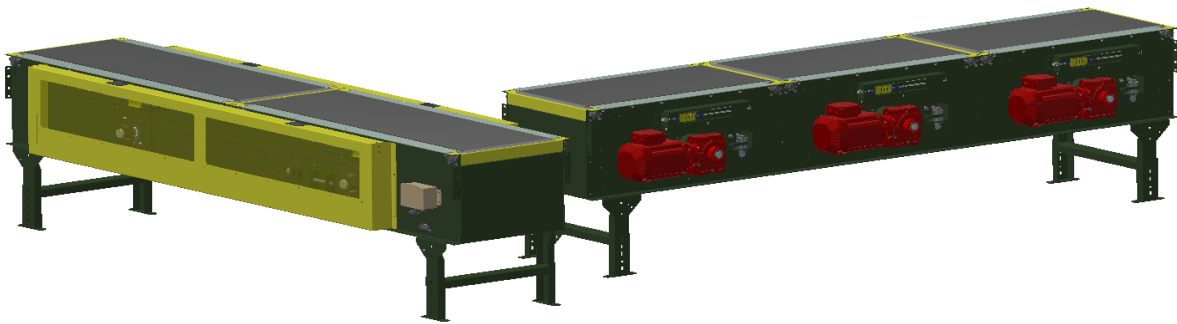




# GAPPER-D AND GAPPER-O INSTALLATION AND MAINTENANCE MANUAL



**MODEL**  
**GAPPER-D AND GAPPER-O**

**BULLETIN**  
**# 761**

**EFFECTIVE DATE**  
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# 1 INTRODUCTION

This manual provides guidelines and procedures for installing, operating, and maintaining your conveyor.

Important safety information is also provided throughout the manual. For safety to personnel and for proper operation of your conveyor, it is recommended that you read and follow the instructions provided in this manual.

## 1.1 RECEIVING & UNCRATING

- Check the number of items received against the bill of lading.
- Examine condition of equipment to determine if any damage occurred during shipment.
- Move all crates to area of installation.
- Remove crating and check for optional equipment that may be fastened to the conveyor. Make sure these parts (or any foreign pieces) are removed.

## 1.2 HOW TO ORDER REPLACEMENT PARTS

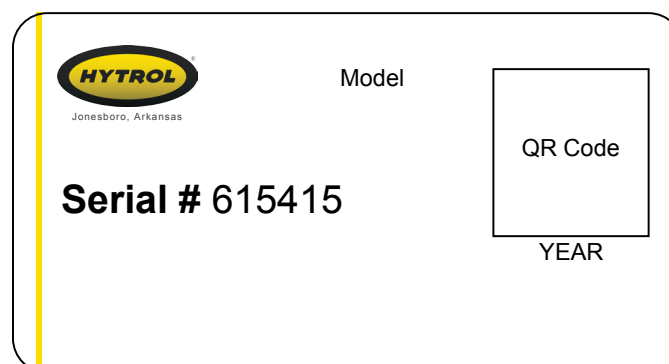
Scan the QR Code or serial number on the labels with the Hytrol Toolbox app for replacement parts. Minor fasteners, such as nuts and bolts, are not included.

When ordering replacement parts:

- Contact dealer from whom conveyor was purchased or nearest Hytrol Integration Partner.
- Give Conveyor **Factory Order Number/Serial Number**.
- Give complete description from **Parts List**.
- If you are in a breakdown situation, call our Customer Care team at 1-844-4HYTROL.

### NOTE:

If damage has occurred or freight is missing, contact your Hytrol Integration Partner.



# 2 SAFETY INFORMATION

## 2.1 INSTALLATION

### GUARDS AND GUARDING

**Interfacing of Equipment:** When two or more pieces of equipment are interfaced, special attention shall be given to the interfaced area to ensure the presence of adequate guarding and safety devices.

**Guarding Exceptions:** Whenever conditions prevail that would require guarding under these standards, but such guarding would render the conveyor unusable, prominent warning means shall be provided in the area or on the equipment in lieu of guarding.

**Guarded by Location or Position:** Where necessary for the protection of employees from hazards, all exposed moving machinery parts that present a hazard to employees at their work station shall be mechanically or electrically guarded, or guarded by location or position.

- Remoteness from frequent presence of public or employed personnel shall constitute guarding by location.
- When a conveyor passes over a walkway, roadway, or work station, it is considered guarded solely by location or position if all moving parts are at least 8 ft. (2.44 m) above the floor or walking surface or are otherwise located so that the employee cannot inadvertently come in contact with hazardous moving parts.
- Although overhead conveyors may be guarded by location, spill guards, pan guards, or equivalent shall be provided if the product may fall off the conveyor for any reason and if personnel would be endangered.

### Headroom

- When conveyors are installed above exit passageways, aisles, or corridors, there shall be provided a minimum clearance of 6 ft. 8 in. (2.032 m) measured vertically from the floor or walking surface to the lowest part of the conveyor or guards.
- Where system function will be impaired by providing the minimum clearance of 6 ft. 8 in. (2.032 m) through an emergency clearance, alternate passageways shall be provided.
- It is permissible to allow passage under conveyors with less than 6 ft. 8 in. (2.032 m) clearance from the floor for other than emergency exits if a suitable warning indicates low headroom.

## 2.2 OPERATION

- A. Only trained employees shall be permitted to operate conveyors. Training shall include instruction in operation under normal conditions and emergency situations.
- B. Where employee safety is dependent upon stopping and/or starting devices, they shall be kept free of obstructions to permit ready access.
- C. The area around loading and unloading points shall be kept clear of obstructions which could endanger personnel.
- D. No person shall ride the load-carrying element of a conveyor under any circumstances unless that person is specifically authorized by the owner or employer to do so. Under those circumstances, such employee shall only ride a conveyor which incorporates within its supporting structure platforms or control stations specifically designed for carrying personnel. Under no circumstances shall any person ride on any element of a vertical conveyor.
- E. Personnel working on or near a conveyor shall be instructed as to the location and operation of pertinent stopping devices.
- F. A conveyor shall be used to transport only material it is capable of handling safely.
- G. Under no circumstances shall the safety characteristics of the conveyor be altered if such alterations would endanger personnel.
- H. Routine inspections and preventive and corrective maintenance programs shall be conducted to ensure that all safety features and devices are retained and function properly.
- I. Personnel should be alerted to the potential hazard of entanglement in conveyors caused by items such as long hair, loose clothing, and jewelry.
- J. Conveyors shall not be maintained or serviced while in operation unless proper maintenance or service requires the conveyor to be in motion. In this case, personnel shall be made aware of the hazards and how the task may be safely accomplished.
- K. Owners of conveyor should ensure proper safety labels are affixed to the conveyor warning of particular hazards involved in operation of their conveyors.

### CAUTION!

Because of the many moving parts on the conveyor, all personnel in the area of the conveyor need to be warned that the conveyor is about to be started.

## 2.3 MAINTENANCE

Refer to ANSI Z244.1-1982, American National Standard for Personnel Protection – Lockout/Tagout of Energy Sources – Minimum Safety Requirements and OSHA Standard Number 29 CFR 1910.147 “The Control of Hazardous Energy (Lockout/Tagout).”

- All maintenance, including lubrication and adjustments, shall be performed only by qualified and trained personnel.
- It is important that a maintenance program be established to ensure that all conveyor components are maintained in a condition which does not constitute a hazard to personnel.
- When a conveyor is stopped for maintenance purposes, starting devices or powered accessories shall be locked or tagged out in accordance with a formalized procedure designed to protect all persons or groups involved with the conveyor against an unexpected start.
- Replace all safety devices and guards before starting equipment for normal operation.
- Whenever practical, DO NOT lubricate conveyors while they are in motion. Only trained personnel who are aware of the hazard of the conveyor in motion shall be allowed to lubricate.

### Safety Guards

Maintain all guards and safety devices IN POSITION and IN SAFE REPAIR.

### Safety Labels

In an effort to reduce the possibility of injury to personnel working around Hytrol conveying equipment, safety labels are placed at various points on the equipment to alert them of potential hazards. Please check equipment and note all safety labels. Make certain your personnel are alerted to and obey these warnings. See Safety Manual for examples of warning labels.

## REMEMBER

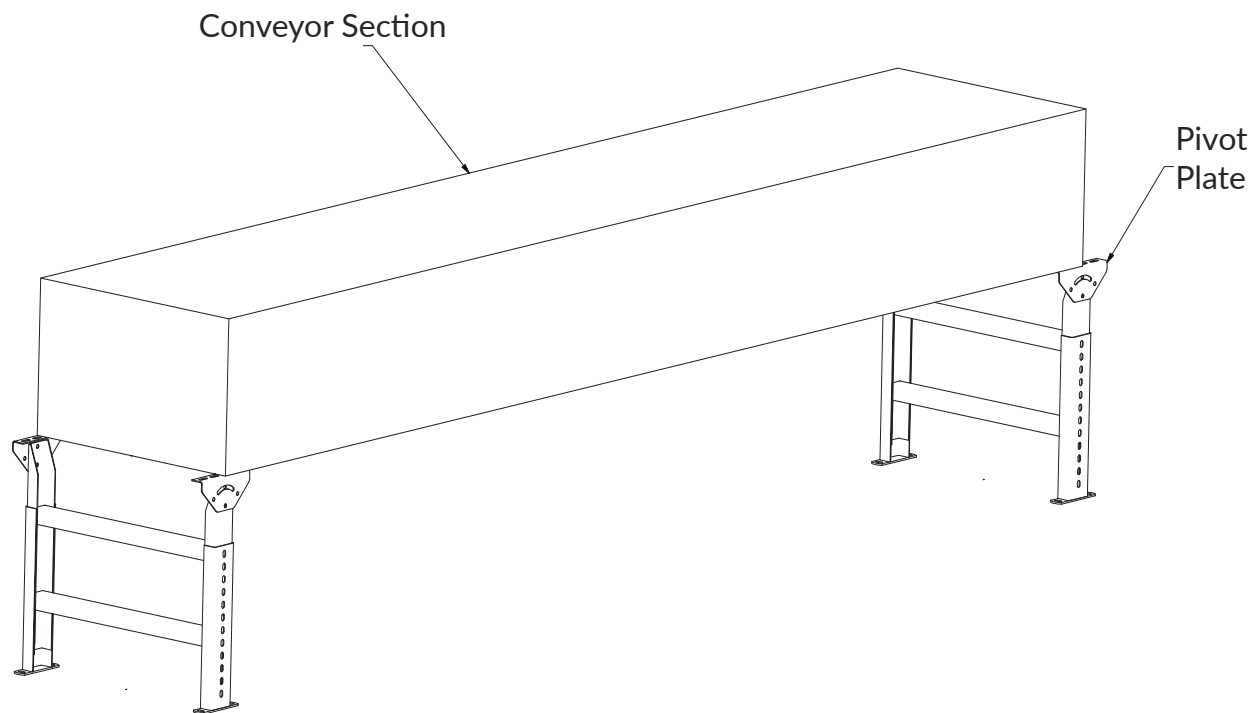
Do not remove, reuse or modify material handling equipment for any purpose other than its original intended use.

# 3 INSTALLATION

## 3.1 CONVEYOR SETUP

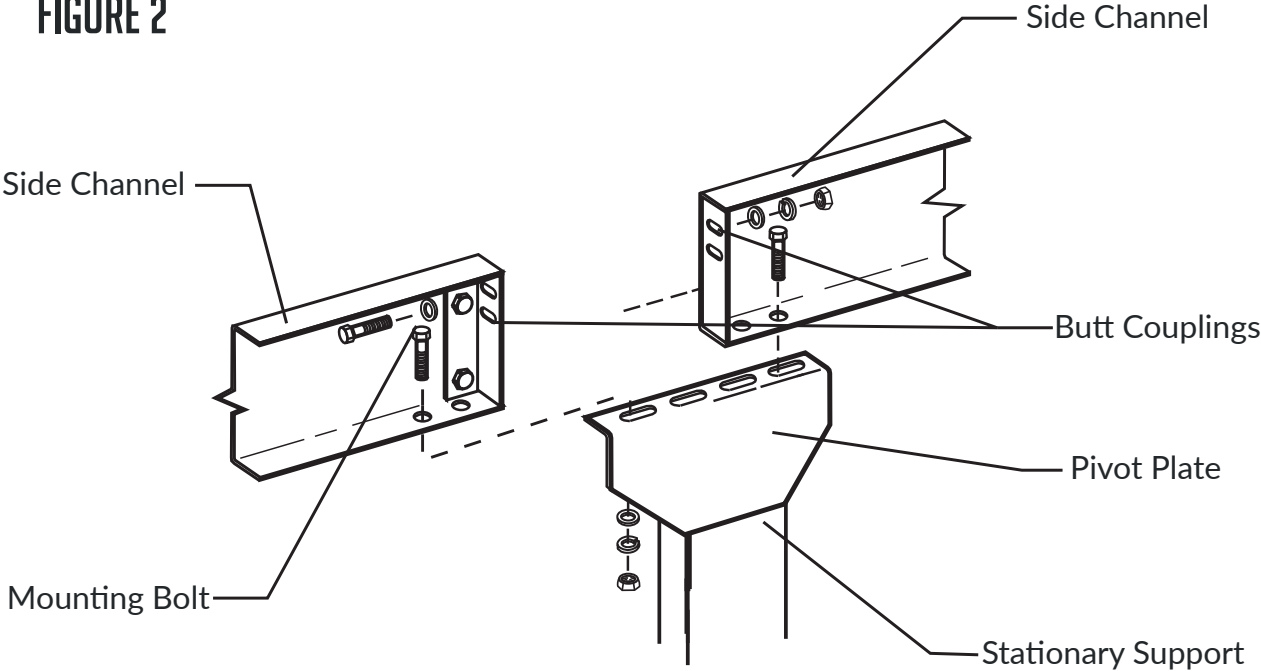
1. Mark a chalk line on floor to locate center of the conveyor.
2. Place the section in position. Fasten sections to pivot plates (Figures 1 and 2). Hand tighten bolts only.
3. Check to see that conveyor is level across width and length of unit.  
Adjust supports and ceiling hangers as necessary.
4. Install electrical controls and wire motor.

FIGURE 1





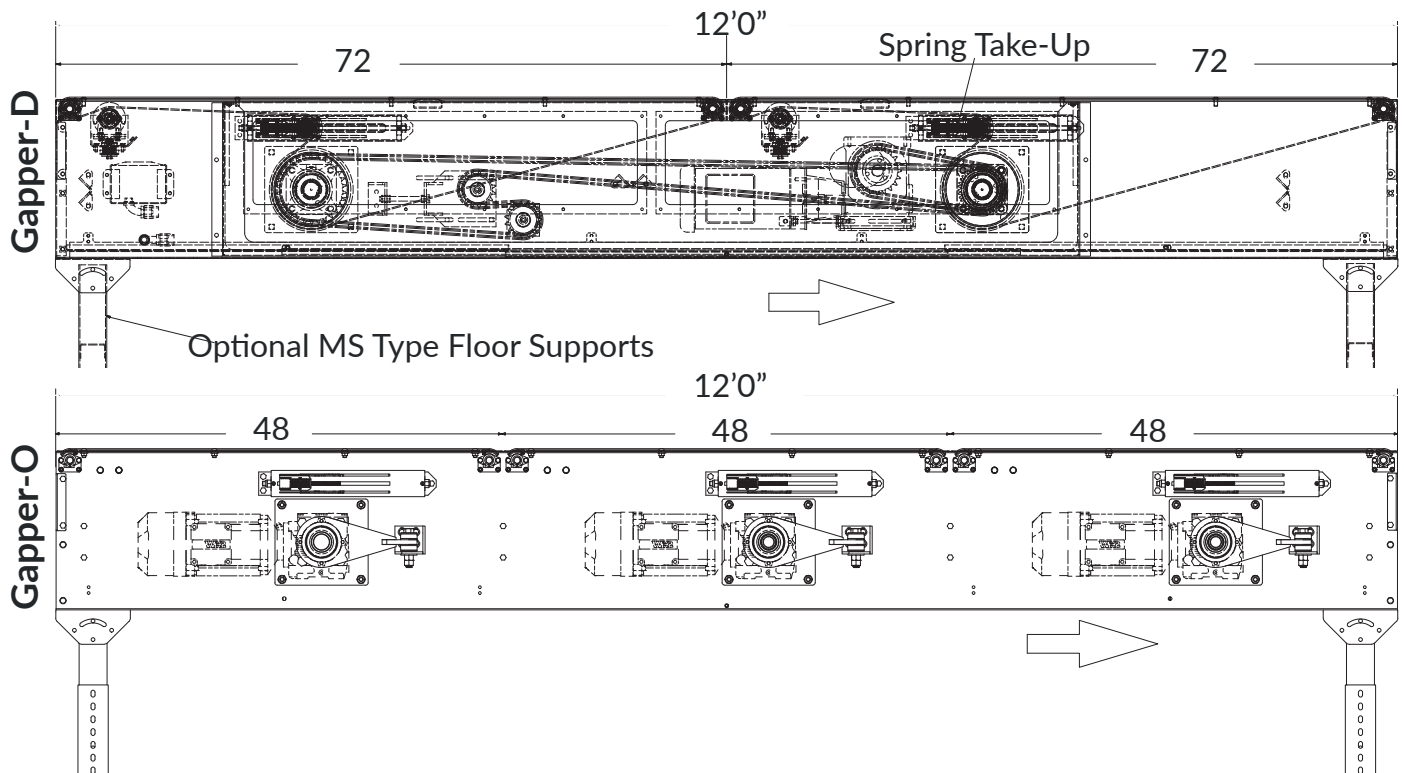
**FIGURE 2**



## 3.2 SUPPORT INSTALLATION

1. Determine primary direction of product flow. Figure 3 indicates the preferred flow as related to the drive.
2. Attach supports to both ends of section. Hand tighten bolts only at this time.
3. Adjust elevation to required height.

FIGURE 3



### 3.3 CEILING HANGER INSTALLATION

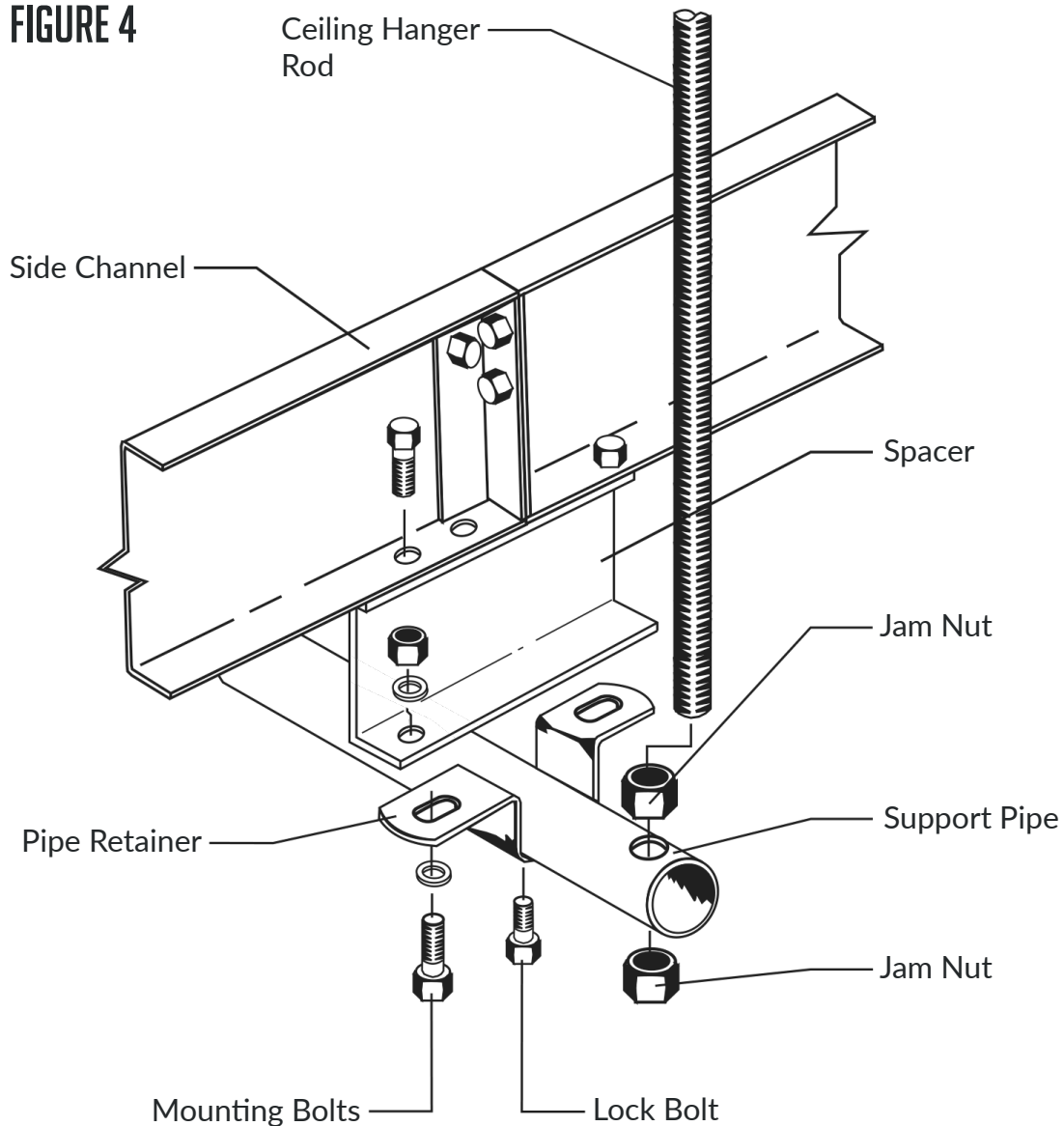
If conveyors are to be used in an overhead application, ceiling hangers may have been supplied in place of floor supports.

Figure 4 shows how a ceiling hanger mounts to a conveyor section. Ceiling hangers should be mounted at section joints.

#### NOTE:

When installing ceiling hanger rods in an existing building, all methods of attachment must comply with local building codes.

FIGURE 4



## 3.4 ELECTRICAL EQUIPMENT

### CONTROLS

Electrical Code: All motor controls and wiring shall conform to the National Electrical Code (Article 670 or other applicable articles) as published by the National Fire Protection Association and as approved by the American Standards Institute, Inc.

### CONTROL STATIONS

- A. Control stations should be so arranged and located that the operation of the equipment is visible from them, and shall be clearly marked or labeled to indicate the function controlled.
- B. A conveyor which would cause injury when started shall not be started until employees in the area are alerted by a signal or by a designated person that the conveyor is about to start.
  - When a conveyor would cause injury when started and is automatically controlled or must be controlled from a remote location, an audible device shall be provided which can be clearly heard at all points along the conveyor where personnel may be present. The warning device shall be actuated by the controller device starting the conveyor and shall continue for a required period of time before the conveyor starts. A flashing light or similar visual warning may be used in conjunction with or in place of the audible device if more effective in particular circumstances.
  - Where system function would be seriously hindered or adversely affected by the required time delay or where the intent of the warning may be misinterpreted (i.e., a work area with many different conveyors and allied devices), clear, concise, and legible warning shall be provided. The warning shall indicate that conveyors and allied equipment may be started at any time, that danger exists, and that personnel must keep clear. The warnings shall be provided along the conveyor at areas not guarded by position or location.
- C. Remotely and automatically controlled conveyors, and conveyors where operator stations are not manned or are beyond voice and visual contact from drive areas, loading areas, transfer points, and other potentially hazardous locations on the conveyor path not guarded by location, position, or guards, shall be furnished with emergency stop buttons, pull cords, limit switches, or similar emergency stop devices.
  - All such emergency stop devices shall be easily identifiable in the immediate vicinity of such locations unless guarded by location, position, or guards. Where the design, function, and operation of such conveyor clearly is not hazardous to personnel, an emergency stop device is not required.
  - The emergency stop device shall act directly on the control of the conveyor concerned and shall not depend on the stopping of any other equipment. The emergency stop devices shall be installed so that they cannot be overridden from other locations.

- D. Inactive and unused actuators, controllers, and wiring should be removed from control stations and panel boards, together with obsolete diagrams, indicators, control labels, and other material which serve to confuse the operator.

### **SAFETY DEVICES**

- A. All safety devices, including wiring of electrical safety devices, shall be arranged to operate in a “Fail-Safe” manner, that is, if power failure or failure of the device itself would occur, a hazardous condition must not result.
- B. *Emergency Stops and Restarts.* Conveyor controls shall be so arranged that, in case of emergency stop, manual reset or start at the location where the emergency stop was initiated, shall be required of the conveyor(s) and associated equipment to resume operation.
- C. Before restarting a conveyor which has been stopped because of an emergency, an inspection of the conveyor shall be made and the cause of the stoppage determined. The starting device shall be locked out before any attempt is made to remove the cause of stoppage, unless operation is necessary to determine the cause or to safely remove the stoppage.

Refer to ANSI Z244.1-1982, American National Standard for Personnel Protection – Lockout/Tagout of Energy Sources – Minimum Safety Requirements and OSHA Standard Number 29 CFR 1910.147 “The Control of Hazardous Energy (Lockout/Tagout).”

### **WARNING!**

Electrical controls shall be installed and wired by a qualified electrician. Wiring information for the motor and controls are furnished by the equipment manufacturer.

# 4 OPERATION

## 4.1 OPERATION SETUP

1. Only trained employees shall be permitted to operate conveyors. Training shall include instruction in operation under normal conditions and emergency situations.
2. Where employee safety is dependent upon stopping and/or starting devices, they shall be kept free of obstructions to permit ready access.
3. The area around loading and unloading points shall be kept clear of obstructions which could endanger personnel.
4. No person shall ride the load-carrying element of a conveyor under any circumstances unless that person is specifically authorized by the owner or employer to do so. Under those circumstances, such employee shall only ride a conveyor which incorporates within its supporting structure, platforms or control stations specifically designed for carrying personnel. Under no circumstances shall any person ride on any element of a vertical conveyor. Owners of conveyors should affix warning devices to the conveyor reading. Do not ride conveyor.
5. Personnel working on or near a conveyor shall be instructed as to the location and operation of pertinent stopping devices.
6. A conveyor shall be used to transport only material it is capable of handling safely.
7. Under no circumstances shall the safety characteristics of the conveyor be altered if such alterations would endanger personnel.
8. Routine inspections and preventive and corrective maintenance programs shall be conducted to ensure that all safety features and devices are retained and function properly.
9. Personnel should be alerted to the potential hazard of entanglement in conveyors caused by items such as long hair, loose clothing, and jewelry.
10. As a general rule, conveyors should not be cleaned while in operation. Where properly cleaning requires the conveyor to be in motion and a hazard exists, personnel should be made aware of the associated hazard.

## 4.2 CONVEYOR STARTUP

Before the conveyor is turned on, check for foreign objects that may have been left inside conveyor during installation. These objects could cause serious damage during start-up.

After the conveyor has been turned on and is operating, check all moving parts to make sure they are working freely.

### CAUTION!

Because of the many moving parts on the conveyor, all personnel in the area of the conveyor need to be warned that the conveyor is about to be started.

# 5 MAINTENANCE

## 5.1 LUBRICATION

The drive chain is pre-lubricated from the manufacturer by a hot dipping process that ensures total lubrication of all components. However, continued proper lubrication will greatly extend the useful life of every drive chain.

Drive chain lubrication serves several purposes including:

- Protecting against wear of the pin-bushing joint
- Lubricating chain-sprocket contact surfaces
- Preventing rust or corrosion

For normal operating environments, lubricate every 2,080 hours of operation or every 6 months, whichever comes first. Lubricate with a good grade of petroleum or synthetic oil (i.e., Shell Rotella or Mobil 1).

For best results, always use a brush to generously lubricate the chain. The proper viscosity of lubricant greatly affects its ability to flow into the internal areas of the chain. Refer to the table below for the proper viscosity of lubricant for your application.

| AMBIENT TEMPERATURE<br>DEGREES (F) | SAE | ISO      |
|------------------------------------|-----|----------|
| 20 - 40                            | 20  | 46 or 68 |
| 40 - 100                           | 30  | 100      |
| 100 - 120                          | 40  | 150      |

The drive chain's lubrication requirement is greatly affected by the operating conditions. For harsh conditions such as damp environments, dusty environments, excessive speeds, or elevated temperatures, it is best to lubricate more frequently. It may be best, under these conditions, to develop a custom lubrication schedule for your specific application.

A custom lubrication schedule may be developed by inspecting the drive chain on regular time intervals for sufficient lubrication. Once the time interval is determined at which the chain is not sufficiently lubricated, lubricate it and schedule the future lubrication intervals accordingly.

## 5.2 BELT REPLACEMENT

The conveyor belt has been cut to the proper length and spliced together for endless joining. To replace a belt, follow these steps:

1. Loosen belt by loosening the take-up bolt weldment on the spring take-up until belt is no longer in tension.
2. Remove tail pulleys, drive pulley, and slider pan.
3. The new belt can be installed as shown in Figure 5.
4. Slide belt over tail pulleys. Belt is installed on top of auto belt tracker and over take-up pulley.
5. Put slider pan in place.
6. Reinstall drive pulley being careful that the belt is in proper position.
7. Tighten hardware.
8. Adjust belt tension by adjusting the take-up bolt weldment on the spring take-up. See section 5.3 Belt Tension.

### CAUTION!

During installation, do not use tools such as screwdrivers, wrenches, etc., or damage to the V-belts could occur.

## 5.3 BELT TENSION

The spring take-up system is designed to allow the tension of the belt to float during operation. The take-up lug and force indicator provide a quick reference point for measuring the tension on the belt.

The initial tension should be set by ensuring there is 5-1/2 inches between the take-up lug and the force indicator, as shown in Figure 6. From this point, the tension can be adjusted as needed to achieve optimal performance. Decreasing the distance between the lug and indicator increases the tension on the belt. To adjust the tension, turn the 1/2-13 hex nut on the end of the take-up bolt weldment.

### NOTE:

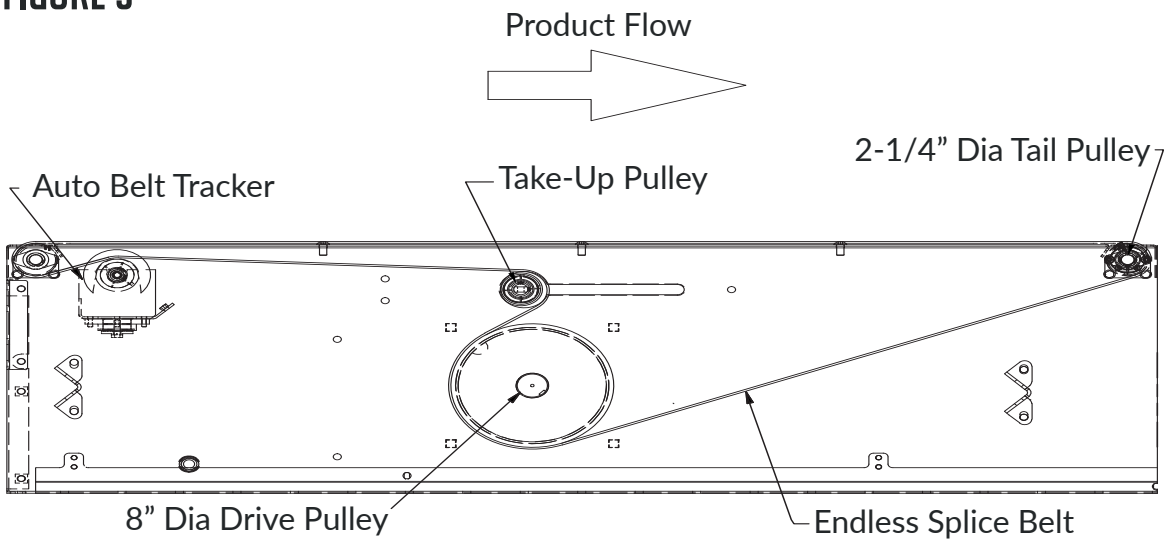
Excess tension can cause premature failure of conveyor components.

### NOTE:

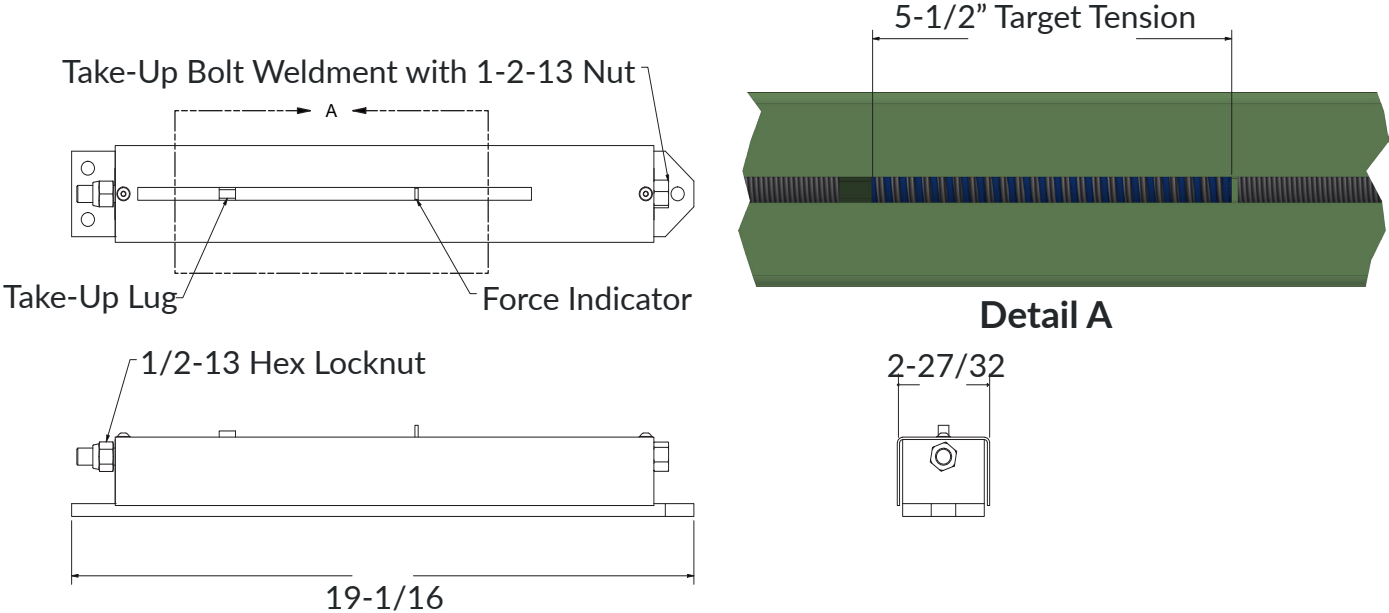
Special length V-belts are used on the "LRSS" conveyors. It is recommended that replacements be obtained from Hytrol.



**FIGURE 5**



**FIGURE 6**



## 5.4 DRIVE CHAIN ALIGNMENT AND TENSION

The drive chain and sprockets should be checked periodically for proper tension and alignment. Improper adjustment will cause extensive wear to the drive components.

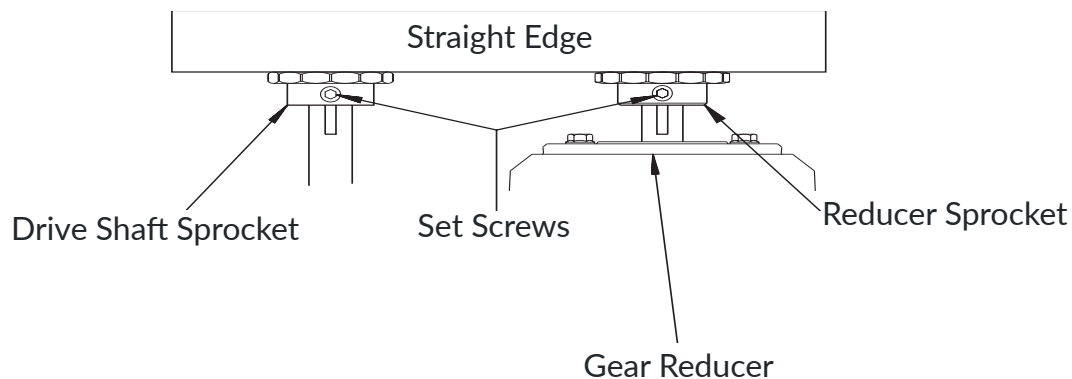
### TO MAKE ADJUSTMENTS:

1. Remove chain guard.
2. Check sprocket alignment by placing a straight edge across the face of both sprockets (Figure 7).
3. Loosen set screws and adjust as needed. Retighten set screws.
4. To adjust chain tension, loosen bolts that fasten motor base to mounting angles on both sides of the conveyor. Tighten take-up bolts until desired chain tension is reached. (Figures 8 and 9). Retighten mounting bolts.
5. Lubricate chain per section 5.1 Lubrication on page 15.
6. Replace chain guard so that it does not interfere with the drive.

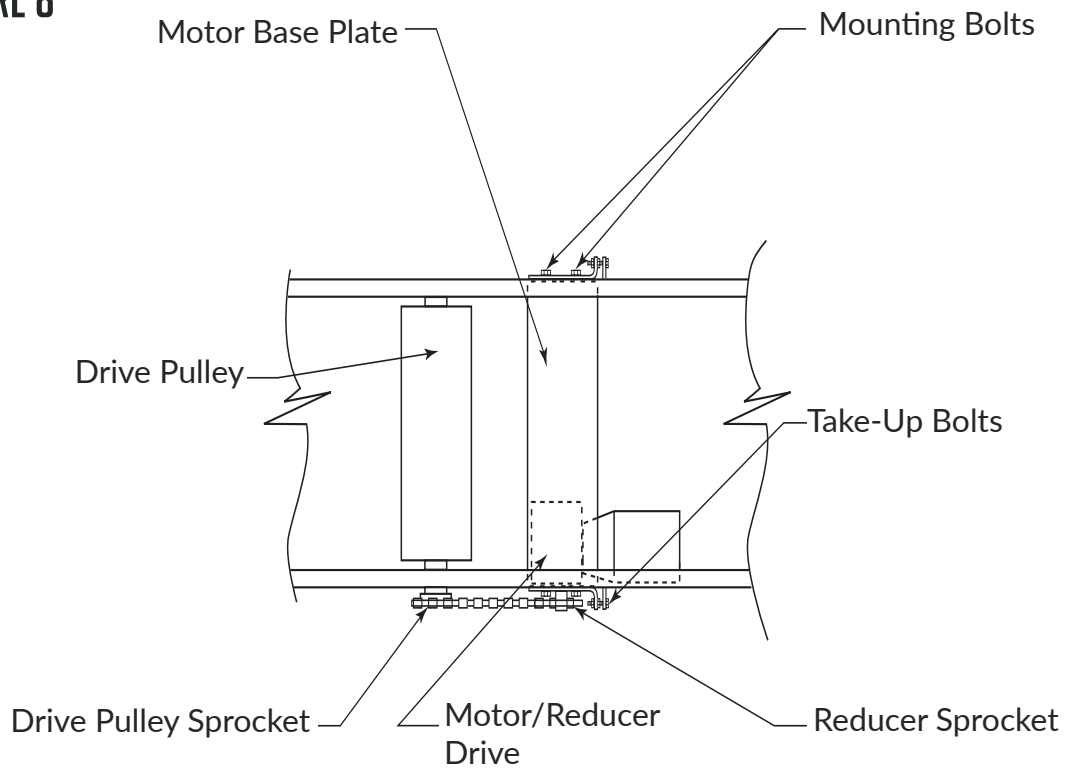
### CAUTION!

Never remove chain guards while the conveyor is running. Always replace guards after adjustments are made.

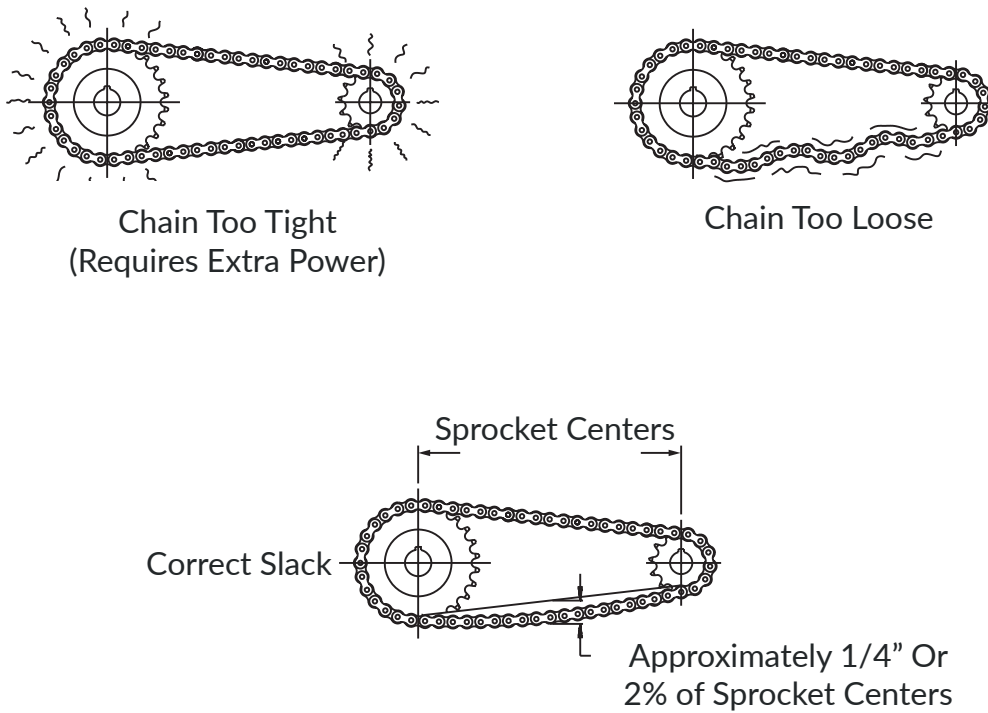
FIGURE 7



**FIGURE 8**

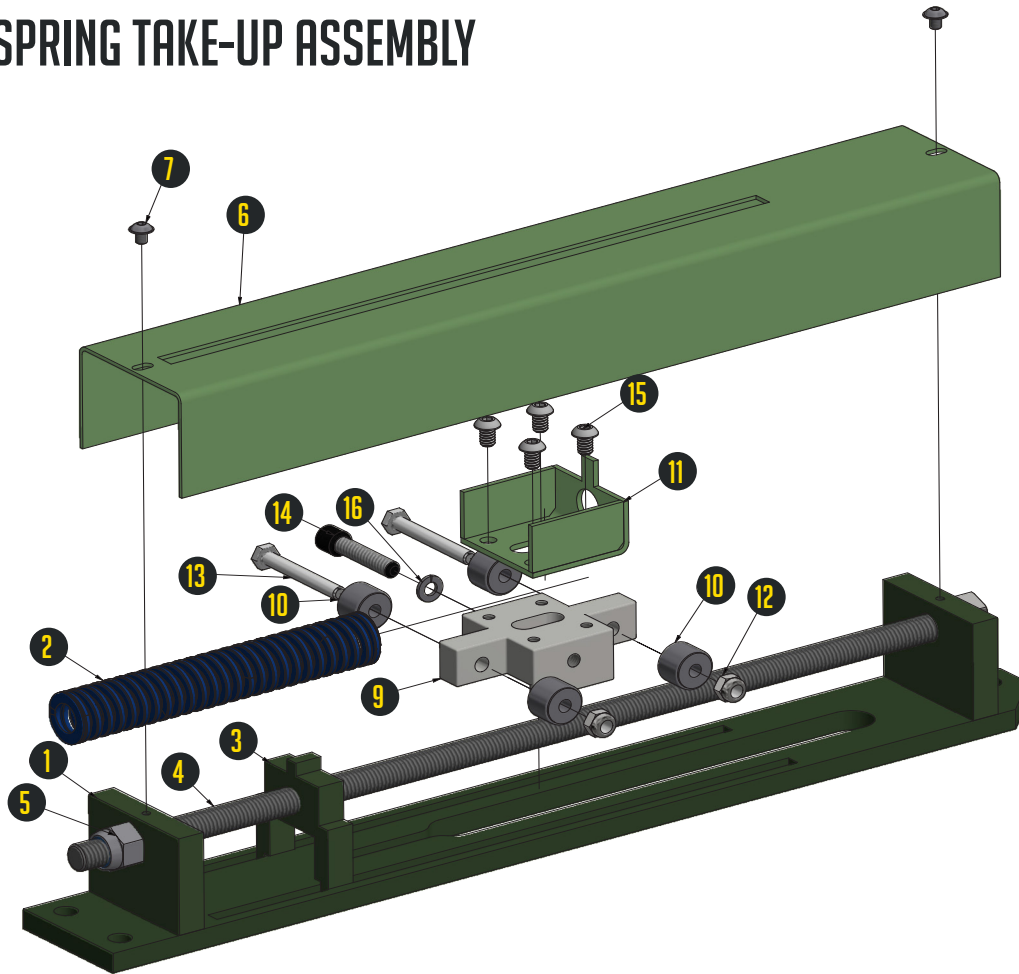


**FIGURE 9**



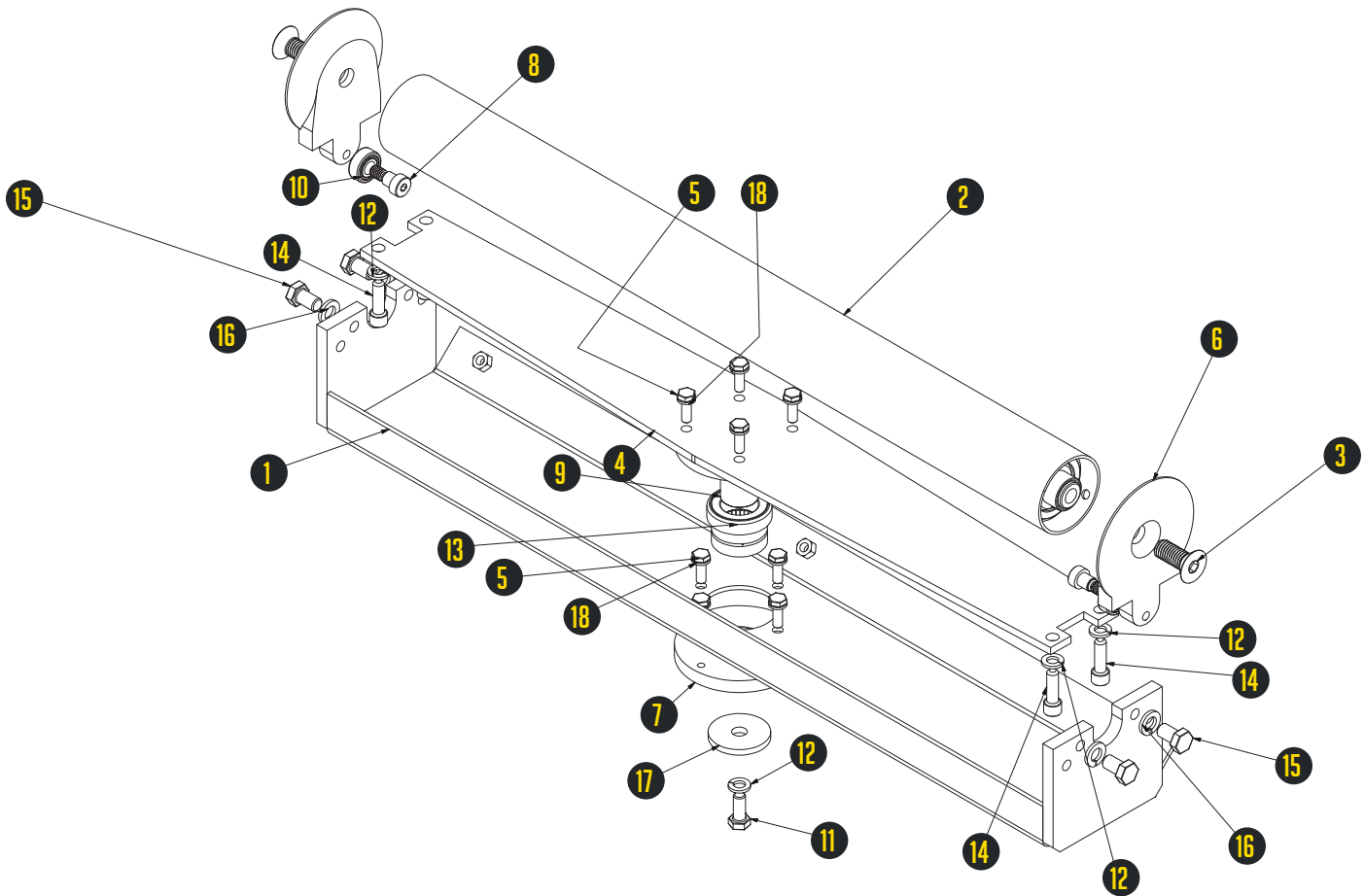
# 6 PARTS DRAWINGS & LISTS

## 6.1 SPRING TAKE-UP ASSEMBLY



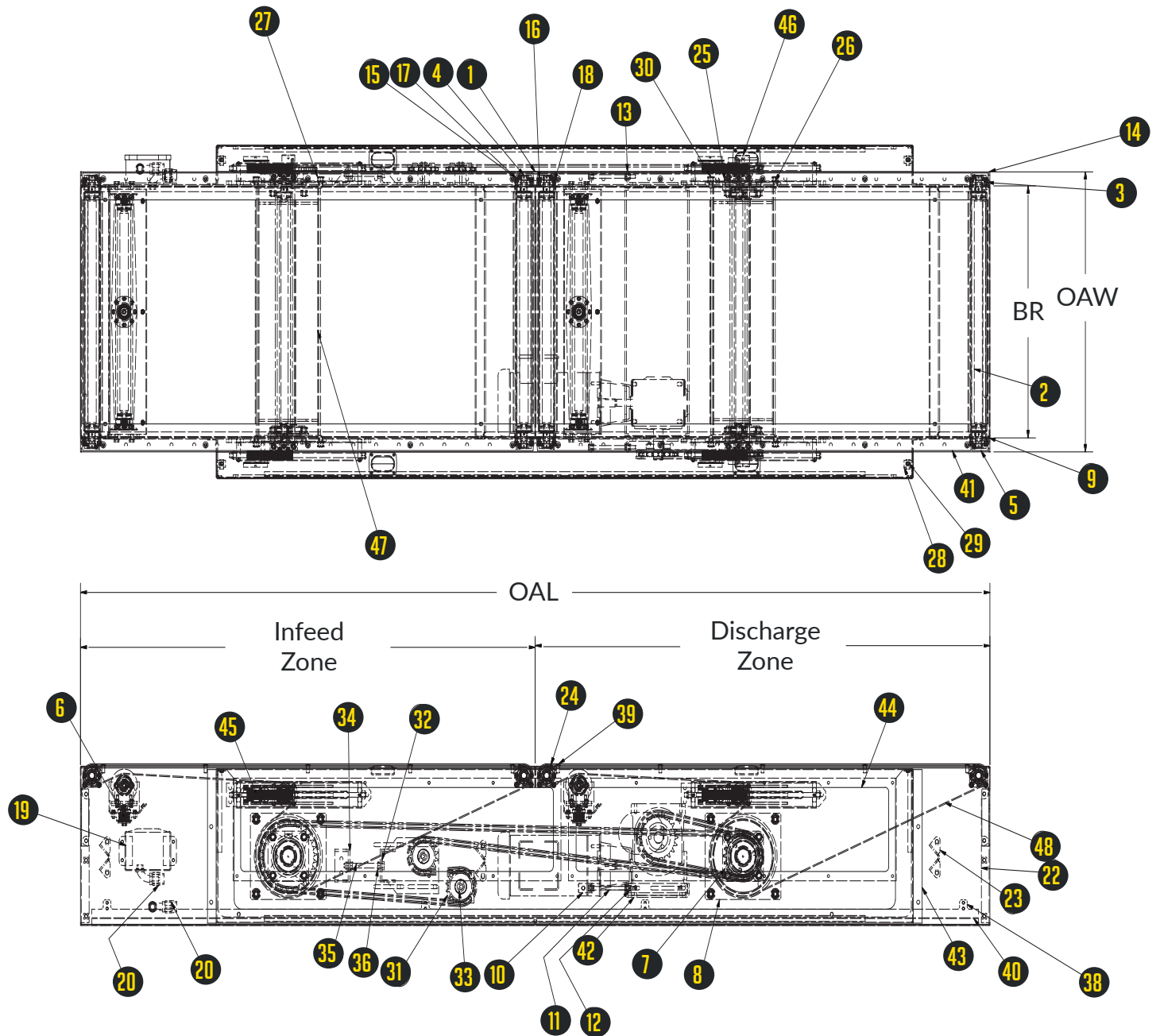
| Ref # | Description   |
|-------|---|
| 1     | TAKE-UP WELD - SPRING TENSION, GAPPER                         |
| 2     | DIE SPRING - 1"DIA X 6"LG, (BLUE)                             |
| 3     | TAKE-UP LUG - SPRING TAKE-UP, GAPPER                          |
| 4     | TAKE-UP BOLT WELD   |
| 5     | 1/2-13 NC2B HEX LOCKNUT -NYLON INSERT, ZINC PLATED            |
| 6     | TAKE-UP COVER - 16-1/2"LG                                     |
| 7     | #10-24 X 3/8"LG SOCKET BUTTON HEAD SCREW                      |
| 8     | #8-32 X 1/4"LG ROUND HEAD MACH SCREW, ZINC PLATED (NOT SHOWN) |
| 9     | SPRING TAKE-UP CARRIAGE - GAPPER                              |
| 10    | BEARING-CAM YOKE ROLLER,3/4"OD X 1/4"BORE                     |
| 11    | FORCE INDICATOR WELD - GAPPER                                 |
| 12    | 1/4-20 NC2B HEX LOCKNUT -NYLON INSERT, ZINC PLATED            |
| 13    | 1/4-20 X 2"LG HEX HEAD CAP SCREW, ZINC PLATED                 |
| 14    | 5/16-18 X 1-1/2"LG SOCKET HEAD CAP SCREW                      |
| 15    | 1/4-20 X 3/8"LG SOCKET BUTTON HD SCREW, ZINC PLATED           |
| 16    | 1/4"ID SPLIT LOCKWASHER, MEDIUM, ZINC PLATED                  |

## 6.2 AUTO-TRACKER DRAWING AND PARTS LIST



| Ref # | Description                                      |
|-------|--|
| 1     | BELT TRACKER ATTACHMENT WELD - (SPECIFY BR)      |
| 2     | 2-1/4"DIA TRACKER PULLEY - (SPECIFY BR)          |
| 3     | 1/2-13 X 1-1/4"LG HEX SOCKET FLAT HEAD CAP SCREW |
| 4     | PIVOT PLATE - 2-1/4"TAIL, TRACKER, (SPECIFY BR)  |
| 5     | 1/4-20 X 3/4"LG HEX HEAD CAP SCREW, ZINC PLATED  |
| 6     | ROLLER BRACKET - BELT TRACKER                    |
| 7     | BEARING HOUSING - BELT TRACKER, 3-3/8"DIA        |
| 8     | SHOULDER SCREW - 3/8" X 3/8"LG, 5/16"-18         |
| 9     | PIVOT SHAFT - BELT TRACKER                       |
| 10    | BEARING - SINGLE ROW RADIAL, PLASTIC BUSHING     |
| 11    | 5/16-18 X 3/4"LG HEX HEAD CAP SCREW, ZINC PLATED |
| 12    | 5/16"ID SPLIT LOCKWASHER, MEDIUM, ZINC PLATED    |
| 13    | BEARING - BALL/NEEDLE-ROLLER BEARING             |
| 14    | 5/16-18 X 1"LG SOCKET HEAD CAP SCREW             |
| 15    | 3/8-16 X 5/8"LG HEX HEAD CAP SCREW, ZINC PLATED  |
| 16    | 3/8"ID SPLIT LOCKWASHER, MEDIUM, ZINC PLATED     |
| 17    | STAINLESS STEEL WASHER - TRACKER                 |
| 18    | 1/4"ID SPLIT LOCKWASHER, MEDIUM, ZINC PLATED     |

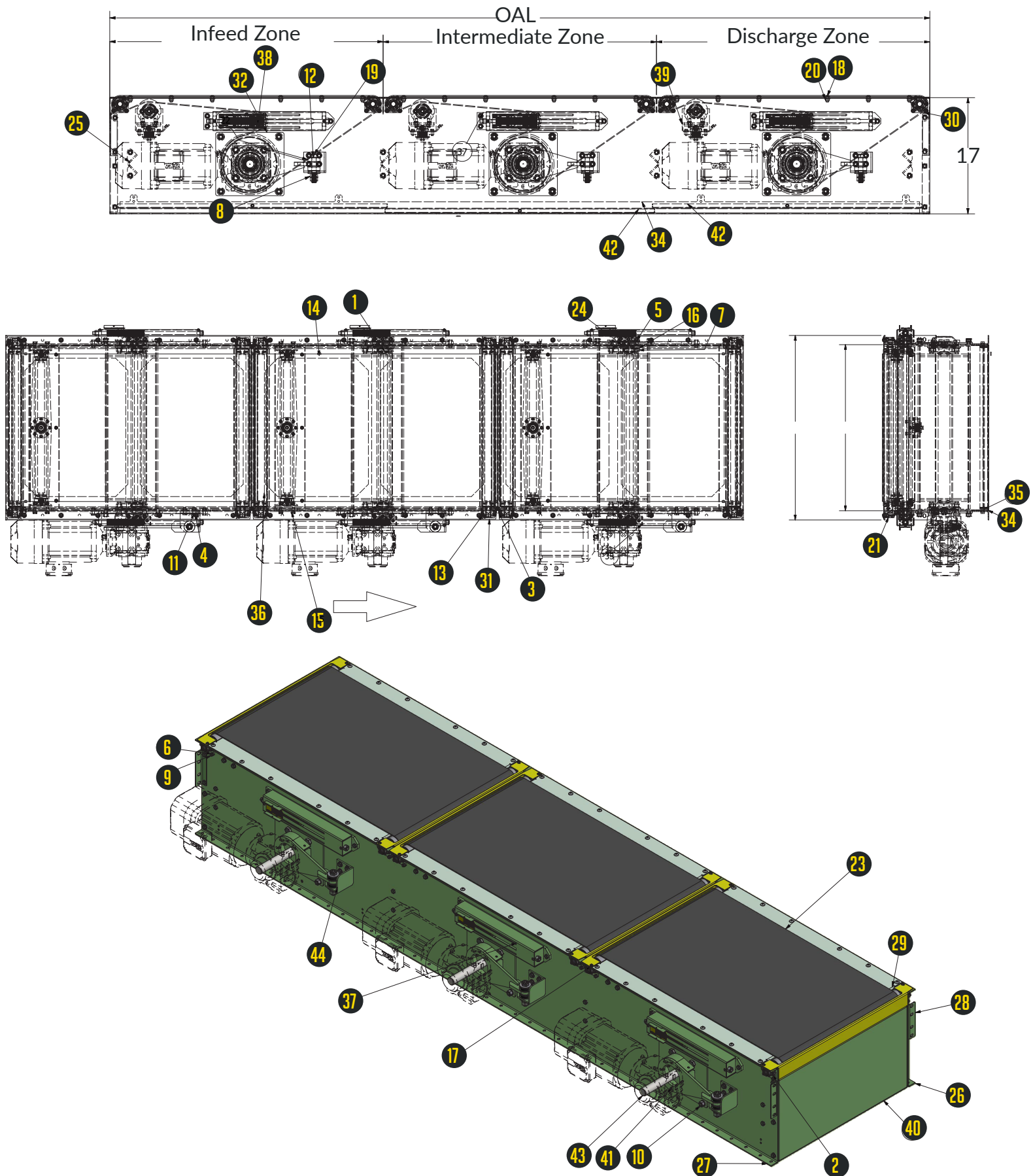
## 6.3 GAPPER-D DRAWING



## 6.4 GAPPER-D PARTS LIST

| #  | Description   |    |  |
|----|---|----|--|
| 1  | SIDE CHANNEL - (SPECIFY OAL, SLAVE LOCATION, RIGHT HAND OR LEFT HAND) | 28 | GUARD MOUNTING TAB   |
| 2  | 2-1/4" DIA PULLEY ASSEMBLY - (SPECIFY BR)                             | 29 | 1/4-20 U-TYPE SPEED NUT (.105/.120" MATL)                        |
| 3  | ATTACHMENT BAR  | 30 | 1/2-13 X 1" LG CARRIAGE BOLT, ZINC PLATED                        |
| 4  | FLANGED SHAFT SUPPORT - 18MM BORE                                     | 31 | SPROCKET MOUNTING BRACKET WELD                                   |
| 5  | TRANSITION GUARD - (SPECIFY BR)                                       | 32 | TAKE-UP PLATE WELD (SPECIFY RIGHT HAND OR LEFT HAND)             |
| 6  | BELT TRACKER -(SPECIFY BR)  | 33 | SPROCKET - IDLER, 60B15H X .625"BORE                             |
| 7  | BEARING - CAST IRON, 4-BOLT, 1-11/16" BORE                            | 34 | JACK BOLT BRACKET WELD   |
| 8  | PULLEY PLATE  | 35 | 1/2-13 X 5" LG HEX BOLT - FULL THREAD, ZINC PLATED               |
| 9  | SIDE CHANNEL - (SPECIFY OAL, DRIVE LOCATION, RIGHT HAND OR LEFT HAND) | 36 | 1/2-13 NC2B HEX JAM NUT -SEMI-FINE, REGULAR, ZINC PLATED         |
| 10 | TAKE-UP BRACKET   | 37 | BOTTOM BED GUARD WELD - (SPECIFY BR)                             |
| 11 | 3/8-16 X 6" LG HEX BOLT - FULL THREAD, ZINC PLATED                    | 38 | LOWER BOTTOM GUARD ANGLE - (SPECIFY OAL)                         |
| 12 | 3/8-16 NC2B HEX JAM NUT - SEMI FINE, REGULAR, ZINC PLATED             | 39 | 3/8-16 X 3/4" LG SOCKET BUTTON HEAD SCREW                        |
| 13 | TAKE-UP BRACKET   | 40 | UPPER BOTTOM GUARD ANGLE - (SPECIFY OAL)                         |
| 14 | BUTT COUPLING ANGLE - 1-3/8" X 6-1/8"                                 | 41 | SLIDER PAN - 55"LG (SPECIFY BR)                                  |
| 15 | 1/4-20 X 3/4" LG HEX HEAD CAP SCREW, ZINC PLATED                      | 42 | MOTOR BASE - (SPECIFY BR)  |
| 16 | 1/4" ID SPLIT LOCKWASHER, MEDIUM, ZINC PLATED                         | 43 | CHAIN GUARD BACK WELD  |
| 17 | 1/4-20 X 3/4" LG CARRIAGE BOLT, ZINC PLATED                           | 44 | GUARD ASSEMBLY   |
| 18 | 1/4-20 HEX NUT - SEMI-FINE, REGULAR SERIES, ZINC PLATED               | 45 | SPRING TAKE-UP ASSEMBLY  |
| 19 | CONDUIT BOX WITH HOLE IN BOTTOM (OPTIONAL)                            | 46 | 8" DIA CENTER DRIVE PULLEY ASSEMBLY - (SPECIFY OAW)              |
| 20 | SEALTIGHT INSULATED CONNECTOR - 1/2"-90 DEGREE (OPTIONAL)             | 47 | 8" DIA SLAVE PULLEY ASSEMBLY - (SPECIFY OAW)                     |
| 21 | CONNECTOR LINK - #60 CHAIN (NOT SHOWN)                                | 48 | BELT- HIGH GRIP LONGITUDINAL GROOVE- (SPECIFY OAW & ZONE LENGTH) |
| 22 | END BED SPACER WELD - (SPECIFY BR)                                    |    |  |
| 23 | BED SPACER - (SPECIFY BR)   |    |  |
| 24 | 1/4-20 X 3/8" LG SOCKET BUTTON HEAD SCREW, ZINC PLATED                |    |  |
| 25 | 1/2-13 X 1-1/2" LG HEX HEAD CAP SCREW, ZINC PLATED                    |    |  |
| 26 | 1/2" ID SPLIT LOCKWASHER, MEDIUM, ZINC PLATED                         |    |  |
| 27 | 1/2-13 NC2B HEX NUT - SEMI-FINE, REGULAR, ZINC PLATED                 |    |  |

## 6.5 GAPPER-O DRAWING





## 6.6 GAPPER-O PARTS LIST

| #  | Description   |    |   |
|----|---|----|---|
| 1  | BEARING - CAST IRON, 4-BOLT, 1-11/16"BORE                         | 26 | SIDE CHANNEL - (SPECIFY OAL), LEFT HAND                         |
| 2  | 1/4-20 X 3/4"LG HEX HEAD CAP SCREW, ZINC PLATED                   | 27 | SIDE CHANNEL - (SPECIFY OAL), RIGHT HAND                        |
| 3  | 3/8-16 X 3/4"LG HEX HEAD CAP SCREW, ZINC PLATED                   | 28 | BUTT COUPLING ANGLE - 1-3/8" X 6-1/8"                           |
| 4  | 3/8-16 X 1"LG HEX HEAD CAP SCREW, ZINC PLATED                     | 29 | SLIDER PAN - 35"LG, (SPECIFY BR)                                |
| 5  | 5/8-11 X 1-3/4"LG HEX HEAD CAP SCREW, ZINC PLATED                 | 30 | ATTACHMENT BAR  |
| 6  | 1/4-20 HEX NUT - SEMI-FINE, REG SERIES, ZINC PLATED               | 31 | TRANSITION GUARD - (SPECIFY BR)                                 |
| 7  | 1/2-13 NC2B HEX NUT - SEMI-FINE, REGULAR, ZINC PLATED             | 32 | PULLEY PLATE - GAP OPTI   |
| 8  | 5/8-11 NC2B HEX NUT, GRADE 8                                      | 33 | TORQUE ARM GUARD  |
| 9  | 1/4-20 X 3/4"LG CARRIAGE BOLT, ZINC PLATED                        | 34 | UPPER BOTTOM GUARD ANGLE - (SPECIFY OAL)                        |
| 10 | 1/2-13 X 1"LG CARRIAGE BOLT, ZINC PLATED                          | 35 | UPPER BOTTOM GUARD ANGLE - (SPECIFY OAL)                        |
| 11 | 3/8"ID FLAT STEEL WASHER, ZINC PLATED                             | 36 | BELT TRACKER WITHOUT GUARD- (SPECIFY BR)                        |
| 12 | 5/8"ID FLAT STEEL WASHER, ZINC PLATED                             | 37 | 2-1/4"DIA PULLEY ASSEMBLY - (SPECIFY BR)                        |
| 13 | 1/4"ID SPLIT LOCKWASHER, MEDIUM, ZINC PLATED                      | 38 | 2-1/4"DIA TAKE-UP PULLEY - (SPECIFY BR)                         |
| 14 | 5/16"ID SPLIT LOCKWASHER, MEDIUM, ZINC PLATED                     | 39 | TORQUE ARM ANGLE WELD - (SPECIFY LEFT HAND OR RIGHT HAND), ST47 |
| 15 | 3/8"ID SPLIT LOCKWASHER, MEDIUM, ZINC PLATED                      | 40 | SPRING TAKE-UP ASSEMBLY   |
| 16 | 1/2"ID SPLIT LOCKWASHER, MEDIUM, ZINC PLATED                      | 41 | END BED SPACER WELD - (SPECIFY BR)                              |
| 17 | 1/4-20 X 3/8"LG SOCKET BUTTON HEAD SCREW, ZINC PLATED             | 42 | BOTTOM BED GUARD WELD - (SPECIFY BR)                            |
| 18 | 3/8-16 X 3/4"LG SOCKET BUTTON HEAD SCREW, ZINC PLATED             | 43 | 8"DIA DRIVE PULLEY ASSEMBLY - (SPECIFY OAW)                     |
| 19 | 5/8-11 X 3-3/4"LG HEX BOLT - GRADE 8, ZINC PLATED                 | 44 | TORQUE ARM WELD - ST47  |
| 20 | 3/8-16 SMALL FLANGE LOCKNUT, ZINC PLATED                          |    |   |
| 21 | FLANGED SHAFT SUPPORT - 18MM BORE                                 |    |   |
| 22 | TORQUE ARM BUSHING - 1.781"OD, .6875"ID, .5" THICK (NOT SHOWN)    |    |   |
| 23 | PLASTIC BEARING COVER - FOR 4-BOLT BEARINGS                       |    |   |
| 24 | BELT -HIGH GRIP LONGITUDINAL GROOVE- (SPECIFY OAW & ZONE LENGTHS) |    |   |
| 25 | BED SPACER - (SPECIFY BR)   |    |   |

# 7 TROUBLESHOOTING

## 7.1 TROUBLESHOOTING GUIDE

| Trouble  | Cause  | Solution  |
|--|--|---|
| Conveyor will not start or motor quits frequently. | <ol style="list-style-type: none"> <li>1. Motor is overloaded.</li> <li>2. Motor is drawing too much current.</li> </ol>   | <ol style="list-style-type: none"> <li>1. Check for overloading of conveyor.</li> <li>2. Check heater or circuit breaker and change if necessary</li> </ol>   |
| Drive chain and sprockets wear excessively.        | <ol style="list-style-type: none"> <li>1. Lack of lubrication on chain causing chain stretch which creates improper chain to sprocket mesh.</li> <li>2. Sprockets are out of alignment.</li> <li>3. Loose chain.</li> </ol>                        | <ol style="list-style-type: none"> <li>1. Replace chain and sprockets. Provide adequate lubrication. <ul style="list-style-type: none"> <li>• NOTE: If problem reoccurs, a chain take-up may be required.</li> </ul> </li> <li>2. Align sprockets. See section 5.4 Drive Chain Alignment and Tension on page 18.</li> <li>3. Tighten chain.</li> </ol>  |
| Loud popping or grinding noise.                    | <ol style="list-style-type: none"> <li>1. Defective bearing.</li> <li>2. Loose set screws in bearing.</li> <li>3. Loose drive chain.</li> </ol>  | <ol style="list-style-type: none"> <li>1. Replace bearing.</li> <li>2. Tighten set screw.</li> <li>3. Tighten chain.</li> </ol>   |
| Motor or reducer overheating.                      | <ol style="list-style-type: none"> <li>1. Conveyor is overloaded.</li> <li>2. Accumulation pressure too great.</li> <li>3. Low voltage to motor.</li> <li>4. Low lubricant level in reducer.</li> <li>5. One or more V-belts too tight.</li> </ol> | <ol style="list-style-type: none"> <li>1. Check capacity of conveyor and reduce load to recommended level.</li> <li>2. Have electrician check and correct as necessary.</li> <li>3. Re-lubricate per manufacturer's recommendations. <ul style="list-style-type: none"> <li>• For Hytrol reducer, refer to Installation and Maintenance Manual #684 (Speed Reducers 4A, 4AC, 5A, 5AC).</li> </ul> </li> <li>4. Reposition take-up sheaves further from double groove sheave.</li> </ol> |
| Belt doesn't move but drive runs.                  | <ol style="list-style-type: none"> <li>1. Conveyor is overloaded.</li> <li>2. Belt is too loose.</li> <li>3. Worn lagging on drive pulley.</li> </ol>  | <ol style="list-style-type: none"> <li>1. Reduce load.</li> <li>2. Use belt take-up to tighten belt.</li> <li>3. Replace drive pulley lagging and tighten belt.</li> </ol>  |
| Entire length of belt creeps off at one spot only. | <ol style="list-style-type: none"> <li>1. One conveyor section not level or square.</li> <li>2. Material build-up on pulleys.</li> </ol>   | <ol style="list-style-type: none"> <li>1. Make necessary adjustments to supports.</li> <li>2. Remove residue from pulleys. Install belt, cleaners, or scrapers if possible.</li> </ol>  |
| Belt creeps to one side at tail pulley.            | <ol style="list-style-type: none"> <li>1. Tail pulley not properly aligned or square with bed.</li> </ol>  | <ol style="list-style-type: none"> <li>1. Adjust as necessary.</li> </ol>   |
| Entire belt creeps to one side.                    | <ol style="list-style-type: none"> <li>1. Conveyor not straight.</li> <li>2. Conveyor not level.</li> <li>3. Material build-up on rollers or pulleys.</li> </ol>   | <ol style="list-style-type: none"> <li>1. Realign bed sections as necessary.</li> <li>2. Correct as necessary.</li> <li>3. Remove residue and install belt, cleaners, or scrapers if possible.</li> </ol>   |

# 8 PREVENTIVE MAINTENANCE

## 8.1 PREVENTIVE MAINTENANCE CHECKLIST

The following is a general maintenance checklist which covers the major components of your conveyor. This will be helpful in establishing a standard maintenance schedule.

**Note:** Check set screw for proper torque value after the first 24 hours of operation.

| Component                    | Suggested Action                               | Schedule |         |           |
|------------------------------|--|----------|---------|-----------|
|                              |  | Weekly   | Monthly | Quarterly |
| Motor                        | Check Noise                                    |          |         |           |
|                              | Check Temperature                              |          |         |           |
|                              | Check Mounting Bolts                           |          |         |           |
| Reducer                      | Check Noise                                    |          |         |           |
|                              | Check Temperature                              |          |         |           |
|                              | Check Oil Level                                |          |         |           |
| Drive Chain                  | Check Tension                                  |          |         |           |
|                              | Lubricate                                      |          |         |           |
|                              | Check for Wear                                 |          |         |           |
|                              | Check Bearing Lubrication                      |          |         |           |
| Belt                         | Check Auto Tracker                             |          |         |           |
|                              | Check Tension                                  |          |         |           |
| Bearings (Pulleys & Rollers) | Check Noise                                    |          |         |           |
|                              | Check Mounting Bolts                           |          |         |           |
| Sprockets and Rollers        | Check Sprocket Alignment                       |          |         |           |
|                              | Check for Wear                                 |          |         |           |
|                              | Check Noise                                    |          |         |           |
|                              | Check Bearing Lubrication                      |          |         |           |
| Structural                   | General Check: All loose bolts, etc. tightened |          |         |           |



Need Assistance?  
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**Hytrol Customer Care:**  
1-844-449-8765  
[wecare@hytrol.com](mailto:wecare@hytrol.com)  
[Live Chat](#)