

**INSTALLATION OPERATION
AND
MAINTENANCE MANUAL**

**Mayfran
1.25 inch Pitch Conveyor
Model MT-10**



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IMPORTANT

When calling or writing for service or spare part information, always have your conveyor serial number. It is located on the head end (discharge area) of the conveyor and is stamped on a nameplate or plain steel plate.

It is a six (6) digit number. The first two digits indicate the year of manufacture and the other four digits is the consecutive identification number for that particular conveyor.

We must have this number to assure the proper parts are sent.

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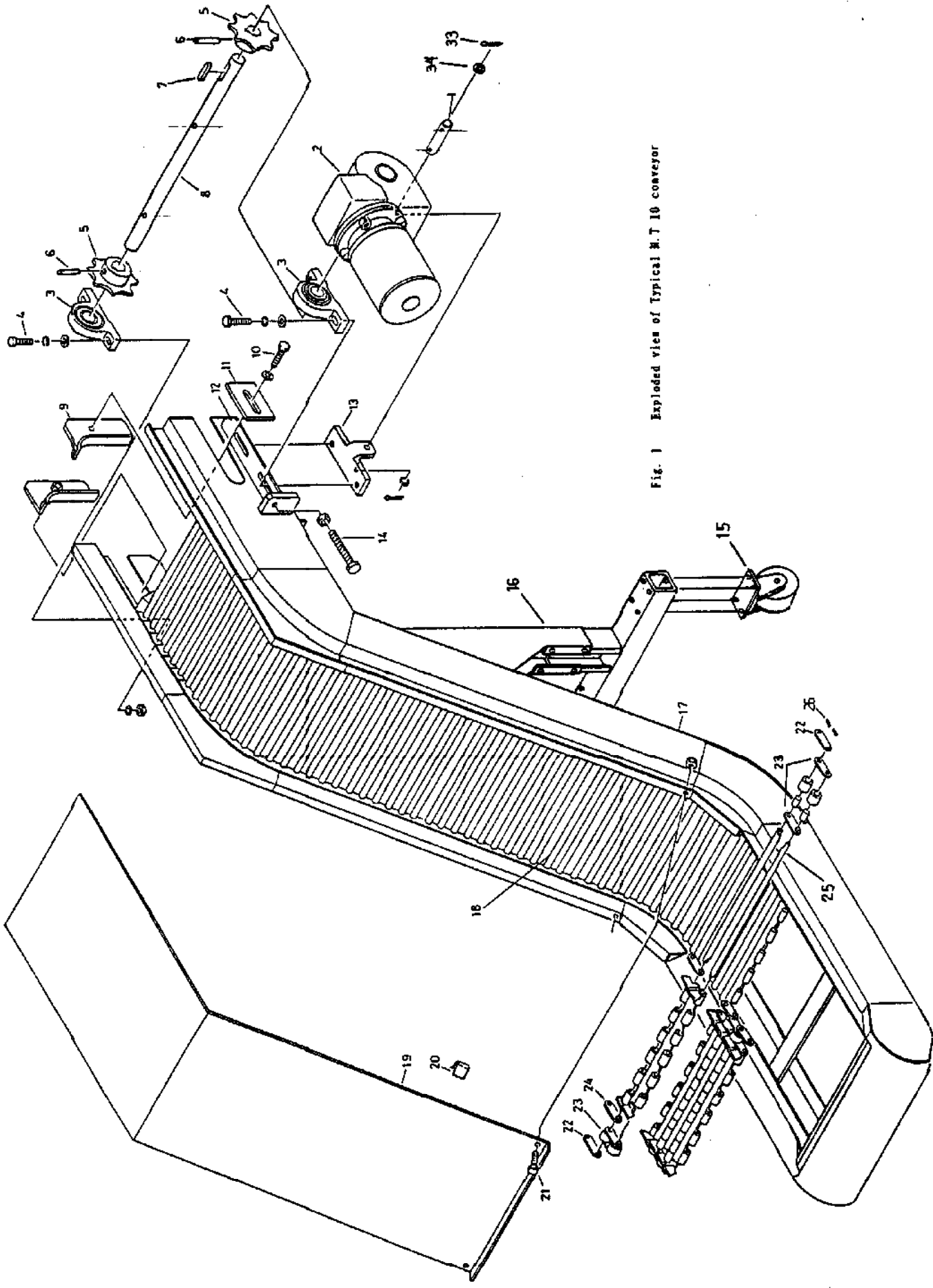


Fig. 1 Exploded view of Typical M.T. 10 conveyor

MT 10 CONVEYOR PARTS LIST

(REFER TO FIG. 1 EXPLODED VIEW DRAWING)

ITEM	PART NO.	PART NAME	NO.
1	MT10-31001	TORQUE PIN	1
2	See Page 15	GEARMOTOR	1
3	068231	PILLOW BLOCK BEARING	2
4	M10 X 50	HEX BOLT	4
5	824680	HEAD SPROCKET	2
6	99-456378	ROLL PIN 1/4 DIA X 2	2
7	825053	SQUARE KEY 7mm X 50mm LG	1
8	MT10-30101-(WIDTH)	HEAD SHAFT	1
9	MT-10-30101-(R/L)	HEAD END CHAIN COVER	1 ea
10	M6 X 12	HEX BOLT	2
11	MT-10-30201-1	SHAFT SLOT COVER	2
12	MT10-30401-(R/L)	DRIVE ADJUST SUPPORT	1 ea
13	MT10-30301	BEARING FASTENER/DRIVE MOUNT	1
14	M12 X 80	HEX BOLT FULL THREAD	2
15	136259	CASTER	2
16	SEE CONV. ASSY DWG	LEG ASSEMBLY	1
17	SEE CONV. ASSY DWG	FRAME ASSEMBLY	1
18	SEE CONV. ASSY DWG	BELT ASSEMBLY	1
19	SEE CONV. ASSY DWG	TOP COVER	1
20	675700	TOP COVER SPRING CLIP	*
21	M6 X 12	HEX BOLT	2
22	MT-10-10001-3	D-HOLE SIDE BAR	*
23	MT-10-10001-1	ROLLER BLOCK ASSEMBLY	*
24	MT-10-10001-2	ROUND HOLE SIDE BAR	*
25	MT10-10401-(WIDTH)	CONNECTING PIN	2
26	99-191598	COTTER PIN 3/64 DIA X 3/4	4

* QUANTITIES VARY WITH CONVEYOR DESIGN

INTRODUCTION

MAYFRAN Steel Belt Conveyors are installed in machine tools, presses, die casting machines etc.

Their function is to remove chips, scrap, punchings, or small components from the machine tool and deposit them in a bin or centralized system.

This manual offers data on service, maintenance and parts replacement. Your conveyor may differ in shape from that illustrated, however the instructions apply to all MAYFRAN 1.25 inch pitch conveyors.

Please ensure that this manual is handed to your maintenance staff.

To ensure guarantee it is essential that the instructions under "Maintenance" are carried out exactly.

INSTALLATION

1. The conveyor must be aligned accurately without any twist in the frame. The deviation from the center line should not exceed 2mm on either side.
2. The belt and chain should be oiled.
3. Before starting the conveyor check the belt adjustment. It must be possible to depress the belt by hand in the bottom strand near the drive. Loosen the take-up bearings at the head end and use the take up bolt. Tighten the bolts on the bearings when complete.
4. The sidewings of the steel belt must be parallel to one another in travel direction. Too much clearance or bent side wings may cause jamming.
5. Most conveyors are equipped with simple pushbutton and magnetic starters or manual starters. Wiring diagrams are included inside the control enclosure. Observe local codes when doing wiring.

The conveyor should run for at least 5 hours without load. During the running-in period, please make sure that the steel belt and the cleats move freely and do not scrape along any frame parts.

MAINTENANCE

If this MAYFRAN conveyor is serviced correctly, it will have a long life with a minimum of wear. Please ensure that the belt and chains are always coated with a thin film of oil. Normally the belt should be oiled once a month. In outdoor applications this interval must be shortened and adjusted to the circumstances.

Check the belt at regular intervals for signs of wear or damage and replace damaged parts immediately to avoid malfunctioning.

The gear oil brand usually filled in in Kluber Syntheso D 220 EP, which is a synthetic lube oil of type PG-LP ISO VG 220 to DIN 51502 featuring excellent sliding and ageing stability characteristics designed to give a very long service life with the gearbox.

The lube oil must be replaced after a period of 5 years. The interior of the gear must then be flushed out with Kluber Syntheso 321 EP. thoroughly drained and refilled with lubricant of identical type. The filling quantity is 800 ccm.

Oil brands Mobil Glygole 30, Shell Tivela WB, Esso Umlaufol 220, Polydea PGLP 220 also meet the requirements of the PG-LP ISO VG 220 standard. Contact your local lubrication supplier for other equivalents.

The gearbox is to be regularly checked to detect leakage, contamination and suspicious noise in due time. In the event the latching clutch has disconnected the gearbox, the motor must be switched off without delay. During an inspection after a period of 5 years the amount of backlash in particular must be ascertained to determine wear, if any.

1. After the first 8 days of operation, the belt must be re-adjusted. The correct method of adjustment is listed under installation, note 3.
2. Check belt adjustment every month and re-adjust if necessary.
3. If the product is dry, oil belt and chain lightly, and run conveyor for 10 minutes without load. This should be done once a month on a single shift basis.
4. Every month remove the chain guard and check whether any rollers are jammed or whether side wings or chain show signs of damage or traces of scraping. If so, note paragraph on "Trouble Shooting".
5. The head end bearings should be greased every six (6) months based on a single shift day. This frequency should increase to every two (2) months for more harsh applications such as temperature extremes or abrasive applications.
6. Check the bottom pan of the drive section regularly for material build up and clean if required.
7. The quoted handling capacity can only be guaranteed when the conveyor is operated continuously. The conveyor must always be operated together with the machine tool.

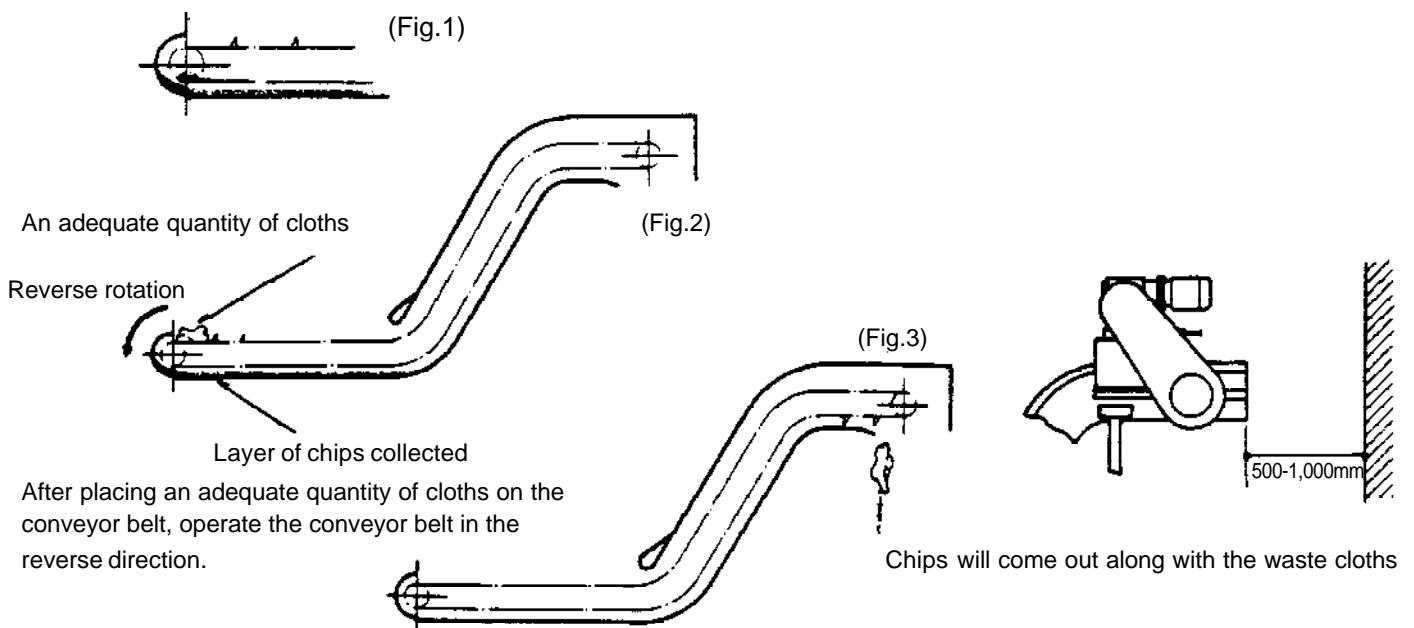
CLEANING THE CONVEYOR

Your conveyor should be cleaned on a regular basis. The frequency of cleaning will vary with your operating conditions. Dry chips or parts would not need cleaning as frequently as operations involving coolant. The worst condition would involve fine, small chips with coolant.

To conduct a "Simple" cleaning of the conveyor, we recommend the following procedure:

- 1) Make sure conveyor is not running.
- 2) Remove the top cover.
- 3) Remove all the chips you can by hand.
- 4) Put a shop cloth(s) near the tail end (Fig. 2).
- 5) Run the conveyor in the reverse direction until the shop cloth(s) drop out. Repeat this procedure as required. (Fig. 3)
- 6) Replace top cover and make sure conveyor is set for running in the proper direction.

To conduct a *thorough* cleaning the belt must be removed from the head (discharge) end. By rinsing or brush, clean both sides of the belt and the inside of the housing. Make sure your installation provides adequate space in front of the conveyor (Fig. 4). Re-assemble the belt and adjust as instructed in this manual.



MAJOR COMPONENT REPLACEMENT

(REFER TO FIGURE 1)

BELT REMOVAL

Turn the belt until the belt pin (25) with split pins (26) appears at the open section of the drive-end. Loosen the bolts (10) and remove the chain guards (9). Loosen the take-up bolts (4) about 1.5 mm, the belt will now slacken off.

Remove the split pin (26) from the belt pin in the bottom strand. The belt pin can now be pulled from the belt. Remove the chain-connecting link on both sides. The belt is now split, so it can be removed from the frame using the drive motor.

REMOVING THE GEARMOTOR (2):

Remove the torque bolt. The gearmotor can now be pulled from the shaft.

REMOVING DRIVE SHAFT:

Remove belt and pull gearmotor as specified before from the drive shaft. Loosen bolts (4) of the bearing block (3).

ASSEMBLY:

Assembled in reverse order. Please note the direction of belt travel. The side wings should overlap in travel direction (see drawing). Make sure before assembly that all worn or damaged parts are replaced.

IMPORTANT:

Both adjustment bolts (14) must be tightened evenly. Incorrect adjustment may result in excessive wear of chain and/or sprockets.

TRUBLE SHOOTING

<u>TROUBLE</u>	<u>PROBABLE CAUSE</u>	<u>REMEDY</u>
Excessive jam-ups without apparent blockage.	Not enough belt tension.	Loosen jam nuts, tighten take-up screws, then tighten jam nuts.
Bent or missing side wing.	Obstruction or jam-up due to overload or entry of foreign object.	Straighten side wing or replace.
Bent or missing loop on hinge link.	"Freezing" due to rust or lack of lubrication.	Oil hinges as needed. Replace link if necessary. Keep water off belt (except belts designed for water-quench operation).
Loose side bar.	Missing cotter pin.	Replace cotter pin.
Excessive wear on outside of wings.	Twisted frame, or conveyor not leveled.	Level frame and straighten as required.
Excessive amperage draw or clutch limit switch trips out.	Excessive load or material jammed in chain or chain path.	Remove excess material. Check belt path for jammed material and remove. Try reversing the conveyor.
	Undersized heater.	Install proper size heater to match full load amps.
	Defective gear reducer.	Replace.
	Chip build-up on belt or in return side.	Clean.

GEARMOTOR INFORMATION

This Mayfran conveyor uses an exclusive gearmotor that has its own self contained clutch, it is lubricated for life and requires no adjustment or maintenance.

The gearmotor is pre-adjusted to the proper torque.

Allowable temperature of the motor and gearbox is as follows:

Gearbox ——— Ambient + 40° C
Motor ——— Ambient + 50° C

NOTICE

Prior to 1996, Mayfran supplied a gearmotor manufactured by Tsubakimoto. Mayfran currently supplies a gearmotor manufactured by Rheingetriebe.

If you are replacing a Tsubakimoto gearmotor, note that on your order and Mayfran will include a small hardware piece needed for the changeover. (Refer to drawing on page 15)

BELT ADJUSTMENT—STEEL BELT CONVEYOR

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 longer 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 pans 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 component and create overloads on the drive system.

A good question is “How do I know when my hinged steel belt has the correct tension?” The answer is found in the steps listed below:

- 1.0 Lock out the power to the conveyor.
- 2.0 With a hammer, tap hard on the center of the hinge link that is just beyond the head shaft (going toward the tail end). This can be done to either the top or bottom of the belt.
- 3.0 If the hinge link collapses and stays collapsed, the belt is too loose. See “*Tightening the Chain*” below.
- 4.0 If the hinge link collapses and springs back to its original position, the chain is properly tensioned.
- 5.0 If the hinge link cannot be collapsed, the chain is too tight. See “*Loosening the Chain*” below.
- 6.0 Turn power back on the conveyor.

Tightening the Chain

1. Loosen jam nuts on the head shaft take-up assembly.
2. Adjust the take-up bolts inward, evenly on each side, until the belt feels proper (refer to explanation in item 4.0 listed above).
3. Make sure the head shaft is square to the machine. 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 jam nuts.

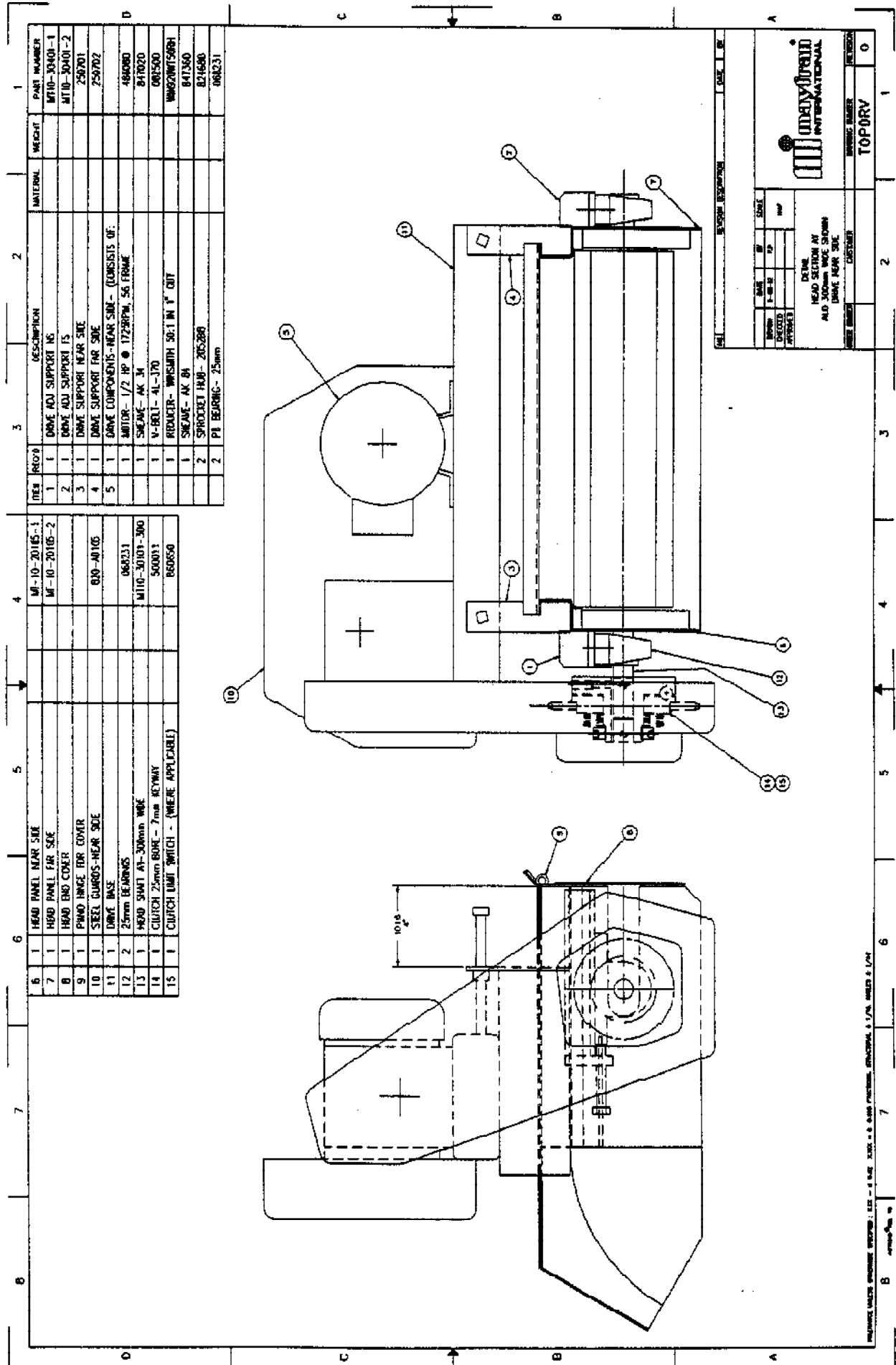
Loosening the Chain

1. Loosen jam nuts on head shaft take-up assembly.
2. Adjust the take-up bolts out, evenly on each side, until the belt feels right (see 4.0 above).
3. Make sure the head shaft is square to the machine. 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 one side, the head shaft is not set square.
4. Tighten the jam nuts.

ALTERNATE “TOP MOUNTED” DRIVE

For some applications (usually due to customer specification) we will provide a conventional drive assembly mounted over the discharge area. This drive consists of a belt drive between the motor and reducer and a chain drive between the reducer and conveyor headshaft. A Mayfran ball detent clutch is mounted on the conveyor headshaft for drive protection. Mayfran also offers a limit switch mounted inside the drive guard to detect actuation of the clutch.

The following page illustrates our top mounted drive, right hand. Your conveyor may look slightly different, but the components should be the same. Our standard speed is 4.2 F.P.M. If you have a special speed, the sheaves, sprockets or belt may vary. Make sure you include your conveyor serial number when ordering spare parts.



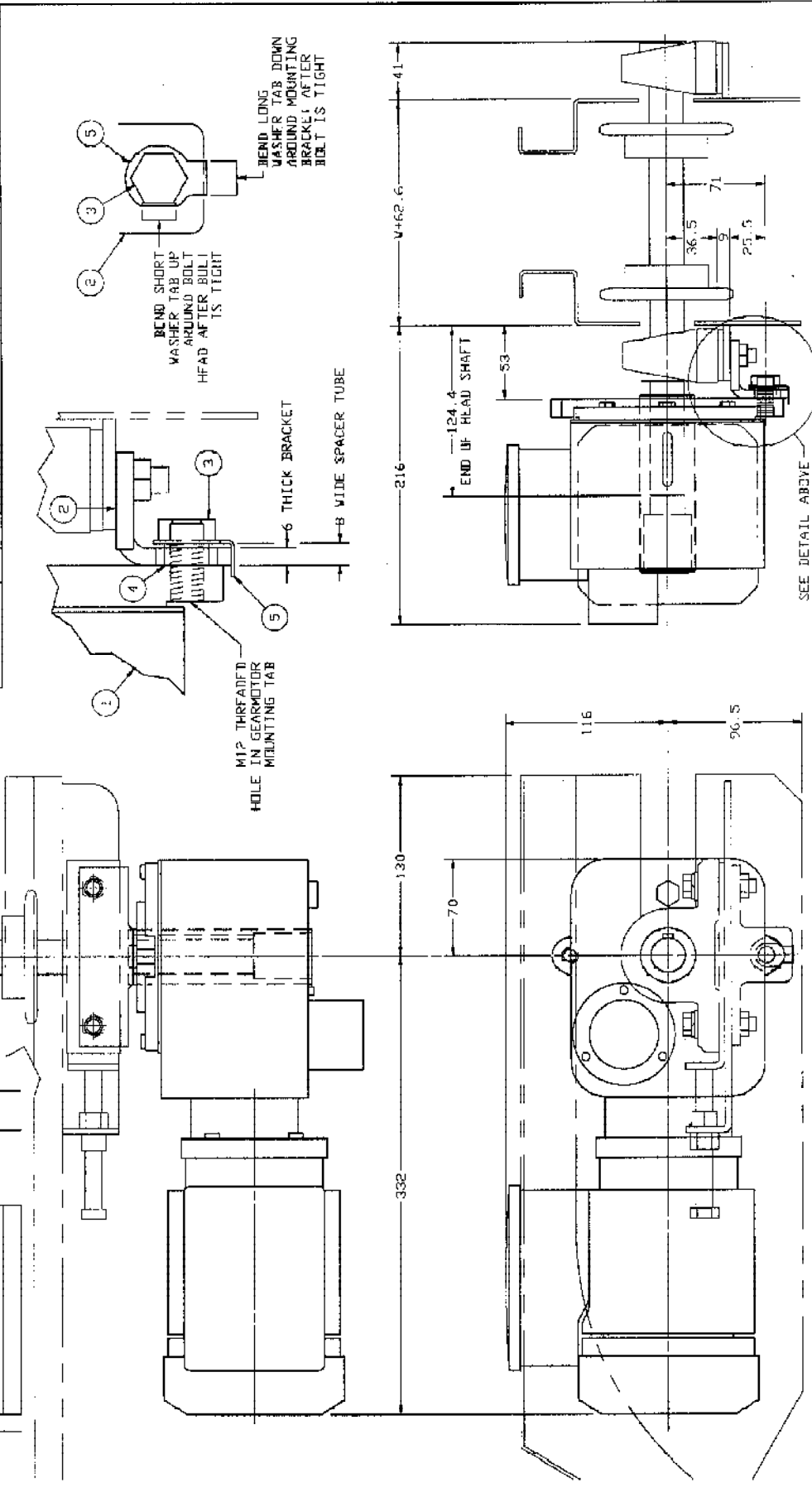
ITEM	REV	DESCRIPTION	MATERIAL	WEIGHT	PART NUMBER
1	1	DRIVE ADJ SUPPORT NS			MT10-30401-1
2	1	DRIVE ADJ SUPPORT FS			MT10-30401-2
3	1	DRIVE SUPPORT NEAR SIDE			250701
4	1	DRIVE SUPPORT FAR SIDE			250702
5	1	DRIVE COMPONENTS - NEAR SIDE - (CONSISTS OF: MOTOR - 1/2 HP @ 1725RPM, 56 FRAME; SHEAVE - AK 34; V-BELT - 4L-170; REDUCER - WEGSMITH 50:1 IN 1" QUT; SHEAVE - AK 84; SPRCKET HUB - 205288; PI BEARING - 25mm)			484080 847020 087500 WMS20MT50B1 847350 821688 068231

ITEM	DESCRIPTION	REV
6	HEAD PANEL NEAR SIDE	M1-10-2016-1
7	HEAD PANEL FAR SIDE	M1-10-2016-2
8	HEAD END COVER	
9	PRMO HNGE FOR COVER	
10	STEEL GUARDS-NEAR SIDE	610-40105
11	DRIVE BASE	
12	25mm BEARINGS	068231
13	HEAD SHAFT A1-30mm WIRE	MT10-30101-300
14	CLUTCH 25mm BORE - 7mm KEYWAY	500011
15	CLUTCH UNIT SWITCH - (WHERE APPLICABLE)	860650

DATE		BY	
DRAWN: _____ CHECKED: _____ APPROVED: _____	DATE: _____ BY: _____	DRAWING NUMBER: TOPDRY	REV: 0
DETAIL HEAD SECTION AT OLD 300mm WIRE SHOWN DRIVE NEAR SIDE		CUSTOMER	

MAXIMUM WEIGHT PERMITTED: 1.52 - 5.42 3.00 - 8.00 4.00 5.00 6.00 7.00 8.00 9.00 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 28.00 29.00 30.00 31.00 32.00 33.00 34.00 35.00 36.00 37.00 38.00 39.00 40.00 41.00 42.00 43.00 44.00 45.00 46.00 47.00 48.00 49.00 50.00

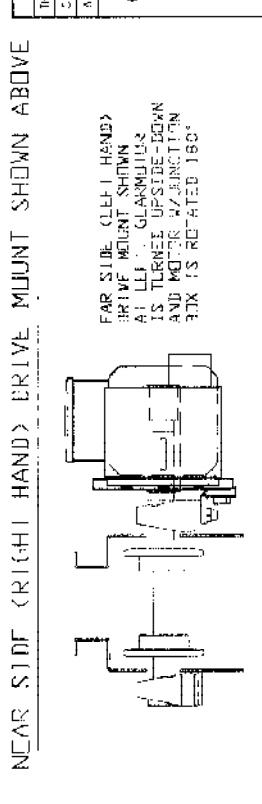
REL	DESIGN	CHANGES	DATE	BY



ITEM	QTY	DESCRIPTION	MATERIAL	WEIGHT	MATERIAL CODE
1	1	ROLLING MOUNT GEARMOTOR 180W 4.76RPM W/CLUTCH (NO L/S)	STEEL	15.3 lbs	PURCHASE
2	1	BRG FASTENER/DRIVE MOUNT BRACKET FOR GEARMOTOR	STEEL		MANUFACTURE
3	1	HEX BOLT M12-1.75 X 22 LG ZINC PLATED	STEEL		PURCHASE
4	1	SPACER TUBE 10 OD X 12.8 ID X 8 LG	STEEL		MANUFACTURE
5	1	WASHER W/INCL TABS FOR M12 BOLT	STEEL		PURCHASE

DATE	BY	SCALE
11-10-95	ME	HAT

GEARMOTOR MOUNT ASS'Y
180W (1/4HP) 4.76RPM
WITH CLUTCH (NO L/S)
& MOUNTING HARDWARE



PART NUMBER	GEAR MOTOR	OUTPUT RPM	STD MTR (ELL) SPEC	LIMIT SWITCH
485215	1310010	4.75	4.07	NE
485216	1310013	4.75	4.07	YES
485215	1310012	6.50	7.27	NE
485220	1310015	8.50	7.27	YES
485217	1310014	12.44	13.64	NE
485218	1310014	12.44	13.64	YES



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