INSTALLATION, OPERATION AND MAINTENANCE MANUAL

for:

2-1/2 INCH PITCH CHIP TOTE® CONVEYOR

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PARTS LIST FOR 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 CONVEYOR

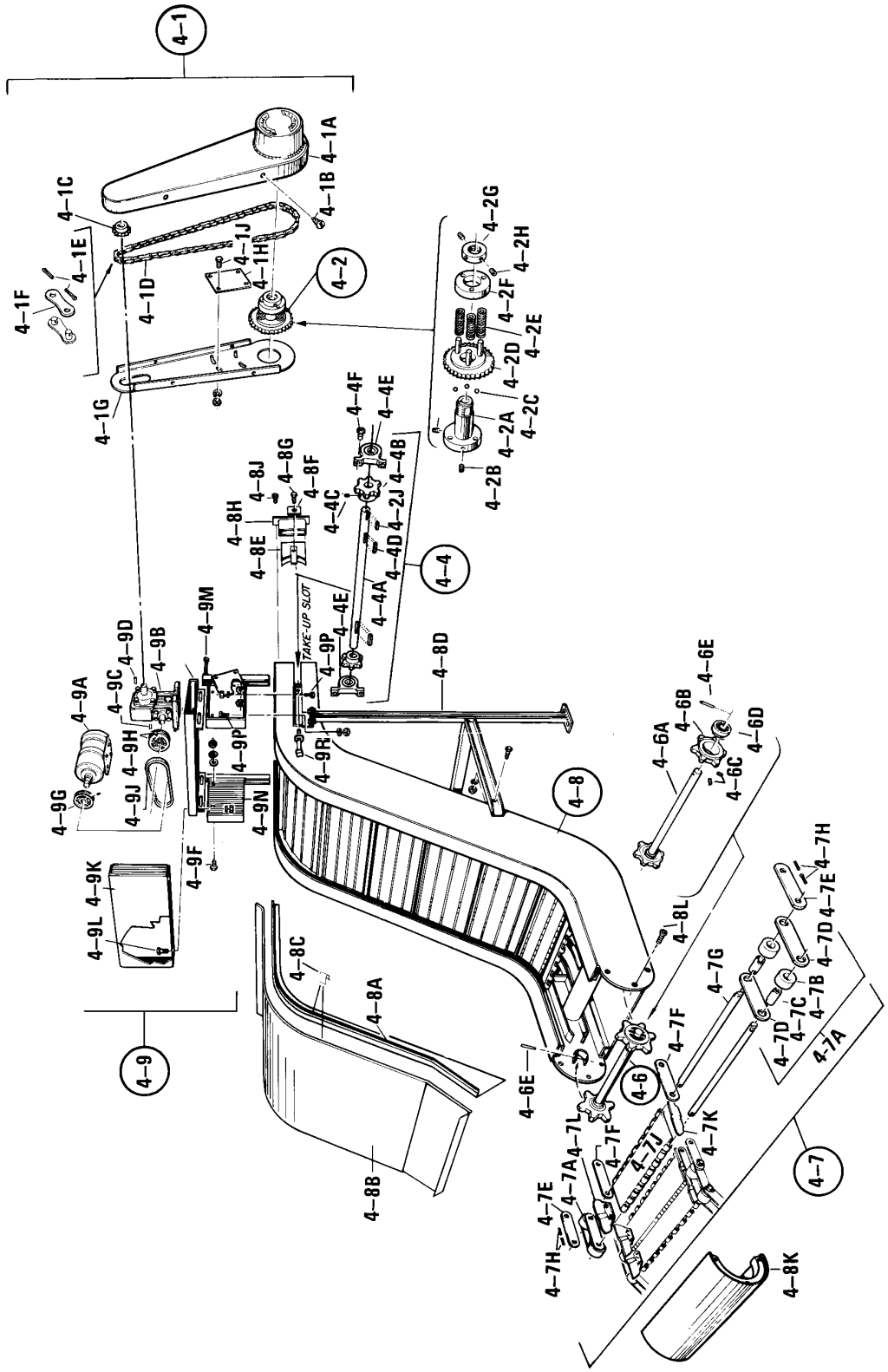


Figure 1

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).

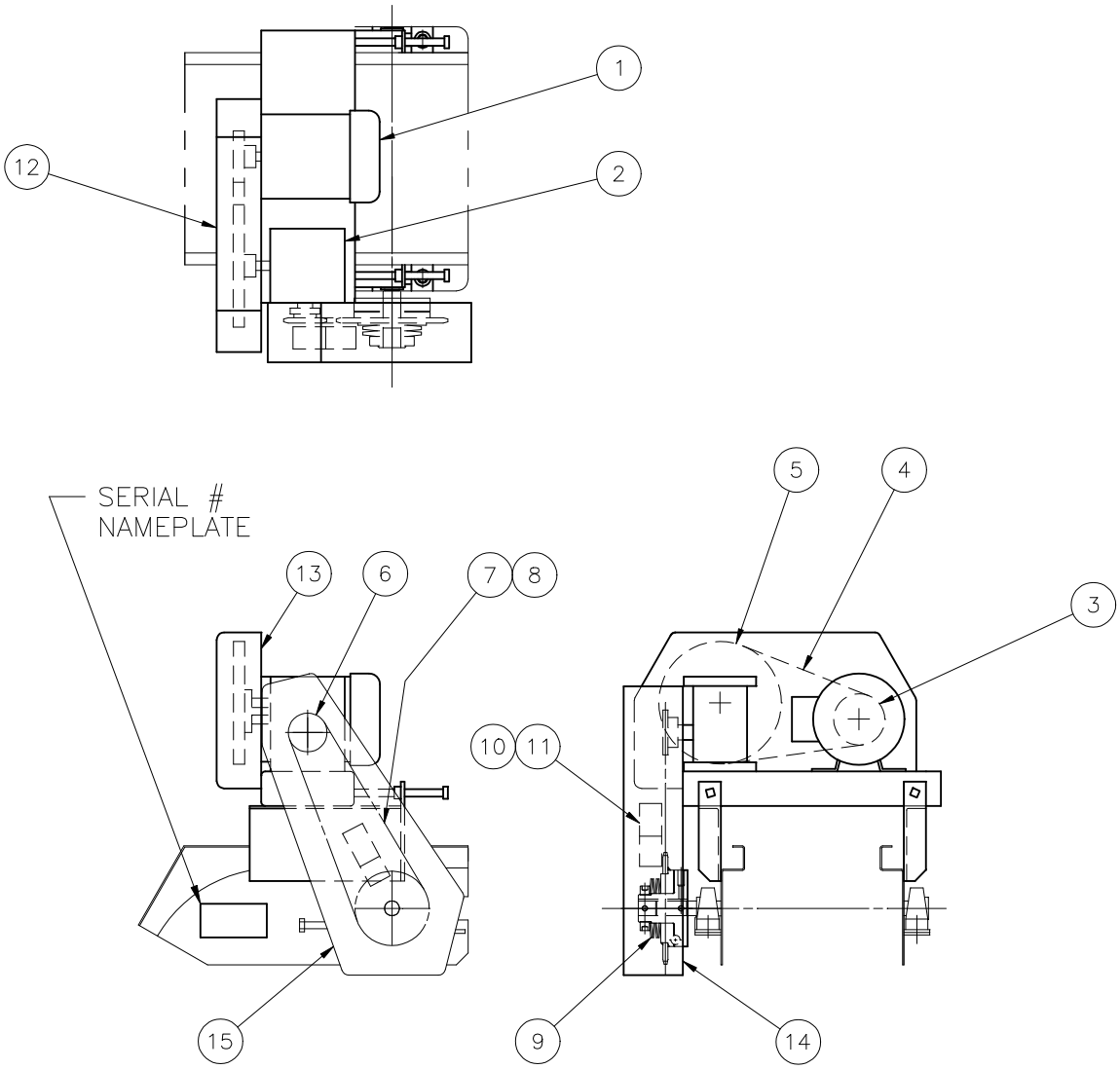
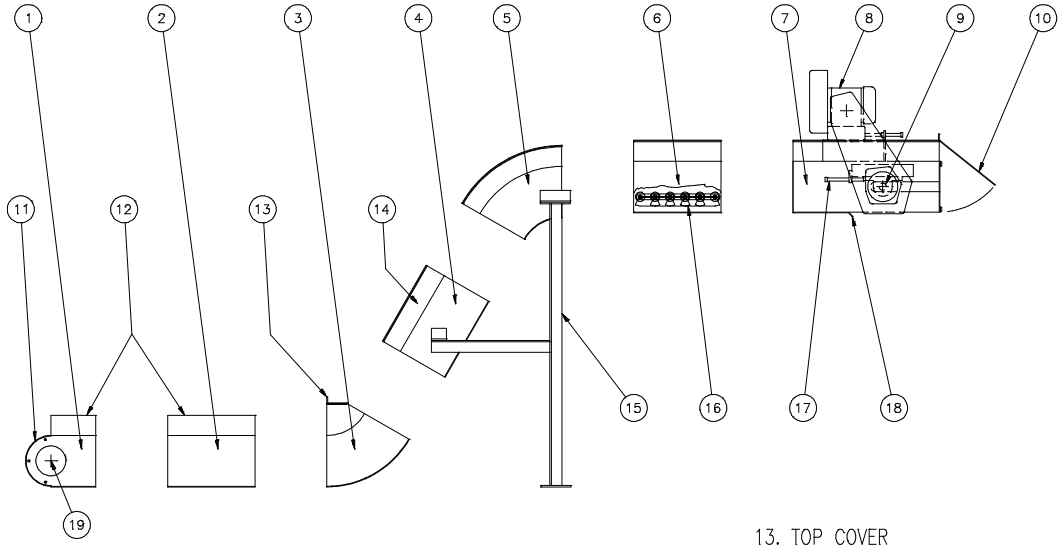

1
2
12
SERIAL #
NAMEPLATE
13
6
7
8
5
4
3
10
11
15
9
14
(RIGHT HAND DRIVE ASSEMBLY SHOWN)

Figure 2

CONVEYOR TERMINOLOGY



1. TAIL FRAME
2. LOWER HORIZONTAL FRAME
3. LOWER CURVE FRAME
4. INCLINE FRAME
5. UPPER CURVE FRAME
6. UPPER HORIZONTAL FRAME
7. HEAD FRAME
8. DRIVE ASSEMBLY
9. HEAD SHAFT ASSEMBLY
10. HINGED END COVER
11. TAIL WRAP
12. LOWER HORIZONTAL SKIRTING
13. TOP COVER
14. INCLINE SKIRTING
15. LEG ASSEMBLY
16. BELT
17. TAKE–UP ASSEMBLY
18. BOTTOM PAN
19. TAIL RETURN ASSEMBLY

Figure 3: Conveyor nomenclature.

STEEL BELTING

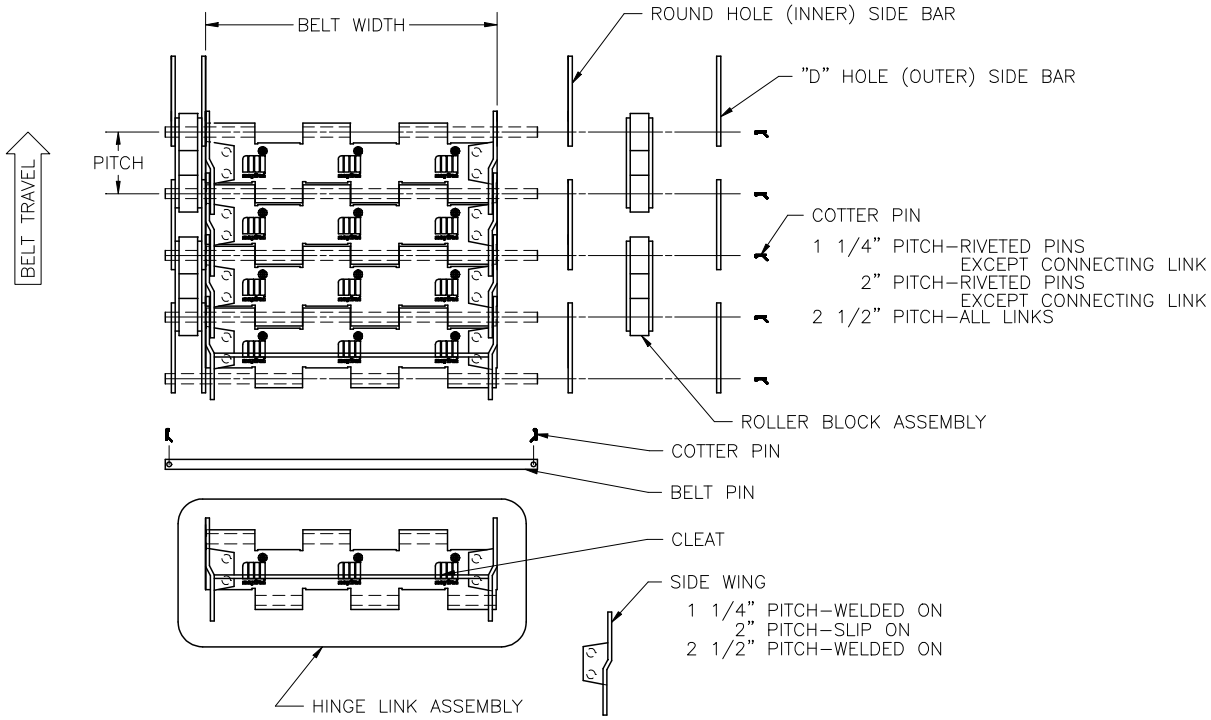


Figure 4: Top view of steel belting.

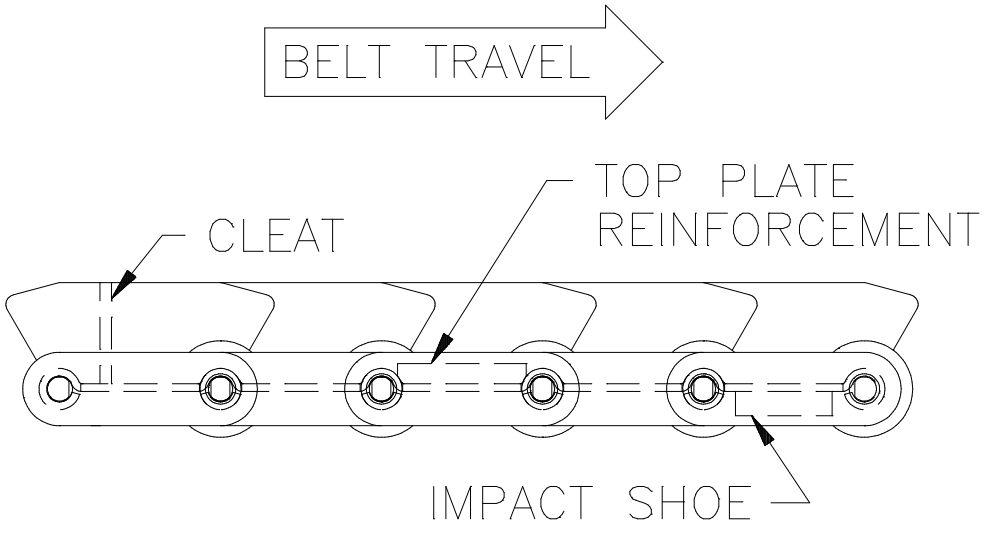


Figure 5: Side view of steel belting.

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.

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 6)
3. If the hinge link collapses and stays collapsed, the belt is too loose. See “Tightening the Belt chain” below.
4. If the hinge 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.

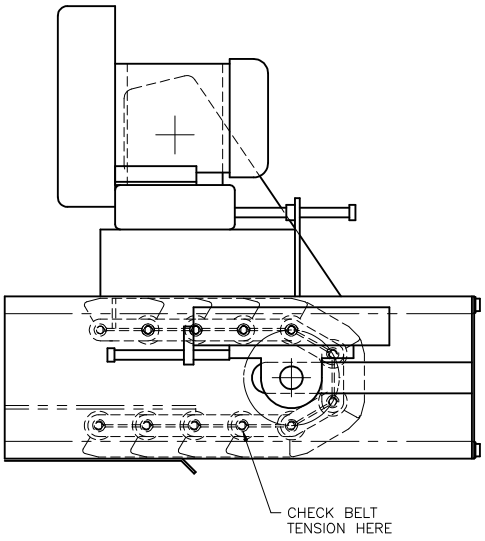


Figure 6: Typical head section.

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.

4. Adjust drive assembly to properly tension the drive chain.
5. Tighten the pillow block bearings, drive assembly, and the jam nuts.

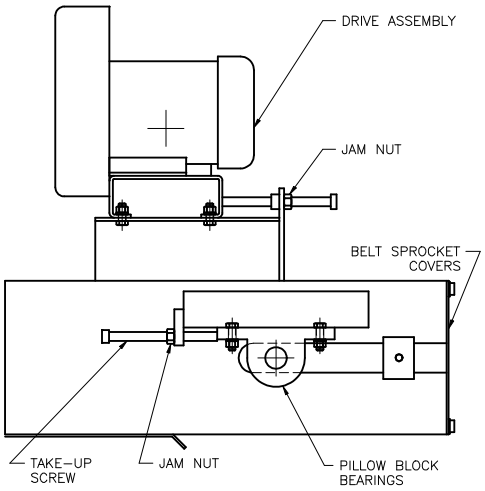


Figure 7: Take-Up assembly.

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.

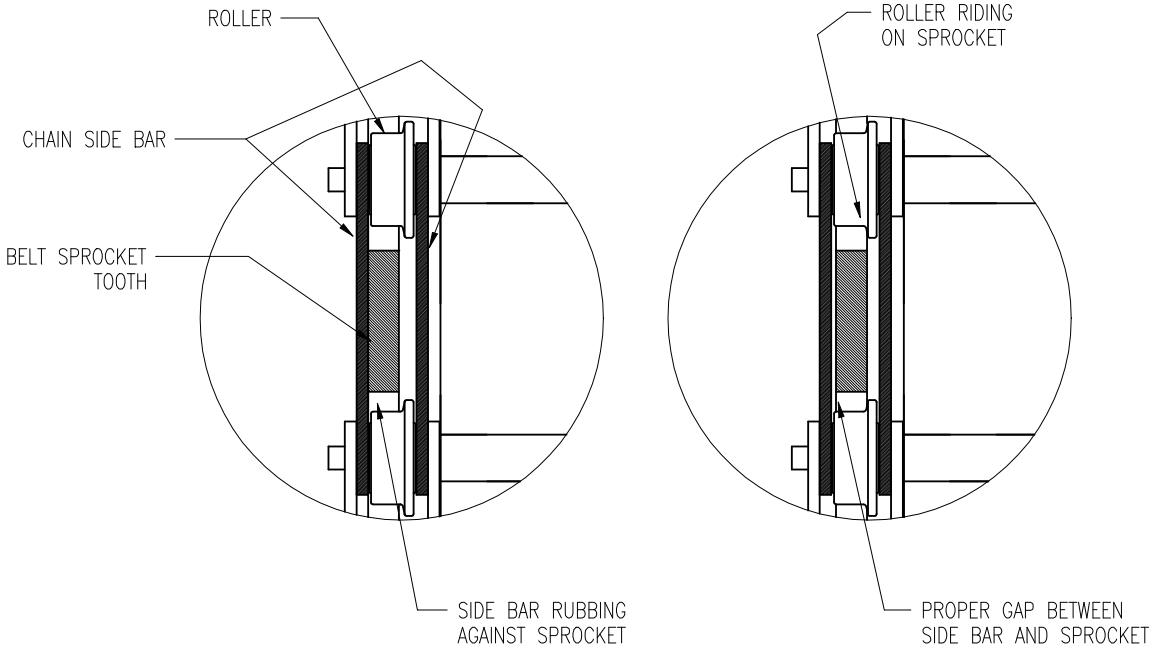


Figure 8: Top view of head or tail shaft at belt sprocket showing proper clearances between belt side bars and sprocket teeth.

9. After completing adjustment, ensure that all guards are properly installed.

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 8). 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.

BELT ASSEMBLY REMOVAL

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

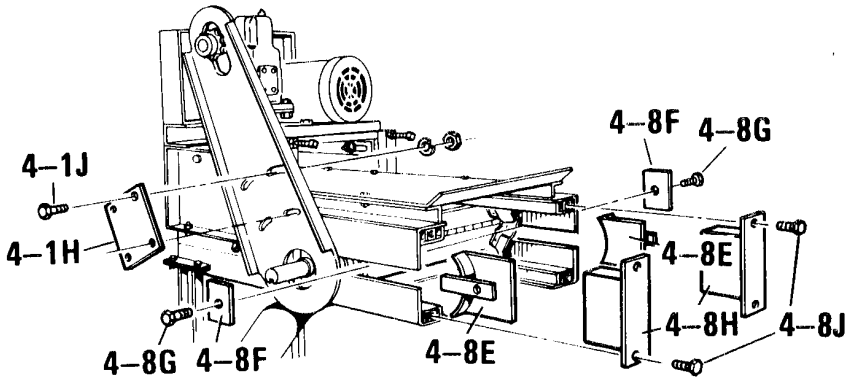


Figure 9: Typical head section.

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.

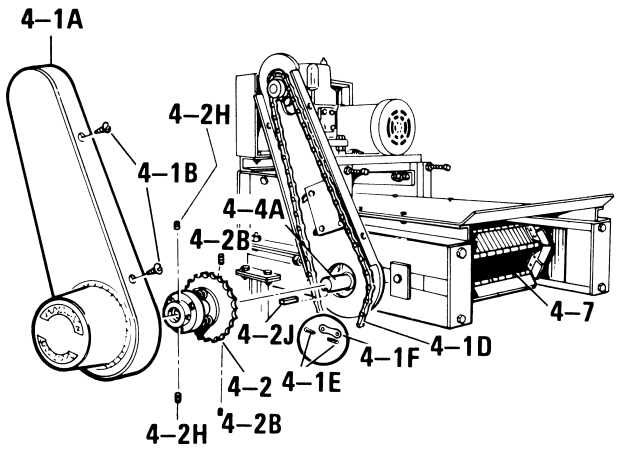


Figure 9: Typical drive disconnection.

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.

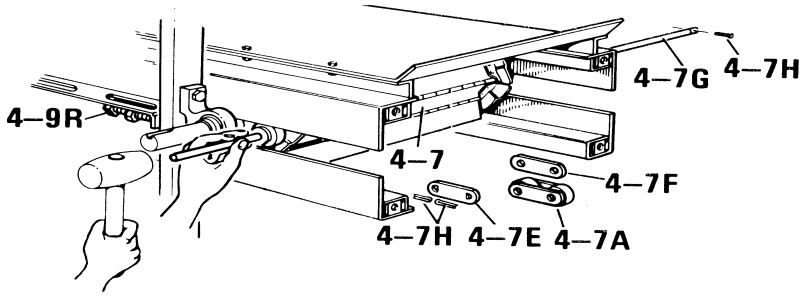


Figure 10: Typical Belt Removal.

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.

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 9]. 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 driven 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 further, 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 9]. 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 driven 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 further, 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

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

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.

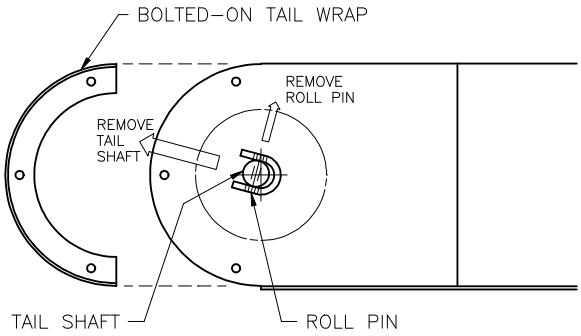


Figure 11: Tail shaft removal (not watertight)

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.

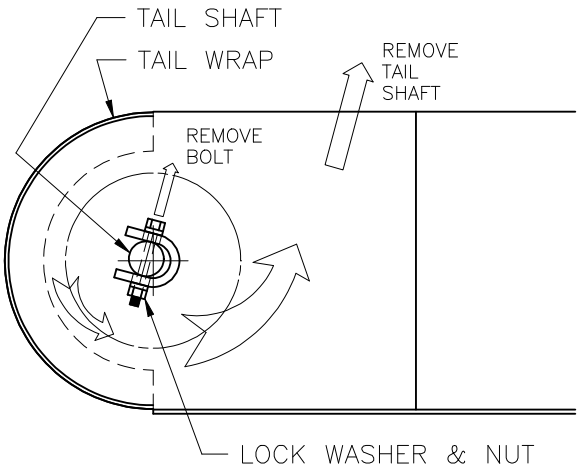


Figure 12: Tail shaft removal (watertight)

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 13. 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.

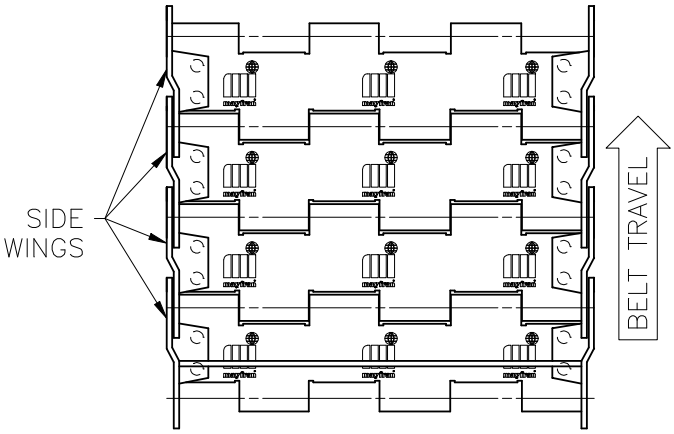


Figure 13: Top view of belt showing proper side wing orientation. (See note)

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.

Caution: When re-installing belt, maintain some tension on the upper strand as it feeds through the conveyor frame to prevent any tendency of the belting to "run away".

PROCEDURE FOR ASSEMBLING 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.*

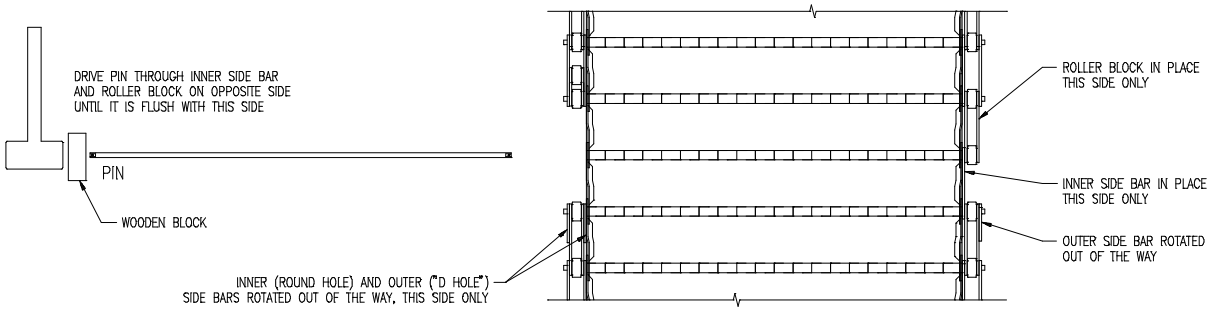


Figure 14: Installation of belt pin.

   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.

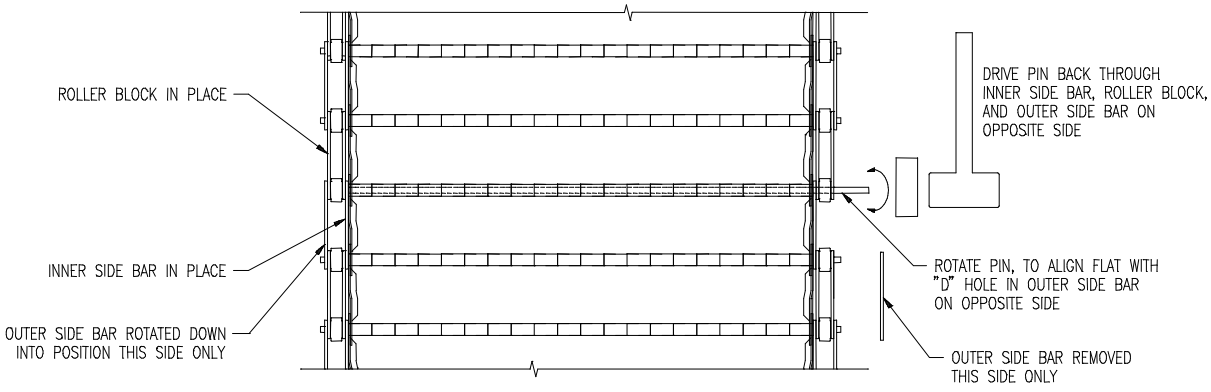


Figure 15: Installation of belt pin back through roller block assembly.

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.

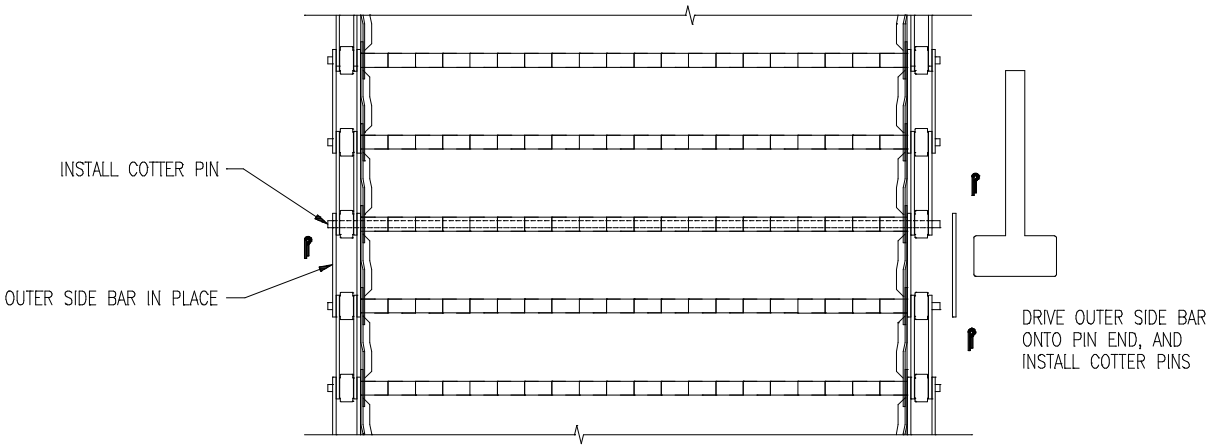


Figure 16: Connecting final side bar to pin.

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.

PRIMARY CONVEYOR BELT ASSEMBLY

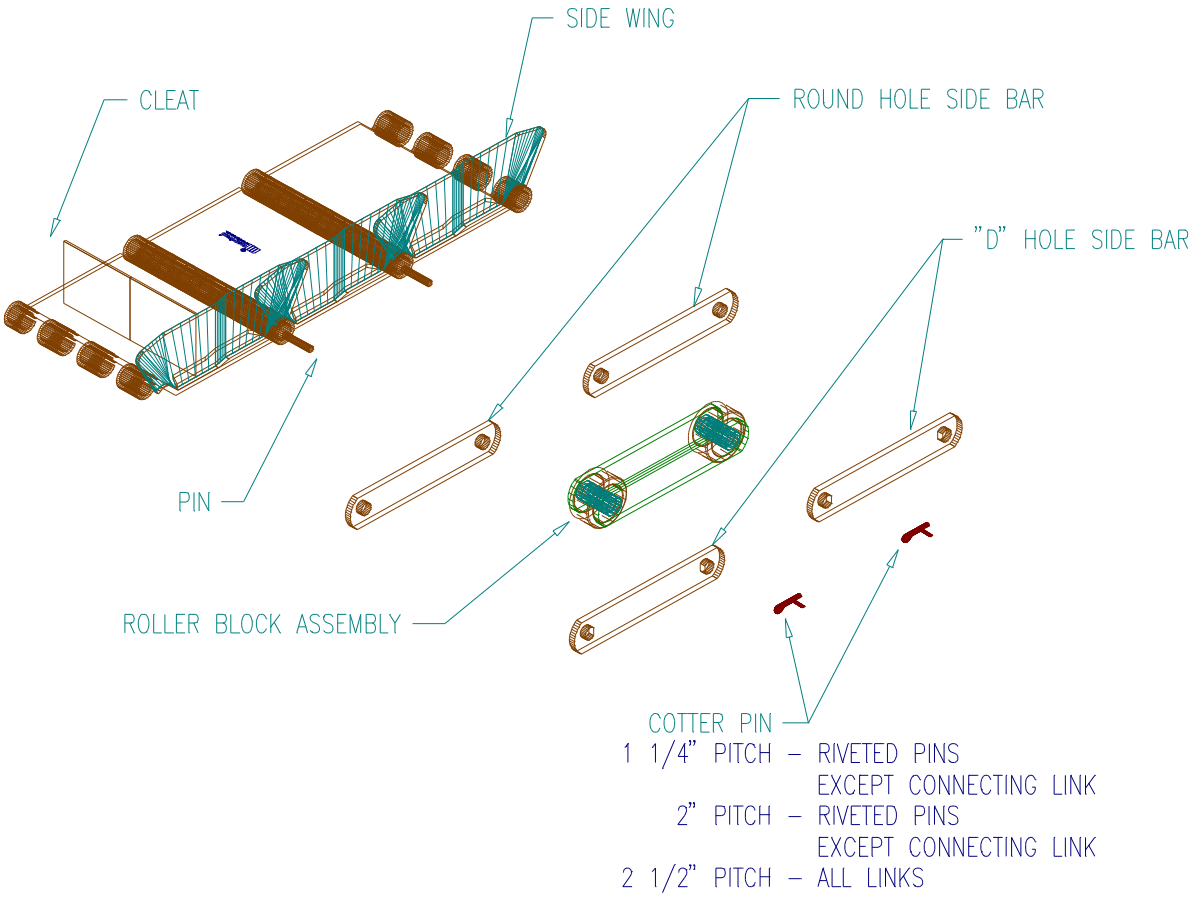


Figure 17: Exploded view of conveyor belting.

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
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

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.

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 if required	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.

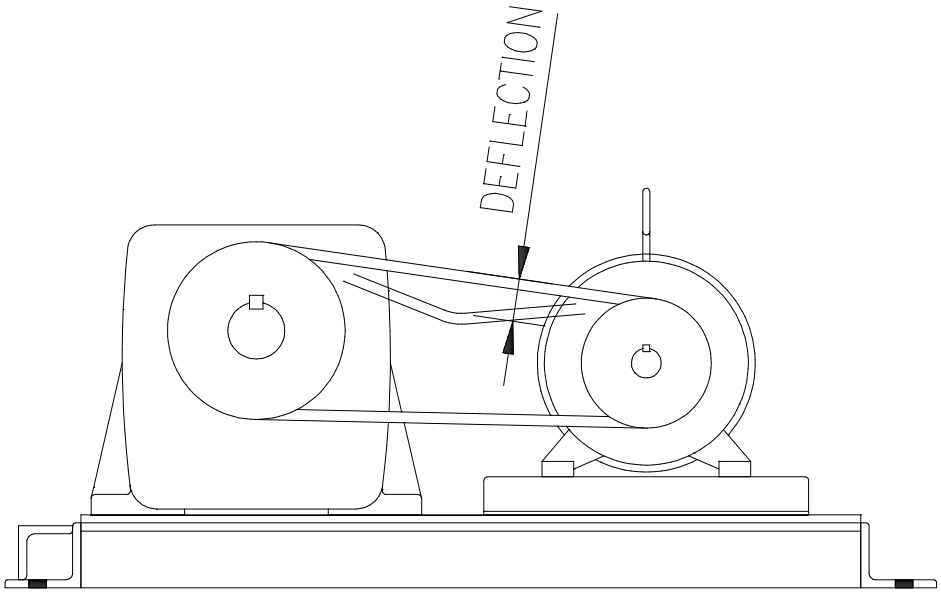


Figure 18: Drive assembly showing measurement of v-belt deflection. (Guards removed for illustration only.)

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.

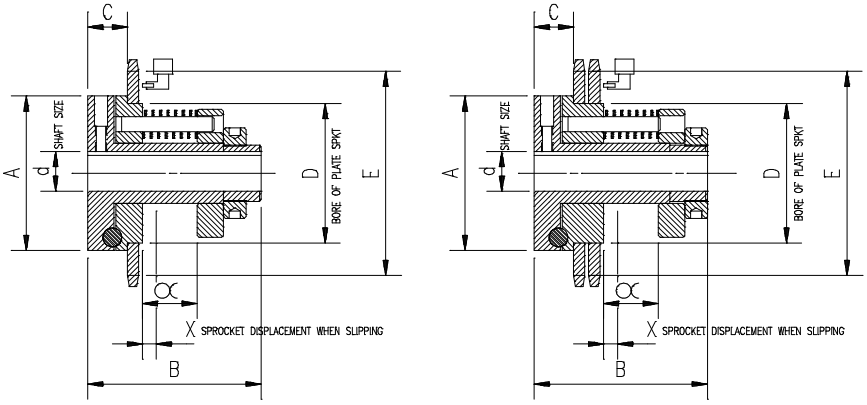


Figure 19: Mayfran safety clutch section view. See table below for dimensions.

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 20: 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 21]. 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.

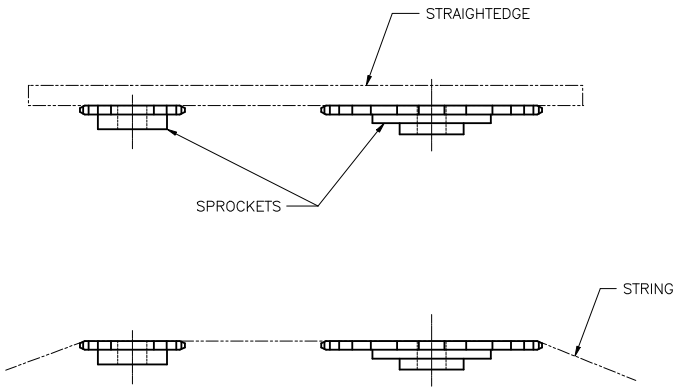


Figure 21: Two methods of checking sprocket alignment.

***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 not 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

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