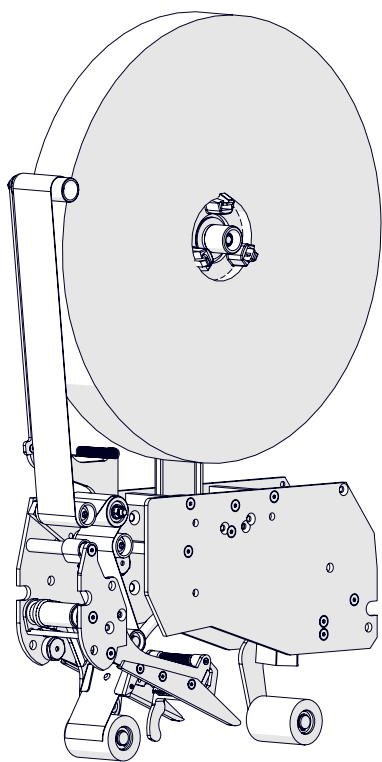




# USER MANUAL

## ET 2PLUS MI

WITH PATENTED TECHNOLOGY



For Serial Numbers:  
H279 XX X XXX  
H779 XX X XXX



# User Notes

---

For all IPG product manuals please visit [www.itape.com/systems-manual](http://www.itape.com/systems-manual) or use this QR code



# TABLE OF CONTENTS

<b>Technical Assistance</b>	<b>4</b>
Replacement Parts	4
<b>Field Service Assistance</b>	<b>5</b>
<b>Warranty Information</b>	<b>6</b>
<b>General Information</b>	<b>7</b>
Description of the ET 2Plus MI Tape Head	7
Definitions	7
<b>Important Safeguards</b>	<b>8</b>
<b>Label Placement</b>	<b>9</b>
<b>Safety Label Descriptions</b>	<b>10</b>
<b>Machine Nameplate</b>	<b>11</b>
<b>Important Safeguards</b>	<b>12</b>
Explanation of Signal Word Consequences	12
Operator Skill Level Descriptions	13
<b>Specifications</b>	<b>14</b>
ET 2Plus MI Dimensions	14
Machine Components	15
Operating Speed	16
Tape Specifications	16
Operating Conditions	16
Carton Specifications	16
<b>Set-up Procedure</b>	<b>17</b>
Receiving and Handling	17
Ordered With IPG Case Sealers	17
Ordered Separately	17
Set up	17
Tape Loading	18
Tape Threading Diagram	19
<b>Adjustments</b>	<b>20</b>
Changing the Front Tape Leg Lengths	20
Changing the Rear Tape Leg Lengths	20
Clutch Roller Adjustment	21
Low Profile Setting	21
Main Spring Adjustment	22
Knife Arm Spring Adjustment	23
Tape Mandrel Adjustments	24
<b>Preventative Maintenance</b>	<b>25</b>
Lubrication:	25
Cleaning:	25
Blade Guard Oiler Pad	26
Cleaning and Changing the Blade	26
Cleaning and Changing the Front Application Roller	27
Cleaning and Changing the Rear Application Roller	28
Replacing the Dual Independent Wiping Tabs	29
Replacing the Blade Guard and Guard Torsion Spring	30
Replacing the Knife Guard Spring	31
Cleaning the Tape Path	32
Cleaning the Clutch Roller Assembly	32
Replacing Mandrel Sprags	33
Recommended Spare Parts	34
<b>Troubleshooting</b>	<b>35</b>
<b>Appendix B</b>	<b>38</b>
Parts Listing	38

# TECHNICAL ASSISTANCE

---

This is the Interpack Model **ET 2Plus MI** Tape Head you ordered. It has been set up and tested in our factory with IPG manufactured Pressure Sensitive Tape. 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](mailto: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 operator controls are on. On the WAT Tape Heads serial information can be found near the air intake of the head.

**Machine**

**Tape Head Top**

**Model**

**Model**

**Serial**

**Serial**

**Tape Head Bottom**

**Model**

**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.

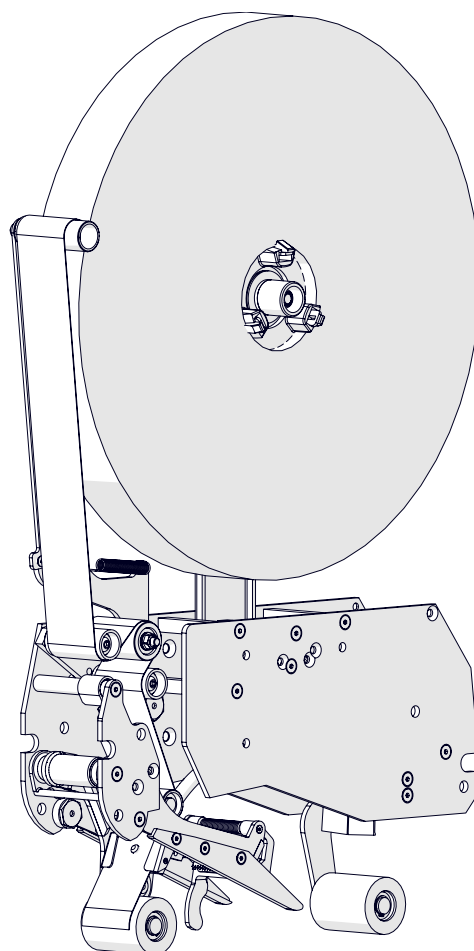
# GENERAL INFORMATION

---

## Description of the ET 2Plus MI Tape Head

This tape head 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 **ET 2Plus MI** Tape Head is designed to apply IPG brand pressure sensitive tape (PST) to the center seam of regular slotted corrugated cartons. The **ET 2Plus MI** Tape Head can be adapted into a variety of manufactured case sealers.



**Figure 1: ET 2Plus MI**

## Definitions

Common terms that will be used throughout this manual.

**Tape Head** – This will refer to the ET 2Plus MI tape head 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

# IMPORTANT SAFEGUARDS

---

There are a number of safety labels used on the **RSA 2024-WAT TOP ONLY** 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.



# LABEL PLACEMENT

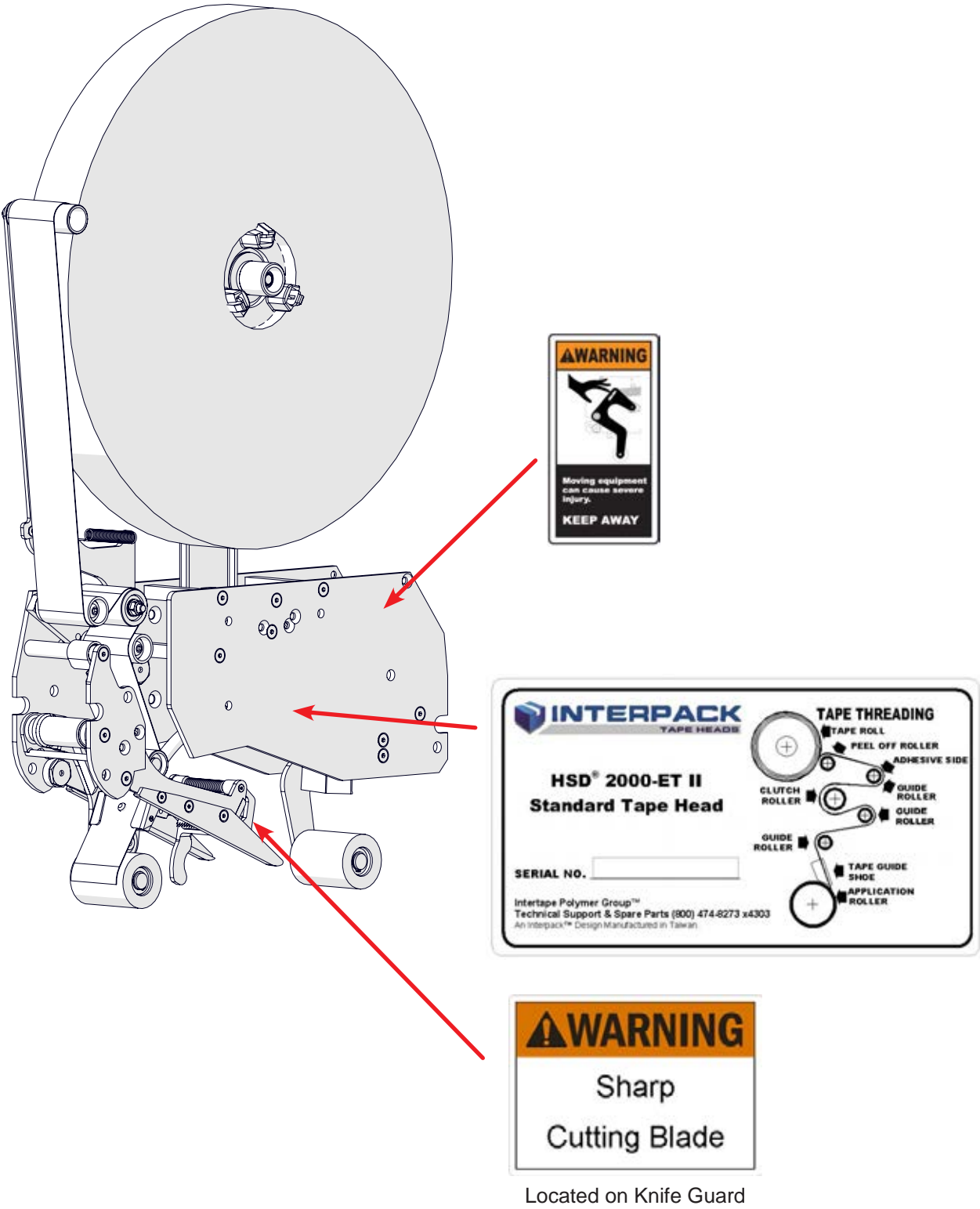


Figure 2: Label Placement

# SAFETY LABEL DESCRIPTIONS

The labels shown is affixed to the upper rear of the tape head on the serial plate side.

It warns operators and service personnel of the presence of the moving components.

Replacement number: UPM8174



**Figure 3: Moving Parts Warning**

The labels shown is affixed to center of tape head on the larger of the two split side plate frames.

It is the Interpack nameplate for the HSD ET 2Plus MI line of tape heads.

Replacement number: UPM8177



**Figure 4: Serial Label**

The label shown is affixed to the knife guard.

It warns operators and service personnel of a sharp hazard from the blade.

Replacement number: UPM8206



**Figure 5: Blade Warning Label**

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

# MACHINE NAMEPLATE

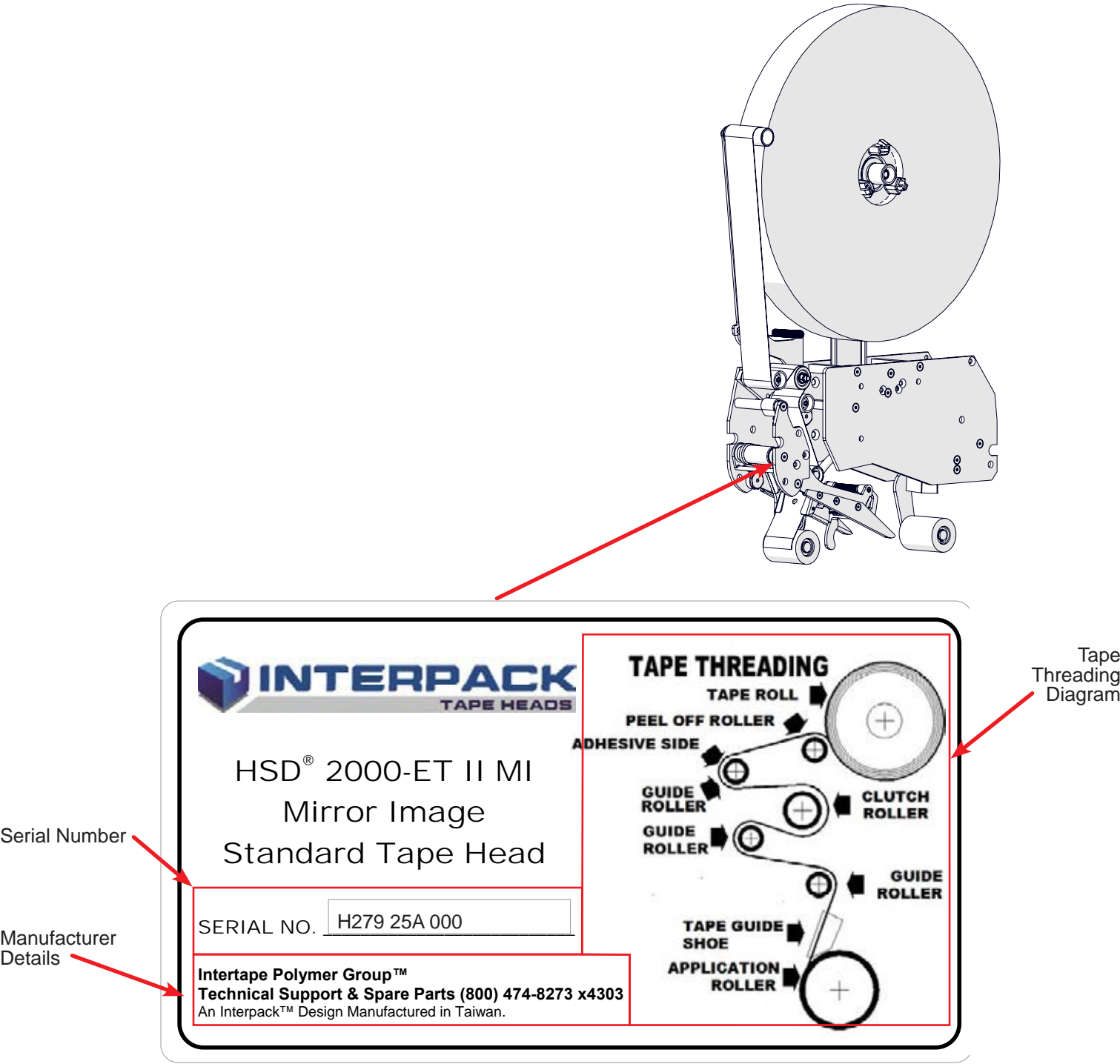
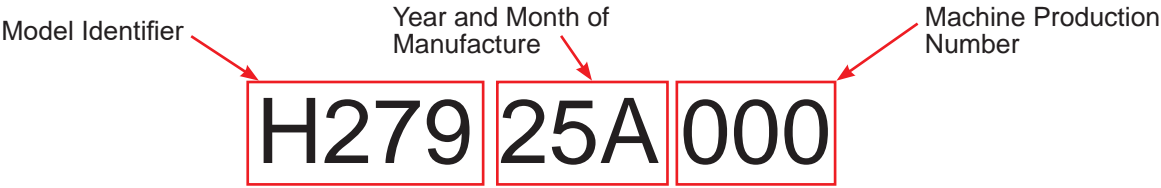


Figure 6: Label Identification

## Reading Interpack Serial Numbers



# 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 (RSA 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**

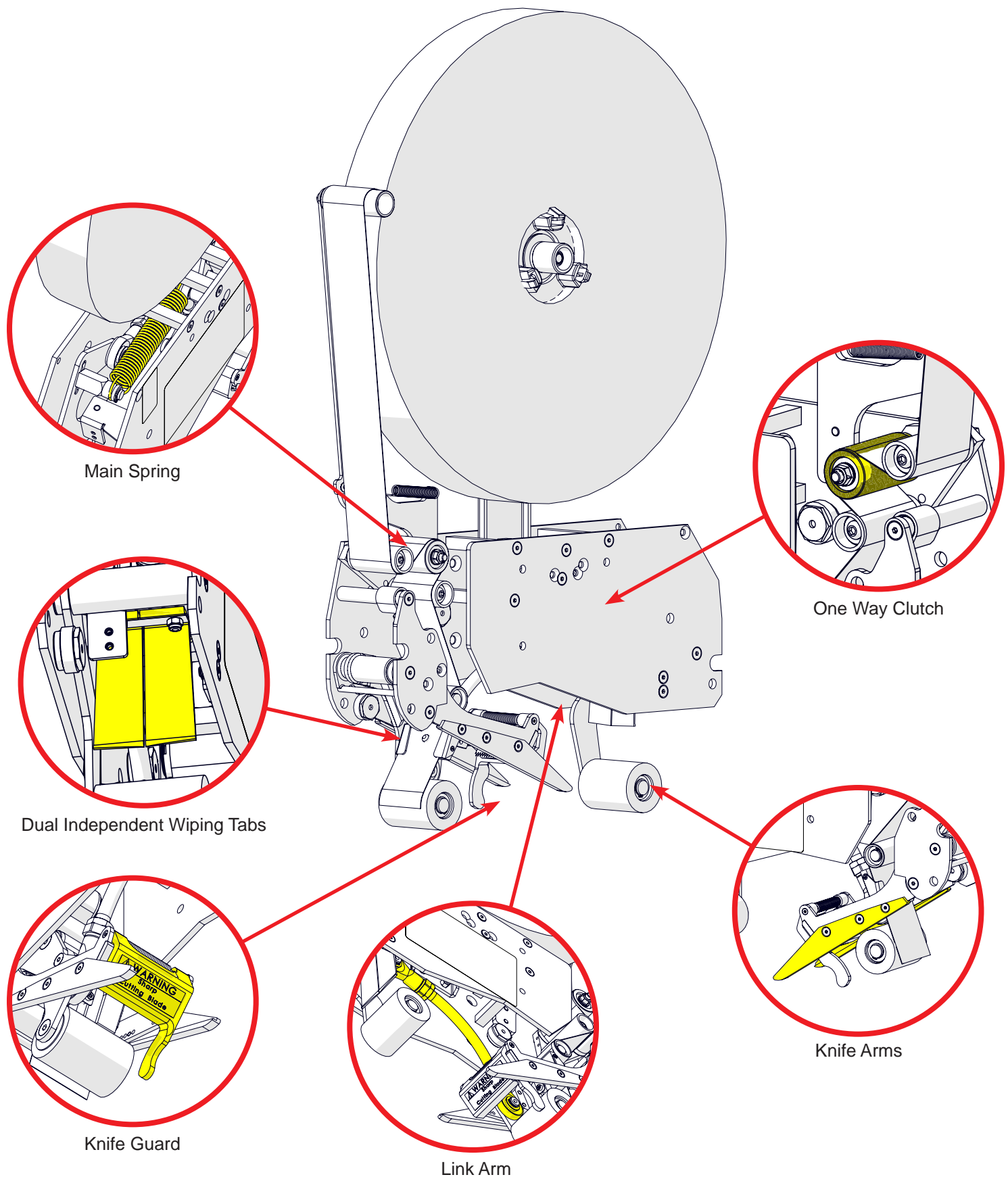
OPERATION	MACHINE CONDITION	OPERATOR SKILL LEVEL	NUMBER OF OPERATORS
Tape Roll Replacement	Stopped by pressing the Emergency Stop Button	A	1
Blade Replacement	Electrical Power Disconnected	B	1
Ordinary Maintenance and Preventative Maintenance	Electrical Power Disconnected	B	1
Extraordinary Electrical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

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



# SPECIFICATIONS

## Machine Components



**Figure 8: Components**

# SPECIFICATIONS

---

## Operating Speed

The ET 2Plus MI can operate as expected in case sealers with belt speeds up to 90 ft/min (27.4 m/min).

## Tape Specifications

Use only **IPG Brand Pressure Sensitive Tape**. The ET 2Plus MI can accommodate tape widths of 2in. (50mm) on H279 models or 3 in. (75mm) on H779 models.

A maximum tape roll diameter of 16 in. (405mm) on a 3 in. (75mm) core can be installed on the tape heads.

The standard tape leg length of 2 ¼ in. (57mm) 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 adjustments to the clutch roller mechanism for the front tape leg and adjustments to the knife arms for the rear tape leg.

## 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: ET 2PLUS MI SHOULD NOT BE WASHED DOWN OR SUBJECTED TO CONDITIONS CAUSING CONDENSATION ON COMPONENTS. FOLLOW CLEANING INSTRUCTIONS.**

## 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



# **SET-UP PROCEDURE**

---

## **Receiving and Handling**

Depending on how it was ordered the Interpack **ET 2Plus MI** is shipped to the customer preinstalled in IPG equipment or shipped in its own box. The sequence below is step by step instructions to remove all packing materials.

**PRIOR TO SIGNING FOR THE TAPE HEAD INSPECT IT FOR ANY DAMAGE THAT MAY HAVE OCCURRED DURING SHIPPING**

## **Ordered With IPG Case Sealers**

IPG Case Sealers come standard with ET 2Plus MI tape heads installed. These will already have the mounting adapters and main springs installed.

## **Ordered Separately**

When ordered on their own ET 2Plus MI tape heads will ship in a box with assorted adapters, springs, and any other ordered components will be included.

## **Set up**

ET 2Plus MI tape heads have been designed to install into a variety of case sealers. This require mounting adapters before being installed into a case sealer. These adapters range from various length hex spacers, bars, and pins. Your tape head shouMI be shipped with everything needed to install it into your case sealer. If anything else is needed contact your Authorized IPG Representative.

# SET-UP PROCEDURE

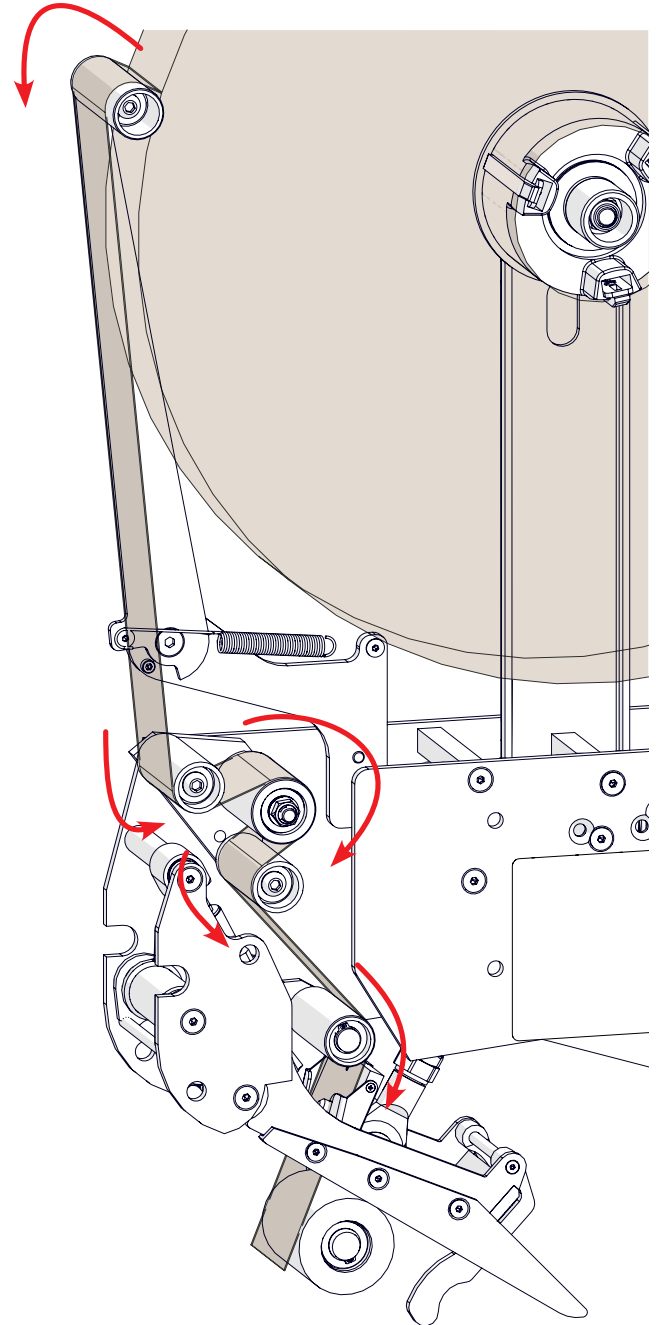
## Tape Loading

Loading tape is the same on all versions of the ET 2Plus MI. Model H279 can take tape up to 2 in. (50mm) wide tape rolls, model H779 can take up to 3 in. (72mm) wide rolls. Follow the below instructions to load a new roll of tape onto the ET 2Plus MI.



**CAUTION: LOADING TAPE WILL BRING AN OPERATORS HANDS CLOSE TO THE AREA OF THE CUTTING BLADE. ALWAYS ENSURE THE BLADE GUARD IS AGAINST THE BLADE AND NOT DAMAGED.**

1. Turn off the case sealer before removing the tape head. Never remove a tape head from a case sealer that is powered on and running.
2. Remove the tape head from the case sealer.
3. Place the tape head on sturdy flat surface with the tape mandrel facing up.
4. Remove the old tape core from the tape mandrel by pressing the red hooked sprag in while pulling the core off.
5. Discard the used tape core.
6. Pull the Peel Off Roller away from the tape head until it locks in an extended position.
7. Take a new roll of tape and position it so the peel off direction is counterclockwise.
8. Pull a roughly 18 in. (450mm) length of tape from the roll.
9. Fold it over on itself to assist you in threading the tape.
10. Push the Peel Off Roller back so it is held against the tape roll.
11. The tape should pull over the Peel Off Roller and down towards the clutch mechanism. The adhesive side should be facing away from the roll of tape.
12. Over the next three rollers of the clutch assembly the tape should go around the front of the first idle roller.
13. The adhesive side should be against the knurled clutch roller as the tape passes around the back side.
14. Before exiting the clutch mechanism the tape will pass around the front of the second idle roller.
15. The tape will then need to be slipped through a gap at the top of the tape shoe. This will have the adhesive side of the tape against the knurled idle roller.
16. Pull the tape through the shoe so that the two guides remain over the tape.
17. Pull the tape through the tape head until non-folded tape reaches the front roller.
18. Using scissors cut the tape at the front roller. Never use a blade against the roller.
19. The tape head may now be reinstalled into the case sealer. Follow the instructions in your case sealer manual for the proper procedure.

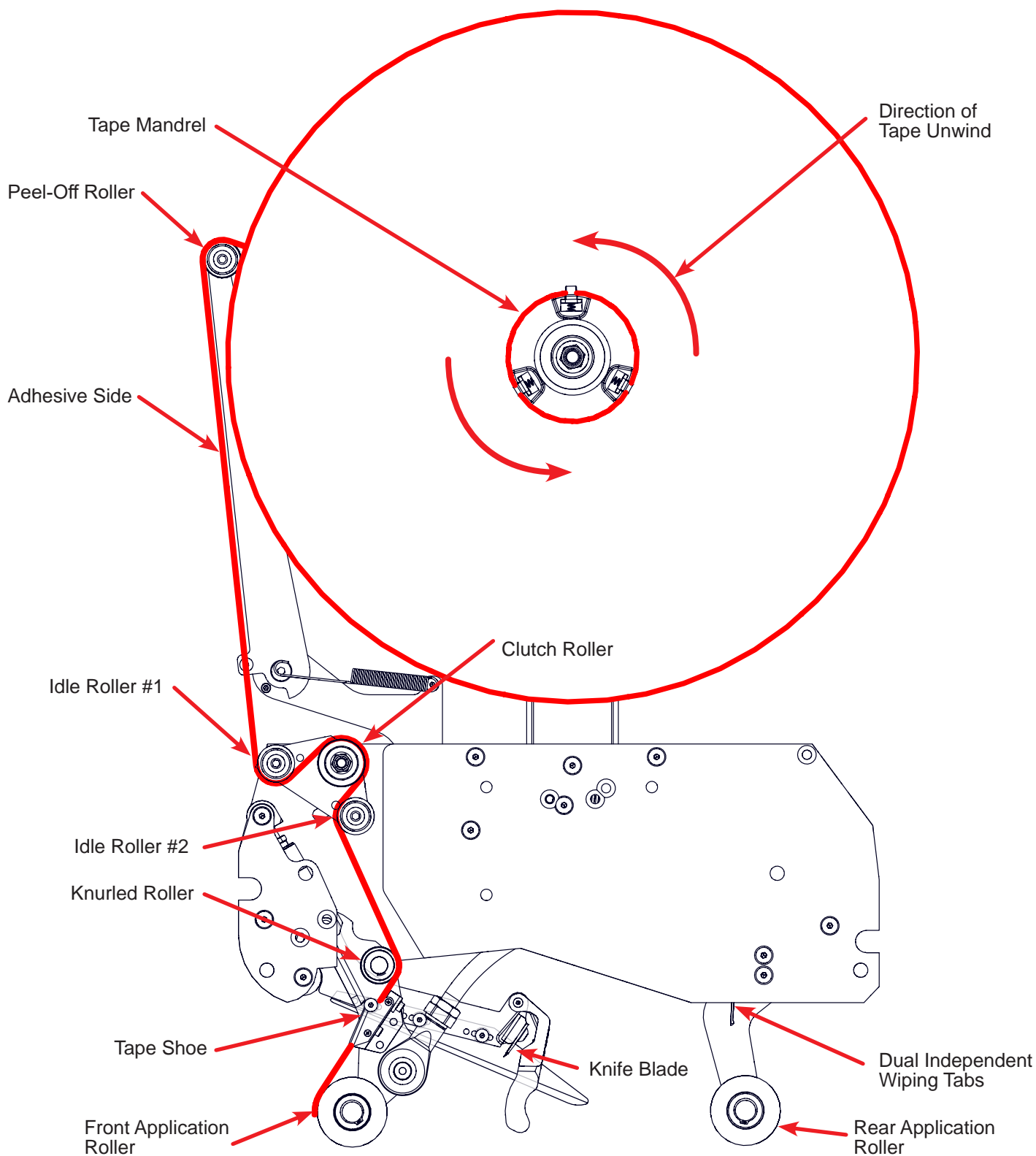


**Figure 9: 3D Tape Path**

Tape threading diagrams can be found on the serial label of the tape head and on the next page.

# SET-UP PROCEDURE

## Tape Threading Diagram



**WARNING: THE KNIFE CONTAINED IN THE TAPE HEADS IS EXTREMELY SHARP. USE CAUTION WHEN THREADING THE TAPE OR PERFORMING MAINTENANCE TO AVOID INJURY.**

When threading tape the case sealer should be in an Emergency Stopped or off state to prevent any unintentional motion. Use proper lifting practices when handling a tape head with tape installed.

**Figure 10: Tape Threading Diagram**

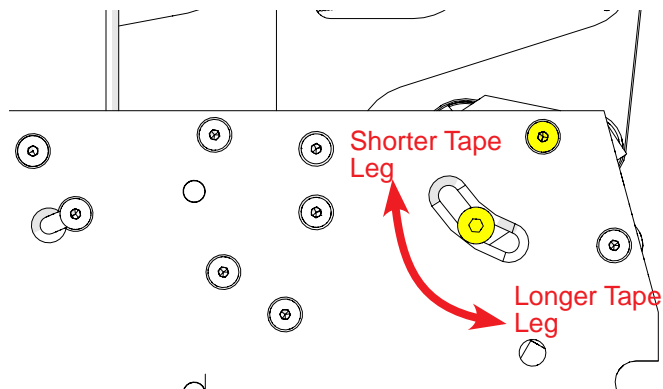
# ADJUSTMENTS

## Changing the Front Tape Leg Lengths

For safe sealing, the tape leg length has been factory set at 2¾ inches (70mm). The tape leg, however, can be lengthened or shortened if desired.

To adjust the front tape leg length loosen the two M6 screws that secure the Clutch Roller Assembly to the back frame plate of the tape head. It is not necessary to remove these screws. Rotate the whole assembly up and toward the rear of the tape head to shorten the tape leg. Rotate the whole assembly down and toward the front of the tape head to lengthen the tape leg. When the desired location is selected tighten the two M6 screws back down.

Tape legs may vary +/- ¼ in. (6mm) depending on line speed and tape tension.



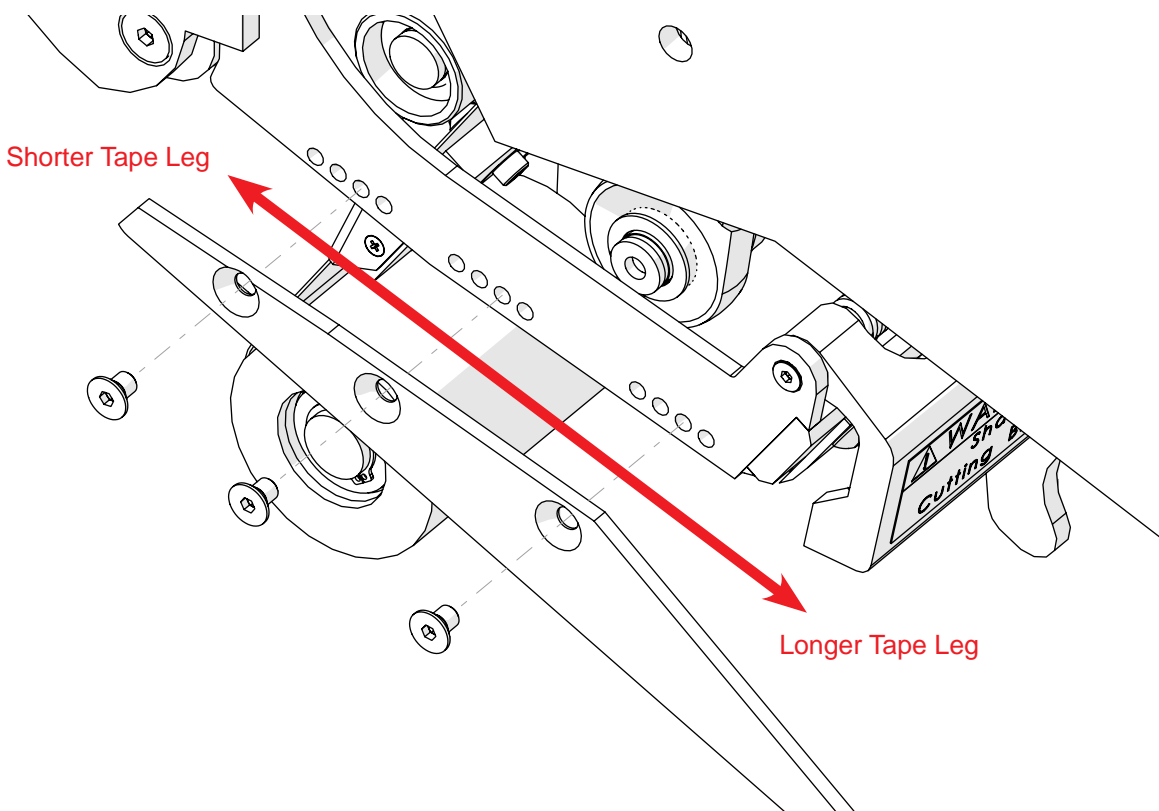
**Figure 11: Front Tape Leg Adjustment**

## Changing the Rear Tape Leg Lengths

For safe sealing, the tape leg length has been factory set at 2¾ inches (70mm). The tape leg, however, can be lengthened or shortened if desired.

To adjust the rear tape leg length loosen the three M4 screws that secures the Knife Arm Adjuster to the Knife Arm Assembly. Shift the adjuster toward the front of the tape head to shorten the tape leg. Shift the adjuster toward the rear of the tape head to lengthen the tape leg. When the desired location is selected tighten the two M4 screws back down. Match the opposite side adjuster.

Tape legs may vary +/- ¼ in. (6mm) depending on line speed and tape tension.



**Figure 12: Rear Tape Leg Adjustment**

# ADJUSTMENTS

## Clutch Roller Adjustment

The one way clutch roller ensures that there is no backwards motion in the tape and help keep tape legs consistent.

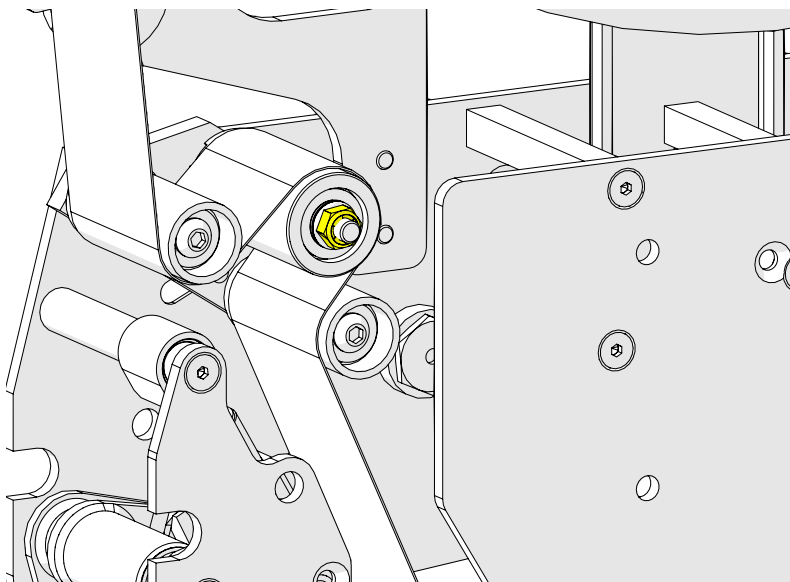
Different qualities of tape have different adhesives and release coats. This has an effect on the dispensing peel-off resistance. This means that different tapes may need various clutch tensions. Factory tension is set prior to shipping.

To decrease the clutch roller's tension, turn the M6 Friction Nut at the end of the roller counterclockwise, it requires a 10mm wrench. Small adjustments can result in large tape changes.

It is recommended to consult IPG Machinery Support before tightening the clutch roller. Over tightening can result in stretched tape leading to weakened adhesion, inconsistent tape legs, no tape being applied, and tape breaks. Any tightening should be performed in  $\frac{1}{8}$  turn increments or less.

Proper tape threading will have the adhesive side of the tape running against the knurled surface of the clutch roller. The clutch roller can be cleaned with a mild detergent (soap and water). Do not use high pressure water on the clutch roller. Allow to fully dry before reuse.

Do not use a knife or other cutting instrument against the surface of the clutch roller.



**Figure 13: Clutch Adjustment**

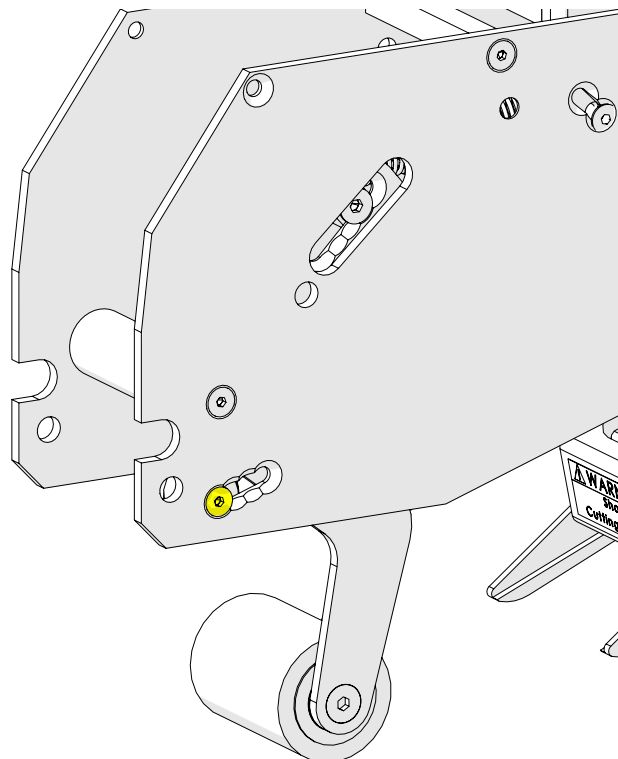
## Low Profile Setting

When processing cases with a 4 inch or lower height it may be necessary to set the tape head into low profile mode to avoid collision between the tape head rollers and parts of the case sealer.

To set the tape head into low profile, loosen the M5 screw that secure the Roller Arm Stop. Compress the arms in to allow this stop to move freely. You may want to remove the Main Spring to remove pressure on the arms. A 3/4 inch box wrench or socket may be needed to hold the hex side of the stop to allow for loosening the screw.

Adjust the stop to the desired position and tighten the M5 screw back down using the indexing positions as a guide.

Placing the tape head into low profile may alter tape leg lengths and may require some adjustments.



**Figure 14: Low Profile Adjustment**

# ADJUSTMENTS

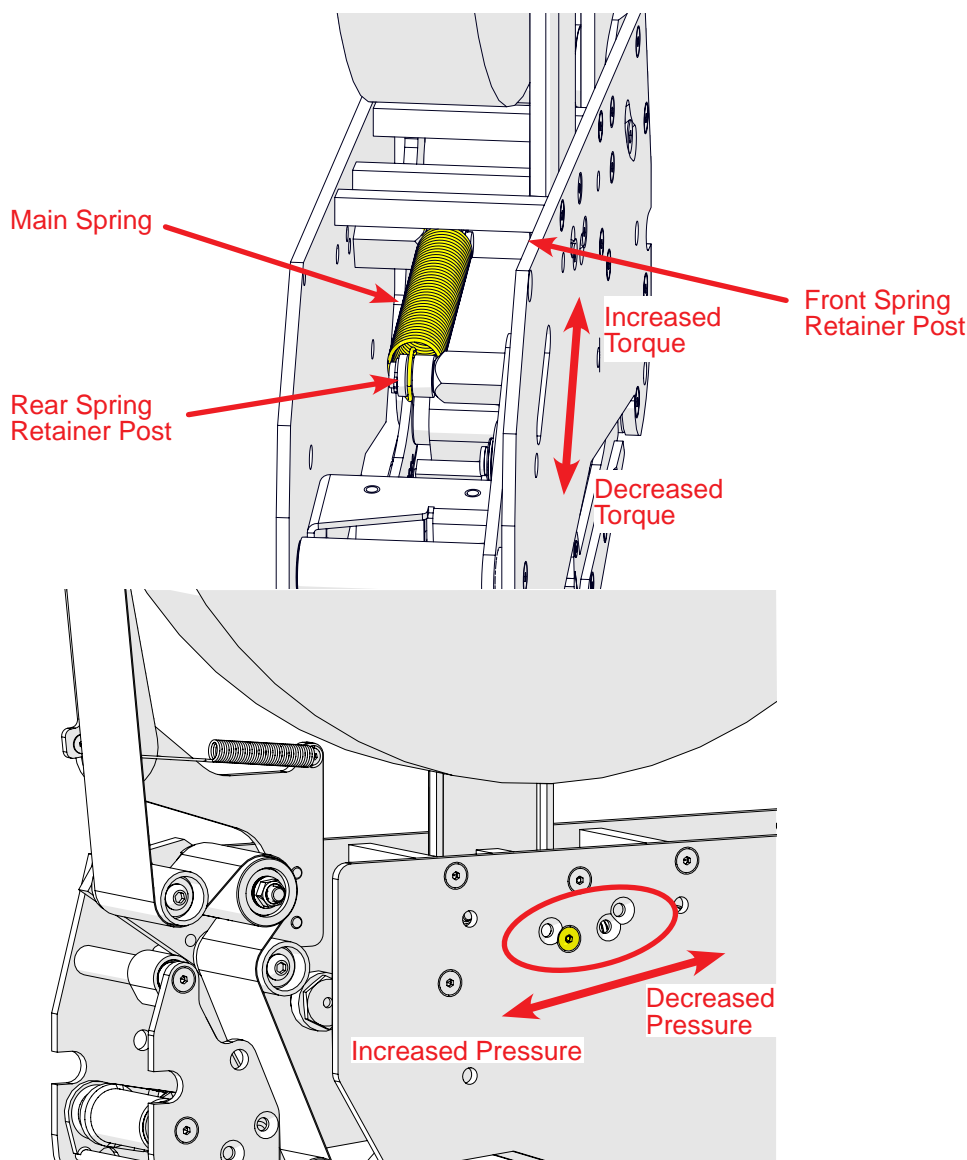
## Main Spring Adjustment

The main spring retainers are factory-set for common applications. The top tape head needs lighter springs (UPH0910), while the bottom needs heavier springs (UPH1091). ET 2Plus MI tape heads can run up to 90 ft/min (27.4 m/min). The box type and speed determine the best spring setting.

Typically, the lighter spring is used for top sealing and the heavier for bottom sealing. Higher speeds may require heavier springs or increased spring force on the rollers. One end of the main spring attaches to a post on the rear wipedown arm, and the other to the tape head's side frame.

Increasing spring force can damage boxes at higher speeds. Adjust roller pressure by moving the spring retainer post forward (increases pressure) or backward (decreases pressure). If the rear tape leg isn't properly wiped down, adjust the torque by moving the spring retainer post on the rear wipedown arm. Move it up and away from the pivot point to increase torque, or down and closer to decrease torque for weaker boxes.

In the event the rear tape leg is not being properly wiped down the torque may need to be adjusted. It can be adjusted by moving the spring retainer post on the rear wipedown arm. Moving the retainer post up and away from the pivot point will increase the amount of torque on the rear wipedown. For some weaker or thinner fluted boxes a reduction in torque may be needed. To decrease the level of torque the retainer post should be moved down and closer to the pivot point.



**Figure 15: Main Spring Adjustments**

# ADJUSTMENTS

## Knife Arm Spring Adjustment

The knife arm spring is factory set but may need to be adjusted when case sealer speeds are high. If tape is consistently not being cut or rear tape legs are unexpectedly long the knife arm spring may need adjustment.

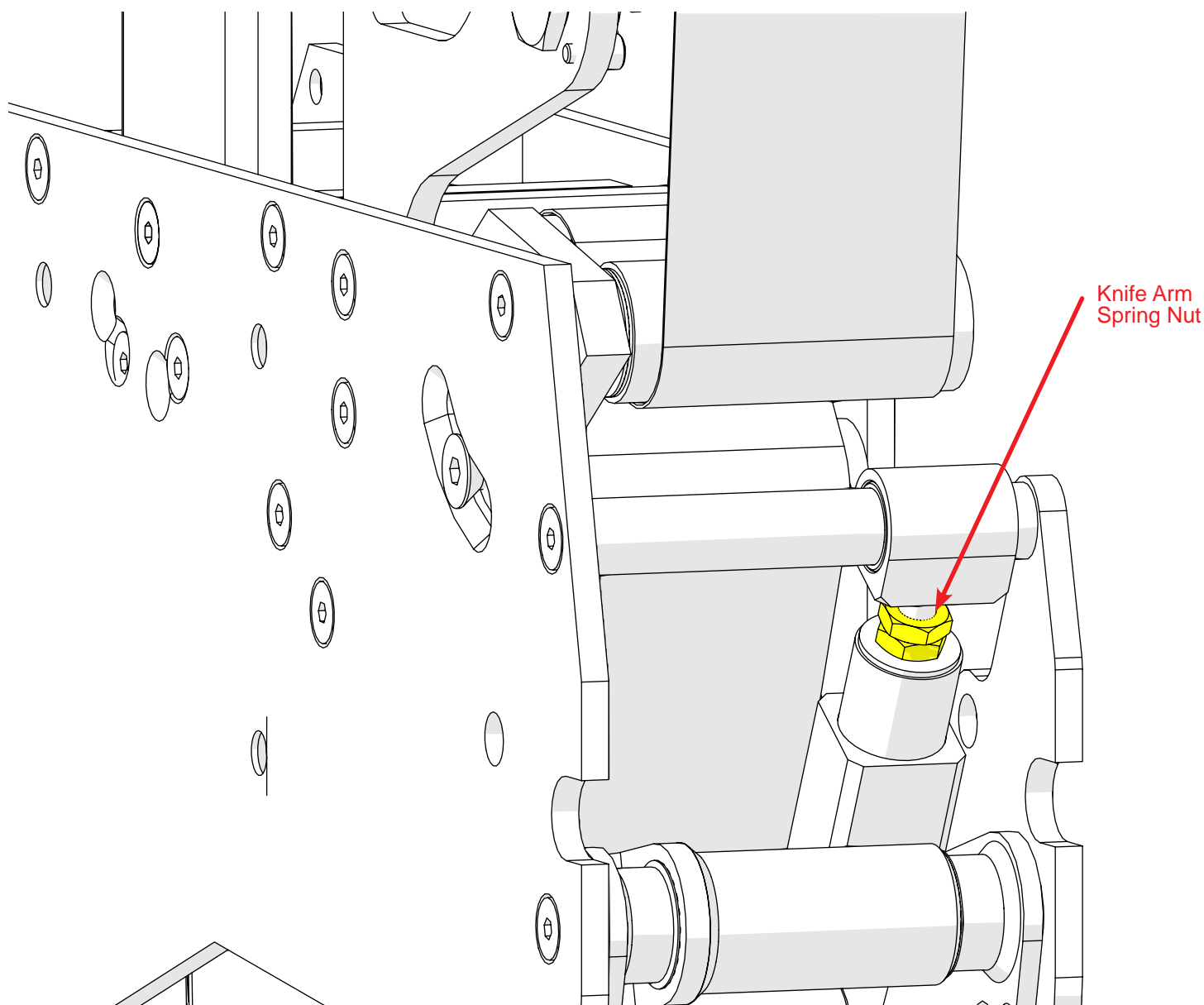
Increasing the force on the knife arm will increase the force in which the knife arm returns to its home position and the speed that which the knife blade will cut through the tape. Increasing this tension will also increase the downward force on the top or bottom of the carton and may cause visual indentations.

To increase the force use a 10mm wrench to turn the nut clockwise.

Decreasing the force on the knife arm will decrease the force at which the knife arm returns to its home position and the speed that the knife blade will cut through the tape. Decreasing the force may result in poorly cut or uncut tape.

To Decrease the force use a 10mm wrench to turn the nut counterclockwise.

Over time the knife arm spring may fatigue and need to be tightened.



**Figure 16: Knife Arm Spring Adjustment**



# ADJUSTMENTS

## Tape Mandrel Adjustments

The tape mandrel is set by the factory for proper location. Over time some adjustment may be necessary. There are two adjustments that can be made to the tape mandrel, horizontal position for keeping the tape roll centered, and rotational tension.

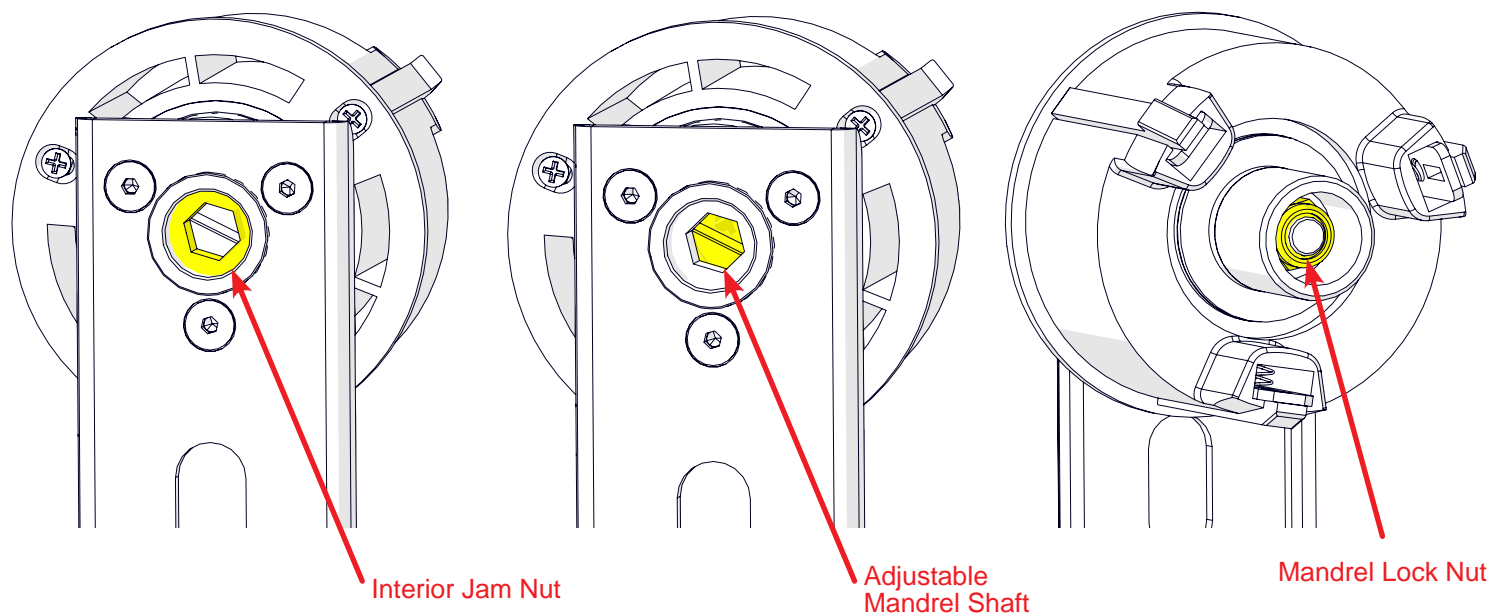
To alter the horizontal position the interior jam nut on the back side of the tape mandrel will need to be loosened with a 10mm Allen wrench. A flat head screw driver can then be inserted to adjust the position via the mandrel shaft.

Rotating the mandrel shaft clockwise will pull the mandrel closer to the mandrel arm.

Rotating the mandrel shaft counterclockwise will push the mandrel farther from the mandrel arm.

Once the tape roll and tape path is centered tighten the interior jam nut back down to keep the mandrel shaft in position.

To adjust the rotational tension use a 13mm socket and slip it around the lock nut on the mandrel. The sleeve is sized to only allow a 13mm socket access. Tightening this nut will increase tension on the mandrel until it locks and will not rotate. Loosening the nut will allow the mandrel to rotate more freely. Very small adjustments will have large effects. It is recommended to contact IPG Machinery Support before making this adjustment.



**Figure 17: Tape Mandrel Adjustments**



# PREVENTATIVE MAINTENANCE

The ET 2Plus MI Tape Head 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 tape head. Review the illustrations and chart below for information regarding machine maintenance.



**WARNING: TURN OFF ELECTRICAL POWER SUPPLY AND PNEUMATIC SUPPLY (WHEN APPLICABLE) BEFORE PERFORMING MAINTENANCE. THE CUT-OFF BLADE IS EXTREMELY SHARP USE CUT RESISTANT GLOVES WHEN REPLACING THE BLADE.**

## Lubrication:

The only oil or lubrication should be the application of lubricant on the Blade Guard Oiler Pad.

## 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 tape head, it may cause increased component wear. 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 parts.

The below chart has been designed for the ET 2Plus MI Tape Heads.

Item	Action Required	Material	Frequency		
			Weekly	Monthly	Quarterly
Blade Guard Oiler Pad	Lubricate	Food Safe Mineral Oil	X		
Hardware	Re-tighten any loose hardware, Replace any missing hardware			X	
Cutting Blade	Inspect for Wear		X		
	Clean	Soap and Water	X		
Mandrel Assembly	Check for Wear and Functionality				X
Peel-Off Roller					
Delrin Roller	Verify free spinning, Clean	Soap and Water	X		
Pivot Shaft	Clean any restrictions	Soap and Water	X		
Spring	Check for fatigue and strength				X
Tape Idle Rollers	Disassemble and Clean	Soap and Water		X	
One Way Clutch Roller	Verify correct rotational tension, Clean	Soap and Water		X	
Tape Shoe	Clean	Soap and Water		X	
Front Wipedown Roller	Clean	Soap and Water	X		
Rear Wipedown Roller	Clean	Soap and Water	X		
Main Spring	Check for fatigue and strength				X
Knife Arm Spring	Check for fatigue and strength				X
Blade Guard Spring	Check for fatigue and strength				X
Wipe Down Tabs	Inspect for wear and stiffness				X
Side Frames	Clean	Damp Cloth	X		

# PREVENTATIVE MAINTENANCE

## Blade Guard Oiler Pad



**WARNING: THE KNIFE CONTAINED IN THE TAPE HEADS IS EXTREMELY SHARP. EVEN A DULL BLADE CAN BE SHARP ENOUGH TO CUT.**

The blade in the ET 2Plus MI is kept behind a red plastic cover that is actuated by an extension on the side of the cover. The blade cover maintains a closed position via a torsion spring.

There is a felt pad attached to the inside of the blade cover. This pad should receive a few drops of oil once per week. If the tape head is being used in an environment where it may be in indirect contact with any food products use a food grade mineral oil on this pad. This pad will automatically apply a light amount of oil to blade and helps prevent adhesive build up on the blade, extending the blades life and performance.

Do not over oil the pad as it may become over-saturated and drip oil into the machine or onto the cases being processed. Too much oil may also negatively affect the adhesion of the tape on the cartons.

Recommended Frequency: Once per week.

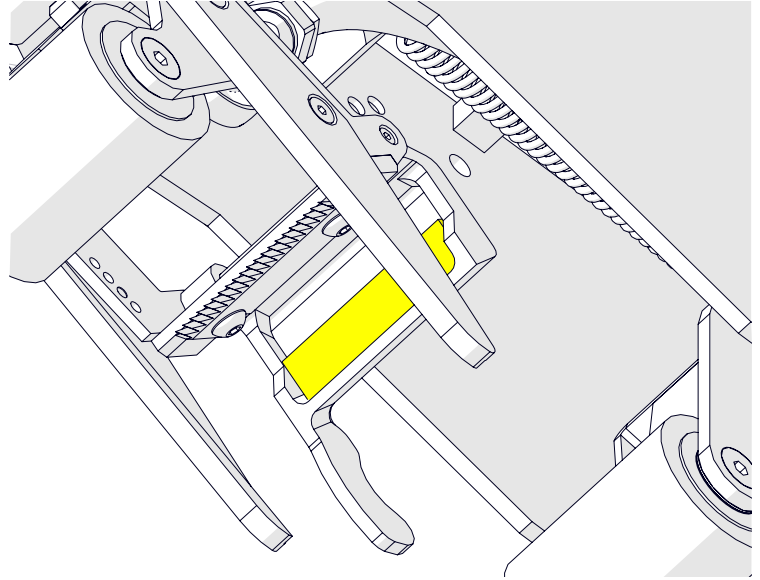


Figure 18: Oiler Pad

## Cleaning and Changing the Blade



**WARNING: THE KNIFE CONTAINED IN THE TAPE HEADS IS EXTREMELY SHARP. EVEN A DULL BLADE CAN BE SHARP ENOUGH TO CUT.**

The ET 2Plus MI tape head contains a serrated blade secured to the knife arm with two screws and is behind a red safety cover. Over time the blade may have adhesive build up, become dull, or damaged.

When cleaning the blade it is recommended to remove it from the tape head to reduce the risk of injury.

To remove the blade lift the blade safety cover. Using an Allen wrench, loosen the two screws that secure the blade. It is not necessary to completely remove the screws, the blade is slotted for easy removal and installation.

When cleaning the blade place it flat on a surface and use a mild detergent (soap and water) to clean both sides of the blade. Keep fingers away from the sharp edges of the blade.

To replace the blade slide it up until the slots are fully seated around the screws and cannot be moved any higher. Tighten the two screws down securing the blade.

Recommended Frequency: Cleaning once per week.

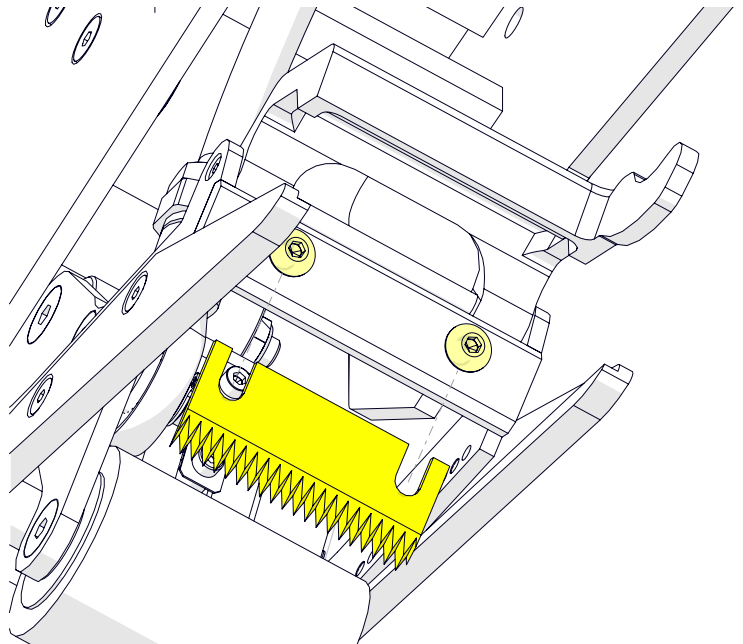


Figure 19: Knife Blade Change

# PREVENTATIVE MAINTENANCE

## Cleaning and Changing the Front Application Roller

The front urethane application roller will wear overtime as it makes contact with every carton that passes through. The roller may be cleaned with a mild detergent (soap and water). Do not use any solvent or industrial cleaners on the roller.

To remove the roller for cleaning remove the retaining ring that secures the roller to the front arm.

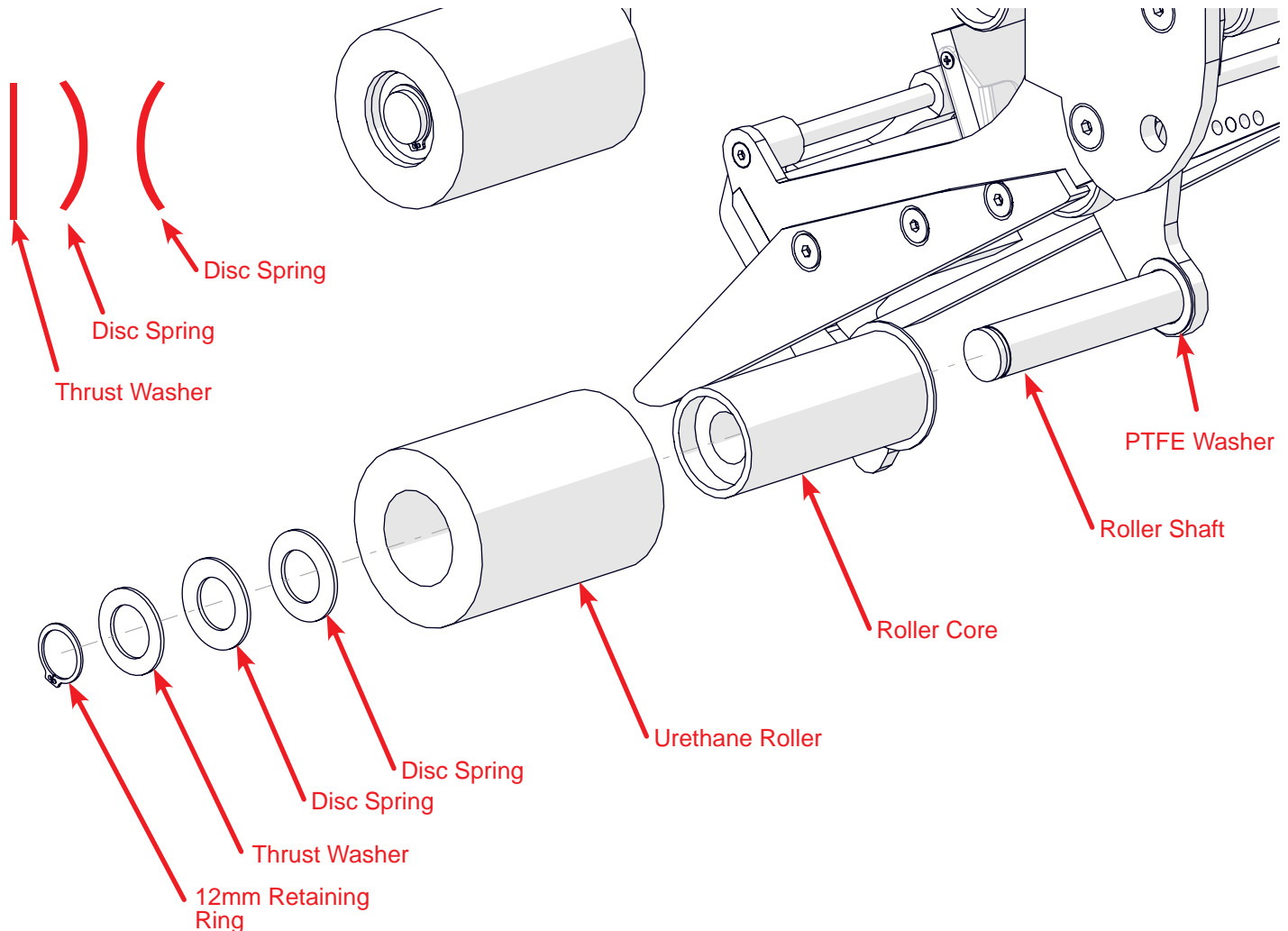
Use caution when removing the roller as there are washers and disc springs on side of the roller that may fall free. The central shaft can remain screwed into the front arm. Clean the roller thoroughly and replace it if it is damaged. Clean the shaft before replacing the urethane roller.

The urethane roller is secured to roller core by friction fitment. To remove the urethane roller from the core pull it off in the direction opposite of the flange on the roller core.

To install a new urethane roller press it onto the roller core until the urethane is firmly pressed against the flange of the roller core.

When reassembling the roller be sure to replace the disc springs and thrush washer in the correct order and orientation. When replacing the retaining ring be careful to not stretch out the ring. If needed replace it with a new one.

Do not use any knives or any other cutting instrument against the roller.



**Figure 20: Front Roller Disassembly**

Recommended Frequency: Cleaning once per week.

# PREVENTATIVE MAINTENANCE

## Cleaning and Changing the Rear Application Roller

The rear urethane application roller will wear overtime as it makes contact with every carton that passes through. The roller may be cleaned with a mild detergent (soap and water). Do not use any solvent or industrial cleaners on the roller.

To remove the roller for cleaning remove the retaining ring that secures the roller to the rear arm.

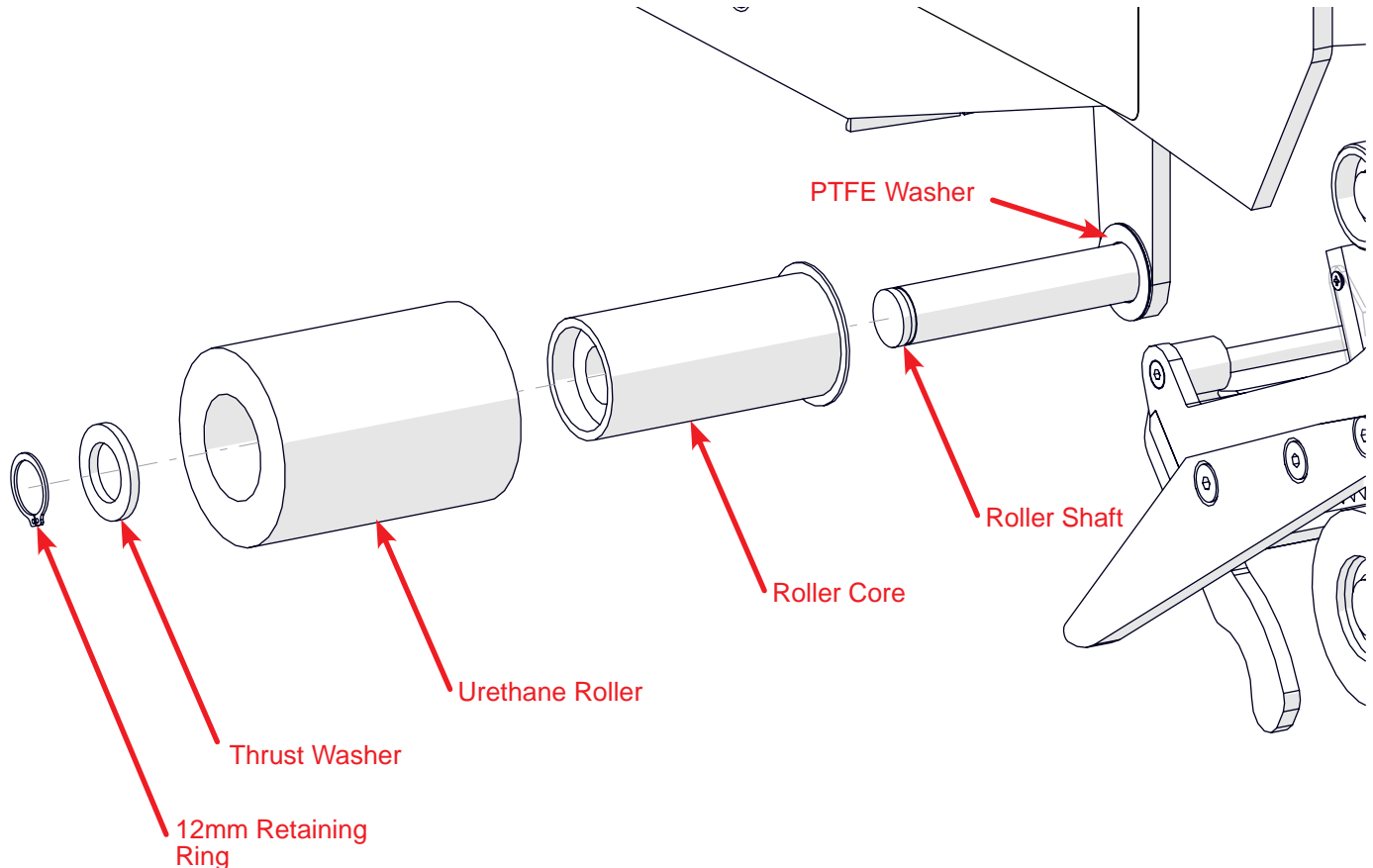
Use caution when removing the roller as there is a washer on side of the roller that may fall free. The central shaft can remain screwed into the front arm. Clean the roller thoroughly and replace it if it is damaged. Clean the shaft before replacing the urethane roller.

The urethane roller is secured to roller core by friction fitment. To remove the urethane roller from the core pull it off in the direction opposite of the flange on the roller core.

To install a new urethane roller press it onto the roller core until the urethane is firmly pressed against the flange of the roller core.

When reassembling the roller be sure to replace the thrush washer. When replacing the retaining ring be careful to not stretch out the ring. If needed replace it with a new one.

Do not use any knives or any other cutting instrument against the roller.



**Figure 21: Rear Roller Disassembly**

Recommended Frequency: Cleaning once per week.

# PREVENTATIVE MAINTENANCE

## Replacing the Dual Independent Wiping Tabs

The patented dual independent wipe tabs (US-20240326347-A1) assist in wiping down the top center seam of the case. While the red wipe down rollers perform much of the wipe down, the wipe down tabs enhances the wipe down as it can better conform to the irregularities of the top of the case such as over fills, void fills and the “wash-board” effect of thinner walled corrugated.

Over time, the tabs can become distorted or worn and they should be replaced.

Remove the two lock nuts and rectangular washer that secures the dual tabs to the bracket.

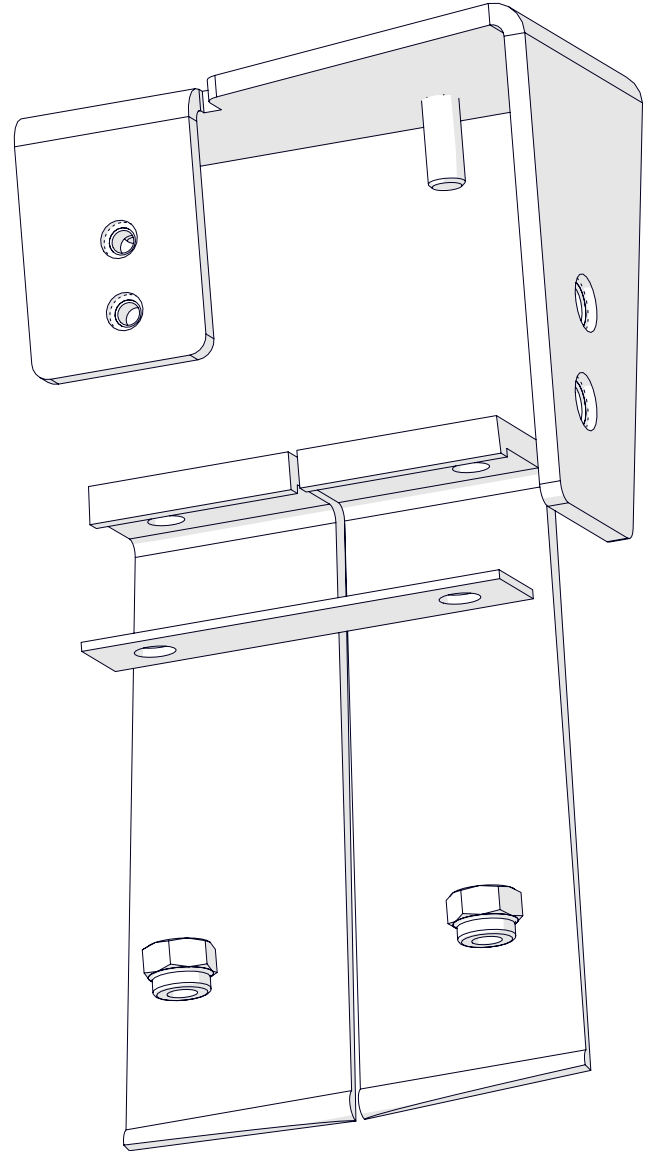
Pull each tab off of the studs.

New dual independent wiping tabs have a sticker to hold them together to assist in installation.

Slip the wiping tabs onto the threaded studs. The flange of the tabs should be orientated towards the rear of the tape head.

Replace the rectangular washer and secure everything with the two lock nuts.

Remove the sticker on the tabs before installing the tape head back into the case sealer.



**Figure 22: Dual Independent Wiping Tabs**

Recommended Frequency: Inspect once per week, replace as necessary.

# PREVENTATIVE MAINTENANCE

## Replacing the Blade Guard and Guard Torsion Spring



**WARNING: THE KNIFE CONTAINED IN THE TAPE HEADS IS EXTREMELY SHARP. EVEN A DULL BLADE CAN BE SHARP ENOUGH TO CUT.**

Over time the actuation of the knife blade guard will fatigue the torsion spring. The guard may also experience impacts that can damage the plastic housing. The post on the guard makes contact with the carton as it moves through the case sealer. If this post is broken the blade guard will not actuate and it will not cut the tape.

It is vital to the safe operation of the ET 2Plus MI tape head that the Blade Guard is functional and not damaged.

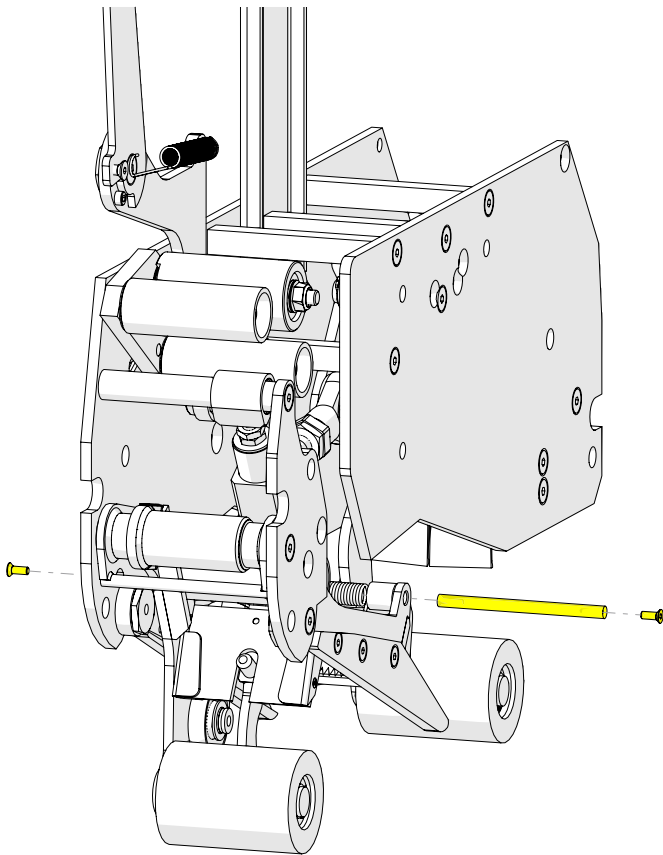
Prior to replacing the blade guard follow the blade removal process to help avoid injury.

To remove the blade guard remove the two M3 screws to free the shaft. With the screws and shaft removed both the blade guard and torsion spring can be easily removed. Discard the damaged material.

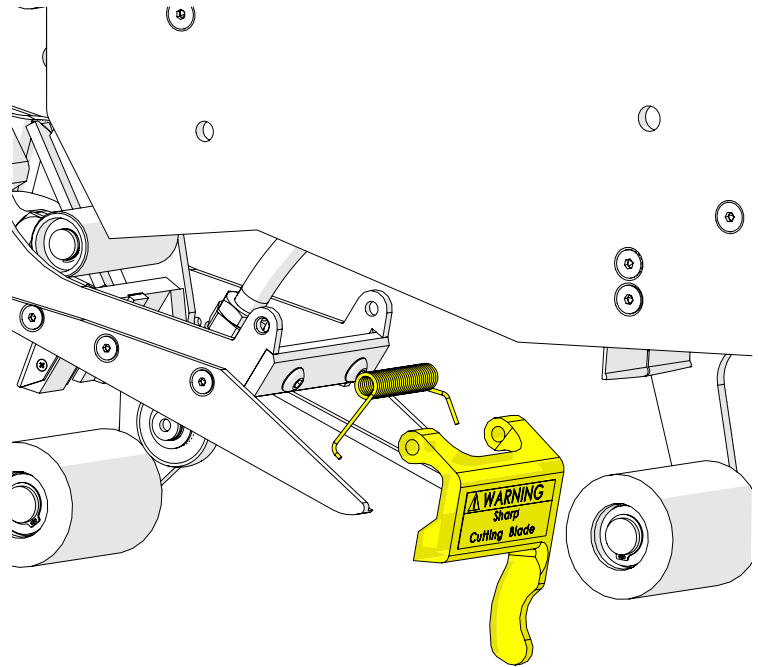
When replacing the torsion spring the straight legs of the spring will need to be on the backside of the blade mounting plate. The loop of the spring will need to be under the top side of the blade guard. Proper replacement of the spring is vital for proper functionality of the blade guard.

Align the blade guard and spring with the mounting holes on the knife arm and secure it with the two M3 screws. Verify the guard can actuate freely and returns to its home position quickly and fully. Compress the arm to verify the blade guard actuates properly against the magnet on the post.

Once proper functionality has been verified follow the blade replacement process.



**Figure 23: Removing Tape Guard Rod**



**Figure 24: Removing Guard and Spring**

Recommended Frequency: Inspect once per week, replace as necessary.

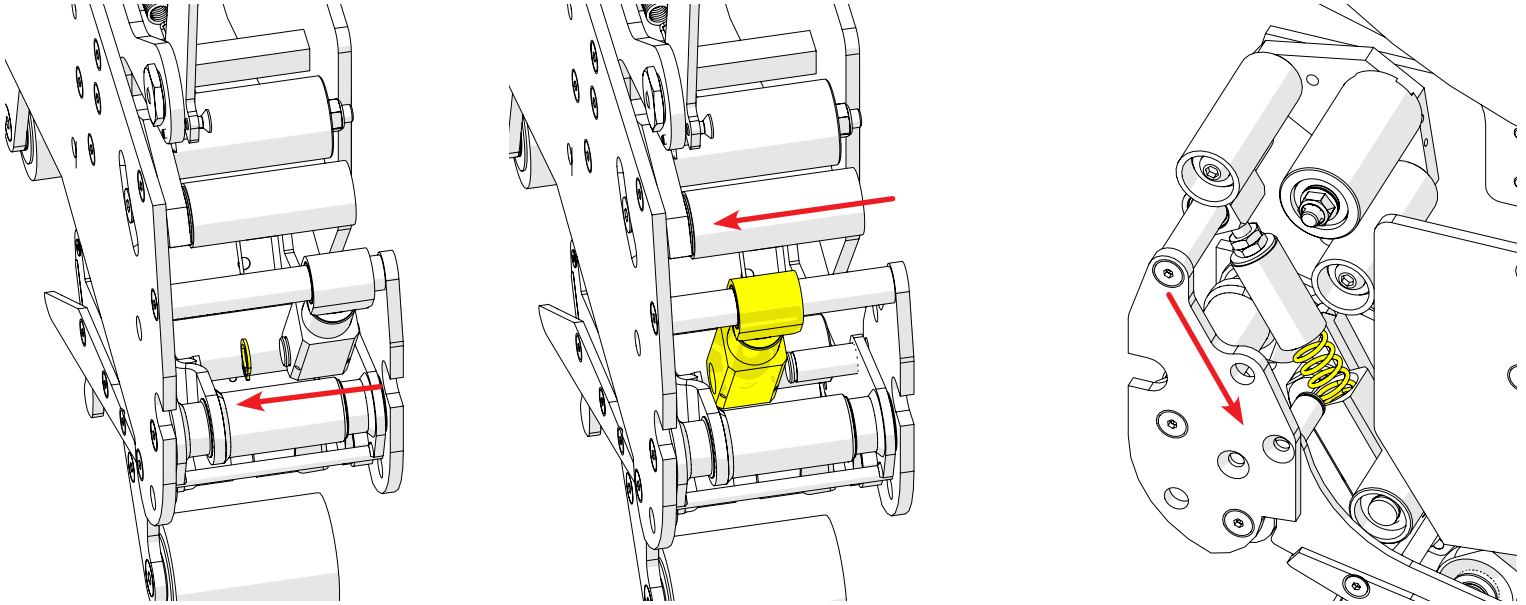
# PREVENTATIVE MAINTENANCE

## Replacing the Knife Guard Spring

Over time the knife arm spring can fatigue and weaken or break and need to be replaced. The knife arm spring is located at the front of the tape head and is attached to a support rod and post on the knife arm.

To replace the knife arm spring remove the retaining ring on the knife arm post. This will allow the spring assembly to slide off of the post. The spring assembly can be rotated on the shaft for easier access. Remove the plastic housing to expose the spring. The spring can now be removed from the black spring guide.

Replace the spring with a new one (UPH7427) and slide the housing back over the black spring guide. Slide the spring back onto the knife arm post. Replace the retaining ring to secure the spring assembly position. It is recommended to use a new retaining ring (UF6301) as it can be easy to damage the ring.



**Figure 25: Replacing Knife Arm Spring**

Recommended Frequency: Inspect once per week, replace as necessary.



# PREVENTATIVE MAINTENANCE

## Cleaning the Tape Path

The rollers of the tape head should be cleaned on a regular basis to keep proper functionality and smooth operation. If a tape jam occurs or the tape has been threaded incorrectly adhesive may buildup in and on the rollers. When cleaning use a mild detergent (soap and water). Do not use any industrial solvent cleaners.

## Cleaning the Clutch Roller Assembly

When cleaning the rollers on the clutch assembly it may be necessary to shift or rotate the assembly to remove the lower idle roller.

Remove the screws from the two idle rollers they will have a washer. With the screws removed the idle rollers can be pulled free from the shafts. Clean these rollers with a mild detergent (soap and water).

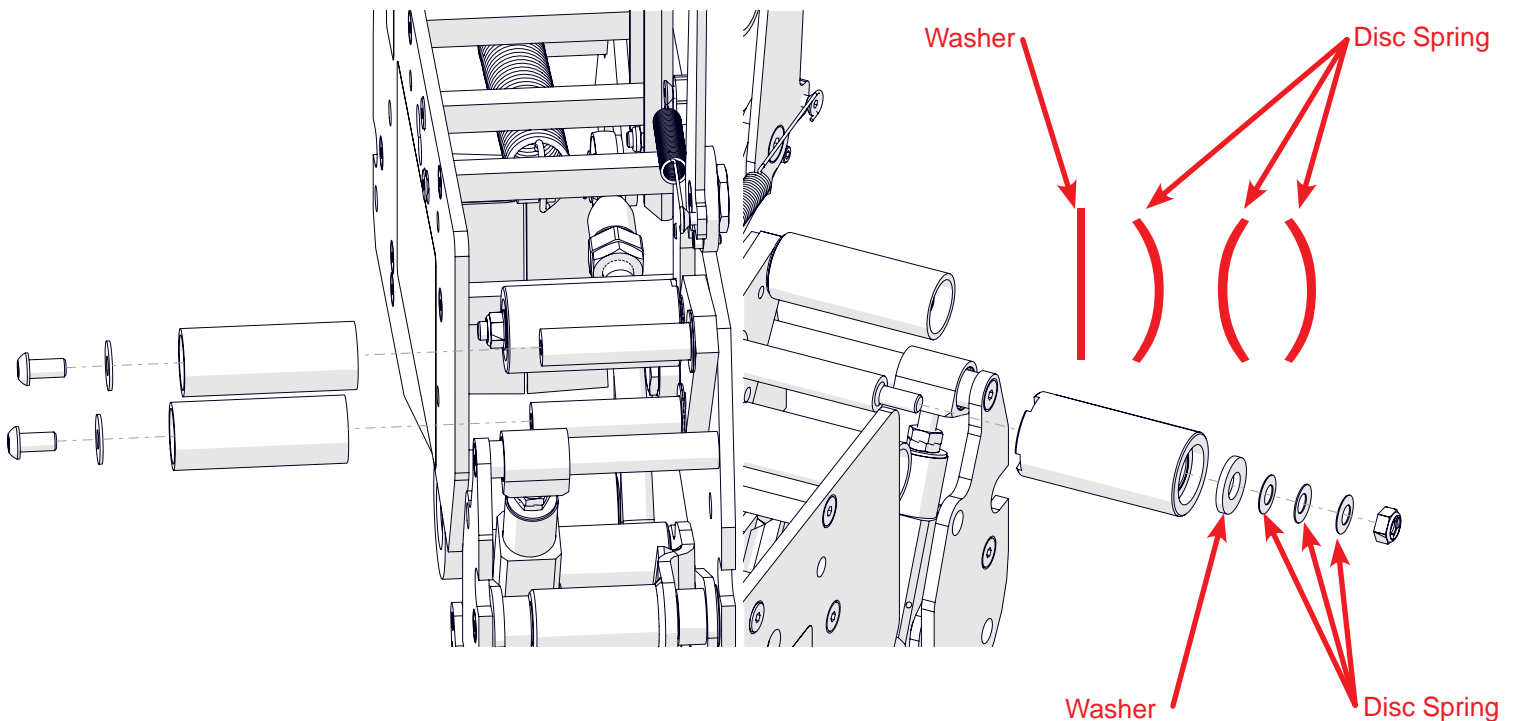
If possible when cleaning the clutch roller clean it in place with a mild detergent (soap and water). This will help keep the proper rotational resistance on the clutch roller.

If removal of the clutch roller is necessary use caution to remember the order of the washers and disk spring as they will need to be reassembled in the same order.

Remove the 10mm nut securing the clutch roller. This will allow the clutch roller to pull freely from the shaft. The disk spring and the washer can fall free of the clutch roller. Clean the clutch roller, disk spring and washers with a mild detergent (soap and water). If the one way bearings are seized the whole clutch roller will need to be replaced (UAH0283).

Replace the clutch roller on the shaft. Verify it is in the correct orientation as the one way bearings restrict rotation in one direction. Replace the washer and disk springs before securing the nut on the end of the shaft. Be sure the disc springs are in the correct orientation. When tightening the nut be sure not to over tighten or keep it too loose. The clutch roller should rotate counterclockwise when viewed from the threaded end of the shaft. It should rotate with some resistance.

Replace the idle rollers on the shafts and secure them with the retaining rings. It may be beneficial to replace the retaining rings with new ones (UF7017) as they can be easily damaged in the removal process.



**Figure 26: Removal and Disassembly of the Clutch Rollers**

Recommended Frequency: Clean once per week.



# PREVENTATIVE MAINTENANCE

## Replacing Mandrel Sprags

Over time the sprags will wear down. The red hooked sprag is essential in keeping the tape centered on the mandrel. The black sprags help keep even pressure and should be replaced at the same time as the red one.

The sprags are secured by a self tapping screw accessible from the back side of the mandrel. Use a #2 Philips screwdriver to remove the screw. Place it in a safe place nearby as they can be reused.

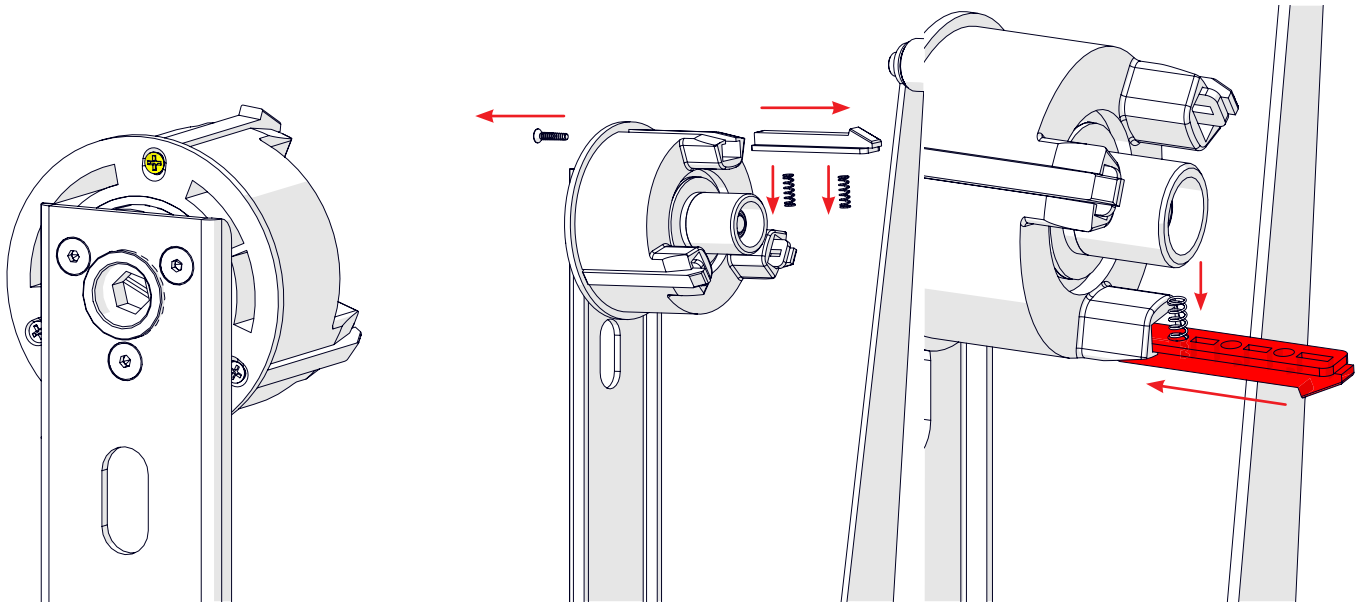
Once removed the sprag can be slowly pulled out from the front of the mandrel. Use caution as the sprags maintain their tension with springs that are located in predetermined seated positions on the bottom of the sprag. 2 in. tape heads will have two (2) springs while 3 in. tape heads will have three (3). Keep these springs in a safe location with the screws as they can also be reused.

Discard the worn sprag. Repeat this process for the other two (2) sprags.

When installing a new sprag it is recommended to do so when its location in the mandrel is positioned at the bottom.

Insert the new sprag so the end with the ramp is facing away from the mandrel. When the inserted sprag gets to the round locating feature, insert a spring. Compress the spring and push the sprag in to the mandrel until the next locating feature. If you are replacing a 3 in. tape head sprag a third spring will be used.

Push the sprag all the way to the back of the mandrel. Secure it with one of the self tapping screws. Repeat this process for the other two (2) sprags. Be sure at least of them is the red hooked sprag.



**Figure 27: Sprag Removal**

Keeping proper tension and replacing worn sprags will ensure proper grip and peel off of tape from the roll resulting in more consistent tape application.

Recommended Frequency: Inspect once per week, replace as necessary.

# PREVENTATIVE MAINTENANCE

## Recommended Spare Parts



**WARNING: TURN OFF ELECTRICAL POWER SUPPLY AND PNEUMATIC SUPPLY (WHEN APPLICABLE) BEFORE PERFORMING MAINTENANCE. THE CUT-OFF BLADE IS EXTREMELY SHARP USE CUT RESISTANT GLOVES WHEN REPLACING THE BLADE.**

ET 2Plus MI 2" Tape Head Serial Starting With H279

UH1013 Spare Parts Kit		
Description	Item Number	QTY
Roller Shell 2"	UPH0775	2
Independent Wiper Tabs 2"	UPH4894	2
Main Spring Light	UPH0910	1
Main Spring Heavy	UPH1091	1
Torsion Spring	UPH9195	1
Cut-Off Blade 2"	UPH0193	1

ET 2Plus MI 3" Tape Head Serial Starting With H779

UH1014 Spare Parts Kit		
Description	Item Number	QTY
Roller Shell 3"	UPH0966	1
Independent Wiper Tabs 3"	UPH4895	2
Main Spring Light	UPH0910	1
Main Spring Heavy	UPH1091	1
Torsion Spring	UPH9195	1
Cut-Off Blade 3"	UPH0271	1

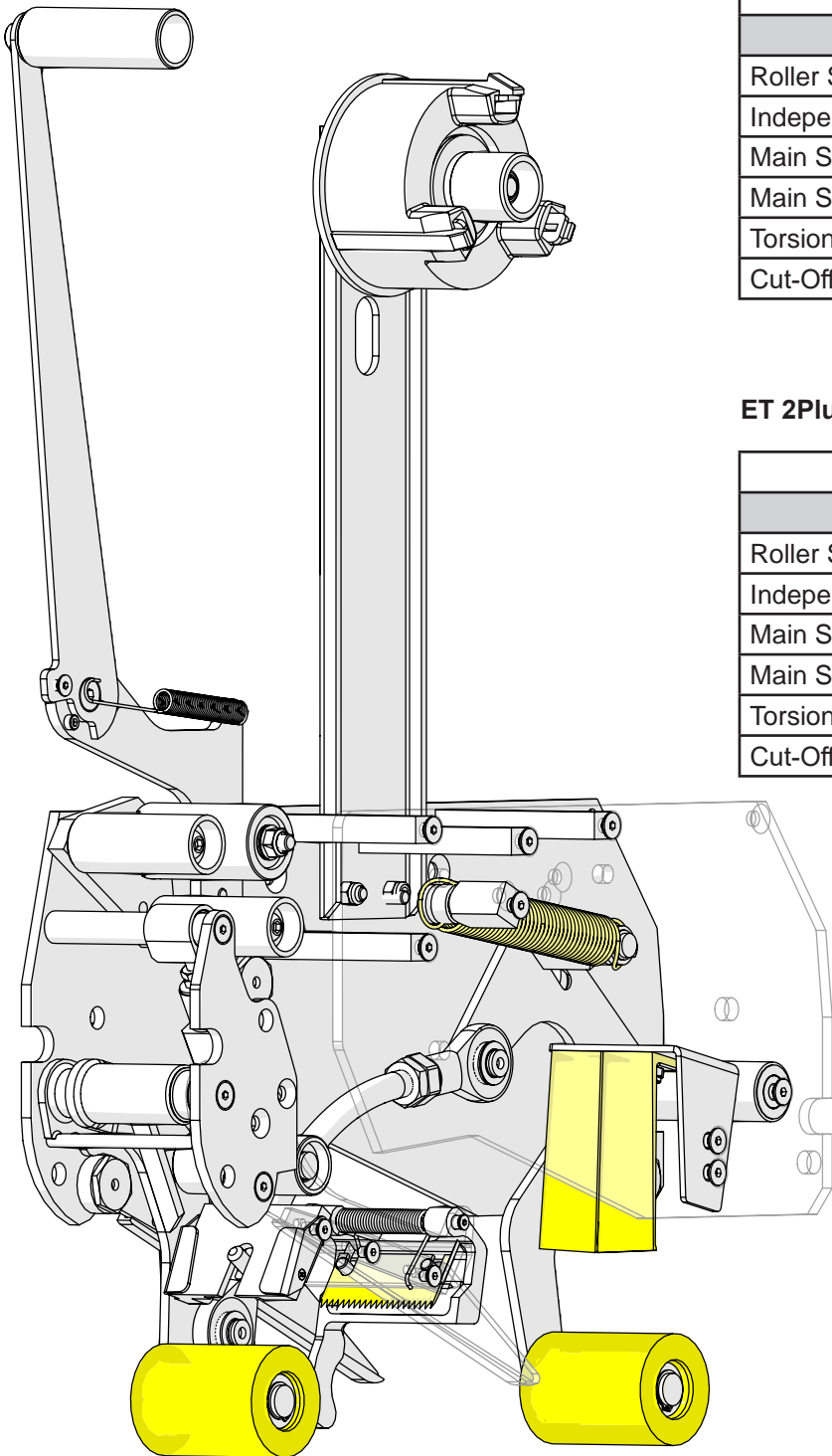
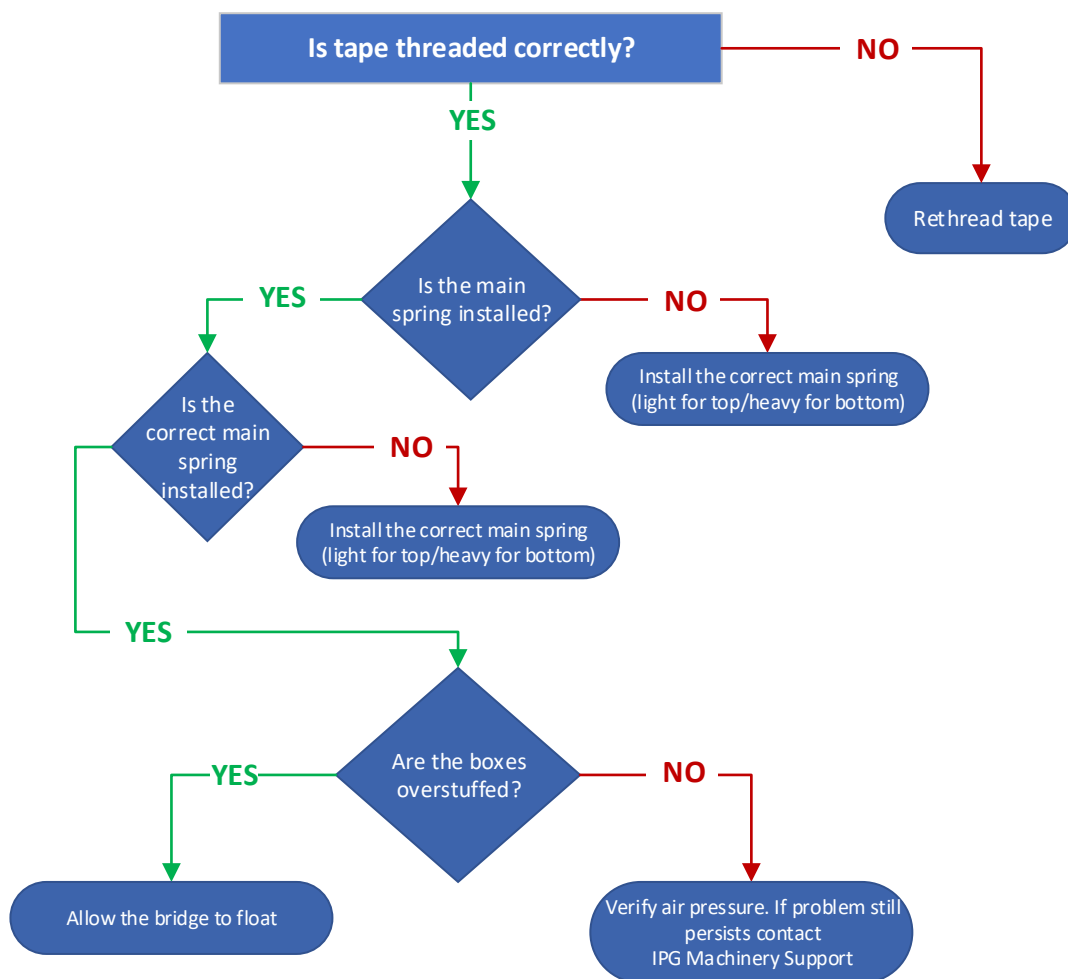


Figure 28: Spare Kit Components

# TROUBLESHOOTING

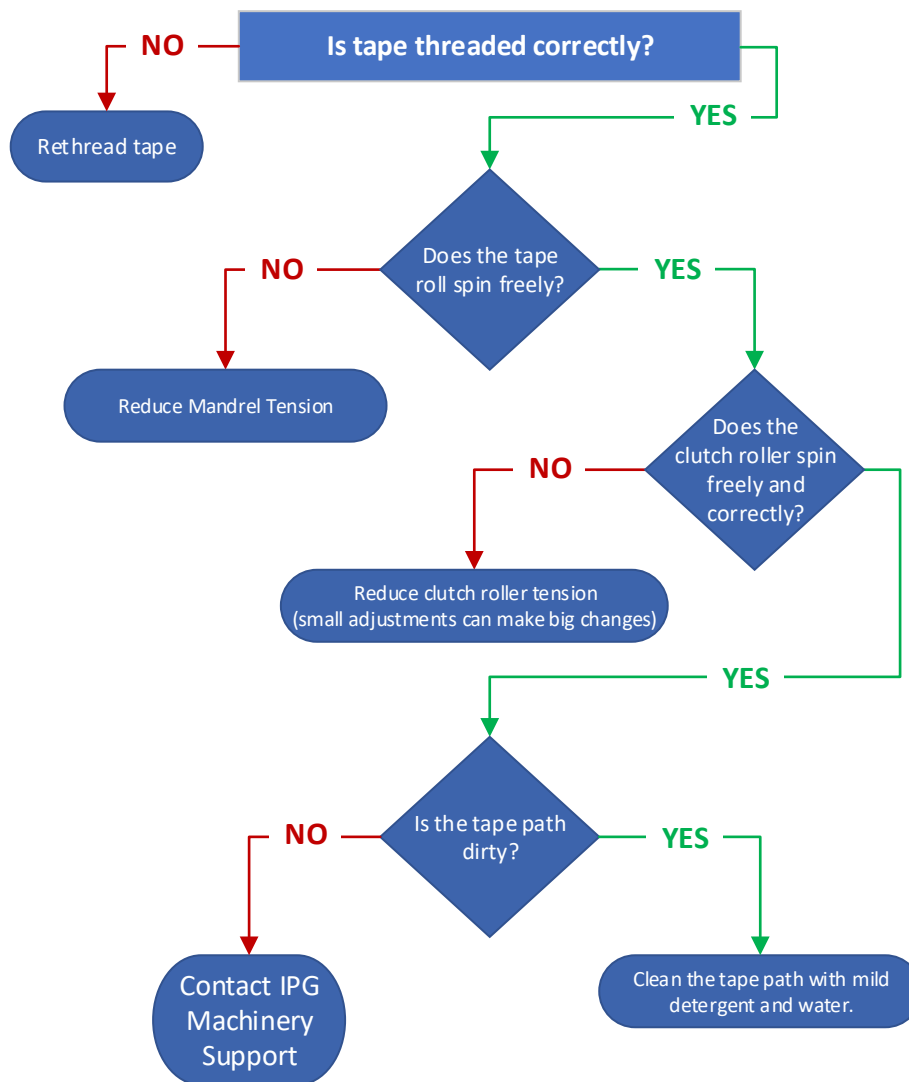
The ET 2Plus MI family of tape heads have been designed with high quality components and with general preventative maintenance the head can provide many years of reliable service. Should you experience any operational difficulties that are not explained in the following section contact IPG Machinery Support at [machsupp@itape.com](mailto:machsupp@itape.com) or 803-345-3070. When contacting IPG Machinery Support please have the tape head serial number ready for the fastest possible assistance. IPG Machinery Support is available Monday - Friday, 8am - 7pm Eastern Standard Time.

## Poor Tape Wipedown



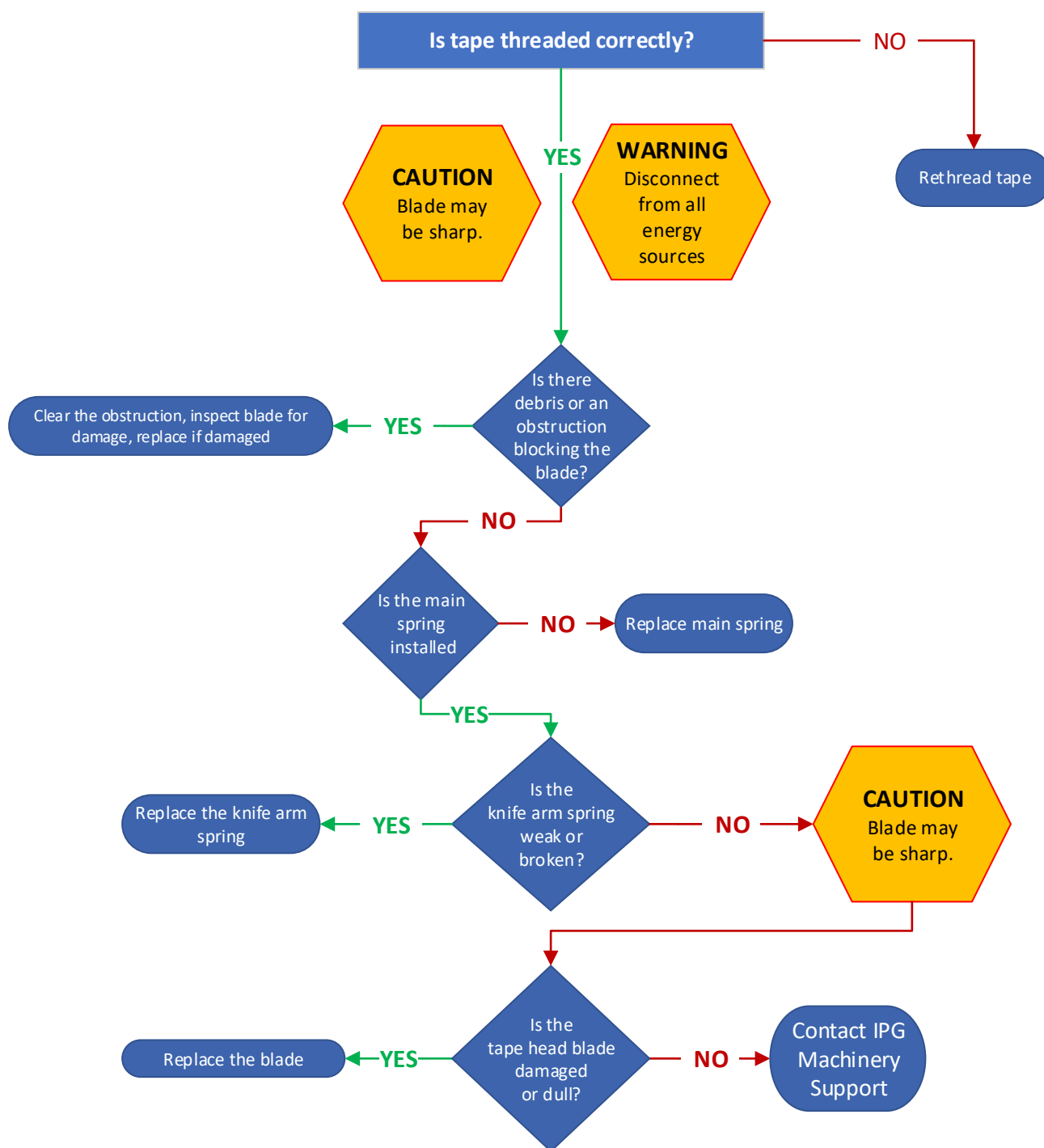
IPG Machinery Support  
877-447-4832 Option 4

## Rear Tape Leg is Tabbing



IPG Machinery Support  
877-447-4832 Option 4

## Tape Does Not Cut



# APPENDIX B

## Parts Listing

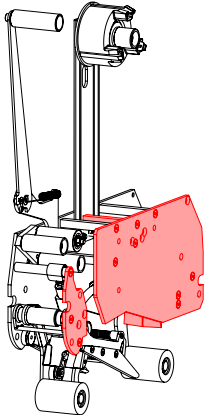
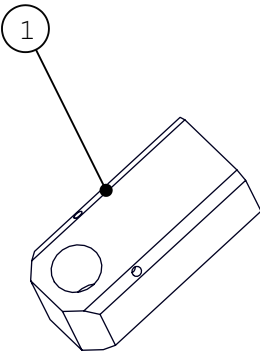
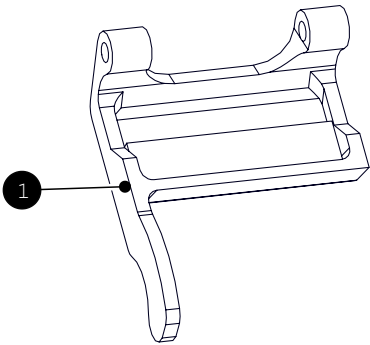
Main Explosion	39
Right Frame Assembly	40
Rear Arm Assembly	41
Front Arm Assembly	42
Knife Arm Assembly	43
Link Assembly	44
Left Frame Assembly	45
Mandrel Assembly	46
Mandrel Sub-Assembly	47
Clutch Roller Assembly	48
Knife Spring Assembly	49
Peel Off Arm Assembly	50
Low Tape No Tape/iTrack Sensor Kit	51

As this manual covers both 2 inch and 3 inch models of the ET 2Plus MI each breakdown will have a column for each size of the tape head. Tape heads with serial numbers starting in H279 are 2 inch models. Tape heads with serial numbers starting in H779 are 3 inch models. Contact IPG Machinery Support at [machsupp@itape.com](mailto:machsupp@itape.com) or 813-345-3070 if you have additional questions.

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

Items with white balloon call outs are single parts.

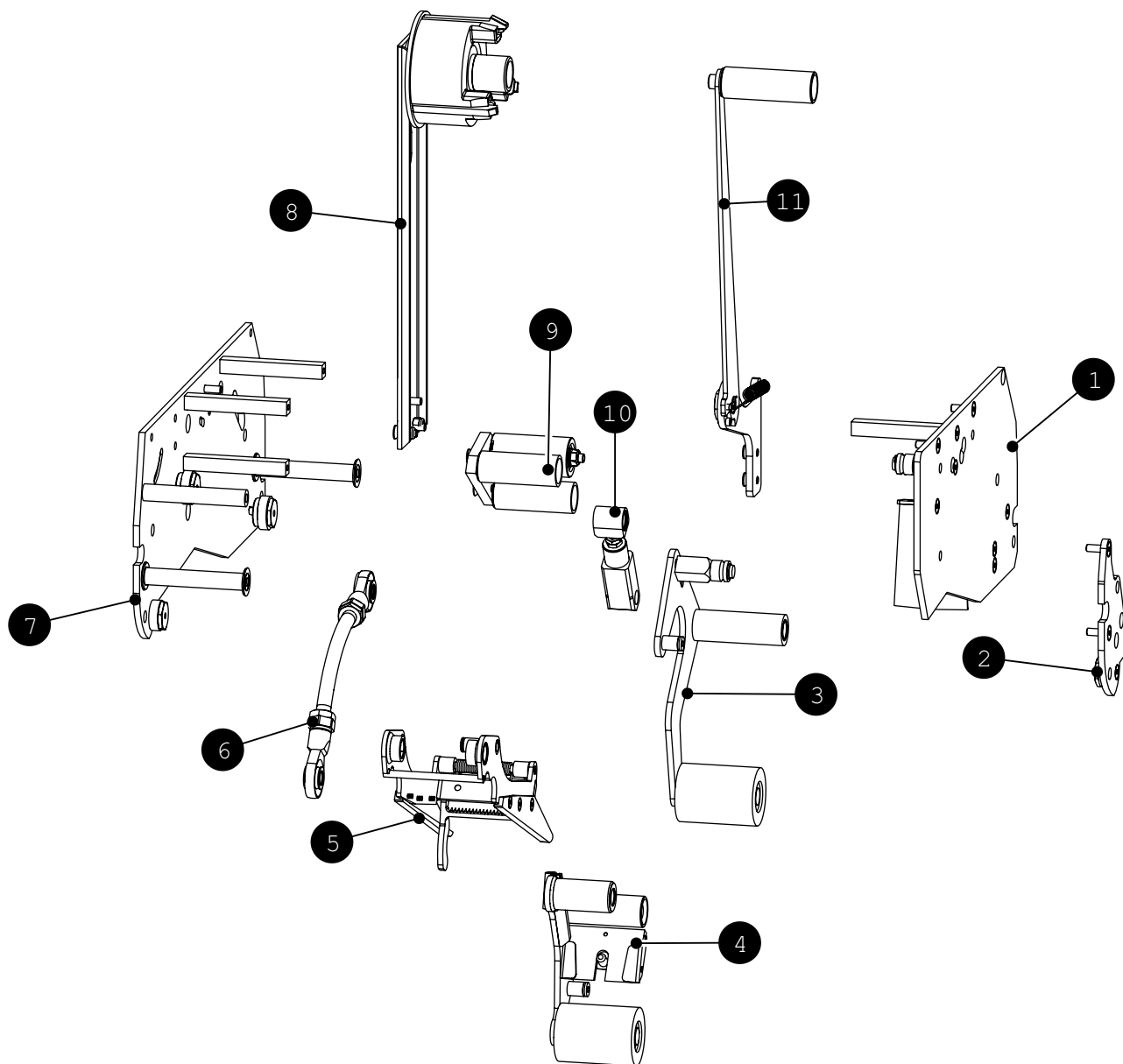
The top right of each page with a parts breakdown will show a red highlighted section of the machine that is being broken out into more detail.



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

# APPENDIX B

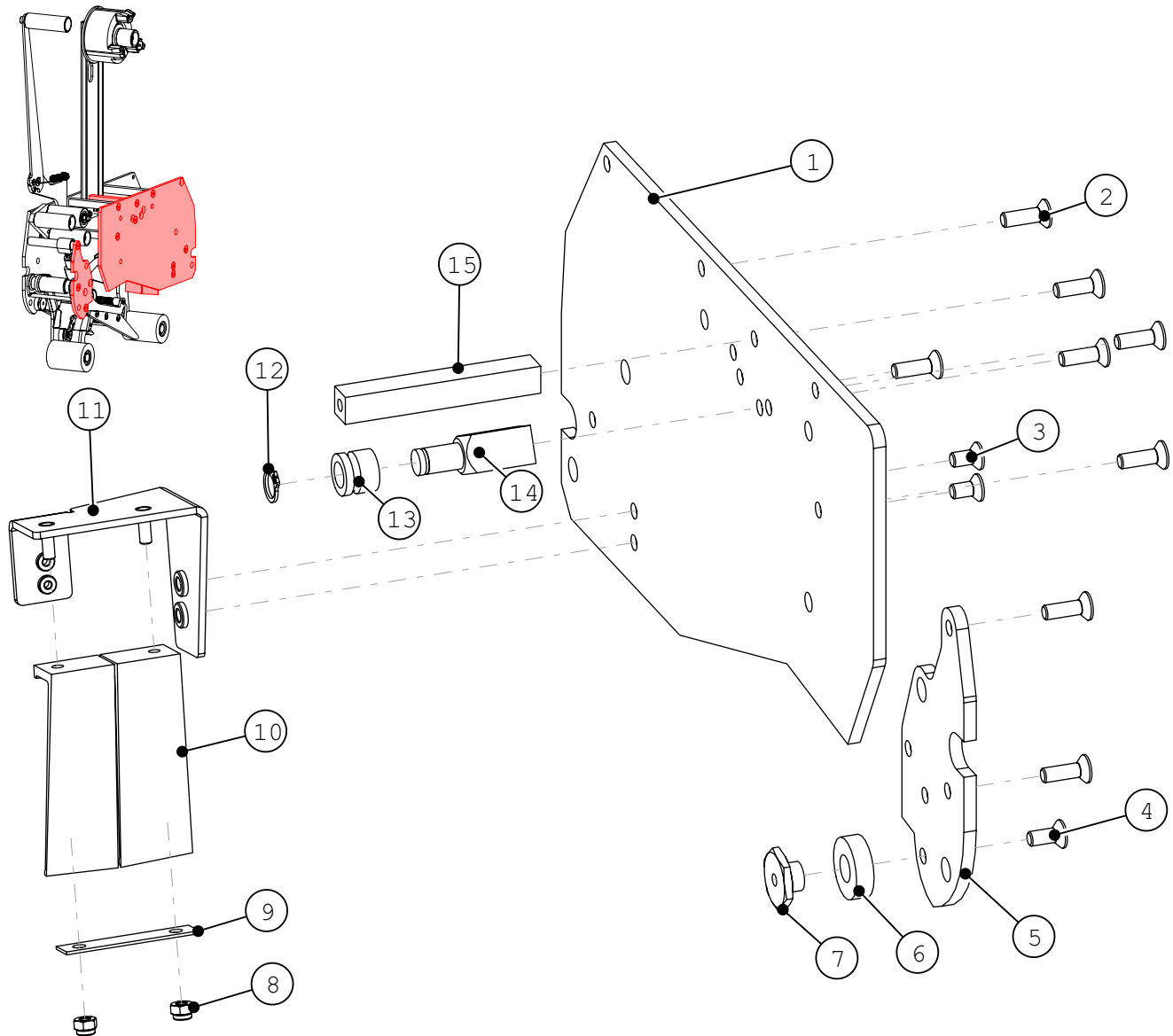
## Main Explosion



ITEM	PART NUMBER 2"	PART NUMBER 3"	DESCRIPTION	QTY
1	USH3858	USH3859	REAR COVER FRAME ASS'Y MIRROR	1
2	USH1068	USH1068	FRONT COVER FRAME MIRROR	1
3	USH0931	USH0932	REAR ARM ASS'Y MIRROR	1
4	USH1064	USH1065	FRONT ARM MIRROR	1
5	USH1062	USH1063	KNIFE ARM ET 2.5 MIRROR	1
6	USH0939	USH0939	LINK ASS'Y ET II	1
7	USH1066	USH1067	MAIN FRAME MIRROR	1
8	USH4146	USH4147	MANDREL ASS'Y	1
9	USH0927	USH0928	CLUTCH ASS'Y ET II MIRROR	1
10	USH1057	USH1057	REPULSIVE PIVOT ASSY	1
11	USH0935	USH0936	PEEL-OF ASS'Y MIRROR	1

# APPENDIX B

## Right Frame Assembly

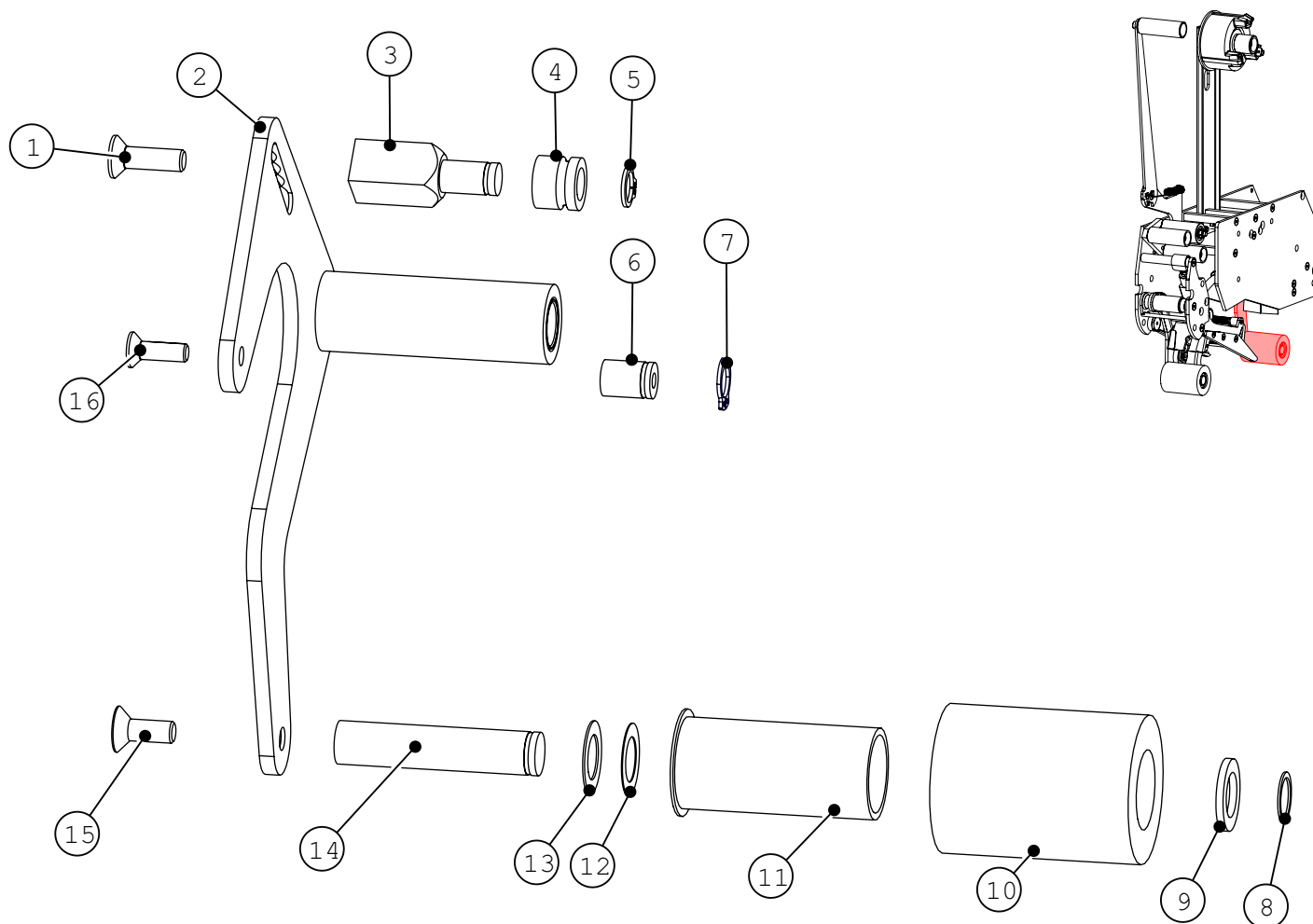


ITEM	PART NUMBER 2"	PART NUMBER 3"	DESCRIPTION	QTY
1	UPH9104	SEE TABLE	REAR COVER FRAME MIRROR	1
2	UF5404	UF5404	FHCS M5-0.8 x 16mm	8
3	UF3262	UF3262	FHCS M5-0.8 x 10mm	2
4	UF5400	UF5400	FHCS M5-0.8 x 12mm	1
5	UPH9108	UPH9108	FRONT COVER FRAME MIRROR	1
6	UPH1417	UPH1417	URETHANE STOP	1
7	UPH0872	UPH0872	STOP RETAINER ETM	1
8	UF6376	UF6376	LOCKNUT M4	2
9	UPH4896	UPH4897	RECTANGULAR WASHER	1
10	UPH4894	UPH4895	WIPING TAB	1
11	UPH1560	UPH1561	WIPING TAB BRACKET ET2+ MIR	1
12	UF6303	UF6303	RETAINING RING 9mm	1
13	UPH0863	UPH0863	MAIN SPRING RETAINER SLEEVE	1
14	UPH3640	UPH3666	MAIN SPRING RETAINER	1
15	UPH9041	UPH3665	SPACER BAR	1



# APPENDIX B

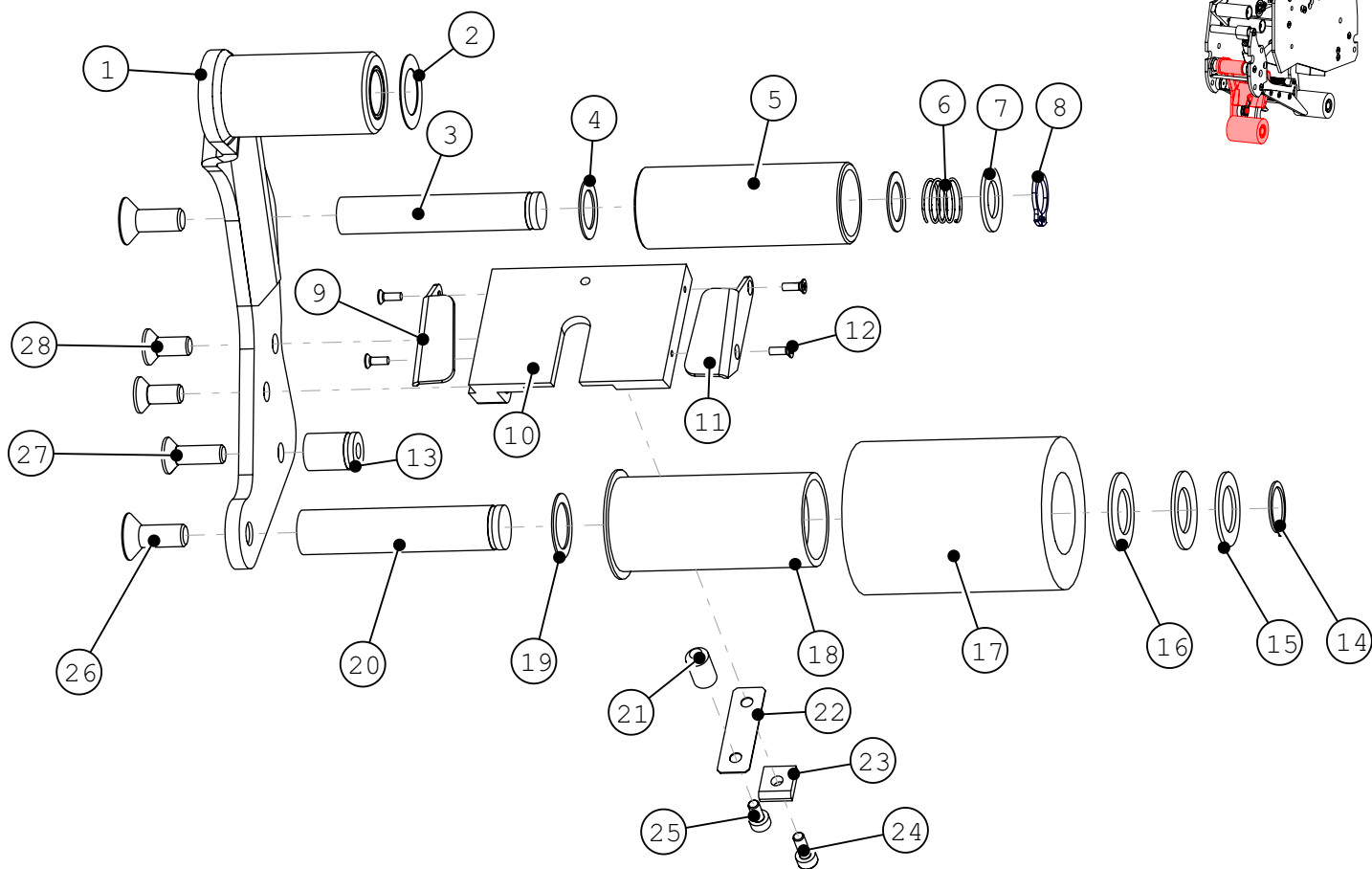
## Rear Arm Assembly



ITEM	PART NUMBER 2"	PART NUMBER 3"	DESCRIPTION	QTY
1	UF5402	UF5402	FHCS M6-1 x 20mm	1
2	UPH3713	UPH3713	MIRROR REAR ARM	1
3	UPH9199	UPH9196	RETAINER	1
4	UPH0863	UPH0863	MAIN SPRING RETAINER SLEEVE	1
5	UF6303	UF6303	RETAINING RING 9mm	1
6	UPH0886	UPH0886	SHAFT DIA 10mm	1
7	UF3557	UF3557	RETAINING RING 10mm	1
8	UF6300	UF6300	RETAINING RING 12mm	1
9	UF1862	UF1862	THRUST WASHER	1
10	UPH0775	UPH0966	ROLLER SHELL	1
11	UPH3641	UPH3667	ROLLER CORE	1
12	UF6337	UF6337	FW PTFE 0.29	1
13	UF6335	UF6335	FW PTFE 0.55	1
14	UPH3643	UPH3668	ROLLER SHAFT ETM II	1
15	UF1192	UF1192	FHCS M6-1 x 16mm	1
16	UF5404	UF5404	FHCS M5-0.8 x 16mm	1

# APPENDIX B

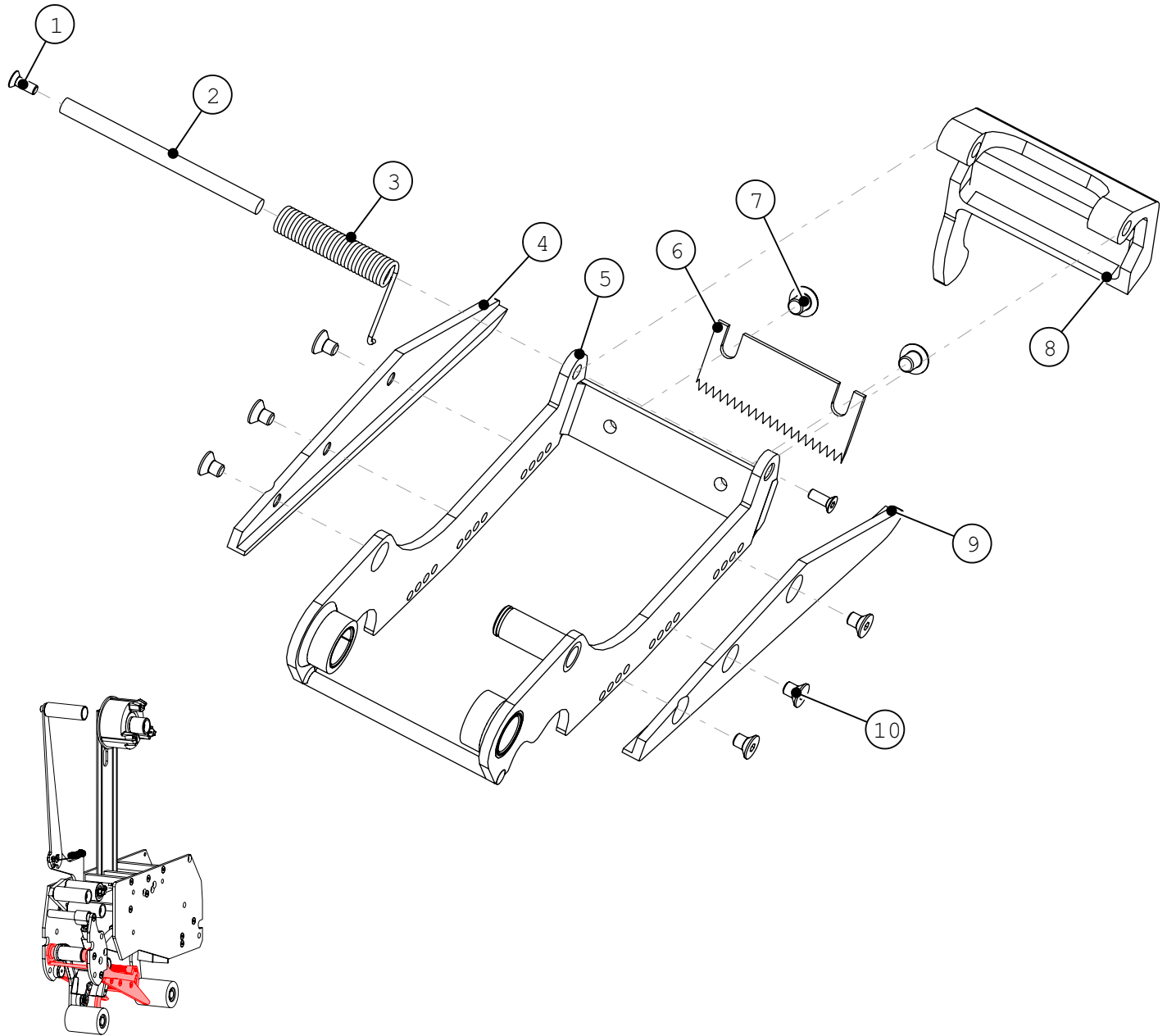
## Front Arm Assembly



ITEM	PART NUMBER 2"	PART NUMBER 3"	DESCRIPTION	QTY
1	UAH0154	UAH0154	FRONT ARM MIRROR	1
2	UF6337	UF6337	FW PTFE 0.29	1
3	UPH0884	UPH0968	TEFLON ROLLER SHAFT	1
4	UF6389	UF6389	NYLON FLAT WASHER	2
5	UPH0885	SEE TABLE	TEFLON GUIDE ROLLER	1
6	UPH0281	UPH0281	SPRING - TAPE GUIDE ROLLER T.H.	1
7	UF1798	UF1798	THRUST WASHER 10.1 mm	1
8	UF3557	UF3557	RETAINING RING 10mm	1
9	UPH0882	UPH0882	TAPE SHOE GUIDE LH	1
10	UPH3712	UPH3722	MIRROR TAPE SHOE ET II	1
11	UPH0883	UPH0883	TAPE SHOE GUIDE RH	1
12	UF5406	UF5406	FHCS M2-0.4 x 6mm	4
13	UPH0886	UPH0886	LINK SHAFT ETM	1
14	UF6300	UF6300	RETAINING RING 12mm	1
15	UF1861	UF1861	THRUST WASHER	1
16	UF4401	UF4401	DISC SPRING	2
17	UPH0775	UPH0966	ROLLER SHELL	1
18	UPH3641	UPH3667	ROLLER CORE	1
19	UF6402	UF6402	FW PTFE 0.5	1
20	UPH3643	UPH3668	ROLLER SHAFT ETM II	1
21	UPH0879	UPH0879	FINGER	1
22	UPH3706	UPH3706	SPRING BLADE	1
23	UPH0880	UPH0880	SQUARE WASHER	1
24	UF6400	UF6400	SHCS M3-0.5 x 8mm	1

# APPENDIX B

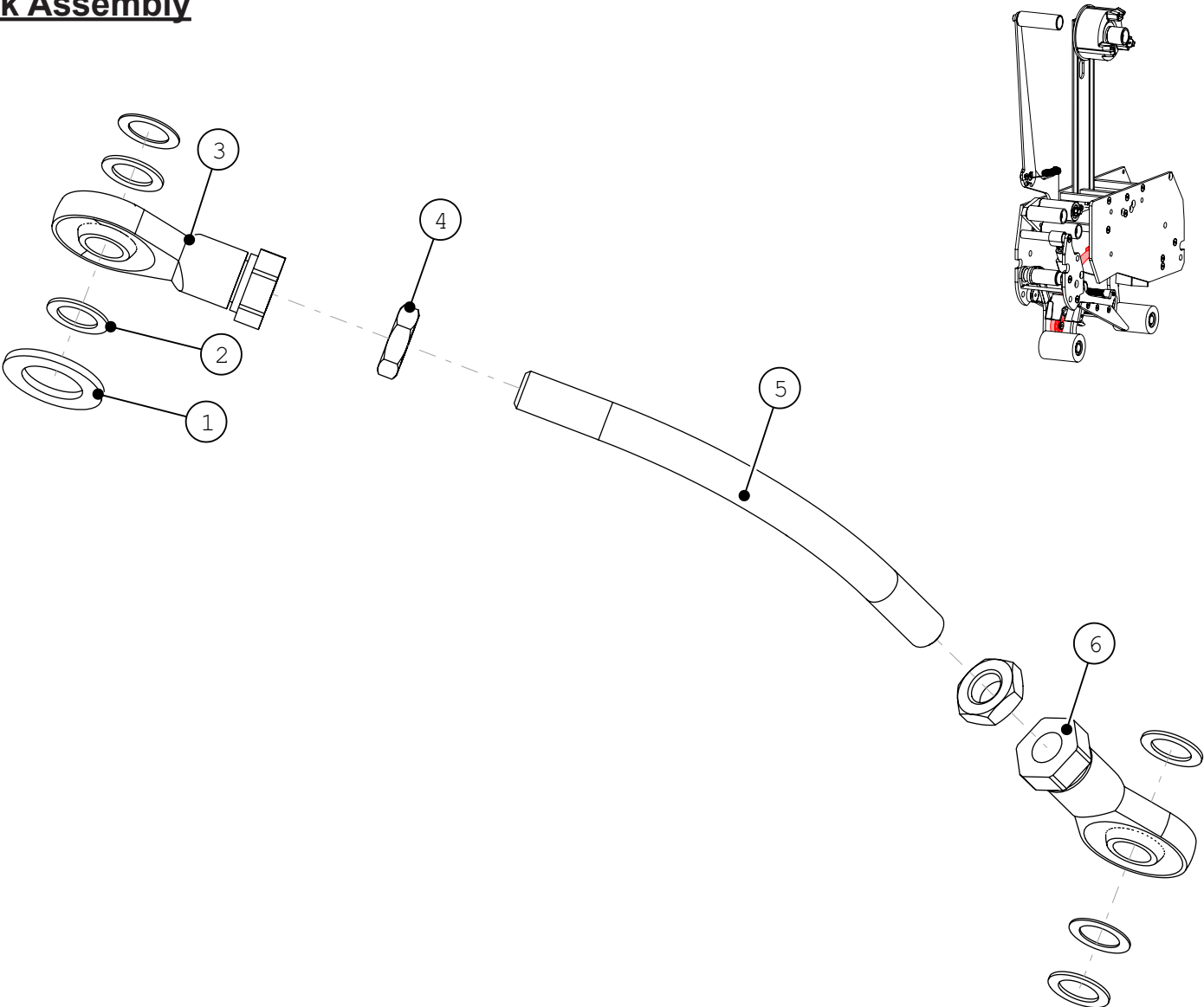
## Knife Arm Assembly



ITEM	PART NUMBER 2"	PART NUMBER 3"	DESCRIPTION	QTY
1	UF6312	UF6312	FHCS M3-0.5 x 8mm	2
2	UPH9175	UPH9178	BLADE GUARD SHAFT	1
3	UPH9195	UPH9195	TORSION SPRING	1
4	UPH8083	UPH8083	KNIFE ARM EXTENSION LH	1
5	UAH0155	UAH0156	KNIFE ARM WITH BEARING MIRROR	1
6	UPH0193	UPH0271	BLADE	1
7	UF5601	UF5601	BHCS M5-0.8 x 6mm	2
8	UAH0113	UAH0114	PLASTIC KNIFE GUARD	1
9	UPH8082	UPH8082	KNIFE ARM EXTENSION RH	1
10	UF6352	UF6352	FHCS M4-0.7 x 6mm	6

# APPENDIX B

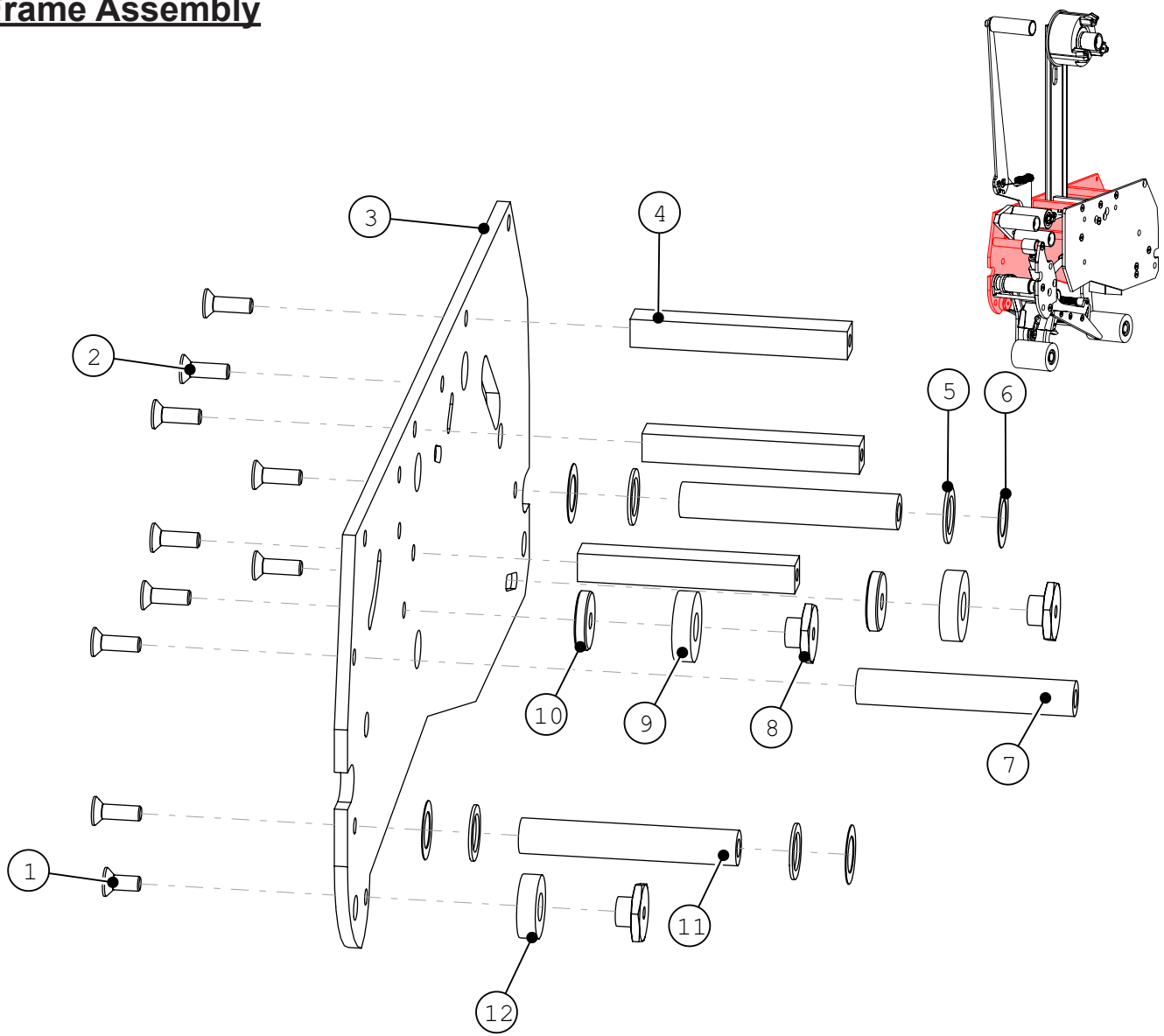
## Link Assembly



ITEM	PART NUMBER 2"	PART NUMBER 3"	DESCRIPTION	QTY
1	UF3092	UF3092	NYLON WASHER	1
2	UF6388	UF6388	NYLON FLAT WASHER	6
3	UPH7101	UPH7101	ROD END BEARING, 10 mm RH	1
4	UF3708	UF3708	HNJ M10	2
5	UPH7100	UPH7100	LINK ROD	1
6	UPH7102	UPH7102	ROD END BEARING, 10 mm LH	1

# APPENDIX B

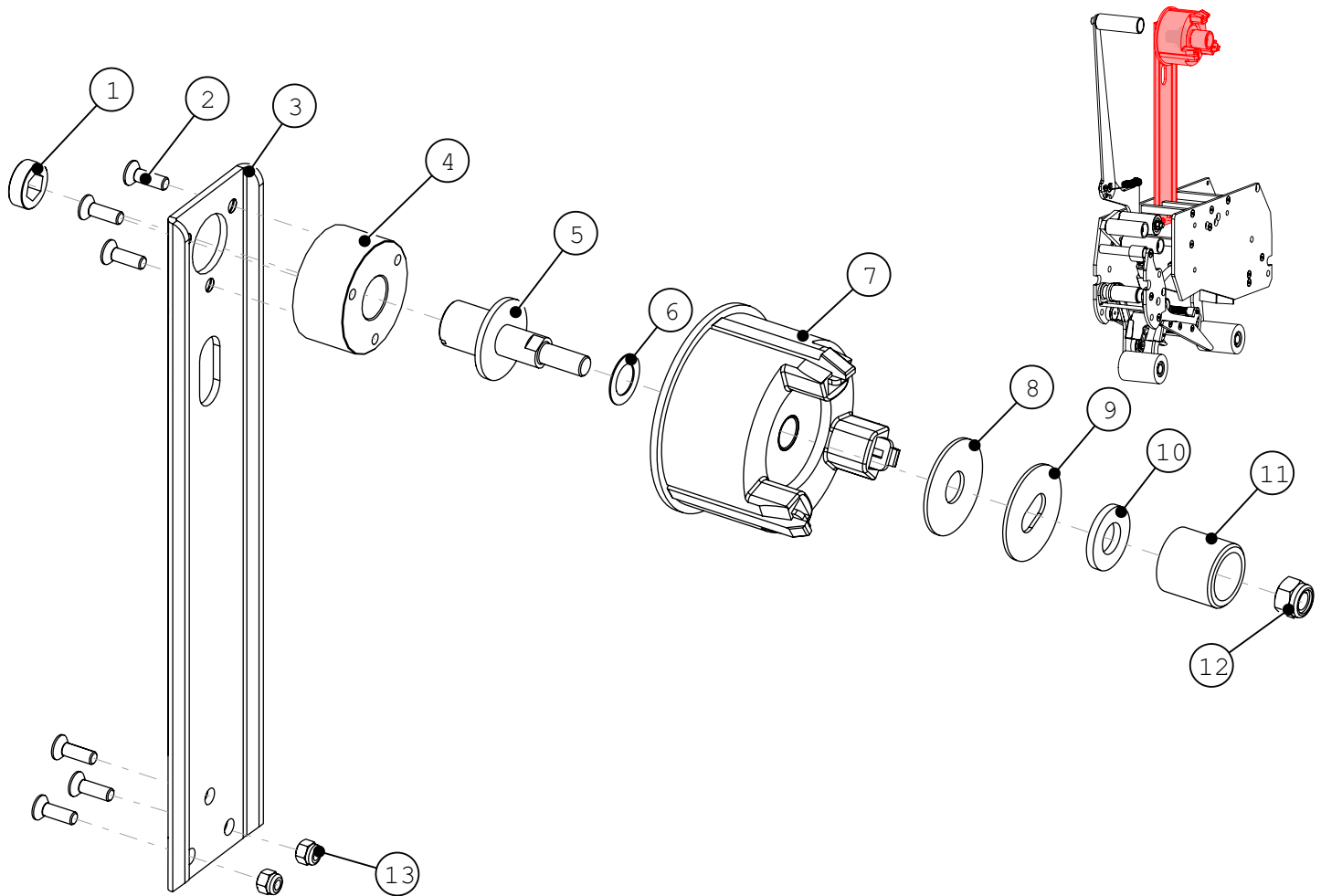
## Left Frame Assembly



ITEM	PART NUMBER 2"	PART NUMBER 3"	DESCRIPTION	QTY
1	UF3282	UF3282	FHCS M5-0.8 x 12mm	1
2	UF5404	UF5404	FHCS M5-0.8 x 16mm	9
3	UPH3755	UPH3755	MAIN ASS'Y FRAME MIRROR	1
4	UPH3638	UPH3665	SPACER BAR	3
5	UF6336	UF6336	FW PTFE 1	4
6	UF6337	UF6337	FW PTFE 0.29	4
7	UPH3636	UPH3664	SHAFT 12mm DIA	1
8	UPH0872	UPH0872	STOP RETAINER ETM	3
9	UPH133	UPH133	URETHANE STOP	2
10	UPH0074	UPH0074	FLAT WASHER	2
11	UPH3636	UPH3664	SHAFT 12mm DIA	2
12	UPH1417	UPH1417	URETHANE STOP	1

# APPENDIX B

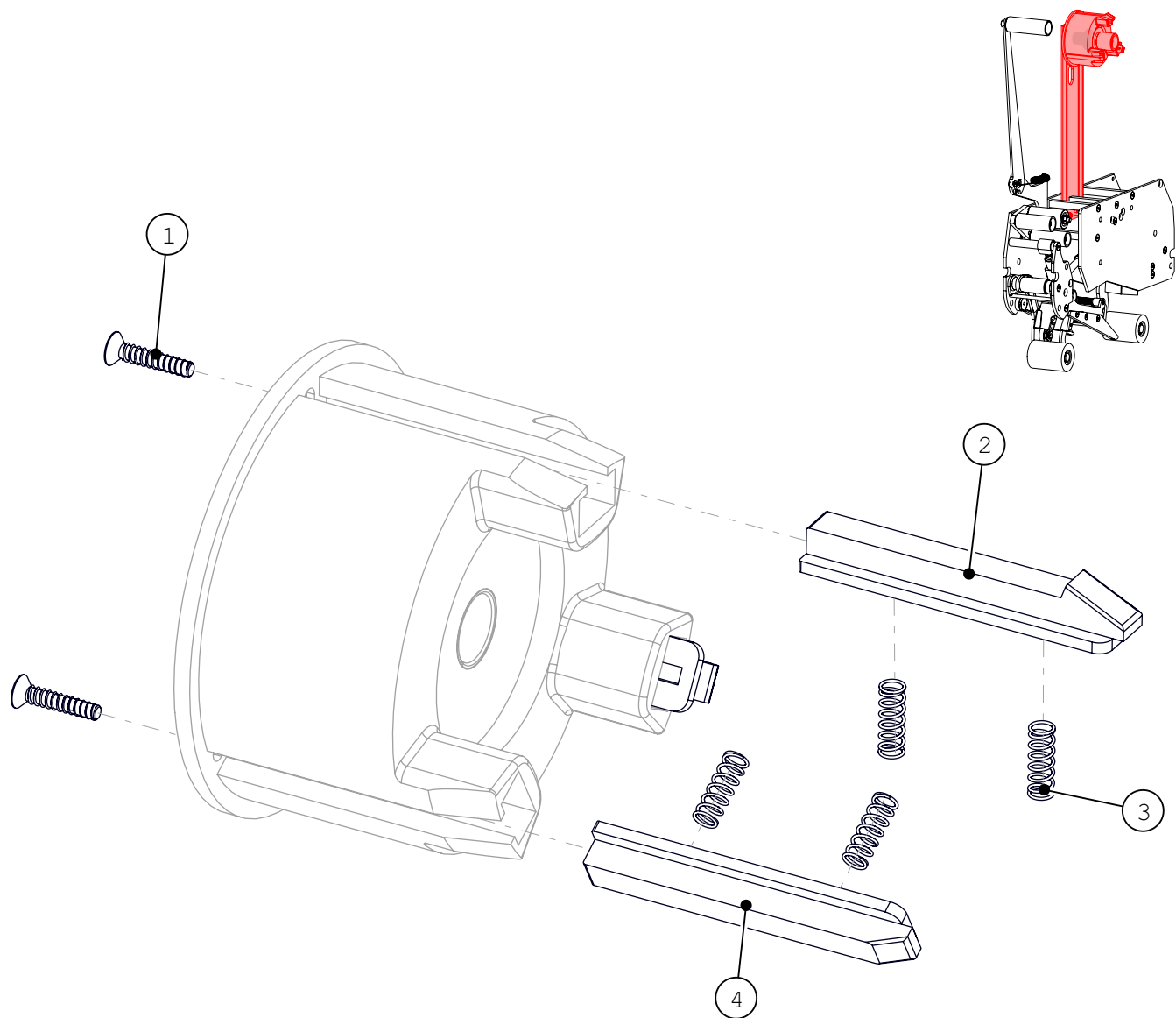
## Mandrel Assembly



ITEM	PART NUMBER 2"	PART NUMBER 3"	DESCRIPTION	QTY
1	UPH3764	UPH3764	HEX SOCKET PLUG	1
2	UF5404	UF5404	FHCS M5-0.8 x 16mm	6
3	UPH1456	UPH1456	MANDREL ARM ET	1
4	UPH1459	UPH1459	MANDREL HUB	1
5	UPH7687	UPH7688	MANDREL SHAFT	1
6	UF6335	UF6335	FW PTFE 0.55	1
7	UAH0178	UAH0179	MANDREL ASSEMBLY	1
8	UF7028	UF7028	NYLON WASHER	1
9	UPH1006	UPH1006	MANDREL FRICTION WASHER	1
10	UPH7689	UPH7689	NYLON SPACER	1
11	UPH4798	UPH4798	ADJUSTMENT SLEEVE	1
12	UF4512	UF4512	LOCKNUT M8	1
13	UF3393	UF3393	LOCKNUT M5	2

# APPENDIX B

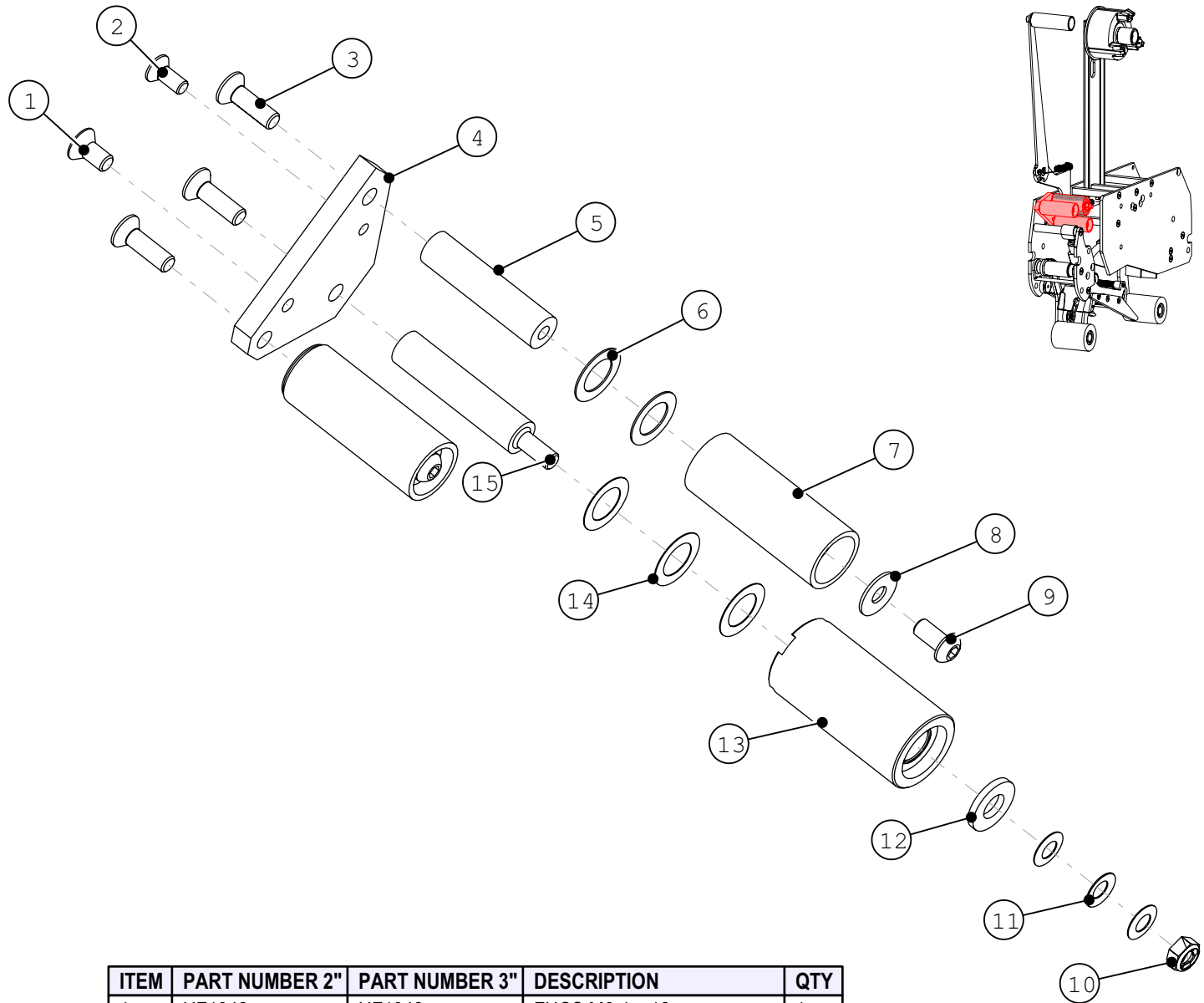
## Mandrel Sub-Assembly



ITEM	PART NUMBER 2"	PART NUMBER 3"	DESCRIPTION	QTY 2"	QTY 3"
1	UF3820	UF3820	SS M3 x 15 SELF TAPPING	3	3
2	UPH1383	UPH1384	HOOKED SPRAG	1	1
3	UPH1468	UPH1468	MANDREL SPRAG SPRING	6	9
4	UPH1392	UPH1393	SPRAG	2	2

# APPENDIX B

## Clutch Roller Assembly

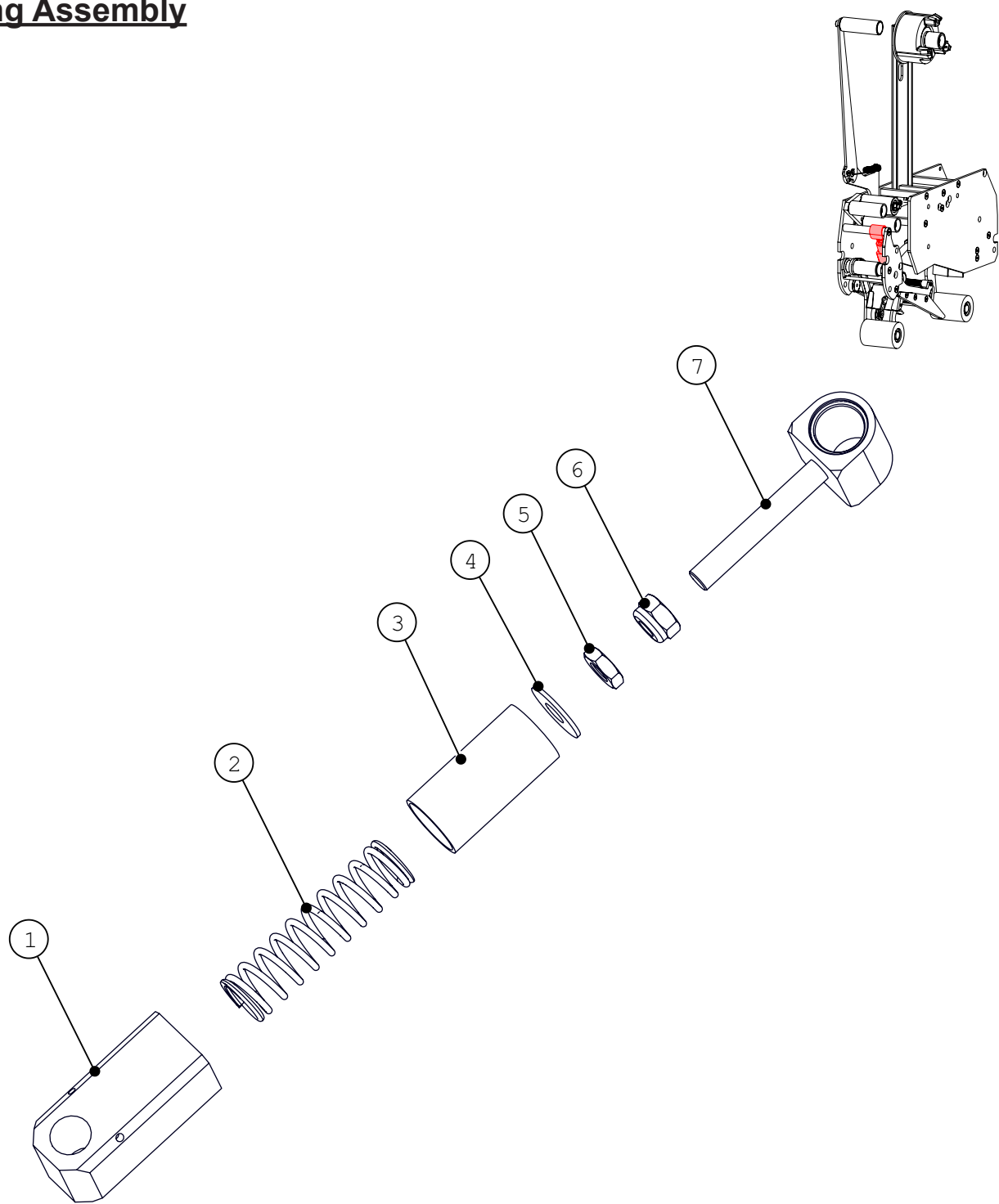


ITEM	PART NUMBER 2"	PART NUMBER 3"	DESCRIPTION	QTY
1	UF1042	UF1042	FHCS M6-1 x 12mm	1
2	UF5400	UF5400	FHCS M5-0.8 x 12mm	1
3	UF5402	UF5402	FHCS M6-1 x 20mm	3
4	UPH3715	UPH3715	CLUTCH BRACKET MIRROR	1
5	UPH0887	UPH0949	GUIDE ROLLER SHAFT	2
6	UF6335	UF6335	FW PTFE 0.55	4
7	UPH0888	UPH0950	GUIDE ROLLER ETM	2
8	UF6391	UF6391	FW M6	2
9	UF1195	UF1195	BHCS M6-1 x 12mm	2
10	UF3404	UF3404	LOCKNUT M6	1
11	UF1870	UF1870	DISC SPRING	3
12	UF6346	UF6346	FW M8	1
13	UAH0229	UAH0241	CLUTCH W. BEARINGS MIR	1
14	UF6337	UF6337	FW PTFE 0.29	3
15	UPH1028	UPH1254	CLUTCH SHAFT	1



APPENDIX B

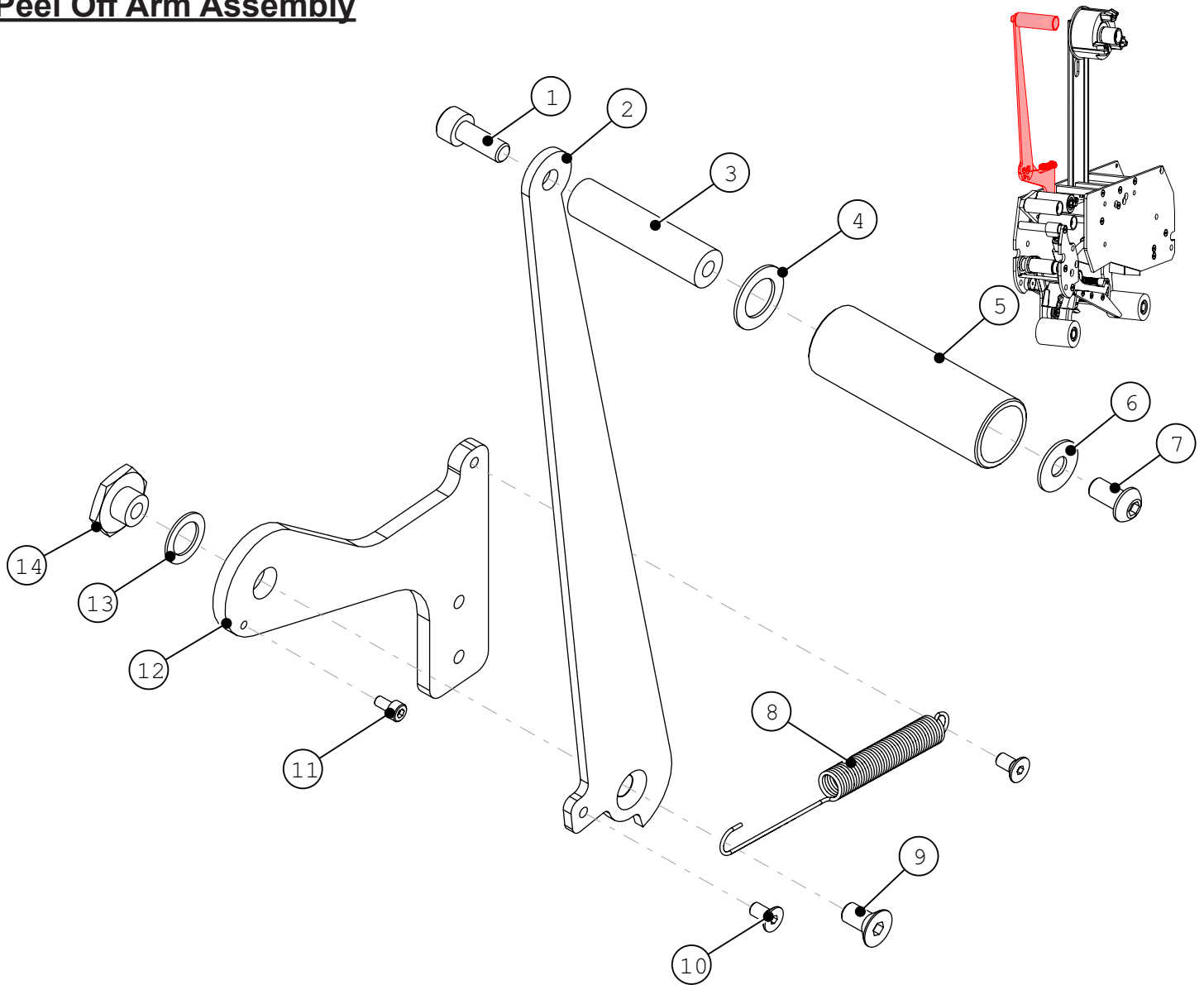
Knife Spring Assembly



ITEM	PART NUMBER 2"	PART NUMBER 3"	DESCRIPTION	QTY
1	UPH8111	UPH8111	SPRING BARREL	1
2	UPH4665	UPH4665	COMPRESSION SPRING	1
3	UPH7678	UPH7678	SPRING GUIDE	1
4	UF6391	UF6391	FW	1
5	UF9149	UF9149	M6 JAM NUT	1
6	UF3391	UF3391	M6 LOCKNUT	1
7	UAH0150	UAH0150	SPRING MANDREL	1

# APPENDIX B

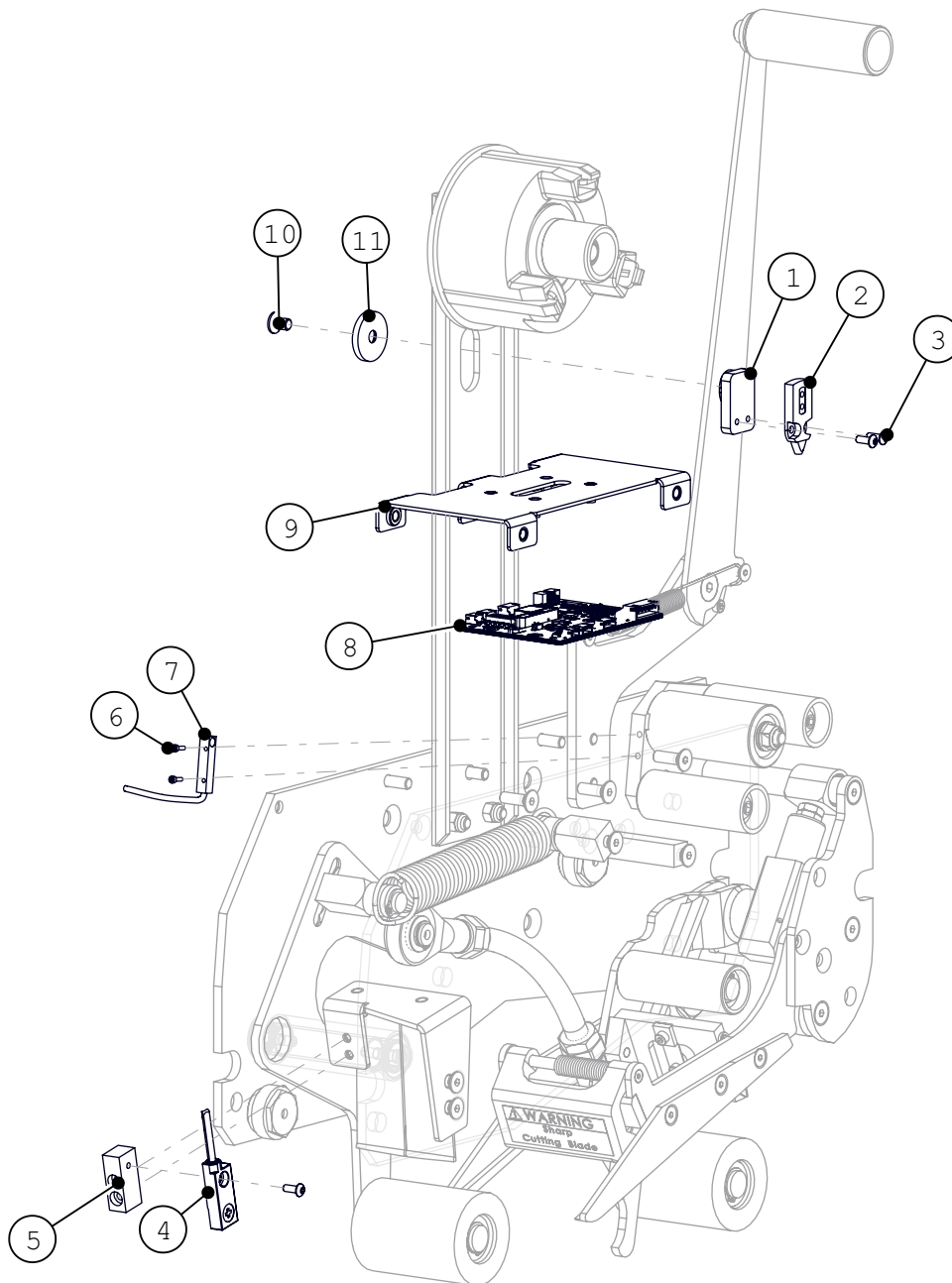
## Peel Off Arm Assembly



ITEM	PART NUMBER 2"	PART NUMBER 3"	DESCRIPTION	QTY
1	UF0830	UF0830	SHCS M6-1 x 16mm	1
2	UPH3884	UPH3884	PEEL-OFF ARM MIRROR	1
3	UPH0887	UPH0949	GUIDE ROLLER SHAFT	1
4	UF1861	UF1861	THRUST WASHER	1
5	UPH9059	UPH0960	PEEL OFF ROLLER	1
6	UF6391	UF6391	FW M6	1
7	UF1195	UF1195	BHCS M6-1 x 12mm	1
8	UPH1289	UPH1289	SPRING PEEL OFF ETM	1
9	UF1042	UF1042	FHCS M6-1 x 12mm	1
10	UF5401	UF5401	FHCS M4-0.7 x 8mm	2
11	UF5202	UF5202	SHCS M3-0.5 x 6mm	1
12	UPH1291	UPH1291	PEEL-OFF ARM SUPPORT ET	1
13	UF6388	UF6388	NYLON FLAT WASHER	1
14	UPH0904	UPH0904	PEEL-OFF ARM PIVOT	1

# APPENDIX B

## Low Tape No Tape/iTrack Sensor Kit



ITEM	PART NUMBER 2"	PART NUMBER 3"	DESCRIPTION	QTY
1	UPH1718	UPH1718	LOW TAPE SENS ADAPTER ET2	1
2	UPH1750	UPH1750	LOW TAPE HARNESS ET2	1
3	UF7038	UF7038	BHCS M3-0.5 x 8mm	3
4	UPH1749	UPH1749	BOX DETECT HARNESS ET2	1
5	UPH1748	UPH1748	BOX DETECT BLOCK ET2	1
6	UF5457	UF5457	SHCS M1.6-0.35 x 6mm	2
7	UPH1751	UPH1751	HARNESS BOX DETECT ET2	1
8	UPH1742	UPH1742	TAPE HEAD BOARD	1
9	UPH1746	UPH1746	BOARD PLATE ET2	1
10	UF7024	UF7024	FHCS M5-0.8 x 8mm	1
11	UPH1719	UPH1719	LOW TAPE SENS ADAPT LOCK ET2	1

