INSTALLATION, OPERATION AND MAINTENANCE MANUAL

for:

CONSEP 2000®

Mayfran International, Incorporated
P.O. Box 43038
6650 Beta Drive
Cleveland, Ohio 44143
(440) 461-4100 tel.
(440) 461-5565 fax

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CONVEYOR / SYSTEM INFORMATION

MACHINE INFO

Customer: _____

Machine Type: _____

Mfg. Year: _____ Serial No: _____

Voltage/Phase _____ Cycle: _____

Inspected by: _____

YOUR WARRANTY PERIOD

Mayfran's Warranty is given on the following page.

Your Warranty period: Date shipped_____ through _____

CUSTOMER SERVICE / PARTS ORDERS

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) Material and Workmanship. Mayfran International Inc. ("Mayfran") warrants that the equipment to be provided by it shall be of the design and construction described in its Proposal and shall be free of defects in workmanship or materials. Should any failure to conform to this warranty appear within the first 2000 hours of operation, but not later than one (1) year after shipment, Mayfran will, upon prompt notification thereof and substantiation that the equipment has been installed, maintained and operated in accordance with good industry practice and with any specific recommendations, correct such nonconformity, including nonconformity to the specifications in Mayfran's Proposal, by in-place repair or, at its option, by furnishing a replacement part F.O.B. shipping point. Labor and equipment necessary to effect in-place repairs or component replacement are to be provided by the Buyer. Mayfran will only provide instructions and supervision to support each in-place repair. The effects of misuse, abuse, neglect, lack of proper maintenance (e.g. lubrication), corrosion, operation at other than design condition, or normal wear are specifically excluded from Mayfran's warranty.

(b) Performance. The only performance warranties extended by Mayfran are contained on the pages entitled "Performance Warranties" in Mayfran's Proposal, if any. Any through-put rates contained on the Performance Warranties pages are based upon continuous operation of the equipment over the period specified without regard to whether such operation will meet Buyer's needs. Mayfran disclaims all liabilities and responsibility with respect to Buyer's needs.

Mayfran's total responsibility under this performance warranty shall be considered fulfilled and the equipment accepted if performance tests show that the equipment meets the conditions of performance specified by the Performance Warranties, if any, or if the equipment is not tested within 180 days of initial operation. In the event the equipment fails to meet the specified conditions of performance after properly conducted and evaluated tests, Mayfran reserves the right to make such alterations as may be necessary to meet the specified conditions free of charge to Buyer.

(c) General. Mayfran shall not be held responsible nor shall allowance be made for work done, equipment furnished or repairs or replacements made by Buyer or by others unless prior written approval is given to Buyer by Mayfran.

With respect to accessory equipment and other vendor furnished apparatus included in its Proposal, Mayfran shall be responsible for the proper selection and specification requirements to the suppliers. Warranties for such items are limited to those extended to Mayfran by the manufacturers.

THE FOREGOING WARRANTIES ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, EXCEPT THAT OF TITLE, WHETHER WRITTEN, ORAL OR IMPLIED, IN FACT OR IN LAW (INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE). Correction of nonconformities whether patent or latent, in the manner and within the period of time provided above, shall constitute the fulfillment of all liabilities of Mayfran with respect to the equipment, whether based on contract, tort, strict liability or other legal theory.

In no event shall Mayfran or its contractors, subcontractors, vendors or suppliers, be liable in contract, tort, warranty, strict liability or other legal theory for any special, indirect, incidental or consequential damages such as, but not limited to, loss of anticipated profits or revenue, non-operation or increased expense of operation of other equipment, or costs of capital. The remedies of Buyer set forth herein are exclusive and the liability of Mayfran with respect to its contract or anything done in connection therewith whether in contract, tort, warranty, strict liability or other legal theory shall not exceed the purchase price of the equipment upon which liability is based. Buyer (if it will not be the ultimate owner or user of the equipment) shall obtain from the owner a written agreement that the owner will be bound by the remedies provided for herein. Buyer will also obtain from the owner a written release from consequential damages to the extent provided for herein in favor of Mayfran and its contractors, subcontractors, vendors and suppliers.

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 locking out all electrical controls.

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 operate a conveyor equipped with rope pull safety switches if the rope pull switches are not functioning properly.

DO NOT cross over a conveyor, whether or not it is operating, other than on an elevated walkway that provides safe access and prevents contact with the conveyor.

DO NOT climb on the components of a conveyor.

DO NOT ride or walk on any conveyor.

DO NOT touch moving conveyor parts.

DO NOT walk under conveyor where product can fall.

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

SAFETY INFORMATION, CONTINUED

- If the entire conveyor cannot be seen from the operating station, an audible and/or visual warning shall be provided to warn of conveyor actuation.
- Conveyors should be used to transport only the material for which they were specifically designed.
- No conveyor shall be used in excess of its maximum rated speed and capacity.
- Casings, guards, safety switches, and other safety devices shall not be removed, bypassed, or disengaged during conveyor operation.
- Only trained operators shall be permitted to operate conveyors.
- 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.
- Emergency controls shall be installed so that they cannot be overridden from other locations.
- Guards shall be kept in place at all times unless the electrical power is off and the conveyor is locked out
- All repairs and services shall be performed only by qualified personnel. Before repairs, tests or services are begun, all power controls shall be locked out in accordance with OSHA compliant procedures.
- 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 has been completed.
- Material should not be discharged onto a conveyor that is not operating. Conversely, when stopping a conveyor or conveyor system, stop discharge of material onto initial receiving conveyor first, then continue stopping conveyors in succession after each has been cleared of its load.
- When working on the conveyor, be sure to turn the electrical disconnect OFF and LOCK OUT the power to the conveyor.
- Operators should be instructed to report any impairment of guards, emergency stop, or safety switches to their supervisors.

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.

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: (*96S3000*). The first two digits indicate the year of manufacture, and the remaining five is a Mayfran identification number for that particular 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 particular conveyor.

3. **Quantity:** Specify how many are required.

4. **Name of Part:** Use the proper description or title, given in the owners 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.

mayfran® INTERNATIONAL

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

PHONE: (440) 461-4100
FAX: (440) 461-5565

PARTS LIST FOR PRIMARY CONVEYOR

INDEX NO.	*PARTNAME*
4-1	**CHAIN DRIVE ASSEMBLY**
4-1A	Chain Guard Cover
4-1B	Guard Fastener
4-1C	Drive Sprocket
4-1D	Drive Chain
4-1E	Cotter Pin
4-1F	Connecting Link
4-1G	Chain Guard Back Plate
4-1H	Chain Guard Support Plate
4-1J	Support Plate Fastener
4-2	**MAYFRAN SAFETY CLUTCH ASSEMBLY**
4-2A	Clutch Collar
4-2B	Collar Set Screw
4-2C	Ball
4-2D	Driven Sprocket and Hub
4-2E	Spring
4-2F	Spring Plate
4-2G	Adjustment Nut
4-2H	Set Screw
4-2J	Shaft Key
4-4	**HEAD SHAFT ASSEMBLY**
4-4A	Head Shaft
4-4B	Head Shaft Sprocket
4-4C	Sprocket Set Screw
4-4D	Sprocket Key
4-4E	Pillow Block
4-4F	Pillow Block Fastener
4-6	**TAIL SHAFT ASSEMBLY**
4-6A	Tail Shaft
4-6B	Tail Shaft Sprocket
4-6C	Tail Shaft Set Screw
4-6D	Tail Shaft Sprocket Bearing
4-6E	Tail Shaft Keeper

INDEX NO.	*PART NAME*
4-7	**REPLACEMENT BELTING**
4-7A	Roller Block Assembly
4-7B	Roller
4-7C	Bushing
4-7D	Side Bar, Bush Hole
4-7E	Side Bar, Small D-Hole
4-7F	Side Bar, Round Hole
4-7G	Belt Pin
4-7H	Cotter Pin
4-7J	Hinge Link
4-7K	Side Wing, Right Hand
4-7L	Side Wing, Left Hand
4-8	**REPLACEMENT FRAME**
4-8A	Skirt
4-8B	Top Cover
4-8C	Top Cover Fastener
4-8D	Leg Assembly
4-8E	Movable Guard
4-8F	Movable Guard Support Plate
4-8G	Movable Guard Fastener
4-8H	End Closure
4-8I	End Closure Fastener
4-8K	Tail Wrap
4-8L	Tail Wrap Fastener
4-9	**DRIVE ASSEMBLY**
4-9A	Motor
4-9B	Speed Reducer
4-9C	Input Shaft Key
4-9D	Output Shaft Key
4-9E	Drive Base
4-9F	Drive Base Fastener
4-9G	Drive Sheave and Set Screw
4-9H	Driven Sheave
4-9J	Drive V-8elt
4-9K	Drive V-Belt Guard
4-9L	Guard Fastener
4-9M	Drive Chain Take-Up Screw & Jam Nut
4-9N	Drive Support Bracket
4-9P	Drive Support Bracket Fastener
4-9R	Belt Take-Up Screw and Jam Nut

EXPLODED VIEW OF PRIMARY CONVEYOR

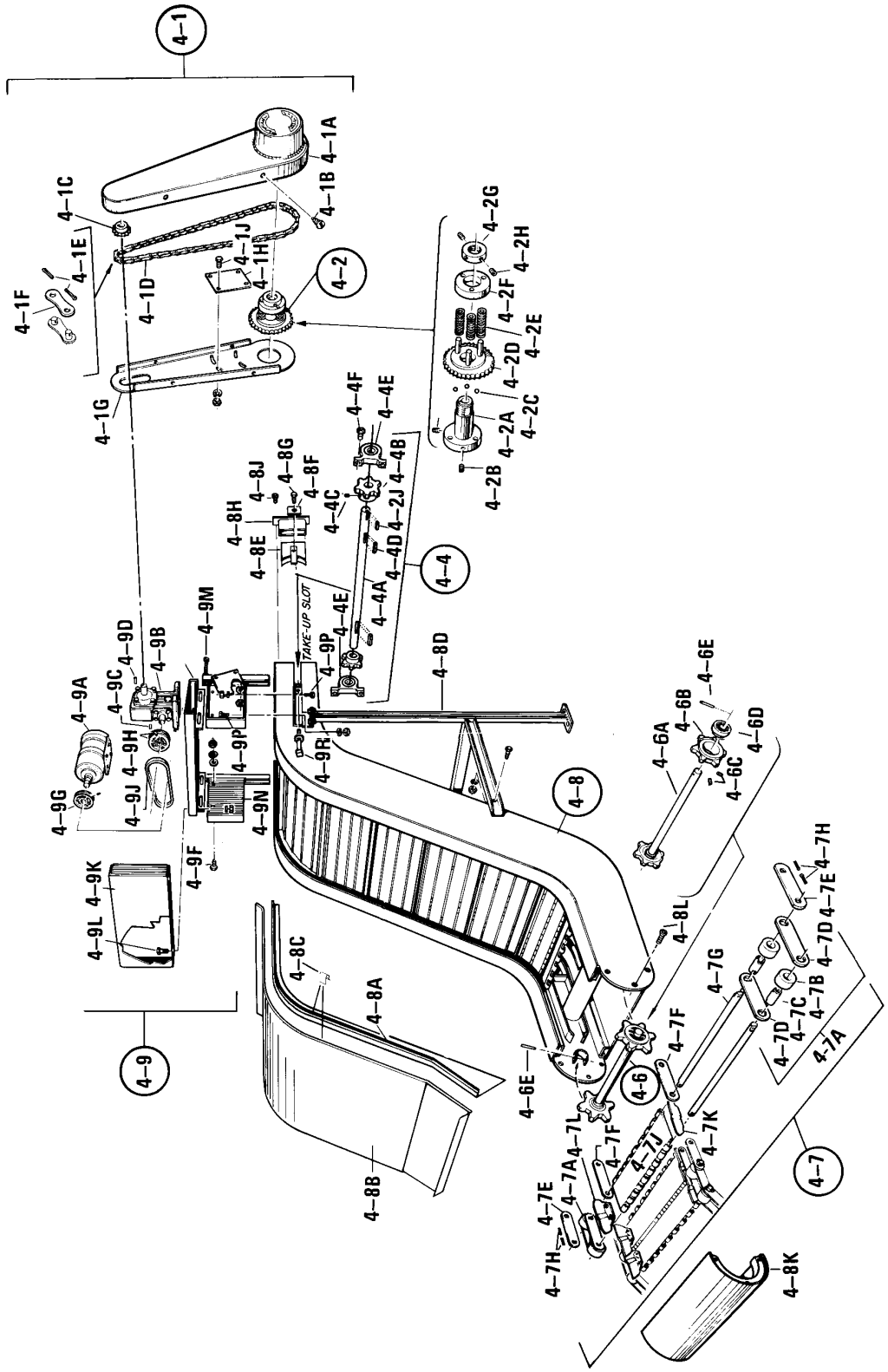


Figure 1

PARTS LISTING FOR STANDARD TOP MOUNTED DRIVE

ITEM #	DESCRIPTION	PART NUMBER
1	MOTOR – ½ HP	486080
2	REDUCER – RIGHT HAND DRIVE	WIN9 20WT50RH
	REDUCER – LEFT HAND DRIVE	WIN9 20WT50LH
3	DRIVE SHEAVE	********
4	V – BELT	********
5	DRIVEN SHEAVE	********
6	REDUCER SPROCKET	854650
7	DRIVE CHAIN	139450
8	DRIVE CHAIN CONNECTING LINK	468330
9	MAYFRAN DISC CLUTCH	
	- 1 ¼" PITCH PRIMARY CONVEYOR	500025
	- 2" PITCH PRIMARY CONVEYOR	500025
	- 2 ½" PITCH PRIMARY CONVEYOR	500011
10	CLUTCH LIMIT SWITCH (OPTIONAL)	860650
11	LIMIT SWITCH MTG BRACKET (OPTIONAL)	831211
12	SHEAVE GUARD BACKPLATE - RH	250831
	SHEAVE GUARD BACKPLATE - LH	250832
13	SHEAVE GUARD - PLASTIC	250830
	SHEAVE GUARD - STEEL	250730
14	CHAIN GUARD BACKPLATE - RH	250828
	CHAIN GUARD BACKPLATE - LH	250829
15	CHAIN GUARD - PLASTIC -RH	250826
	CHAIN GUARD - STEEL - RH	250841
	CHAIN GUARD - STEEL - LH	250842

* NOTE: When purchasing these parts, please specify the conveyor serial number (located at head end on conveyor).

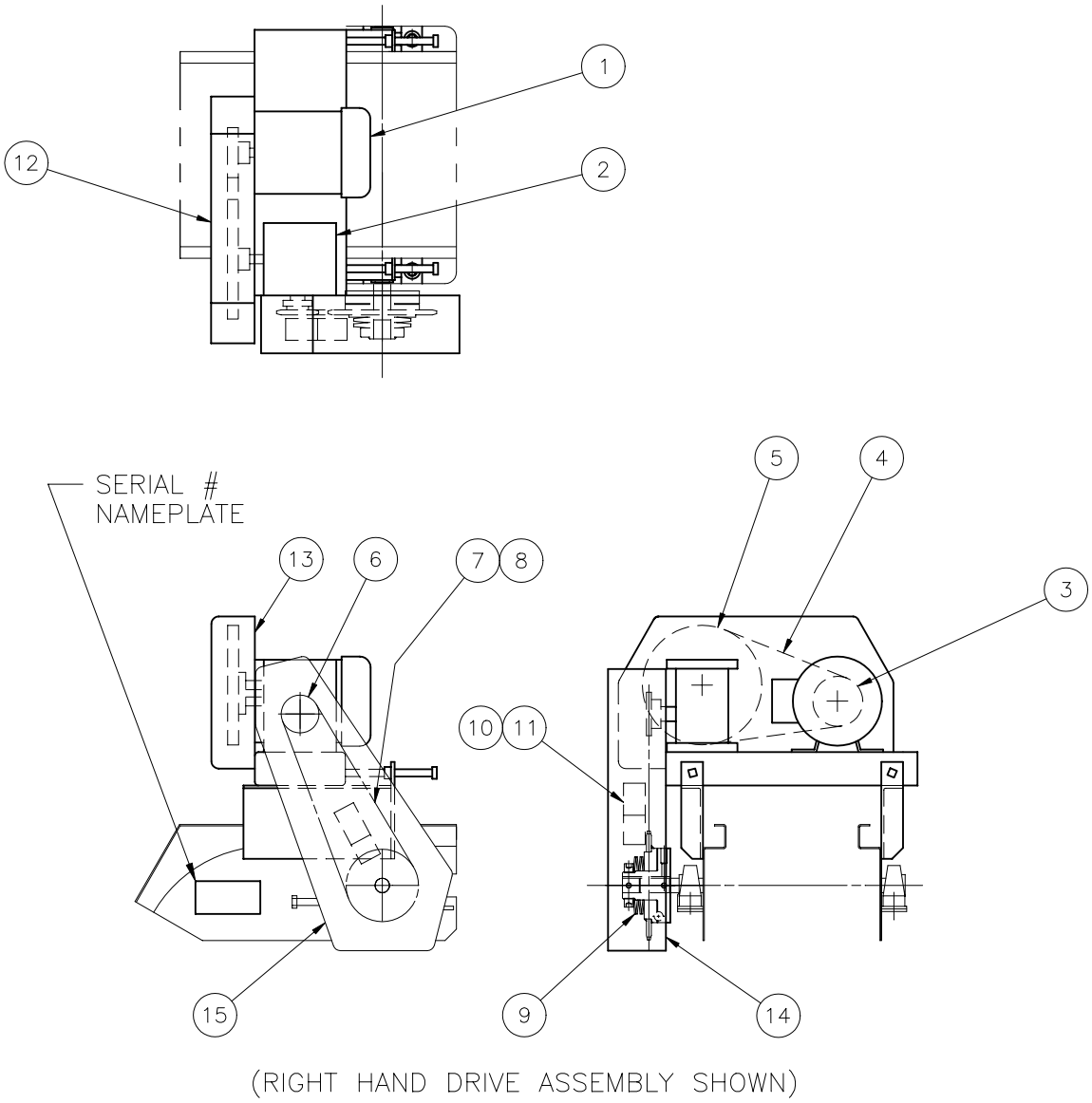

1
2
12
SERIAL #
NAMEPLATE
13
6
7
8
5
4
3
10
11
15
9
14
(RIGHT HAND DRIVE ASSEMBLY SHOWN)

Figure 2

PARTS LIST FOR CONSEP 2000™ SEPARATING CONVEYOR

ITEM #	DESCRIPTION	PART NUMBER
1	DRUM ASSEMBLY	570000-"W"
1A	- DRIVE SPROCKET	570021
1B	- IDLER SPROCKET	570022
1C	- INTERNAL SPRAY ASSEMBLY	570050-"W"
1D	- DRUM FABRIC MESH ASSEMBLY	570070-"W"
2	DRIVE SHAFT ASSEMBLY - 1 ¼" PITCH PRIMARY CONVEYOR - 2" PITCH PRIMARY CONVEYOR - 2 ½" PITCH PRIMARY CONVEYOR	 570060 - "W" 570064 – "W" 570066 – "W"
2A	- PILLOW BLOCK BEARING	068231
2B	- MT10 BELT SPROCKET	824680
2C	- CONVEYOR DRIVE SPROCKET - 1 ¼" PITCH PRIMARY CONVEYOR - 2" PITCH PRIMARY CONVEYOR - 2 ½" PITCH PRIMARY CONVEYOR	 570029 570026 570032
2D	- DRIVE SHAFT	570061-"W"
3	HEAD SHAFT ASSEMBLY	570062 – "W"
3A	- PILLOW BLOCK ASSEMBLY	068231
3B	- MT10 BELT SPROCKET	824680
3C	HEAD SHAFT	570063 – "W"
4	BELT ASSSEMBLY	
	- WELDED ON CLEATS	526240 – 526249
	- BOLTED ON CLEATS	526314 – "W"

***** NOTE: When purchasing these parts, "W" is the belt width in millimeters (mm).

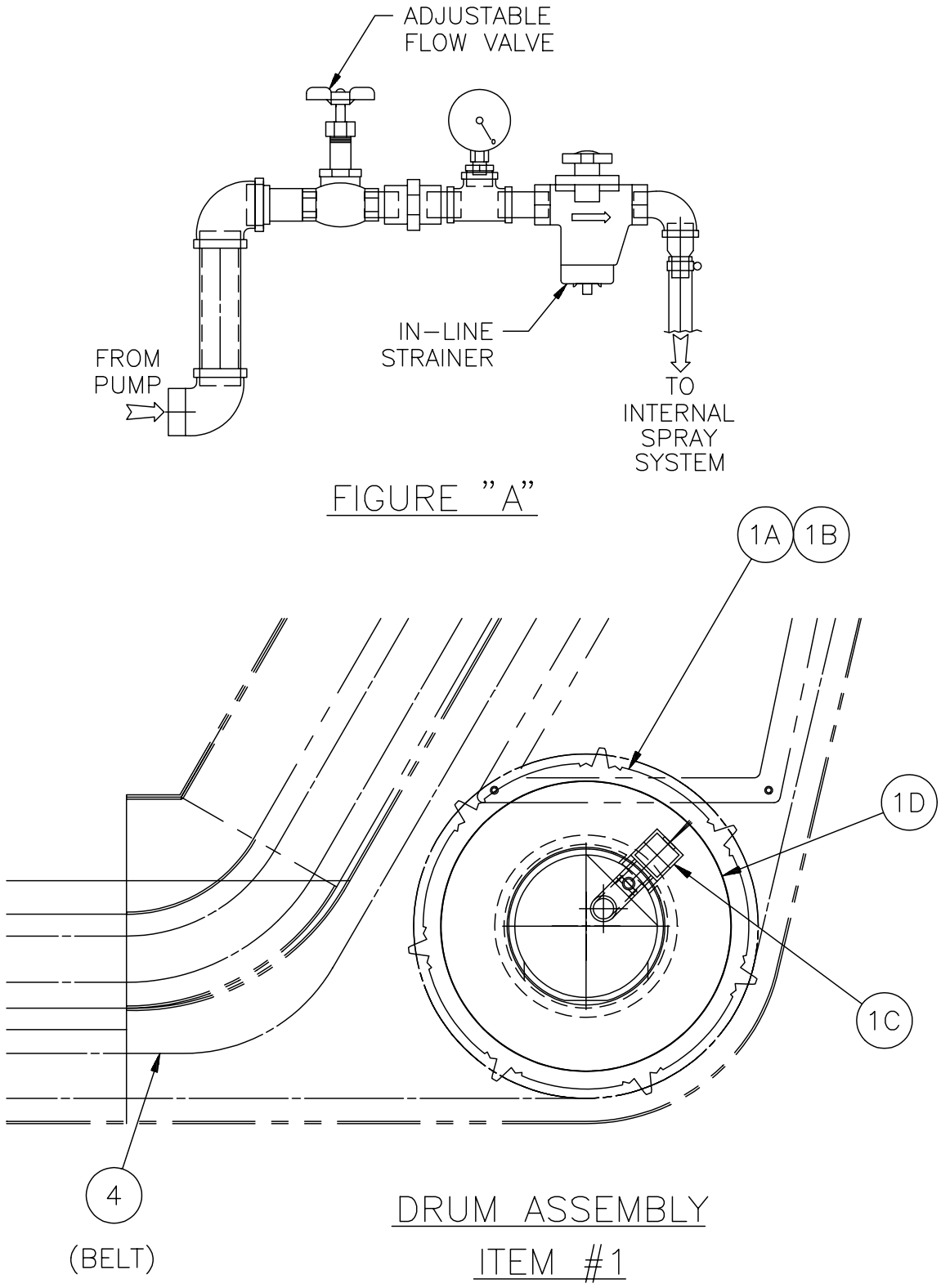
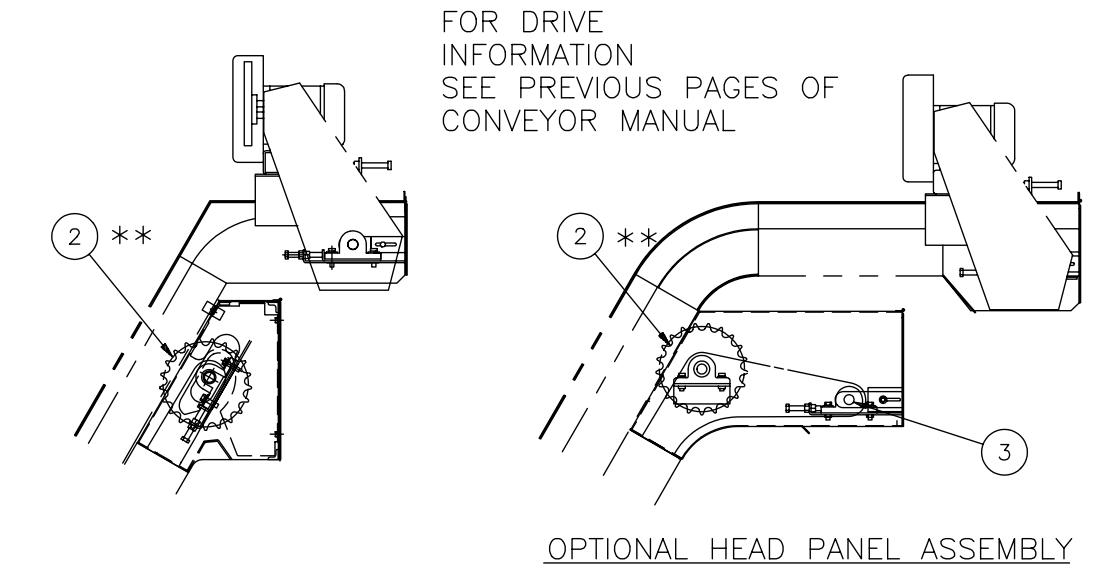
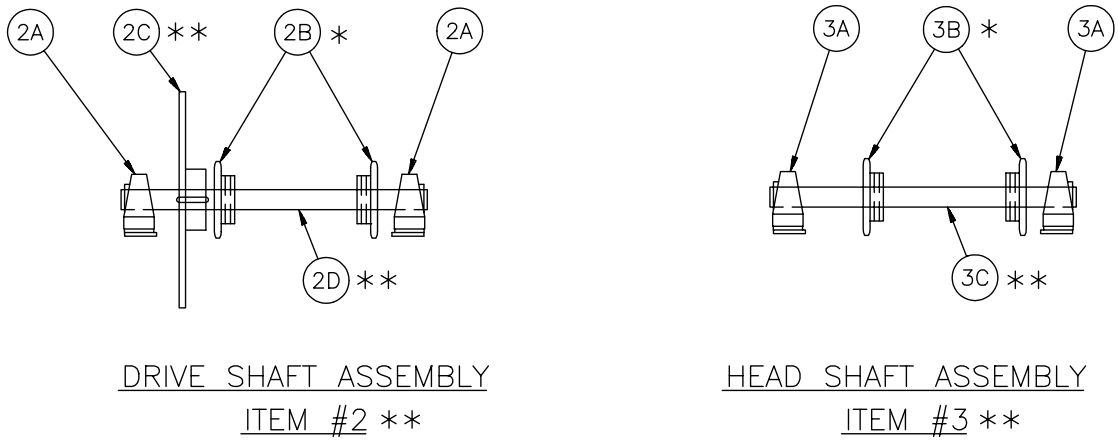


Figure 3: Parts detail for CONSEP conveyor.





* NOTE: ON 1 1/4" PITCH AND 2" PITCH PRIMARY CONVEYORS, THE SPROCKETS ARE PINNED TO THE SHAFT. MAYFRAN RECOMMENDS THAT THE SHAFT AND SPROCKETS BE PURCHASED TOGETHER.

** NOTE: THIS PART CHANGES DEPENDING ON THE PITCH OF THE PRIMARY CONVEYOR.

Figure 4: Parts detail for CONSEP conveyor.

CONVEYOR TERMINOLOGY

PRIMARY CONVEYOR

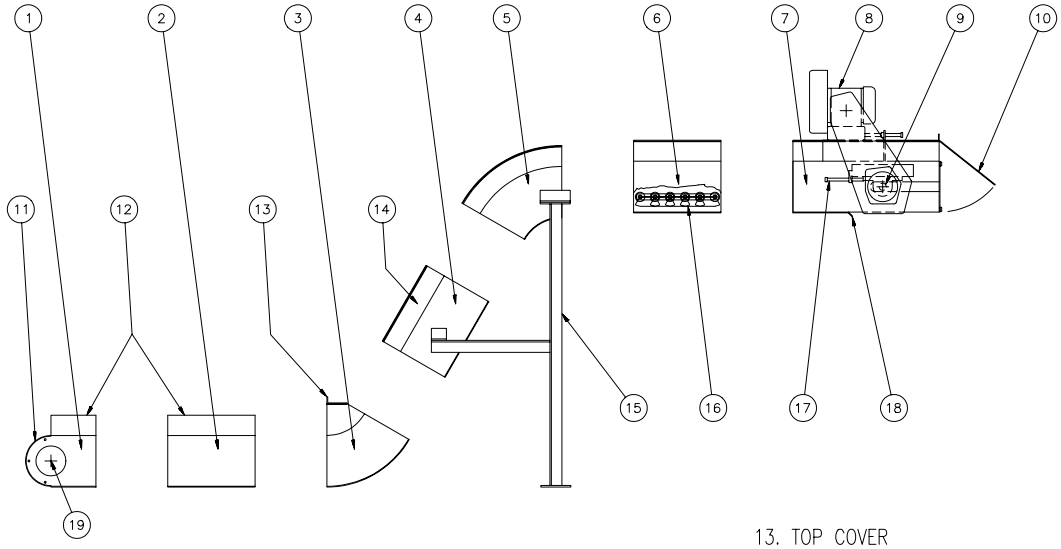


Figure 5: Primary conveyor nomenclature.

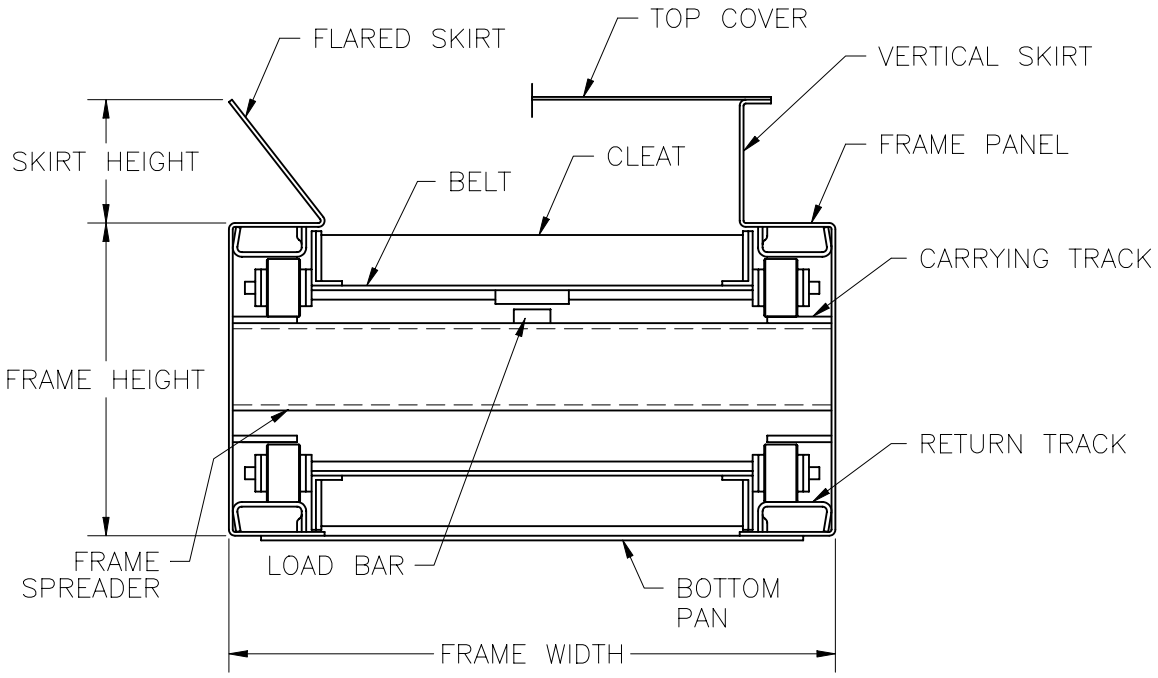


Figure 6: Primary conveyor frame cross section.

SEPARATOR CONVEYOR

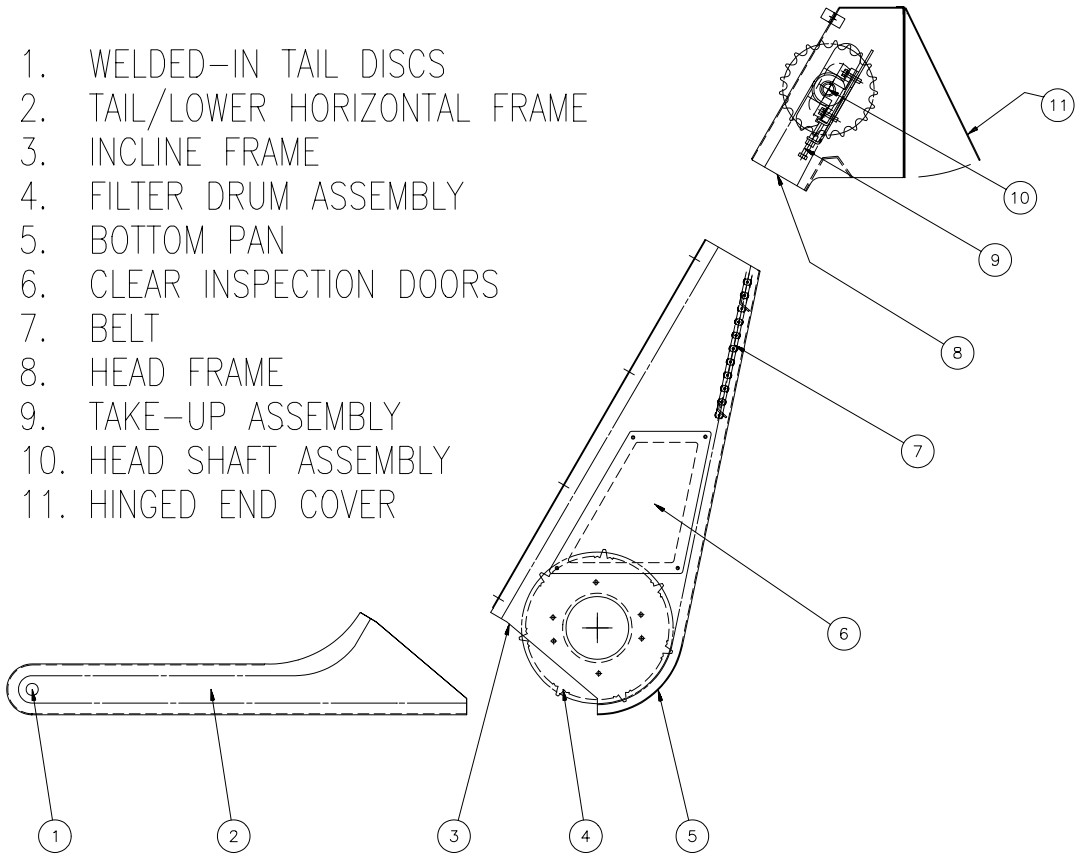


Figure 7: Separator conveyor nomenclature.

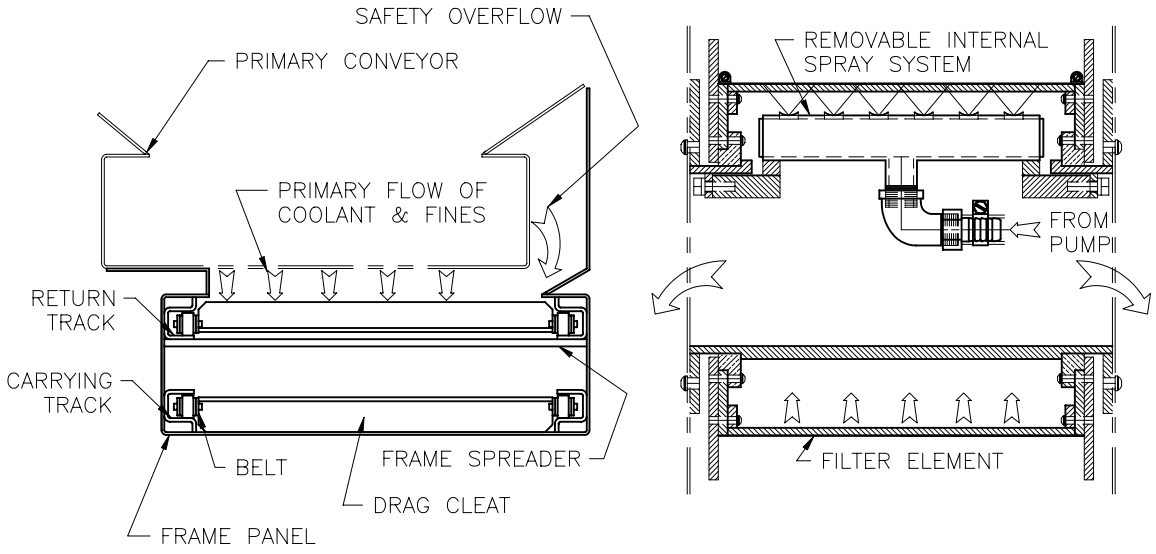
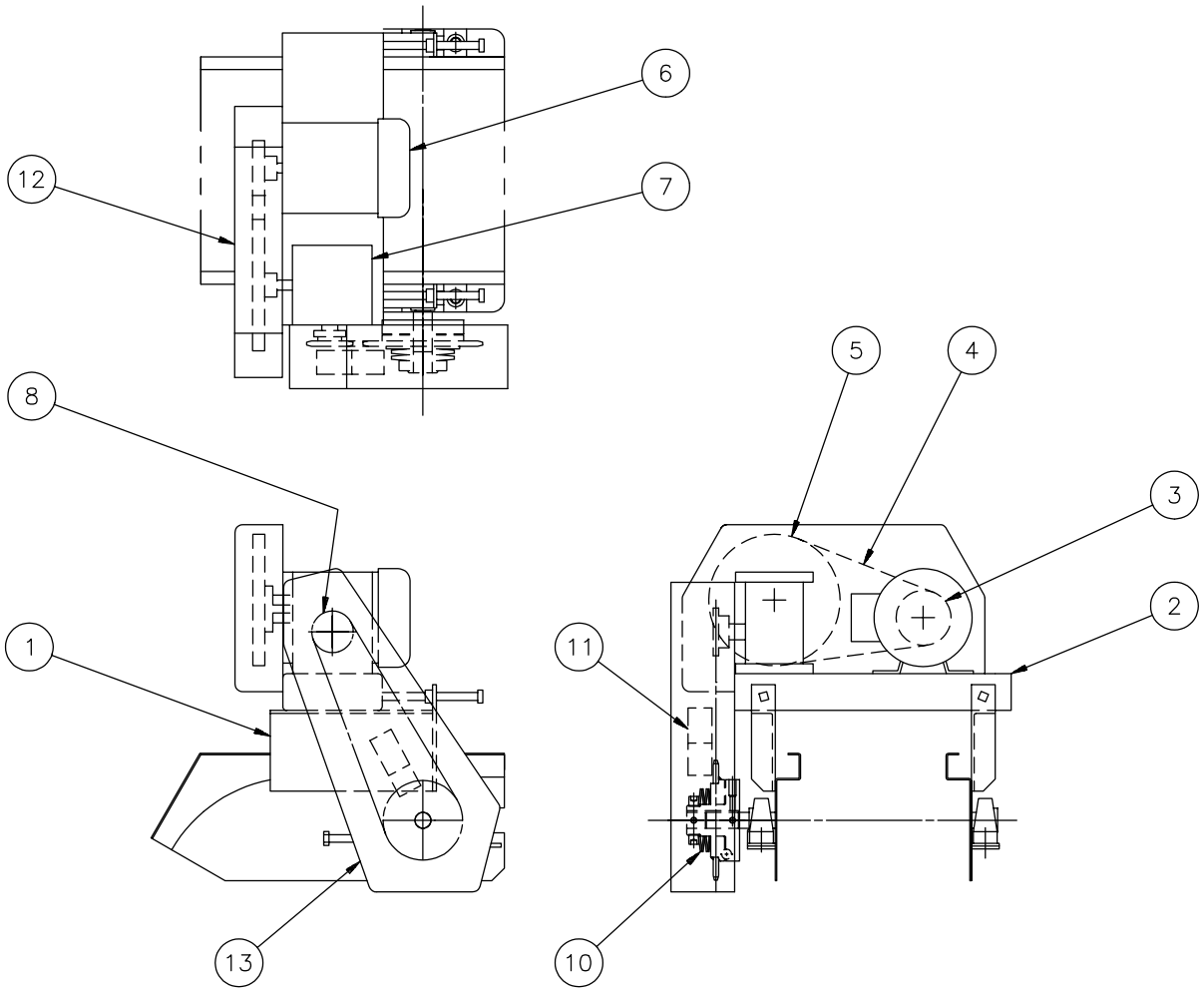


Figure 8: Separator conveyor frame cross section.

DRIVE ASSEMBLY



1. DRIVE SUPPORTS
2. DRIVE BASE
3. DRIVE SHEAVE
4. V-BELT
5. DRIVEN SHEAVE
6. MOTOR
7. REDUCER
8. REDUCER SPROCKET
9. DRIVE CHAIN
10. CLUTCH ASSEMBLY
11. LIMIT SWITCH (OPTIONAL)
12. SHEAVE GUARD
13. CHAIN GUARD

Figure 9: Top mounted drive assembly.

STEEL BELTING (PRIMARY CONVEYOR)

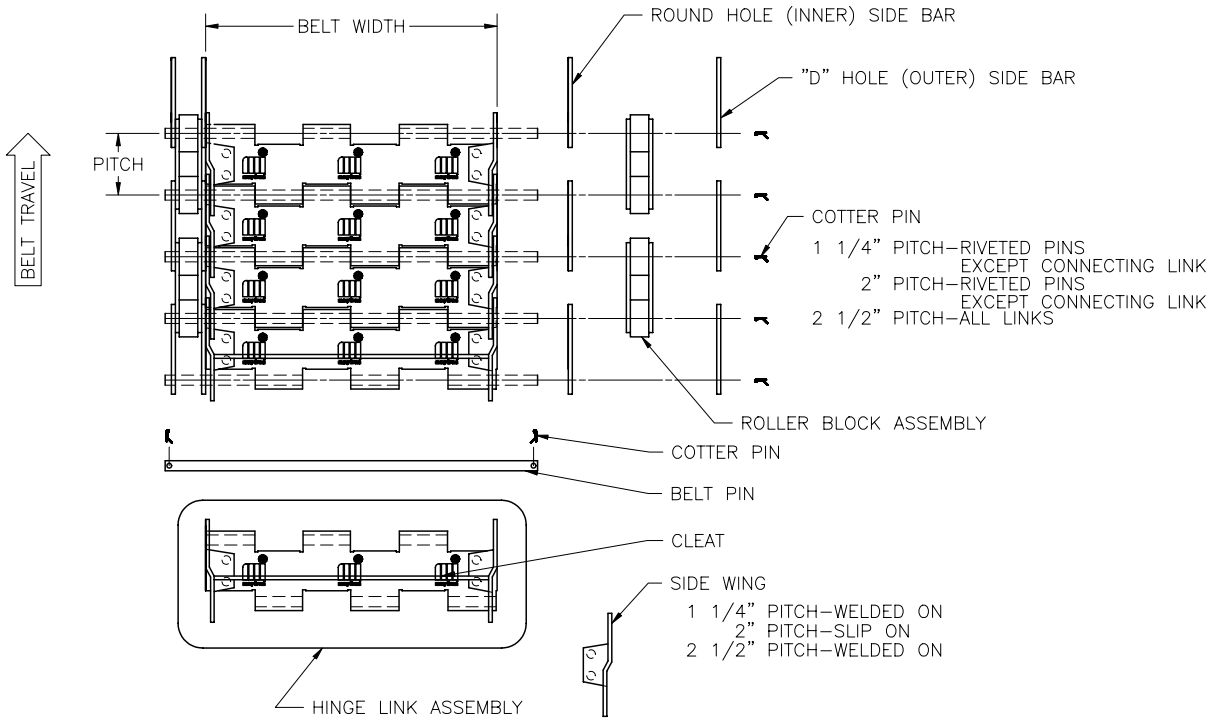


Figure 10: Top view of steel belting.

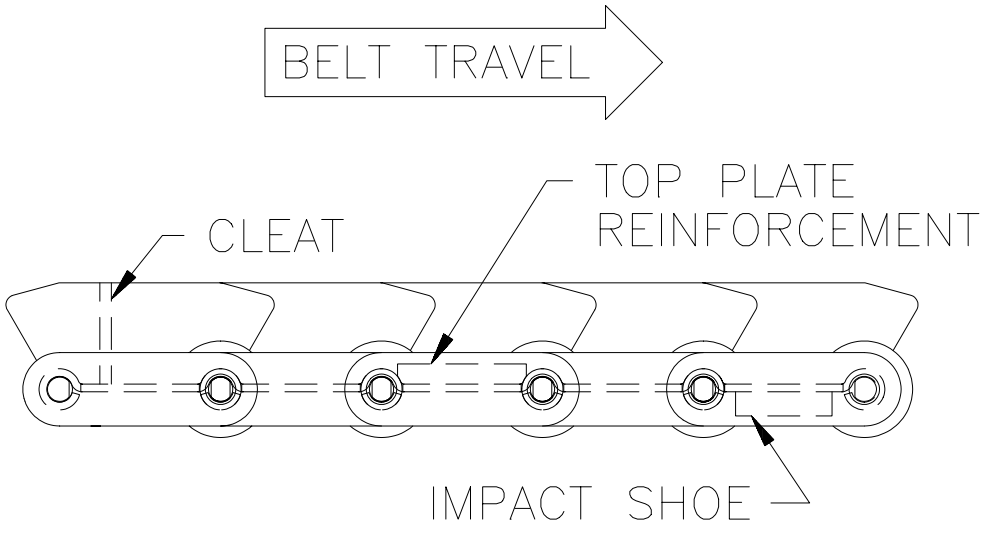


Figure 11: Side view of steel belting.

DRAG BELTING (SEPARATOR CONVEYOR)

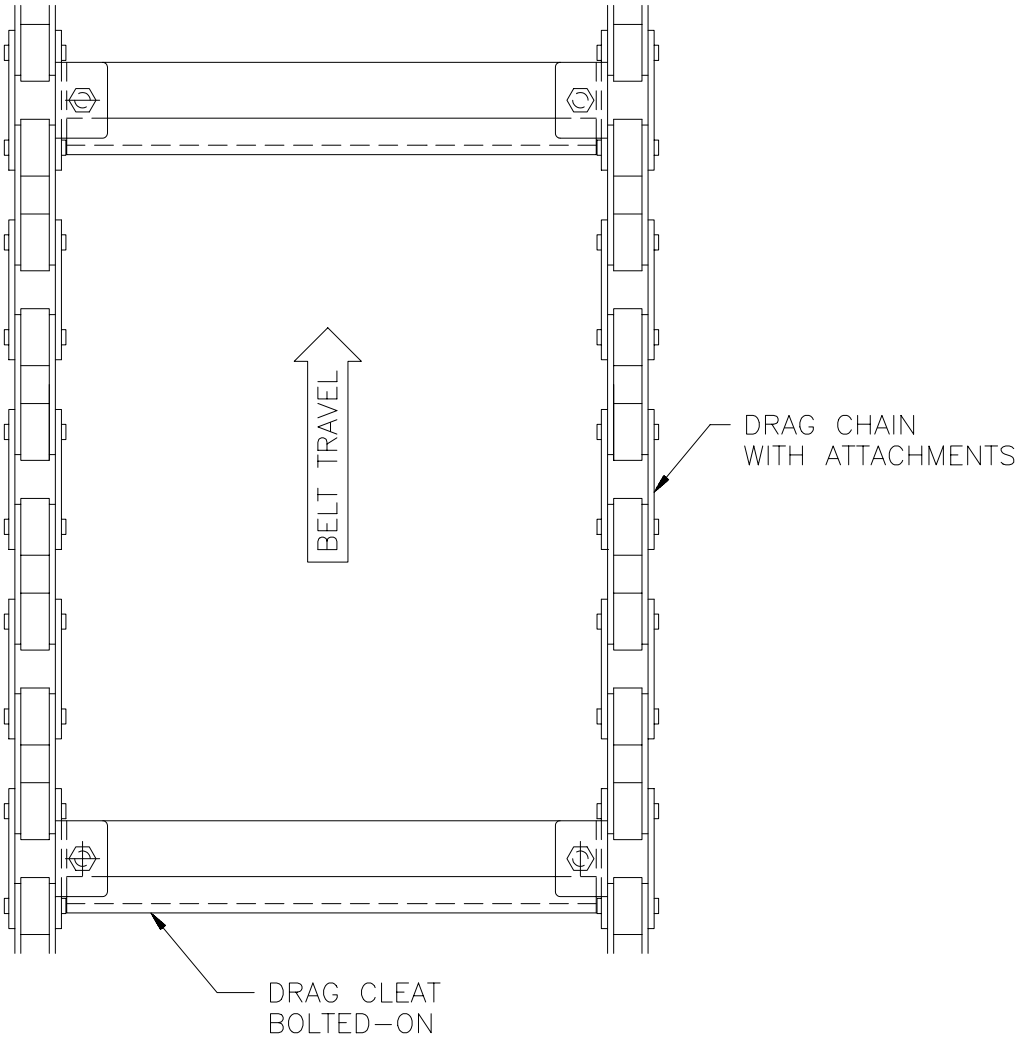


Figure 12: Top view drag belting,

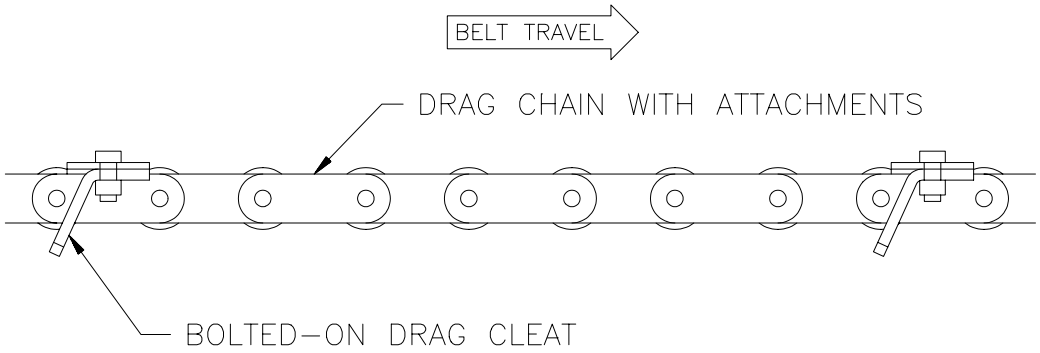


Figure 13: Side view drag belting.

CONVEYOR STYLES

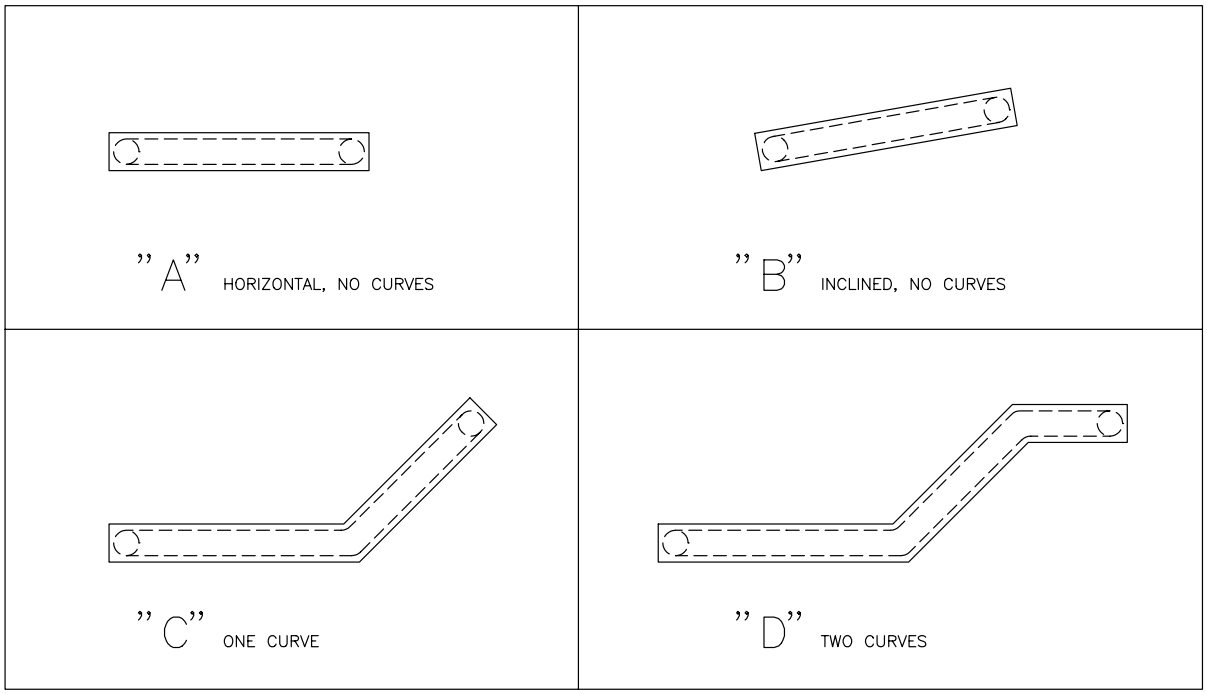


Figure 14: Mayfran conveyor frame style designations.

OPERATION

CONSEP 2000™ is designed to remove all types of materials, such as steel, cast iron, aluminum, brass, etc. from a stream of coolant. The bulk of the material is handled by the top mounted primary conveyor. The separation of the small chips and fines is produced by a single self-cleaning rotating drum wrapped with a fabric mesh filter element. The drum is continuously cleaned by an internal spray system and is protected by the primary conveyor directly above the separator conveyor.

The drum has a sprocket that engages the conveyor chain. This makes the drum rotate whenever the conveyor is operating. In most cases, the **CONSEP 2000™** conveyor does not need an additional drive. It is driven off of the return strand of the 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 of the items on a particular shipment. All items should be checked against this list.

REPORTING DISCREPANCIES OR DAMAGE 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: (216) 461-4100, extension 267.

If 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 FOR CONVEYORS

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 CONSEP 2000™ conveyor to prevent distortion. Avoid impacts to frames that might cause distortion and misalignment problems during installation. Lifting hooks are normally provided on Mayfran conveyors and tanks. Only use hooks that are designated for lifting. Be sure that slings will not deform conveyor parts. A spreader must be used if it appears that side panels, guards, etc. may be deformed by the sling.

STORAGE OF EQUIPMENT AWAITING INSTALLATION

Any outside storage (exposed to weather) of conveyor equipment must be approved in writing by an authorized Mayfran representative. Conveyor components awaiting installation should be protected from moisture and the elements. Steel belting will oxidize rapidly if exposed to moisture, which will affect the appearance and flexibility of the belt. Painted surfaces can become dull in appearance if exposed to sunlight, even for a short period of time.

MATCH MARKING

In most instances, **CONSEP 2000™** will be shipped in one piece. If the conveyors frames have to be shipped in separate pieces, the sections will be marked as per the following.

All shipping items for field installation should have a match mark number (such as "96M3000-1-2") either stamped or stenciled, in a conspicuous place on the item. The first portion of the number is an equipment identifier, usually the Mayfran serial number. If the piece is an interior frame section, it will have two dashes. The joints are numbered from the conveyor's tail end to its head end. The number after the first dash is the joint number toward the tail end of the conveyor, and the number after the second dash is the joint number toward the head end of the conveyor. Only head and tail frame sections will have one joint number, all other interior frame sections will have two numbers. Every mark number is shown on the conveyor installation drawing. If any piece is found without a mark number, contact the engineer on the inspection sticker for identification. See the following figures for typical match marking schemes, and locations where found on the conveyor sections.

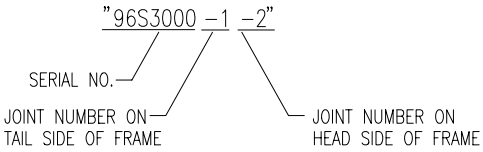


Figure 15: Match mark number breakdown.

BOLTED FRAME SPLICE JOINTS

To connect any two frame sections together, line up the adjacent frame ends and insert bolts through the punched holes in the splice angles and tighten. Verify that the proper frame sections are being joined in the correct sequence by the mark numbers.

The quantity of bolts required for each frame splice joint is determined by the width of the conveyor frame. Refer to the conveyor installation drawings or shipping lists for bolt sizes and quantities. All fasteners for frame splice joints with gasket (if necessary) are located in one set of holes. Watertight splices need to be sealed with silicone along with the gasket.

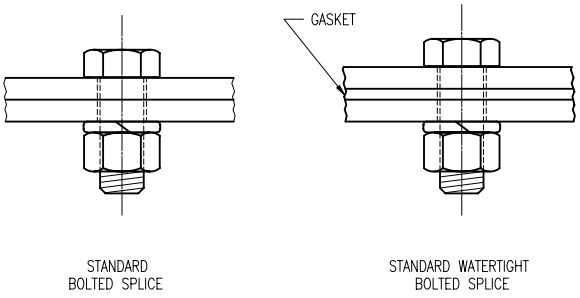


Figure 16: Bolted joints through (a) standard, and (b) watertight.

INSTALLATION DRAWINGS

General arrangement drawings used for installation have been sent to the equipment purchaser. Should there be any instances where information contained in this manual conflicts with the general arrangement drawings specific to this job, the information on the drawings will govern. If there are any questions, please contact the engineer identified on the inspection sticker for clarification.

ELECTRICAL INSTALLATION

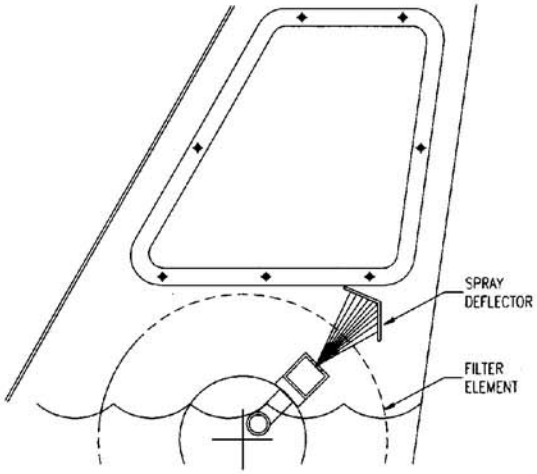
All wiring and controls must be installed in accordance with local codes. All work must be performed by licensed electricians. When a conveyor system includes controls, wiring diagrams are normally found in a pocket on the inside of the control box door. Motor wiring diagrams are usually found on the motor nameplate or on the conduit box cover.

SYSTEM INSTALLATION

During operation, the maximum coolant level in the CONSEP 2000® conveyor system is designed to be below the carrying strand of the primary conveyor. This eliminates the possibility of a floating chip problem. The coolant level must be below the internal spray system of the CONSEP 2000®, because it must spray through air not through coolant. *See Figure 17.*

BACKWASH SYSTEM SET-UP

The purpose of the backwash is to continuously clean the filter element. To set the internal backwash system, first close the valve. Look through the clear inspection panels located on the side of the conveyor and slowly open the valve until the spray starts going through the separating element. Open the valve until an inch long stream of coolant can be seen passing through the screen. A visual check is periodically required to verify the spray system is spraying through the filter element. Open the valve as required to keep the coolant stream as specified. *See figures 18A, B & C for strainer cleaning.*



REMOVABLE BACKWASH SPRAY SYSTEM

FIGURE: *17*

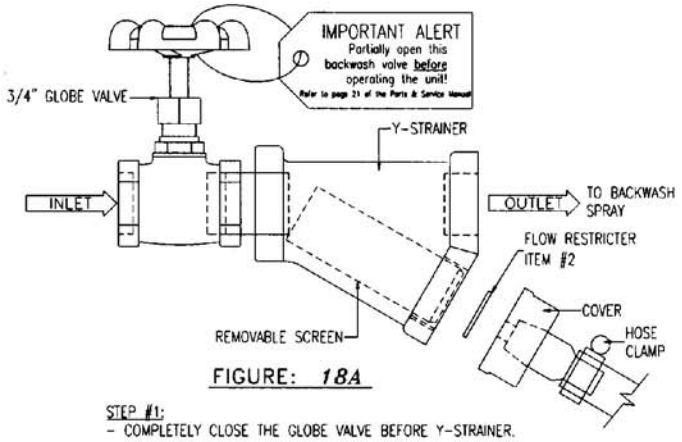


FIGURE: *18A*

STEP #1:
- COMPLETELY CLOSE THE GLOBE VALVE BEFORE Y-STRAINER. NOTE: MACHINE DOES NOT HAVE TO BE TURNED OFF.
- LOOSEN THE HOSE CLAMP AROUND THE 1/2" ID HOSE.
- REMOVE COVER AND FLOW RESTRICTER FROM Y-STRAINER.

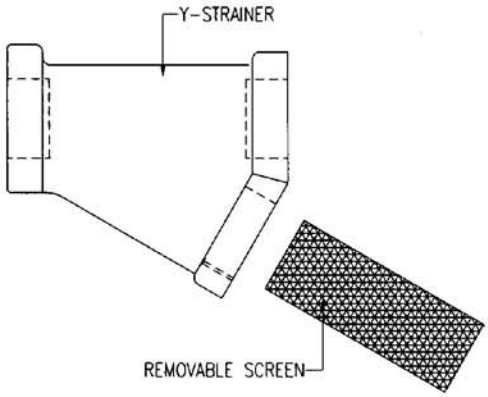


FIGURE: *18B*

STEP #2:
- REMOVE THE SCREEN FROM Y-STRAINER.
- CLEAN THE SCREEN WITH WIRE BRUSH AND RINSE CLEAN.

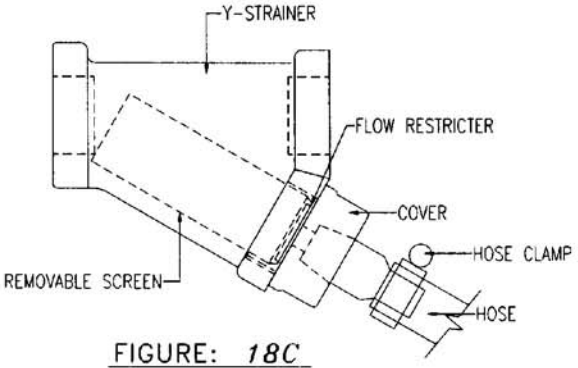


FIGURE: *18C*

STEP #3:
- INSERT THE SCREEN AND FLOW RESTRICTER.
- FASTEN THE COVER TO THE Y-STRAINER.
- TIGHTEN THE HOSE CLAMP AROUND THE 1/2" ID HOSE.
- OPEN THE GLOBE VAVLE AND SET THE BACKWASH.

GEAR REDUCER OIL FILLING INSTRUCTIONS

The gear reducers for all conveyors are typically filled with oil at their factory. However occasionally, the unit may be shipped dry and will need to be filled at installation by the installer. In either case, the reducer must first be checked to verify the presence and level of oil.

CAUTION: Before running the drive, the reducer must be filled with the correct amount of appropriate oil or serious damage to the unit will result. Damage to the reducer due to operating without oil will void the manufacturers' warranty.

Check the level of the oil using the sight gauge (if provided), or by removing the level plug on the side of the reducer. If the reducer is filled to the correct level, oil will be ready to drip out of the level hole. Note: refer to the reducer manufacturers' service manual for the correct procedure for filling, and location of level and vent plugs. If the oil level is low, top off with the appropriate oil.
Each reducer is supplied with a breather on or near the top of the unit. The breather must be checked for proper installation and operation before starting the conveyor. Note that some breathers are supplied with a plug or pin, which must be removed in order for the breather to function. If the breather is missing or is not operating correctly, inform Mayfran before attempting to operate the conveyor. If the breather does not work and the drive is run, damage to the reducer may occur**.**

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 conveyor in the forward direction. Observe the rotation of the driven sprocket (on the head shaft). Repeat in the reverse direction if applicable. If the direction of rotation is not correct, have a qualified electrician reverse the wires. After repairs are completed, recheck the rotation direction.

BELT TAKE-UP ADJUSTMENT

All conveyors are equipped with a belt tensioning device called a take-up. The take-up is usually located at the head end of the conveyor and is used to position the head shaft with respect to the frame of the conveyor. On all Mayfran conveyors, the take-up is designed to move a distance greater than or equal to the pitch length of the belt being used. This insures it will always be possible to properly tension the belt, with the addition or removal of an even number of pitches, even if the length of the conveyor is changed.

Proper chain tension is critical to the reliable operation of any hinged steel belt conveyor. Chains can loosen up after initial run-in on new conveyors or after long periods of time as components begin to wear. One of the sure signs of a loose chain is an observed jerking motion of the belt hinge pan when running. A chain that is too loose may jam and cause the conveyor to become inoperable. A chain that is too tight, may cause excessive wear of chain components and create overloads on the drive system.

PRIMARY CONVEYOR

CHECKING BELT TENSION

The following procedure is used to properly check the tension the belt:

1. Lock out the power to the conveyor.
2. With a hammer, tap hard on the center of the hinge link that is just beyond the head shaft. (See Figure 17)
3. If the linge link collapses and stays collapsed, the belt is too loose. See "Tightening the Belt chain" below.
4. If the linge link collapses and springs back into its original position, the belt chain is properly tensioned.
5. If the hinge link cannot be collapsed, the belt chain is too tight. See "Loosening the Belt chain" below.
6. Turn the power back on to the conveyor.

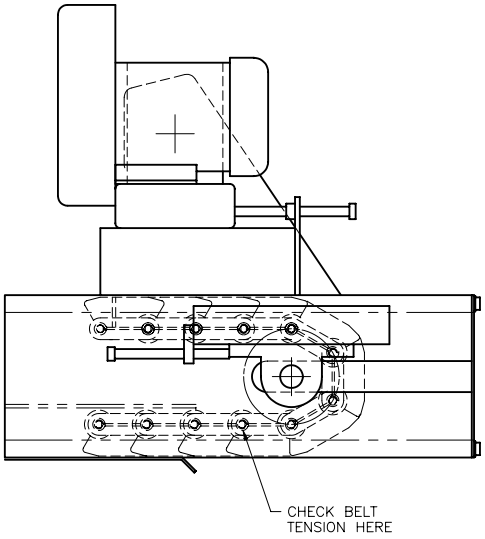


Figure 17: Typical head section.

CAUTION: Whenever the guards are removed or any adjustment is made to the take-up, power must be removed from the conveyor using OSHA approved lock-out / tag-out procedures.

TIGHTENING THE BELT

1. Remove drive chain guard and belt sprocket covers.
2. Loosen the jam nuts and pillow block bearings on the take-up assembly. Also, loosen the jam nuts and mounting bolts on the drive assembly.

***NOTE**: Be sure to loosen the drive assembly before adjusting the belt, since the drive assembly will move in the same direction.*

3. Tighten the belt take-up equally on both sides of the conveyor until belt tension feels correct. Check belt tension, follow procedures explained above.

***NOTE**: Make sure the head shaft is square to the conveyor frame. This can be checked by measuring the distance from the head shaft to the front face of the conveyor. The dimension should be the same on both sides. If the belt runs to the side, the head shaft is not square.*

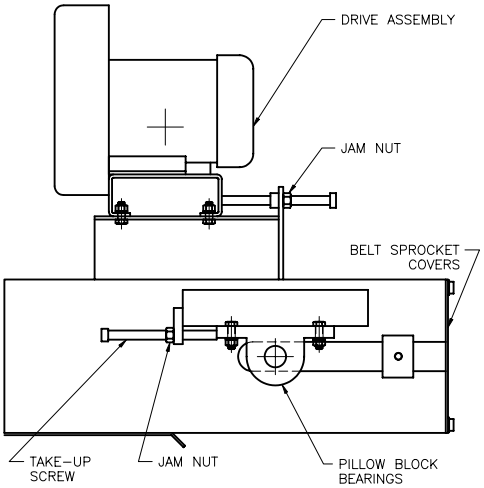


Figure 18: Take-Up assembly.

4. Adjust drive assembly to properly tension the drive chain.
5. Tighten the pillow block bearings, drive assembly, and the jam nuts.
6. Allow the conveyor to run for several complete revolutions.

7. Check belt tension, again.

8. The belt must be centered on the head shaft. Clearances between the belt sprocket and the side bars on both sides of the head shaft should be equal. If the belt is not centered, tighten the side where the sprocket is close to the outside side bar (or loosen the other side). Tighten only a couple of turns, then restart the conveyor and observe the belt for at least one complete revolution. Repeat as required until centered.

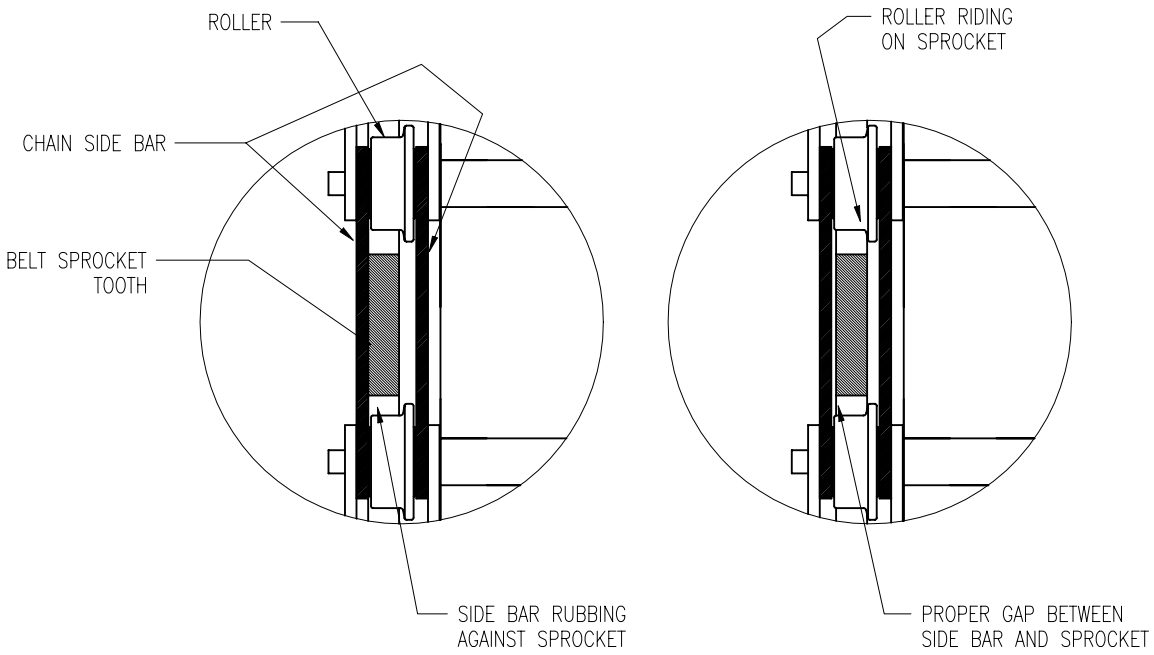


Figure 19: Top view of head or tail shaft at belt sprocket showing proper clearances between belt side bars and sprocket teeth.

9. Ensure that all guards are properly installed.

***NOTE**: Use extreme caution while working around an operating conveyor.*

LOOSENING THE BELT

1. Remove drive chain guard and belt sprocket covers.

2. Loosen the jam nuts and pillow block bearings on the take-up assembly. Also, loosen the jam nuts and mounting bolts on the drive assembly.

***NOTE**: Be sure to loosen the drive assembly before adjusting the belt, since the drive assembly will move in the same direction.*

3. Loosen the belt take-up equally on both sides of the conveyor until belt tension feels correct. Check belt tension, follow procedures explained above.

***NOTE**: Make sure the head shaft is square to the conveyor frame. This can be checked by measuring the distance from the head shaft to the front face of the conveyor. The dimension should be the same on both sides. If the belt runs to the side, the head shaft is not square.*

4. Adjust drive assembly to properly tension the drive chain.
5. Tighten the pillow block bearings, drive assembly, and the jam nuts.
6. Allow the conveyor to run for several complete revolutions.
7. Check belt tension, again.
8. The belt must be centered on the head shaft (See Figure 19). Clearances between the belt sprocket and the side bars on both sides of the head shaft should be equal. If the belt is not centered, tighten the side where the sprocket is close to the outside side bar (or loosen the other side). Tighten only a couple of turns, then restart the conveyor and observe the belt for at least one complete revolution. Repeat as required until centered.
9. Ensure that all guards are properly installed.

SEPARATING CONVEYOR

CHECKING BELT TENSION

The following procedure is used to properly check the tension the belt:

1. Lock out the power to the conveyor.

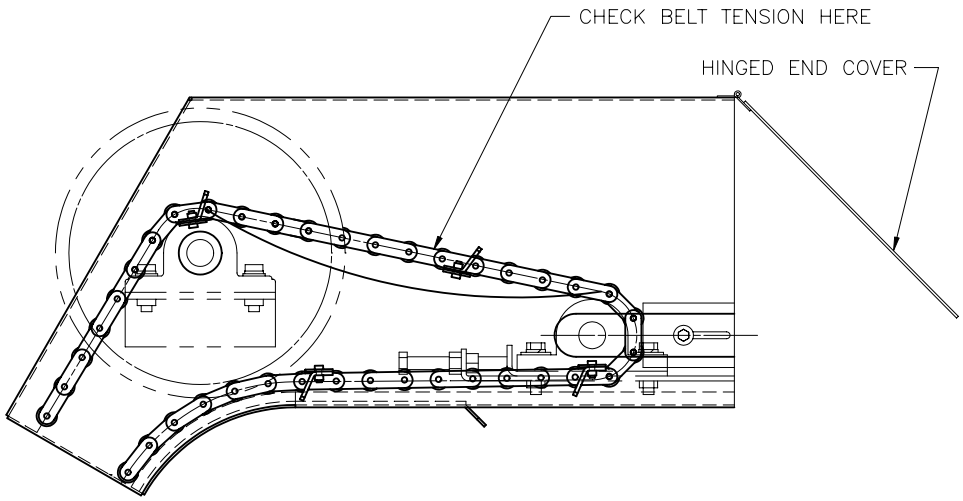


Figure 20: Typical head section.

2. Visually, check under the hinged end cover to see if the drag belt is sagging. Also, with gloves on, pull cleat away from the bottom pan of the conveyor (See Figure 20).
3. If the cleat moves more than 1/4" away from the bottom pan of the conveyor, the belt is too loose. See "Tightening the Belt chain" below.
4. If the cleat moves approximately 1/4" away from the bottom pan of the conveyor and springs back into its original position, the belt chain is properly tensioned.
5. If the cleat cannot be pulled away from the bottom pan of the conveyor, the belt chain is too tight. See "Loosening the Belt chain" below.
6. Turn the power back on to the conveyor.

CAUTION: Whenever the guards are removed or any adjustment is made to the take-up, power must be removed from the conveyor using OSHA approved lock-out / tag-out procedures.

TIGHTENING THE BELT

1. Remove belt sprocket covers.
2. Loosen the jam nuts and pillow block bearings on the take-up assembly.
3. Tighten the belt take-up equally on both sides of the conveyor until belt tension feels correct. Check belt tension, follow procedures explained above.

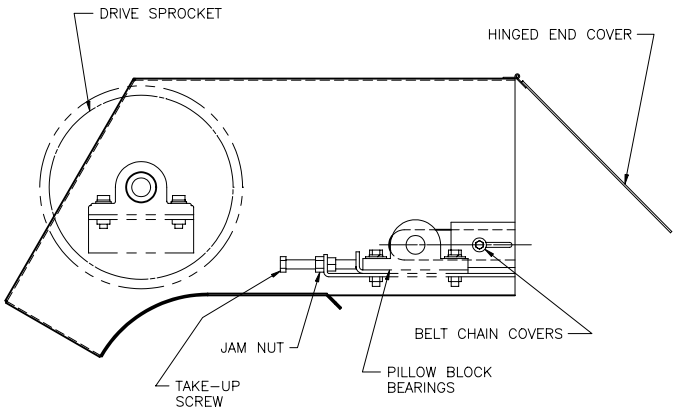


Figure 21: Take-Up assembly (Separator conveyor).

***NOTE**: Make sure the head shaft is square to the conveyor frame. This can be checked by measuring the distance from the head shaft to the front face of the conveyor. The dimension should be the same on both sides. If the belt runs to the side, the head shaft is not square.*

4. Tighten the pillow block bearings, and the jam nuts.
5. Allow the conveyor to run for several complete revolutions.
6. Check belt tension, again.
7. The belt must be centered on the head shaft and drive shaft (See Figure 22). Clearances between the belt sprocket and the side bars on both sides of the head shaft should be equal. If the belt is not centered, tighten the side where the sprocket is close to the outside side bar (or loosen the other side). Tighten only a couple of turns, then restart the conveyor and observe the belt for at least one complete revolution. Repeat as required until centered.
8. Ensure that all guards are properly installed.

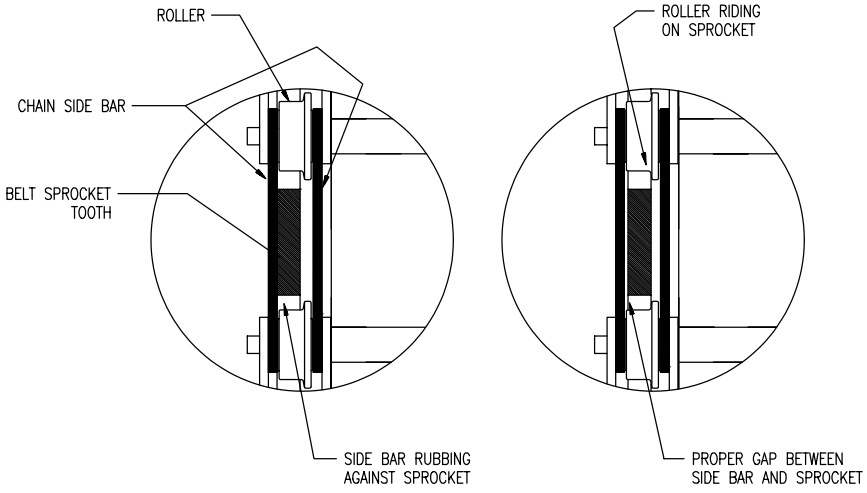


Figure 22: Top view of head or tail shaft at belt sprocket showing proper clearances between belt side bars and sprocket teeth.

LOOSENING THE BELT

1. Remove belt sprocket covers (See Figure 21).
2. Loosen the jam nuts and pillow block bearings on the take-up assembly.
3. Loosen the belt take-up equally on both sides of the conveyor until belt tension feels correct. Check belt tension, follow procedures explained above.

***NOTE**: Make sure the head shaft is square to the conveyor frame. This can be checked by measuring the distance from the head shaft to the front face of the conveyor. The dimension should be the same on both sides. If the belt runs to the side, the head shaft is not square.*

4. Tighten the pillow block bearings, and the jam nuts.
5. Allow the conveyor to run for several complete revolutions.
6. Check belt tension, again.
7. The belt must be centered on the head shaft and drive shaft (See Figure 22). Clearances between the belt sprocket and the side bars on both sides of the head shaft should be equal. If the belt is not centered, tighten the side where the sprocket is close to the outside side bar (or loosen the other side). Tighten only a couple of turns, then restart the conveyor and observe the belt for at least one complete revolution. Repeat as required until centered.
8. Ensure that all guards are properly installed.

REMOVAL OF MAJOR COMPONENTS

PRIMARY CONVEYOR

BELT ASSEMBLY REMOVAL

The following procedure covers the complete removal and disassembly of the primary conveyor belt assembly. Perform only those steps necessary for your particular repair, inspection, cleaning, lubrication or other operations.

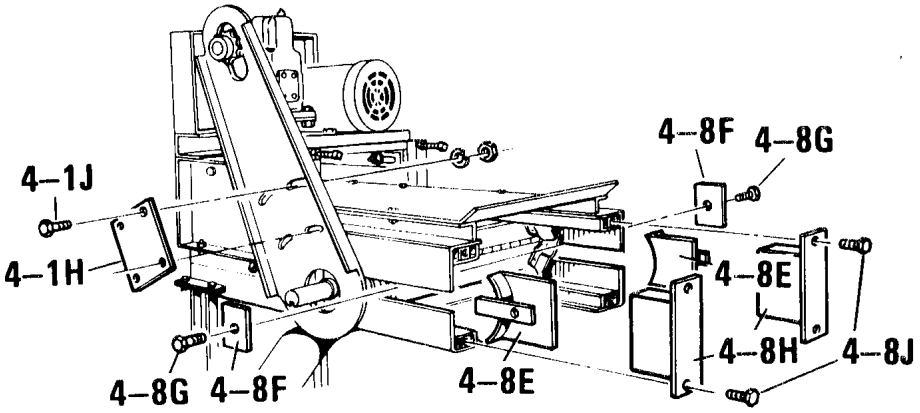


Figure 23: **Typical head section.**

1. Lift the hinged end cover and remove the belt chain guards (4-8E, 4-8H). With conveyor running, locate the master link on the belt chain. This is where two cotter pins are in succession (On a 2 1/2" pitch conveyor all the links are joined by cotter pins). Rotate the belt (4-7) to line up the belt pin (4-7G) with the center of the take-up slot at the discharge end of conveyor.

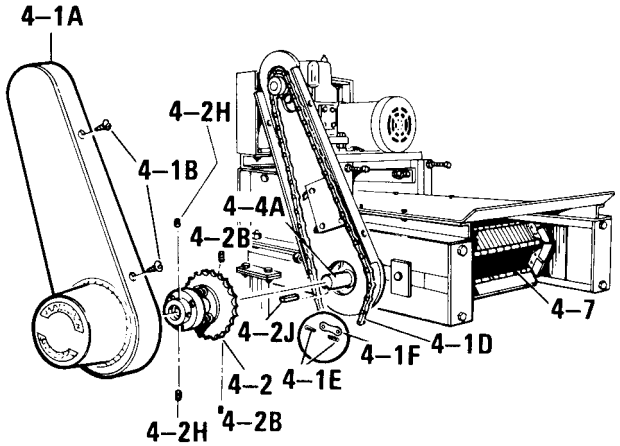


Figure 24: Typical drive disconnection.

NOTE: *ON 2" pitch AND 1 1/4" pitch CONVEYORS, THERE MAYBE MORE THAN ONE MASTER LINK.*

2. Remove the drive chain guard (4-1A). Disengage the drive chain (4-1D) by removing the master link (4-1F). Remove two set screws which secure the safety clutch (4-2) to the head shaft assembly (4-4) and remove clutch.

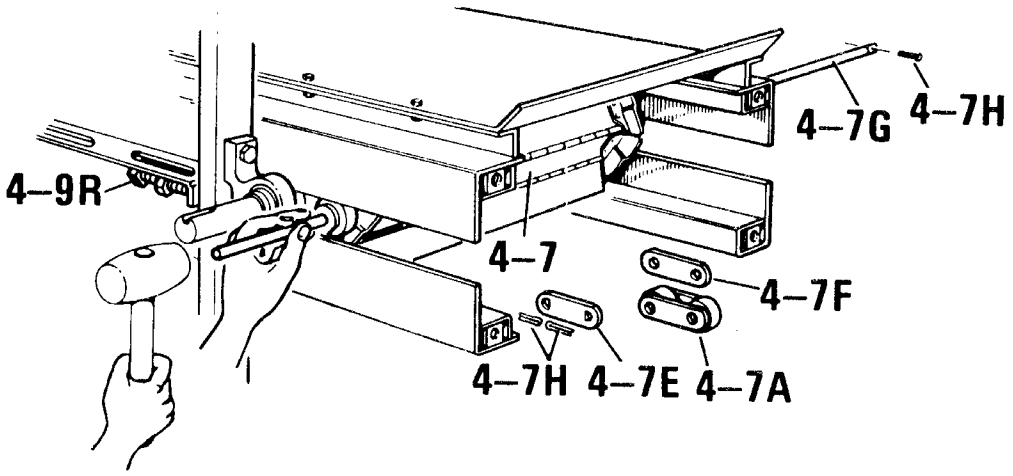


Figure 25: Typical Belt Removal.

3. After positioning the master link, remove the cotter pins (4-7H) on both ends of the belt pin. Rotate belt until the other end of the "D"-hole bar [outside bar (4-7E)]and its corresponding belt pin (4-7G) and line it up with the slot. Next, remove the cotter pins (4-7H) on both ends of the second pin, and remove "D"-hole bars (4-7E) from both sides of the conveyor belt. Loosen the two take-up bolts (4-9R) on each side about 1/2" to relieve some of the belt tension.
4. Using a rod with a diameter of less than 3/8", drive the belt pin (4-7G) through one of the rollers and the round-hole side bar [inside bar (4-7F). Now, remove the roller block assembly (4-7A) and round-hole side bar (4-7F).
5. With the belting (4-7) separated, pull on the bottom strand of the belt to remove it.

Caution: Maintain some tension on the upper strand as it feeds through the conveyor frame to prevent any tendency of the belting to "run away".

Complete disassembly by referring to the exploded view shown in the "PARTS LIST" section (See the Table of Contents in the front of this manual).

DRIVE ASSEMBLY REMOVAL

1. Remove the chain guard (4-1A) by disengaging four screws (4-1B)[See Figure 24]. Disconnect the drive chain (4-1D) by locating the master link (4-1F). This is where the chain is disconnected.
2. Remove the two set screws (4-2B) which secure the Safety Clutch (4-2) to the head shaft assembly (4-4) and remove clutch, releasing the key (4-2J).
3. Remove the set screw from the drived sprocket on the reducer. Now, remove the chain guard backplate.
4. Now, at this point the complete drive base could be removed by disengaging four bolts.
5. To break down the drive assembly even futher, remove the sheave guard. Remove the V-belt and two sheaves.
6. To remove the motor, disengage four mounting bolts.
7. To remove the reducer, disengage four mounting bolts. 1.Remove the chain guard (4-1A) by disengaging four screws (4-1B)[See Figure 24]. Disconnect the drive chain (4-1D) by locating the master link (4-1F). This is where the chain is disconnected.
2. Remove the two set screws (4-2B) which secure the Safety Clutch (4-2) to the head shaft assembly (4-4) and remove clutch, releasing the key (4-2J).
3. Remove the set screw from the drived sprocket on the reducer. Now, remove the chain guard backplate.
4. Now, at this point the complete drive base could be removed by disengaging four bolts.
5. To break down the drive assembly even futher, remove the sheave guard. Remove the V-belt and two sheaves.
6. To remove the motor, disengage four mounting bolts.
7. To remove the reducer, disengage four mounting bolts.

HEAD SHAFT ASSEMBLY REMOVAL

***NOTE**: All Mayfran head shafts may be removed without damaging the conveyor frame.*

1. The belt must be separated and removed from the shaft before attempting to remove the shaft.
2. Remove the Safety Clutch (4-2) or any other interference from around the head shaft.
3. Remove the two bolts on each side that hold the pillow block bearings in place.
4. Now, rotate the head shaft and walk it out of the frame along the bottom strand of belt.

TAIL SHAFT ASSEMBLY REMOVAL (ONLY WHEN PRIMARY CONVEYOR IS A 2 ½" PITCH CONVEYOR)

NOTE: *All Mayfran tail shafts may be removed without damaging the conveyor frame. Also, 1 1/4" pitch & 2" pitch have tail discs welded into position which are* ***not replaceable****.*

TAIL FRAME – NOT WATERTIGHT (NOTED ON ASSEMBLY DRAWING)

1. The belt must be separated and completely removed from the tail shaft area before attempting to remove the shaft.

NOTE*: The shaft is attached to the frame horseshoe bracket with roll pins.*

2. Remove the bolted-on tail wrap. Remove the two roll pins that attach the shaft to the frame.
3. After removal of the roll pins, the shaft assembly is free to be removed carefully.

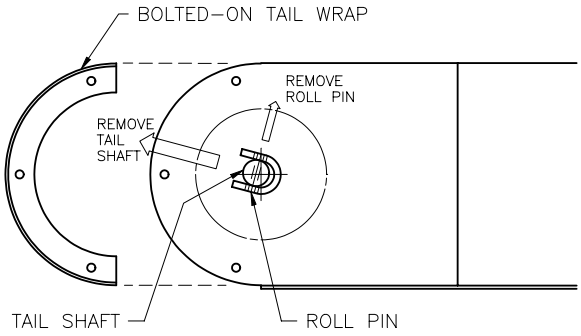


Figure 26: Tail shaft removal (not watertight)

TAIL FRAME – WATERTIGHT (NOTED ON ASSEMBLY DRAWING)

1. The belt must be separated and completely removed from the tail shaft area before attempting to remove the shaft.

NOTE*: The shaft is attached to the frame horseshoe bracket with bolts, lock washers & nuts.*

2. Loosen the two set screws on each tail sprocket and move the sprockets to the center of the shaft.
3. Remove the two sets of bolts, washer, & nuts that attach the shaft to the frame.
4. After removal of the bolts, the shaft assembly is free to be removed carefully.
5. Remove shaft out of the horseshoe brackets and into frame. Turn shaft assembly 90degrees and remove.

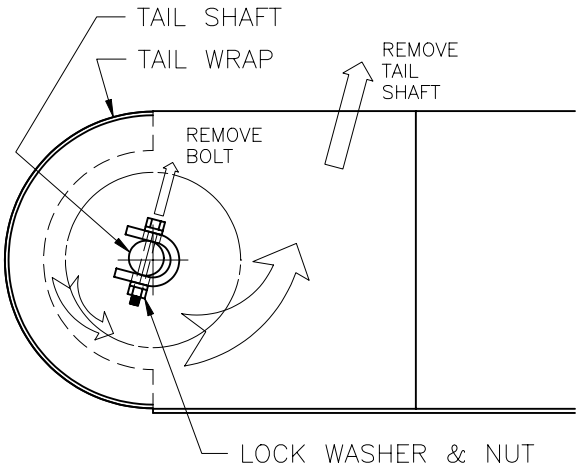


Figure 27: Tail shaft removal (watertight)

SEPARATOR CONVEYOR

BELT ASSEMBLY REMOVAL

The following procedure covers the complete removal and disassembly of the separator conveyor belt assembly. Perform only those steps necessary for your particular repair, inspection, cleaning, lubrication or other operations.

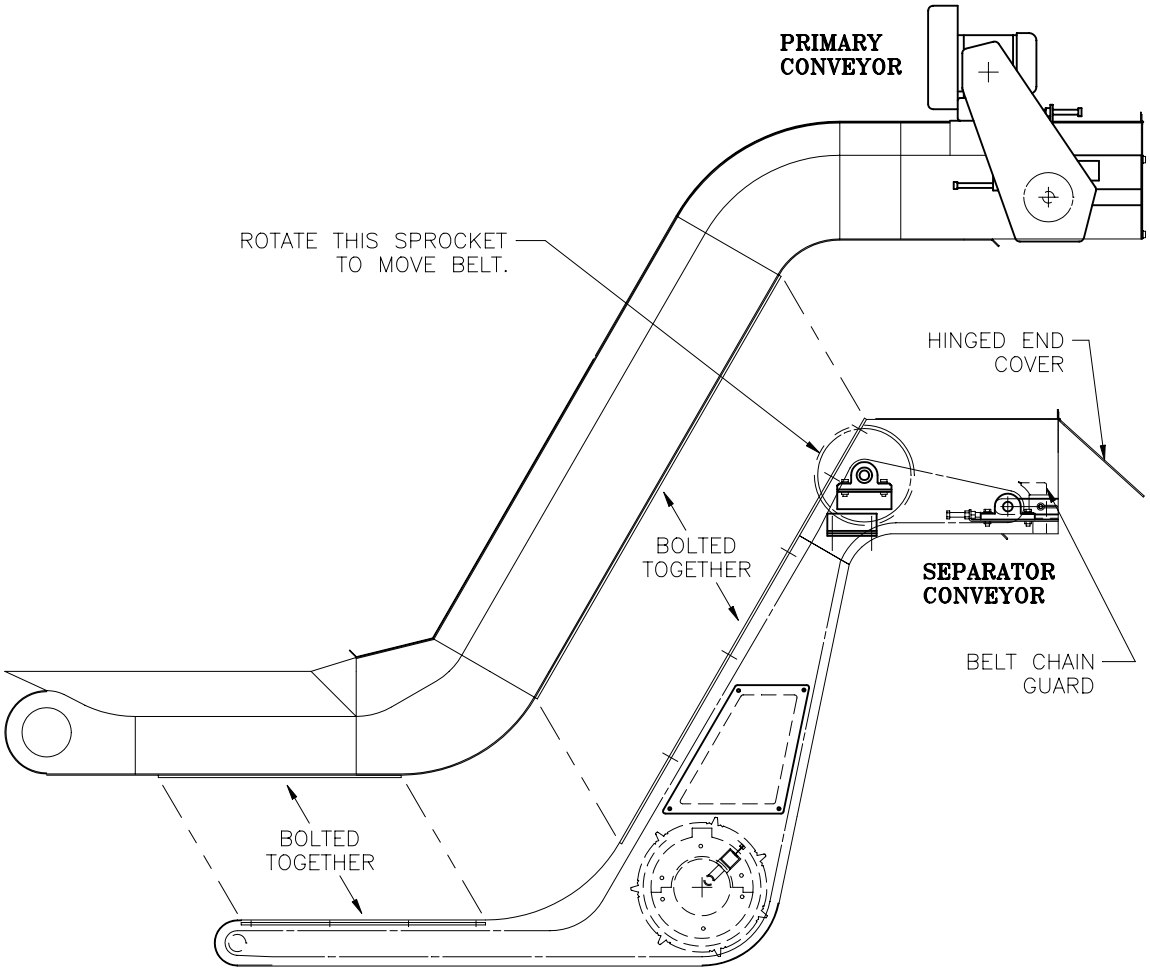


Figure 28: Separating the two conveyors.

1. Separate the two conveyors by unbolting the bolts on the lower horizontal and incline of the conveyors (See Figure 28). Lift the hinged end cover and remove the belt chain guards.
2. While rotating the driven sprocket, locate the master link on the belt chain. Rotate the belt to line up the master link with the center of the take-up slot at the discharge end of separator conveyor.
3. After positioning the master link, loosen the two take-up bolts on each side about 1/2" to relieve some of the belt tension.
4. Remove the master link from both sides of the conveyor belt.
5. With the belting separated, pull on the bottom strand of the belt to remove it.

Caution: Maintain some tension on the upper strand as it feeds through the conveyor frame to prevent any tendency of the belting to "run away".

DRIVE SHAFT ASSEMBLY

***NOTE**: All Mayfran head shafts may be removed without damaging the conveyor frame.*

1. Separate the two conveyors by unbolting the bolts on the lower horizontal and incline of the conveyors (See Figure 28).
2. The belt must be separated and removed from the shaft before attempting to remove the shaft.

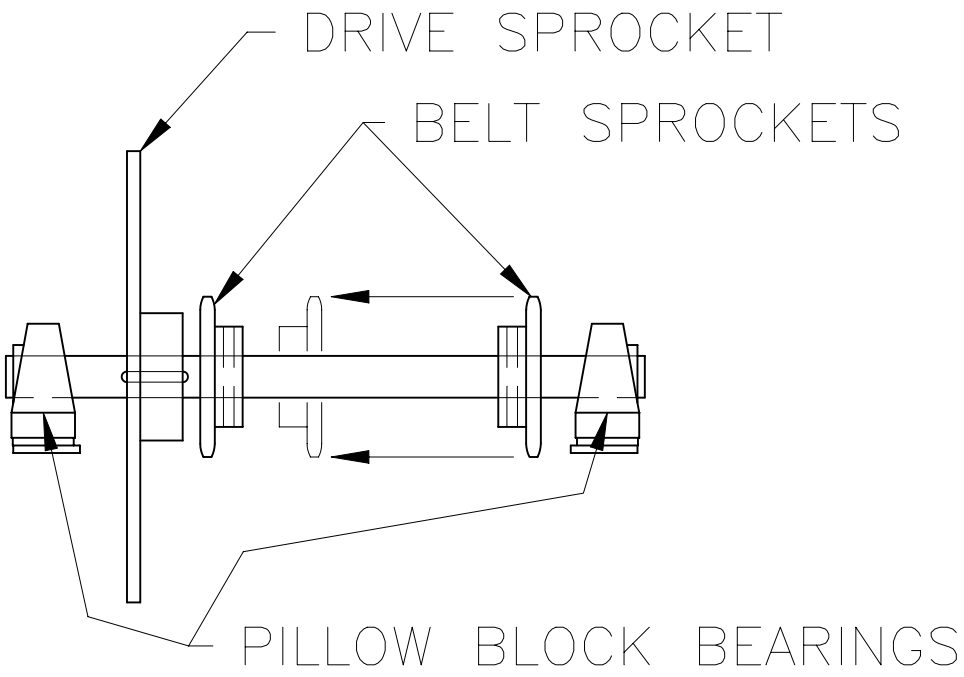


Figure 29: Drive shaft assembly.

***NOTE:** The belt sprockets on the separator conveyor are pinned to the he drive shaft.*

3. Match mark the sprocket and the shaft for re-assembly. Remove the roll pin from the belt sprocket futhest from the drive sprocket.
4. Now, slide the belt sprocket toward the other sprocket.
5. Loosen the set screws on the two pillow block bearings. Slide the drive shaft assembly toward the frame furthest from the drive sprocket. Slide the other direction and remove.

HEAD SHAFT ASSEMBLY

***NOTE**: All Mayfran head shafts may be removed without damaging the conveyor frame.*

1. The belt must be separated and removed from the shaft before attempting to remove the shaft.
2. Remove the belt chain guards or any other interference from around the head shaft.
3. Remove the two bolts on each side that hold the pillow block bearings in place.
4. Now, rotate the head shaft and walk it out of the frame.

TAIL SHAFT ASSEMBLY REMOVAL

NOTE: *THE SEPARATOR CONVEYOR HAS TAIL DISCS WELDED IN PLACE AND ARE* ***NOT REPLACEABLE.***

INTERNAL SPRAY SYSTEM REMOVAL

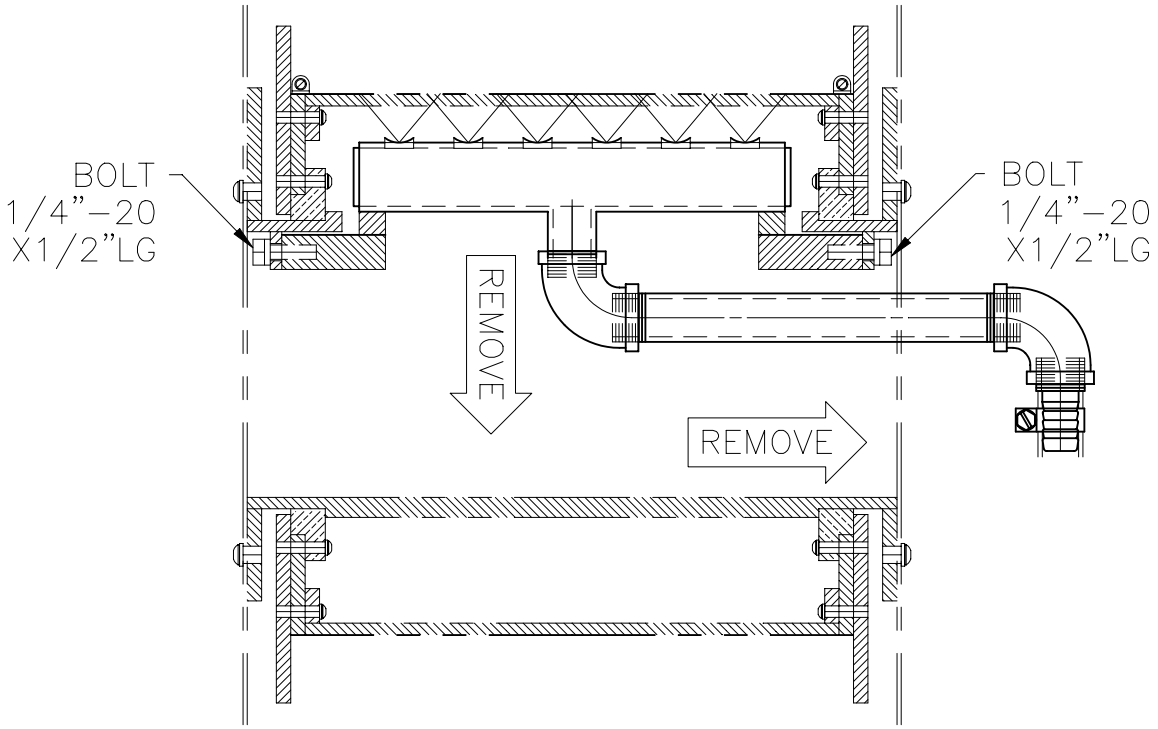


Figure 30: Internal spray system.

1. Remove all the tank lids or any other interference around the separator conveyor to access the coolant discharge area.
2. Remove the two bolts that secure the internal spray system in place.
3. Now, the internal spray system is free to drop down, rotate 90 degrees, and remove out the side opening that the hose enters.

FILTER ELEMENT REMOVAL

NOTE: *The two conveyors do not have to be separated to remove the filter element.*

1. Remove the clear inspection doors or any other interference around the conveyor (See Figure 31).
2. Drain the coolant out of the separator conveyor. Drain below the bottom of the drum assembly.

NOTE: *Mayfran recommends this step to eliminate the contamination of the clean coolant in the tank when the filter element is removed.*

3. Unscrew the two worm drive clamps and carefully remove (See Figure 32).
4. Remove the bolts holding the mount strip and filter element to the drum frame.
5. Now the filter element can be replaced. See "Major Component Replacement" section.

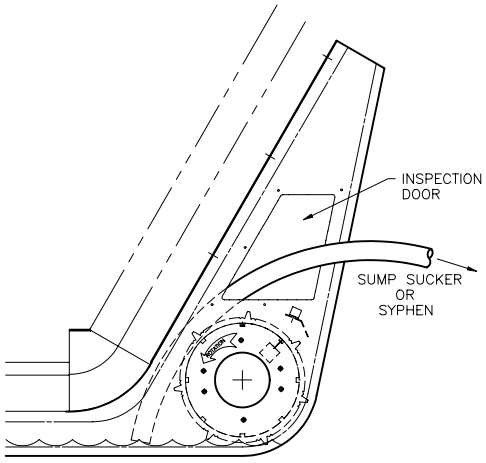


Figure 31: Procedure detail.

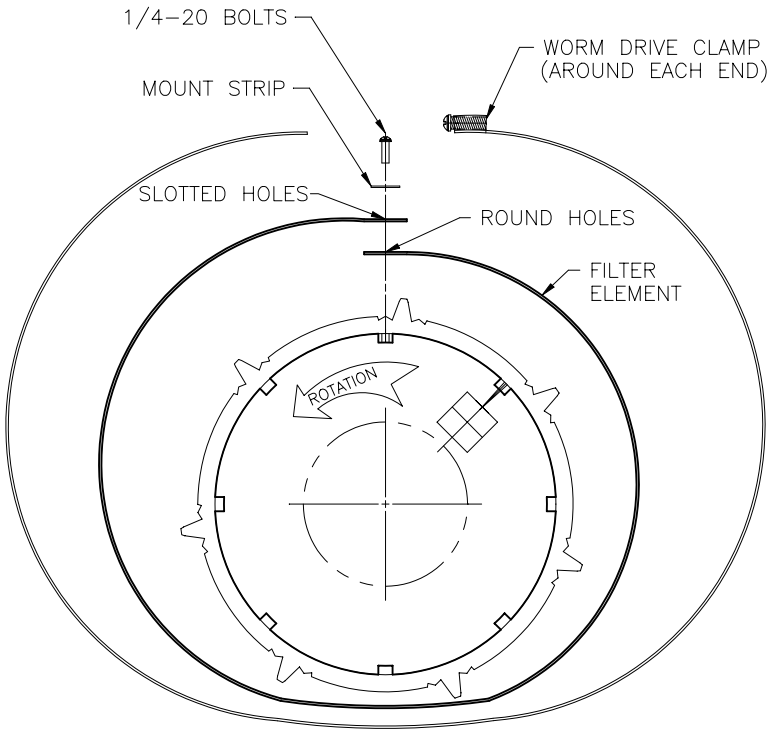


Figure 32: Filter element mounting detail.

FILTER DRUM ASSEMBLY REMOVAL

1. Separate the two conveyors by unbolting the bolts on the lower horizontal and incline of the conveyors (See Figure 28).
2. The belt must be separated and removed from the separator conveyor completely before attempting to remove the filter drum.
3. Once the belt is removed, unbolt the removable top track from both sides of the frame.
4. Now, the drum is mounted to the conveyor frame by two horseshoe brackets on each side of the conveyor. A top and bottom bracket. Unbolt the top bracket and remove on each side.

NOTE: *The bottom horseshoe bracket does not need to be removed.*

5. Remove the internal spray system (See the section "INTERNAL SPRAY SYSTEM REMOVAL").
6. Remove the filter element from the drum assembly (See the section "FILTER ELEMENT REMOVAL").
7. Now, the filter drum assembly can be removed using the bar stiffeners to lift with.

Caution: The filter drum assembly is heavy and should be removed carefully to avoid injury.

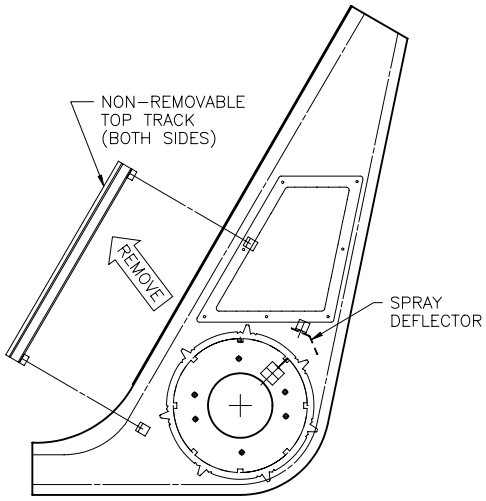


Figure 33: Drum removal.

MAJOR COMPONENT REMOVAL

PRIMARY CONVEYOR

DIRECTION OF BELT TRAVEL

Mayfran belting is typically designed for travel in one direction only. Reversing operation is available for special applications. The direction of travel is determined by the side wings and/or the Mayfran logo. When standing at the tail of the conveyor and looking at the discharge end, the Mayfran logo stamped on the belt hinge links should be able to be read as shown in Figure 34. The side wings are designed to have a "shingling" look to them as they move along the conveyor. This is designed to maximize material containment.

Proper belt orientation must be verified at the beginning of belt installation. When installing a belt into the lower tracks visualize the direction of belt travel (toward the tail end) and orient the belt accordingly.

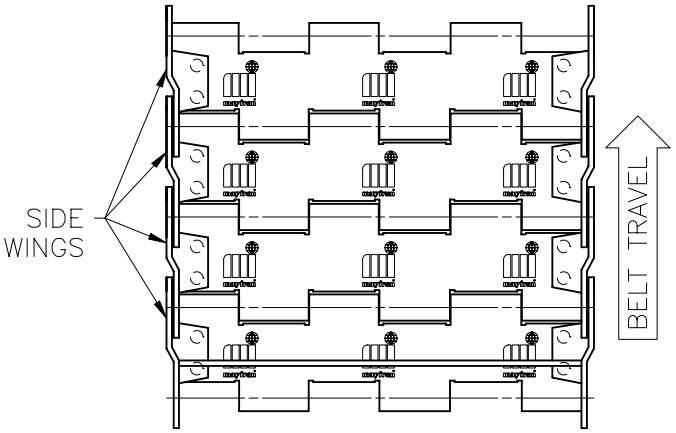


Figure 34: Top view of belt showing proper side wing orientation. (See note)

BELT ASSEMBLY REPLACEMENT

While installing belting into the frame, the belt sections are spliced together as needed. Steel belting is shipped from the factory in lengths of approximately 6 to 10 feet. The belt is usually stacked in a way that provides the proper cleat spacing as consecutive lengths are taken from the top of the skid.
Belting can be assembled either right side up or upside down. When installing the belt into the lower tracks, the belt must be assembled upside down.
All steel belting has a row of chain on each side of the belt. The chain consists of side bars, and roller block assemblies. The outer, or "D" hole side bars are held onto the belt pins with cotter pins, or lock nuts and washers.
All 1 ¼" pitch and 2" pitch belt assemblies are riveted together and in most cases are assembled in one piece.

PROCEDURE FOR ASSEMBLING PRIMARY CONVEYOR BELTING (REFER TO THE FOLLOWING FIGURES)

1. Remove all pins from the skidded belt at splice ends.
2. Lay the first two belt sections out on the floor (or any other work surface) near the point of the conveyor where the belt will be fed in. Align the sections.
    a. Make sure the belt is oriented properly. Check side wings as shown in previous sections for correct direction of travel.
    b. The belt is going to be fed into the lower tracks, the belting must be assembled upside down.
    c. Verify cleat spacing if the belt is equipped with cleats. Check installation drawings for cleat spacing.

3. The first step is to install the belt pin:

   a. Rotate the roller blocks up and out of the way, on one section of belt. Rotate the side bars out of the way on the other section.

   b. Bring the two belt sections together and mesh the hinge links.

   c. Rotate the inner side bar, and roller block down into position on the far side.

   d. Drive the belt pin in through the hinge link, all the way through until it is flush with the near side edge. Doing this will drive the pin all the way through and past the roller block on the opposite side.

***NOTE**: Use care to prevent damaging the end of the pin.*

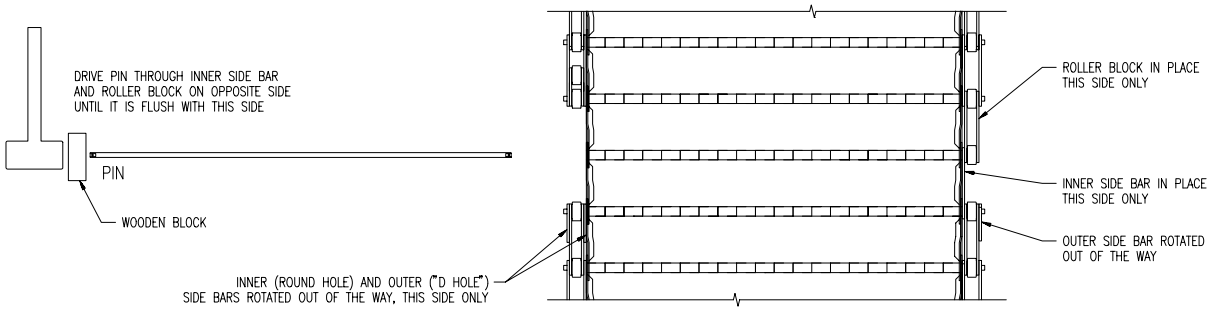


Figure 35: Installation of belt pin.

   e. Next, rotate the inner side bar and roller block down into position on the near side, and drive the pin back until it is flush with the roller block.

   f. At this time, rotate the pin as necessary to line up the flat on the pin end with the "D" shaped hole in the outer side bar on the far side. A pair of channel lock pliers can be used to do this.

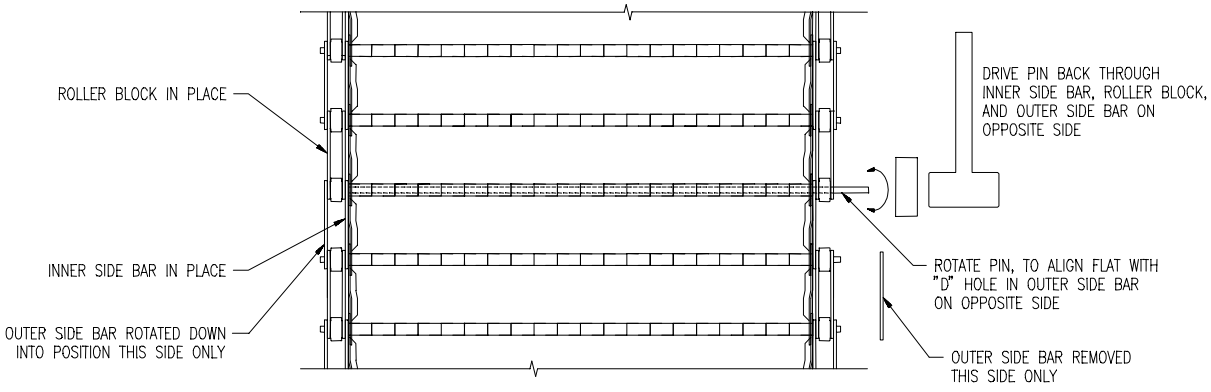


Figure 36: Installation of belt pin back through roller block assembly.

g. Remove the outer "D" hole side bar on the far side, and rotate the outer side bar and pin down into position on the near side.

h. Continue driving the pin through the outer side bar until the hole for the cotter pin is visible.

i. Install a new cotter pin on this end.

j. Drive the side bar on the far side onto the pin ends.

k. Install a new cotter pin on both pin ends.

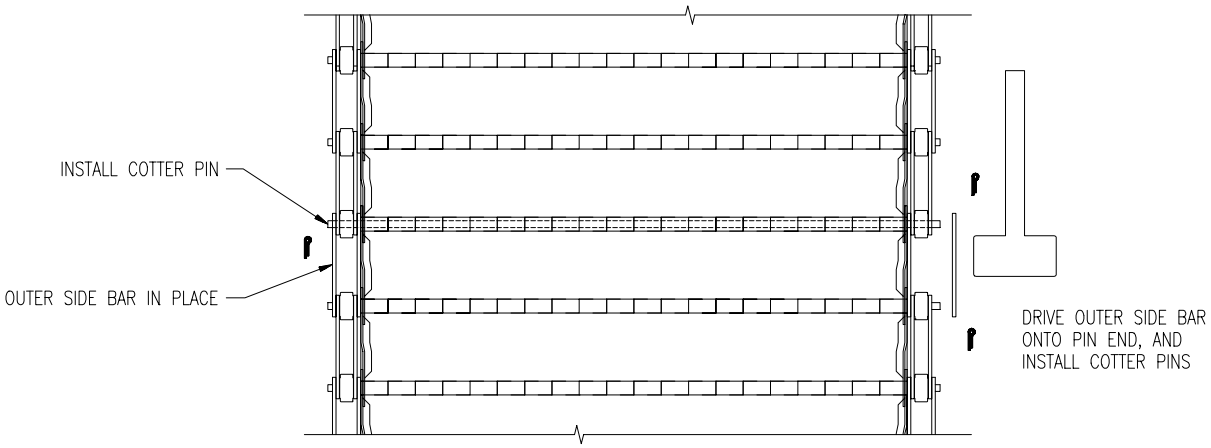


Figure 37: Connecting final side bar to pin.

4. To reassemble the belt into the conveyor, reverse the process of the removal (See section "REMOVAL OF MAJOR COMPONENTS / PRIMARY CONVEYOR / BELT ASSEMBLY REMOVAL).

5. Before resuming operation of the conveyor system, make sure to check the belt tension (See the section "PRIMARY CONVEYOR / CHECKING BELT TENSION).

6. Finally, be sure to check that the adjustment screws are locked in position.

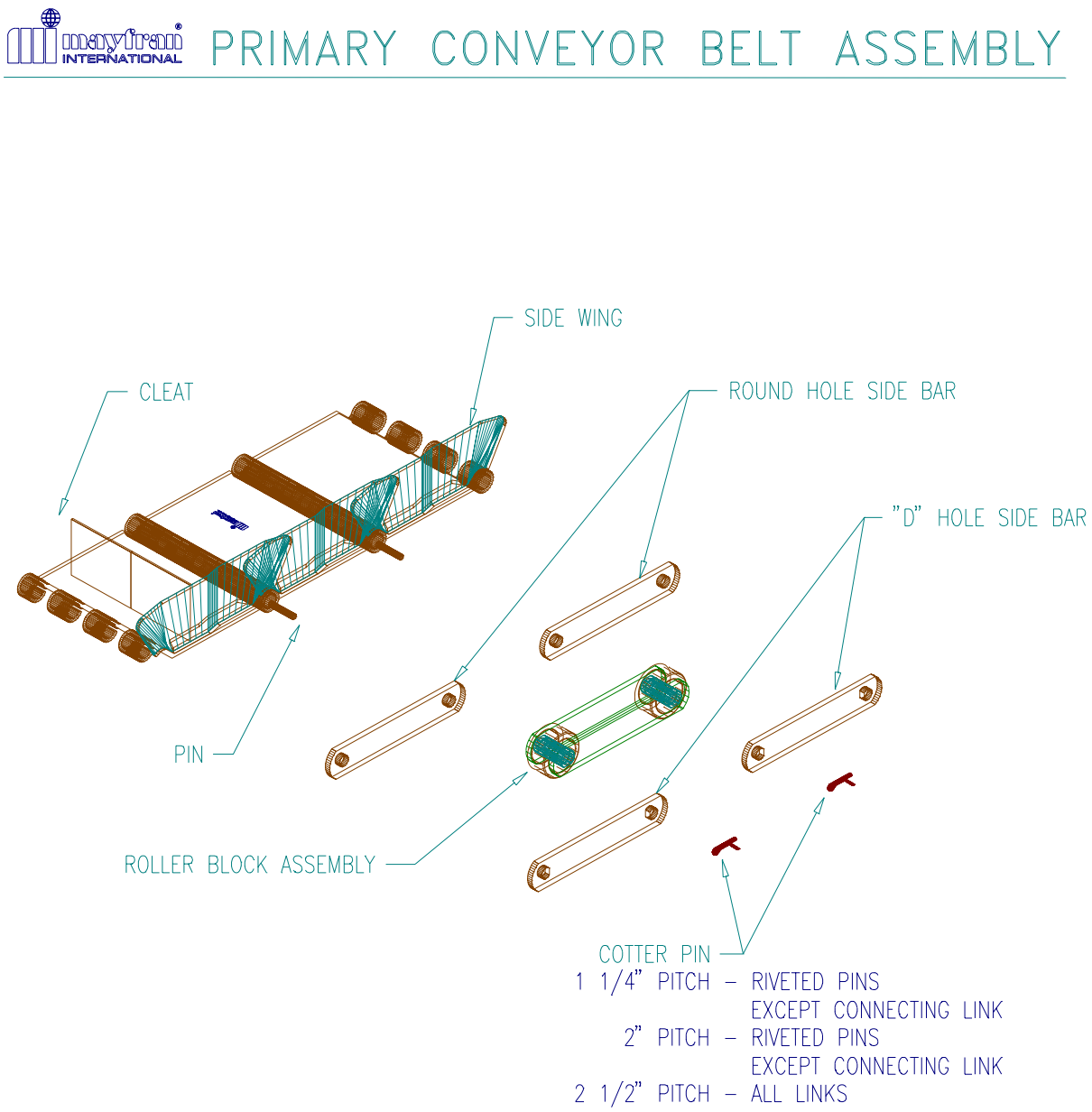


Figure 38: Exploded view of primary conveyor belting.

DRIVE ASSEMBLY REPLACEMENT

1. To reassemble, follow in reverse order the removal of the drive assembly (See the section "REMOVAL OF MAJOR COMPONENTS / PRIMARY CONVEYOR / DRIVE ASSEMBLY REMOVAL).
2. Make sure the v-belt and chain drive are aligned and properly adjusted (See the section " MAINTENENCE / V-BELT DRIVE and / DRIVE CHAIN).
3. Mount the pulleys and sprockets as close as possible to their bearings. Also, mount pulley and sprocket faces in line (See Figure 32).
4. Check the oil level in the reducer. If there is a pin in the vent, remove it.

HEAD SHAFT ASSEMBLY REPLACEMENT

1. To reassemble, follow in reverse order the removal of the head shaft assembly (See the section "REMOVAL OF MAJOR COMPONENTS / PRIMARY CONVEYOR / HEAD SHAFT ASSEMBLY REMOVAL).
2. Before resuming operation of the conveyor system, make sure to check the belt tension (See the section "PRIMARY CONVEYOR / CHECKING BELT TENSION).
3. Be sure to replace all the guarding on the conveyor system.

TAIL SHAFT ASSEMBLY REPLACEMENT (ONLY WHEN PRIMARY CONVEYOR IS 2 ½" PITCH)

1. To reassemble, follow in reverse order the removal of the tail shaft assembly (See the section "REMOVAL OF MAJOR COMPONENTS / PRIMARY CONVEYOR / TAIL SHAFT ASSEMBLY REMOVAL).
2. Before resuming operation of the conveyor system, make sure to check the belt tension (See the section "PRIMARY CONVEYOR / CHECKING BELT TENSION).
3. Be sure to replace all the guarding on the conveyor system.

SEPARATOR CONVEYOR

DIRECTION OF BELT TRAVEL

Mayfran belting is typically designed for travel in one direction only. Reversing operation is not recommended. The direction of travel is determined by the cleat. The cleats are formed and travel in one direction. This is designed to maximize material containment.

Proper belt orientation must be verified at the beginning of belt installation. When installing a belt into the lower tracks visualize the direction of belt travel (toward the tail end) and orient the belt accordingly.

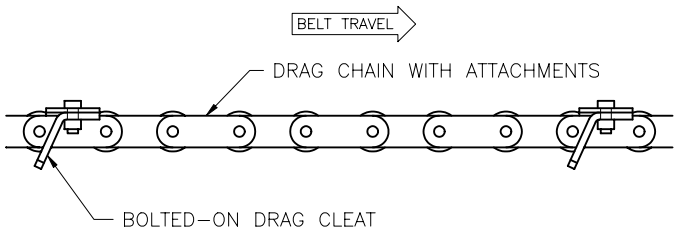


Figure 39: Top view of belt showing proper side wing orientation. (See note)

NOTE: *CONSEP belting could have melded-on cleats.*

BELT ASSEMBLY REPLACEMENT

While installing belting into the frame, the belt assembly should be in one piece.
Separating belting consists of two rows of roller chain with attachments and bolted on cleats on 12 ½" centers. The chain is riveted together and has one master link connection.

PROCEDURE FOR ASSEMBLING SEPARATOR CONVEYOR BELTING

1. Remove both master links.
2. To reassemble the belt into the conveyor, reverse the process of the removal (See section "REMOVAL OF MAJOR COMPONENTS / SEPARATOR CONVEYOR / BELT ASSEMBLY REMOVAL).
3. Before resuming operation of the conveyor system, make sure to check the belt tension (See the section "SEPARATOR CONVEYOR / CHECKING BELT TENSION).
4. Finally, be sure to check that the adjustment screws are locked in position.

DRIVE SHAFT ASSEMBLY REPLACEMENT

1. To reassemble, follow in reverse order the removal of the head shaft assembly (See the section "REMOVAL OF MAJOR COMPONENTS / SEPARATOR CONVEYOR / DRIVE SHAFT ASSEMBLY REMOVAL).
2. Before resuming operation of the conveyor system, make sure to check the belt tension (See the section "SEPARATOR CONVEYOR / CHECKING BELT TENSION).
3. Be sure to replace all the guarding on the conveyor system.

HEAD SHAFT ASSEMBLY REPLACEMENT

1. To reassemble, follow in reverse order the removal of the head shaft assembly (See the section "REMOVAL OF MAJOR COMPONENTS / SEPARATOR CONVEYOR / HEAD SHAFT ASSEMBLY REMOVAL).
2. Before resuming operation of the conveyor system, make sure to check the belt tension (See the section "SEPARATOR CONVEYOR / CHECKING BELT TENSION).
3. Be sure to replace all the guarding on the conveyor system.

TAIL SHAFT ASSEMBLY REPLACEMENT

***NOTE**: The separator conveyor has tail discs welded in place and these are not replaceable.*

FILTER ELEMENT REPLACEMENT

1. To reassemble, follow in reverse order the removal of the head shaft assembly (See the section "REMOVAL OF MAJOR COMPONENTS / SEPARATOR CONVEYOR / FILTER ELEMENT REMOVAL).
2. Before resuming operation of the conveyor system, make sure to replace all the guarding on the conveyor system.

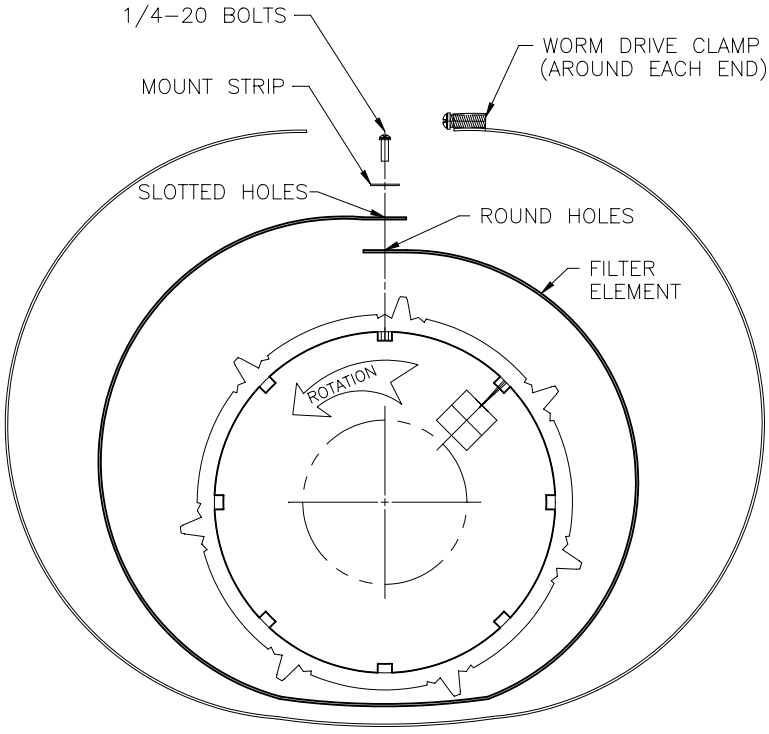


Figure 40: Filter element mounting detail.

FILTER DRUM ASSEMBLY REPLACEMENT

1. To reassemble, follow in reverse order the removal of the head shaft assembly (See the section "REMOVAL OF MAJOR COMPONENTS / SEPARATOR CONVEYOR / FILTER DRUM ASSEMBLY REMOVAL).
2. Before resuming operation of the conveyor system, make sure to check the belt tension (See the section "SEPARATOR CONVEYOR / CHECKING BELT TENSION).
3. Be sure to replace all the guarding on the conveyor system.

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 belt, bearings, and reducer, and ensure that limit switches and other electronic sensors will perform as they were designed. The frequency of machine cleaning depends on the type and amount of material being conveyed.

The other vital maintenance item is to insure 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, refer 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 conveyor and remove any debris	Daily
3	Check reducer oil level	Monthly
4	Check steel belt tension\adjust if necessary - lubricate where required	Monthly
5	Lubricate bearings	10 weeks
6	Check limit switch operation (if applicable)	Quarterly
7	Check roller chain adjustment/lubricate	Every 6 months
8	Check v-belt tension, check sheave alignment	Every 6 months
9	Lubricate take-up assembly	Every 6 months
10	Change gear reducer oil	Every 6 months*

* Consult the appropriate gear reducer manufacturer manual for proper intervals and break-in requirements.

V-BELT DRIVE

V-belts are contained within the enclosed sheave guard on the drive assembly. They are adjusted by moving the adjustable motor base. Performing a thorough inspection of the v-belts and sheaves is important, both for cleanliness and wear. The condition of the sheaves may be checked visually, or with a sheave gauge. Check the alignment of the sheaves to insure full belt life. The best method for checking v-belt tension is to measure the force required to deflect the belt 1/64 of the span with a belt tension indicator. For example, if the center to center distance of the sheaves is 24", measure the force required to deflect the belt 3/8" (24/64").
If a belt tension indicator is not available, the following tips will help to tension the belt properly:

1. The best tension for a v-belt is the lowest tension at which the belts will not slip under a full load.
2. Take up the motor until the belts are snug in the grooves. Run the drive for about 15 minutes to "seat" the belts. If the belts slip, tighten them until they do not slip under a full load.
3. Remember that too much tension will shorten v-belt and bearing life.
4. Check the tension at the end of the first day of operation, and the first week of operation.

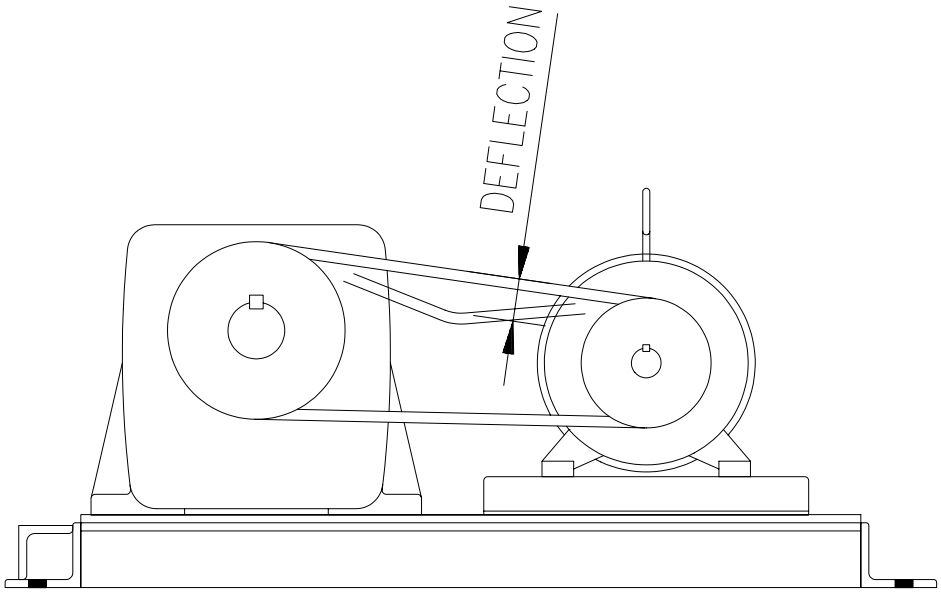


Figure 41: Drive assembly showing measurement of v-belt deflection. (Guards removed for illustration only.)

MAYFRAN SAFETY CLUTCH

Your conveyor may come equipped with a Mayfran Sprocketed safety clutch. This clutch works on the ball and detent principle. Evenly spaced balls in pockets between the clutch collar and the spring loaded sprocket hub engage the clutch under normal operating conditions. When there is an overload, the balls will force the sprocket away from the clutch, thus reducing the operating torque to zero, protecting the entire drive mechanism. When the overload condition is cleared, the clutch will reset itself within 1/3 turn of the shaft.

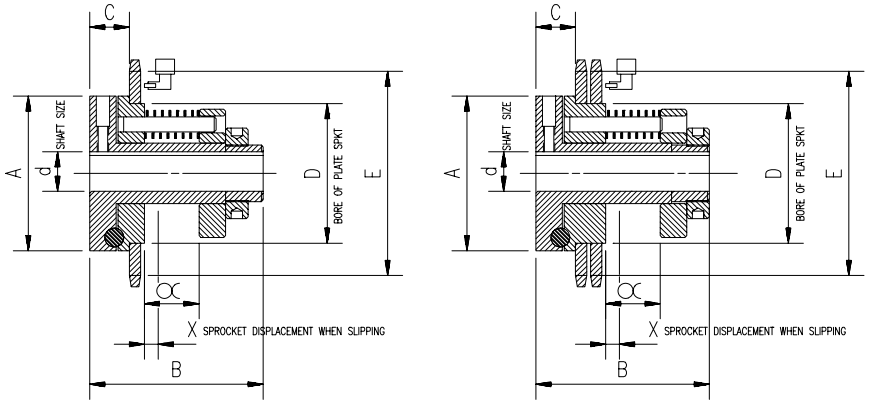


Figure 42: Mayfran safety clutch section view. See table below for dimensions.

Safety clutches are often equipped with a limit switch to cut power to the motor and warn the operator in the event of an overload. **If supplied, the limit switch must be installed and operational in order for the conveyor warranty to be valid.** The clutch may be adjusted by changing the preload on the springs with the adjustment nut. The set torque is determined by measuring the distance between the faces of the sprocket and spring plate, then using the chart below to determine the torque. This setting must be checked before operating the conveyor. Consult the conveyor drawings or contact your Mayfran representative to determine the proper setting. Mayfran Sprocketed safety clutches are available for shaft sizes from ¾" to 4 ½" with single or double sprockets for chain sizes from No. 25 ASA to No. 160 ASA.

Part No. Std. Bore	Clutch Size	Dimensions							Dieco Spring		Torque per 1/8" Spring Deflection (in-lbs)	Max. Defl. (in)	Min. Setting (in) & Min. Torque (in-lbs) α Tol. +/- 1%	Max. Setting (in) & Max. Torque (in-lbs) α Tol. +/- 1%	X
		Std. d	Max. d	A	B	C	D	E Min. Sprocket Size	No. Req'd	Size					
50000	3/4	3/4	3/4	3	5-1/16	1-1/16	-	36T-1/2" Pitch	1	SW-29	122	5/8	2-1/8 = 366	1-1/2 = 976	3/16
50002	1-1/4	1-3/16	1-1/4	5-1/8	5-3/4	1-5/16	4-5/8	32T-5/8" Pitch	3	MH-15	570	1/2	2-5/16 = 855	1-13/16 = 3135	3/16
50004	1-1/2	1-7/16	1-1/2	6	6	1-1/2	5-1/2	32T-3/4" Pitch	3	MH-38	1323	3/8	2-3/8 = 1323	2 = 5292	3/16
50006	2	1-15/16	2	8	6-5/8	1-13/16	7-5/8	30T-1" Pitch	3	H-38	3536	3/16	2-1/4 = 7072	2-1/16 = 12376	3/16
50008	2-1/2	2-7/16	2-1/2	9	7-5/8	1-13/16	8-3/4	27T-1-1/4" Pitch	6	MH-52	6120	5/16	3-1/4 = 12240	2-15/16 = 27540	3/8
50010	3	2-15/16	3	10	8-3/4	1-15/16	9-5/8	30T-1-1/4" Pitch	6	H-52	8380	7/16	3-7/16 = 4190	3 = 33520	5/16
50066	3 H.D.	2-15/16	3	10	9-5/8	1-15/16	9-3/8 & 9-5/8	30T-1" Pitch Dbl.	6	H-52	8380	7/16	3-7/16 = 4190	3 = 33520	5/16
50012	3-1/2	3-7/16	3-1/2	11	9-1/4	2-3/16	10-1/2	28T-1-1/2" Pitch	6	H-52	9366	1/2	3-5/16 = 14049	2-13/16 = 51513	5/16
50019	3-1/2 H.D.	3-7/16	3-1/2	11	10-5/8	2-1/16	10 & 10-1/2	40T-1-1/4" Pitch Dbl.	6	H-52	9366	1/2	3-5/16 = 14049	2-13/16 = 51513	5/16
50017	4	3-15/16	4	12	9-3/8	2-3/16	11-1/2	26T-1-3/4" Pitch	6	H-52	15059	5/8	3-7/16 = 7529	2-13/16 = 82824	3/8
50068	4 H.D.	3-15/16	4	12	10-3/4	2-3/16	10-1/2 & 11-1/2	36T-1-1/2" Pitch Dbl.	6	H-52	15059	5/8	3-7/16 = 7529	2-13/16 = 82824	3/8
50018	4-1/2 H.D.	4-7/16	4-1/2	14	11-3/16	2-1/16	13 & 13-1/2	36T-1-1/2" Pitch Dbl.	6	H-73	23272	3/4	3-15/16 = 11636	3-3/16 = 151268	3/8

Figure 43: Mayfran safety clutch data.

DRIVE CHAIN

Before installing the drive chain, verify that both the drive (reducer) and driven (head shaft) sprockets are aligned. This can be accomplished with a straightedge or a length of string [see Figure 44]. When sprockets are aligned, wrap roller chain around both sprockets and check required length. With drive base moved up almost to closest position in slots, determine where to break the chain. Connect the chain with a master link (provided) and slide drive base in slots to achieve correct tension on chain.

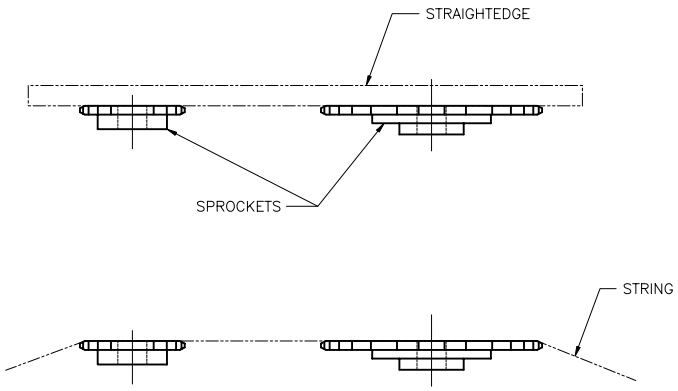


Figure 44: Two methods of checking sprocket alignment.

***NOTE:**: Correct chain tension is achieved when the top side is tight, and the slack (bottom) side sags approximately 1/4" per foot of distance between the shafts. There are adjustment screws mounted on the drive supports for the purpose of moving the drive base and adjusting the tension on the drive chain. After tensioning the drive chain, tighten the bolts in the slots holding the drive base. Note: make sure there are flat washers on each side of the slot underneath the bolt head and nut.*

CHAIN GUARD

Attach the chain guard with mounting angles and secure with bolts. Ensure that the drive chain does not rub on the guard, and that the guard clears all projections. Check that all necessary warning signs are present. See the section in this manual on decal placement.

TROUBLESHOOTING

OVERVIEW

Mayfran conveyors are designed to be the most reliable in the industry. However, problems may occur on occasion. Problems are normally discovered in one of two ways:

- A fault is received on the main control panel. Troubleshooting for these faults is briefly discussed in the charts on the following pages. For a complete guide to troubleshooting of electrical controls, consult your Mayfran Electrical Controls Manual.
- The second indication that problems are discovered is simply by the operator noticing that there is something different about the way the conveyor is operating; usually there is some sort of unusual noise. The only way to correct this problem is to examine the conveyor and determine the source. The common sources of noise are different for new conveyors and for conveyors that have been operating properly for some time.

Common causes for both cases are listed in the tables below:

NEW CONVEYORS
Side wings contacting the frame
Rollers binding in frames or curves
Uneven tracks
Poor alignment at frame joints or belt sprockets
Stiff hinge links (belt not articulating through curves or around shafts)
Sprocket rubbing against chain guard
Cleats striking frames

OPERATED CONVEYORS
Bent side wings
Material on tracks
Poor alignment
Worn rollers
Material between the belt and frames
Broken welds
Failed bearings
Failed motor or gear reducer
Improperly adjusted and/or worn roller chain or v-belts
Loose take-up
Binding in the belt

It is imperative that any unusual noises are identified, diagnosed, and corrected immediately to prevent serious damage from occurring.

JAM CLEARING SEQUENCE

1. Clear the top surface of the belt and jog reverse the conveyor to see if the jam clears itself.
2. Check for foreign objects jammed between the belt and the frame.

NOTE: *Check the belt tension in as many places as possible. One section of the belt will normally be tight. The rest of the belt will normally be loose (slightly movable). The jam will be at the end of the tight section.*

3. Check the space between the belt and the bottom cover for any foreign matter. Clear any jam in this area by removing the material with a long bar. Do not attempt to remove it by applying force to turn the head shaft.
4. Check the sprockets at the tail and head of the conveyor for foreign matter.
5. Finally, check the tail and head shaft bearings

The following tables briefly describe faults that may appear on the conveyor control panel. Most conveyors have some type of motion sensor, and others may be equipped with a clutch limit switch used with a Mayfran Safety Clutch. All conveyors are equipped with an overload sensing device that will shut down the conveyor in the event of a motor overload. Note: this is an abbreviated listing only, please consult your Mayfran Electrical Controls manual for a complete list of diagnosis.

CONVEYOR MOTION FAULTS

The input for conveyor motion faults is the zero speed sensor discussed in previous sections. Always ensure that the sensor and actuator are clean and properly adjusted.

SYMPTOM	PROBABLE CAUSE	POSSIBLE SOLUTION
Conveyor not running: Motor not running	Breaker open	Reset Breaker
	Open circuit to motor	Correct wiring
	Bad motor	Check motor
Conveyor not running: Motor running	Clutch engaging	Clear blockage, restart conveyor
	Loose belt	Adjust take-up to tension belt
	Broken/slipping v-belts	Replace/tension v-belts
	Broken drive chain	Repair/replace drive chain

OVERLOAD FAULTS

An overload fault is caused by tripping the overload device that supplies power to the conveyor. After the overload device is reset, and any obvious cause corrected, the conveyor should be run in local mode, and the amperage draw on the motor checked. Also, check the current setting on the overload device.

SYMPTOM	PROBABLE CAUSE	POSSIBLE SOLUTION
Overload Fault	Conveyor loaded beyond rated capacity	Reduce loading
	Conveyor Jammed	Clear jam
	External drag or load	Check skirt boards, flaps, wipers, etc. properly installed
	Component failure	Check/clean/replace bearings, gearbox, and belt rollers which may be binding

CHECKOUT SHEET FOR CHAIN BELT CONVEYOR

SITE / PLANT _____ MOTOR HP _____

LOCATION _____ MOTOR VOLTAGE / F.L.A. RATING _____ / _____

CONVEYOR SERIAL NO. _____ EQUIPMENT NO. _____

✓	ITEM	BY	DATE	NOTES
	ELECTRICAL CHECKOUT COMPLETE			
	DEBRIS, IF ANY, REMOVED FROM BETWEEN BELT STRANDS			
	ALL FASTENERS INSTALLED & TIGHTENED			
	ALL SLOTTED ADJUSTMENT HOLES HAVE FLAT WASHERS NEXT TO SLOT			
	ALL ANCHORS INSTALLED & TIGHT			
	ELECTRICAL POWER TO MOTOR			
	MOTOR ROTATION CORRECT			
	REDUCER OIL LEVEL CORRECT			
	V-BELT TENSION CORRECT			
	DRIVE CHAIN TENSION CORRECT			
	SHEAR PIN INSTALLED OR SAFETY CLUTCH SET			
	SET SCREWS ON HEAD AND TAIL SHAFTS TIGHT (BEARINGS & SPROCKETS)			
	BELT COTTER PINS INSTALLED AND BENT OVER			
	BELT TENSIONED CORRECTLY W/ TAKE-UP			
	BELT OILED DURING INITIAL RUN IN PERIOD			
	HEAD AND TAIL SHAFT BEARINGS GREASED			
	MOTOR BEARINGS GREASED			
	TAIL SHAFT SPROCKET / SIDE BAR CLEARANCE CHECKED DURING INITIAL RUN-IN PERIOD			
	ALL GUARDS INSTALLED			
	SIDE WING CLEARANCE CHECKED DURING INITIAL RUN-IN PERIOD			
	BELT TENSION CHECKED DURING INITIAL RUN-IN PERIOD			
	AMPERAGE DRAW & VOLTAGE COMPARED TO RATINGS ON MOTOR NAMEPLATE			READINGS: _____ / _____
	ALL SAFETY AND WARNING LABELS ARE PRESENT			

FINAL INSPECTION FORM

MAYFRAN INTERNATIONAL CONSEP 2000 SEPARATOR CONVEYOR

Date: _____

Final Inspection Report

Customer: _____
Purchase Order Number: _____
End User: _____
Mayfran Shop Order Number: _____
Equipment (Model): _____

Conveyor Body

F	___	1.	All dimensions are per approved final assembly drawing.
F	___	2.	Tail wrap - watertight.
F	___	3.	Lifting lugs vertical, not more than 10 feet apart, and positioned for balance.
E	___	4.	Drum protected by conveyor above.
F	___	5.	No gaps between drum mount and frame.
E	___	6.	Correct width of drum for GPM flow for application.
F	___	7.	Drum fabric securely attached to drum.
F	___	8.	Internal spray system removable from conveyor.

Belt

E	___	1.	Correct specification for the application.
E	___	2.	Correct speed for the application.
F	___	3.	Cleat wipers correctly adjusted.
F	___	4.	1" minimum allowance for future take-up.
F	___	5.	Proper tension.

Drive

E	___	1.	Correct for the application.
F	___	2.	Correct hand of drive per approved final assembly drawing.
F	___	3.	Correct tension on v-belt and chain, if equipped - ½" minimum allowance for take up.
F	___	4.	All keys and set screws in place and tight.
F	___	5.	Conveyor test run in forward and reverse, minimum 15 minutes each direction.
F	___	6.	Motor current draw _____ amps at _____ volts. Brand of motor _____.
F	___	7.	Name plate rating: _____ amps at _____ volts.
F	___	8.	Backplate inside painted orange.

Other

F	___	1.	All pipe joints sealed watertight.
F	___	2.	Tank watertight tested as required minimum 4 hours when applicable.
F	___	3.	Hinged end guard in place.
F	___	4.	Tank baffles correct for application.
F	___	5.	Tank covers over conveyor have finger protectors.
E	___	6.	Tank drain included for each liquid tight compartment.
E	___	7.	Tank sight gauge.
E	___	8.	The following other equipment was inspected and test operated:
E	___	9.	The following was inspected only. Tests could not be run.
E	___	10.	Clutch limit switch mounted after paint.
E	___	11.	Casters mounted for maneuverability when required.

General

F/**E**	___	1.	All drawing notes addressed.
F	___	2.	Good overall final appearance to Mayfran standards.
F	___	3.	Multiple conveyors all identical.

AFTER PAINT

Conveyor Body

F	___	1.	Fasteners at all joints securely attached.
F	___	2.	Gaskets at watertight joints securely attached.
F	___	3.	Grease fittings in bearings.

Drive

E	___	1.	Safety guards in place and correct color, if equipped. _____ Plastic _____Steel

Other

F	___	1.	Controls mounted and wired, if applicable. Voltage _____.
F	___	2.	Control cable secured, if applicable.
F	___	3.	Loose parts securely attached.
E	___	4.	Directional arrows on piping and pumps as required.
F	___	5.	Hinged end guard in place with yellow and black striped tape.
F	___	6.	Proximity switch mounted if equipped.

General

F	___	1.	Paint color matched and applied to Mayfran standards.
F	___	2.	Secured to skid with protection for conveyor and controls as required.
F	___	3.	Limit switch decal in place, if applicable.
F	___	4.	Mayfran serial number in place and securely attached.
F	___	5.	Mayfran logo and Consep 2000 logo in place.
F	___	6.	Required safety decals in place. "Danger" decal on both sides of conveyor.
F	___	7.	Required operating instruction decal in place on drive side.
F/**E**	___	8.	Inspection decal with names, applied.
E	___	9.	Shipping package complete and attached. Includes: * Service manual for Mayfran equipment. * Service manual for equipment not manufactured by Mayfran. * Controls schematic, if equipped. * Copy of final inspection report
F	___	10.	Multiple conveyors all identical.

Signed: _____
Engineering

Signed: _____
Manufacturing

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

PHONE: (440) 461-4100
FAX: (440) 461-5565

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