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CHAIN TRANSFER  
TURNTABLE CONVEYOR  
OWNERS MANUAL



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# Table of Contents

- INTRODUCTION ..... 5**
- SAFETY WARNINGS ..... 7**
  - BEFORE STARTING MAINTENANCE ..... 7
  - DURING MAINTENANCE..... 7
  - AFTER MAINTENANCE ..... 7
- EQUIPMENT DESCRIPTION ..... 9**
  - EQUIPMENT DESCRIPTION..... 9
- INSTALLATION INSTRUCTIONS ..... 16**
  - POSITION AND ALIGNMENT ..... 16
  - CONVEYOR INSTALLATION..... 17
  - SUPPORT ASSEMBLY ..... 17
  - MOTOR / DRIVE COMBINATIONS ..... 18
  - INSERTING ROLLERS INTO C.D.L.R. FRAME..... 19
  - INSTALLING ROLLER CHAINS ON CDLR BEDS ..... 20
  - DRIVE CHAIN TENSION & ALIGNMENT ON CDLR BEDS..... 21
  - ALIGNMENT OF CHAIN TRANSFER LIFT MECHANISM..... 22
  - CONVEYING CHAIN ADJUSTMENT ON CHAIN TRANSFER ..... 22
  - DRIVE SHAFT ARRANGEMENT ON CHAIN TRANSFER ..... 23
  - PREPARING UNIT TO RUN ..... 23
  - C.D.L.R. OPERATION..... 24
  - CHAIN TRANSFER OPERATION ..... 24
  - TURNTABLE OPERATION ..... 24
- MAINTENANCE ..... 26**
  - MECHANICAL MAINTENANCE ..... 26
  - ELECTRICAL MAINTENANCE ..... 27
- TROUBLE SHOOTING GUIDES ..... 28**
  - MOTOR AND GEAR REDUCER ..... 28
  - CHAIN AND SPROCKETS ..... 28
  - ELECTRICAL ..... 29
  - AIR SYSTEMS..... 30

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<b>PARTS GUIDE</b> .....	<b>31</b>
C.D.L.R. DRIVE TRAIN COMPONENTS .....	31
C.D.L.R. MOTOR & DRIVE COMBINATIONS.....	31
C.D.L.R. 2-7/8" DIAMETER CARRIER ROLLERS .....	31
C.D.L.R. 2-7/8" DIAMETER GAP ROLLERS .....	31
C.D.L.R. CARRIER ROLLER ASSOCIATED COMPONENTS .....	32
CHAIN TRANSFER DRIVE TRAIN COMPONENTS.....	32
CHAIN TRANSFER MOTOR & DRIVE COMBINATIONS .....	33
CHAIN TRANSFER PNEUMATIC COMPONENTS.....	33
CHAIN TRANSFER CONVEYING CHAIN & ASSOCIATED COMPONENTS.....	33
TURNTABLE DRIVE TRAIN COMPONENTS.....	33
TURNTABLE MOTOR & DRIVE COMBINATIONS .....	34
TURNTABLE & ASSOCIATED COMPONENTS .....	34
HEAVY DUTY FIXED HEIGHT SUPPORTS .....	35
TOUCH-UP PAINT .....	35

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# CHAIN TRANSFER TURNTABLE INDUSTRIAL CONVEYORS

## INTRODUCTION

Thank you for purchasing a Chain Transfer Turntable Conveyor from Wecon Systems. This model is made of the finest materials available and is manufactured in Canada by skilled craftsmen. The conveyor is very easy to operate and to maintain, but we recommend that you read this owner's manual thoroughly before using the conveyor.

This manual provides installation instructions, start-up procedures, safety tips, a parts list and information regarding preventative maintenance, lubrication and troubleshooting. This conveyor is durable and has been designed for a long service life.

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## SAFETY WARNINGS

**WARNING: DO NOT ATTEMPT MAINTENANCE ON ANY CONVEYOR WHILE IT IS IN OPERATION.**

### BEFORE STARTING MAINTENANCE

- Read and understand instruction manual and be aware of all warning stickers.
- Know where the emergency stop buttons are located.
- Know or have quick access to emergency telephone numbers in the unforeseen event that an emergency should arise.
- Maintenance functions are to be performed while the conveyor is off. The main power disconnect switch to the conveyor shall be locked out in accordance with proper written lockout procedures. This will prevent anyone from applying power to the system while maintenance personnel are at work.
- NEVER work on a conveyor while it is running unless the maintenance procedure requires the equipment to be running. When a conveyor must be operating to perform the maintenance, allow only properly trained maintenance personnel to work on the conveyor.
- Wear safety glasses when in the proximity of the conveyor.
- NEVER allow personnel with long hair near the conveyor without the use of a protective hair net.

### DURING MAINTENANCE

- Do not wear loose clothing, ties or jewelry while servicing or performing maintenance on any conveyor equipment.
- Be aware of hazardous conditions, such as sharp edges and protruding parts.
- When using hoists, cables or other mechanical equipment to perform maintenance, use care to not damage conveyor components.
- Keep area clean. Clean up lubricants and other materials before starting conveyor.

### AFTER MAINTENANCE

- Before starting the conveyor after any maintenance has been completed, walk around the equipment and make certain all safety devices and guards are in place, pick up tools, maintenance equipment and clear any foreign objects from equipment.
- Make certain all personnel are clear of the conveyor and made aware that the conveyor is about to be started.
- Only authorized personnel should be permitted to start any conveyor following maintenance or emergency shut-off.
- Never place any part of your body in or on any part of this conveyor while in operation.
- Do not allow anyone to stand on the conveyor.
- Do not allow horseplay around the conveyor.
- Do not remove guards, perform maintenance or clear obstructions without first locking out the main power disconnect switch.

PLEASE RECOGNIZE ALL WARNING STICKERS AND OBEY ANY SAFETY INSTRUCTIONS. WARNING STICKERS ARE PLACED ON THE EQUIPMENT FOR YOUR SAFETY – PLEASE DO NOT REMOVE THEM. CONDITIONS DO EXIST ON ANY CONVEYOR THAT CAN CAUSE INJURY OR DEATH TO PERSONNEL. NO MANUAL CAN COVER ALL THE HAZARDOUS CONDITIONS THAT MIGHT DEVELOP. ALL PERSONNEL INVOLVED IN THE OPERATION OF ANY CONVEYOR EQUIPMENT SHOULD BE CONSTANTLY AWARE OF ANY UNSAFE CONDITIONS AND USE ALL POSSIBLE CARE, ALONG WITH COMMON SENSE AND STRICT ADHERENCE TO ACCEPTED SAFETY STANDARDS TO AVOID INJURY.



### **CHAIN TRANSFER TURNTABLE CONVEYOR**

#### **IMPORTANT**

Wecon Systems does not warrant parts or components not manufactured by Wecon Systems. The manufacturers of electric motors and controls, air and hydraulic components and certain other items extend warranties, which may or may not be similar to that of Wecon Systems manufactured equipment. Defective material of this type should be reported by the customer to Wecon Systems whose sole responsibility is to notify the vendor of the defective material for action. Wecon Systems will not be responsible for units that have been tampered with or disassembled by anyone other than the authorized representative of the respective manufacturer.

## EQUIPMENT DESCRIPTION

### EQUIPMENT DESCRIPTION

Wecon Systems Chain Transfer Turntable conveyors were designed to serve as a means to orientate nestable style “postal” pallets to a conveyable direction owing to the design of their specialized foundation. They are used to provide a means to transfer these specialized pallets in association with the conveyance of standard wooden bottom pallets using a single specialized transfer conveyor.

Chain transfer turntable conveyors operate using a series of three strands of conveying chains that are pneumatically raised between the rollers of the integrated C.D.L.R. conveyor.

The turntable allows the nestable style “postal” pallets to be indexed and oriented (so the legs of the pallet can traverse the conveyor in their most elongated orientation) relative to the adjacent conveyor for conveyance in a straight direction of flow. C.D.L.R. rollers on the chain transfer turntable are on 3-1/4” centers to prevent the pallet from pitching as it moves along the conveyor. This ensures a smooth transition of product. The turntable function is used to re-position the nestable style pallets being conveyed by changing their orientation in preparation for transfer.

Turntables can also serve as a means to transfer product 90° perpendicular to or from the main conveyor line onto an adjacent or parallel conveyor. Consult engineering for details.

A series of air bags lift the transfer mechanism while the conveying chains are powered to transfer the product. Power for the series of conveying chains is provided by a common drive shaft arrangement in the lift mechanism. All beds are fabricated using heavy-duty construction within a steel frame. Pallets are conveyed along the surface of a series of conveyor chains that run along the lift mechanism of the chain track frame. Key stock acts as a guide for each specific strand of chain. The key stock chain guide is used in applications requiring higher load rating capacities.

Chain transfer turntable conveyors can be designed for indexing or two-way applications. They are ideally suited to convey pallets or other products that exhibit a uniform, rigid bottom. Heavy-duty construction makes these conveyors ideally suited for harsher environments where dirt, grease, heat, oil and other contaminants are present.

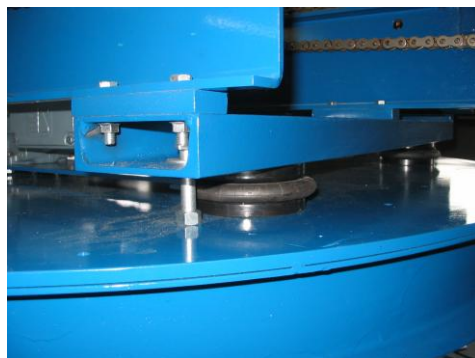
Chain transfer turntable conveyors provide smooth, continuous flow of product under positive control. They are designed to transport the product along a horizontal plane.

Wecon chain transfer turntable conveyors are supplied with a drive arrangement that utilizes a series of three drives. Each particular conveyor has its own unique drive that is specific to the assembly. All are supplied with drive arrangements that can be designed for one-way or two-way operation depending on the conveyor. End drive arrangements are not available in turntable applications.

Chain transfer turntable conveyors are available with the carrying chains located on approximately 18" centers. Determination of the carrying chain centers is dependant on the position of the stringers or blocks on the bottom of the pallet relative to its size. Consult engineering for details.

Conveyor frames are heavy-duty construction. The main conveyor frame consists of series of 1/4" formed side channels, utilizing a series of structural cross members bolted in position to the top plate of the turntable. The chain strands are mounted along a series of 1/4" x 1-1/2" x 6" formed channels. The chain transfer mechanism is installed on a series of air bags and bolted in position to the top plate of the turntable. The length of the chain transfer mechanism is designed to extend to the outside radius of the turntable bed. This ensures pallets sustain positive drive during their transfer, and eliminates the potential of non-powered areas as product is conveyed to adjacent beds. Chain transfer turntables are available in various platter diameters to meet the needs of the customer. Consult engineering for details concerning specific sizes and applications.

The transfer mechanism is lifted by a series of air bags providing simple maintenance free operation. The number of air bags utilized is dependant on the weight and size of the product being conveyed. Air bags are plumbed to a common air source.



**TRANSFER MECHANISM SHOWING AIR BAG**

A set of fixed stops are factory set to control the minimum / maximum range of travel of the lift mechanism. These stops provide controlled lifting and prevent skewing of the lift mechanism during travel.

The compact design in conjunction with a series of gap roller assemblies prevents access to the internal mechanisms of chain transfer bed. This arrangement inhibits accessibility to the common drive shaft arrangement, chains and associated sprockets internal to the transfer.

Various accessories and options are available including multiple chain strands, varying carrier roller centers, noise dampening UHMW wearstrips, brake motors, limit switches, proximity switches, solenoid valves, photo eyes, and guard rails.

**DUE TO THE NATURE OF THE DESIGN AND LOCAL CODE REQUIREMENTS, IT IS THE CUSTOMERS RESPONSIBILITY TO PROVIDE AN APPROPRIATE CONTAINMENT AREA FOR THE EQUIPMENT TO PREVENT ACCESSIBILITY TO ANY HAZARDS ASSOCIATED WITH ITS OPERATION.**

**Chain Transfer Conveyor** – Chain transfer conveyors are used in conjunction with C.D.L.R. beds and can be engineered to transfer product in a straight direction of flow or 90° perpendicular to or from the main conveyor line to an adjacent conveyor. A series of air bags lift the transfer mechanism while the conveying chains are powered to transfer the product.

Power for the series of conveying chains is provided by a common drive shaft arrangement in the lift mechanism. The bed is fabricated from steel using heavy-duty construction. Product is conveyed along the surface of the carrying chains.

Chain transfer conveyors provide smooth, continuous flow of product under positive control. They are designed to transport product on a horizontal plane.

**Chain Transfer Drive** – Is the power source that moves the chain. The standard drive configuration is mounted below and within the bed frame. Standard drives have fixed speeds. Drives can be engineered for indexing, one-way or two-way operation depending on the application. For two-way operation, the drive must be located as close as possible to the center of the bed length, midway between each end. This makes for roughly equal runs of chain to each side of the drive, keeping the required chain pull to a minimum. End drive arrangements are not available in turntable applications.

**Chain Transfer Conveying Chain** – Provides a surface to carry the product. Consists of heavy-duty riveted roller chain that allows flexibility of chain movement over the sprockets in the transfer mechanism. The conveying chain is drawn along a length of key stock guide through series idler sprockets within the transfer mechanism.



**CONVEYOR CHAIN POSITIONED ON LIFT MECHANISM**

**C.D.L.R. Conveyor** – The integrated C.D.L.R. conveyor operating in conjunction with the chain transfer turntable uses a series of roller-to-roller chain driven double sprocketed rollers located within a formed steel bed. All beds are fabricated using heavy-duty construction. Separate chains connect each pair of sprocketed rollers providing positive drive and a controlled speed. Products are conveyed along the surface of the rollers. CDLR conveyors can be used for conveying products with higher load capacities. They are ideally suited to transport wood, plastic, fiberboard, pallets and drums. Heavy-duty construction makes equipment ideally suited for harsher environments where dirt, grease, heat, oil and other contaminants are present.

C.D.L.R. conveyors provide smooth, continuous flow of product under positive control. They are designed to transport the product along a horizontal plane. CDLR conveyors are not suitable for incline or decline applications. They can be designed to provide a positive stop to begin an indexing or accumulation process.

C.D.L.R. conveyors used for chain transfer turntable applications are available with carrier rollers located on 3-1/4" centers. This prevents the pallet from pitching as it moves along the conveyor ensuring a smooth transition of product. Determination of required roller centers is generally dependant on at least three rollers being able to support the product. Typically, the more uniform the transporting surface, the greater the allowance for larger roller centers. Consult engineering for details specific to you application.

Bed frames are heavy-duty construction consisting of 1/4" formed side channels.

The standard C.D.L.R. conveyor used for chain transfer turntable applications has the carrier rollers positioned high on both sides. With the rollers positioned high, the side channels are pre-punched to accommodate the locations of the 3 hole flange bearings. The position of these bearings determines the location of the carrier rollers in the fame.

**C.D.L.R. Drive** – Is the power source that moves the rollers. The standard drive configuration for the C.D.L.R. conveyor in this application is mounted below and within the bed frame. The drive can be engineered to index or for two-way operation. Standard drives have fixed speeds. The drive is located as close as possible to the center of the bed length, midway between each end of the conveyor. This makes for roughly equal runs of chain to each side of the drive, keeping the required chain pull to a minimum.



**C.D.L.R. Carrier Rollers** – Provide a surface to convey the product.

Consisting of:

- Shell – 2-1/2” SCH 40 pipe
- Shaft – 3/4” diameter CRS steel keywayed one end to suit 3/16” keys
- Type B sprockets are affixed in position along the shaft using a series of spacers, setscrews and corresponding keys in relation to the specific type of roller. Drive rollers and the outer intermediate rollers are assembled with one sprocket; intermediate rollers are assembled with two sprockets.
- Welded bulkheads hold the shaft in position in relation to the shell

Rollers are assembled in the bed frame using a series of symmetrically opposed 3 hole flange bearings. The bearings are standard duty, with a solid base housing design, wide inner ring bearing, and use an R type seal.



### **C.D.L.R. CHAIN TRANSFER TURNTABLE INTERMEDIATE CARRIER ROLLER**

**Turntable Conveyor** – Turntable conveyors are predominantly used in pallet handling systems where it is necessary to change the orientation of the pallet in a straight through application or to perform a change of direction without altering the orientation of the product in a right angle application.

For chain transfer turntable applications, the turntable is used to integrate the chain transfer and C.D.L.R. conveyors relative to one another. The top plate and corresponding frame is fabricated using heavy-duty welded construction. The frame consists of structural steel channels that provide rigidity for the unit. A flat rigid top plate provides a uniform surface where the adjoining conveyors are installed. The rotating top plate is constructed from 3/8” thick plate reinforced with a rolled commercial channel along the outer circumference. The central axis of the turntable is rotated on a series of 4 bolt flange bearings and shaft arrangement. A series of four heavy-duty cam followers support the plate as it rotates along a horizontal plain.



**Turntable Drive** – Is the power source that moves the turntable. The drive is configured and mounted external to the bed frame. Standard drives have fixed speeds. Drives can be engineered for two-way operation. Rotation of the turntable plate is achieved via a sprocket and chain arrangement. Each end of the drive chain is attached to an automatic tensioner that uses the flange of the outer circumference of the rolled commercial channel as a guide. Drive is achieved through the rotation of a sprocket in relationship to the drive chain. Positive drive is maintained through the tension to the chain. The standard rotation is 90° and reversible.

**Heavy Duty Fixed Height Supports** – Must be mounted to the floor. Heavy duty welded construction manufactured from structural steel. Supports are designed to accommodate a fixed height with no allowance for adjustments. This ensures the support cannot be compressed due to loads on the conveyor. Allowances for uneven floors are accommodated through the shimming of the support. Width and height combinations are available to suit application.



**HEAVY DUTY FIXED HEIGHT SUPPORT**

## INSTALLATION INSTRUCTIONS

### POSITION AND ALIGNMENT

Proper mechanical installation is vital for the equipment to operate as described. Our installation standards show the importance that Wecon places on a quality installation.

#### Installation Standards

- **In General:**  
The following standards, where applicable, will be used as guidelines by Wecon approved installers.
- **Dimensional Reference Points:**  
The location of each conveyor in the system will be determined by establishing a reference point to the center of each conveyor from the fixed building column lines as indicated on approved general arrangement drawings.
- **Level and Elevations:**  
Conveyors will be installed in accordance with the elevations shown on the layout drawing(s).  
After the first elevation is established, the elevation of all other points will be related to this first point. The practice of dimensioning elevations from the floor at each point of support will not be followed. When the floor level changes significantly, such as the system going to an upper or lower floor, or into another building or room, a new elevation will be established from the first floor at that point. This new elevation will then become the reference point for subsequent elevations.
- **Standards For Floor Mounting:**  
Anchoring will be accomplished by drilling into the floor and inserting a suitable anchor bolt in an approved manner in accordance with the manufacturer's instructions.  
Heavy duty fixed height supports will be anchored with 3/8" diameter minimum bolts, one in each leg.  
Explosive type anchors will not be used. Adhesive or specialized anchors will be used only when specified.

## Floor Mounted Units

- At the desired position for the conveyor, snap a chalk line (not in excess of 100 feet per run) on the floor location for the centre line of the unit.
- Use a plumb line to align the centre line of each conveyor section to the chalk line.
- Adjust the conveyor both lengthwise and diagonally using a level.
- Final alignment and leveling of the conveyor is achieved by placing shims between the floor and the support until the desired height is obtained.

NOTE: Beds must be level from side to side to prevent the possibility of a mis-tracking belt.

## CONVEYOR INSTALLATION

It is recommended that only trained personnel install or service this equipment.

Wecon Chain Transfer conveyors are shipped on skids, generally, not exceeding 4000 pounds, for lift truck unloading and handling. The skids may also be handled with a crane if one is available. If a crane is utilized, ensure the operator is certified in the competency of its operation. Each skid will vary in width, length and height depending upon the style of product purchased.

The conveyor frames, supports, rollers and accessories should be thoroughly inspected before proceeding with the conveyor installation. Upon delivery, be sure to check the following items very carefully:

- The alignment of the frames, to ensure horizontal and parallel orientation.
- The equipment to ensure there is no visible damage to the frames or rollers.

## SUPPORT ASSEMBLY

Supports are typically installed on a chain transfer turntable at the factory and shipped as a complete unit. They are located on the bottom flange of the bed frame and bolted in position. Fixed height supports are utilized to prevent the possibility of undue movement of components within the chain transfer that may result from shock loading.

In the event that size or weight constraints require the supports to be shipped loose, the following requirements must be satisfied.

In those instances where the supports must be shipped loose, they will be fastened to the bottom flange of the bed frame utilizing holes designed into the frame of the bed. Supports are mounted in the first available set of holes at the charge and the discharge ends of the conveyor. Mounting a support can be accomplished by either lifting the bed section into position onto a support or attaching the support to a bed section prior to lifting it into position.

Final alignment and leveling of the conveyor is achieved by placing shims between the floor and the support until the desired height is obtained. After the conveyor has been aligned and leveled, anchor the supports to the floor in an approved manner in accordance with the anchor bolt manufacturer's instructions.



**HEAVY DUTY FIXED HEIGHT SUPPORT MOUNTED ON BOTTOM FLANGE OF BED FRAME**

\*\*\*Note: It is recommended if your conveyor is supplied with rollers not installed in the bed that the supports be mounted to the conveyor prior to the installation of the rollers.

#### MOTOR / DRIVE COMBINATIONS

- Each specific conveyor that is a component of the chain transfer turntable has its own individual drive train that operates independent of one another.
- Individual drives are designed to operate at fixed speeds to accommodate synchronization between the adjoining conveyors.
- For those conveyors engineered for two-way operation, the drive is located as close as possible to the center of the bed length, midway between each end of the conveyor. This produces a load to each side of the drive that is approximately equal in each direction of travel, keeping the required chain pull to a minimum.
- Prior to start up, check and verify the reducer has the correct level of oil and that breather plugs (if required) are installed correctly before operating the motor.

## INSERTING ROLLERS INTO C.D.L.R. FRAME

### Beginning with the two drive rollers:

- Beginning with one of the drive rollers (the two rollers in closest proximity to the center strand of the chain transfer are considered to be the drive rollers), slide an appropriate spacer, key and B style drive sprocket on the shaft of the C.D.L.R. drive roller. The spacer is to be installed between the bulkhead of the pulley and the hub of the sprocket. The hub of the sprocket must be oriented to face the bulkhead of the roller shell. Only one sprocket is installed on the shaft of a drive roller.
- Loosen off and remove the setscrews from a pair of 3 hole flange bearings.
- Slide a 3 hole flange bearing over each end of the shaft of the roller.
- Locate and position the roller assembly within the bed frame.
- Align the holes of the bearing to the pre-punched holes in the side channels.
- Using 5/16-18 x 1" hex cap screws (inserted from the outside of the frame) fasten the bearing / roller arrangement finger tight using a serrated flange nut to anchor the hardware. Assemble both sides of each roller using the appropriate number of fasteners.
- Repeat preceding instructions for the second drive roller.

### Installation of the intermediate rollers:

- After both of the drive rollers have been installed in the frame.
- Slide two B style drive sprockets, an appropriate spacer and two keys on the shaft of the C.D.L.R. intermediate roller. The spacer is to be installed between the two sprockets with the hub of the sprockets facing the bulkhead of the roller shell. Due to space constraints, sprockets, spacer and keys must be installed on the end of the shaft with the keyway prior to their installation in the bed.
- Loosen off and remove the setscrews from a pair of 3 hole flange bearings.
- Slide a 3 hole flange bearing over each end of the shaft of the roller.
- Locate and position the roller assembly within the bed frame.
- Align the holes of the bearing to the pre-punched holes in the side channels.
- Using 5/16-18 x 1" hex cap screws (inserted from the outside of the frame) fasten the bearing / roller arrangement finger tight using a serrated flange nut to anchor the hardware. Assemble both sides of each roller using the appropriate number of fasteners.
- Repeat preceding instructions for all but the two outer most intermediate rollers in the frame.

**Installation of the two outer most intermediate rollers:**

- After the double sprocketed intermediate rollers have been installed in the frame.
- Take one of the outer most intermediate rollers (the two intermediate rollers furthest from the center strand of the chain transfer), slide a B style drive sprocket, key and an appropriate spacer on the shaft of the C.D.L.R. intermediate roller. The hub of the sprocket must be oriented to face the bulkhead of the roller shell. The spacer is to be installed between the sprocket and the flange bearing. Only one sprocket is installed on the shaft of the outer most intermediate roller.
- Loosen off and remove the setscrews from a pair of 3 hole flange bearings.
- Slide a 3 hole flange bearing over each end of the shaft of the roller.
- Locate and position the roller assembly within the bed frame.
- Align the holes of the bearing to the pre-punched holes in the side channels.
- Using 5/16-18 x 1" hex cap screws (inserted from the outside of the frame) fasten the bearing / roller arrangement finger tight using a serrated flange nut to anchor the hardware. Assemble both sides of each roller using the appropriate number of fasteners.
- Repeat preceding instructions for the second outer most intermediate roller.

**Alignment of C.D.L.R. rollers:**

- Once all rollers have been installed in the frame, using a straight edge align the tops of the rollers taking up any excess play in the holes. Tighten all fasteners.
- Slide the sprockets, spacer and keys into position on the shaft. Using a straight edge, align the face of the opposing sprockets (the location of the sprockets are designed to be consistent between rollers to minimize dimensional inconsistencies).
- Apply loctite to the setscrews, install in appropriate locations in the bearings and sprockets and tighten to specified torque.

**INSTALLING ROLLER CHAINS ON CDLR BEDS**

- Start from the intermediate roller located beside each drive roller and work outwards to each end of the conveyor. Select a pre-cut chain length and wrap it around the inner most sprocket on the intermediate roller and around the corresponding sprocket on the adjoining intermediate roller.
- Join the length of chain by inserting a connecting link. Roller-to-roller driven chains are self-aligning.
- Install the next pre-cut chain on the opposite sprocket and wrap the chain around corresponding sprocket of the next intermediate roller down the line. Join the length of chain by inserting a connecting link.
- By joining the intermediate rollers first, this allows the rollers to be rotated within the bed enabling ease of installation of subsequent roller segments. Repeat as necessary until all rollers have been connected within the frame.
- Once all intermediate rollers have been connected, a separate drive chain must be installed on each of the two drive rollers.

- Install the initial drive chain over the solitary sprocket on one of the drive rollers, over the corresponding sprocket on the adjoining intermediate roller and around the sprocket on the slave drive shaft arrangement of the motor / drive. The drive chain is wrapped around the series of three adjoining sprockets. Use a straight edge to align the series of sprockets and tighten setscrews once alignment has been achieved.
- Join the chain by inserting a connecting link. There should be no more than 1/4" deflection in the slack portion of the chain. Any excess slack can be removed by setting the take-up in the adjustable slave drive shaft mounting base. Ensure the drive chain clears the frame and doesn't cause any interference.
- Repeat preceding instructions for the second drive roller in the bed.



**ROLLER-TO-ROLLER CHAIN INSTALLATION**

#### DRIVE CHAIN TENSION & ALIGNMENT ON CDLR BEDS

Drive chain tension should be adjusted to allow a maximum of 1/4" per foot chain deflection between the drive roller sprockets and driver sprocket of the motor / drive combination on the slack side. Use a straight edge to align the series of sprockets. Any excess slack can be removed by setting the take-up in the adjustable drive base. Ensure that loctite is applied to all setscrews prior to tightening to specified torque. A chain guard is not utilized where the drive train components are located internal to the bed frame and not accessible once the rollers have been installed.

## ALIGNMENT OF CHAIN TRANSFER LIFT MECHANISM

All chain transfer assemblies are shop tested to ensure full functionality of the unit. The height of the conveying chains on the lift mechanism has been preset to ensure a collapsed position of 1/2" below the top of the rollers. Stops have been set to restrict the total range of travel of the lift mechanism to 3/4" inch. This allows the carrying chain to be raised to a height of 1/4" above the rollers when energized satisfying most conveyance requirements while maintaining minimal field adjustments.

- After the chain transfer turntable has been installed, check the alignment of the transfer mechanism to ensure the above noted dimensions have been maintained. Any deviation to these dimensions necessitates the lift mechanism to be adjusted and brought back to specification prior to operation. Proper alignment is critical since improper alignment can cause motor overload, premature chain wear or jamming.
- Once the pneumatic source has been established, run the necessary lines to the conveyor, connect, and plumb unit to the air supply in accordance to applicable codes and regulations.

**\*\*\* ALL MECHANICAL PROCEDURES SHOULD BE PERFORMED BY A QUALIFIED TECHNICIAN.**

## CONVEYING CHAIN ADJUSTMENT ON CHAIN TRANSFER

- With unit running, observe the travel of the conveying chain over the length of the transfer mechanism and through all components.
- Slack conveying chain may be taken up by making adjustments to the individual take-ups located in the side panels of the adjustable drive shaft arrangement below and unique to each chain strand.
- Tension of the conveying chain is set according to standard chain tensioning procedures.



**DRIVE SHAFT AND TAKE UP ARRANGEMENT SHOWN WITHOUT CDLR ROLLERS**



## DRIVE SHAFT ARRANGEMENT ON CHAIN TRANSFER

- The chain transfer has been designed to incorporate accessibility and servicability of components. A series of three gap roller assemblies bolted in position on each side of the turntable platter restricts access to the internal moving parts.
- Prior to working on any conveyor, all personnel must observe proper written lock out procedures for their safety.
- The shaft, bearings, and sprockets associated with the common drive shaft arrangement can only be serviced after the power has been properly locked out.
- Remove the gap roller assemblies and any guards that may be enclosing the moving components.
- Disconnect conveying chains and applicable drive chains.
- Remove fasteners holding the bearings and the sprockets. Due to the design, the drive shaft arrangement is contained in the bed frame preventing it from falling to the floor.
- Unfasten all setscrews and slide the shaft from the conveyor. Support each specific component preventing them from possible damage as the shaft is withdrawn and removed from the transfer.
- Complete appropriate service or repair.
- Reverse procedures to reassemble unit.

## PREPARING UNIT TO RUN

- All electrical controls must be installed, wired and connected by a licensed electrician only.
- Check to ensure the motor is properly wired for correct rotation with respect to the direction of travel.
- Make certain that installation is in conformance to all local codes and regulations.
- Ensure the conveyor path is free from oil, debris and other foreign objects.
- Prior to start up, check and verify if the reducer has the correct level of oil and that breather plugs (if required) are correctly installed before operating the motor.
- Check to ensure all guards are in place and that all hardware has been tightened.
- Ensure that all personnel are clear, then run unit and observe travel.

### C.D.L.R. OPERATION

- With unit running, observe direction of roller travel over the length of the bed and through all components.
- Listen for any noisy bearings, sprockets, motors, reducers or other vibrations. Correct any problems immediately.
- Run conveyor with a moderate load of product on conveyor and check for positive drive.
- Check to ensure supports are level.
- Remove any dirt build up from the rollers that could effect the operation of the conveyor.
- Any rollers that show visual signs of damage should be replaced.

### CHAIN TRANSFER OPERATION

- With unit running, observe direction of chain travel over the length of the transfer mechanism and through all components.
- Listen for any noisy bearings, sprockets, motors, reducers or other vibrations. Correct any problems immediately.
- Energize the pneumatic system. When energized, ensure the conveying chain travelling along the transfer mechanism attains the required height above the top of the rollers. When the system is de-energized the conveying chain must fall below the top of the rollers. Ensure the lift mechanism has a full range of travel without any obstruction. Measure and check to ensure the conveying chain is parallel and maintains a 1/4" lift above the top of the rollers in order to effectively transfer product. If the lift height is compromised, make necessary adjustments to the travel restriction stops to ensure the total range of travel of the lift mechanism is limited to 3/4" of lift.
- Check to ensure chain tracks are level.
- Remove any dirt build up from the conveying chain that could effect the operation of the conveyor.
- Any components that show visual signs of damage should be replaced.

### TURNTABLE OPERATION

- With unit running, observe the rotation and function of the turntable platter and the adjoining conveyors through all components.
- Listen for any noisy bearings, sprockets, motors, reducers or other vibrations. Correct any problems immediately.
- Run conveyor with a moderate load of product on conveyor and check for positive drive.
- Check to ensure supports are level.

- Remove any dirt build up from the cam followers, rollers or conveying chains that could effect the operation of the conveyor.
- Any rollers, chain or sprockets that show visual signs of damage should be replaced.

## MAINTENANCE

**WARNING: DO NOT ATTEMPT MAINTENANCE ON ANY CONVEYOR WHILE IT IS IN OPERATION.**

### MECHANICAL MAINTENANCE

Item	Schedule Service	Suggested Maintenance
Gear reducer	At start-up and every month of operation	Check oil
	Yearly	Change oil
Motor	At start-up and every month of operation	Check mounting hardware and align if necessary
Drive chain	Monthly	Check tension and alignment
	Monthly	Clean and lubricate with recommended oil using a brush or spray
Roller bearings	Weekly	Check for unusual noise or excessive wear, replace as required
Roller chains	Monthly	Check tension and alignment
	Monthly	Clean and lubricate with recommended oil using a brush or spray
Protective guards	At start-up and every week of operation	Check to ensure all guards are in place and properly secure
Air systems	Daily	Listen and always be alert for leaks anywhere in the system and correct promptly
	Weekly	Check and ensure air pressure is set at 80 PSI at the main inlets and all locations where the air pressure is regulated. Adjust pressure as necessary by adjusting regulator. Check for proper PSI settings on all air regulators
	Weekly	Check and drain fluid from filter bowls. Inspect and replace filter elements when dirty or clogged
Supports	Weekly	Check to ensure supports have not been damaged and are properly secured
Hardware	At start-up and every week of operation	Check to ensure all fasteners are in place and properly tightened

Note: Gear reduction drives units are filled with lubricant prior to shipping. The lubricant level should be checked prior to start-up and the breather plug installed in the proper location (see reducer manual supplied with unit). Only refill reducers with the approved lubricant required for standard service - if service is more severe; the oil should be changed more frequently.  
Consult the reducer manufacturer for a more specific lubrication schedule.

**ELECTRICAL MAINTENANCE**

**WARNING: DISCONNECT ALL POWER BEFORE PERFORMING THE FOLLOWING MAINTENANCE. ENSURE THE MAIN POWER DISCONNECT SWITCH TO THE CONVEYOR IS LOCKED OUT IN ACCORDANCE WITH PROPER WRITTEN LOCKOUT PROCEDURES.**

**ONLY QUALIFIED PERSONNEL SHOULD PERFORM THE FOLLOWING MAINTENANCE.**

Note: A qualified person should keep a logbook of the following readings noting and documenting any excessive changes from normal that could indicate a potential problem.

1. Measure voltages and current of incoming power to enclosure.
2. Measure current readings of all motors.
3. Measure current readings on primary and secondary of control transformer to insure proper infeed and outfeed voltage.
4. Review usage - excessive use of fuses or replacing the same part several times indicates an excessive current draw, faulty components, or exceeding the capacity of the conveyor unit.

Item	Schedule Service	Suggested Maintenance
Control panels and pushbutton enclosures	Always	Enclosures should be clean and dry
	Weekly	Check if components have vibrated loose, check door/power interlocks and latches
	At start-up, monthly or if any problems occur	Check for loose or discolored wires (Discolored wires indicate an excessive current draw)
Photoeyes	At start-up, weekly	Dust, oil and foreign objects should be wiped from lenses and reflectors
Limit switches	Weekly	Check arms for adjustment and tightness
Pushbuttons	Weekly	Check wires and terminals for tightness
Emergency stop devices	Weekly	Check for proper operation
Conduit and conduit hangers	Monthly	Check for alignment and damage, exposed wiring
Wiring	At start-up, monthly or if any problems occur	Check for exposed cords and wires for damage, replace as necessary

## TROUBLE SHOOTING GUIDES

### MOTOR AND GEAR REDUCER

Problem	Possible Cause	Suggested Solution
Hard to start, stalling out or running hot	Drag on conveyor	Inspect for obstruction causing drag and remove
	Lack of lubricant	Check oil level in gearbox, verify vent breather plug is open
	Overloaded	Remove load and possibly increase horsepower
	Electrical	Check wiring, circuits and take load readings
Excessive noise	Lack of lubricant	Check oil level in reducer and add if required
	Damaged gears	Replace unit
	Faulty bearing	Replace bearing

### CHAIN AND SPROCKETS

Problem	Possible Cause	Suggested Solution
Abnormal wear	Excessive chain tension	Reduce the chain tension
	Misaligned sprockets	Align sprocket faces using a straight edge and tighten setscrews
	Chain not lubricated	Lubricate with proper lubricant
	Damaged chain or sprocket	Replace damaged component
	Misaligned chain guard	Adjust as required
Excessive noise	Loose chain	Adjust chain tension
	Chain not lubricated	Lubricate with proper lubricant
	Misaligned sprockets	Align sprocket faces using a straight edge and tighten setscrews
Pulsating chain	Improper chain tension	Adjust chain tension
	Overloaded conveyor	Inspect for obstruction causing drag or remove excess load
Broken chain	Seized or sticking roller, sprocket or shaft	Inspect and replace damaged items
	Worn or damaged chain	Replace damaged chain
	Obstruction	Inspect conveyor for obstruction and remove
Sprockets loose on shaft	Loose setscrews	Align sprocket faces using a straight edge and tighten setscrews
	Worn or damaged key	Replace key and inspect shaft keyway for damage
Chain slack	Normal wear	Adjust chain to proper tension or replace chain

## ELECTRICAL

Problem	Possible Cause	Suggested Solution
Motor not operating	Emergency stop activated	Reset pull cord, air pressure switch or pushbuttons
	Blown fuses	If resistance from hot to ground is OK replace fuse
	Overload relay tripped	Reset relay, measure current draw
	Check for wiring problems	Check wiring diagram for correct connections
Unit running wrong direction	3 phase motor wired incorrectly	Check proper voltage wiring diagram
	1 phase motor wired incorrectly	Check proper voltage wiring diagram
	DC motor wired incorrectly	Check proper voltage wiring diagram
Overload relay trips	Check setting on overload relay with full load amperage on motor nameplate	If incorrect, reset overload relay
	Check for mechanical binding or jams	Remove item creating drag load on unit - check belt
	Additional load is too much for motor	Decrease the amount of product load on unit
	Check if motor current draw is high	Drive may require more horsepower-consult factory
Unit operates sporadically	Check photoeyes	Clean lenses and check for proper alignment
	Check reflectors	Clean and check for proper alignment
	Limit switches	Check arm location and tightness
	Solenoids	Check pressure at the valve
	Loose connections	Check wire nuts and terminal strip

AIR SYSTEMS

Problem	Possible Cause	Suggested Solution
Equipment fails to operate	Non-functioning air bag	Check for air pressure at regulator and ensure pressure is set at 80 PSI, adjust if necessary
		Check air bag for damage, replace if necessary
		Check flow control valve in exhaust port of solenoid valve, replace solenoid if necessary
		Check for defective solenoid, replace if necessary
	Loss of air pressure	Check air line connections for possible leakage and tighten connections if necessary
		Check air compressor, turn on if necessary
	Sluggish or slow activation of pneumatics	Check for foreign matter or debris in air lines, clean lines if necessary
		Check for presence of moisture in lines, drain if necessary
		Check air pressure, solenoid valves, adjust or replace as necessary
		Dirty or plugged flow control, clean or replace as necessary

**DO NOT ATTEMPT MAINTENANCE ON ANY CONVEYOR WHILE IT IS IN OPERATION. DISCONNECT ALL POWER WHILE PERFORMING ANY MAINTENANCE FUNCTIONS ENSURING THAT THE MAIN POWER DISCONNECT SWITCH TO THE CONVEYOR IS LOCKED OUT IN ACCORDANCE WITH PROPER WRITTEN LOCKOUT PROCEDURES.**



## PARTS GUIDE

### C.D.L.R. DRIVE TRAIN COMPONENTS

COMPONENT	PART NUMBER
Driver Sprocket 40B12 with 1" KWSS finished bore	40B12X1
RC 40 chain	RC 40 x length
RC 40 connecting link	RC-40-CL
RC 40 offset link	RC-40-OL

### C.D.L.R. MOTOR & DRIVE COMBINATIONS

COMPONENT	PART NUMBER
3/4 HP Eurodrive Motor, 575V, 36 RPM output speed, M1B mtg, 0°TB	S47DT80K4
Non-Standard Motor & Drive Combination – refer to order	Specify manufacturer, HP, voltage, output shaft speed, mtg position, terminal block location, and cable entry from motor nameplate
Non-Standard Motor – refer to order	Specify manufacturer, HP, voltage, enclosure, mtg from motor nameplate
Non-Standard Reducer – refer to order	Specify manufacturer style, size, ratio, handing, mtg from reducer nameplate

### C.D.L.R. 2-7/8" DIAMETER CARRIER ROLLERS

2-7/8" DIAMETER ROLLER c/w 3/4" DIAMETER SHAFT (diameter of turntable platter)	PART NUMBER
60"	2840-4500-CDLR

### C.D.L.R. 2-7/8" DIAMETER GAP ROLLERS

2-7/8" DIAMETER ROLLER c/w 3/4" DIAMETER SHAFT (diameter of turntable platter)	PART NUMBER
60" (Outer Roller)	2840-1700
60" (Middle Roller)	2840-3000
60" (Inner Roller)	2840-3825

**C.D.L.R. CARRIER ROLLER ASSOCIATED COMPONENTS**

COMPONENT	PART NUMBER
3 hole flange bearing x 3/4" bore	UCFB204-12
Sprocket 40B12 with 3/4" KWSS finished bore	40B12X3/4
Sprocket spacer for CDLR x 1/4" lg	SS-CDLR-1
Sprocket spacer for CDLR x 1-3/16" lg	SS-CDLR-2
Key for CDLR 3/16" x 7/8" lg	K-CDLR-1

**CHAIN TRANSFER DRIVE TRAIN COMPONENTS**

COMPONENT	PART NUMBER
Drive base to suit SEW 47 motors	DB-SEW47-1
Driver sprocket 50B14 x 1" bore	50B14X1
Driven sprocket 50B14 x 1-3/16" bore (common drive shaft)	50B14X1-3/16
RC 50 chain	RC 50 x length
RC 50 connecting link	RC-50-CL
RC 50 offset link	RC-50-OL
2 hole flange brg x 1-3/16" bore (common drive shaft)	UCFL-206-19
1-3/16" dia x 39"lg shaft c/w full kwy (common drive shaft)	CR-K-250-1-3/16 x length
Driver sprocket 60B13 x 1-3/16" bore (common drive shaft)	60B13X1-3/16
RC 60 chain	RC 60 x length
RC 60 connecting link	RC-60-CL
RC 60 offset link	RC-60-OL
Pillow block brg x 3/4" bore (slave drive shaft arrangement)	UCP-204-12
3/4" dia x 8-1/2"lg shaft c/w kwy (slave drive shaft arrangement)	CR-K-1875-3/4 x length
Driver sprocket 40B12 x 3/4" bore (slave drive shaft arrangement)	40B12X3/4
RC 40 chain	RC 40 x length
RC 40 connecting link	RC-40-CL
RC 40 offset link	RC-40-OL

**CHAIN TRANSFER MOTOR & DRIVE COMBINATIONS**

COMPONENT	PART NUMBER
3/4 HP Eurodrive Motor, 575V, 36 RPM output speed, M1B mtg, 0°TB	S47DT80K4
Motor & Drive Combination – refer to order	Specify HP, voltage, output shaft speed, mtg position, terminal block location, and cable entry from motor nameplate
Motor – refer to order	Specify manufacturer, HP, voltage, enclosure, mtg from motor nameplate
Reducer – refer to order	Specify manufacturer, style, size, ratio, handing, mtg from reducer nameplate

**CHAIN TRANSFER PNEUMATIC COMPONENTS**

COMPONENT	PART NUMBER
Firestone air actuator 1-1/2" maximum stroke	16-ST-W02-358-5000
Filter / regulator unit 1/2" NPT	MIN MAFR401-15A-NPT
Solenoid valve 5 way / 2 position 1/4" NPT 120 V.A.C.	AZP 522ME-S
Poly tubing 3/8" PE-662FN	POLY-0.25 x length
Poly tubing 1/2" PE-8N	POLY-0.375 x length

**CHAIN TRANSFER CONVEYING CHAIN & ASSOCIATED COMPONENTS**

COMPONENT	PART NUMBER
RC60 chain - heavy duty riveted	RC-60-R1
RC60 connecting link - heavy duty	RC-60-CL
Idler sprocket 60 A 13 x 5/8" bore	HN60A13X5/8

**TURNTABLE DRIVE TRAIN COMPONENTS**

COMPONENT	PART NUMBER
Drive base to suit SEW 47 motors	DB-SEW47-1
Driver sprocket 50B15 x 1" bore	50B15X1
RC 50 chain	RC 50 x length
RC 50 connecting link	RC-50-CL
RC 50 offset link	RC-50-OL

**TURNTABLE MOTOR & DRIVE COMBINATIONS**

COMPONENT	PART NUMBER
3/4 HP Eurodrive Motor, 575V, 36 RPM output speed, M6A mtg, 180°TB	S47DT80K4
Motor & Drive Combination – refer to order	Specify manufacturer, HP, voltage, output shaft speed, mtg position, terminal block location, and cable entry from motor nameplate
Motor – refer to order	Specify manufacturer, HP, voltage, enclosure, mtg from motor nameplate
Reducer – refer to order	Specify manufacturer style, size, ratio, handing, mtg from reducer nameplate

**TURNTABLE & ASSOCIATED COMPONENTS**

COMPONENT	PART NUMBER
RC50 chain - heavy duty riveted	RC-50-R1
RC50 connecting link - heavy duty	RC-50-CL
Die spring compression 1-1/4" OD X 5/8" X 2" medium pressure.	MP-54
Die spring compression 1-1/4" OD X 5/8" X 4" medium pressure	MP-58
4 hole flange brg x 1-7/16" bore (turntable shaft)	UCF207-23
1-7/16" dia x 15-1/2"lg shaft no kwy (turntable shaft)	CRRD030 x length
Cam follower 3" diameter	CR-3-X
VFD, AC Tech, 575V, 3 phase, 1HP, panel mount, fixed keypad	SF510
Line reactor, AC Tech, 575V, 3 phase, 1HP	KDRA50L
AB barrel proximity sensor	872C-A10N30-A2
AB limit switch	802T-AP
Siemens motor isolation switch 575V 15HP 3 phase plastic enclosure	3LD2164-OTB53

