

# FORM 1084

## ELECTRIC SAWMILL INSTALLATION INSTRUCTIONS



**IMPORTANT!** This information is provided so that you may have your site prepared for installation of your electric sawmill. In order to properly install your sawmill, you need to:

1. **Prepare a firm, level area where the sawmill can be anchored.** There should be enough room around the sawmill for operators, sawdust removal, log loading and board removal. A cement pad with 5/8" diameter anchor bolts is recommended. The cement pad should be rated to support 6350 lbs./sq.ft. at each sawmill foot position.
2. **Have a qualified electrician install the power supply before receipt of your sawmill.** The power supply must meet the enclosed specifications concerning wire size, fused disconnect, and voltage. The electrical installation must also meet local codes.
3. **Be sure the power supply cables are free to move with the saw head and are high enough to clear the operator.** An overhead boom system for the electrical cables is recommended.
4. **Have a qualified electrician present when the sawmill is to be installed.** All relevant motor specifications and wiring information is provided. When scheduling an electrician for the day of installation, please confirm that they have enough of the proper size cable (wiring), as shown in [Table 2](#) & [Table 3](#). Many electricians may not stock this cable, which could seriously delay installation and training.

## Electric Sawmill Wiring



**DANGER!** Make sure all electrical installation, service and/or maintenance work is performed by a qualified electrician and is in accordance with applicable electrical codes.



**CAUTION!** Make sure that the sawmill you have purchased can be powered with the provided power source before making any connections. Do not connect the sawmill to the improper power source. Serious injury, death or damage to the equipment will result.

The sawmill is pre-wired as follows:

Model	Default Wiring Configuration	Optional Configurations (Requires Rewiring Transformers)
E25-L	240V 60Hz (±5%)	208-230V 60Hz (±5%)
E25-H	460V 60Hz (±5%)	380-440, 480V 60Hz (±5%)
E30-H	460V 60Hz (±5%)	480V 60Hz (±5%)

**NOTE:** To operate the E25-H or E30-H models with 575V (Canada) power supply an additional transformer is required (Part No. 068185). The transformer has the following specifications: 45kVA, 3-Phase, 600V Primary - 480V Secondary.

**See Table 1.** Refer to the diagram below to determine the appropriate transformer connections for your model/voltage combination.

Model	Voltage	Transformer Connections					
		T1		T2		T3	
		Pri	Sec	Pri	Sec	Pri	Sec
E25-L	208	H1, H2	X1, X2	H1, H2	X1, X2	N/A	
	220	H1, H3	X1, X4	H1, H3	X1, X2	N/A	
	230	H1, H3	X1, X3	H1, H3	X1, X2	N/A	
	<b>240 (Factory Default)</b>	H1, H3	X1, X2	H1, H4	X1, X2	N/A	
E25-H	380	H1, H2	X1, X4	H1, H4	X1, X2	H1, H2	X1, X4
	400	H1, H3	X1, X3	H1, H4	X1, X2	H1, H2	X1, X4
	415	H1, H3	X1, X2	H1, H4	X1, X2	H1, H2	X1, X4
	440	H1, H5	X1, X4	H1, H5	X1, X2	H1, H3	X1, X4
	<b>460 (Factory Default)</b>	H1, H5	X1, X3	H1, H5	X1, X2	H1, H3	X1, X4
	480	H1, H5	X1, X2	H1, H5	X1, X2	H1, H3	X1, X4
E30-H	<b>460 (Factory Default)</b>	H1, H5	X1, X3	H1, H5	X1, X2	H1, H3	X1, X4
	480	H1, H5	X1, X2	H1, H5	X1, X2	H1, H3	X1, X4

TABLE 1

Install two fused disconnect switches within sight of the machine. Typical minimum switch, fuse, and wire sizes for use with various operating voltages are shown below. **NOTE:** This information is to only be used as a reference, not a guideline. All electrical installation must meet local electrical codes. Fuses are sized for short-circuit protection only. The motor is configured with internal thermostats for overload protection. If an overload condition does occur, the thermostats shut the motor down and the motor cannot be restarted until it cools to a safe operating temperature.

**See Table 2.** The minimum switch, fuse, and wire sizes for the saw head electric control box is shown below. **NOTE:** These wire ratings are for free conductors within conduit with a temperature rating of at least 75 deg C. If using SO cord, the wire size may need to be larger.

3-Phase Volts	Fuse Disconnect	Time Delay Fuse	Suggested Wire Size
208 VAC	100 Amps	100 Amps	3AWG up to 50'
220 VAC	100 Amps	100 Amps	3AWG up to 50'
230 VAC	100 Amps	100 Amps	3AWG up to 50'
380 VAC	60 Amps	60 Amps	6AWG up to 50'
415 VAC	60 Amps	50 Amps	6AWG up to 50'
440 VAC	60 Amps	50 Amps	6AWG up to 50'
460 VAC (E25)	60 Amps	50 Amps	6AWG up to 50'
460 VAC (E30)	60 Amps	60 Amps	6AWG up to 50'

TABLE 2

**See Table 3.** The minimum switch, fuse, and wire sizes for the hydraulic power unit supply is shown.

3-Phase Volts	Fuse Disconnect	Time Delay Fuse	Suggested Wire Size
208 VAC	30 Amps	16 Amps	12AWG up to 50'
220 VAC	30 Amps	16 Amps	12AWG up to 50'
230 VAC	30 Amps	16 Amps	12AWG up to 50'
380 VAC	30 Amps	8 Amps	14AWG up to 50'
415 VAC	30 Amps	8 Amps	14AWG up to 50'
440 VAC	30 Amps	8 Amps	14AWG up to 50'
460 VAC	30 Amps	8 Amps	14AWG up to 50'

TABLE 3

See Table 4. This table lists the motor specifications for the LT60/70.

Electric Motor Specifications	60 Hz E-Pak (E25)	50 Hz E-Pak (E25)	60 Hz (E30)
	U.S.	Europe	U.S
Horsepower	25	25	30
RPM	3500	2896	1800
Volts	230/460	208/415	460 <sup>1</sup>
Amps	56/28	64/32	37.5
SF	1.15	1.00	1.25
SF Amps	64/32	64/32	47
NOM EFF	91/89.5	89.5/87.5	93.6
Frame	256T	256T	286T
Design	B	B	B
AMB	40° C	40° C	70
INS	F	F	F3
PH	3	3	3
ENCL	TEFC	TEFC	TEFC
Code	G	G	G
Duty	Continuous	Continuous	Continuous

TABLE 4

<sup>1</sup> E30 Electric Motor can only be configured for use with 460V power supply.

See Figure 1. (Next Page). Route the incoming power to the saw head control box. Make sure the power cords for the saw head are free to travel the length of the machine and up and down with the saw head. An overhead boom system to keep the cords above the operator's head is recommended. Dimensions to help you determine the best setup for your installation are provided.

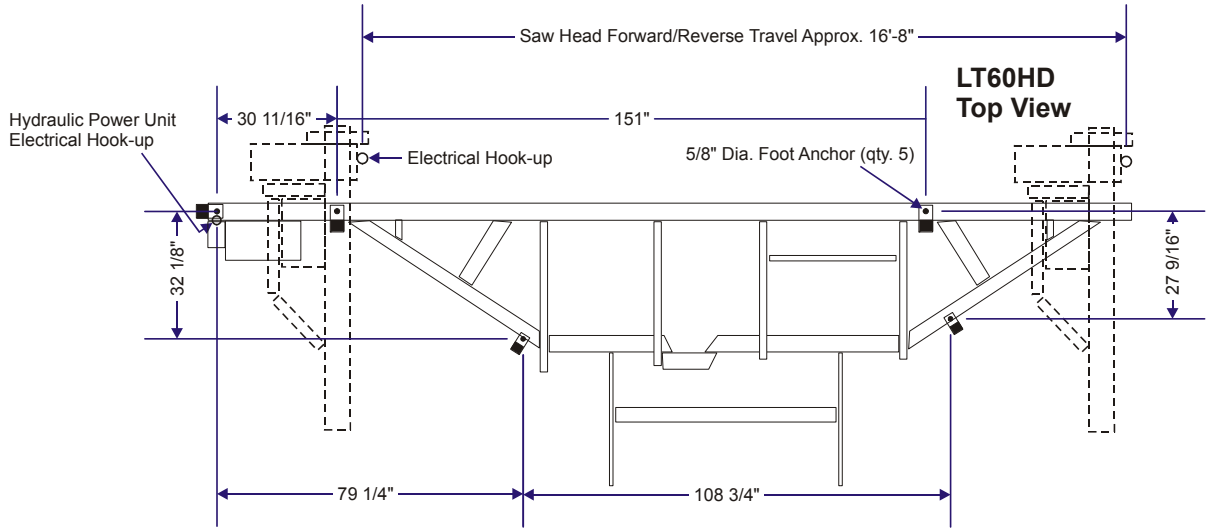
Route power to the hydraulic power unit. The cables for the hydraulic power should be routed under the sawmill frame so they do not interfere with sawmill functions or operator movement.

The electrical control boxes must be kept dust-free. Disconnect and lock out all electrical power. Clean any dust or wood chips from the control boxes. Do this on a regular schedule. Close and securely fasten the electrical box doors when finished; do not operate or store the sawmill with electrical box doors open.

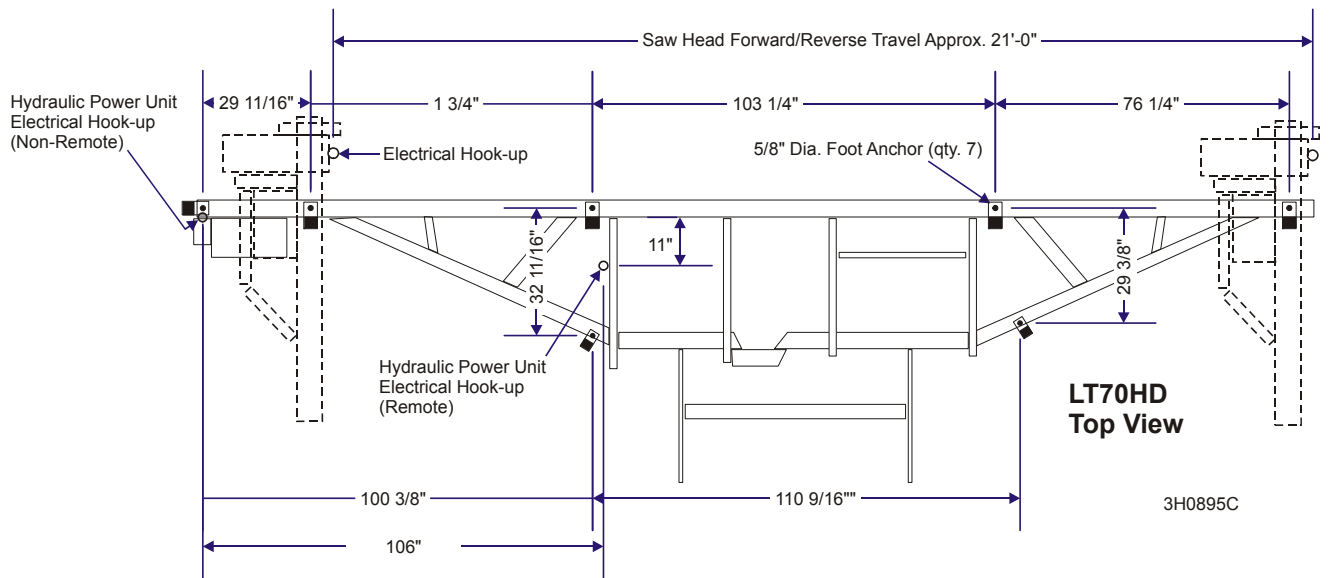
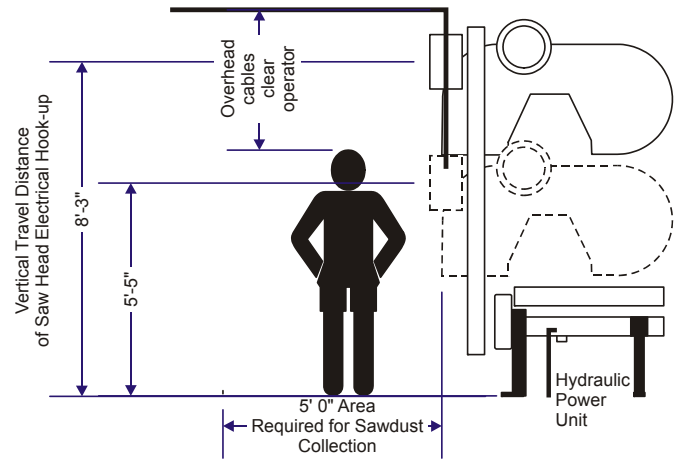


**DANGER!** Hazardous voltage inside the disconnect box, electrical control boxes, and at the electric motor can cause shock, burns, or death. Disconnect and lock out power supply before servicing! Keep all electrical component covers closed and securely fastened during mill operation.

The time-delay relay (TDR1) in the electrical control box should be set between 2-3 seconds. The time-delay relay does the automatic switching of the motor windings from Wye to Delta configurations.



**All Sawmills End View**



**FIGURE 1**

## Phase Converter

The Roto-Phase is a rotary 3-phase converter. It generates 3-phase power from a single phase.



**CAUTION!** Wood-Mizer gives service requirements for using the Roto-Phase with the Wood-Mizer sawmill only. If you plan on running additional equipment with the Roto-Phase, follow the manufacturer's recommended specifications. Failure to do so could cause equipment damage.

Inspect the phase converter for damage or missing parts upon receipt. If a part is damaged or missing, call ARCO at **1-800-428-4370**.



**CAUTION!** Make sure the Roto-Phase is installed in accordance with the National Electric Code, city and local codes. A properly sized magnetic starter is recommended for the Roto-Phase.

Mount the phase converter in a dry location. It may be mounted either horizontally or vertically. Avoid moisture and chemicals whenever possible.

**See Table 5.** Service requirements for the 230 volt phase converter (as used for the Wood-Mizer sawmill only) are shown below. Install the phase converter in accordance with ARCO installation data and local electrical codes.

Description	Disconnect	Time Delay Fuse	Wire Size
<b>MAIN</b>	200 Amp	N/A	N/A
<b>MAIN to ROTO-PHASE</b>	200 Amp Fused	125 Amp	1/0 AWG or larger
<b>ROTO-PHASE to SAWMILL</b>	100 Amp Fused	100 Amp	3 AWG
<b>ROTO-PHASE to HYDRAULIC POWER UNIT</b>	30 Amp Fused	15 Amp	12 AWG

**TABLE 5**

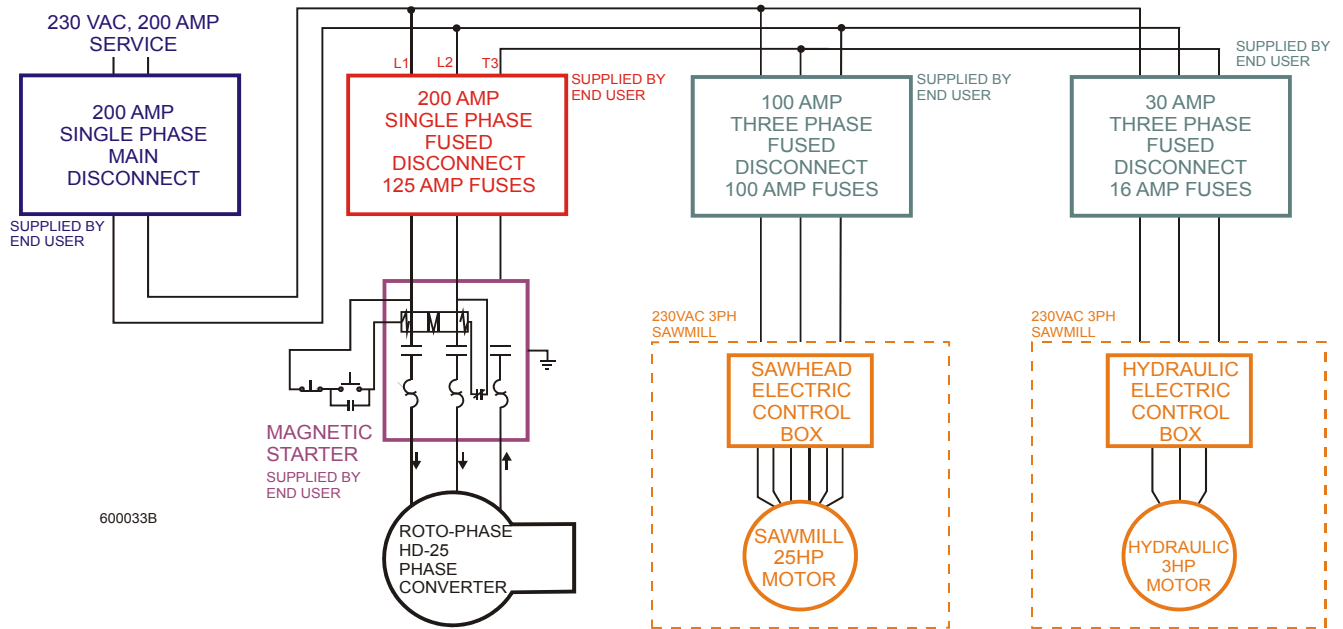
After installation, test the sawmill for proper motor rotation. If rotation is incorrect, switch the left and right legs of incoming power to the sawmill's starter box. (The manufactured leg T3 of the phase converter should always be connected to L2 of any single phase loads.)

With the main disconnect on, start the phase converter with the magnetic starter button. Let the phase converter come up to speed. Switch on the sawmill's disconnect box.



**CAUTION!** The sawmill's electrical starter should only be switched on after the phase converter is up to speed. Do not attempt to operate the sawmill without the phase converter operating properly. Damage to the equipment may result.

**See Figure 2.** The Roto-Phase wiring diagram is shown below. Additional drawings and information from the manufacturer are supplied with the unit.



**FIGURE 2**