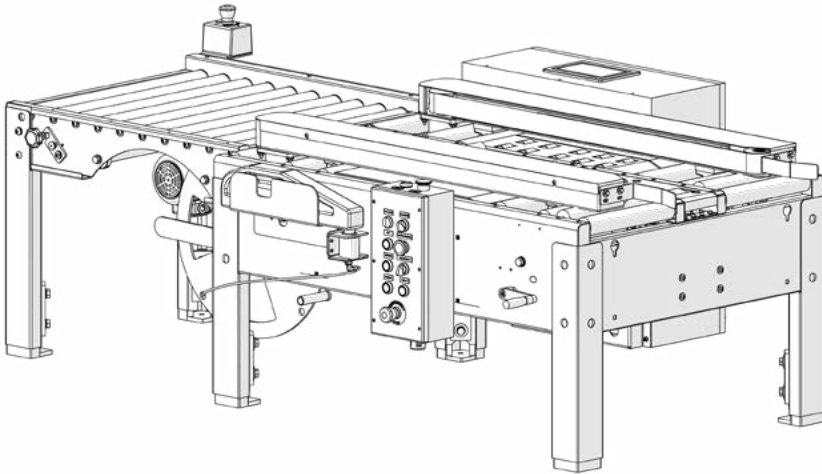




USER MANUAL USA 2024-WAT-BO



For Serial Numbers:
TM814 XX X XXX
110v System



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800-474-8273

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polymer
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USER NOTES

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TECHNICAL ASSISTANCE

This is the Interpack Model **AUTO H2O Uniform Semi-Automatic-WAT-Bottom Only (USA 2024-WAT-BO)** Side-Belt Case Sealer you ordered. It has been set up and tested in our factory with IPG manufactured water activated tapes. If any problems occur when setting up or operating this equipment, please contact the authorized distributor from where you purchased this item.

If contact with the authorized distributor is not possible, **IPG Machinery Support** is available. Should the need to contact **IPG Machinery Support** arise, **please have the equipment model and serial number available prior to contact**. This information can be found on the nameplate of the tape head as well as on the machine, both sets of information may be necessary to assist. A section at the bottom of this page is available to write this information down. **IPG Machinery Support** is available during normal business hours (M-F 8am-7pm) Eastern Time.

Phone: 813-345-3070

Email: machsupp@itape.com

Replacement Parts

A breakdown of parts, including part numbers, can be found in the appendix of this manual. If you know the part number that you require please contact your authorized distributor or IPG Customer Service 877-447-4832 Option 3

Please use this area to enter the detailed information on your Case Sealer and Tape Heads. This should be filled out at the time of install. This information can be found on the nameplate of the machine, typically on the side the electrical box is on. On pressure sensitive tape the nameplate is located on the same side the tape is loaded from. On the WAT Tape Heads serial information can be found near the air intake of the head.

Machine

Tape Head Bottom

Model

Model

Serial

Serial

Distributor

Date of Purchase

Name

Date of Install

Phone/Email

FIELD SERVICE ASSISTANCE

Your Interpack Case Sealer and Tape Heads are designed to provide years of trouble free operation. This is not without proper preventative maintenance, a recommended schedule can be located in the maintenance section of this manual, performed by then end user of the equipment. If any problems arise with this machine during the normal course of operation, your properly trained and qualified internal service personnel should be able to repair any issues after consulting the troubleshooting section of this manual in conjunction with phone and/or email support from IPG Machinery Support.

Field Service Support is available from your IPG Authorized Distributor at additional cost if the problem cannot be remedied after consulting the troubleshooting section of this manual.

IPG offers comprehensive programs that help keep your equipment up and running.

Proactive maintenance efforts help to prevent equipment failures and costly emergency repairs. Keeping your machine in optimal working condition also enhances employee safety, reduces facility downtime and efficiently allocates internal resources.

Please contact your IPG Representative to discuss the best options for your IPG equipment.

WARRANTY INFORMATION

EQUIPMENT WARRANTY AND LIMITED REMEDY: The following warranty is made in lieu of all other warranties, express or implied, including, but not limited to, the implied warranty of merchantability, the implied warranty of fitness for a particular purpose, and any implied warranty arising out of a course of dealing, a custom or usage of trade:

Intertape sells its Interpack Tape Heads, Case Tapers and Case Erectors with the following warranties:

1. The IPG Pressure Sensitive Tape Heads' knife blades, springs and wipe down rollers will be free from all defects for a period of ninety (90) days.
2. All other IPG Pressure Sensitive Tape Head parts will be free from all defects for one (1) year after delivery.
3. Water Activated Tape Heads' blades will be free from defects for ninety (90) days after delivery.
4. Drive Belts will be free from defects for ninety (90) days after delivery
5. The Gear Motors will be free from defects for one (1) year after delivery.
6. All other components for Case Tapers and Case Erectors will be free from defects for one (1) year after delivery.

If any part is proven defective within its warranty period, then the exclusive remedy and Intertape's and the seller's sole obligation shall be, at Intertape's option, to repair or replace the part, provided the defective part is returned immediately to Intertape's factory or an authorized service station designated by Intertape.

A part will be presumed to have become defective after its warranty period unless the part is received or Intertape is notified of the problem no later than five (5) calendar days after the warranty period.

If Intertape is unable to repair or replace the part within a reasonable time, then Intertape, at its option, will replace the equipment or refund the purchase price. Intertape shall have no obligation to install the repaired or replacement part.

Intertape shall have no obligation to provide or pay for the labor required to install the repaired or replacement part.

Intertape shall have no obligation to repair or replace (1) those parts failing due to: operator misuse, carelessness, or due to any accidental cause other than equipment failure, or (2) parts

1. Failure or damage is due to misapplication, lack of proper maintenance, abuse, improper installation or abnormal conditions such as temperature, moisture, dirt or corrosive matter, etc.
2. Failure due to inadequate cleaning, improper operating environment, improper utilities or operator error.
3. Failure due to operations above the rated capacities, or in any other improper manner, either intentional or otherwise.
4. Failure is due to equipment, which has been altered by anyone other than an authorized representative of Intertape Polymer Group.
5. Failure is due to an attempt by the purchaser to correct alleged defective equipment. In this event the purchaser is responsible for all expenses incurred.

LIMITATION OF LIABILITY: Intertape and seller shall not be liable for direct, indirect, special, incidental or consequential damages based upon breach of warranty, breach of contract, negligence, strict liability or any other legal theory.

The foregoing Equipment Warranty and Limited Remedy and Limitation of Liability may be changed only by written agreement signed by authorized officers of Intertape and seller.

GENERAL INFORMATION

Description of USA 2024-WAT-BO

This machine is designed to provide years of trouble free operation. If any problems arise with this machine during the normal course of operation, your properly trained and qualified internal service personnel should be able to repair any issues after consulting the [Troubleshooting](#) section of this manual.

The **USA 2024-WAT-BO** Case Sealer is designed to apply IPG brand water-activated tape to the bottom center seam of regular slotted corrugated cartons. The **USA 2024-WAT-BO** Case Sealer manually adjusts to a variety of case sizes.

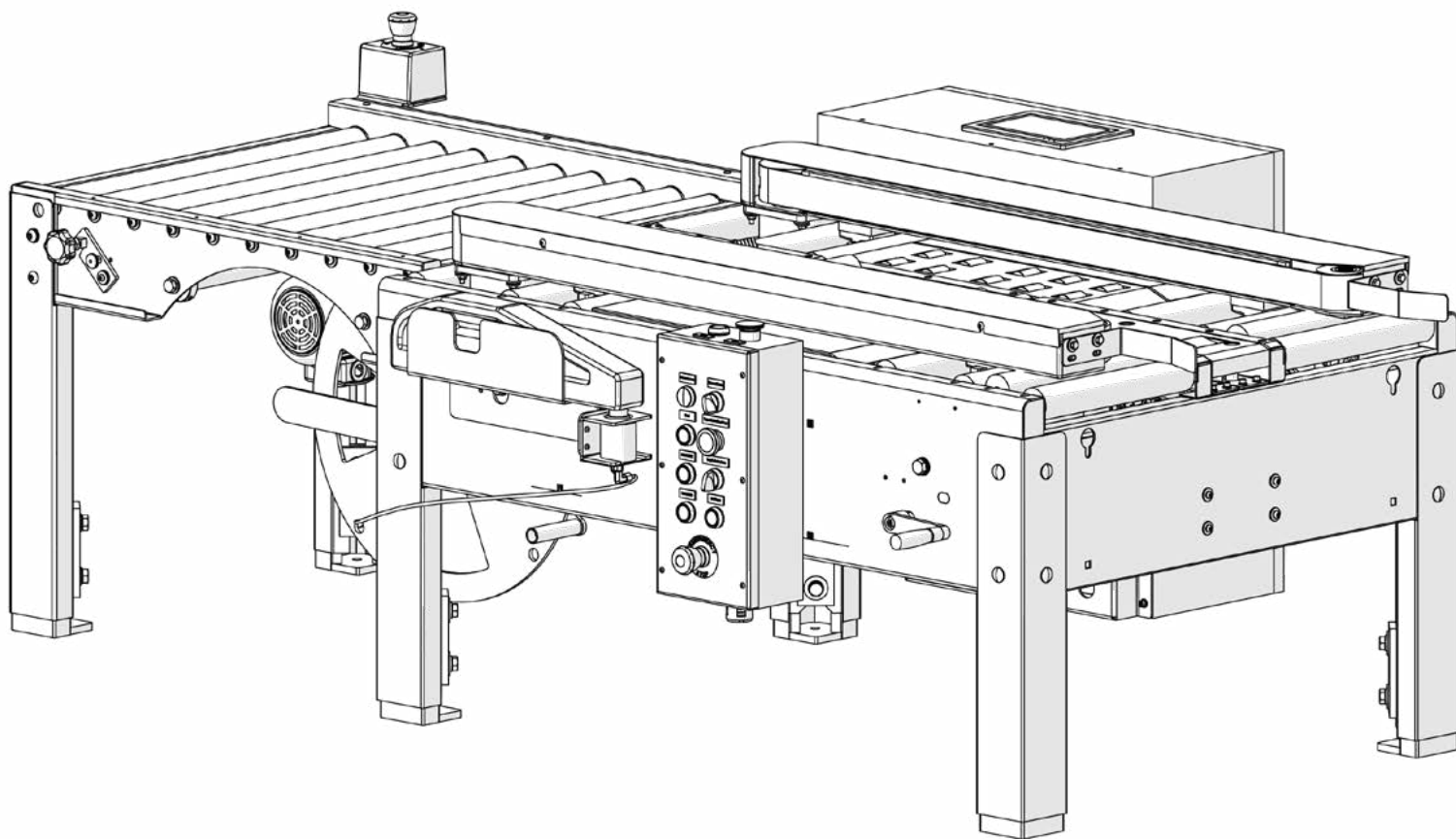


Figure 1: USA 2024-WAT BO

Definitions

Common terms that will be used throughout this manual.

Tape Head – This will refer to the WAT Tape Heads for the remainder of this manual

Case Sealer – Refers to IPG manufactured Case Sealers

Machine System – Refers to the fully assembled Case Sealer with the Tape Head(s) installed

User/Operator – The individual who has been trained on the daily use of the Machine System

Maintenance Champion – The individual(s) who work for the end user of the Machine System who are responsible for conducting general and preventative maintenance

OPTIONAL EQUIPMENT

The USA 2024-WAT-BO can be outfitted with a variety of optional equipment. The below list is **not** standard and should be discussed with your distributor or authorized IPG representative if you would like them to be added to your machine.

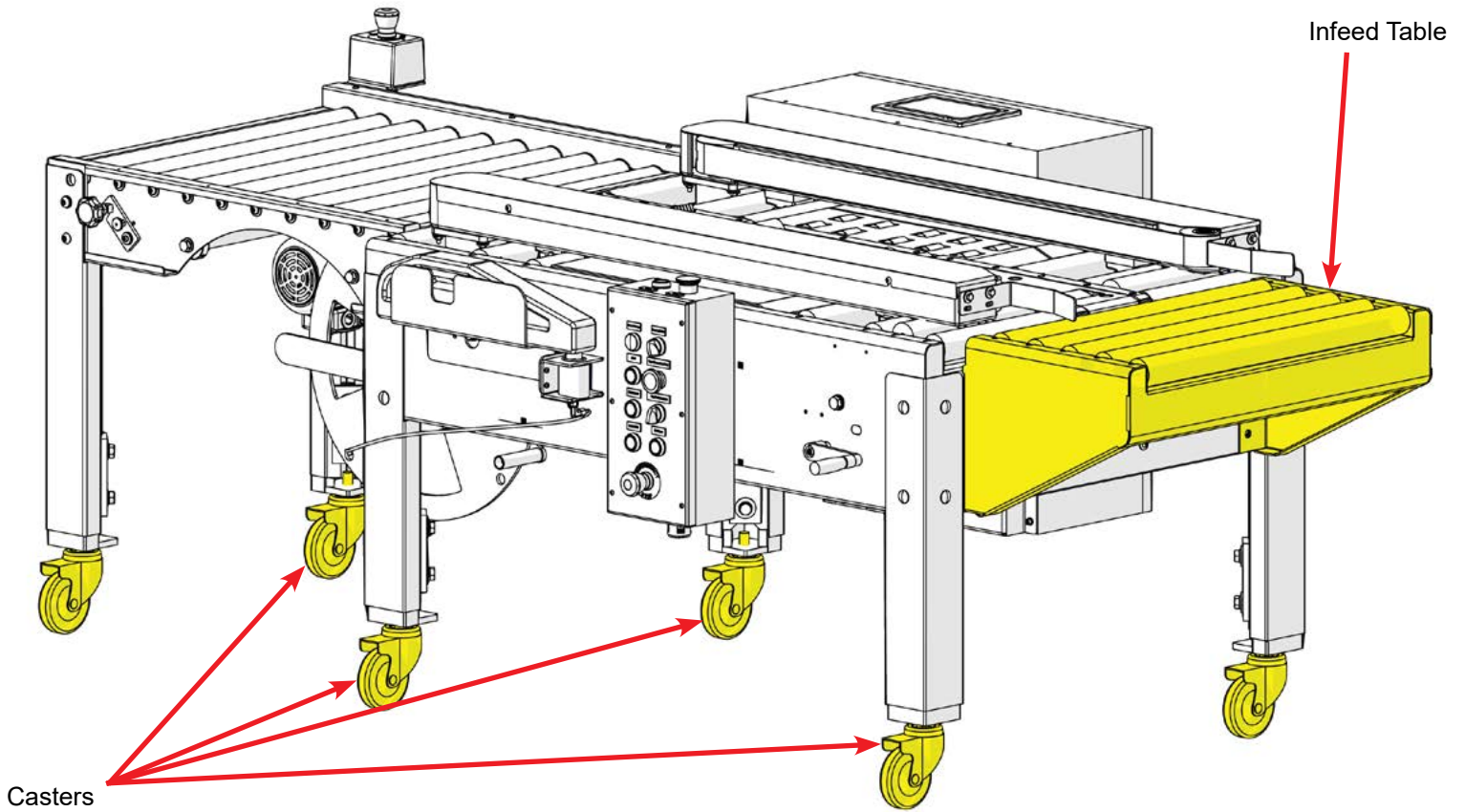


Figure 2: Optional Equipment

Additional Tape Heads

It is recommended to keep a spare top and/or bottom tape head in the event any failure or malfunction causes the machine to stop production. This is to help reduce any possible downtime.

Can be installed on site

| Description | Item Number | Quantity Per Machine |
|--|------------------------|---|
| Infeed Table .4M (16") | UM894T | 1 |
| Infeed Table .6M (24") | UM998T | 1 |
| Infeed Table .9M (36") | UM898T | 1 |
| Casters | UM708 | 1 set of 6 (36" Feed Table will require 2 additional casters) |

| Description | Item Number |
|---------------------------------------|-------------|
| Auto H2O Bottom Tape Head | UH125TW |
| Auto H2O Bottom Tape Head Refurbished | UH125TWR |

IMPORTANT SAFEGUARDS

There are a number of safety labels used on the **USA 2024-WAT-BO** Case Sealer. These labels are placed at different locations on the machine to warn operators and service personnel of possible dangers (refer to Figure 3). Please read the labels on the machine and the following safety precautions before using the machine.

Read this manual for other important safety operating and service information.

Only trained personnel are to operate machine.

Only fully qualified technicians are to service this machine.

Wear safety glasses.

Shut off power to machine before adjusting machine or loading & threading Tape Heads.

Disconnect electrical power and compressed air (where applicable) before servicing.

Follow Lock Out / Tag Out Procedures BEFORE servicing any machinery.

All factory installed covers and guards must be in place before operating.

Stay clear of moving parts which can shear and cut.

Should any of the safety labels on the Case Sealer be damaged or destroyed, replacements can be ordered through your distributor.

SAFETY LABEL PLACEMENT

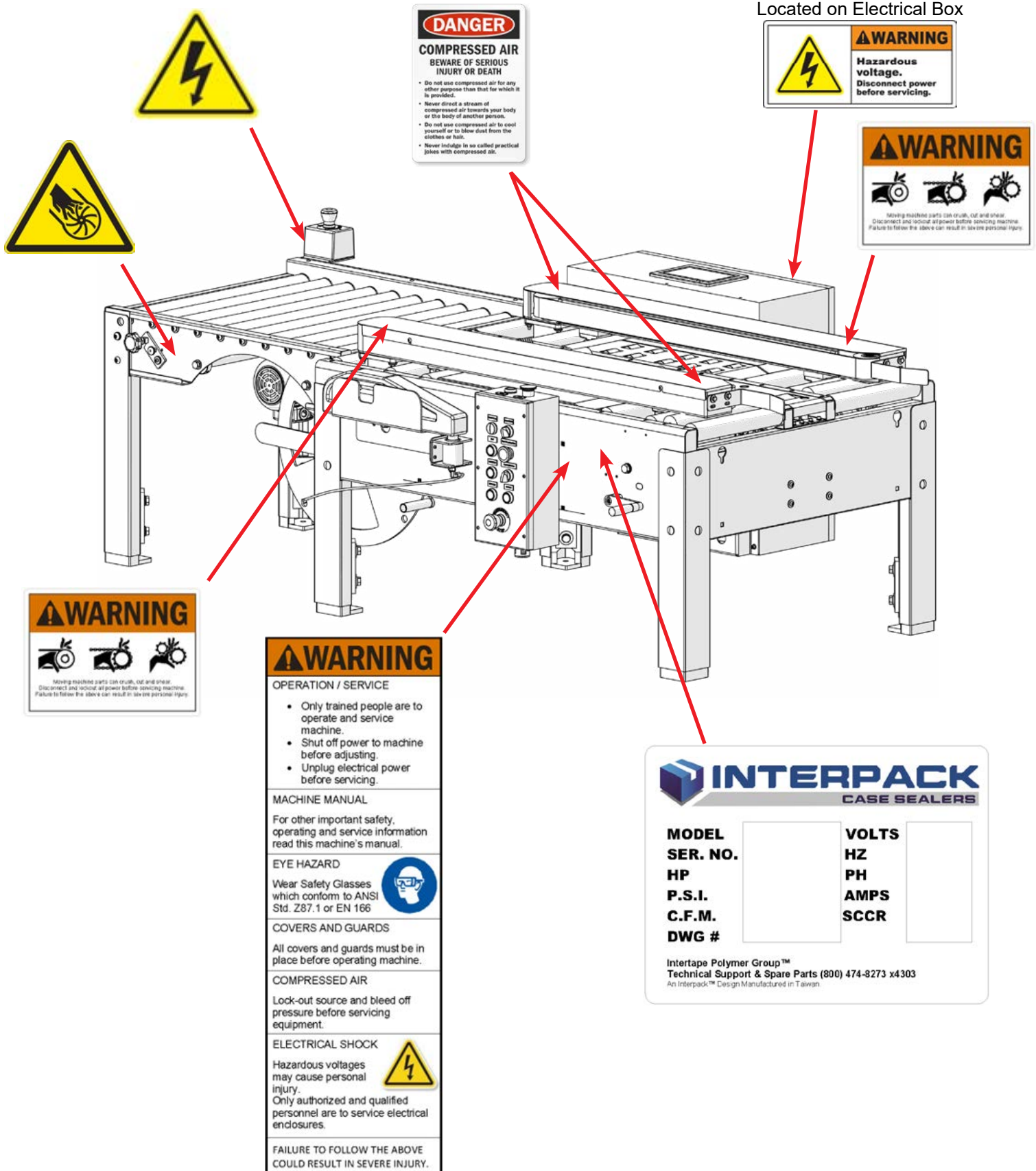







Figure 3: Safety Label Placement

SAFETY LABEL DESCRIPTIONS

| | |
|--|--|
| <p>The label shown is affixed to the upper tape head assembly on both sides of the machine.</p> <p>It warns operators and service personnel of the presence of the cutting blade that may not be visible. Caution should be exercised when approaching this area.</p> |  <p>WARNING Blade hazard. Keep hands clear. Follow lock-out procedures before servicing.</p> |
| <p>The label shown is affixed to the upper tape head assembly on either side of the machine.</p> <p>It warns operators and service personnel of the presence of the cutting blade that may not be visible. Caution should be exercised when approaching this area.</p> |  |
| <p>The label shown is located on the in-feed and exit ends of the machine belt drives.</p> <p>The label warns the operators and service personnel of the pinch points at each end of the belt drives.</p> |  <p>WARNING Moving machine parts can crush, cut and shear. Disconnect and lockout all power before servicing machine. Failure to follow the above can result in severe personal injury.</p> |
| <p>The label shown is affixed to the electrical control box.</p> <p>The label advises service personnel to connect the machine to a properly grounded outlet.</p> |  <p>WARNING Hazardous voltage. Disconnect power before servicing.</p> |
| <p>The label shown is affixed to the electrical control box.</p> <p>The label advises service personnel to connect the machine to a properly grounded outlet.</p> |  <p>CAUTION To provide continued protection against risk of electric shock, connect to properly grounded outlets only.</p> |

SAFETY LABEL DESCRIPTIONS CONTINUED

The label shown is located on the side of the column.

This label provides convenient safety instructions for the operator and service personnel in the operation of the IPG Case Sealing Equipment.



Figure 9: Safety Instructions




The label shown is located on the in-feed end

of the machine. The label advises personnel about the dangers of the machine due to compressed air used in the system. Be aware of warnings and proper procedures when running and/or servicing the machine.



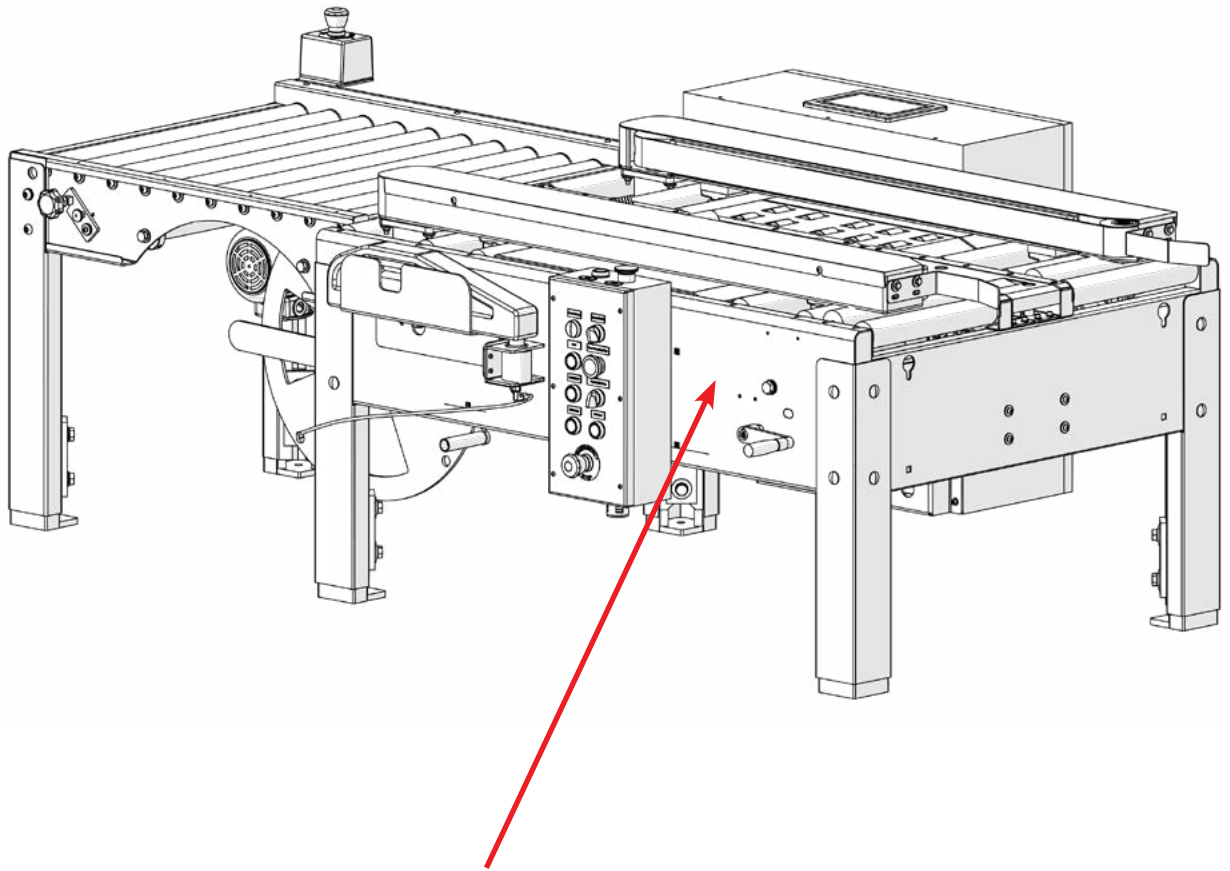
Figure 10: Compressed Air

SAFETY LABEL DESCRIPTIONS CONTINUED

| | |
|---|---|
| <p>The label shown is located on the gear side of the machine.</p> <p>The label warns the operators and service personnel of the pinch points.</p> |  <p>Figure 11: Gear Pinch Point</p> |
| <p>The label shown is located on the chain side of the machine.</p> <p>The label warns the operators and service personnel of the pinch points.</p> |  <p>Figure 12: Chain Pinch Point</p> |
| <p>The label shown is located on the side of the outfeed table.</p> <p>The label warns the operators and service personnel to keep fingers clear of lower tape mandrel.</p> |  <p>Figure 13: Rotational Pinch Point</p> |

Should any of the safety labels on the Case Sealer be damaged or destroyed, replacements can be ordered through your distributor.

MACHINE NAMEPLATE




Machine Identification and Motor Power

Machine Pneumatic Requirements if applicable

Applicable Machine Drawing Number

Manufacturer Details



| | | | |
|-----------------|-----------------|--------------|-----|
| MODEL | USA 2024-WAT-BO | VOLTS | 110 |
| SER. NO. | TM81424A001 | HZ | 60 |
| HP | 2x 1/3HP | PH | 1 |
| P.S.I. | 75 | AMPS | 7.6 |
| C.F.M. | 9 | SCCR | |
| DWG # | | | |

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 Technical Support & Spare Parts (800) 474-8273 x4303
 An Interpack™ Design Manufactured in Taiwan.

Machine Electrical Requirements

Figure 14: Machine Nameplate

Reading Interpack Serial Numbers

Model Identifier

Year and Month of Manufacture

Machine Production Number

TM814 24A 001

IMPORTANT SAFEGUARDS

Explanation of Signal Word Consequences



WARNING: INDICATES A POTENTIALLY HAZARDOUS SITUATION, WHICH IF NOT AVOIDED COULD RESULT IN DEATH OR SERIOUS INJURY OR PROPERTY DAMAGE



CAUTION: INDICATES A POTENTIALLY HAZARDOUS SITUATION, WHICH IF NOT AVOIDED COULD RESULT IN MINOR OR MODERATE INJURY OR PROPERTY DAMAGE



WARNING

1. **To reduce the risk associated with mechanical, pneumatic, and electrical hazards:**
 - Read, understand, and follow all safety and operating instructions before operating or servicing the Case Sealer and/or Tape Head(s)
 - Allow only properly trained and qualified personnel to operate and service this equipment
2. **To reduce the risk associated with pinches, entanglement, and hazardous voltage:**
 - Turn electrical supply off and disconnect before performing any adjustments, maintenance, or servicing the Case Sealer or Tape Head
3. **To reduce the risk associated with pinches and entanglement hazards:**
 - Do not leave the Case Sealer running while unattended
 - Turn the Case Sealer off when not in use
 - Never attempt to work on any part of the Case Sealer, Tape Head, load tape, or remove jammed boxes from the Case Sealer while the machine is running
4. **To reduce the risk associated with hazardous voltage**
 - Position electrical cord away from foot traffic and vehicle traffic
 - Do not operate the Case Sealer with a damaged power cord
5. **To reduce the risk associated with sharp blades hazards:**
 - Keep hand and fingers away from the tape cutoff blades, the blades are very sharp
6. **To reduce the risk associated with fire and explosion hazards:**
 - Do not operate this equipment in potentially flammable and/or explosive environments
7. **To reduce the risk associated with muscle strain:**
 - Use the appropriate rigging and material handling equipment when lifting or repositioning this equipment
 - Use proper body mechanics when removing or installing Tape Heads that are moderately heavy or may be considered awkward to lift
8. **To reduce the risk associated with mechanical, pneumatic, and electrical hazards:**
 - Allow only properly trained and qualified personnel to operate and service this equipment



CAUTION

1. **To reduce the risk associated with pinch hazards:**
 - Keep hands clear of the upper head support assembly as boxes are transported through the Case Sealer
 - Keep hands, hair, loose clothing, and jewelry away from box compression rollers, moving belts, and Tape Heads
 - Always feed boxes into the Case Sealer by pushing only from the end of the box

IMPORTANT SAFEGUARDS

Operator Skill Level Descriptions

These descriptions and levels are uniform across all IPG Case Sealers

Skill “A” Machine Operator

This operator is trained to use the Case Sealer with the machine controls, to feed cases into the machine, make adjustments for different case sizes (USA series machines), to change tape, to start, stop, and restart production, and to clear jams and perform basic troubleshooting.

Important: The end user area supervisor must ensure that the operator has been properly trained on all machine functions before operating the machine.

Skill “B” Mechanical Maintenance Technician

Also referred to as the Maintenance Champion, this technician, is trained to use the Case Sealer as the Operator is able and in addition is able to work with the safety protection disconnected to check and adjust mechanical components, to perform maintenance operations and repair the Case Sealer. A skill “B” operator is not allowed to work on live electrical components.

Skill “C” Electrical Maintenance Technician

This technician is trained to use the Case Sealer as the Operator is able and in addition is able to work with the safety protection disconnected, to check and adjust mechanical components, to perform maintenance operations and repair the Case Sealer. A skill “C” operator is allowed to work on live electrical panels, terminal blocks, and control equipment.

Skill “D” Manufacturer Technician

Skilled technician sent by the manufacturer or its agent (distributors) to perform complex repairs of modifications, when agreed with the customer.

Operators skill level required to perform the following tasks on the Machine System

| OPERATION | MACHINE CONDITION | OPERATOR SKILL LEVEL | NUMBER OF OPERATORS |
|---|---|----------------------|---------------------|
| Tape Roll Replacement | Stopped by pressing the Emergency Stop Button | A | 1 |
| Blade Replacement | Electrical Power Disconnected | B | 1 |
| Ordinary Maintenance and Preventative Maintenance | Electrical Power Disconnected | B | 1 |
| Extraordinary Mechanical Maintenance | Running with Safety Protections Disabled | C | 1 |
| Extraordinary Electrical Maintenance | Running with Safety Protections Disabled | D | 1 |
| Drive Belt Replacement | Electrical Power Disconnected | B | 1 |
| Machine Installation & Set-Up | Running with Safety Protections Disabled | B & C | 2 |

Proper Electrical Disconnect is achieved when the machine is unplugged from the electrical socket.

IMPORTANT SAFEGUARDS

Emergency Stop Locations

The USA 2024-WAT-BO Case Sealer comes equipped with two (2) Emergency Stop buttons standard. One on the operator control box and another on the powered outfeed table. Additional Emergency Stop buttons may be added, consult your Authorized IPG Representative.

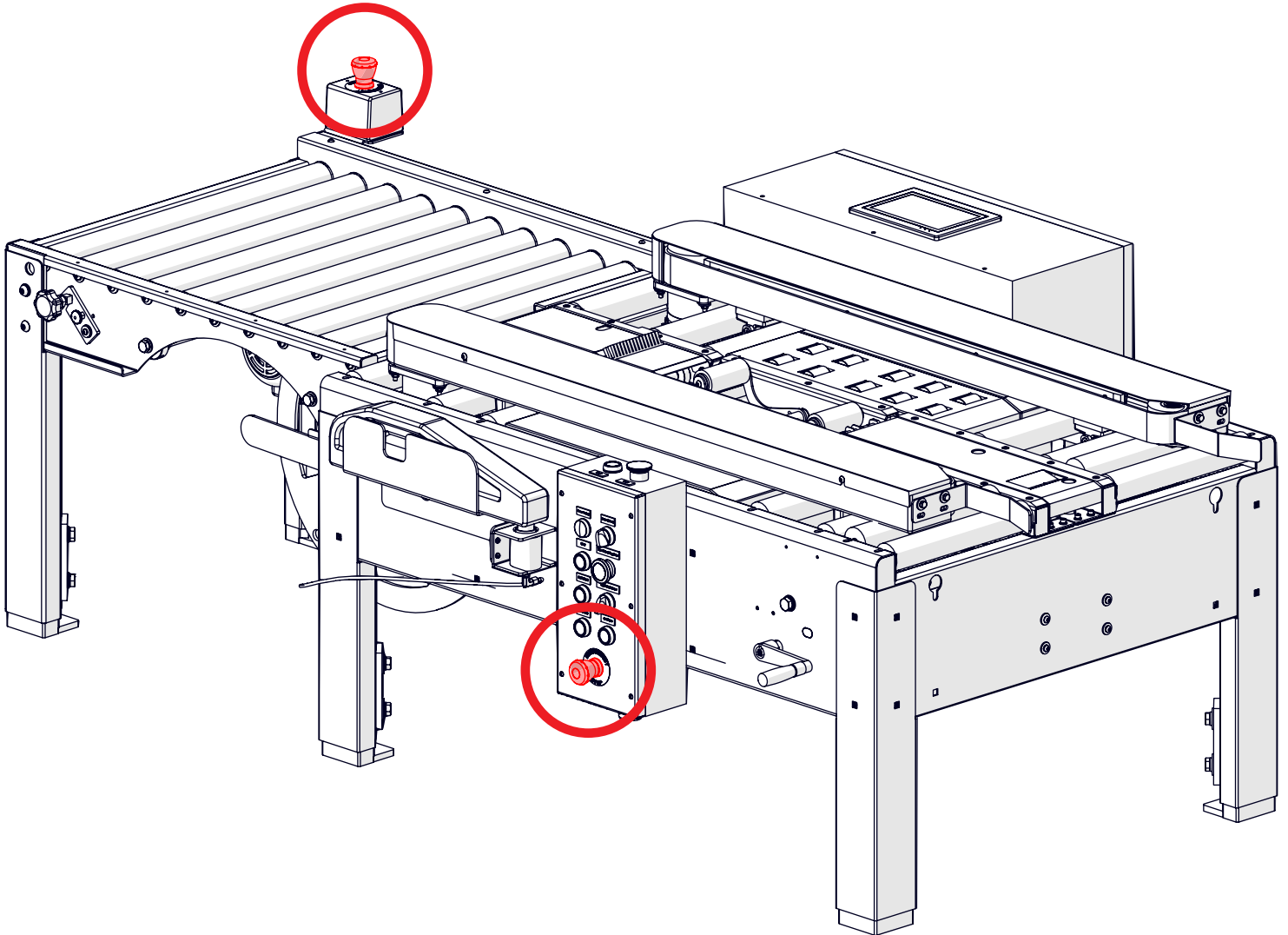
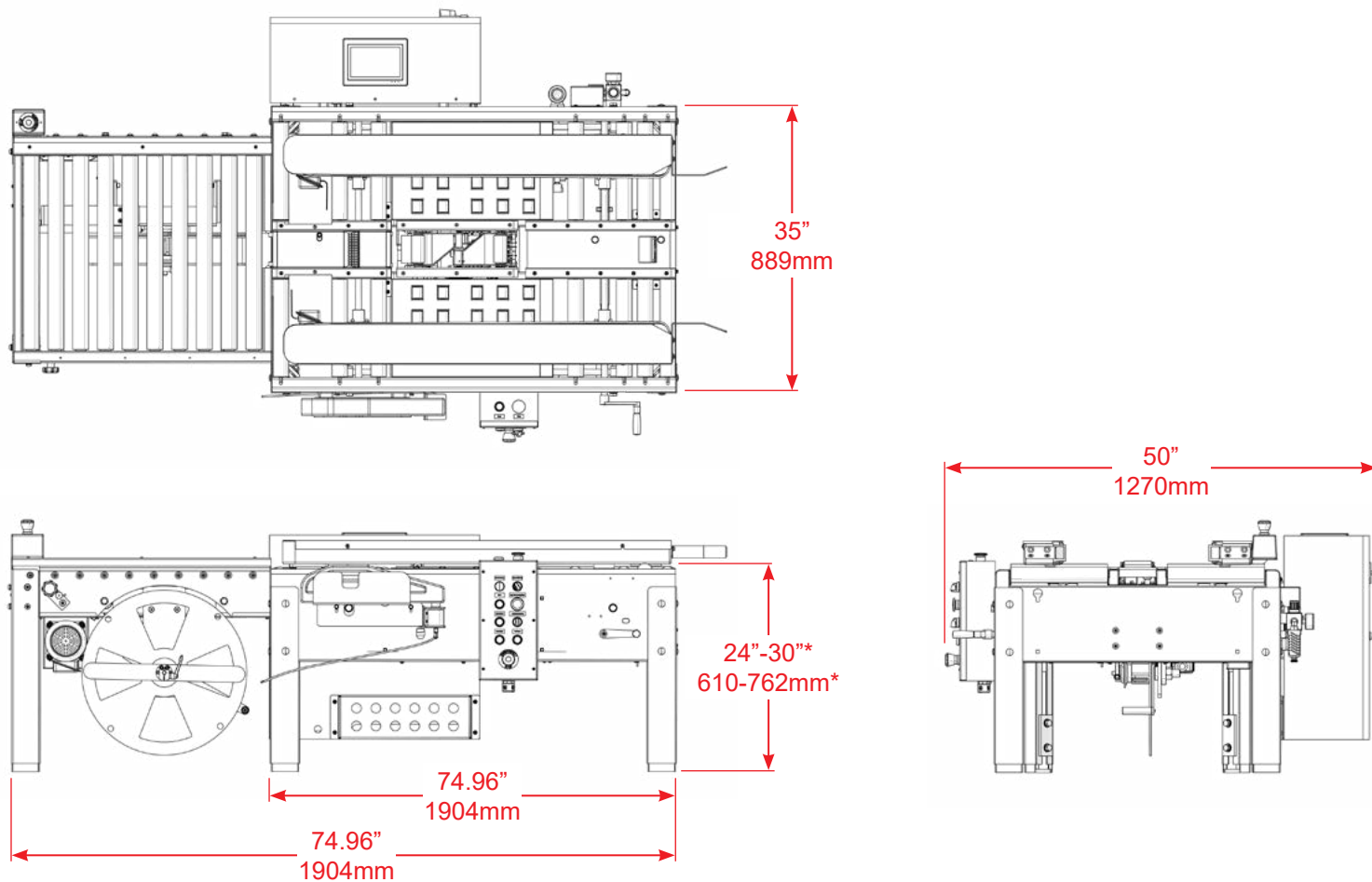


Figure 15: Emergency Stop Locations

SPECIFICATIONS

USA 2024-WAT-BO Dimensions

Machine Weight: 850 lbs. (386kg)



* Height notated is with standard legs. If a different range is necessary please contact your Authorized IPG Representative for additional conveyor height options. If optional casters are added they will add 4" (102mm).

Figure 16: Machine Dimensions

SPECIFICATIONS

Machine Components

Powered Outfeed Conveyor

1/3HP Motors to Process 80b Cases

Pneumatic Tape Wipe Down

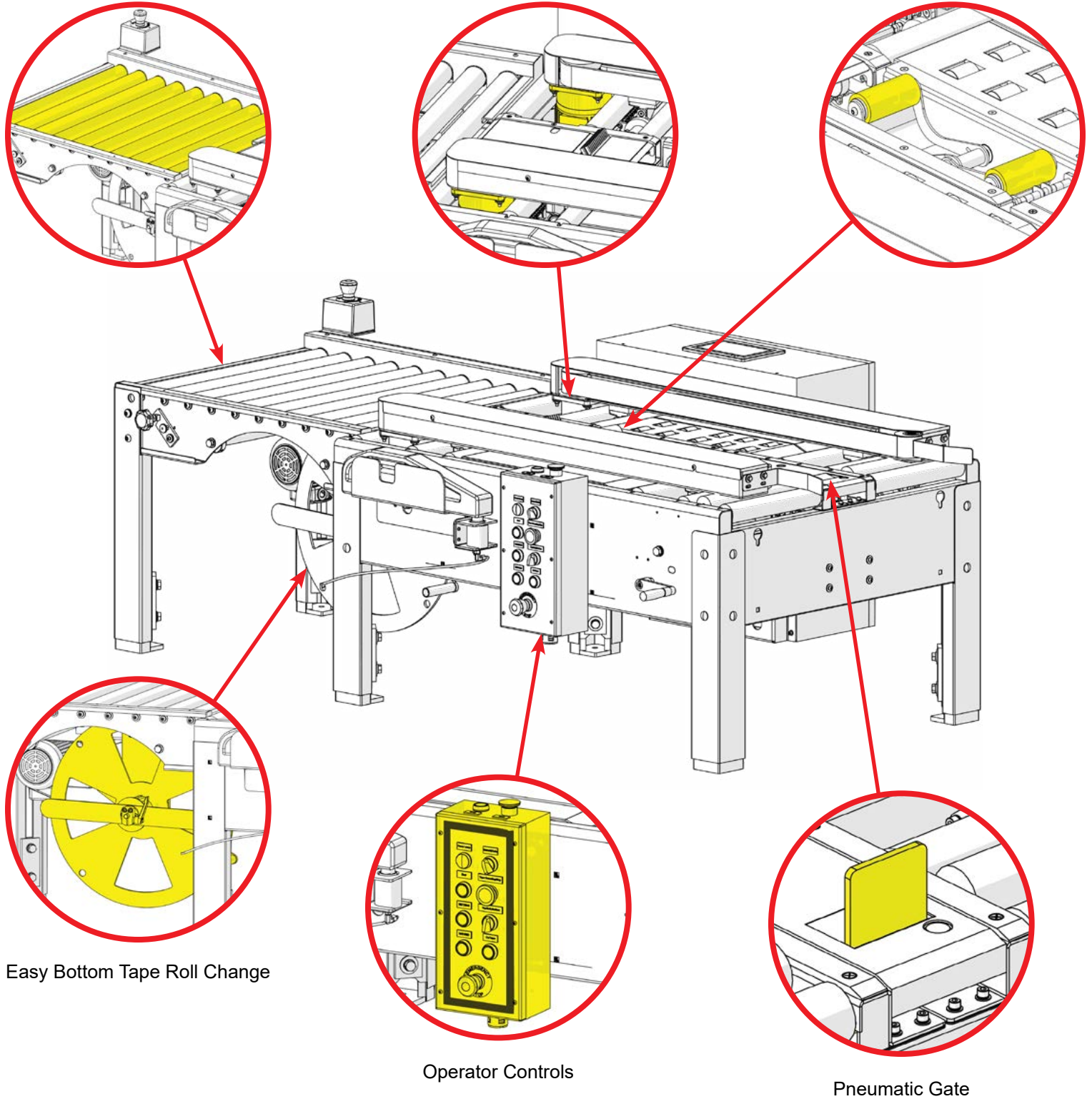


Figure 17: Machine Components

SPECIFICATIONS

Power Requirements

Electrical: **110v, 60HZ, 15A (1650 Watts)**

This machine comes standard with three gear motors, one on each drive base and one powered outfeed conveyor, an electrical box, and a control box.

The electrical box contains an HMI for machine adjustments. The control box contains the **Clear** button, **Power Lamp**, a **Manual/Auto** switch, a **Tape Threading/Stop** button, a **Tape Cut** button, a **Tape Feed** button, an **Emergency Stop** switch, a **Start** button, and a **Reset** button.

A 12 ft. (3.6 m) standard, three-conductor power cord with plug is provided for **110V, 60HZ, 15A** service. The receptacle providing this service **must** be properly grounded.

Pneumatic Requirements

Compressed Air: **9CFM at 90 PSI** (254.9 Liter/min at 620.5 kPa)

This machine comes standard with one main regulator.

Air must be clean and dry. If moisture enters the system valves can begin to degrade and lines slowly clog. This can cause reduced flow resulting in undesired machine behavior.

Operating Speed

Belt speed is 82 ft./min (24.9 m/min). Boxes must be separated by 31 in. (787mm).

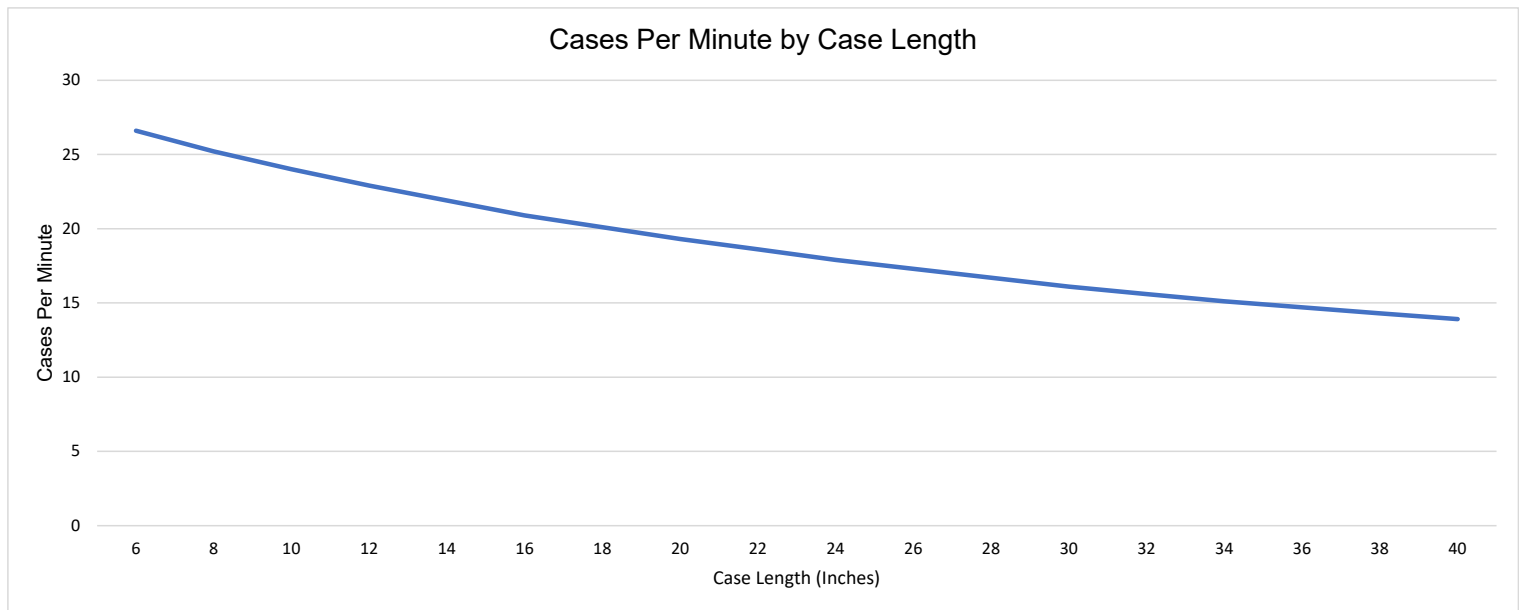


Figure 18: Cases Per Minute

SPECIFICATIONS

Tape Specifications

Use only **IPG Water-Activated Tape**. The machine can accommodate tape widths of 3 in. (70 - 75mm).

A maximum tape roll length of 4500 ft. (1371.6m) can be installed on the tape heads. This machine can accommodate all IPG brand, water-activated tape within listed specifications.

The standard tape leg length of 3 in. (75mm) is factory set. The standard tape leg length may vary up to ¼ in. (6mm) based on tape tension and line speed.

The standard tape leg length is adjustable via the HMI on the electrical box. The minimum tape leg length recommended is 2 in. (48mm) and the maximum recommended is 3 in. (75mm).

Operating Conditions

Use in a dry, relatively clean environment at 40° to 105° F (5° to 40° C) with clean dry cartons. Maximum sound pressure level is less than 70dBA.



CAUTION: MACHINE SHOULD NOT BE WASHED DOWN OR SUBJECTED TO CONDITIONS CAUSING CONDENSATION ON COMPONENTS.



CAUTION: TO PREVENT INJURY KEEP AN AREA WITH A MINIMUM OF 36 IN. (915MM) OF SPACE CLEAR, CLEAN, AND DRY ON THE OPERATOR AND CONTROL BOX SIDES OF THE MACHINE.

Carton Specifications

Type

- Regular Slotted Containers (RSC)
- Other styles may be processed. Consult factory.

Material

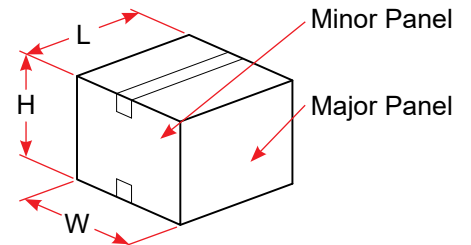
- 125 to 175 PSI bursting test, single or double wall, B or C flutes
- Other styles may be processed. Consult factory.

Weight

- 0 to 38.5 kg (0 to 85 lbs.) Max

Size

| Carton Size | Length | Width | Height |
|-------------|------------|-------------|-----------|
| Minimum | 7" (127mm) | 7" (127mm) | 3" (77mm) |
| Maximum | Infinite | 20" (508mm) | Infinite |



However, if the box length (in the direction of the seal) to box height ratio is 0.75 or less, several boxes should be test run to assure proper machine performance. The formula is as follows:

$$\frac{\text{Carton Length in direction of seal}}{\text{Carton Height}} > 0.75$$

SET-UP PROCEDURE

Receiving and Handling

The Interpack USA 2024-WAT-BO is shipped to the customer in a box and fixed to a pallet. The machine is enclosed with either a corrugated sleeve and cap or an HSC corrugated box. The sequence below is step by step instructions to remove all packing materials.

PRIOR TO SIGNING FOR THE MACHINE INSPECT IT FOR ANY DAMAGE THAT MAY HAVE OCCURRED DURING SHIPPING

1. Remove the strapping and/or staples at the bottom of the box
2. Lift the box cover off of the machine, use caution and team lift
3. Remove any bubble wrap or protective wrapping
4. Inspect the machine for any damage that may have occurred during shipping
5. Remove the mounting bolts and nuts that secure the machine to the pallet
6. Using a forklift or other lifting device, lift the machine off the pallet
 - Install any optional casters at this point as well as adjusting leg height for desired conveyor height
7. Position the machine in its desired location
8. Remove any remaining tie wraps and shipping materials
9. Install the included Carton Retainers
10. Install any optionally ordered equipment

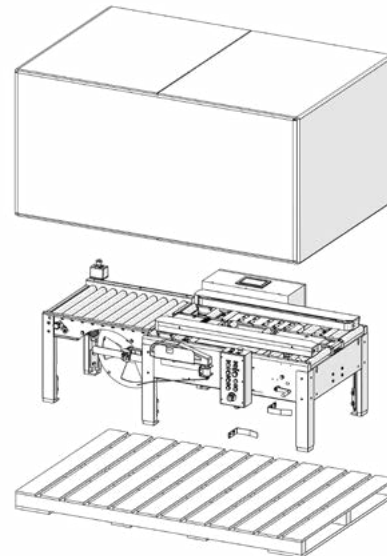


Figure 19: Unboxing

After unpacking the Case Sealer, look for any damage that may have occurred during shipping. Should the Case Sealer be damaged, file a claim with the transport company and notify your IPG representative as soon as possible.

Set up

The Case Sealer must be installed on a near level ground. Use the adjustable legs to ensure the machine is level and firmly planted on the ground (no rocking). Adjust the leg height with the six (6) telescopic adjustment legs to accommodate conveyor heights from 24 in. to 30 in. Consult with the factory for any other conveyor heights that may be required. Optional Casters add 4 in. to the conveyor height.

To adjust the Case Sealer height, jack up the machine to give ample room to extend the legs. Using a 19mm box end wrench, loosen the eight (8) M12mm hex bolts. Adjust the legs to the desired conveyor height and tighten the bolts. Etched lines on the legs ease leveling. The machine must be properly supported prior to any leg adjustment.

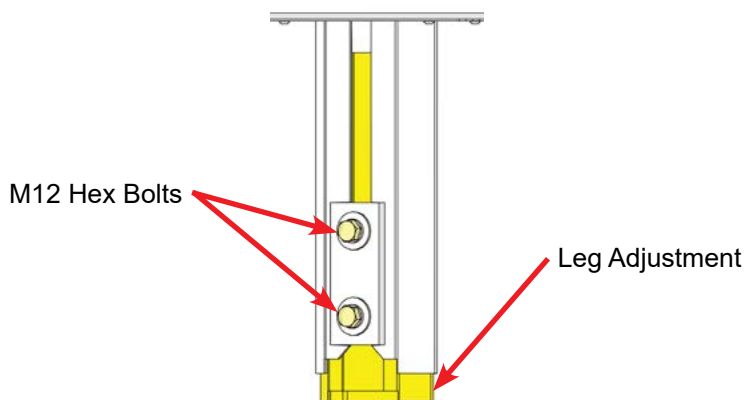


Figure 20: Leg Adjustment

Customer supplied feed conveyor (if used) should provide straight and level entry into the Case Sealer. Customer supplied exit conveyor (if used) should be straight and declined no more than 1 in./yard away from the Case Sealer to convey the sealed cartons away from the machine.

SET-UP PROCEDURE



WARNING: CASTER INSTALLATION REQUIRES RAISING THE MACHINE TO ACCESS THE BOTTOM OF EACH LEG. FOLLOW ALL POSSIBLE SAFETY PROCEDURES PRIOR TO AND DURING THIS PROCESS.

Be advised there are several ways to install the casters on IPG Case Sealers. Consult your company's safety practices after reading through the below directions. Take all precautions necessary.

1. Raise the machine to allow access to the bottom of each leg.
2. By hand, screw the caster into each leg.
3. Using a wrench, verify each caster is firmly seated to the bottom of the legs.
4. Lower the machine back down until it is resting on the casters.
5. Adjust the legs as necessary to achieve proper level of the machine.



CAUTION: DO NOT ADJUST THE HEIGHT USING THE CASTERS. HEIGHT CHANGES ARE TO ONLY BE MADE BY ADJUSTING THE LEG EXTENSIONS.

6. Position the machine in its desired location.
7. Lock the casters.

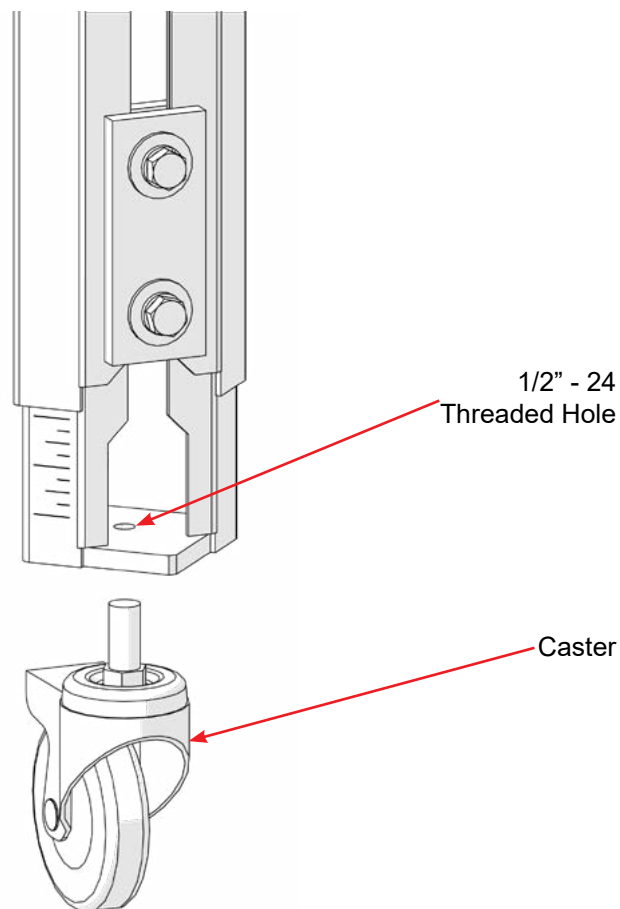


Figure 21: Caster Installation

SET-UP PROCEDURE

Optional Equipment: In-feed Table Installation

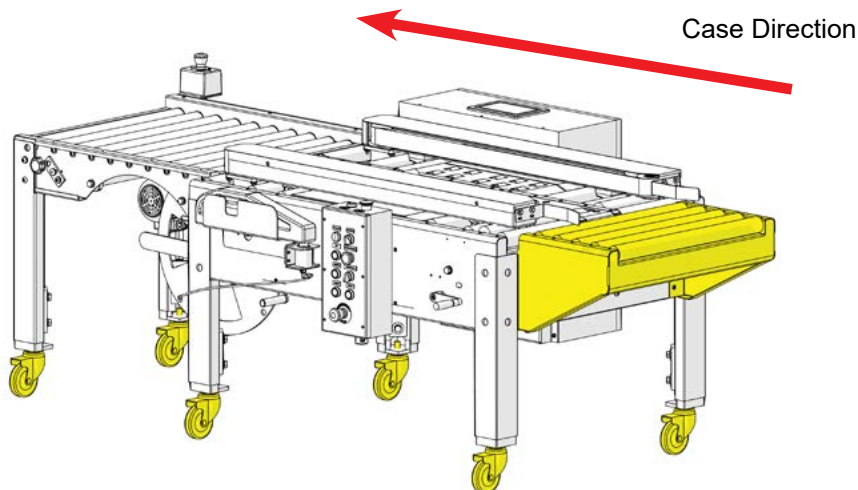


Figure 22: Case Direction

IPG Case Sealers come with the necessary mounting points for in-feed/out-feed tables. The optional in-feed/out-feed tables will come with all necessary hardware to mount to the machine. The case sealers can accept a variety of table sizes. Please consult with the factory on the best size table for your application.

1. Loosely install two carriage bolts into top two mounting holes on roller table with hardware included.

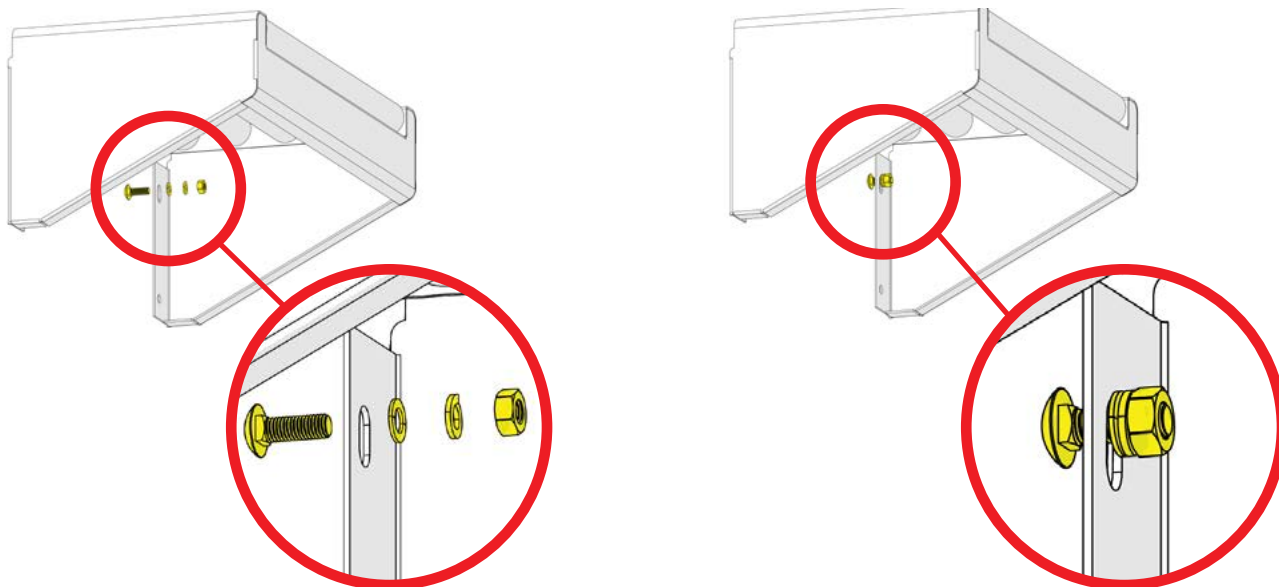


Figure 23: Carriage Bolt Assembly

SET-UP PROCEDURE

Optional Equipment: In-feed Table Installation (Continued)

1. Utilizing the slots on the machine base, attach roller table to machine base by locating carriage bolts in slots on machine base and push down to lock in place. Make sure carriage bolts are properly aligned into slot when pushed down to lock in place before proceeding.

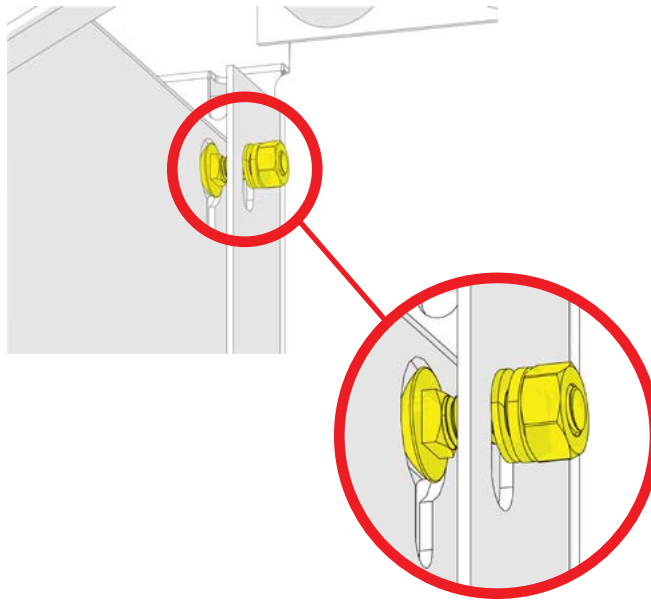


Figure 24: Table to Machine Base Installation

2. Once roller table is attached to the machine base using the two carriage bolts, install remaining two carriage bolts with hardware included through the bottom two holes on the machine base and roller table.
3. After all four mounting studs and included hardware have been installed, tighten all hardware to avoid roller table instability then install rollers on table.

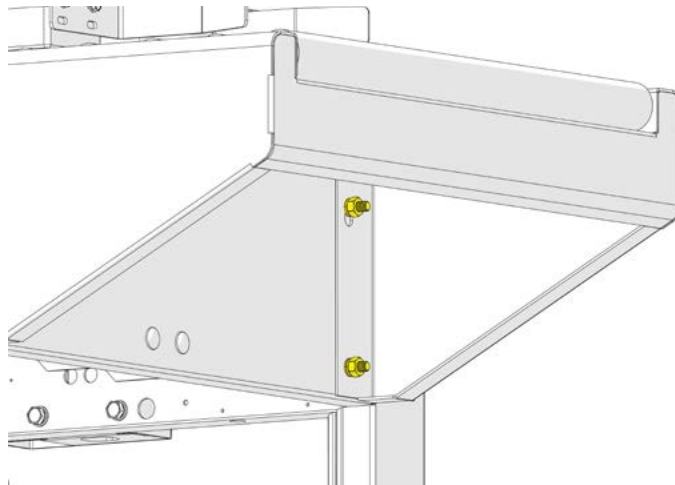


Figure 25: Remaining Carriage Bolt Installation

SET-UP PROCEDURE

Optional Equipment: Installation of External In-feed and Exit Conveyors

IPG does not supply conveyors. All conveyors are to be customer supplied.

1. Customer supplied in-feed conveyor (if used) should provide straight and level entry into the case sealer.
2. Customer supplied gravity exit conveyor (if used) should be straight and declined no more than 1 in./yard away from the machine to convey the sealed cartons away from the machine.
3. Customer supplied powered exit conveyor should be straight and level to convey the sealed cartons away from the machine.

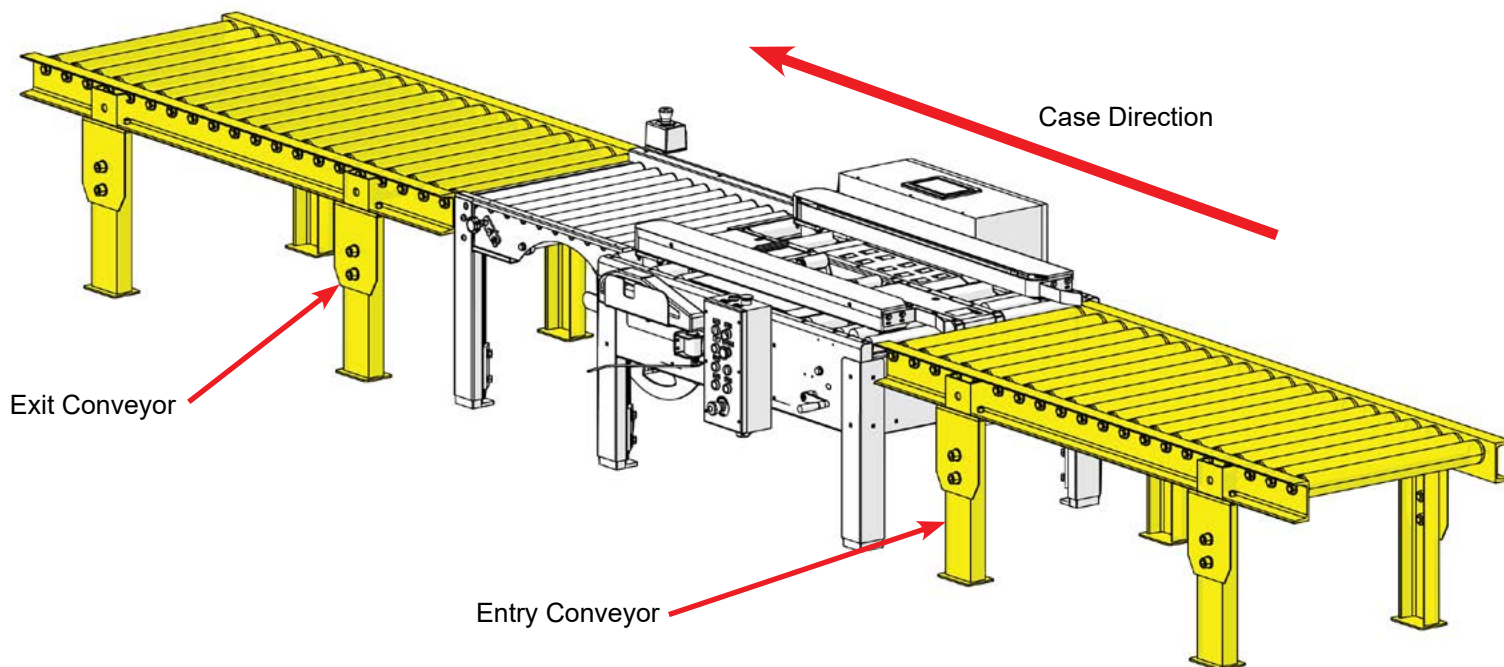


Figure 26: Installing In-Feed and Exit Conveyors

CONNECTING UTILITIES

Electrical Utilities

A 12 ft. (3.6m) standard three-conductor power cord with plug is provided for **110V, 60HZ, 15A** electric service. The receptacle must be properly grounded. Before the machine is plugged into the receptacle, ensure that all materials are removed from the machine. The electrical control is protected with an automatic circuit breaker with resettable overload.

The electrical box is located on one side of the **USA 2024-WAT-BO** Case Sealer. It contains an HMI that can be used to adjust machine operation settings as needed.

The control box contains a Start button, the Emergency Stop switch, a Manual/Auto switch, a Tape Feed/Cut button, a Tape Threading/Stop button, and a Clear button.

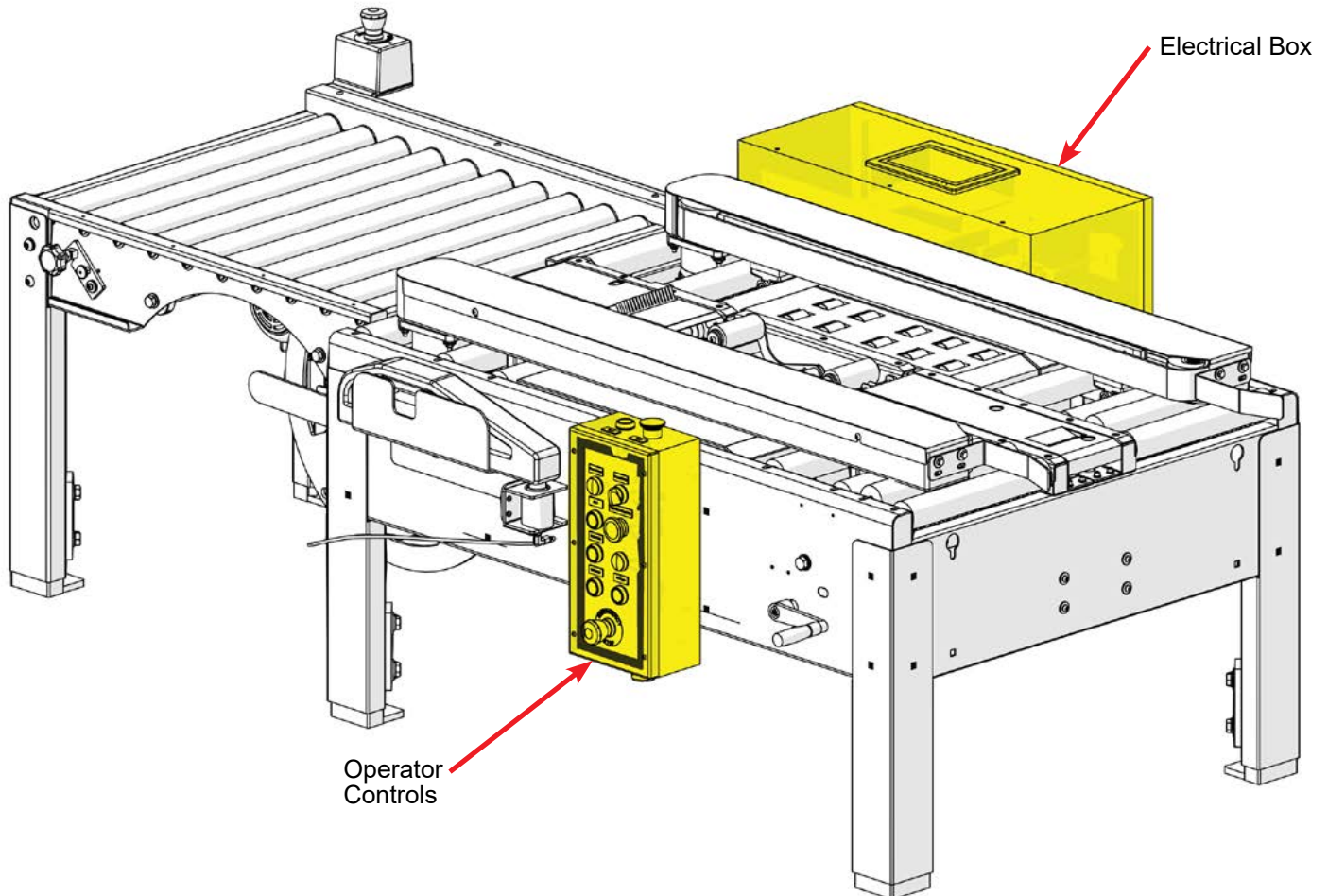


Figure 27: Electrical Utilities

The electrical box and control box can be moved to the opposite side of the machine. This requires disconnecting and reconnecting electrical wires and components. Only trained and qualified service technicians should access and open the control box.

If reversing the electrical utilities is required it is recommended to have this done at the factory prior to machine delivery. Please consult your IPG Representative if this process is required.

CONNECTING UTILITIES

Pneumatic Utilities

The pressure setting for the main air regulator is factory set. The values will need to be adjusted as needed by customer supplied pressure and volume.

The main air regulator has a male quick disconnect adapter. Connect clean dry compressed air to this adapter. The **USA 2024-WAT-BO** Case Sealer requires a minimum of **9 CFM** at **90 PSI** (28.3 Liter/min at 689 kPa). It is connected to an electronic dump valve prior to any connection into the machine.

To regulate the main air pressure, pull on the knob located on the top of the main air regulator. Turn the knob clockwise for more pressure and counterclockwise for less. When the air pressure is at 75 PSI, push back down on the button until a “click” is felt to lock it in position. The thread size is 3/8 in NPT.

Should the supplied airline or pressure be unplugged or cut for any reason, tape will not feed and rollers will not be activated if box is processed.

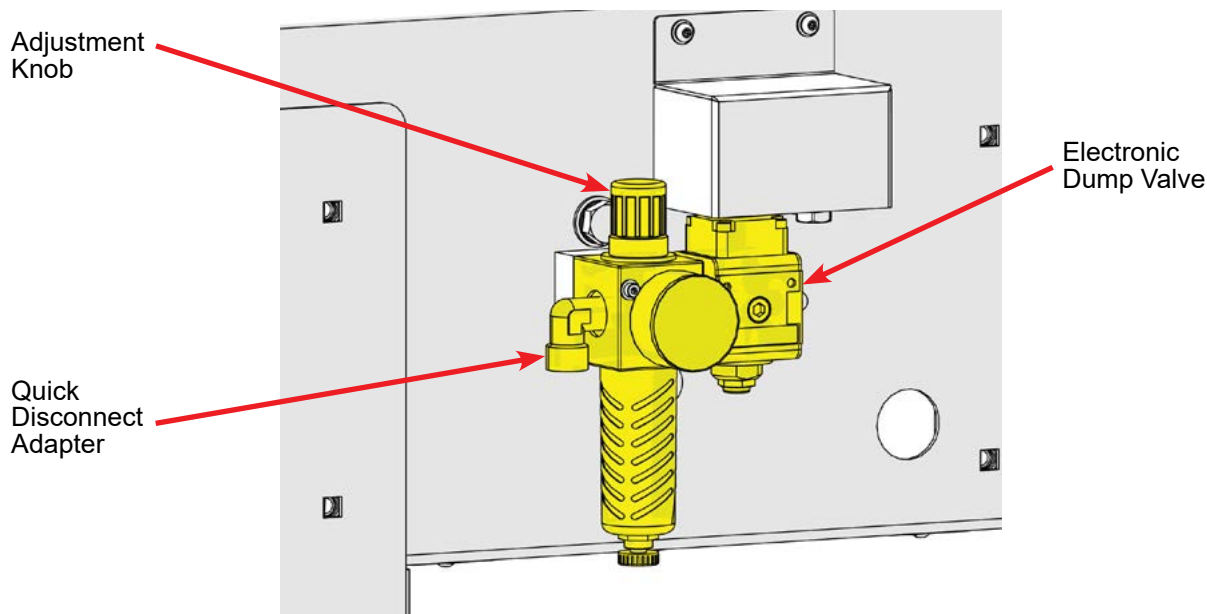


Figure 28: Main Air Regulator

OPERATOR CONTROL BOX

Make sure machine is connected to air supply of at least 100 PSI (689.5 kPa) and machine regulator is set at 75 PSI. The following describes the use of control box buttons:

1. **Reset button** - Used to reset machine after power up or to reset after all E-Stops have been cleared.
2. **Clear button** (Operational in Auto Mode only). This button is used to simplify clearing a jam during production. When pressed down, belt drive motors stop, air supply is removed from tape head, and cutting mechanism is engaged.
3. **Manual/Auto switch**
 - Auto mode is for machine operation.
 - Manual mode is for tape threading/troubleshooting.
4. **Tape Threading/Stop button**
 - On Auto Mode, stops machine operation.
 - On Manual Mode, engages/disengages pinch roller which drives the tape.
5. **Tape Cut button**
 - No function on Auto Mode.
 - On Manual Mode, engages cutting mechanism in tape head to cut tape.
6. **EMERGENCY Stop button**
 - On Auto Mode, de-energizes machine.
 - On Manual Mode, de-energizes machine.
7. **Tape Feed button**
 - No function on Auto Mode.
 - On Manual Mode, feeds a length of tape and cuts it.
8. **Belt Drive button**
 - No function on Auto mode.
 - On Manual mode, press and hold to engage belt drive, release to stop.
9. **Start button**
 - On Auto mode, starts machine.
 - No function on Manual mode.
10. **Power Lamp** - Electricity is being delivered throughout the machine.

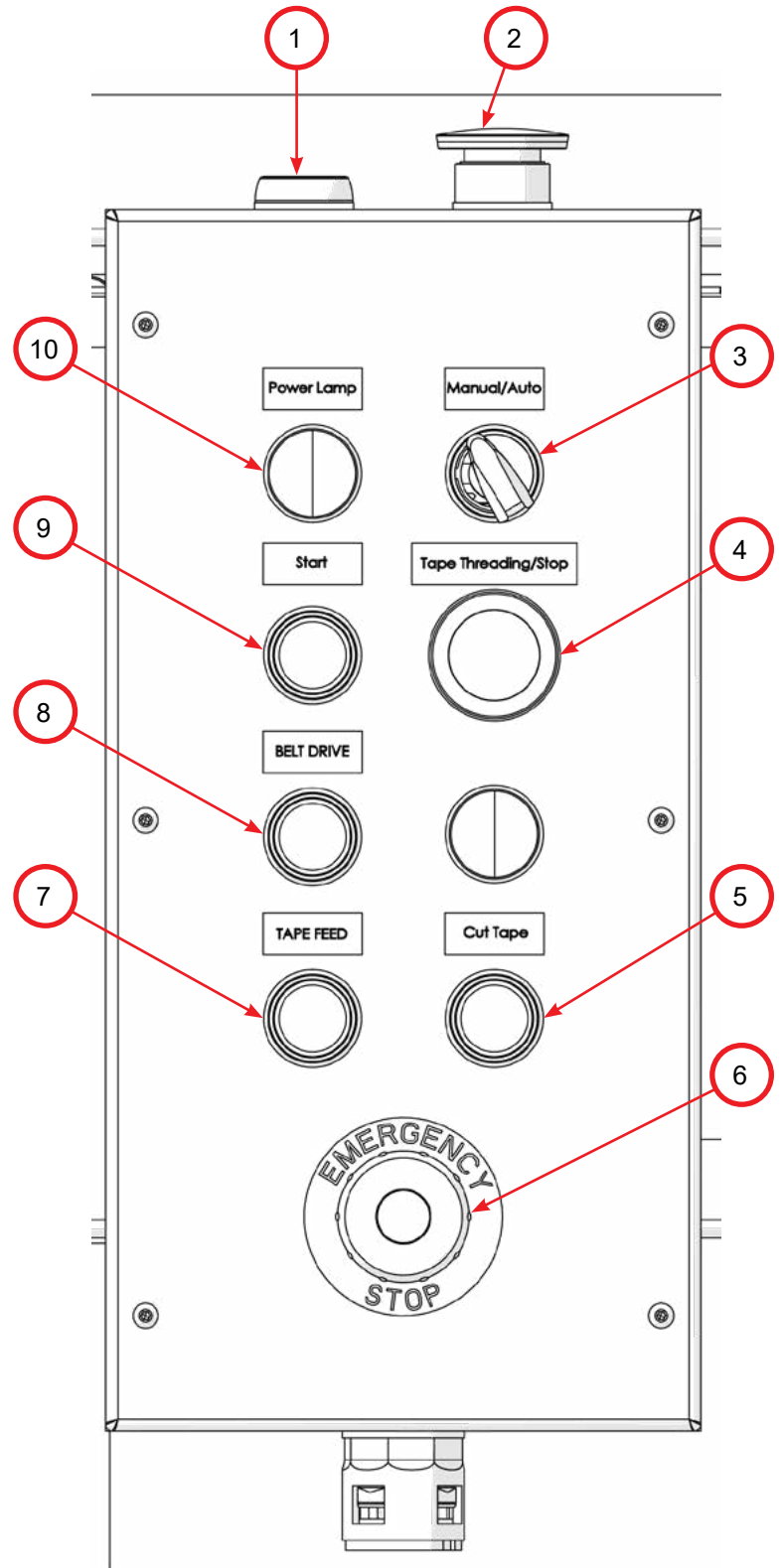


Figure 29: Operator Control Panel

BOTTOM TAPE HEAD LOADING/THREADING

Direction of Bottom Tape Unwind

As shown in the diagram below, tape should be mounted with a clockwise, unwind direction. The adhesive side of tape will be facing down as it goes around the peel-off roller.

Bottom Tape Path

The diagram below shows the threaded tape path using the red line/arrow as the tape. For proper threading of tape use the steps on page 31 (refer to Figure 34). The order in which the tape passes the rollers starts at the peel-off roller, travels through three guide rollers, as labeled below, then over powered roller, and under a fourth guide roller.

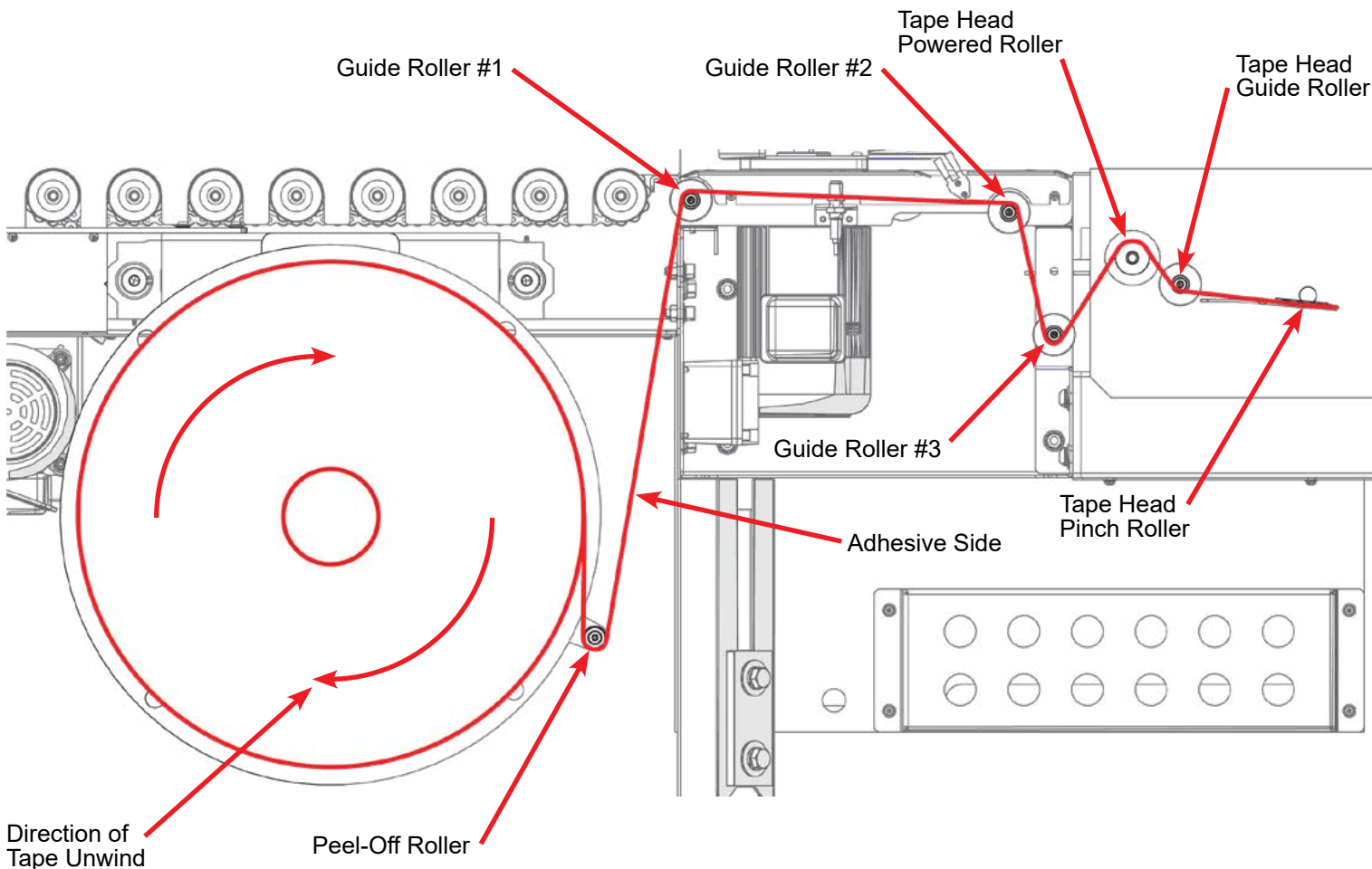


Figure 30: Bottom Tape Path

BOTTOM TAPE HEAD LOADING/THREADING

Bottom Tape Loading/Threading Instructions

The instructions below will assist in threading tape on the bottom tape head. Bottom Threading diagram is located on page 30.

1. Put machine in Manual Mode using Manual/Auto selector switch (Item 1).
2. Press the Tape Threading Button (Item 2).
3. Unlock the tape carriage retaining bracket and pull it out away from the machine (Item 3). When fully extended lock the bracket to prevent unwanted movement of the bottom tape mandrel.
4. Loosen the handle on the tape mandrel and remove the Cross Bar Assembly (Item 4).
5. Remove the old tape core and any remaining tape in the tape path.
6. Install a new roll of tape. The tape peel-off direction should be clockwise.
7. Peel back the tape and have it go under the Peel-off Roller (Item 5).
8. Unlock the tape carriage and while holding the end of tape in one hand push the tape carriage back to its home position and lock the carriage in place (Item 3).
9. Slip the tape up between the machine frame and the first powered roller. Grasp it with your free hand on the top side of the powered conveyor (Item 6).
10. Remove the rear cover to expose the tape guide rollers.
11. Pull the tape over the two (2) guide rollers (#1 and #2) (Item 7).
12. The tape must then pass under the #3 guide roller (Item 9) before being pulled up over the first roller in the tape head (Item 9).
13. At this time, use scissors to trim any of the damaged tape off allowing for a clean edge.
14. After being pulled over the powered tape head roller pass the tape under the tape head guide roller (Item 10).
15. Lastly make sure the tape is under the tape head pinch roller and the top tape plate (Item 11).

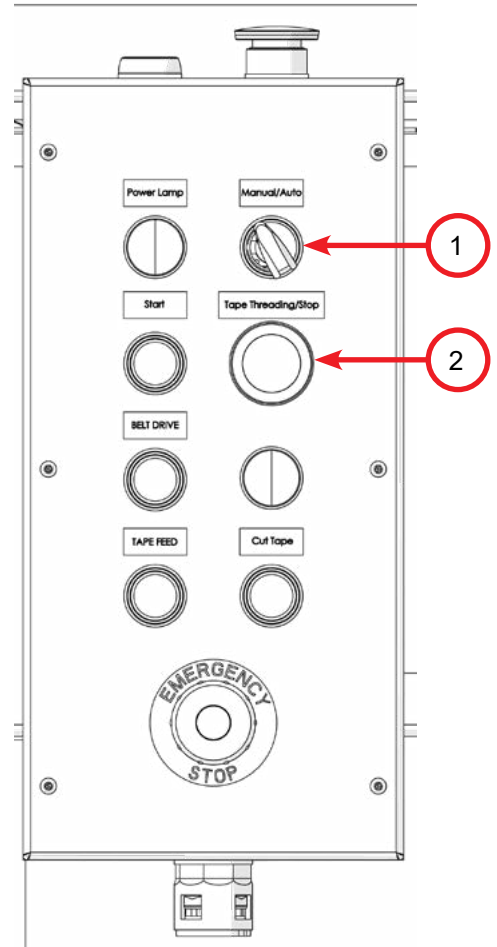


Figure 31: Operator Control Panel

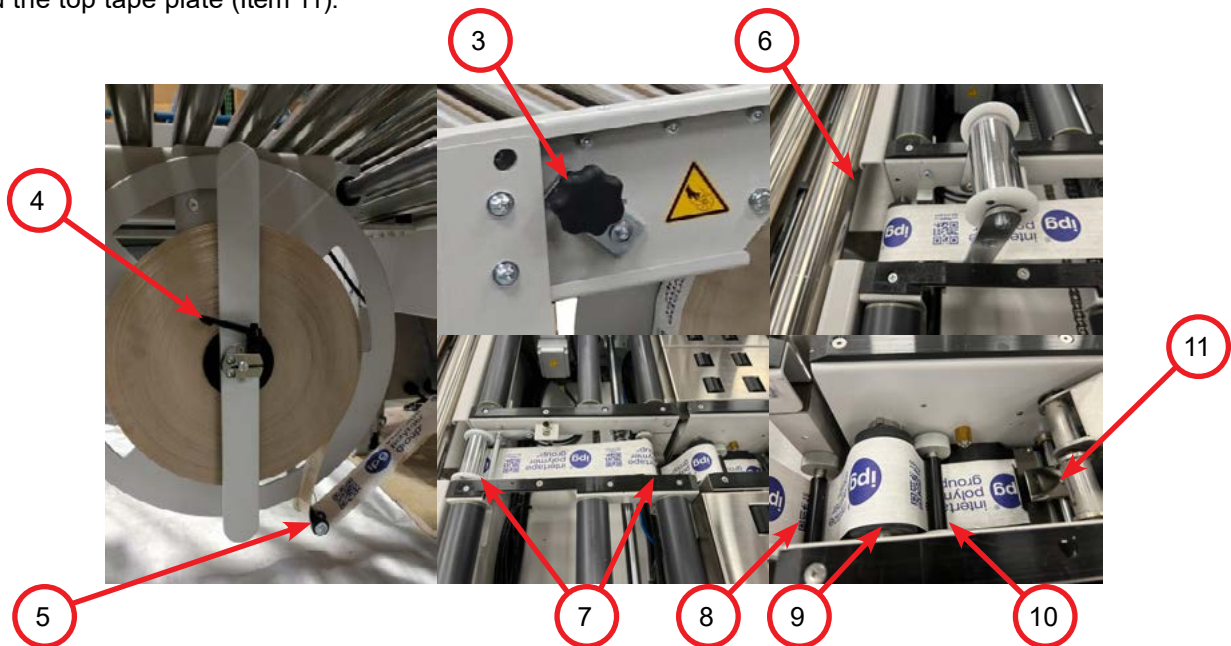


Figure 32: Top Tape Threading

ADDING WATER TO THE SYSTEM

The USA 2024-WAT-BO comes equipped with one 64oz water bottle to supply the bottom tape head with water.

1. Remove the water bottle by pulling them straight up from support bracket.
2. Turn the bottles over so the water will not spill.
3. Unscrew the water bottle cap.
4. Fill the bottle with warm water, distilled or filtered water is preferred when tap water contains excess minerals.
5. Replace the water cap.
6. Install the water bottle by inserting it over the water cup post and into the support bracket on the side of the machine.

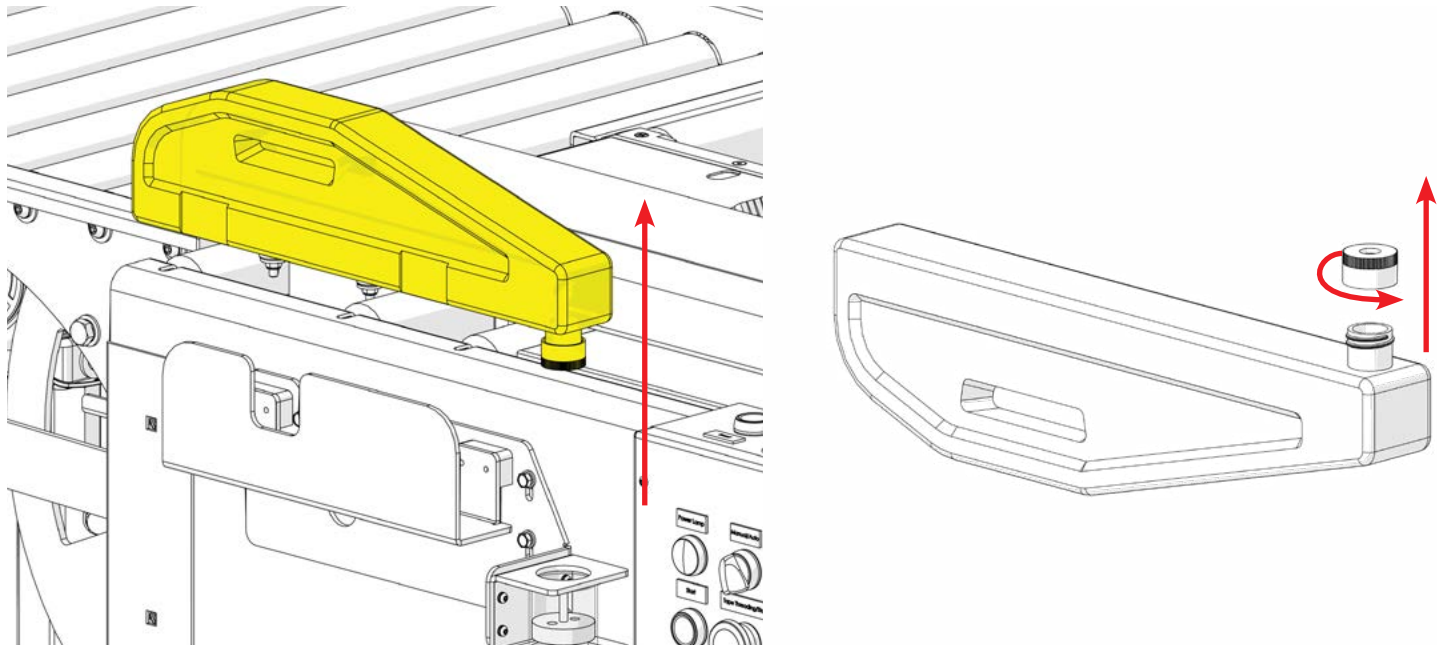


Figure 33: Adding Water to the System

REMOVING/REPLACING THE TAPE HEAD

From time to time the tape head will need to be removed for preventative maintenance and/or cleaning. When performing any preventative maintenance and/or cleaning press the Emergency Stop, disconnect the air supply and be sure to follow all Lock Out/Tag Out procedures.

1. Press the Emergency Stop, disconnect the air supply and follow all Lock Out/Tag Out procedures
2. Using the belt adjustment handle, open the belts to their maximum extent.
3. Remove the two roller covers from the machine.

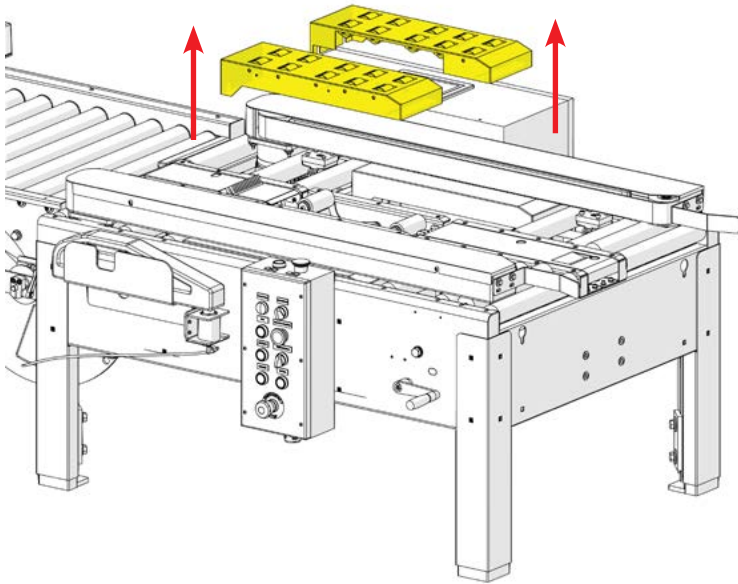


Figure 34: Remove Roller Covers

4. Undo the two (2) latches on the industrial connector and pull straight back to disconnect the tape head from power.

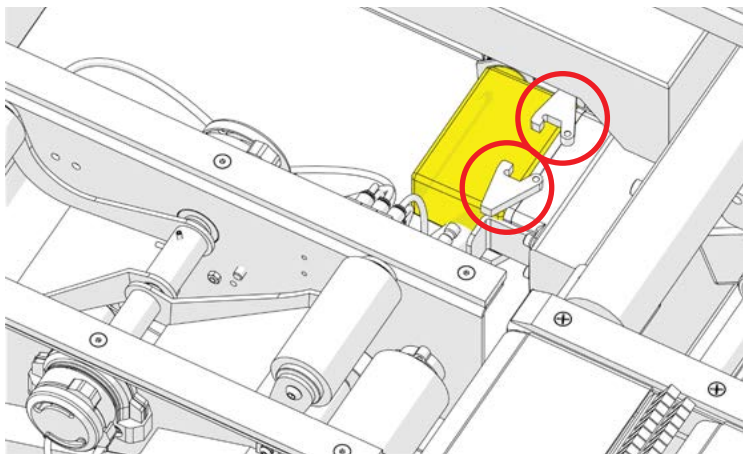


Figure 35: Remove Electrical Connection

5. Turn the valve on the water pot connection 90° so it is perpendicular to the brass pipe (red).
6. Disconnect the pneumatic (yellow) and water (cyan) quick connections.

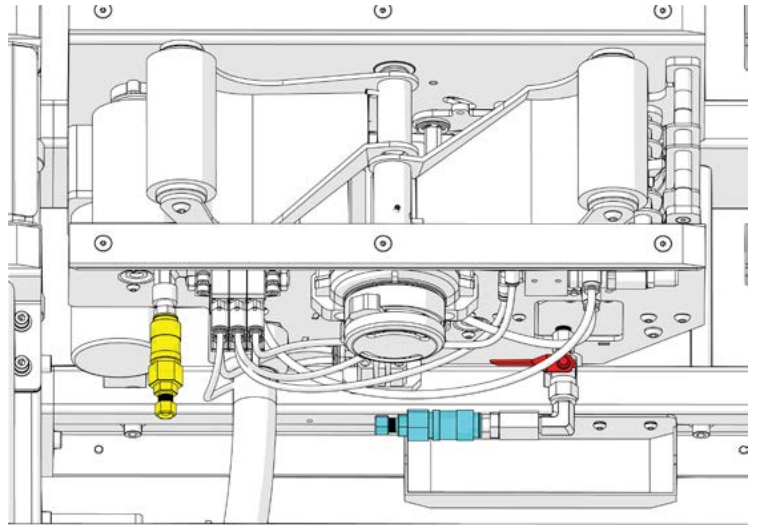


Figure 36: Disconnect Tape Head Utilities



CAUTION: THE WATER POT WILL BE HOT TO THE TOUCH. ALLOW TIME FOR THE WATER POT TO COOL BEFORE HANDLING.

7. Remove the water pot from the tape head. Lift up slightly and pull straight out from the tape head.

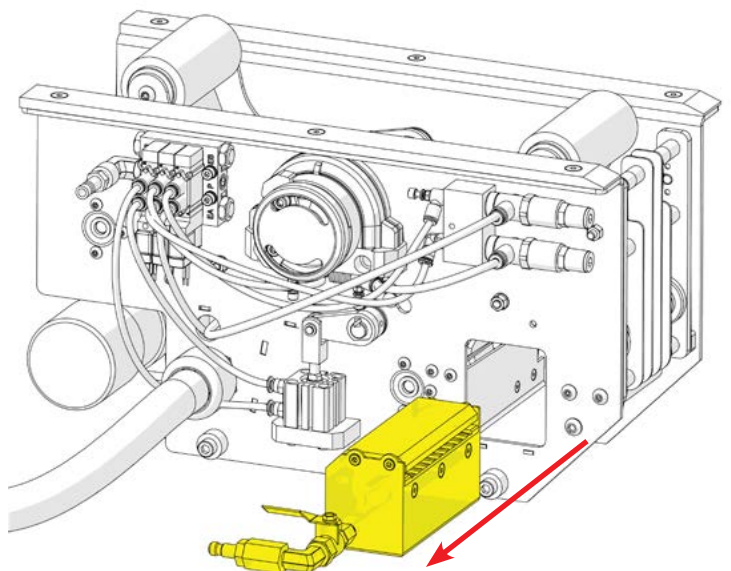


Figure 37: Remove Water Pot

REMOVING/REPLACING THE TAPE HEAD CONTINUED



CAUTION: THE TAPE HEAD WEIGHS 35 LBS. (15.9 KG). BE SURE TO USE PROPER LIFTING TECHNIQUES TO AVOID STRAIN.

8. Grip both sides of the tape head. Lift up on the back of the tape head then straight up out of the machine.

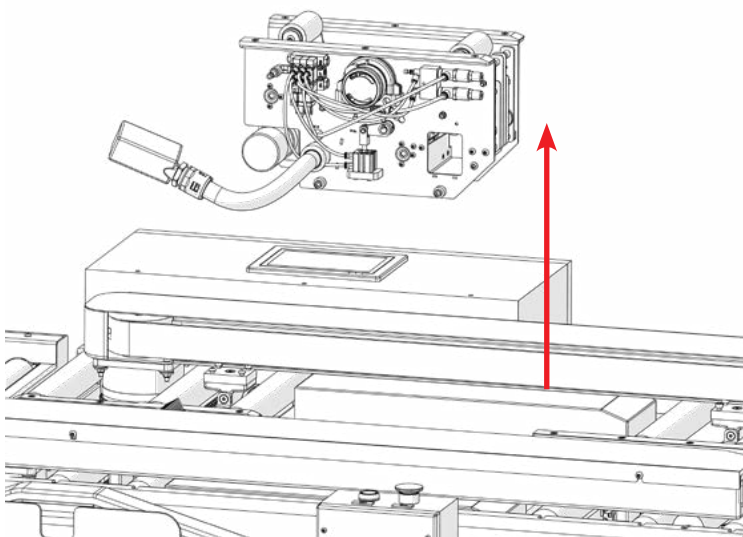
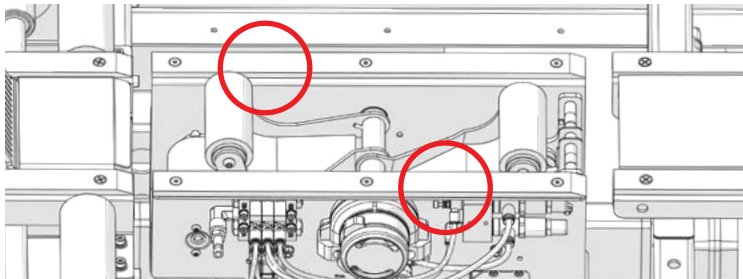


Figure 38: Remove Bottom Tape Head

9. To reinstall the tape head grip the tape head and allow the front mounting points to enter the angled slots. Then allow the rear points to drop into position.

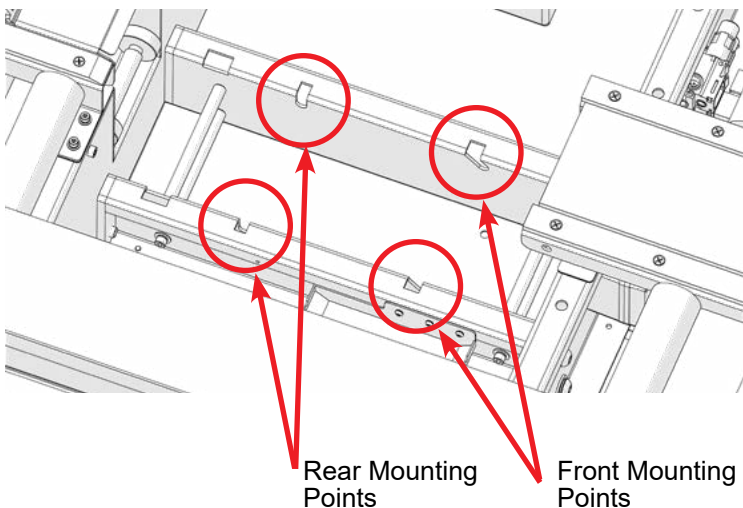


Figure 39: Tape Head Mounting Points

10. Follow the instructions from Step 7 in reverse to complete the tape head installation procedure.
11. After all connections have been made to the tape head be sure the water pot valve is parallel to the brass pipe. The industrial power connector can only be installed in one direction, do not force the connector.
12. Once the covers have been replaced dis engage the Emergency Stop(s), power on the machine, and press the Reset button.

CASE SETUP PROCEDURE

Setting up the **USA 2024-WAT-BO** to process a case size is quick and easy. When performing any setup procedure press the Emergency Stop to prevent any unintended action or motion.

1. Press the Emergency Stop to prevent any unintended action or motion.
2. Fold the bottom of the desired case. Then place it in the center of the input side of the machine.

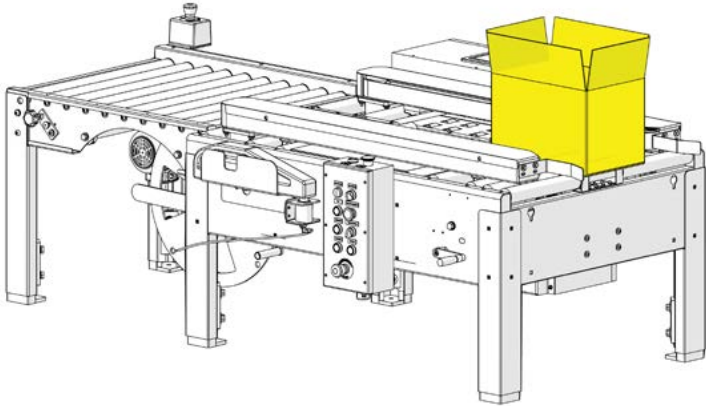


Figure 40: Case Placement

3. Using the belt adjustment handle, tighten the belts so they grip the case firmly. Do not over tighten the belts to the case as this will deform the bottom flaps and cause poor taping. If the belts are not tight enough to the case it will not process through the tape head.

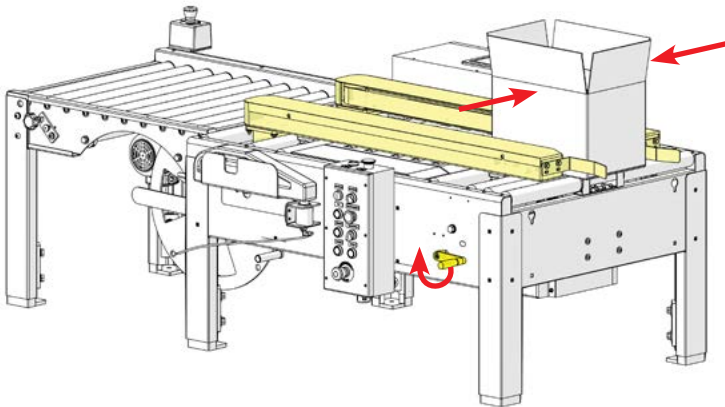


Figure 41: Tighten Belt Drive

4. Flip the Auto/Manual switch to Manual (yellow), disengage the Emergency Stop (red), and press the Reset button (cyan).

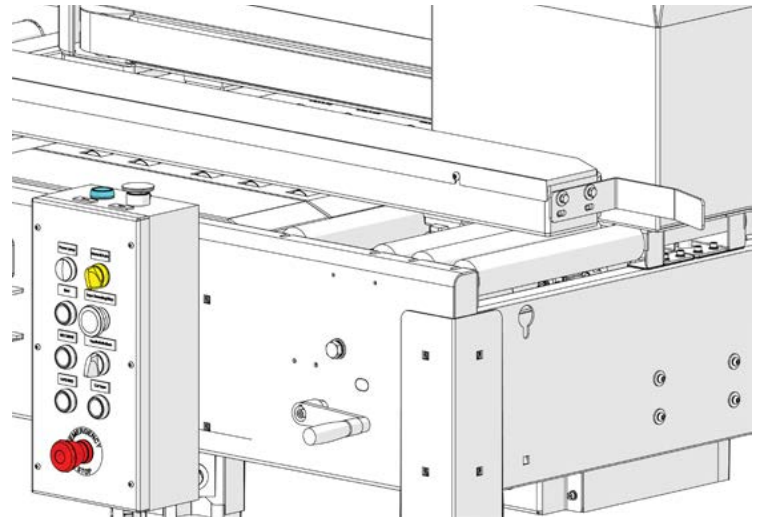


Figure 42: Setup Controls

5. Press and hold the Belt Drive button to drive the case through the machine. If the case pushes through the tape head the belt drive bases are tight enough. If they are not the case will stop against the front roller of the tape head. If this happens slowly tighten the belts while holding the Belt Drive button until the case processes through the tape head. Doing this will not apply tape to the case.

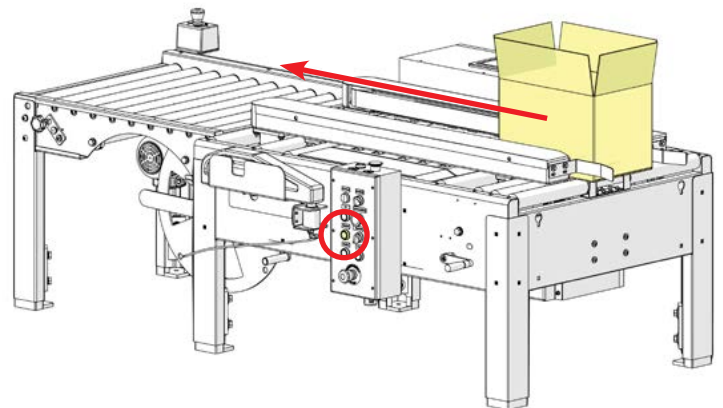


Figure 43: Belt Drive

6. Flip the Manual/Auto switch back to Auto and then press the Start button to begin normal operation.

OPERATING INSTRUCTIONS

Once the tape has been loaded and threaded on both the top and bottom, allow up to 10 minutes of being powered on for the machine to become completely ready to process cases. The following instructions are presented in the order recommended for processing cases through the **USA 2024-WAT-BO** Case Sealer.

1. Install and thread tape roll on the bottom of the machine (refer to [Bottom Tape Head Loading/Threading](#)).
2. Fill the water bottle and place it on machine (refer to [Adding Water to the System](#)).
3. Open water pot valve on the bottom tape head - make sure the water line is connected to the water pot.
4. Supply or connect machine to air line, verify that the machine is set to 75 PSI (refer to [Pneumatic Utilities](#)).
5. Supply or connect machine to 110V electrical supply (refer to [Electrical Utilities](#)).
6. Turn on main power disconnect switch located on machine electrical box.
7. Twist the two E-stops clockwise and make sure all enclosure doors are closed. Press Reset button to allow machine operation.
8. Set machine to Manual Mode using Manual/Auto selector switch on the [control box](#).
9. Press Tape Feed button to feed a predetermined length of tape through the path. Tape will be cut once length of tape has been fed.
10. Inspect dispensed tape to ensure water is being properly applied to adhesive side. If water is not being properly applied, refer to Chapter 6, Troubleshooting.
11. Follow the [Case Setup Procedure](#) for the size of case you wish to process
12. Switch machine to Auto using Manual/Auto selector switch on the control box.
13. Press Start button to begin machine operation.
14. Present a box to the machine, once it has been inserted enough the belts will take the case and seal the bottom center seam. The gate will raise up to prevent an operator from overrunning the machine.



WARNING: ENSURE THAT THE OPERATOR'S HANDS ARE AWAY FROM THE CONTACT AREA BETWEEN THE BOTTOM OF THE CARTON AND THE MOVING BELTS. OPERATORS SHOULD GRIP THE CASE AT THE REAR AND LET GO ONCE THE MACHINE HAS TAKEN THE CASE. IMPROPER HANDLING CAN LEAD TO INJURY.



WARNING: KEEP HANDS, HAIR, LOOSE CLOTHING, AND JEWELRY AWAY FROM MOVING BELTS, AND TAPE HEADS

When feeding cartons into the Case Sealer all bottom flaps must be closed prior to entering the belts. Be sure that all cases are fed squarely and straightly into the Case Sealer, feeding cases crooked can result in poor seals.

The machine is programmed to detect most box jams. In the event the machine detects a jam the belts will stop, if tape has been dispensed it will be cut allowing the operator to clear the jam. If the Emergency Stop is engaged the Reset button will need to be pressed to re-energize the system.

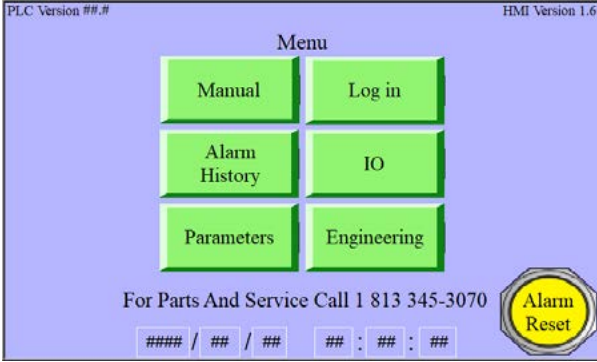
In the event the machine does not detect a box jam the operator should press the Clear button. This will stop the belts and cut the tape if it has been dispensed. Switch the machine into manual and press and hold the Belt Drive button. This will allow the operator to clear the jam. If this does not clear the jam press the Emergency Stop and, using the belt adjustment handle, open the belts to manually remove the case. If the Emergency Stop is engaged the Reset button will need to be pressed to re-energize the system.



WARNING: DO NOT ATTEMPT TO REMOVE ANY JAMMED CASE FROM A CASE SEALER THAT IS CURRENTLY ON. DO NOT ATTEMPT TO PUSH A JAMMED CASE THROUGH THE MACHINE. THE MACHINE HAS PNEUMATIC COMPONENTS UNDER PRESSURE. NOT FOLLOWING THE PROPER CASE JAM CLEARING METHODS CAN RESULT IN INJURY.

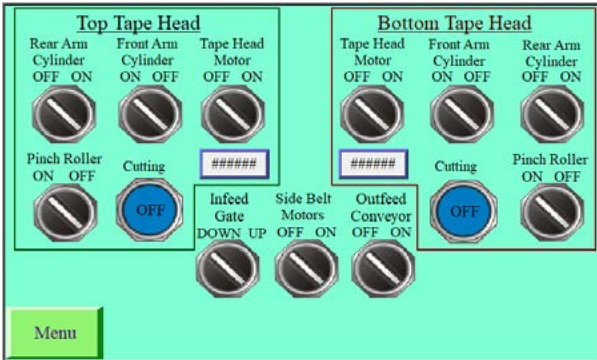
OPERATING INSTRUCTIONS

HMI Windows and Explanations



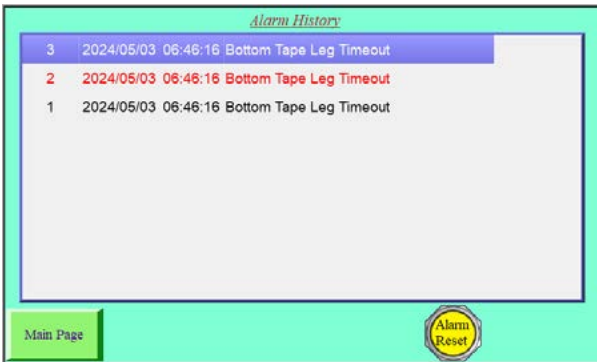
This is the Home screen of the HMI that is available to all users of the machine. If an error is not easily identifiable it will display on this screen. If the error has been cleared and no longer displays on the Home screen the operator can press Alarm History to view the various alarms that have come up on the machine.

The Parameters and Engineering options are locked behind passwords. These sections will allow for operators to change machine settings.



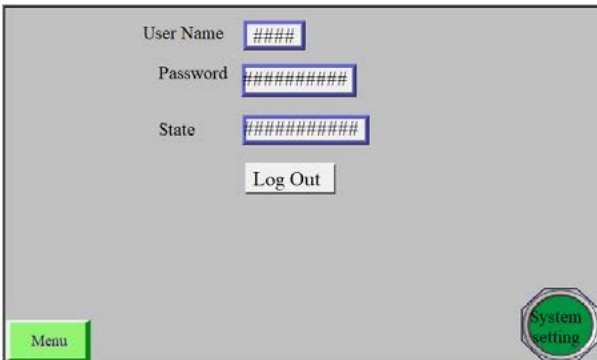
Manual Screen

This screen will allow operators to have manual control over the various actuating elements of the USA WAT machine. Manual actuation can only be conducted when the switch on the operator control box is set to manual. In the bottom only version of the machine the HMI program is the same as the standard machine and will still show elements of the Top Tape Head.



Alarm History Screen

This screen will allow operators to view how many alarms and when (date and time) they occurred. This screen is helpful when performing troubleshooting as repeated alarms in close time proximity may help narrow down any adjustments that will be needed.

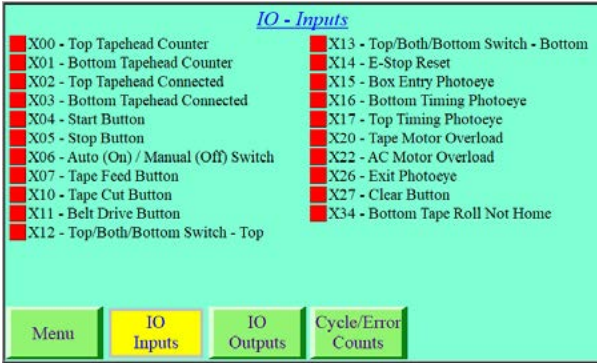


Log In Screen

This screen will allow operators and service personnel to log in and gain access to adjust machine settings.

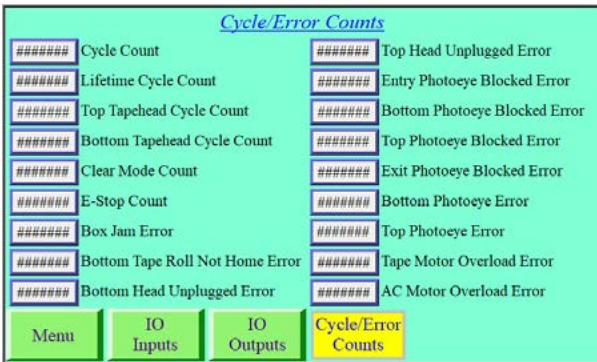
OPERATING INSTRUCTIONS

HMI Windows and Explanations



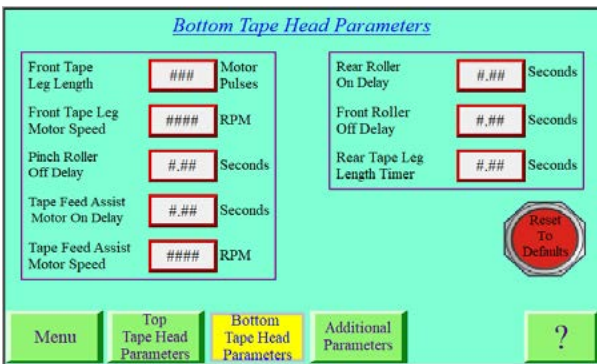
I/O Screens

This screen will allow operators to view all PLC inputs and outputs along with their state. These screens will help operators in the performance of troubleshooting.



Cycle Count Screen

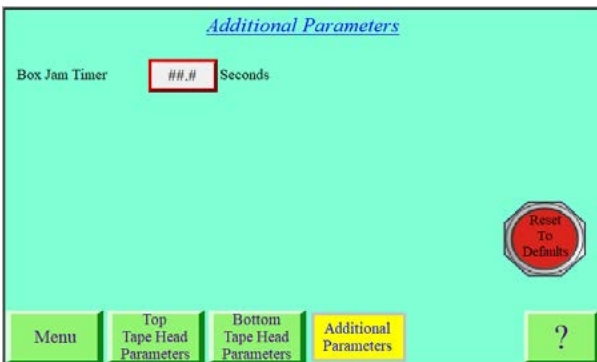
This screen will allow operators to view machine cycle counts. It is located in the I/O screen sub-menu. This screen will assist in performing preventative maintenance at regular intervals.



Tape Head Parameter Screen

This screen is locked behind a Level 1 login. This allows operators to make adjustments to timing and speeds in relation to the tape head(s). Only qualified personnel should have the login information and make changes. Altering these settings can result in poor machine performance.

This screen also allows to restore settings to their default parameters.



Additional Parameter Screen

This screen is locked behind a Level 1 login. This allows operators to make adjustments to timing for box jams. Only qualified personnel should have the login information and make changes. Altering these settings can result in poor machine performance.

This screen also allows to restore settings to their default parameters.

OPERATING INSTRUCTIONS

HMI Windows and Explanations

| Help - Top Tapehead | |
|---------------------------------|--|
| Front Tape Leg Length | The length of tape on the front of the box based on the number of pulses output from the tapehead motor. |
| Front Tape Leg Motor Speed | Speed setting of the tapehead motor while the front tape leg is being dispensed. This is also the speed setting for manual mode. |
| Pinch Roller Off Delay | Time delay before the pinch roller releases the tape starting when the front tape leg is finished dispensing. |
| Tape Feed Assist Motor On Delay | Time delay before the tapehead motor turns on to assist feeding tape. Timer starts after the front edge of the box trips the top timing photoeye. |
| Tape Feed Assist Motor Speed | Speed setting of the tapehead motor while it is turning to assist tape feeding. |
| Rear Roller On Delay | Time delay before the rear wipedown roller is pressed against the box. Timing starts after the front edge of the box trips the top timing photoeye. |
| Front Roller Off Delay | Time delay before the front wipedown roller retracts from the box. Timing starts after the rear edge of the box passes the top timing photoeye. |
| Rear Tape Leg Length Timer | Timer that sets the length of the tape on the rear of the box. Tape is cut when the timer is done. Timing starts when the rear edge of the box passes the top timing photoeye. |

Help Screens

These screens can be accessed by selecting the “?” on any of the parameter adjustment screens. These screens will explain the relations that each of the parameters have to the operation of the machine.

Engineering Home

| | | | | | |
|---|---------|---------|--|---------|---------|
| Bottom Tape Cut Timer/ Pinch Roller On Delay | ###.### | Seconds | Top Tape Cut Timer/ Pinch Roller On Delay | ###.### | Seconds |
| Bottom Rear Roller Home Delay | ###.### | Seconds | Top Rear Roller Home Delay | ###.### | Seconds |
| Bottom Front Roller Home Delay | ###.### | Seconds | Top Front Roller Home Delay | ###.### | Seconds |

Reset Cycle Count


Reset Top Tapehead Cycle Count

Reset Bottom Tapehead Cycle Count

Reset Error Counts

Bottom Rear Trigger
Front Rear

Top Rear Trigger
Front Rear



Menu
Engineering Home
Top Tape Head Defaults
Bottom Tape Head Defaults
Additional Defaults
Set Date/Time

Engineering Screens

These screens are locked behind the Level 2 login and should only be accessed by IPG authorized personnel. These screens will set what the machine considers the default values. These may be adjusted on a per-install basis.

These screens will also allow IPG authorized personnel to reset cycle counts, and set the date and time for the machine.

PREPARING CASES TO BE PROCESSED

Flap Folding

The USA 2024-WAT-BO is a bottom only sealer and as such only the bottom flaps of a regular slotted carton (RSC) will need to be folded. The top flaps may be folded but it is not necessary for processing through the case sealer.

1. Fold minor flaps inward as shown in Figure 38
2. Fold major flaps inward, as shown in Figure 39

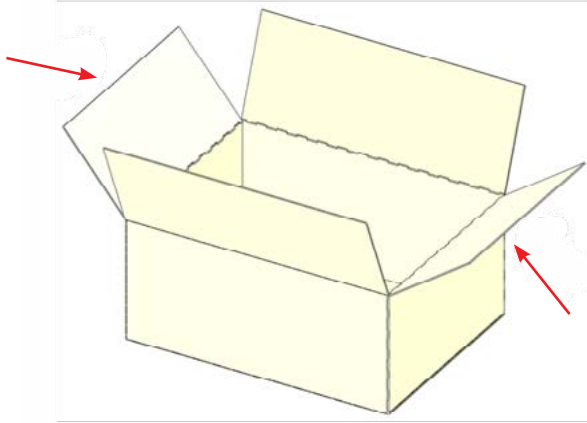


Figure 44: Fold Minor Flaps

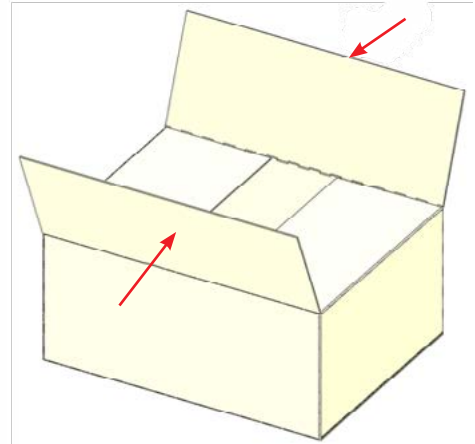


Figure 45: Fold Major Flaps

OPERATION MODES

Control Box

The **USA 2024-WAT-BO** Case Sealer has three operating modes. The operator selects these modes, using the 2-position switch and push button on the Control Box (refer to Figure 40).

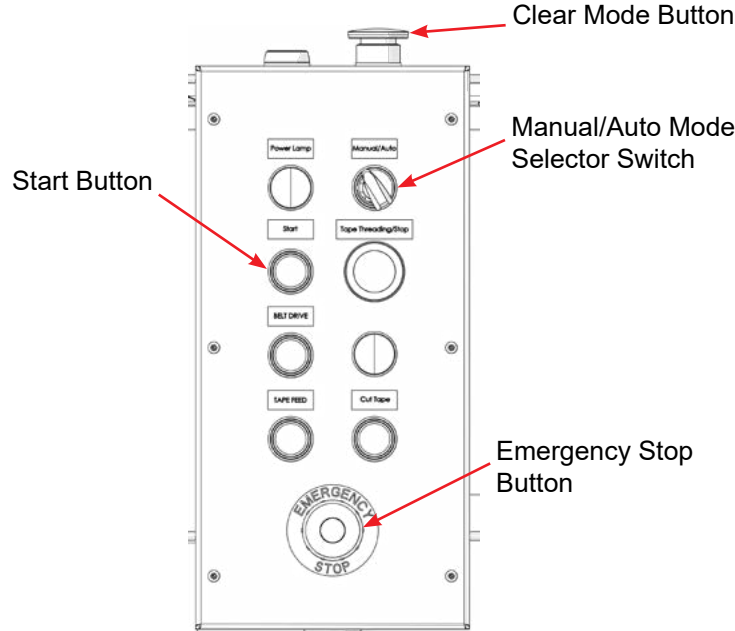


Figure 46: Operator Control Panel

Auto Mode

This is the standard operating mode of the machine. In this mode, the belt motors and outfeed conveyor motor will be active. The belts will maintain their position unless an operator uses the hand crank to manually adjust their position. An operator will present a case, with all bottom flaps closed, to the infeed of the case sealer. When the case is partially inserted into the belts the case sealer will grasp the case and process it, applying a single strip of IPG brand water activated tape to the bottom center seam.

1. Ensure that the compressed air is plugged and at 75 PSI.
2. Turn the Manual/Auto selector switch on the control box to Auto (Automatic) (refer to Figure 40).
3. The case sealer is properly set up for the case size.
4. Press the Start button, the drive belts and outfeed table will turn on.
5. Introduce a case to the infeed of the case sealer. Grasping the case from the top or rear. Do not place hands in front of case.
6. The case will be processed and tape applied to the bottom center seam.
7. Once the case is processed the entry gate will drop allowing the operator to insert the next case.

Manual Mode

This mode is used for troubleshooting and loading tape on to machine.

1. Ensure that the compressed air is plugged in and at 75 PSI.
2. Turn the control selector to Manual mode (refer to Figure 46).
3. Once set to Manual, other buttons on control box can be used for troubleshooting or loading tape.
4. See Operator Control Box, for an explanation of button usage.

OPERATION MODES

Clear Mode

This mode is used to clear a jammed box when the situation does not require the Emergency Stop.

While in “Clear” mode, the belts will stop and if any tape has been dispensed from the tape head the blade will automatically cut the tape. This allows the operator to clear a box jam. The below steps are the factory recommended instructions for clearing a box jam.



WARNING: AT NO POINT SHOULD AN OPERATOR OR ANY PERSONNEL REACH INTO THE CASE SEALER WHILE IT IS IN OPERATION. AT NO POINT SHOULD AN OPERATOR OR ANY PERSONNEL REACH ACROSS THE MACHINE AT ANY POINT. THE PROPER JAM CLEARANCE STEPS SHOULD BE TAKEN ANY TIME A JAM OCCURS.

Jam Clearing

The following is the factory approved method for clearing jams in the **USA 2024-WAT-BO**. It is not recommended to clear jams in any other manner as it may result in injury.

1. Press downward on the Clear mode button to engage clear mode.
2. Attempt to pull the case straight up and out of the machine.
3. If Step 2 did not work, place the machine in manual mode.
4. Press the start button to reengage the machine.
5. Press and hold the belt drive button to eject the case from the machine.
6. If the case is stuck on the tape head and not being removed from the machine, press the Emergency Stop button.
7. Use the belt adjustment handle to open the drive bases enough to remove the case.
8. Remove the jammed case.
9. Follow the Case Setup Procedure to reset the machine for the cases.
10. Disengage the Emergency Stop.
11. Press the Reset button.
12. Switch the machine to Auto mode.
13. Press the Start button.



WARNING: ENSURE THAT THE OPERATOR’S HANDS ARE AWAY FROM THE MOVING BELTS OF THE SIDE DRIVE BASE ASSEMBLY. DO NOT PLACE HANDS ON THE FRONT EDGE OF THE CASE WHILE IT IS ENTERING THE MACHINE.

Should any problem occur during processing that requires halting the machine, press any red Emergency Stop button. The Clear button is **NOT** an Emergency Stop.

The machine should never be washed down or subjected to conditions causing condensation on components.

TROUBLESHOOTING

The USA 2024-WAT-BO Case Sealer is fabricated with high quality components that provide trouble-free operation for a long period of time. However, should a problem occur, we recommend that you consult the following pages. If the problem you encounter is not discussed in these pages, call IPG Machinery Support 813-345-3070.

Motor Overloads

In the event the Start button is pressed and a motor does not start it is recommended to check the motor overloads in the electrical box.

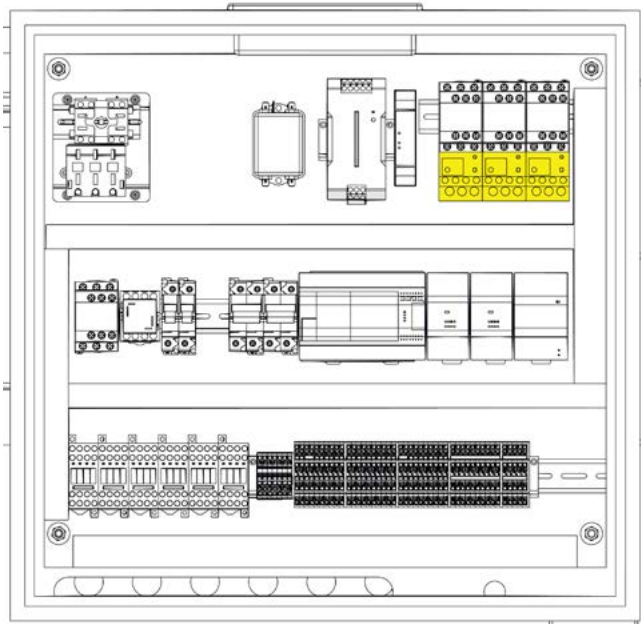


Figure 47: Electrical Box Motor Overload Location

The electric motors are protected with an automatic re-settable overload. Push on the top blue button to reset. The current setting should be set at 110% of the FLA (Full Load Amps) of a single motor.

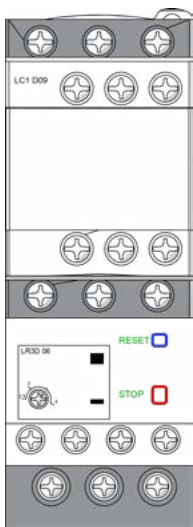


Figure 48: Motor Overload Reset

In the event the motor continues to trip the overload the adjustable scale may be increased a small amount. On the Thermal Overload, protected by the hinged cover, is the adjustable dial.

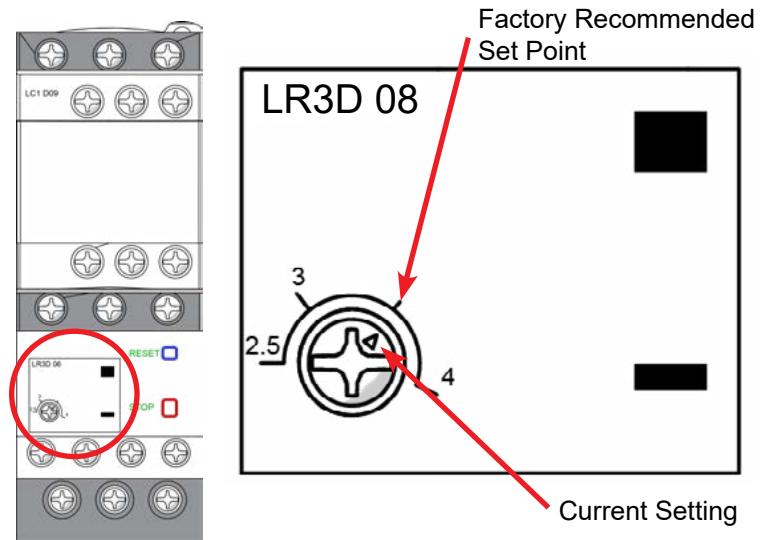


Figure 49: Motor Overload Adjustment

From the factory this dial should be set with the arrow pointing towards the shown point above.

In some cases this dial may be set too low resulting in false overloads. This will most likely be noticed when processing cases near the maximum weight limits of the case sealer.

TROUBLESHOOTING

The USA 2024-WAT-BO Case Sealer comes equipped with a HMI screen that is located on the top of the electrical box. This screen offers users the ability to review a variety of alarm history details and to view the input and output IO for ease of troubleshooting assistance.

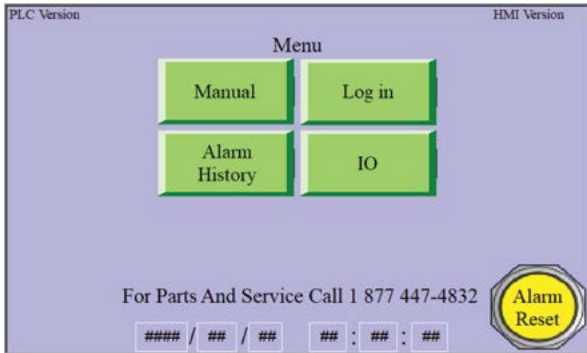


Figure 50: HMI Home Screen

This is the Home screen of the HMI that is available to all users of the machine. If an error is not easily identifiable it will display on this screen. If the error has been cleared and no longer displays on the Home screen the operator can press Alarm History to view the various alarms that have come up on the machine.



Figure 51: HMI Alarm History Screen

This is the Alarm History screen of the HMI that is available to all users of the machine. This will display a full list of all alarms since install or the last date the alarms have been reset. In the event the error display on the Home screen has been reset it will have a history here.

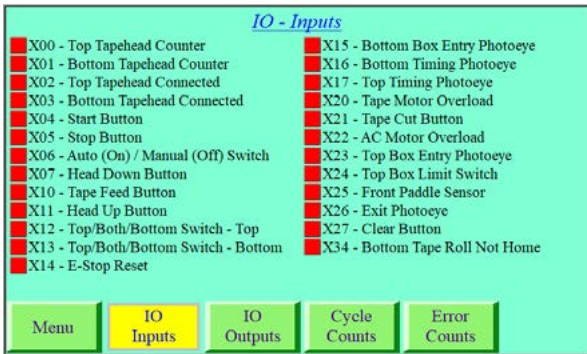


Figure 52: HMI IO Inputs Screen

This is the IO Input screen of the HMI that is available to all users of the machine. This displays a current, real-time, display of all the inputs and their states. When the blocks are red that means the PLC is not receiving signal from that source. When the blocks are green the PLC is receiving signal from that source. This is helpful when attempting troubleshooting.



Figure 53: HMI IO Outputs

This is the IO Output screen of the HMI that is available to all users of the machine. This displays a current, real-time, display of all the outputs and their states. When the blocks are red that means the PLC is not sending signal to that source. When the blocks are green the PLC is sending signal to that source. This is helpful when attempting troubleshooting.

TROUBLESHOOTING

Q & A

The following is a short set of brief questions and answers for some mild troubleshooting in WAT case sealers. More in-depth troubleshooting can be found in this section.

Q: How long is the tape good for once it gets wet?

It is recommended to process a case within 45 seconds of the initial tape leg being dispensed. Any longer the adhesive will begin to dry and will not stick to the case. Case sealers running the newest software package will have a time out system that will automatically cut the tape in the event this happens.

Q: Are the top and bottom tape heads interchangeable?

IPG Water Activated Tape Heads are manufactured in a top or bottom configuration and are not interchangeable. A top Water Activated Tape Head from one IPG manufactured case sealer can be transferred to another in the top position and the same with the bottom.

IPG manufacturers a 24v version of the WAT heads for adaptation into other equipment. Do not attempt to install a 24v tape head into a machine that is not wired correctly for it.



CAUTION: BE SURE TO NOT INSTALL 24V TAPE HEADS INTO EQUIPMENT THEY ARE NOT RATED FOR. THIS WILL CAUSE DAMAGE TO THE TAPE HEAD AND MAY RESULT IN INJURY.

Q: Can pressure sensitive tape heads replace WAT ones?

Due to manufacturing differences there is not a way to drop in replace the WAT heads with pressure sensitive counterparts.

Q: What is the best way to clean the tape heads?

It is recommended to clean the tape path with a mild detergent and water solution. Do not use any harsh industrial cleaners as they can deteriorate parts quickly. Do not use excessive amounts of water and dry the tape head soon after washing. Be sure the tape path is dry before reinstalling the tape head or rethreading tape.

Q: Can we reverse the side the tape is loaded on?

On WAT case sealers it is a special order to reverse the top tape mandrel to allow for it to be loaded from the reverse side. The bottom tape carriage cannot be reversed.

Q: Can I use a mobile compressor to operate the case sealer?

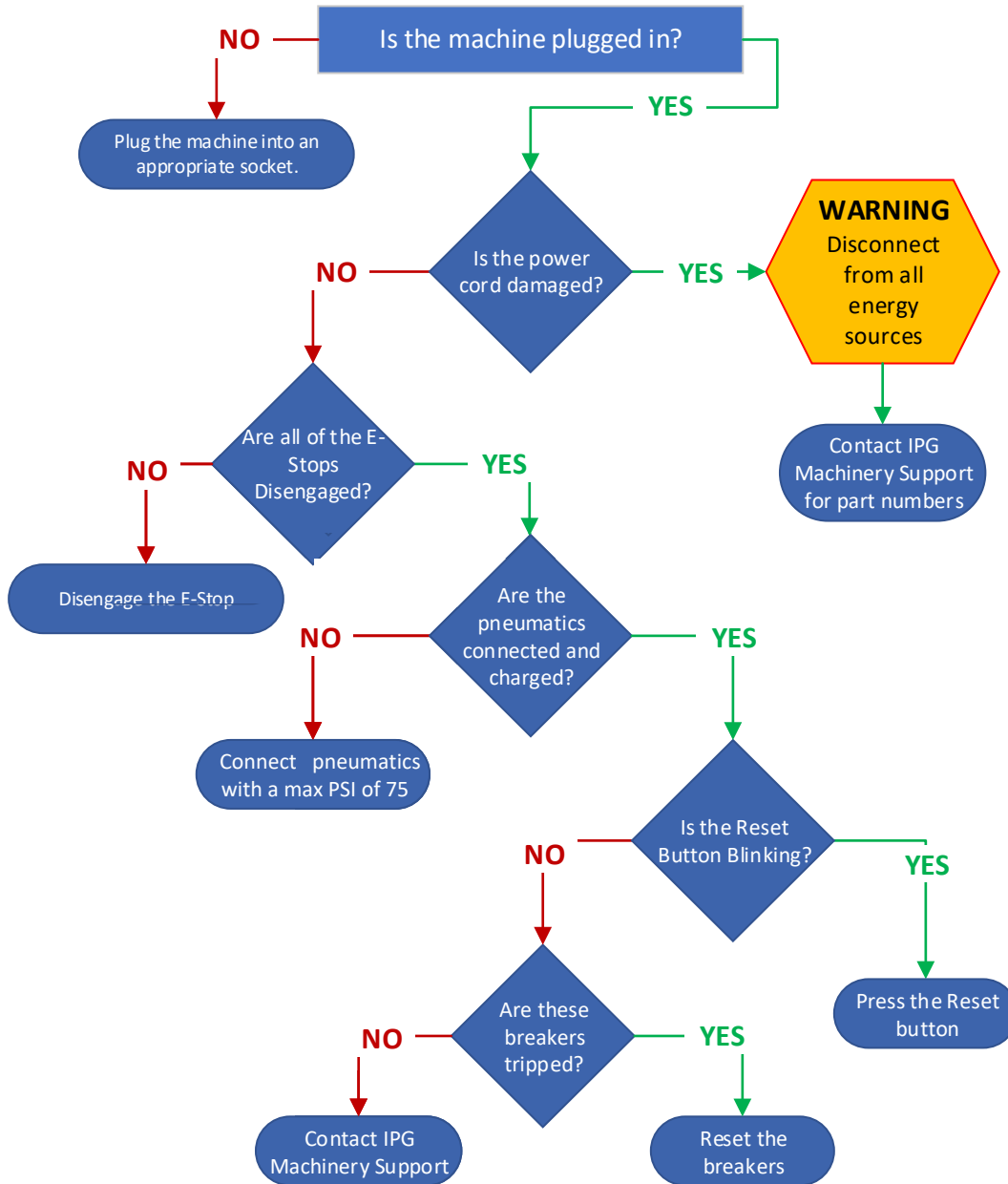
It is recommended to use a large compressor capable of producing a sustained 9 CFM at 90 PSI. If a compressor is used that is below this level it is possible to have unintended action, poor taping, or even a lack of pneumatic movement entirely. Smaller compressors are also more likely to introduce moisture into the air lines which can cause a degradation of internal components on the case sealer and tape head(s). Use only clean dry air with IPG manufactured equipment.

Q: Can I change machine settings?

While IPG WAT Case Sealers can have their settings adjusted through a password protected portion of the HMI screen it is recommended to contact IPG Machine Support prior to making any changes. The machine should have been set up by an authorized IPG representative and any tweaks that would need to have been made on site for your specific box suite would have been saved. Making changes to the settings could potentially damage the equipment.

TROUBLESHOOTING

The Machine is Turned on and Nothing Happens



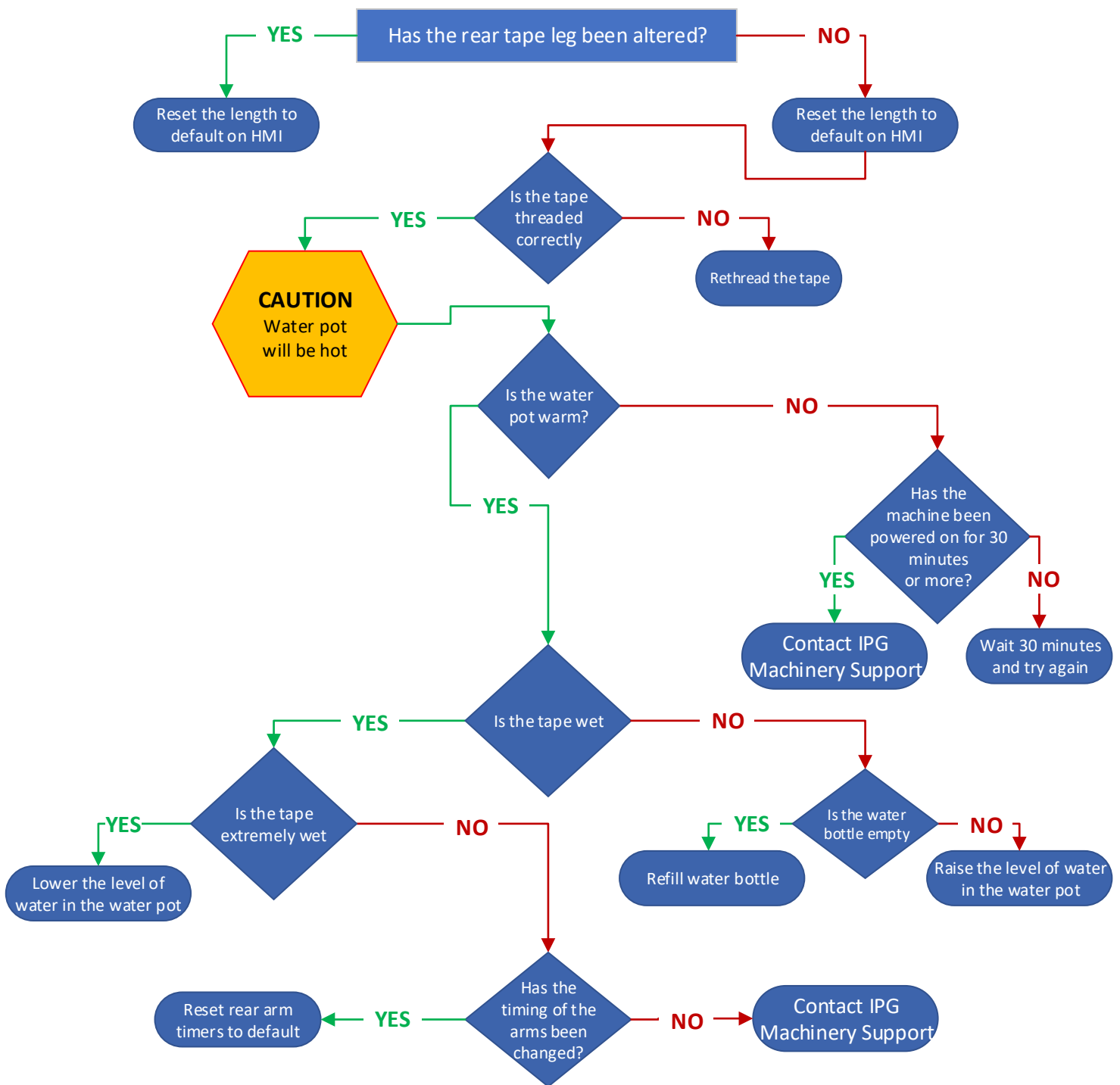
IPG Machinery Support
877-447-4832 Option 4

Front Tape Leg Not Sticking



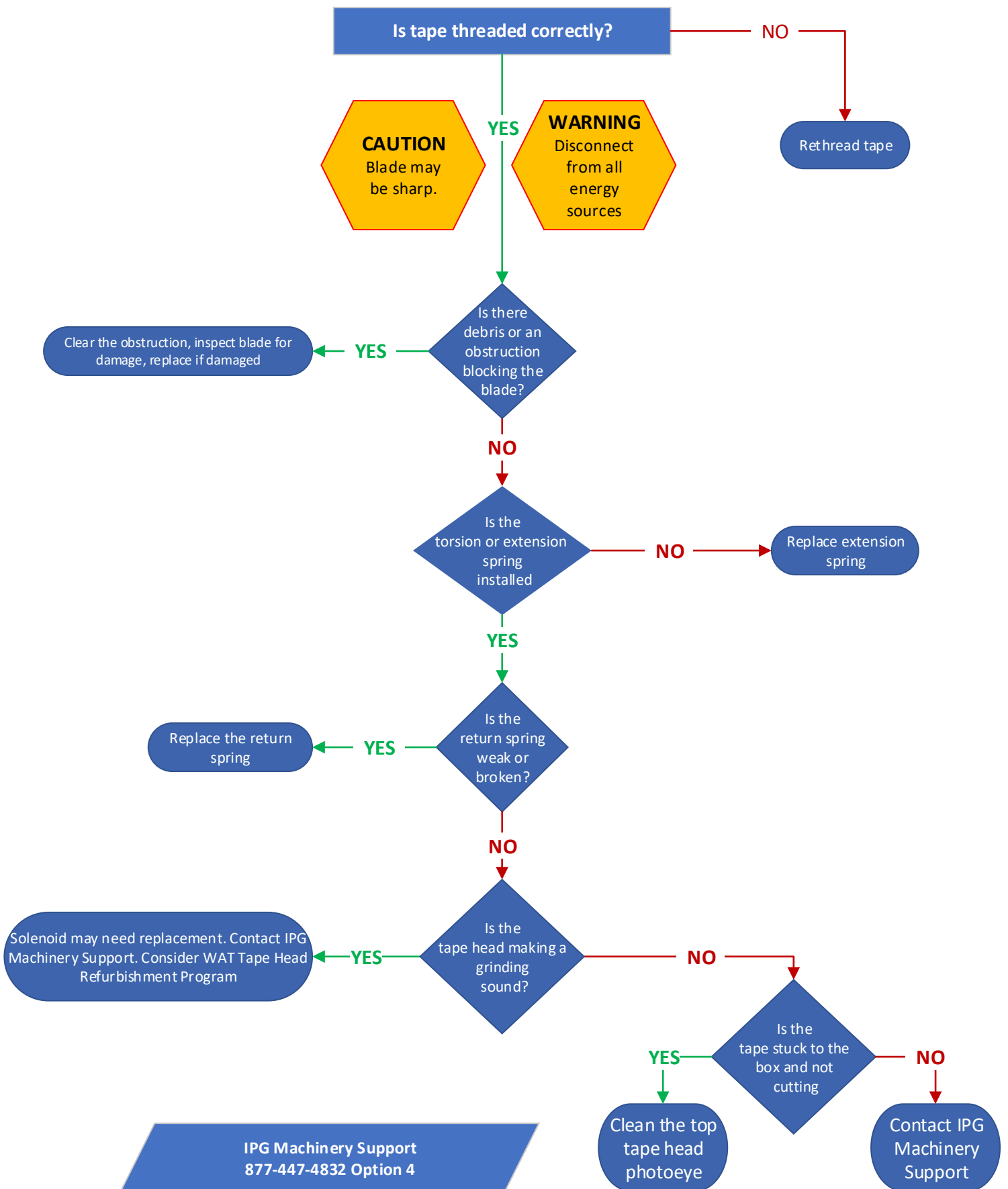
IPG Machinery Support
877-447-4832 Option 4

Rear Tape Leg Not Sticking



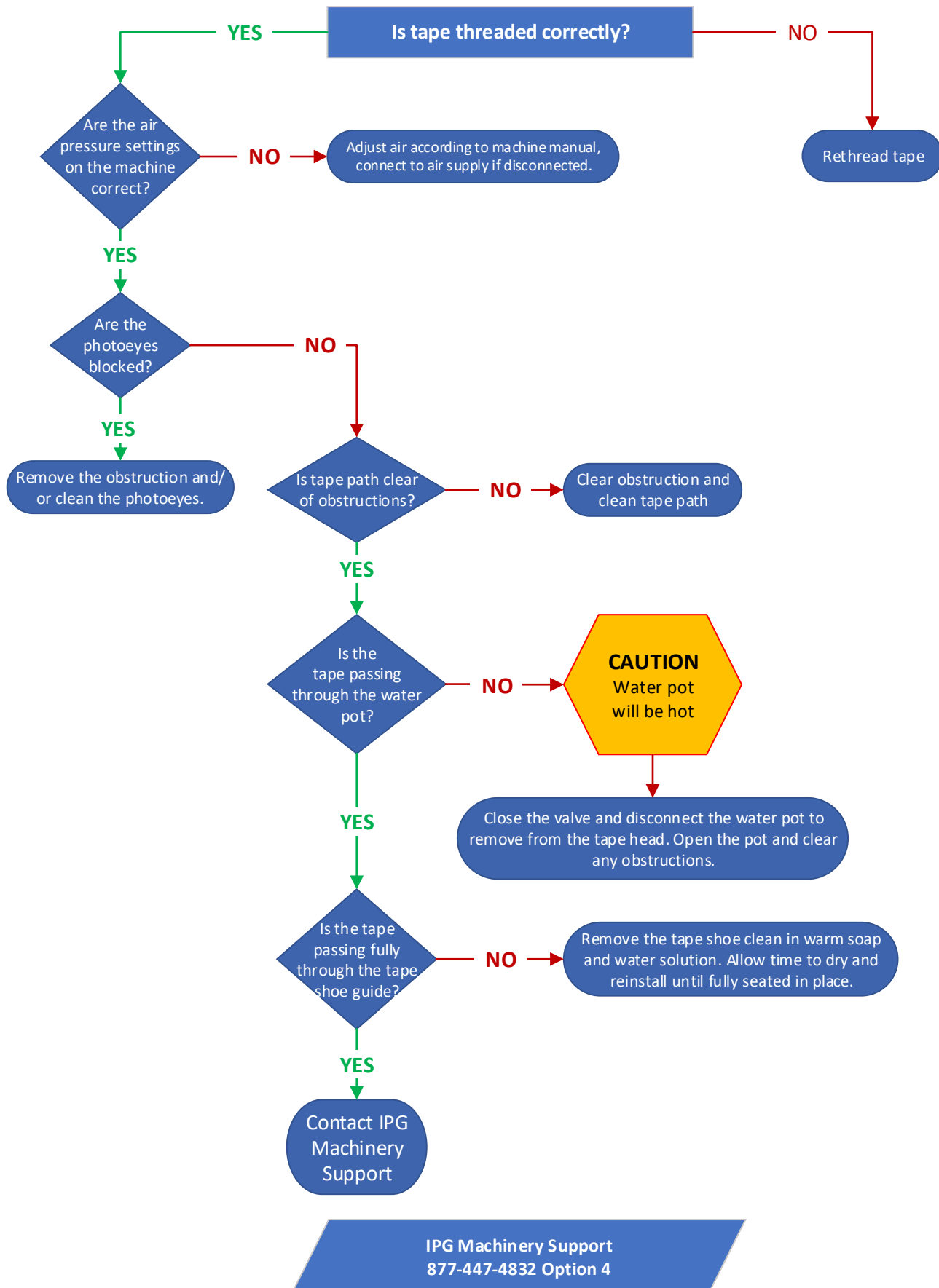
IPG Machinery Support
877-447-4832 Option 4

Tape Does Not Cut

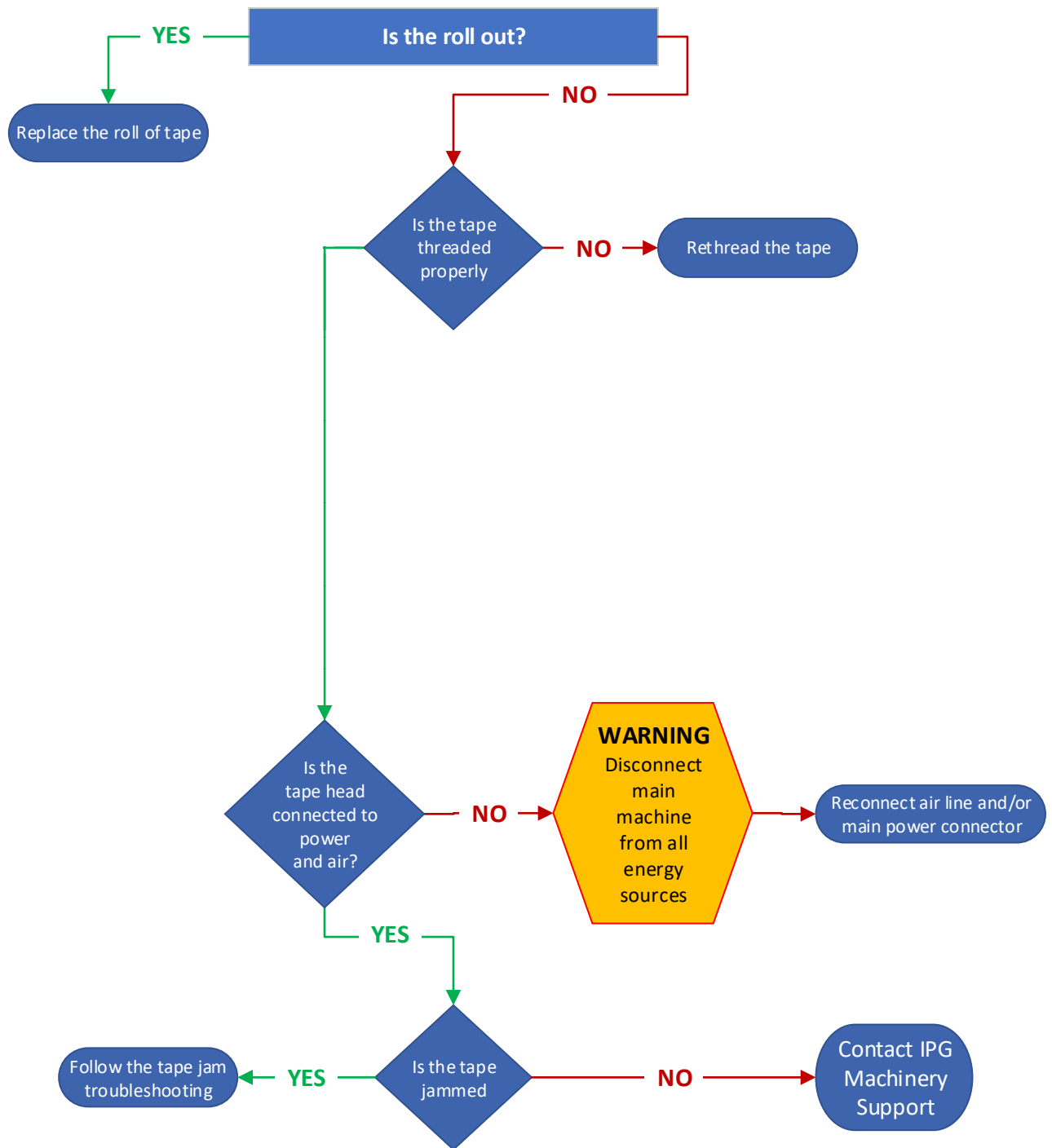


IPG Machinery Support
877-447-4832 Option 4

Tape Jam



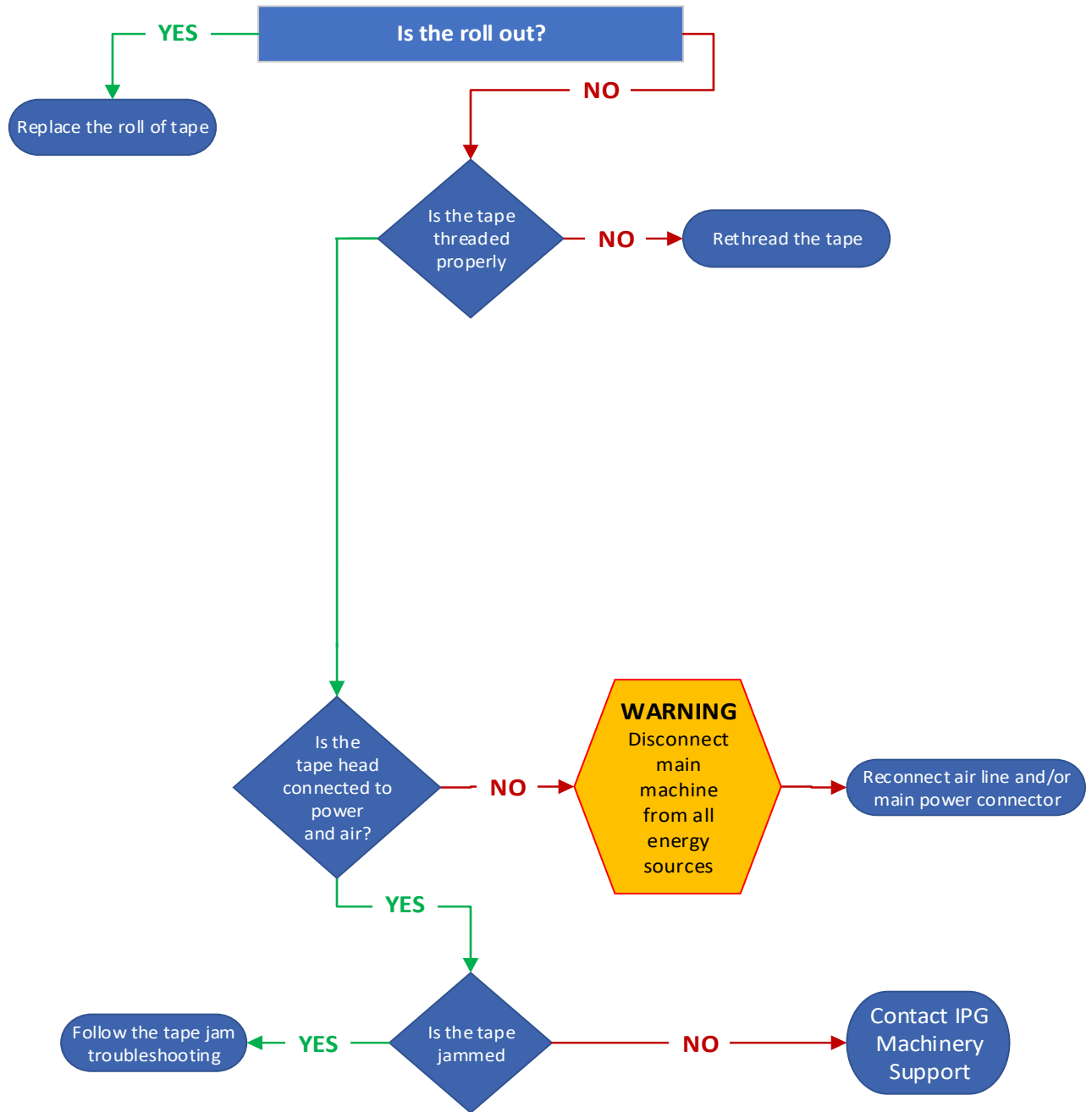
Wrinkles in the Tape



IPG Machinery Support
877-447-4832 Option 4

TROUBLESHOOTING

Tape Not Dispensed



IPG Machinery Support
877-447-4832 Option 4

MAINTENANCE

The USA 2024-WAT-BO Case Sealer has been designed and manufactured with the finest components to provide long, trouble-free performance. General preventive maintenance will improve performance and prolong the life of the case sealer. Review the illustrations and chart below for information regarding machine maintenance.



WARNING: TURN OFF ALL ENERGY SOURCES AND LOCK OUT THE ELECTRICAL SUPPLY BEFORE CLEANING OR MAINTENANCE. IF POWER CORDS AND PNEUMATIC CONNECTIONS ARE NOT DISCONNECTED, SEVERE INJURY TO PERSONNEL COULD RESULT.

Lubrication:

Spray centering guide shafts and compression guide shafts once a month with a silicone based dry film lubricant. This will not attract dust or lint from the surroundings.

Apply chain lube on the drive and centering guide chain once a month.

No other lubrication is necessary to operate the machine.

Cleaning:

Cartons produce a sizable amount of dust and paper chips when processed or handled. If this dust is allowed to build up in the machine, it may cause component wear and overheating of motors. Remove the accumulated dust with a shop vacuum. Avoid using compressed air to remove the dust as this may cause the dust to penetrate into components.

| Item | Action Required | Material | Frequency | | |
|---------------------------|---|-----------------------|-----------|---------|-----------|
| | | | Weekly | Monthly | Quarterly |
| Carton Dust In/On Machine | Vacuum off machine externally and internally, pay attention to drive base centering chain | Vacuum | X | | |
| Hardware | Re-tighten any loose hardware, replace any missing hardware | | | X | |
| Cross Shafts | Lubricate | Dry PTFE | | X | |
| Centering Chain | Lubricate | Chain Lubricant | | X | |
| Air Regulator Filter | Clean filter | Water, Mild Detergent | | X | |
| Tape Path | Clean to remove adhesive | Water | X | | |
| Water Pot/Reservoir | Rinse out thoroughly | | | X | |
| Wetting Roller | Clean roller | Water, Mild Detergent | | | |
| Wipe Down Drive Rollers | Remove dust | Air Hose | X | | |
| Tape Head Assist Roller | Clean roller | Water, Mild Detergent | X | | |

Recommended Spare Parts:

It is recommended to keep a small supply of spare parts on hand in order to reduce any potential down time for maintenance. The table of parts to the right is the recommended list of spare parts. Different applications of machinery may require some amendments to this list, please consult IPG Machinery Support for any additional recommended material.

| Description | Item Number | QTY |
|-----------------------|-------------------------|-----|
| Peel off Spring | UPH1289 | 1 |
| Emergency Stop Button | UPM2211 | 1 |
| Driving Belts | UPM4884 | 2 |
| Water Pot Roller | WET0071 | 1 |
| WAT Tape Head Roller | WPT0144 | 2 |
| Striker Plate | WPT0044 | 1 |
| Cutter Blade | WPT0050 | 1 |
| Extension Spring | WPT0063 | 1 |

MAINTENANCE

Changing the Air Regulator Filter

The filter on the air regulator removes dirt and moisture from air plant before it enters the carton sealer.

1. To remove metal protective guard, press down on locking tab located towards the top of the guard, rotate guard and pull down.
2. The clear reservoir has a threaded top, which is used to attach it to the main regulator assembly. To remove the reservoir, rotate it until unfastened.
3. The air regulator filter is held in place using a threaded cap fastened on to the main assembly. To remove the filter, unfasten the cap and pull down on filter.

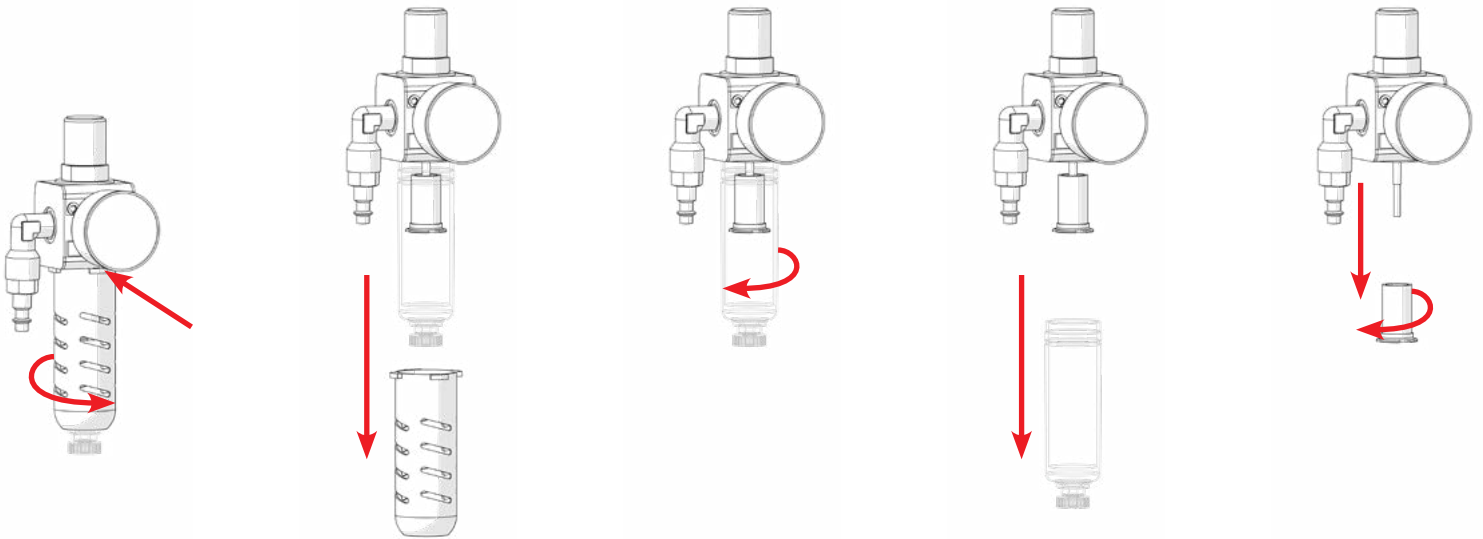


Figure 54: Filter Regulator

MAINTENANCE

Drive Belt Replacement

1. Using a 4mm Allen key, remove two screws and remove drive base cover.

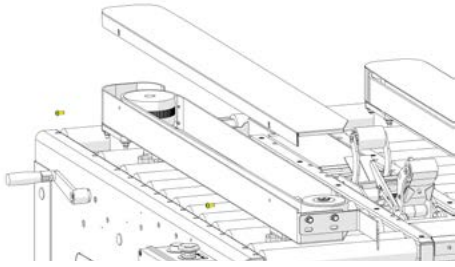


Figure 55: Drive Base Cover

2. Using appropriate Allen key and wrench, loosen belt tensioning bolts.

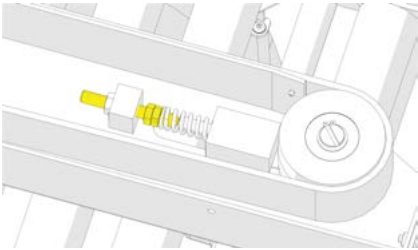


Figure 56: Loosen Belt Tension Bolt

3. Remove worn belt and replace with new belt.

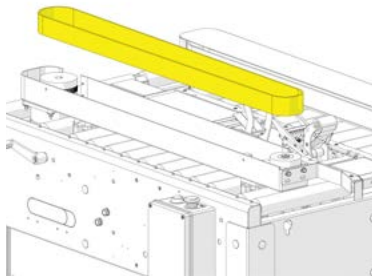


Figure 57: Replace Belt

4. Using appropriate Allen key and wrench, tighten belt tensioning bolts. Be sure to equally adjust tensioning bolts for both drive belts.

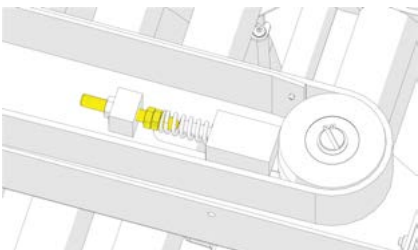


Figure 58: Tighten Belt Tension Bolt

5. Proper belt tension is achieved when a 5-pound pull force is used to create a 25mm (1 in.) gap, as shown in the middle of the drive base.

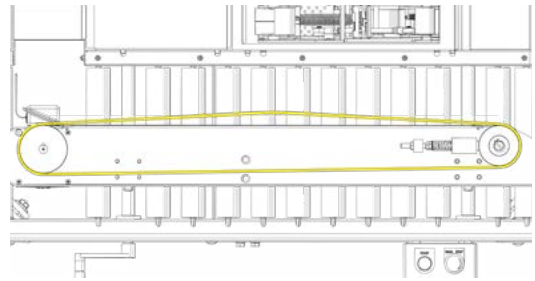


Figure 59: Proper Belt Tension

6. Intertape S/B drive idler pulleys are engineered to self-track to center. After tensioning, if the belts do not track on center, contact maintenance or your IPG Distributor.

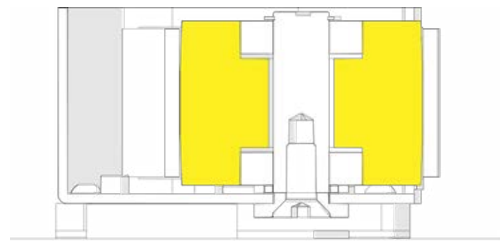


Figure 60: Self-Center Pulley

7. Using a 4mm Allen key, replace drive base cover, as shown.

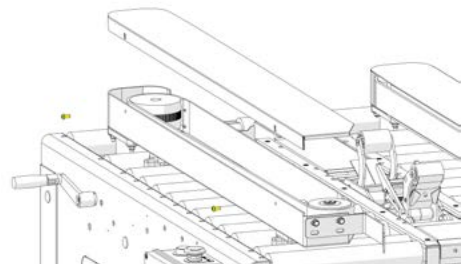


Figure 61: Drive Base Cover

MAINTENANCE

Drive Belt Adjustment

1. Using a 4mm Allen key, remove two screws and remove drive base cover.

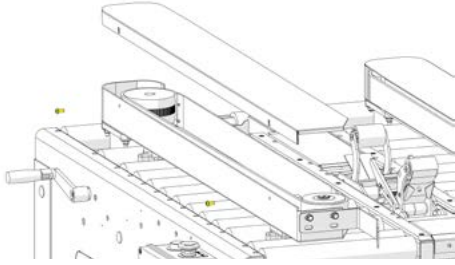


Figure 62: Drive Base Cover

2. Using appropriate Allen key and wrench, tighten belt tensioning bolts. Be sure to equally adjust tensioning bolts for both drive belts.

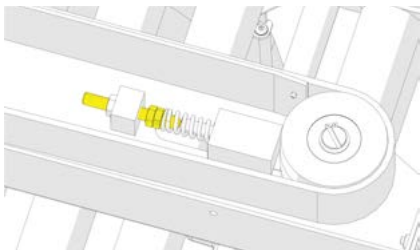


Figure 63: Tighten Belt Tension Bolt

3. Proper belt tension is achieved when a 5-pound pull force is used to create a 25mm (1 in.) gap, as shown in the middle of the drive base.

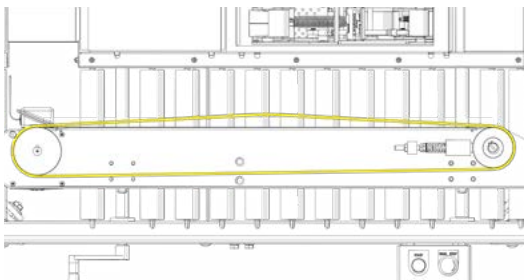


Figure 64: Proper Belt Tension

4. Intertape S/B drive idler pulleys are engineered to self-track to center. After tensioning, if the belts do not track on center, contact maintenance or your IPG Distributor.

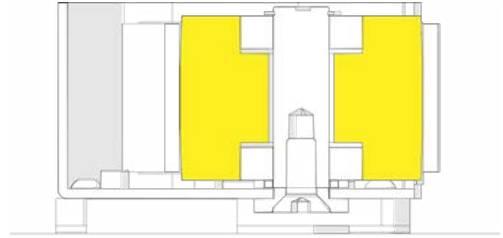


Figure 65: Self-Center Pulley

5. Using a 4mm Allen key, replace drive base cover, as shown.

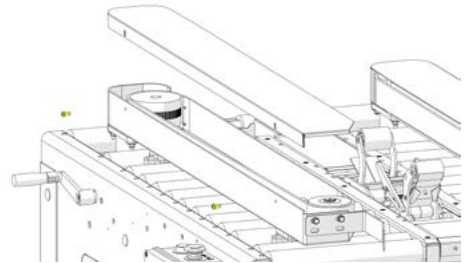
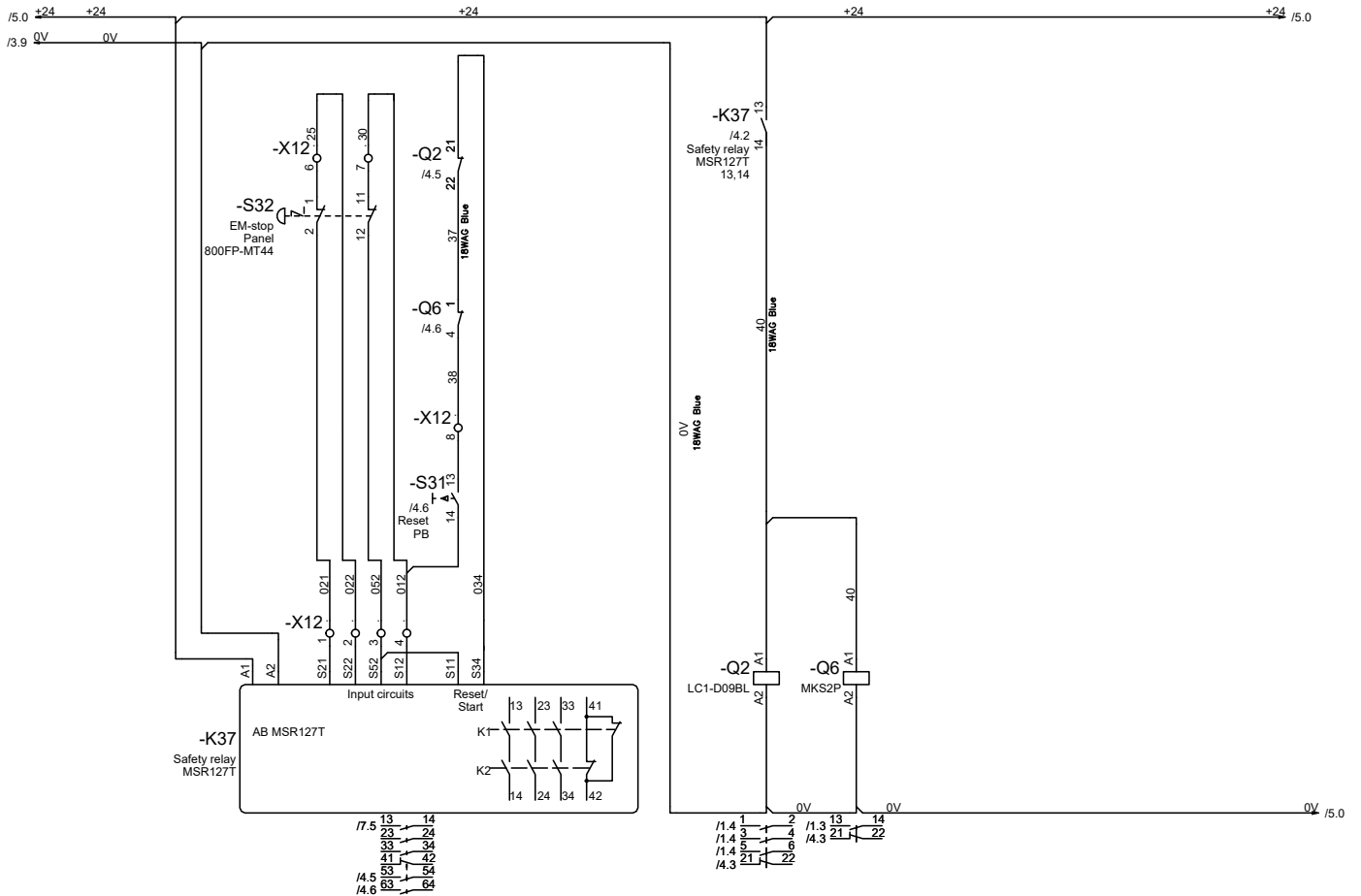
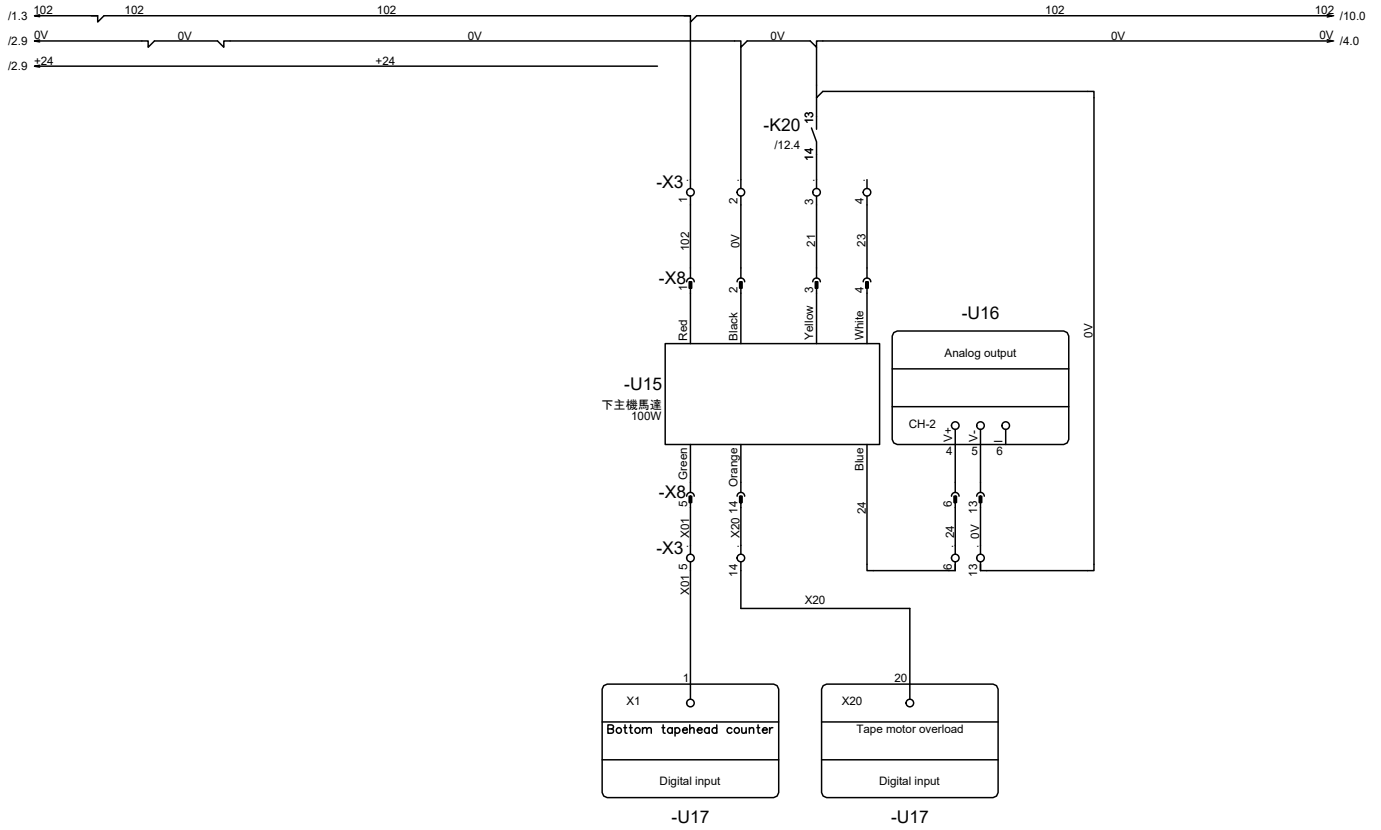


Figure 66: Drive Base Cover

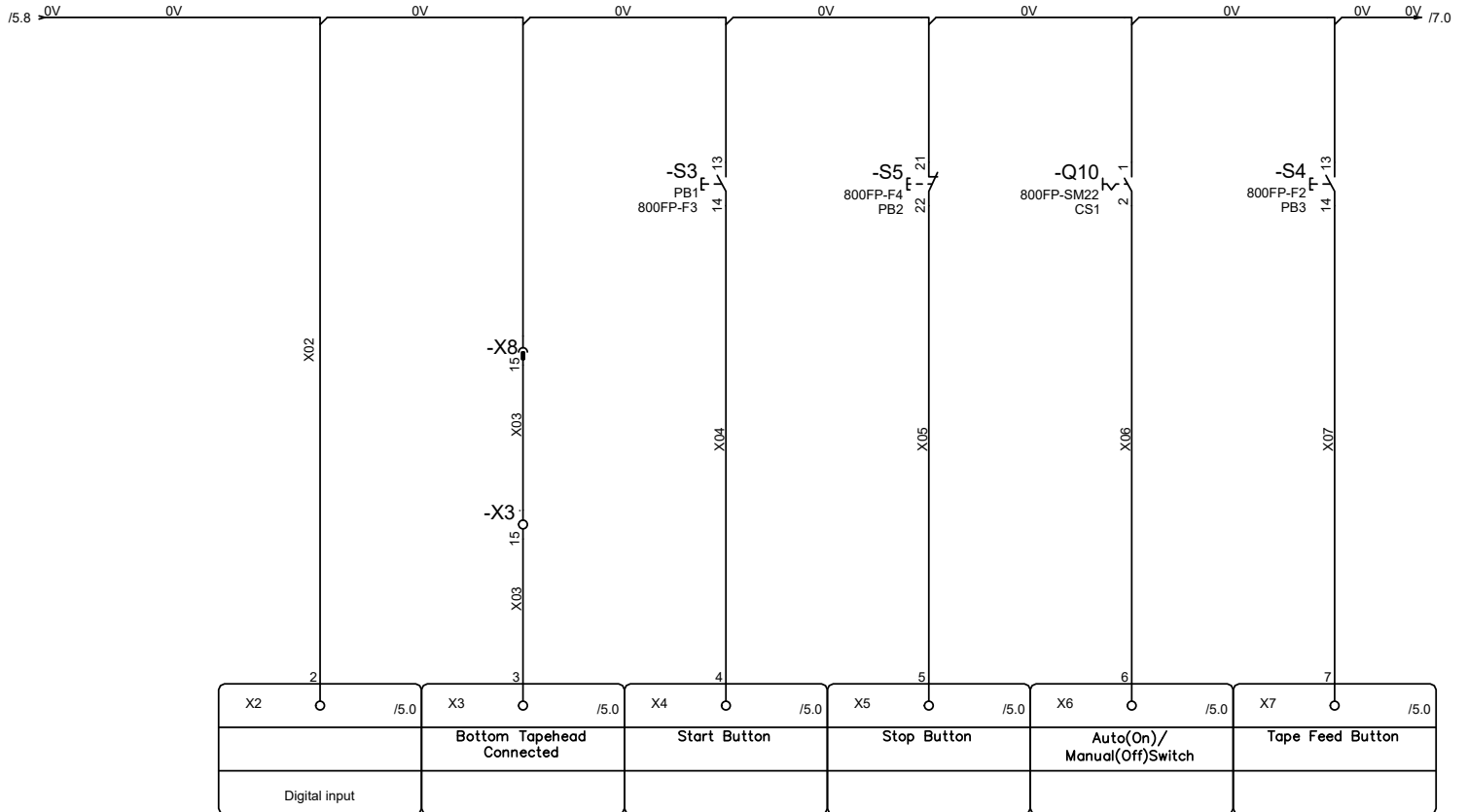
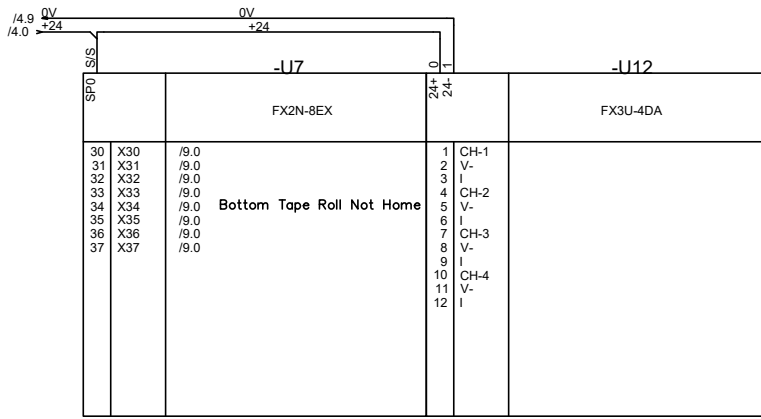
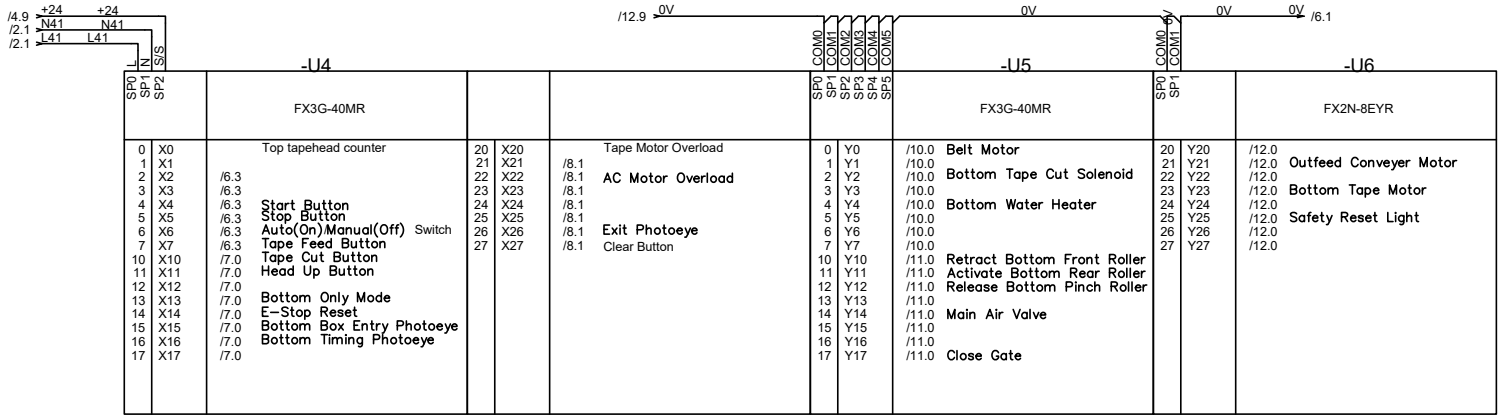
APPENDIX A

Electrical Drawing



APPENDIX A

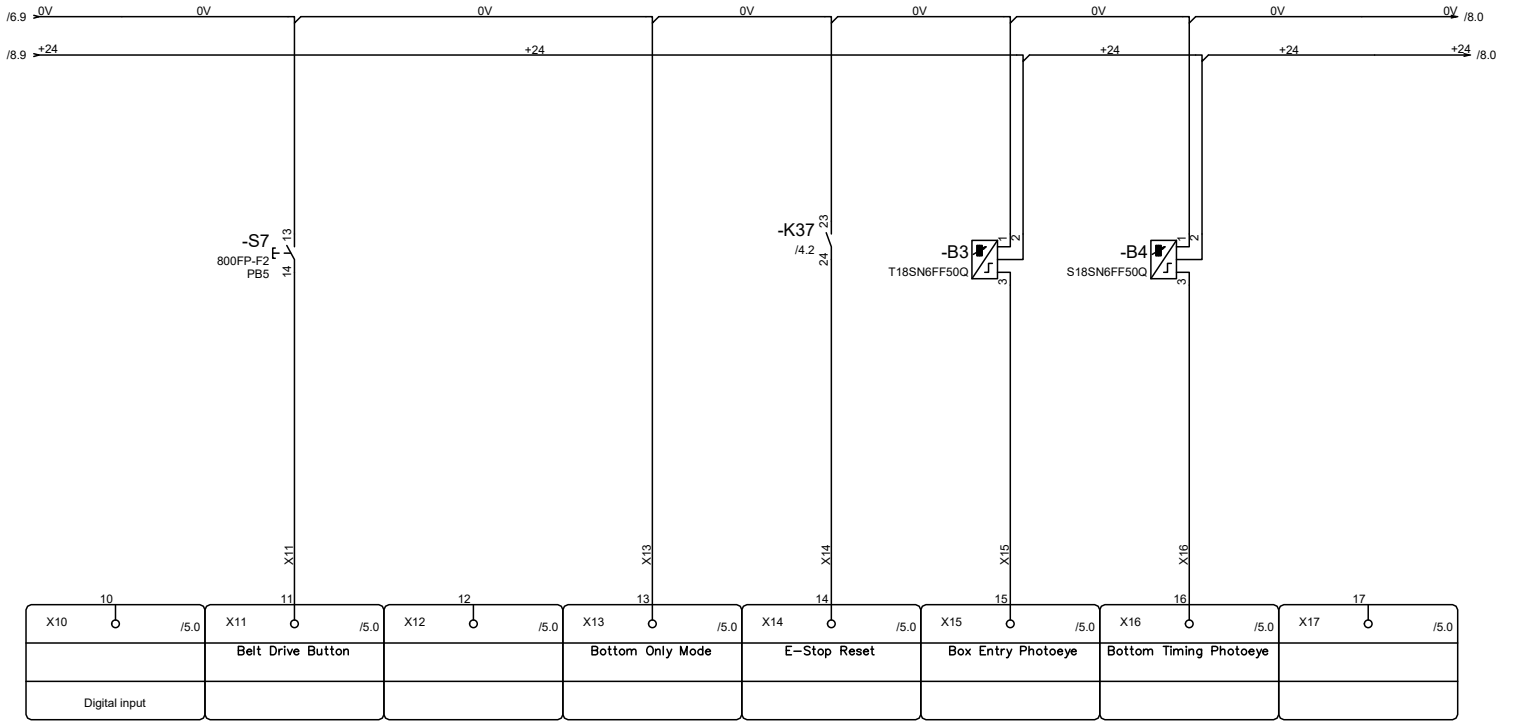
Electrical Drawing



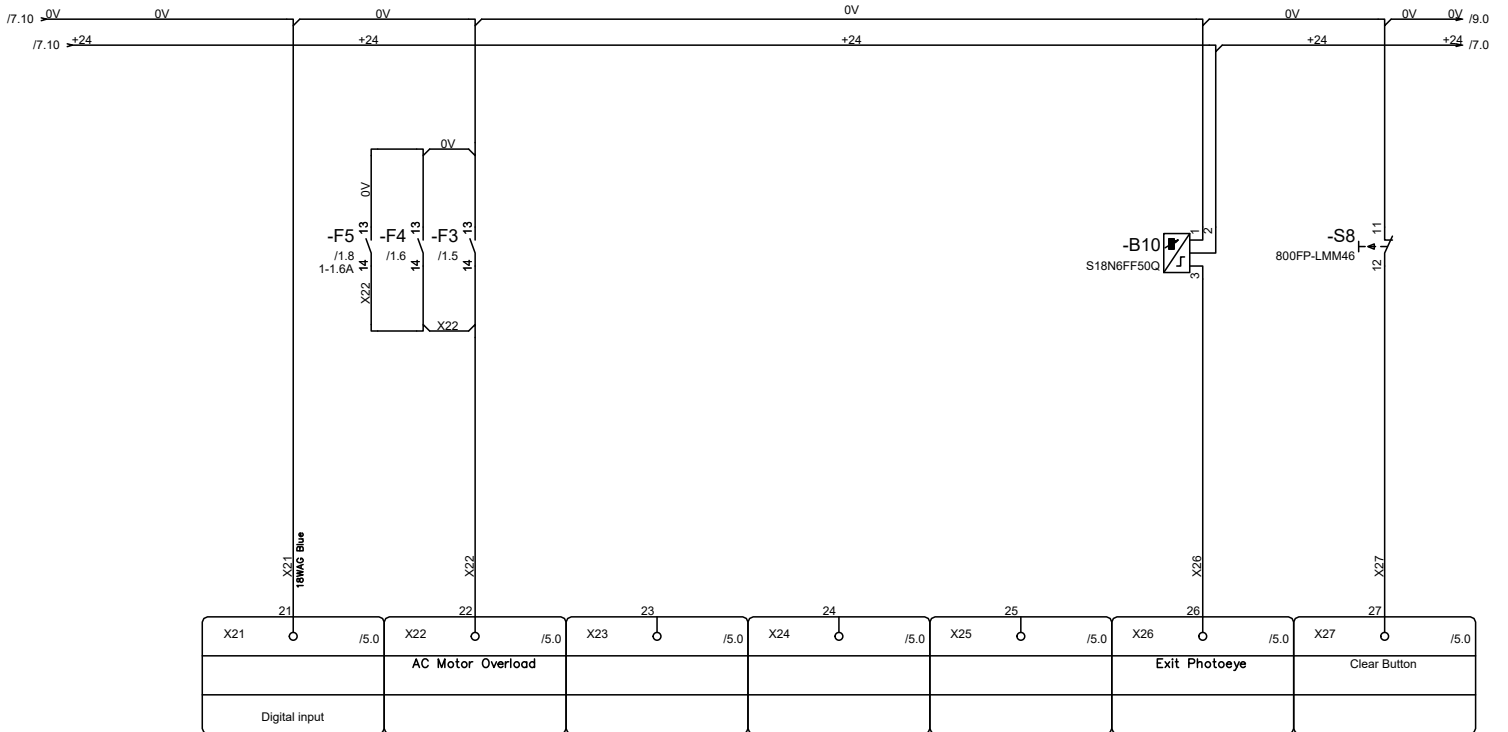
-U4

APPENDIX A

Electrical Drawing



-U4

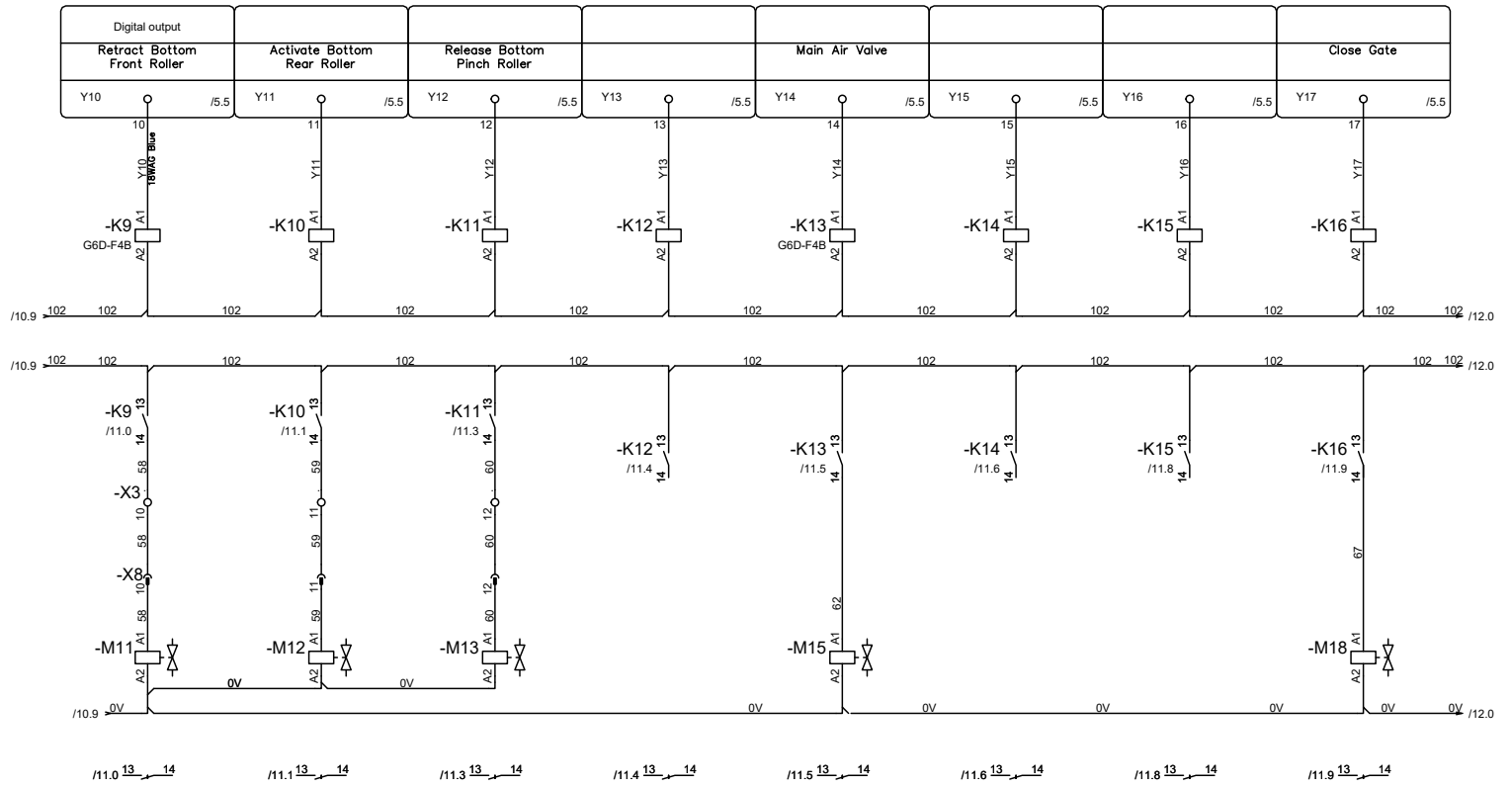


-U4

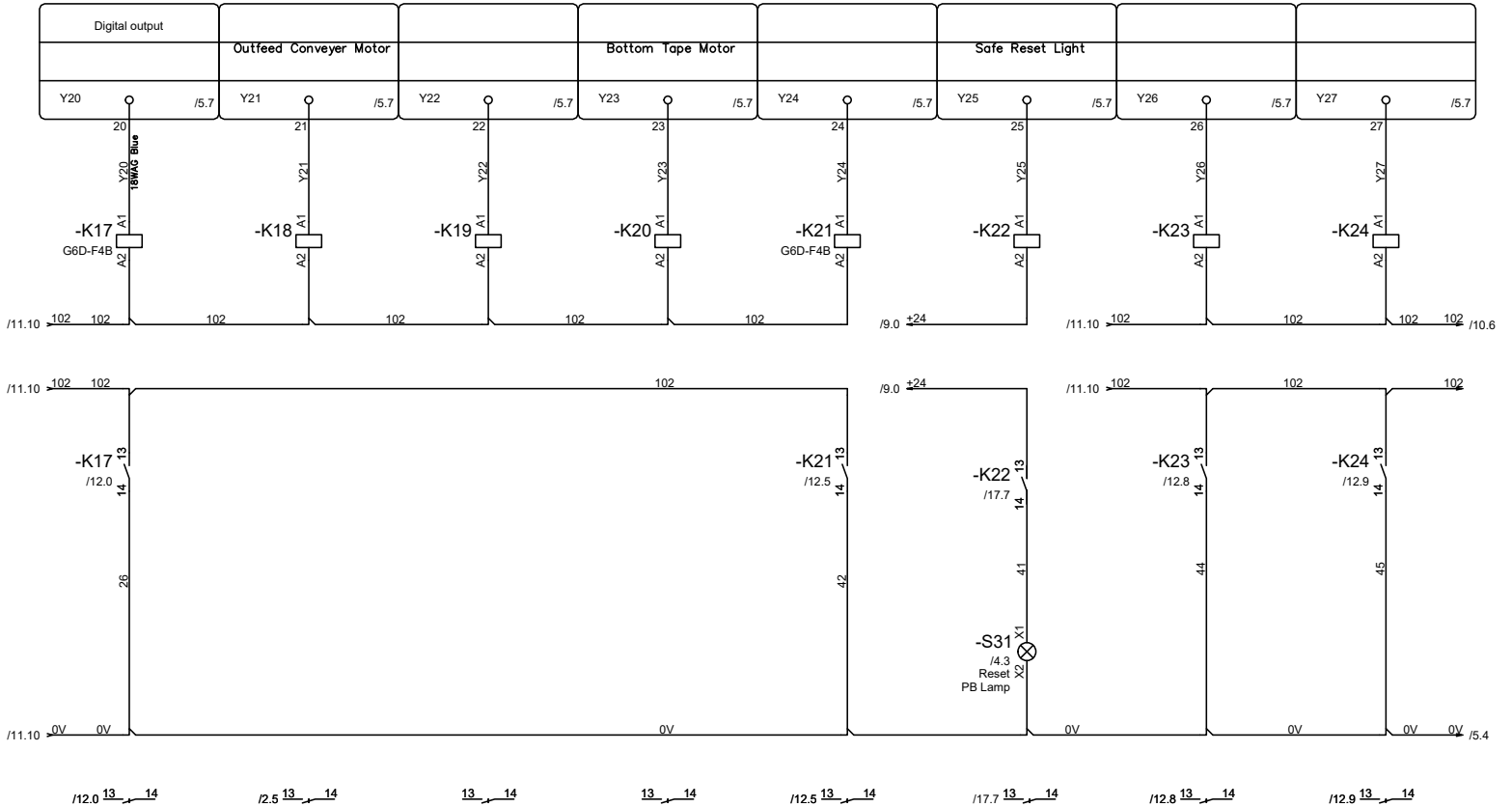
APPENDIX A

Electrical Drawing

-U5

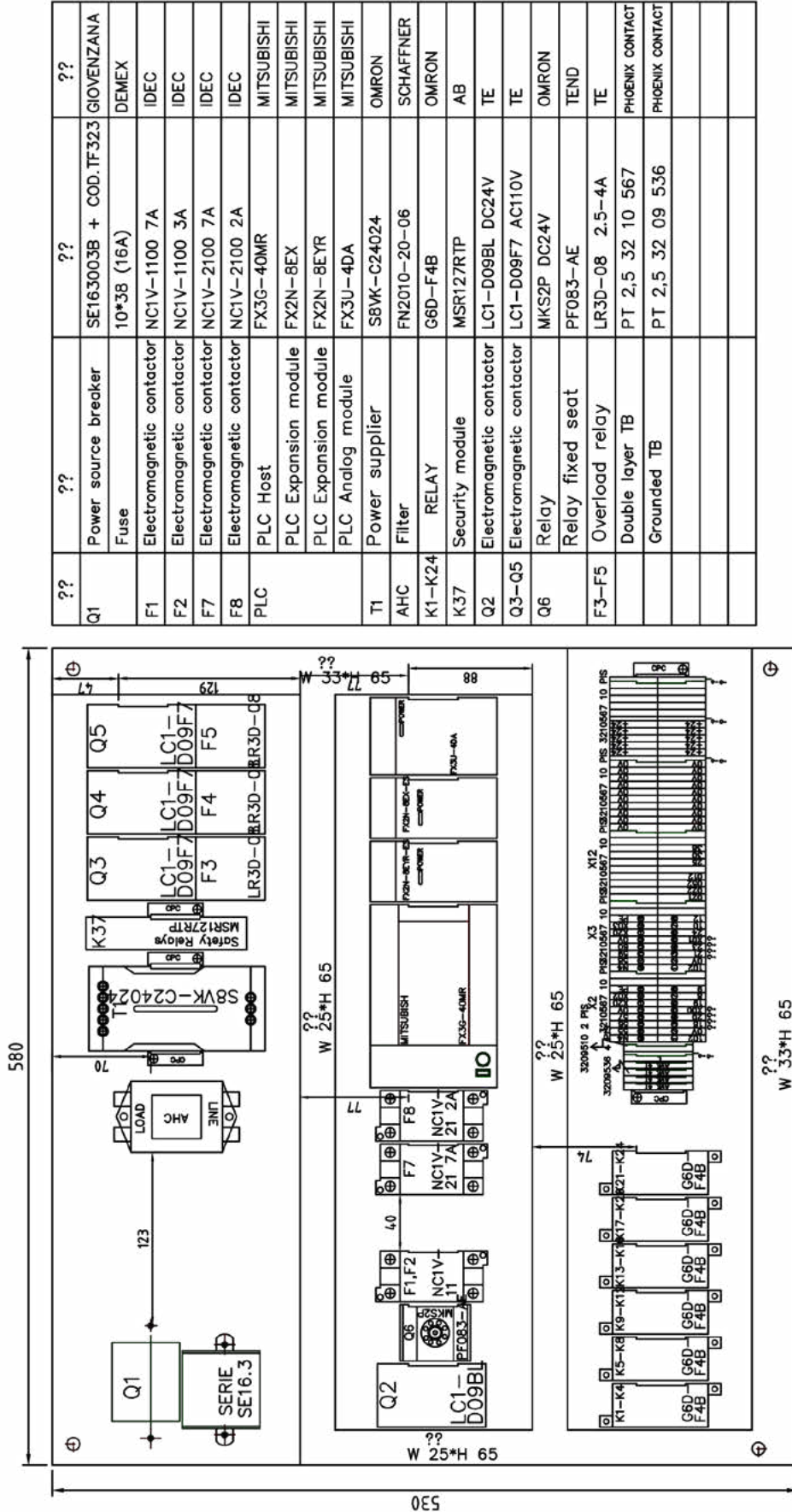


-U6



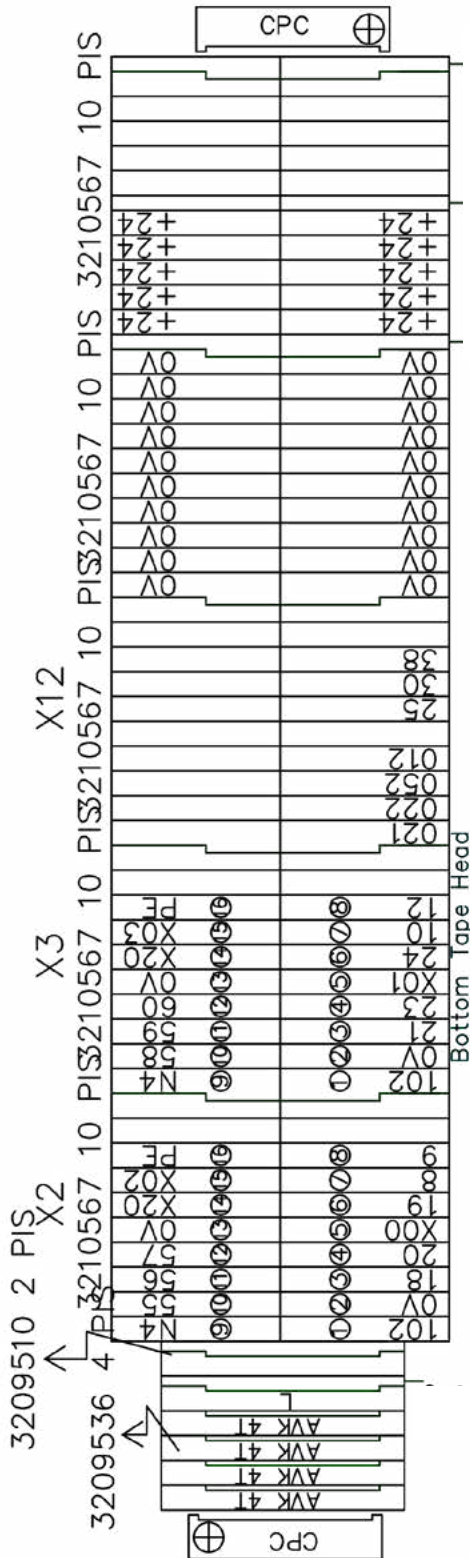
APPENDIX A

Electrical Drawing



APPENDIX A

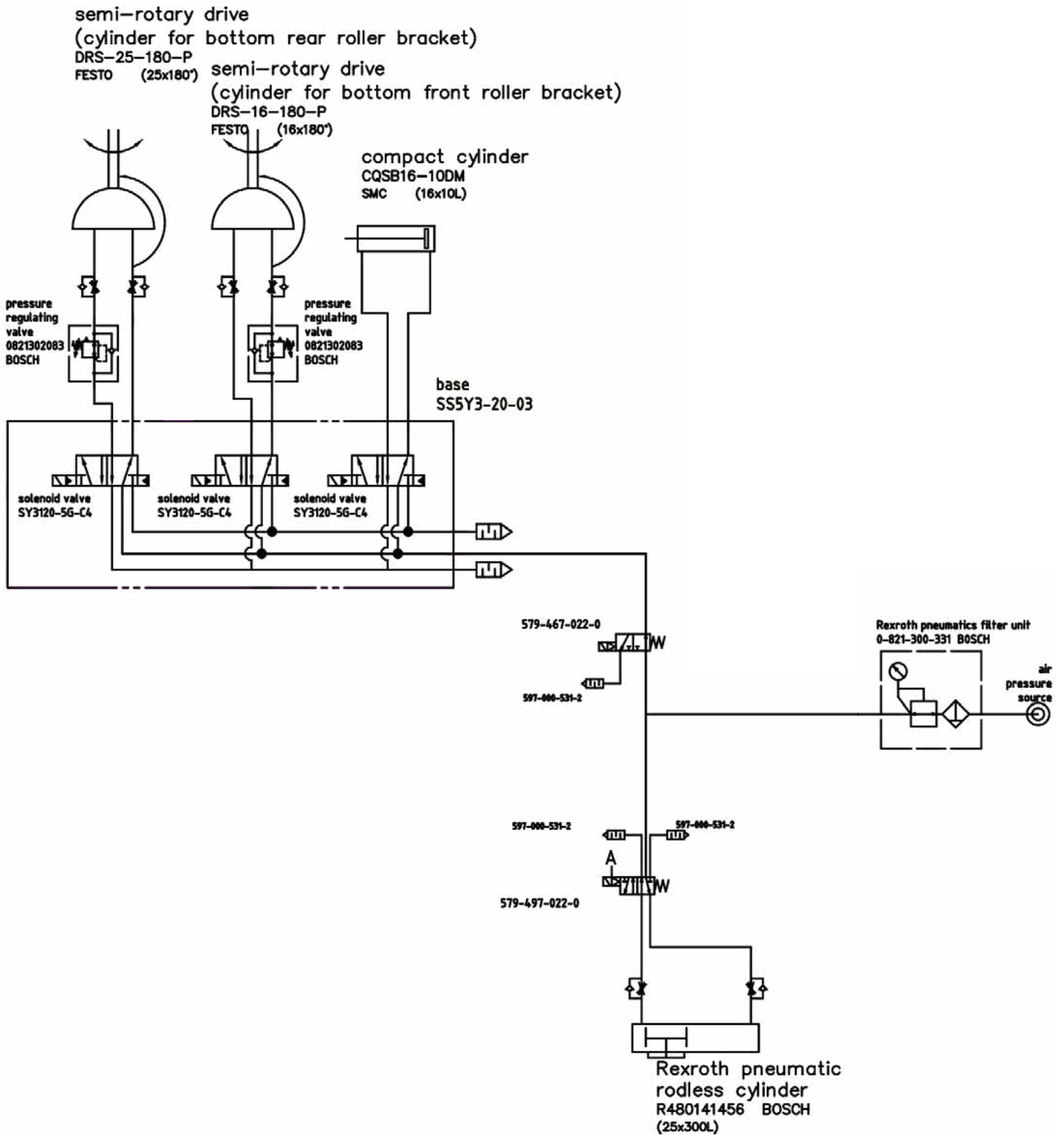
Electrical Drawing



| MACHINE CONNECTION | | TAPE HEAD CONNECTION | |
|--------------------|--------------------|----------------------|--------------------|
| Bottom Tape Head | | | |
| 16 | → PE | 16 | ← PE |
| 15 | → X03 | 15 | ← 0V |
| 14 | → X20 | 14 | ← X20 |
| 13 | → 0V | 13 | ← 0V |
| 12 | → 60(Pitch Roller) | 12 | ← 60(Pitch Roller) |
| 11 | → 59(Rear Roller) | 11 | ← 59(Rear Roller) |
| 10 | → 58(Front Roller) | 10 | ← 58(Front Roller) |
| 9 | → N4 | 9 | ← N4 |
| 8 | → 12(Heater) | 8 | ← 12(Heater) |
| 7 | → 10(Tape Cut) | 7 | ← 10(Tape Cut) |
| 6 | → Blue(24) | 6 | ← Blue(24) |
| 5 | → Green(X01) | 5 | ← Green(X01) |
| 4 | → White(23) | 4 | ← White(23) |
| 3 | → Yellow(21) | 3 | ← Yellow(21) |
| 2 | → Black(0V) | 2 | ← Black(0V) |
| 1 | → Red(102) | 1 | ← Red(102) |

APPENDIX A

Pneumatic Drawing

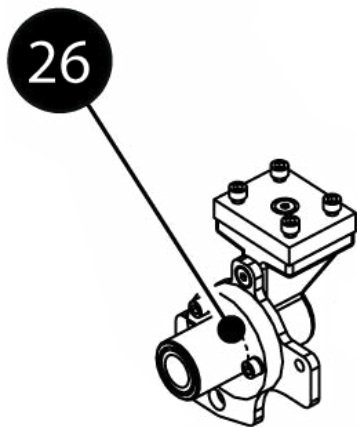


APPENDIX B

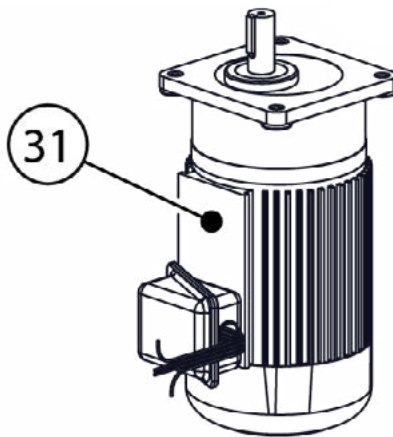
Parts Listing

| | |
|---------------------------------|----|
| USA 2024-WAT-BO | 67 |
| Outfeed Table Assembly | 68 |
| Outfeed Leg Weldment | 69 |
| Outfeed Leg With Emergency Stop | 70 |
| Outfeed Table | 71 |
| Tape Carriage | 72 |
| Entry Plate | 73 |
| Exit Plate | 74 |
| Cover Plates | 75 |
| Rollers | 76 |
| Water Bottle Assembly | 77 |
| Base Assembly | 78 |
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| Centering Assembly 1 | 81 |
| Centering Assembly 2 | 82 |
| Left Hand Drive Base Assembly | 83 |
| Right Hand Drive Base Assembly | 84 |
| Operator Control Box Assembly | 85 |
| Electrical Cabinet | 86 |
| Electrical Components | 87 |

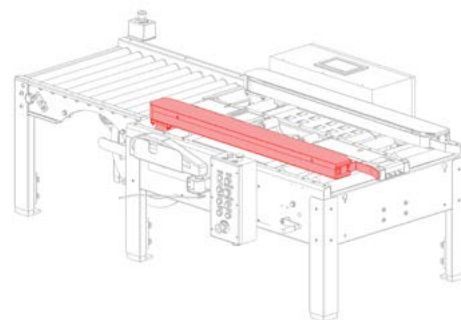
Items with black balloon call outs are assemblies (made of more than one individual part).



Items with white balloon call outs are single parts.



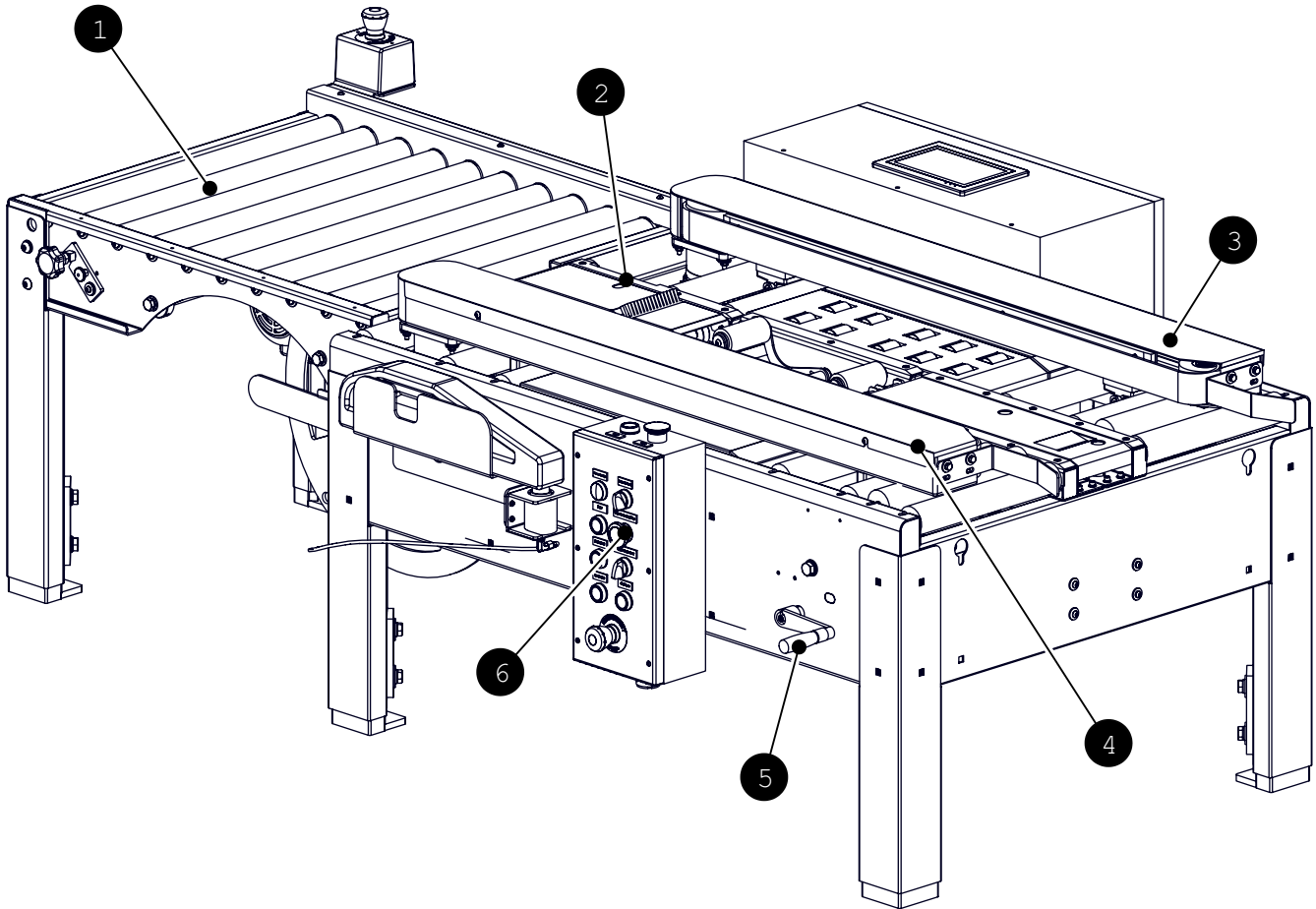
The top right of each page with a parts breakdown will show a red highlighted section of the machine that is being broken out into more detail.



Not all assemblies are sold as assemblies please consult IPG Machine Support for details.

APPENDIX B

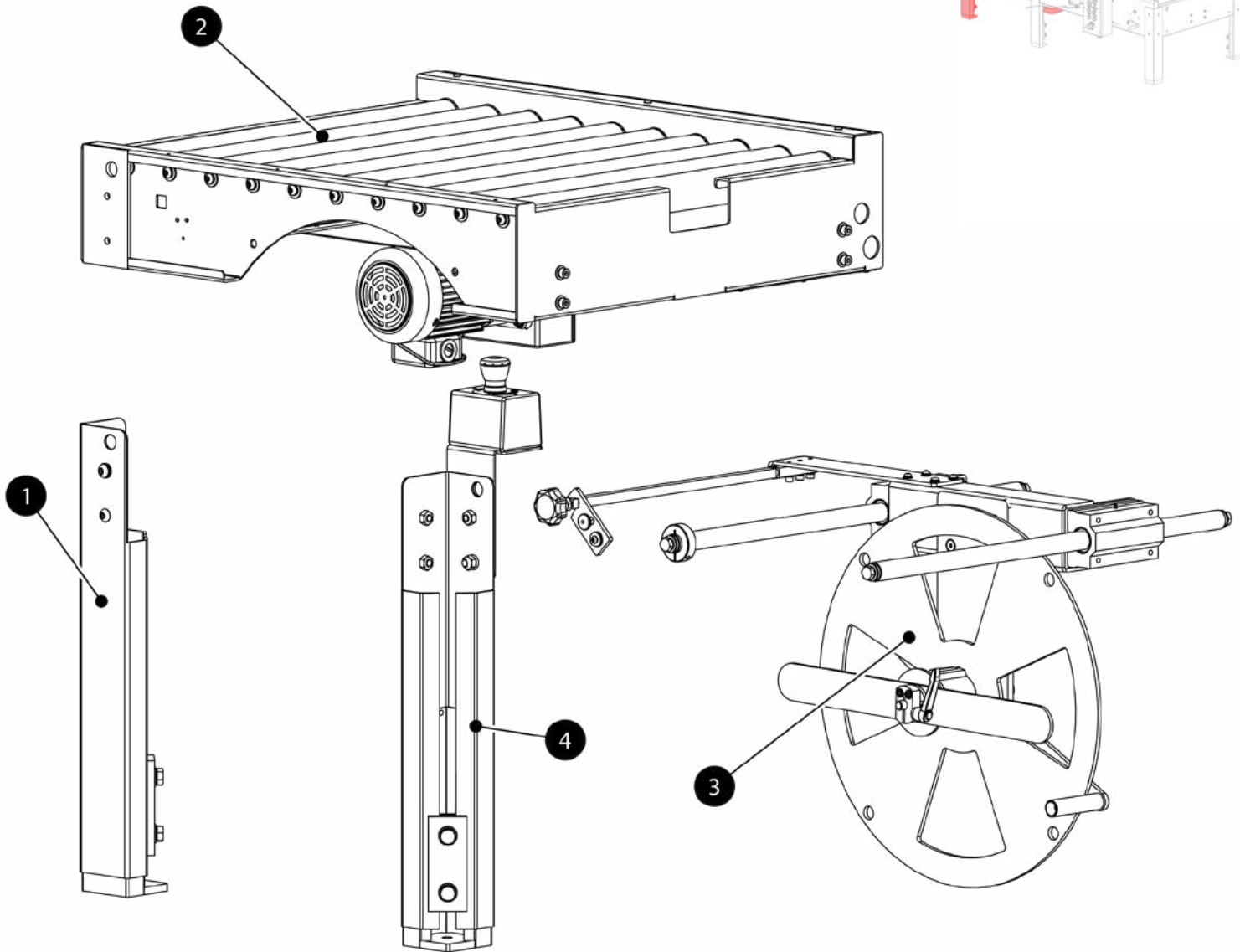
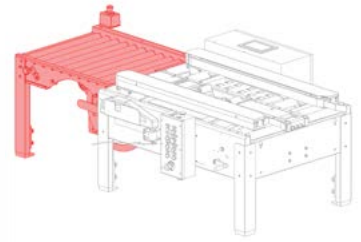
USA 2024-WAT-BO



| ITEM | PART NUMBER | DESCRIPTION | QTY |
|------|-------------|---------------------------|-----|
| 1 | UAM0489 | OUTPUT TABLE | 1 |
| 2 | USM0867 | BASE ASSEMBLY | 1 |
| 3 | UAM0511 | DRIVE UNIT, R.H | 1 |
| 4 | UAM0510 | DRIVE UNIT, L.H | 1 |
| 5 | UAM0508 | GUIDE ADJUSTMENT ASSEMBLY | 1 |
| 6 | UAM0488 | CONTROL BOX | 1 |

APPENDIX B

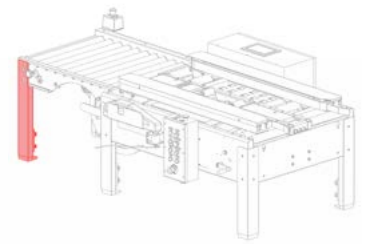
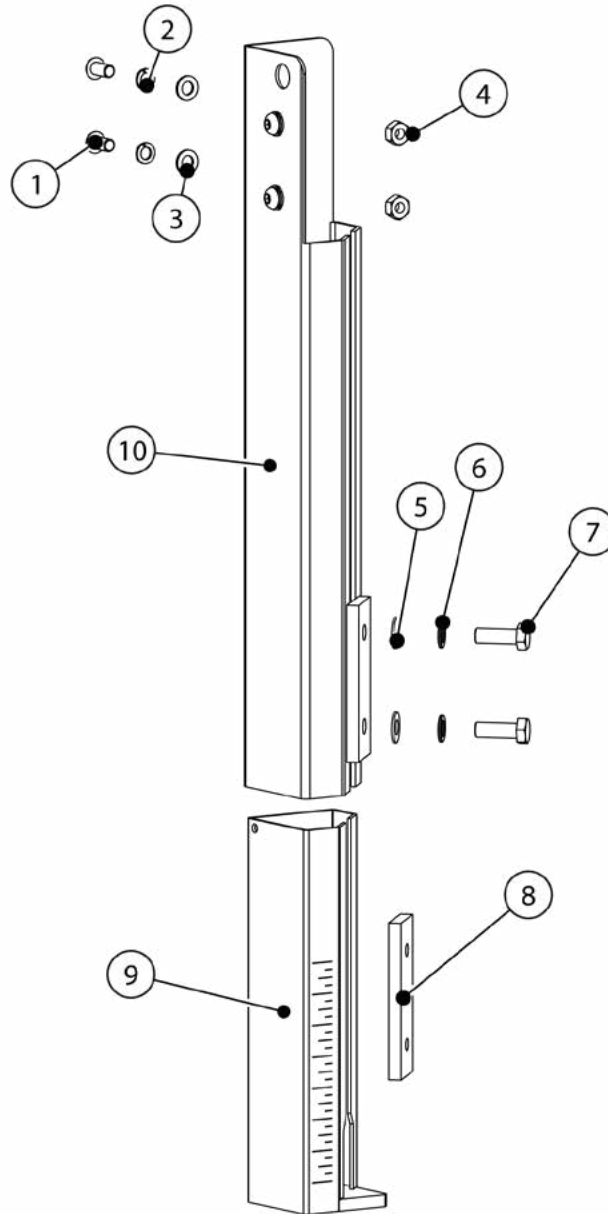
Outfeed Table Assembly



| ITEM | PART NUMBER | DESCRIPTION | QTY |
|------|-------------|----------------------|-----|
| 1 | USM0910 | OUTFEED LEG WELDMENT | 1 |
| 2 | USM0964 | OUTPUT TABLE TOP | 1 |
| 3 | UAM0506 | TAPE ROLL CARRIAGE | 1 |
| 4 | USM0963 | OUTFEED LEG W/E-STOP | 1 |

APPENDIX B

Outfeed Leg Weldment

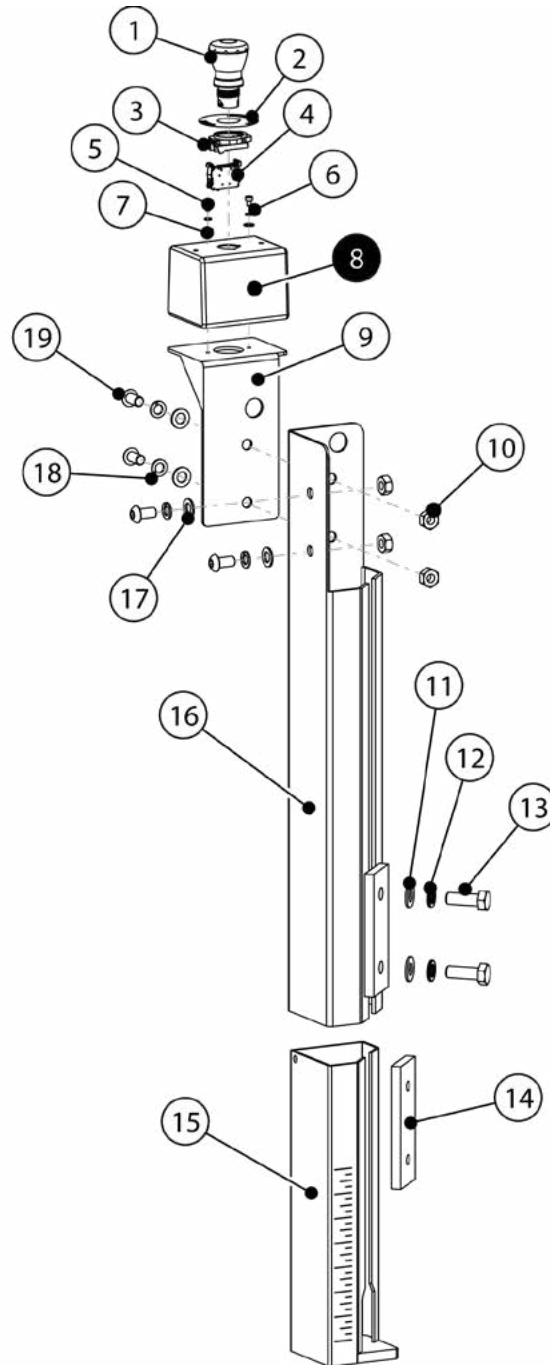
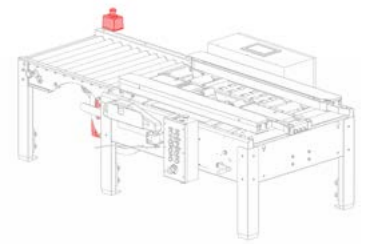


| ITEM | PART NUMBER | DESCRIPTION | QTY |
|------|-------------|---------------------|-----|
| 1 | UF4252 | BHCS M10-1.5 x 20mm | 4 |
| 2 | UF6371 | LW M10 | 4 |
| 3 | UF3680 | FW M10 | 4 |
| 4 | UF6314 | HNR M10-1.5 | 4 |
| 5 | UF4231 | FW M12 | 2 |
| 6 | UF4230 | LW M12 | 2 |

| ITEM | PART NUMBER | DESCRIPTION | QTY |
|------|-------------|----------------------|-----|
| 7 | UF6393 | HHCS M12-1.75 x 35mm | 2 |
| 8 | UPM0931 | LEG FRICTION PLATE | 1 |
| 9 | UPM0847 | LEG ADJUSTMENT | 1 |
| 10 | UPM5142 | LEG WELDMENT | 1 |

APPENDIX B

Outfeed Leg With Emergency Stop

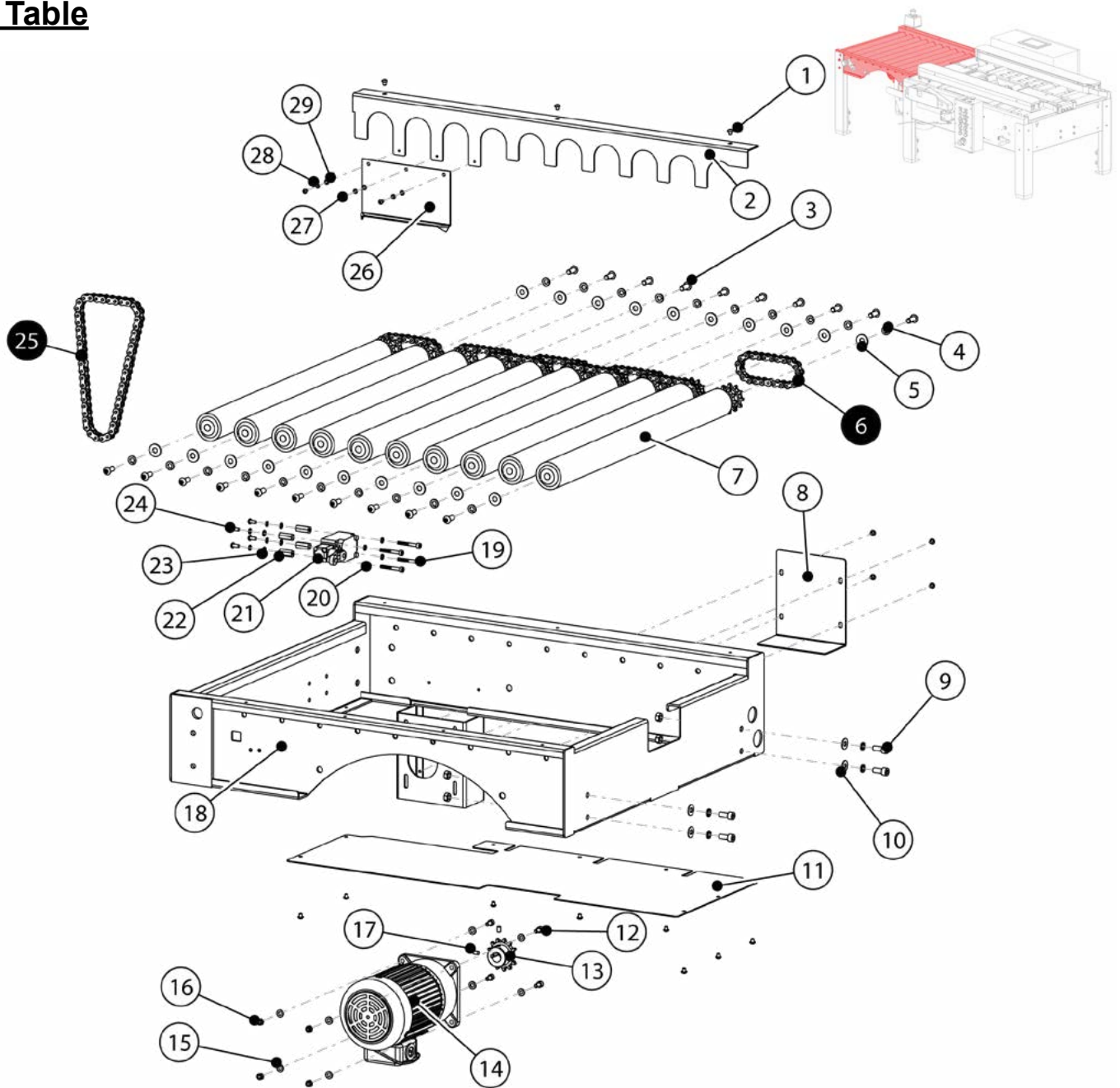


| ITEM | PART NUMBER | DESCRIPTION | QTY |
|------|-------------|-------------------|-----|
| 1 | UPM3892 | E-STOP BUTTON | 1 |
| 2 | UPM6045 | E-STOP LABEL | 1 |
| 3 | UPM7630 | LATCH | 1 |
| 4 | UPM4720 | NC CONTACT | 1 |
| 5 | UF4312 | SHCS M4-0.7 x 6mm | 2 |
| 6 | UF3749 | M4 LW | 2 |
| 7 | UF3710 | M4 FW | 2 |
| 8 | UPM6170 | BUTTON BOX | 1 |
| 9 | UPM6044 | E-STOP BRACKET | 1 |
| 10 | UF1540EV | M10 HEX NUT | 4 |

| ITEM | PART NUMBER | DESCRIPTION | QTY |
|------|-------------|----------------------|-----|
| 11 | UF4231 | M12 FW | 2 |
| 12 | UF4230 | M12 LW | 2 |
| 13 | UF3734 | HHCS M12-1.75 x 35mm | 2 |
| 14 | UPM7642 | LEG FRICTION PLATE | 1 |
| 15 | UPM7641 | LEG ADJUSTMENT | 1 |
| 16 | UPM5141 | LEG WELDMENT | 1 |
| 17 | UF3680 | FW M10 | 4 |
| 18 | UF6371 | M10 LW | 4 |
| 19 | UF4252 | BHCS M10-1.5 x 20mm | 4 |

APPENDIX B

Outfeed Table

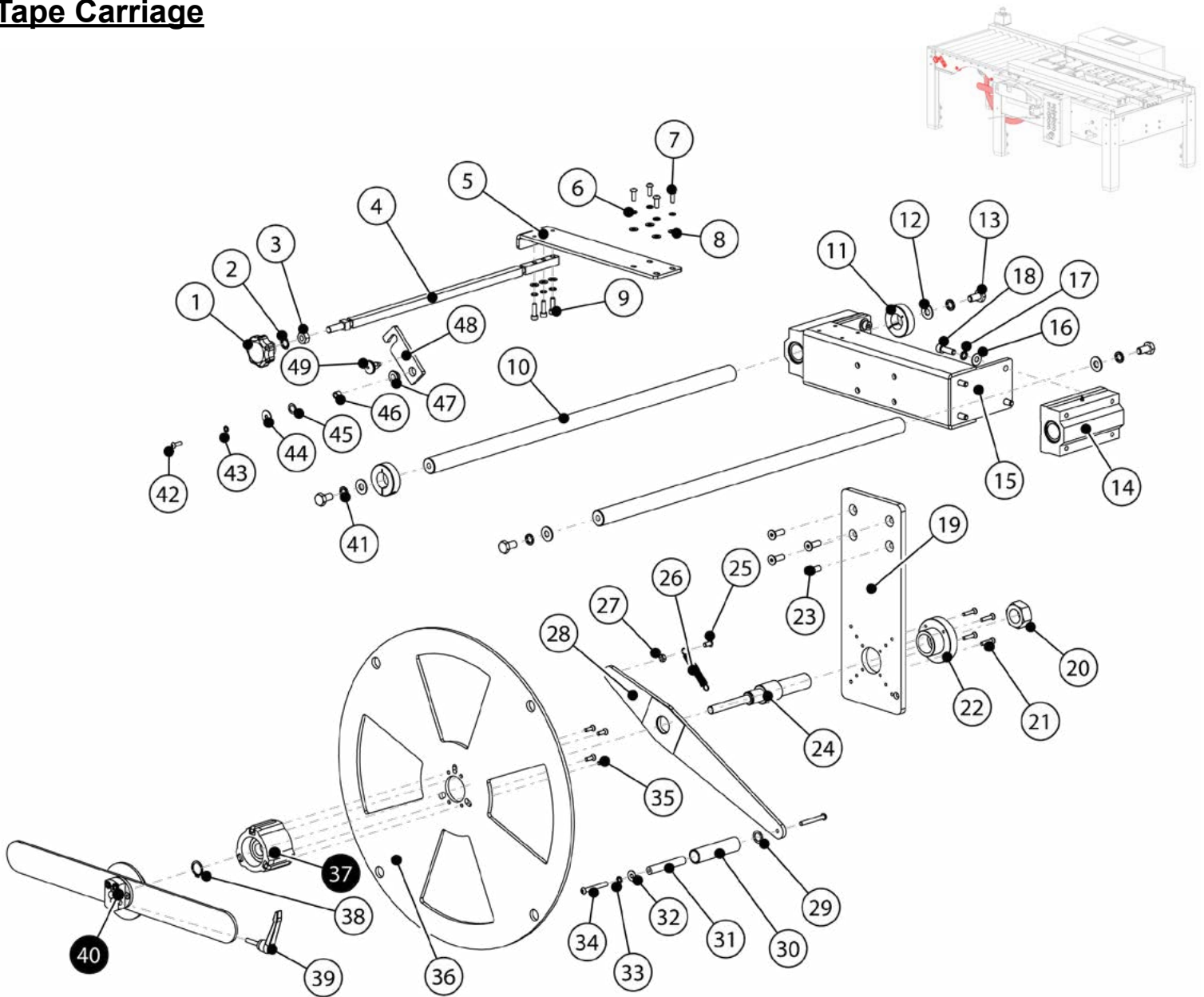


| ITEM | PART NUMBER | DESCRIPTION | QTY |
|------|-------------|---------------------|-----|
| 1 | UF5601 | M5-0.8-BHCS | 15 |
| 2 | UPM4969 | CHAIN COVER | 1 |
| 3 | UF1318 | BHCS M8-1.25 x 20mm | 20 |
| 4 | UF0867 | M8 LW | 24 |
| 5 | UF1821 | M8 FW | 20 |
| 6 | UPM4891 | CHAIN #40, 12 PITCH | 8 |
| 7 | UPM5125 | POWERED ROLLER | 10 |
| 8 | UPM5124 | CHAIN COVER | 1 |
| 9 | UF0864 | SHCS M8-1.25 x 20MM | 4 |
| 10 | UF0105 | M8 FW | 4 |
| 11 | UPM6038 | BOTTOM COVER | 1 |
| 12 | UF0038 | SHCS M6-1.0 x 12mm | 4 |
| 13 | UPM5126 | SPROCKET | 1 |
| 14 | UPM7874 | MOTOR, 1/3 HP 15:1 | 1 |
| 15 | UF6341 | M6 FW | 8 |

| ITEM | PART NUMBER | DESCRIPTION | QTY |
|------|-------------|-------------------------|-----|
| 16 | UF3391 | LOCK NUT M6 | 4 |
| 17 | UF3750 | SSS M6 x 10mm | 2 |
| 18 | UAM0505 | OUTPUT TABLE WELDMENT | 1 |
| 19 | UF3776 | SHCS M5 x 0.8 x 35mm | 4 |
| 20 | UF7023 | M5 LW | 8 |
| 21 | UPM5711 | SWITCH SNAP ACTION SPDT | 1 |
| 22 | UPM6037 | POST | 4 |
| 23 | UF6340 | M5 W | 4 |
| 24 | UF3687 | BHCS M5-0.8 x 12mm | 4 |
| 25 | UPM4890 | CHAIN #40, 25 PITCH | 1 |
| 26 | UPM5222 | CHAIN SHIELD | 1 |
| 27 | UF7009 | BHCS M4-0.7 x 8mm | 3 |
| 28 | UF3681 | M4 LW | 3 |
| 29 | UF3710 | M4 FW | 3 |

APPENDIX B

Tape Carriage



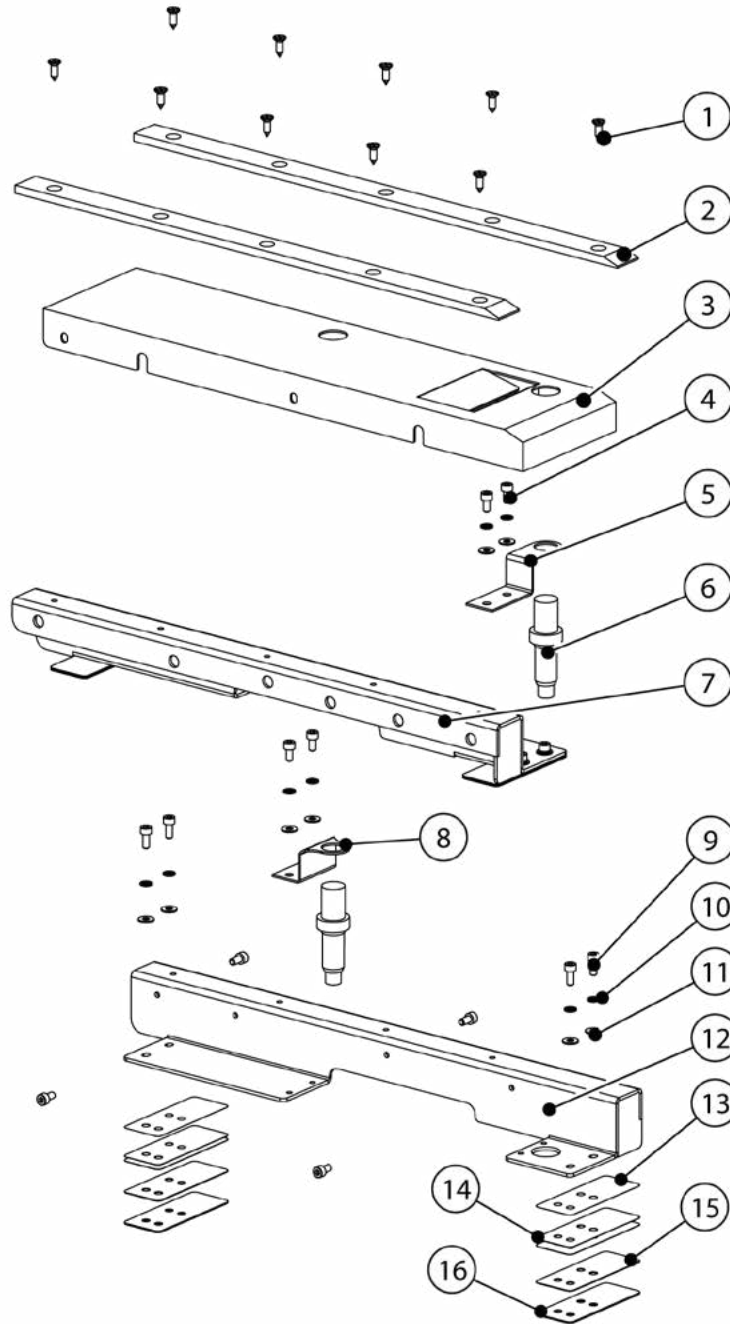
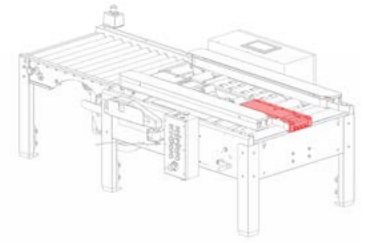
| ITEM | PART NUMBER | DESCRIPTION | QTY |
|------|-------------|-----------------------|-----|
| 1 | UPM2784 | HANDLE | 1 |
| 2 | UF0057 | INTERNAL TOOTH LW M10 | 1 |
| 3 | UF0107 | M10 JAM NUT | 1 |
| 4 | UPM6041 | BAR | 1 |
| 5 | UPM6042 | BRACKET | 1 |
| 6 | UF6363 | M6 LW | 7 |
| 7 | UF1250EV | BHCS M6-1.0 x 16mm | 4 |
| 8 | UF1828 | M6 FW | 7 |
| 9 | UF0835 | SHCS M6-1.0 x 20mm | 3 |
| 10 | UPM6043 | SHAFT | 2 |
| 11 | UPM5713 | SHAFT COLLAR | 2 |
| 12 | UF3680 | M10 FW | 4 |
| 13 | UF3679 | HHCS M10-1.5 x 20mm | 4 |
| 14 | UPM6142 | SHUTTLE BLOCK | 2 |
| 15 | UPM6040 | BRACKET | 1 |
| 16 | UF0105 | M8 FW | 8 |
| 17 | UF3640 | M8 LW | 8 |

| ITEM | PART NUMBER | DESCRIPTION | QTY |
|------|-------------|---------------------|-----|
| 18 | UF0098 | SHCS M8-1.25 x 25mm | 8 |
| 19 | UPM6143 | BACK FRAME | 1 |
| 20 | UF3816 | M24 NUT | 1 |
| 21 | UF5399 | FHCS M5-0.8 x 25mm | 4 |
| 22 | UPM5114 | HUB | 1 |
| 23 | UF0091 | FHCS M8-1.25 x 25mm | 4 |
| 24 | UPM5109 | STEPPED SHAFT | 1 |
| 25 | UF5600 | BHCS M6-1.0 x 12mm | 1 |
| 26 | UPM2206 | EXTENSION SPRING | 1 |
| 27 | UF0062 | M6 NUT | 1 |
| 28 | UPM8006 | PIVOT ARM | 1 |
| 29 | UF6336 | TEFLON WASHER | 1 |
| 30 | UPH9059 | PEEL OFF ROLLER | 1 |
| 31 | UPH0949 | GUIDE ROLLER SHAFT | 1 |
| 32 | UF1828 | M6 FW | 1 |
| 33 | UF6363 | M6 LW | 1 |
| 34 | UF4052 | BHCS M6-1.0 x 50mm | 2 |

| ITEM | PART NUMBER | DESCRIPTION | QTY |
|------|-------------|---------------------------|-----|
| 35 | UF5404 | FHCS M5-0.8 x 16mm | 4 |
| 36 | UPM5111 | PANCAKE | 1 |
| 37 | UAM0195 | MANDREL HUB | 1 |
| 38 | UF3815 | RET'G RING, ID 10 | 1 |
| 39 | UPM4889 | HNADLE | 1 |
| 40 | UAM0462 | CROSS BAR ASSY | 1 |
| 41 | UF3743 | M10 LW | 4 |
| 42 | UF0037 | BHCS M5-0.8 x 16mm | 1 |
| 43 | UF7021 | M5 LW | 1 |
| 44 | UF0106 | M5 FW | 1 |
| 45 | UF0108 | SPECIAL WASHER | 1 |
| 46 | UPM2803 | ROTARY SLEEVE | 1 |
| 47 | UPM2539 | BUSHING | 1 |
| 48 | UPM2471 | DRAG LINK | 1 |
| 49 | UPM2792 | DIVIDE POSITIONING PILLAR | 1 |

APPENDIX B

Entry Plate



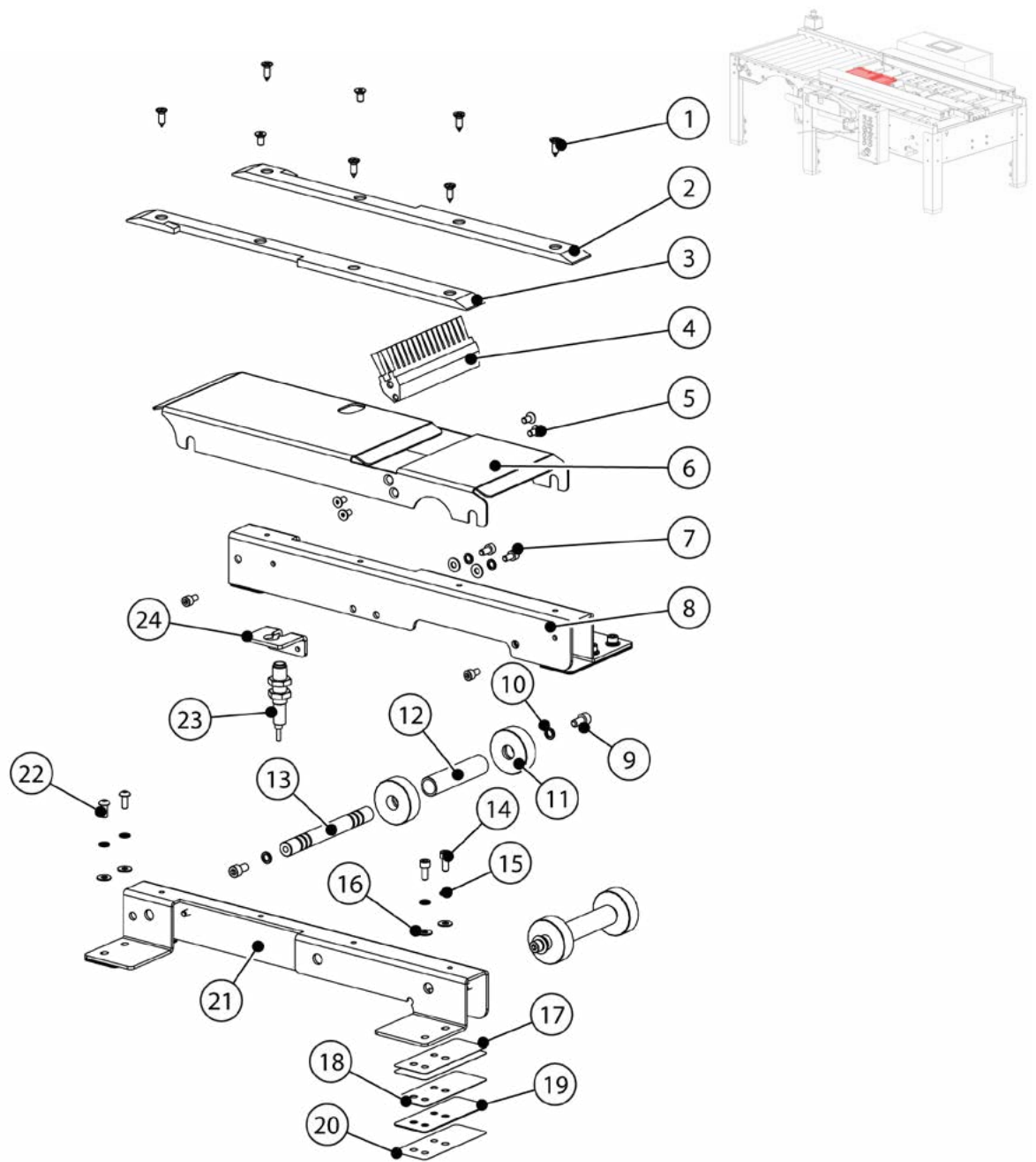
| ITEM | PART NUMBER | DESCRIPTION | QTY |
|------|-------------|---------------------|-----|
| 1 | UF0075 | M5-0.8-SELF TAPPING | 10 |
| 2 | UPM4954 | SLIDING PAD | 2 |
| 3 | UPM5954 | COVER PLATE | 1 |
| 4 | UF0039 | SHCS M5-0.8 x 10mm | 8 |
| 5 | UPM5955 | SENSOR SUPPORT | 1 |
| 6 | UPM0317 | SENSOR | 2 |
| 7 | UPM5951 | FRONT SEAT, L.H. | 1 |
| 8 | UPM5956 | SENSOR SUPPORT | 1 |
| 9 | UF7003 | SHCS M5-0.8 x 12mm | 8 |

| ITEM | PART NUMBER | DESCRIPTION | QTY |
|------|-------------|------------------|-----|
| 10 | UF7021 | M5 LW | 12 |
| 11 | UF1827 | M5 FW | 12 |
| 12 | UPM5952 | FRONT SEAT, R.H. | 1 |
| 13 | UPM6254 | SHIM 0.1mm* | 4 |
| 14 | UPM6255 | SHIM 0.2mm* | 8 |
| 15 | UPM6265 | SHIM 0.5mm* | 4 |
| 16 | UPM5953 | SHIM 1.0mm* | 4 |

* The number of shims may vary and are to allow for proper level and make up for any variation in machine tolerances.

APPENDIX B

Exit Plate



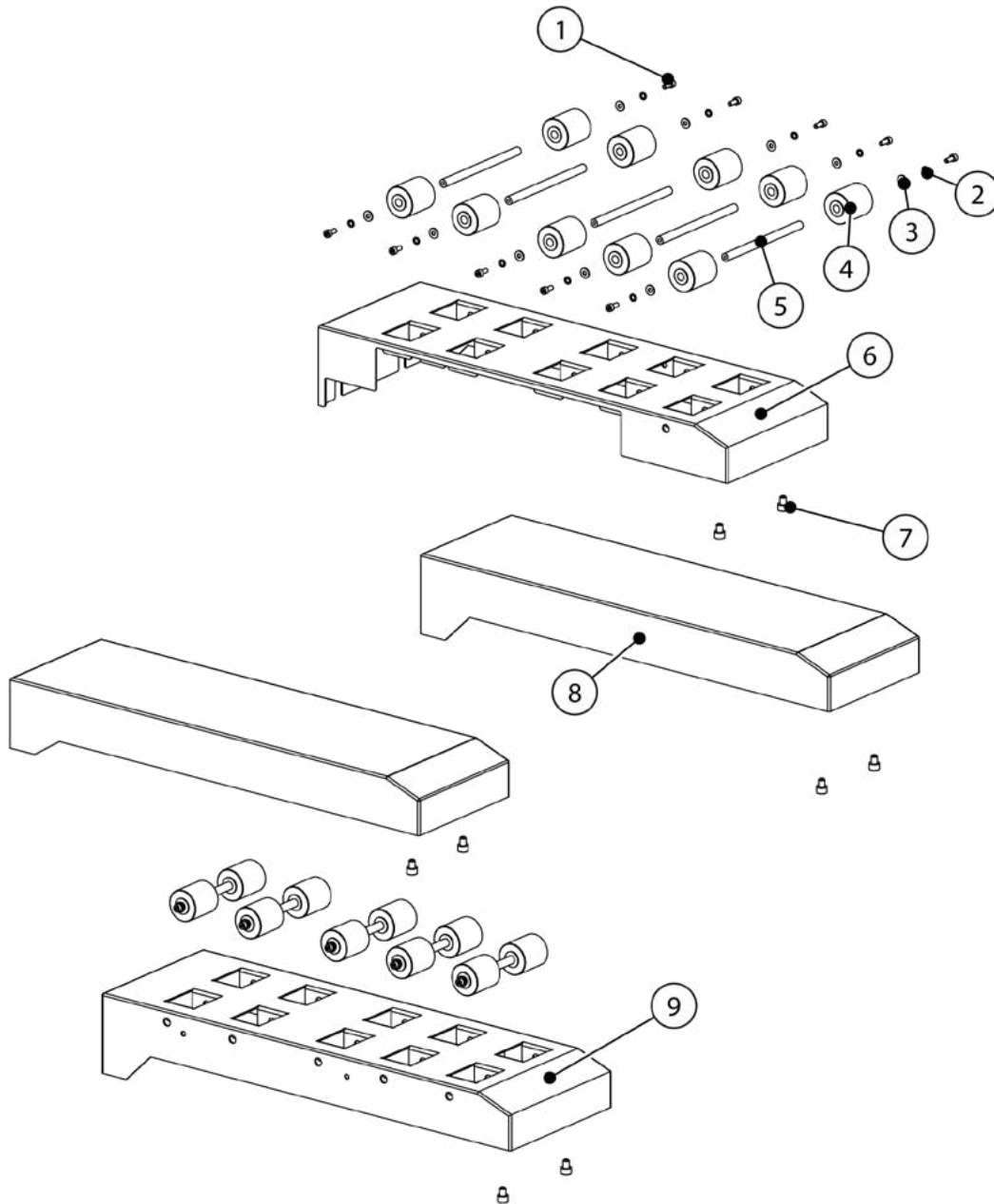
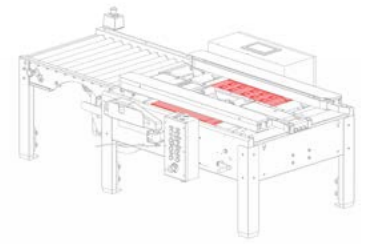
| ITEM | PART NUMBER | DESCRIPTION | QTY |
|------|-------------|----------------------------|-----|
| 1 | UF0075 | M5-0.8-SELF TAPPING | 8 |
| 2 | UPM5962 | SLIP PAD, R.H. | 1 |
| 3 | UPM5961 | SLIP PAD, L.H. | 1 |
| 4 | UPY0023 | BRUSH | 1 |
| 5 | UF6305 | FHCS M5-0.8 x 10mm | 4 |
| 6 | UPM5964 | COVER | 1 |
| 7 | UF0039 | SHCS M5-0.8 x 10mm | 6 |
| 8 | UPM5960 | REAR SUPPORT SEAT, R.H. | 1 |
| 9 | UF0038 | SHCS M6-1.0 x 12mm | 4 |
| 10 | UF6363 | M6 LW | 4 |
| 11 | UPM4934 | GUIDE ROLLER, 400D | 4 |
| 12 | UPM4933 | ROLLER, dia 17, 72L, BLACK | 2 |
| 13 | UPM6228 | SHAFT, 115L, GROOVED | 2 |

| ITEM | PART NUMBER | DESCRIPTION | QTY |
|------|-------------|-------------------------|-----|
| 14 | UF7003 | SHCS M5-0.8 x 12mm | 4 |
| 15 | UF7021 | M5 LW | 10 |
| 16 | UF1827 | M5 FW | 10 |
| 17 | UPM6255 | SHIM 0.2mm* | 8 |
| 18 | UPM6265 | SHIM 0.5mm* | 4 |
| 19 | UPM5953 | SHIM 1.0mm* | 4 |
| 20 | UPM6254 | SHIM 0.1mm* | 4 |
| 21 | UPM5959 | REAR SUPPORT SEAT, L.H. | 1 |
| 22 | UF3687 | BHCS M5-0.8 x 12mm | 4 |
| 23 | UPM5969 | PHOTOELECTRIC SENSOR | 1 |
| 24 | UPM5963 | SENSOR BRACKET | 1 |

* The number of shims may vary and are to allow for proper level and make up for any variation in machine tolerances.

APPENDIX B

Cover Plates

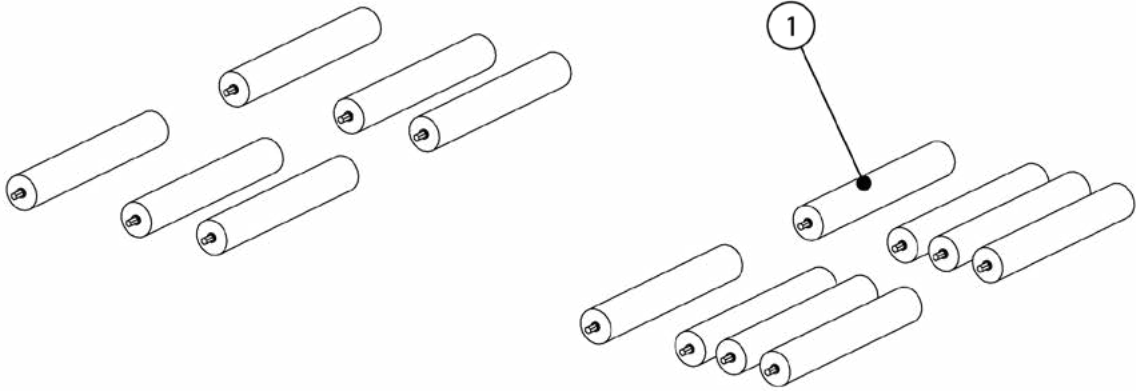
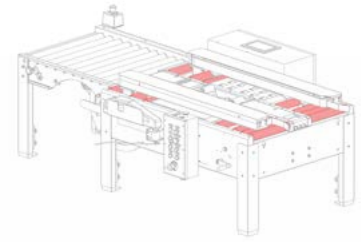


| ITEM | PART NUMBER | DESCRIPTION | QTY |
|------|-------------|--------------------|-----|
| 1 | UF9148 | SHCS M4-0.7 x 10mm | 20 |
| 2 | UF3749 | M4 LW | 20 |
| 3 | UF3710 | M4 FW | 20 |
| 4 | UPM4941 | ROLLER | 20 |
| 5 | UPM4942 | ROLLER SHAFT | 10 |

| ITEM | PART NUMBER | DESCRIPTION | QTY |
|------|-------------|-------------------|-----|
| 6 | UPM5958 | ROLLER PLATE RH | 1 |
| 7 | UF3170 | SHCS M6-1.0 x 8mm | 8 |
| 8 | UPM4930 | SIDE COVER, | 2 |
| 9 | UPM5957 | ROLLER PLATE LH | 1 |

APPENDIX B

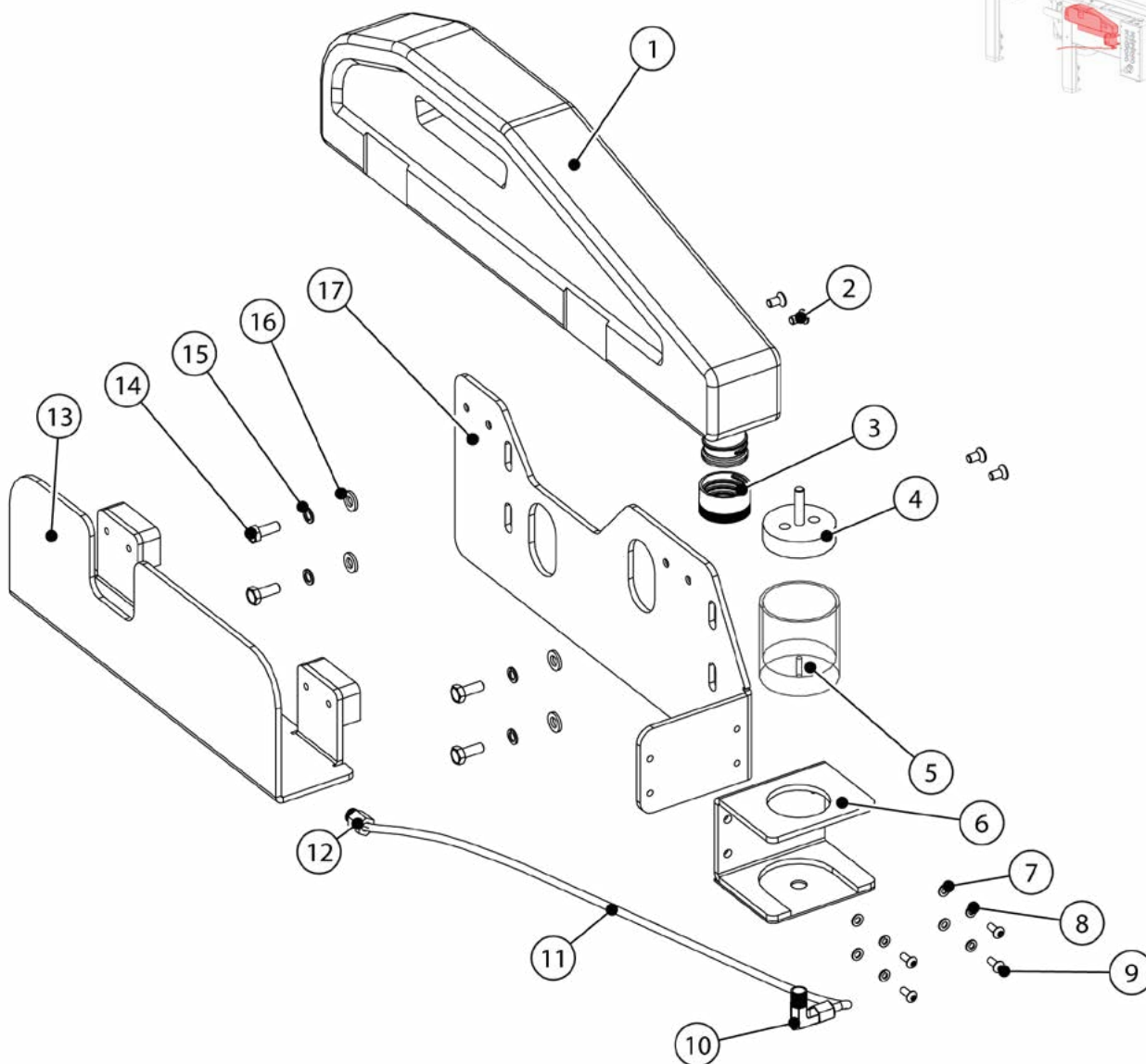
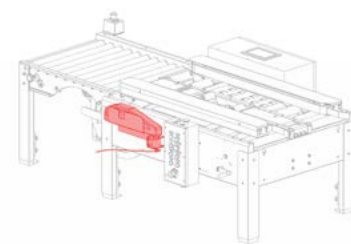
Rollers



| ITEM | PART NUMBER | DESCRIPTION | QTY |
|------|-------------|----------------------------------|-----|
| 1 | UPM3226 | PVC ROL CHARCOAL DIA 1.9 X 12.00 | 14 |

APPENDIX B

Water Bottle Assembly

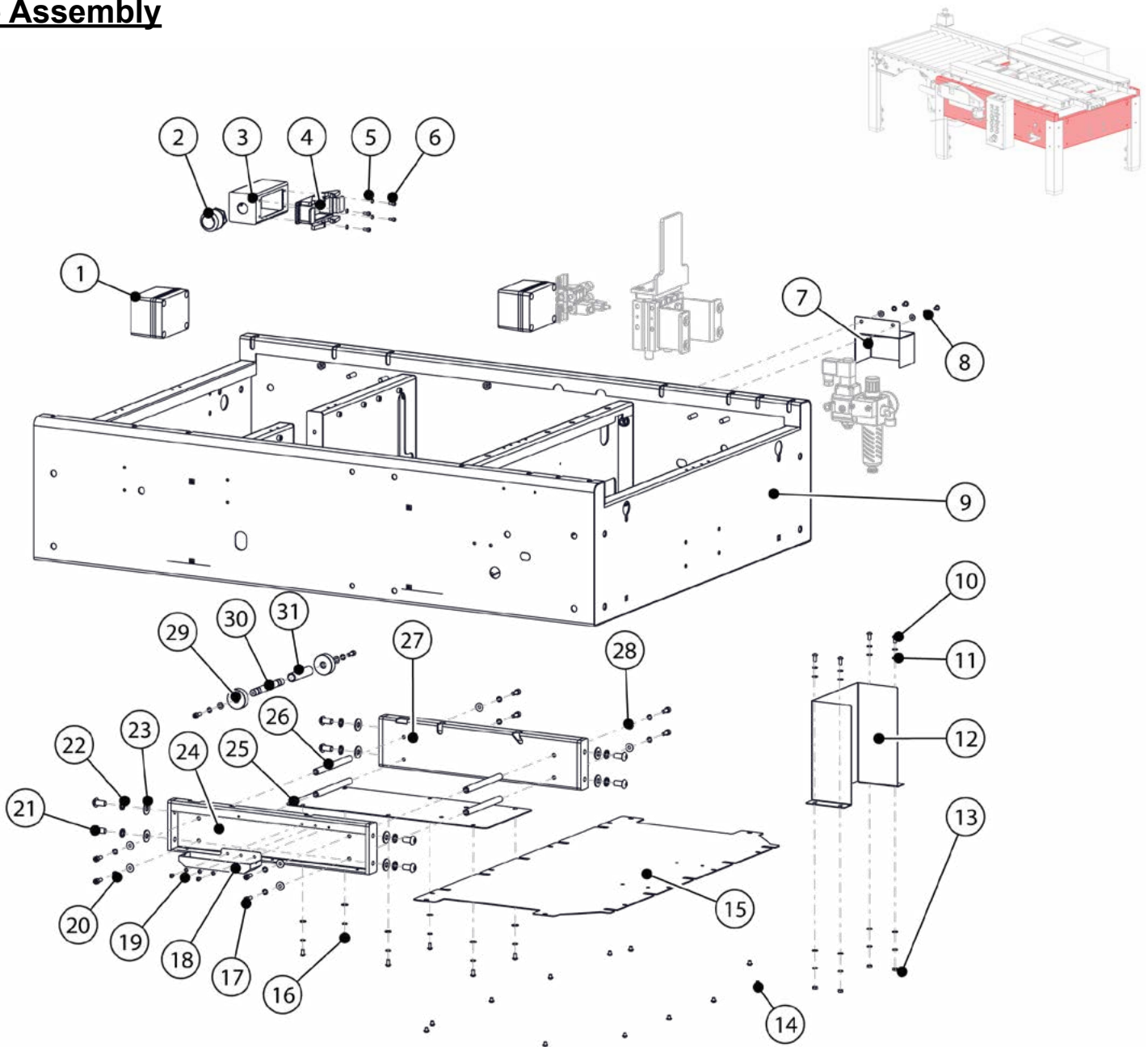


| ITEM | PART NUMBER | DESCRIPTION | QTY |
|------|-------------|----------------------|-----|
| 1 | WET0096 | WATER BOTTLE | 1 |
| 2 | UF3262 | FHCS M5-0.8 x 10mm | 4 |
| 3 | UPM5545 | BP BOTTLE CAP | 1 |
| 4 | UPM5901 | PLUNGER | 1 |
| 5 | UPM4946 | RESERVOIR CUP | 1 |
| 6 | UPM4945 | CUP HOLDER | 1 |
| 7 | UF6339 | M4 FW | 4 |
| 8 | UF3749 | M4 LW | 4 |
| 9 | UF6364 | BHCS M4 x 0.7 x 10mm | 4 |

| ITEM | PART NUMBER | DESCRIPTION | QTY |
|------|-------------|------------------------------|-----|
| 10 | UPM5151 | ELBOW FITTING | 1 |
| 11 | UPM5542 | TUBE | 1 |
| 12 | UPM5543 | 10mm TUBE x 1/4G STR FITTING | 1 |
| 13 | UPM4944 | HOLDER BRACKET | 1 |
| 14 | UF3751 | HHCS M6-1.0 x 16mm | 4 |
| 15 | UF6411 | M6 LW | 4 |
| 16 | UF6341 | M6 FW | 4 |
| 17 | UPM4943 | FRAME | 1 |

APPENDIX B

Base Assembly

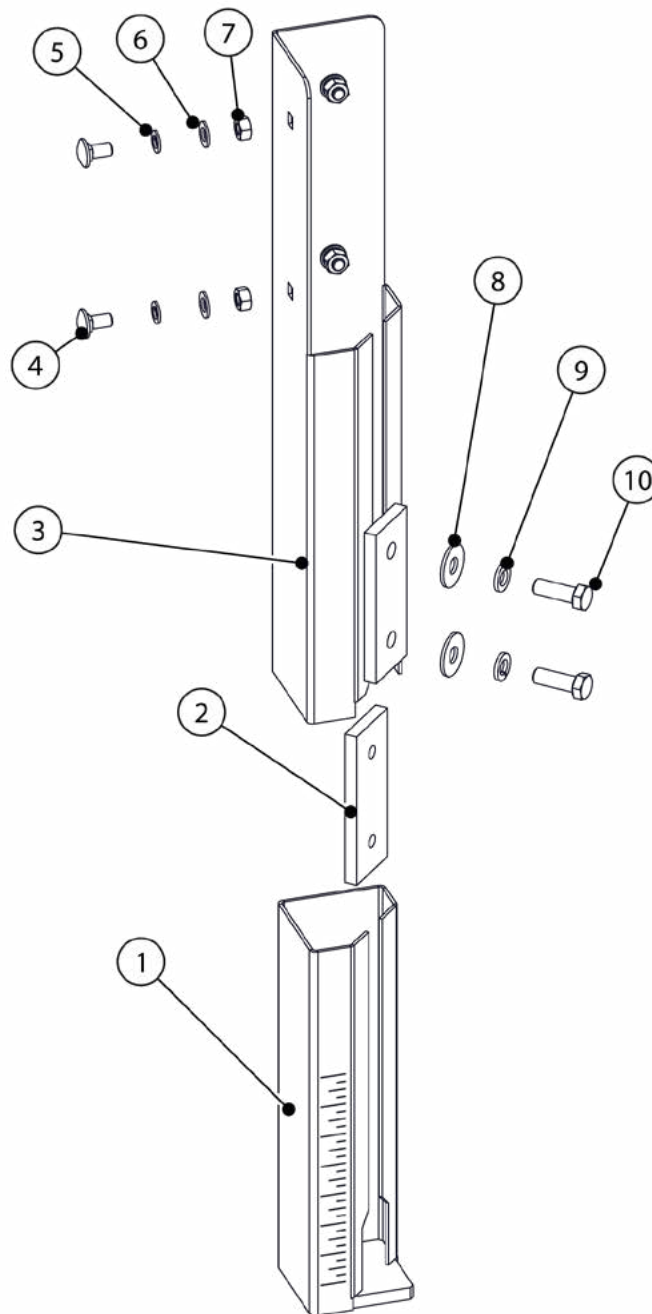
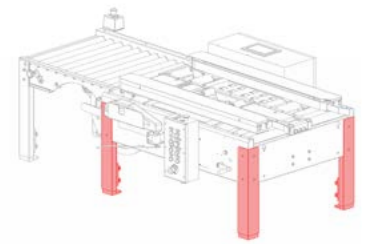


| ITEM | PART NUMBER | DESCRIPTION | QTY |
|------|-------------|----------------------------|-----|
| 1 | UPM6267 | WIRING BOX | 2 |
| 2 | WET0241 | CORD GRIP | 1 |
| 3 | UPM4929 | ELECTRICAL RECEPTACLE BASE | 1 |
| 4 | UPM4938 | RECEPTACLE CONNECTION | 1 |
| 5 | UF3681 | LW M4 | 7 |
| 6 | UF3759 | SHCS M4-0.7 x 10mm | 4 |
| 7 | UPM5975 | COIL CONNECTOR COVER | 1 |
| 8 | UF7021 | M5 LW | 15 |
| 9 | UPM5940 | BASE WELDMENT | 1 |
| 10 | UF3687 | BHCS M5-0.8 x 12mm | 4 |
| 11 | UF1827 | M5 FW | 16 |
| 12 | UPM5949 | CYLINDER COVER | 1 |
| 13 | UF6307 | M5 HEX NUT | 4 |
| 14 | UF5601 | BHCS M5-0.8 x 6mm | 12 |
| 15 | UPM5948 | FLOOR PLATE | 1 |
| 16 | UF3686 | BHCS M5-0.8 x 10mm | 8 |

| ITEM | PART NUMBER | DESCRIPTION | QTY |
|------|-------------|----------------------------|-----|
| 17 | UF3187 | SHCS M6-1.0 x 16mm | 10 |
| 18 | UPM6253 | LOWER DRAIN TRAY | 1 |
| 19 | UF7009 | BHCS M4-0.7 x 8mm | 3 |
| 20 | UF6363 | M6 LW | 10 |
| 21 | UF4252 | BHCS M10-1.5 x 20mm | 8 |
| 22 | UF3743 | M10 LW | 8 |
| 23 | UF3680 | M10 FW | 8 |
| 24 | UPM6147 | LOWER HOST BASE, L.H. | 1 |
| 25 | UPM5970 | LOWER HOST COVER | 1 |
| 26 | UPM6252 | SHAFT, 140L | 4 |
| 27 | UPM6148 | LOWER HOST BASE, R.H. | 1 |
| 28 | UF1828 | M6 FW | 10 |
| 29 | UPM5967 | GUIDE ROLLER, 40OD | 2 |
| 30 | UPM6228 | SHAFT, L115, GROOVED | 1 |
| 31 | UPM5966 | ROLLER, dia 17, 72L, BLACK | 1 |

APPENDIX B

Main Leg Assemblies

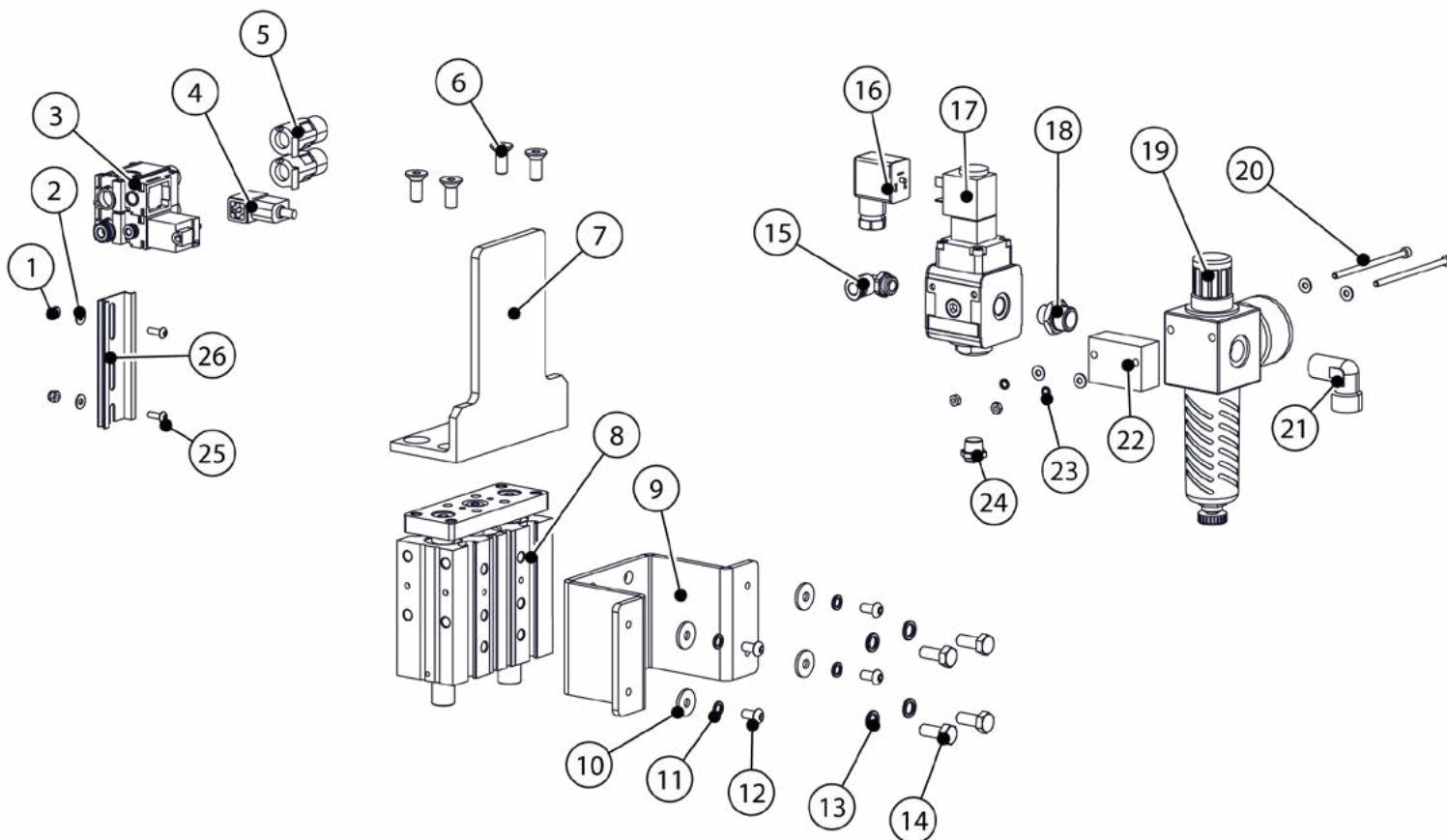
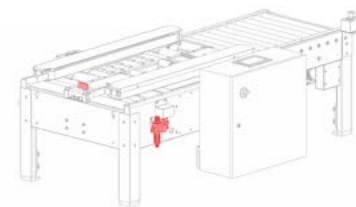


| ITEM | PART NUMBER | DESCRIPTION | QTY |
|------|-------------|----------------------------|-----|
| 1 | UMP7641 | M1273 item 1 | 1 |
| 2 | UPM7642 | M1274 | 1 |
| 3 | UPM7640 | M1272 item 1 | 1 |
| 4 | UF4229 | M10-1.5 x 20-CARRIAGE BOLT | 4 |
| 5 | UF6371 | M10 LW | 4 |
| 6 | UF3680 | M10 FW | 4 |

| ITEM | PART NUMBER | DESCRIPTION | QTY |
|------|-------------|--------------------|-----|
| 7 | UF6314 | M10-1.5 HNR | 4 |
| 8 | UF4231 | M12 FW | 2 |
| 9 | UF4230 | M12 LW | 2 |
| 10 | UF6393 | M12-1.75 x 35 HHCS | 2 |

APPENDIX B

Pneumatic Assembly

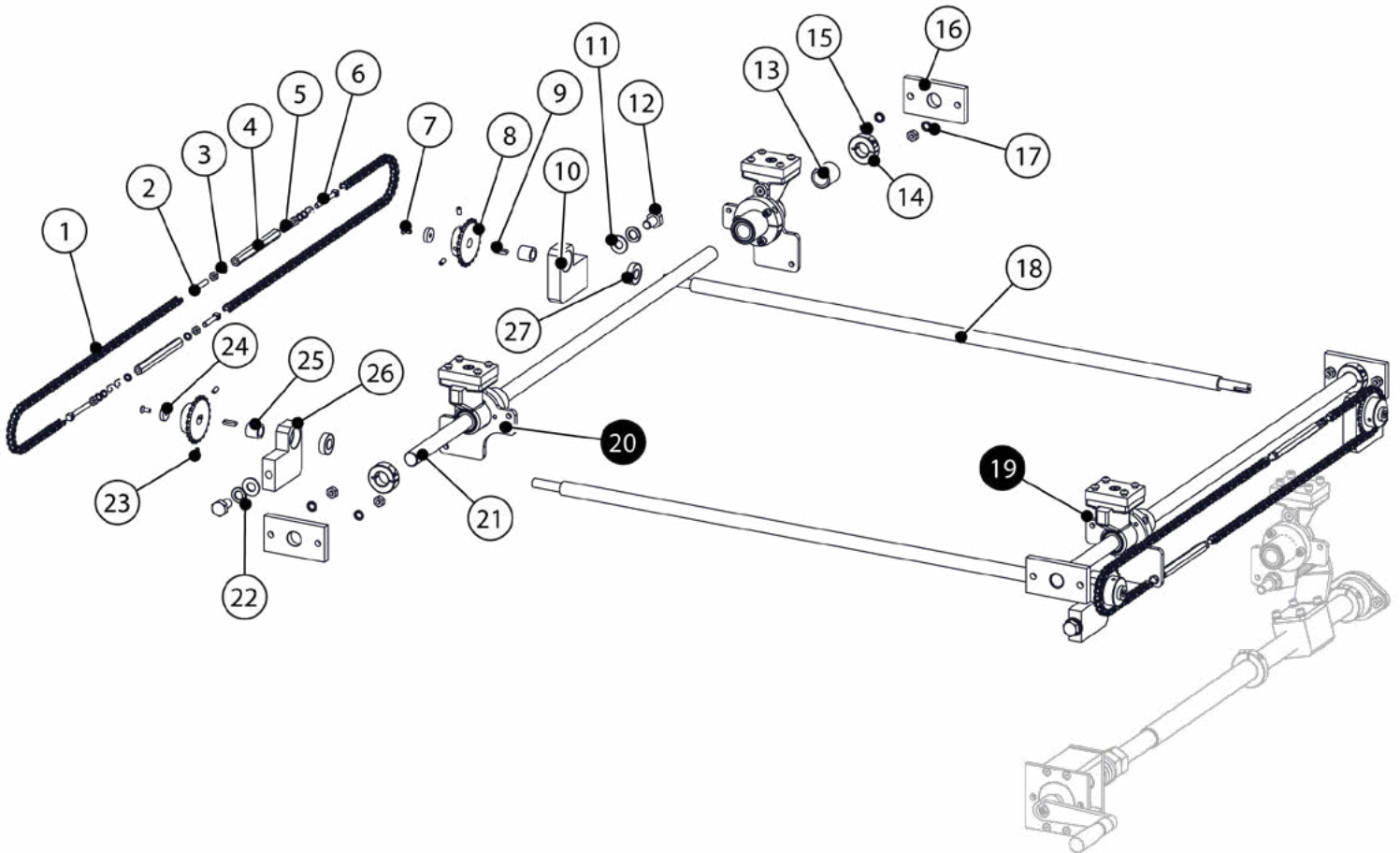
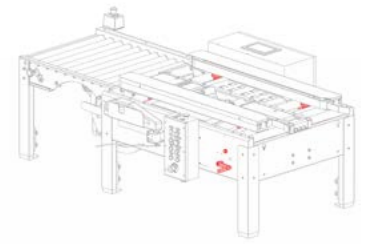


| ITEM | PART NUMBER | DESCRIPTION | QTY |
|------|-------------|-----------------------|-----|
| 1 | UF6376 | M4 LOCK NUT | 4 |
| 2 | UF3710 | M4 FW | 6 |
| 3 | UPM5980 | SOLENOID VALVE | 1 |
| 4 | UPM5981 | WIRE CONNECTOR | 1 |
| 5 | UPM3391 | SILENCER VALVE | 2 |
| 6 | UF3264 | FHCS M8-1.25 x 20mm | 4 |
| 7 | UPM7513 | GATE FOR GUIDED CYL | 1 |
| 8 | UPM5972 | CYLINDER W/ GUIDE ROD | 1 |
| 9 | UPM5971 | STOP BRACKET | 1 |
| 10 | UF0103 | M6 FW | 4 |
| 11 | UF6363 | M6 LW | 4 |
| 12 | UF5600 | BHCS M6-1.0 x 12mm | 4 |
| 13 | UF3640 | M8 LW | 4 |
| 14 | UF6309 | HHCS M8-1.25 x 20mm | 4 |

| ITEM | PART NUMBER | DESCRIPTION | QTY |
|------|-------------|-----------------------|-----|
| 15 | UPM5984 | 90° QUICK CONNECTOR | 1 |
| 16 | UPM5979 | ELECTRIC CONNECTOR | 1 |
| 17 | UPM5978 | ELECTRONIC DUMP VALVE | 1 |
| 18 | UPM5983 | CONNECTOR, STRAIGHT | 1 |
| 19 | UPM5977 | REGULATOR | 1 |
| 20 | UF3694 | SHCS M4-0.7 x 80mm | 2 |
| 21 | UPM5982 | 90° ELBOW | 1 |
| 22 | UPM5976 | SPACER | 1 |
| 23 | UF3749 | M4 LW | 2 |
| 24 | UPM6171 | SILENCER | 1 |
| 25 | UF3649 | BHCS M4-0.7 x 12mm | 2 |
| 26 | UPM6172 | DIN RAIL, 90L | 1 |

APPENDIX B

Centering Assembly 1

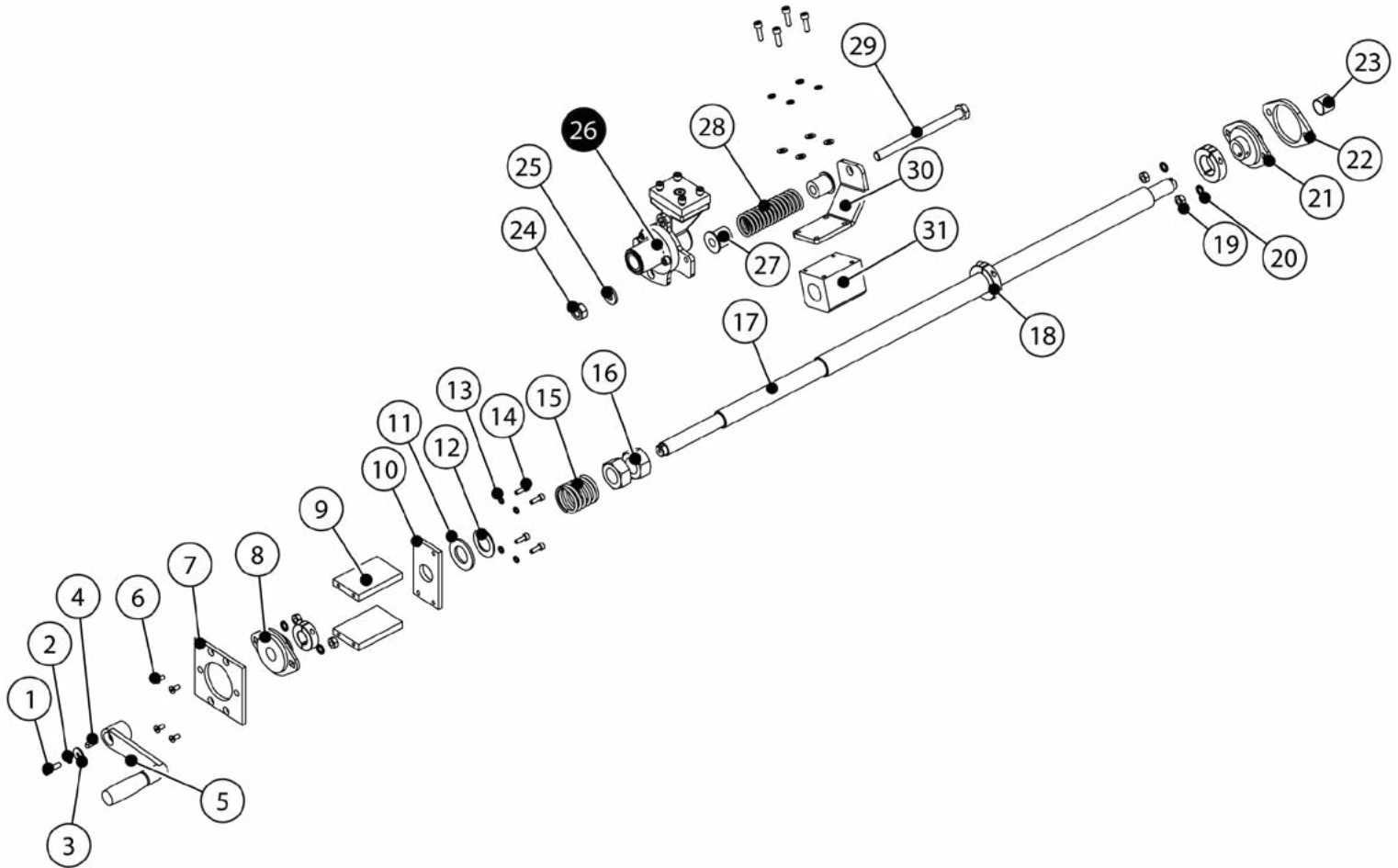
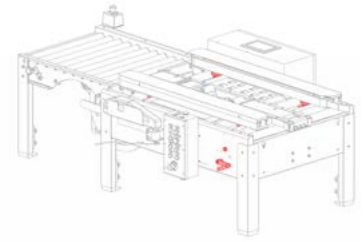


| ITEM | PART NUMBER | DESCRIPTION | QTY |
|------|-------------|-----------------------------------|-----|
| 1 | UPM6272 | CHAIN #35 | 4 |
| 2 | UPM1168 | CHAIN THREADED LINK LH | 4 |
| 3 | UF6363 | M6 LW | 16 |
| 4 | UPM3255 | TURNUCKLE | 4 |
| 5 | UF0062 | M6 NUT | 16 |
| 6 | UPM3260 | CHAIN THREADED LINK RH | 4 |
| 7 | UF5400 | FHCS M5-0.8 x 12mm | 4 |
| 8 | UPM0028 | SPROCKET | 4 |
| 9 | UPM5773 | KEY 5x5-20 | 4 |
| 10 | UPM3262 | SPROCKET SHAFT BEARING HOUSING RH | 2 |
| 11 | UF4231 | M12 FW | 4 |
| 12 | UF0061 | HHCS M12-1.75 x 20mm | 4 |
| 13 | UPM3303 | LINEAR BEARING 20mm | 6 |
| 14 | UPM3330 | COLLAR 20mm | 4 |

| ITEM | PART NUMBER | DESCRIPTION | QTY |
|------|-------------|-----------------------------------|-----|
| 15 | UF6369 | M8 NUT | 6 |
| 16 | UPM6079 | SHAFT ANCHOR PLATE | 4 |
| 17 | UF3640 | M8 LW | 6 |
| 18 | UPM6269 | SHAFT 888.6mm | 2 |
| 19 | UAM0141 | DRIVE SUPPORT | 1 |
| 20 | UAM0516 | DRIVE SUPPORT | 2 |
| 21 | UPM3316 | SHAFT 20MM | 2 |
| 22 | UF4230 | M12 LW | 4 |
| 23 | UF5925 | SSS M5-0.8 x 10mm | 8 |
| 24 | UPM0150 | SPROCKET SHAFT WASHER | 4 |
| 25 | UPM1646 | SPROCKET SHAFT SPACER | 4 |
| 26 | UPM3275 | SPROCKET SHAFT BEARING HOUSING LH | 2 |
| 27 | UPM1637 | BEARING R8-2RS | 4 |

APPENDIX B

Centering Assembly 2

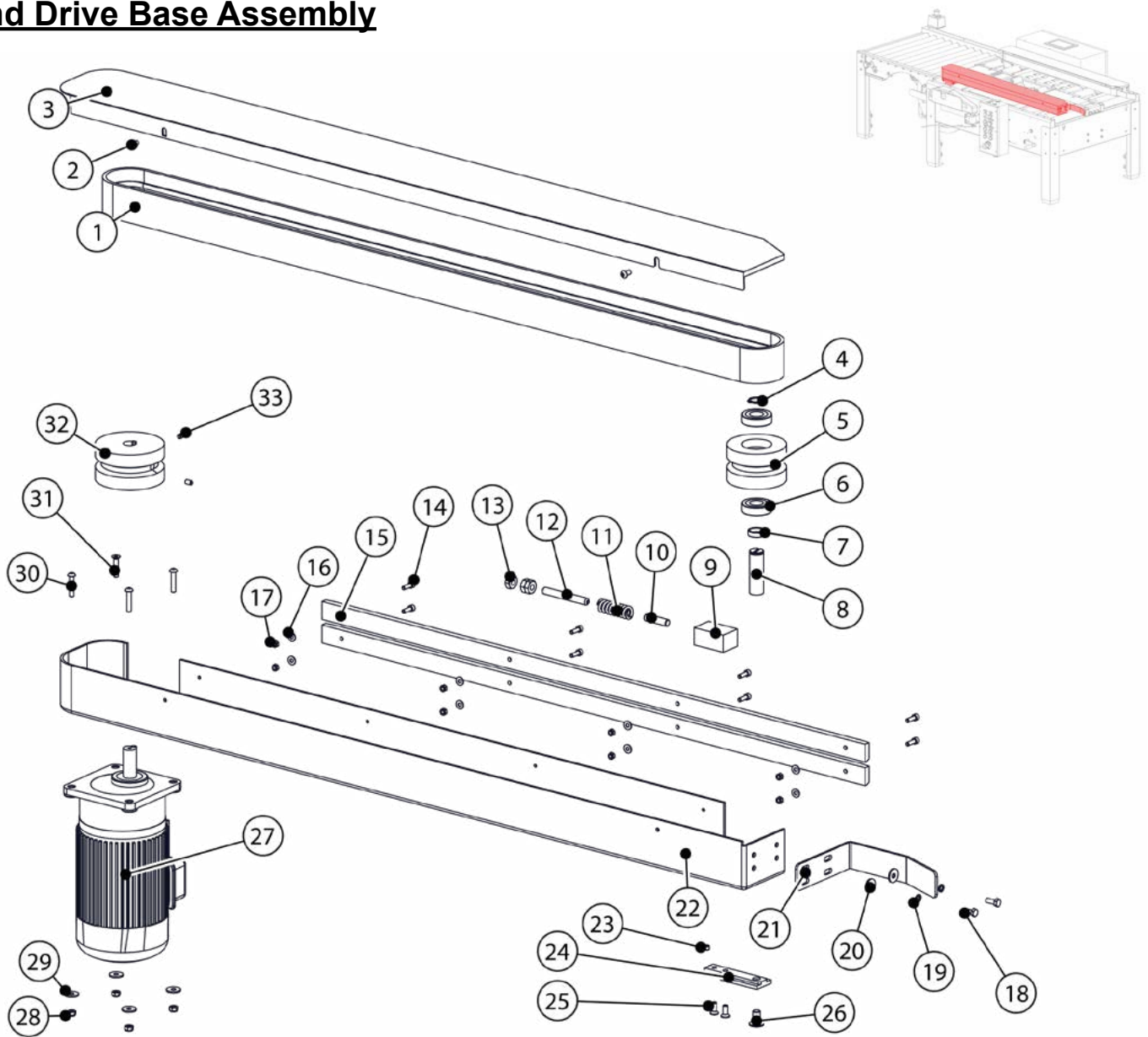


| ITEM | PART NUMBER | DESCRIPTION | QTY |
|------|-------------|--------------------|-----|
| 1 | UF3179 | SHCS M6-1.0 x 20mm | 5 |
| 2 | UF6363 | M6 LW | 5 |
| 3 | UF0103 | M6 FW | 5 |
| 4 | UPM5773 | KEY 5x5-20 | 1 |
| 5 | UPE0001 | HANDLE, FOLDABLE | 1 |
| 6 | UF5400 | FHCS M5-0.8 x 12mm | 4 |
| 7 | UPM6157 | BEARING SPACER | 1 |
| 8 | UPM0523 | FLANGE BEARING | 1 |
| 9 | UPM6159 | STANDOFF | 2 |
| 10 | UPM6160 | SPRING PLATE | 1 |
| 11 | UPM6161 | FIBER WASHER | 1 |
| 12 | UF0053 | M24 FW | 1 |
| 13 | UF7021 | M5 LW | 4 |
| 14 | UF3169 | SHCS M5-0.8 x 16mm | 4 |
| 15 | UPM0054 | SPRING | 1 |
| 16 | UF3816 | M24 NUT | 2 |

| ITEM | PART NUMBER | DESCRIPTION | QTY |
|------|-------------|-----------------------|-----|
| 17 | UPM6152 | ADJUSTMENT SHAFT | 1 |
| 18 | UPM6156 | SHAFT COLLAR | 3 |
| 19 | UF6369 | M8 NUT | 4 |
| 20 | UF3640 | M8 LW | 4 |
| 21 | UPM0523 | FLANGE BEARING | 1 |
| 22 | UPM6268 | BRING SPCR | 1 |
| 23 | UPM6270 | CAP | 1 |
| 24 | M12-1.75 | M12 NUT | 1 |
| 25 | UPM6158 | SEAL | 1 |
| 26 | UAM0509 | DRIVE SUPPORT | 1 |
| 27 | UPM6154 | SPRING SHAFT | 2 |
| 28 | UPM6155 | SPRING | 1 |
| 29 | UF0114 | HHCS M12-1.75 x 150mm | 1 |
| 30 | UPM6153 | BRACKET | 1 |
| 31 | UPM6272 | GUIDE BLOCK | 1 |

APPENDIX B

Left Hand Drive Base Assembly

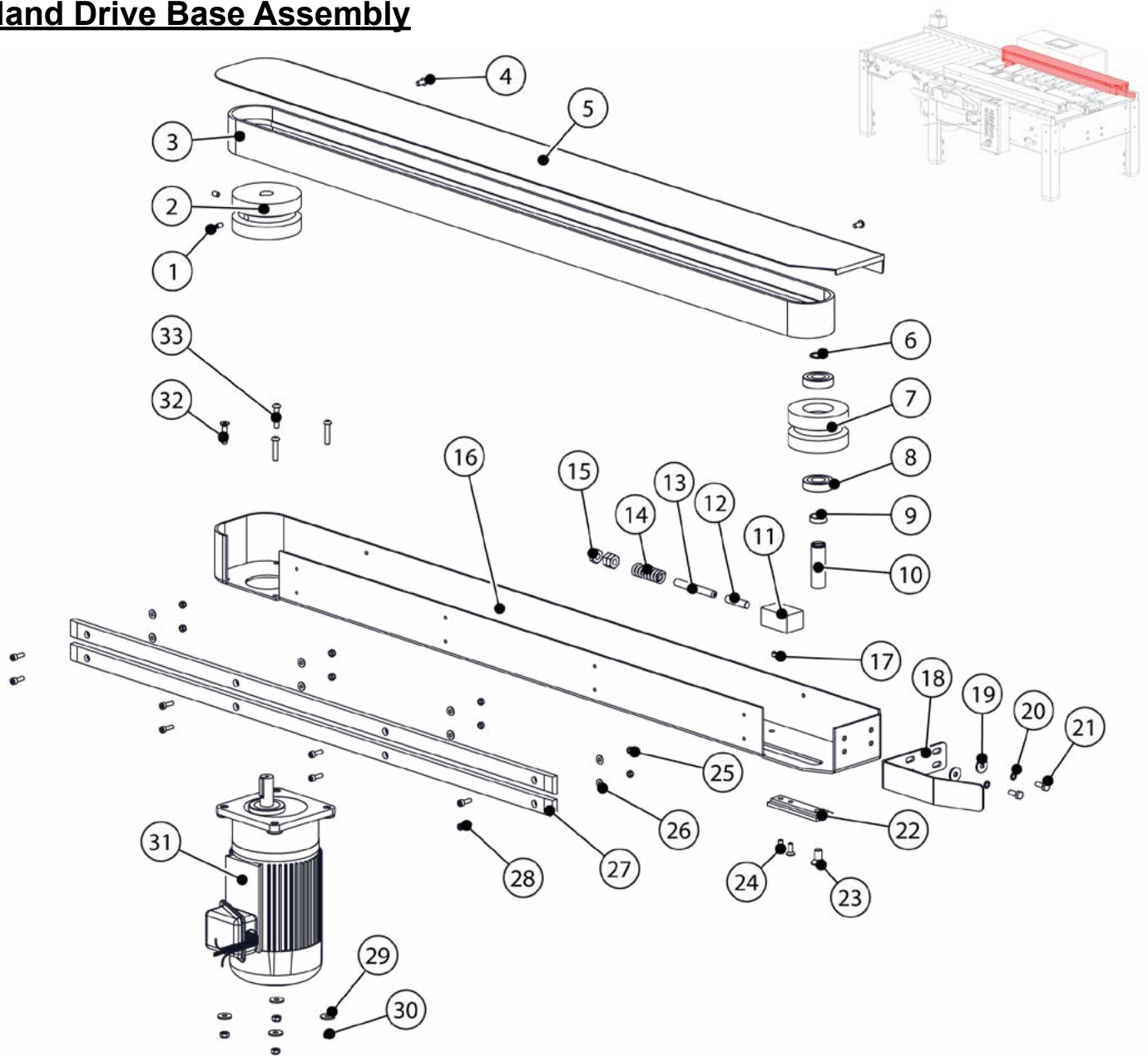


| ITEM | PART NUMBER | DESCRIPTION | QTY |
|------|-------------|-------------------------|-----|
| 1 | UPM4884 | DRIVING BELT 50 x 2360L | 1 |
| 2 | UF5600 | BHCS M6-1.0 x 12mm | 2 |
| 3 | UPM4975 | COVER LEFT SIDE | 1 |
| 4 | UF0017 | Ø12MM SNAP RING | 1 |
| 5 | UPM4885 | IDLER PULLEY | 1 |
| 6 | UPM0324 | BEARING PULLEY | 2 |
| 7 | UPM0109 | IDLER PULLEY SPACER | 1 |
| 8 | UPM1233EV | IDLER PULLEY SHAFT | 1 |
| 9 | UPM0101 | TENSIONER BACKING PLATE | 1 |
| 10 | UPM0112 | SPRING LOCATOR PIN | 1 |
| 11 | UPM0038 | DIE SPRING | 1 |
| 12 | UF1400 | SSS HK 3/8-16 X 3" | 1 |
| 13 | UF3377 | 3/8"-16-HNR | 3 |
| 14 | UF3169 | SHCS M5-0.8 x 16mm | 8 |
| 15 | UPM4974 | BELT PAD | 2 |
| 16 | UF1827 | M5 FW | 8 |
| 17 | UF3393 | M5 LOCK-NUT | 8 |

| ITEM | PART NUMBER | DESCRIPTION | QTY |
|------|-------------|---------------------------|-----|
| 18 | UF0454 | HHCS M6-1.0 x 16mm | 2 |
| 19 | UF6363 | M6 LW | 2 |
| 20 | UF0103 | M6 FW | 2 |
| 21 | UPM0647 | CARTON RETAINER | 1 |
| 22 | UPM6163 | DRIVE WELDMENT, L.H | 1 |
| 23 | UF1411 | SSS M6-1.0 x 6mm | 1 |
| 24 | UPM2156 | TENSIONER ALIGNMENT PLATE | 1 |
| 25 | UF1192 | FHCS M6-1.0 16mm | 2 |
| 26 | UF3748 | FHCS M10-1.5 x 20mm | 1 |
| 27 | UPM3327 | MOTOR 1/3HP 25:1 | 1 |
| 28 | UF5900 | M6 LOCK-NUT | 4 |
| 29 | UF0103 | M6 FW | 4 |
| 30 | UF3752 | BHCS M6-1.0 x 30mm | 3 |
| 31 | UF3712 | FHCS M6-1.0 x 30mm | 1 |
| 32 | UPM4883 | DRIVE PULLEY | 1 |
| 33 | UF3683 | SSS M6-1.0 10mm | 2 |

APPENDIX B

Right Hand Drive Base Assembly

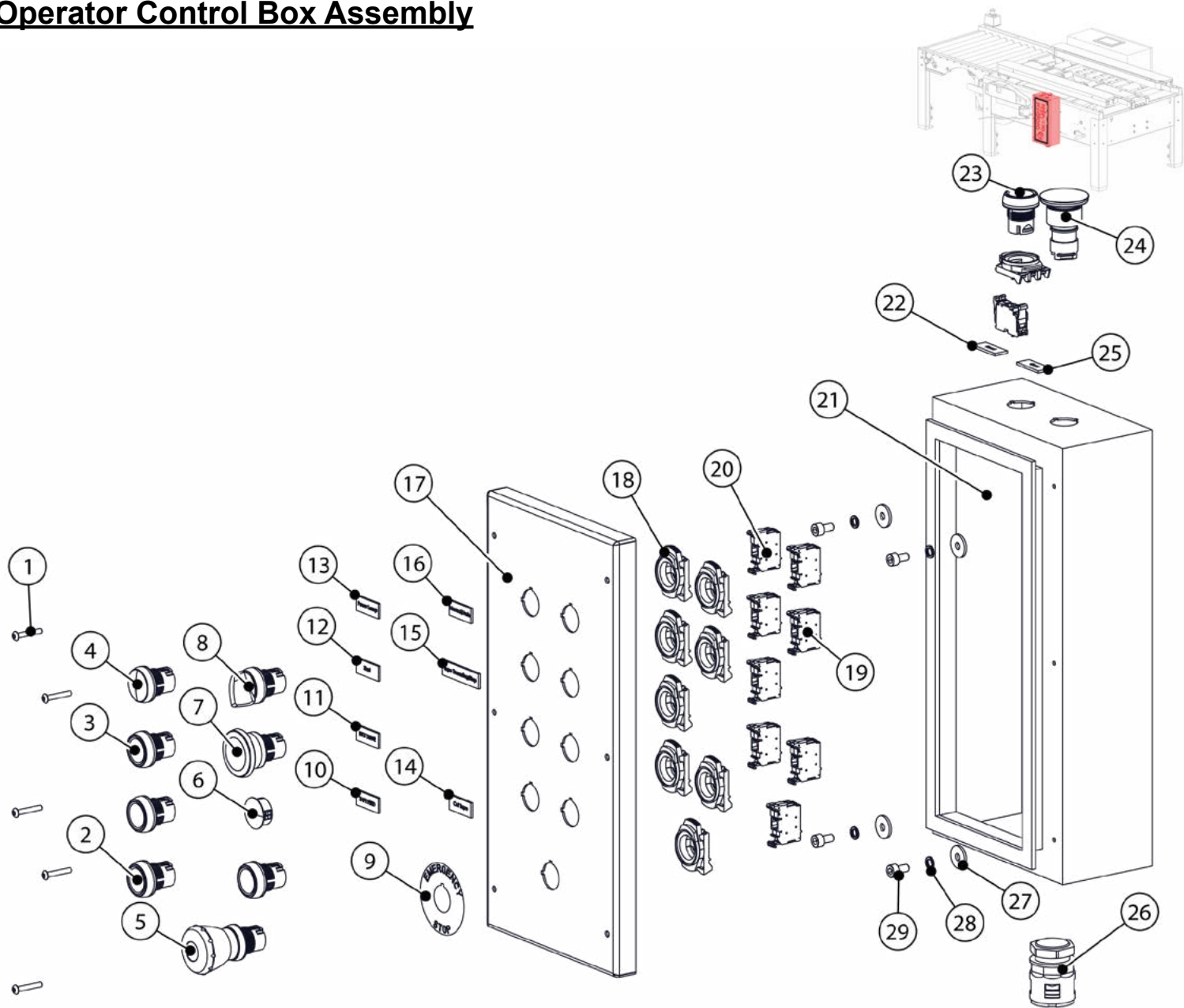


| ITEM | PART NUMBER | DESCRIPTION | QTY |
|------|-------------|-------------------------|-----|
| 1 | UF3683 | SSS M6-1.0 x 10mm | 2 |
| 2 | UPM4883 | DRIVE PULLEY | 1 |
| 3 | UPM4884 | DRIVING BELT 50 x 2360L | 1 |
| 4 | UF5600 | BHCS M6-1.0 x 12mm | 2 |
| 5 | UPM4973 | COVER RIGHT SIDE | 1 |
| 6 | UF0017 | Ø12MM SNAP RING | 1 |
| 7 | UPM4885 | IDLER PULLEY | 1 |
| 8 | UPM0324 | BEARING PULLEY | 2 |
| 9 | UPM0109 | IDLER PULLEY SPACER | 1 |
| 10 | UPM1233EV | IDLER PULLEY SHAFT | 1 |
| 11 | UPM0101 | TENSIONER BACKING PLATE | 1 |
| 12 | UPM0112 | SPRING LOCATOR PIN | 1 |
| 13 | UF1400 | SSS HK 3/8-16 X 3" | 1 |
| 14 | UPM0038 | DIE SPRING | 1 |
| 15 | UF3377 | 3/8"-16-HNR | 3 |
| 16 | UPM6164 | DRIVE WELDMENT, R.H | 1 |
| 17 | UF1411 | SSS M6-1.0 x 6mm | 1 |

| ITEM | PART NUMBER | DESCRIPTION | QTY |
|------|-------------|---------------------------|-----|
| 18 | UPM0647 | CARTON RETAINER | 1 |
| 19 | UF0103 | M6 FW | 2 |
| 20 | UF6363 | M6 LW | 2 |
| 21 | UF0454 | HHCS M6-1.0 x 16mm | 2 |
| 22 | UPM2156 | TENSIONER ALIGNMENT PLATE | 1 |
| 23 | UF3748 | FHCS M10-1.5 x 20mm | 1 |
| 24 | UF1192 | FHCS M6-1.0 x 16mm | 2 |
| 25 | UF3393 | M5 LOCK-NUT | 8 |
| 26 | UF1827 | M5 FW | 8 |
| 27 | UPM4974 | BELT PAD | 2 |
| 28 | UF3169 | SHCS M5-0.8 x 16mm | 8 |
| 29 | UF0103 | M6 FW | 4 |
| 30 | UF5900 | M6 LOCK-NUT | 4 |
| 31 | UPM3327 | MOTOR 1/3HP 25:1 | 1 |
| 32 | UF3712 | FHCS M6-1.0 x 30mm | 1 |
| 33 | UF3752 | BHCS M6-1.0 x 30mm | 3 |

APPENDIX B

Operator Control Box Assembly

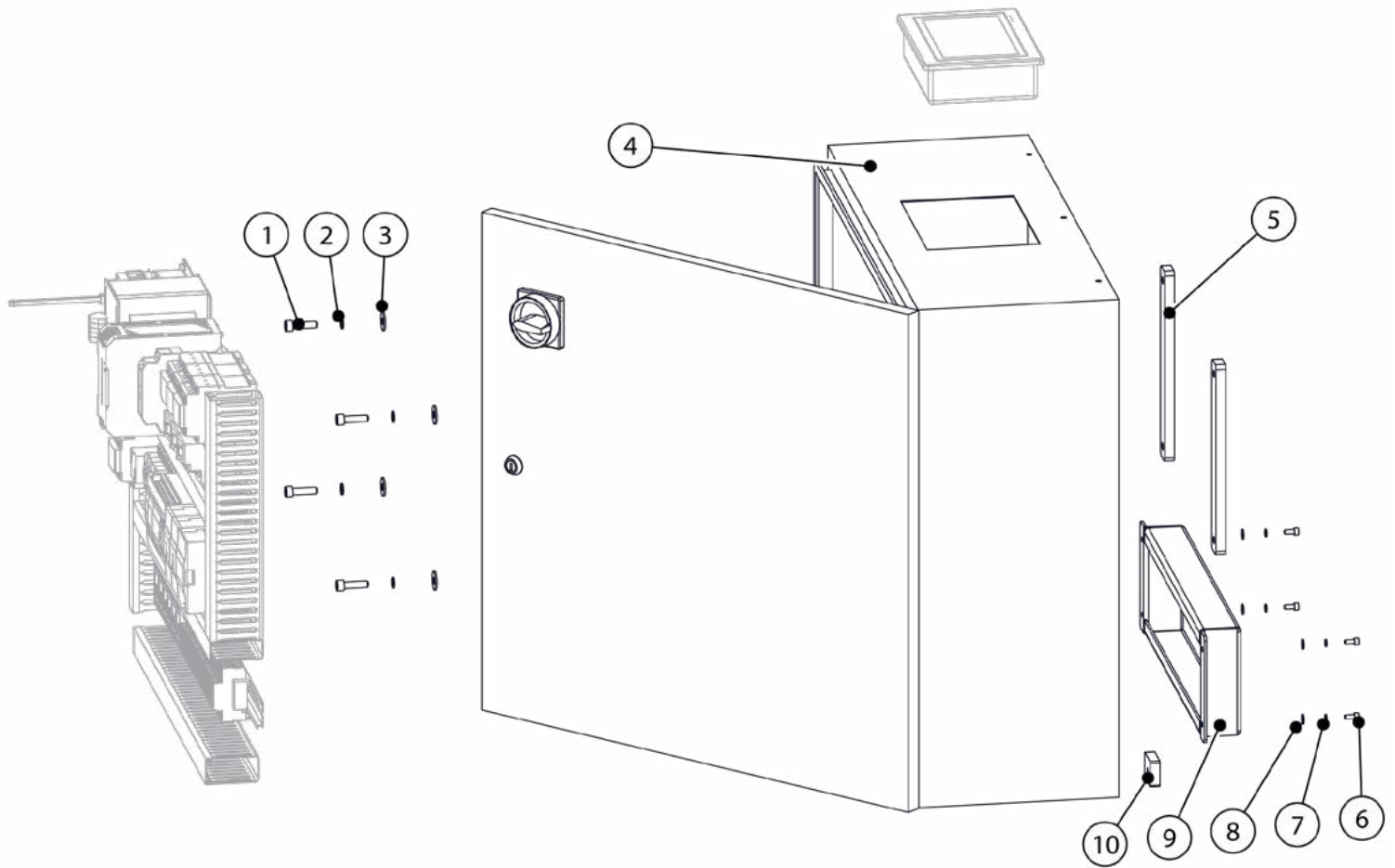
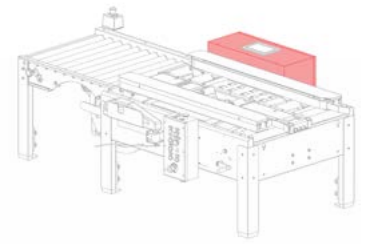


| ITEM | PART NUMBER | DESCRIPTION | QTY |
|------|-------------|------------------------------------|-----|
| 1 | UF0069 | BHCS M4-0.7 x 25mm | 6 |
| 2 | UPM5157 | BUTTON, BLACK | 3 |
| 3 | UPM5155 | BUTTON, GREEN | 1 |
| 4 | UPM5154 | POWER LIGHT, WHITE | 1 |
| 5 | UPM3892 | EMERGENCY STOP BUTTON | 1 |
| 6 | UPM4493 | HOLE PLUG 22mm | 1 |
| 7 | UPM6051 | BUTTON, RED MUSHROOM | 1 |
| 8 | UPM5159 | SWITCH 2 POS | 1 |
| 9 | UPM6045 | E-STOP LABEL | 1 |
| 10 | UPM4899 | LEGEND PLATE "TAPE FEED" | 1 |
| 11 | UPM4897 | LEGEND PLATE "BELT DRIVE" | 1 |
| 12 | UPM4895 | LEGEND PLATE "START" | 1 |
| 13 | UPM4894 | LEGEND PLATE "POWER LAMP" | 1 |
| 14 | UPM4900 | LEGEND PLATE "CUT TAPE" | 1 |
| 15 | UPM4896 | LEGEND PLATE "TAPE THREADING/STOP" | 1 |

| ITEM | PART NUMBER | DESCRIPTION | QTY |
|------|-------------|----------------------------|-----|
| 16 | UPM4893 | LEGEND PLATE "MANUAL/AUTO" | 1 |
| 17 | UPM6168 | OPERATION BOX COVER | 1 |
| 18 | UPM7630 | LATCH | 9 |
| 19 | UPM4720 | NC CONTACT | 2 |
| 20 | UPM7631 | NO CONTACT | 7 |
| 21 | UPM6169 | OPERATION BOX | 1 |
| 22 | UPM4903 | LEGEND PLATE "CLEAR" | 1 |
| 23 | UPM6047 | BUTTON, BLUE ILLUMINATED | 1 |
| 24 | UPM4926 | MUSHROOM, BLUE | 1 |
| 25 | UPM4903 | LEGEND PLATE "CLEAR" | 1 |
| 26 | UPM4905 | CORD GRIP | 1 |
| 27 | UF0103 | M10-23-1.0 | 4 |
| 28 | UF6363 | M6 LW | 4 |
| 29 | UF0038 | SHCS M6-1.0 x 12mm | 4 |

APPENDIX B

Electrical Cabinet

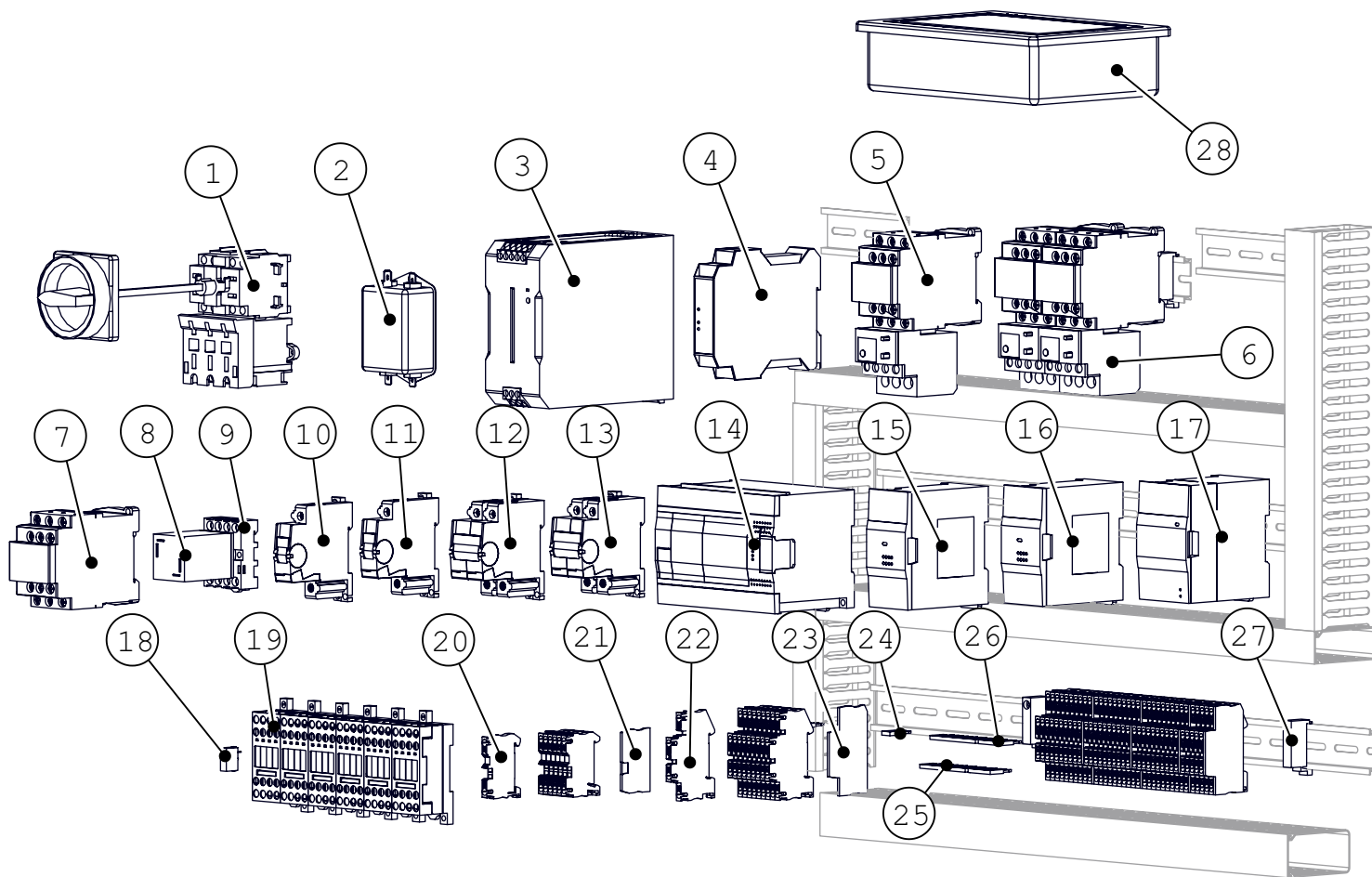
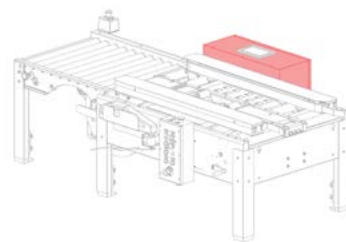


| ITEM | PART NUMBER | DESCRIPTION | QTY |
|------|-------------|----------------------|-----|
| 1 | UF0099 | SHCS M8-1.25 x 30mm | 4 |
| 2 | UF3640 | M8 LW | 4 |
| 3 | UF0113 | M8 FW | 4 |
| 4 | UPM6173 | ELECTRICAL CABINET | 1 |
| 5 | UPM6174 | ELEC. CAB. MOUNT BAR | 2 |
| 6 | UF7003 | SHCS M5-0.8 x 12mm | 4 |

| ITEM | PART NUMBER | DESCRIPTION | QTY |
|------|-------------|-------------------------|-----|
| 7 | UF7021 | M5 LW | 4 |
| 8 | UF1827 | M5 FW | 4 |
| 9 | UPM6175 | ELEC. CAB. COVER | 1 |
| 10 | UPM6176 | ELEC. CAB. GROUND BLOCK | 1 |

APPENDIX B

Electrical Components



| ITEM | PART NUMBER | DESCRIPTION | QTY |
|------|-------------|------------------------------------|-----|
| 1 | UPM6178 | POWER SWITCH | 1 |
| 2 | UPM6186 | FILTER | 1 |
| 3 | UPM4912 | POWER SUPPLY 24V | 1 |
| 4 | UPM6187 | SAFETY MODULE | 1 |
| 5 | UPM6189 | ELECTROMAGNETIC CONTACTOR (AC110V) | 3 |
| 6 | UPM4914 | MOTOR OVERLOAD RELAYS | 3 |
| 7 | UPM6188 | ELECTROMAGNETIC CONTACTOR (DC24V) | 1 |
| 8 | UPM6190 | AC120 RELAY, MECHANICAL INDICATOR | 1 |
| 9 | UPM6191 | RELAY SOCKET, DIN RAIL, 8 PIN | 1 |
| 10 | UPM4911 | MINIATURE CIRCUIT BREAKER 2A | 1 |
| 11 | UPM4910 | MINIATURE CIRCUIT BREAKER 4A | 1 |
| 12 | UPM7635 | MINIATURE CIRCUIT BREAKER 2p, 7A | 1 |
| 13 | UPM7766 | MINIATURE CIRCUIT BREAKER 2p, 3A | 1 |
| 14 | UPM4909 | PLC | 1 |
| 15 | UPM6183 | PLC EXPANSION MODULE | 1 |

| ITEM | PART NUMBER | DESCRIPTION | QTY |
|------|-------------|-------------------------------|-----|
| 16 | UPM6184 | PLC EXPANSION MODULE | 1 |
| 17 | UPM4907 | PLC ANALOG OUTPUT ADD-ON CARD | 1 |
| 18 | UPM4915 | PCB POWER RELAYS | 24 |
| 19 | UPM4922 | RELAY OUTPUT TERMINAL BLOCK | 6 |
| 20 | UPM6194 | TERMINAL BLOCK, GROUND | 7 |
| 21 | UPM6196 | END COVER | 1 |
| 22 | UPM6193 | DOUBLE LEVEL TERMINAL BLOCK | 45 |
| 23 | UPM6195 | END COVER | 5 |
| 24 | UPM6197 | 2 PIN BRIDGE | 1 |
| 25 | UPM6199 | 10 PIN BRIDGE | 2 |
| 26 | UPM6198 | 5 PIN BRIDGE | 2 |
| 27 | UPM7440EV | DIN RAIL ANCHOR | 4 |
| 28 | UPM6177 | HMI, SCREEN | 1 |

