Wardcraft Conveyor

Installation & Maintenance Service Manual

- 6" Pitch Steel Hinge Belt

Including safety information and recommended spare parts list



Six-inch pitch open frame conveyor shown

Wardcraft Conveyors
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Introduction:

This manual provides guidelines and procedures for installing, operating, and maintaining your conveyor. A recommended spare parts list and important safety information are also provided throughout the manual. For safety to personnel and for proper operation of your conveyor, it is recommended that you read and follow the instructions provided in this manual.

Warranty

Wardcraft warrants that this unit is free from defects in material and workmanship and fit for the ordinary purposes for which such goods are used, under normal installation, use and service, for **twelve (12) months** from the date of shipment. Any description of this unit is only to identify it, and is not a warranty that the unit fits the description. No one else can make any warranties for **WARDCRAFT**. Any warranties implied by law are limited in duration to the twelve-month term of this warranty.

Wardcraft will replace any defective part within the warranty period, without charge, provided:

1) The Purchaser gives **WARDCRAFT** prompt written notice of the defect, including the date of purchase;

2) The Purchaser pays for delivery of the defective part to **WARDCRAFT** at One Wardcraft Drive, Spring Arbor, MI 49283-0460 for inspection and verification of the defect; and

3) The Purchaser shall pay all shipping and insurance charges for the replacement part from Spring Arbor, Michigan, and the cost of installing the replacement part.

This warranty is limited to the replacement of defective parts. **WARDCRAFT** WILL NOT BE LIABLE FOR ANY DAMAGES CAUSED BY ANY DEFECT IN THIS UNIT. Replacement of a part under warranty does not extend the warranty term.

This warranty shall not apply if any failure of this unit or its parts is caused by unreasonable use, improper maintenance or repairs, incorrect adjustments, exposure to corrosive or abrasive material, moisture causing damage, or any modification or alteration affecting the operation of the unit which is not authorized by **WARDCRAFT** in writing. This warranty shall not apply to the following items, which are covered by their manufacturer's warranty, subject to any limitations contained in those warranties:

- Bearings, Caster Wheels, Elastomer Belts, Motors and Reducers - Conveyor Division

Except as set forth herein, Wardcraft makes no other warranties, whether express, implied or statutory, including merchantability for fitness or any particular purpose.

Receiving and Uncrating:

1. Check the number of items against the bill of lading.
2. Examine condition of equipment to determine if any damage occurred during shipment.
3. Move all crates to area of installation.
4. Remove crating and check for optional equipment that may be fastened to the conveyor. Make sure these parts (or any foreign pieces) are removed.

Note: If damage occurred or freight is missing, file report(s) as needed immediately.

Lost or Damaged Goods

Please read these important instructions

The bill of lading is an acknowledgement by the transportation company of receipt in good condition of the shipment covered by our invoice bearing our order number corresponding to shipper's number on this b/l. These goods have been shipped F.O.B. Spring Arbor, Michigan. Our responsibility for this shipment has now ceased. If any of the goods called for on this bill of lading are short or damaged, do not accept them until the freight agent makes a damaged notation on your freight bill or express receipt. You should thoroughly inspect this shipment as soon as received. If any concealed loss or damage is discovered, notify your local freight or express agent at once and request him to make an inspection. This is absolutely necessary. Unless you do this transportation companies will not entertain any claim for loss or damage. If the agent will not make an inspection, then you should make an affidavit that you notified him (on a certain date) and he failed to do so. This with other papers will properly support your claim. Do not order the transportation company to return to our factory any shipment until our company has authorized such return.

Instruct your receiving department personnel as follows:

1) Inspect the exterior of each carton before signing carrier's freight bill.

2) Unpack in driver's presence any carton showing exterior signs of damage and note such damage on all copies of freight bill.

3) Cartons for which clear delivery receipt is signed must be unpacked in time to give carriers notice of concealed damage in form of a request

for inspection within 15 days from date of delivery by motor carrier, 30 days when delivered by rail. Where cartons show no exterior signs of damage, consignees do not have right to open cartons before signing carrier's freight bill.

4) After request for inspection of concealed damage is made, hold merchandise with all containers and packing, if any, for carrier's inspection.

5) Claim for loss or damage must be filed within nine months from date of delivery.

We are willing to assist you in every possible manner in collecting claims for loss or damage, but this willingness on our part does not make us responsible for collection or replacement of the material. We will ship and bill to you replacement for parts lost or damaged in transit. The cost of such replacement parts will be the amount of your claim.

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Installation

Check oil level in the reducer; refer to reducer lubrication and operating instructions (not listed within this manual).

Note: M.S.D.S. available upon request.

Place the conveyor into its place of operation. Conveyor is designed to operate in a square and level position. Watch for extremes in floor conditions. Conveyor should be plum and level at time of installation; shim as required. Uneven floor conditions should be avoided when using conveyors with casters.

Conveyor Set-up:

1. Determine direction of product flow.
2. Position conveyor in area of installation, note if conveyor is shipped in more than one piece, position the conveyor sections in sequence using the drawings provided at time of approval.
3. For conveyors requiring belt installation or joining of belt sections, see Belt Installation, page 25.
4. Mark a chalk line on the floor to locate center of conveyor.
5. If conveyor is shipped in one piece, attach supports if not already attached. If conveyor is shipped in more than one piece, fasten sections together and attach supports as required.
6. Place conveyor in its operating position, check to insure that it is level and not twisted. Adjust supports as needed and lag to floor, unless provided with casters.
7. Install electrical hookup as required. (See Electrical Equipment)

Before starting the conveyor the operator and installer should carefully read the operating instructions provided in this manual.

Secure the conveyor into place, where applicable.

If conveyor is equipped with a torque limiter: Adjust the torque limiter as required, refer to torque limiter instructions. (Not listed within this manual). Note: the torque limiter is adjusted from the factory for light loads and may require further adjusting depending on the load. It is important not to over tighten; this could cause the conveyor drive motor to overload.

Supply power to the conveyor, (refer to the wiring instructions).

After power has been connected:

Oil level in the reducer (gearbox) was checked and at the proper level.

Operating instructions have been read.

All personnel are clear of any moving parts of the conveyor.

You can now start the conveyor.

Note: You should check that the belt is running in proper direction, running smoothly and centered in the frame.

At start up, if the conveyor does not function properly contact your area **Wardcraft Conveyor representative** or contact factory direct at **800-782-2779.**

Safety

Never start the conveyor until you are sure that all personnel are clear.

All maintenance and lubrication of the conveyor are to be made while the conveyor is stopped and power to the conveyor is locked out.

Never operate the conveyor without the safety guards in place.

Never allow any part of your body to come in contact with any moving parts of the conveyor.

Interfacing of equipment:
When two or more pieces of equipment are interfaced, special attention shall be given to the interfaced area to insure the presence of adequate guarding and safety devices as applicable with state and federal regulations.

Conveyor Area

Keep the area clear of obstructions, which could endanger the employee operating the conveyor.

Conveyor Loading

Do not dump load or load conveyor while the conveyor is not running. The load on the conveyor should be kept to the specified amount and the specific parts for which the conveyor was designed. Overloading the conveyor may cause premature failure to the conveyor components or possibly void the warranty.

Note: Contact Wardcraft Conveyor before using a conveyor in a different application.

Altering the Conveyor

No unauthorized alterations are to be made to the conveyor without first contacting Wardcraft and obtaining written permission.

FAILURE TO DO SO WILL VOID THE WARRANTY

Under no circumstances shall the safety characteristics of the conveyor be altered.

Maintaining the conveyor

Routine inspections, preventive and corrective maintenance programs shall be conducted to ensure that all safety features and devices are maintained and function properly.

Wiring instructions

(To be done by qualified electrical personnel only)



Always observe the power lock out procedure established for your company (and or Federal and State guidelines).

For conveyors without power cord or controls: determine the power and phase required to operate the conveyor motor. Refer to the motor nameplate.

Connect the motor per the diagram located inside the motor junction box.

For conveyors with power cord: determine the power and phase required to operate the conveyor motor. Refer to the motor nameplate.

The voltage should be listed and tagged on the power cord or the motor. It may be necessary to remove the electrical cover on the conveyor motor and visually check to see for which voltage the motor is wired. Check the motor nameplate for the phase.

For conveyors with controls: refer to the electrical schematic for the proper voltage and phase. If no schematic was received, contact Wardcraft and request one is sent before connecting the power.

Overload protection is required to protect the conveyor motor from over-current conditions.

Note: If no overload protection is provided the motor warranty will be void.



WARNING!
Electrical controls shall be installed and wired by a qualified electrician. Wiring information for the motor and controls are furnished by the equipment manufacturer.

CONTROLS
Electrical Code: All motor controls and wiring shall conform to the National Electrical Code (Article 670 or other applicable articles) as published by the National Fire Protection Association and as approved by the American Standards Institute, Inc.

CONTROL STATIONS

1. Control stations should be so arranged and located that the operation of the equipment is visible from them, and shall be clearly marked or labeled to indicate the function controlled.
2. **WARNING**! The conveyor shall not be started until employees in the area are alerted by a signal or by a designated person that the conveyor is about to start.
3. Take extra caution once the conveyor is started and is automatically controlled or must be controlled from a remote location, an audible device shall be provided which can be clearly heard at all points along the conveyor where personnel may be present.
4. The warning device shall be actuated by the controller device starting the conveyor and shall continue for a required period of time before the conveyor starts.
5. A flashing light or similar visual warning may be used in conjunction with or in place of the audible device if more effective in particular circumstances.
6. Where system function would be seriously hindered or adversely affected by the required time delay or where the intent of the warning may be misinterpreted (i.e., a work area with many different conveyors and allied devices), clear, concise, and legible warning shall be provided. The warning shall indicate that conveyors and allied equipment may be started at any time, that danger exists, and that personnel must keep clear. The warnings shall be provided along the conveyor at areas not guarded by position or location.
7. Remotely and automatically controlled conveyors, and conveyors where operator stations are not manned or are beyond voice and visual contact from drive areas, loading areas, transfer points, and other potentially hazardous locations on the conveyor path not guarded by location, position, or guards, shall be furnished with emergency stop buttons, pull cords, limit switches, or similar emergency stop devices.
8. All such emergency stop devices shall be easily identifiable in the immediate vicinity of such locations unless guarded by location, position, or guards. Where the design, function, and operation of such conveyor clearly is not hazardous to personnel, an emergency stop device is not required.
9. The emergency stop device shall act directly on the control of the conveyor concerned and shall not depend on the stopping of any other equipment. The emergency stop devices shall be installed so that they cannot be overridden from other locations.
10. Inactive and unused actuators, controllers, and wiring should be removed from control stations and panel boards, together with obsolete diagrams, indicators, control labels, and other material, which serve to confuse the operator.



Safety devices

- All safety devices, including wiring of electrical safety devices, shall be arranged to operate in a "fail-safe" manner, that is, if power failure or failure of the device itself would occur, a hazardous condition must not result.
- Emergency Stops and Restarts. Conveyor controls shall be so arranged that, in case of emergency stop, manual reset or start at the location where (the emergency slop was initiated, shall be required of the conveyor(s) and associated equipment to resume operation.

- Before restarting a conveyor, which has been stopped because of an emergency, an inspection of the conveyor shall be made and the cause of the stoppage determined. The starting device shall be locked out before any attempt is made to remove the cause of stoppage, unless operation is necessary to determine (the cause or to safely remove the stoppage).

- Re-attach all safety devices and guards before starting equipment for normal operation.

- Maintain safety guards and devices IN POSITION and IN GOOD REPAIR.

- Maintain all warning signs in a legible condition, and obey all warnings.

Refer to ANSI Z244.1-1982, American National Standard for Personnel Protection - Lockout/Tagout of Energy Sources - Minimum Safety Requirements and OSHA Standard Number 29 CFR 1910.147 "The Control of Hazardous Energy (Lockout / Tagout)."



Operation safety precautions:

- Only trained employees shall be permitted to operate conveyors. Training shall include instruction in operation under normal conditions and emergency situations.

- Where employee safety is dependent upon stopping and/or starting devices they shall be kept free of obstructions to permit ready access.
- The area around unloading points shall be kept clear of obstructions, which could endanger personnel.
- No person shall ride the load-carrying element of a conveyor under any circumstances Under no circumstances shall any person ride on any element of a vertical conveyor. Owners of conveyors should affix warning devices to the conveyor reading **Do Not Ride Conveyor.**
- Personnel working on or near a conveyor shall be instructed as to the location and operation of pertinent stopping devices.
- A conveyor shall be used to transport only material it is capable of handling safely.
- Under no circumstances shall the safety characteristics of the conveyor be altered..
- Routine inspections and preventive and corrective maintenance programs shall be conducted to insure that all safety features and devices are retained and function properly.
- Personnel should be alerted to the potential hazard of entanglement in conveyors caused by items such as long hair, loose clothing, and jewelry.
- As a general rule, conveyors should not be cleaned while in operation. Where proper cleaning requires the conveyor to be in motion and a potential hazard exists, personnel shall be made aware of the associated hazard and provided proper protection to eliminate the hazard.



Because of the many moving parts on the conveyor, all personnel in the area of the conveyor must be warned when the conveyor is about to be started.

Conveyor start-up

- Before conveyor is turned on, check for foreign objects that may have been left inside conveyor during installation. These objects could cause serious damage during start-up.
- After conveyor has been turned on and is operating, check motors, reducers, and moving parts to make sure they are working freely.

Preventive Maintenance

It is important that a maintenance program be established to ensure that all conveyor components are maintained in a good working condition.

1. Only qualified and trained personnel shall perform maintenance, such as lubrication and adjustments.
2. It is Important that a maintenance program be established to insure that all conveyor components are maintained in a condition which does not constitute a hazard to personnel.
3. When a conveyor is stopped for maintenance purposes, starting devices or powered accessories shall be locked or tagged out in accordance with a formalized procedure designed to protect all person or groups involved with the conveyor against an unexpected start.
4. Replace all safety devices and guards before starting equipment for normal operation.

Guards and Warning Signs

Safety guards and warning signs

Maintain all guards and safety devices IN POSITION and IN SAFE REPAIR. Maintain and obey all warning signs and maintain in a legible condition.

Bearings

Lubricate bearings as required.

Sealed for life bearings normally are pre-packed with high quality water resistant grease having optimum chemical and mechanical stability. Sealed bearings offer the advantages of eliminating bearing failures that can be caused by entrance of foreign matter into the bearing during re-lubrication, over greasing, and lubrication with the wrong grease.

Relubeable bearings: in applications where lubrication is desirable, the recommended lubricant for temperatures between -40^{o} to +300^{o} F is Chevron FM NLGI #2.

Oilube bearings: additional lubrication can be provided through the use of oil soaked felts, wicks, etc., or by periodic oiling.

Motor Temperature

Ambient temperature is the temperature of the air surrounding the motor. Standard motors are designed to operate in an ambient temperature of up to 40° C or 140° F. Special lubricants and insulation may be necessary for either very high or very low ambient conditions. When checking motor temperature always use test equipment specifically designed for that purpose, never check by hand.

Belt

If the conveyor is operating in a dry environment, to extend belt life, it is recommended that the hinge pins and rollers be lubricated with SAE-30 wt. approximately every 40 hours of operation.

Chain

It is recommended that the drive chain be lubricated with SAE-30 oil approximately every 40 hours of operation. Under extreme conditions, more frequent lubrication may be required

Lubrication

RECOMMENDED RELUBRICATING SCHEDULE

Lubrication instructions			
Speed	Temperature	Cleanliness	Greasing intervals
100 RPM	Up to 120 ° F	Clean	6 to 12 months
500 RPM	Up to 150 ° F	Clean	2 to 6 months
1000 RPM	Up to 210 ° F	Clean	2 to 8 weeks
1500 RPM	Over 210 - 250 ° F	Clean	weekly

MOTOR RECOMMENDED LUBRICATION INTERVALS				
NEMA/(IEC) FRAME SIZE		RATED SPEED		
	3600 RPM	1800 RPM	1200 RPM	900 RPM
UP TO 210 INCL. (132)	5500 hrs.	12000 hrs.	18000 hrs.	22000 hrs
OVER 210 TO 280 INCL. (180)	3600 hrs.	9500 hrs.	15000 hrs.	18000 hrs.

Grease is the primary lubricant used in most industrial mounted bearing units. Standard bearings are generally packed with grease of NLGI-grade 2 thickness. For most applications this grade is sufficient for retention in the bearing.

Drive Chain and Tension

Drive chain and tension

The drive chain and sprockets should be checked periodically for proper tension and alignment. Improper alignment will cause excessive wear to the drive components see manufactures recommendations attached. Appendix A.

To make adjustments:

1. Remove chain guard
2. Check sprocket alignment by placing a straight edge across the face of both sprockets. Loosen set screws and adjust as needed. Re-tighten set screws.
3. To adjust tension, loosen gear reducer fasteners, and shim gear reducer until slack has been removed. Re-tighten gear reducer fasteners.
4. Lubricate chain
5. Replace chain guard



Never remove chain guards while the conveyor is running.
Always replace guards after adjustments are made

Roller chain drive tension and care

The correct amount of slack is essential to the proper operation of a drive chain.

What is the correct amount of slack? General rule of thumb is that the slack side of the drive chain should have at least the thickness of the chain in side to side movement.

Unlike flat or “V” belts, chains require no initial tension. When the chain is too tight, the working parts carry a much heavier load than is necessary, resulting in additional wear. Too much slack is also harmful. On long centers, too much slack will cause vibration or chain whip. Routine inspections should be made for proper chain tension, misalignment, and lack of lubrication, chain elongation and broken parts. Elongation is at fault when the chain rides up on the sprocket, then snaps into place. In the event of either elongation, broken or damaged chain sprockets, replace both chain and sprockets. Do not put new chain on old sprockets or run old chain on new sprockets, replace both.

Preventative Maintenance Recommended Checklist

Preventive maintenance check list

The following is a general maintenance checklist, which covers the major components of your conveyor. This will be helpful in establishing a standard maintenance schedule based on your companies usage and type of application.

COMPONENT	SUGGESTED ACTION	WEEKLY	MONTHLY	QUARTERLY
MOTOR	Check noise, temperature and fasteners		✓	
REDUCER	Check noise, temperature and oil level		✓	
BELT	Check tracking, tension and lubrication	✓		
BEARINGS	Check noise, lube and fasteners		✓	
DRIVE CHAIN	Check tension, wear and lubrication		✓	
SPROCKETS	Check wear, set screws and keys		✓	
STRUCTURAL	General check for damage and fasteners			✓

General Maintenance Instructions

Roller chain, drive sprocket misalignment

Misalignment of chain and sprockets is indicated by wear on the sides of the sprocket teeth and the inner faces of the chain sidebars. To check alignment, place a straight edge across the faces of the driver and driven sprocket. If properly aligned, the straight edge or cord will contact both sprocket surfaces squarely.

Steel hinge belt tensioning

To adjust the belt tension on steel belt conveyors, adjustments are made via the take up adjustment screws. The tension should always be adjusted equally on each side of the conveyor, if the tension is uneven, (meaning the belt is adjusted out further on one side than the other) it will cause the belt axles to wear and have premature failure.

Determining the proper tension:

Too much slack will cause the belt to lurch, make noise or jam. Observe the belt while it is rotating, from the intake end of the conveyor, too much slack will cause the belt to bind as it starts to wrap around the bottom of the belt sprockets. (This will be apparent if the belt lurches). At the discharge end of the conveyor, the belt will drop off the bottom of the belt sprocket teeth. Note: loose belt tension may cause wear and have premature failure.

Conveyor inspection

When inspecting the conveyor for external damage, look for items such as damage occurring from industrial lift truck hitting the conveyor while removing scrap bins, etc. Look for possible wear marks or metal shavings on belt, frame and tracks of conveyor.

Checking belt axles for wear

Visual inspection can be made to determine several problems. View the ends of the axles through the access hole located at the intake end of the conveyor. If the axle ends are pointed, the belt may be riding on the ends of the axles rather than the wheels. If the pins are missing, they may be hitting an obstruction inside the frame. Both may require removal of the belt to view the inside of the frame. Refer to belt removal instructions.

Belt Removal

PRE - BELT REPLACEMENT PROCEDURE

When replacing a conveyor belt, always check the following items:

- Belt track for wear: if the belt track shows excessive wear it may be necessary to replace the belt track before replacing the belt.
- Damage to the frame: if the frame has been damaged it should be repaired before replacing the belt.
- Debris caught in the actual steel hinge belt that can be dragged into conveyor frame. Remove all visible debris.
- Debris inside the frame: if debris is found, remove the debris before replacing the belt.

Before reinstalling an old conveyor belt, always check the following items:

- Check the belt for missing pins & insure that all the pins are crimped.
- Check all other belt components for wear or damage, replace as needed.
- Visual inspect tracks & overlays for excessive wear.

When installing a new conveyor belt:

- Always use new belt sprockets when installing a new belt
- Always use original Wardcraft replacement parts when replacing belt sprockets. Wardcraft belt sprockets are matched pairs.

Belt Removal

Tools required:

- 3/16" Allen wrench
- Standard pliers
- Standard straight edge screw driver
- Adjustable wrench or applicable open end wrench
- Hammer
- Vise grip pliers
- Drift punch
- Gloves

WARNING: When removing the belt from the frame, the belt may reach a point where gravity can cause the belt to start to roll out of the frame. This situation occurs when the weight of the belt outside the conveyor exceeds the weight of the belt remaining inside the conveyor, thus injury could occur to anyone who may be in its path.

NOTE: The assistance of one or more co worker (s) may be required when removing a belt.

Belt removal process:

Note: For the following procedures you will use a wrench (crescent or open end) and 3/16" Allen wrenches.

1) Move the take up adjustment screws all the way in (toward the intake end of the conveyor).

2) Loosen the hex nuts securing the belt guards to the take up assemblies and remove the belt guards.

3) Remove the fastener securing the chain guard strap to the chain guard cover.

4) Remove the fasteners securing the chain guard cover and remove the cover.

5) To remove the roller chain, remove the clip from the connecting link, remove the top portion of the link, remove the link from the roller chain and remove the roller chain.

6) Loosen the setscrew in the torque limiter and remove the torque limiter.

7) Remove the fasteners securing the tail guard and remove the tail guard from the conveyor.

8) Remove the access hole covers.

9) Rotate the belt until one belt axle is positioned at the mid point of the access hole on the side of the conveyor frame. Using the pliers, remove the pin from one end of the belt axle. Always discard any used pins and replace with new pins when re-assembling.

10) Remove the wheel and washer (if used) from the belt axle, then remove the axle from the access hole on the opposite side of the frame

11) Belt removal: start by pulling on the top section of belt, removing it from the upper section of the conveyor frame, pulling it away from the conveyor. Continue with this process until the belt removal is complete.

Belt replacement

Belt installation procedure:

- Tools
- The help of one or more coworker(s) is required.

CAUTION: Due to the extreme weight of some belts, personnel should use extreme care to prevent injury during belt installation. The use of a winch system may be required to install certain belts due to excessive weight.

1) Replace the axle shaft removed from the belt earlier into the leading end of the belt.

2) Make sure all belt components are in their correct position

3) Replace the wheel and washer (if used).

4) Insert and crimp a pin.

5) Roll the belt into the upper portion of the conveyor frame until the two ends of the belt meet at the tail sprockets.

6) To join the sections, roll the belt until approximately six inches of belt extends from the bottom of the conveyor frame. Remove the pin; wheel and washer (if used) then remove the axle.

7) For standard belts without sidebars: Roll the belt into the conveyor until both ends of the belt meet across from the access holes, insert the axle removed earlier, leave the pin, washer and wheel on the axle, insert the axle into the side wing, apron and side wing, replace the roller. Use the vice grip pliers, drift punch and hammer to install and crimp a new pin.

8) For belts with sidebars: Roll the belt into the conveyor until both ends of the belt meet across from the access holes, insert the axle removed earlier axle into the sidebar then replace the roller then insert the axle through the side wing, apron and side wing, replace the roller then push the axle through the remaining sidebar. Use the vice grip pliers, drift punch and hammer to install and crimp a new pin.

9) For tensioning the conveyor belt refer that section. Use an adjustable crescent wrench or end wrench to make the belt tensioning adjustments.

Install all the following items:

1) Place the torque limiter onto the drive shaft.

2) Install the roller chain and connecting link.

3) Align the torque limiter and drive sprocket and tighten the torque limiter set screw.

4) Tension the roller chain as required. The use of shim stock may be required.

5) Replace the chain guard cover and fasteners.

6) Replace the chain guard strap fastener.

7) Replace the belt guards and secure in place.

8) Replace the tail guard and fasteners.

9) Replace the access hole covers.

Replacement of belt sprockets

Note: When replacing the belt sprockets it is recommended that the belt be removed from the conveyor first.

Tools required:

- 3/4" & 5/16" Allen wrenches
- Adjustable crescent wrench or applicable open end wrench
- Gloves

Removing the tail shaft assembly:

1) Remove the fasteners securing the tail shaft and remove the tail shaft assembly from the conveyor.

2) Loosen the setscrews securing the set collars to the tail shaft.

3) Remove the set collars and the tail sprockets.

4) Install the new sprockets and replace the set collars. Make sure to keep the hubs facing inward.

5) Reinstall the tail shaft assembly, leave the set collars set screws loose install the fasteners and secure the tail shaft into the conveyor frame.

Removing the drive shaft assembly:

1) Loosen the set screw securing the belt guards to the bearings Remove the belt guards

2) Loosen the set screws securing the drive shaft into the bearings Loosen the set screws securing the set collars to the drive shaft

3) Loosen the set screws securing the belt sprockets to the drive shaft

4) Remove the sprocket keys and one roller bearing push the drive shaft through the bearing into the conveyor from the non-drive side far enough to remove the set collars and the old belt sprockets.

5) Replace the set collars and new belt sprockets; make sure to reinstall the sprockets with the set screws to the hub side outside.

6) Insert the end of the drive shaft assembly into the bearing on the non-drive side of the conveyor until it is flush with the outside of the bearing race and tighten the bearing set screws. Move the belt sprockets into their approximate position and reinstall the keys into the belt sprockets. The remaining setscrews will be tightened during the belt installation.

Belt installation

Tools required:

- 3/4" & 5/16"Allen wrenches
- Standard pliers
- Standard screw driver
- Adjustable crescent wrench or applicable open end wrench
- Pry bar
- Gloves
- Two men

Belt installation procedure: Joining Belt Sections

Select the belt section labeled "A." Unroll the belt on the floor at the intake section of the conveyor (making sure the rollers are making contact with the floor). Position the belt so the direction of travel is toward the intake section of the conveyor. Lift the end of the belt onto the top of the belt sprockets. If the entire belt consists of one piece, roll the belt into the conveyor until the belt reaches the drive end set of belt sprockets. If the belt has multiple sections: roll the belt into the conveyor until approximately one foot is remaining outside the conveyor. Secure the belt in the conveyor to keep the belt from rolling out while you are connecting the next section of belt. Select belt section labeled "B." Unroll the belt and place it at the end of section "A." To join the

belt sections, remove one pin from the first belt axle of section "B," remove the wheel and washer (if used) from the belt axle, and then remove the belt axle. Align and join sections "A" & "B." (When connecting belt sections always make sure the belt components are in their proper order, refer to Figures 2 and 6 for the proper order of the belt sidebars and side wings). Reinstall the belt axle, wheel, and washer (if used), insert and crimp a new pin. Repeat steps 3 & 4 until the belt reaches the drive end set of belt sprockets.

Belt installation procedure: Drive Sprockets

1) Once the belt has reached the drive end set of sprockets, (make sure the belt sprocket keys are in place and that the belt sprockets are in alignment with the conveyor chain) then roll the belt onto the sprockets and into the conveyor approximately two feet. We recommend a special adapter, (manufactured by Wardcraft) be used to rotate the belt to prevent damage or scarring of the drive shaft.

2) Using a pry bar, pry between the conveyor frame and the set collar and move the belt all the way to one side of the conveyor. Then pry the belt in the opposite direction until the belt is centered between the sides of the conveyor frame (see Figure 8).

3) Move the set collars located on the drive shaft until they seat against the sides of the belt sprockets, then tighten the setscrews in the set collars (see Figure 7 for proper clocking of all set screws). Roll the belt in reverse until it reaches the top of the belt sprockets, move the set collars on the inside of the belt sprockets until they seat against the sides of the belt sprockets. (Make sure the belt sprocket seats firmly between both set collars). Tighten the set collar set screws, and then tighten the setscrews in the belt sprockets.

4) For belts that consist of only one piece, roll the belt into the conveyor until it reaches the belt sprockets located at the intake end of the conveyor.

5) For conveyors with multiple belt sections roll the belt until there is approximately one foot of belt left out of the frame (refer to joining belt sections, steps 1 thru 4). Continue with this process until the belt reaches the belt sprockets located at the intake end of the conveyor. (Note: Belt sections are labeled A, B, C, D etc. example: section A to B, B to C, C to D).

Belt Installation Procedure: tail sprocket, joining belt and assemble conveyor.

1) Once the belt reaches the lower set of belt sprockets, continue to roll the belt until the lower section of belt extends approx. six inches out the intake end of the conveyor. (If the belt hits the belt sprockets and you are unable to rotate the belt out of the intake end of the conveyor, you will need to move the belt take-up adjustment screws out until the belt rollers seat into the belt sprocket teeth). Remove a pin from the belt axle on the lower piece of belt, remove the wheel and washer (if used) and roll the belt back into the conveyor until the two ends of the belt can be joined together at the center of the belt sprockets across from the access hole. (Note: belts are sometimes shipped with extra aprons and may require removing one or more aprons to achieve the proper belt length.) Install the belt axle removed earlier, through the access hole; align the belt parts until they are in their proper position (refer to Figures 2 & 6) and insert the belt axle into the belt. Replace the wheel and washer (if used) and install and crimp a new pin.

2) After the belt has been reinstalled and joined together, Use a pry bar at the intake section to pry between the conveyor frame and the set collars and move the belt all the way to one side of the conveyor. Then pry the belt in the opposite direction until the belt is centered between the sides of the frame (refer to Figure 8). Move the set collars until they seat against the sides of the belt sprockets, then tighten the setscrews.

3) For tensioning the conveyor belt refer to section 10.2 Use a 15/16" wrench to make the belt tensioning adjustments.

Install all the following items:

1) Place the torque limiter onto the drive shaft.

2) Install the roller chain and connecting link.

3) Align the torque limiter and drive sprocket and tighten the torque limiter set screw.

4) Tension the roller chain as required (refer to section 10.1). Note: the use of shim stock may be required.

5) Replace the chain guard cover and fasteners.

6) Replace the chain guard strap fastener.

7) Replace the belt guards and secure in place.

8) Replace the tail guard and fasteners.

9) Replace the access hole covers.

Caution: Always make sure all safety devices and guards are in place and in good working order before applying power to the conveyor.

Belt Maintenance

BELT MAINTENANCE:

1. Inspection – frequency should be influenced by conditions of operation.
    a. Check for excessive slack. Adjust take up as required.
    b. Check for wear:
        - Bushings
        - Pins
        - Sprockets
        - Sidebars
    c. Check for broken or cracked parts
    d. Check rollers to make sure they are rolling and not sliding. If rollers are sliding determine and alleviate cause.
    e. Check for tendency of the chain to run off in one direction and interferences.

LUBRICATION

Lubrication – frequency of lubrication will vary with the application

Grease all lube fittings with lithium soap E.P grease of medium (NLGI #2 consistency). Chain joints without lube fittings should be lubricated with oil that has a viscosity to enable it to reach Internal surfaces under normal conditions. For temperatures up to 160 degrees Fahrenheit S.A.E. 30 oil is recommended.

CLEAN ATMOSPHERE

Chains operating in a relatively clean atmosphere can be lubricated by drip - feed oilers, or by applying the lubricant manually with a brush or oilcan.

ATMOSPHERE LADEN WITH LINT OR NON-ABRASIVE DUST

Where large volumes of lint or non-abrasive dust are present, a brush or wiper can be used to clean the chain and apply new lubricant. Otherwise, the lint or dust will clog the chain joint clearance and prevent penetration of the oil into the joints.

ABRASIVE ATMOSPHERE

If abrasives come in contact with the chain, lubrication becomes more difficult. When lubricants are applied externally, abrasive particles tend to adhere to the chain surfaces and act as a lapping or grinding compound. Under extreme conditions it is sometimes advisable to avoid chain lubrication.

ELEVATED TEMPERATURES

Petroleum oils should not be used to lubricate chains operating in temperatures exceeding 300 degrees Fahrenheit. Under certain conditions, chains operating in high temperature atmospheres can be effectively lubricated using finely divided graphite or molybdenum disulfide in a volatile carrier, which upon evaporation of the volatile carrier leaves a thin deposit of solid lubricant on the chain joint surfaces.

Note 1: frequency of lubrication will vary with the application

Note 2: applying a lubricant to conveyor chains is often difficult, as they are usually operated in the open and exposed to the material being conveyed. The nature of the surrounding atmosphere is the principle consideration in selecting the method of lubrication to be used

Note 3: consult a lubricant manufacture for recommendations when chains are required to operate at elevated temperatures or under other difficult conditions.

Trouble shooting guide

Always refer to the lock-out procedure established for your company
Before attempting any inspections or repairs to the conveyor.

PROBLEM	PROBABLE CAUSE	ACTION REQUIRED
Roller chain is jumping teeth.	Roller chain may require adjusting.	Check sprocket alignment and roller chain adjustment
Motor running, belt not turning	Torque limiter may require adjusting; Roller chain may be disconnected, key(s) may be sheared or conveyor belt may be jammed.	Check torque limiter for proper adjustment (refer to torque limiter instructions). Check roller chain adjustment. Inspect all drive shafts for sheared or missing keys. Inspect conveyor for parts that may be causing the belt to jam.
Motor full load current exceeds the name plate rating causing the control overload to trip	Conveyor belt movement may be obstructed, causing an increase in torque. Ambient temperature too high. Reducer oil level low, causing high heat condition.	Inspect conveyor for any parts that may be coming in contact with the belt and causing the amount of torque required for turning the belt to exceed the output torque rating of the drive. Remove the source of heat, shield the motor from the heat, increase cooling capacity of motor, and increase the insulation class of the motor. Check the reducer oil level.
Belt pulsating, or lurching	Conveyor belt may require adjusting.	Inspect belt for proper tension.
Parts adhering to belt	Coolant or oils too thick. Pimples worn from belt surface. Parts caught in hinge loops	Reduce consistency of coolants or change type of coolant. Replace belt parts as needed. Contact the Wardcraft representative for your area, for optional equipment to aid in the removal of parts.
Belt axles breaking	Belt wheels are wearing into the belt axles causing the ends of the axles to eventually break.	Belt tension uneven: replace belt parts as required, readjust belt tension. Note: When this problem occurs, belt sprockets should always be replaced before installing new or rebuilt belt.
Belt aprons cracking	Impact of parts on belt surface.	Reduce the impact.
Belt jamming	Obstruction inside frame, missing pins from belt axles, broken axles or belt hitting frame.	Inspect conveyor for obstruction, this may require removal of belt. Inspect axles for missing pins or broken axles. Inspect conveyor frame for internal or external damage.

For further assistance contact Wardcraft Conveyor, Service department, **1-800-782-2779**

TROUBLE SHOOTING DRIVES

PROBLEM	PROBABLE CAUSE	ACTION REQUIRED
Conveyor will not start or stops frequently	1. Motor is overloaded	1. Check for overloaded conveyor 2. Check heater or circuit breaker and change if necessary
Drive chain and sprockets wear excessively	1. Lack of lubrication on chain may have caused chain to stretch and created an improper chain to sprocket mesh 2. Sprockets are out of alignment 3. Loose chain	1. Replace chain and sprockets. Note if problem reoccurs a chain take-up may be required 2. Align sprockets 3. Tighten chain
Loud popping or grinding noise	1. Defective bearing 2. Loose set screw 3. Loose drive chain	1. Replace bearing 2. Tighten set screw 3. Tighten chain
Motor or reducer overheating	1. Conveyor is overloaded 2. Low voltage to motor 3. Low lubricant level in reducer	1. Check capacity of conveyor and reduce load to recommended level 2. Have electrician check and correct as necessary 3. Re-lube as required

TROUBLE SHOOTING BELT

TROUBLE	CAUSE	SOLUTION
Belt dragging side of conveyor	1. Sprockets not set properly 2. Tail or drive shaft not square with conveyor frame 3. Conveyor twisted	1. Set sprockets so belt is centered in conveyor 2. Adjust as necessary, both ends of shaft should be equal distance from end of bed 3. Adjust supports

Recommended Spare Parts List

Note: part numbers for the items maybe job specific, consult factory when ordering parts, please have model and serial number available when consulting factory concerning replacement parts.
See complete parts list on next page.

1. Torque limiter (complete assembly)
2. Reducer sprocket
3. Motor
4. Reducer
5. Riveted roller chain and connecting links
6. Drive bearings
7. Take-up bearings
8. Belt sprocket, one set (drive)
9. Belt sprocket, one set (tail)
10. Belt section, (10' section)

Wardcraft Parts list

Parent	Serial number 7800-002	SHS3600-37 6" PITCH CONV A 1ST	EA	
1	MOA30300	3HP TEFC 3PH 182TC 1725 4.1A	EA	1
1	REDUCER-7800-002	REDUCER DMQ2600-200-2-180TC	EA	1
1	TAKEUP-7800-002	TAKE UP STH-39-12	EA	2
1	BEA7800-002	BEARING SF-39	EA	2
1	TL7800-002	13-16 2 716" BK&S	EA	1
1	SPE7800-002	TL SPROCKET 45 TOOTH RC80	EA	1
1	TLB7800-002	TL BUSHING 13-16 RC80 .375	EA	1
1	COL02040	COLLAR, SET, 2-1/2" ZINC	EA	8
1	COL04020	COLLAR, HINGED, 1-1/4	EA	2
1	ELE20312A	PROXIMITY SENSOR	EA	1
1	ELE20313	PROXIMITY SENSOR CABLE	EA	1
1	CABESHWPKG	CABLE E-STOP HARDWARE PACKAGE	EA	1
	2 CBL00025	VINYL COATED CABLE 1/4" OD	FT	50
	2 CBL00025-A	WIRE ROPE CLIP, 1/4 MALL	EA	2
	2 CBL00025-B	WIRE ROPE CLIP 3/16 MALL	EA	2
	2 FAS50002	TURNBUCKLE E&E 5/16 X 4-1/2	EA	2
	2 FAS50003	TURNBUCKLE 3/8 X 6 E&E	EA	2
	2 FAS10501	EYE BOLT, 3/8 X 16 X 7-3/8	EA	10
1	SHFTD01-7800	DRIVE SHAFT	EA	1
1	SHFTT01-7800	TAIL SHAFT	EA	1
1	BLS15140	BELT SPROCKET FOR 6" PITCH	EA	1
1	BLS15240	BELT SPROCKET FOR 6" PITCH	EA	3
1	BELT-7800	6" PITCH STEEL HINGE BELT	FT	80

Parent	Serial number 7800-003	SHS3600-37 6" PITCH CONV A 1ST	EA	
1	MOA30300	3HP TEFC 3PH 182TC 1725 4.1A	EA	1
1	REDUCER-7800-003	REDUCER DMQ2600-200-1-180TC	EA	1
1	TAKEUP-7800-003	TAKEUP STH-39-12	EA	2
1	BEA7800-003	BEARING SF-39	EA	2
1	TL7800-003	13-16 2 716" BK&S	EA	1
1	SPE7800-003	TL SPROCKET 45 TOOTH RC80	EA	1
1	TLB7800-003	TL BUSHING 13-16 RC80 .375	EA	1
1	COL02040	COLLAR, SET, 2-1/2" ZINC	EA	8
1	COL04020	COLLAR, HINGED, 1-1/4	EA	2
1	ELE20312A	PROXIMITY SENSOR	EA	1
1	ELE20313	PROXIMITY SENSOR CABLE	EA	1
1	CABESHWPKG	CABLE E-STOP HARDWARE PACKAGE	EA	1
	2 CBL00025	VINYL COATED CABLE 1/4" OD	FT	50
	2 CBL00025-A	WIRE ROPE CLIP, 1/4 MALL	EA	2
	2 CBL00025-B	WIRE ROPE CLIP 3/16 MALL	EA	2
	2 FAS50002	TURNBUCKLE E&E 5/16 X 4-1/2	EA	2
	2 FAS50003	TURNBUCKLE 3/8 X 6 E&E	EA	2
	2 FAS10501	EYE BOLT, 3/8 X 16 X 7-3/8	EA	10
1	SHFTD02-7800	DRIVE SHAFT	EA	1
1	SHFTT02-7800	TAIL SHAFT	EA	1
1	BLS15140	BELT SPROCKET FOR 6" PITCH	EA	1
1	BLS15240	BELT SPROCKET FOR 6" PITCH	EA	3
1	BELT-7800	6" PITCH STEEL HINGE BELT	FT	80
1	ELE20359AC	PHOTOELECTRIC SENSOR	EA	4
1	ELE20360AC	PHOTOELECTRIC SENSOR	EA	4
1	ELE20366AC	CORDSET FOR ELE20359/60/61-AC	EA	8

For further questions or assistance contact Wardcraft Conveyors

Thank you for your purchase!

Wardcraft Team

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