

PoleEnforcer[®]

PATENT NO. 5,383,749

Field Installation Manual



REMEMBER

SAFETY STARTS WITH YOU

You're ready to do the first installation of the day, before you start follow these few simple safety tips, they may save you from a bodily injury or death.

1. CHECK ALL OF YOUR PERSONAL SAFETY EQUIPMENT

- **Hard Hat**
- **Leather Gloves**
- **Ear Protection**
- **Steel Toed Boots**
- **Safety Glasses**

2. CHECK ALL WINCH LINES AND SNAP HOOKS

- **If winch lines are worn or frayed, replace them.**
- **Snap hooks should be in good working order with safety latch.**
- **Winch gears should be checked for wear.**

3. CHECK ALL CONNECTIONS - BOLTS, CHAIN, AND AIR LINES

- **Tighten or replace as necessary.**
- **Set air pressures to the recommended PSI.**

4. NEVER STAND DIRECTLY UNDER ANY ABOVE GROUND EQUIPMENT OR LOAD.

5. KEEP HANDS AWAY FROM MOVING GEARS AND WINCH LINES.

6. NEVER TAKE YOUR HAND OFF A WINCH HANDLE UNDER LOAD.

7. COMMUNICATE; NEVER ASSUME PEOPLE UNDERSTAND THE DANGERS.

8. GO OVER THE WORK AND SAFETY PROCEDURES WITH EACH MEMBER OF THE CREW DAILY.

All of the equipment and tools furnished by Laminated Wood Systems has been designed with your safety in mind. Never change or modify any equipment or tool without written permission from authorized LWS personnel.

Pneumatic Driving System Installation Instructions

NOTE: Determine you have selected the correct PoleEnforcer(s) and orientation for the installation prior to starting.

1



Position the PoleEnforcer® steel on the side of the pole parallel to the line direction, flange side up with the coped end of the steel against the pole. (See orientation chart in the PoleEnforcer® Strength Chart and Selection Guide)

2



Raise the steel into driving position against the pole. Maneuver the steel so little or no gap can be seen on either side of the steel full length. This will require 2 people.

3



Once the steel has been positioned for driving, secure it with the Nylon Ratchet Strap. The strap needs to be snug not tight. It should be loosened shortly after the driving begins. Leaving the strap snug will inhibit the driving process.

4



Position the Pull Down Winch assembly against the opposite side from the steel. Adjust the chain binder to its maximum adjustment point.

5



Position the slide roller on the flat face of the steel, secure the chain in the binder and pin.

6



Tighten chain to snug.

Continued on next page.

Pneumatic Driving System Installation Instructions Cont'd

7



Let out approximately 6 to 10 feet of winch line from the Pull Down Winch.

8



Attach the Bridal Roller to the winch line.

9



Assemble the base and center section of the Winch Pole Assembly. Secure with attached pins.

CAUTION

Never remove your hand from the winch handle while winch is under load. Serious injury could occur if winch handle releases unexpectedly.

10



Assemble the top section of the Winch Pole Assembly. Secure with attached pins.

11



Open block to accommodate winch line.

12



Thread winch line through block, close and secure with keeper pin bolt.

13



Raise Winch Pole Assembly to proper position. (Base should be approximately 6' to 8' from pole.)

14



Secure Winch Pole Assembly base by driving two “T” Pins into the ground.



18

Attach Bridal Roller to the hammer chain bridals free-floating sling links.

15



Attach winch line to Hammer Assembly.



19

Lock winch pole winch in the raise position.

16



Connect air supply hose to the inline safety valve. Valve should be in the **OFF** position (See caution note).



20

Raise Air Hammer to top of steel using Winch Pole.

17



Raise Hammer Assembly approximately 3 feet.

Continued on next page.

WARNING
<p>Use safety pins on all air connectors. Unexpected detachment under pressure could result in serious injury or death.</p>

Pneumatic Driving System Installation Instructions Cont'd

21



Lock the Pull Down Winch Assembly to the tension position and retract winch line to snug. This will secure the Hammer Assembly. The winch pole operator can now disengage the winch pole winch to the free wheel position.

22



Measure from ground and mark the driving depth.

CAUTION

Never remove your hand from the winch handle while winch is under load. Serious injury could occur if winch handle releases unexpectedly.

WARNING

Use safety pins on all air connectors. Unexpected detachment under pressure could result in serious injury or death. Never disconnect an air hose until you are certain the pressure has been relieved in the line.

23



Activate Air Hammer and begin driving steel. Let out rope on Winch Pole while pulling Hammer down with Pull Down Winch. Stop when desired driving depth is reached.



After installation is complete, make sure the winch pole operator has control of the hammer before tension from the pole down winch is released.

If a double installation is required, reverse the equipment and install the second piece following the same procedures. Use the PR2 Roller Plate to allow the bridle roller to pass over the top of the first driven PoleEnforcer.



WARNING

Unauthorized modification or changing of tools or equipment could lead to serious injury or death. Any and all tool or equipment modifications or changes must be authorized by LWS personnel.

Drop Weight Driving System Installation Instructions

NOTE: Determine you have selected the correct PoleEnforcer(s) and orientation for the installation prior to starting.

Prior to Step 1

Install the Cable Sling and Snatch Block on the pole. The block should be at least 6-ft. above where the top of the steel will be placed. Run the capstan hoist rope through the block and return to the ground and secure the end.

CAUTION

Only someone familiar with climbing poles should perform installations. Make certain the pole is of sufficient strength to support the weight of the climber. Use caution that the installer is clear of all electrical lines.



Position PoleEnforcer® steel unit over Driving Shank, lining up access hole with threaded hole on shank. Secure with eyebolt.

1



Orient Driving Shank on ground perpendicular to the pole. Place (10) 25 lb. Wafer Weights on top of the Driving Shank.

2



Attach shackle to Driving Shank securing with bolt, nut and cotter key. Attach hoisting rope to shackle. Attach a "tag line" to weight handle.

3



Using pole mounted or truck mounted capstan hoist, raise shank and steel unit into position.

4

CAUTION

Only someone trained and familiar with the safe use of a capstan hoist should operate the hoist and lifting rope. Follow all recommended manufacturer's procedures.

Continued on next page.

Drop Weight Driving System Installation Instructions Cont'd

5



Temporarily secure steel and shank to the pole using a Nylon Ratchet Strap.

6



Remove eyebolt to free the PoleEnforcer® from the Driving Shank.

7



If using a pole mounted capstan hoist, re-position the chain on the outside of the steel.

8



Measure from the ground and mark driving depth.

9



Drive the PoleEnforcer® steel unit by repeatedly dropping the Driving Shank onto the top of the steel. Be sure not to raise the Driving Shank past the red end to avoid pulling it out of the top of the steel. If a double installation is required, reverse the equipment and install the second piece following the same procedures. To lower, have coworker pull the system away from the top of the PoleEnforcer® using the tag line.

END

Banding, Seals & Safety Cap Installation Instructions

WARNING

Use safety pins on all air connectors. Unexpected detachment under pressure could result in serious injury or death.

1



Position Nylon Ratchet Strap approx. 12" from the top and tighten, drawing the steel as tightly as possible to the pole.

2



Connect Filter/Regulator to air supply and set the guage to 90 psi.*

3



Attach air tool hose to Filter/Regulator/Lubricator.*

4



Measure circumference of pole and steel unit, cut Banding 18" longer than circumference.

5



Using the Band Curling Tool, open the tool and place the banding in as shown.

6



Raise handle and begin to close the tool.

Continued on next page.

* Omit this step if not using air tools.

Banding, Seals & Safety Cap Installation Instructions Cont'd



7 Curl band by completely closing the tool.



8 Slide a Seal onto a piece of Banding.



9 Make sure the Seal is oriented as shown, with the open side toward the curl.



10 Wrap Banding around pole / steel and slide the uncurled end through Seal as shown.



11 Position Banding 2" to 4" from top of steel.



12 Tension the Banding using either an Air or Manual Tensioner.† Hit Banding with hammer to help tensioning.



13 Apply 4 crimps to the Seal using either an Air or Manual Crimper.†



14 Cut excess Banding off next to Seal using Air Cutter or by bending back & forth with Tensioner still attached.†

Repeat steps 4 through 14 for all bands.

† See page 11 for manual tool instructions.

Banding, Seals & Safety Cap Installation Instructions

15



Install lower bands 2" to 4" apart with top band no higher than 20" above groundline.



17

Position the Safety Cap centered on the pole, drive center nail first, then the left and right hand nails.

16



Locate nails attached to the back of the Safety Cap.



18

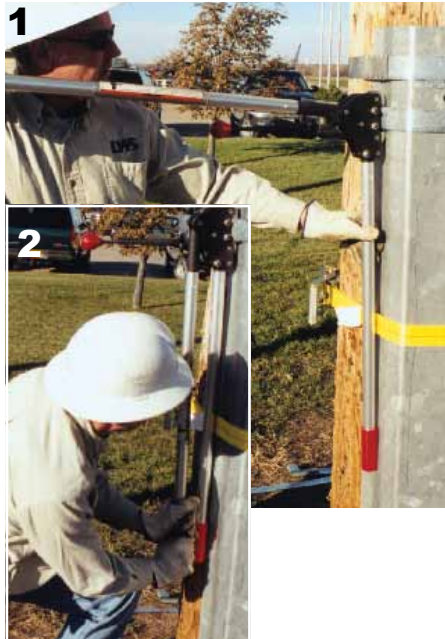
Apply Cold Galvanizing Paint to all Seals and cut edges of Banding.



Using Manual Installation Tools

PEMS2 Manual Crimper

Place Manual Crimping Tool over Seal. Hold Crimper with one hand and push other handle, bearing down against pole. Repeat until 4 crimps have been put in each Seal.



PEMT2 & PEM-T2W Manual Tensioners

Position the nose of the Tensioner against the Seal with band in ratchet slot. Draw band tight by ratcheting until it is tight. Crimp Seal. With band still in nose of tensioner, bend back and forth until excess breaks off. Coiled band scrap can then be easily removed from ratchet slot.



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The LWS “Family of Steel”

Innovative, Patented Products Designed to Strengthen, Maximize and Extend the Life of the Electric Utility Infrastructure



PoleEnforcer®

PATENT NO. 5,383,749

- **REINFORCE** existing poles with thin shell or “no shell” at the groundline
- Save thousands of dollars by reinforcing poles that others reject
- Repair & reinforce burnt and broken poles



PHASERAISER®

- **RAISE** existing structures to increase conductor clearances while the line **REMAINS IN SERVICE**
- Increase line capacity and revenues
- Increase conductor clearance an additional 3 to 20 feet
- Save many thousands of dollars by avoiding an outage
- Patented systems available for both single pole and H-frame structures



PRS

Pole Reclassification System®

- **RECLASSIFY** existing poles up to 3 or more classes
- Eliminate the cost of expensive pole change outs
- Reinforce groundline strength
- Use in transmission or distribution applications

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LWS

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