

Universal Industries, Inc. 5800 Nordic Drive • PO Box 308 Cedar Falls, IA 50613 Ph: (319) 277-7501 • Fax:(319) 277-2318 www.universalindustries.com univey@universalindustries.com

THIS FORM MUST BE COMPLETED BY THE DEALER AND SIGNED BY BOTH THE DEALER AND CUSTOMER AT THE TIME OF DELIVERY. PLEASE SEND A SIGNED COPY TO THE ABOVE ADDRESS AND RETAIN A COPY FOR YOUR RECORDS.

PRODUCT IS INELIGIBLE FOR WARRANTY IF NOT REGISTERED CUSTOMER INFORMATION:

Customer Name:					
Customer Address:					
City: State: Phone Number:		Postal Code:	_ Country:		
		Fax Number:			
E-mail Address:					
DEALER INFORMATION	:				
Dealer Name:					
Dealer Address:					
City:	_ State:	Postal Code:	Country:		
Phone Number:		Fax Number:			
E-mail Address:		·····	_		
PRODUCT INFORMATIC	DN:				
Serial Number		Delivery Date			
SERIES	OPTIONS	DRIVE OPTIONS	LENGTH		
CTC	Center Drive	Shaft Mount	Overall		
HBC	Tripper	V-Belt			
MPK	Extended Take Un				
MPKI IT	Gravity Take Up				
PIC					
Dealer Verification:		Customer Verification:			
 I have performed the Deal 	ler Inspection as outlined in	 I have received the Operation 	ator's Manual for the above de-		
the Dealer Inspection Cheo	cklist and I am satisfied the	scribed unit and I have be	en thoroughly instructed on and		
unit listed is set up and adj	usted correctly.	understand, the care, the a	adjustments and the safe operation		
 I nave reviewed the operation of the operati	itor Manual with the customer		JIICy.		
and warranty policy	adjustments, sale operation	Customer			
and warranty policy.					
Dealer Signature:		Signature:			
Date:		Date:			
		_			



UNIVEY® Belt Conveyor Service Manual

Inspection Checklist, Personnel Safety, Terms and Conditions, Safety, Disclaimer for Misuse, Receiving, Operation, Maintenance, Conveyor Belt, Trouble Shooting, Sources of Standards and Codes

Model: _____

S.N.: _____

Date: _____

For Parts or Service Contact:

Universal Industries, Inc. 5800 Nordic Drive • P.O. Box 308 • Cedar Falls, IA 50613-0308 Phone: (319) 277-7501 • Fax: (319) 277-2318

P/N: 76607

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INSPECTION CHECKLIST

DEALER INSPECTION
Conveyor belt installed properly
Rollers, Idler set in place (If applicable)
All guards are in place
All fasteners tight
Drive chain aligned and tensioned (if applicable)
Drive belts aligned and tensioned (if applicable)
Conveyor is straight
Bearing set screws tight
Grease all bearings (If applicable)
Conveyor has been run for 20 minutes and belt alignment has been checked and adjusted (if necessary)
Conveyor belt has been retensioned after running
Conveyor has been checked for unusual noises and vibration
All safety decals in place & legible
Dealer Signature: Date:
DO NOT REMOVE THIS PAGE FROM MANUAL

PERSONNEL SAFETY

PERSONNEL CHECK FORM

RECORD OF PERSONS WHO HAVE READ AND UNDERSTOOD THIS MANUAL

The owner or employer responsible for the safe operation of this unit shall instruct all persons operating or maintaining this unit how to do so in a safe manner. This should also include good housekeeping practices.

Have the person(s) read this manual and sign in the place provided below, indicating that they understand the safety messages in the manual.

If there is some barrier to their successful reading of this manual, the manual should be read to the person(s) and questions asked to check their understanding. Have them sign below after demonstrating their understanding of the safety messages in the manual.

I have read and understood the safety messages in this manual

NAME	DATE	NAME	DATE

The employer should retain this sheet as a permanent record.

Copies of this page or of the manual can be obtained from:

Universal Industries, Inc. • PO Box 308 • Cedar Falls, IA 50613 • Phone: (319) 277-7501 • Fax: (319) 277-2318

DO NOT REMOVE THIS PAGE FROM MANUAL

1. TERMS OF PAYMENT: Buyer agrees to pay the purchase price shown on the acknowledged Sales Order in accordance with the terms of payment stated on the Sales Order. Amounts not paid when due shall accrue interest at the rate of 1.5% per month from the due date. For all sales on open account, the full purchase price shall be due 30 days from the date of the Invoice. However, Seller reserves the right to require down payment and/or progress payments, which shall be specified on the Sales Order. Unless otherwise specified, all sales are exclusive of freight, taxes, and other amounts due third parties. Discounts for early payment shall be as stated on the Invoice. Discounts shall not apply to the amount of any freight, taxes of other sums due any third party. Terms begin on the date of the Invoice. Seller shall establish the credit terms available to Buyer based on a current credit application and any other information available to Seller. At any time, Seller may limit or cancel the amount or time of credit extended to Buyer, in the sole opinion of Seller. Buyer shall pay in cash before delivery (C.O.D) for any order or part of an order in excess of the approved credit terms of Buyer. In the event Buyer fails to pay in advance any amount demanded by Seller, Seller shall have the right, in addition to any other remedies available, to cancel the contract or sell all or any part of the undelivered goods without notice at public or private sale, holding Buyer responsible for any deficiency.

2. SECURITY INTEREST: Seller reserves and Buyer hereby grants to Seller a security interest in the goods shipped under this agreement and the proceeds derived from their sale of whatever nature, whether in cash, note or account. This security interest shall continue until the full purchase price and any related expenses and/ or charges due in connection with the Sales Order are paid in full. Notes shall not be considered as payment buy merely as evidence of indebtedness. Seller shall be entitled to all the rights of a secured party under lowa law. Buyer agrees to execute any documents required to perfect or confirm this security interest.

3. TITLE/RISK OF LOSS: Title to all goods priced at shipping point shall pass to Buyer upon delivery at such shipping point. All risk of loss shall be Buyer's from the time of shipment. Seller's responsibility for any loss or damage to the goods ceases at the time delivery is made to the carrier. Buyer shall be solely responsible for making any claim(s) against the carrier for any loss or damage.

4. EXPORT ORDERS: Prices for export-crating charges can be obtained by contacting the Sales Department for quotations and orders.

5. PRICE CHANGES: The prices listed may be changed by Seller without notice in order to reflect Seller's prices at time of shipment and any increase in transportation, labor or other costs. If a delivered price has been quoted, any charges at destination for spotting, switching, handling, storage, and other accessorial services and demurrage shall be borne by Buyer. Seller reserves the right to correct any obvious errors or mistakes in specifications or prices.

6. WHEN ORDERING: Please specify name of item, catalog part number, as well as other information when this is applicable to insure prompt handling of the order.

7. MINIMUM BILLING: \$50.00 Net, exclusive of transportation charges.

8. DELIVERIES: Any delivery schedule indicated is based on Seller's present estimate of the time required to ship after receipt of Buyer's order. In the event of any delay in Seller's performance due in whole or in part to any cause beyond Seller's reasonable control, Seller shall have such additional time for its performance as may be reasonably necessary under the circumstance.

TERMS AND CONDITIONS OF SALE

9. MANUALS: Seller will furnish one combined safety, installation, operation, and maintenance manual. Extra manuals will be sent on request.

10. SHIPMENT: Shipment may be by carrier or other means selected by Seller. All units are shipped-knocked down. If shipment is delayed by Buyer, date of readiness for shipment shall be deemed to be date of shipment for payment purposes. If manufacture is delayed by Buyer, a payment shall be made based on purchase price and percentage of completion, balance payable in accordance with the terms as stated. Equipment held for Buyer shall be at the risk and expense of Buyer.

11. LIMITED WARRANTY: Seller warrants that the components and parts that it manufactures for its machines and equipment will be free from defects in material or workmanship for a period of one (1) year from the date of shipment by Seller. Seller does not warrant any component or part not manufactured by Seller. If, during the one year warranty period, Buyer discovers a defect in material or workmanship of a covered component, Buyer shall promptly (and in no event later than thirteen (13) months after the date of shipment by Seller) notify Seller in writing of such defect. Within a reasonable time of receiving such notification, Seller will furnish a replacement component or part. Buyer shall be responsible for all expenses attendant to the shipment and installation of the replacement component or part. Buyer also shall be responsible for returning the defective component or part to Seller if request by Seller to do so. THE FOREGOING WARRANTY IS IN LIEU OF ALL OTHER WAR-RANTIES. EXPRESSED OR IMPLIED. SELLER DISCLAIMS THE IMPLIED WARRANTY OR MERCHANTABILITY AND ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.

SELLER SPECIFICALLY DOES NOT WARRANT PARTS AND COMPONENTS PURCHASED BY SELLER FROM THIRD PARTY SUPPLIERS, INCLUDING, BUT NOT LIMITED TO, SUCH PARTS AND COMPONENTS AS MOTORS, BEARINGS, REDUCERS, AND SWITCHES. BUYER SHALL BE LIMITED IN RECOURSE FOR SUCH COMPONENTS AND PARTS TO THE TERMS OF THE WARRANTY OF THAT PARTICULAR MANUFACTURER.

12. LIMITATION OF REMEDIES AND DAMAGES: Buyer's primary remedy for breach of warranty is the provision of a replacement component or part, as stated above. If Seller is unable to provide a replacement component or part, Buyer's alternate remedy shall be refund of Buyer's purchase price. These remedies are Buyer's sole and exclusive remedies for breach of warranty. In no event shall Seller be liable under any theory of liability for (i) damages in excess of Buyer's purchase price or (ii) any special, incidental or consequential damages.

13. TIME TO BRING SUIT: Buyer shall bring any action relating to the goods sold by Seller pursuant to his Sales Order or Invoice, including any action for breach of contract or breach of warranty, not later than two (2) years after the date of shipment by Seller. Buyer agrees that any action brought after such date shall be barred as being untimely.

14. PLACE OF BRINGING SUIT: Any action relating to the goods sold by Seller pursuant to this Sales Order or Invoice shall be brought in the Iowa District Court in and for Black Hawk County, Iowa.

15. TOLERANCES AND VARIATIONS: All goods shall be subject to tolerances and variations consistent with usual trade practices regarding dimension, straightness, section, composition and mechanical properties and normal variations in surface and internal conditions and quality and shall also be subject to deviations from tolerances and variations consistent with practical testing and inspection methods.

16. RETURNS: Returns are not accepted unless Seller is first notified of the reason for the return, and has granted permission for the return to be made. A return authorization tag will be issued on agreed-to returns. Credit for permitted returns will not exceed the price charged when shipment was made, or the market price at the time the return was received. 20% handling charge will be made on all returned goods. In case of damaged goods, the charge will rise accordingly. When the cause for return is due to incorrect shipment by Seller, there will be no restocking or freight charge. Any merchandise that is to be returned must be received with a return authorization tag attached and freight charges-Prepaid. Any returns authorized by Seller are conditioned upon the goods being returned in condition for resale.

17. COPYRIGHT: No reproduction either in whole or in part may be made from Seller's catalog, drawings, sketched, etc., without written permission from Seller's Sales Department.

18. BACK ORDERS: Seller will attempt to ship all orders complete; however, in the event of back orders, the orders will be shipped with freight charges, collect or prepaid, at Seller's option only.

19. SHORTAGES: Claims for shipping shortages concealed or otherwise, will not be allowed by Seller, unless reported within 15 days after date of shipment by Seller.

20. PRODUCT CHANGES: Seller reserves the right to change, without notice, the design or any modular, "standardized" components represented in Seller's catalog.

21. TOOLS, DIES AND FIXTURES: Unless otherwise expressly provided herein, any tools, dies, or fixtures which may be developed for Seller in the production of the goods covered hereby shall be owned by Seller, as Seller may elect, even though Buyer is charged in whole or in part for the cost of such tools, dies and fixtures.

22. PATENT INFRINGEMENT: If any of the goods are to be furnished to Buyer's specification, Buyer agrees to indemnify Seller and Seller's successors and assigns, against all liabilities and expenses resulting from any claim of infringement of any patent in connection with the production of such goods.

23. SPECIAL DRAWING OR DATE REQUIREMENTS: Seller will provide, upon request, an 8 ½ x 11 copy of any line drawing shown in the catalog without charge. Seller reserves the right to reject any request and/or assess a charge for any other drawing.

24. CANCELLATION: Except as otherwise provided in Paragraph 1, order may be cancelled or modified only by written agreement between the parties. On specially ordered or fabricated equipment, no cancellation will be allowed. Buyer's insistence upon canceling or suspending fabrication or shipment, or Buyer's failure to furnish specifications when required, may be treated by Seller as a breach of contract by Buyer, and Seller may cancel any unshipped balance without prejudice to any other remedies Seller may have.

TERMS AND CONDITIONS OF SALE

25. TAXES: All applicable federal, state or local sales, use, occupational or excise taxes are the responsibility of the Buyer and shall be in addition to the price or prices stated unless otherwise specifically stated. Seller shall have the right to Invoice separately any such tax as may be imposed at a later time. Applicable tax exemption certificates must accompany any order to which the same applies.

26. MODIFICATIONS OF ALTERATIONS TO EQUIPMENT: Seller shall not be liable for any product that is modified or altered by Buyer or it's assignee or successor regardless of whether Seller knows or is aware of such modification or alteration.

27. EQUIPMENT OPERATION: Buyer agrees to require its employees to read and be familiar with the safety instructions and the operation and maintenance portion of the manual before operating this equipment. Buyer agrees to require its employees to use all safety devices and guards on the equipment and to use safe operating procedures. Buyer agrees to not remove or modify any such equipment, switch, device, guard or warning sign. If Buyer, or its employees, fail to strictly observe all of these obligations, Buyer agrees to indemnify and save Seller harmless form any liability or obligation incurred by Seller to persons injured directly or indirectly by the operation of the equipment.

28. RESALE, TRANSFER, OR LEASE OF EQUIPMENT TO OTH-ERS: Buyer agrees to the continuing obligation to notify Seller of the resale, transfer or lease of the equipment to third parties, stating the name and address of the new owner or transferee and the location of the equipment.

29. REPORTING PERSONAL INJURIES OR PROPERTY DAM-AGE: The Buyer or user agrees to notify Seller within 30 days of any accident or occurrence involving Seller's machinery or equipment resulting in personal injury or property damage, and shall cooperate fully with Seller in investigating and determining the cause of such accident or occurrence. In the event that the Buyer or user fails to give such notice to Seller and so cooperate, the Buyer or user agrees to indemnify and save Seller harmless from all loss or damage arising from such accident or occurrence.

30. ASSIGNABILITY: Any contract for sale and purchase of machinery and equipment cannot be assigned except with the written consent of Seller.

31. SUCCESSOR OWNERS AND USERS: The terms and conditions hereof are binding on successor owners and users, who take by purchase, assignment, lease, or otherwise, the right to own, use or operate the equipment sold to the original Buyer, and said terms and conditions shall transfer with the equipment itself as an integral obligation of any successor to the original Buyer. The successor owner and user obligations and liabilities stated herein shall also apply if the original Buyer was a dealer and purchased the equipment from Seller for purposes of resale and transfer to third parties.

32. ENTIRE AGREEMENT: These Terms and Conditions of Sale constitute the entire agreement between the parties concerning any machinery or equipment sold and purchased. It shall not be modified or canceled except by mutual agreement in writing signed by all parties.

33. APPLICABLE LAW: The laws of the state of lowa shall govern and control the rights, duties, remedies, and obligations of Seller, Buyer, successors, user, and owner and lowa law shall be used to interpret and construe all of the terms and conditions hereof.

SAFETY

PRODUCT SAFETY STATEMENT

To: Customers, Dealers, Owners, and Users

Universal Industries, Inc. strives to make its products safe. However, because of the wide variety of applications for its products, often Universal Industries, Inc. does not know how the equipment is being used and installed. Consequently, Universal Industries, Inc. cannot directly control the installation of its product to assure compliance with applicable safety codes and practices. Nevertheless, Universal Industries, Inc has listed various safety codes, standards, and regulations in its manuals to assist the owner-user in providing a safe installation.

Universal Industries, Inc. will continue its best efforts to design, build, and market a safe product, and will continue to advocate and urge a safe installation of that product.

Universal Industries, Inc. requests your written suggestions as to how its product could be manufactured to improve its safety, convenience of use, function, repair, and maintenance. Written suggestions should be dated, signed, and mailed to:

> Product Safety and Planning Universal Industries, Inc. P.O. Box 308 Cedar Falls, Iowa 50613

SAFETY

SAFETY ALERT SYMBOLS



This is a safety alert symbol and is used in this manual and on signs placed on the machine to call attention to specific safety precautions.

The following words are signal words. Signal words have specific meaning when used with this symbol.

CAUTION

Denotes a general reminder of good safety practices or to direct attention to unsafe practices which, could result in personal injury if proper precautions are not taken.

WARNING

Denotes specific potential hazard, which can result in injury or death if proper precautions are not taken.



Denotes the most serious specific potential hazard, which would result in high probability of death or irreparable injury if proper precautions are not taken.

All machines have inherent hazards such as moving parts, energy (electrical, mechanical or hydraulic), sharp edges and fumes or dust. Personnel must keep clear of moving machinery. Only authorized and trained persons are to be involved in the operation of this machine. Any disregard for instructions and safety precautions can cause serious injury or death.

Guards, disconnects, lock-outs and other features are provided or are available to improve operator safety.

This machine must not be altered in any manner or operated with any damaged, missing, or malfunctioning parts. If modification is deemed necessary to accomplish the user's requirements, write or FAX a description including a sketch or drawing to the Company with identification, condition and any pervious modifications. The company may be able to help the customer avoid creating a hazardous situation. Careful attention must be given to adjacent machinery and accessible space for cleaning and inspection. Other factors should be planned for such as: product spillage, dust pollution, personnel space, interfacing of machines, automatic startup, and handling of hot materials.

SAFETY

GENERAL SAFETY PRACTICES

•Instruct all operators in the safe use of the unit. This will vary from installation to installation. Instruction should consist of a thorough understanding of all Operation and Maintenance instructions in the following sections, these General Safety Practices, and other instructions as your particular installation may require.

•Only qualified and trained persons should operate and/or perform maintenance work on the unit.

•Always have drive guards and inspection doors installed and closed when unit is in operation.

•Make certain that unit is supported and/or guyed adequately for its height, span, size, load, ect.

•Repair or replace any weakened, damaged, or broken guys or structural supports before continuing operation.

•When installing unit, leave adequate room for the proper use of the unit, including the usual cleaning, servicing, and maintenance operations.

•All controls, switches, switch lock-outs, etc. should be specified, located, installed, and used in strict accordance with accepted safety standards and applicable codes, regulations and requirements.

•Except as otherwise required, this unit must be stopped and the starting equipment must be locked out before making adjustments or doing maintenance work.

•Any adjustments or maintenance procedures that are required while the unit is in operation should be done only by qualified and trained persons who are aware of the danger of working around moving belts and parts. Such adjustments or maintenance should not be done without another person present to control the on-off switch.

•Guard rails or suitable enclosures should be built around the tail assembly of a conveyor if it is in an area where persons may walk around it while the conveyor is in operation.

•Warning decals are affixed to the unit in several locations. Since installations differ, however, an extra DANGER decal and an extra CAUTION drcal are enclosed with these instructions for use in your particular installation. These extra decals should be affixed to the unit to give additional warning in those locations where prudence and common sense would indicate. Additional decals are also available upon request without charge.

•Always comply with all of your applicable local codes, regulations and requirements for the installation, maintenance, and use of the unit, its controls and power source. The codes, regulations and requirements are for the protection and safety of you and your employees.

DISCLAIMER FOR MISUSE

Universal Industries, Inc. is concerned that the customer is satisfied with the UNIVEY® Universal Belt Conveyor. However, conditions such as overfeeding, lack of maintenance, improper housekeeping, or evidence of careless installation should not be construed as a responsibility of Universal Industries, Inc.

Though this manual strives to be as complete as possible, it cannot absolve the customer of his/her responsibility for providing the knowledgeable personnel to erect, start and maintain the UNIVEY® Universal Belt Conveyor.

Operators who use the UNIVEY® Universal Belt Conveyor must demonstrate good housekeeping and be aware of the personal dangers involved with careless operation.

The environment in which the UNIVEY® Universal Belt Conveyor operates, and the product the UNIVEY® Universal Belt Conveyor is handling, should be conducive with the function of the unit.

WARNING

FAILURE TO HEED ABOVE SAFE PRACTICES COULD RESULT IN SEVERE INJURY OR DEATH.

RECEIVING

Upon receipt of the UNIVEY® Universal Belt Conveyor, check for shipping damage and report missing or obviously damaged items immediately to the truck line or carrier concerned. Check the packing list, and the corresponding exploded view to identify everything and verify that the shipment is complete. Check availability of electric supply voltage, phases and amperage for UNIVEY® Universal Belt Conveyor drive motor, as needed.

When unloading the UNIVEY® Universal Belt Conveyor, use forklifts or cranes with special care, and watch for any damage from previous rough handling. Such damage must be reported within 30 days after shipment for Universal Industries, Inc. to allow any claims.

Returned goods will not be accepted unless Universal Industries, Inc. has authorized the return. Universal Industries, Inc. must be notified in advance for the reason for the return. A return authorization tag can then be issued which must be attached to any returned merchandise. Freight charges are to be prepaid.

The Standard Charge for the return of unused equipment is 20% of the list price. This is based on the manufacturer's average cost of refurbishing and restocking this equipment. In the case of damaged goods, the charge would be raised accordingly.

When the cause of return is due to an incorrect shipment by the factory, there will be no restocking or freight charge.

! WARNING

READ THE SAFETY SECTION! FAILURE TO FOLLOW SAFETY MESSAGES COULD RESULT IN INJURY OR DEATH!

INITIAL OPERATION

Before start up, be sure belt is free to operate in the right direction, and that tools, hardware or other items are not in a position to damage the belt or injure personnel due to running conveyor. Make sure all drive guards are in place. Warn everyone that the conveyor is about to start. Remember that there is always a danger in getting too close to moving equipment.

At start up, be sure the motor isn't running in the wrong direction. Jog the UNIVEY® Universal Belt Conveyor on and off for only a few seconds at a time to observe belt tracking. In the case of a long UNIVEY® Universal Belt Conveyor or a remote starting location, two or more persons should observe both the head and the tail. This is necessary in order to stop the UNIVEY® Universal Belt Conveyor quickly in the case of a malfunction.

FEEDING THE CONVEYOR

Controlled feeding of your UNIVEY® Universal Belt Conveyor is critical. Material should pour gently and evenly onto the belt unless specified differently upon ordered specifications of the unit.

The preferred feeding method is in the center of the belt with feed flow in the direction of the belt travel. Not complying with those recommendations mat result in loss of capacity and leakage.

Maximum belt fill is 75%.

MAINTENANCE PROCEDURES



LOCK POWER OFF before performing inspections and maintenance. When it is necessary to observe the conveyor while running, use utmost care in keeping clear of the machine. Keep other personnel away from the area and be sure that other electrically connected equipment is also isolated from harming personnel. Never service this machine while it is in use. Use a buddy system with another experienced person who also can lock out the disconnect with his/her personal padlock. Use fail-safe methods of communication, whether it be visual, radio or shouted messages. Restore all covers and guards before returning unit to operation. Replace missing, damaged or painted over safety signs with new ones from Universal Industries.

FAILURE TO FOLLOW THESE INSTRUCTIONS COULD RESULT IN SERIOUS INJURY OR DEATH.

GENERAL MAINTENANCE

General maintenance involves only close inspection with a good light, and periodic cleaning of the UNIVEY® Universal Belt Conveyor to remove material, dust and grime. Check the reducer lubrication, as instructed by its manufacturer. Keep all bearings properly lubricated. Watch for unusual or excessive wear on belt.

Promptly remove any spillage of material under the feed area. Never overfill bin or other equipment with the UNIVEY® Universal Belt Conveyor because overflow, clogging, and spillage can jam the belt, causing expensive downtime and damage. Periodically examine your UNIVEY® Universal Belt Conveyor for loose or missing hardware. Periodically check belt alignment to avoid belt and/or conveyor damage.

START-UP INSPECTION

Check the following areas and adjust as needed just prior to initial start-up and during initial start-up of equipment to ensure unit is running at it's full potential.

- Check all fasteners
- Check that all guards are in place
- Check conveyor for any obstructions
- Check belt routing (per unit assembly manual)
- Check all applicable fluid levels
- Check belt tension (per maintenance section of this manual)
- Check belt tracking (per maintenance section of this manual)
- Check belt speed (per maintenance section of this manual)
- Check for any unusual noises, squeals, or leaks

PERIODIC INSPECTION

- 1. Periodically check belt alignment to avoid belt and/or conveyor damage.
- 2. Allow no material to build up on the pulley faces, idlers or belt. Inspect chutes, hopper, conveyor and return rollers.
- 3. Inspect the condition of the UNIVEY® Universal Belt Conveyor belt carefully. Watch for unusually frayed or worn edges. This may indicate that the belt is not tracking properly and is over to one side scraping on part of the framework. This may occur only when the belt is being loaded so it is advisable to inspect the UNIVEY® Universal Belt Conveyor carefully in its entirety while it is being used.
- 3. Inspect the UNIVEY® Universal Belt Conveyor belt both top and bottom for continuous grooves or worn tracks. These might be the result of contact with an object in the path of the belt.

MAINTENANCE



WIPING CLOTHS SHOULD NEVER BE USED NEAR ROTATING PARTS. TURN OFF UNIVEY® UNIVERSAL BELT CONVEYOR BEFORE WIPING UP DIRT AND GREASE.

ROLLER / IDLER SET INSPECTION (if applicable)

Depending on the type of roller ordered, they may or may not be greasable. Non-greasable rollers, which have no provision for a grease fitting, are factory lubricated and need no further lubrication. A careful inspection is in order, however, to check for binding. With the power locked off, raise belt wit one hand and spin the roller with the other hand.

If bearing is relubricatable, refer to table below as a general guide line for relubrication. A careful inspection is in order, however, to check for binding. With the power locked off, raise belt with one hand and spin the roller with other hand.

- 1. Does it turn as freely as the others do?
- 2. Does it appear to be leaking lubricant excessively?
- 3. Is it noisy? Clicking or rattling could mean a dry bearing and impending failure.
- 4. Is there a flat spot or shiny strip lengthwise across return roller? It could mean the roller is not turning when the belt is passing over it.
- 5. Is there spilled material around the base of the rollers? This shortens the life of seals and bearings and should be kept cleaner.

Efforts to wipe up leaking or excessive grease will be generously rewarded in increased belt life and ease of

BEARING LUBRICATION

The bearings used on the UNIVEY® are pre lubricated at the factory, therefore, do not require supplemental grease before service life begins. Periodically inspect all locking collars and set screws to ensure they are tight.

For a non relubricatable bearing no additional lubrication is needed.

For a relubricatable bearing, the table below is a general guide line for relubrication. When relubricating bearings, add grease slowly while shaft is rotating. Relubrication, when administered correctly, can increase the life of a bearing substantially. Over lubrication is a major cause of bearing failure. Please relubricate conservatively when unsure of bearing requirements.

For general purpose applications, use a #2 consistency Lithium Base grease formulated from a high quality mineral oil with rust and oxidation inhibitors. Bearings should operate at temperatures less than 200° F (93° C) and should not exceed 225° F (107° C) for intermittent operation. are pre lubricated at the factory, therefore, do not require supplemental grease before service life begins. Periodically inspect all locking collars and set screws to ensure they are tight.

The table below is a general guide line for re lubrication. When re lubricating bearings, add grease slowly while shaft is rotating. Re lubrication, when administered correctly, can increase the life of a bearing substantially. Over lubrication is a major cause of bearing failure. Please re lubricate conservatively when unsure of bearing requirements.

For general purpose applications, use a #2 consistency Lithium Base grease formulated from a high quality mineral oil with rust and oxidation inhibitors. Bearings should operate at temperatures less than 200° F (93° C) and should not exceed 225° F (107° C) for intermittent operation.

MAINTENANCE

BEARING LUBRICATION (continued)

Operating	Bearing	Grease	Recommended
Conditions	Temperatures	Interval	Grease
Clean	32°F to 120°F	6 to 10 months	Amoco Amolith 2
	120° to 150°F	1 to 3 months	Exxon Unirex N2
	150° to 200°F	1 to 4 weeks	Mobil Mobilith AW2
Dirty	32°F to 120°F 150°F to 200°F	1 to 4 weeks Daily - 1 week	Mobil Mobilux #2 Shell Alvania #2 Texaco Multifak #2
Moisture	32°F to 200°F	Daily - 1 week	Texaco Premium RB

ELECTRIC MOTOR

Service electric motor according to manufacturers' recommendations. Be sure to lock power off before performing inspection or maintenance.

INSPECTION

Inspect, adjust, service, or replace the following items as needed to ensure unit is running at it's full potential. Some items are specific to particular units. These are minimum general guidelines for inspections. You may need to see reference an item manufacturer for detailed maintenace schedule. Maintenance/inspection schedules need to be adjusted to the particular conditions of usage.

INSPECTION - EVERY 8 HOURS OR DAILY

* See specific maintenance section for this item for further information.

Periodic Maintenance Interval Table							
Component			8	HOURS /DAI	LY		
(see operation code below)	8HR/1	16HR/2	24HR/3	32HR/4	40HR/5	48HR/6	56HR/7
Belt Alignment							
Belt Tension							
Conveyor Belt							
Roller/Idler							

INSPECTION - EVERY 40 HOURS OR WEEKLY

* See specific maintenance section for this item for further information.

Periodic Maintenance Interval Table							
Component			40 H	IOURS /WEE	EKLY		
(see operation code below)	40HR/1	80HR/2	120HR/3	160HR/4	200HR/5	240HR/6	280HR/7
Bearing							
Belt Splice							
Electric Motor							
Pulley/Shaft							
Roller Chain							
Synchronous Belt							
V-Belt							

INSPECTION - EVERY 200 HOURS OR ANNUALLY

* See specific maintenance section for this item for further information.

Periodic Maintenance Interval Table							
Component	200 HOURS /YEARLY						
(see operation code below)	200HR/1	400HR/2	600HR/3	800HR/4	1000HR/5	1200HR/6	1400HR/7
Electrical Cables							
Fasteners							
Hopper							

GENERAL OPERATION

BEARING INSTALLATION

When mounting, always clean shafting and bearing bore. Then, having coated the shaft with a light oil, slide the bearing unit on the shaft to its correct position. It may be necessary to use a soft mallet and/or pipe, on the inner ring only, to reach the correct position. NEVER pound on, or apply pressure to, the outside ring! Once the bearing unit is in position, precise alignment can be achieved by first fixing the housing in place, then simultaneously rotating and tapping the shaft with a soft mallet. This should be accomplished before any locking collar or set screw is tightened.

When mounting a locking collar bearing, use a spanner wrench or punch to lock the collar in place - always in the direction of shaft rotation. Then tighten set screw.

When mounting set screw locking bearings we recommend the following torque settings:

Set Screw Size	Max. Recommended Torque (in./lbs)	
10 - 32	28	
1/4 - 28	66	
5/16 - 24	126	
3/8 - 24	228	
7/16 - 20	306	
1/2 - 20	330	

MAINTENANCE

Taper-Lock® Bushing

Taper-Lock® bushing installation is critical to good belt drive performance. Improper installation can damage the bushing and/or the sprocket/sheave. Sprockets/sheaves are commonly mounted to a shaft with a tapered bushing that fits a mating tapered bore in the sprocket/sheave. Bushings are available in numerous bore diameters to accommodate a broad range of shaft sizes used in industry.

TAPER-LOCK® Bushing Installation

1. Clean the shaft, bore of bushing, outside of bushing and the sprocket/sheave hub bore of all oil, paint and dirt. File away any burrs.

Note: The use of lubricants can cause hub fracture. DO NOT USE LUBRICANTS when installing tapered bushings.

- Insert the bushing into the sprocket/sheave hub and align the holes. All of the holes should be half threaded. The installation holes will be threaded on the sprocket side, but not the bushing side. The removal holes will be threaded on the bushing side, but not the sprocket side. See Figure 1 below.
- 3. "LIGHTLY" oil the bolts and thread them into the half-threaded installation holes indicated by the white installation holes in Figure 1.



Figure 1 – Taper–Lock Bushing Installation Diagrams

Note: Do not lubricate the bushing taper, hub taper, bushing bore, or the shaft. Doing so may result in sprocket/sheave hub fracture. DO NOT USE LUBRICANTS.

4. With the key resting in the shaft keyway, position the sprocket/sheave and bushing assembly onto the shaft allowing for small axial movement of the sprocket/sheave which will occur during the tightening process.

Note: When mounting sprockets/sheaves on a vertical shaft, precautions must be taken to positively prevent the sprocket/sheave and/or bushing from falling during installation.

5. Alternately torque the bushing bolts until the sprocket/sheave and bushing tapers are completely seated together (use approx. half of the recommended bolt torque; see Table 1).

Note: Do not use worn hex key wrenches. Doing so may result in a loose assembly or may damage bolts.

- 6. Check the alignment and axial sprocket/sheave run out (wobble), and correct as necessary.
- 7. Continue alternate tightening of the bolts to the recommended torque values specified in Table below.

MAINTENANCE

Taper-Lock® Bushings

•		-		
Bushing		Bolts		Torque Wrench
Style	Qty.	Size	lb-ft	lb-in
1008	2	1/4-20 x 1/2	4.6	55
1108	2	1/4-20 x 1/2	4.6	55
1210	2	3/8-16 x 5/8	14.6	175
1610	2	3/8-16 x 5/8	14.6	175
2012	2	7/16-14 x 7/8	23.3	280
2517	2	1/2-13 x 1	35.8	430
3020	2	5/8-11 x 1 1/4	66.7	800
3525	3	1/2-13 x 1 1/2	83.3	1000
4030	3	5/8-11 x 1 3/4	141.7	1700
4535	3	3/4-10 x 2	204.2	2450
5040	3	7/8-9 x 2 1/4	258.3	3100
6050	3	1 1/4-7 x 3 1/2	651.7	7820
7060	4	1 1/4-7 x 3 1/2	651.7	7820

Caution: Excessive bolt torque can cause sprocket/sheave and/or bushing breakage.

Note: To insure proper drive performance, full bushing contact on the shaft is recommended.

Table 1 – Taper–Lock Bushing Bolt Torque Values

- 8. To increase the bushing gripping force, firmly tap the face of the bushing using a brass drift or punch (Do not hit the bushing directly with the hammer).
- 9. Re-torque the bushing bolts after Step 8. After reaching the recommended bolt torque value once, stop. Continued tightening to the recommended torque level will over insert the bushing.
- 10. Recheck all bolt torque values after the initial drive run-in, and periodically thereafter. Repeat steps 5 through 9 if loose.

TAPER-LOCK® Bushings Removal

- 1. Loosen and remove all mounting bolts.
- 2. Insert bolts into all jack screw holes indicated by dark removal holes in Figure 1 on page 1.
- 3. Loosen the bushing by alternately tightening the bolts in small but equal increments until the tapered sprocket/sheave and bushing surfaces disengage.

MAINTENANCE

QD® Bushing and XT® Bushing

QD® bushing installation is critical to good belt drive performance. Improper installation can damage the bushing and/or the sprocket/sheave. Sprockets/sheaves are commonly mounted to a shaft with a tapered bushing that fits a mating tapered bore in the sprocket/sheave. Bushings are available in numerous bore diameters to accommodate a broad range of shaft sizes used in industry.



Figure 2 – Conventional and Reverse Mounting

Conventional mounting is accomplished by placing the bolts through the sprocket/sheave first and then threading into the bushing. The assembly is then placed onto the shaft with the bushing flange facing inward and the bolt heads facing outward. See Figure 2.

Reverse mounting is accomplished by placing the bolts through the bushing first and then threading into the sprocket/sheave. The assembly is then placed onto the shaft with the sprocket/sheave facing inward and the bolt heads facing outward. See Figure 2. Conventional mounting is generally the preferred method.

QD® or XT® Bushing Installation

1. Clean the shaft, bushing bore, outside of bushing and the sprocket/sheave hub bore of all oil, paint and dirt. File away any burrs.

Note: Do not lubricate the bushing taper, hub taper, bushing bore or the shaft. Doing so may result in sprocket/sheave hub fracture. DO NOT USE LUBRICANTS.

2. For a *conventional mount*, assemble the sprocket/sheave and bushing combination by sliding the sprocket/sheave taper bore into position over the mating tapered bushing surface. Align the unthreaded holes in the sprocket/sheave hub with the threaded holes in the flange of the bushing. Hand-tighten the cap screws with lock washers installed. The sprocket/sheave and bushing assembly will mount onto the shaft, with the bushing flange facing inward.

Some sprocket/sheave assemblies will allow a reverse mount procedure. This results in the bushing flange facing outward, but still allows the cap screw installation from the outside of the assembly. The cap screws fit through the unthreaded holes of the bushing flange and into the threaded holes of the sprocket/sheave hub.

3. With the key resting in the shaft keyway, position the assembly onto the shaft allowing for small axial movement of the sprocket/sheave, which will occur during the tightening process.

When installing large or heavy parts in a conventional mount, it may be easier to mount the key and bushing on the shaft first, then place the sprocket/sheave on the bushing and align the holes.

Note: When mounting sprockets/sheaves on a vertical shaft, pre-cautions must be taken to prevent the sprocket/sheave and/or bushing from falling during installation.

- 4. Alternately tighten the cap screws until the sprocket/sheave and bushing tapers are completely seated together (use approx. half of the recommended bolt torque; see Table 2).
- 5. Check the alignment and axial sprocket/sheave run out (wobble), and correct as necessary.
- 6. Continue alternate tightening of the cap screws to the recommended torque values specified in Table 2 below. Do not tighten cap screws further once the recommended torque is reached.

Note: Excessive bolt torque can cause sprocket/sheave and/or bushing breakage. When properly mounted, a gap between the bushing flange and sprocket/sheave should exist.

-				
Bushing		Bolts (in)		Torque Wrench
Style	Qty.	Size	lb-ft	lb-in
Н	2	1/4 x 3/4	7.9	95
JA	3	10-24 x 1	4.5	54
SH & SDS	3	1/4-20 x 1 3/8	9.0	108
SD	3	1/4-20 x 1 7/8	9.0	108
SK	3	5/16-18 x 2	15.0	180
SF	3	3/8-16 x 2	30.0	360
E	3	1/2-13 x 2 3/4	60.0	720
F	3	9/16-12 x 3 5/8	75.0	900
J	3	5/8-11 x 4 1/2	135.0	1620
М	4	3/4-10 x 6 3/4	225.0	2700
Ν	4	7/8-9 x 8	300.0	3600
Р	4	1-8 x 9 1/2	450.0	5400
W	4	1 1/8-7 x 11 1/2	600.0	7200
S	5	1 1/4-7 x 15 1/2	750.0	9000

QD® Bushings Bolt Torque Values

Caution: Excessive bolt torque can cause sprocket/sheave and/or bushing breakage. Note: To insure proper drive performance, full bushing contact on the shaft is recommended.

XT® Bushings Bolt Torque Values

Bushing		Bolts (in)	Torque Wrench
	Qty.	Size	lb-ft
XTB15	4	1/4-20 NC	7.9
XTB20	4	5/16-18 NC	16.7
XTB25	4	3/8-16 NC	29.2
XTB30	4	7/16-14 NC	45.8
XTB35	4	1/2-13 NC	70
XTB40	4	9/16-12 NC	100
XTB45	4	5/8-11 NC	140
XTB50	4	3/4-10 NC	250
XTB60	4	7/8-9 NC	400
XTB70	4	1-8 NC	600
XTB80	4	1-1/8-7 NC	750
XTB100	6	1-1/8-7 NC	750
XTB120	8	1-1/8-7 NC	750

Table 2 – QD and XT Bushing Bolt Torque Values

7. Tighten the set screw, when available, to hold the key securely during operation.

MAINTENANCE

QD® or XT® Bushing Removal

- 1. Loosen and remove all mounting bolts.
- 2. Insert cap screws into all threaded jack screw holes.
- 3. Loosen the bushing by first tightening the screw furthest from the bushing saw slot, then, alternately tighten remaining screws. Keep tightening the screws in small but equal increments until the tapered sprocket/sheave and bushing disengage.

Note: Excessive or unequal pressure on the bolts can break the bushing flange, making removal impossible without destroying the sprocket/sheave.

MAINTENANCE

V-BELT

GENERAL RULES

- 1. Replace worn sheaves to prevent belt slippage and turnover.
- 2. Install and maintain sheave alignment to within 1/2 degree, or 1/8" per foot center distance.
- 3. Never mix old belts and new belts on the same drive. Never mix belts from different manufacturers on the same drive.
- 4. The ideal belt tension is the lowest tension at which the belts will not slip under peak load conditions.
- 5. Recheck belt tension during the first 24-48 hours of operation.
- 6. Excessive belt tension will shorten belt and bearing life.
- 7. Keep belts free of foreign material. Do no use belt dressing; this deteriorates the belt, causing early failure.



TENSIONING PROCEDURE:

- 1. Measure the belt span. (See above drawing)
- 2. At the center of the SPAN LENGTH, apply a force (perpendicular to the span) great enough to deflect the belt 1/64" per inch of span length. For example, deflection of a 100" span would be 100/64 or 1-9/16". If this is a single-belt drive, use a straight-edge or taught string as a reference.
- 3. Estimate the deflection force required to deflect the belt this amount.
- 4. Compare this force with the value given in TENSIONING CHART. NOTE: Approximate drive speed ratio can be determined by dividing the O.D. of the large sheave by the O.D. of the small sheave. (See next page)
- 5. If the force is below the recommended value, increase the drive center distance to provide greater belt tension. Reduce the center distance if there is too much force.
- After the proper operating tension has been applied to the belts, a double check should be made to the following:
 A) Parallel position of the sheave shafts.
 - B) Correct alignment of sheave grooves.

MAINTENANCE

V-BELT (continued)

Belt Tension Table

	Small Sh	eave		Deflection F	orce in lbs. f	or
V-Belt	Speed			Drive Spe	ed Ration of:	
Section	Range	Dia.	1.0	1.5	2.0	4.0+
3VX	1200-3600	2.2	2.2	2.5	2.7	3.0
	1200-3600	2.5	2.6	2.9	3.1	3.6
	1200-3600	3.0	3.1	3.5	3.7	4.2
	1200-3600	4.1	3.9	4.3	4.5	5.1
	1200-3600	5.3	4.6	4.9	5.1	5.7
	1200-3600	6.9	5.0	5.4	5.6	6.2
5VX	1200-3600	4.4	6.5	7.5	8.0	9.0
	1200-3600	5.2	8.0	9.0	9.5	10.0
	1200-3600	6.3	9.5	10.0	11.0	12.0
	1200-3600	7.1	10.0	11.0	12.0	13.0
	900–1800	9.0	12.0	13.0	14.0	15.0
	900-1800	14.0	14.0	15.0	16.0	17.0
8VX	900–1800	12.5	18.0	21.0	23.0	25.0
	900–1800	14.0	21.0	23.0	24.0	28.0
	700–1500	1 7.0	24.0	26.0	28.0	30.0
	700-1500	21.2	28.0	30.0	32.0	34.0
	400-1000	24.8	31.0	32.0	34.0	36.0
5V	900–1800	7.1	8.5	9.5	10.0	11.0
	900–1800	9.0	10.0	11.0	12.0	13.0
	900–1800	14.0	12.0	13.0	14.0	15.0
	700–1200	21.2	14.0	15.0	16.0	17.0
8V	900–1800	12.5	18.0	21.0	23.0	25.0
	900–1800	14.0	21.0	23.0	24.0	28.0
	700–1500	17.0	24.0	26.0	28.0	30.0
	700–1200	21.2	28.0	30.0	32.0	34.0
	400-1000	24.8	31.0	32.0		36.0

<u>Note</u>: 1. Use approximately 130% of above values to tension a new set of belts. 2. Use closest sheave dia, for sizes not shown

	Small St	neave	D	eflection Fo	rce in lbs.	for
V-Belt	Speed			Drive Spee	ed Ratio of	
Section	Range	Dia.	1.0	1.5	2.0	4.0+
A	1800-3600	3.0	2.0	2.3	2.4	2.6
(AP)	18003600	4.0	2.6	2.8	3.0	3.3
	1800-3600	5.0	3.0	3.3	3.4	3.7
	1800-3600	7.0	3.5	3.7	3.8	4.3
В	1200–1800	4.6	3.7	4.3	4.5	5.0
(BP)	1200–1800	5.0	4.1	4.6	4.8	5.6
	1200–1800	6.0	4.8	5.3	5.5	6.3
	1200–1800	8.0	5.7	6.2	6.4	7.2
C	900–1800	7.0	6.5	7.0	8.0	9.0
(CP)	900–1800	9.0	8.0	9.0	10.0	11.0
	900–1800	12.0	10.0	11.0	12.0	13.0
	700–1500	16.0	12.0	13.0	13.0	14.0
D	900–1500	12.0	13.0	15.0	16.0	17.0
(DP)	900-1500	15.0	16.0	18.0	19.0	21.0
	700–1200	18.0	19.0	21.0	22.0	24.0
	700–1200	22.0	22.0	23.0	24.0	26.0
AX	18003600	3.0	2.5	2.8	3.0	3.3
	1800–3600	4.0	3.3	3.6	3.8	4.2
	1800-3600	5.0	3.7	4.1	4.3	4.6
	18003600	7.0	4.3	4.6	4.8	5.3
BX	1200-1800	4.6	5.2	5.8	6.0	6.9
	1200–1800	5.0	5.4	6.0	6.3	7.1
	1200–1800	6.0	6.0	6.4	6.7	7.7
	1200–1800	8.0	6.6	7.1	7.5	8.2
CX	900–1800	7.0	10.0	11.0	12.0	13.0
	900–1800	9.0	1 1.0	12.0	13.0	14.0
	900–1800	12.0	12.0	13.0	13.0	14.0
	700–1500	16.0	13.0	14.0	14.0	15.0
	900-1500	12.0	16.0	18.0	19.0	20.0
	900–1500	15.0	19.0	21.0	22.0	24.0
	700–1200	18.0	22.0	24.0	25.0	27.0
	700–1200	22.0	25.0	27.0	28.0	30.0

MAINTENANCE

Synchronous Belt

Drive Alignment

When installing a belt, never force it over the flange. This will cause internal damage to the belt tensile member.

Misalignment does not allow equal load distribution across the entire belt top width. In a misaligned drive, the load is being carried by only a small portion of the belt top width, resulting in uneven belt wear and premature tensile failure. There are two types of misalignment: parallel and angular (See Fig. Below).



Parallel misalignment is where the driveR and driveN shafts are parallel, but the two sprockets lie in different planes. When the two shafts are not parallel, the drive is angularly misaligned. A fleeting angle is the angle at which the belt enters and exits the sprocket, and equals the sum of the parallel and angular misalignments. Any degree of sprocket misalignment will result in some reduction of belt life, which is not accounted for in the normal drive design procedure. Misalignment of all synchronous belt drives should not exceed 1/4° or 1/16" per foot of linear distance. Misalignment should be checked with a good straight edge or by using a laser alignment tool. The straight edge tool should be applied from driveR to driveN, and then from driveN to driveR so that the total effect of parallel and angular misalignment is made visible.

Drive misalignment can also cause belt tracking problems. However, light flange contact by the belt is normal and won't affect performance. For those drives in which the center distance is greater than eight times the small sprocket diameter, belt tracking can be a problem. In these cases, the parallel position of the two sprockets may need to be adjusted until only one flange guides the belt in the system and the belt tracks fully on all sprockets. Regardless of the drive center distance, the optimum drive performance will occur with the belt lightly contacting one flange in the system. The worst case is for the belt to contact flanges on opposite sides of the system. This traps the belt between opposite flanges and can force the belt into undesirable parallel misalignment.

Improper installation of the bushing can result in the bushing/ sprocket assembly being "cocked" on the shaft. This leads to angular misalignment and sprocket wobble. Be sure to follow the instructions in the taper-lock bushing section.

MAINTENANCE

Belt Installation

During the belt installation process, it is very important the belt be fully seated in the sprocket grooves before applying final tension. Serpentine drives with multiple sprockets and drives with large sprockets are particularly vulnerable to belt tensioning problems resulting from the belt teeth being only partially engaged in the sprockets during installation. In order to prevent these problems, the belt installation tension should be evenly distributed to all belt spans by rotating the system by hand. After confirming that belt teeth are fully engaged in the sprocket grooves, belt tension should be rechecked and verified. Failure to do this may result in an under tensioned condition with the potential for belt ratcheting.

Belt Tension

Standard Belt Tensioning Procedure When installing a Gates belt:

- A. Be sure it is tensioned adequately to prevent tooth jumping (ratcheting) under the most severe load conditions which the drive will encounter during operation.
- B. Avoid extremely high tension which can reduce belt life and possibly damage bearings, shafts and other drive components. The proper way to check belt tension is to use a tension tester. Gates has a variety of tension testers, ranging from the simple spring scale type tester to the sophisticated Sonic Tension Meter. The spring scale type tester is used by measuring how much force is required to deflect the belt at the center of its span by a specified distance (force deflection method), as shown in the sketch below. See table below for values.



The Sonic Tension Meter measures the vibration of the belt span and instantly converts the vibration frequency into belt static tension (span vibration method). See table below for values.

	Belt Te	nsion - Force Deflectio	n and Sonic Te	ension Table		
Belt	Pulley Center	Deflection Distance	Deflectio	n Force	Sonic Tension N	Meter Frequency
Den	Distance	Deficetion Distance	New Belt	Used Belt	New Belt	Used Belt
8MGT-1120-12	10.63 IN	0.16 IN	19-21 LB	14-16 LB	286-298 HZ	244-259 HZ
8MGT-960-62	9.64 IN	0.15 IN	78-85 LB	58-65 LB	280-293 HZ	239-254 HZ
8MGT-1040-62	10.05 IN	0.15 IN	100-108 LB	74-82 LB	308-321 HZ	262-278 HZ

CONVEYOR BELT

LOADING THE BELT

- 1. Keep heavy loads of material off the belt at feed hoppers. For example, do not allow a long chute full of material to come to rest on the belt, nor should a bin or large hopper be allowed to open directly on to the belt without some kind of flow control device metering out the amount of material entering onto the belt unless discussed with manufacturers engineering department. It is NOT GOOD PRACTICE TO USE YOUR UNIVEY® UNIVERSAL BELT CONVEYOR AS A METERING DEVICE. There are heavy-duty belt feeders designed for metering out materials from under bins. These feeders usually have variable speed, are limited in length and are extra heavy duty. Try to arrange incoming material chutes in such a way as to allow material to flow freely onto belt and in such a direction as to help the material achieve belt speed without undue tumbling or churning. Longer belt life will result from using only rubber or urethane hopper skirting material. Using fabric-reinforced material or belting causes abrasion damage. Universal Industries does supply metering devices for some units in particular applications.
- 2. Do not allow material to fall long distance and thereby gain high speeds as they approach the belt. Undue belt wear and leakage around hopper seals may result.
- 3. Load the belt evenly, with no offset of material to one side of belt. This will aid improper belt tracking.
- 4. For maximum capacity, feed incoming product directly onto the moving belt or as close to that point as possible.



BEWARE OF THE HAZARDS OF LOOSE CLOTHING.

UNLOADING THE BELT

1. End discharge over the head pulley is rather simple, but reasonable attention is necessary to prevent bins and chutes from overfilling and plugging material backing up against the moving belt. This is particularly damaging to the belt if the material is lumpy or abrasive, such as gravel or rock.

OPERATING THE BELT

- 1. Most UNIVEY® Universal Belt Conveyor can be stopped and started under full load. However, if stopping and starting occurs more than two to four times an hour the motor and drive belts may have to be over-sized.
- 2. Replacement belting should be as transversely flexible or "troughable" as that which was provided originally. It should also be rated for the diameter of pulleys used, and for the amount of oil or other chemicals used in each particular installation.
- 3. Cleanliness can add to the life of belt, idlers, drive and framework. Check for and repair loose hardware, rusting conditions and any potentially unsafe situations in order to reduce your long-term costs.

BELT TRACKING

On your UNIVEY® Universal Belt Conveyor there will be push bolts located at almost all pulley locations. These push the pulley up and down or back and forth, which in turn will move your belt from one side to the other (right & left). For optimum performance and life of belt the belt needs to run as close to center as possible (not rubbing on component panels).

The locations that will require regular belt tracking are the head, tail and center drive (if equipped).

EXAMPLE: While standing at the tail, your belt is running to the left side, you will first loosen the bearing bolts, then adjust the pulley back (creating more tension) on the left side or adjust the pulley forward (creating less tension) on the right side.

NOTE: Make small adjustments and run belt several rotations between adjustments. New belts will require several adjustments during break in period, which is normally 8 to 12 operating hours.

On a center drive, the take-up pulley does most of the work, therefore this is generally the only pulley in the center drive you will need to adjust.

SECTION 9 BELT SPLICE

CONVEYOR BELT



 (a) Square belt using centerline method. (b) Cut belt using Alligator®
 300 Series Wide Belt cutter or Clipper®
 845LD Belt Cutter



4. Center fastener strip in installation tool. (a) Cam lever(s) should be up.



7. Drive belt ends next. Raise cam lever(s). Reposition tool, repeating step5. Strike staple driver with a 1 lb. (0.5 kg) hammer.



2. Select correct fastener size. See installation tool setup instructions. (a)Skive rough-top belt using Flexco skiving products.



5. Belt end should be tight against the fastener (a) belt stops and fastener strip should be tight against the tool. (b) Depress cam lever(s).



8. Follow the sequence shown above to drive all remaining fasteners. (a) Staples will be partially clinched.



 Place belt on solid surface for support. Center fastener strip, equal distance from the belt ends.
 (a) Staples should be facing up.



6. Starting with the center fastener plates, strike (a) staple driver with a 1 lb. (0.5 kg) hammer. Do not overdrive staples.



9. Set fastener strip flat on ST-28 setting plate. Strike top-side of fasteners and staples with firm hammer blows. Move back and forth across fastener strip until (a) staples clinch. Avoid hitting fastener loops. Repeat steps 1-9 on other belt end.



10. Using Belt Nippers, (a) notch trailing edge of belt only. Notch at an angle.



11. Bring belt ends together and (a) insert hinge pin. If retaining washer is used, crimp with pliers. Splice is complete.

TROUBLESHOOTING

PROBLEM	CAUSE	SOLUTION
Conveyor will not run.	Conveyor belt loose.	Tighten and track belt (check spring tension on S-Drive).
	Conveyor belt slipping.	Tighten and track belt.
	Drive belts or chain loose.	Tighten the belts or chain.
	Drive belts slipping.	Tighten or replace drive belts.
	Drive belts or chain worn. Drive Belts can become glazed.	Replace belts or chain and retension.
	Belt frozen to the trough.	Clear all snow and ice away from intake end before startup. Run empty after use to allow belt to dry.
	Belt stuck.	After extended down time, rust can build up under the belt. Loosen belt tension and pull or pry belt loose.
	No power.	Check all power supplies.
	Obstruction	Check for foreign object in the trough, head and drive system.
Excessive leakage at the hopper.	Skirting worn out or out of position.	Replace or reposition skirting.
	Belt tracking.	Track belt to center.
Excessive leakage at the head.	Belt speed to fast or slow.	Reduce or increase belt speed.
	Belt tracking.	Track belt to center.
	Product is getting under the belt.	Check belt tension. Check for torn or worn belt. Replace or retension.
Belt runs backwards.	Wired incorrectly.	Reverse wiring
	Mechanical failure.	Check for froze bearings, sheared keys, bent shafts, worn sprockets or pulleys out of position
	Belt caught.	Check for torn or damaged belt or belt splice caught on something. Replace belt or belt splice.
Conveyor belt is frayed or torn.	Belt is not tracked.	Track belt so that it runs centered and does not rub any panels.
	Worn or broken metal	Check head, tail, drive and tube joints for wear or misalignment. Replace or repair as necessary.

TROUBLESHOOTING

SECTION 10

PROBLEM	CAUSE	SOLUTION
Poor or diminished capacity.	Angle too steep (as incline increases, capacity decreases)	Reposition with less angle if possible.
	Belt speed too slow.	Increase operating speed.
	Electric motor is wired incorrectly.	Check wiring for correct rotation.
Belt will not track to center	Component misalignment.	Be sure that all components (head, tail, s-drive) are aligned with each other. Loosen hardware and adjust, then retighten. (Use of a level will be required.)
	Frame misalignment	Look down frame, if unit hooks to the left or right. Straighten Frame.
	Belt Tension	Tighten belt
	Worn Components	Replace

SOURCES OF STANDARDS AND CODES

The Universal Industries, Inc. expects the customer/owner of supplied equipment to comply with all applicable safety code standards, and good practices. Below is a list of organizations that publish various standards that may apply to your machine. This list is included for your convenience, does not necessarily contain all codes and standards, and is to be periodically updated by you.

Universal Industries, Inc. recommends that owners and operators make an effort to keep themselves informed on the topic of safety. Standards are constantly evolving and it requires vigilance to remain fully informed.

Here is a list of some of the various standards that are categorized by subject of concern:

SAFETY CONCERN	ORGANIZATION AND PUBLICATION SECTION
Altering Safety Characteristics	ANSI B20.1 paragraph 5-12.7
Drive Guards	OSHA 1910.219m; 217c2b
Electrical	NEC; OSHA 1910.300
Emergency Stop Switches	ANSI B20.1 paragraph 5-11.2c
Lock Out Hazardous Energy Sources	OSHA 1910.147
Point of Operation	OSHA 1910.212a3; 217c2b; ANSI B20.1 paragraph 5.09.1.1
Guards and Covers; Shafting, Shaft Ends, Couplings, Guards	OSHA 1910.219; .219c4; .219I
Interfacing Machines	ANSI B20.1 paragraph 5-11c

For additional copies write: Universal Industries, Inc. • PO Box 308 • Cedar Falls, IA 50613

Addresses of some of the various societies publishing rules, regulations and recommended practices:

American Society of Agricultural Engineers (ASAE) 2950 Niles Road St. Joseph, MI 10018	Factory Mutual Engr. Corp. (FM) P. O. Box 9102 Norwood, MA 02062 Phone: (781) 440-8000
American National Standards Institute (ANSI) 25 West 43rd Street, 4th Floor New York, NY 10036 Phone: (212) 642-4900	Society of Automotive Engineers (SAE) 400 Commonwealth Drive Warrenberg, PA 15096
National Fire Protection Association (NFPA) (Publisher of the National Electrical Code)(NEC) P.O. Box 9101 Quincy, Massachusetts 02269-9101	Underwriters Laboratories (UL) 207 East Ohio Street Chicago, IL 60611
Phone: (800) 344-3555	American Society for Testing and Materials (ASTM) 100 Barr Harbor Drive
American Society of Mechanical Engineers (ASME) 345 East 47th Street New York, NY 10017	West Conshohocken, PA 19428-2959 Phone: (610) 832-9585
U.S. Department of Agriculture (USDA) 14th Street and Independence Avenue, S.W. Washington, DC 20250	OSHA, Office of Mechanical Engineering Safety Stan- dards, Room N 3621 OSHA Dept. of Labor 200 Constitution N.W. Washington, DC 20210

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