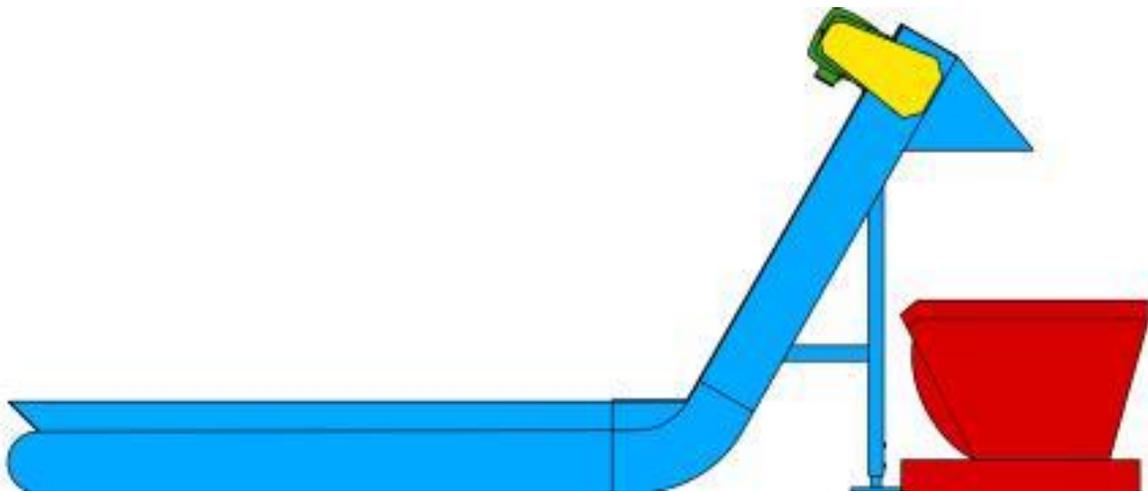




MC3 Manufacturing Inc.
1979 Settrington Drive, RR#3,
Kingsville, Ontario, Canada, N9Y 2E5
Tel: 877-726-9990 (Toll Free)
519-325-1370
Fax: 519-325-1374
Web: www.mc3mfg.com



Dragout Conveyor Owners Manual



Dragout Owners Manual

Contents

Introduction.....	1
Delivery Inspection.....	1
Warranty	1
Safety Considerations.....	1
Safety at Installation	2
Safety Devices - Torque Limiter.....	2
Typical Tools Required for Installation	3
Installation Instructions.....	3
Operating the Conveyor.....	4
Options	4
Routine Maintenance	4
Belt Care.....	4
Drag Out Conveyor Scraper Replacement.....	5
Motors.....	5
Gear Reducers.....	5
Bearings.....	6
Chain and Sprockets.....	6
Torque Limiter	6
General Maintenance.....	7
Consumable Parts.....	7
Recommended Spare Parts.....	7
Inspection List	8
Troubleshooting Charts.....	9



Dragout Owners Manual

Index

A	
Abnormal Noises	11
B	
Bearings	6
Before starting the conveyor for the first time	3
Belt Care.....	4
Belt Problems.....	10
Belt Stops Running.....	9
C	
Chain and Sprockets.....	6
Consumable Parts	7
D	
Delivery Inspection	1
Drag Out Conveyor Scraper Replacement.....	5
G	
Gear Reducers.....	5
General Maintenance.....	7
I	
Inspection List	8
Installation Instructions.....	3
Introduction	1
M	
Motors	5
O	
Operating the Conveyor	4
Options	4



Dragout Owners Manual

Index

(Continued)

R

Recommended Spare Parts	7
Routine Maintenance	4

S

Safety	1
Safety Devices - Torque Limiter	2

T

Tools Required for Installation	3
Torque Limiter	6
Troubleshooting Charts	9

W

WARNING	2
Warranty 1	

Dragout Conveyor Owners Manual

Introduction

The management and employees of MC3 Manufacturing 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 MC3 Manufacturing Inc. at: (519) 325-1370 quoting the serial number(s) of the machine(s).

Note: The serial number(s) can be found on a rectangular plate near the drive unit.

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 dragout conveyor check your packing slip or bill of lading accompanying the unit. If any components are missing contact MC3 Manufacturing 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 MC3 Manufacturing 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 MC3 Manufacturing was defective at the time of shipment, MC3 Manufacturing, at its own expense, will repair or replace (but not install) replacement parts. Buyer must contact MC3 Manufacturing 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 MC3 Manufacturing. 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 MC3 Manufacturing 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.



Dragout Conveyor Owners Manual

MC3 Manufacturing 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 (if applicable).

Safety Devices - Torque Limiter

This conveyor is fitted with a torque limiter as standard equipment in order to protect against excessive torque loads.

When an excessive torque is generated the drive sprocket will 'slip' against the linings and the conveyor belt will stop. The gear motor will continue to run in this condition.

WARNING

NEVER attempt to free the belt while the conveyor is still running as it could suddenly re-start and cause injury to personnel or damage to the conveyor. Follow the steps outlined below to correct any problems:

1. Turn off the conveyor immediately and lockout the power source.
2. Check the in-feed throat area (at the bottom of the conveyor incline) for a blockage and clear if necessary.
3. If the in-feed throat area is clear remove the incline cover and check for a blockage under the cover.
4. If the conveyor belt is free of obstructions remove the drive cover and inspect the torque limiter for the following:
 - a) Check for correct tension on the torque limiter.
 - b) Check the sprocket and friction faces to ensure that they are free of oil, grease, moisture or rust.
 - c) Check the friction discs for excessive wear. If worn replace with a new set.

Note: Please refer to the torque limiter manufacturer's information sheet in the Appendix of this manual for information on adjustment and dismantling procedures.



Dragout Conveyor Owners Manual

Typical Tools Required for Installation

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

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

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.
4. Lock the wheels with the wheel locks (if fitted).
5. Check the oil level in the gear reducer (if applicable).
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> buttons on the control panel for the conveyor and pumps or issue the start command from your machine control system.
8. If the motor starts but the torque limiter slips immediately stop the conveyor and lockout the electrical system. Remove the drive cover and check the torque limiter for contamination with oil or grease. If it is clean then it will have to be adjusted. Please refer to the safety considerations regarding the torque limiter on Page 2 of this manual and the manufacturers information sheet in the Appendix.

Note: The torque limiter needs to be adjusted so that it will carry the weight of the belt and the required loads and no more. Never over-tighten the torque limiter as this will lead to premature failure or overloading of the drive motor.

9. After cleaning or adjusting the torque limiter restart the conveyor and ensure that the conveyor operates correctly.

Note: Because the drive cover was removed the area around the conveyor should be cleared of personnel and 'Caution' tape or temporary fencing should be installed to prevent access to any moving parts.

10. Run the conveyor for approximately 30 minutes to allow the components to 'settle in'. Stop the conveyor and lockout the electrical system.
11. Check the tension on the belt, drag out conveyor and the drive chains as shown on Page 4 and adjust if necessary. Re-check the tightness of all nuts, bolts and set screws.
12. Once the conveyor has been checked over after its initial run and any adjustments have been made, the cover for the motor drive can be reinstalled and tightened down.

Dragout Conveyor Owners Manual

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, slippage of the torque converter 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.

Options

An optional coolant filtration system is available for dragout conveyors. The system consists of filter boxes fitted with wedge-wire screens top and bottom which allow the coolant to pass through but stop any large particles. The clean coolant then flows out of the box into the clean coolant tank. See Fig 1. A number of the scraper blades are fitted with stainless steel brushes which wipe the wedge-wire clean as they pass by.

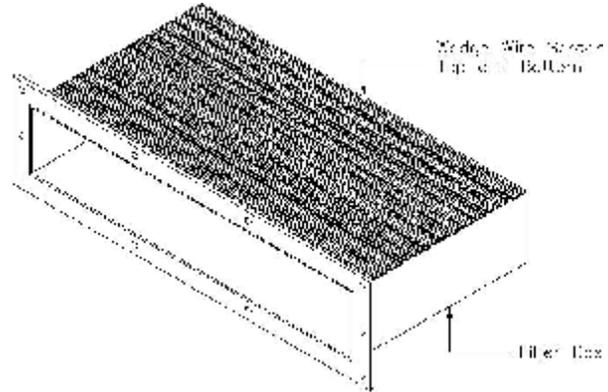


Fig. 1

Routine Maintenance

Belt Care

1. Lubrication - Periodically oil the dragout chain to keep the chain components moving freely and to reduce drag. This will minimize wear on the chain components, especially if the chain is operating in dry conditions.
2. Chain Tension - Check for correct chain tension at least monthly (more frequently if the conveyor carries heavy loads or runs continuously) or after any occurrence of jamming. See Fig. 2 for chain adjustment points.

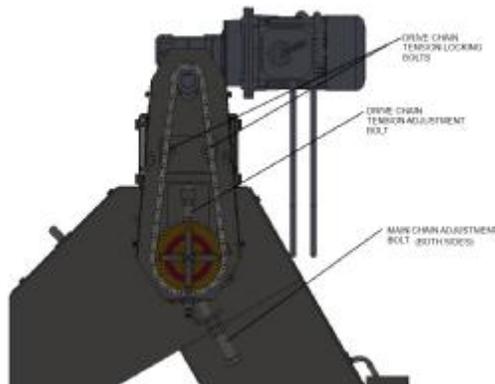


Fig. 2

Dragout Conveyor Owners Manual

- a) Too tight a chain will usually pulsate as it moves through the frame.
- b) Too tight a chain will cause a high amperage draw on the motor.

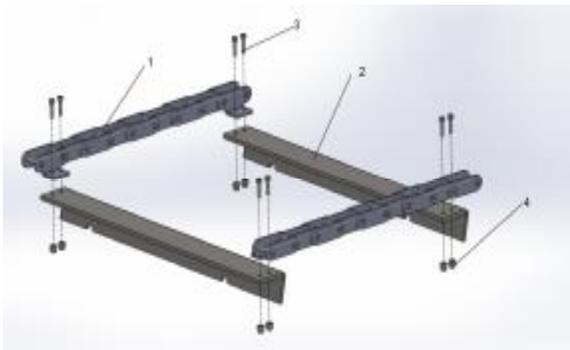
Note: Excess tension causes increased wear and reduced chain life.

- c) Too loose a chain will buckle as it leaves the in-feed sprockets and as it contacts the drive sprockets. This condition often causes jamming and can easily damage the chain.

Drag Out Conveyor Scraper Replacement

It is highly unlikely that a drag out conveyor scraper will become damaged. However, if it does, proceed as follows:

1. Position the damaged scraper on the drive sprockets at the discharge end of the conveyor.
2. Remove the bolts holding the scraper to the chain. See Fig. 3.



No.	Description
1	Drag Out Chain
2	Scraper
3	Button Head Screw
4	Nut

Fig. 3

3. Remove the damaged scraper and replace with a new one.
4. Replace the bolts.

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. 4.

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. 4

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

1. Ventilation - During normal operation gear reducers build up heat and pressure and must be vented to protect the seals and gears.



Dragout Conveyor Owners Manual

2. Lubrication. Nord Flexbloc gear motors are lubricated for life from the manufacturer. No additional lubrication is required.

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. 6

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

2. 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.

3. 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.

Chain and Sprockets

1. Lubrication - For long chain life a constant film of oil is recommended. Use a good quality, non-detergent, petroleum based oil from the list shown in Fig. 7 below.

Temperature	Recommended Oil Viscosity
20°F to 40°F (-7°C to 4°C)	SAE 20
40°F to 100°F (4°C to 38°C)	SAE 30
100°F to 120°F (38°C to 49°C)	SAE 40
120°F to 140°F (49°C to 60°C)	SAE 50

Fig. 7

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

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

Bearings

1. 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. 6.

Note: Shut off and lockout the conveyor before removing any guards to apply lubrication.

Torque Limiter

1. Cleaning - If, under normal loading, the torque limiter begins to slip, immediately stop and lockout the conveyor. Check the sprockets and friction faces to ensure they are free of oil, grease, moisture or rust. Clean and adjust if necessary and return to service.

Note: Please refer to the specific safety instructions on Page 2 when checking the torque limiter.



Dragout Conveyor Owners Manual

2. Replacement - After continued slipping it is possible that there is sufficient wear to warrant part replacement. Install new friction discs, tension correctly and then run the conveyor.

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 the torque limiter to slip. For the same reason always start the conveyor before introducing parts/chips to the in-feed area.
2. After the machine has been used for a long period of time the belt will lose tension due to elongation of the links. If this is the case then adjust the belt tension.
3. Lubricate each area of the conveyor as shown in Fig. 8.

Conveyor Section	Lubricant Required	Lubrication Intervals
Drive Chain	Mobil Oil or Grease Equivalent to SAE 30	6 Months (except the hollow shaft motor type)
Conveyor Chain	Mobil Oil or Grease Equivalent to SAE 30	3 Months (dry type only)

Fig. 8

Note: When lubricating the drive chain take care not to contaminate the linings of the torque converter either by direct contamination or by splashing from an over-lubricated chain.

4. Once a year remove all covers/guards and thoroughly clean the inside of the conveyor.

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 MC3 Manufacturing Inc. at (519) 325-1370 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).

Recommended Spare Parts

It is recommended that the following parts be kept in stock in case of breakdown:

- I 3 ft of conveyor belt.
- I 1 set of torque limiter friction discs.



Dragout Conveyor Owners Manual

Inspection List

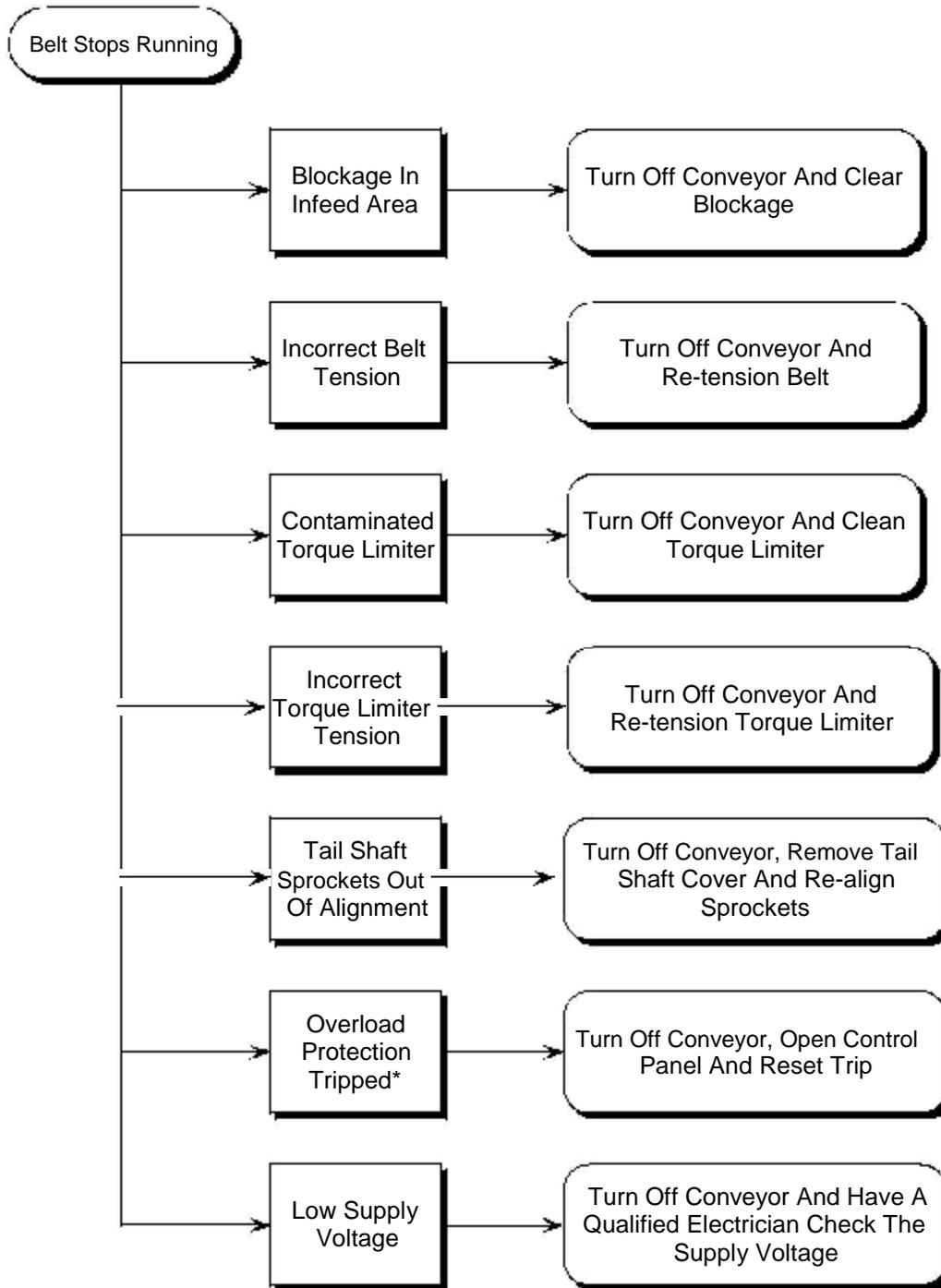
The following list shows the maintenance and inspection items for your reference. See Fig. 8.

Daily Inspections	<ul style="list-style-type: none"> a) Check for abnormal sounds around the conveyor. b) Check for cleanliness. c) Check that the conveyor is clear before starting.
Monthly Inspections	<ul style="list-style-type: none"> a) Lubricate the drive chain (except hollow shaft motor type). b) Check the tension of the drive chain. c) Check the tension of the conveyor belt. d) Carry out the daily checks.
Annual Inspections	<ul style="list-style-type: none"> a) Remove covers and guards and thoroughly clean inside the conveyor. b) Inspect and replace any consumable parts. c) Check the tightness of all fasteners on the conveyor. d) Carry out the monthly checks. e) Carry out the daily checks.

Fig. 8

Dragout Conveyor Owners Manual

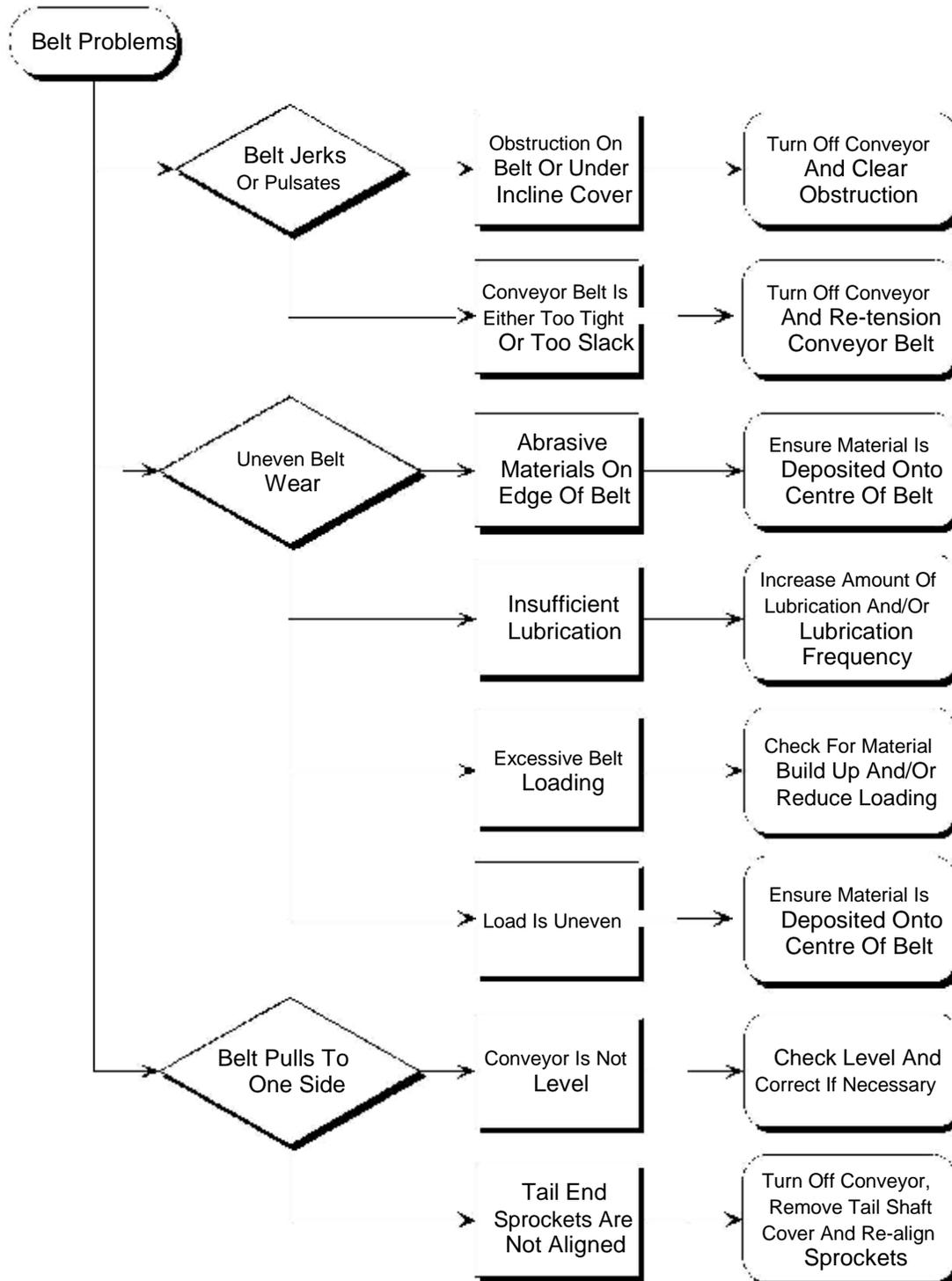
Troubleshooting



*Note: Only Applies To Control Systems Supplied By MC3 Manufacturing Inc.

Dragout Conveyor Owners Manual

Troubleshooting



Dragout Conveyor Owners Manual

Troubleshooting

