

# **INSTALLATION, OPERATION AND MAINTENANCE MANUAL**

## **AUTO SLUDGE BARRIER**



**Mayfran International, Incorporated**

**P.O. BOX 43038  
6650 BETA DRIVE  
CLEVELAND, OHIO 44143**

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## CONVEYOR / SYSTEM INFORMATION

### MACHINE INFO

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Customer:	_____		
Machine Type:	_____		
Mfg. Year:	_____	Serial No:	_____
Voltage/Phase	_____	Cycle:	_____
Inspected by:	_____		

### YOUR WARRANTY PERIOD

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Mayfran's Warranty is given on the following page.

Your Warranty period: Date shipped \_\_\_\_\_ through \_\_\_\_\_

### CUSTOMER SERVICE / PARTS ORDERS

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If you have any questions or need to order parts, please contact Mayfran International at:  
(440) 461-4100 Fax: (440) 461-5565 8:00 a.m. to 5:00 p.m. (EST)

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Mayfran International, Incorporated  
P. O. Box 43038  
Cleveland, OH 44143

Information in this manual is subject to change and is furnished to supplement, not modify the terms and conditions of Mayfran's order acknowledgment and/or signed contract with the customer.

## **WARRANTY STATEMENT**

- (a) Mayfran International Inc. ("Mayfran") warrants to the original purchaser that during the first 2000 hours of operation, but in no event more than one year from the date of shipment (the "Warranty Period"), the equipment sold will conform to the design, construction, and performance, if any, specifications set forth in Mayfran's proposal, quotation, or sales order acknowledgment for the equipment and will be free from significant defects in material and workmanship (the "Product Warranty"). The Product Warranty does not apply if: (i) the equipment has been subject to misuse, negligence, improper maintenance (including improper lubrication), or improper handling, (ii) the defect or non-conformity arises out of the failure to follow Mayfran's oral or written instructions regarding the equipment, including instructions as to storage, installation, commissioning, use or maintenance; (iii) the equipment has been reconstructed, repaired or altered by parties other than Mayfran or its authorized representatives; or (iv) the equipment has been used with any third-party products, hardware or product that has not been previously approved in writing by Mayfran. As the sole and exclusive remedy (and Mayfran's entire liability) for a breach of the Product Warranty, during the Warranty Period Mayfran will, at Mayfran's cost and option, repair any nonconformity on site or replace any nonconforming part. Notwithstanding the foregoing, purchaser is responsible for labor charges to install replacement parts.
- (b) **EXCEPT FOR THE PRODUCT WARRANTY SET FORTH ABOVE, (1) NEITHER MAYFRAN NOR ANY PERSON ON MAYFRAN'S BEHALF HAS MADE OR MAKES ANY EXPRESS OR IMPLIED REPRESENTATION OR WARRANTY WHATSOEVER, EITHER ORAL OR WRITTEN, INCLUDING ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR PERFORMANCE OF EQUIPMENT (INCLUDING THROUGH-PUT PERFORMANCE) TO STANDARDS SPECIFIC TO THE PURCHASER'S NEEDS, WHETHER ARISING BY LAW, COURSE OF DEALING, COURSE OF PERFORMANCE, USAGE OF TRADE OR OTHERWISE, ALL OF WHICH ARE EXPRESSLY DISCLAIMED, AND (2) THE PURCHASER ACKNOWLEDGES THAT IT HAS NOT RELIED UPON ANY REPRESENTATION OR WARRANTY MADE BY SELLER, OR ANY OTHER PERSON ON SELLER'S BEHALF, EXCEPT FOR THE PRODUCT WARRANTY.**
- (c) Mayfran does not warrant any equipment, parts or components where Mayfran is not the manufacturer. For equipment, parts and components not manufactured by Mayfran, only the warranty, if any, provided by the manufacturer is available, a copy of which will be provided on request.
- (d) Mayfran is not liable for consequential, indirect, incidental, special, exemplary, punitive or enhanced damages, for lost profits or revenues, or for diminution in value, arising out of or relating to any breach of the Product Warranty or otherwise, regardless of (i) whether such damages were foreseeable, (ii) whether or not the purchaser was advised of the possibility of such damages or (iii) the legal or equitable theory (contract, tort or otherwise) upon which the claim is based, and notwithstanding the failure of any agreed or other remedy of its essential purpose.

## **SAFETY INFORMATION**

THE SAFETY INFORMATION CONTAINED HEREIN MUST BE COMMUNICATED BY THE CUSTOMER, OWNER, OR END USER TO ALL PERSONNEL WHO WILL ACTUALLY OPERATE, MAINTAIN, REPAIR, OR ADJUST THIS MACHINERY, OR WHO ARE ASSIGNED TO WORK IN THE VICINITY OF THIS MACHINERY.

ADJUSTMENT, MAINTENANCE, CLEANING AND LUBRICATION SHOULD BE CARRIED OUT ONLY BY PERSONNEL TRAINED BY THE OWNER OR END USER IN THE OPERATION OF ALL ASSOCIATED CONVEYORS AND PROCESS EQUIPMENT. PERSONNEL SHOULD BE TRAINED IN OSHA COMPLIANT LOCK-OUT / TAG-OUT AND ELECTRICAL SAFETY PROCEDURES. RECORDS OF TRAINING SHOULD BE MAINTAINED BY THE OWNER OR END USER. RECORDS OF TRAINING FOR THE SAFE OPERATION OF THIS MACHINERY MUST ALSO BE MAINTAINED. NEVER SHOULD ADJUSTMENT, MAINTENANCE, CLEANING OR LUBRICATION BE PERFORMED WITHOUT FOLLOWING PROPER SAFETY PROCEDURES.

**DO NOT** operate any machinery without reading and understanding this manual completely.

**DO NOT** operate any machinery unless fully trained and qualified by the owner or end user.

**DO NOT** operate any machinery (or any portion of this machinery) unless all personnel are clear of any rotating or moving parts (or parts that may potentially move or rotate).

**DO NOT** operate any machinery unless all guards and/or emergency stops are in place and functioning as designed by Mayfran.

**DO NOT** perform any maintenance, repairs or adjustments on this machinery without first locking out all electrical controls.

**DO NOT** perform any maintenance on moving conveyor parts.

**DO NOT** lubricate any machinery without first locking out all electrical controls.

**DO NOT** clean this machinery or the areas adjacent to or below the machinery without first locking out all electrical controls.

**DO NOT** touch any moving conveyor parts.

**DO NOT** remove any covers or guards without disconnecting the power.

**DO NOT** perform any maintenance or repairs on power lines feeding this machinery without first locking out power at the source.

**DO NOT** remove or cover any warning labels.

**DO NOT** wear loose clothing or uncovered long hair that can get caught in moving parts.

**DO NOT** repair or replace electrical, hydraulic, or pneumatic devices without power or air off.

**DO NOT** remove jammed product with conveyor running. OSHA compliant lock-out / tag-out procedures must be followed prior to clearing a jam of any type.

**DO NOT** climb on the components of a conveyor.

**DO NOT** operate conveyor without a visual or audible “all clear”.

## **SAFETY INFORMATION, CONTINUED**

- ◆ Conveyors should be used to transport only the material for which they were specifically designed.
- ◆ No conveyor shall be used above its maximum rated speed and capacity.
- ◆ Casings, guards, safety switches, and other safety devices shall not be removed, bypassed, or disengaged during conveyor operation.
- ◆ All necessary guards, switches and other safety devices shall be installed so that a loss of power to the conveyor shall not render the guards, switches or safety devices inoperative.
- ◆ Each conveyor shall be kept free of accumulations of material that could inhibit its safe operation.
- ◆ Guards shall not be removed unless the electrical power supply to the conveyor has been disconnected and the conveyor is locked out.
- ◆ All repairs and services shall be performed only by qualified personnel. All power controls shall be locked out in accordance with OSHA compliant procedures prior to performing any repairs, tests or maintenance.
- ◆ Do not work near a conveyor without knowing where and how to shut it off.
- ◆ After a conveyor has been repaired, tested or serviced, it shall not be operated until all guards and safety devices have been reinstalled, all maintenance equipment has been removed and a visual inspection of the conveyor and immediate area have been completed.
- ◆ When working on the conveyor, be sure to disconnect power to the conveyor.
- ◆ Operators should be instructed to report any impairment of guards, emergency stop, or safety switches to their supervisors.

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**MAYFRAN INTERNATIONAL, INCORPORATED WILL NOT BE RESPONSIBLE FOR ANY WORK PERFORMED, OR ALTERATIONS MADE TO ANY OF ITS PRODUCTS UNLESS PRIOR APPROVAL HAS BEEN GRANTED IN WRITING BY AN AUTHORIZED MAYFRAN REPRESENTATIVE. ANY OTHER WORK WILL VOID ANY AND ALL WARRANTIES AND LIABILITIES. ALL WARRANTIES AND LIABILITIES SHALL ALSO BE VOID IF PARTS MANUFACTURED BY MAYFRAN INTERNATIONAL ARE REPLACED WITH PARTS OBTAINED FROM A SOURCE OTHER THAN MAYFRAN INTERNATIONAL.**

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## **PARTS ORDERING INSTRUCTIONS**

When ordering parts, please specify the following information:

1. **Serial number:** This is a seven-digit alpha-numeric designation with the following form: (19M1234). The first two digits indicate the year of manufacture, and the remaining four is a Mayfran identification number specific to the individual conveyor. Note: This is also the Mayfran order, or job number.
2. **Part Number:** Specify the Mayfran part number as given in this manual or as found on the drawings for the conveyor.
3. **Quantity:** Specify how many are required.
4. **Name of Part:** Use the proper description or title, given in the owner's manual.
5. **Shipping Instructions:** Specify complete shipping instructions: Such as parcel post, truck, 2nd day air freight, or overnight air freight, along with the required ship date. When no instructions are given, shipping method will be best way, depending on nature of part and urgency of repair. Freight costs will be paid by customer.
6. **Return Address:** When ordering parts, always include your complete address with phone number. Keep in mind that parts cannot be delivered to a Post Office box.
7. **Returned Parts:** New parts returned to the factory will be subject to a restocking charge incurred, unless parts were sent by mistake from the factory. No part may be returned to the factory without prior written authorization from Mayfran (RGT #).
8. **Shortage:** If any parts are missing, other than parts marked back ordered, call the factory immediately.

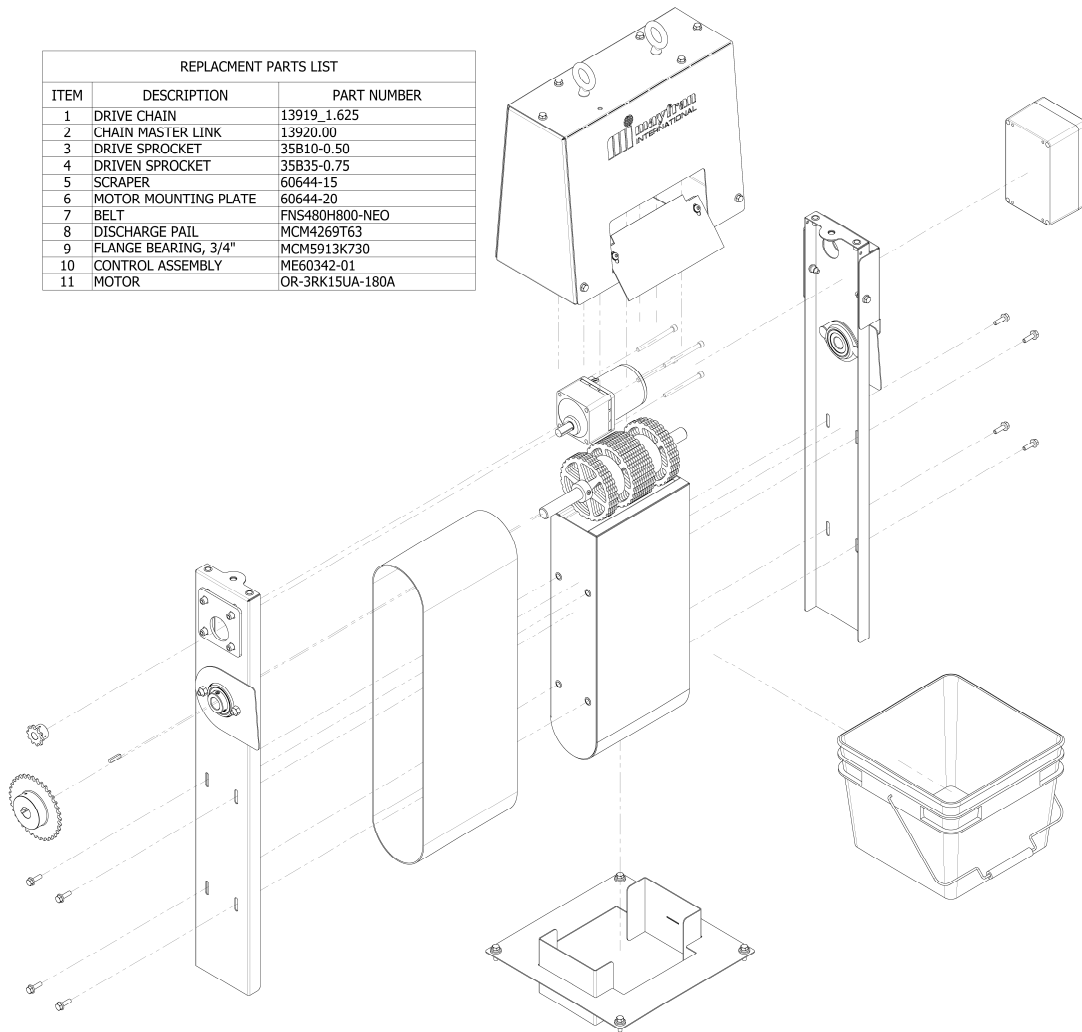


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## PARTS LIST FOR AUTO SLUDGE BARRIER

REPLACEMENT PARTS LIST		
ITEM	DESCRIPTION	PART NUMBER
1	DRIVE CHAIN	13919_1.625
2	CHAIN MASTER LINK	13920.00
3	DRIVE SPROCKET	35B10-0.50
4	DRIVEN SPROCKET	35B35-0.75
5	SCRAPER	60644-15
6	MOTOR MOUNTING PLATE	60644-20
7	BELT	FNS480H800-NEO
8	DISCHARGE PAIL	MCM4269T63
9	FLANGE BEARING, 3/4"	MCM5913K730
10	CONTROL ASSEMBLY	ME60342-01
11	MOTOR	OR-3RK15UA-180A



## OPERATION

**AUTO SLUDGE BARRIER** is designed to magnetically remove small ferrous particles from coolant to minimize tank clean-out and improve coolant cleanliness. Auto Sludge Barrier is ***NOT*** designed to bear the sole responsibility of the coolant cleansing process. Most of the large scrap material should be handled by a primary conveyor.



## **INSTALLATION / START-UP**

### **UNLOADING**

Upon receipt of the equipment on site, a thorough inspection should be performed to spot any damage that may have occurred during transit. It is the responsibility of the installer to check and sign for all items contained on the shipment, as well as verify that all items have arrived, and are in good condition.

The packing slip, which accompanies the shipment, will contain a detailed listing, with descriptions, of all items on the shipment. Please cross-check the packing slip to assure all items have been received.

### **REPORTING DISCREPANCIES OR DAMAGED ITEMS**

Any damage, however slight, should be noted on the bill of lading. Any discrepancies between the packing list and received items, or, any pieces damaged, must be reported immediately to Mayfran International. Pictures of damaged equipment while still on the truck are helpful. Notify the Traffic Manager at Mayfran International at: (440) 461-4100.

If the unit is accepted damaged, and not noted on the bill of lading, the customer is responsible to file a damage claim within 15 days of acceptance of the conveyor with the trucking company.

### **LIFTING GUIDELINES**

Unloading should be performed in a safe and professional manner to protect both workers and the equipment. Rigging cables, slings, chains, or chokers should be of correct size and in good condition and placed on the equipment in a way that minimizes structural and paint damage. Care must be taken when lifting Auto Sludge Barrier conveyor to prevent damage. Avoid impacts to frames that might cause distortion and misalignment. Eye-bolts are provided for lifting. Only use hooks or slings that are designated for lifting. Be sure that slings will not cause damage prior to lifting.

### **STORAGE OF EQUIPMENT AWAITING INSTALLATION**

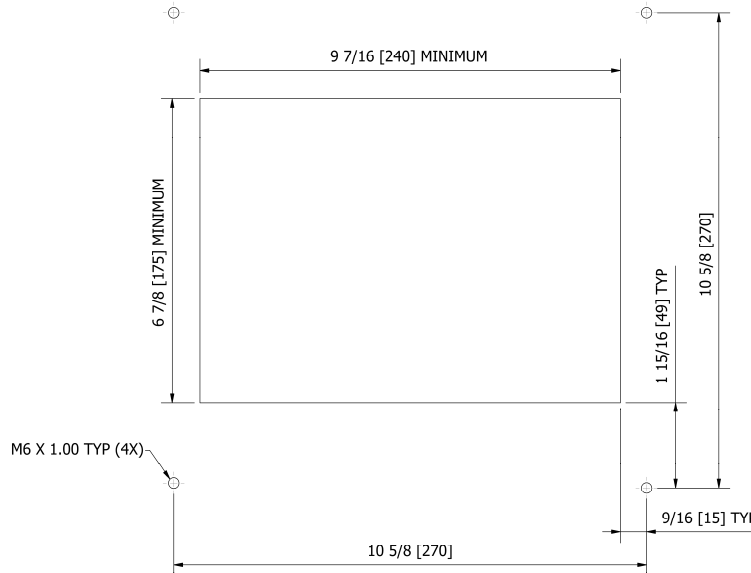
Any storage which exposes the unit to weather must be approved in writing by an authorized Mayfran representative. Units awaiting installation should be protected from moisture and the elements.

### **INSTALLATION DRAWINGS**

General arrangement drawings used for installation are available upon request. Should there be any instances where information contained in this manual conflict with the general arrangement drawings specific to this job, the information on the drawings will govern. If there are any questions, please contact 440-461-4100.

## TANK INSTALLATION

The **AUTO SLUDGE BARRIER** comes with a mounting bracket to mount the unit in a tank. This bracket was designed to fit the standard MAYFRAN tank window. Please verify that your tank has a functional location that meets the below configuration or modify your tank accordingly. NOTE: Not all MAYFRAN tanks will feature a standard MAYFRAN tank window.



## ELECTRICAL INSTALLATION

All wiring and controls must be installed in accordance with local codes. All work must be performed by licensed electricians. Motor wiring diagrams are usually found on the motor nameplate or on the conduit box cover.

## MOTOR ROTATION VERIFICATION

Before starting-up system, the direction of motor rotation must be verified. The operation of the conveyor depends on the proper rotation of the motor. To verify motor rotation, apply power momentarily to the drive by starting the Auto Sludge Barrier. Observe the rotation of the driven sprocket (on the head shaft). If the direction of rotation is not correct, have a qualified electrician reverse the wires. After repairs are completed, recheck the rotation direction.

## SCRAPER

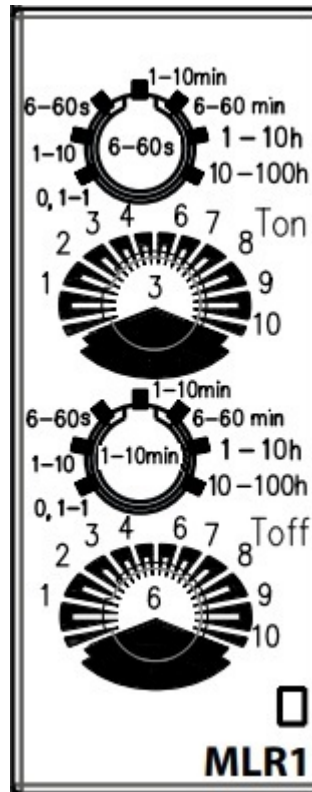
The **AUTO SLUDGE BARRIER** comes equipped with an adjustable scraper designed to remove and discharge the scrap material. This scraper should be adjusted such that it remains in *light* contact pressure with the surface of the belt. Excessive contact pressure could cause both the scraper and the belt to wear prematurely or allow the scraper to fold back on itself.

A scraper which has excessive contact pressure with the belt will give off audible clues by snapping or popping as the scraper snags when the belt is in motion. Should you witness these noises: 1) disconnect power from the unit; 2) loosen the (2) M6 button head cap screws, and 3) adjust the scraper away from the belt by moving the scraper away from the belt surface slightly.

These adjustments are best done with belt which is wet with the coolant/lubricant in which it will be operating as a dry belt is more likely to snag the scraper.

## CYCLE TIMER ADJUSTMENT

The **AUTO SLUDGE BARRIER** utilizes an adjustable repeat-cycle timer allowing the user to set the run cycle time, as well as the delay between cycles. The timer default operating parameters are set to cycle-on for 18-seconds ( $T_{on}$ ) and off for 6-minutes ( $T_{off}$ ). This setting indexes  $\frac{1}{4}$  of the belt path per cycle to minimize coolant carry-out. You may wish to adjust these settings depending on your process. The  $T_{on}$  and  $T_{off}$  adjustments are located within the control box. The figure below represents the timer face with the default settings shown in the center of each dial:



The (2) upper-most dials control the cycle-on time ( $T_{on}$ ) while the (2) lowest dials control the time between cycles ( $T_{off}$ ). To adjust the timer, select the range that includes your desired setting in the upper dial, then select the k-factor on the lower dial. The k-factor represents the percentage (in tenths) of the upper-limit of the range.

### EXAMPLE:

$T_{on}$  = Desired cycle-on time: 18 Seconds

$T_{off}$  = Desired time between cycles: 6 Minutes

$T_{on}$  Range = 6-60s;  $T_{on}$  k-factor = 3

Therefore...  $60s \times 0.3 = 18s$

$T_{off}$  Range = 1-10m;  $T_{off}$  k-factor = 6

Therefore...  $10m \times 0.60 = 6m$

## BELT TENSION ADJUSTMENT

Proper belt tension is critical to the reliable operation of the Auto Sludge Barrier. The belt can lose tension after initial run-in or after long periods of time as components begin to wear-in. One of the sure signs of an excessively loose belt is an observed slipping or jerking motion of the belt when running. A belt that is too loose may cause the unit to become inoperable. A belt that is too tight, may cause excessive wear on components and create overloads on the drive system.

Should the belt loosen over time, remove the Auto Sludge Barrier from the tank and stand the unit upright on a flat surface. Loosen the (4) M6 bolts located along each side of the unit (complete removal is unnecessary.) The weight of the magnetic core will tension the belt once the last bolt is loosened. Re-tighten the (8) loosened bolts while making certain to keep the frame square.

## REMOVAL OF MAJOR COMPONENTS

### BELT REMOVAL AND REPLACEMENT

1. Remove the scraper. [(2) M6 button-head cap screws w/washer]
2. Remove the hood side panel located on the control-side of the unit. [(3) M6 flange screws]
3. Remove the M6 flange screw holding drive-side side-panel located on the scraper-side face of hood.
4. Remove remaining hood by removing eye-bolts, (4) inner-most M6 located on top of the hood and slide sideways while gently pulling scraper face away from guard.
5. Loosen (2) set screws on bearing to free the head shaft.
6. Disconnect/Unplug motor from control.
7. Remove (4) M6 flange screws holding control-side side panel to core and gently pull panel from shaft.
8. Loosen, (DO NOT REMOVE) (4) M6 flange screws on drive-side side panel.
9. Belt will now slide from remaining assembly.
10. Install new belt and reassemble in reverse order making sure to tension belt properly as mentioned in "BELT TENSION ADJUSTMENT"

### REMOVING THE GEAR-MOTOR

1. Remove hood as described in "BELT REMOVAL AND REPLACEMENT" steps 1-4
2. Loosen (2) set screws affixing drive sprocket to gear-motor drive shaft\*
3. Disconnect gear-motor from controls
4. Remove (4) ¼-20 cap screws affixing motor to mounting plate
5. Slide gear-motor from assembly while being mindful of shaft key if also removing drive sprocket

\*The gear-motor can also be removed with sprocket attached.

# MAINTENANCE

## PREVENTIVE MAINTENANCE

By far the most important preventive maintenance activity is to keep the conveyor clean. Removing excess material will prolong the life of the components. The frequency of machine cleaning depends on the type and amount of material being conveyed. The other vital maintenance item is to ensure that all components of the conveyor are well lubricated. This includes the belt chain, roller chain, bearings, take-up screw and reducer. For information on the motor, reducer, and bearings, refers to the appropriate manufacturers' publication for the type of lubricant to be used.

The only other preventive maintenance that needs to be performed is a periodic inspection and testing of the conveyor components. The following table lists recommended maintenance items and minimum intervals. It is recommended that the end users maintenance manager produce their own preventive maintenance schedule based on these minimums. Accurate records of any maintenance performed must be maintained. These are general intervals; consult the technical manuals of your specific components for exact intervals.

ITEM	DESCRIPTION	INTERVAL
1	Check condition of all labels and safety decals. Replace if missing, damaged, or difficult to read.	Daily
2	Clean exterior and remove any debris	Daily
3	Check scraper to ensure proper contact with belt. Adjust if necessary	Daily
4	Check belt tension. Adjust if necessary.	Monthly
5	Inspect under protective hood for excess debris. Clean if necessary	Monthly

## MOTION FAULTS

SYMPTOM	PROBABLE CAUSES	POSSIBLE SOLUTION
Belt not indexing & motor not operating	Breaker open	Replace fuse in control box
	Open circuit to motor	Check wiring/connection to control box
	Bad motor	Check motor
Belt not indexing or indexing in reverse direction & motor running	Blockage	Clear blockage, restart conveyor
	Loose belt	Adjust belt tension



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