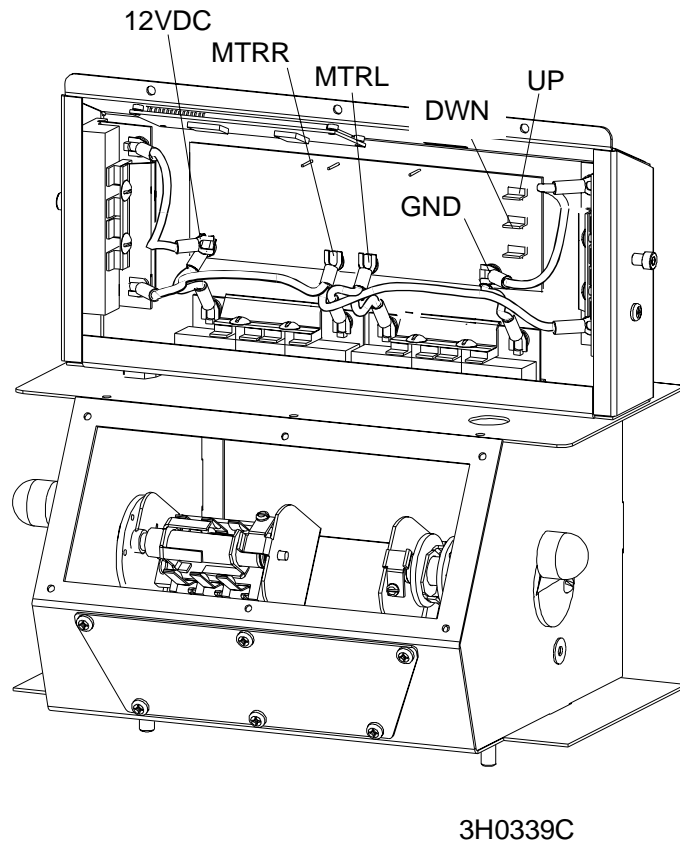


FIG. 1-21

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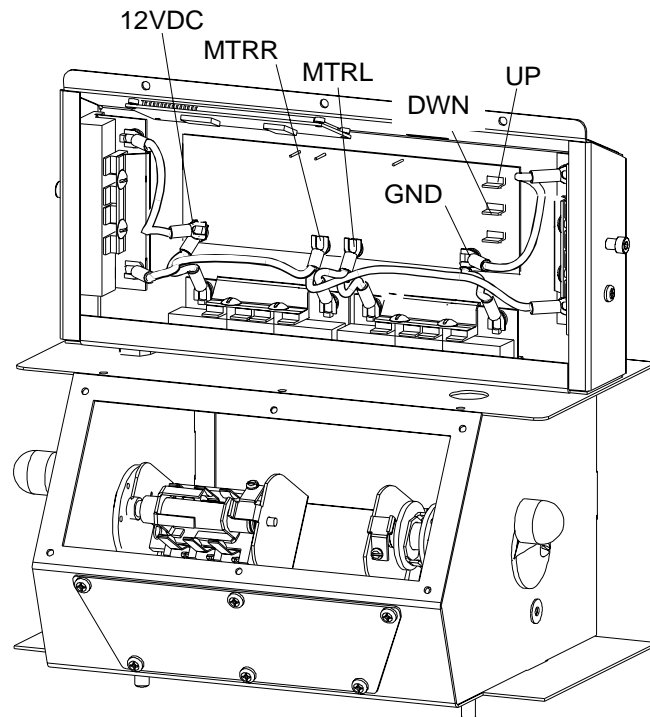
Installation

Wiring Installation for Super Mills

12. For Networks rev. A.00-D.00: Temporarily place the provided Networks control panel on top of the control box. Make the following wire connections to the Networks control panel.

- Black DRUM wire to TRM1
- Red DRUM wire to TRM2
- Black MOTOR wire to TRM13
- Red MOTOR wire to TRM14
- Black GND wire to TRM4
- Red 12VDC wire to TRM3

See Figure 1-22.



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FIG. 1-22

1.6 Encoder Installation

1. Unbolt and remove the drive side pulley guard.

See Figure 1-23.

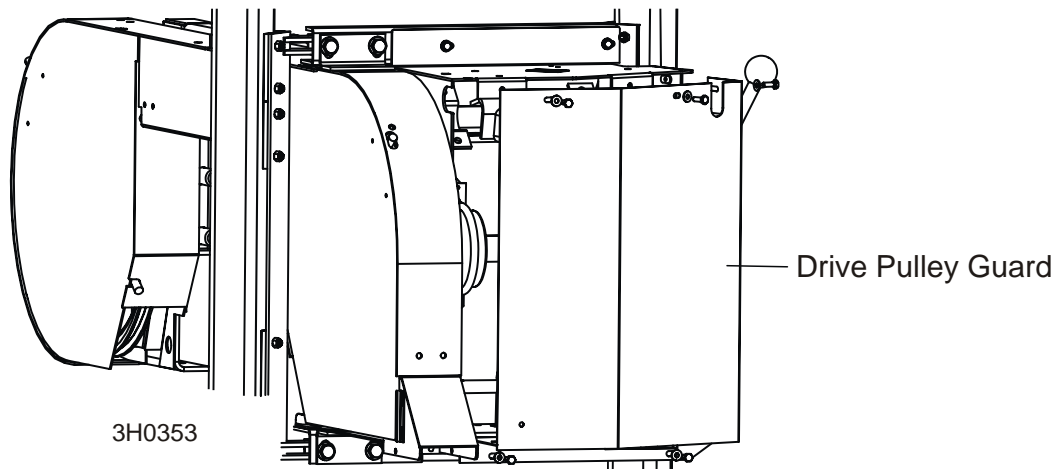


FIG. 1-23

2. Unbolt and remove the lower drive belt guard underneath the engine.

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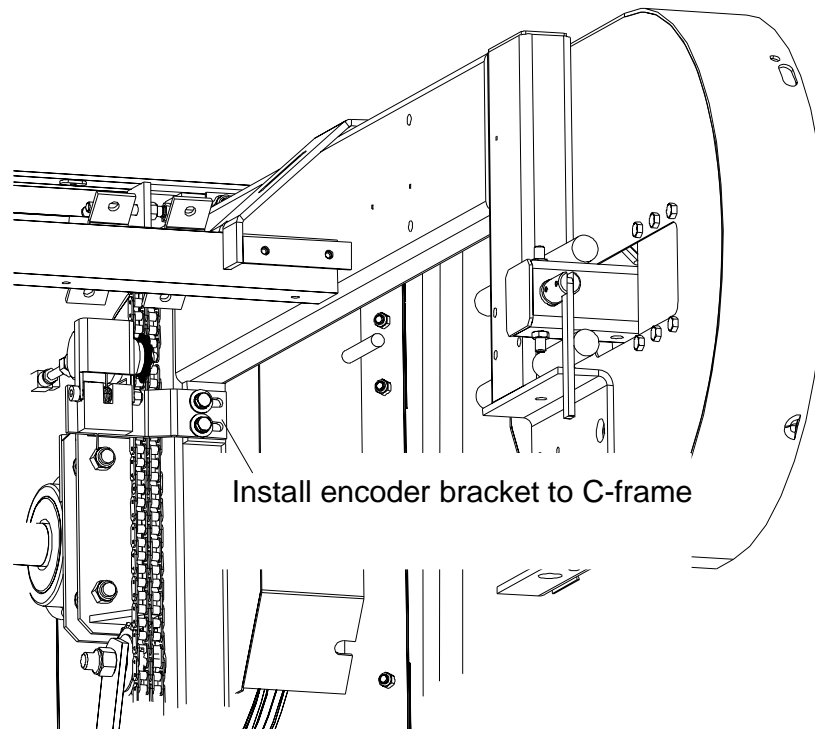
Installation

Encoder Installation

3. Install the Setworks encoder to the sawmill C-frame as shown. Use the provided 5/16" flat washers and 5/16-18 x 3/4" bolts to secure the encoder to the C-frame. Adjust the encoder so that the encoder sprocket rides freely (squared and centered) on the outer up/down chain.

Slowly engage and disengage the clutch/brake handle, making sure that the encoder clears all components such as drive belts, brake strap, etc...

See Figure 1-24.



3H0364

FIG. 1-24

4. Route the encoder cable along the sawmill's upper harness, under the water lube hose, to the Setworks control panel.

Leaving approximately 1 1/2" slack in the encoder cable, use one of the provided wire ties to secure the cable to the harness between the two harness hose clamps. The slack must be sufficient to keep the cable from being stressed as the blade is engaged and disengaged. NOTE: The amount of pull on the cable will increase as the head is lowered.

See Figure 1-25. Keeping the cable on the upper, outside edge of the harness (as shown), continue to use wire ties to secure the cable to the harness approximately every 8 inches. Position the cable carefully to ensure it will not contact the drive side pulley guard when the guard is in place.

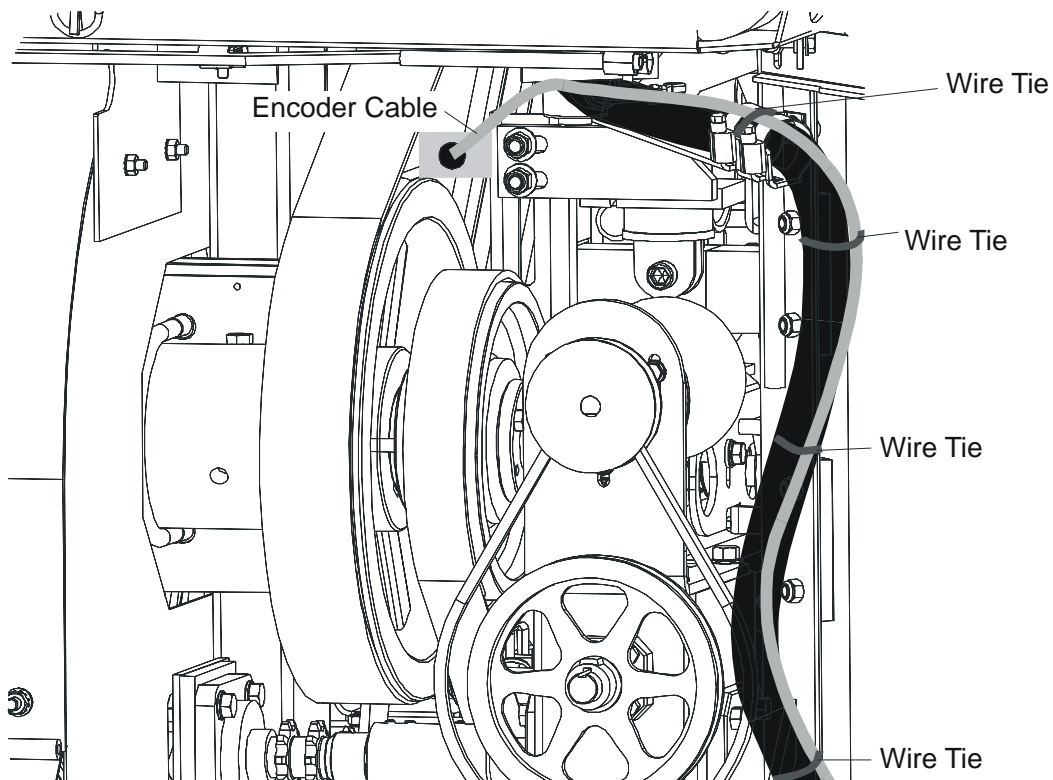


FIG. 1-25

5. Plug the encoder cable into the back of the Setworks control panel and tighten plug screw to secure in place.
6. Loop any remaining slack in the cable and use a wire tie to bundle it close to the control panel. NOTE: Remaining slack also may be bundled near the two harness hose clamps and secured to the harness with a wire tie. If you choose to bundle excess cable in this location, be sure to keep it out of the way of the drive side pulley guard.

1

Installation

Encoder Installation

7. If you have a Super series mill, install the provided diode to the water solenoid. If you have a Standard series mill or if your Super series mill is equipped with the optional Lube-Mizer, skip to the next step.

To install, locate the red water solenoid valve wire. Crimp one of the provided blue T-tap terminals around the wire *after* the existing connection as shown. Plug the male connector on the red diode wire into the T-tap terminal.

Crimp the remaining T-tap terminal around the black water solenoid valve wire (*after* the existing connection). Plug the male connector on the black diode wire into the T-tap terminal.

Visually inspect connections to ensure that the center spades of the male connectors are in proper contact with the T-tap terminals.

See Figure 1-26.

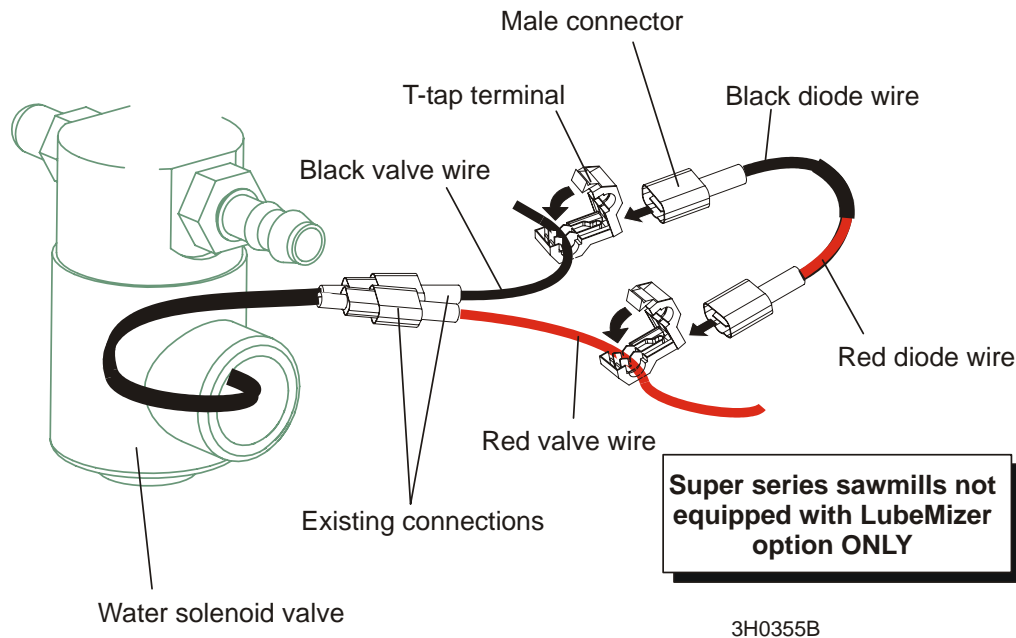


FIG. 1-26

8. Reinstall the drive belt covers.
9. Remove the temporary wrap or insulating material from the negative battery terminal and reconnect it to the battery post. Reinstall the battery box cover.

1.7 Control & Cover Installation

1. Install the provided 12" conduit to the wires connecting the Setworks control to the sawmill control. Position the conduit about 3" - 4" inches from the wire terminals connected to the Setworks control. Secure each end of the conduit with two of the provided tie wraps.

NOTE: Setworks before 5/00 were provided with a grommet to fit the hole in top of the control box. It is recommended that this grommet not be installed and a piece of conduit be used to wrap the wires routed through this hole from the Setworks control as described above.

2. Install the Setworks control panel to the top of the sawmill control box.

Insert the Setworks control panel under the L-shaped bar clamp and slide forward into place. The four holes in the front of the Setworks control panel should align with the three holes in the top of the sawmill control box. Tighten the bar clamp mounting screws to secure the back of the Setworks control panel to the sawmill control box. Use the four existing #10-24 x 3/8" self-tapping screws (removed when original cover was removed) to secure the front of the Setworks control panel to the sawmill control box.

See Figure 1-27.

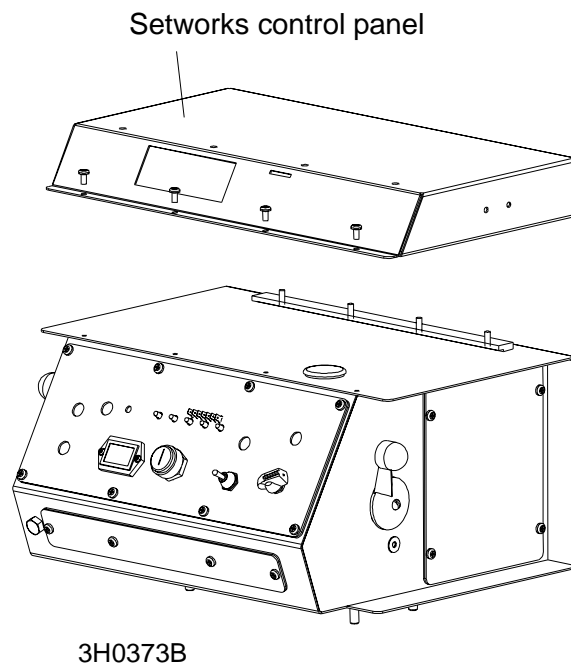


FIG. 1-27

1 Installation

Control & Cover Installation

3. Reinstall the rear power feed panel and the front control panel to the sawmill control box.
4. Install the provided Setworks control panel cover onto the Setworks control panel. Use the provided four 10-24 x 3/8" screws to secure in place.

See Figure 1-28.

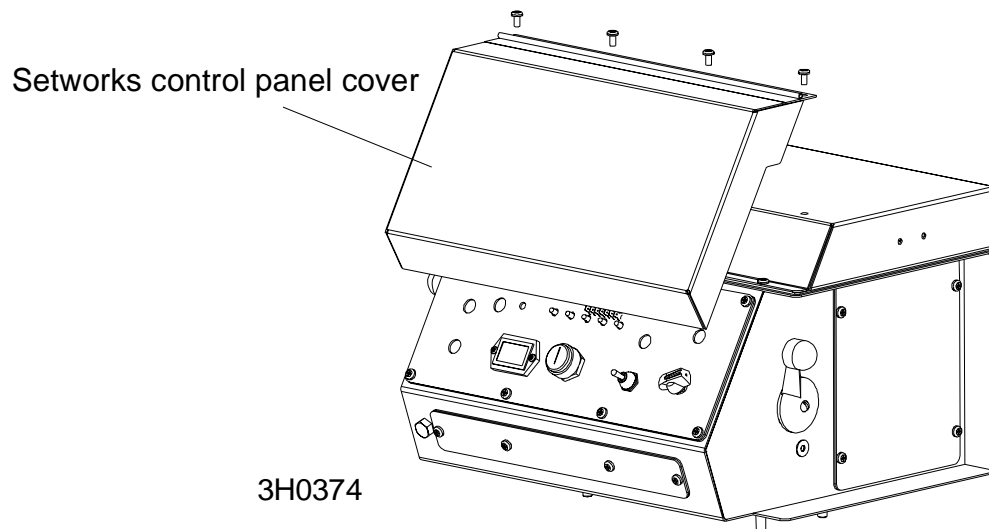


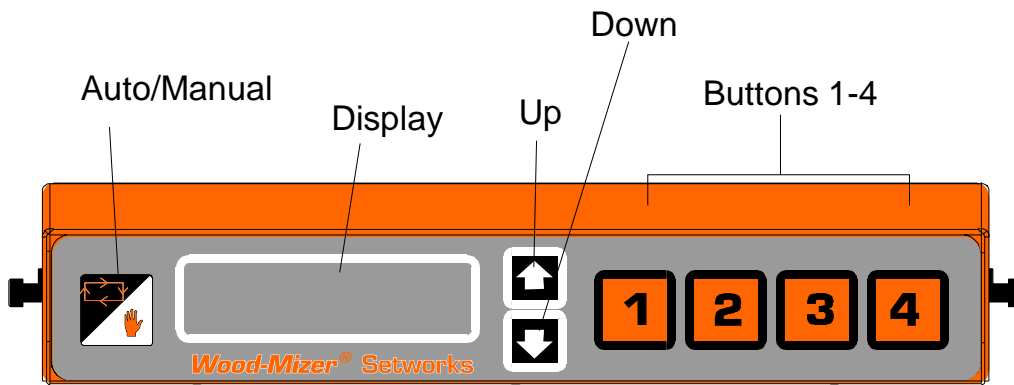
FIG. 1-28

SECTION 2 OPERATION

IMPORTANT! Read and understand the entire Operation section before using your Setworks!

Simple Setworks is a sawmill option which automatically lowers the cutting head by one of 4 pre-programmed “sets”. These sets can be easily modified and saved. Each set includes information for board thickness and kerf allowance.

See **Figure 2-1**. The graphic below shows the Setworks control panel.



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FIG. 2-1

2.1 Initial Start-Up



WARNING! Be sure the power feed switch is in the neutral position before turning the key switch to the ON (#1) or ACC (#3) position. This prevents accidental carriage movement which may cause serious injury or death.

1. Turn the sawmill control panel key to the ON (#1) position. Networks will start up in the manual (disabled) mode.
2. Press the down arrow to select your model mill from the listed choices. Press “1” for a ‘97 Super model mill or “2” for a ‘97 Standard model mill.

NOTE: “3” is for pre-97 mills.

3. Save the display settings.
 - CS ONLY: To return Networks to default factory settings (as needed in such a case that the operator might choose the wrong model mill), adjust the kerf value to 255. Save settings. Turn mill off, then back on.

2.2 Auto/Manual Toggle Switch

To switch back and forth from Manual to Automatic mode, press the Auto/Manual toggle switch. The active mode will show in the display window.

In Automatic mode, Setworks is activated. The up/down switch on the sawmill control panel can be used to automatically lower the cutting head to the next cutting position. [See Section 2.5.](#)

In Manual mode, Setworks is disabled. The up/down switch on the sawmill control panel is used to raise/lower the cutting head (movement is continuous as long as switch is engaged). While Setworks is disabled, the Setworks programming menus may be accessed. [See Section 2.4.](#)

2.3 Setworks Version

To display which setworks version you are running, place Setworks in Manual mode. Press the down arrow.

2.4 Programming Menus

To access the Programming menus, place Networks in Manual mode. Press the up arrow to scroll through available menus. Each menu enables you to view the pre-set value for the corresponding Networks function and to modify that value if desired. The menus include: Save all modified settings, Kerf Allowance, Unit of Measure, and Language.

Save all modified settings:

To save all modified settings,

1. Press “1” to access the Save Settings menu.
2. Press “1” again to save all modified settings, or “2” to exit.

Kerf allowance:

To modify the kerf allowance value,

1. Press “2” to move to the Adjust Kerf menu.
2. Press the up/down arrows to increase/decrease kerf values by increments of 0.00625”.
3. Press “1” to save the modified setting, or “2” to exit.

Kerf is the measurement of the material removed by the blade as it passes through the wood. Kerf allowance is preset to 0 (.00000”).

Most cutting applications will require a kerf allowance. Use the table below for exact kerf setting values based on standard factory specifications of .021 left and right set (.042 blades) or .025 left and right set (.045 blades).

See Table 2-1.

Blade Thickness with set of .021	Kerf Allowance (Kerf Size)
.042”	13 (.08125”)
.045”	15 (.09375”)

TABLE 2-1

To determine other kerf allowance settings, multiply blade tooth set by 2 and add blade thickness. This is your kerf size (the size of groove the blade will cut as it passes through the wood). For the corresponding kerf allowance setting, divide kerf size by .00625.

For example, if the tooth set of a .042" blade is .018:

$$((.018 \times 2) + .042) / .00625 = 12.48.$$

Rounded to the nearest whole value, the kerf allowance setting is 12.

NOTE: If you plan on using the 4/4, 5/4, 6/4, or 8/4 lumber scale on your mill, leave the kerf allowance at '0' and use the up/down arrows to adjust the board thickness dimension to correspond to the lumber scale.

Unit of measure:

To change the unit of measure,

1. Press "3" to move to the Unit of Measure menu.
2. Press "1" for inches, or press "2" for millimeters.
3. Press "1" to the save modified setting, or "2" to exit.

Language:

To choose a different language,

1. Press "4" to move to the Language menu.
2. Press "1" for English, "2" for French, "3" for German, or "4" for Spanish.
3. Press "1" to the save modified setting, or "2" to exit.

2.5 Automatic Mode

In Automatic mode, you may choose one of the four pre-programmed sets by pressing the corresponding button (1 through 4). Each set includes information for board thickness and kerf allowance. The selected board thickness will show in the display window.

- To change the board thickness dimension, use the up/down arrows to increase/decrease cutting values in 1/16" increments. Be sure to save all modified settings before turning off sawmill power.

IMPORTANT! Settings must be saved or changes will be lost when the sawmill power is turned off.

- To change kerf allowance, see [See Section 2.4.](#)
- To operate Setworks in Automatic Mode, see [See Section 2.6.](#)

2.6 Operation



WARNING! Be sure the power feed switch is in the neutral position before turning the key switch to the ON (#1) or ACC (#3) position. This prevents accidental carriage movement which may cause serious injury or death.

1. Turn the sawmill control panel key to the ON (#1) position. Networks will start up in the manual (disabled) mode.
2. Use the up/down switch on the sawmill control panel to raise or lower the cutting head to the desired height.
3. Select a “set” by pressing “1”, “2”, “3”, or “4”. The board thickness dimension will show in the window. **NOTE:** Networks will automatically switch to the Automatic mode when “1”, “2”, or “3” is pressed.
4. **To move the cutting head down to the next cutting position** (board thickness plus kerf allowance), move the up/down switch on the control panel to the down position and release. The cutting head will continue to move until the next cutting position is reached.

To move the cutting head down several cutting positions at once, hold the up/down switch in the down position until the cutting head reaches the approximate desired location, then release. The cutting head will continue to move until the next cutting position is reached.



IMPORTANT! To move the cutting head to a random position (as is often necessary after turning a log, etc), temporarily place Networks in Manual Mode. [See Section 2.2.](#) Lower the head and make the first cut, then return Networks to Automatic Mode by selecting a “set”.

To raise the cutting head, move the up/down switch to the up position, hold until the cutting head reaches the desired height, then release. **NOTE:** Upward movement of the cutting head **will not** affect the set program. To return to the next cutting position, push the up/down switch to the down position and release.

See Figure 2-2.

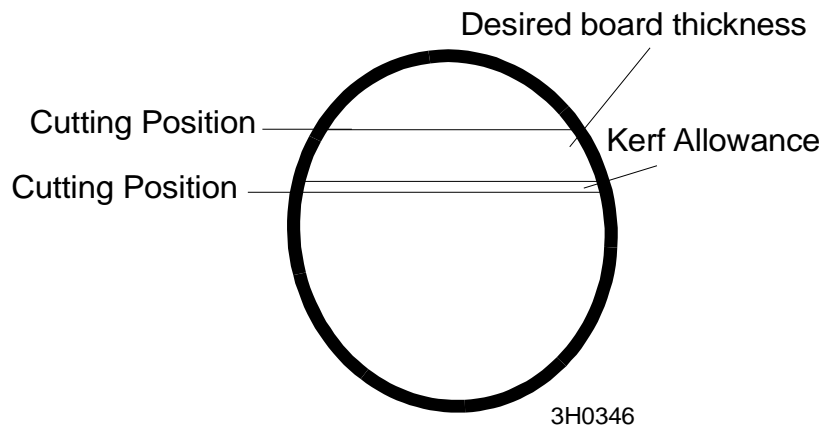


FIG. 2-2

2.7 Calibration

Calibration should be performed to regain set accuracy if the encoder is functioning properly, but Setworks is moving the saw head to an inaccurate cutting position in Automatic mode.

Prior to calibration, make sure the vertical mast rails and the up/down chains are clean and free of debris. See the Maintenance Section in your Sawmill Operator's Manual for cleaning instructions and recommended lubricants.

To calibrate:

1. Make sure the up/down chain is clean and free of sawdust buildup.
2. From the Configuration menus, press "2" to access the Kerf menu.
3. Press "3" to access the Calibration menu. Select the PID setting you would like to adjust:
 - **Kd** (Derivative Gain) - This value controls how Setworks stops the saw head when it nears the desired setting increment. Decreasing this value may improve Setworks accuracy but will also slow down the speed at which the saw head moves to the desired increment setting. Desired values are in the range of 30-250.

To adjust the Kd setting, press "3" a second time, then use the up/down arrows to raise or lower the value. Adjust the Kd setting in intervals of 5 and check the performance of the Setworks. **NOTE:** If you reach the upper or lower Kd limit without achieving desired results, adjust Kd to the factory default settings: 200 for standard and 65 for super sawmills, then adjust Ki as described below.

- **Ki** (Integral Gain) - This setting affects the descent and stopping rate of the saw head. **NOTE:** The factory default setting of Ki is "2" for standard and "1" for super sawmills. Small adjustments (no more than ± 1) of the Ki setting may improve performance on a specific sawmill depending on the mechanical condition of the sawmill up/down system.

To adjust, press "1" to access, then use the up/down arrows to raise or lower the value. Desired values are in the range of 1-3.

- Kp** (Proportional Gain) - This value is a multiplier that determines the speed that Setworks moves the saw head to the setting increment. **NOTE:** The factory default setting for Kp is “4” for standard and “2” for super sawmills. After adjustment the Kp value will probably never need to be changed. Increasing the Kp value will allow Setworks to move the saw head faster but may also cause the control to drastically overshoot the desired setting.

To adjust the Kp setting, press “2” to access then use the up/down arrows to raise or lower the value.

See Table 2-1. The factory default PID settings for standard and super sawmills are shown in the table below.

PID Value	Standard Sawmill	Super Sawmill
Kd	200	65
Ki	2	1
Kp	4	2

TABLE 2-1

2.8 CS ONLY: Parameter Menus

Within the networks menu system, there are parameter menus. These parameter menus are for engineering diagnostic purposes only and are not meant for customer access. However, though unlikely, unintentional customer access is possible.

If any value located in these menus is unintentionally altered, raise the kerf value to 255, save, then turn the key switch “Off” and back “On” to return all values to the default setting.

Contact engineering for further information prior to setting any value located in these menus to a non-default setting.

The parameter menus are shown in the following graphics for your reference.

Changing Parameters on Networks

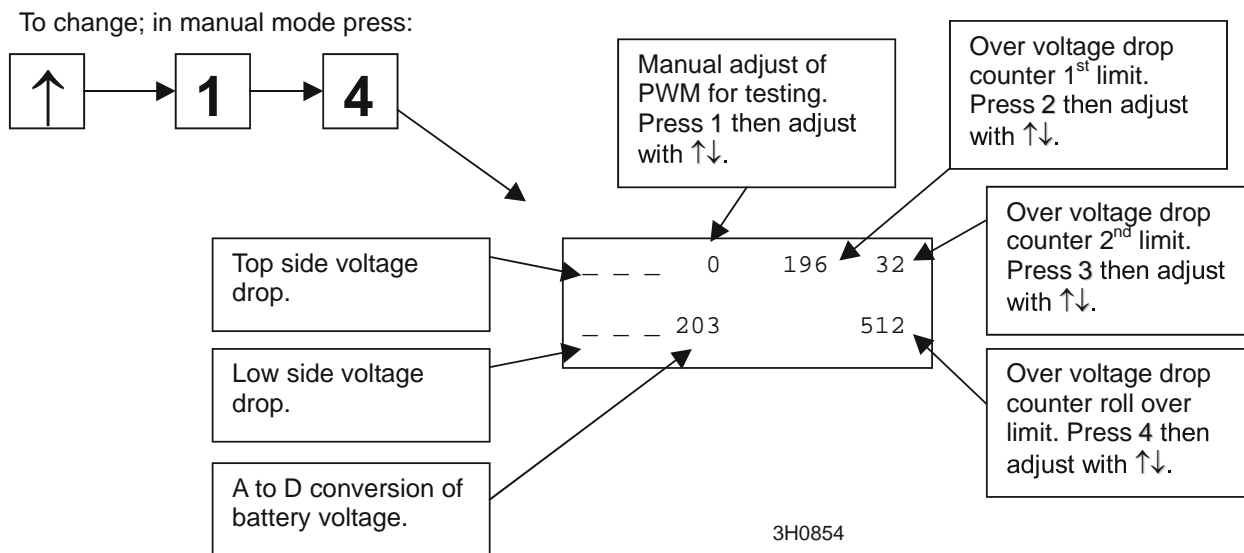


FIG. 2-3

Changing Parameters on Networks

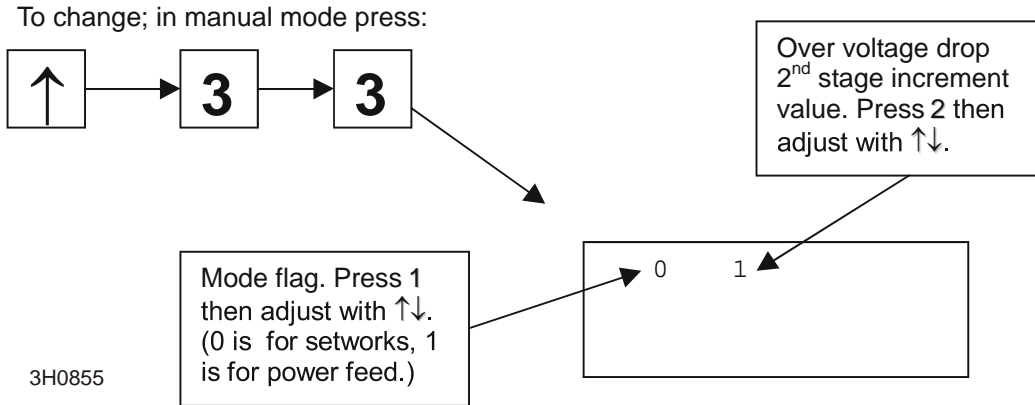


FIG. 2-4

Changing Parameters on Networks

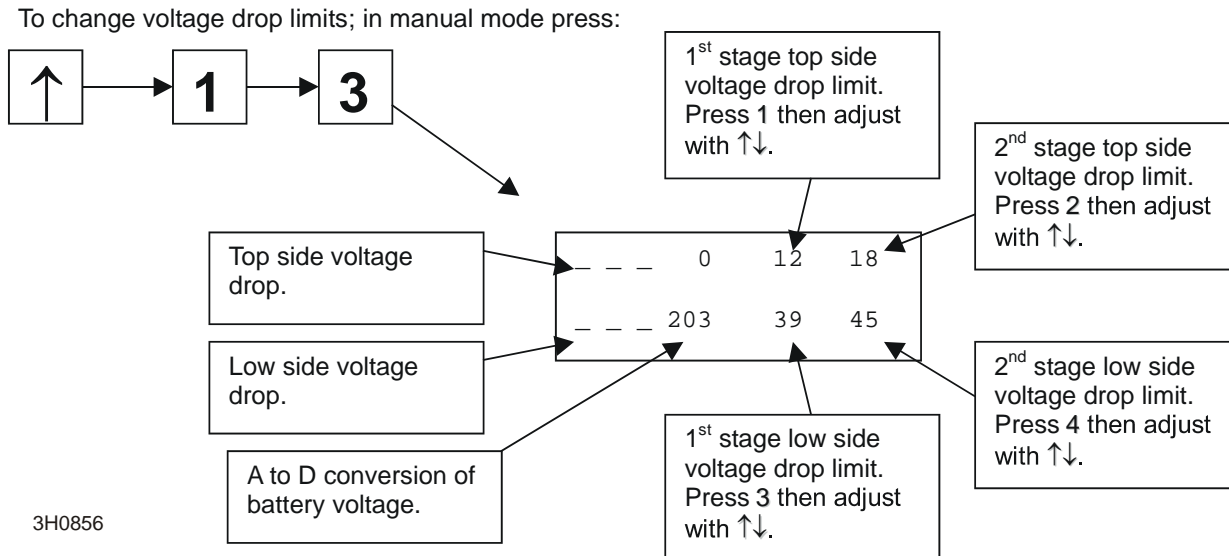


FIG. 2-5

SECTION 3 MAINTENANCE & TROUBLESHOOTING

3.1 Up/Down Chain

Sawdust buildup in the up/down chain can affect the accuracy of the Setworks encoder. Periodically clean the up/down chain by brushing any sawdust buildup from the chain links.

3.2 Diagnostic Messages

Each time the sawmill is powered up, the Setworks control processor checks each mosfet module for a shorted condition. If a short is detected, a diagnostic message will show in the display window. In addition, built-in diagnostics continually check the integrity of the Setworks motor drive. If a problem is found, a diagnostic message will show in the Setworks display window.

See Table 3-1. See the chart below for a listing of possible diagnostic messages.

PROBLEM	CAUSE	SOLUTION
Display reads \$44\$MDJE@^%#\$\$%# (or has similar characters)	Display cable conductor bad	Replace Setworks control assembly. Optional: Replace display assembly. The display's adhesive is strong and may make removal of the existing display impossible. Even successful removal will render display inadequate for future use. To make sure problem will be corrected before attempting removal, disconnect existing display and connect new display. If problem is corrected, attempt removal. If removal is not possible, replace entire control assembly.
Display reads "BL Module Bad" or "BR Module Bad"	Water in up/down motor	Remove brush covers on motor and allow motor to dry.
	Heavy condensation or water in control box	Remove the four screws which secure the Setworks control assembly to the sawmill control box. Prop the Setworks control assembly in an upward position and allow to dry. NOTE (SW prior to 5/00): Removing the grommet and installing a 12" conduit between the Setworks and sawmill controls will allow water to drain from the Setworks control box.
	Mosfet module bad	To make sure the correct "bad module" diagnostic message is being displayed, turn the Setworks unit off. Disconnect and insulate the up/down motor leads and turn the unit back on. The resulting diagnostic message should accurately indicate the bad mosfet module (as labeled on the CPU board). Replace module.

TABLE 3-1

3

Maintenance & Troubleshooting

Diagnostic Messages

Display reads "TL Module Bad" or "TR Module Bad"	Heavy condensation or water in control box	Remove the four screws which secure the Setworks control assembly to the sawmill control box. Prop the Setworks control assembly in an upward position and allow to dry. NOTE (SW prior to 5/00): Removing the grommet and installing a 12" conduit between the Setworks and sawmill controls will allow water to drain from the Setworks control box.
	Mosfet module bad	To make sure the correct "bad module" diagnostic message is being displayed, turn the Setworks unit off. Disconnect and insulate the up/down motor leads and turn the unit back on. The resulting diagnostic message should accurately indicate the bad mosfet module (as labeled on the CPU board). Replace module.
Display reads "Caution Overload"	Loose battery connections or low battery charge	Check battery connections and condition. Recharge or replace battery if necessary.
	Accessory solenoid bad	Replace solenoid with accessory solenoid kit.
	Handle is not in neutral position	Release the up/down handle and allow it to return to the neutral position.
	Head has reached limit of travel or is otherwise prevented from further travel	Turn the sawmill control box key switch to the OFF (#0) position. Remove any objects and/or debris from the path of the saw head. Turn the key switch to the ON (#1) position and resume operation. WARNING! Be sure the power feed switch is in the neutral position before turning the key switch to the ON (#1) or ACC (#3) position. This prevents accidental carriage movement which may cause serious injury or death.

TABLE 3-1

Display is blank; Setworks still works	Heavy condensation or water in control box	Remove the four screws which secure the Setworks control assembly to the sawmill control box. Prop the Setworks control assembly in an upward position and allow to dry. NOTE (SW prior to 5/00): Removing the grommet and installing a 12" conduit between the Setworks and sawmill controls will allow water to drain from the Setworks control box.
	Solder flux shorting out display solder connections on display	Use a thin knife blade to clean flux between solder connections; replace control assembly. Optional: Replace display assembly. The display's adhesive is strong and may make removal of the existing display impossible. Even successful removal will render display inadequate for future use. To make sure problem will be corrected before attempting removal, disconnect existing display and connect new display. If problem is corrected, attempt removal. If removal is not possible, replace entire control assembly.
	Display cable conductor bad	Replace Setworks control assembly. Optional: Replace display assembly. The display's adhesive is strong and may make removal of the existing display impossible. Even successful removal will render display inadequate for future use. To make sure problem will be corrected before attempting removal, disconnect existing display and connect new display. if problem is corrected, attempt removal. If removal is not possible, replace entire control assembly.

TABLE 3-1

3

Maintenance & Troubleshooting

Diagnostic Messages

Inaccurate set	Up/down chain is dirty	Clean up/down chain.
	Mast slide pads not properly adjusted, mast surface rusted or dirty	Clean vertical mast or adjust slide pads.
	Encoder not properly aligned	Make sure encoder is squared and centered on outer up/down chain. See Section 1.6.
	Encoder not functioning properly	Check Encoder. See Section 3.3.
	Setworks not calibrated properly	Calibrate Setworks. See Section 2.7.
Head drops up to 1/2" from beginning of cut to end of cut	Loose motor connections	Tighten motor wires. Check brushes for corrosion and replace if necessary.
Setworks moves from one setting to another or between manual and automatic modes on its own	Buttons inadvertently pressed by operator	DO NOT unintentionally press buttons.
	Loose up/down motor connections	Tighten motor wires.
Setworks does not work; No display or up/down head movement	Up/down circuit breaker tripped	Reset breaker. (If auto reset circuit breaker is used, wait to allow breaker to reset.)
Setworks does not work; No display, up/down, fwd/rev or blade guide movement; Sawmill front panel indicator lights DO work	Accessory solenoid is bad	Replace solenoid with accessory solenoid kit.
Setworks Works in Manual Mode But Not in Automatic Mode	Encoder not functioning properly	Check Encoder. See Section 3.3.

TABLE 3-1

3.3 Encoder Set Accuracy

If, when in the automatic mode, Networks fails to move the saw head or moves the sawhead to an inaccurate cutting position, check the encoder to ensure it is functioning correctly. To check:

1. First make sure the encoder accuracy is not being affected by sawdust buildup in the up/down chain. Use a brush to remove any sawdust from the up/down chain links.
2. Place Networks in the Manual Mode.
3. Check the LCD display while raising the sawhead. There should be a plus sign (+) in each of the four corners of the display.
4. Next, check the LCD display while lowering the sawhead. There should be a minus sign (-) in each of the four corners of the display.

If these signs are not present or do not change appropriately, the encoder should be replaced.

3.4 Networks By-Pass

When waiting for service assistance or repair parts it may be desirable to bypass Setworks.

To temporarily bypass Setworks on STANDARD mills:



WARNING! Before performing setworks bypass, disconnect the terminal from the negative battery post.

1. Disconnect the negative battery post terminal.
2. Unbolt the front and rear panels from the sawmill control box.
3. Disconnect the red wire labeled 12VDC from the circuit breaker post ([See FIG. 1-9](#)) or terminal #2 of the up/down drum switch ([See FIG. 1-10](#)). Insulate the wire terminal with electrical tape.
4. Disconnect the black wire labeled GND from the ground terminal at the rear of the control box ([See FIG. 1-7](#)). Insulate the wire terminal with electrical tape.
5. Remove the up/down drum switch handle and the anti-rotation screw. Loosen the two drum switch mounting screws ([See FIG. 1-3](#)). This will allow you to rotate the up/down drum switch to access the appropriate terminals in the following steps.
6. Disconnect the black wire labeled DRUM from terminal #4 at the front of up/down drum switch ([See FIG. 1-5](#)). Wrap the wire terminal with electrical tape.
7. Disconnect the red wire labeled DRUM from terminal #1 or #5 at the rear of the up/down drum switch ([See FIG. 1-4](#)). Wrap the wire terminal with electrical tape.
8. In the sawmill control box, locate the wire connection bundled with norprene tubing and wire ties ([See FIG. 1-6](#)). Cut the wire ties and remove the norprene tubing to expose the wire connections.
9. Disconnect both sets of wires. Keeping the wires separate, replace the norprene tubing over the two wires labeled MOTOR from the Setworks control and secure with electrical tape.
10. Connect the remaining black wire to terminal #4 at the front of up/down drum switch ([See FIG. 1-5](#)). Connect the red wire to terminal #1 or #5 at the rear of the up/down drum switch ([See FIG. 1-4](#)).
11. Check that all connections are tight and all loose wire terminals are insulated with electri-

cal tape.

- 12.** Pivot the up/down drum switch to its operating position and retighten the mounting bolts. Replace the anti-rotation screw and the drum switch handle.
- 13.** Reinstall the front and rear panels to the sawmill control box.
- 14.** Reconnect the negative battery post terminal.

The sawmill can now be manually operated. Refer back to the installation instructions to return to setworks operation.

To bypass Setworks on SUPER mills:

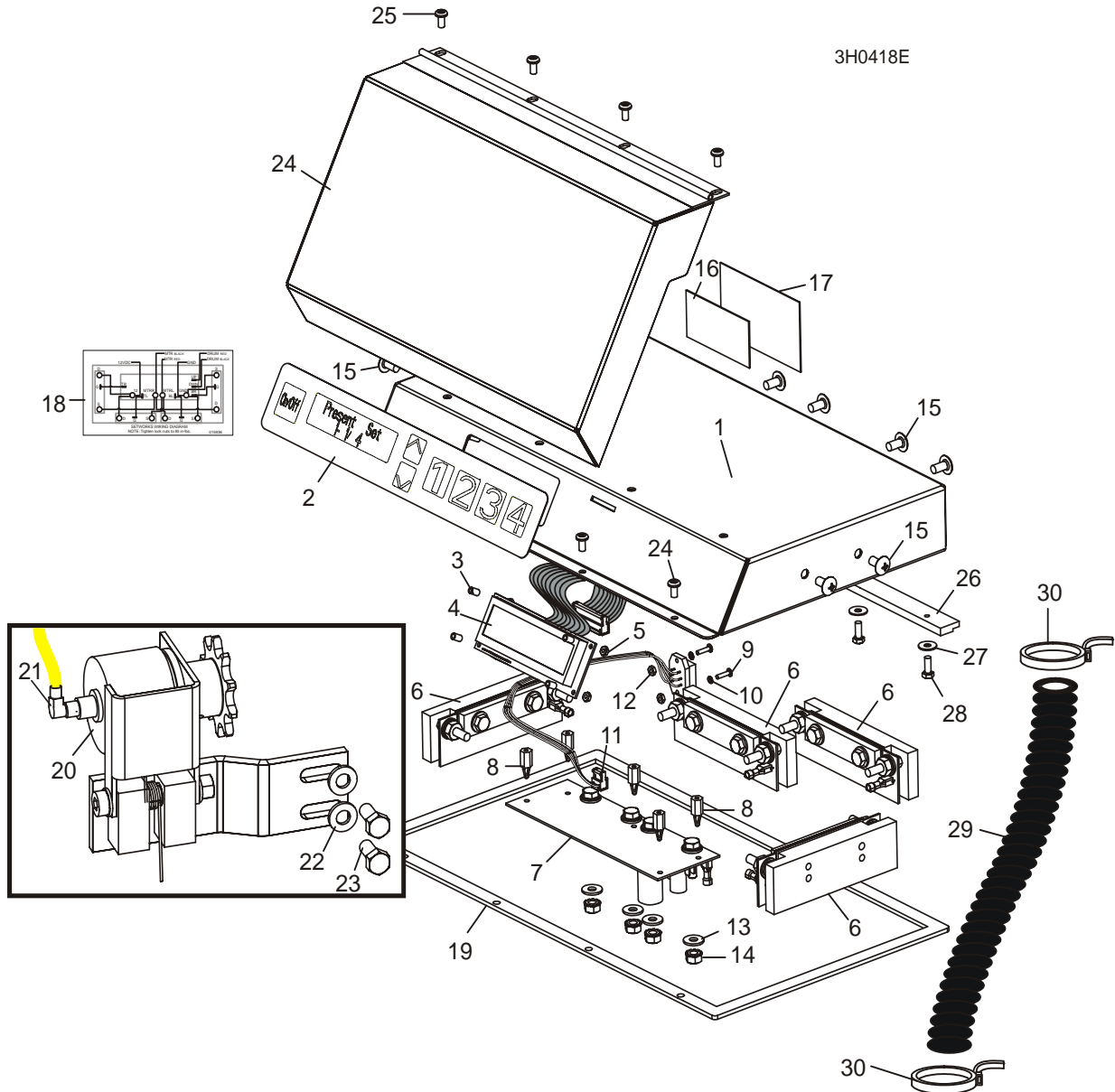
WARNING! Before performing setworks bypass, disconnect the terminal from the negative battery post.

1. Disconnect the negative battery post terminal.
2. Unbolt the front, rear and right-side panels from the sawmill control box.
3. Disconnect the red wire marked 12VDC from the circuit breaker post ([See FIG. 1-19](#)) or up/down solenoid terminal ([See FIG. 1-20](#)). Insulate the wire terminal with electrical tape.
4. Disconnect the black wire marked GND from the ground terminal at the rear of the control box ([See FIG. 1-17](#)). Insulate the wire terminal with electrical tape.
5. In the sawmill control box, locate the wire connection bundled with norprene tubing and wire ties ([See FIG. 1-6](#)). Cut the wire ties and remove the norprene tubing to expose the wire connections.
6. Disconnect both sets of wires. Keeping the wires separate, replace the norprene tubing over the two wires labeled MOTOR from the Setworks control and secure with electrical tape.
7. Connect the red wire from the upper harness to the top bolt on the top up/down solenoid ([See FIG. 1-13](#)).
8. Connect the black wire from the upper harness to the top bolt on the bottom solenoid ([See FIG. 1-13](#)).
9. Reinstall the front, rear and right-side panels to the sawmill control box.
10. Reconnect the negative battery post terminal.

The sawmill can now be manually operated. Reverse the instructions to return to setworks operation.

SECTION 4 REPLACEMENT PARTS

4.1 Networks Control & Encoder



REF	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY.	
	CONTROL ASSY, NETWORKS '97	014674 ¹	1	
1	Box Weldment, Networks Control	015355 ²	1	◆
2	Switch, Lexan Membrane	014530	1	
	Display Kit, Networks Backlit	024621	1	
3	Spacer, .115" ID x 3/16" OD x 5/16" Long Nylon	024595	4	

4

Replacement Parts

Setworks Control & Encoder

4	Display Assembly, 16 x 2" LCD Backlit	024179	1	◆
	Instruction Sheet, Setworks Display Replacement	024621-912	1	
5	Nut, #4-40 Hex Nylon	F05020-159	4	
6	Module Assembly, Mosfet 6X Surface Mount	024503³	4	
	Board Kit, Setworks Control Replacement	016155⁴	1	
7	Board Assembly, Setworks Control Printed Circuit	024562	1	◆
8	Standoff, #6 x 1/2" PCB	023147	5	
	Plate, Setworks Control Board Adaptor	016154	1	
	Nut, #6-32 Hex Self-Locking	F05010-59	5	
	Instruction Sheet, Setworks Control Board Replacment	016155-924	1	
9	Screw, #4-40 x 1/2" Slotted Round Head	F05004-14	2	
10	Washer, #4 Split Lock	F05011-21	2	
11	Cable Assembly, Encoder Cable Plug	024147	1	
12	Nut, #4-40 Hex	F05010-43	2	
13	Washer, 1/4" SAE Flat	F05011-11	4	
14	Nut, 1/4-20 Hex Self-Locking	F05010-9	4	
15	Screw, 1/4-20 x 3/8" Phillips Round Head	F05005-17	8	
16	Decal, Setworks Revision	016187 ⁵	1	◆
17	Decal, Revision Overlay	016200⁵	1	
18	Decal, Setworks Wiring	015936	1	
19	Gasket, SW97 Control	015980	1	
20	ENCODER KIT, SETWORKS '97	016060	1	
	Encoder Assembly, Setworks '97	015513	1	◆
21	Cable, Encoder to Setworks '97+	024738⁶	1	
	Tie Wrap, 3/16" x 5 1/2" UV Black	F05089-3	6	
22	WASHER, 5/16" SAE FLAT	F05011-17	2	
23	BOLT, 5/16-18 X 3/4" HEX HEAD	F05006-5	2	
24	COVER PARTS (See Section 4.2)			
25	SCREW, #10-24 X 3/8" PHILLIPS PAN HEAD	F05004-3	8	
26	BRACKET, SETWORKS CONTROL MOUNT	015296	1	
27	WASHER, #10 SAE FLAT	F05011-18	4	
28	BOLT, #10-24 X 1/2" HEX HEAD	F05004-27	4	
29	CONDUIT, 5/8" SPLIT LOOM HIGH TEMP	024323-62⁷	8 in. ⁸	
30	TIE WRAP, 3/16" X 6" BLACK UV	F05089-3⁷	2	

¹ Control Assembly includes Backlit Display 024179 used on Rev. K.00+ and SMT PCB used on Rev. L.00+.

² 015355 replaces 015298 originally supplied prior to Rev. L.00. Control box designed to accommodate SMT circuit board.

³ Directly replaces 024186 6X Mosfet Module Assembly (1/99).

⁴ Use Control Board Kit 016155 to replace all setworks control boards. Kit includes adaptor plate and #6 nuts for Setworks prior to Rev. L.00.

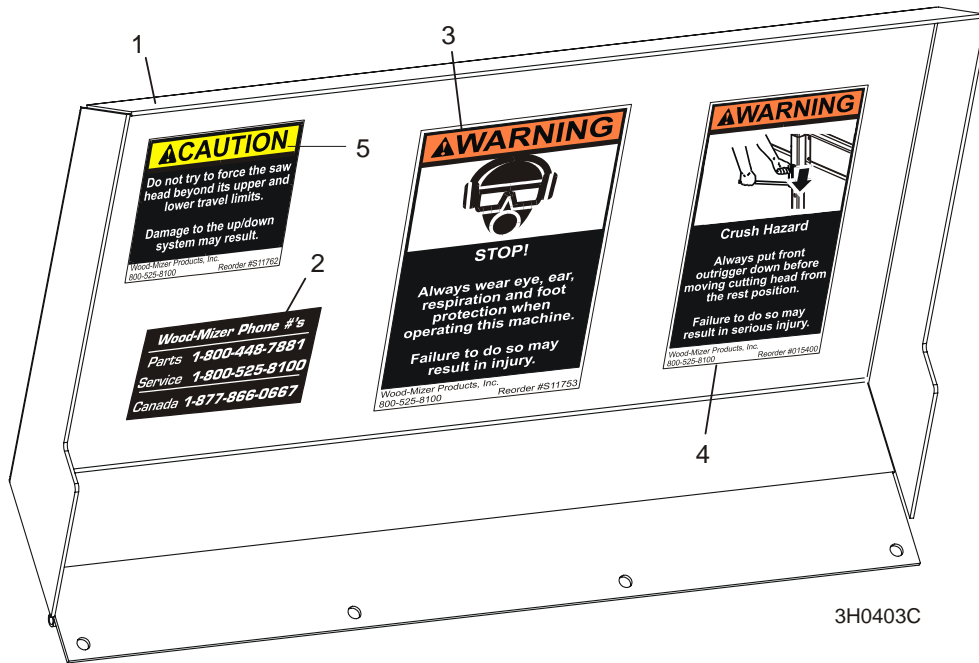
⁵ 016187 Decal and 016200 Overlay replace Revision Plate 005801-SW and #6 x 1/4" Screws F05015-4 used prior to 10/99.

⁶ For encoder units mfg AFTER 1/00, the cable (yellow) is external to the unit and is available as separate replacement item 024738. For encoder units mfg prior to 1/00, the cable (gray) is internal to the unit and is not available as a separate replacemet item.

⁷ Conduit replaces grommet 015460 used prior to 5/00. Two additional tie wraps added to bag assembly for installation of conduit. Grommet prevented water drainage from Setworks control box.

⁸ Length changed from 12" to 8" 12/00.

4.2 Cover and Decals



REF	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY.	
	COVER ASSEMBLY, BOX SETWORKS '97	015934	1	
1	Cover Weldment, Box Setworks 97	015294	1	◆
2	Decal, 800 Number	S12117	1	
3	Decal, Eye/Ear Protection Warning	S11753	1	
4	Decal, Front Outrigger Warning	015400	1	
5	Decal, Up/Down Caution	S11762	1	

SECTION 5 ELECTRICAL INFORMATION

5.1 Wiring Diagram, Setworks

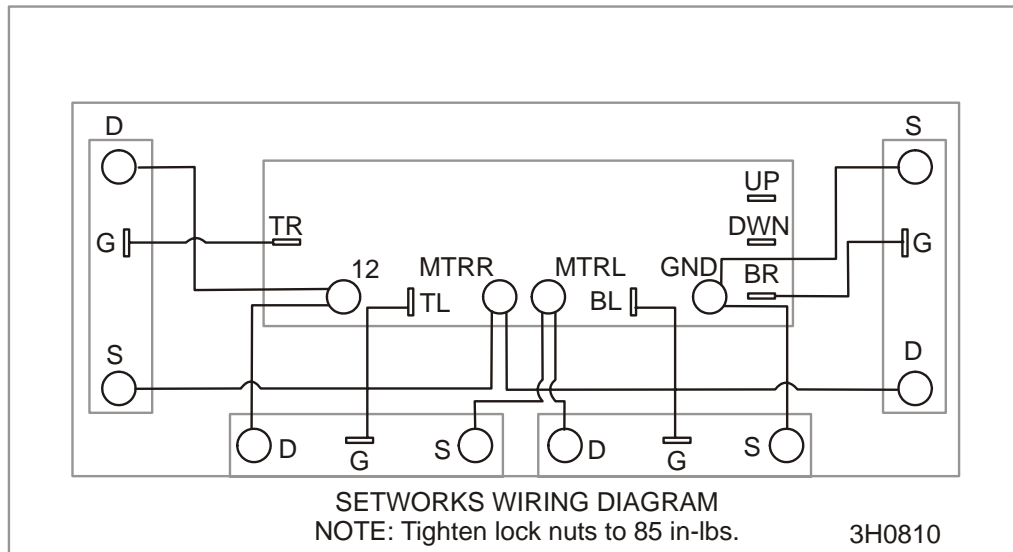


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