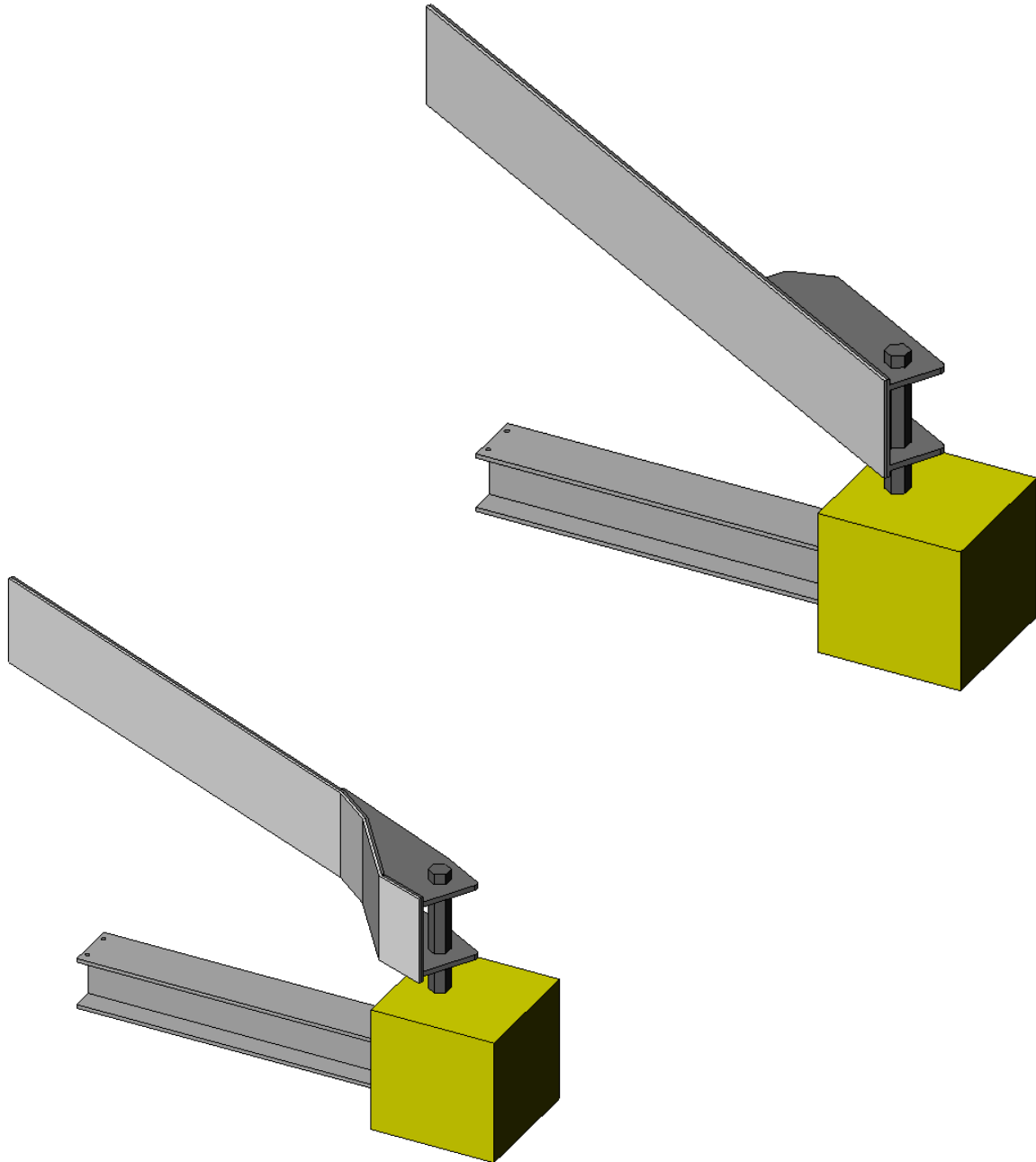




**METZGAR**  
CONVEYORS

# M45 / M60 Series Sortation Device Installation and Maintenance Manual



# METZGAR CONVEYORS

## SAFETY PRECAUTIONS

**WARNING: DO NOT ATTEMPT MAINTENANCE ON ANY CONVEYORS WHILE IN OPERATION.**

### BEFORE STARTING MAINTENANCE:

1. Maintenance functions are to be performed while the conveyor is off. The main power switch to the conveyor should be locked in the off position. This will prevent anyone from applying power to the system while maintenance personnel are at work.
2. Never work on a conveyor while it is running, unless maintenance procedure requires operation. When a conveyor must be operating to perform the maintenance; allow only properly trained maintenance personnel to work on the conveyor.

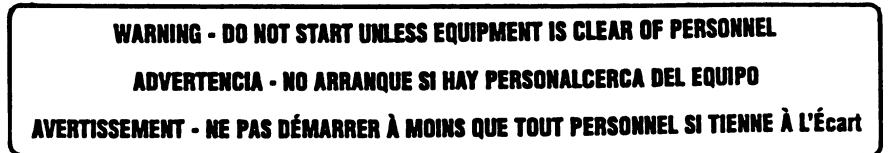
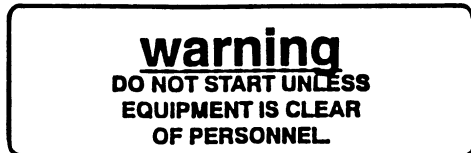
### DURING MAINTENANCE:

1. Do not wear loose clothing while performing maintenance on operating equipment.
2. Be aware of hazardous conditions, such as sharp edges and protruding parts.
3. When using hoists, cables or other mechanical equipment to perform maintenance, use care to not damage conveyor components. Mis-aligned parts are dangerous as conveyor is started after maintenance is completed.
4. Keep area clean. Clean up lubricants and other materials before starting conveyor.

### AFTER MAINTENANCE:

1. Before starting any conveyor after maintenance is completed, walk around the equipment and make certain all safety devices and guards are in place, pick up tools, maintenance equipment and clear any foreign objects from equipment-
2. Make certain all personnel are clear of the conveyor and made aware that the conveyor is about to be started.
3. Only authorized personnel should be allowed to start any conveyor following maintenance or emergency shut-off.

**PLEASE RECOGNIZE ALL WARNING STICKERS AND OBEY ANY SAFETY INSTRUCTIONS  
WARNING STICKERS ARE PLACED FOR YOUR SAFETY – PLEASE DO NOT REMOVE**



CONDITIONS DO EXIST ON ANY CONVEYOR THAT CAN CAUSE INJURY TO PERSONNEL. NO MANUAL CAN COVER ALL THE HAZARDOUS CONDITIONS THAT MIGHT DEVELOP. THEREFORE, PERSONNEL INVOLVED SHOULD BE CONSTANTLY ON THE ALERT FOR UNSAFE CONDITIONS AND USE ALL POSSIBLE CARE, ALONG WITH COMMON SENSE AND STRICT ADHERENCE TO ACCEPTED SAFETY STANDARDS TO ESCAPE INJURY.

It is hereby understood and agreed that \_\_\_\_\_

Agrees to hold Metzgar Conveyors, Employees, Leased Contractors, Affiliates, Officers, Directors, Agents and Insurance Carriers harmless against all claims, action and demands of any third persons, just or unjust, for all personal and/or bodily injuries and/or property damage due to the Customer or Customer's employees negligence/alteration of equipment.



**Initial Inspection:**

- 1) Sub-assemblies are packaged for shipment using combinations of wood, corrugated cardboard and steel strapping. After unpacking, please inspect all hoses for loose connections or damage that may have occurred during shipment. Tighten any loose bolts and nuts.
- 2) Check to be certain that the following components are included: solenoid operated air valve with electrical cord, mounting hardware package and covers with caution labels.  
(Note: certain orders may include filter-regulator unit with shut off valve)
- 3) An adapter bracket may also be included on the unit, depending on the style of side frame used on the conveyor.
- 4) The Metzgar Model M 60 unit will include a separate backstop angle with bumper to be mounted as described in the installation section of this document.
- 5) Once inspection has been completed, you are ready to install the Metzgar Model M45 or Metzgar Model M60 sortation device.

**Mechanical Installation:**

- 1) If the Model M 45 or Model M 60 device requires an adapter bracket for mounting to your conveyor, it will be shipped attached to the unit.
- 2) Locate the Metzgar sortation device per the system layout or opposite the take away chute (Metzgar Model M 60) or the take away spur (Metzgar Model M 45). The I-beam will extend across the bottom of the conveyor and bolt to the bottom flanges of the conveyor channel  
(Note: holes may have to be field drilled to match the holes in the mounting bracket and I-beam).  
Two 3/8-inch diameter mounting bolts should be used on each side of the conveyor to attach the I-beam.  
The sortation device should also be attached to the side or top flange of the conveyor side frame through two holes located in the device or adapter bracket; the device should be secured with two 3/8-inch diameter bolts.  
Be sure that all mounting bolts are tightened properly.
- 3) Adjust the arm height, for a Model M 60 to 1/2" above belt. To make this adjustment, loosen the setscrews in the bearing collars on the arm and move the arm up or down as necessary. When adjustments are complete re-tighten the setscrews. If the Model M 60 arm is equipped with the optional air assist feature, locate the arm within 1/8" of top of belt.
- 4) The Model M 60 will include a backstop angle with bumper. Mount this stop assembly to the side channel of the sortation conveyor, near the end of the Model M 60 arm. It should be positioned so the back of the divert arm strikes the bumper in its "home" position.
- 5) Mount a filter regulator unit as close as possible to the valve.
- 6) Use 1/2" O.D. tubing to supply air from the regulator outlet to the air valve inlet. Do not use fittings that will reduce the air volume. It is important to supply dry air at consistent pressure to the regulator to achieve good performance from your Metzgar sortation device.
- 7) Start cycling the unit at 40 PSI. After several cycles, increase the pressure to a maximum of 80 PSI.  
During test cycling, you may need to adjust the unit in order to achieve smooth operation.  
Adjustment is done using the two flow controls mounted at each end of one of the cylinders.  
Begin making adjustments by closing both the flow controls completely, then open both flow controls in half turn increments until the arm moves out and back in a smooth motion. Always adjust both flow controls by equal amounts.  
The ideal test pressure for checking this motion is 80 PSI.  
Units are aligned and tested at the factory but the flow controls are not adjusted precisely.
- 8) After operating the unit for several cycles, recheck all fittings and bolted connections.

**Electrical Installation:**

The Metzgar Model M 45 / M 60 units are equipped with a single solenoid two position air valve (120 volt AC standard or 24 volt DC optional).

An electrical signal to the valve coil will cause the M 45 / M 60 arm to pivot across the conveyor and the removal of the electrical signal will cause the M 45 / M 60 arm to return to the home position. Therefore, the time duration of this signal will control the stroke of the arm within its maximum physical limits.

The Model M 60 is designed to rapidly push the product off of the conveyor into a chute as the product passes; therefore the divert signal will need to be given as the product approaches the center of the arm/chute, and removed just prior to the cylinders bottoming out, for the smoothest and highest cycle rates.

The Model M 45 is generally used more as a high speed plow, diverting onto a powered spur, therefore the divert signal will need to be given just as the product reaches the bow-arm, and removed when the spur has adequate control of the product to pull it away.

**Cycling units at too short of a signal will create a rapid, uncushioned return and may cause damage to the cylinders.**



**Mechanical Maintenance:**

Item	Schedule	Service
Fasteners	Every 3 Months	Verify all nuts and bolts are tight
Rod Ends	Every 3 Months	Lubricate with light oil where the bolt passes thru
Upper and Lower Bearings	Every 3 Months	Lubricate with all purpose grease
Rod End Connector	Every 3 Months	Lubricate with all purpose grease
Air Cylinder and Valve	Every 3 Months	Check for wear and air leaks
Internal Bumpers	Every 3 Months	Check for cracks or wear.

Note:  
The Sortation units are rated for a high cycle rate at 80 PSI, extended life may be obtained by operating at lower pressures.

**Electrical Maintenance:**

**WARNING: DISCONNECT ALL POWER BEFORE PERFORMING THE FOLLOWING MAINTENANCE. ONLY A QUALIFIED ELECTRICIAN OR AN ELECTRICAL TECHNICIAN SHOULD PERFORM THE FOLLOWING MAINTENANCE.**

Item	Schedule	Service
Control Panels and Pushbutton Enclosures	Always	Enclosures should be Clean and Dry
	100 Hours and 2000 Hours	Check if components have Vibrated Loose Check Door/Power interlocks and Latches
	At Start-up, Monthly or if any problems Occur.	Check for Loose or Discolored Wires (Discolored Wires Indicate an Excessive Current Draw)
Photoeyes	At Start-up and 2000 Hours	Dust, Oil and Foreign Objects should be wiped from lens and Reflectors
Limit Switches	100 Hours and 2000 Hours	Check Arms for Adjustment and Tightness
Pushbuttons	100 Hours and 2000 Hours	Check Wires and Terminals for Tightness
Emergency Stop Devices	100 Hours and 2000 Hours	Check for Proper Operation
Conduit and Conduit Hangers	2000 Hours	Check for alignment and Damage, Exposed Wiring
Wiring	At Start-up, Monthly or if any problems Occur.	Check for Exposed Cords and Wires for Damage, Replace as Necessary

**Review Spare Parts:**

Review Usage - Excessive Use of parts or replacing the same part several times indicates excessive wear.

**Electrical:**

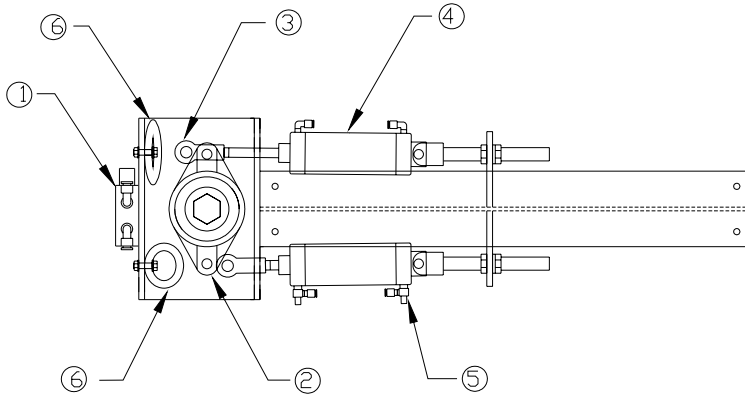
Unit Operates Sporadically	Check Photoeyes	Clean Lens and Check for Proper Alignment
	Check Reflectors	Clean and Check for Proper Alignment
	Limit or Proximity Switches	Check Location and Tightness
	Solenoids	Check Pressure at the Valve and air leaks
	Loose Connections	Check Wire Nuts and Terminal Strip

**DO NOT ATTEMPT MAINTENANCE ON ANY CONVEYOR WHILE IT IS IN OPERATION**

## Sortation Device Replacement Parts:

Locate the device serial number on the unit.

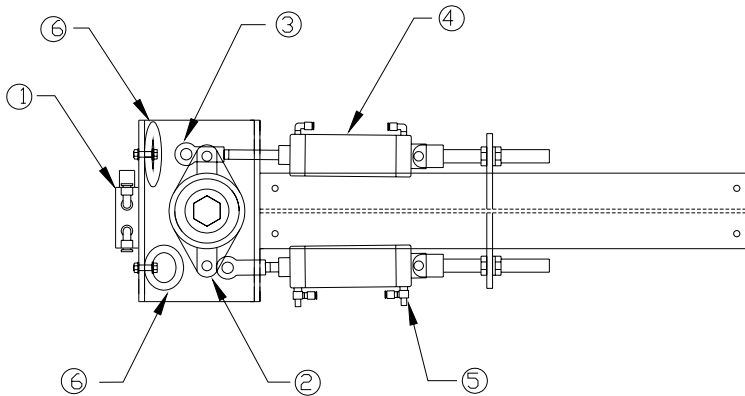
### M45



Item	Description	Part Number	Recommended Spare On Hand
1	Air Valve	M45-VAL86000 *	One
2	Bearing Radial	M45-BER14000	One
3	Rod End Connector	M45-BER14010	One
4	Air Cylinder	M45-CYL38000	One
5	Flow Control	M45-FIT56000	One
6	Bumper GBR-8	M45-BMP26030	One
7	Bumper GBR-6	M45-BMP26000	One

\* = Standard 120vac Valve for 24vdc Use Part Number M45-VAL86060

### M60



Item	Description	Part Number	Recommended Spare On Hand
1	Air Valve	M60-VAL86000 *	One
2	Bearing Radial	M60-BER14000	One
3	Rod End Connector	M60-BER14010	One
4	Air Cylinder	M60-CYL38000	One
5	Flow Control	M60-FIT56000	One
6	Bumper GBR-8	M60-BMP26030	One
7	Bumper GBR-6	M60-BMP26000	One

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