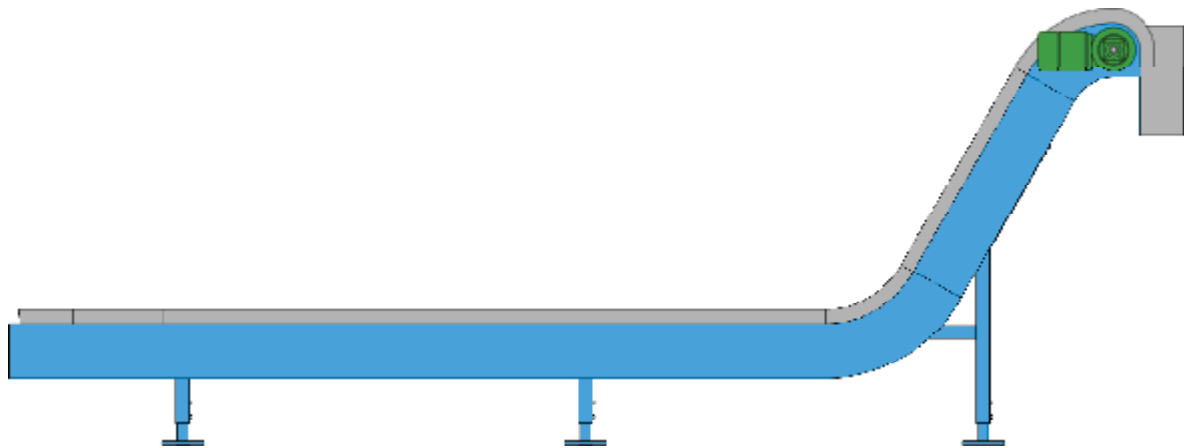




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Magnetic Conveyor Owners Manual



Magnetic Conveyor Owners Manual

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Magnetic Conveyor Owners Manual

Introduction

The management and employees of Master Conveyors Inc. thank you for specifying our equipment.

This manual provides information on how to install, operate and maintain your new conveyor.

If special circumstances or questions arise please contact Master Conveyors Inc. at: (519) 737-9042 quoting the serial number(s) of the machine(s).

Note: The serial number(s) can be found on a rectangular plate next to the drive unit and on the inside cover of this manual.

The key to a successful installation is careful and methodical working principles. Please follow all instructions fully and complete the installation in the order described as some operations cannot be finished until a later component has been installed.

Delivery Inspection

Upon delivery of your magnetic conveyor check your packing slip or bill of lading accompanying the unit. If any components are missing contact Master Conveyors Inc. **immediately** with a description of the missing components and the serial number(s) of the machine(s).

If any components have been damaged in transit, note it on the bill of lading and contact the Carrier **immediately**.

Warranty

- a) Seller warrants that the material and workmanship on the equipment manufactured by Master Conveyors will be free from defects at the time of shipment. If during the first 12 months (or 2000 hours, whichever comes first) of operation after final shipment, the Buyer establishes to the Seller's satisfaction that any part or parts manufactured by Master Conveyors was defective at the time of shipment, Master Conveyors, at its own expense, will repair or replace (but not install) replacement parts. Buyer must contact Master Conveyors within 12 months after delivery to user to allow any warranty coverage to be applied. Seller's liability under this warranty is limited to replacement parts

only and the Seller will make no allowance for corrective work done unless agreed to in writing by Master Conveyors. Charges for correction of defects by others will not be accepted unless agreed to in writing, prior to work being performed, by an officer of the company. Damage or deterioration due to extraordinary or ordinary wear and tear (including, but not limited to, use of equipment to handle product of sizes, or weights and shapes or at speeds or methods which differ from information originally provided to Seller), chemical action, wear caused by abrasive materials or by improper maintenance and lubrication, or by improper storage and handling shall not constitute defects. Failure to install or assemble equipment properly shall not constitute defects. Warranty does not cover consumable items.

- b) Seller has made no representation, warranties, or guarantees, expressed or implied, not expressly set forth on above paragraph. Seller shall not be liable hereunder for any consequential damages included but not in limitation, damages which may arise from loss or anticipated profits or production from increased cost or operation of spoilage material.
- c) The components used in manufacture of said equipment, which were manufactured by others, will carry such manufacturer's customary warranty, which Seller will obtain for Buyer upon request.

Note: To protect warranties on any conveyor components (i.e. gearbox, motor, bearings, belt, etc.) call the Seller's home office for authorization before disassembling, or replacing. Failure to do so will immediately void all warranties.

- d) No representative of Master Conveyors has been conferred with any authority to waive, alter, vary or add to the terms of warranty stated herein, without prior authorization in writing executed by an officer of the company.

Safety Considerations

Safety is always an important factor in any working process and due care must be taken to protect your personal safety.



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Master Conveyors Inc. will continue its best efforts to design, build and market safe products and will continue to advocate and urge their safe installation and operation.

The employer is required to train and instruct every employee in the safe operation and servicing of this machine. Instructions must include:

1. Keep all guards in place, at all times, when the conveyor is running.
2. Keep unauthorized persons away from the machine.
3. Operate, service and maintain the machine according to safe procedures.
4. **Do not** start or operate the machine until persons are known to be clear of the equipment.
5. Lockout **all** sources of power when carrying out **any** maintenance work on the machine.

Safety at Installation

1. Wear safety glasses, safety shoes and gloves.
2. Ensure area around installation site is free of debris.
3. Be aware of any sharp edges while handling conveyor components.
4. Be careful in and around the conveyor(s) during installation and be aware of the location of other personnel.
5. Only allow **suitably qualified personnel** to assemble and install the equipment.
6. Only a **suitably qualified electrician** should wire in the equipment according to your local electrical codes.
7. Ensure there are no foreign objects (nuts, bolts, tools etc.) on the frame or belt before starting for the first time.
8. Check the oil level in the gear reducer.

Typical Tools Required for Installation

The following is a list of typical tools required to perform the installation process.

- Overhead crane or fork lift truck.
- Portable drills and carbide drill bits (only required if your conveyor will be bolted to the cement floor).
- Assorted clamps and vice grips.
- Assorted hand tools including wrenches, hammers, pliers, screwdrivers etc.
- Measuring tapes, squares and spirit levels.

Installation Instructions

Before beginning the installation process ensure that you have fully read the following information and that you are comfortable in your abilities to complete the various tasks.

Ensure that you have read all the relevant safety information in the preceding pages in order to protect both yourself and co-workers from injury and to protect the equipment from damage.

Depending upon the type and configuration some conveyors are supplied fully assembled and only require installing while others are supplied partially assembled and need to be completed on site. Please follow the relevant instructions below for your specific conveyor(s).

Fully Assembled Conveyors

1. Unpack the conveyor and check for damage.
2. Ensure the installation area is flat and free of debris.
3. Locate the horizontal in-feed section in the required position and ensure that it is level in both directions.



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4. Conveyors are supplied with one of three leg options:
 - a) Fixed
 - b) Adjustable
 - c) Castors

For fixed legs, drill through the holes in the feet and use suitable anchors to fasten the conveyor to the floor.

For adjustable legs, slacken the clamping bolts on the legs and adjust the leg length. Re-tighten the clamping bolts and check the in-feed for level. Drill through the holes in the feet and use suitable anchors to fasten the conveyor to the floor.

For castors, lock the wheels with the wheel locks (if fitted).

5. Check the oil level in the gear reducer.
6. If your conveyor is supplied with its own control box this now needs to be wired into a suitable electrical supply. If your conveyor is supplied without a control box then it will need to be wired into the control system of your machine.

Note: All electrical wiring **must** be completed by a **qualified electrician** according to local codes.

Note: **Before starting the conveyor for the first time** ensure there are no foreign objects (nuts, bolts, tools etc.) on the frame or belt.

7. To start the conveyor press the **<Start>** button on the control panel or issue the start command from your machine control system.

Operating the Conveyor

The procedures for routine operation of the conveyor will vary depending on whether the conveyor has its own control system or if it is tied into your machine control system.

For stand-alone conveyors press the **<Start>** button to run the conveyor and the **<Stop>** button to stop the conveyor. The **<Reverse>** button (if fitted) will 'jog' the belt in the reverse direction.

For conveyors which are tied into another machine control system, the start and stop commands will have to be issued from that system.

In either case it is important that the conveyor is started **before** any parts/chips can accumulate in the in-feed and that it is stopped **after** being allowed to run off any material it is currently carrying.

Failure to observe these conditions could lead to overloading of the system at start-up and/or premature wear. Always start the conveyor **before** applying its load and stop the conveyor **after** it has been allowed to clear the belt.

Typical Loads

Figs. 1-4 show typical loads which can be carried on your magnetic conveyor.

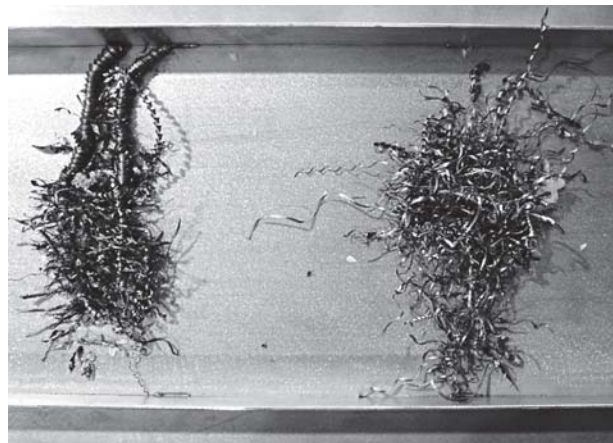


Fig. 1

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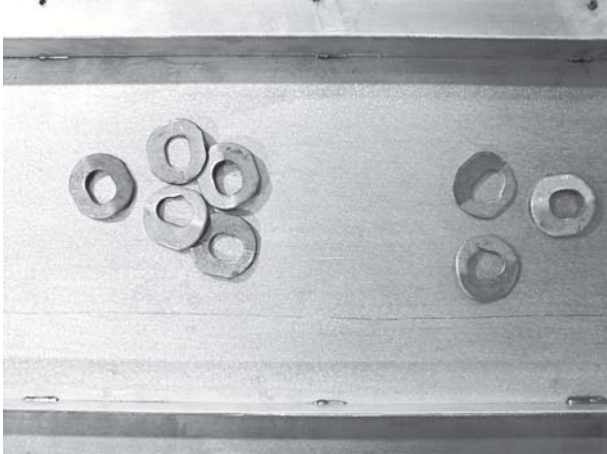


Fig. 2

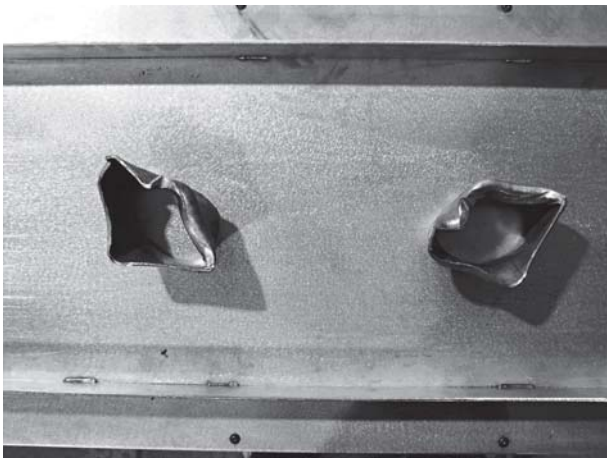


Fig. 3

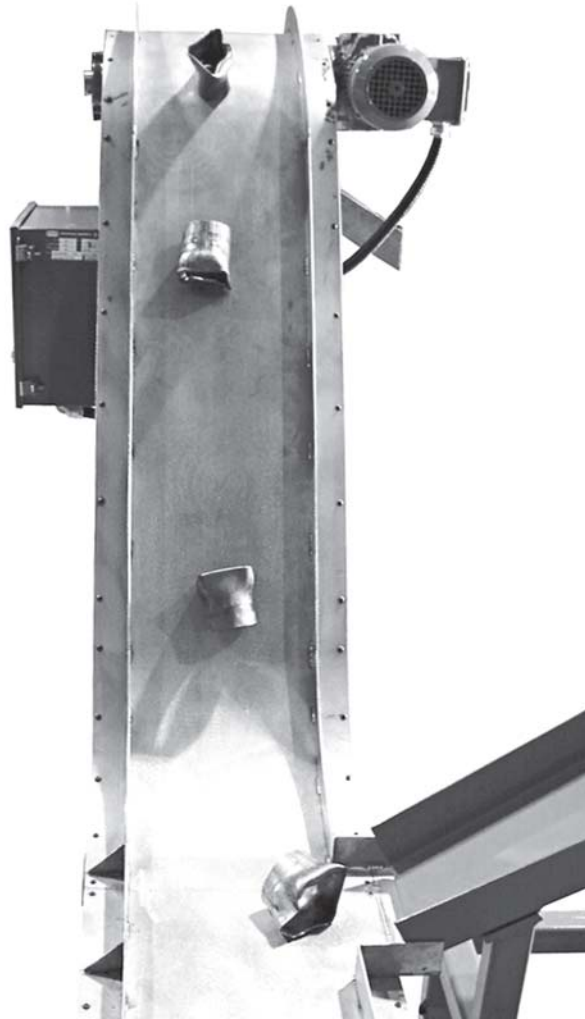


Fig. 4

Routine Maintenance

Belt Care

1. **Lubrication** - Standard conveyors use an oil bath system, an optional drip-feed oiler is available (see Appendix for more information if a drip-feed oiler is installed on your system).

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On oil bath systems a sight gauge is mounted on the side of the in-feed area. Ensure that the oil is at the correct level at all times.

Note: There should only be 1"-2" of oil in the bottom of the conveyor.

Once a year (at the annual inspection) the oil should be drained and replaced with fresh oil as follows (see Fig. 5):

- a. To drain the old oil remove the drain plug and filler plug and allow the oil to drain out.
- b. Replace the drain plug and add Kleen-flo ISO 32 (or equivalent) hydraulic oil until it reaches the correct level on the sight gauge.
- c. Replace the filler plug.

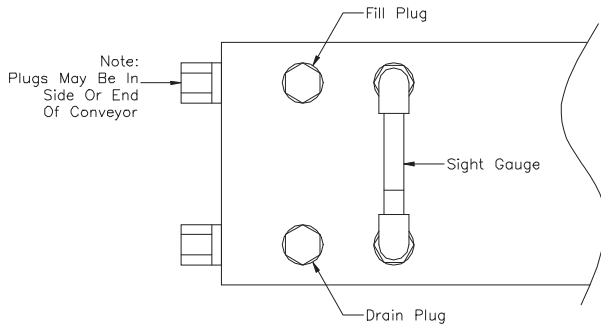


Fig. 5

2. **Belt Tension** - Check for correct belt tension at least monthly (more frequently if the conveyor carries heavy loads or runs continuously) or after any occurrence of jamming.

The belt is fitted with either an external or internal spring loaded tensioning system as specified in your original order. See Figs. 6-7.



Fig. 6

To adjust the belt tension slacken the locknuts and increase the tension on the spring. Re-tighten the locknuts when the belt is correctly adjusted.



Fig. 7

Note: The top cover will need to be removed on conveyors with internal tensioners.

Motors

1. **Cleaning** - All motors should be kept free of dirt and grease accumulations. Open motors should be periodically vacuumed to remove dust and dirt from the windings.
2. **Ventilation** - For best results motors should be operated in an area where adequate ventilation is available.
3. **Temperature** - Most of the current smooth body, T.E.N.V. and T.E.F.C. motors run hot to the touch. As long as maximum ambient temperatures are not exceeded and the amperage draw is within the allowable range there should not be a problem.

Note: The temperature and amperage limits can be found on the motor nameplate.

4. **Lubrication** - Most electric motors are lubricated for life and under normal operating conditions require no more lubrication. Under severe conditions where additional lubrication is required use the following chart as a guide. See Fig. 8.



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Condition	Lubricating Frequency
Normal 8 hr Day - Light Loads	2-3 Years
Heavy 24 hr Day - Heavy Loads - Dirty Conditions	1 Year
Extreme - Shock Loads - High Temperature	3-6 Months
Typical Lubricants	
Chevron Oil Co. - SRI #2	Gulf Refining Co. - Precision #2 or #3
Shell Oil Co. - Alvania #2, Dolium R	Mobil Oil Co. - Mobilux Grease #2
Texaco Inc. - Premium RB	Sinclair Refining Co. - AF #2

Fig. 8

Note: The chart above is based on motors with grease lubricated bearings, running at speeds of 1750 RPM or less and operating within an ambient temperature range of between 0°F to 120°F (-18°C to 49°C).

Gear Reducers

- Ventilation** - During normal operation gear reducers build up heat and pressure and **must** be vented to protect the seals and gears.
- Cleaning** - After approximately two to three weeks of operation the reducer **must** be drained, flushed out and refilled to the correct level with fresh oil. This is done to remove any brass particles created during the normal wear-in period of the worm gear. From then on the oil should be changed every 2500 hours of operation or every 6 months, whichever comes first.

Note: Where high temperatures and/or a dirty atmosphere exist more frequent changes may be necessary. Periodically check to ensure the correct level of oil is in the reducer. Too little oil will cause accelerated wear on the gears. Too much oil can cause overheating, seal deterioration and leakage.

- Lubrication** - The correct oil to use in your reducer depends on the worm's RPM, ambient temperature and the severity of use. The following chart can be referred to for reducers with 1750 RPM worm speed, operating under normal duty and with ambient temperatures from 18°F to 125°F (-8°C to 52°C). See Fig. 9.

Ambient Temperature	
15°F to 60°F (-9°C to 16°C)	50°F to 125°F (10°C to 52°C)
A.G.M.A.#7 Compound	A.G.M.A.#8 Compound
Mobil - Compound #DD	Mobil - #600W Super Cyl. Oil
Shell - Macoma Oil #69	Shell - Valvata Oil J81 & J82
Sinclair - #87 H.D. Oil	Sinclair - Superheat Valve Oil
Sun - Sun EP 1110	Sun - Sun EP 1150
Texaco - Vanguard Cyl. Oil	Texaco - 650 Cyl. Oil
Keystone - WG 1x Oil	Keystone - WG B Oil
Gulf - EP Lubricant #115	Gulf - EP Lubricant #145 P

Fig. 9

Note: For ambient temperatures other than those mentioned, or for severe duty, please consult with the gear reducer manufacturer.

- General** - Inspect weekly to make sure reducer remains securely bolted.

Bearings

- Lubrication** - Greasing frequency should be regulated to as many times as necessary to keep a small film of grease leaking at the seals. This will protect against foreign materials entering the bearing. The following list is provided to aid you in acquiring the correct (or an equivalent) grease. See Fig. 10.

Normal Duty	Heavy Duty
Texaco - Multifak #2	Sun - Prestige 742 EP
Mobil - Mobilux #2	Exxon - Lidok #2 EP
Amoco - Lithium MP	Arco - Litholene HEP2
Shell - Alvania #2	Shell - Alvania #2 EP

Fig. 10

Note: Do not over grease as this can cause blown seals or overheating bearings.

- Replacement** - If bearing replacement becomes necessary, remember to clean off the shaft, file smooth any grooves or set screw marks and oil the shaft **before** slipping on the new bearing.

Note: If the bearing does not slide easily onto the shaft, use a **soft** metal bar or mallet to **tap** against the **inner** race.

- General Maintenance** - Set up a weekly check on all bearings to ensure they remain tightly bolted down, set screws remain fastened securely and they are correctly lubricated.

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General Maintenance

1. When terminating operation of the conveyor make sure that no accumulation of chips/parts are left on the belt. A large force is applied at start-up and any excess weight could cause premature wear. For the same reason **always** start the conveyor **before** introducing parts/chips to the in-feed area.
2. Once a year remove all covers/guards and thoroughly clean the inside of the conveyor.
3. While the covers are off check the UHMW tracks for wear and replace if necessary. See Fig. 12.

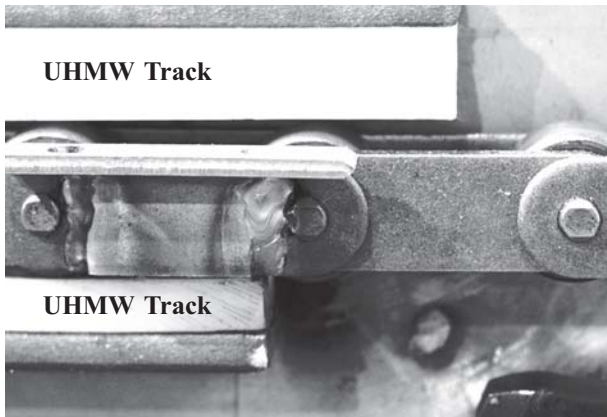


Fig. 12

Note: The UHMW tracks are custom made for your specific conveyor. Please contact Master Conveyors Inc. and specify your conveyor serial number when ordering).

To check for UHMW track wear place a straight edge across the conveyor above a magnet and measure the distance between the top of the magnet and the underside of the straight edge. If the distance is less than 1/16" the UHMW tracks will need to be replaced. See Fig. 13.

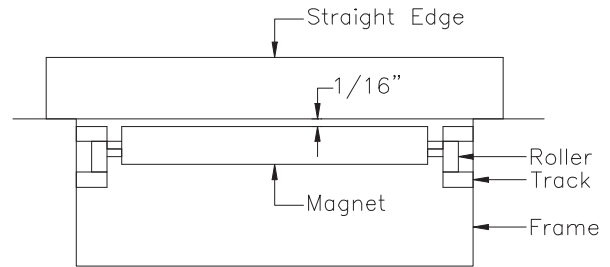


Fig. 13

Consumable Parts

After the conveyor has been used for a long period of time it will become necessary to replace certain parts. The service life of consumable parts varies depending upon the materials carried, the general operating conditions, regular maintenance (or lack of) and the total operating time.

The general condition of the conveyor should be inspected daily (i.e. at the start or end of a shift) and an in-depth inspection should be carried out during regularly scheduled maintenance procedures.

When you need to procure consumable parts contact Master Conveyors Inc. at (519) 737-9042 quoting the serial number(s) of the machine(s), the part names and numbers and the quantities of each part required.

Note: Please refer to the illustrations in the Appendix of this manual for specific part numbers for your particular conveyor(s).



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Inspection List

The following list shows the maintenance and inspection items for your reference. See Fig. 14.

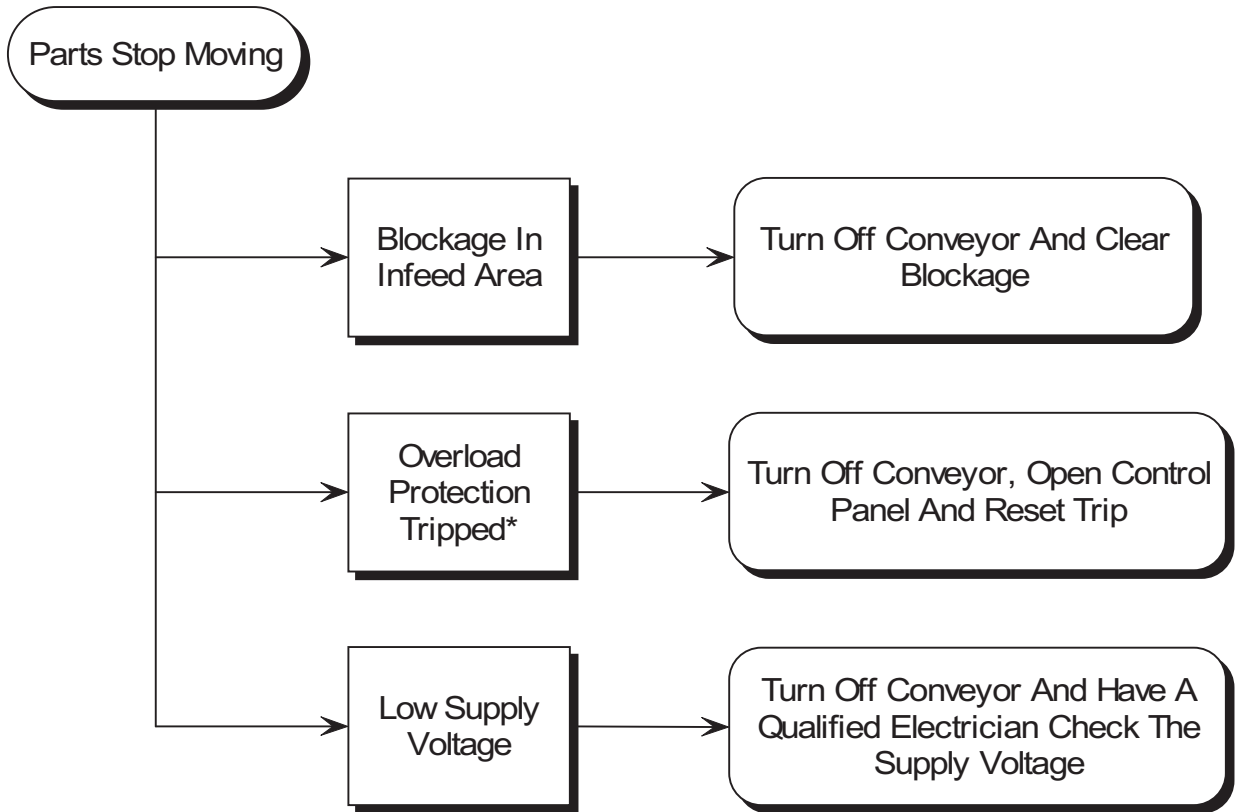
Daily Inspections	a) Check for abnormal sounds around the conveyor b) Check for cleanliness c) Check that the conveyor is clear before starting d) Check the level of the oil bath lubrication system
Monthly Inspections	a) Lubricate all bearings b) Carry out the daily checks
Annual Inspections	a) Remove covers and guards and thoroughly clean inside the conveyor b) Drain and replace the oil in the oil bath lubrication system c) Inspect and replace UHMW track d) Check the tightness of all fasteners on the conveyor e) Carry out the monthly checks f) Carry out the daily checks

Fig. 14



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Troubleshooting

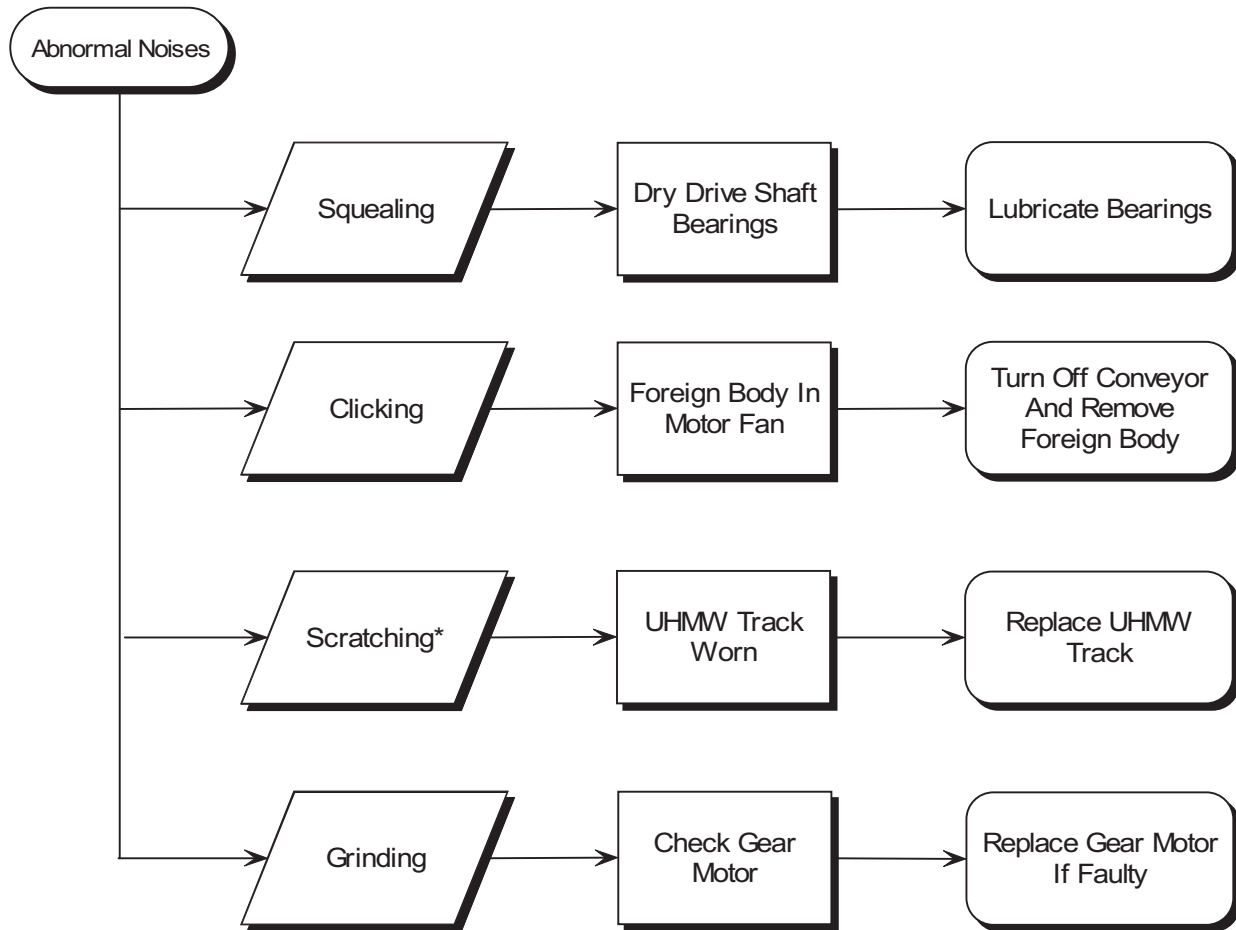


*Note: Only Applies To Control Systems Supplied By Master Conveyors Inc.



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Troubleshooting



*Note: Only Applies If There Are No Moving Parts On The Conveyor