LEWCO®

Owner's Manual

Chain Driven Live Roller Conveyor

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Revised 11/11/2016
ISO 9001 Certified

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LEWCO, Inc.

Warranty

Conveyor Products

1. LEWCO, Inc.'s warranty becomes null and void if payment in full is not received for goods and services.
2. Unless separately agreed to otherwise, warranty is for 1 year or 4200 hours, whichever comes first, free from defects by faulty material or workmanship, effective from Buyer's receipt of goods and services.
3. LEWCO, Inc. will replace, F.O.B. Sandusky Ohio, or repair equipment proving defective in material and workmanship. Defective parts need to be shipped back to LEWCO, Inc. for inspection at Buyers cost.
4. Failure due to abuse, overloading, maintenance neglect, exposure to corrosive or abrasive materials, operation under any degree of dampness, or improper use shall not be subject to this warranty.
5. Any modification to equipment or systems without LEWCO, Inc.'s written consent voids this warranty.
6. Component parts not of LEWCO, Inc.'s manufacture will be covered by the original manufacturer's warranty and not LEWCO, Inc.'s. In this case, contact the nearest authorized service representative of the manufacturer.
7. Standard warranty does not include labor to remove and/or install defective equipment.
8. If LEWCO, Inc.'s service is required for additional assistance, contact our customer service department; labor will be charged at prevailing rate plus travel expenses.
9. LEWCO, Inc. shall not be liable for loss of profits, delays or expenses incurred by failure of said parts, whether incidental or consequential.
10. LEWCO, Inc. shall not be liable for failure of the goods to comply with federal, state or local laws.
11. See LEWCO, Inc.'s GENERAL TERMS AND CONDITIONS for additional warranty detail.

INTRODUCTION

Thank you for choosing LEWCO, Inc. for your material handling needs. This manual has been prepared by LEWCO engineers for use in familiarizing personnel with the design, installation, operation and maintenance of LEWCO Conveyor Products. Information presented herein should be given careful consideration to assure safe, optimum performance of the equipment. Manual should always be accessible to the operators for quick reference.

This equipment has been designed and manufactured in accordance with applicable National Codes and Standards in effect as of the date of manufacture. It is the responsibility of the end user to update equipment as necessary to comply with future code changes or revisions.

This manual should be used in conjunction with applicable drawing(s), data sheets, and component manufacturer's literature attached hereto that clarify specific features, installation, utility connections, operation, etc.

If you have any questions regarding this manual or the use of your LEWCO Conveyor Products, please contact us by phone at (419) 625-4014 ext. 4003 or by email at conveyorsales@lewcoinc.com.

***NOTE*:** The information in this manual is subject to change without notice and does not represent an obligation on the part of LEWCO, Inc. LEWCO does not assume any responsibility for any errors that may appear in this manual and under no circumstances will LEWCO be held liable for technical or editorial omissions made herein, nor for direct, indirect, special, incidental, or consequential damages resulting from the use or defect of this manual.

NOTICE: No installation or operation of this equipment should take place until this manual has been studied and understood by the person(s) responsible.

SECTION 1 – SAFETY

To reduce the possibility of injury to personnel operating, or in the vicinity of LEWCO conveying equipment, safety signs are posted at potential hazard points on the equipment. Examine this equipment and become familiar with potential hazard areas. Additionally, instruct all personnel to heed these potential hazard areas.

1-1 SAFETY SIGNS & DEFINITIONS

Manual Specific Safety Symbol Definitions	
	Safety Instruction where an electrical hazard is involved.
	Safety instruction where non-compliance would affect safety.
	Safety instruction relating to safe operation of the equipment (ATTENTION).
	Safety instruction where non-compliance could potentially result in a pinch point or a description of a known existing pinch point.
	Safety instruction where non-compliance could potentially result in a pinch point or a description of a known existing pinch point.
DANGER	Indicates a hazardous situation which, if not avoided, will result in death or serious injury. The signal word "DANGER" is to be limited to the most extreme situations. DANGER [signs] should not be used for property damage hazards unless personal injury risk appropriate to these levels is also involved.
WARNING	Indicates a hazardous situation which, if not avoided, could result in death or serious injury. WARNING [signs] should not be used for property damage hazards unless personal injury risk appropriate to this level is also involved.
CAUTION	Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury. CAUTION [signs] without a safety alert symbol may be used to alert against unsafe practices that can result in property damage only.
NOTICE	Is used to describe preferred to address practices not related to personal injury.
Equipment Specific Safety Signs & Definitions	
	**DANGER:** Climbing, sitting, walking or riding on conveyor at any time will cause severe injury or death. Keep Off.
	**WARNING:** servicing moving or energized equipment can cause severe injury. LOCK OUT POWER before servicing.
	**WARNING:** exposed moving parts can cause severe injury. LOCK OUT POWER before removing guard.
	**WARNING:** Moving equipment may cause severe injury. Keep Away.
	**WARNING:** Potential arc flash hazard.

1-2SAFETY CONSIDERATIONS

WARNING

- Disconnect and lockout electrical power and all other sources of energy before performing maintenance. Follow proper lockout/ tag out procedures. Know where arc flash is possible and take proper precautions.

- Do not have long hair, jewelry, or loose clothing while operating or near the conveyor, as these are potential hazards that could cause entanglement.
- Do not operate equipment without proper guards in place, as bodily injury may result.

- Pinch points may exist. Inspect equipment for potential pinch points and use caution.

CAUTION

- This equipment is to be operated by trained personnel only. Operators should be trained under normal and emergency conditions.
- Personnel operating or near the conveyor should be instructed as to the location of stopping devices. Ensure stopping devices are kept free of obstruction.
- Personnel operating or near the conveyor should watch for and be aware of conveying hazards, such as sharp edges, protruding parts, etc.
- Ridding on conveyor is strictly prohibited, as serious injury may result.
- Prior to starting conveyor, ensure no work is being performed, all guards are in place, and inspect for foreign objects that could injure personnel or damage equipment.
- Operators should always alert personnel in the area prior to starting the conveyor.
- This equipment may create hazards. The owner is responsible for analyzing the installation of this equipment in order to make determinations regarding the posting of warning signs in order to comply with applicable OSHA standards.
- Conveyor should only be used to transport materials or items that it is originally intended and designed to handle.
- Do not load conveyor beyond its designed handling capacity.
- Keep area around loading and unloading points of conveyor free from obstructions.
- Check belt tracking to make sure it is running straight on the conveyor.
- After starting conveyor, make sure all areas of the conveyor are operating properly.
- Poor housekeeping practices can cause accidents. Keep conveyor and surrounding area clean from spilled lubrications and other materials.
- Always use extreme caution when using mechanical aids, such as hoists, cables, and other equipment to install or perform maintenance on conveyor. They can cause damage to the conveyor and cause a dangerous condition when the conveyor is turned on.

1-3 EMERGENCY SHUT-DOWN

In the event of an emergency, the following steps should be followed:

1. Press emergency stop button. If access to emergency stop button(s) is restricted or emergency stop buttons were not provided, turn off the electrical disconnect providing power to the conveyor.
2. Depending on the severity of the issue, restrict access to the area until the issue has been resolved.

1-4 GUARDS & GUARDING

All LEWCO standard conveyor equipment is equipped with standard machine guarding methods. It is the responsibility of the owner, however, to ensure that proper guarding methods are present to comply with OSHA Standards – 29 CFRR – 1910.212 Machinery and Machine Guarding. Special consideration should be given to areas where multiple pieces of equipment interface. The following links are provided for reference:

1910.212(a): ***Machine guarding.***

1910.212(a)(1): ***Types of guarding***. One or more methods of machine guarding shall be provided to protect the operator and other employees in the machine area from hazards such as those created by point of operation, ingoing nip points, rotating parts, flying chips and sparks. Examples of guarding methods are barrier guards, two-hand tripping devices, electronic safety devices, etc.

1910.212(a)(2): ***General requirements for machine guards***. Guards shall be affixed to the machine where possible and secured elsewhere if for any reason attachment to the machine is not possible. The guard shall be such that it does not offer an accident hazard in itself.

1910.212(a)(3): ***Point of operation guarding.***

1910.212(a)(3)(i): Point of operation is the area on a machine where work is actually performed upon the material being processed.

1910.212(a)(3)(ii): The point of operation of machines, whose operation exposes an employee to injury, shall be guarded. The guarding device shall be in conformity with any appropriate standards thereof, or, in the absence of applicable specific standards, shall be so designed and constructed as to prevent the operator from having any part of his body in the danger zone during the operating cycle.

1910.212(a)(3)(iii): Special hand tools for placing and removing material shall be such as to permit easy handling of material without the operator placing a hand in the danger zone. Such tools shall not be in lieu of other guarding required by this section, but can only be used to supplement protection provided.

SECTION 2 – INSTALLATION

2-1 RECEIVING & INSPECTION

- Check the bill of lading against the items and item quantities received.
- Examine the equipment for damage.
    - Report bill of lading discrepancies or damage immediately to the vendor and carrier.
    - Obtain a signed damage report from the carrier and send a copy to the vendor.
    - **Do not attempt to modify or repair damaged equipment without authorization from vendor.**
    - Do not return equipment to the factory without a written return authorization. Returns without written authorization will not be accepted.
- Move all crates to area of installation.
- Remove crating.
- Remove shipping screws and guards and any accessory equipment that may be fastened to the conveyor.

2-2 SUPPORT INSTALLATION

- Bolts for attaching the supports to the bed sections are shipped in a bag attached to the supports or in a separate box.
- Set the support height using the adjustable jack bolt – see *Figure 1*. To adjust, either screw or unscrew the jack bolt. This will raise or lower the support.
- Supports should be located at ends of conveyor and centered under each splice on multi-piece conveyors (nominal 10' centers).
- If supports are located on nominal 5' centers, center additional supports midway between supports at splices.

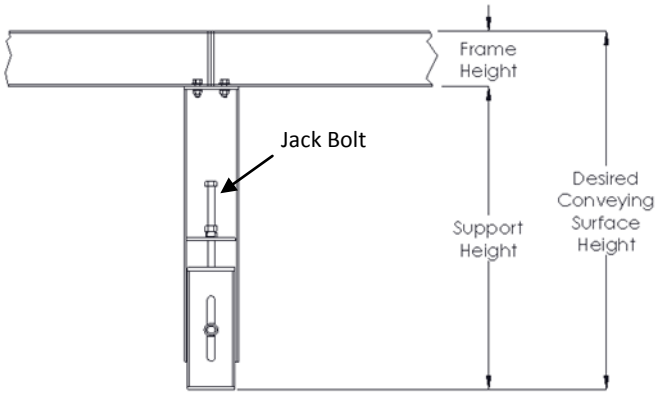


Figure 1 – Support Height Adjustment

2-3 CONVEYOR SET-UP

- Mark a chalk line on floor to locate center of the conveyor.
- Place the drive section in position.
- Install remaining sections in order. Conveyor sections have a section number label, which includes the Sales Order number, Line Item number, and Section Assembly number (last two digits). See *Figure 2*. Conveyors made up of more than one section are to be assembled in ascending numerical order, starting with Section Assembly 01 at the product infeed end.

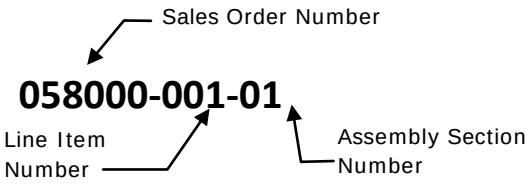


Figure 2 – Section number label

- Check that conveyor is level across both width and length of conveyor. Adjust supports if necessary.
- Check all bed sections for square. See *Figure 3.1* and *3.2*. Use a string stretched from opposing corners at edge of bed to aid in straightening conveyor. Ensure that both dimensions are the same. Adjust or shim supports as required. Both sides of the conveyor must be in the same plane (bed not twisted).
- Tighten all butt couplings and support mounting bolts and lag conveyor to floor.

Figure 3.1 – Check bed for square

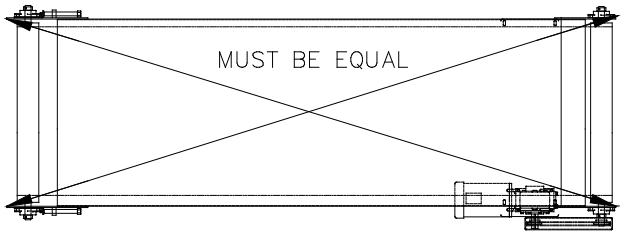
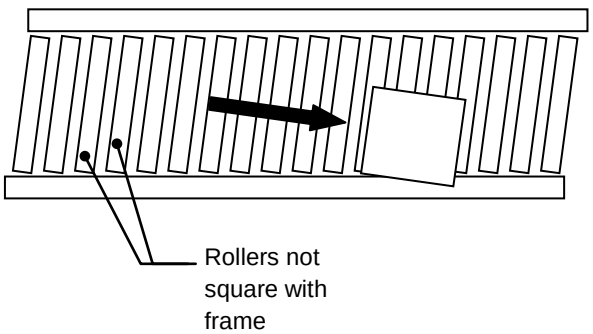


Figure 3.2 – "Racked" Conveyor



2-4 CHAIN INSTALLATION – MULTIPLE SECTION CONVEYORS

- On multiple section conveyors, remove the chain box covers by removing the bolts and nuts securing the cover to the frame rail. A correct length loop of chain to connect the two sections together is supplied.
- Open the master link of this chain loop, and pass the chain around the adjacent empty sprocket. Reinstall the master link. Note that this chain loop will have very little slack, and the use of a chain tensioning tool may be required to install the master link.
- Reinstall the chain box tops in their original locations.
- Prior to starting the conveyor, again ensure that all rollers are square and level.
- Start the conveyor.

2-5 ELECTRICAL INSTALLATION & CONTROLS

Electrical connections should be made by a qualified electrician in accordance with NFPA 70, "National Electric Code." The installation must also meet the requirements of any applicable state and local codes.

- Control stations should be installed in a place where operation of equipment can be clearly seen.
- All controls must be labeled to indicate function.
- Any conveyor which could cause hazard or injury shall not be started until personnel in the conveying area are alerted by a warning signal or by a designated person that the conveyor is about to start. Further, when a conveyor automatically runs, or is controlled from a remote location, an audible warning signal that can be heard at all points along the conveyor must sound. The warning signal shall be initiated by the controller starting device and shall sound for a certain period of time before conveyor starts. In some cases, a flashing light or similar visual warning indicator may be used in conjunction with audible warning signal if it is deemed more effective.

2-6 PRE-START CHECKS

- MOST speed reducers are shipped with oil, however, ALWAYS check for proper oil level before operating the conveyor.
- CHECK FOR REDUCER VENT PLUG AND INSTALL IF NECESSARY. See *Figure 4.1*. To install, remove the solid plug and replace with vent plug.
- Remove drive chain guard and inspect drive chain and sprockets.
- Chain should have sag on the slack side per *Figure 4.2*. Measure the sag half way between the two sprockets.
- Sag should be ½" or 2% of the sprocket center distance.
- Inspect drive sprocket and pulley set screws. These should be tight against the reducer and pulley shafts. Using a straight edge check to assure the sprockets are aligned by placing the straight edge flush against the sprocket flanges.
- Re-install chain guard after inspection.

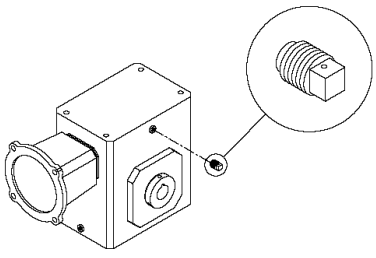


Figure 4.1 –
Reducer Vent Plug Installation

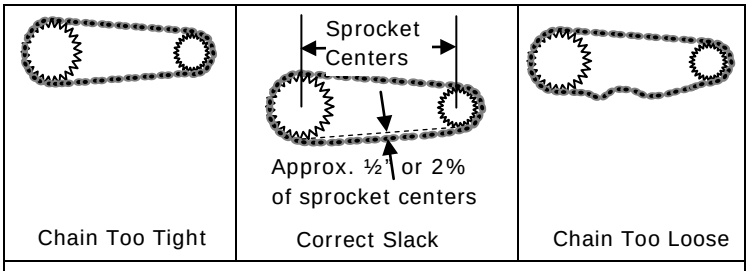


Figure 4.2 - Drive Chain Sag

SECTION 3 – MAINTENANCE

Effective operation and useful life of any equipment is directly related to the care and service it receives. A pre-determined maintenance schedule, including inspection, lubrication, and cleaning, should be established for each conveyor. Establish and maintain "Log Sheets" on each conveyor to record date and results of inspections, lubrication, and parts replacements. General inspections of all conveyors should be performed at regular intervals depending on use and service conditions.

WARNING: Do not attempt any maintenance on this equipment unless all sources of energy are disconnected and locked out by properly trained personnel.

***NOTICE*:** Do not perform any work on the conveyor while it is running unless the nature of the maintenance absolutely requires operation of the conveyor. If the conveyor must be operated to perform maintenance procedures, allow only experienced conveyor maintenance personnel to do the work. Use extreme caution.

3-1 MAINTENANCE INTERVALS

This list of maintenance items is a general overview of the minimum items that may need to be addressed on your LEWCO Conveyor. The actual list may vary depending on the specific equipment provided. The customer should make the final determination on maintenance intervals and tasks to be performed while considering the working environment. Please review applicable component literature for further detail and potential additional maintenance items.

OMPONENT	ACTION	SCHEDULE		
		WEEKLY	MONTHLY	QUARTERLY
MOTOR	Listen for irregular noise.	✓		
	Check for overheat.	✓		
	Check mounting bolts are secure.		✓	
REDUCER	Listen for irregular noise.	✓		
	Check for overheat.		✓	
	Check oil level.			✓
DRIVE CHAIN	Check for tension.			✓
	Lubricate.	✓		
	Inspect for wear.			✓
SPROCKETS	Inspect for wear.			✓
	Check set screws and keys.			✓
BEARINGS (Pulleys & Rollers)	Listen for irregular noise.	✓		
	Check mounting bolts are secure.			✓
STRUCTURAL	General check: Loose nuts, bolts, etc. Tighten as necessary.		✓	
ELECTRICAL	Inspect all wiring for secure connection. Ensure there are no loose or cut wires.		✓	
	Test Emergency Stop switches for proper function.		✓	

3-2 MAINTENANCE PROCEDURES

3.2.1 Conveyor Frames and Supports

- Check conveyor frame, couplers, supports, and bearings for loose or missing hardware. Replace hardware as required.

3.2.2 Motor and Reducer

- Make sure the reducer is filled to the proper level with oil. Make sure breather hole is clean and the orifice is open.
- Inspect reducer for leaks.
- Use only oil recommended by the reducer manufacturer when lubricating bearings.

3.2.3 Rollers and Bearings

- Check drive pulley lagging for rips, tears, and missing areas. Replace pulley as required.
- Check all rollers and pulleys for tightness. All rollers must rotate freely. If roller does not turn freely check for dirt accumulation in bearing area and clean.
- Lubricate all flange type bearings that have grease fittings. Use NLGI Grade 2 Lithium base grease, Shell Alvania EP2, or equal. Snub roller and return roller bearings are not regreasable.
- Listen to bearing for excessive noise. Replace as required.

3.2.4 Sprocket and Chain Maintenance

- Remove drive chain guard and inspect drive chain and sprockets.
- Chain should have ¼" or 2% sag when measured on the lower run of chain half way between the two sprockets. See "Pre-Startup Checks".
- A loose chain can jump the drive sprockets and can cause sprocket wear and failure. A tight chain requires excessive motor power, and can cause chain and sprocket failure.
- Inspect drive sprocket and pulley set screws for tightness against the reducer.
- Check sprocket alignment. Misalignment causes wear on one side of the sprocket. Check for a misaligned shaft or a sprocket off center.
- Check shaft bearing set screws.
- Lubricate the drive chain with SAE-30 oil approximately every 40 hours of operation. Lubricate more frequently under extreme ambient conditions. Rinse chain in solvent before lubricating.
- Re-install chain guard after inspection and maintenance.

3.2.5 Cleaning

- Periodically remove drive chains and clean by immersing in solvent and scrubbing with a wire brush. Rinse thoroughly and re-lubricate. Verify proper chain tension.
- Clean chain box and keep free of all debris.

3-3 REPLACEMENT PARTS

To order replacements parts, please contact your LEWCO distributor. If unable to contact distributor, please contact LEWCO's Customer Service Department by calling *419-625-4014, ext. 4012* or emailing *customerservice@lewcoinc.com*. Please be prepared to provide both your MODEL and SERIAL NUMBER when ordering. Serial numbers can be found on unit labels. There is one unit label per each section of conveyor.

LEWCO, Inc. **Serial No.**: 026563-001

Model No.: CDLR-12-120-60-36-36-B98-D08-G99-M99-A11-SCC10-P94

Section No.: 026563-001-01

SECTION 4 – TROUBLESHOOTING

TROUBLE	CAUSE	SOLUTION
Conveyor does not start or motor stalls.	No power	Verify main disconnect switch is on.
	Motor overloaded	Check conveyor loading against design parameters.
	Motor drawing excessive current.	Check circuit breaker.
	Emergency Stop button is engaged.	Verify the initial reason for the emergency stop. If reason has been corrected, release the Emergency Stop.
Excessive wear on drive chain and/or sprockets.	Lack of lubrication.	Lubricate chain.
	Sprockets out of alignment.	Align sprockets.
	Loose drive chain.	Correct chain slack (See "Pre Startup Checks").
Loud popping and/or grinding noise.	Defective bearing.	Replace bearing.
	Loose drive sprocket set screw.	Tighten sprocket set screws and check key.
	Loose drive chain.	Correct chain slack (See "Pre Startup Checks").
Motor or reducer overheating. *Note: Many motors and reducers can be hot to the touch and still be operating within normal parameters*	Conveyor overloaded.	Check conveyor loading against design parameters.
	Low voltage to motor.	Correct voltage level as stated on motor name plate.
	Reducer lubricant level low.	Fill reducer reservoir.