LX-150

Shrink Sleeve Label Applicator

User Guide

AFM
AMERICAN FILM & MACHINERY

LX-150

Shrink Sleeve Label Applicator

User Guide

Revised 6/202022

P/N 4510001 Rev c

AFM
7041 Boone Avenue North
Brooklyn Park, MN 55428
Phone: 714-974-9006, Fax: 763-795-8867

www.afmsleeves.com

Contents

Abbreviations

The following abbreviations are used throughout this User Guide:

Abbreviation	Meaning	Abbreviation	Meaning
AC	Alternating Current	ms	Milliseconds
ACCE	Accelerator	NC	Normally Closed
AFM	**American Film & Machinery** (714) 974-9006 info@afmsleeves.com	OPS	Oriented Polystyrene
Amp	Amperes	PET	Polyethylene Terephthalate
AUX	Auxiliary	PLC	Programmable Logic Controller
BPM	Bottles per Minute	P/N	Part Number
C	Celsius	PPE	Personal Protective Equipment
CL	Cut Length	PREV	Previous
cm	Centimeters	Psi	Pounds per Square Inch
DECEL	Decelerator	PVC	Polyvinyl Chloride
DET	Detected	R	Right
E-Stop	Emergency Stop	REV	Reverse
ENT	Enter	RPM	Revolutions per Minute
F	Fahrenheit	RST	Reset
FWD	Forward	sec	Second
GND	Ground	SEL	Select
HMI	Human Machine Interface	Semi-Auto	Semi-Automatic
Hz	Hertz	Servo	Servomechanism or servomotor
I/O	Input/Output	SW	Switch
Kg	Kilograms	temp.	Temperature
L	Left	V	Volts
LCD	Liquid Crystal Display	VDC	Volts Direct Current
lbs	Pounds	w/	With
L.S.	Limit Switch	w/o	Without
M/C	Magnetic Contactor	′	Feet
max	Maximum	"	Inches
MCR	Master Control Relay	°	Degrees
mm	Millimeters	Ø	Diameter

Safety

When installing, operating, and maintaining the LX-150 Shrink Sleeve Label Applicator, follow these safety practices.

Warnings

- Study this User Guide thoroughly before operating the LX-150. Failure to do so may result in serious injury, damage to the machine, and/or may void the warranty.
- When unpacking and setting up the LX-150, use proper lifting and safety practices. Avoid overreaching and leaning over. Use at least four persons and a Forklift to lift and move the machine.
- While installing, maintaining and operating the LX-150, always wear proper safety clothing, including Safety Shoes and Cut-Resistant Work Gloves.
- Do not locate the machine on an uneven surface, as the machine could tip over.
- Ensure that the electrical power source is properly wired and grounded. The power source should comply with all safety regulations and codes applicable to the installation location.
- Never remove any ground connection from this equipment. Failure to follow these instructions may result in damage to the equipment, fire, serious personal injury, or death.
- Before turning on the LX-150, always ensure that:
    - All necessary accessories are properly connected
    - All Rollers spin smoothly without obstruction
    - The Conveyor Belt is free of obstruction and operating properly
    - The path for the label film, including the Mandrel, is clean and free of obstruction
    - Tools or other objects have not been placed where they can accidentally fall/roll into the machine
    - The E-Stop (Emergency Stop) Button is not pushed in
- Only open the Safety Doors after the machine has stopped. Failure to follow these instructions can damage the machine and void the warranty.
- The Cutter Blades are extremely sharp. Keep hands and tools away from them when the machine is plugged in, and exercise extreme caution around them even when they are not moving. Wear Cut-Resistant Work Gloves.
- Always stop the LX-150 before performing any adjustments or maintenance. If the maintenance procedure does not require the machine to be powered (for example, changing Cutter Assemblies does not require electricity), unplug the machine as well.

- Pay close attention to and understand all warning labels on the machine and follow safe operating practices.
- The equipment generates heat and fumes when in operation. Be sure that the area is properly ventilated.
- Keep water away from the Electrical Enclosure, the HMI, and all other electrical components.
- Always replace Fuses and other protective circuit devices with those of the appropriate current rating.
- Always wear Safety Glasses with side shields when working with glass containers.
- Some shrink label film contains toxic chemicals. Store and dispose of properly.
- Only use the E-Stop Button to shut off the LX-150 during actual emergencies. Routine use of the E-Stop Button can damage the machine and void the warranty.
- Service and maintenance beyond what is described in this User Guide should be performed by a trained and qualified technician. If in doubt, contact AFM or your authorized distributor.
- Use proper lifting techniques when lifting heavy rolls of labels.
- This machine is protected by hardware Master Control Relay (MCR) and E-Stop and door safety interlocks. Under no circumstances should these be disabled.
- Do not attempt to modify the machine or software in any way. Doing so may result in damage to the machine, may void the warranty, or may cause serious injury.
- All operators must strictly observe these guidelines and ensure that the LX-150 is properly maintained. Failure to do so may result in damage to the machine, may void the warranty, or may cause serious injury.

Understanding Safety Notifications

	**DANGER:** Indicates a hazardous situation which, if not avoided, **will** result in death or serious injury.
	**WARNING:** Indicates a hazardous situation which, if not avoided, **could** result in death or serious injury.
	**CAUTION:** Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
	**ATTENTION:** Indicates a hazardous situation which, if not avoided, could result in property damage only.

Cautions

When installing, operating, and maintaining the LX-150 Shrink Sleeve Label Applicator, observe these cautions.

	**Cutting Hazard:** Extremely sharp Blades. Keep hands clear.
	**Wear Safety Equipment:** Wear necessary Personal Protective Equipment (PPE), including Cut-Resistant Gloves.
	**Electrical Hazard:** No user-serviceable parts inside. Dedicated circuit recommended. Check polarity.
	**Electrical Ground Hazard:** Ensure that unit is properly grounded.
	**Fume Hazard:** Some fumes may be a health hazard with prolonged exposure. Ensure that the area has proper ventilation.
	**Pinch Hazard:** Keep hands clear.
	**Crush Hazard:** Keep hands clear.
	**Fire Hazard:** Do not tamper with electrical equipment.
	**Keep Dry:** Keep the equipment dry and indoors.

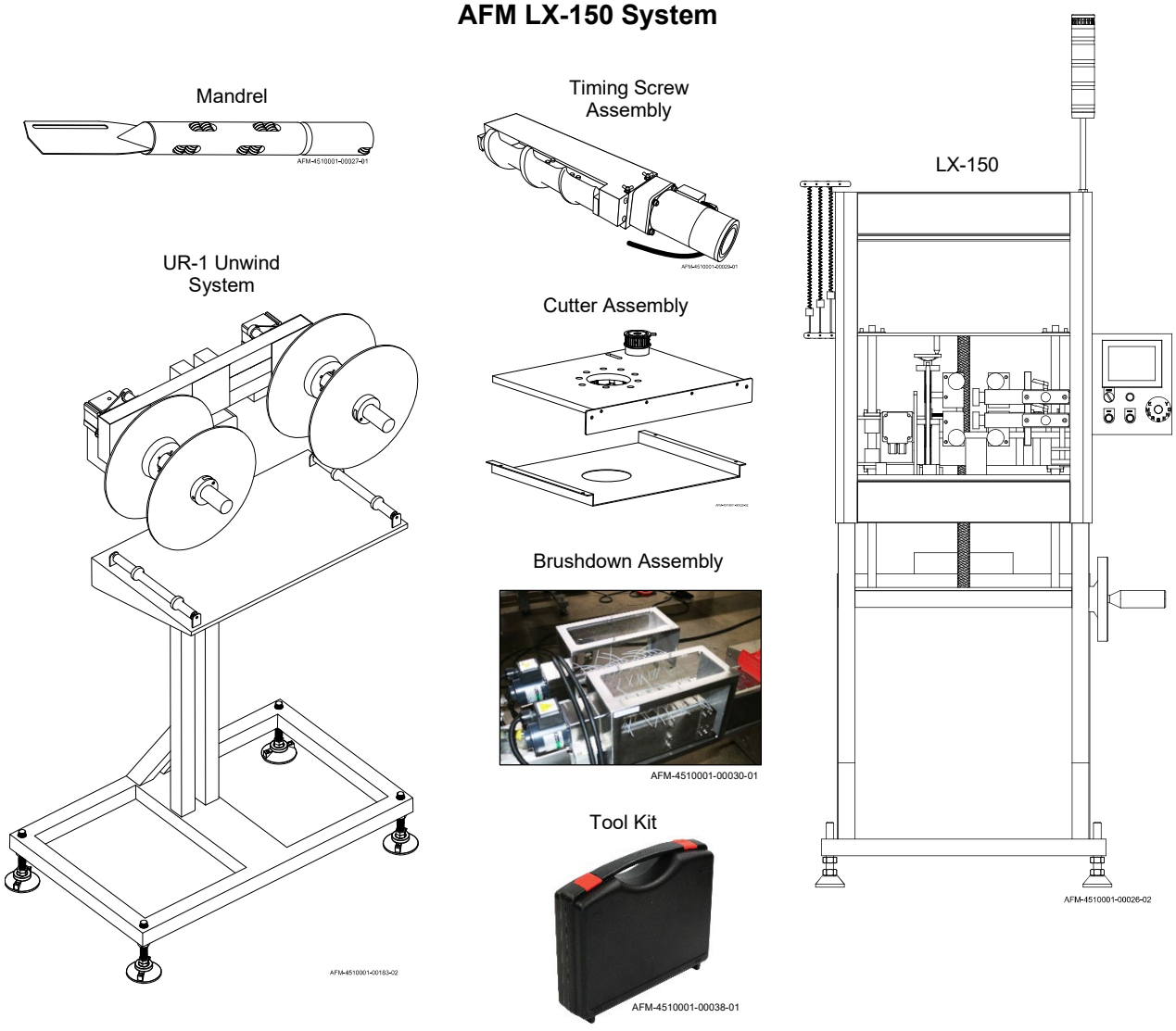
Equipment

Standard Equipment

Each LX-150 Shrink Sleeve Label Applicator System includes the following:

- LX-150
- UR-1 Unwind System
- Round Mandrel
- Cutter Assembly
- Timing Screw Assembly with Round Timing Screw
- Brushdown Assembly
- Conveyor Braces
- Toolkit

AFM LX-150 System



The LX-150 is shipped assembled and tested. When unpacking the shipping carton, verify that the contents are complete and in proper condition. If items are missing or damaged, contact your AFM distributor immediately.

Standard Accessories

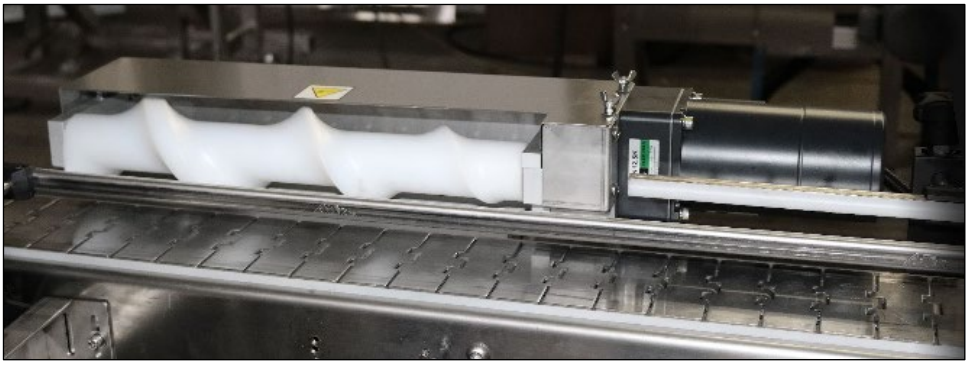
A Timing Screw Assembly and Brushdown Assembly are standard accessories included with the LX-150 Shrink Sleeve Label and Tamper-Evident Band Applicator.

Timing Screw Assembly

Part Number 4502310R and 4502310L (400mm) or
4501973R and 4501973L (800mm)

The Timing Screw Assembly is mounted to the Conveyor upstream from the LX-150, and guides bottles into the machine at a consistent, evenly spaced rate. A 15.75" (400mm) or 31.50" (800mm) Timing Screw Assembly is included as a standard part of LX-150 Shrink Sleeve Label Applicator. Each customer's Timing Screw is made to fit their specific bottle, with a small range of tolerance. Bottle diameter dictates the pocket size and pitch of a Timing Screw. AFM can custom build additional Timing Screws to suit a wide variety of labeling situations.

400 mm Timing Screw Assembly



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800 mm Timing Screw Assembly

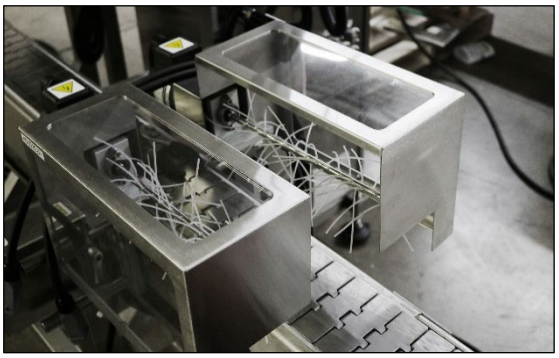
AFM-4510001-00032-01

Brushdown Assembly

Part Number 4500262R and 4500262L

A Brushdown Assembly is included as a standard part of LX-150 Shrink Sleeve Label Applicator. The Brushdown Assembly is mounted to the Conveyor immediately downstream from the LX-150. After the bottle has passed through the LX-150, the tendrils of the Brushdown Assembly brush softly down over the sides of the bottle to ensure that the bottom edge of the label is flush with the Conveyor surface (or flush with the Auxiliary Belts / Bottle Holding Devices, if used) before the bottle enters the Heat Shrink Tunnel.

Brushdown Assembly



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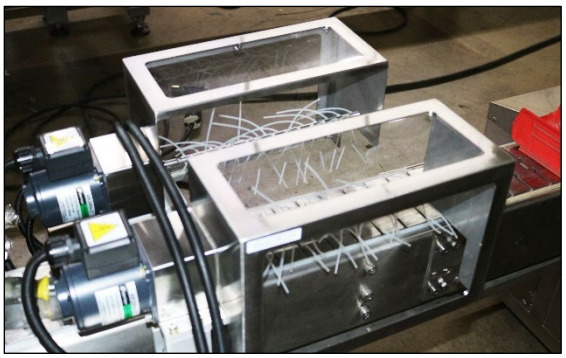

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Optional Equipment

Depending on the labeling tasks being performed, additional equipment may be needed to complete the standard LX-150 setup:

Turn Bar

Part Number 4503255

A Turn Bar is needed if the UR-1 is positioned at a 90° angle to the LX-150, rather than in the recommended position at the Conveyor directly upstream from the LX-150. The Turn Bar attaches to the top of the LX-150 near the Dancer and can be used to redirect the label film at a 90° angle after it has left the UR-1 and enters the LX-150.

Turn Bar

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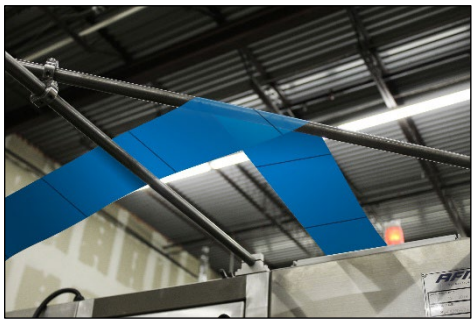

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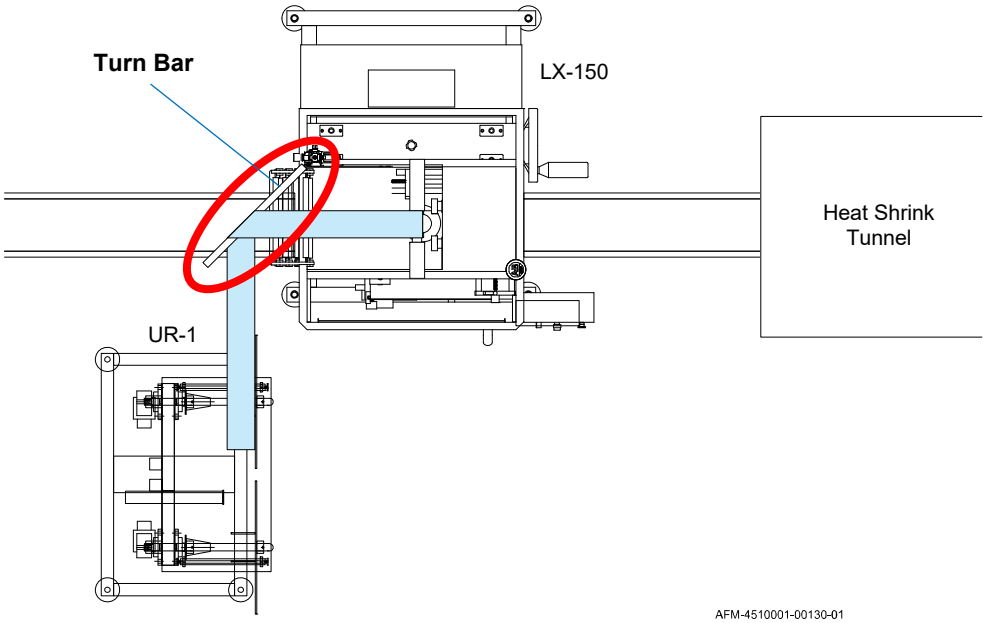
Turn Bar
(Top View)



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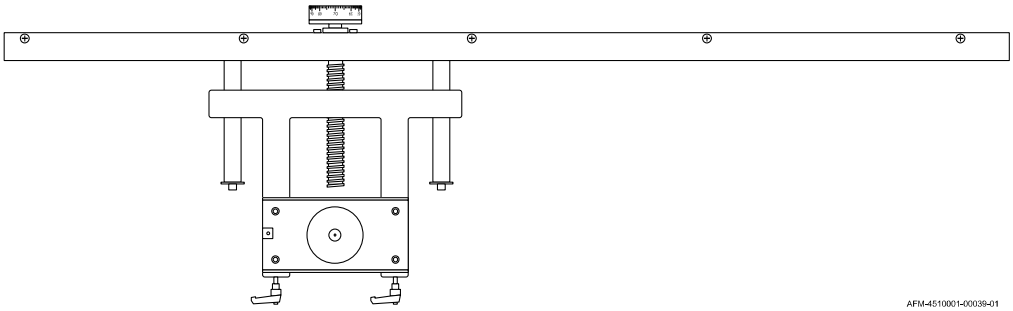
Auxiliary Belt / Bottle Holding Device

Part Number 4502142

To prevent a label from going to the bottom of a bottle (for example, a label that will only be around the bottle's mid-section), or if a tamper evident seal is being applied to the top of a bottle, an Auxiliary Belt / Bottle Holding Device may be needed to stop the label before it reaches the bottom of the bottle. Auxiliary Belts / Bottle Holding Devices go on either side of the Conveyor Belt near the Mandrel, and touch the sides of the passing bottles to block the paths of the labels as they slide down the length of the bottles.

Auxiliary Belt / Bottle Holding Device



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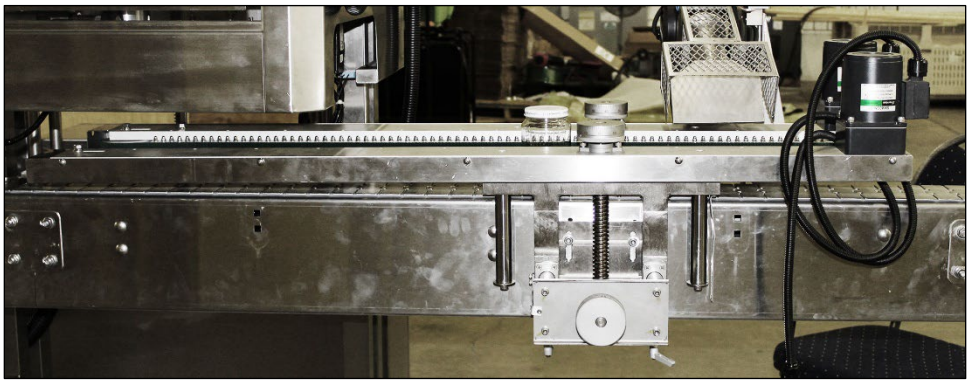

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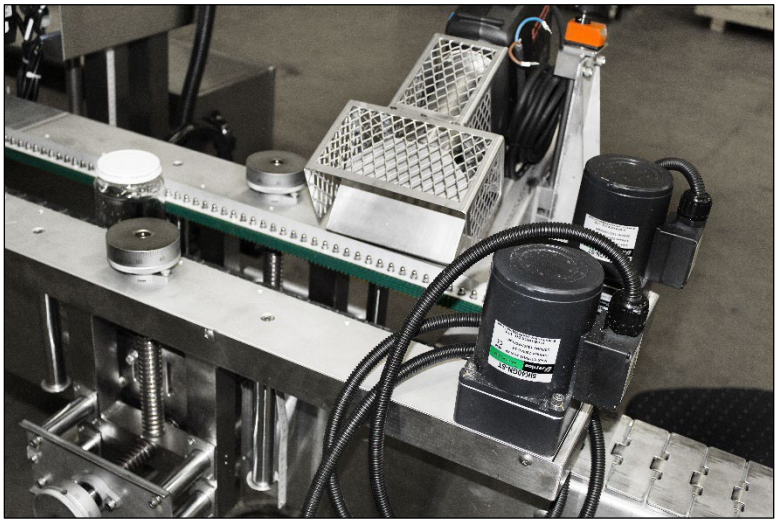
Preheat Gun Assembly

Part Number 4502080

When using an Auxiliary Belt / Bottle Holding Device, a Preheat Gun Assembly mounted near the end of the Belt is recommended to provide flash-shrinking to hold the label in position before it reaches the Heat Shrink Tunnel.

Preheat Gun Assembly



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AFM-4510001-00040-01

T-Perforator

Part Number 4502204

A T-Perforator can be used to perforate in the patterns below to provide tamper evidence or to facilitate removal by the customer. A tool change is needed to change the pattern of the perforation.

T-Perforator

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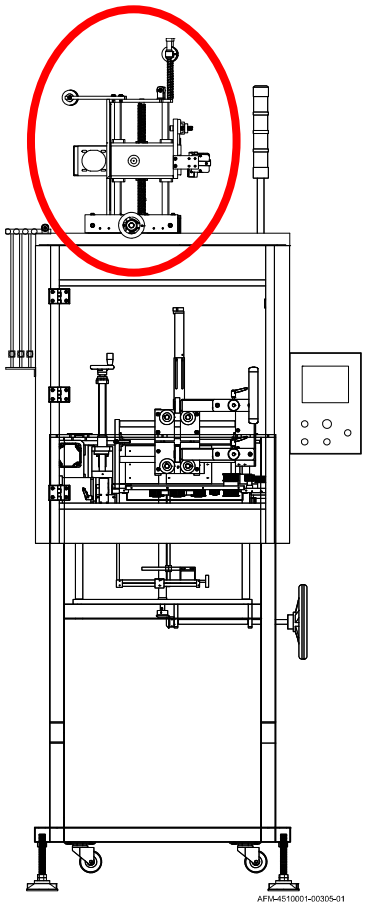

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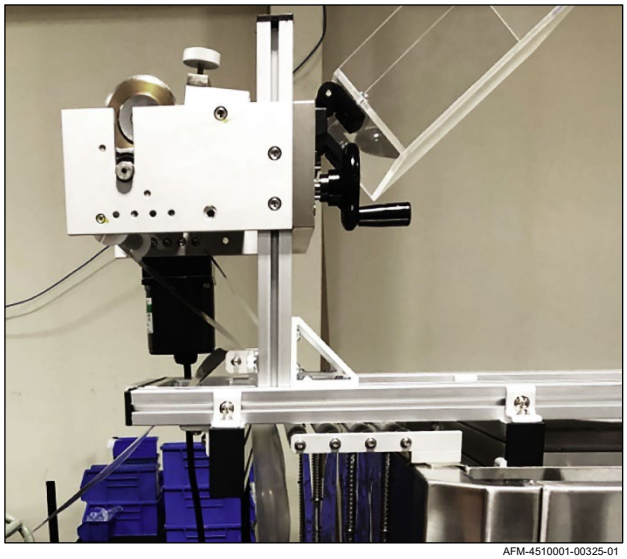
Vertical Perforator

Part Number 4502093

A Vertical Perforator is used to make vertical label perforations as shown below.

Vertical-Perforator



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AFM-4510001-00020-01

Irregular Timing Screw

Irregular Timing Screws guide irregularly shaped (non-cylindrical) products on the Conveyor Belt into the LX-150. For example, when a bottle's cross-section is a square, the Timing Screw must not only keep the bottles flowing into the LX-150 at a consistent pace, but must also ensure that they are correctly aligned to receive a label from the Mandrel.

Irregular Timing Screw

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Dual Timing Screw

A Dual Timing Screw is used for irregularly shaped containers (square, rectangular, oval) or when using labels to bundle multiple containers at once.

Dual Timing Screw

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VIDEO: Multi-Pack Sleeving

To see a video of multi-pack sleeving using a Dual Timing Screw, click this link:
https://youtu.be/wCvL-Gp2wTo
Or scan the QR code at right using the camera app on your mobile device.

Customer-Supplied Equipment

Customers are responsible for supplying additional equipment. Including:

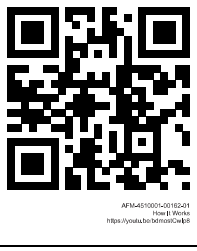
- Cut-Resistant Safety Gloves
- Safety Shoes
- Safety Glasses
- All other safety clothing

Introduction

The LX-150 is designed for middle, full-body, and cap applications. It is intended for low to moderate production rates in industries such as food and beverage, pharmaceutical, nutraceutical, health and beauty, and other manufactured goods. It can also be used for horizontal or vertical perforation of shrink labels and seals.

VIDEO: How the LX-150 Works

To see a video of a properly set up system, click this link: https://youtu.be/bdmostCwIp8
Or scan the QR code at right using the camera app on your mobile device.



General Overview

The LX-150 works together with the UR-1 Unwind System, which holds a supply spool of flattened label film. The UR-1 feeds the label film to the LX-150. The label film enters the Dancer, which evens out the tension on the label film.

From the Dancer, the label film goes over the Top Rollers, down onto the Mandrel Fin, and down the length of the Mandrel. As the film passes through the Cutter Assembly, it is cut to the correct label size, and then the Applicator Wheels at the bottom of the Mandrel shoot the cut label down onto the passing bottle.

The LX-150 only applies the labels. It does not shrink them onto the bottles. That must be done by immediately sending the labeled bottles through a Heat Shrink Tunnel. The appropriate type of Heat Shrink Tunnel used will vary based on the label film, the bottle material, and the product inside the bottle. Heat Shrink Tunnel options include:

- Electric radiant heat: AFM GS Series or OAL Series
- Electric convection heat: AFM ES-200
- Steam heat: AFM WSN Series or WSN Gen-S.

Your AFM distributor can help you determine the best Heat Shrink Tunnel for your needs.

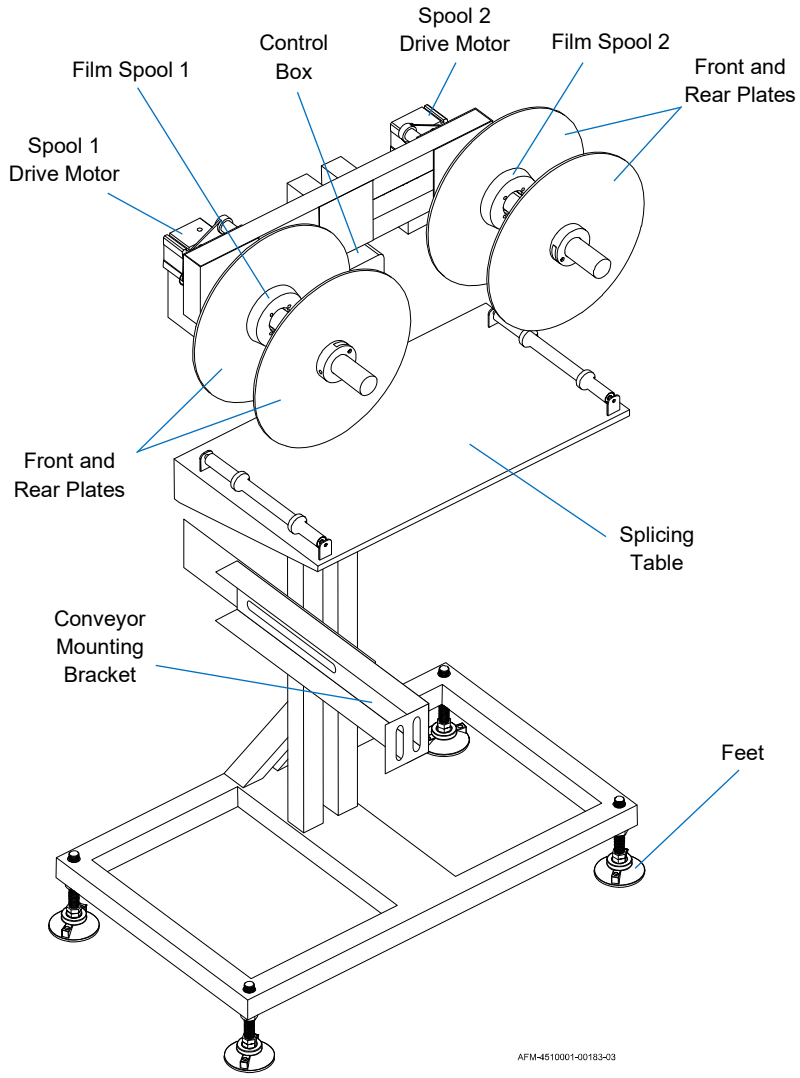
UR-1: Detailed Overview:

The UR-1 Unwind System supplies label film to the LX-150. It has two independently motorized Film Spools for holding rolls of film. At any given time, one roll is fed to the LX-150, and the other is a standby roll for when the first one runs out. The UR-1 can feed label film to the LX-150 from either Film Spool.

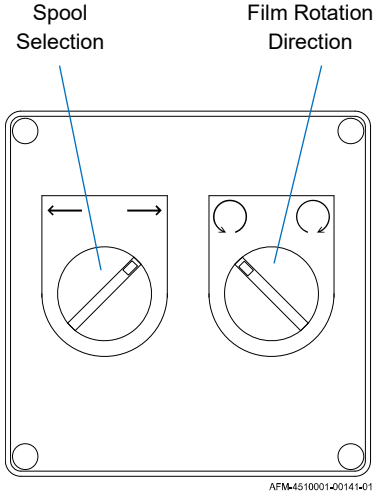
Between the Film Spools is a Control Box, allowing the user to select which Film Spool should be feeding film and the rotation direction of that Film Spool.

Below the Film Spools is a Splicing Table, where splicing tape can be used to attach the end of the first film roll to the beginning of the second film roll, eliminating the need to thread film through the entire system every time a roll of film runs out.

UR-1



UR-1 Control Box



LX-150: Detailed Overview

The LX-150 consists of the Mandrel, the Cutter Assembly, the Chassis, and the HMI.

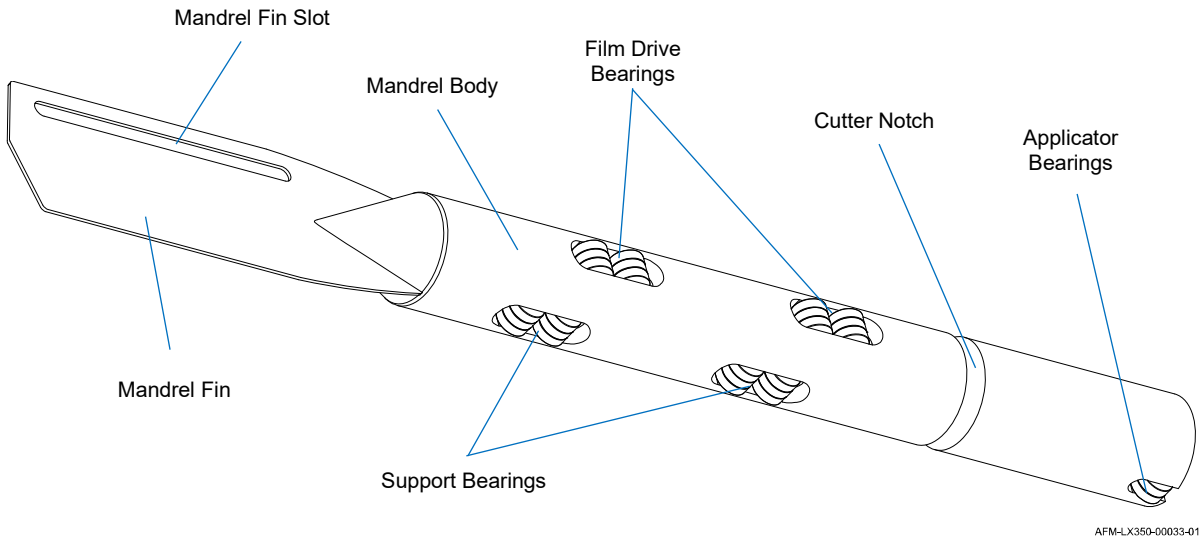
Mandrel

The Mandrel forms flat label film into the 3D shape of the bottle and serves as a guide as the LX-150 shoots the label down onto the bottle. Label film slides down first over the Mandrel Fin, which separates the flat label film before it is formed around the Mandrel Body.

- A Print Reading Sensor aims a beam through a slot in the Mandrel Fin to look for cut marks in the film.
- The Support Wheels contact the Mandrel's Support Bearings, holding the Mandrel in place.
- The Film Drive Wheels contact the Mandrel's Film Drive Bearings, similarly helping to hold the Mandrel in place, and also advancing the label film down the length of the Mandrel Body one label length at a time.
- As the film passes by the Cutter Notch, information from the Print Reading Sensor triggers the Cutter Blades to rotate through the Cutter Notch, cutting off an individual label.
- The Applicator Wheels, resting against the Applicator Bearings at the bottom of the Mandrel, then shoot the cut label down onto the passing bottle.

AFM creates custom Mandrels for the specific labeling needs of each customer.

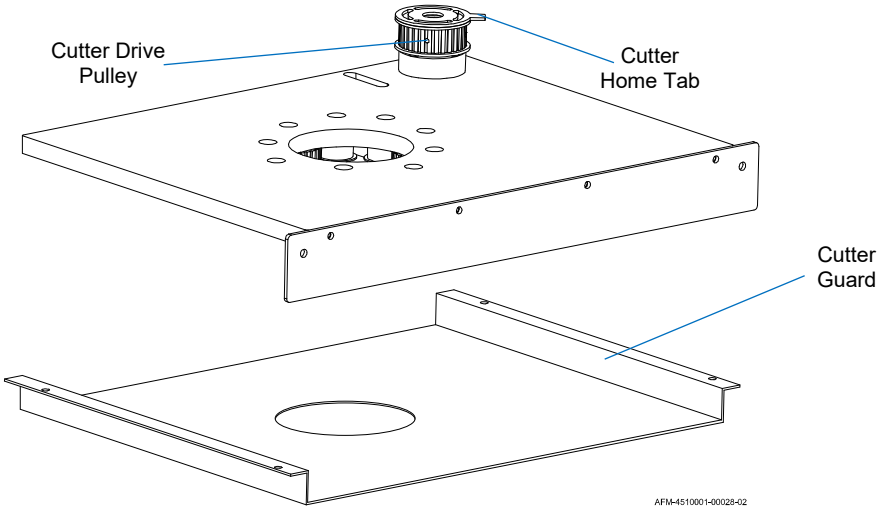
Mandrel

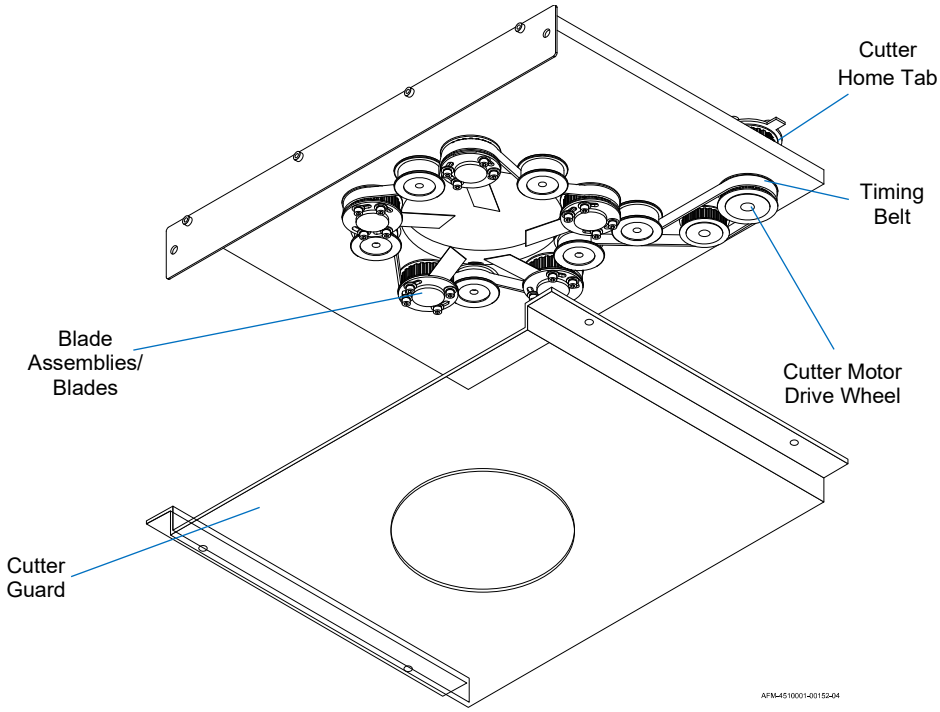


Cutter Assembly

The Cutter Assembly is a set of Blades that surround the lower part of the Mandrel and cut the label film to the correct label size. The Cutter Assembly slides horizontally into the Chassis of the LX-150 like a drawer,

- The Mandrel then slides vertically through the large hole in the Cutter Assembly.
- The Cutter Home Position Sensor inside the Chassis must see the Cutter Home Tab on the Cutter Drive Pulley for the LX-150 to operate.
- When the cut mark in the label material passes across the Cutter Notch in the Mandrel, the Print Reading Sensor triggers the Blade Assemblies to quickly rotate the Blades 360° through the Cutter Notch, cutting through the label film.



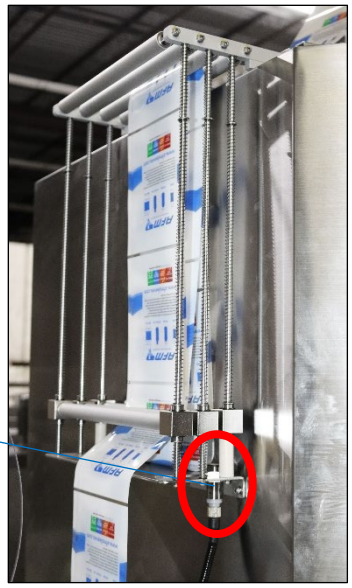


Chassis

The Chassis contains the main gears, motors and electronics for the LX-150. The Chassis has three sections: front, center, and rear. Following the path of the film as it enters the LX-150, the parts inside the Chassis are:

Dancer and Film Supply Sensor

The Dancer has seven Rollers, the bottom three of which are spring-loaded. The label film winds through them as it enters the LX-150, evening out the tension in the film. The Film Supply Sensor mounted at the bottom of the Dancer adjusts the speed of the unwind, based on the distance between the Sensor and the innermost bottom Roller.



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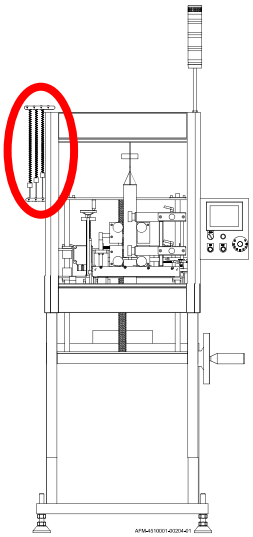

Top Roller Bar

The Top Roller Bar ensures that the path of the label film is straight down onto the Mandrel Fin. An optional Top Roller Bar Extension is available for situations where it is desirable for the label to

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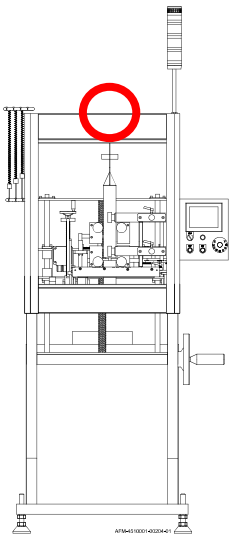
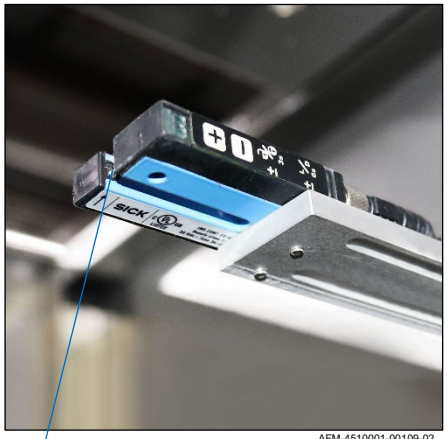
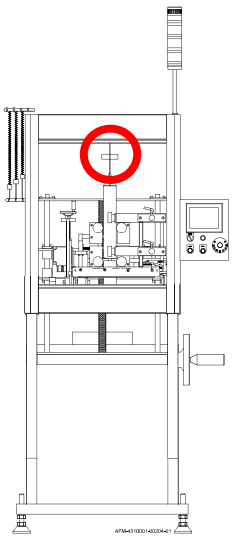


Print Reading Sensor

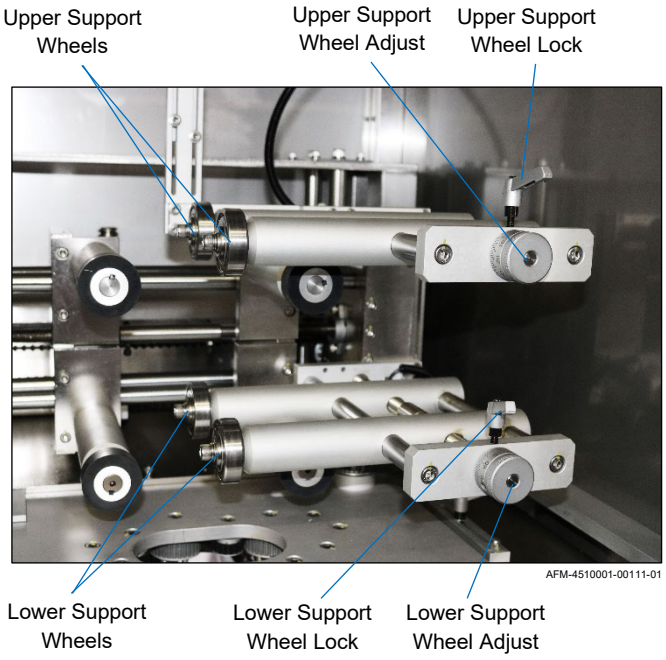
The Print Reading Sensor fits around the Mandrel Fin and shines a beam through the slot in the Mandrel Fin. The beam detects when there is a clear gap in the printing on the label film, and the Print Reading Sensor conveys that information to the Film Drive Wheels to tell them how far to advance the label film down the Mandrel, and also communicates with the Cutter Assembly to tell it when to cut the film.

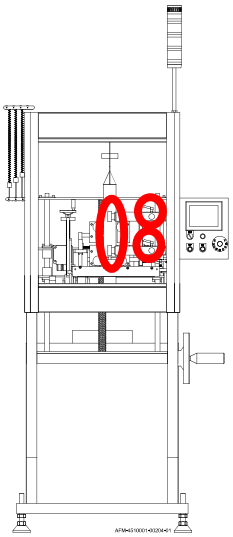




Support Wheels

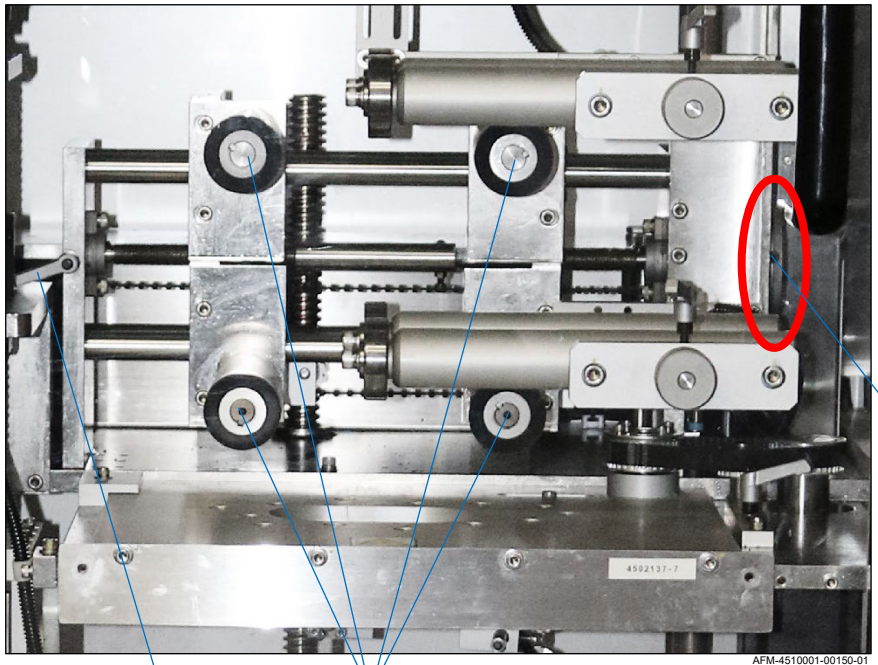
Two sets of Support Wheels (Upper and Lower) hold the Mandrel in place. Each set can be adjusted independently. To adjust each set, their Support Wheel Lock must first be loosened. Turning the Support Wheel Adjust moves them in or out from the Mandrel. Once in position, the Support Wheel Lock must be tightened to secure them in place.

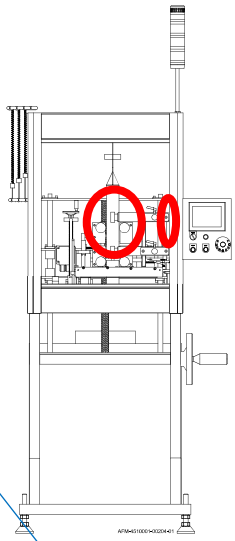




Film Drive Wheels

Two sets of Film Drive Wheels also hold the Mandrel in place. The lower set of Film Drive Wheels is also powered by a Servo Motor and serve the additional purpose of advancing the label film down the length of the Mandrel. The Upper and Lower Film Drive Wheels are adjusted together. To adjust them, the Film Drive Wheel Lock must first be loosened, and then the Film Drive Wheel Adjust can be turned to move the Wheels in or out from the Mandrel. Once in position, the Film Drive Wheel Lock must be tightened again to secure them in place.

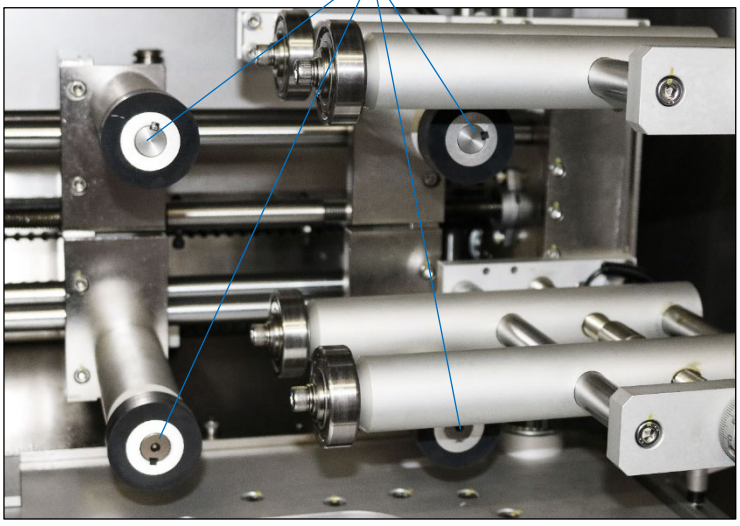


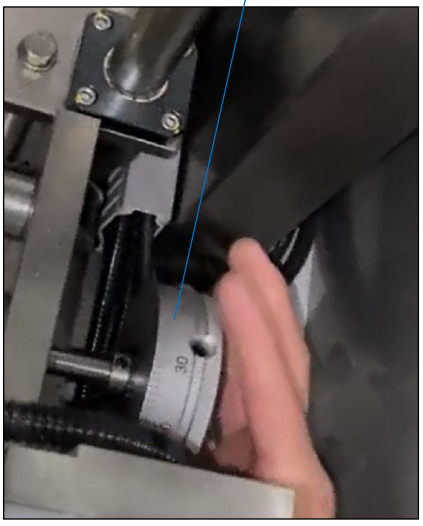


Film Drive Wheel Adjust

Film Drive Wheel Lock

Film Drive Wheels





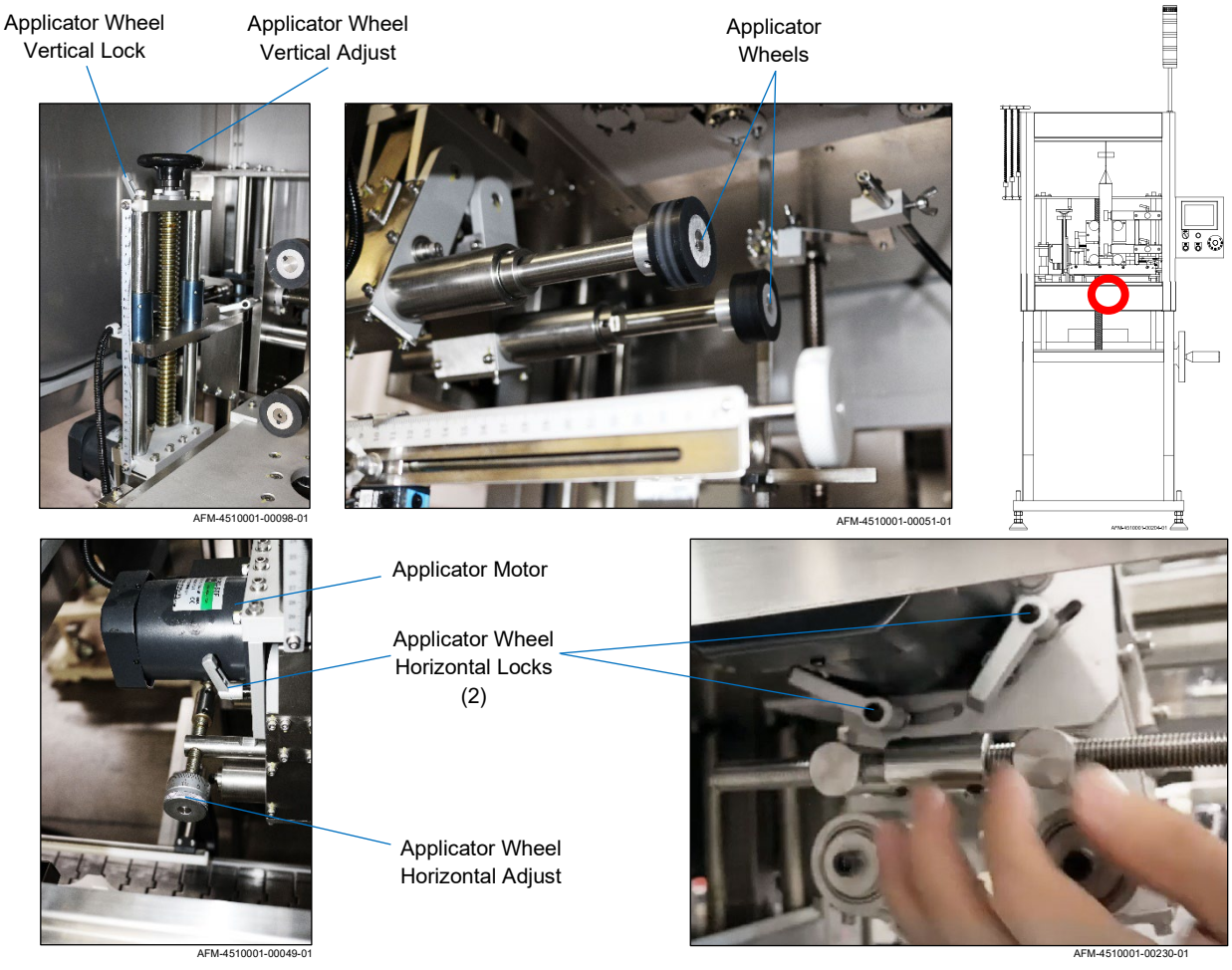
Applicator Wheels

The Applicator Wheels, located near the bottom of the Mandrel, are driven by the Applicator Motor, and shoot cut labels down from the Mandrel onto passing bottles. The Applicator Wheels can be adjusted vertically and can be moved in and out from the Mandrel.

To adjust them vertically, the Applicator Wheel Vertical Lock must first be loosened, and then the Applicator Wheel Vertical Adjust can be turned to move the Wheels up or down along the length of the Mandrel.

To move the Applicator Wheels in or out from the Mandrel, the Applicator Wheel Horizontal Locks must be loosened, and then the Applicator Wheel Horizontal Adjust can be turned until the Wheels are just touching the Applicator Bearings in the Mandrel.

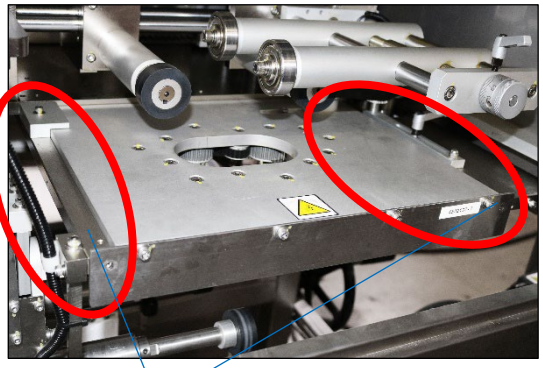
Once the Applicator Wheels are in position, the Applicator Wheel Vertical Lock and Applicator Wheel Horizontal Lock must be tightened to secure them in place.



In addition to the components described above that relate to the film path through the Chassis, additional components of the Chassis include:

Cutter Support Arms

The Cutter Support Arms, on either side of the Cutter Assembly, hold the Cutter Assembly in place.



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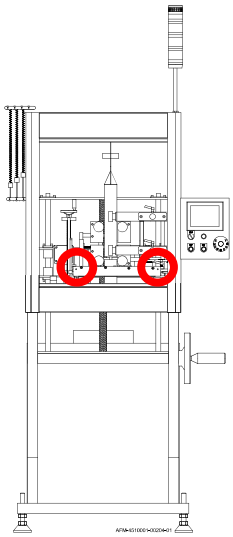
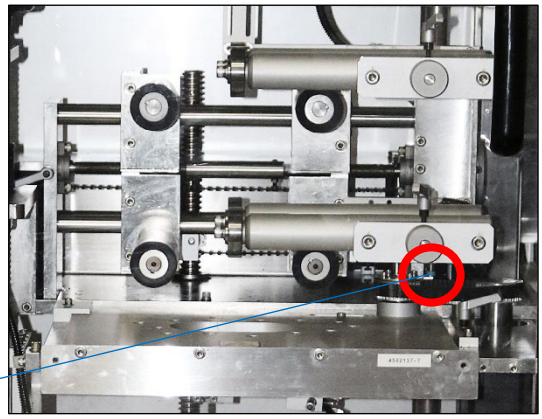


Cutter Home Position Sensor

The Cutter Home Position Sensor, located just above the Cutter Drive Pulley, ensures that the Cutter Assembly and Cutter Blades are properly in position.



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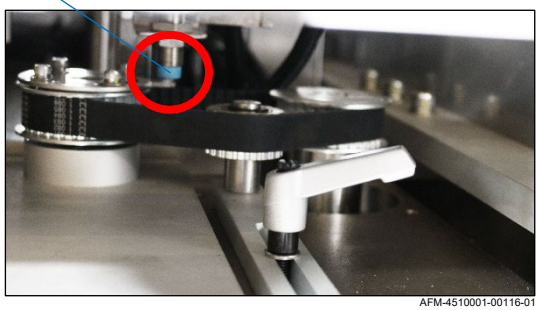

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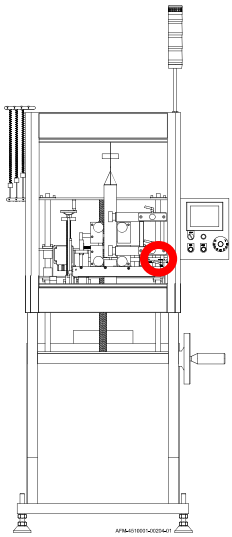
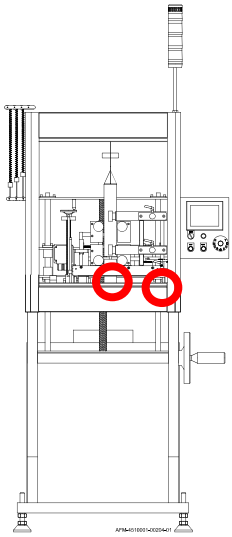
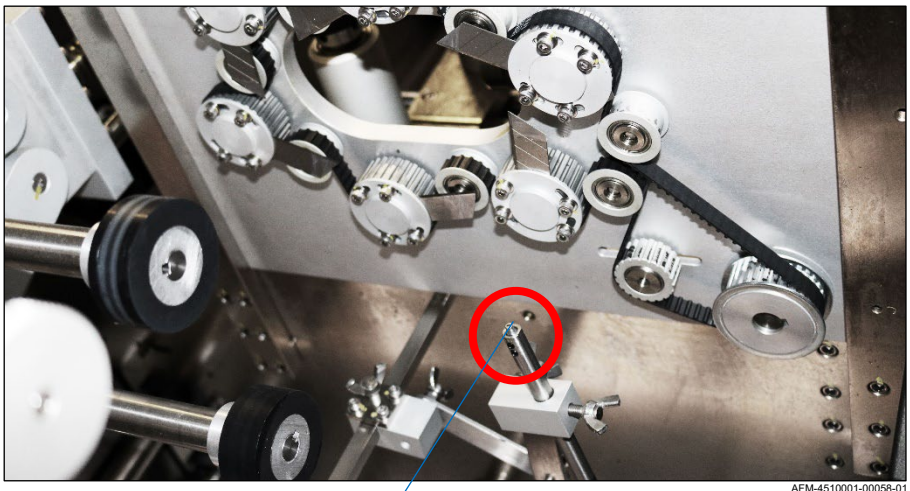


Application Fail Sensor

The Application Fail Sensor Amplifier is located inside the Chassis on the far right, below the Cutter Assembly. It connects to the Application Fail Sensor Eye, which is located in the back of the Chassis immediately below the Cutter Assembly. If the Sensor Eye detects label film for too long a time, it may be a sign that the label film has jammed, and the Application Fail Sensor Amplifier sends a signal to stop production.





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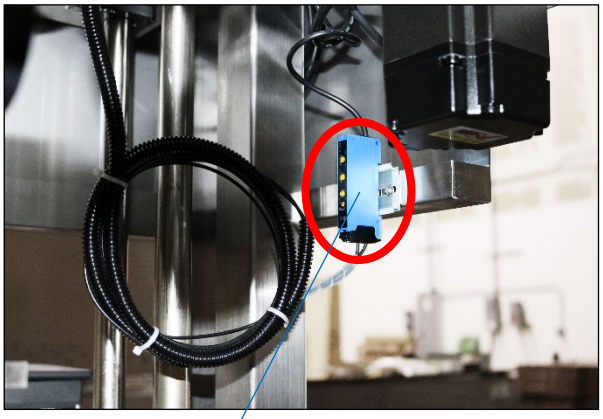
Application Fail Sensor Eye



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Application Fail Sensor Amplifier

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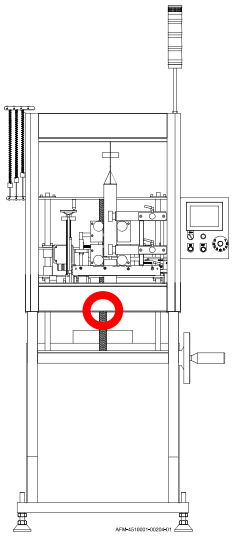
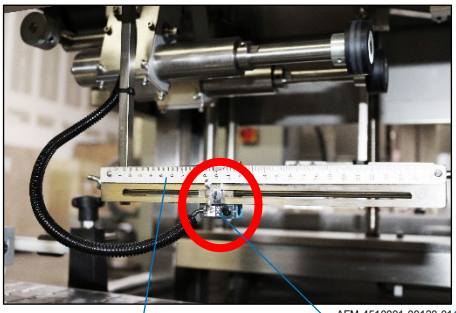
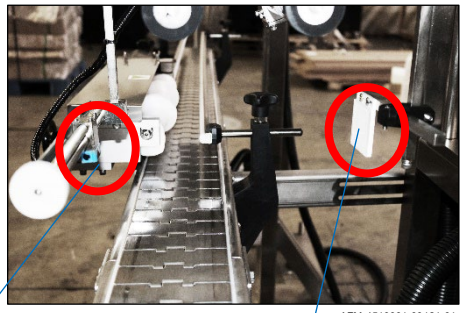
Work Detective Sensor

The Work Detective Sensor, located on the Slider just above the Conveyor level, shines a beam at the Work Detective Sensor Reflector across the Conveyor. It should be positioned just slightly upstream from the Mandrel. Whenever a bottle passed on the Conveyor, the Sensor beam is broken, signaling the Applicator Wheel to shoot a label down onto the bottle.







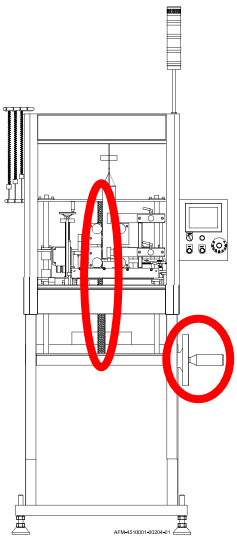
Slider

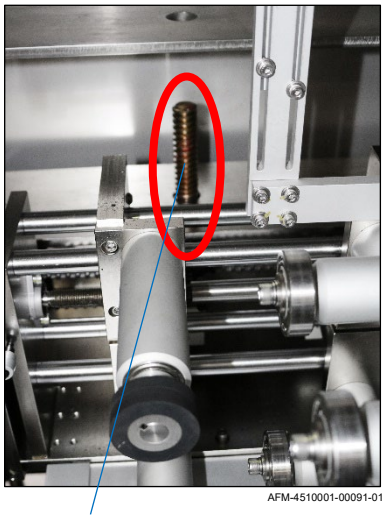
Work Detective Sensor

Work Detective Sensor Reflector

Head Height Adjust

The Head Height Adjustment Crank is the large crank on the right side of the LX-150. Turning it enables the entire Head Assembly (including the Sensors, Wheels, Mandrel and Cutter Assembly) to be moved up or down as a single unit. The Head Assembly moves vertically on the Head Height Adjustment Shaft toward the back of the unit.





Head Height Adjustment Crank

Head Height Adjustment Shaft

Alarm Beacon

The Alarm Beacon on the top of the LX-150 alerts users to the general status of the system.

- ***Red Light:***
  There is a fault somewhere in the system, and the machine has stopped.
- ***Yellow Light:***
  Warning – the Doors are open or the film is low.
- ***Green Light:***
  The system is operating, and all conditions are good.
- ***White Light:***
  The system is powered on and ready to use.

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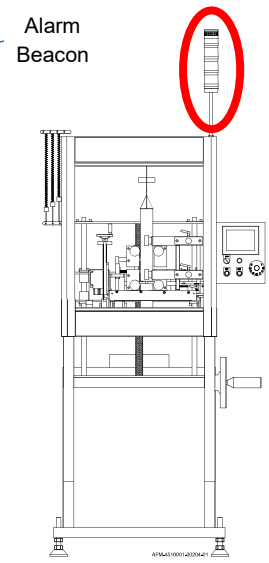
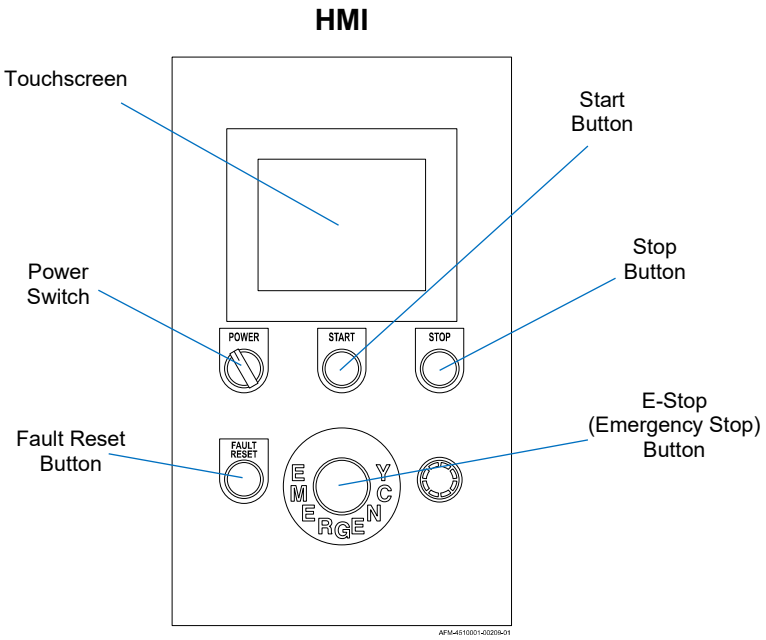
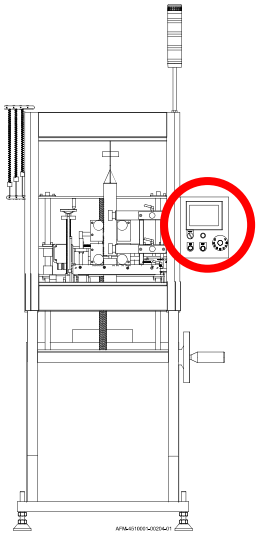


HMI

The HMI, or Human Machine Interface, is the Control Panel for users to set up and operate the LX-150. Once physical setup of the Mandrel, Cutter Assembly, and film has been completed, most operation of the LX-150 takes place through the Buttons and Touchscreen of the HMI.





Touchscreen:

Provides information on the status of the machine and enables users to input commands and settings.

Power Switch:

Powers the system on or off.

Start Button:

Starts the machine and connected peripherals.

Stop Button:

Stops the machine and connected peripherals.

Emergency Stop Button:

Immediately stops the machine and connected peripherals, sounds an alarm, and brings up an alarm screen on the Touchscreen.

Fault Reset Button:

Enables any fault/alarm to be triggered again but does not address the reason why it was triggered.

Electronics Cabinet

The Electronics Cabinet contains most of the electronic components of the LX-150, and is where peripheral equipment such as Auxiliary Belts / Bottle Holding Devices and Timing Screws are connected. A square Key turns the Door Latches to open the Door of the Cabinet. The Electronics Cabinet should remain closed during operation and should only be opened by a trained technician.

	**WARNING:** Electric shock risk. The Electronics Cabinet should only be opened by a trained technician.

Electronics Cabinet

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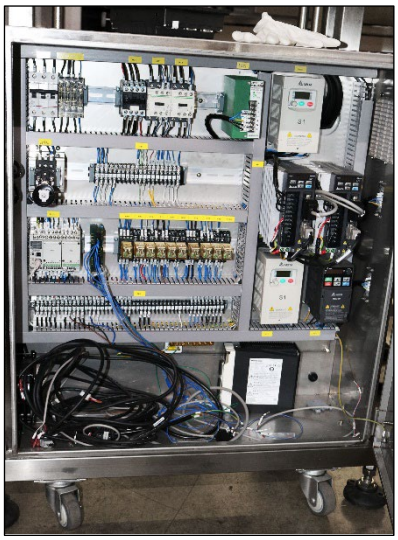
Door Latches



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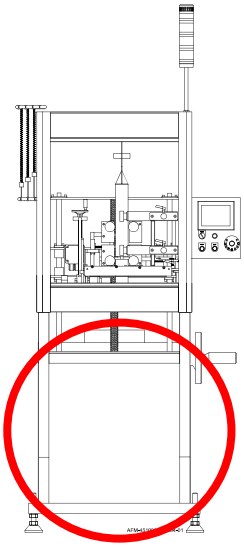

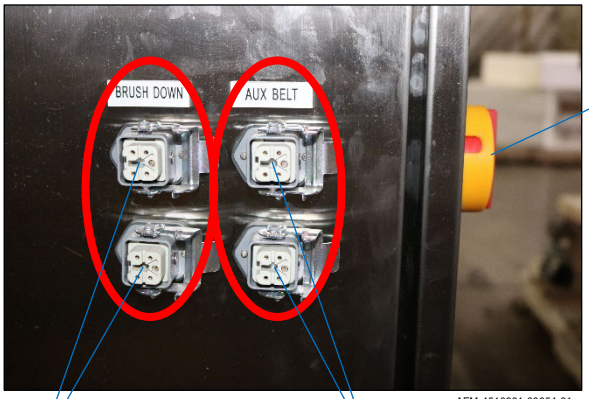

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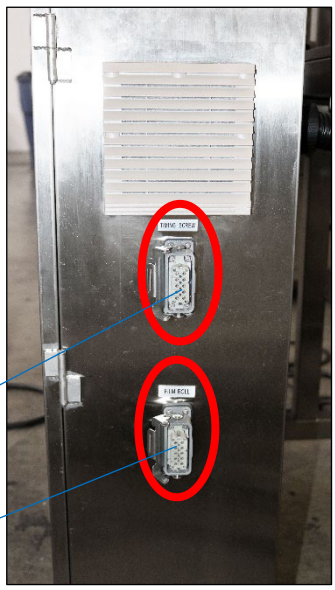
Main Power Switch

Brushdown Outputs

Auxiliary Belt / Bottle Holding Device Outputs



Timing Screw Output

Unwind System Output

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System Specifications

Power Requirements	220VAC, 50/60 Hz, 3-Phase or 480VAC, 50/60 Hz, 3-Phase **NOTE:** Depending on model, can accept power from 208-240V or a 480V power supply
Motors	60W x 2, 90W x 750W x 2
Speed	Up to 300 BPM (bottles per minute)* (PET film, cut length 100 mm)
Film "Lay Flat" Width	1.58″ – 9.45″ 40 – 240 mm
Cut Length	1.58″ – 9.84″ 40 – 250 mm
Film Thickness	0.0014″ – 0.027″ 0.035 – 0.07mm
Film Material	OPS, PVC, PET

* Speed will vary with the shape and types of items, thickness, and length of shrinkable film. Maximum speed will be determined by actual running conditions.

NOTE: Formula for calculating correct film "lay flat" width (cylindrical bottles):

(Bottle Diameter + 2~4 mm) x 1.57

NOTE: Bottles in irregular shapes (square, rectangular, oval, etc.) require special tooling, including irregular Mandrels, Timing Screws and Cutter Assemblies. All of these can be custom built by AFM for the LX-150.

Cutter Assembly Sizes

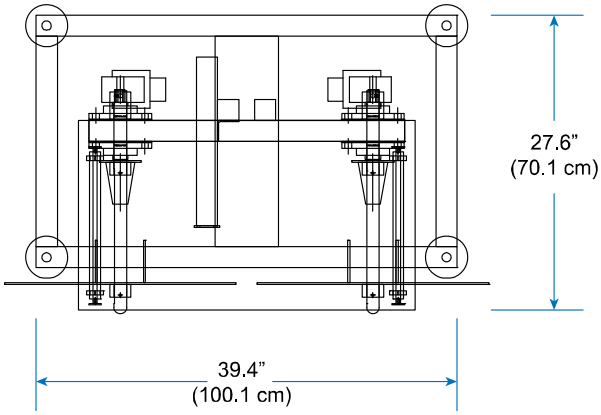
Three standard Cutter Assembly sizes are available for the LX-150, based on the size of the bottle being labeled and the Mandrel being used. Custom-sized Cutter Assemblies tailored to specific needs can also be built by AFM upon request.

Cutter Size	Part Number	Approximate Bottle Diameter	Label Lay Flat Width
Small (4 blade)	4500462	ø 0.98” – 2.76” (ø 25 – 70 mm)	ø 1.89″ – 4.53″ (ø 48 – 115 mm)
Medium (5 blade)	4505152	ø 1.57” – 4.72” (ø 40 – 120 mm)	ø 3.07” – 6.89” (ø 78 – 175 mm)
Large (6 blade)	4505153	ø 3.54″ – 5.91″ (ø 90 – 150 mm)	ø 5.51″ – 9.45″ (ø 140 – 240 mm)

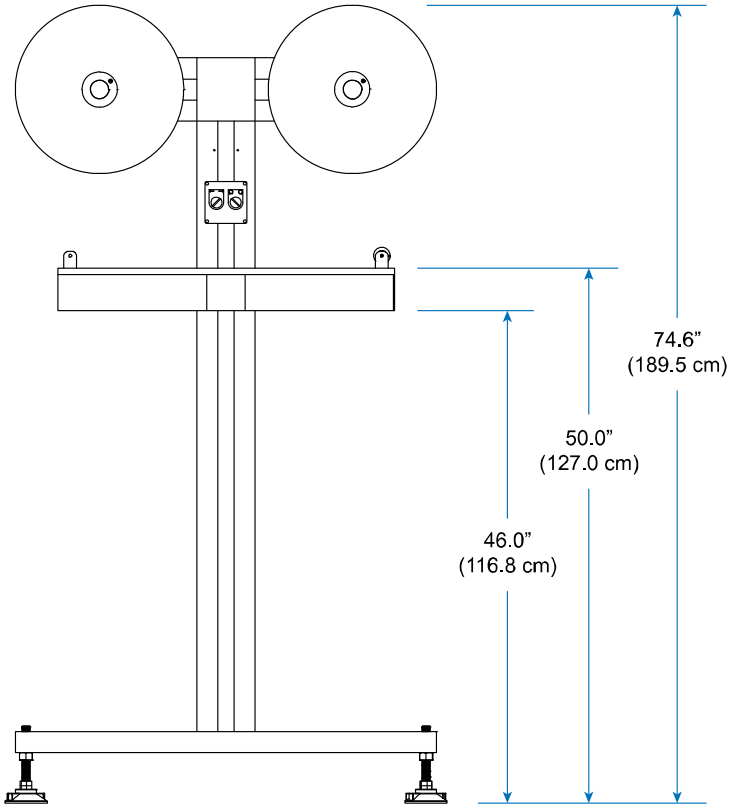
System Dimensions

UR-1 Unwind System

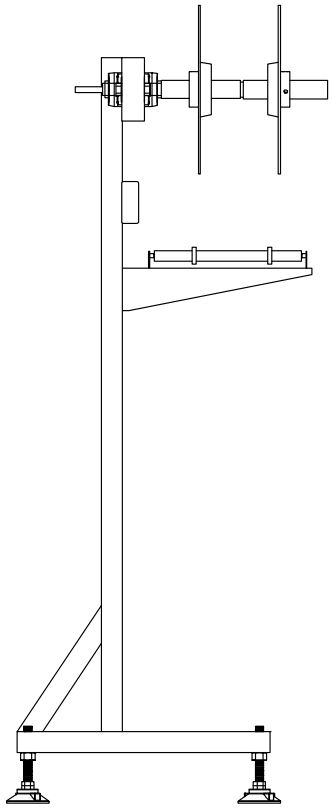
Top View



Front View

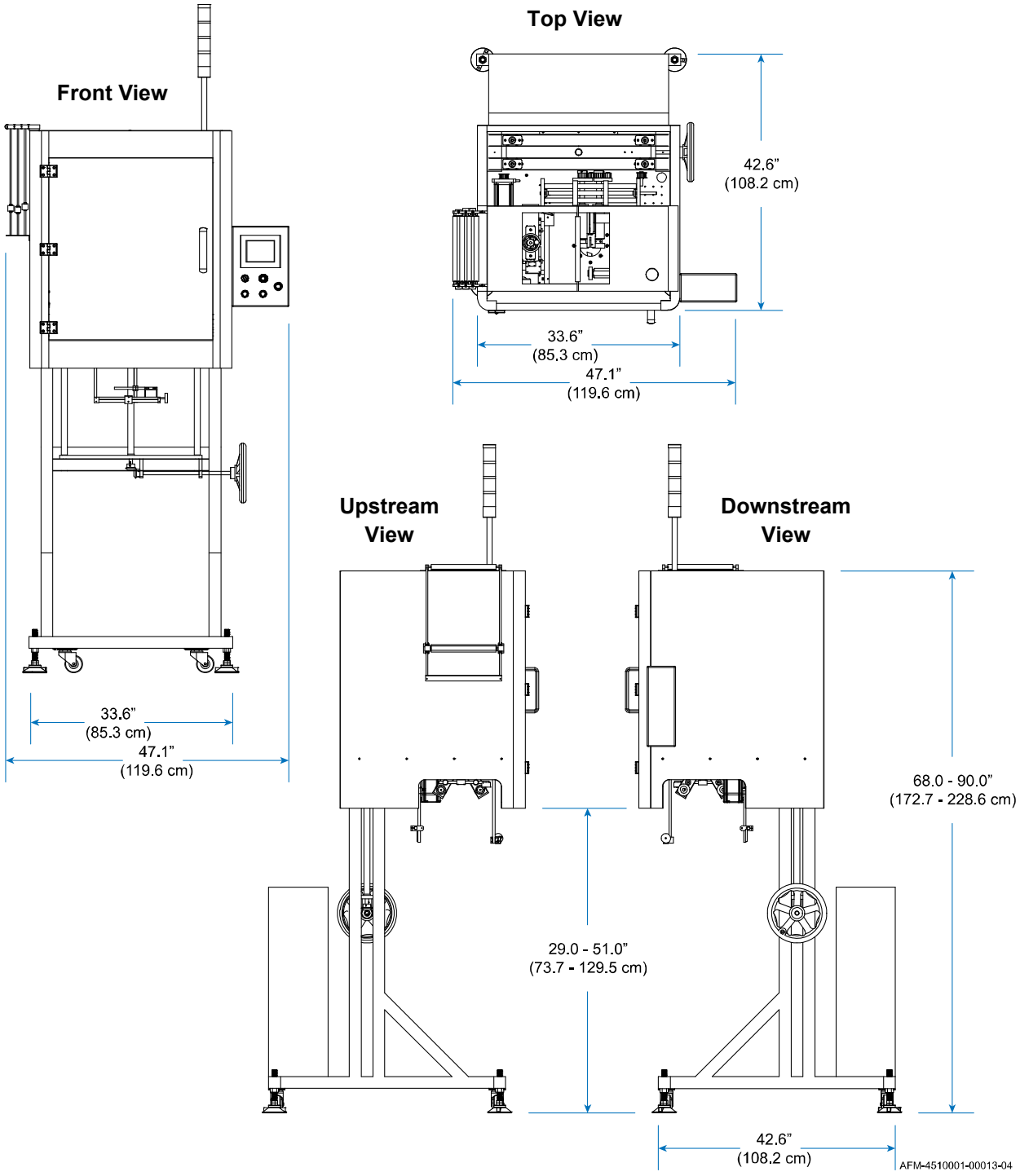


Side View



AFM-4510001-00014-02

LX-150 Shrink Sleeve Label Applicator



Installation

General Installation Considerations

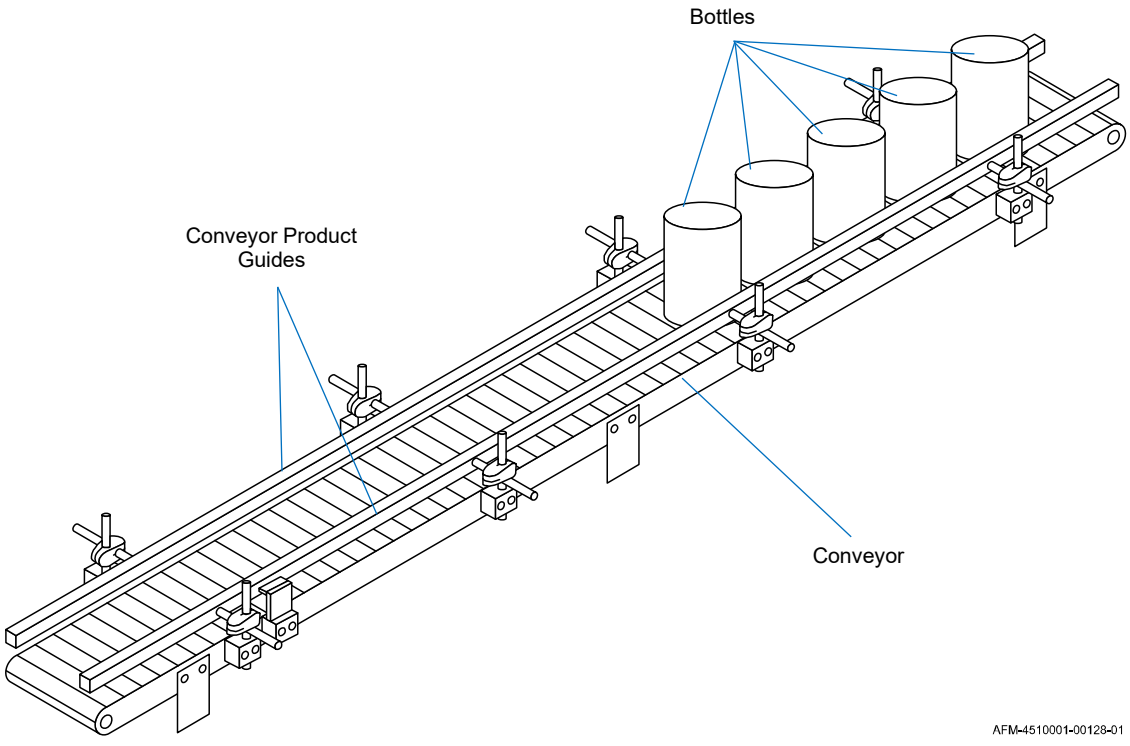
In addition to providing adequate space for the LX-150 and UR-1, and ensuring that they will be in the desired section within the assembly line chain, consider other factors, including:

Material Handling

The most critical factor for consistently achieving superior quality labeling is product handling. Adequate Conveyor Product Guides must be provided, correctly installed, and properly maintained, so that the bottles consistently pass by in the correct position to be labeled, and unpredictable movements are minimized. Incorrect or inconsistent product handling will cause labeling problems, maintenance problems, and could lead to equipment damage. The customer is responsible for maintaining proper material handling equipment.

Additionally, the Conveyors themselves should be stable, should be properly maintained (smooth running Chain, for example), and should be in adequate working condition for the situation. The UR-1, LX-150, and any accessories should be firmly and securely mounted to the Conveyor, and the Mounts should be periodically checked, to minimize any performance impact due to Conveyor vibrations

Product Guides on Conveyor



AC Power

Experience has shown that the AC power in locations where the LX-150 is installed can be subject to line noise, brownouts, and blackouts. If line noise, brownouts, or blackouts occur on a regular basis, install a good-quality Line Conditioner to ensure data integrity. In many cases, these devices may not be necessary; it is acceptable to start an installation without them. However, if system lockups or occasional label misfires occur, the first corrective measure should be to isolate and clean up the AC power.

Work Area

For safety, the work area should have a Fire Extinguisher.

Orientation

Looking at the front of the LX-150, the Conveyor enters on the left and exits on the right. The UR-1 should be positioned before the LX-150 in the production line, but may need to be at an angle to avoid interfering with the Conveyor flow. In this case, a Turn Bar will be needed to redirect the film into the LX-150 (see “Turn Bar” on page 20).

Mandrel Position

The center line of the Conveyor will need to run beneath the central axis of the Mandrel (see “Fine-Tuning the LX-150 Position” on page 60).

Maintenance Access

When planning the installation, allow for easy access to the Front Door and Electronics Cabinet of the LX-150, as well as to the HMI, so that setup, operation, and maintenance can be done conveniently. Additionally, ensure that both sides of the UR-1 are easily accessible for fast and convenient changeover and splicing of Label Film Spools and for maintenance.

Ventilation

A Heat Shrink Tunnel usually immediately follows the LX-150 on the product path, shrinking the placed labels onto the product. Depending on the product and label material used, hazardous fumes can result from the heat shrink process. Ensure that the work area has proper ventilation.

	**WARNING:** Hazardous fumes – ensure that work area has adequate ventilation.

Humidity

High humidity can have a noticeable negative impact on the LX-150's effectiveness. Labels will not slide down the surface of a bottle as easily when that surface has condensation on it. Take reasonable steps to reduce humidity in the work area.

Traffic Patterns

Careless positioning can result in damage to the LX-150 or UR-1. An example would be positioning the machines where they can be accidentally knocked by a Forklift, or similar placement in an area of predictable traffic. Keep the LX-150 and UR-1 away from known traffic paths.

ATTENTION: Locate the LX-150 and UR-1 away from known traffic paths.

Physical Installation

VIDEO: Equipment Setup

To see a video of this procedure, click this link:
https://youtu.be/shn5o7MZXbM
Or scan the QR code at right using the camera app on your mobile device.

Needed for Entire Installation Process:

- Forklift
- Total of at least 3 people to move the machines
- Licensed electrician
- Proper Plug Connection (not included) for the end of the Power Cable: 3-phase, 220V 50/60 Hz, grounded
- Code-compliant, 3-phase, 220V 50/60 Hz grounded AC power supply
- Large Crescent Wrench
- Cut-Resistant Work Gloves
- Level
- Allen Wrench (included in Tool Kit)
- Sturdy Ladder (if installing Turn Bar)

Installing the LX-150

Items Needed to Install the LX-150:

- Forklift
- At least 3 people to move the machine
- Large Crescent Wrench

To Install the LX-150:

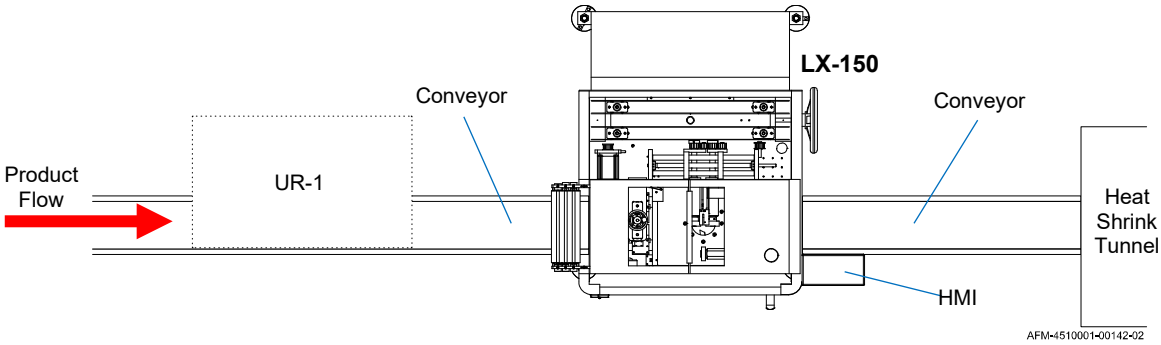
1. Find a suitable location for the system:
   a. Near a code-compliant, 3-phase, 220V 50/60 Hz grounded power supply.
   b. Adequate access to the UR-1 and LX-150 from all sides.

2. Have a licensed Forklift operator remove the LX-150 from its shipping container.

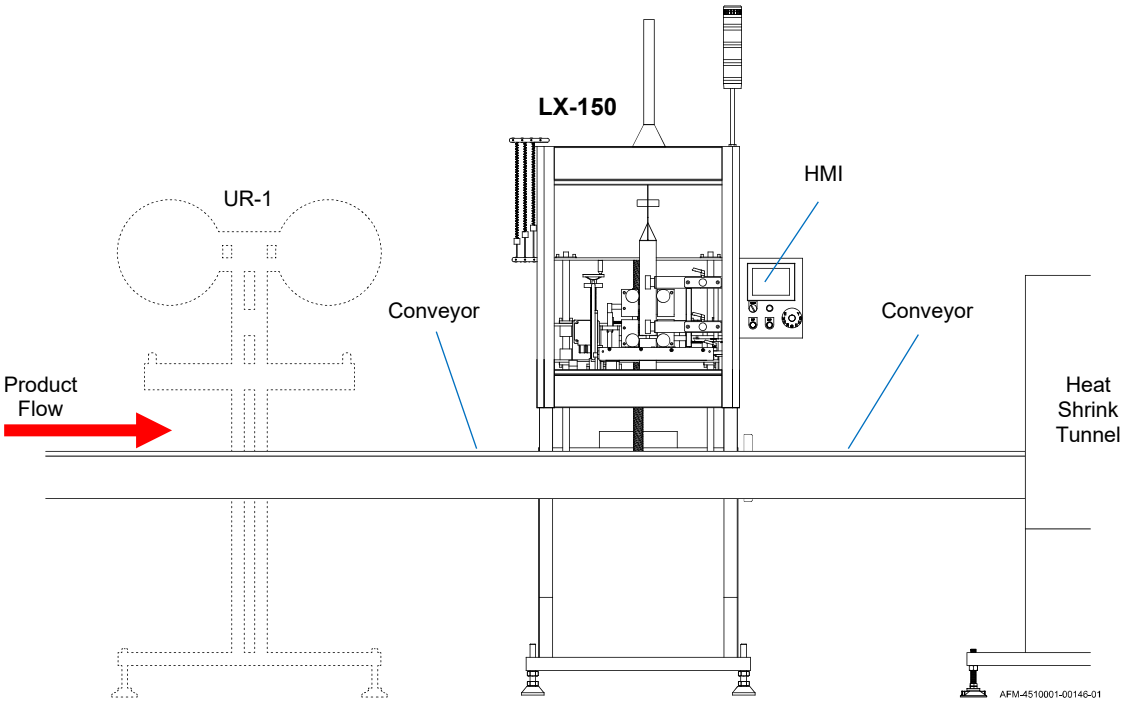
3. If needed, use the Crescent Wrench to raise the feet of the LX-150 above the level of the Casters, so that the LX-150 can easily roll on the Casters.

4. Move the LX-150 generally into position as shown in the diagram below (dashed lines indicate components that will be installed later). The Conveyor should run through the sides of the LX-150, exiting the side where the HMI is.

Positioning the LX-150 (View from Above)



Positioning the LX-150 (View from Front)



5. Remove the plastic film covering from the LX-150.

Installing the UR-1

VIDEO: Film Setup Guide To see a video of this procedure, click this link: https://youtu.be/bLK238uuRn0 Or scan the QR code at right using the camera app on your mobile device.	AFM-4510001-00166-01 Film Setup Guide https://youtu.be/bLK238uuRn0
VIDEO: Equipment Setup To see a video of this procedure, click this link: https://youtu.be/shn5o7MZXbM Or scan the QR code at right using the camera app on your mobile device. Time: 1:41 – 1:49	AFM-4510001-00166-01 Equipment Setup https://youtu.be/shn5o7MZXbM

Items Needed to Install the UR-1:

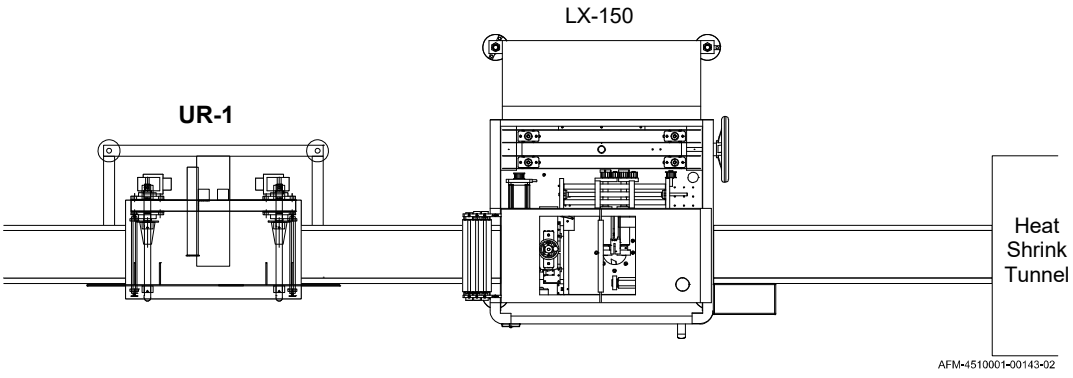
- Forklift
- At least 3 people to move the machine
- Large Crescent Wrench
- Level
- Laser Level
- Ruler

To Install the UR-1:

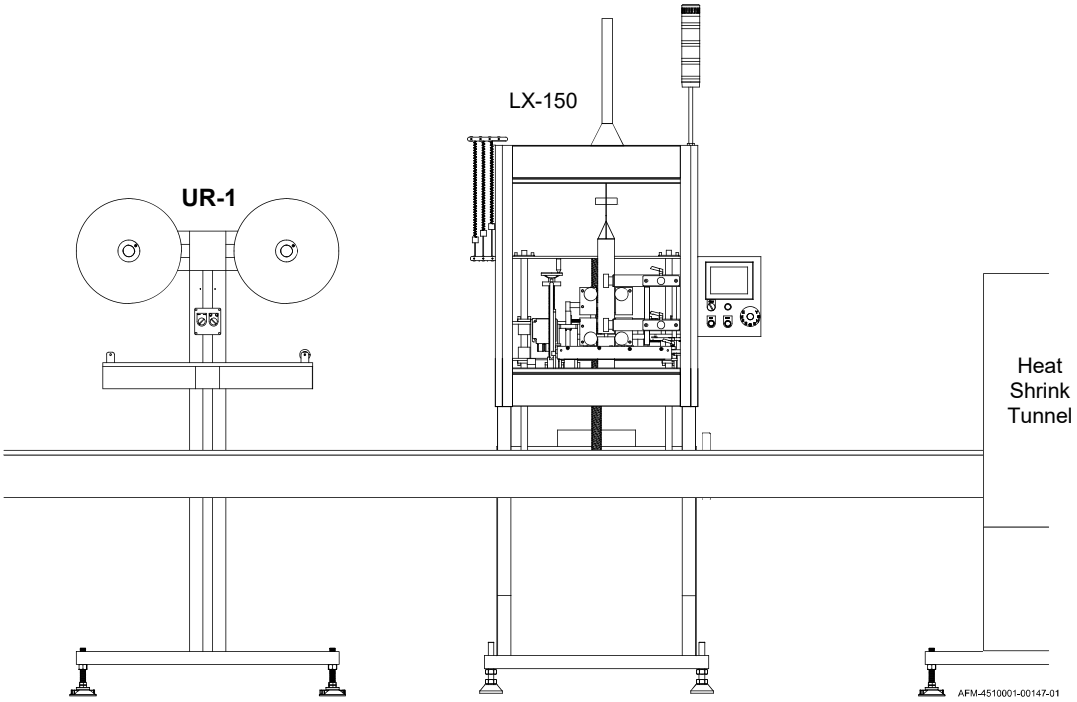
1. Have a licensed Forklift operator remove the UR-1 from its shipping container.

2. Move the UR-1 generally into position upstream from the LX-150, as shown in the diagrams below.

Positioning the UR-1 (View from Above)



Positioning the UR-1 (View from Front)

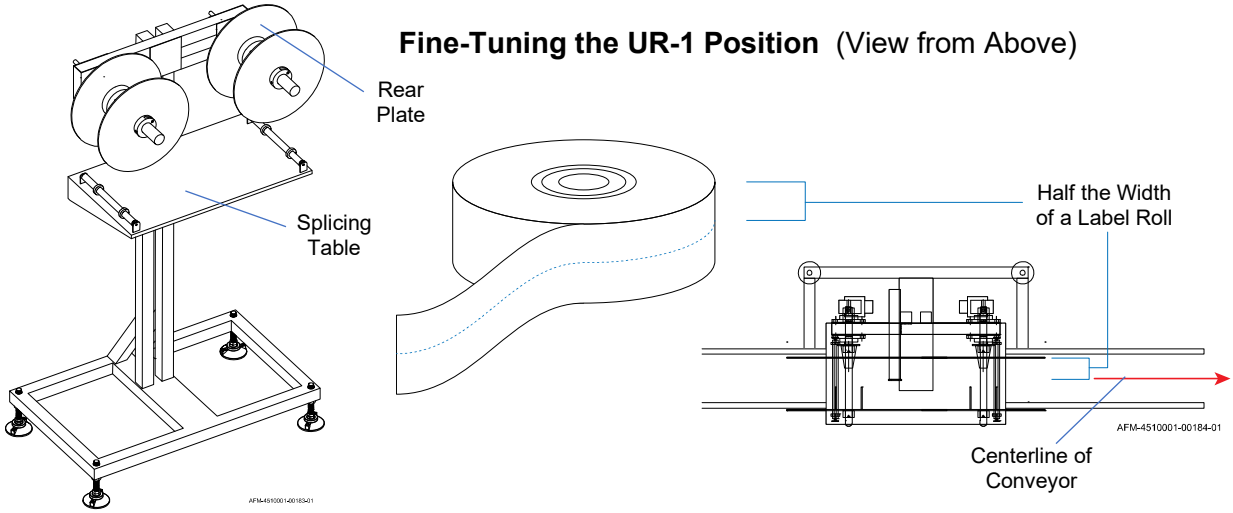


3. Remove the plastic film covering from the UR-1.

4. Use the Ruler to measure half the width of a roll of label film as shown below.

5. Measure that same distance from the Rear Plate on a Spool on the UR-1.

Fine-Tuning the UR-1 Position (View from Above)



6. Use the Laser Level to adjust the position of the UR-1 so that this point on the UR-1 aligns with the centerline of the Conveyor Belt.

7. Place the Level on the Splicing Table and use the Crescent Wrench to adjust the Feet of the UR-1 so that the Splicing Table is level.

8. Making sure that the UR-1 is perfectly parallel to the Conveyor, use the Conveyor Mounts to secure the UR-1 to the Conveyor in its current position.

Installing the Cutter Assembly

Before the position of the LX-150 can be fine-tuned, the Cutter Assembly must be installed. The Cutter Assembly slides horizontally like a drawer into the Cutter Support Arms inside the LX-150 Chassis.

	**WARNING:** When handling the Cutter Assembly, use extreme caution. Cutter Blades are very sharp and can easily cause severe cuts.

	**WARNING:** The Cutter Guard is an important safety feature. Never operate the LX-150 without the Cutter Guard properly installed.

VIDEO: Cutter Adjustments To see a video of this procedure, click this link: https://www.youtube.com/watch?v=036vSOgbL0A Or scan the QR code at right using the camera app on your mobile device. **Time:** 2:20 – 2:52	

Needed to Install the Cutter Assembly:

- Allen Wrench (included in Tool Kit)
- Cut-Resistant Work Gloves

To Install the Cutter Assembly:

1. Be sure that the LX-150 is turned off and unplugged from any power source.

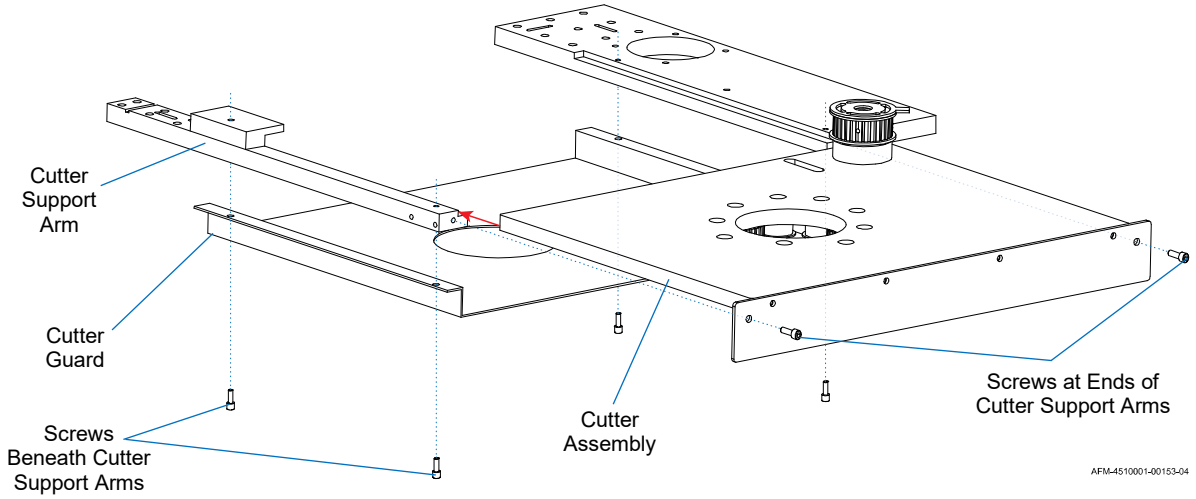
2. Open the Front Door of the LX-150.

3. Slide the Cutter Guard like a drawer in between the lower part of the Cutter Support Arms.

4. Insert the 2 Screws through the End Cap of the Cutter Assembly and into the ends of both Cutter Support Arms of the LX-150 and use the Allen Wrench to tighten them to secure the Cutter Assembly in position.

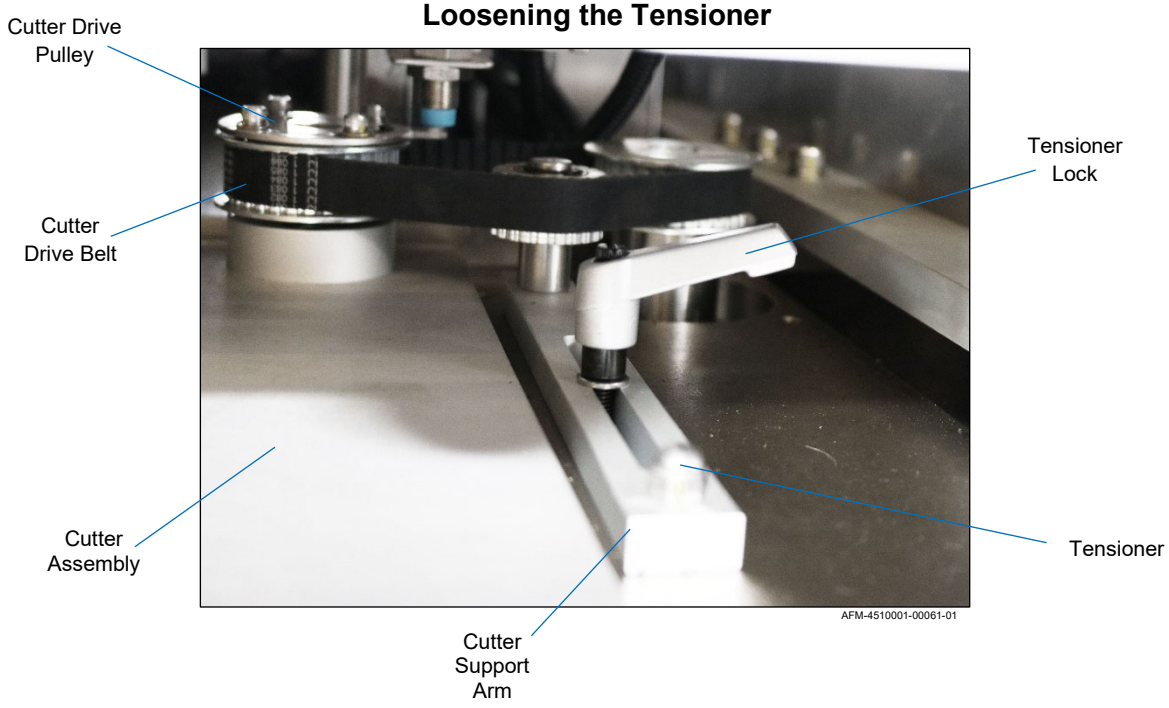
5. Hold the Cutter Guard flat against the underside of the Cutter Support Arms, aligning the screw holes.

6. Insert the 4 Screws into the screw holes beneath the Cutter Support Arms and use the Allen Wrench to tighten them to secure the Cutter Guard in position.



7. Loosen the Tensioner Lock on the right side of the Cutter Support Arm.

Loosening the Tensioner



8. Loop the Cutter Drive Belt around the Cutter Drive Pulley in the inside right corner of the Cutter Assembly. The tension on the Cutter Drive Belt should be very tight.

9. While pulling the Tensioner firmly toward the front of the LX-150, tighten the Tensioner Lock.

10. The Mandrel can now be installed (see “Installing the Mandrel” on page 56).

Installing the Mandrel

Before the position of the LX-150 can be fine-tuned, the Mandrel must be installed. The Mandrel slides down through the hole in the Cutter Assembly. It is held in place mainly by tension with the Support Wheels, Film Drive Wheels, and Applicator Wheels.

	**WARNING:** When installing the Mandrel, use extreme caution near the Cutter Assembly. Cutter Blades are very sharp and can easily cause severe cuts.

	**ATTENTION:** Failure to hold the Mandrel firmly by hand when installing it will result in the Mandrel falling, potentially damaging it and the LX-150, and voiding the warranty.

VIDEO: Installing the Mandrel To see a video of this procedure, click this link: https://youtu.be/_I6lIKRz6qQ Or scan the QR code at right using the camera app on your mobile device.	

Needed to Install the Mandrel:

- Cut-Resistant Work Gloves

To Install the Mandrel:

1. Be sure that the LX-150 and UR-1 are turned off and unplugged from any power source.

2. Open the Front Door of the LX-150.

3. Be sure that the Cutter Assembly has been properly installed.

4. Unlock the Applicator Wheels and move them outward, away from the Mandrel path (page 115).

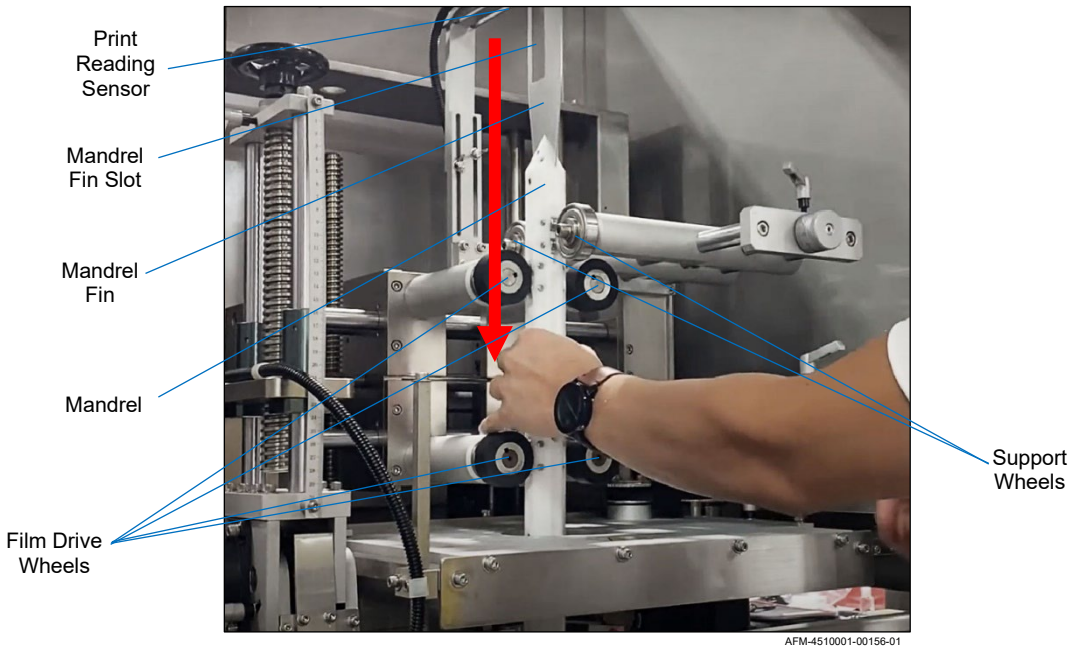
ATTENTION: Attempting to position the Applicator Wheels, Film Drive Wheels, or Support Wheels when they are locked can damage the LX-150 and void the warranty.

5. Unlock the Film Drive Wheels and move them outward, away from the Mandrel path (page 112).

6. Unlock the Upper and Lower Support Wheels and move them outward, away from the Mandrel path (page 113).

7. Holding the Mandrel vertically with the Mandrel Fin Slot toward the rear of the LX-150, carefully pass the Mandrel down through the Wheel Assemblies and Cutter Assembly. When the Mandrel is in the correct position:
   a. The Print Reading Sensor should align with the slot in the Mandrel Fin. The position of the Print-Reading Sensor can be adjusted later if needed..
   b. The Film Drive Wheels should align with the Film Drive Bearings on the sides of the Mandrel.
   c. The Support Wheels should align with the Support Bearings on the front and back of the Mandrel.
   d. The Applicator Wheels should align with the Applicator Bearings on the sides of the Mandrel.

Setting the Mandrel in Place

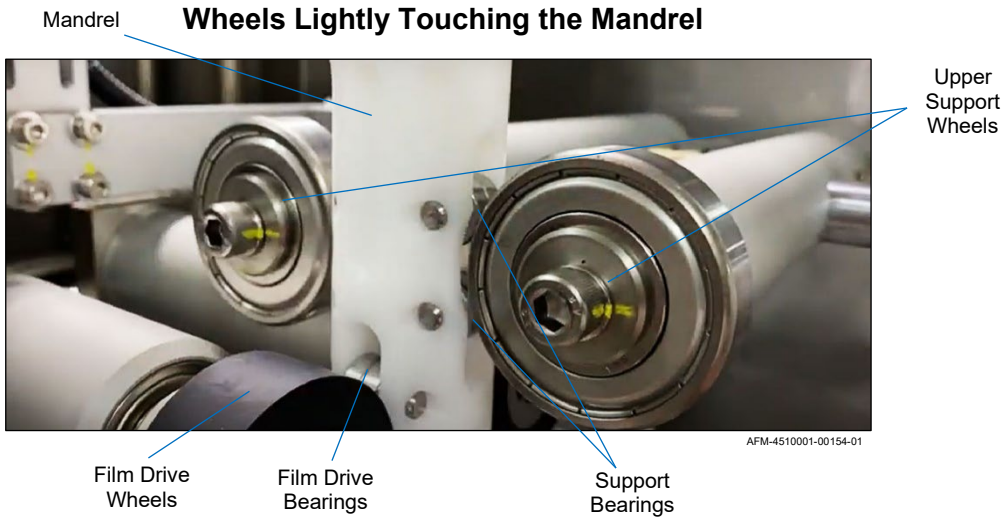


8. Still holding the Mandrel, move the Upper Support Wheels in toward it until they support it, and then lock them in position (page 113).

9. Move the Lower Support Wheels in toward the Mandrel until they touch the Support Bearings loosely enough to be rotated, but not so loosely that they spin, and the lock the Lower Support Wheels in position (page 113).

	**ATTENTION:** The Support Wheels must support the full weight of the Mandrel. They are the primary thing keeping the Mandrel from falling.

Wheels Lightly Touching the Mandrel



10. Move the Film Drive Wheels in toward the Mandrel until they touch the Film Drive Bearings on the Mandrel, and then lock them in position (page 112).

	**ATTENTION:** The Film Drive Wheels should be tight enough to consistently advance the label film. Tightening them too much can damage the film and potentially pull the Mandrel out of the Support Wheels' hold. This can damage the Mandrel, the Cutter Assembly, and the LX-150, and void the warranty.

11. If needed, move the Applicator Wheels vertically until they align with the Applicator Bearings on the Mandrel (page 115).

12. Move the Applicator Wheels in toward the Mandrel until they lightly touch the Film Drive Bearings on the Mandrel, and then lock them in position (page 115).

ATTENTION: The Applicator Wheels should only be tight enough to advance the label film. Tightening them too much can potentially damage the Wheels, Mandrel, and Applicator Assembly, and can void the warranty.

13. Close the Front Door of the LX-150.

Fine-Tuning the LX-150 Position

Stable and precise positioning is essential to the proper functioning of the LX-150.

VIDEO: Equipment Setup	
To see a video of this procedure, click this link: https://youtu.be/shn5o7MZXbM Or scan the QR code at right using the camera app on your mobile device. **Time:** 0:50 – 1:42	AFM-4510001-00168-01 Equipment Setup https://youtu.be/shn5o7MZXbM

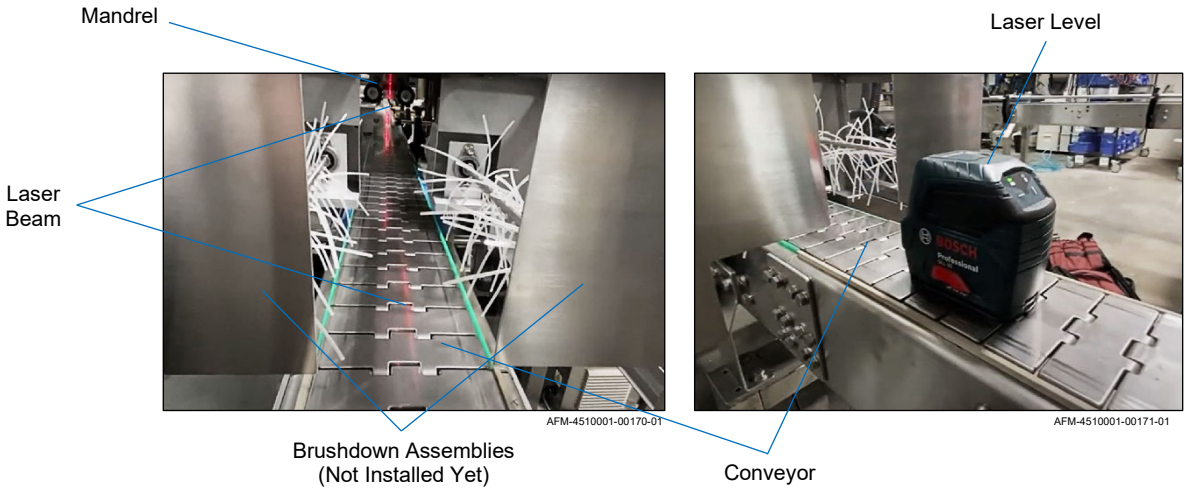
Items Needed to Fine-Tune the LX-150 Position:

- Total of at least 3 people to move the machine
- Large Crescent Wrench
- Level
- Laser Level
- Tape Measure

To Fine-Tune the LX-150 Position:

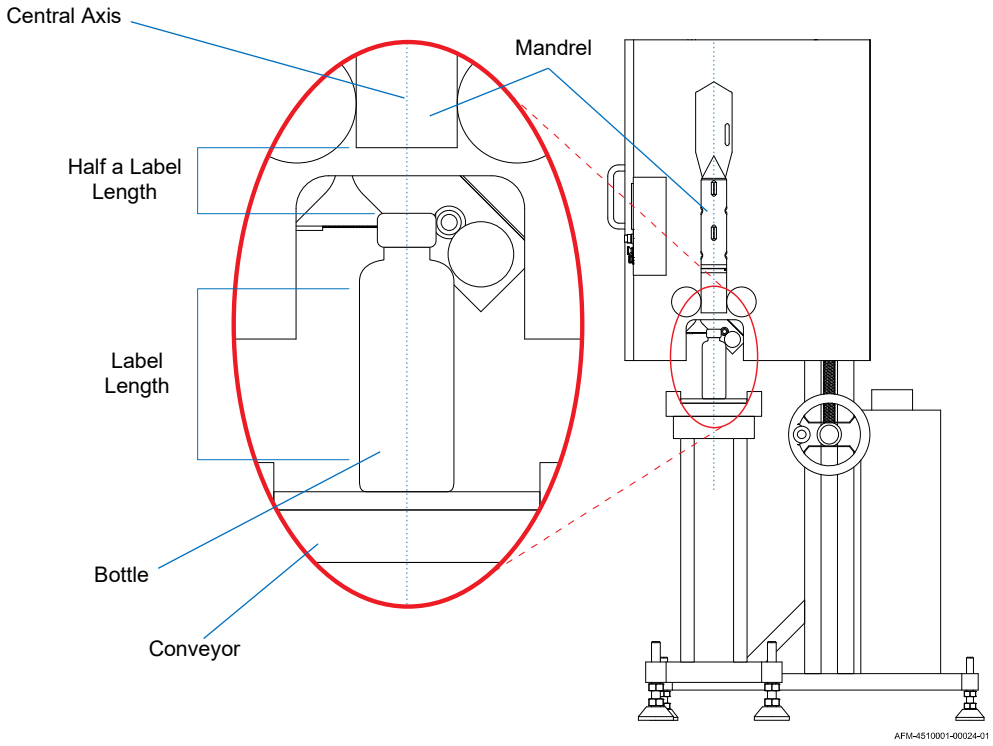
1. Align the center line of the Mandrel with the center line of the Conveyor:
   a. Place a sample bottle in the center of the Conveyor Belt directly below the Mandrel.
   b. Use the Tape Measure to place the Laser Level precisely in the center of the Conveyor, downstream from the LX-150 and aimed toward the LX-150, as shown below.

Mandrel Position (View from Downstream Side)



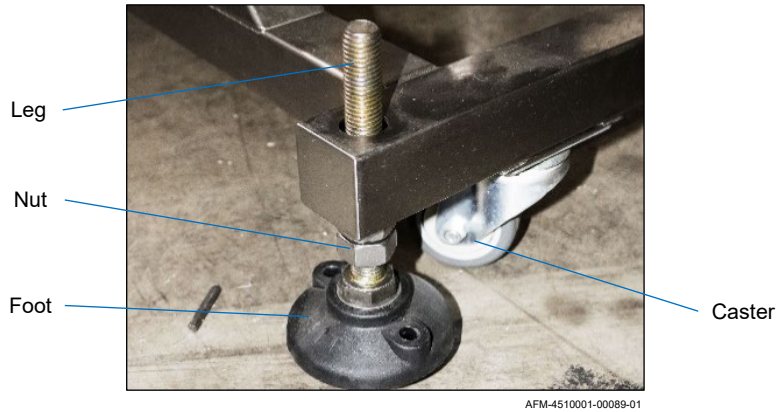
c. Roll the LX-150 until the center axis of the Mandrel lines up precisely with the center axis of the bottle, as shown below.

Mandrel Position (View from Downstream Side)



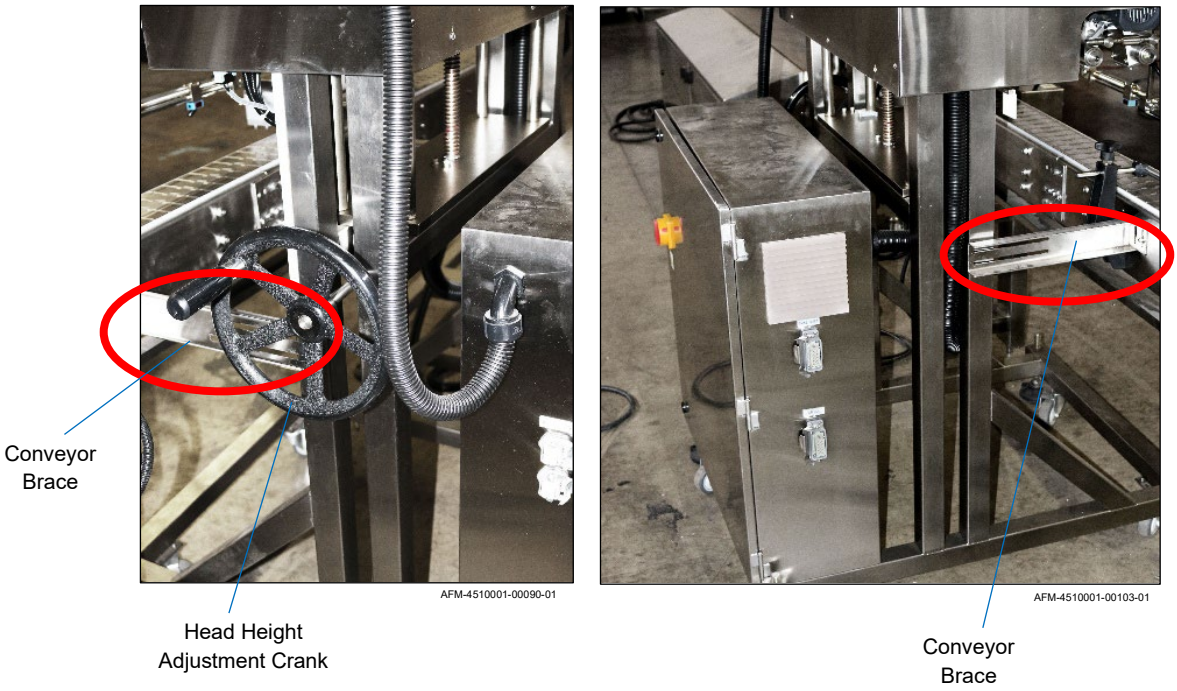
2. Secure the LX-150's fine-tuned position:

a. Being careful not to change the position of the LX-150, use the Crescent Wrench to turn the Nut on each Leg of the LX-150 so that the Feet so that the unit can no longer roll on the Casters.



b. Using a Level and the Crescent Wrench, fine-tune the height of each Leg and level the machine.

c. Attach the Conveyor Braces to secure the Conveyor to the LX-150 and maintain the correct centerline position.



d. Turn the Head Height Adjustment Crank to fine-tune the distance from the bottom of the Mandrel to the top of the sample bottle. The distance should be approximately half the length of the labels that will be applied, as shown in the “Mandrel Position” diagram on the previous page.

3. Turn the Laser Level off but leave it in position. It will be used when installing the Timing Screw.

Alternate Positioning

In some cases, the UR-1 must be oriented at a right angle to the LX-150, rather than in direct line with the LX-150. In these situations, the label film must turn at a right angle into the Dancer. To accomplish this, a Turn Bar must be installed.

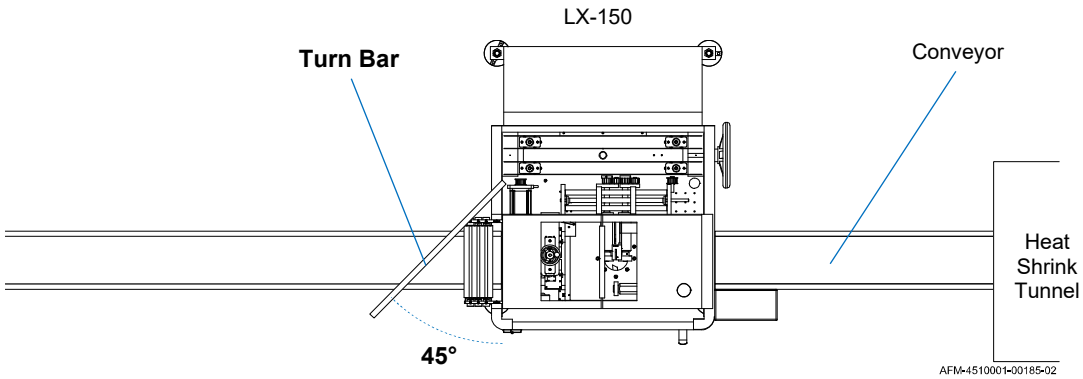
Items Needed to Perform Alternative Positioning:

- Sturdy Ladder
- Large Crescent Wrench
- Total of at least 3 people to move the UR-1
- Level
- Laser Level
- Large Crescent Wrench

To Perform Alternative Positioning:

1. Mount the Turn Bar to the top left (upstream) side of the LX-150, so that the Turn Bar extends horizontally at approximately a 45° angle above the Dancer, as shown:

Installing the Turn Bar (View from Above)




AFM-4510001-00034-01

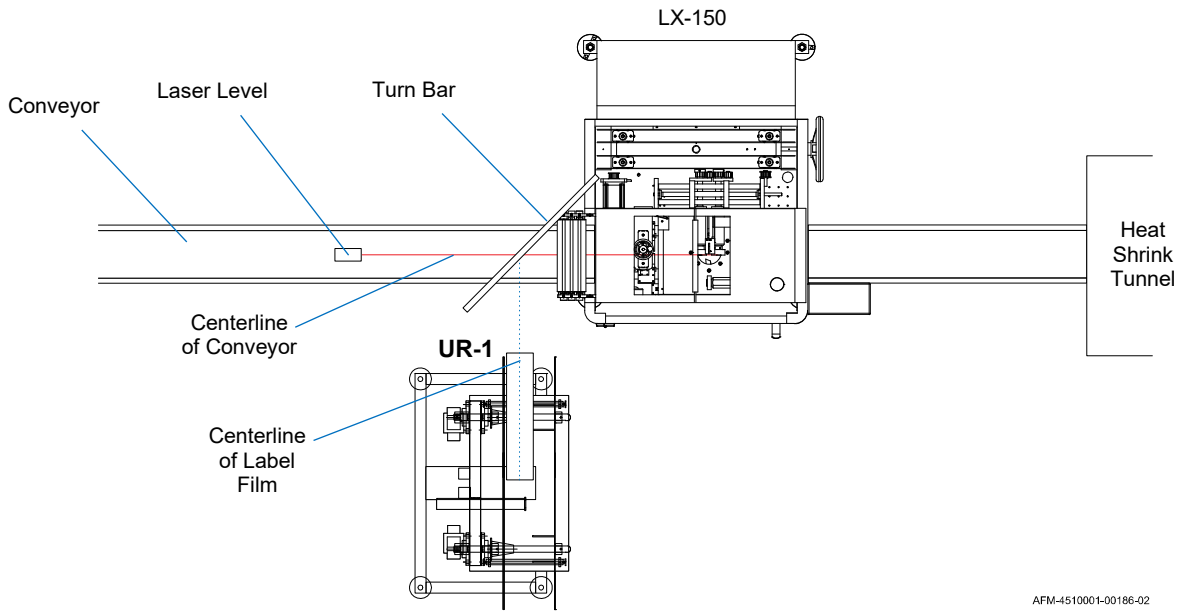

AFM-4510001-00134-01

2. Place the UR-1 at a 90° angle to the LX-150, as shown below.

3. Use the laser level to determine where the centerline of the Conveyor intersects with the Turn Bar.

4. Fine tune the UR-1 so that the centerline of a roll of label film on the Film Spool points directly at spot shown by the laser level.

Fine-Tuning the Alternative UR-1 Position (View from Above)



5. Place the Level on the Splicing Table, and use the Crescent Wrench to adjust the Feet of the UR-1 so that the Splicing Table is level.

Installing the Timing Screw Assembly

The Timing Screw Assembly is needed to regulate the flow of bottles so that they are centered on the Conveyor and are evenly spaced as they enter the LX-150.

VIDEO: Timing Screw Setup and Adjustments To see a video of this procedure, click this link: https://youtu.be/wBpQN2wkafA Or scan the QR code at right using the camera app on your mobile device.	AFM-4510001-00287-01 Timing Screw Setup and Adjustments https://youtu.be/wBpQN2wkafA
VIDEO: Equipment Setup To see a video of this procedure, click this link: https://youtu.be/shn5o7MZXbM Or scan the QR code at right using the camera app on your mobile device. **Time:** 1:50 – 2:12	AFM-4510001-00168-01 Equipment Setup https://youtu.be/shn5o7MZXbM
VIDEO: Machine Adjustments and Fine Tuning To see a video of this procedure, click this link: https://youtu.be/Q3k865kFjmw Or scan the QR code at right using the camera app on your mobile device. **Time:** 0:00 – 1:01	AFM-4510001-00167-01 Machine Adjustments: Timing Screw, Sheathsens, and UR-1 https://youtu.be/Q3k865kFjmw

Items Needed to Install the Timing Screw Assembly:

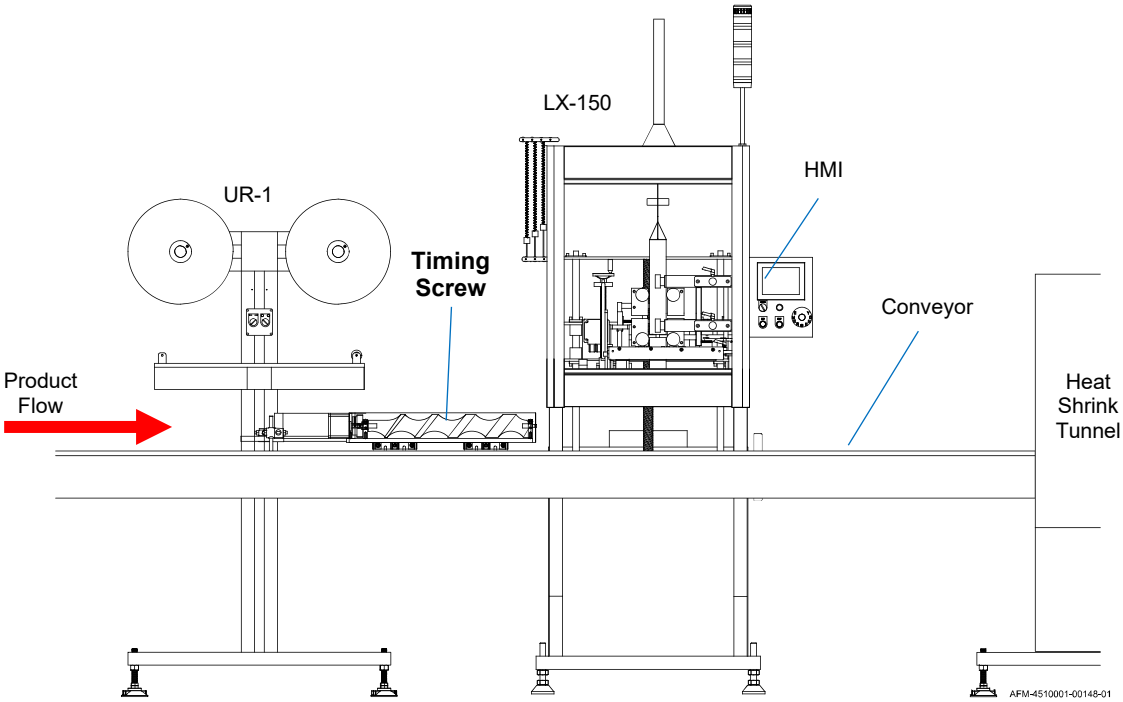
- Crescent Wrench
- Alan Wrench
- Laser Level

To Install the Timing Screw Assembly:

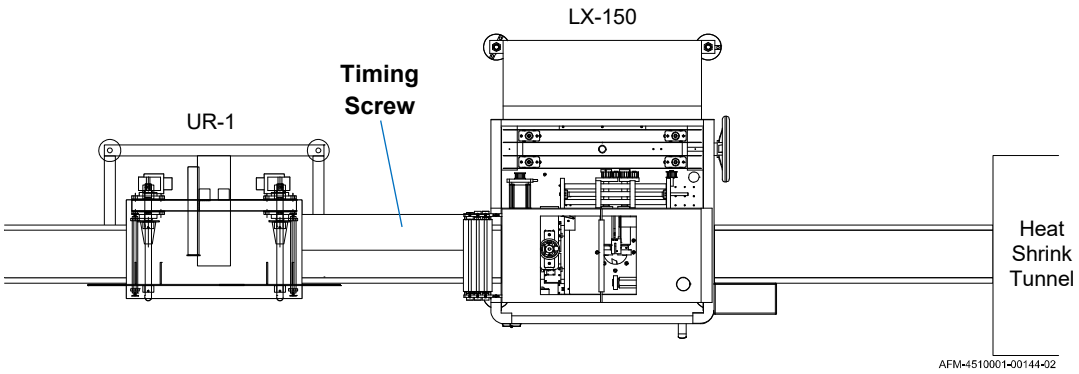
1. Use the Alan Wrench to bolt the Timing Screw Assembly to the side of the Conveyor, with the closest end at least 12″ (30.5 cm) upstream from the Mandrel.

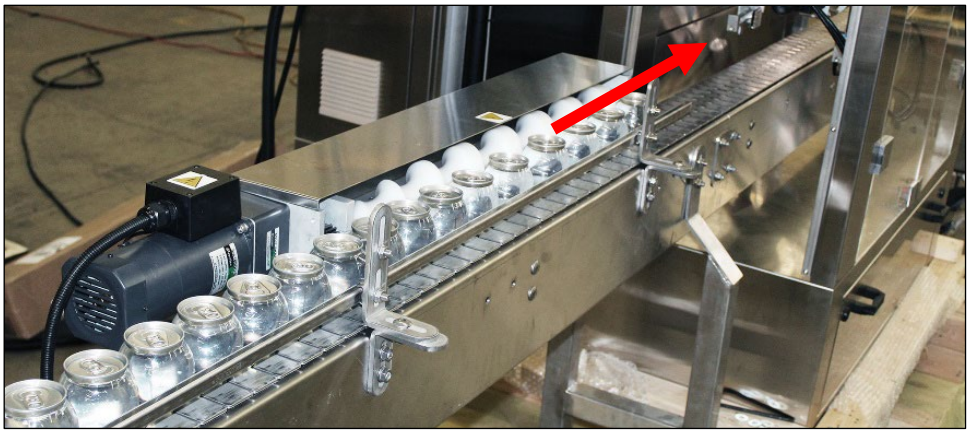
AFM-4510001-00176-01

Positioning the Timing Screw (View from Front)



Positioning the Timing Screw (View from Above)



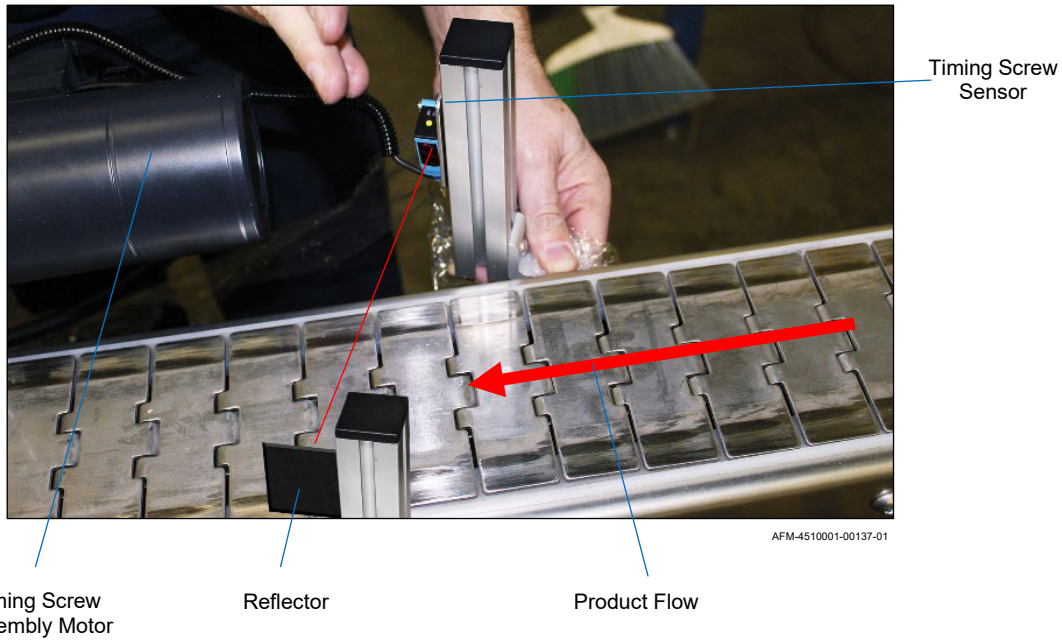


AFM-4510001-00136-01

2. Mount the Timing Screw Sensor to the Conveyor upstream from the Timing Screw Assembly, and pointing across the Conveyor at a slight angle downstream.

3. Mount the Reflector on the opposite side of the Conveyor from the Timing Screw Sensor, positioned in such a way to be hit by the beam of the Timing Screw Sensor.

Mounting the Timing Screw Sensor and Reflector

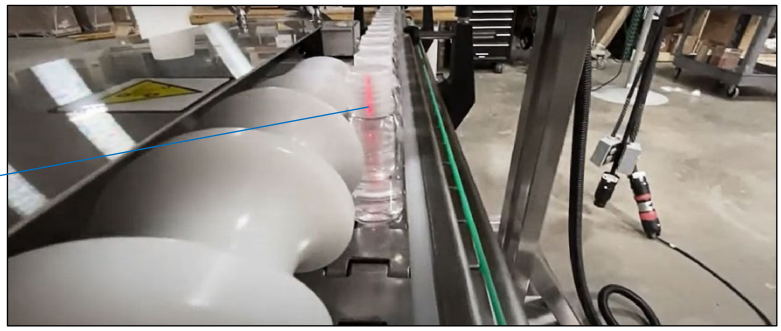


4. Fine Tune the Position of the Timing Screw.
   a. With the Laser Level in the center of the Conveyor, turn the Laser Level on.
   b. Place a sample bottle in one of the pockets of the Screw.

c. Gently pushing the bottle against the Screw, turn the Crank on the side of the Timing Screw to move the Screw towards or away from the centerline of the Conveyor until the laser beam is pointing at the center axis of the bottle. As shown below.

Plugging in the Timing Screw Assembly

AFM-4510001-00176-01

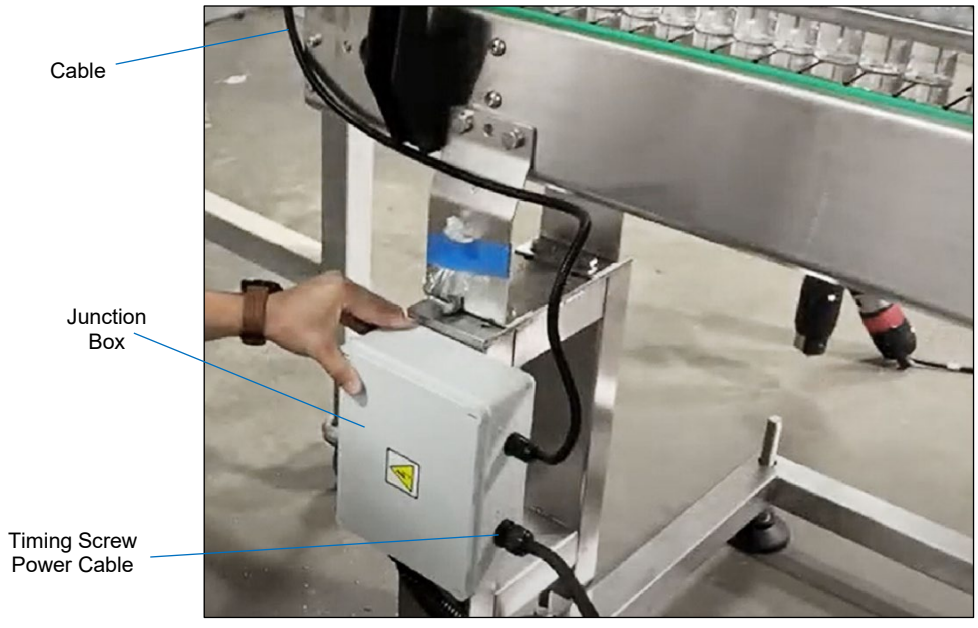


AFM-4510001-00172-01

5. Plug the Cable from the Timing Screw into the Power Box.

6. Attach the Junction Box to the Conveyor.

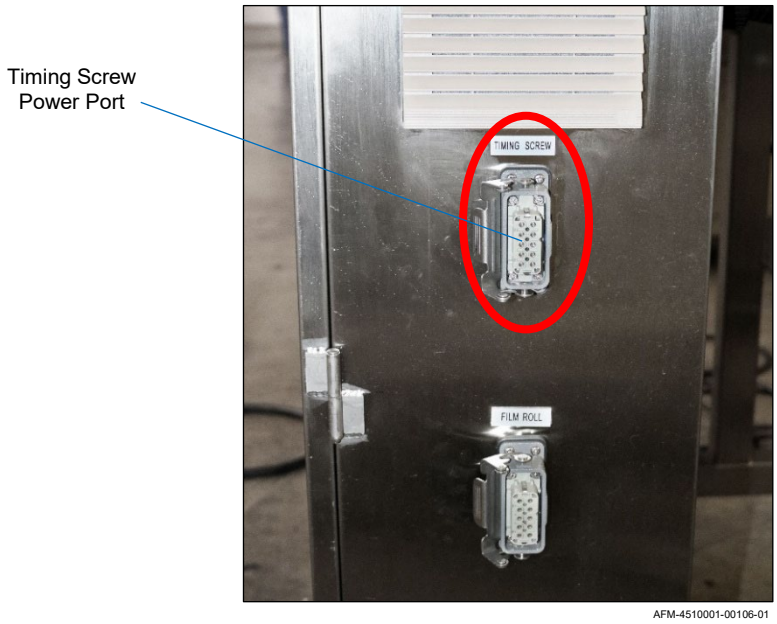
Plugging in the Timing Screw Assembly



AFM-4510001-00178-01

7. Plug one end of the Timing Screw's Power Cable into the Junction Box, and plug the other end into the appropriate Power Port on the upstream side of the LX-150's Electronics Cabinet.

Plugging in the Timing Screw Assembly



Installing the Brushdown Assemblies

The LX-150 sometimes shoots labels down onto bottles with such force that the labels may bounce up off the Conveyor or Auxiliary Belt / Bottle Holding Device and slide partly back up the length to the bottle. In these cases, heat shrinking the labels onto the bottle would product undesirable results. To ensure that the labels are pushed down into the correct location on the bottle, the Brushdown Assemblies needs to be installed immediately downstream from the LX-150 (and upstream from the Heat Shrink Tunnel).

VIDEO: Equipment Setup To see a video of this procedure, click this link: https://youtu.be/shn5o7MZXbM Or scan the QR code at right using the camera app on your mobile device. **Time:** 2:12 – 1:52	AFM-4510001-00168-01 Equipment Setup https://youtu.be/shn5o7MZXbM
VIDEO: Machine Adjustments and Fine Tuning To see a video of this procedure, click this link: https://youtu.be/Q3k865kFjmw Or scan the QR code at right using the camera app on your mobile device. **Time:** 1:00 – 1:18	AFM-4510001-00167-01 Machine Adjustments: Timing Screw, Brushdowns, and UR-1 https://youtu.be/Q3k865kFjmw

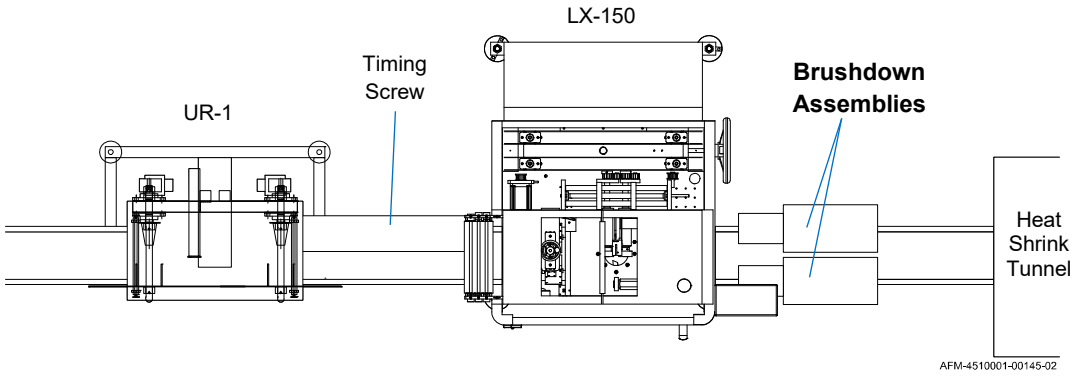
Items Needed to Install the Brushdown Assemblies:

- Crescent Wrench
- Alan Wrench

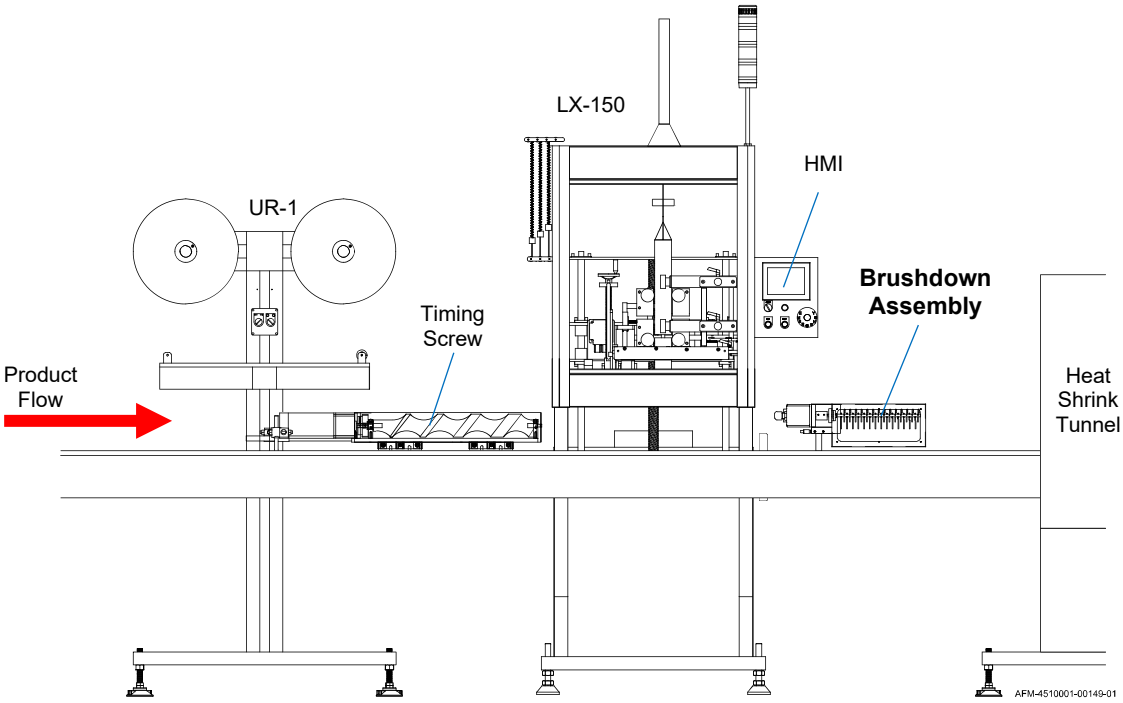
To Install the Brushdown Assemblies:

1. Use the Alan Wrench to bolt the Brushdown Mounts to either side of the Conveyor.

Positioning the Brushdown Assemblies (View from Above)



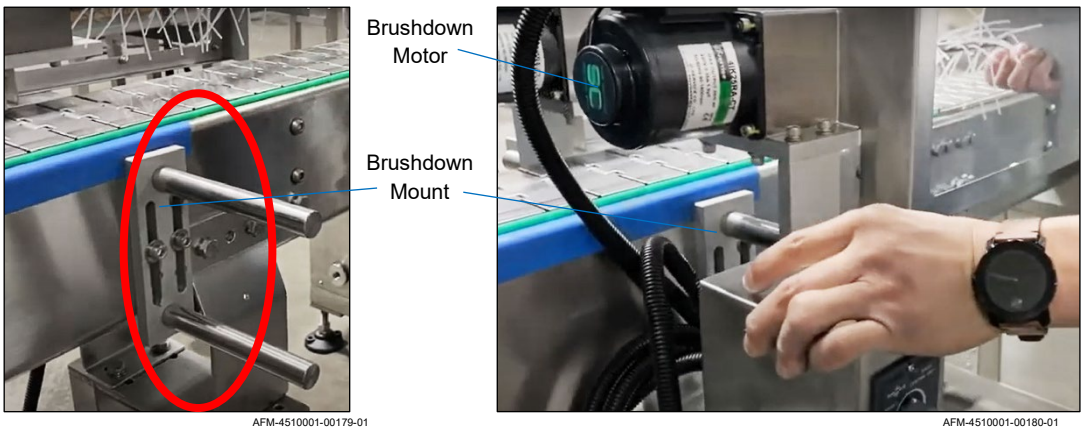
Positioning the Brushdown Assemblies (View from Front)



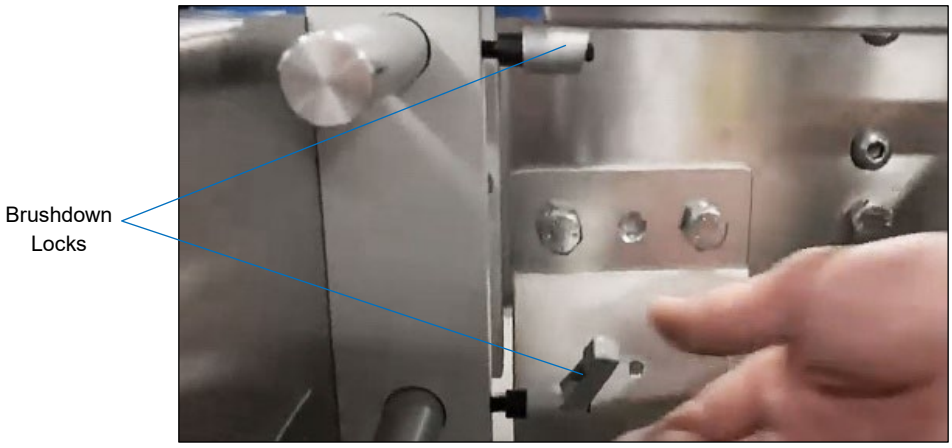
The Mounts should be directly across the Conveyor from each other, and immediately downstream from the LX-150.

2. Lift each Brushdown Unit onto a Mount. The Brushdown's Motor should be on the upstream side, and the bristles should be exposed to the centerline of the Conveyor.

Mounting the Brushdown Assemblies



3. Tighten the Brushdown Locks on both Assemblies to secure them in position.



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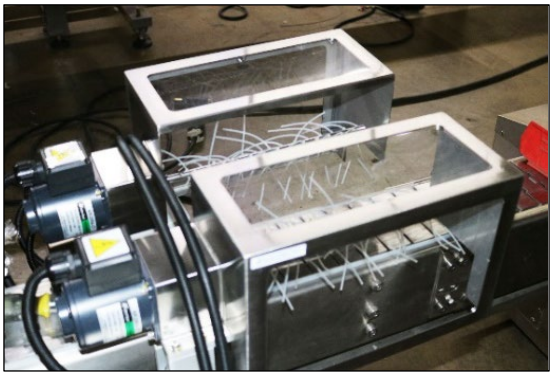
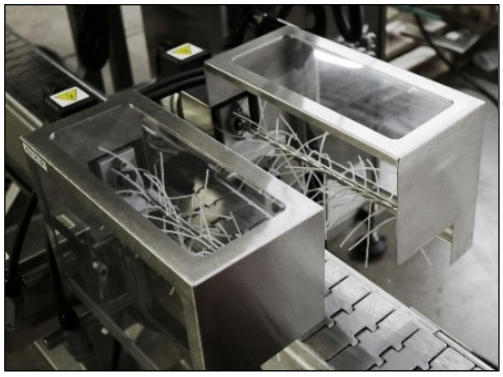
Properly Attached Brushdown Assemblies



AFM-4510001-00030-01



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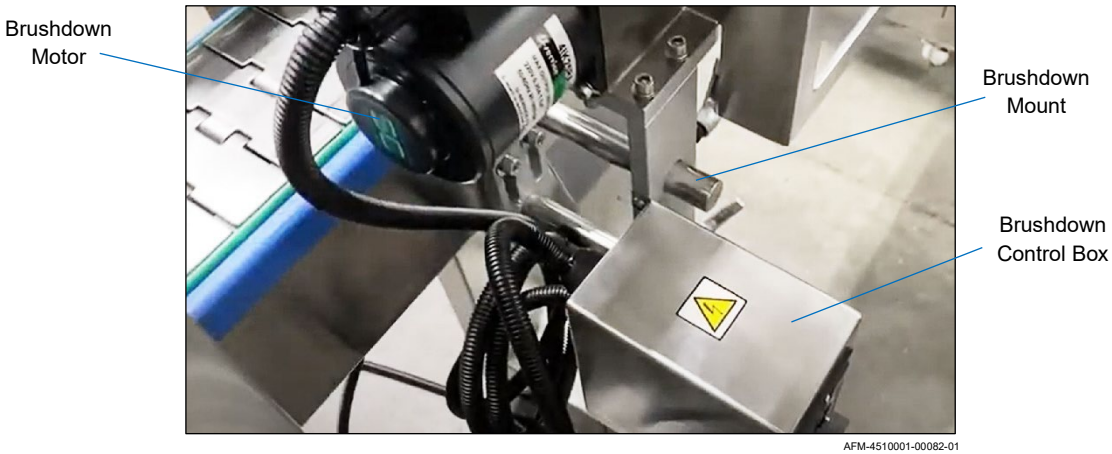
4. Attach the Control Box to the most accessible Mount.

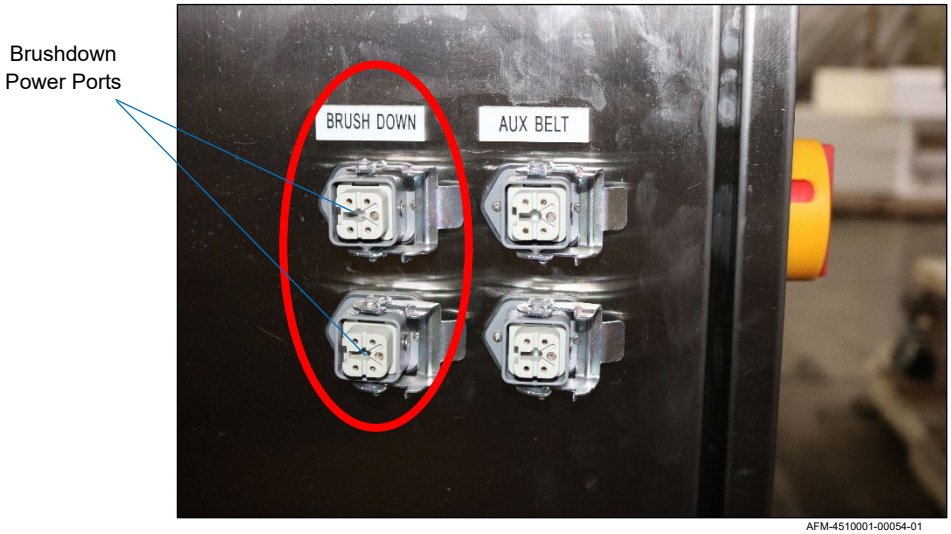
Attaching the Control Box to the Mount



AFM-4510001-00082-01

5. Plug the Brushdown Assemblies' Power Cables into the appropriate Power Ports on the downstream side of the LX-150's Electronics Cabinet.

Plugging in the Brushdown Assemblies



Attaching the Power Plug

Once the LX-150, UR-1, Timing Screw, Brushdown Assemblies, and any other peripherals are in place, the LX-150 needs to be connected to a grounded 3-Phase 208-240V, 50/60 Hz AC power source.

Items Needed for Attach the Power Plug:

- Licensed electrician
- Proper Plug Connection (not included) for the end of the Power Cable: 3-phase, 208-240V 50/60 Hz, grounded
- Code-compliant, 3-phase, 208-240V 50/60 Hz grounded AC power supply

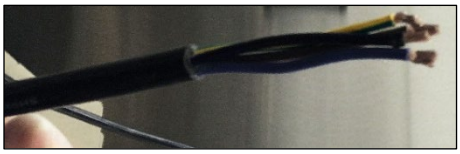
To Attach the Power Plug:

1. Locate the Power Cable on the front downstream side of the Electronics Cabinet of the LX-150.

Attaching a 3-Phase Plug

AFM-4510001-00053-01

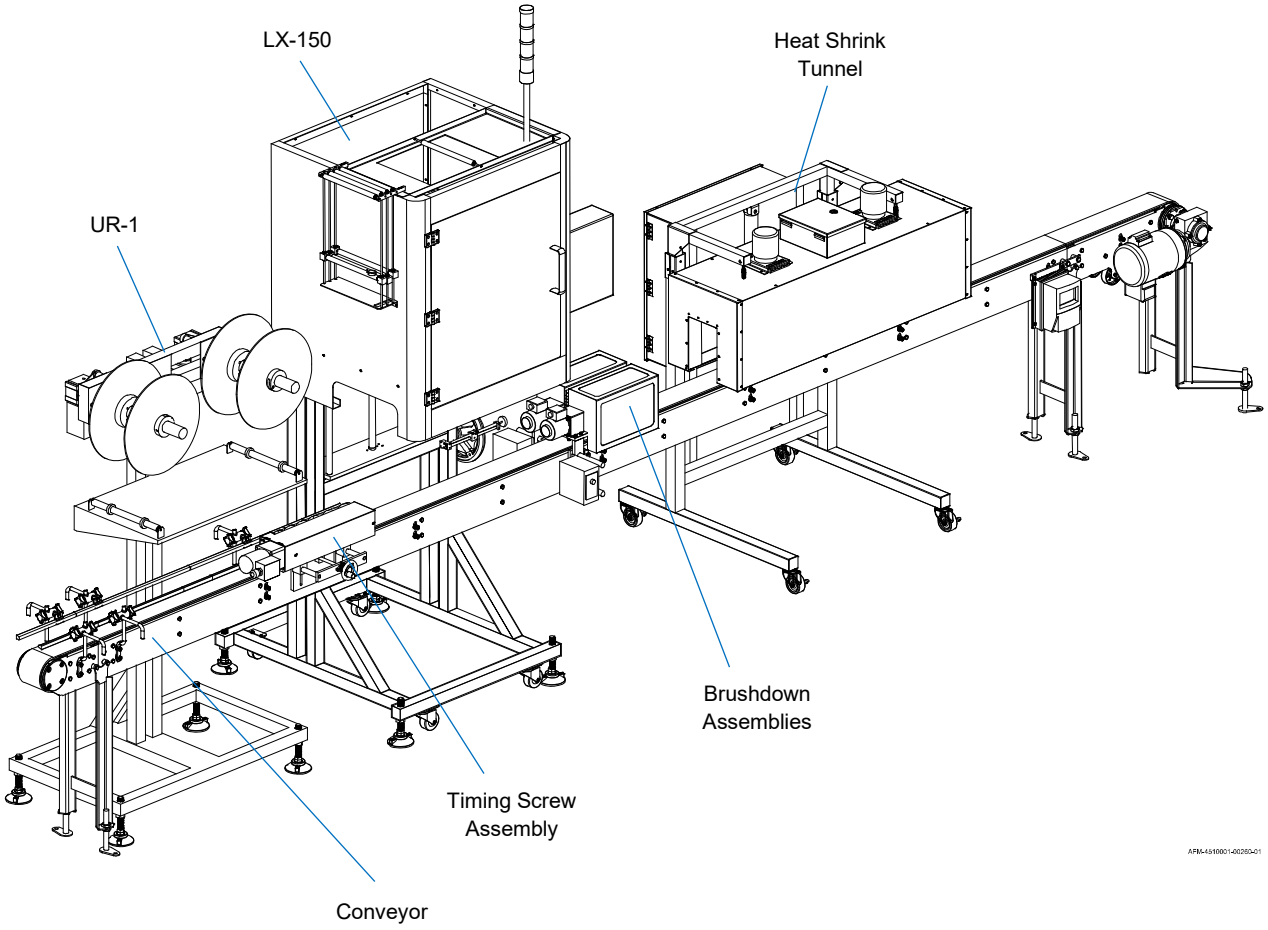

AFM-4510001-00139-01


AFM-4510001-00140-01

2. The LX-150 requires a 3-phase, 220V 50/60 Hz grounded power supply. A licensed electrician will need to attach the proper Plug Connection to the end of the system's Power Cable.

3. Plug the LX-150 into a code-compliant, 3-phase, 220V 50/60 Hz grounded AC power supply.

Properly Set Up System



Software

The Human Machine Interface (HMI) uses software which can be controlled through the Touchscreen on the HMI or remotely using a Programmable Logic Controller (PLC). This section describes the functions available through the HMI software.

Software Map

The software used to control the LX-150 has four main screens: **Other**, **Manual**, **Setting**, and **Work**. Below is a map showing the organization of the software. In the digital version of this User Guide, each screen name in the map links to a section explaining the function of the screen.

Other Screen (p. 80)

- Alarm & Message (p. 81)
  - History Message (p. 82)
- Knife Offset (p. 83)
- PLC Input 1 >> PLC Input 2 (p. 84) >> PLC Output 1 >> PLC Output 2 (p. 86) >> PLC I/O Monitor (p. 88)
- Parameter Setting (p. 89)
  - Parameter Setting Screen 1
    - Cut & Feed Procedure Setting
      - *Product Selection*
      - *Scan Jump*
      - *Motor Parameter 1: Feed Then Cut*
      - *Motor Parameter 2: Cut Then Feed*
    - Infeed Correct
    - Auto Stop Applicating Wheel
    - Application Spacing Setting
  - Parameter Setting Screen 2
    - Timing Screw Setting
    - Application Fail Setting
    - Auto Test
    - Change Password
  - Parameter Setting Screen 3

Input Setting 1 >> Input Setting 2

Option 1 Control Link >> Option 2 Control Link

Mandrel Jam

Manual Screen (p. 90)

Setting Screen (1) (p. 91) >> **Setting Screen 2** (p. 94)

Product Selection 1-8 (p. 93) >> 9-16 >> 17-24 >> 25-32 >> 33-40 >> 41-80

Work Screen (p. 96)

Product Target Setting (p. 98)

Alarms:

- Notice: Reached Preset Target (p. 99)
- Notice: Application Fail (p. 100)
- Notice: Emergency Stop (p. 102)
- Notice: Please Close the Door First (p. 103)
- Notice: Offset Position Is Not Reached (p. 104)
- Notice: Pulse Feedback Signal Abnormalities (p. 105)
- Notice: Low Film (p. 106)
- Notice: Film Empty (p. 107)
- Notice: No Catch Mark (p. 108)
- Notice: Cutter Can’t Find Its Home (p. 109)
- Notice: Cutter Need Positioning (p. 110)

Common Buttons

A few buttons are seen on numerous Screens. Their functions are described below.

Main Screen Tabs:

Accesses one of the four main screens. Whichever **Main Screen Tab** is blue is the one that is currently in use.

“Buzzer Stop” Button:

When an alarm is triggered, this button turns the Buzzer off.

“Fault Reset” Button:

When an alarm is triggered, this button resets the alarm to be able to be triggered again. This button does not resolve the problem that led to the alarm being triggered.

“Previous” Button:

Advances to the previous screen on the same level in the Software Map.

“Next” Button:

Advances to the next screen on the same level in the Software Map.

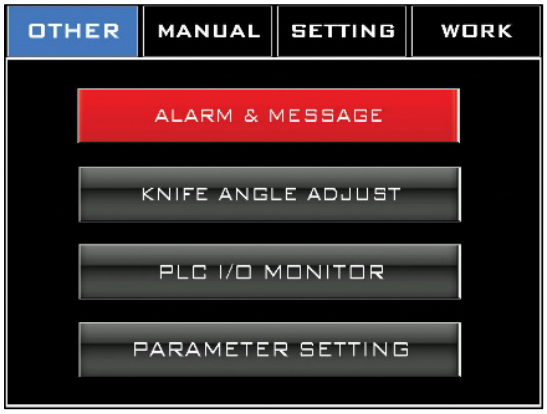
“Exit” Button:

Returns to the previous level up in the Software Map.

Other Screen

Accessed by pressing the “Other” Tab at the top.

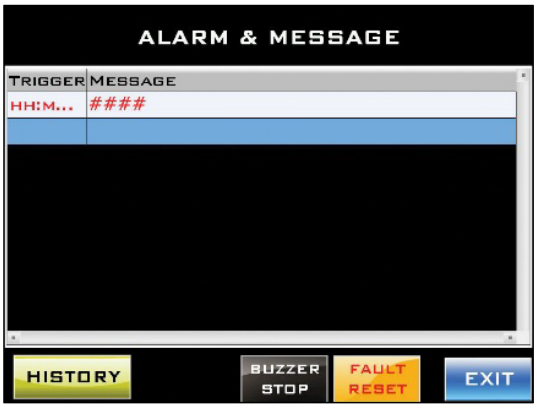
This is a portal through which the **Alarm & Message Screen**, the **Knife Angle Adjust Screen**, the **PLC I/O Monitor Screens**, and the **Parameter Setting Screens** can be accessed.



Alarm & Message Screen

Accessed from the **Other Screen**.

After an alarm screen pops up and is exited, the **Alarm & Message Screen** will display that alarm and whether it has been successfully cleared.



“History” Button:

Accesses the **History Message Screen** displaying a log of the alarms that have been triggered on the machine.

“Buzzer Stop” Button:

Turns off the Buzzer.

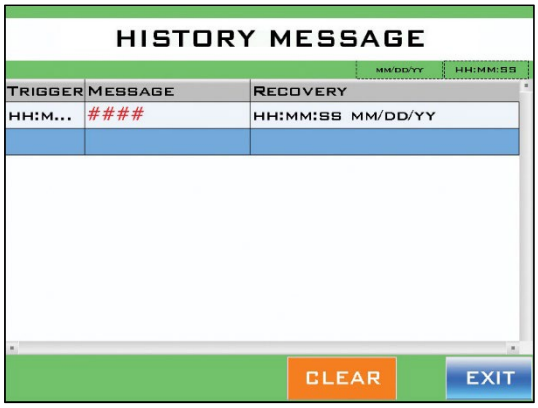
“Fault Reset” Button:

Resets the fault/alarm to be able to be triggered again. This button does not resolve the problem that led to the alarm being triggered.

History Message Screen

Accessed from the **Alarm & Message Screen**.

This is a log of all the faults/alarms that have been triggered on the machine.



“MMDDYY” Display:

Displays the current date in month, day, year format in the upper right part of the screen.

“HHMMSS” Display:

Displays the current time in hours, minutes, seconds format in the upper right part of the screen.

Trigger:

Displays when an alarm was triggered.

Message:

Displays what the alarm is.

Recovery:

Displays when an alarm was successfully cleared.

“Clear” Button:

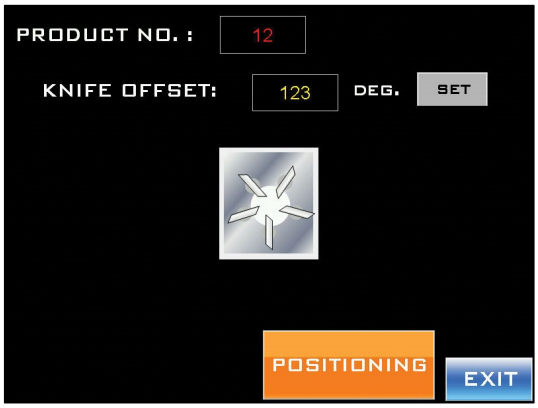
Permanently deletes the selected fault from the log.

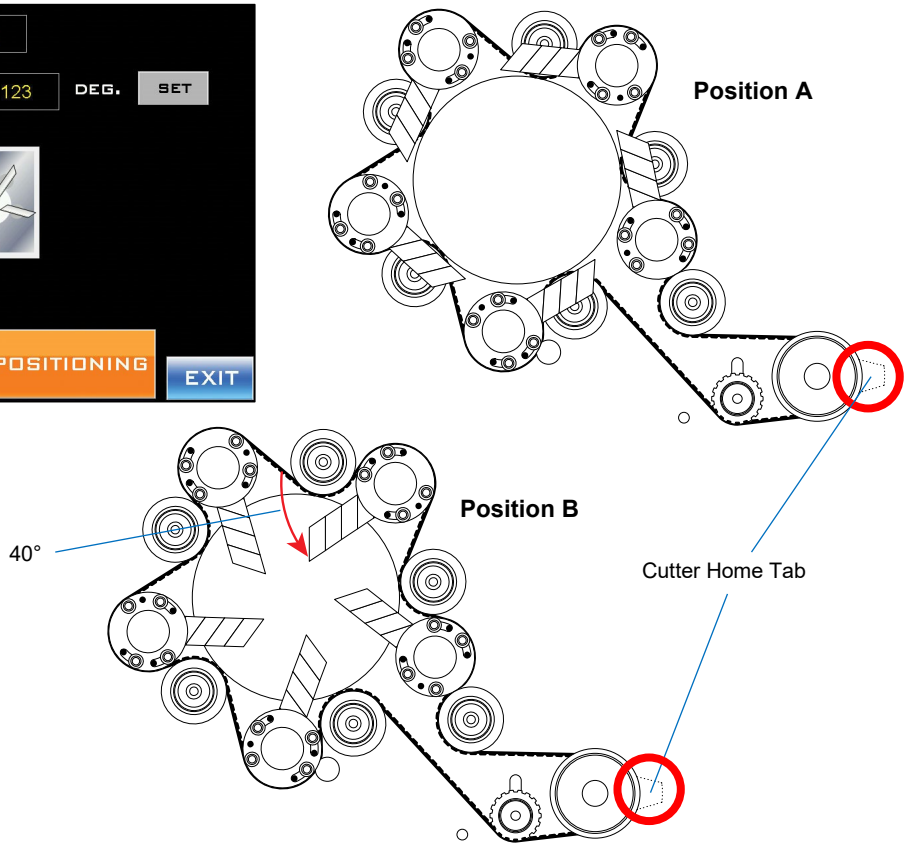
Knife Offset Screen

Accessed from the **Other Screen**.

This Screen relates to the Cutter Blades, enabling the user to input an offset angle relative to the Cutter Home Tab.

When the Cutter Blades are in the home position, they are at a certain angle in relation to the Cutter Home Tab, which always must be directly beneath the Cutter Home Position Sensor. If the Cutter Blades have just been replaced, they may not be aligned at the same angle to the Cutter Home Tab. The **Knife Offset Screen** allows this to be corrected.





“Knife Offset” Field:

Enters an angle to recalibrate the home position for the blades relative to the Cutter Home Tab. In the example above, Position A (above) shows the Blades in their correct home position relative to the Cutter Home Tab. In Position B, the Blades are 40° out of alignment from their home position. By entering “40” in the Knife Offset Field, pressing the “Set” Button, and pressing and holding the “Positioning” Button, the Cutter Blades realign to their correct home position relative to the Cutter Home Tab (Position A).

“Set” Button:

Accepts the value entered into the “Knife Offset” Field.

“Positioning” Button:

Moves the Cutter Blades to the angle entered into the “Knife Offset” Field.

PLC I/O Monitor Screens

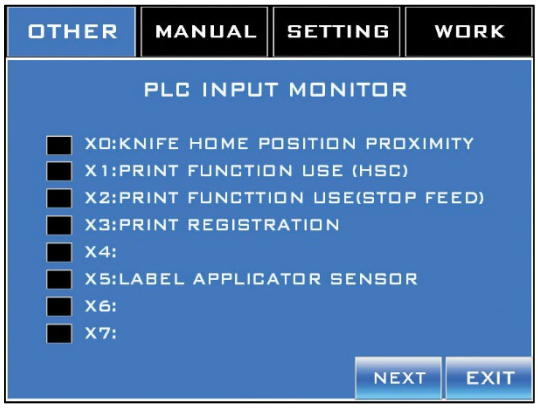
Accessed from the **Other Screen**.

The **PLC I/O Monitor Screens** are diagnostic tools for determining the functionality of different components of the LX-150. A box being checked indicates that the input or output for that component has been triggered. This is useful for testing purposes.

For example, if the E-Stop Button on the HMI has been pushed, the box next to “X8: Emergency Stop” on the **PLC Input 2 Screen** should be checked, indicating that the input for the E-Stop Button has been triggered. If the E-Stop Button has been pushed and the box next to “X8” is ***not*** checked, it is a clue that there may be a malfunction in the input for the E-Stop Button.

PLC Input 1 and 2 Screens

The **PLC Input Screens** indicate an input error for the component listed.

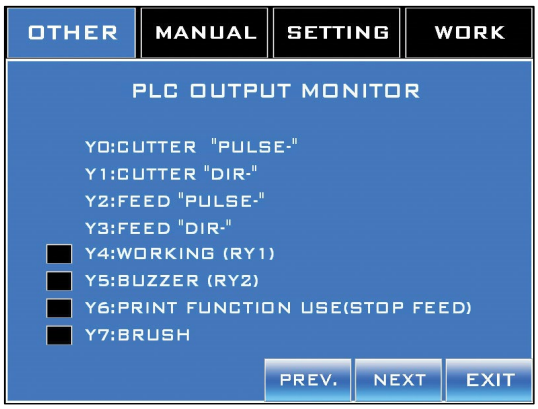


Input		Refers to	Meaning
X0	**Knife Home Position Proximity**	Input for the Cutter Home Position Sensor	☒: Currently on ☐: Not currently on
X1	**Print Function Use (HSC)**	Input from Film Feed Servo Drive to trigger the PLC	☒: Currently on ☐: Not currently on
X2	**Print Function Use (Stop Feed)**	Input from Film Feed Servo	☒: Currently on ☐: Not currently on
X3	**Print Registration**	Input for Print-Reading Sensor	☒: Currently on ☐: Not currently on
X4		N/A	
X5	**Label Application Sensor**	Input for Work Detective Sensor	☒: Currently on ☐: Not currently on
X6		N/A	

Input		Refers to	Meaning
X7		N/A	
X8	**Emergency Stop**	Input for the E-Stop Button on the HMI	☒: Currently triggered/activated ☐: Not currently triggered/activated
X9	**Film Accumulator Ready Det.**	N/A	
XA	**Application Fail**	Input for the Application Fail Sensor	☒: Currently triggered/activated ☐: Not currently triggered/activated
XB	**Start Button**	Input for the Start Button on the HMI	☒: Currently triggered/activated ☐: Not currently triggered/activated
XC	**Stop Button**	Input for the Stop Button on the HMI	☒: Currently triggered/activated ☐: Not currently triggered/activated
XD	**Safety Door**	Input for the Front Door	☒: Currently triggered/activated: the machine sees the Front Door as closed ☐: Not currently triggered/activated: the machine sees the Front Door as open
XE		N/A	
XF	**Timing Screw Sensor**	Input for the Timing Screw Sensor	☒: Currently triggered/activated ☐: Not currently triggered/activated

PLC Output 1 and 2 Screens

The **PLC Output Screens** indicate an output error for the component listed.



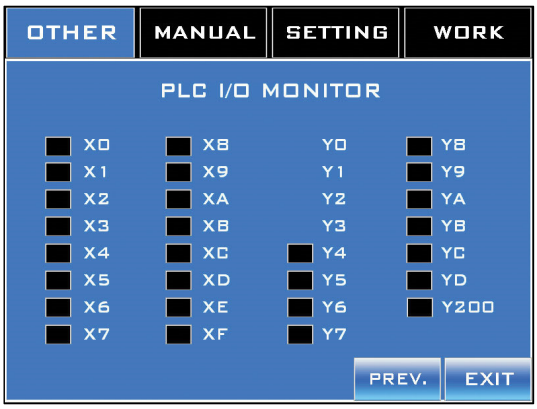
Output		Refers to	Meaning
Y0	**Cutter "Pulse-"**	Pulse output to operate the Cutter Servo	☒: Currently triggered/activated ☐: Not currently triggered/activated
Y1	**Cutter "Dir-"**	Output to define the Cutter Servo direction	☒: Currently triggered/activated ☐: Not currently triggered/activated
Y2	**Feed "Pulse-"**	Pulse output to operate the Film Feed Servo	☒: Currently triggered/activated ☐: Not currently triggered/activated
Y3	**Feed "Dir-"**	Output to define the Film Feed Servo direction	☒: Currently triggered/activated ☐: Not currently triggered/activated
Y4	**Working (RY1)**	Output to turn on Relay 1 (for the Applicating Motor)	☒: Currently triggered/activated ☐: Not currently triggered/activated
Y5	**Buzzer (RY2)**	Output to turn on Relay 2 (for the Buzzer)	☒: Currently triggered/activated ☐: Not currently triggered/activated
Y6	**Print Function Use (Stop Feed)**	Output to the Film Feed Servo	☒: Currently triggered/activated ☐: Not currently triggered/activated
Y7	**Brush**	Output to turn on Relay 3 (for the Brushdown Assemblies)	☒: Currently triggered/activated ☐: Not currently triggered/activated
Y8	**Tower Light – Yellow (RY4)**	Output to turn on Relay 4 (for the yellow Beacon Light)	☒: Currently triggered/activated ☐: Not currently triggered/activated
Y9	**Film Supply Motor (RY5)**	Output to turn on Relay 5 (for the UR-1 Unwind)	☒: Currently triggered/activated ☐: Not currently triggered/activated
YA	**Timing Screw Motor (RY6)**	Output to turn on Relay 6 (for the Timing Screw Motor)	☒: Currently triggered/activated ☐: Not currently triggered/activated

Output		Refers to	Meaning
YB	**Tower Light – Green (RY7)**	Output to turn on Relay 7 (for the green Beacon Light)	☒: Currently triggered/activated ☐: Not currently triggered/activated
YC	**H-Perf Trigger**	Output to cycle an optional Horizontal Perforator	☒: Currently triggered/activated ☐: Not currently triggered/activated
YD	**Print Trigger**	Output to operate an optional Printer	☒: Currently triggered/activated ☐: Not currently triggered/activated
Y200	**Aux Belt**	Output to turn on Relay 10 (for the Auxiliary Belts / Bottle Holding Devices)	☒: Currently triggered/activated ☐: Not currently triggered/activated

PLC I/O Monitor Screen

Accessed from the **PLC Output 2 Screen**.

The **PLC I/O Monitor Screen** is a summary of the four previous Screens, enabling the user to view all the info in one place.

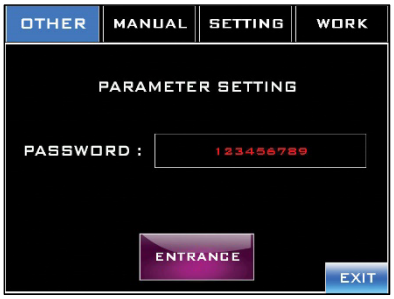


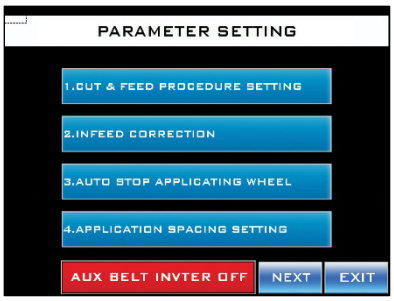
PLC I/O Monitor Screen			
Inputs		**Outputs**	
Code	**Component**	**Code**	**Component**
X0	Knife Home Position Proximity	Y0	Cutter “Pulse-”
X1	Print Function Use (HSC)	Y1	Cutter “Dir-”
X2	Print Function Use (Stop Feed)	Y2	Feed “Pulse-”
X3	Print Registration	Y3	Feed “Dir-”
X4	(N/A)	Y4	Working (RY1)
X5	Label Application Sensor	Y5	Buzzer (RY2)
X6	(N/A)	Y6	Print Function Use (Stop Feed)
X7	(N/A)	Y7	Brush
X8	Emergency Stop	Y8	Tower Light – Yellow (RY4)
X9	Film Accumulator Ready Det.	Y9	Film Supply Motor (RY5)
XA	Application Fail	YA	Timing Screw Motor (RY6)
XB	Start Button	YB	Tower Light – Green (RY7)
XC	Stop Button	YC	H-Perf Trigger
XD	Safety Door	YD	Printer Trigger
XE	(N/A)	Y200	Aux Belt
XF	Timing Screw Sensor		

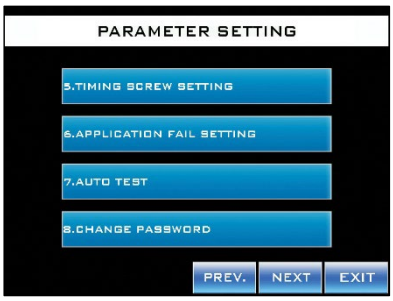
Parameter Setting Screens

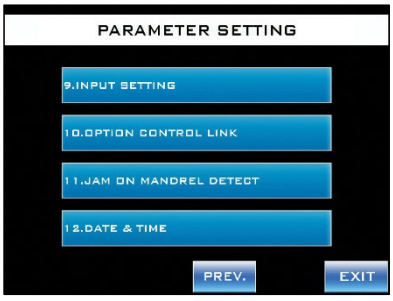
Accessed from the **Other Screen**.

The **Parameter Setting Screens** are a set of password-protected screens whose parameters are either set up at the factory or set up during installation. Each parameter describes a specific aspect of how the machine needs to function for the label film used and the containers being labeled. For assistance in adjusting any parameters, please contact your trained and authorized AFM Distributor or AFM Service Engineer.





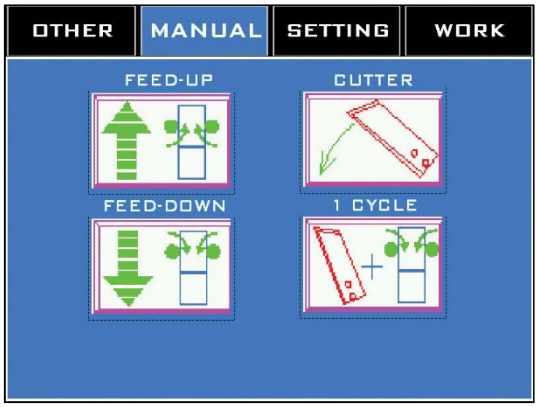




Manual Screen

Accessed by pressing the “Manual” Tab at the top.

The **Manual Screen** enables the user to perform four different tasks on a custom, individualized basis.



“Feed-Up” Button:

While pressed and held, the “Feed-Up” Button triggers the Film Drive Wheels to pull the label film up the length of the Mandrel.

“Feed-Down” Button:

While pressed and held, the “Feed-Down” Button triggers the Film Drive Wheels to push the label film down the length of the Mandrel.

“Cutter” Button:

Holding down the “Cutter Button” for 5 audible beeps rotates the Cutter Blades 360°.

“1 Cycle” Button:

Holding down the “1 Cycle” Button for 5 audible beeps advances the label film one full label length and cuts it.

Setting Screen (1)

Accessed by pressing the “Setting” Tab at the top.

Setting Screen 1 is used to select a preset label “recipe” and make adjustments to how the labels are cut and applied.

“Product No.” Field:

Displays the currently selected preset label recipe. The “Lock” Button can be used to prevent this preset from being changed.

“Select” Button:

Accesses the **Product Number Screen** to select a preset label recipe or create a new one.

Print:

Yes: Cuts are triggered by the transparent “cut areas” in the label design, as seen by the Print-Reading Sensor.

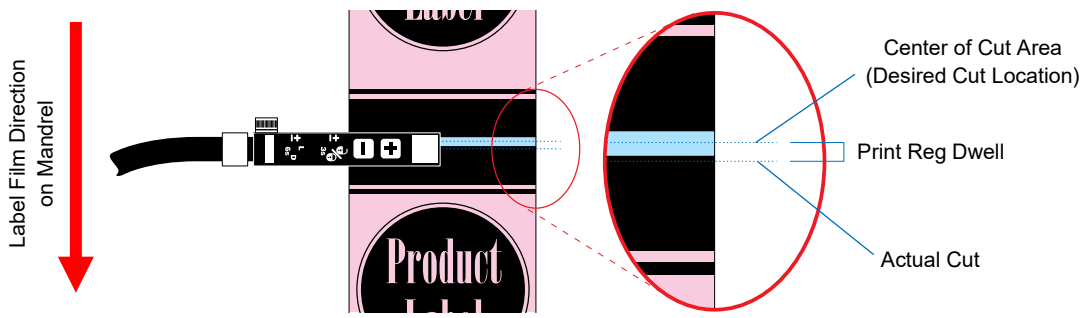
No: Cuts are triggered each time the label film has advanced a specified distance.

“Cut Length” Field:

Sets the length of a label. A value must be entered in this field regardless of which kind of cut trigger was selected in “Print.” “Cut Length” tells the LX-150 how long to expect a label to be. Select “Set” to accept the value.

“Print Reg. Dwell” Field:

This field is for use when “Print” is set to “Yes.” It adjusts the cut position on the label film without having to physically move the Print Reading Sensor. It can be used to make upward adjustments to the cut position. Enter the distance in mm between the actual cut and the desired cut location. Select “Set” to accept the value.



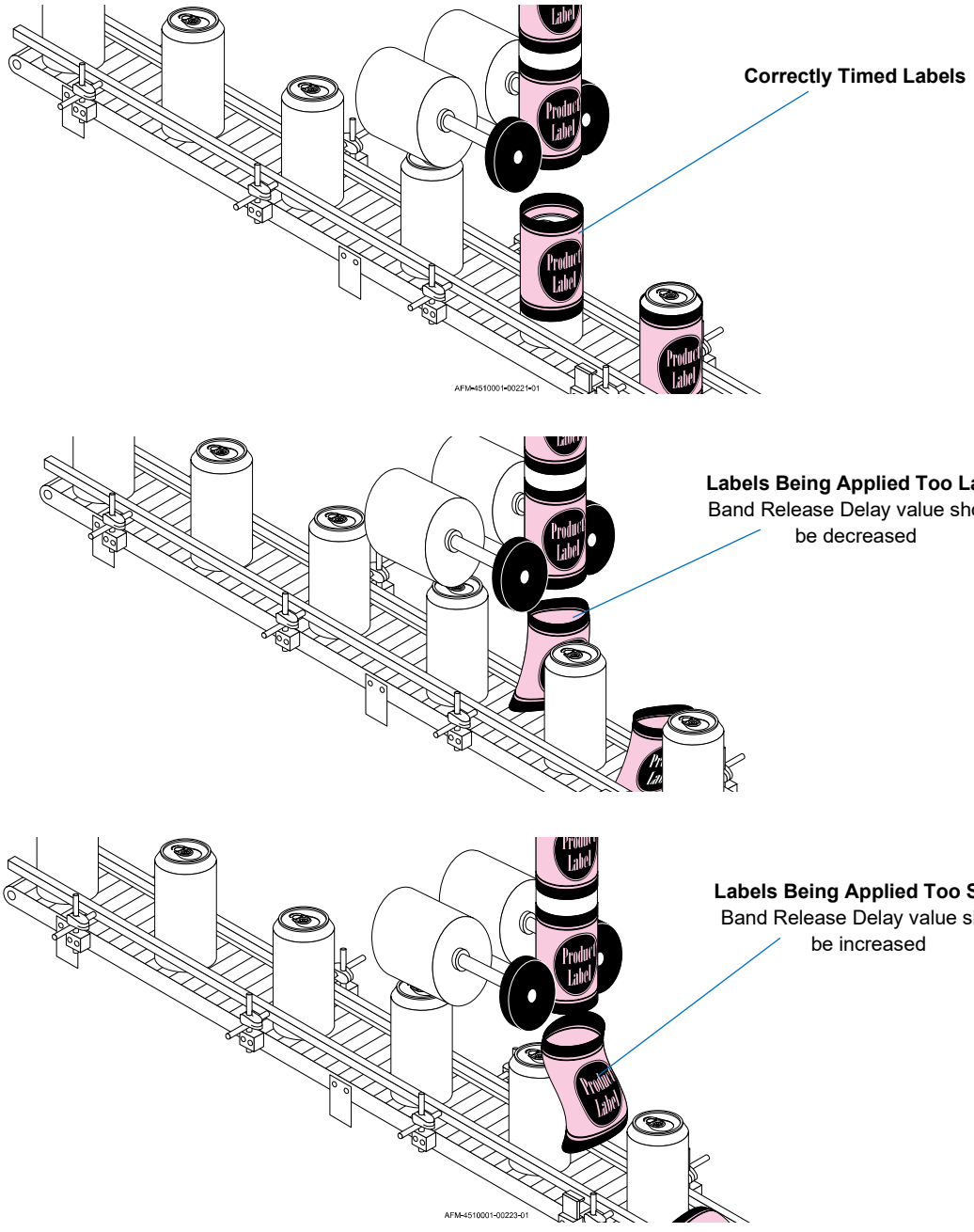
“Feeding Time” Field:

Sets the length of time for the film to advance one label length by adjusting the speed of the Film Drive Wheels. Select “Set” to accept the value.

Band Release Delay:

Sets the timing of the Applicator Wheels shooting a label down onto a passing bottle. Values are entered using the Number Buttons below the “Application Delay” field. The negative values decrease the delay time, causing the label to be applied sooner. The positive values increase the delay time, causing the label to be applied later. Select **Set** to accept the value.

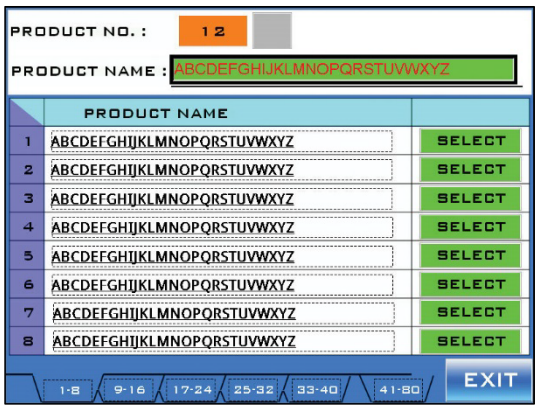
Band Release Delay



Product Selection Screen

Accessed from **Setting Screen 1**.

The Product Selection Screen provides access to up to 80 different preset labeling recipes.



“Product No.” Field:

Displays the number of the currently selected recipe.

“Product Name” Field:

Displays the name of the currently selected recipe.

“Product Name” Column:

Displays the name of up to eight recipes.

“Select” Button:

Touching the “Select” Button to the immediate right of a recipe selects that recipe.

“Page” Buttons:

The “Page” Buttons at the bottom of the screen allow the user to scroll through different pages, each of which can have up to eight recipes.

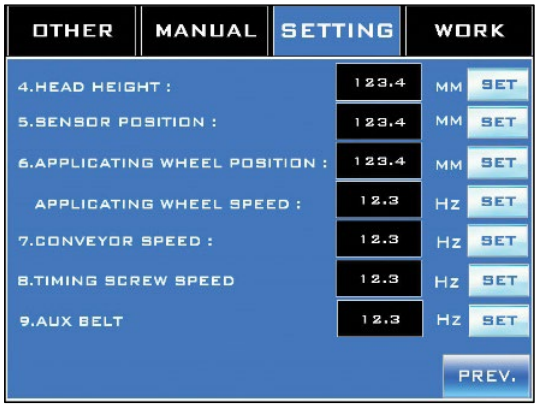
- Selecting the “25-32” Button, for example, displays the Screen for the 25th-32nd recipes.
- Selecting the “41-80” Button changes the buttons to read “1-40,” “41-48,” “49-56,” “57-64,” “65-72,” and “73-80.”

Setting Screen 2

Accessed from **Setting Screen 1**.

Setting Screen 2 displays some general parameters for the currently selected recipe. Many of these do not require input, but are instead for record-keeping purposes. If a new value is input into a field, select “Set” to accept it.

NOTE: These numbers should be considered general guidelines for the recipe rather than precise calibrations. Over time and with vibrations of the machinery, the actual numbers can begin to drift and may need to be readjusted.



“Head Height” Field:

A record-keeping field displaying the height of the Head Assembly (in mm) above the Conveyor.

If a new value is input, select “Set” to accept it.

“Sensor Position” Field:

A record-keeping field displaying the position (in mm) of the Work Detective Sensor.

If a new value is input, select “Set” to accept it.

“Applicating Wheel Position” Field:

A record-keeping field displaying the vertical position (in mm) of the Applicator Wheels along the length of the Mandrel.

If a new value is input, select “Set” to accept it.

“Applicating Wheel Speed” Field:

Sets the amount of power supplied to the Applicator Wheels (in Hz), which translates to the speed of the Wheels. A higher value causes the Applicator Wheels to shoot the label down onto the product faster. This is a “live” field. Select “Set” to accept an entered value.

“Conveyor Speed” Field:

A record-keeping field displaying the amount of power supplied to the Conveyor (in Hz), which translates to the speed of the Conveyor. A higher value causes the Conveyor to move faster.

If a new value is input, select “Set” to accept it.

“Timing Screw Speed” Field:

Sets the amount of power supplied to the Timing Screw (in Hz), which translates to the rotation speed of the Timing Screw. A higher value causes the Timing Screw to turn more quickly, allowing more bottles per minute to be allowed to flow through the LX-150. This is a “live” field. Select “Set” to accept an entered value.

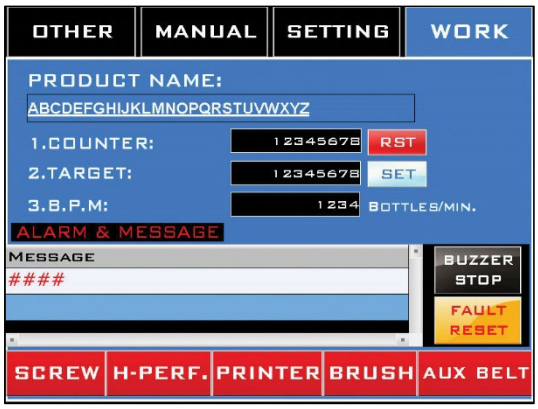
“Aux Belt” Field:

Sets the amount of power supplied to the Auxiliary Belts / Bottle Holding Devices (in Hz), if used, which translate to the speed of the Auxiliary Belts / Bottle Holding Devices. A higher value causes the Auxiliary Belts / Bottle Holding Devices to move faster. The Auxiliary Belts / Bottle Holding Devices should visually move at the same speed as the Conveyor Belt, but this does not mean that they will need the same amount of power. This is a “live” field. Select “Set” to accept an entered value.

Work Screen

Accessed by pressing the “Work” Tab at the top.

This is the screen that will be in use most often during labeling. It controls the most basic aspects of labeling and provides real-time feedback.



“Product Name” Field:

Displays the recipe currently being used for labeling.

“Counter” Field:

Displays the number of bottles that have been labeled during the current run. Press the “Rst” Button to reset the number to “0.”

“Target” Field:

Sets the desired number of bottles to be labeled during the current run. Touching this field displays the **Product Target Setting Screen**. Select “Set” to accept the value in the field.

“BPM” Field:

Displays real-time information on the rate at which bottles are being labeled (in bottles per minute).

“Alarm & Message” Field:

Displays current information on any faults that have occurred.

“Buzzer Stop” Button:

Turns off the Buzzer.

“Fault Reset” Button:

Resets the fault/alarm to be able to be triggered again. This button does not resolve the problem that led to the alarm being triggered.

The red buttons along the bottom enable – but do not necessarily turn on – the peripherals for the system.

NOTE: It is possible that one or more of these buttons may have been reassigned to enable a different peripheral at the factory or during installation, at the request of the purchaser. Some

buttons may also do nothing, because the corresponding peripheral is not used by the purchaser.

“Screw” Button:

Activates the Timing Screw so that it can be used during the current run. Once bottles are backed up behind the Timing Screw Sensor, the Timing Screw will start turning about two seconds after the Start Button on the HMI is pressed.

“H-Perf” Button:

Activates a Horizontal Perforator, if relevant, so that it can be used during the current run. The Horizontal Perforator will start when the Start Button on the HMI is pressed.

“Printer” Button:

Activates an optional Printer, if relevant, so that it can be used during the current run. The Printer will start when the Start Button on the HMI is pressed.

“Brush” Button:

Activates the Brushdown Assemblies so that they can be used during the current run. The Brushdown Assemblies will start when the Start Button on the HMI is pressed.

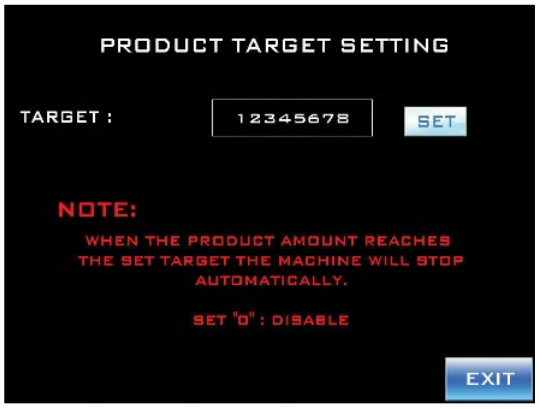
“Aux Belt” Button:

Activates the Auxiliary Belts / Bottle Holding Devices, if relevant, so that they can be used during the current run. The Auxiliary Belts / Bottle Holding Devices will start when the Start Button on the HMI is pressed.

Product Target Setting Screen

Accessed from the **Work Screen**.

The Product Target Setting Screen is for setting how many bottles are to be labeled during the current run.



“Target” Field:

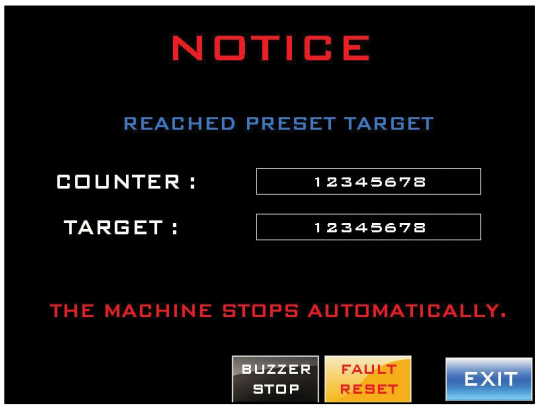
Sets the number of bottles to be labeled in the current run. Select “Set” to accept the value.

Alarm Screens

During operation of the LX-150, any of several alarm screens may display to alert users to a situation that needs to be addressed in order to continue labeling.

Notice: Reached Preset Target

Alerts the user that the target number of bottles has been labeled.

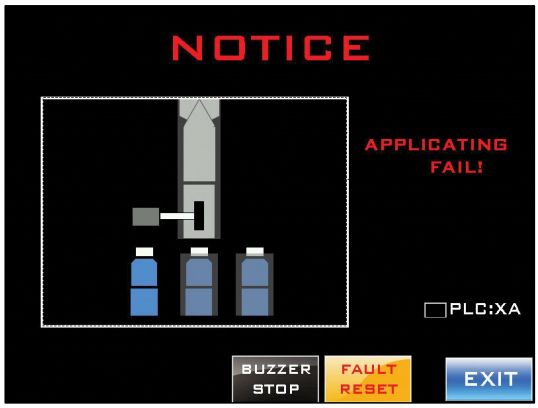


To Address the Fault and Resume Labeling:

1. Press the “Buzzer Stop” Button.
2. Enter a new value (typically “0”) into the “Counter” Field.
3. Enter a new value into the “Target” Field for the number of bottles to be labeled during the next labeling run.
4. Press the “Faut Reset” Button.
5. Press the “Exit Button.”

Notice: Application Fail

Alerts the user that there may be a film jam.



To Address the Fault and Resume Labeling:

1. Press the “Buzzer Stop” Button.
2. Starting at the bottom of the Mandrel, check the entire length of the film path for kinks, wrinkles, tangles, twisting, obstructions, unusual wear, etc.
3. Clear any problems identified.
4. After the issue has been resolved, press the “Faut Reset” Button.
5. Press the “Exit Button.”
6. If the problem persists, evaluate setup. Possible reasons for repeated film jams can include:
   - ***Inappropriate Label Film:***
     The film is too thick, too thin, or the layflat width is too large or small (see “System Specifications” on page 41).
   - ***Inappropriate Label Length:***
     The labels being applied are longer or shorter than the acceptable range for the machine (see “System Specifications” on page 41).
   - ***Incorrect Head Height:***
     The head height is too high or too low. The bottom of the Mandrel should be approximately half a label length from the tops of passing bottles (see “Head Height Adjust” on page 37 and “Fine-Tuning the LX-150 Position” on page 60).
   - ***Incorrect Conveyor Speed:***
     The LX-150 is designed to apply labels at a fairly rapid speed, but if labels are consistently missing their target, the Conveyor speed may be set too high for the particular labels and bottles.
   - ***Incorrect Work Detective Sensor Position:***
     The Work Detective Sensor is too far upstream, causing labels to be applied too

soon, or is too far downstream, causing labels to be applied too late (see “Work Detective Sensor” on page 37).

- ***Incorrect Film Drive Wheel Position:***
  The Film Drive Wheels are too tight against the Film Drive Bearings, so the film cannot move through, or the Film Drive Wheels are too far from the Applicator Bearings, so they not advancing the film with precision (see “Film Drive Wheels: Unlocking/Adjusting/Locking” on page 112).
- ***Incorrect Applicator Wheel Position:***
  The Applicator Wheels are too far from the Applicator Bearings, so they are occasionally slipping against the label film rather than pushing it (see “Applicator Wheels: Unlocking/Adjusting/Locking” on page 115).

Notice: Emergency Stop

The Emergency Stop Button has been pressed, potentially indicating a safety hazard.

To Address the Fault and Resume Labeling:

1. Press the “Buzzer Stop” Button.
2. Determine why the Emergency Stop Button was pressed.
3. If a safety hazard exists, thoroughly address and eliminated the safety hazard.
4. Reset the physical Emergency Stop Button on the HMI by turning it clockwise.
5. After the issue has been resolved, press the “Faut Reset” Button.
6. Press the “Exit Button.”

Notice: Please Close the Door First

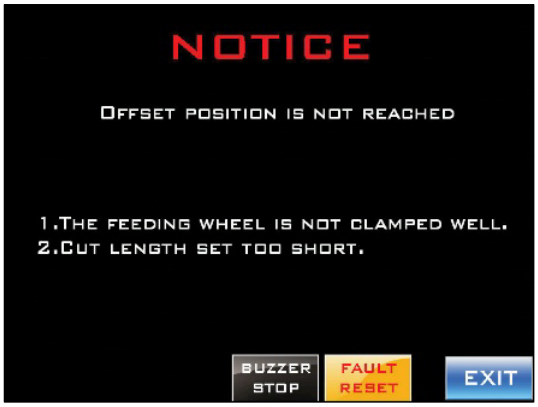
The Front Door is open. As a safety feature, it must be closed when the LX-150 is operating.

To Address the Fault and Resume Labeling:

1. Press the “Buzzer Stop” Button.
2. Close the Front Door.
3. After the issue has been resolved, press the “Faut Reset” Button.
4. Press the “Exit Button.”

Notice: Offset Position Is Not Reached

The Print Reading Sensor has not been activated when expected after a certain amount of label film has passed down the Mandrel.

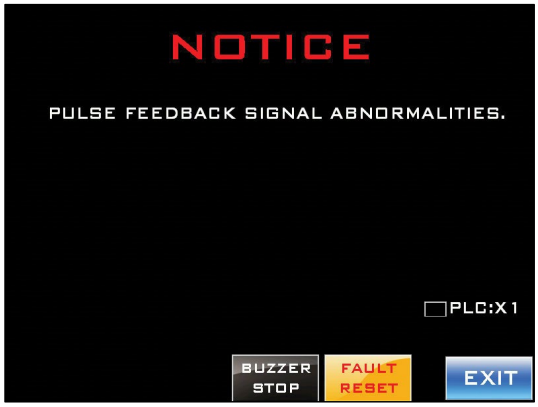


To Address the Fault and Resume Labeling:

1. Press the “Buzzer Stop” Button.
2. Check that the Film Drive Wheels are not too far from the Film Drive Bearings in the Mandrel. If they are too far from the Bearings, they will not properly grip the film and may not advance the film with precision. If needed, adjust the Film Drive Wheels. (see “Film Drive Wheels: Unlocking/Adjusting/Locking” on page 112).
3. On **Setting Screen 1**, confirm that the “Cut Length” is within the acceptable range (40 – 250 mm). Assigning too short a “Cut Length” can trigger this alarm.
4. After the issue has been resolved, press the “Faut Reset” Button.
5. Press the “Exit Button.”

Notice: Pulse Feedback Signal Abnormalities

An error has taken place with the Feed Servo Drive.

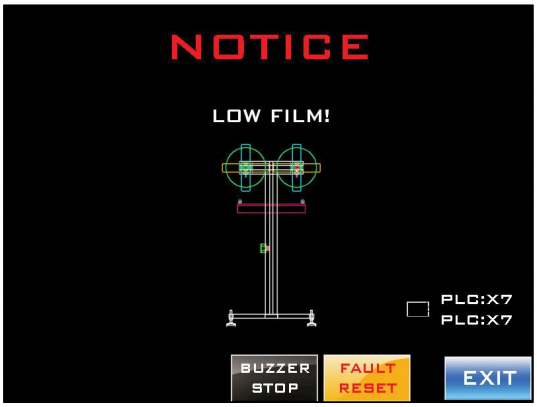


To Address the Fault and Resume Labeling:

1. Press the “Buzzer Stop” Button.
2. Contact AFM Technical Support at (714) 974-9006 or info@afmsleeves.com.
3. After the issue has been resolved, press the “Faut Reset” Button.
4. Press the “Exit Button.”

Notice: Low Film

This notification requires optional equipment to be installed in order to trigger it. If the equipment has not been installed, this notification will not appear. This alarm indicates that the current film roll is running low.



To Address the Fault and Resume Labeling:

1. Press the “Buzzer Stop” Button.
2. Load a new film roll on the other Film Spool (see “Installing the Film” on page 119).
3. After the new roll has been loaded, press the “Faut Reset” Button.
4. Press the “Exit Button.”
5. Watch the film roll closely and be prepared to stop the machine before the current roll runs out completely so that splice the beginning of the new roll onto the end of the old roll

Notice: Film Empty

This notification requires optional equipment to be installed in order to trigger it. If the equipment has not been installed, this notification will not appear. This alarm indicates that the current film roll is empty.

To Address the Fault and Resume Labeling:

1. Press the “Buzzer Stop” Button.
2. If possible, splice the beginning of the new label film roll onto the end of the old roll (see “Switching Film Rolls” on page 141).
3. If the film roll has completely run out, the label film from the new roll may need to be threaded through the system (see “Threading the Film” on page 121 and “Fine-Positioning the Film for Cutting” on page 128).
4. When the film has been correctly spliced or rethreaded, press the “Faut Reset” Button.
5. Press the “Exit Button.”

Notice: No Catch Mark

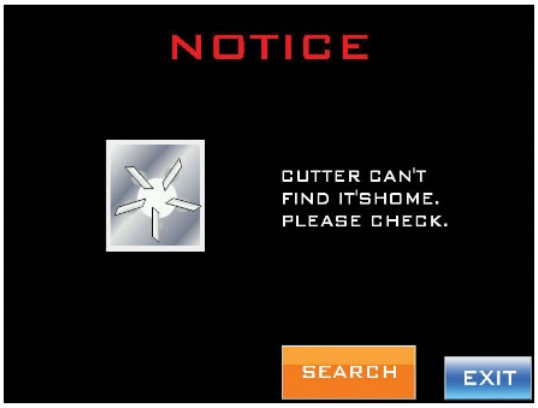
The Print Reading Sensor is not seeing the cut area in the label film.

To Address the Fault and Resume Labeling:

1. Press the “Buzzer Stop” Button.
2. Make sure that film is threaded through the system. If there is no film load a new film roll and thread it through the system (see “Installing the Film” on page 119, “Threading the Film” on page 121, and “Fine-Positioning the Film for Cutting” on page 128).
3. On **Setting Screen 1**, confirm that the “Cut Length” is within the acceptable range (40 – 250 mm). Assigning too short a “Cut Length” can trigger this alarm.
4. Check for a film jam. Starting at the bottom of the Mandrel, check the entire length of the film path for kinks, wrinkles, tangles, twisting, obstructions, unusual wear, etc. and correct any issues found.
5. Check that the Film Drive Wheels are not too tight against the Film Drive Bearings (impairing the film’s ability to move through easily), or that the Film Drive Wheels are not too far from the Applicator Bearings (preventing them from advancing the film with precision). If needed, adjust the position of the Film Drive Wheels (see “Film Drive Wheels: Unlocking/Adjusting/Locking” on page 112).
6. Check the Print-Reading Sensor Lens for any obstructions such as dust, dirt, or cloudiness. If needed clean the Lens (see “Cleaning the Print Reading Sensor” on page 150).
7. Check the Print-Reading Sensor’s sensitivity (see “Checking and Adjusting the Print Reading Sensor’s Sensitivity” on page 179) and if needed, adjust it.
8. After the issue has been resolved, press the “Faut Reset” Button.
9. Press the “Exit Button.”

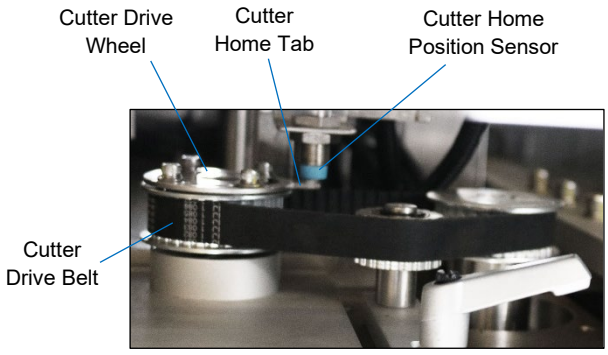
Notice: Cutter Can't Find Its Home

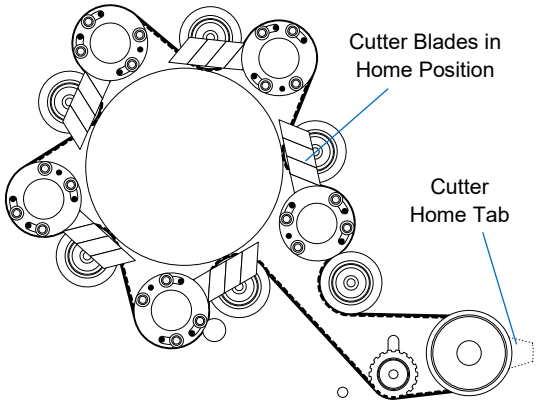
The Cutter Blades are unable to find their home position. A broken Cutter Drive Belt can also trigger this alarm.



To Address the Fault and Resume Labeling:

1. Press the "Buzzer Stop" Button.
2. Open the Front Door and check that the Cutter Drive Belt is intact.
3. Confirm that the Cutter Home Tab is directly below the Cutter Homer Position Sensor. If it is out of alignment, manually rotate the Cutter Drive Wheel until the Cutter Home Tab is directly below the Cutter Home Position Sensor.





4. Underneath the Cutter Assembly, look at the position of the Cutter Blades and estimate the angle that would return them to their home position.
5. Close the Front Door.
6. Select the **Other Screen** Tab and go to the **Knife Offset Screen**.
7. Enter the estimated angle in the "Knife Offset" Field and press the "Set" Button to accept it.
8. Repeat steps 3-6 until the Cutter Blades are in the correct home position.
9. After the issue has been resolved, press the "Faut Reset" Button.
10. Press the "Exit Button."

Notice: Cutter Need Positioning

The machine has just been turned on or the Cutter Blades are not in their home position relative to the Cutter Home Tab.

To Address the Fault and Resume Labeling:

1. Press the “Positioning” Button. The Cutter Blades will rotate to their home position.
2. Confirm that the Cutter Blades are in their proper home position by opening the Front Door and looking underneath the Cutter Assembly.
3. Close the Front Door.
4. If the Cutter Blades are out of alignment, follow the instructions for “Notice: Cutter Can’t Find Its Home” on page 109.
5. Press the “Exit Button.”

Common Procedures

There are several basic procedures and principles used during installation, operation, and maintenance of the LX-150 which, once understood, are very simple. To avoid repetition and excessive wording, those procedures and principles are described in this section.

A general principle to understand is that, when adjusting certain parts, they must first be unlocked, then adjusted by turning an adjustment knob, and then locked again into their new position. During all of these procedures, unless otherwise stated, the UR-1 and LX-150 should be turned off.

Tensioner: Unlocking/Adjusting/Locking

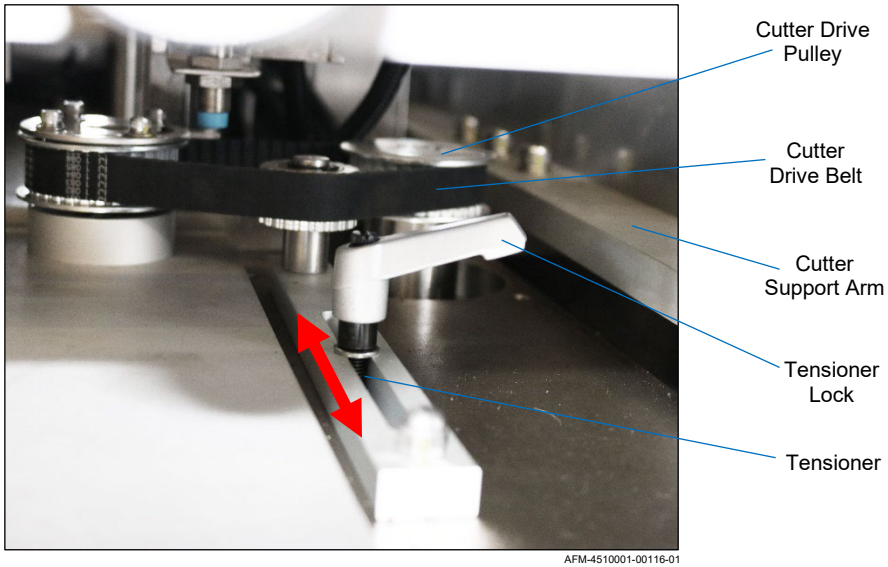
The Tensioner (on the side of the right Cutter Support Arm) ensures that the Cutter Drive Belt puts the right amount of pressure on the Cutter Drive Pulley.

To Adjust the Tensioner:

1. Loosen the Tensioner Lock by turning it counterclockwise.

2. Push the Tensioner toward the back wall to increase tension, or push the Tensioner toward the back wall with less pressure to decrease tension.

Adjusting and Locking the Tensioner



3. Tighten the Tensioner Lock by turning it clockwise.

Film Drive Wheels: Unlocking/Adjusting/Locking

The Film Drive Wheels, resting against the Film Drive Bearings on the Mandrel, advance the film down the length of the Mandrel toward the Cutter Assembly.

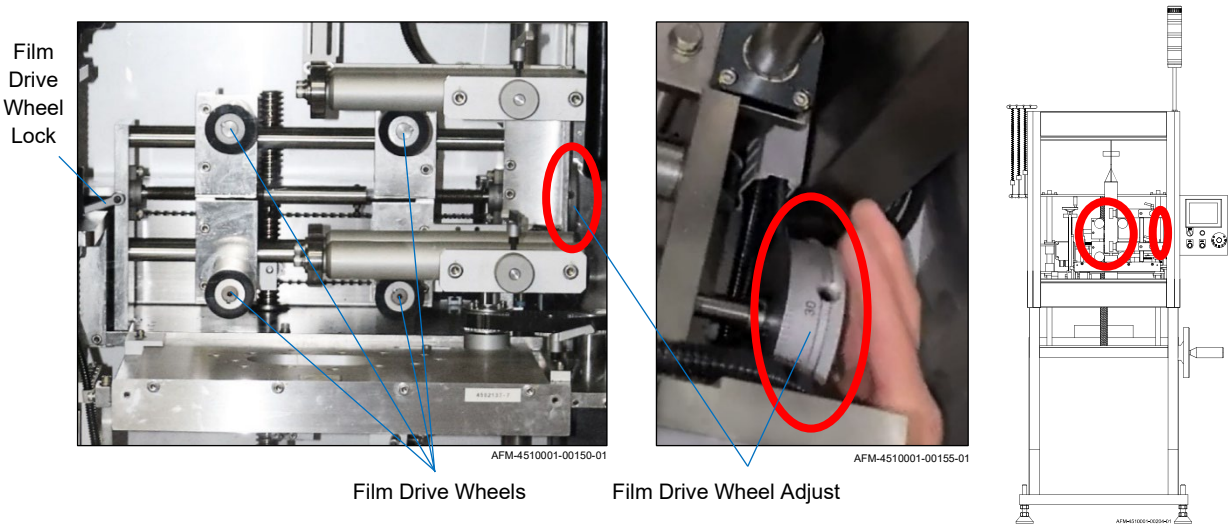
	**ATTENTION:** The Film Drive Wheels should be tight enough to consistently advance the label film.

The Film Drive Wheels must be loosened to remove the Mandrel or when less pressure on the Film Drive Bearings is needed. They must be tightened to help stabilize the Mandrel and when more pressure on the Film Drive Bearings is needed.

To Adjust the Film Drive Wheels:

1. Unlock the Film Drive Wheel Lock by turning it counterclockwise.

	**ATTENTION:** Attempting to adjust the Film Drive Wheels when they are locked can damage the LX-150 and void the warranty.



2. Holding the Mandrel with one hand, turn the Film Drive Wheel Adjust. If adjusting the Film Drive Wheels to move film down the Mandrel, they should be tight enough to consistently advance the label film.
   a. Turn clockwise to move the Film Drive Wheels away from the Mandrel.
   b. Turn counterclockwise to move the Film Drive Wheels in toward the Mandrel. A Clutch Release within the Film Drive Wheel Adjust will noticeably slip when the Wheels are correctly positioned.
3. Once the Film Drive Wheels are properly positioned, lock the Film Drive Wheel Lock by turning it clockwise.

Support Wheels: Unlocking/Adjusting/Locking

Two sets of Support Wheels (Upper and Lower) rest against the Support Bearings on the Mandrel, hold the Mandrel in place, and keep it from falling. Whenever adjusting the Support Wheels, the Mandrel must be held firmly by hand to ensure that it does not fall.

	**ATTENTION:** Failure to hold the Mandrel firmly by hand when loosening the Support Wheels will result in the Mandrel falling, potentially damaging it and the LX-150, and voiding the warranty.

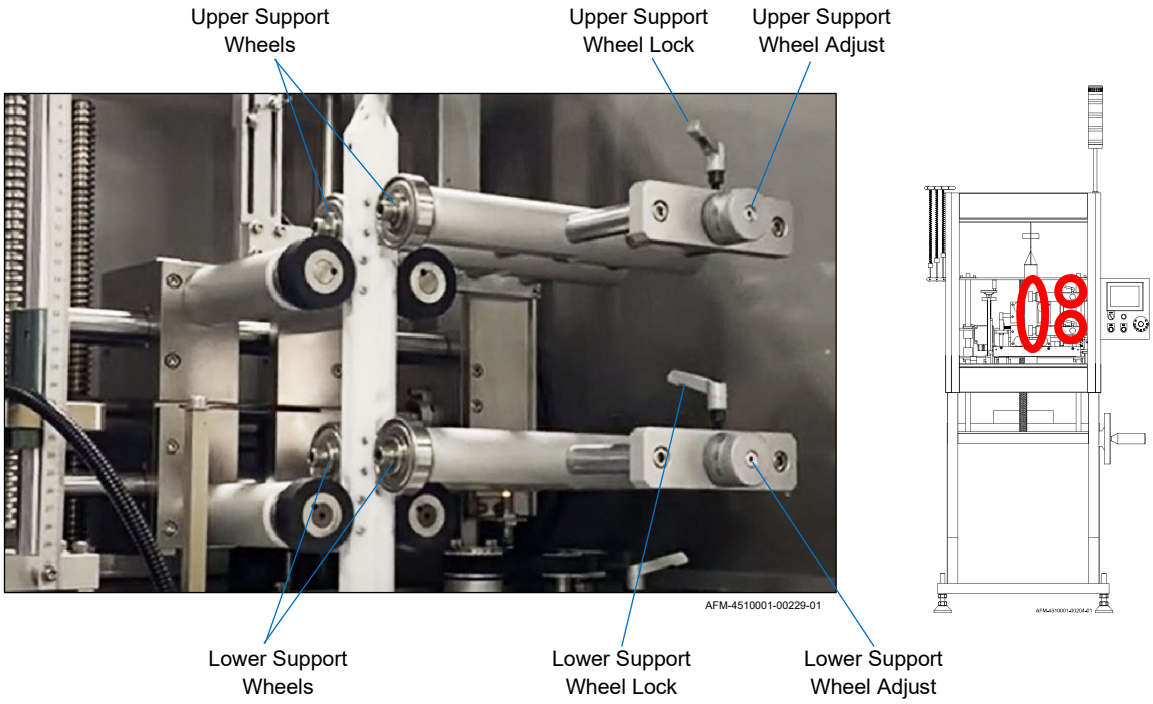
The Support Wheels need to be loosened to remove the Mandrel or if they are so tight against the Mandrel that the film cannot easily slide past. They need to be tightened enough to support the Mandrel.

When installing the Mandrel, the Lower Support Wheels should be positioned first to help support the weight of the Mandrel. When removing the Mandrel, the Upper Support Wheels should be loosened first.

To Adjust the Lower Support Wheels:

1. Unlock the Lower Support Wheel Lock by turning it counterclockwise.

	**ATTENTION:** Attempting to position the Upper Support Wheels when they are locked can damage the LX-150 and void the warranty.



2. Holding the Mandrel with one hand, turn the Lower Support Wheel Adjustment Knob:
   a. Turn clockwise to move the Lower Support Wheels away from the Mandrel.
   b. Turn counterclockwise to move the Lower Support Wheels in toward the Mandrel.

3. Once the Lower Support Wheels are in the desired position, lock them in place by turning the Lower Support Wheel Lock clockwise.

To Adjust the Upper Support Wheels:

1. Follow all instructions above for Adjusting the Lower Support Wheels, replacing the word “Lower” with “Upper.”

Applicator Wheels: Unlocking/Adjusting/Locking

The Applicator Wheels, resting against the Applicator Bearings toward the bottom of the Mandrel, shoot the cut label off the end of the Mandrel and onto the passing product.

ATTENTION: If the Applicator Wheels are too tight against the Applicator Bearings, they can damage the Mandrel, the Applicator Wheels, and the Applicator Assembly.

VIDEO: Applicator Wheel Adjustment

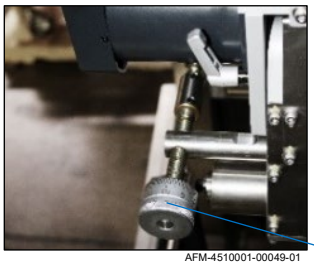
To see a video of this procedure, click this link:
https://youtu.be/ZNER7s69QEA
Or scan the QR code at right using the camera app on your mobile device.

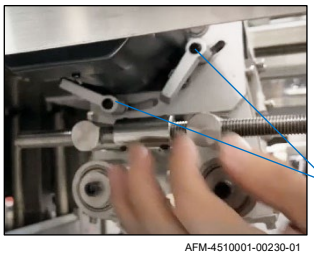
The Applicator Wheels should lightly touch the Applicator Bearings. If they are too tight against the Applicator Bearings, they will damage the label film and can potentially damage the machine itself. If they are too loose, they will not consistently shoot the labels onto the products.

To Loosen/Adjust the Applicator Wheels (Manually):

1. Unlock the Applicator Wheel Vertical and Horizontal Locks.

ATTENTION: Attempting to adjust the Applicator Wheels when they are locked can damage the LX-150 and void the warranty.



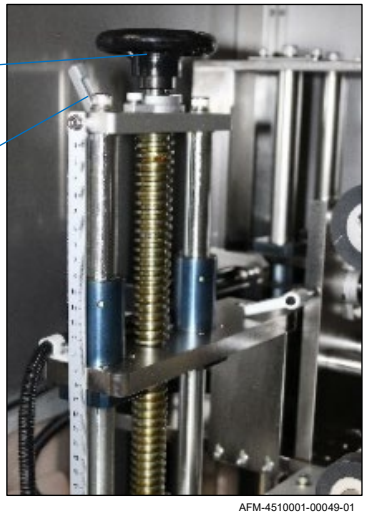


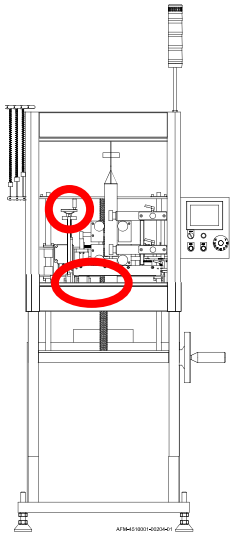
Applicator Wheel Vertical Adjust

Applicator Wheel Vertical Lock

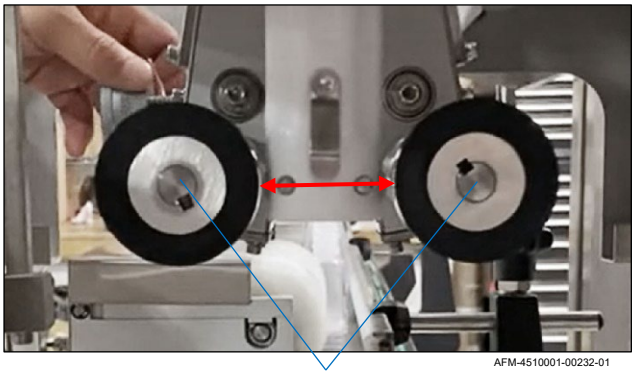
Applicator Wheel Horizontal Adjust

Applicator Wheel Horizontal Locks

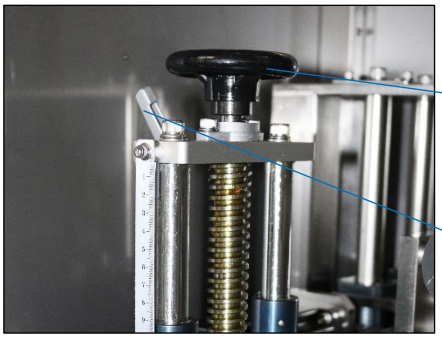


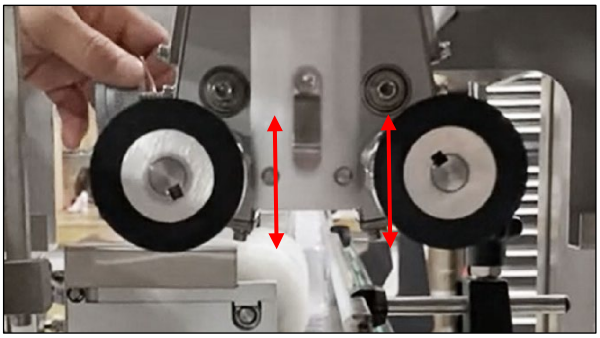


2. Turn the Applicator Wheel Horizontal Adjustment Knob to move the Applicator Wheels out from the Mandrel.

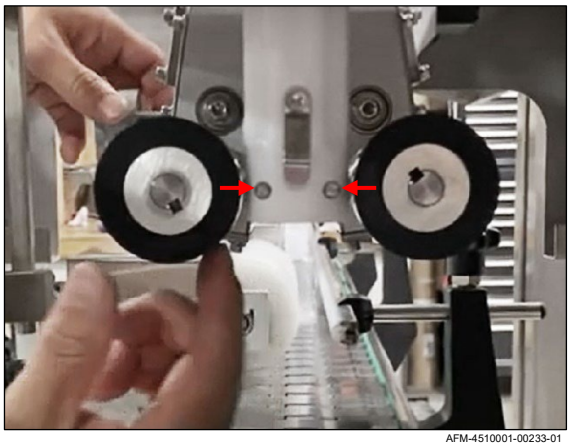


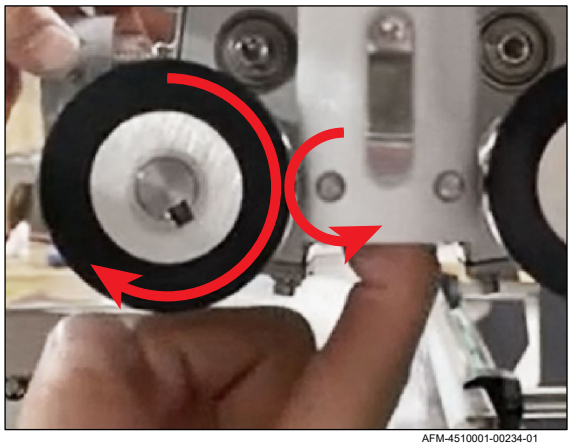
3. Turn the Applicator Wheel Vertical Adjustment Knob to move the Applicator Wheels up or down along the length of the Mandrel until they are directly adjacent to the Applicator Bearings on the Mandrel.





4. Turn the Applicator Wheel Horizontal Adjustment Knob to move the Applicator Wheels in toward the Mandrel until they lightly touch the Applicator Bearings. With a finger in the underside of the Mandrel, spin the Applicator Bearings. They should still spin easily.





Setup

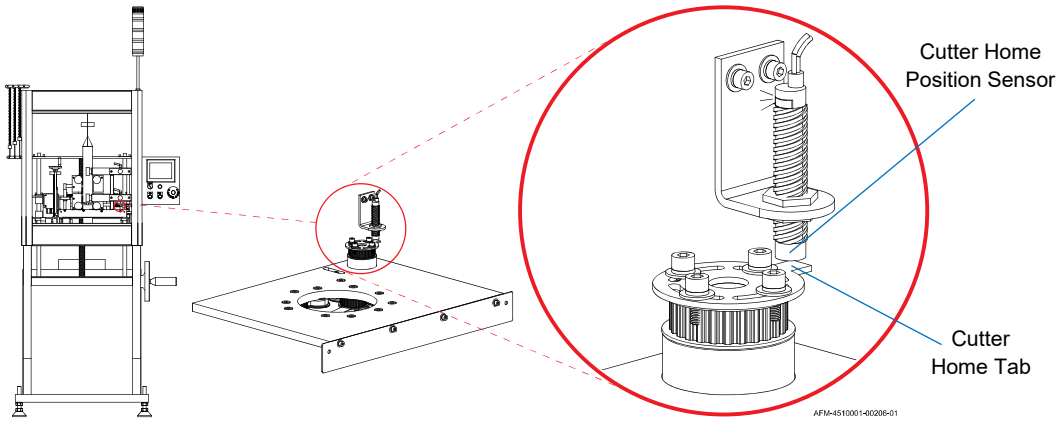
Positioning the Cutter Blades

The Cutter Blades rotate once through the Cutter Notch in the Mandrel each time they cut the film. For this process, the Cutter Blades have a “home position” from which they start and end each rotation/cut. Before labeling, the Cutter Blades must be rotated to their home position, and the Cutter Home Position Sensor must see the Cutter Home Tab on the Cutter Drive Pulley. Positioning the Cutter Blades requires that the system be powered on.

To Position the Cutter Blades:

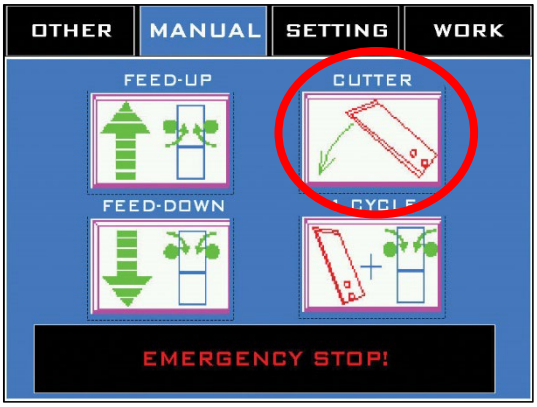
1. Power the system on (see “Powering the System On” on page 133).

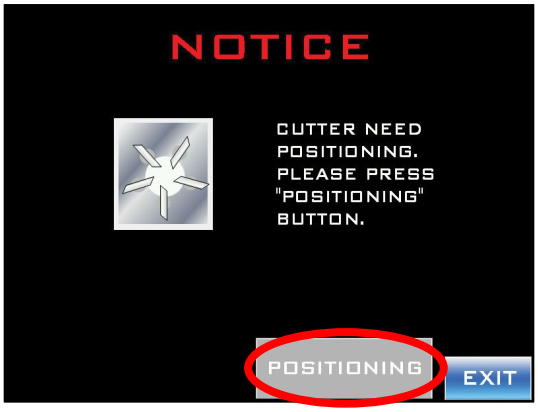
2. Verify that the Cutter Home Tab is directly below the Cutter Home Position Sensor. If it is not, carefully rotate it until it is.



3. On the **Work Screen**, press the “Cutter” Button. The **Cutter Positioning Screen** displays.

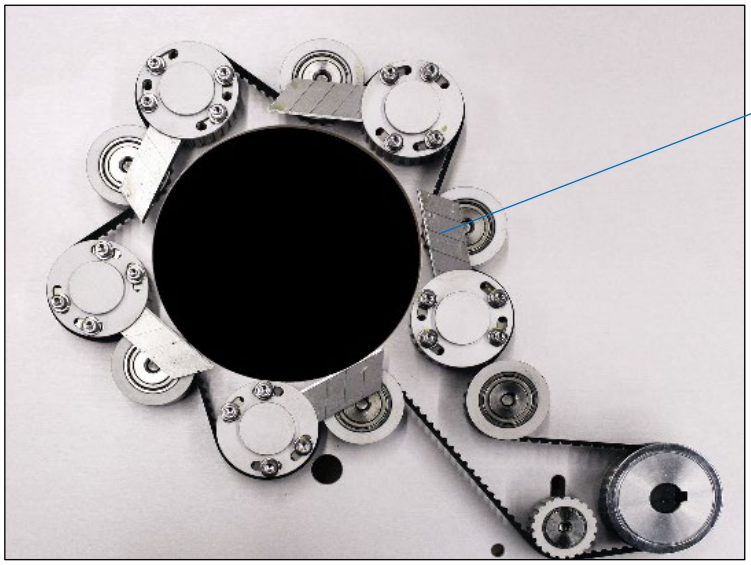
Positioning the Cutter Blades





4. Press the “Positioning” Button. The Cutter Blades will rotate into their home position. The system is now ready for the label film to be installed.

Cutter Blade Home Position



Installing the Film

The LX-150 Shrink Sleeve Label Applicator System uses rolls of label film, which need to be installed on the UR-1.

VIDEO: Film Setup Guide

To see a video of this procedure, click this link:
https://youtu.be/bLK238uuRn0
Or scan the QR code at right using the camera app on your mobile device.
Time: 0:00 – 1:07

To Install Film:

1. Verify that the size of the label film is within specifications for the Mandrel and Cutter Assembly being used (see “Cutter Assembly Sizes” on page 42).

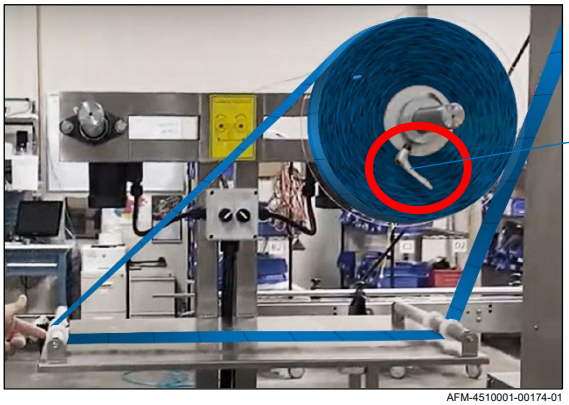
   ATTENTION: Using the wrong diameter label film will result in poor performance and can cause damage to the Mandrel and Cutter Assembly.

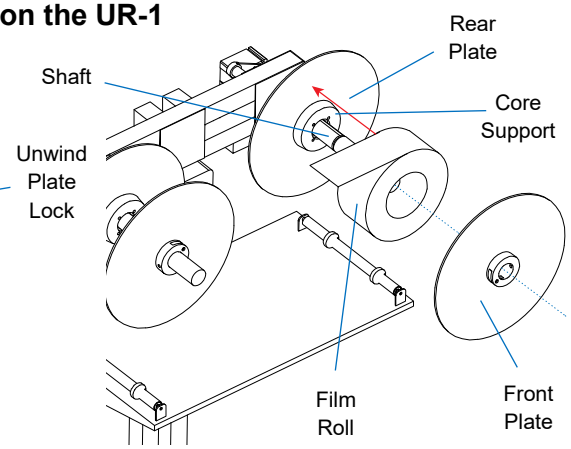
2. On desired Film Spool, turn the Plate Lock to remove the Front Plate.

3. Slide one roll of film onto the Film Spool so that it fits onto the Core Support and is resting against the Rear Plate. Both film rolls should ideally be oriented counterclockwise.

   NOTE: A second roll of film can be loaded onto the other Film Spool for quick change-over when the first roll runs out.

Loading Film on the UR-1



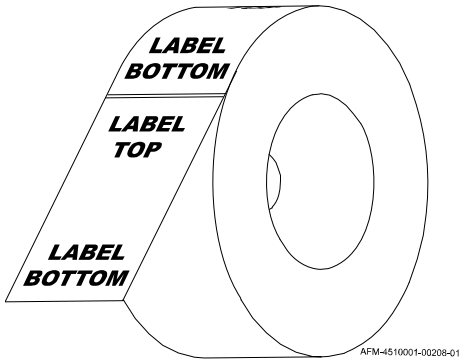


4. Slide the Front Plate back onto the Shaft until it rests against the film roll.

5. Turn the Lock to secure the Front Plate in place.

6. Verify that the labels are in the correct orientation coming out of the roll. The bottom of the label design should come off the roll first.

Label Orientation



Threading the Film

The rolls of label film need to unspool from the UR-1 to the LX-150, so that it can be cut and applied to bottles passing through the LX-150. To accomplish this, the film must first be installed and threaded along a specific path, starting at the UR-1 and ending on the LX-150's Mandrel.

VIDEO: Film Setup Guide

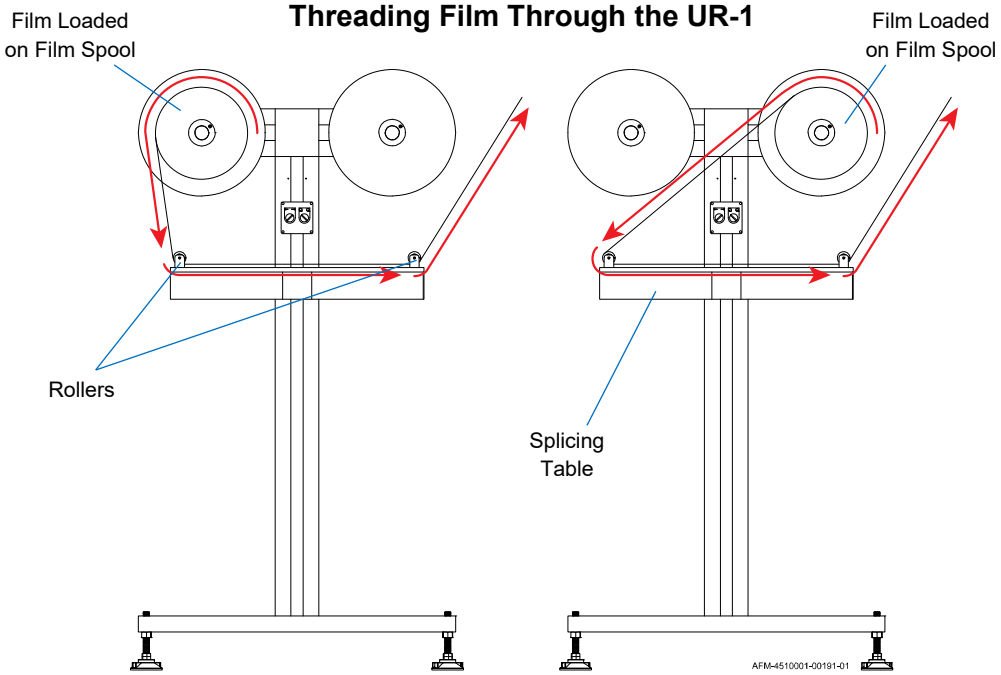
To see a video of this procedure, click this link:
https://youtu.be/bLK238uuRn0
Or scan the QR code at right using the camera app on your mobile device.
Time: 0:58 – 2:52

Needed to Thread the Film:

- Cut-Resistant Work Gloves

To Thread the Film:

1. Thread the Film through the UR-1:
   a. Run the label film to the Roller farthest from the LX-150.
   b. Pull the label film under the Roller and across the Splicing Table to the other Roller.

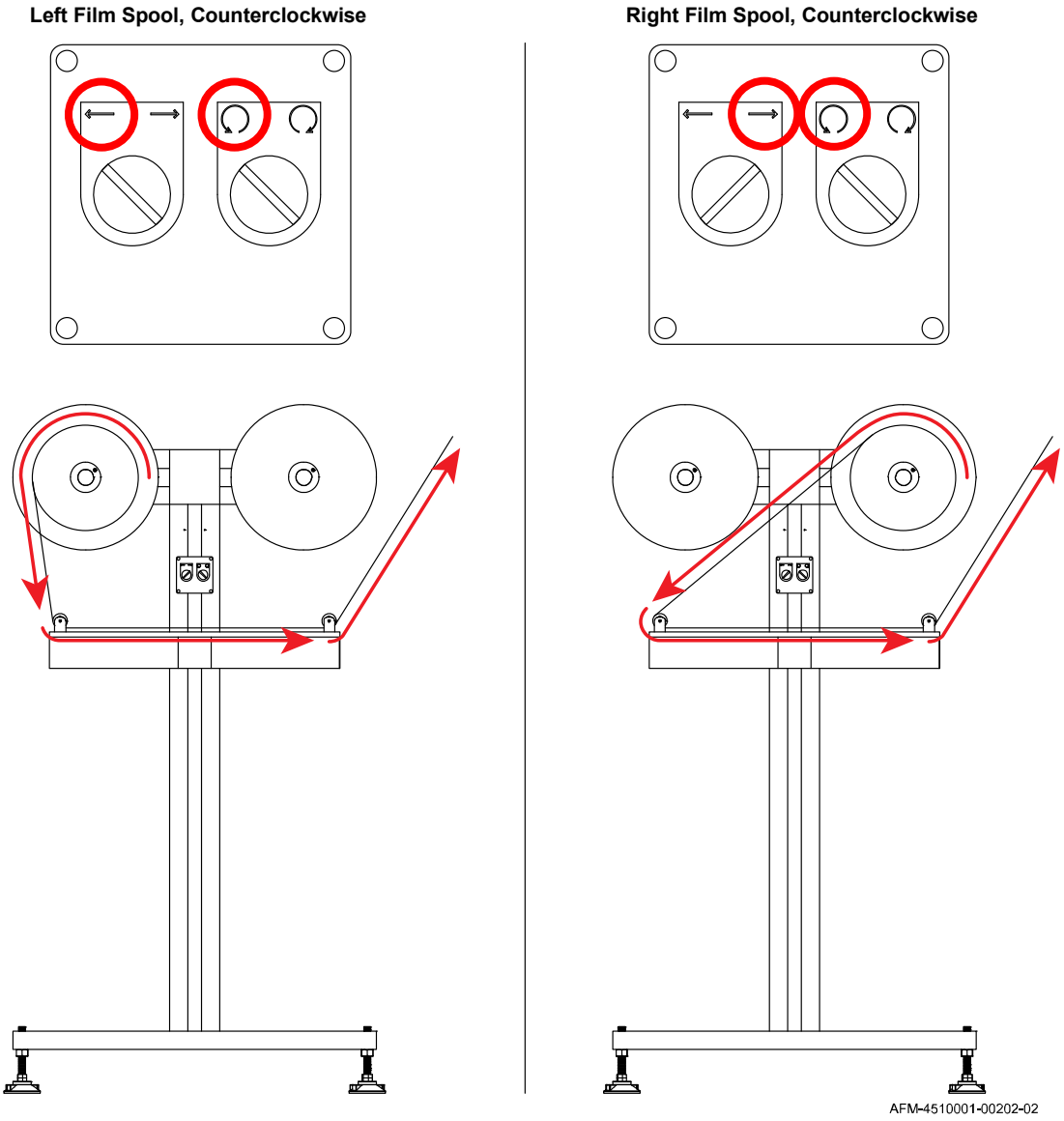


   c. Run the label film under the Roller. From here, the film will go to the Dancer of the LX-150.

2. Adjust the Knobs on the Control Box to reflect the Film Spool being used and the film rotation direction.

NOTE: The ideal direction for the film rolls is counterclockwise. Orienting them clockwise can potentially cause the Front Plate to loosen on the Shaft over time.

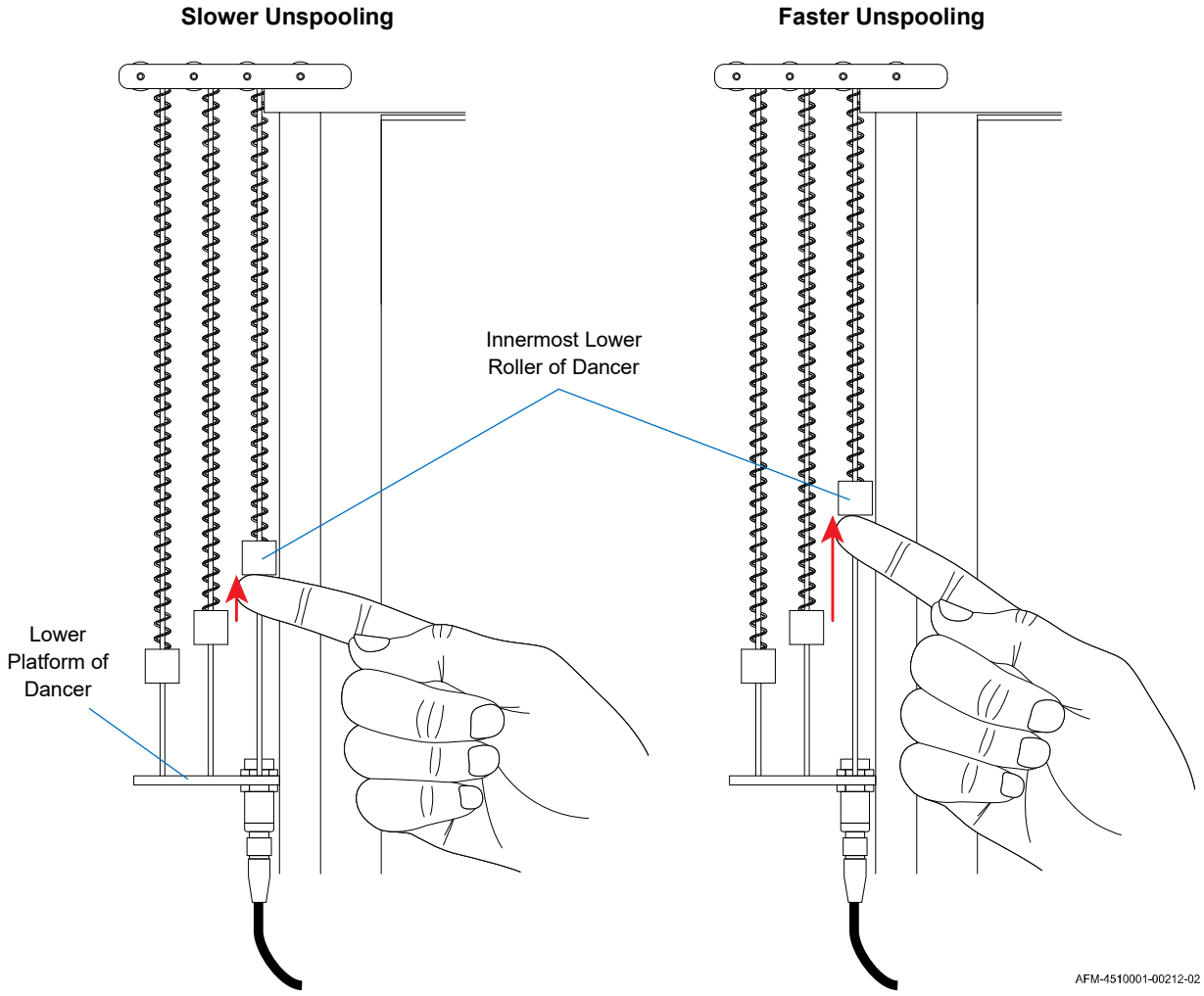
Setting the UR-1 Control Knobs



ATTENTION: Failure to correctly set the rotation direction of the film using the Control Knobs will result in the film winding back onto the Film Spool, potentially damaging the film and undoing the work of threading the film through the system.

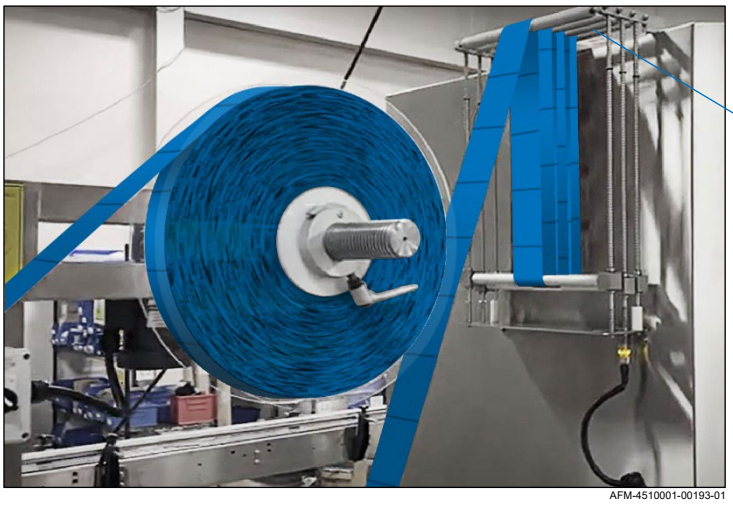
3. Unspool more label film from the UR-1:
   With the LX-150 powered on (see “Powering the System On” on page 133), lifting up on the innermost Lower Roller of the Dancer will trigger the UR-1 to unspool automatically. The higher it is lifted, the faster the UR-1 will unspool. Lowering it will cause unspooling to slow, and releasing it will cause unspooling to stop.
   a. Lift up on the innermost Lower Roller of the Dancer to unspool enough label film to thread through the Dancer, over the top of the LX-150, and down to the bottom of the Mandrel. (If not enough film is released, this can be repeated later).

Unspooling Film from the UR-1



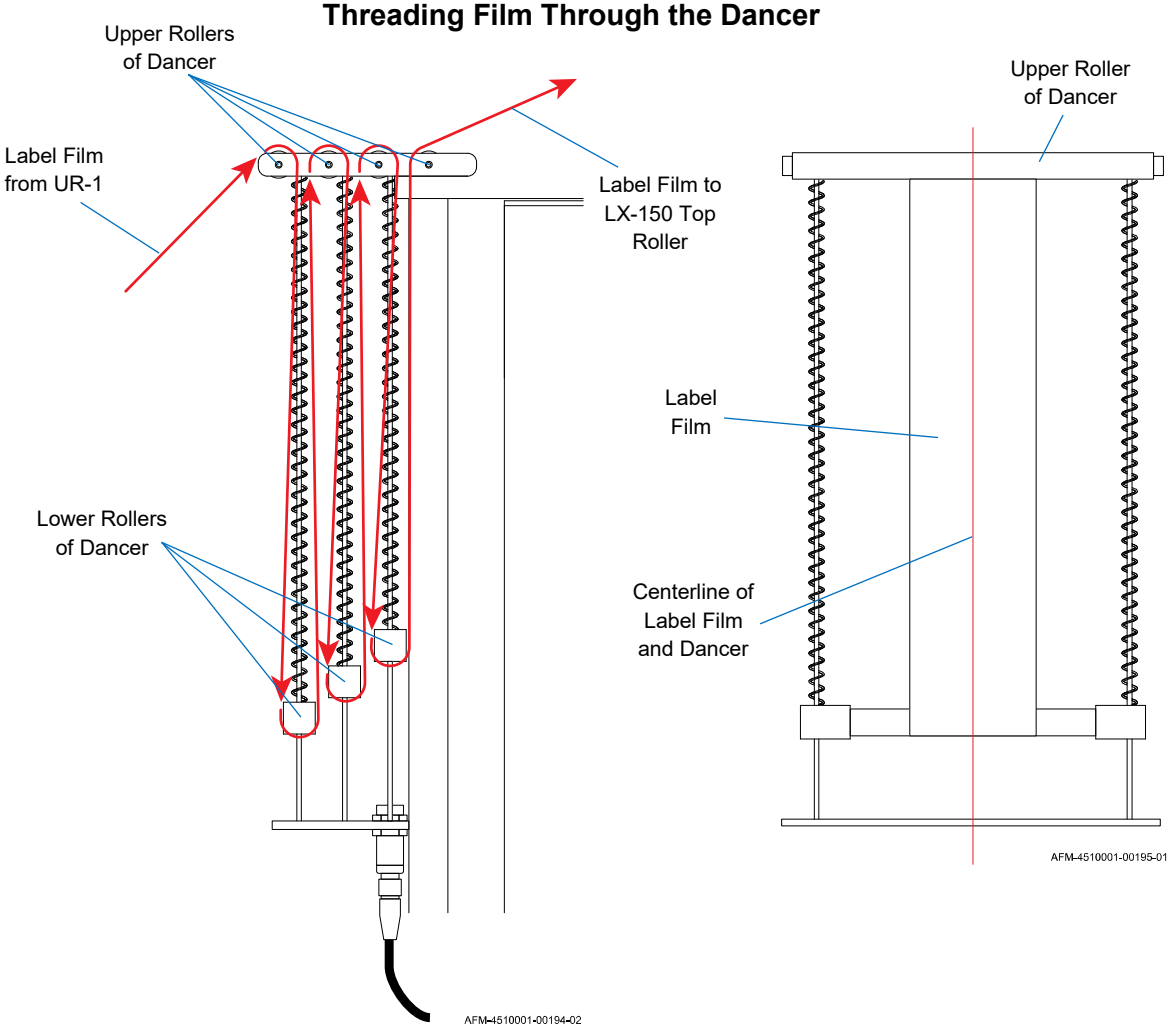
4. Thread the Film through the Dancer of the LX-150:
   a. Run the label film over the closest upper Roller of the Dancer.
   b. Run the label film down beneath the closest lower Roller of the Dancer.
   c. Continue to thread the film up and down through the Rollers until reaching the furthest upper Roller.

Threading Film Through the Dancer



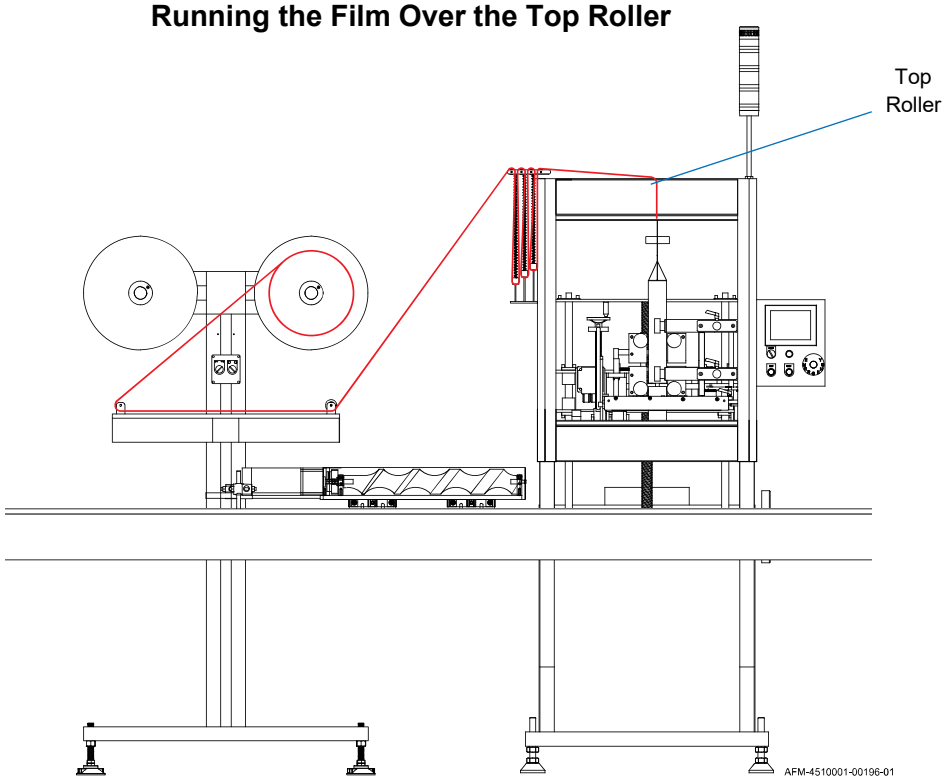
d. Verify that the label film is on the centerline of the Dancer.

Threading Film Through the Dancer



5. Run the label film over the Top Roller of the LX-150.

Running the Film Over the Top Roller

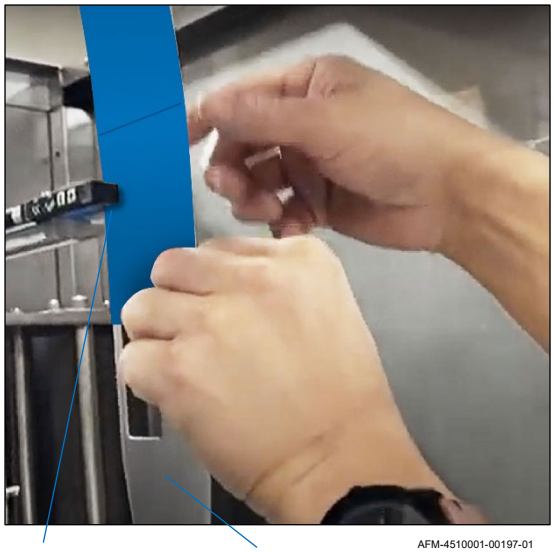


6. Use the Guide Rollers to ensure that the label film comes directly down to the Mandrel Fin. If it comes down at a slight angle, the film will twist and kink, and performance will be negatively impacted.

Adjusting the Guide Rolls

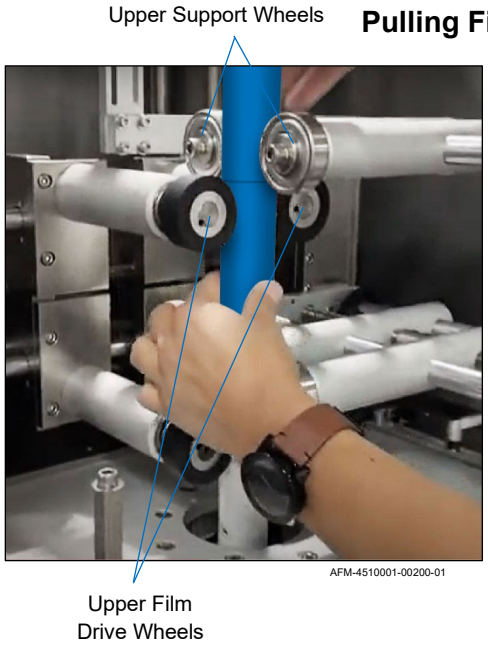
7. Open the end of the label film and pull it down over the Mandrel Fin. As each clear area of the film passes the Print Reading Sensor, its amber LED will briefly flicker off.

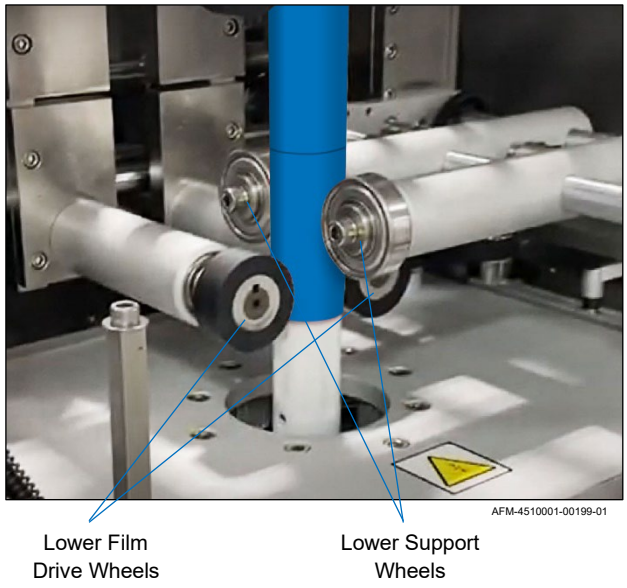
Pulling Film Over the Mandrel Fin



8. Pull the label film down the length of the Mandrel, past both sets of Support Wheels and both sets of Film Drive Wheels.

Pulling Film Down the Mandrel





9. Confirm that the LX-150 has been powered on, and if not, power it on (see “Powering the System On” on page 133).

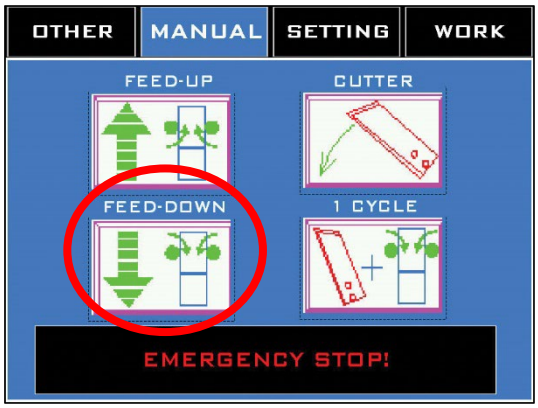
10. Verify that the Film Drive Wheels are properly positioned, and if needed, adjust them (see “Film Drive Wheels: Unlocking/Adjusting/Locking” on page 112).

11. Verify that the Applicator Wheels are properly positioned, and if needed, adjust them (see “Applicator Wheels: Unlocking/Adjusting/Locking” on page 115).

12. Select the “Manual” Tab to go to the **Manual Screen**.

13. Press and hold the “Feed Down” Button until the film has advanced past the Cutter Assembly to the bottom of the Mandrel.

Manual Screen



The system is now ready to fine-position the label film for cutting.

Fine-Positioning the Film for Cutting

Before labeling can begin, the position of the label film will need to be adjusted so that cuts are made in the correct spot. This process is primarily accomplished using the HMI.

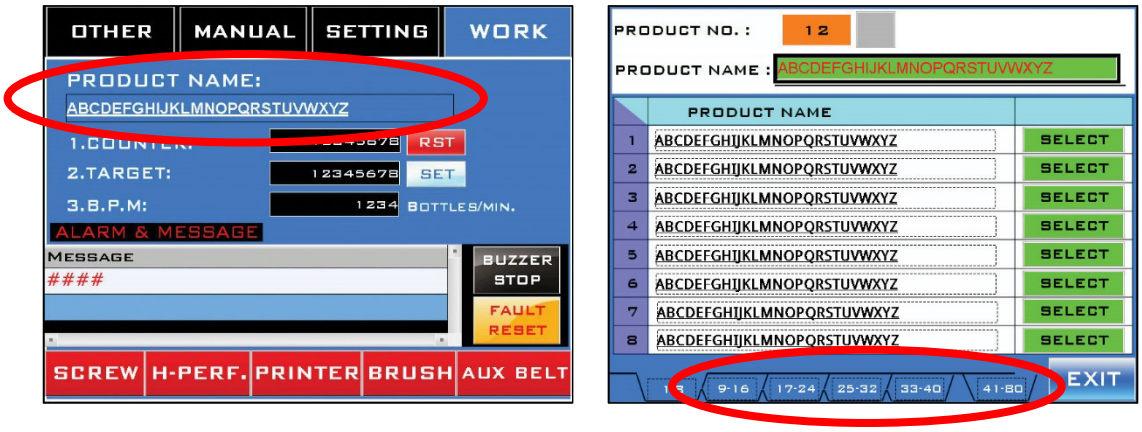
Needed to Fine-Position the Film for Cutting:

- Cut-Resistant Work Gloves
- Allen Wrench
- Ruler or Tape Measure
- Scissors

To Fine-Position the Film for Cutting:

1. Select the desired recipe:
   The machine has likely been pre-programmed with “recipes” – presets tailored to the specific labels/containers that your organization uses.
   a. With the LX-150 powered on (see “Powering the System On” on page 133), select the “Work” Tab to go to the **Work Screen**.
   b. Select the field below “Product Name” to go to the **Product Selection Screen**. The first eight recipes will display. If needed the buttons at the bottom of the screen can scroll forward to higher numbered recipes.
   c. Press the “Select” Button to select the desired recipe.
   d. Press the “Exit” Button to return to the **Work Screen**.

Selecting the Desired Recipe

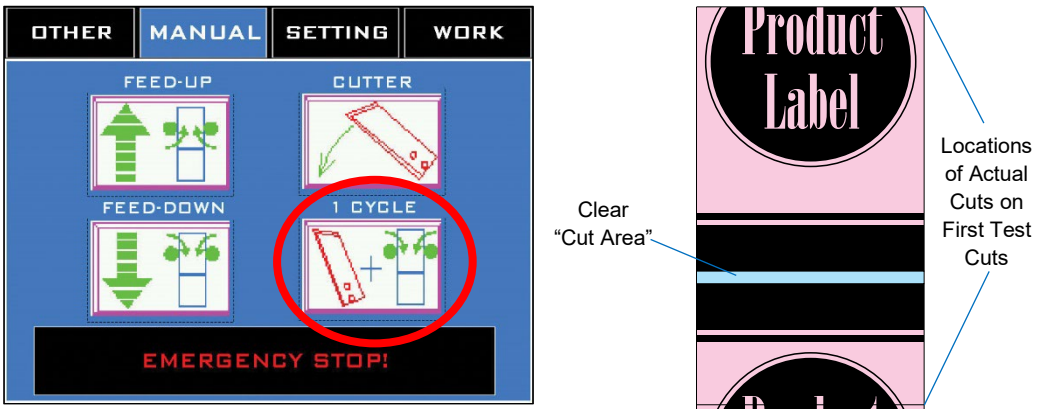


2. Cut three label lengths:
   a. Select the “Manual” Tab to go to the **Manual Screen**.

b. Press the “One Cycle” button until the buzzer sounds three times. A single length of label film will advance down the Mandrel and will be cut.

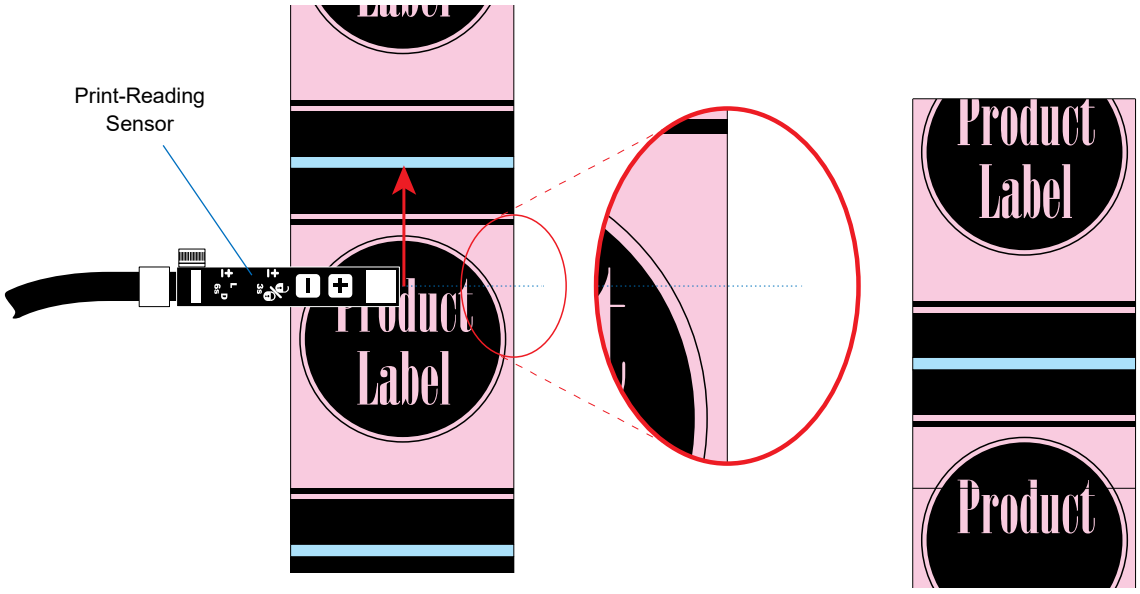
c. Repeat this two more times and examine the cut labels to see the exact location on the film where the cut is being made. The goal is for the cut to be in the center of the clear “cut area” in the label design.

Cutting Sample Labels



3. Move the Print-Reading Sensor:
The location of the cut is determined by the Print-Reading Sensor. The simplest way to get the cut in the correct location on the film is to move the Print-Reading Sensor up or down the length of the Mandrel Fin until the cut area is centered inside the Sensor.

Cut Area in Relation to Print-Reading Sensor



a. Holding the Print-Reading Sensor Mount, loosen the Wing Nuts that hold it in place, as shown below

Moving the Print-Reading Sensor

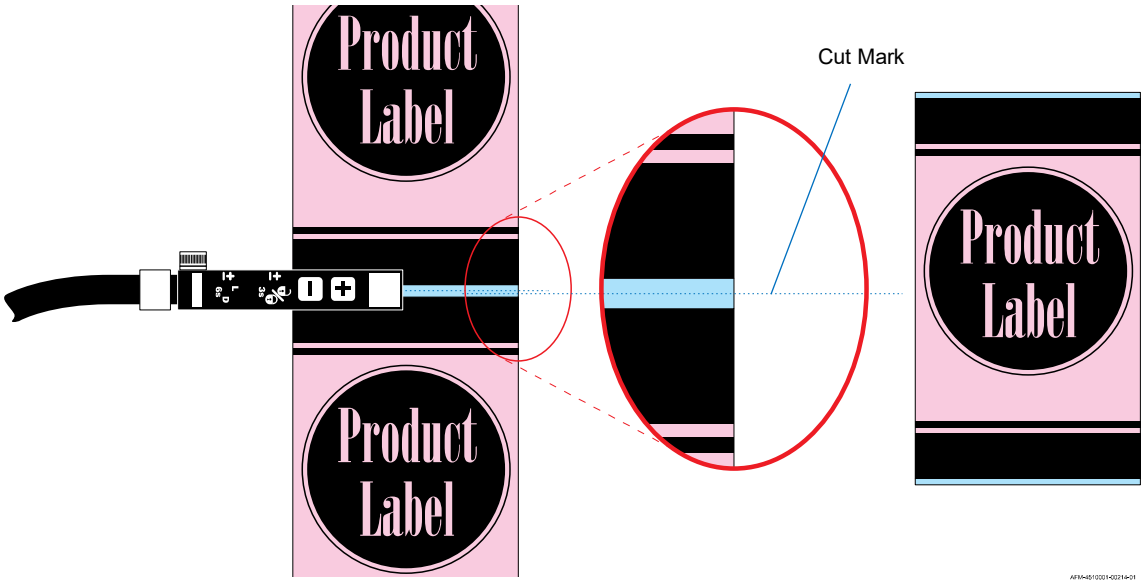
b. Slide the Mount up until the cut area is precisely centered inside the Print-Reading Sensor.

c. Tighten the Wing Nuts to secure the Print-Reading sensor in its new position.

d. Close the Front Door of the LX-150 and run a few test cuts by pressing the “1 Cycle” Button on the **Manual Screen** of the HMI.

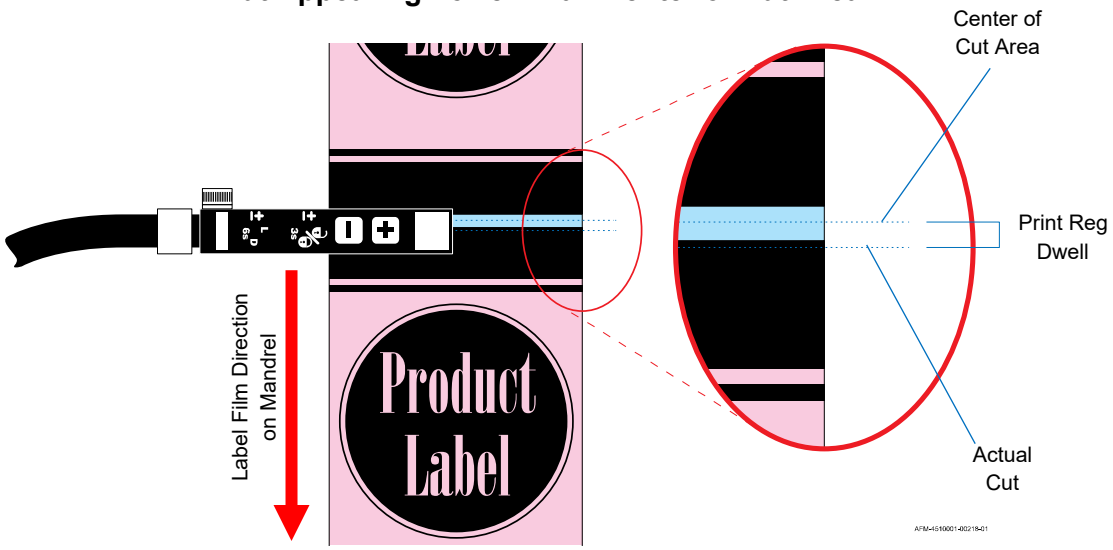
e. If the cut is perfectly centered in the cut area, no further setup is needed.

Cut Mark Precisely in Center of Cut Area



4. Fine-Tune the Cut:
If the cut is not precisely centered in the cut area, this can be adjusted using the HMI. If this needs to be done, it is preferable for the cut to be appearing slightly lower than the center of the cut area.

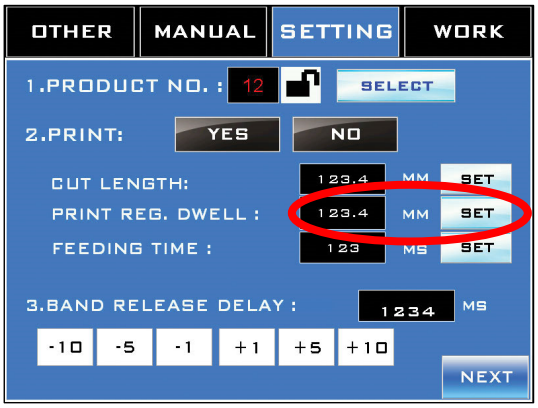
Cut Appearing Lower Than Center of Cut Area



a. With the actual cut appearing lower than the center of the cut area, use a Ruler or Tape Measure to determine the distance (in mm) between the location of the actual cut and the center of the cut area. This is the “Print Reg Dwell” value.

b. On the HMI, select the “Setting” Tab to go to the **Setting Screen**.

Print Reg Dwell



c. Enter the “Print Reg Dwell” value in the “Print Reg Dwell” Field and press the “Set” Button.

d. Run a few more test cuts. The cut should now appear in the center of the cut area. If not, repeat the “Fine-Tune the Cut” step.

Operation

Powering the System On

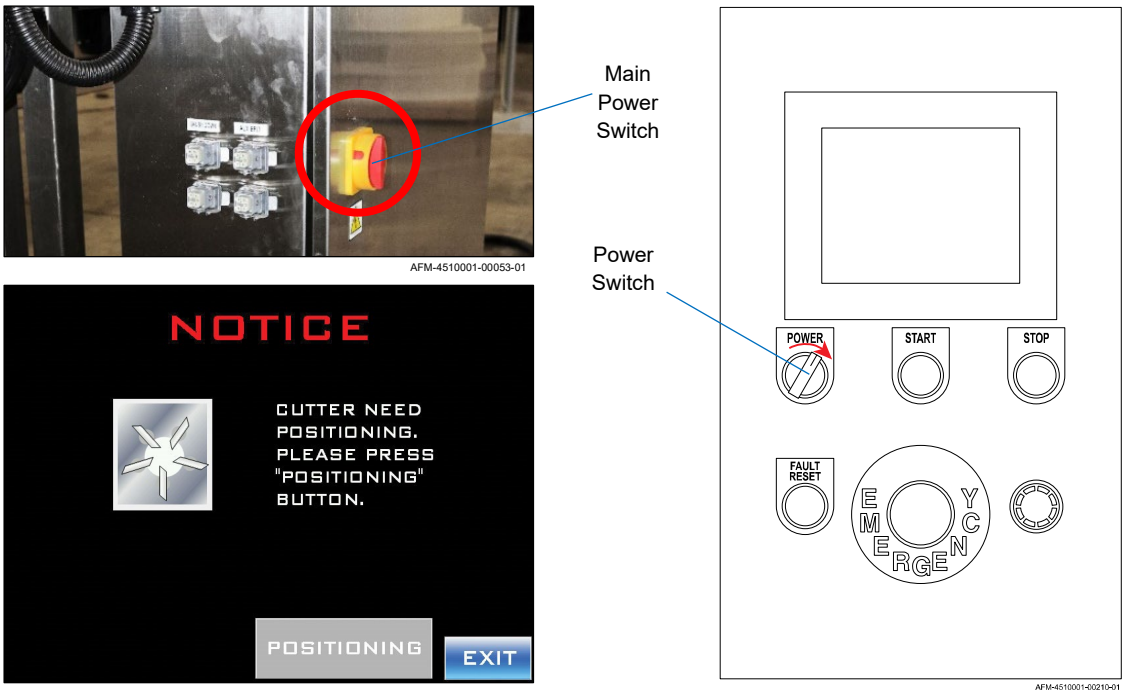
With the Power Plug correctly installed and plugged into a code-compliant, 3-phase, 208-240V 50/60 Hz grounded AC power supply, the system can be powered on.

To Power the System On:

1. If the system has not yet been plugged in, plug the Power Cord for the LX-150 into a grounded 3-Phase 208-240V, 50/60 Hz AC power source.

2. Turn the Main Power Switch on the back of the Electronics Cabinet to the “On” position.

Powering on the LX-150



3. On the HMI, turn the Power Switch clockwise to the “On” position. A buzzer may sound to indicate that the system has been turned on. A **Startup Screen** will briefly display.

4. The **“Notice: Cutter Needs Positioning” Screen** will display. Follow the steps to get the Cutter Blades in their home position (see “Notice: Cutter Need Positioning” on page 110).

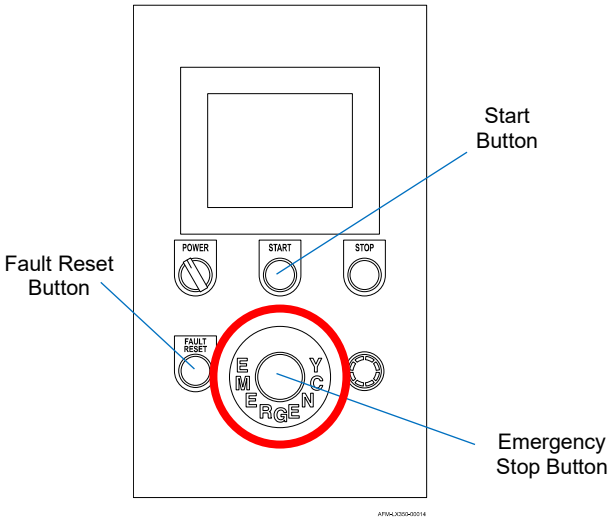
5. The system is now ready to load a recipe.

E-Stop

The E-Stop Button on the HMI is an important safety feature of the LX-150. It should only be used in emergencies. If there is immediate danger of someone being injured during operation (for example, they have managed to get their hand near the Cutter Assembly while the machine is running), pressing the E-Stop Button will shut the machine down right away. An alarm will sound and the **Notice: Emergency Stop Screen** will display when the E-Stop has been pressed.

	**ATTENTION:** Do not use the E-Stop Button for routine pauses or halts to production, as this can damage the system over time. Instead, press the Stop Button.

Pressing the E-Stop Button



To Address the Fault and Resume Labeling:

1. Press the “Buzzer Stop” Button.
2. Determine why the Emergency Stop Button was pressed.
3. If a safety hazard exists, thoroughly address and eliminated the safety hazard.
4. Reset the Emergency Stop Button on the HMI by turning it clockwise.
5. After the issue has been resolved, press the “Faut Reset” Button.
6. Press the “Exit Button.”

Loading a Recipe

Labeling requires a significant amount of setup within the software for each unique product labeling situation. To save time, this is accomplished using preset label “recipes.” Recipes for your specific needs have likely already been created for you by AFM or by your distributor. New recipes that are within the general specifications of your existing ones can be created by:

Before labeling, the correct recipe needs to be selected for the labels being used and the product being labeled. This section provides basic setup instructions and assumes that recipes have already been created for your specific labeling needs. For more detailed setup information, read the “Software” section, starting on page 77.

Items Needed to Load and Test a Recipe:

- Ruler

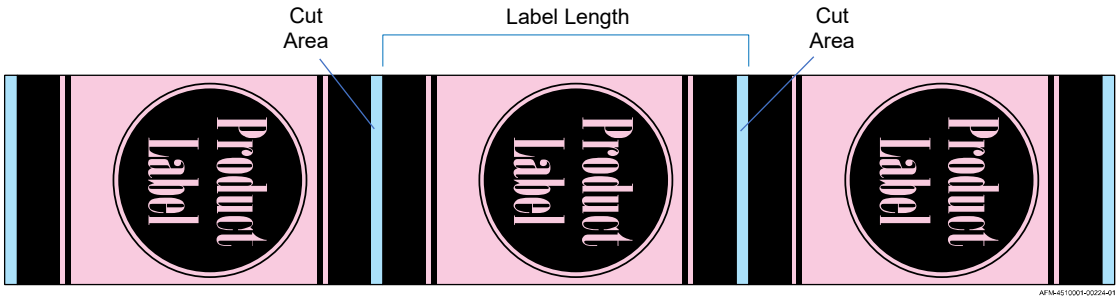
To Load and Test a Recipe:

1. Power on the LX-150 (see “Powering the System On” on page 133).

2. Position the Cutter Blades (see “Positioning the Cutter Blades” on page 117).

3. Ensure that the desired film is properly loaded on the UR-1 and threaded through the system. If it is not, load and thread a roll of the desired film (see “Installing the Film” on page 119 and “Threading the Film” on page 121).

4. On the label film, use the Ruler to measure the length (in mm) of one label from the beginning of one cut area to the beginning of the next cut area.



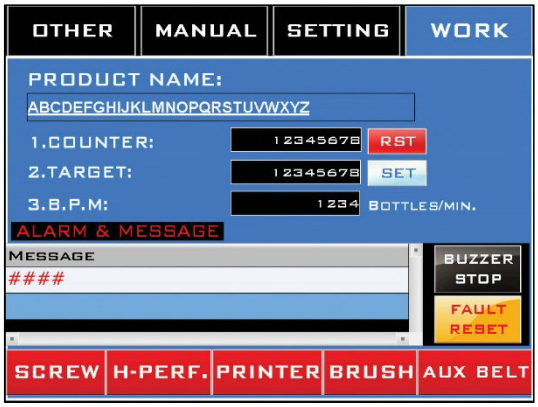
5. Check that the height of the Head Assembly is correct. The bottom of the Mandrel should be half a label length above the top of a bottle on the Conveyor. If needed, adjust the head height (see “Fine-Tuning the LX-150 Position” on page 60).

6. Choose the desired label recipe and fine-position the film for cutting using that recipe (see “Fine-Positioning the Film for Cutting” on page 128).

7. Test to see where the LX-150 places the labels.

   a. Select the “Work” Tab to go to the **Work Screen**.

Work Screen

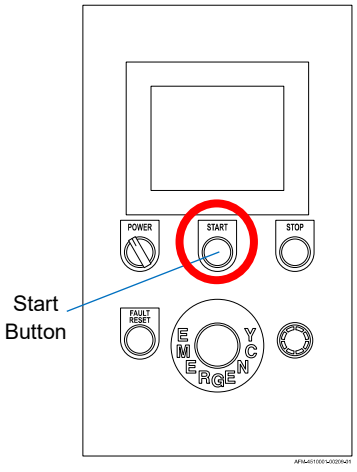


   b. Turn the Conveyor on by physically turning on the Conveyor.

   c. Turn the Timing Screw Assembly on by pressing the button below “Timing Screw.” The Timing Screw Assembly will not move yet.

   d. With bottles lined up behind the Timing Screw Assembly on the Conveyor, press the Start Button on the HMI. Test one bottle at a time.

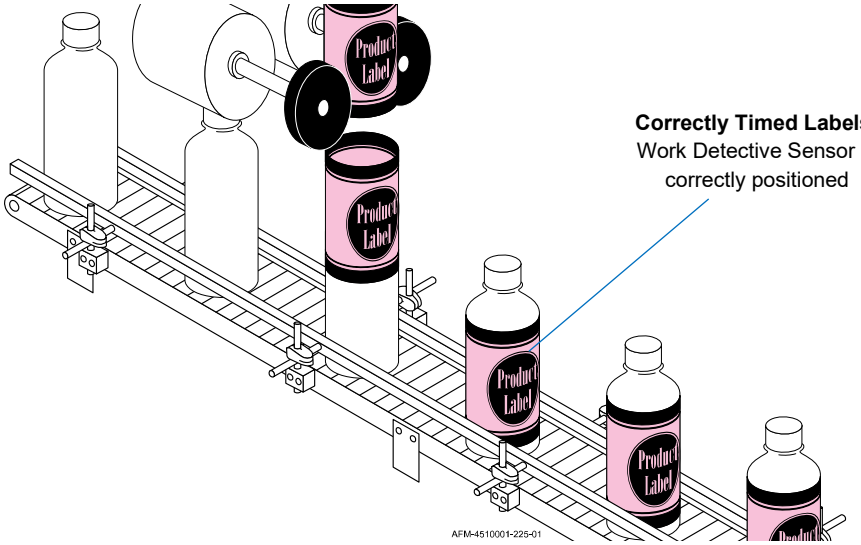
Containers Lined Up at Timing Screw Assembly **HMI**



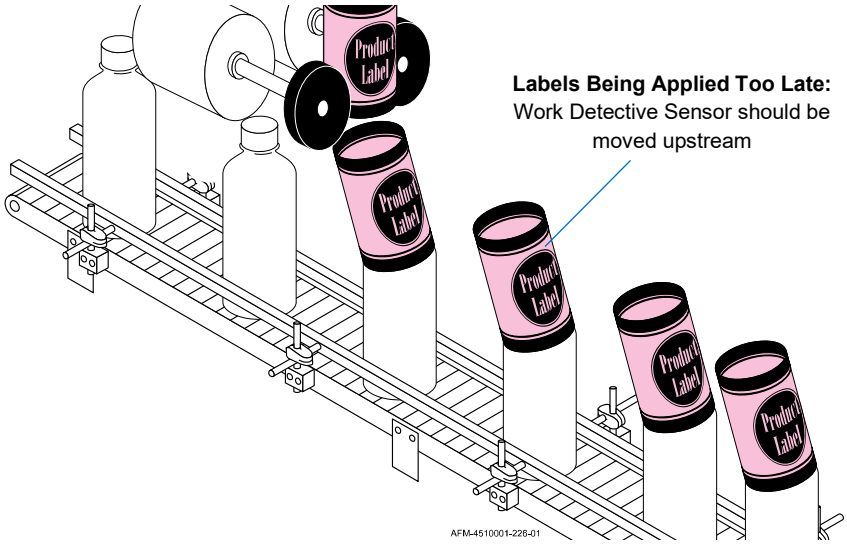
   e. Watch the bottles for accuracy in label placement.

8. If labels are not going onto the bottles, the position of the Work Detective Sensor should be adjusted using the HMI.

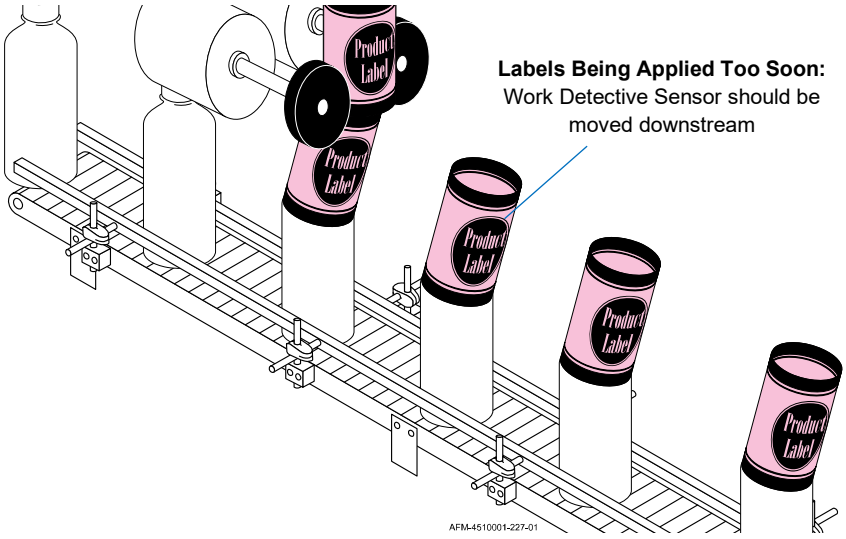
Work Detective Sensor Position



Correctly Timed Labels:
Work Detective Sensor is correctly positioned



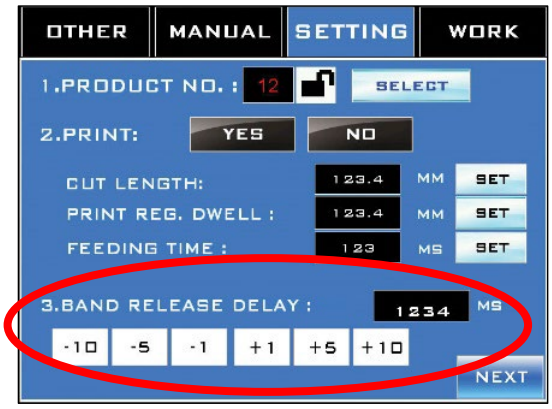
Labels Being Applied Too Late:
Work Detective Sensor should be moved upstream



Labels Being Applied Too Soon:
Work Detective Sensor should be moved downstream

NOTE: For small adjustments to the Work Detective Sensor position/Band Release Delay, it may be helpful to use the slow-motion function on a mobile device to record video of labels being applied, so that more incremental changes can be seen.

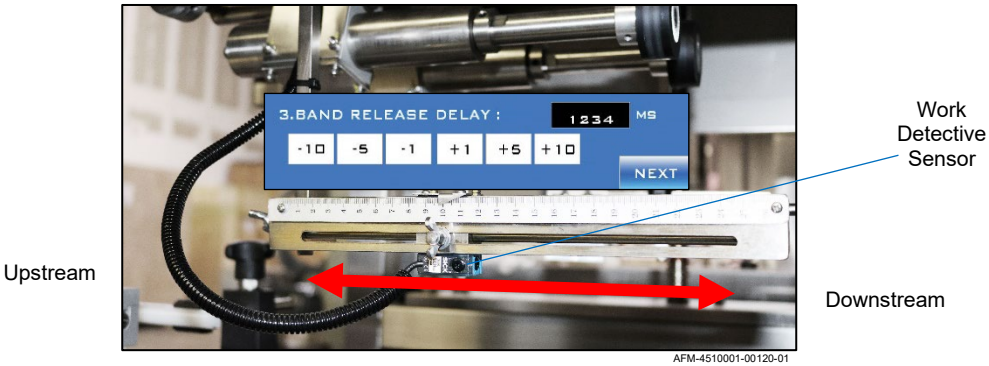
a. Select the “Setting” Tab to go to **Setting Screen 1**.



b. Change the value in the “Band Release Delay” Field by pressing the arrows at the bottom.

- If labels are being shot off the Mandrel too late, decrease the value (blue buttons on left) to move the Work Detective Sensor further upstream.
- If labels are being shot off the Mandrel too soon, increase the value (red buttons on right) to move the Work Detective Sensor further downstream.

Work Detective Sensor Position



c. Repeat the previous step, testing to see where the LX-150 places the labels

d. If needed, continue adjusting Print Reg Dwell until labels go onto all the bottles.

e. Repeat the test at least 3 times to ensure that labels are consistently going onto the bottles.

The LX-150 is now ready to begin applying labels.

Applying Labels

To Apply Labels:

1. With a the system powered on (see “Powering the System On” on page 133) and a label recipe loaded and tested (see “Loading a Recipe” on page 135), verify that the Front Doors of the LX-150 are closed.

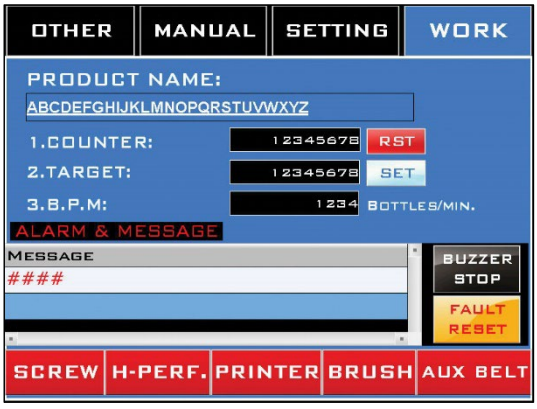
2. Verify that the Heat Tunnel is ready.

3. On the HMI, go to the **Work Screen**.

4. Ready all of the appropriate peripherals as described below:

   NOTE: None of the peripherals will actually start until the Start Button on the HMI has been pressed.

   Work Screen

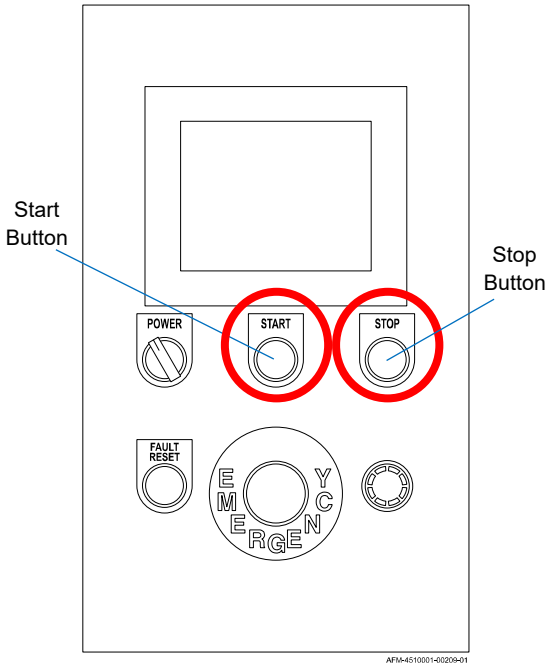
   a. Press the **Screw Button** to ready the Timing Screw Assembly.
   b. Press the **Brush Button** to ready the Brushdown Assembly.
   c. Press the **Aux Belt Button** to ready the Auxiliary Belts / Bottle Holding Devices, if used.
   d. Similarly ready any other peripherals being used.

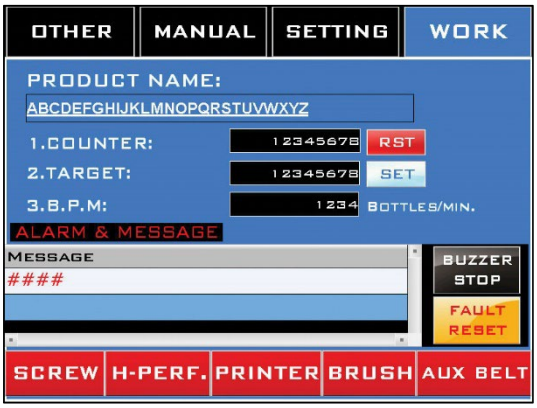
5. Start the Conveyor.

6. Press the Start Button on the HMI to start the LX-150 and all readied peripherals.

a. The “Counter” on the Working Screen will display how many bottles have been labeled, and “BPM” will display the rate at which they are being labeled.

HMI





7. If a pause in production is needed (for example, labels are shooting onto the Conveyor Belt instead of onto the bottles), press the Stop Button on the HMI and address the issue before restarting.

	**ATTENTION:** Do not use the E-Stop Button for routine pauses or halts to production, as this can damage the system over time. Instead, press the Stop Button.

Switching Film Rolls

When a Spool of label film is nearly empty, the user can switch to the other Spool without having to spend the time threading the new film through the entire system again. The following procedure allows the user to easily switch between Spools of film in the middle of a project.

Needed to Switch Film Rolls:

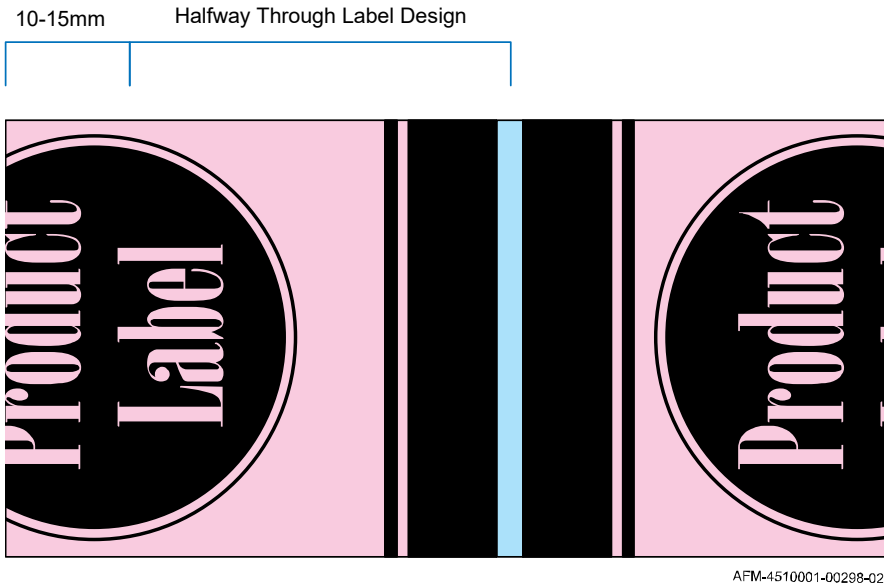
- At least one Spool of label film
- Scissors
- Splicing Tape
- Hole Punch

To Switch Film Rolls:

1. When the film roll is almost empty, push the Stop Button on the HMI to stop the LX-150.

2. Looking at the film as it lays on the Splicing Table, find the halfway point in the label design, and measure an additional 10-15mm further down on it. Cut the old film across that point in the label design.

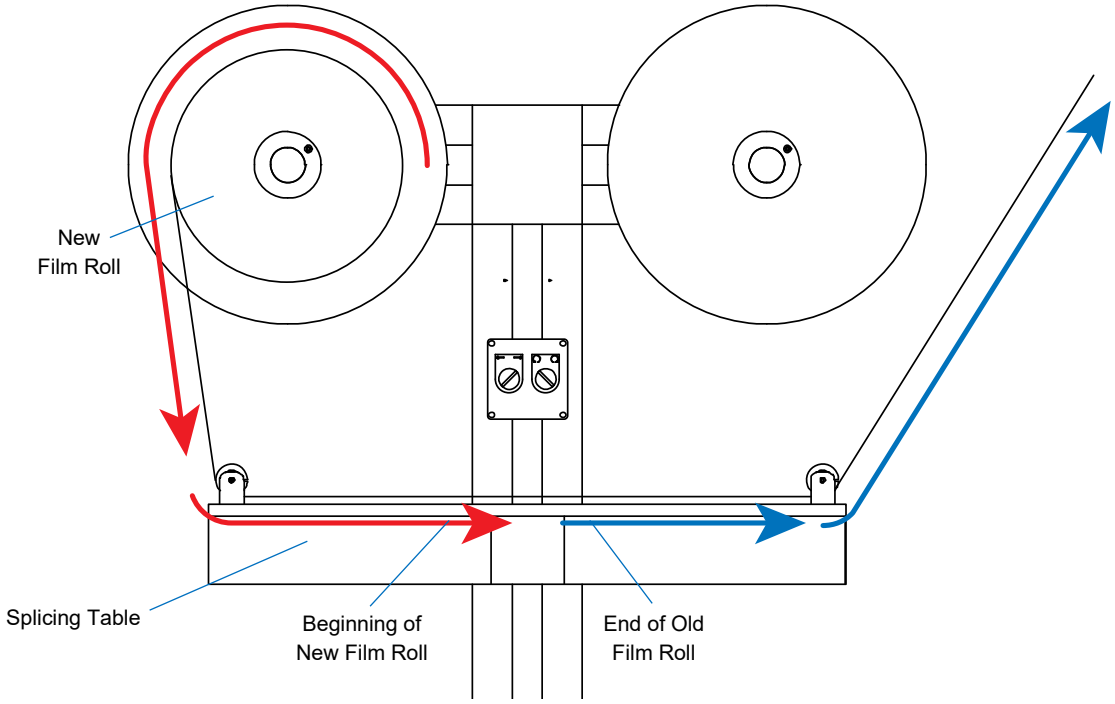
Cutting the End of the Old Film



3. If a new roll is not already on the second Film Spool of the UR-1, install one, oriented counterclockwise (see “Installing the Film” on page 119).

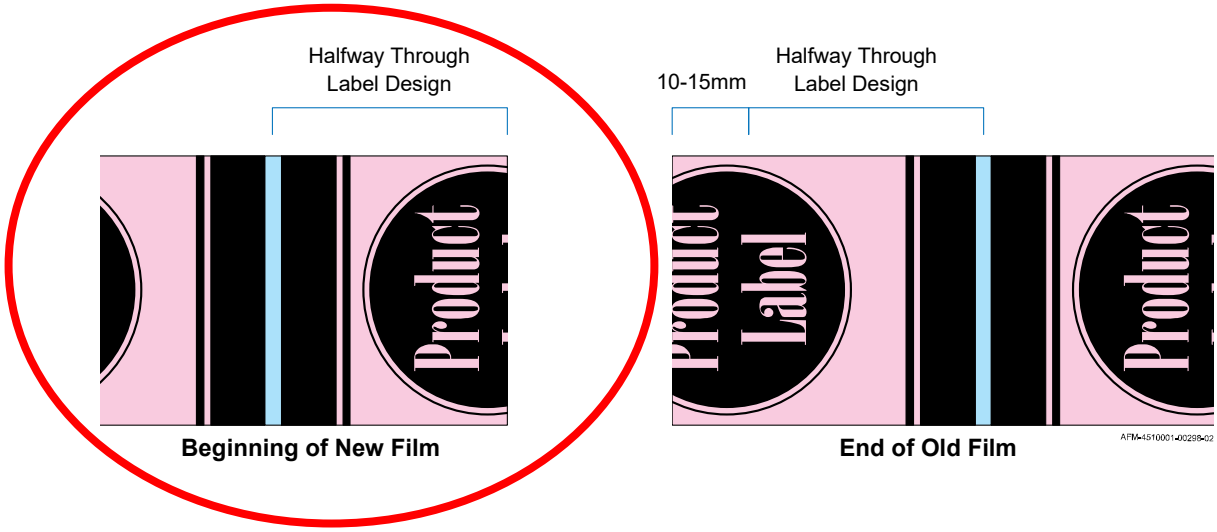
4. Run the new film down onto the Splicing Table to meet the end of the old film.

Running New Film Down Onto Splicing Table



5. Looking at the beginning of the new film as it lays on the Splicing Table, find the halfway point in the label design, and cut the old film across that point.

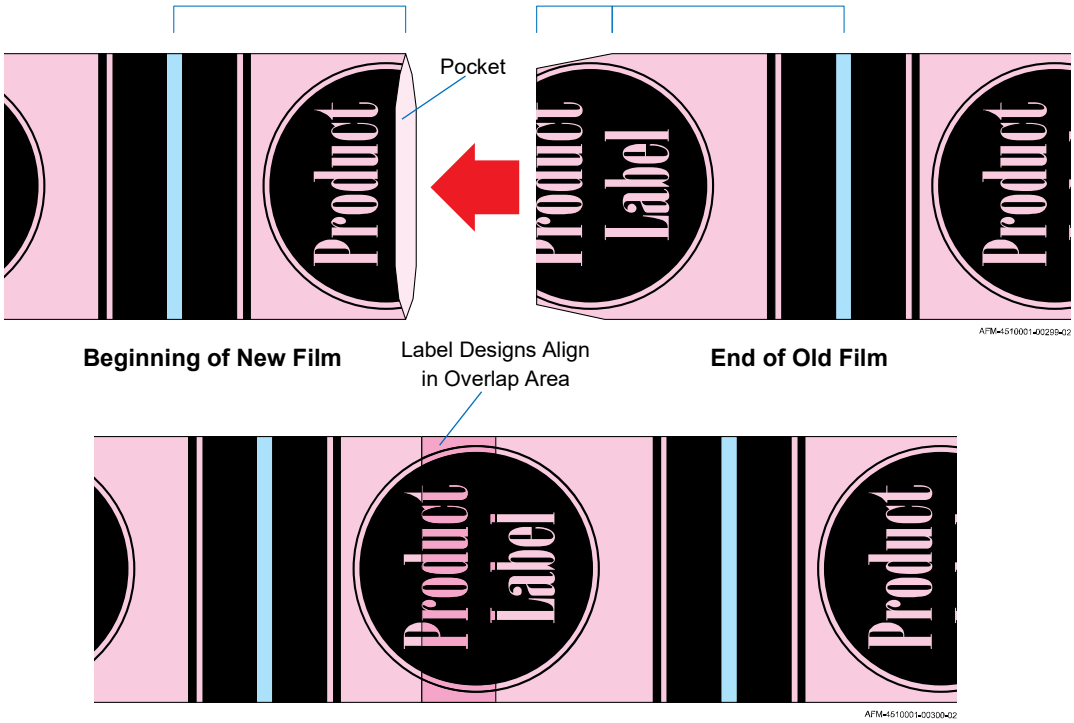
Cutting the Beginning of the New Film



6. Open the cut in the new film to form a pocket, and squeeze in slightly on the end of the old film so that it can fit into that pocket.

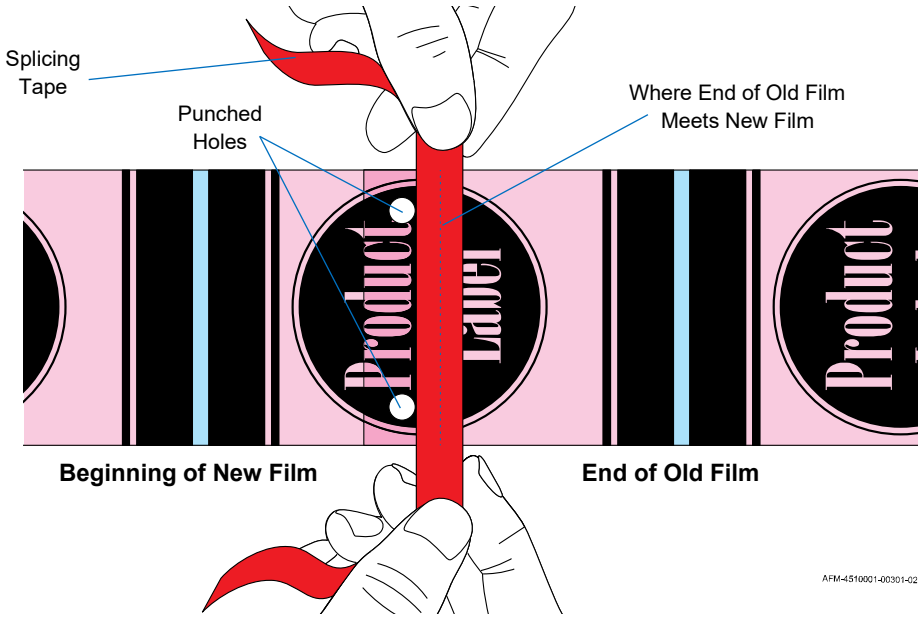
7. Slide the end of the old film into that pocket in the beginning of the new film until the design in the old film matches up with the design in the new film.

Sliding the Old Film into the New Film



8. Carefully apply one layer of splicing tape over the location where the end of the new film meets the old film to secure both pieces of film together. The tape should cover both sides (top and bottom) of the flat film.

Applying Splicing Tape and Cutting Air Holes

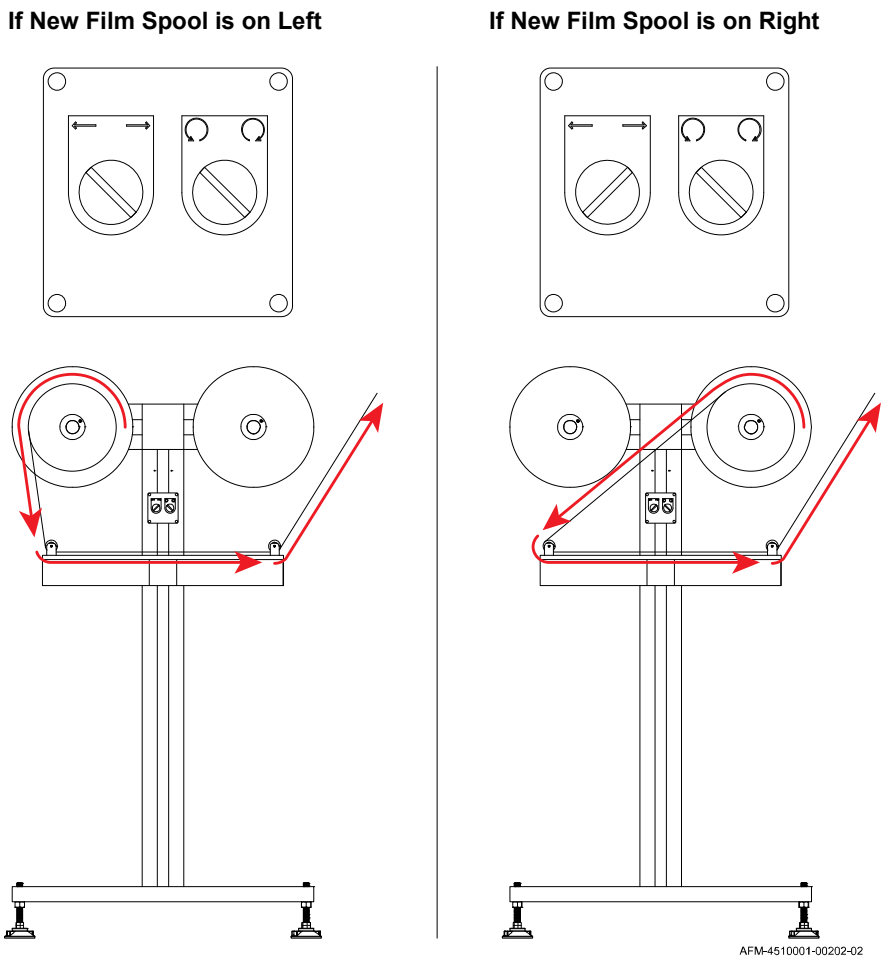


9. Use a Hole Punch to put two holes in the area where the two pieces of film overlap. This will prevent air pockets from forming in that area, which can impair the machine's ability to push the film smoothly down the Mandrel.

10. On the Control Box for the UR-1, switch the active Film Spool to the one with the new roll, and set its rotation direction to counterclockwise.

	**ATTENTION:** Failure to correctly set the rotation direction of the film will result in the film winding back onto the Film Spool, potentially damaging the film and undoing the work of threading the film through the system.

Resetting Knobs on UR-1 Control Box



11. Press the Start Button on the HMI to restart the LX-150 and resume labeling.

12. Watch the first few bottles labeled, and remove the one with the splicing tape from the Conveyor. If the taped label film triggers an alarm on the system, address the alarm and resume labeling.

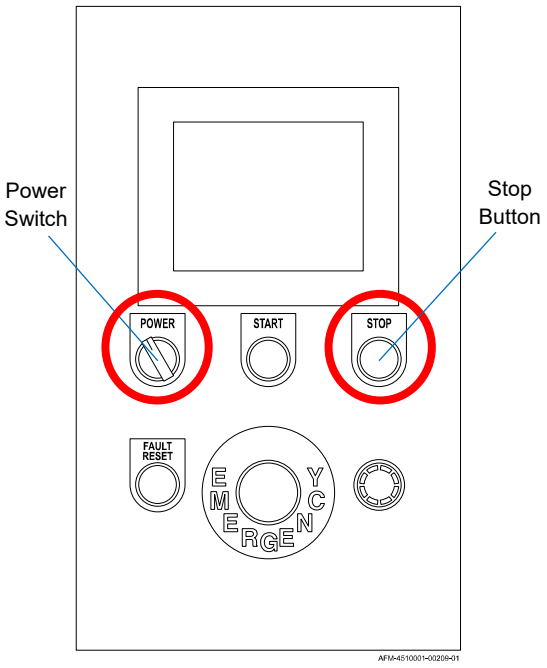
Powering the System Off

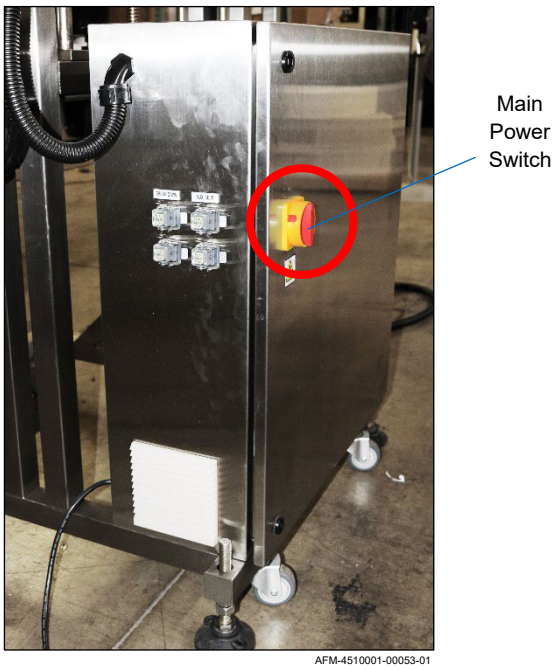
When done labeling for the day, the system should be powered off.

To Power the System Off:

1. On the HMI, press the Stop Button.

HMI





⚠	**ATTENTION:** Do not use the E-Stop Button for routine pauses or halts to production, as this can damage the system over time. Instead, press the Stop Button.

2. On the HMI, turn the Power Switch counterclockwise to the “Off” position.

3. On the back of the Electronics Cabinet, turn the Main Power Switch counterclockwise to the “Off” position.

Maintenance

For maintenance beyond what is described in this User Guide, please contact your authorized AFM distributor.

	**ATTENTION:** The LX-150 is a complex piece of machinery. Do not attempt to perform maintenance or repairs other than those described in this User Guide. Failure to follow this directive can result in injury, can damage the equipment, and will void the warranty. If in doubt, contact your AFM distributor.

	**WARNING:** Always wear proper safety equipment, including Cut-Resistant Work Gloves, when operating or maintaining the LX-150.

Preventative Maintenance Schedule

Following the preventative maintenance schedule below can help ensure optimal performance, minimize downtime, and help with budgeting for required replacement parts that should be ordered in advance.

	**ATTENTION:** Some maintenance activities below should be performed by an in-house mechanical professional or trained AFM Service Technician. If in doubt, please contact your authorized AFM Distributor.

Frequency	Procedure	Page That Describes Procedure
As Needed	Perform a general cleaning of the system.	149
	Clean the Cutter Notch.	154
Weekly	Clean the Eye of the Print Reading Sensor.	150
	Clean the Eye and Reflector of the Work Detective Sensor.	151
Every 3 Weeks	Replace all Cutter Blades.	162
	Check the Cutter Drive Belt.	165
	Check the Timing Belt.	166
	Check the Film Feed Drive Belt.	159
	Check the Bearings in the Mandrel and the Wheels that touch them.	155

Frequency	Procedure	Page That Describes Procedure
Every 6 Months	Check for wear on the Film Drive Wheels and clean or replace them if needed.	176
Every Year	Grease the Shafts of the Head Height Adjust.	172
	Grease the Shafts of the Applicator Wheel Vertical Adjust.	173
	Grease the Shafts of the Film Drive Wheel Adjusts.	176
	Grease the Shafts of the Support Wheel Adjusts.	177
	Clean the Electronics Cabinet.	181 (To be done by in-house Technician or call Distributor)
	Replace the Support Bearings inside the Mandrel.	157
	Replace the Film Drive Bearings inside the Mandrel.	157
	Replace the Applicator Bearings inside the Mandrel.	157
	Replace the Support Wheels (Part Number: 4500183).	177
	Replace the Film Drive Wheels (Part Number: 4500704).	176
	Replace the Applicator Wheels (Part Number: 4500128).	178
	Replace the Cutter Bearings.	169
Every 2-3 Years	Replace the Film Feed Drive Belt.	Call Distributor
	Replace the Idler Bearings.	Call Distributor
	Replace the Applicator Drive Belts.	Call Distributor
	Replace the Linear Bearings on the Dancer Assembly.	Call Distributor
	Replace the Timing Belt Small: (Part Number: 4501171) Medium: (Part Number: 4501707) Large: (Part Number: 4501697)	166
	Replace the Cutter Drive Belt (Part Number: 4502129).	165

General Cleaning

The LX-150 and UR-1 may periodically need to be cleaned.

ATTENTION: The LX-150 and UR-1 are not “wash-down” rated and cannot be sprayed down with water or chemicals. Any attempt to do so can damage the machine, may cause problems with functionality, and will void the warranty.

Items Needed to Generally Clean the LX-150 and UR-1:

- Non-abrasive, Lint-free Wipes (Part Number 2005470)
- Cloth or Paper Towels
- Standard cleaners for use on metal and glass
- Compressed Air

To Generally Clean the LX-150 and UR-1:

Before performing any cleaning, power off the LX-150 (see “Powering the System Off” on page 145) and unplug it from the power source.

WARNING: Failure to power off the system and unplug it from its power source before cleaning can result in severe electric shock or death.

Cleaning the Outside of the LX-150 and UR-1:

1. Spray the cleaner onto the Cloth/Paper Towels.
2. Wipe the outside of the LX-150 and UR-1 thoroughly, being careful not to get any in the various connections.
3. Use a separate Cloth/Paper Towel to wipe away any cleaner residue.

Cleaning the Inside of the LX-150:

ATTENTION: Never spray water, cleaner, or other liquids directly on any parts.

1. Spray the cleaner onto one or more Non-abrasive, Lint-free Wipes.
2. Wipe the surfaces inside the LX-150 thoroughly.
3. Use separate Non-abrasive, Lint-free Wipes to wipe away any cleaner residue.

Cleaning the Print Reading Sensor

At least once a week, remove the Mandrel (see “Removing the Mandrel” on page 152) and use a light Brush to gently clean lens of the Print Reading Sensor.

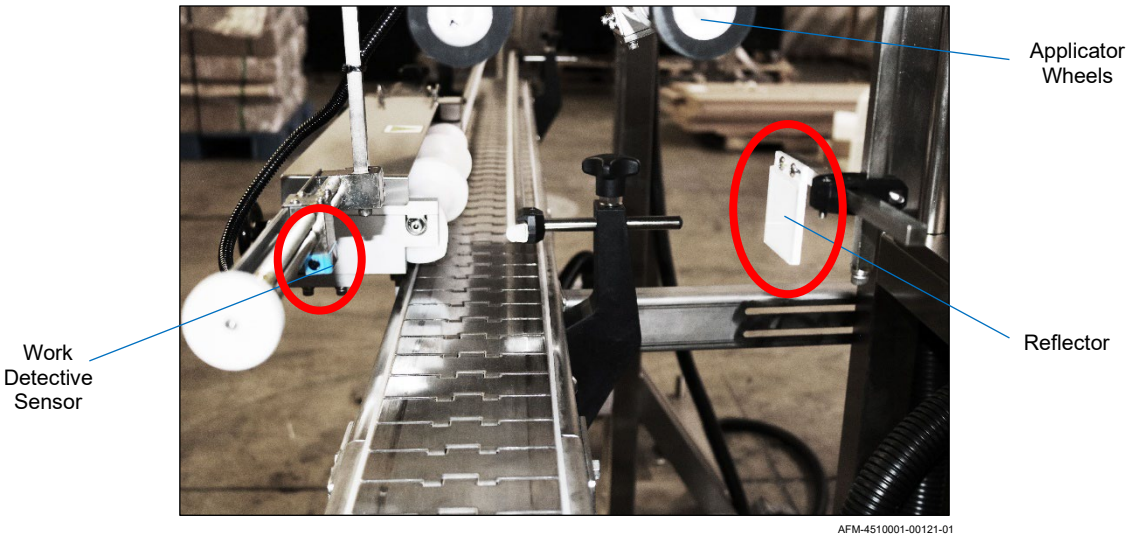
	**ATTENTION:** Do not use Compressed Air. Doing so can damage the lens and void the warranty.

Print Reading Sensor

Cleaning the Work Detective Sensor

At least once a week, use a Non-abrasive, Lint-free Wipe (Part Number 2005470) to gently clean the Eye of the Work Detective Sensor and Reflector.

Work Detective Sensor and Reflector



Removing the Mandrel

The Mandrel may occasionally need to be removed to clean out the Cutter Notch, to remove the Cutter Assembly or to use a different sized Mandrel.

Items Needed to Remove the Mandrel:

- Cut-Resistant Work Gloves

To Remove the Mandrel:

1. Open the Front Door of the LX-150.

2. Remove the film from the Mandrel:
   a. If there is film on the Mandrel, cut the film above the Mandrel Fin.
   b. If removing the Mandrel to install a different sized one, unthread the film from the LX-150 and UR-1 and thread the new label film through the system (see “Threading the Film” on page 121).

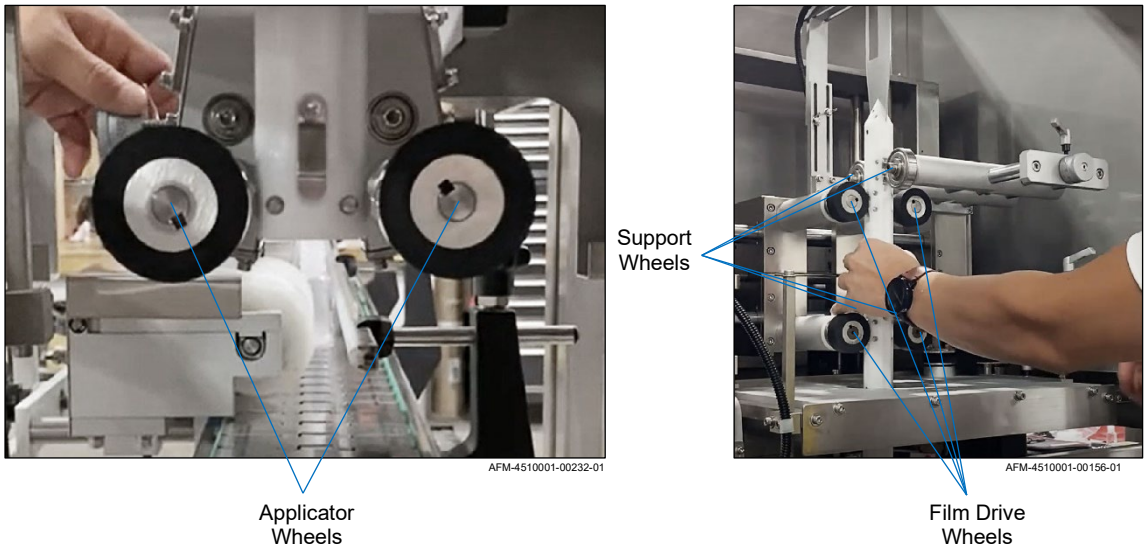
3. Firmly holding the Mandrel to support its weight, move the Wheels that hold the Mandrel in position away from the Mandrel:

ATTENTION: As the various Wheels are loosened, there will be nothing left supporting the Mandrel. To ensure that the Mandrel does not fall, use one hand to hold it in place while loosening the Wheels.

WARNING: Wear Cut-Resistant Gloves, and do not hold the Mandrel near the Cutter Assembly. Cutter Blades are very sharp and can easily cause severe cuts.

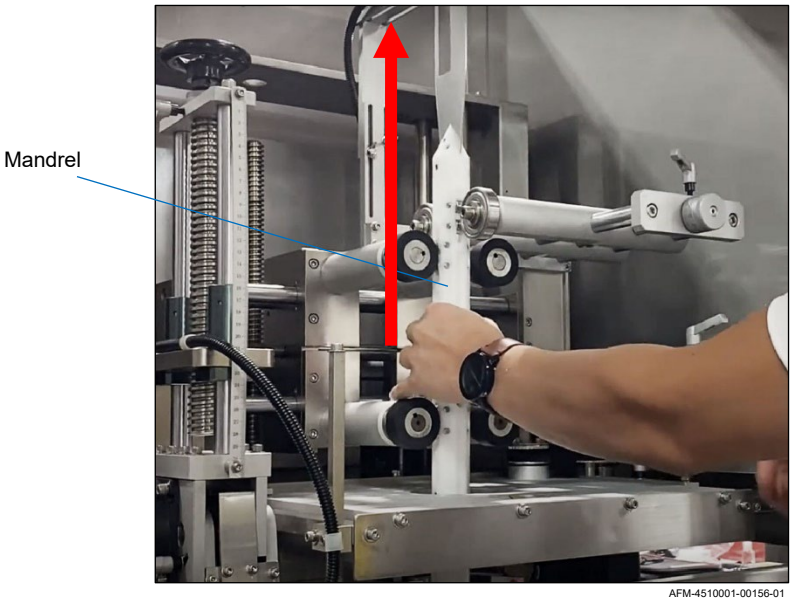
   a. Unlock the Applicator Wheel Lock and loosen the Applicator Wheels (see “Applicator Wheels: Unlocking/Adjusting/Locking” on page 115).
   b. Unlock the Film Drive Wheel Lock and loosen the Film Drive Wheels (see “Film Drive Wheels: Unlocking/Adjusting/Locking” on page 112).
   c. Unlock the Lower Support Wheel Lock and loosen the Lower Support Wheels (see “Support Wheels: Unlocking/Adjusting/Locking” on page 113).
   d. Unlock the Upper Support Wheel Lock and loosen the Lower Support Wheels (see “Support Wheels: Unlocking/Adjusting/Locking” on page 113).

Wheels That Contact the Mandrel



4. When all Wheels have been moved away from the Mandrel, gently lift the Mandrel straight upward and out of the LX-150, being careful not to knock the Print-Reading Sensor.

Removing the Mandrel



Cleaning the Cutter Notch

Over time, small slices of film can become wedged into the Cutter Notch of the Mandrel. These should be removed for consistently smooth operation.

Items Needed to Clean the Cutter Notch:

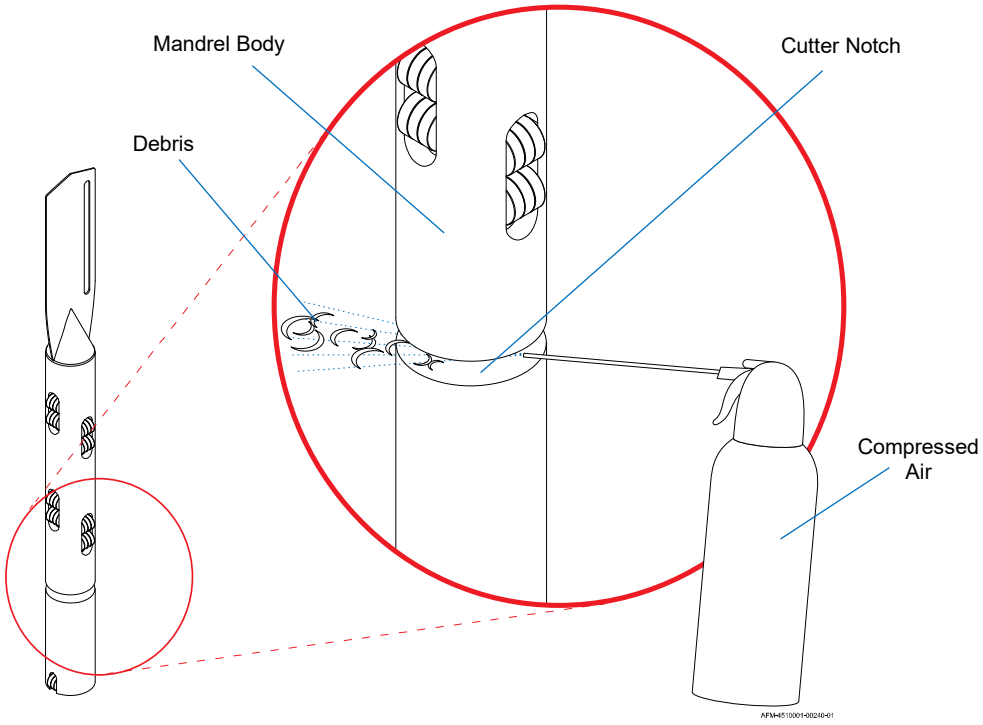
- Cut-Resistant Work Gloves
- Compressed Air

To Clean the Cutter Notch:

1. Remove the Mandrel (see “Removing the Mandrel” on page 152).

2. Examine the Cutter Notch for any debris.

Cleaning the Cutter Notch



3. If needed, spray Compressed Air into the Cutter Notch until all debris has been removed.

4. To resume labeling, reinstall the Mandrel (see “Installing the Mandrel” on page 56) and close the Front Door of the LX-150.

Checking the Mandrel's Bearings and Wheels

At least once every 3 weeks, check that all Bearings in the Mandrel and the Wheels that touch them are clean spin freely.

Items Needed to Check the Mandrel's Bearings and Wheels:

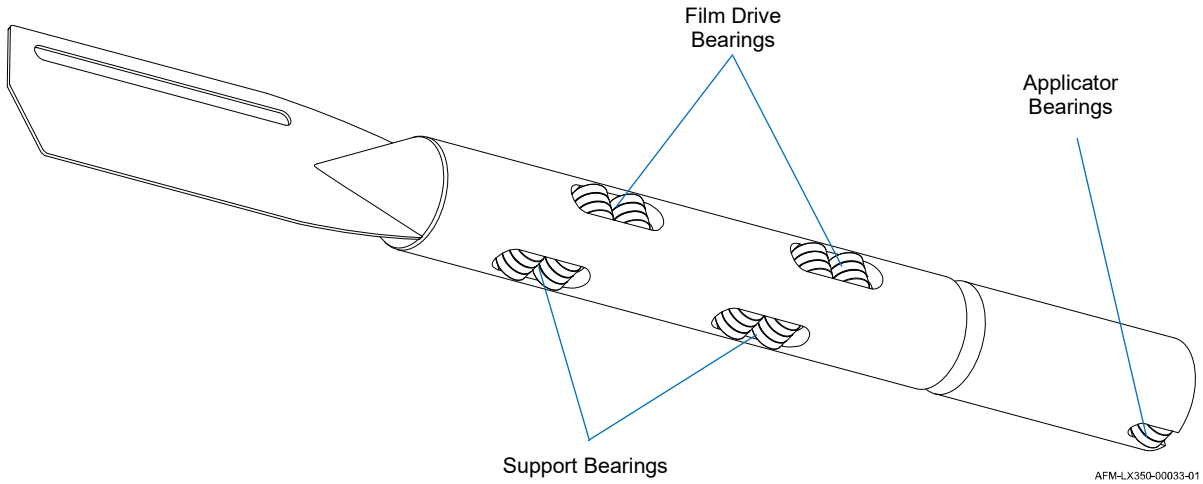
- Cut-Resistant Work Gloves
- Compressed Air

To Check the Mandrel's Bearings and Wheels:

1. Remove the Mandrel (see "Removing the Mandrel" on page 152).

2. Check that all the Bearings in the Mandrel spin freely are free of dust and contaminants, and clean as necessary using compressed air. If they still do not spin freely, replace them (see "Replacing the Bearings in the Mandrel" on page 157).

Mandrel



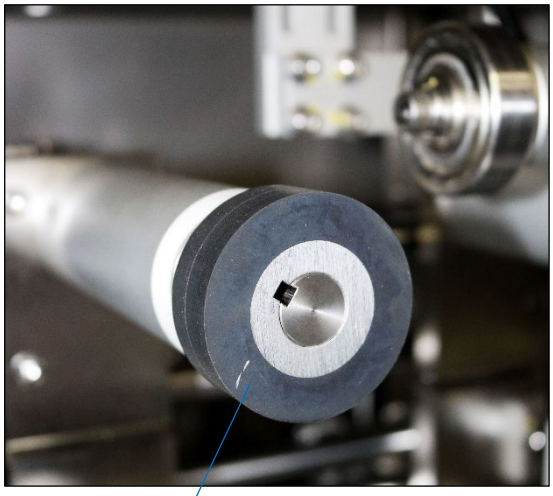
3. With the Mandrel still removed, manually spin the Support Wheels, Film Drive Wheels, and Applicator Wheels inside the LX-150 to make sure that they also spin freely, and use compressed air to clean them as needed. If they still do not spin freely, replace them (see "Replacing the Support Wheels" on page 177, "Replacing the Film Drive Wheels" on page 176, or "Replacing the Applicator Wheels" on page 178).

4. Check for wear on the rubber Applicator Wheels and Film Drive Wheels. If there is significant wear on any, replace them (see “Replacing the Film Drive Wheels” on page 176 or “Replacing the Applicator Wheels” on page 178).

5. Depending on the film being used, there may be a buildup of shiny, plastic residue on the Wheels. This can cause the film to slip as it is being fed, leading to loss of registration. Check for any shiny buildup on the Applicator Wheels and Film Drive Wheels. If any residue is present, the Applicator Wheels and Film Drive Wheels can be cleaned using distilled (or de-ionized or reverse osmosis filtered) water.

	**ATTENTION:** Do not use alcohol on the rubber wheels. Doing so can damage them.

Checking for Wear or Residue on Wheels



Replacing the Bearings in the Mandrel

All Bearings in the Mandrel should be replaced with new once annually.

Items Needed to Replace the Mandrel's Bearings:

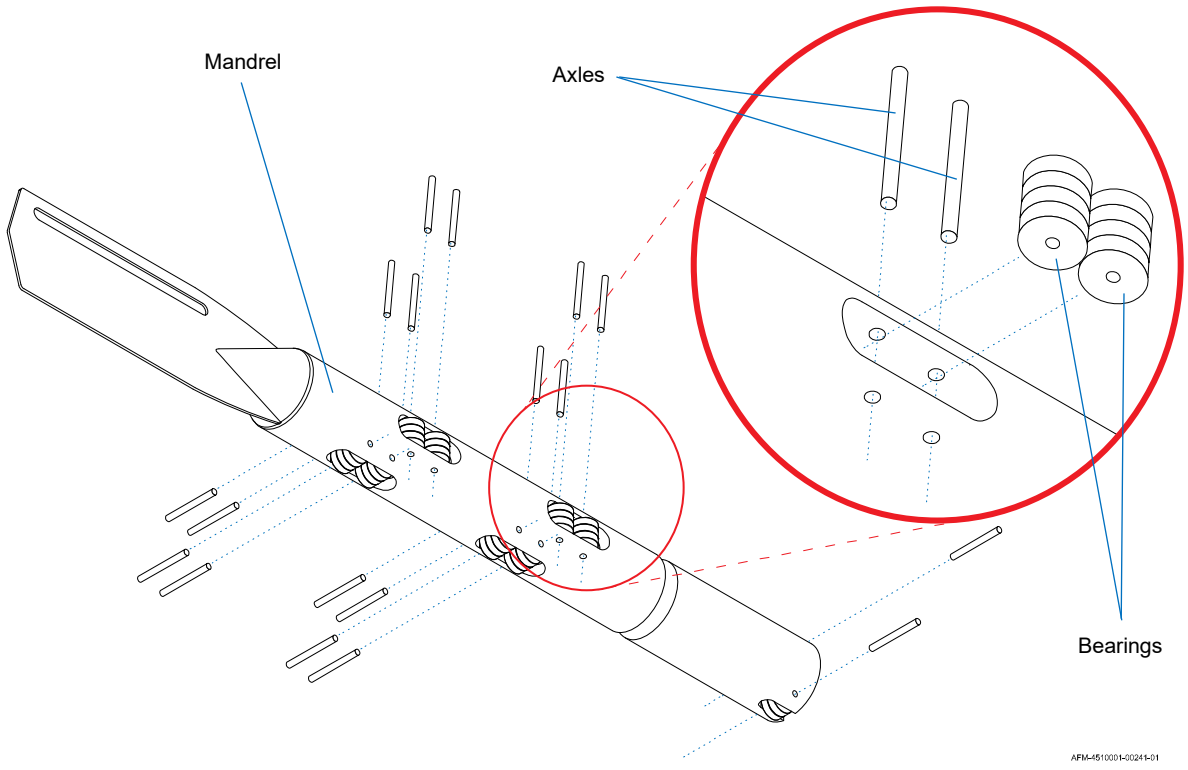
- Cut-Resistant Work Gloves
- Screwdriver
- New Support Bearings – 4 sets
- New Film Drive Bearings – 4 sets
- New Applicator Bearings – 2 sets

To Replace the Mandrel's Bearings:

1. Remove the Mandrel (see "Removing the Mandrel" on page 152).

2. Use the Screwdriver to push out the Axles for all Bearings in the Mandrel, making note of which Axle goes with which location on the Mandrel. The Axles are only held in place by tension/friction.

Replacing All Bearings and Axles



3. Install the new Support Bearings:
   a. Slide a Support Axle partly back into its hole
   b. Line up the new Support Bearings on the Support Axle
   c. Push the Support Axle the rest of the way into its original position.
   d. Repeat for all Support Axles and Support Bearings.
   e. Confirm that all Support Bearings spin freely.

4. Install the new Film Drive Bearings:
   a. Slide a Film Drive Axle partly back into its hole
   b. Line up the new Film Drive Bearings on the Film Drive Axle
   c. Push the Film Drive port Axle the rest of the way into its original position.
   d. Repeat for all Film Drive Axles and Film Drive Bearings.
   e. Confirm that all Film Drive Bearings spin freely.

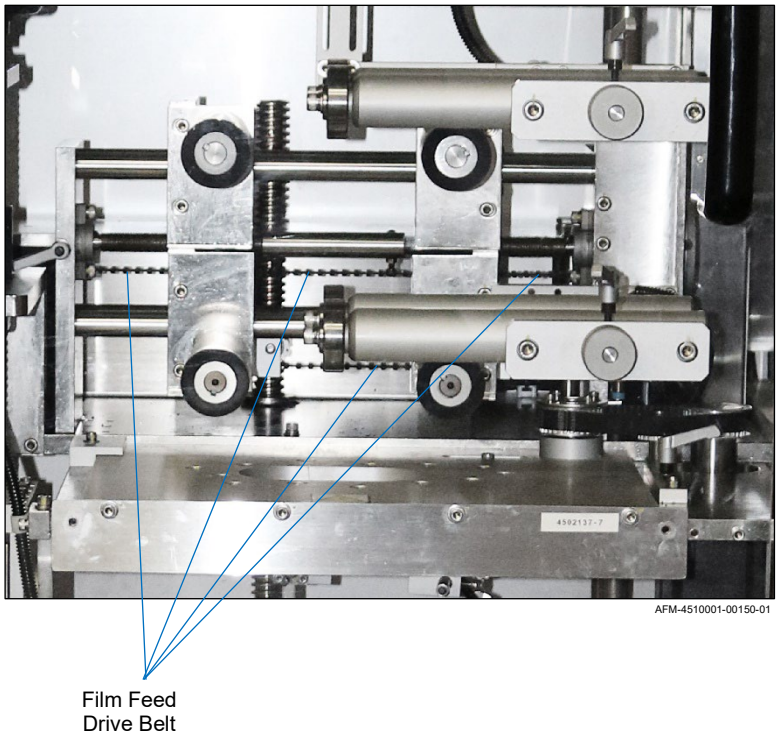
5. Install the new Applicator Bearings:
   a. Slide a Applicator Axle partly back into its hole
   b. Line up the new Applicator Bearings on the Applicator Axle
   c. Push the Applicator Axle the rest of the way into its original position.
   d. Repeat for all Applicator Axles and Applicator Bearings.
   e. Confirm that all Applicator Bearings spin freely.

6. When all new Bearings have been installed and can spin freely, the Mandrel can be reinstalled (see “Installing the Mandrel” on page 56).

Checking the Film Feed Drive Belt

Every three weeks, the Film Feed Drive Belt should be checked for signs of wear. This can be done simply by viewing the length of it, turning the Film Drive Wheels by hand to expose parts of the Belt that are not readily visible. If any wear is observed on the Belt, it should be replaced by AFM Support.

Areas to Observe Film Feed Drive Belt



Removing the Cutter Assembly

The Cutter Assembly may occasionally need to be removed in order to switch Blades or to use a different sized Cutter Assembly.

WARNING: When handling the Cutter Assembly, use extreme caution. Cutter Blades are very sharp and can easily cause severe cuts.

VIDEO: Cutter Adjustments

To see a video of this procedure, click this link:
https://www.youtube.com/watch?v=036vSOgbL0A
Or scan the QR code at right using the camera app on your mobile device.
Time: 0:00 – 0:50

AFM-4510001-00184-01
Cutter Adjustments
https://youtu.be/036vSOgbL0A

Items Needed to Remove the Cutter Assembly:

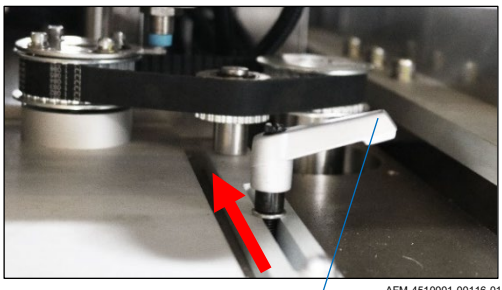
- Allen Wrench (included in Tool Kit)
- Cut-Resistant Work Gloves

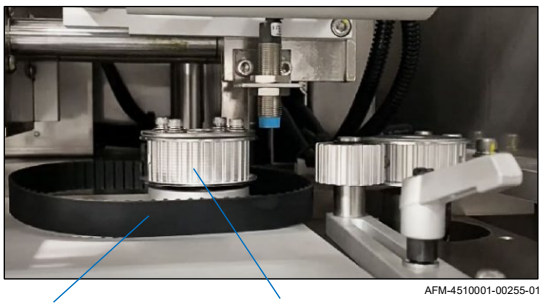
To Remove the Cutter Assembly:

1. Open the Front Door of the LX-150.

2. Remove the Mandrel (see “Removing the Mandrel” on page 152).

3. Take the Cutter Drive Belt off the Cutter Drive Pulley:
   a. Turn the Tensioner Lock counterclockwise to unlock it and push it toward the Cutter Drive Pulley to loosen tension on the Cutter Drive Belt.



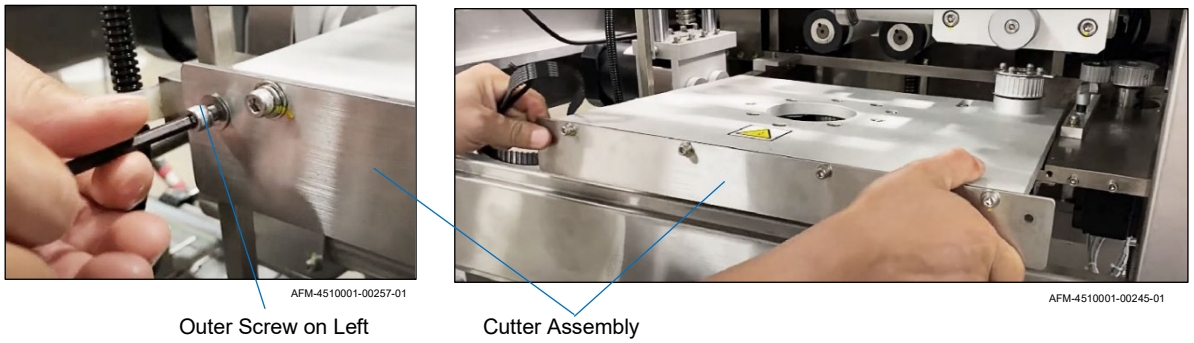


   b. Pull up and outward on the Cutter Drive Belt to unloop it from the Cutter Drive Pulley.

4. Using the Allen Wrench, remove the outermost Screws from the front of the Cutter Assembly.

5. Pull the Cutter Assembly straight out from the Cutter Support Arms like a drawer.

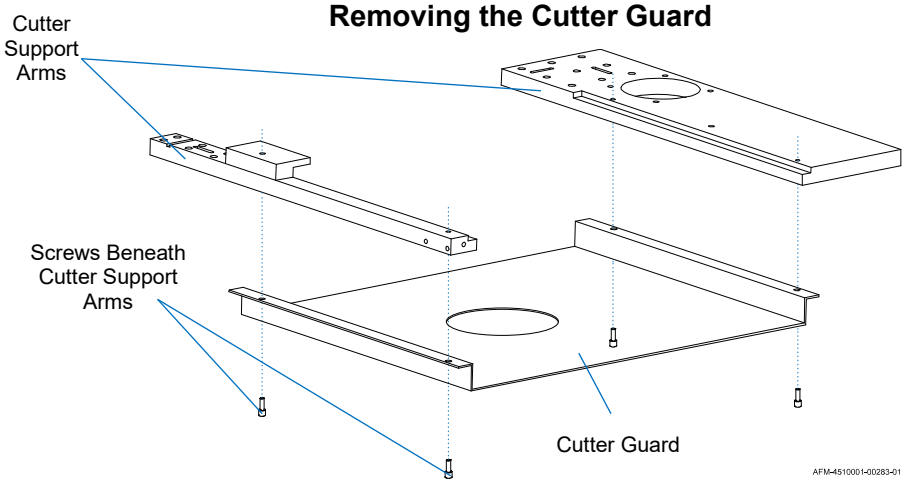
Pulling Out the Cutter Assembly



6. **Extra Step** (not normally needed):
   If removing the Cutter Assembly to replace it with a different sized one, remove the Cutter Guard:
   a. Support the Cutter Guard with a hand from beneath.
   b. Remove the 4 Screws holding it to the Cutter Support Arms.
   c. Store the Cutter Guard with its Cutter Assembly.
   d. Set aside the Screws to attach the new Cutter Guard to the Cutter Support Arms.

	**ATTENTION:** When the Screws have been removed, there will be nothing left holding the Cutter Guard in place. To ensure that the Cutter Guard does not fall, use hands to gently hold it in place while loosening the Screws.

Removing the Cutter Guard



Replacing the Cutter Blades

At least every 3 weeks, or when the Cutter Blades become dulled, they need to be replaced.

WARNING: While the Blades may eventually lose enough sharpness to consistently cut labels smoothly, they are still sharp enough to cause severe cuts. When handling the Cutter Assembly, use extreme caution.

VIDEO: Cutter Adjustments

To see a video of this procedure, click this link:
https://www.youtube.com/watch?v=036vSOgbL0A
Or scan the QR code at right using the camera app on your mobile device.
Time: 0:50 – 2:52

AFM-4510001-00164-01
Cutter Adjustments
https://youtu.be/036vSOgbL0A

Items Needed to Replace the Cutter Blades:

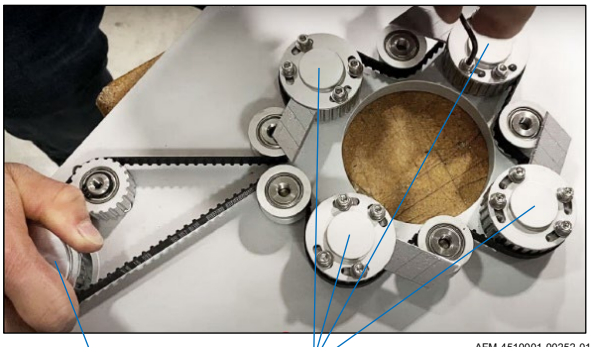
- Allen Wrench (included in Tool Kit)
- Cut-Resistant Work Gloves
- New Cutter Blades (Part Number 4501151)

To Replace the Cutter Blades:

1. Remove the Mandrel (see “Removing the Mandrel” on page 152).

2. Remove the Cutter Assembly (see “Removing the Cutter Assembly” on page 160).

3. Remove the old Cutter Blades (there may be a different number of Cutter Blades than shown):



a. On the underside of the Cutter Assembly, manually rotate the Cutter Drive Pulley until the Cutter Blades are in their home position.

b. Holding the Cutter Drive Pulley, carefully loosen (but do not remove) the Screws holding each Cutter Blade in its Housing.

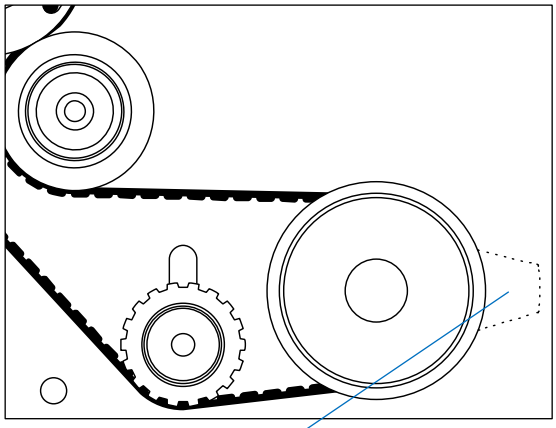
c. Carefully slide out and safely dispose of each old Cutter Blade.

4. Install the new Cutter Blades:

a. On the underside of each Cutter Blade Housing's top is a ridge that holds the Cutter Blade in position. Slide a new Blade in so that its non-sharp edge rests against that ridge. The sharp edge of the blade should be facing counterclockwise.

b. Retighten the Screws to hold the new Cutter Blade securely in position.

Installing New Blades



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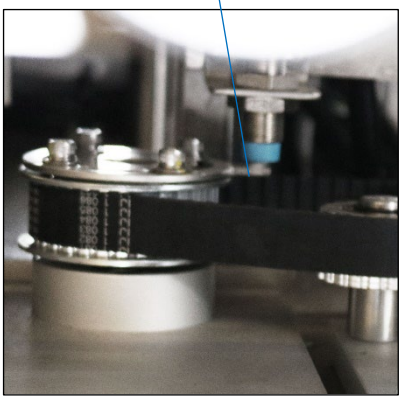

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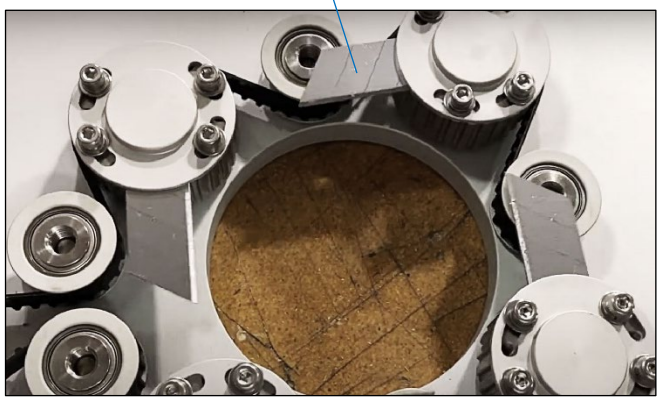


AFM-4510001-00246-01

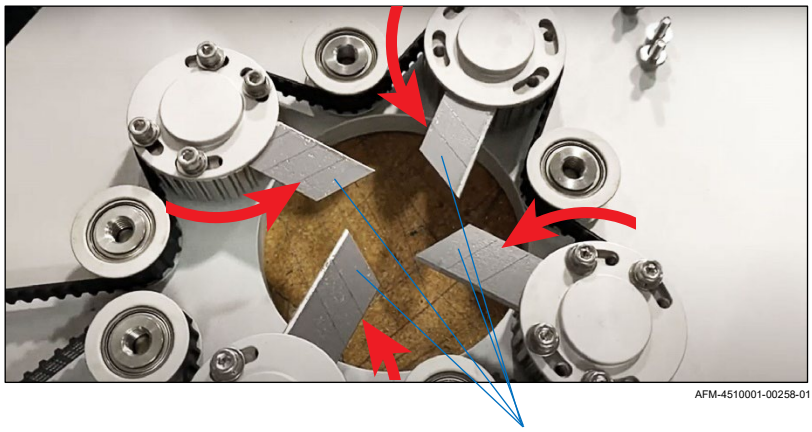
c. Repeat this for all of the Cutter Blades, ensuring that an equal length of each Cutter Blade is extending from each Cutter Blade Housing. When finished:

- The Cutter Blades should all be in the home position.

- The sharp edge of each Cutter Blade should be facing counterclockwise.
- The Cutter Home Tab on the top of the Cutter Assembly should be pointed to the outer side edge of the Cutter Assembly (as shown above).

5. Check for proper Cutter Assembly function:
   a. Rotate the Cutter Drive Pulley. All Cutter Blade Housings should rotate in unison.

Cutter Blade Housings Rotating in Unison



Correctly Aligned Cutter Blades/Housings

   b. Check the tension and wear on the Timing Belt (see “Checking the Timing Belt” on page 166).
   c. Check for wear on the Cutter Drive Belt (see “Checking the Cutter Drive Belt” on page 165).
   d. If there is wear on either Belt, or if they are due for replacement according to the Preventative Maintenance Schedule (see page 147), replace the Belts (see “Replacing the Timing Belt and Cutter Drive Belt” on page 167).
   e. Use the Cutter Drive pulley to manually return the Cutter Blades to the home position, with the Cutter Home Tab pointing to the outer side of the Cutter Assembly.

6. Reinstall the Cutter Assembly (see “Installing the Cutter Assembly” on page 53), ensuring that there is proper tension on the Cutter Drive Belt.

Checking the Cutter Drive Belt

At least once every 3 weeks, while changing all of the Cutter Blades, check the Cutter Drive Belt by doing the following:

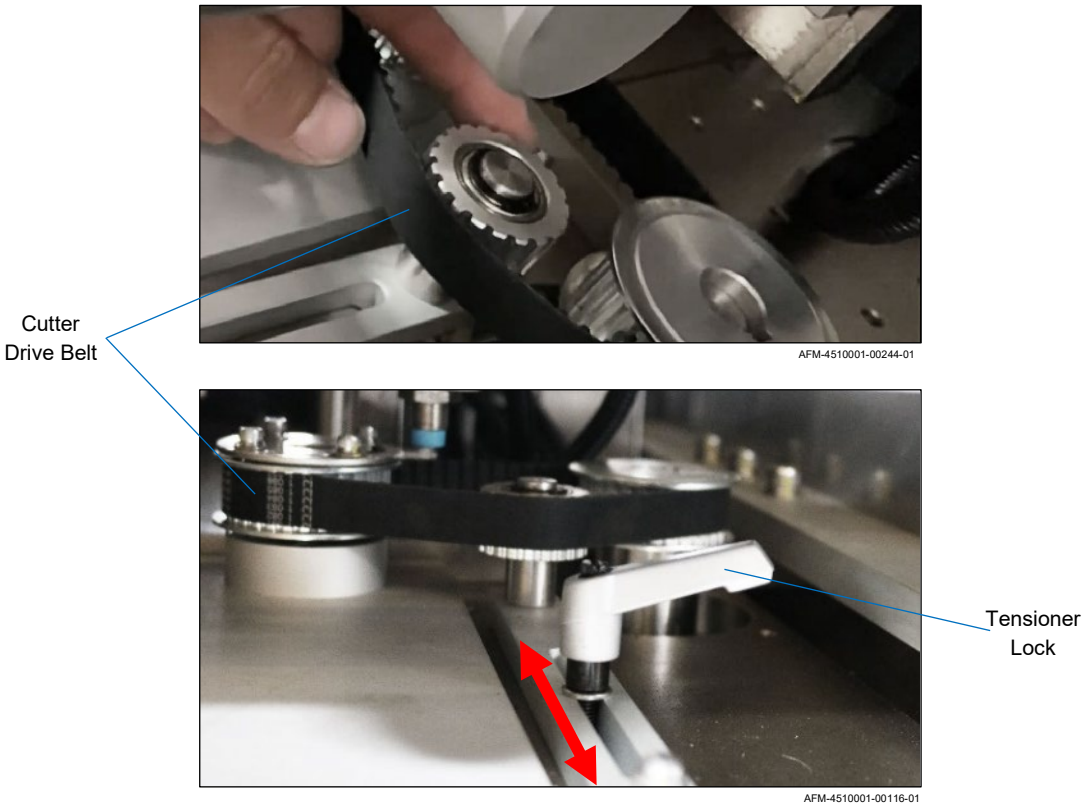
	**WARNING:** When handling the Cutter Assembly, use extreme caution. Cutter Blades are very sharp and can easily cause severe cuts.

1. With the Cutter Assembly properly installed, check the condition of the Cutter Drive Belt. Order a replacement at the first sign of wear.

	**WARNING:** Failure to replace a worn Timing Belt can impair system performance, can damage the equipment, and can result in injury.

2. Verify proper tension on the Cutter Drive Belt, and adjust if needed by unlocking the Tensioner and tightening it (see “Tensioner: Unlocking/Adjusting/Locking” on page 111).

Checking the Cutter Drive Belt



Checking the Timing Belt

At least once every 3 weeks, while changing all of the Cutter Blades, check the Timing Belt by doing the following:

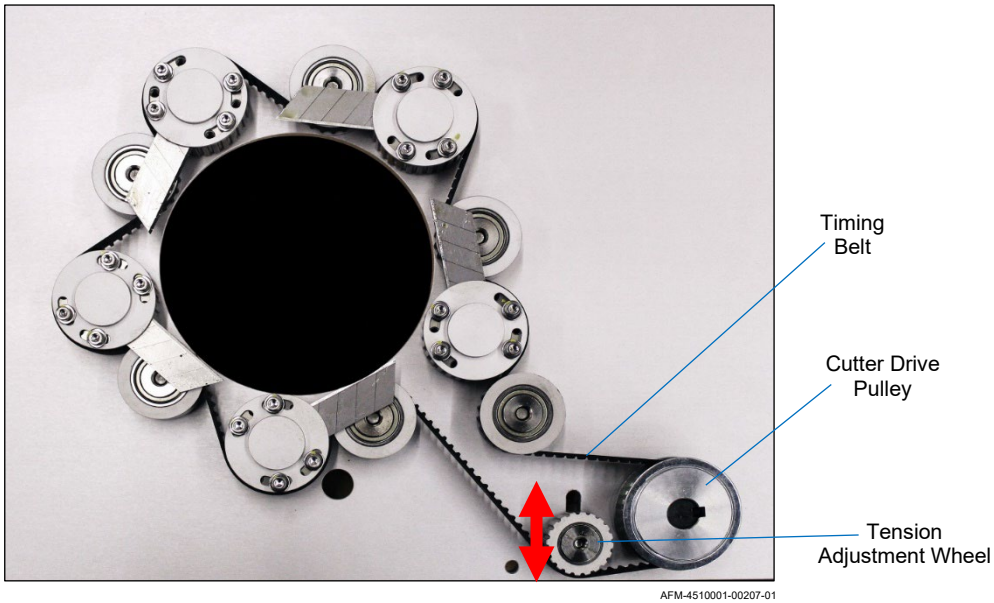
1. With the Cutter Assembly removed from the LX-150, check the condition of the Timing Belt. Order a replacement at the first sign of wear.

	**WARNING:** Failure to replace a worn Timing Belt can impair system performance, can damage the equipment, and can result in injury.

2. Verify proper tension on the Timing Belt by verifying that rotating the Cutter Drive Pulley turns all Cutter Blades in unison, and by tugging gently outward on it.

3. Adjust the Timing Belt if needed by moving the position of the Tension Adjustment Wheel. The tension on the Timing Belt should always be tight enough to ensure consistently precise rotation of the Cutter Blades.

Underside of Cutter Assembly



4. Reinstall the Cutter Assembly (see “Installing the Cutter Assembly” on page 53).

5. After reinstalling the Cutter Assembly, ensure proper tension on the Cutter Drive Belt (see “Checking the Cutter Drive Belt” on page 165).

Replacing the Timing Belt and Cutter Drive Belt

Every 2-3 years or at the first sign of wear, the Timing Belt and Cutter Drive Belt should be replaced.

	**WARNING:** When handling the Cutter Assembly, use extreme caution. Cutter Blades are very sharp and can easily cause severe cuts.

Items Needed to Replace the Timing Belt and Cutter Drive Belt:

- Allen Wrench (included in Tool Kit)
- Cut-Resistant Work Gloves
- New Timing Belt
- Cutter Drive Belt (Part Number 4502129)
- Correct Sized Timing Belt
  - Small (Part Number 4501711)
  - Medium (Part Number 4501707)
  - Large (Part Number 4501697)

To Replace the Timing Belt and Cutter Drive Belt:

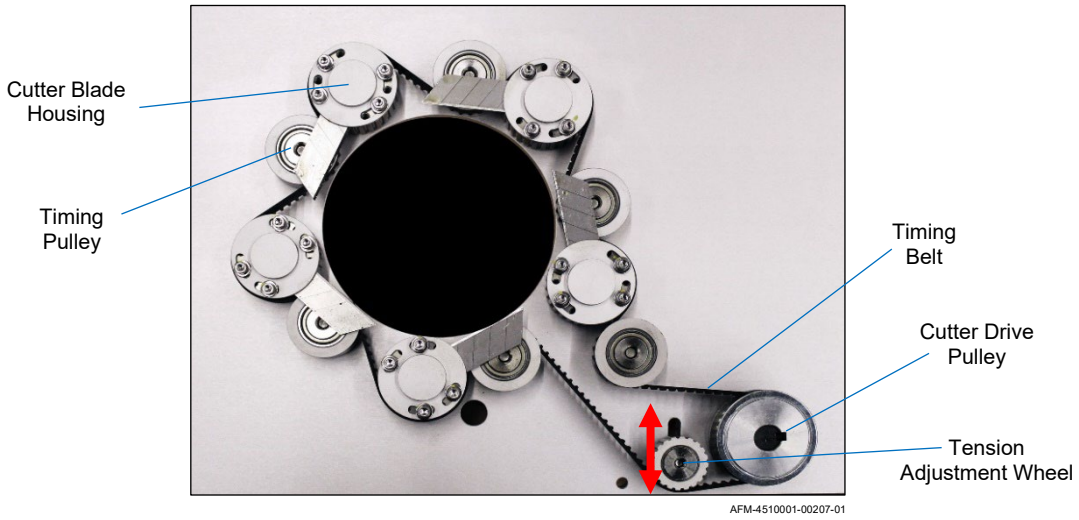
1. Power off the LX-150 (see “Powering the System Off” on page 145) and unplug it from the power source.

2. Remove the Mandrel (see “Removing the Mandrel” on page 152).

3. Remove the Cutter Assembly (see “Removing the Cutter Assembly” on page 160).

4. On the underside of the Cutter Assembly, carefully remove each of the Cutter Blades (see ”Replacing the Cutter Blades” on page 162).

5. Remove the old Timing Belt by pushing inward on the Tension Adjustment Wheel and pulling the Timing Belt up and out to unloop it. With the Timing Belt unlooped, unthread it from around the various Cutter Blade Housings, Wheels, and Pulleys in the Cutter Assembly, as in the image below.



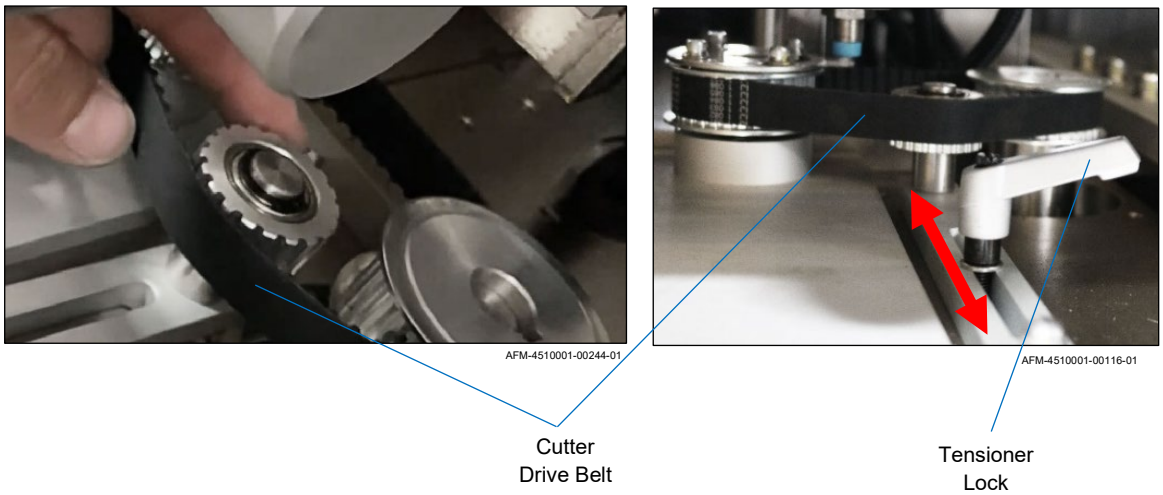
6. Thread the new Timing Belt around the Cutter Blade Housings, Wheels, and Pulleys in the Cutter Assembly, ending with the Tension Adjustment Wheel.

7. Check the tension on the Timing Belt and adjust if needed (see “Checking the Timing Belt” on page 166).

8. Install new Cutter Blades (see “Replacing the Cutter Blades” on page 162).

9. Reinstall the Cutter Assembly (see “Installing the Cutter Assembly” on page 53), looping the new Cutter Drive Belt over the Cutter Drive Pulley.

Installing a New Cutter Drive Belt



Replacing the Cutter Bearings

At least once a year, the Bearings in the Cutter Assembly should be replaced. This can be done while replacing the Cutter Blades.

	**WARNING:** When handling the Cutter Assembly, use extreme caution. Cutter Blades are very sharp and can easily cause severe cuts.

Items Needed to Replace the Cutter Bearings:

- Allen Wrench (included in Tool Kit)
- Cut-Resistant Work Gloves
- New Cutter Bearings (Part Number 4500173)
- New Cutter Blades (Part Number 4501161)

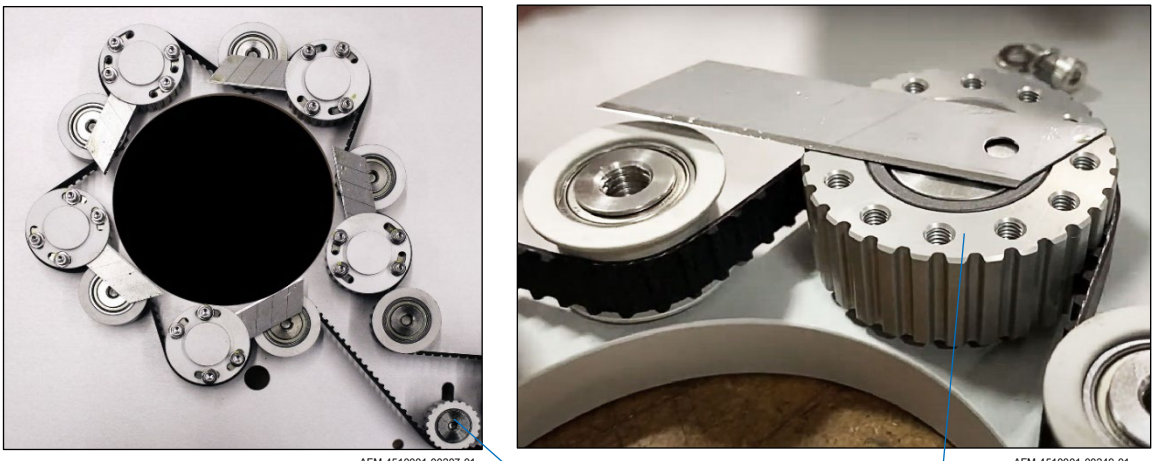
To Replace the Cutter Bearings:

1. Power off the LX-150 (see “Powering the System Off” on page 145) and unplug it from the power source.

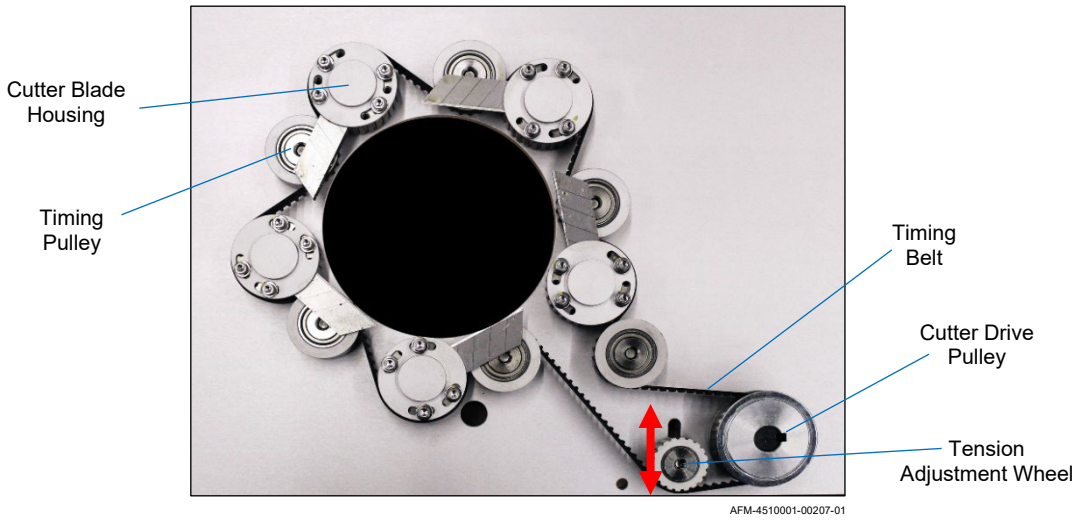
2. Remove the Mandrel (see “Removing the Mandrel” on page 152).

3. Remove the Cutter Assembly (see “Removing the Cutter Assembly” on page 160).

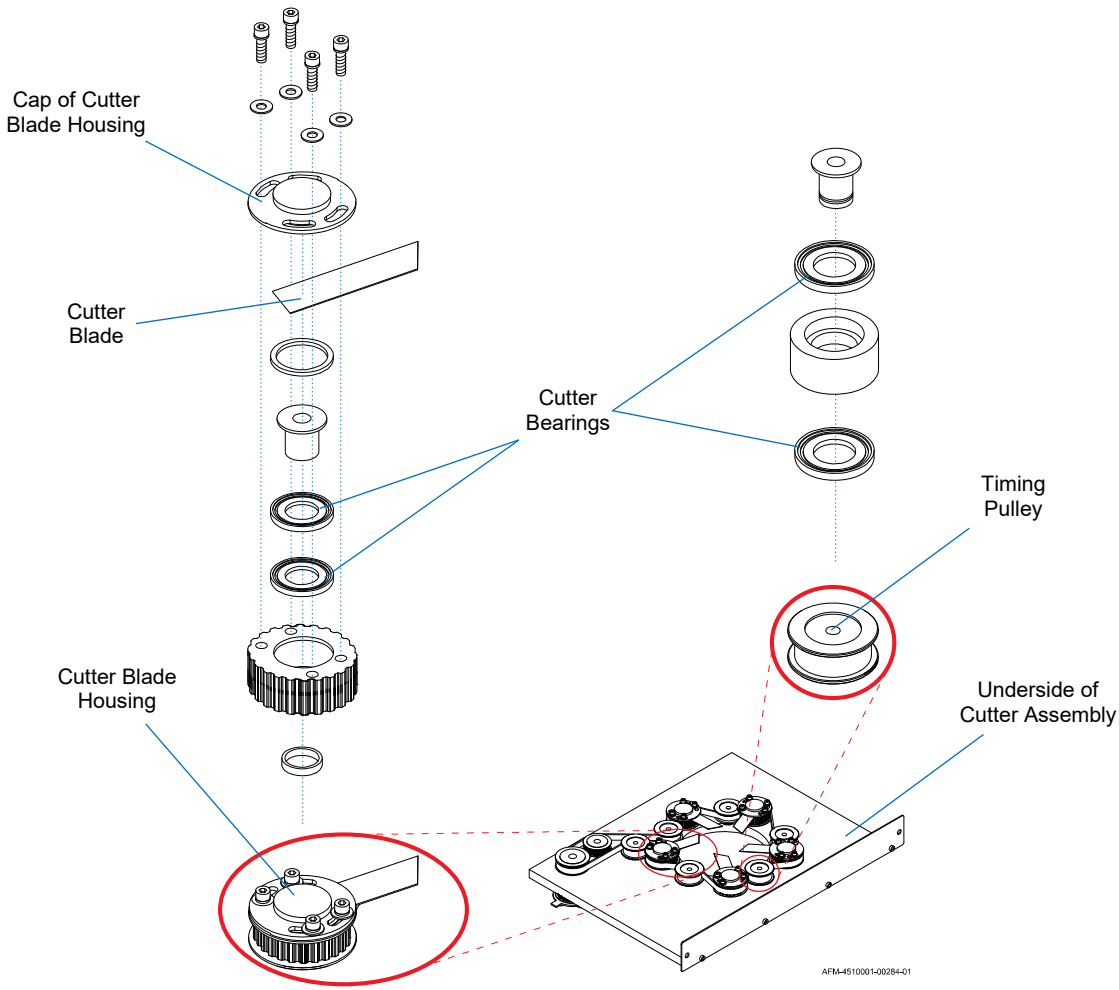
4. On the underside of the Cutter Assembly, carefully remove Caps of the Cutter Housings and remove each of the Cutter Blades (see ”Replacing the Cutter Blades” on page 162).



5. Remove the Timing Belt by pushing inward on the Tension Adjustment Wheel and pulling the Timing Belt up and out to unloop it. With the Timing Belt unlooped, unthread it from around the Cutter Blade Housings, Wheels, and Pulleys in the Cutter Assembly.



6. Lift each old Cutter Housing and Timing Pulley off its Shaft, disassembling them.



7. Replace the old Cutter Bearings with the new ones.

8. Reassemble the components of each Cutter Housing and Timing Pulley on their Shafts, as shown in the diagram above.

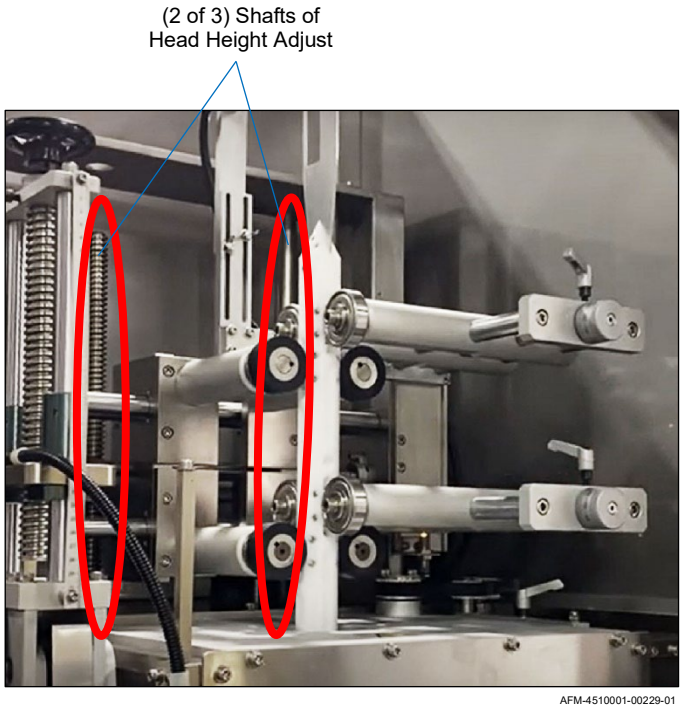
9. Install the new Cutter Blades (see “Replacing the Cutter Blades” on page 162).

10. Reinstall the Cutter Assembly (see “Installing the Cutter Assembly” on page 53).

Greasing the Shafts of the Head Height Adjust

Once a year, the Shafts of the Head Height Adjust should be lightly greased to ensure smooth performance.

Shafts of the Head Height Adjust



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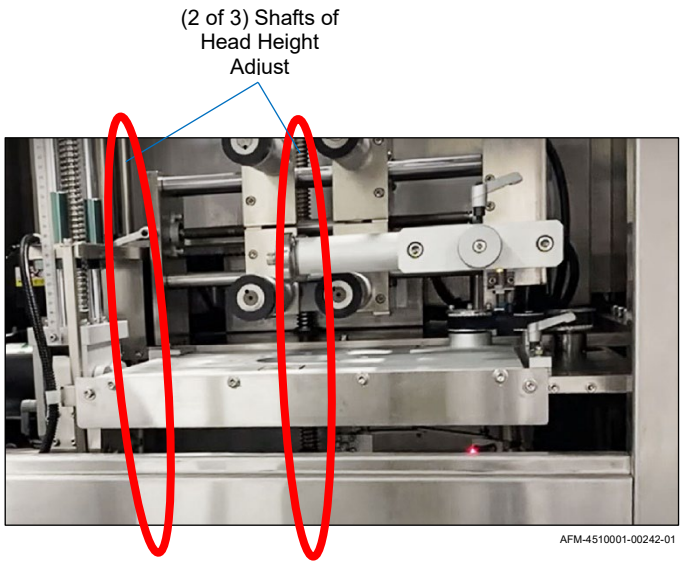

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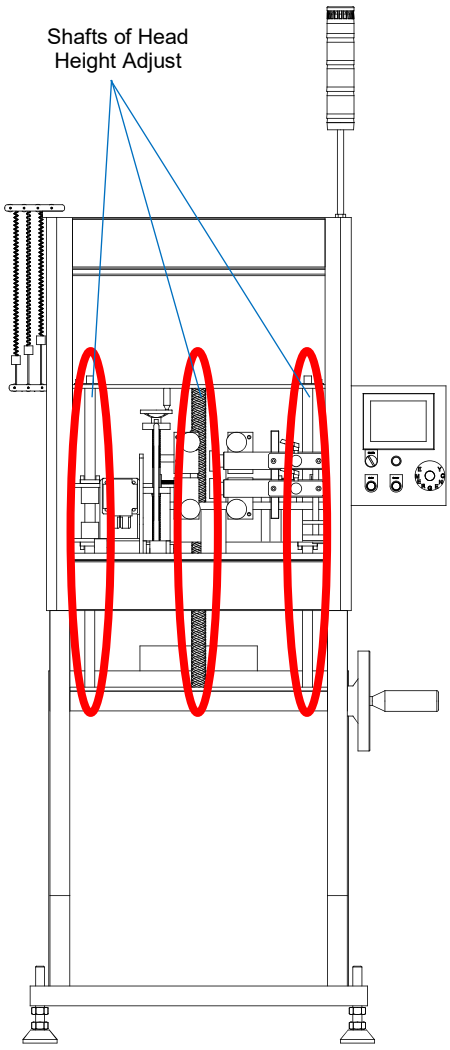
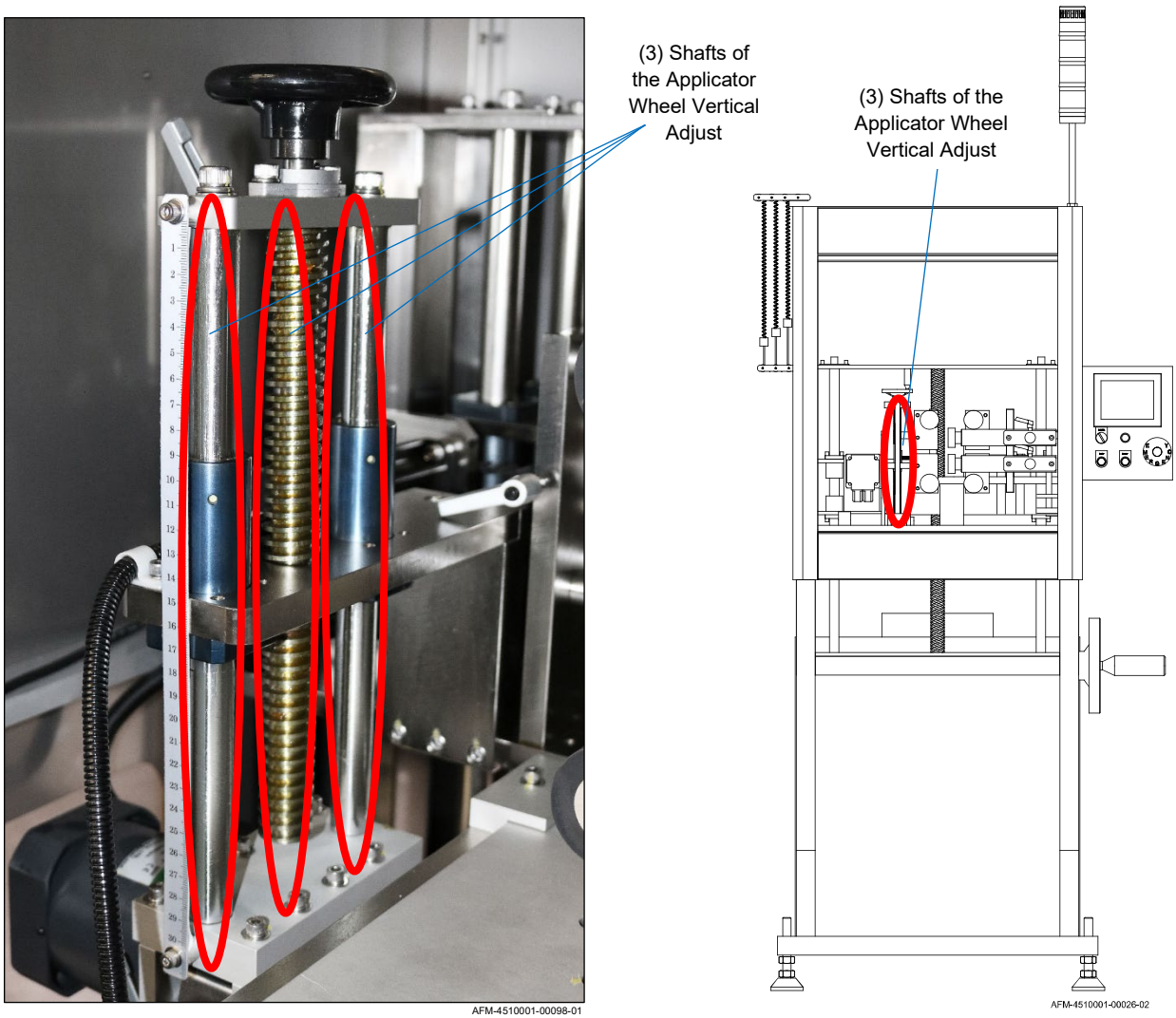


AFM-4510001-00026-02

Greasing the Shafts of the Applicator Wheel Vertical Adjust

Once a year, the Shafts of the Applicator Wheel Vertical Adjust should be lightly greased to ensure smooth performance.

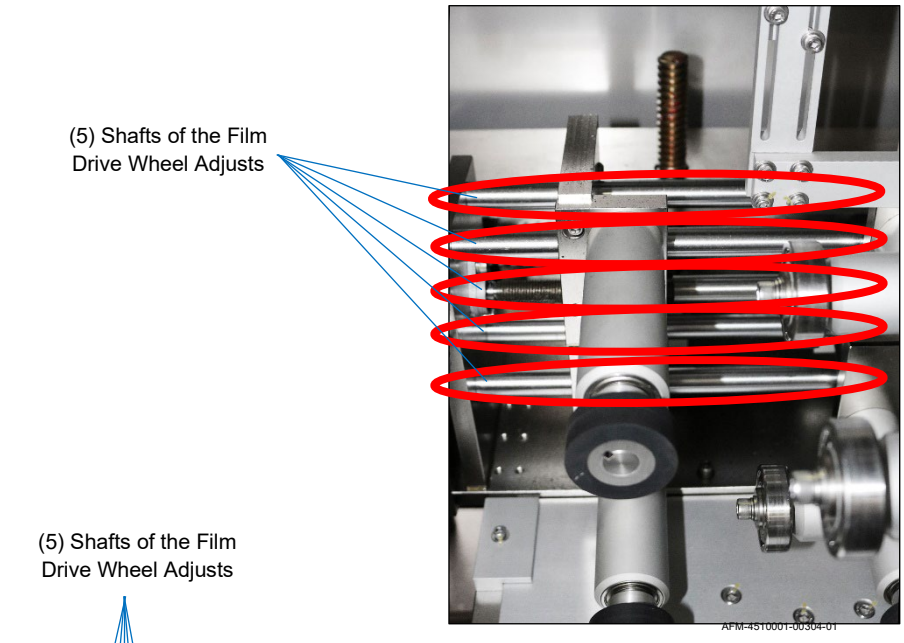
Shafts of the Applicator Wheel Vertical Adjust

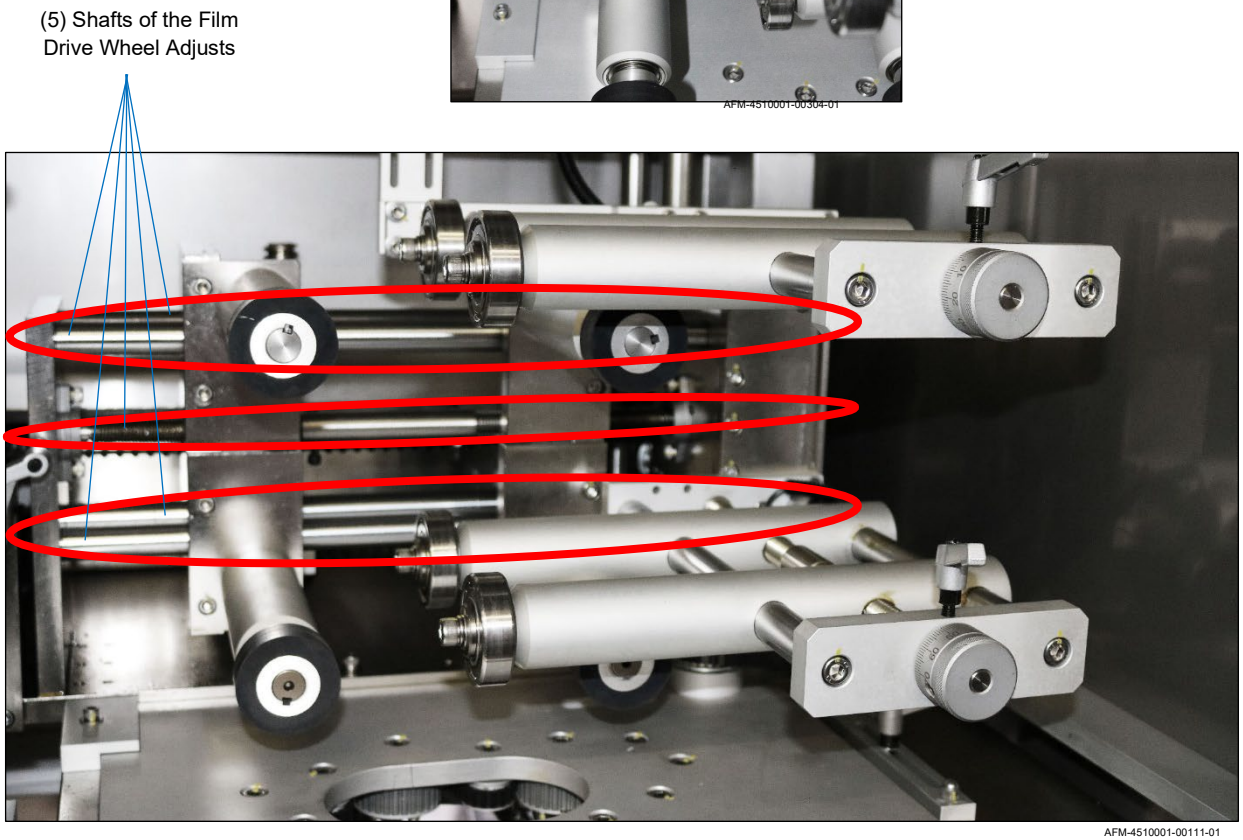


Greasing the Shafts of the Film Drive Wheel Adjusts

Once a year, the Shafts of the Film Drive Wheel Adjusts should be lightly greased to ensure smooth performance.

Shafts of the Film Drive Wheel Adjusts



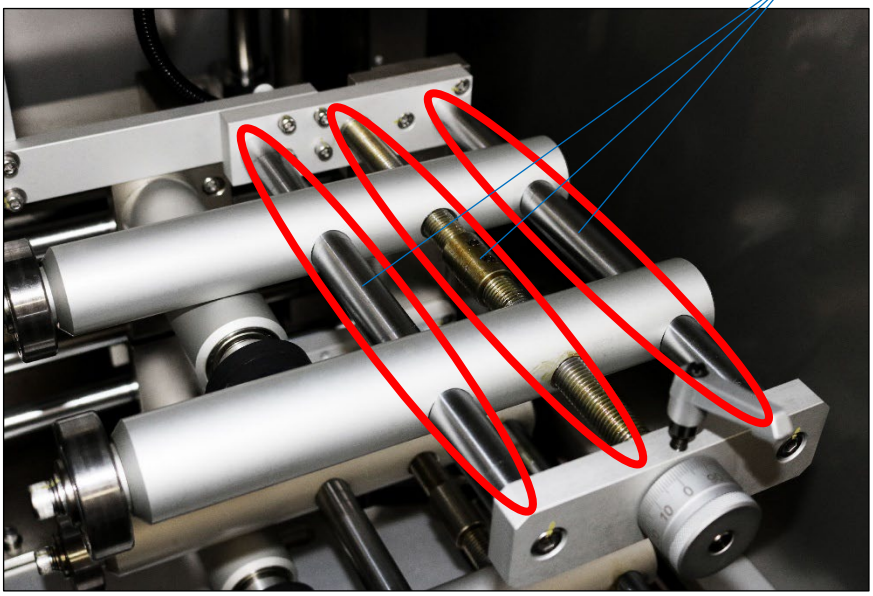


Greasing the Shafts of the Support Wheel Adjusts

Once a year, the Shafts of the Film Drive Wheel Adjusts and Support Wheel Adjusts should be lightly greased to ensure smooth performance.

Shafts of the Support Wheel Adjusts

(3) Shafts of the Upper Support Wheel Adjusts



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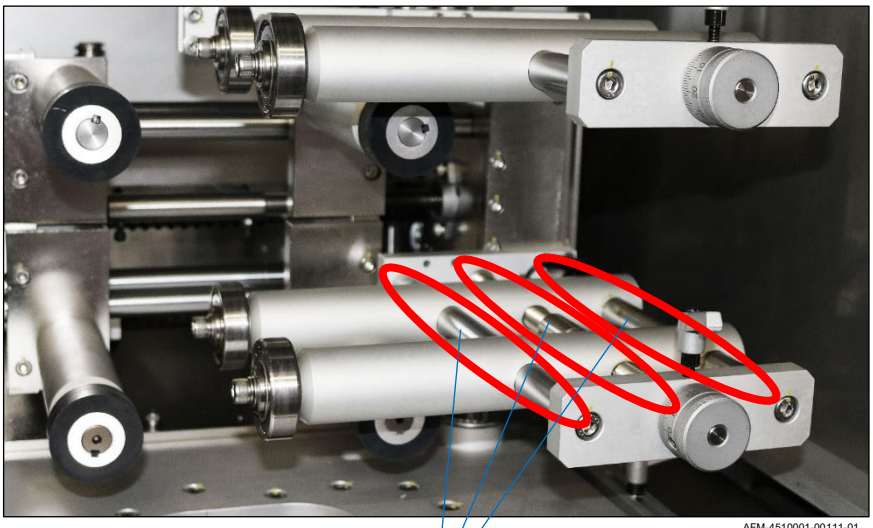

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(3) Shafts of the Lower Support Wheel Adjusts

Replacing the Film Drive Wheels

Every 6 months, the Film Drive Wheels should be checked for wear. The Film Drive Wheels should be replaced every year or as needed.

Items Needed to Replace the Film Drive Wheels:

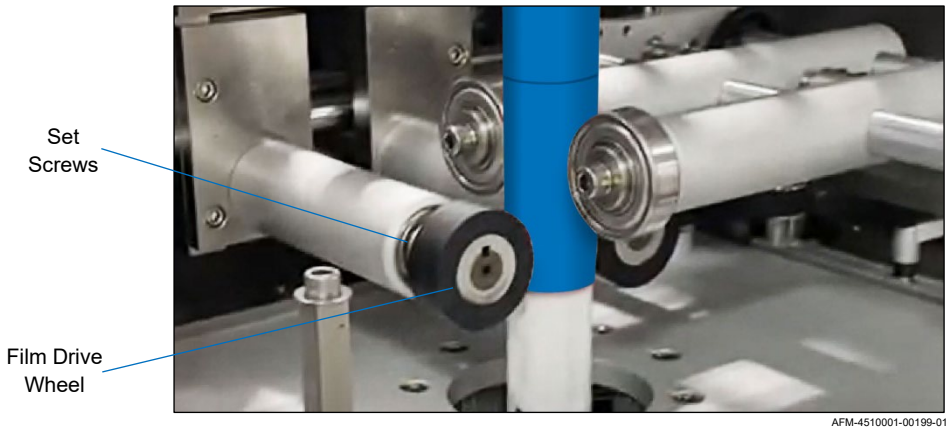
- Allen Wrench (included in Tool Kit)
- Cut-Resistant Work Gloves
- New Film Drive Wheels (Part Number 4500704)

To Replace the Film Drive Wheels:

1. Power off the LX-150 (see “Powering the System Off” on page 145) and unplug it from the power source.

2. Remove the Mandrel (see “Removing the Mandrel” on page 152).

3. Remove the Film Drive Wheels.
   Each Film Drive Wheel has two Set Screws at 90° to each other holding it in place. The Set Screws are located on the Shaft just behind the Film Drive Wheel. They may be on the top, bottom, or side, depending on the rotation of the Wheel at the time.
   a. Use the Allen Wrench to loosen the Set Screws.
   b. Pop off the old Film Drive Wheel.



   c. Put a new Film Drive Wheel in its place.
   d. Tighten the Set Screws with the Allen Wrench to secure the new Film Drive Wheel in position.

Replacing the Support Wheels

The Support Wheels should be replaced every year or as needed.

Items Needed to Replace the Support Wheels:

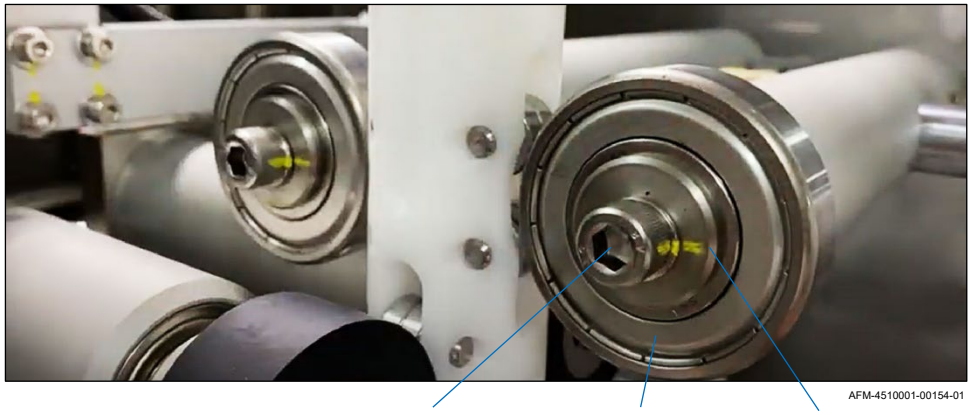
- Allen Wrench (included in Tool Kit)
- Cut-Resistant Work Gloves
- New Support Wheels (Part Number 4500183)

To Replace the Support Wheels:

1. Power off the LX-150 (see “Powering the System Off” on page 145) and unplug it from the power source.

2. Remove the Mandrel (see “Removing the Mandrel” on page 152).

3. Remove the Support Wheels.
   Each Support Wheel has a Machine Screw and a Bushing holding it in place. The Machine Screw is in the center of the Support Wheel.
   a. Use the Allen Wrench to remove the Machine Screw.
   b. Pop off the old Support Wheel. The Bushing will come off as well (the flange of the Bushing is visible just behind the Machine Screw).



   c. Replace the old Support Wheel with a new Support Wheel, using the old Bushing to hold it in place on the Shaft.
   d. Insert the Machine Screw and tighten it with the Allen Wrench to secure the new Support Wheel in position.

Replacing the Applicator Wheels

The Applicator Wheels should be replaced every year or as needed.

Items Needed to Replace the Film Drive Wheels:

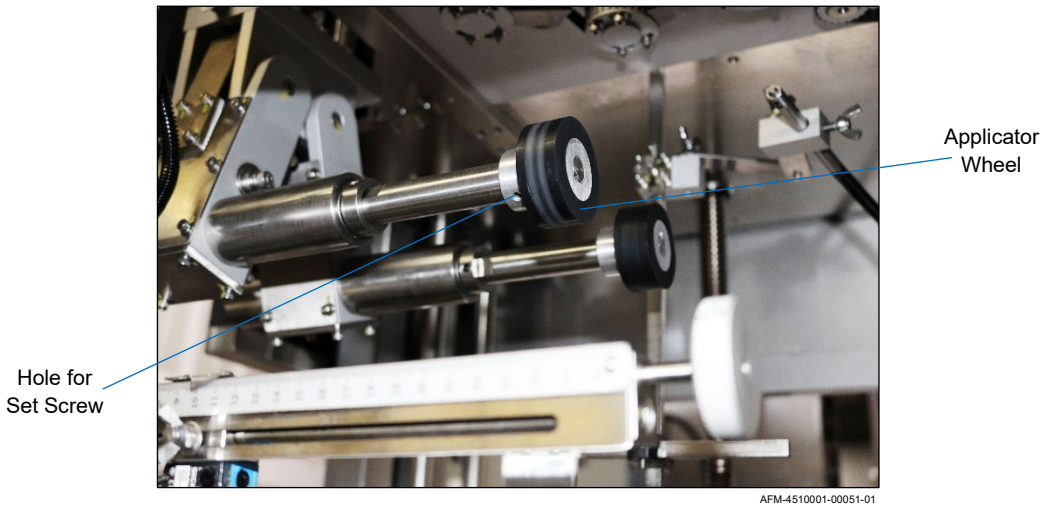
- Allen Wrench (included in Tool Kit)
- Cut-Resistant Work Gloves
- New Applicator Wheels (Part Number 4500128)

To Replace the Applicator Wheels:

1. Power off the LX-150 (see “Powering the System Off” on page 145) and unplug it from the power source.

2. Remove the Mandrel (see “Removing the Mandrel” on page 152).

4. Each Applicator Wheel has two Set Screws at 90° to each other holding it in place. The Set Screws are located on the Shaft just behind the Applicator Wheel. They may be on the top, bottom, or side, depending on the rotation of the Wheel at the time.
   a. Use the Allen Wrench to loosen the Set Screws.
   b. Pop off the old Applicator Wheel.



   a. Put a new Applicator Wheel in its place.
   b. Tighten the Set Screws with the Allen Wrench to secure the new Applicator Wheel in position.

Checking and Adjusting the Print Reading Sensor's Sensitivity

If the Print-Reading Sensor is not functioning properly, it may mean that the sensitivity of the Sensor needs adjustment. Examples of a possible problem with the Print-Reading Sensor include:

- Alarm on the HMI: Notice: No Catch Mark
- Incorrect label cut lengths
- Incorrect cut locations
- Double or triple labels, in which the machine appears to ignore where the cut mark appears at times

These issues can have a number of causes. Before attempting to adjust the Print Reading Sensor's sensitivity, explore some other possibilities first:

- Make sure that film is threaded through the system. If there is no film load a new film roll and thread it through the system (see "Installing the Film" on page 119, "Threading the Film" on page 121, and "Fine-Positioning the Film for Cutting" on page 128).
- Verify that the Print-Reading Sensor Eye is looking through the slot in the Mandrel Fin.
- Verify that the correct recipe is loaded.
- Check that the Film Drive Wheels are tight against the Film Drive Bearings (causing the Wheels to slip on the label and thus preventing them from advancing the film with precision). If needed, adjust the position of the Film Drive Wheels (see "Film Drive Wheels: Unlocking/Adjusting/Locking" on page 112).
- Clean the Lens of the Print-Reading Sensor (see "Cleaning the Print Reading Sensor" on page 150).
- Verify that the Cut Length shown for the recipe is the same as the desired cut length for the actual labels, and if not, correct it (see "Fine-Positioning the Film for Cutting" on page 128 and "Loading a Recipe" on page 135).

If all of these options have been exhausted and the same problems persist, the sensitivity of the Print-Reading Sensor may need adjustment.

To Adjust the Print-Reading Sensor's Sensitivity

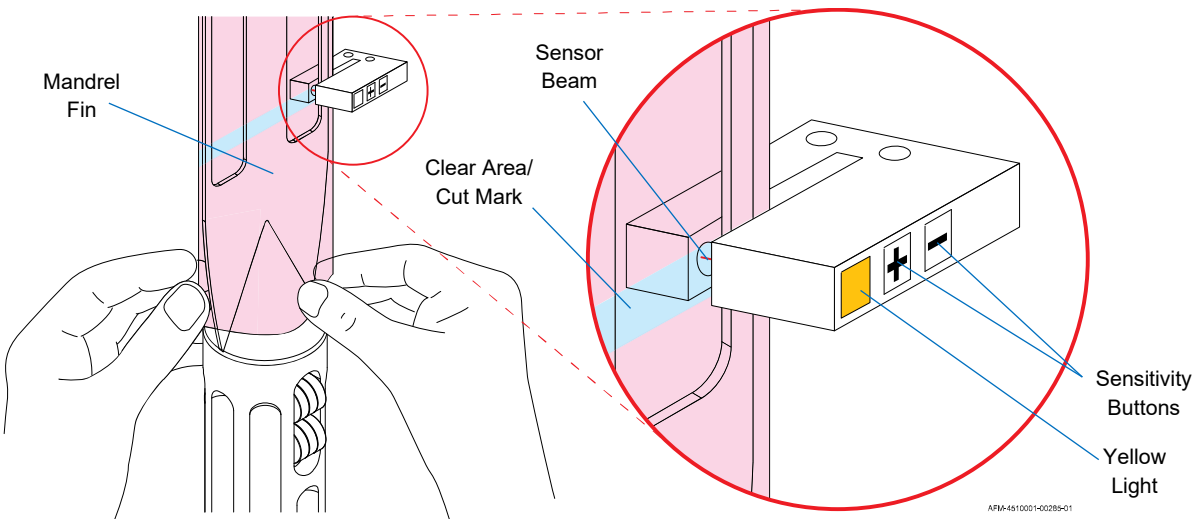
On the side of the Print-Reading Sensor is a yellow light (toward the front) and two buttons, one with a "+" and one with a "-" on it. Their functions are:

Yellow Light: Turns off when the Sensor beam is blocked by printed areas of label film. Turns on when clear areas of label film are in the beam area.

+ Button: Increases Sensor sensitivity.

- Button: Decreases Sensor sensitivity.

1. Position the label film on the Mandrel Fin so that the clear area is in the beam of the Print-Reading Sensor.



2. If the yellow light turns on, quickly press the “-” Button as many times as needed until the light turns off.

3. Once the light is off (or if it was already off), quickly press the “+” Button until the yellow light turns on and stays on.

4. Pull the label film down slightly until the printed area of the label film is in the beam of the Print-Reading Sensor. The yellow light should turn off. The Sensor should now be able to correctly identify the clear areas in the label film.

Cleaning the Electronics Cabinet:

	**WARNING:** When powered, the components within the Electronics Cabinet can deliver a potentially lethal electric shock. Always be sure that the system is unplugged from any power source before opening the Electronics Cabinet.

	**WARNING:** The Electronics Cabinet contains complex electronics. Only a qualified technician should open and maintain the Electronics Cabinet.

	**ATTENTION:** The Electronics Cabinet and the components within it should never be sprayed with water, cleaner, or other liquids. Doing so can damage the equipment and will void the warranty.

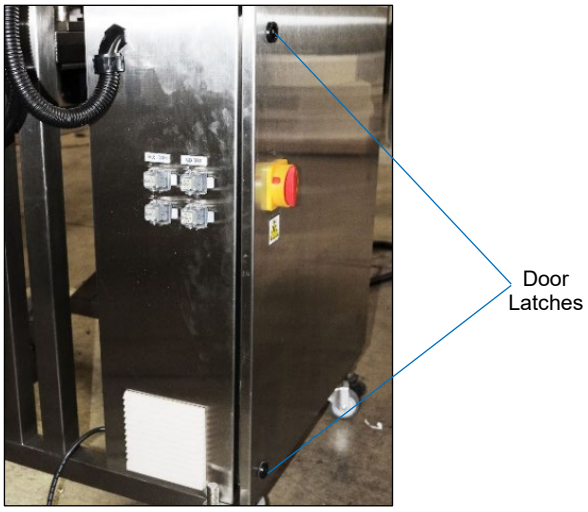
Items Needed to Clean the Electronics Cabinet:

- Rubber-Soled Shoes
- Key to the Electronics Cabinet
- Compressed Air

To Clean the Electronics Cabinet:

1. Ensure that the system is completely unplugged from any power source.

2. With one hand only, use the Square Key to unlatch the upper and lower Door Latches.



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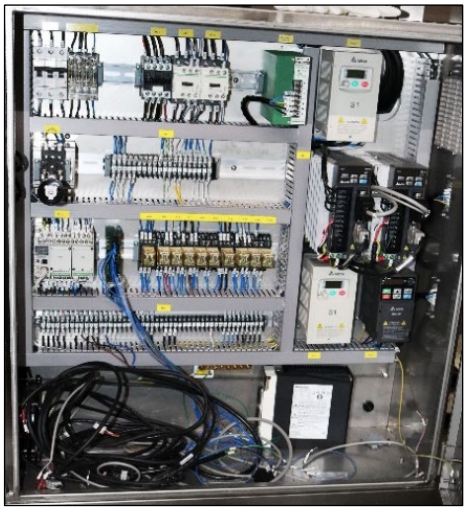
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3. With one hand only, pull open the Door of the Electronics Cabinet.

4. Use Compressed Air to spray away any dust or other contaminants.

5. With one hand only, close the Door of the Electronics Cabinet.

6. With one hand only, use the Square Key to latch the upper and lower Door Latches of the Electronics Cabinet.

Troubleshooting

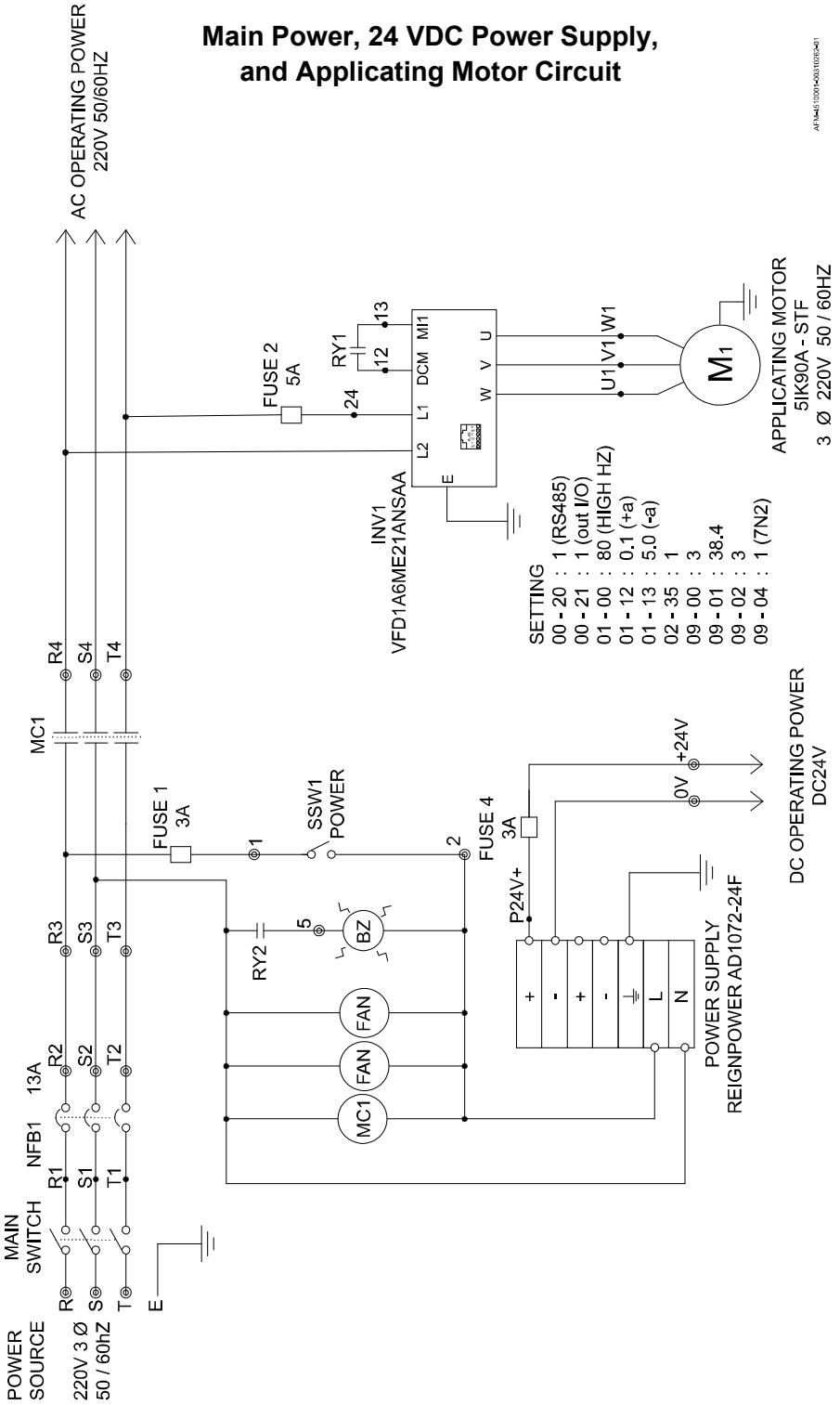
Below are some problems that may be encountered during labeling. If other issues occur that are not covered in this section, call your authorized AFM distributor for assistance.

Problem	Possible Cause	Solution
Labels have “burnout marks.”	Applicator Wheels are not tight enough against the Mandrel.	Tighten the Applicator Wheels as needed (see “Applicator Wheels: Unlocking/Adjusting/Locking” on page 115).
Labels are missing the bottles.	Conveyor is out of centerline alignment.	Check centerline positioning of bottles relative to the bottom of the Mandrel and adjust position of Conveyor if needed (see “Fine-Tuning the LX-150 Position” on page 60).
	Attempting to label too many bottles per minute.	Slow the Timing Screw Assembly speed and Conveyor speed.
	The Work Detective Sensor is too far upstream or downstream.	Move the Work Detective Sensor (see the “Band Release Delay” portion of “Loading a Recipe” on page 135).
	The Mandrel is too far up from the tops of the bottles or too close to them.	Adjust the height of the Head Assembly (see “Fine-Tuning the LX-150 Position” on page 60).
Labels are bouncing back up off the bottles.	The Application Wheels are moving too fast.	Adjust the Application Wheel speed (see “Wheel Speed” in “Setting Screen 2” on page 94).
Cut marks are rough or ragged.	Debris has collected in the Cutter Notch.	Clean the Cutter Notch (see “Cleaning the Cutter Notch” on page 154).
	The Cutter Blades are dull or damaged.	Replace the Cutter Blades (see “Replacing the Cutter Blades” on page 162).
	Cutter Blades are not starting from their home position.	Put the Cuter Blades in their home position (see instructions for “Notice: Cutter Can’t Find Its Home” on page 109).

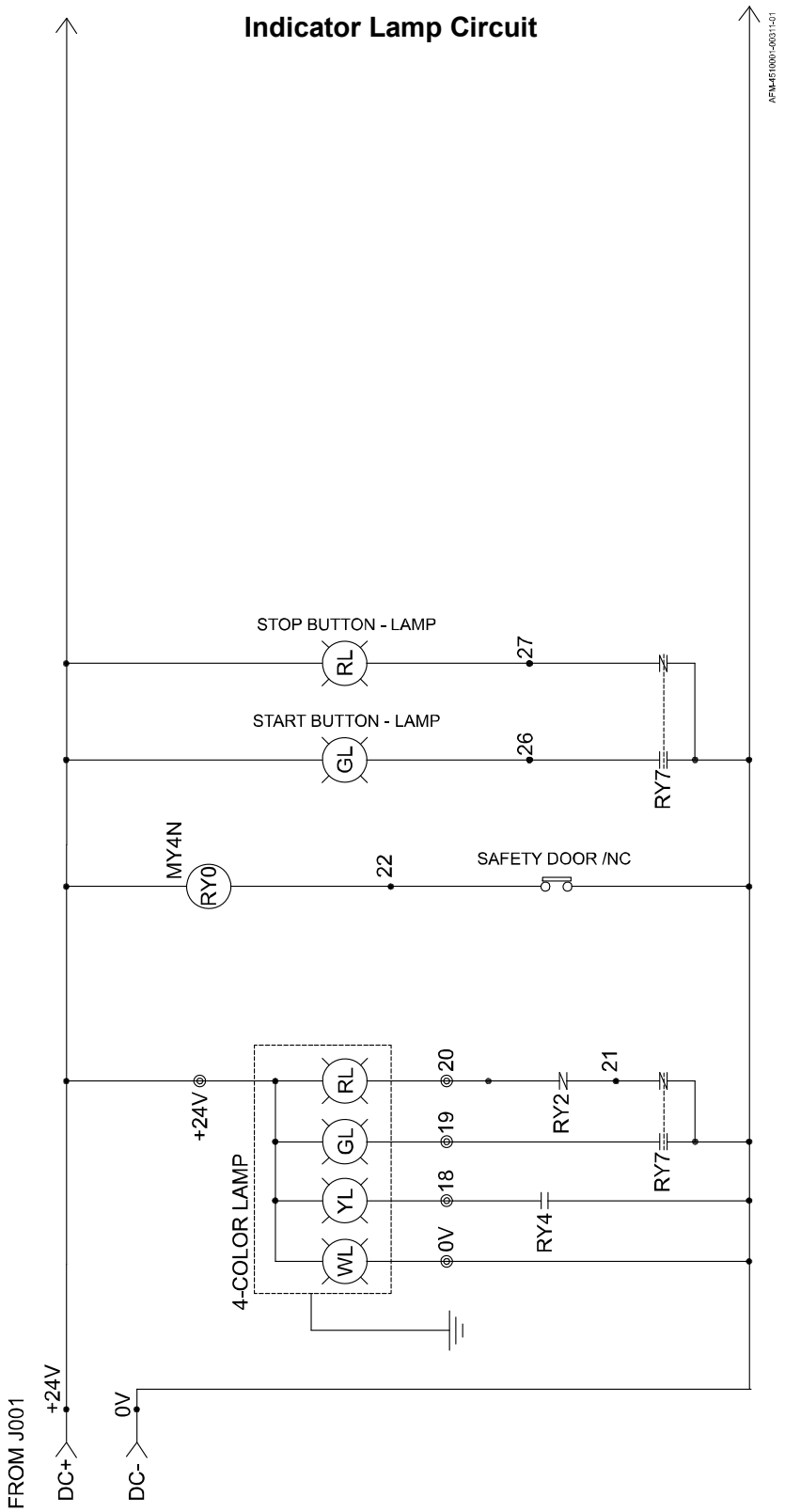
Problem	Possible Cause	Solution
Labels are being cut too short, too long, or in the wrong place	The Print-Reading Sensor is too high or too low, and/or the Print Reg Dwell setting is incorrect.	Adjust the height of the Print-Reading Sensor and/or the Print Reg Dwell setting (see “Fine-Positioning the Film for Cutting” on page 128 and the last step of “Loading a Recipe” on page 135).
	Wrong recipe is being used.	Check that the correct recipe is loaded, and if needed, load the correct recipe (see “Loading a Recipe” on page 135).
	The Film Drive Wheels are not tight enough against the Film Drive Bearings (slipping and preventing them from advancing the film with precision)	Adjust the Film Drive Wheels (see “Film Drive Wheels: Unlocking/Adjusting/Locking” on page 112).
	The Print-Reading Sensor Lens is dirty or dusty.	Clean the Print-Reading Sensor Lens (see “Cleaning the Print Reading Sensor” on page 150).
	The Cut Length or some other part of the recipe is incorrect.	Reevaluate the recipe settings (see “Fine-Positioning the Film for Cutting” on page 128 and “Loading a Recipe” on page 135).
	The Print-Reading Sensor’s sensitivity needs to be adjusted.	Adjust the Print-Reading Sensor’s sensitivity (see “Checking and Adjusting the Print Reading Sensor’s Sensitivity” on page 179).

Electrical Schematics

LX150N-J001 – 220V

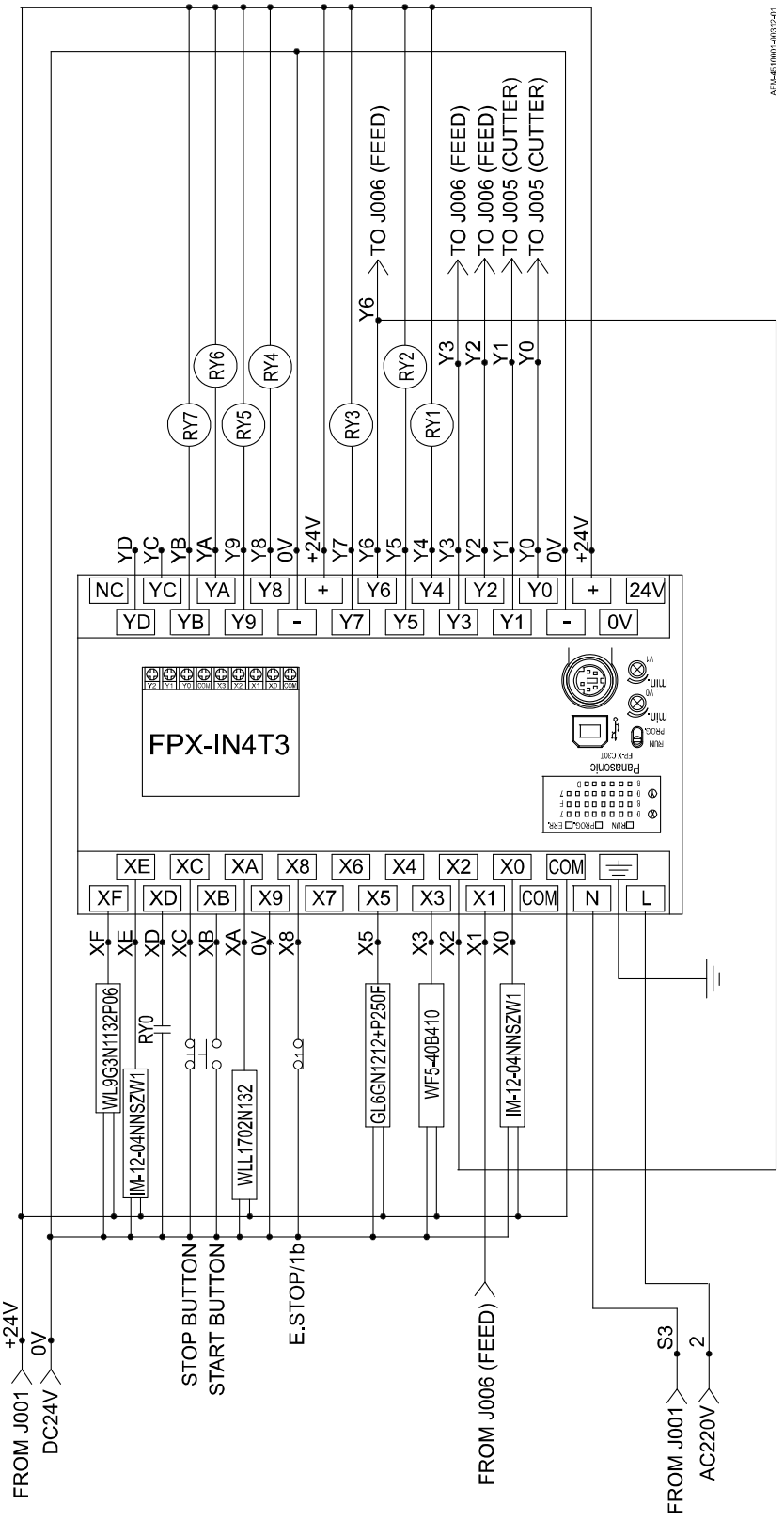


LX150N-J002 – 220V



LX150N-J003 – 220V

PLC



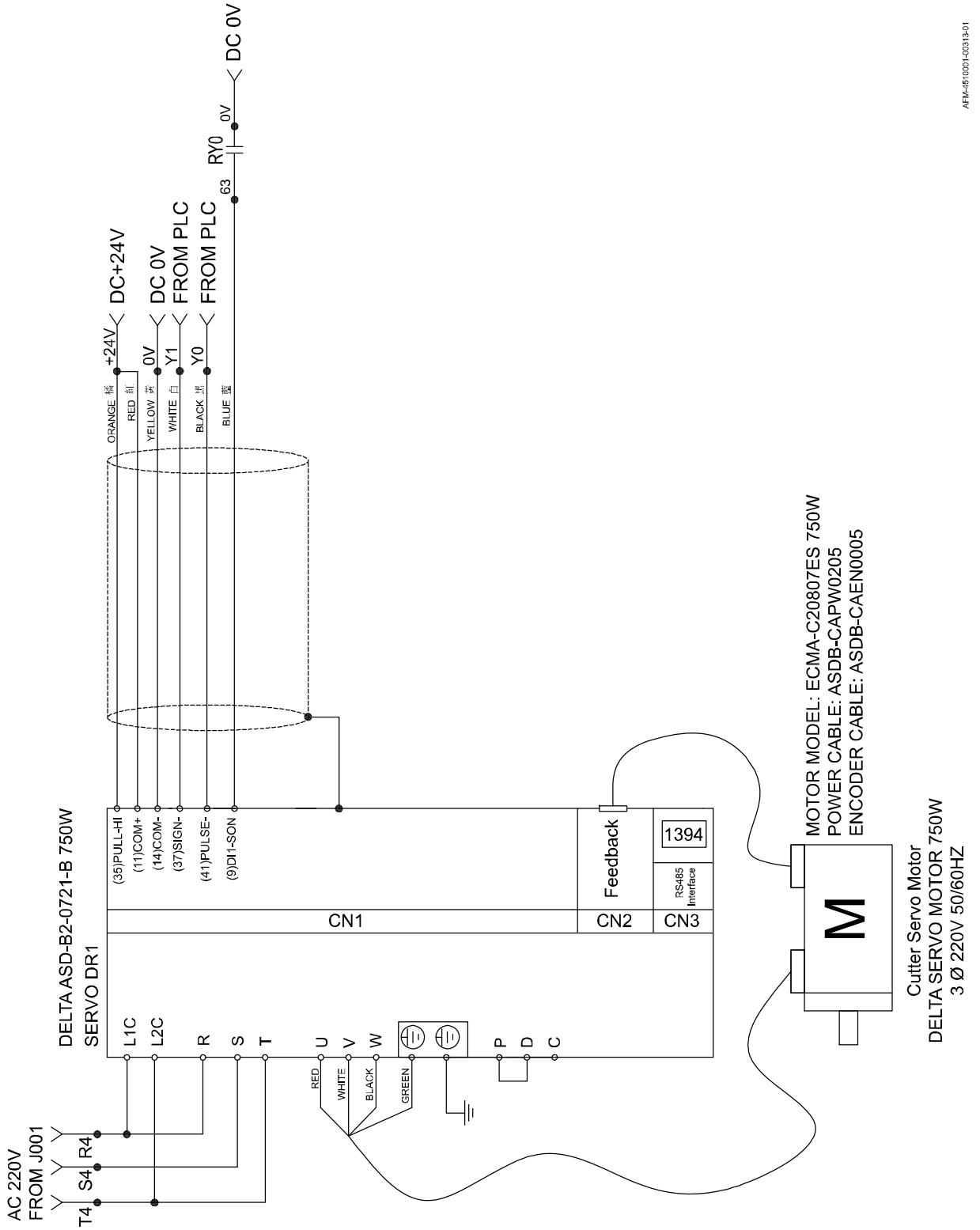
LX150N-J004 – 220V

PLC Input-Output Assignments

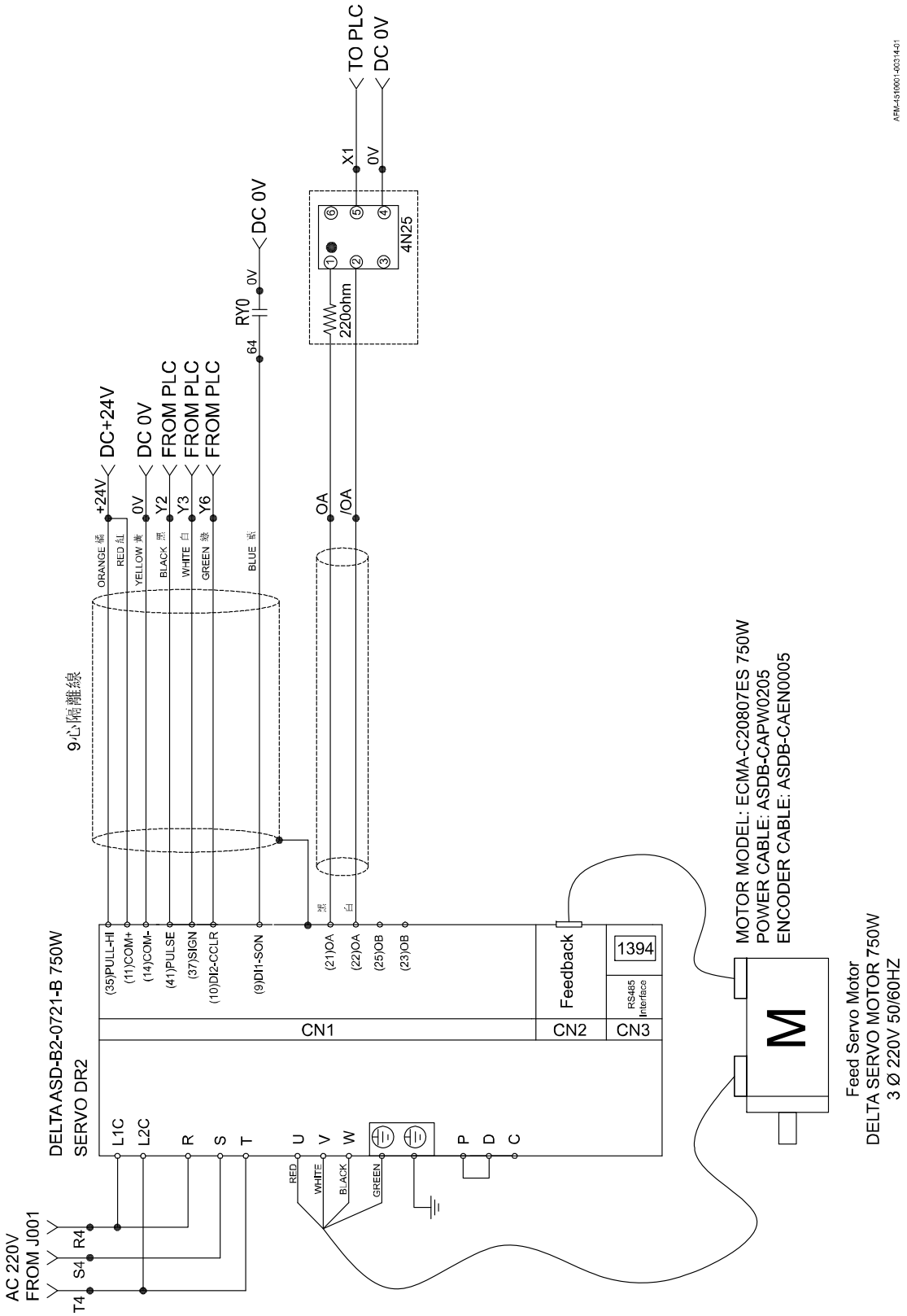
INPUT		REMARK
X0	KNIFE HOME POSITION DET.	IM12-04NNSZW1
X1		
X2	PRINT FUNCTION USE	
X3	PRINT REGISTRATION	WF5-40B410
X4		
X5	LABEL APPLICATOR SENSOR	GL6GN1212+P250F
X6		
X7		
X8	EMERGENCY STOP	BUTTON 1b
X9		0V
XA	APPLICATION FAIL DET.	WLL1702N132
XB	START BUTTON	1a
XC	STOP BUTTON	1b
XD	SAFETY FUNCTION FOR DOOR	RY0 (NO)
XE		
XF	TIMING SCREW SENSOR (SPARE)	WL9G3N1132PO6

OUTPUT		REMARK
Y0	TO CUTTER DRIVE “PULSE–”	
Y1	TO CUTTER DRIVER “SIGN–”	
Y2	TO INFEED DRIVER “PULSE–”	
Y3	TO INFEED DRIVER “SIGN–”	
Y4	WORKING (RY1, APPLICATING MOTOR)	
Y5	BUZZER (RY2)	
Y6	PRINT FUNCTION USE	
Y7	BRUSH MOTOR (RY3)	
Y8	TOWER LIGHT – YELLOW (RY4)	
Y9	FILM-ROLL MOTOR (RY5)	
YA	TIMING SCREW MOTOR (RY6)	
YB	TOWER LIGHT – GREEN (RY7)	
YC	H-PERF. TRIGGER (SPARE)	
YD	PRINTER TRIGGER (SPARE)	

LX150N-J005 – 220V

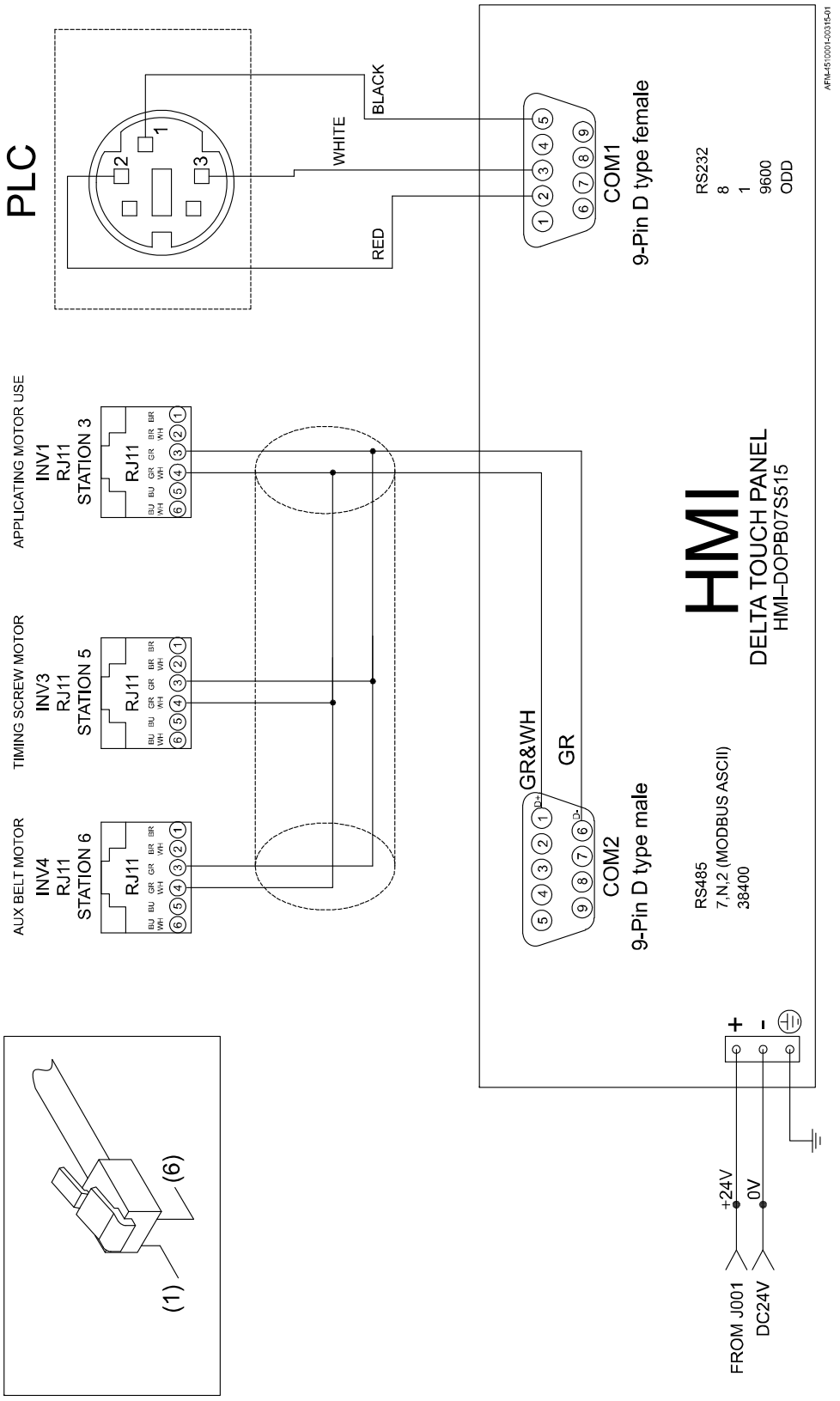


LX150N-J006 – 220V

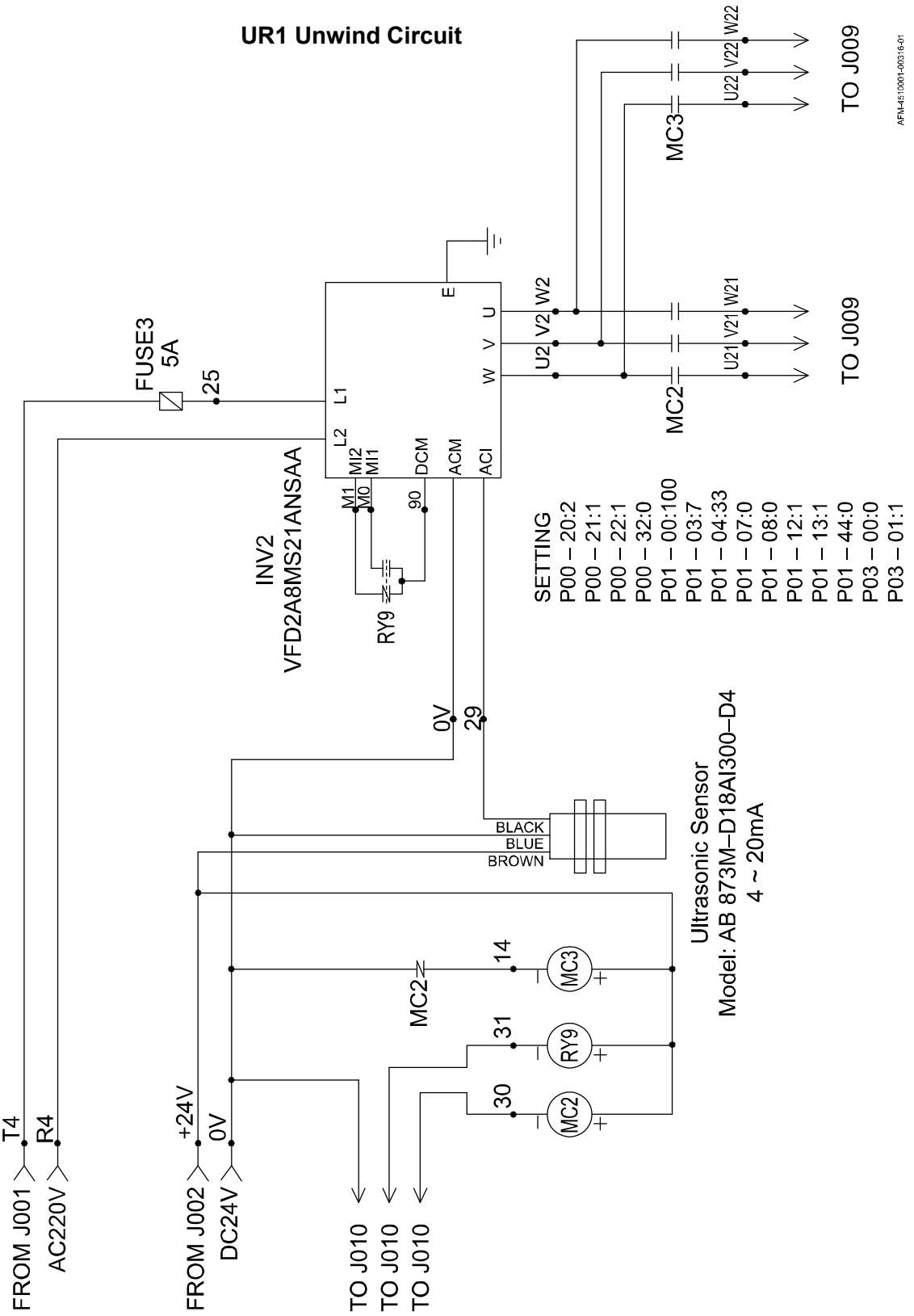


LX150N-J007 – 220V

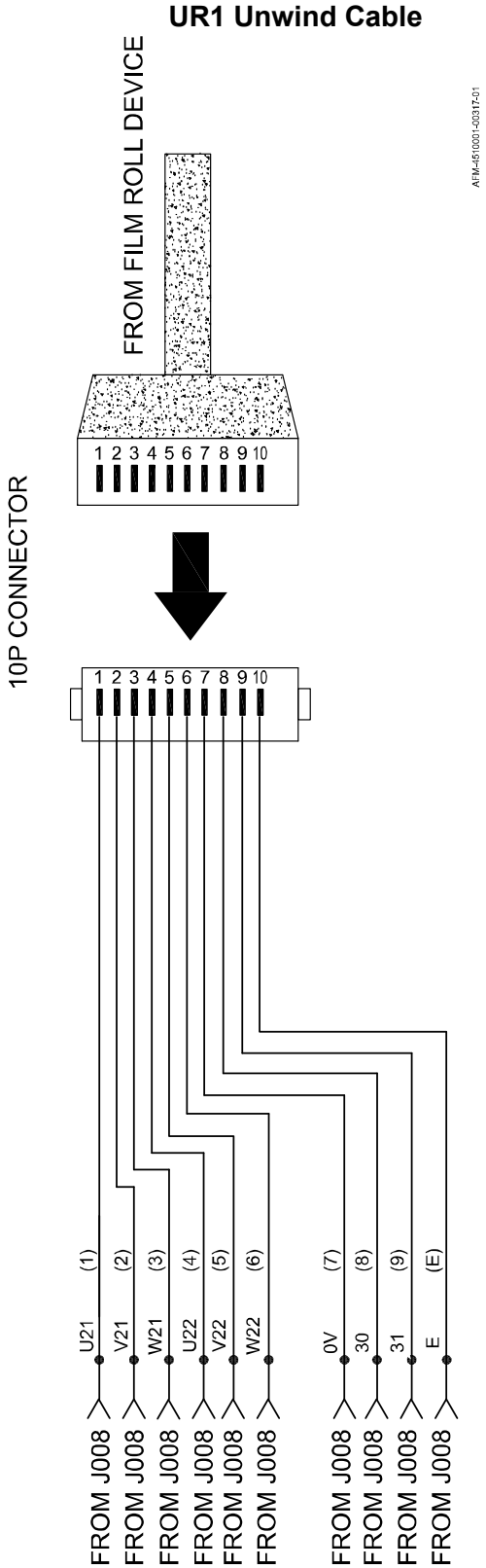
HMI



LX150N-J008 – 220V

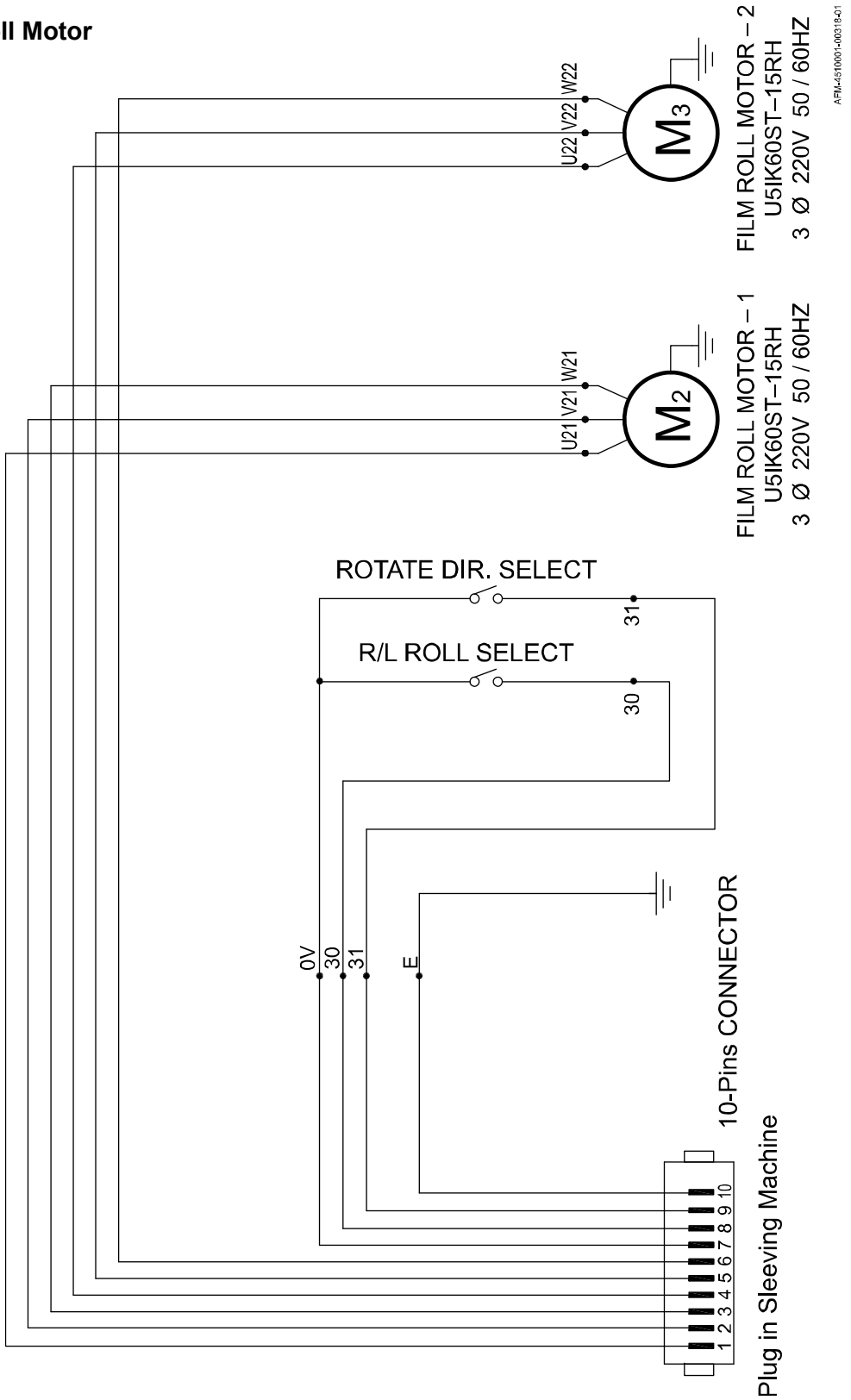


LX150N-J009 – 220V

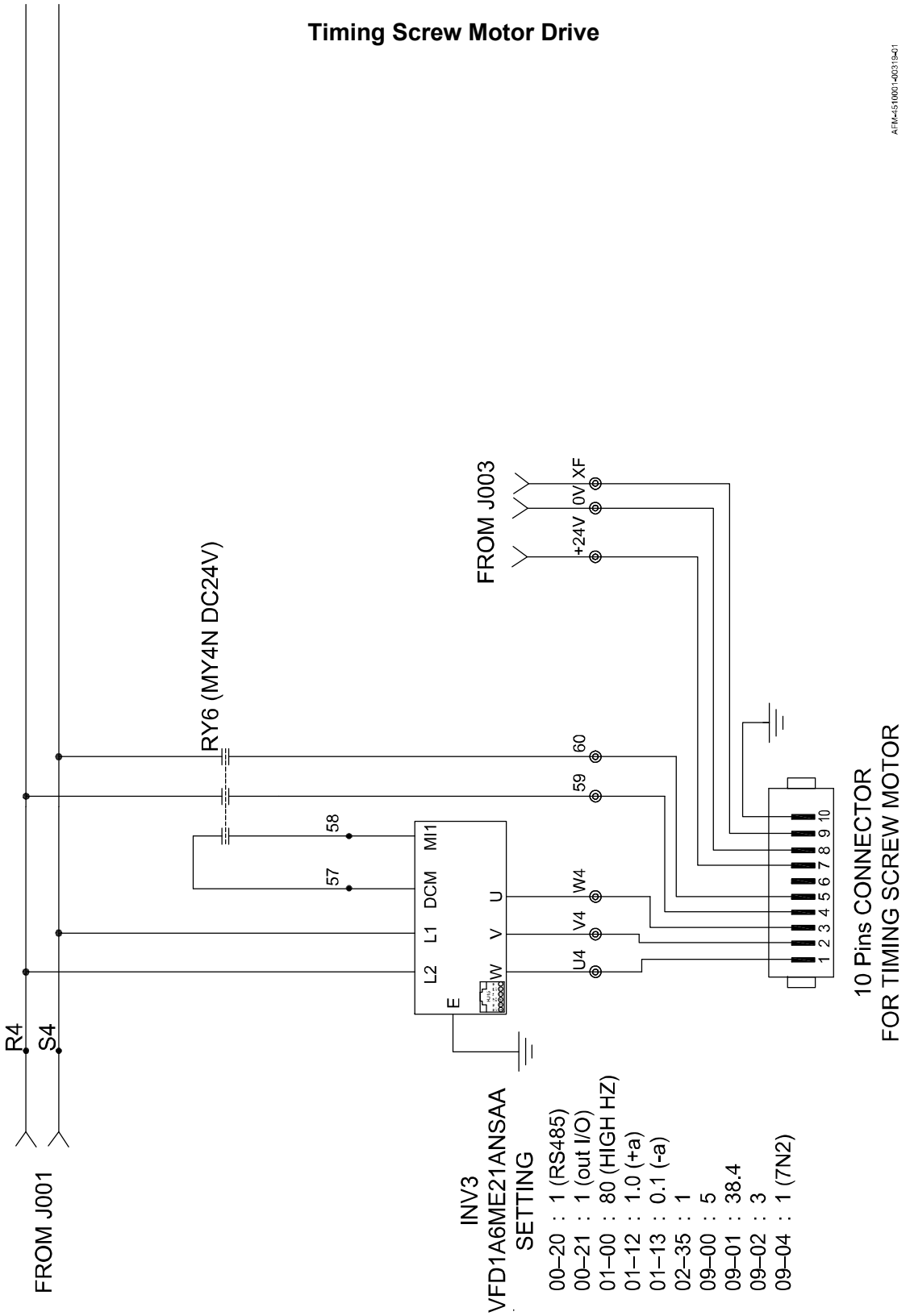


LX150N-J010 – 220V

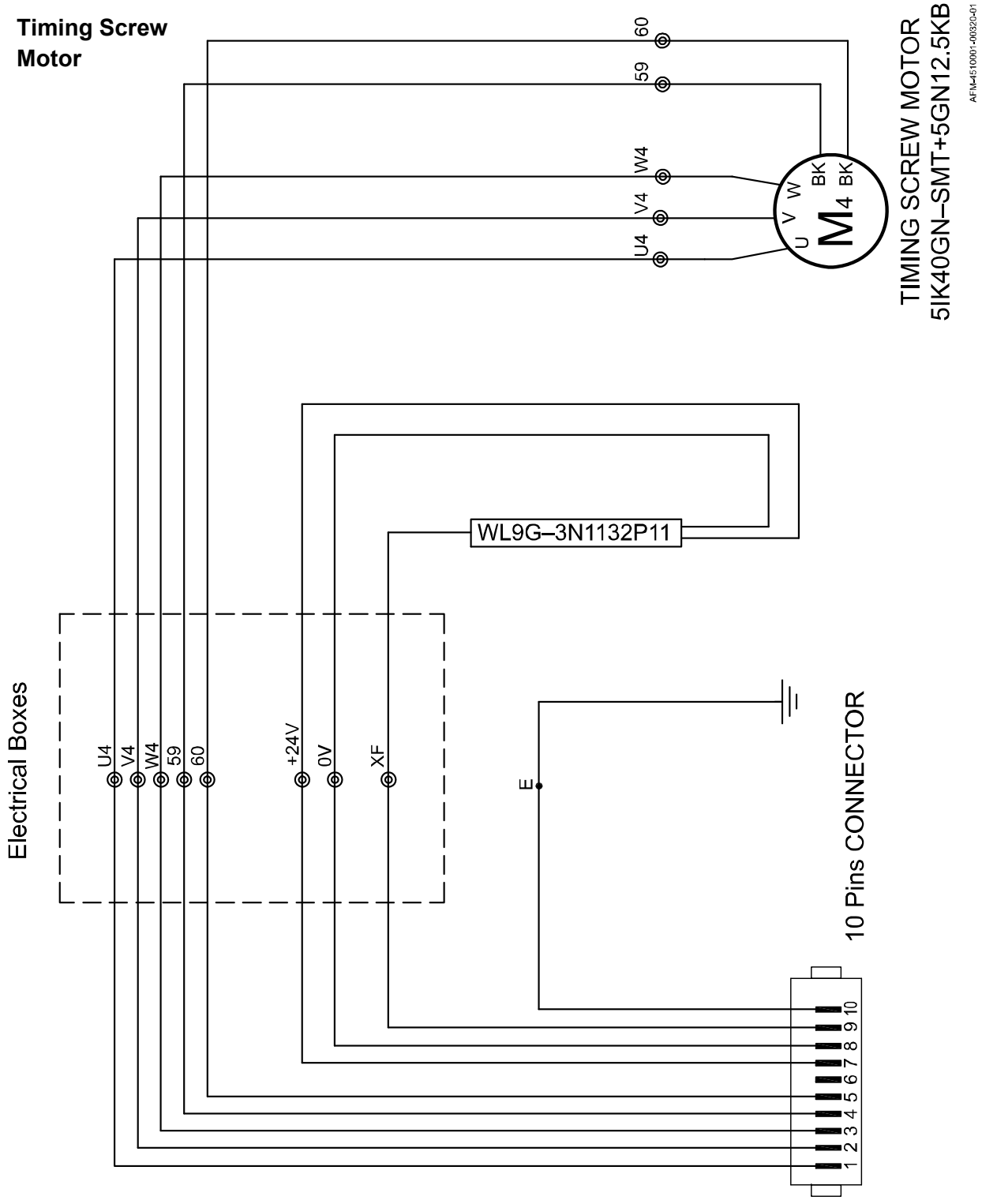
Film Roll Motor



LX150N-J011 – 220V

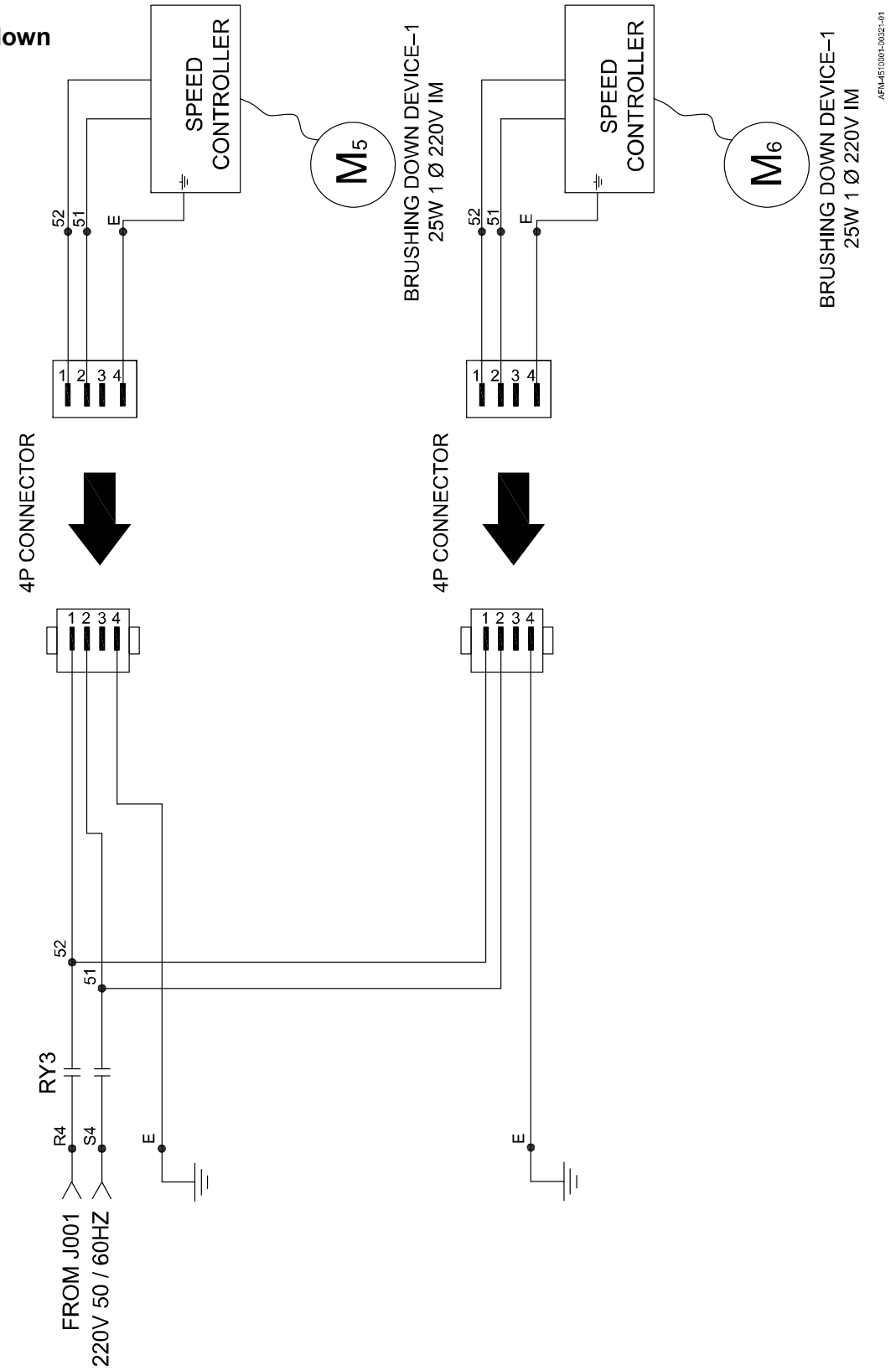


LX150N-J012 – 220V

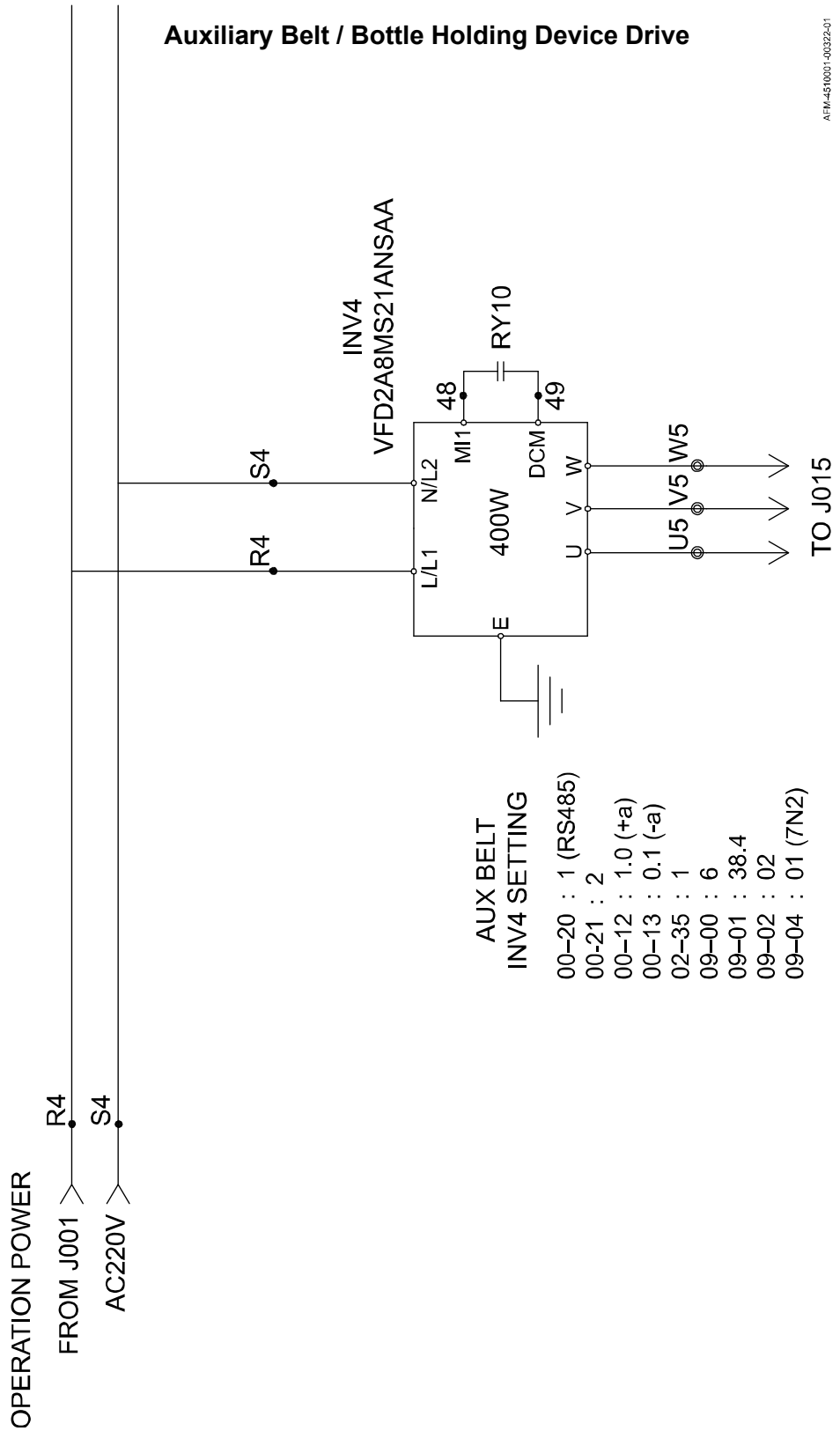


LX150N-J013 – 220V

Brushdown Circuit

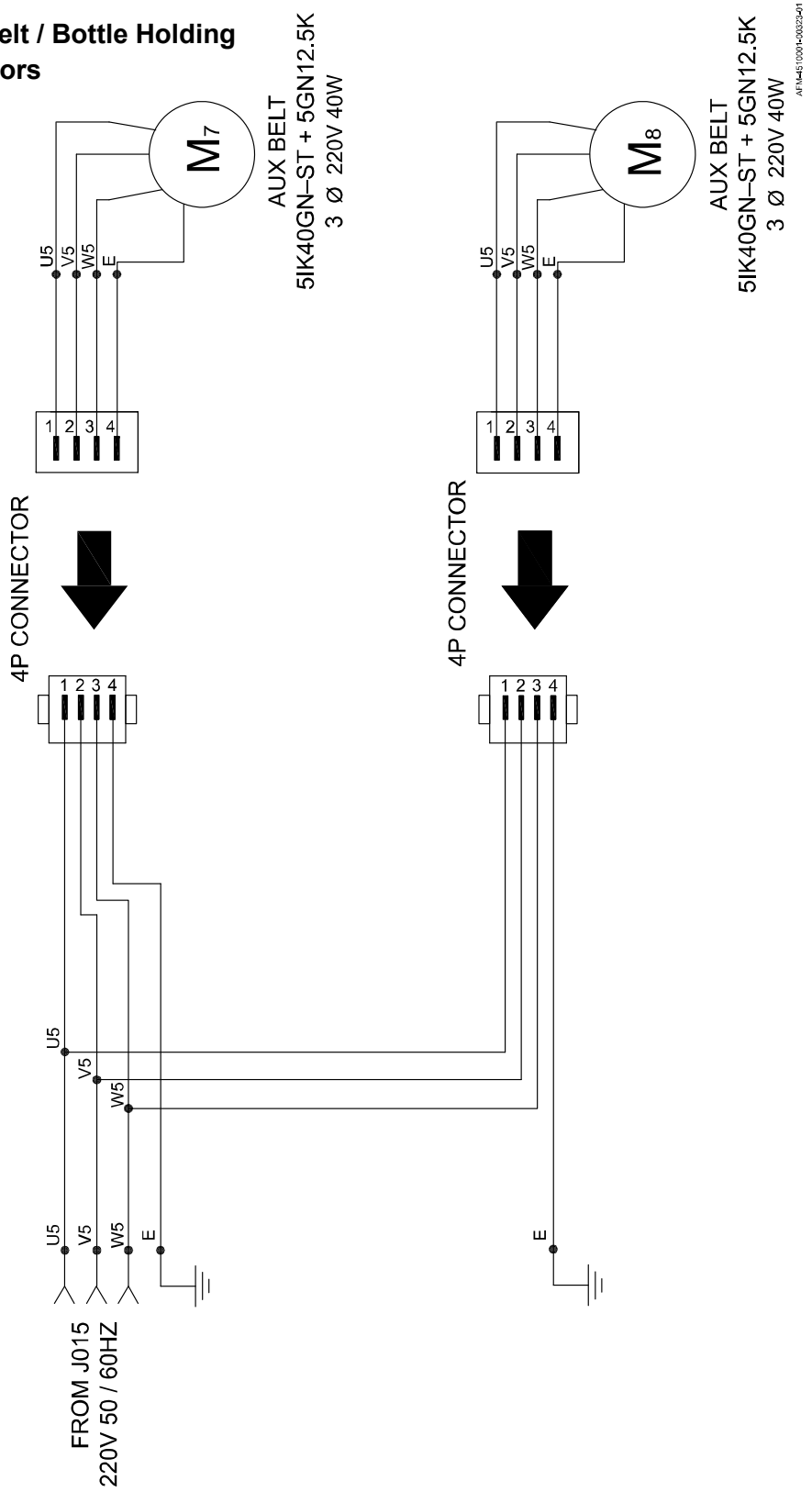


LX150N-J014 – 220V



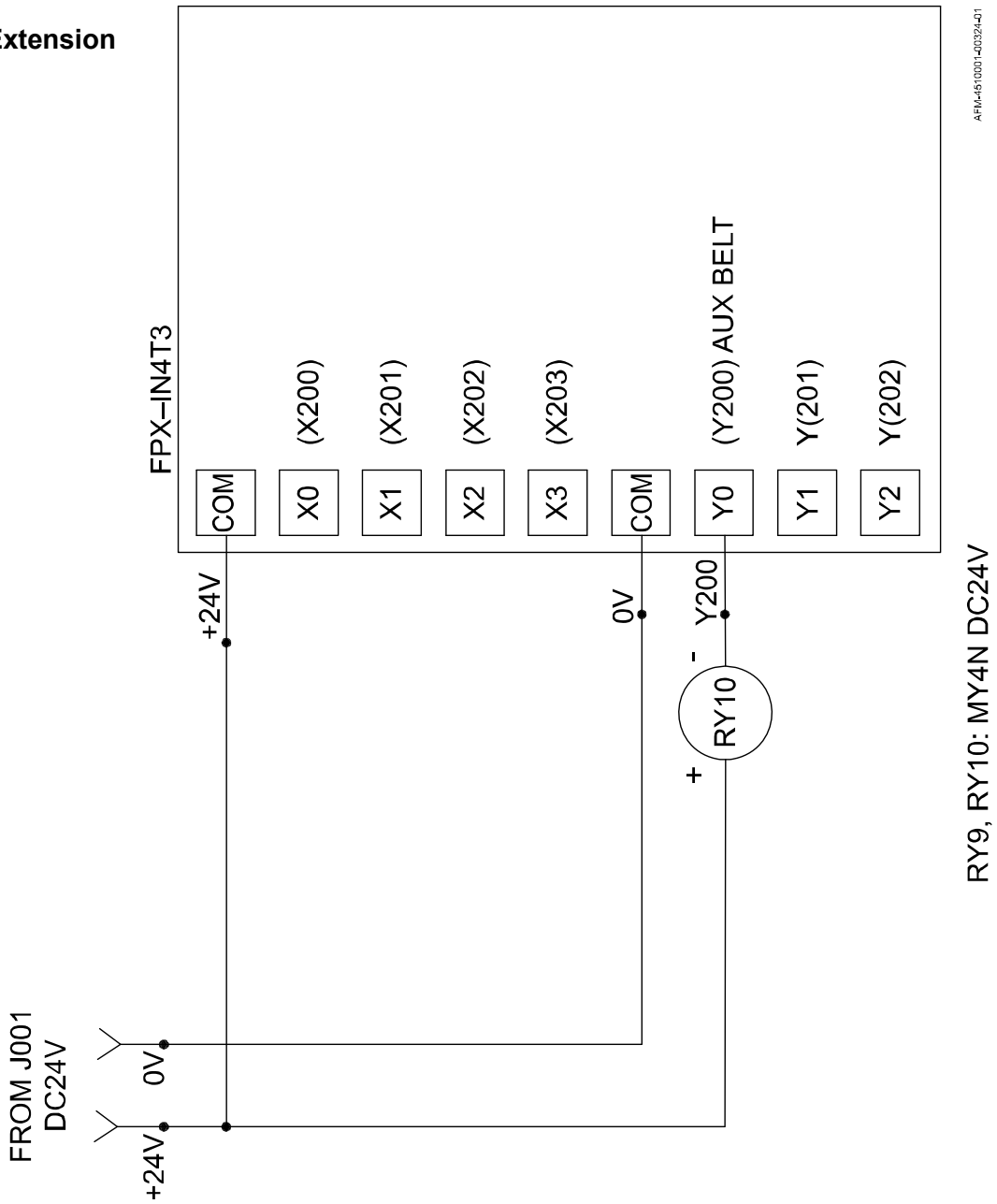
LX150N-J015 – 220V

Auxiliary Belt / Bottle Holding Device Motors

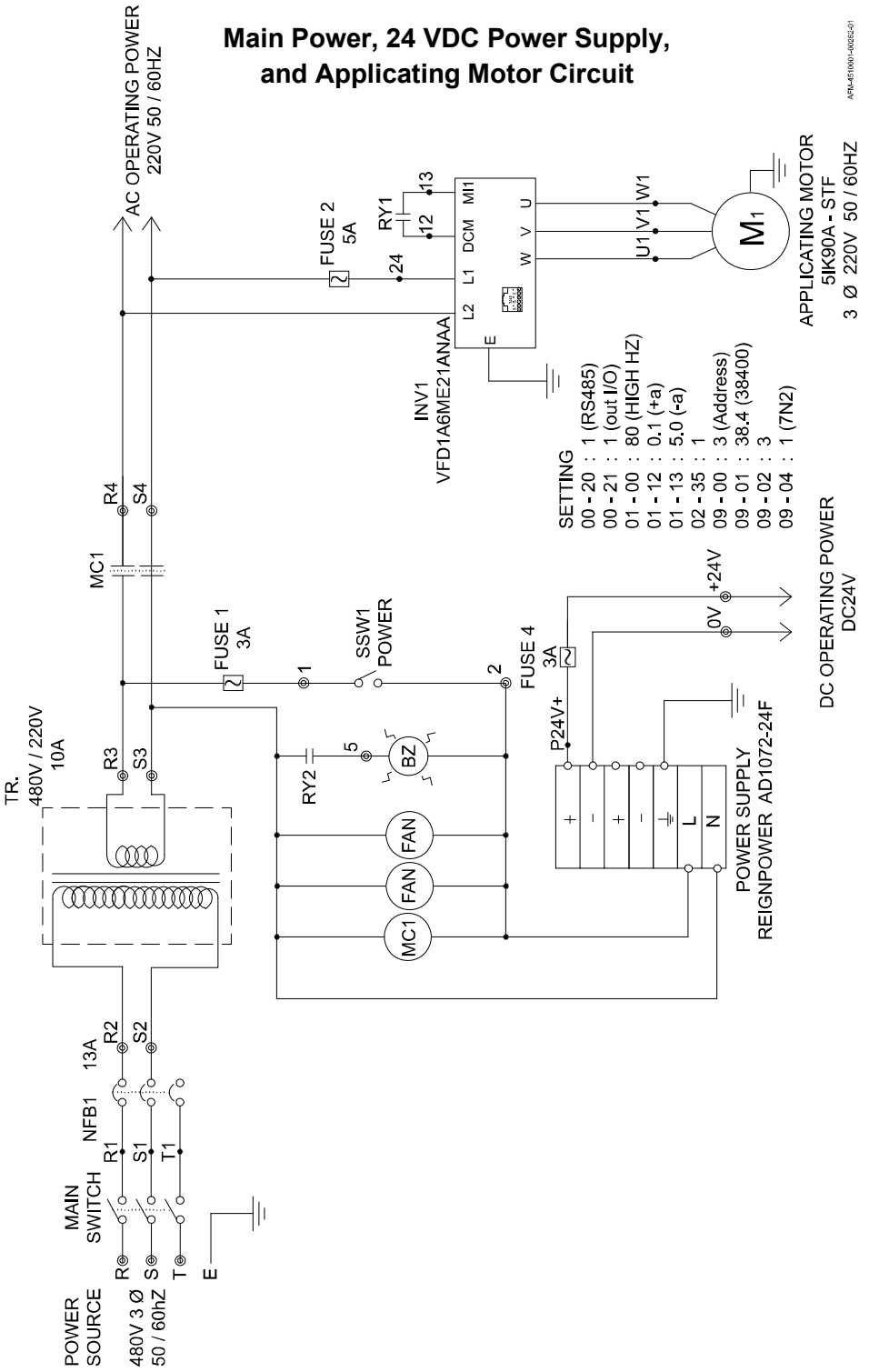


LX150N-J016 – 220V

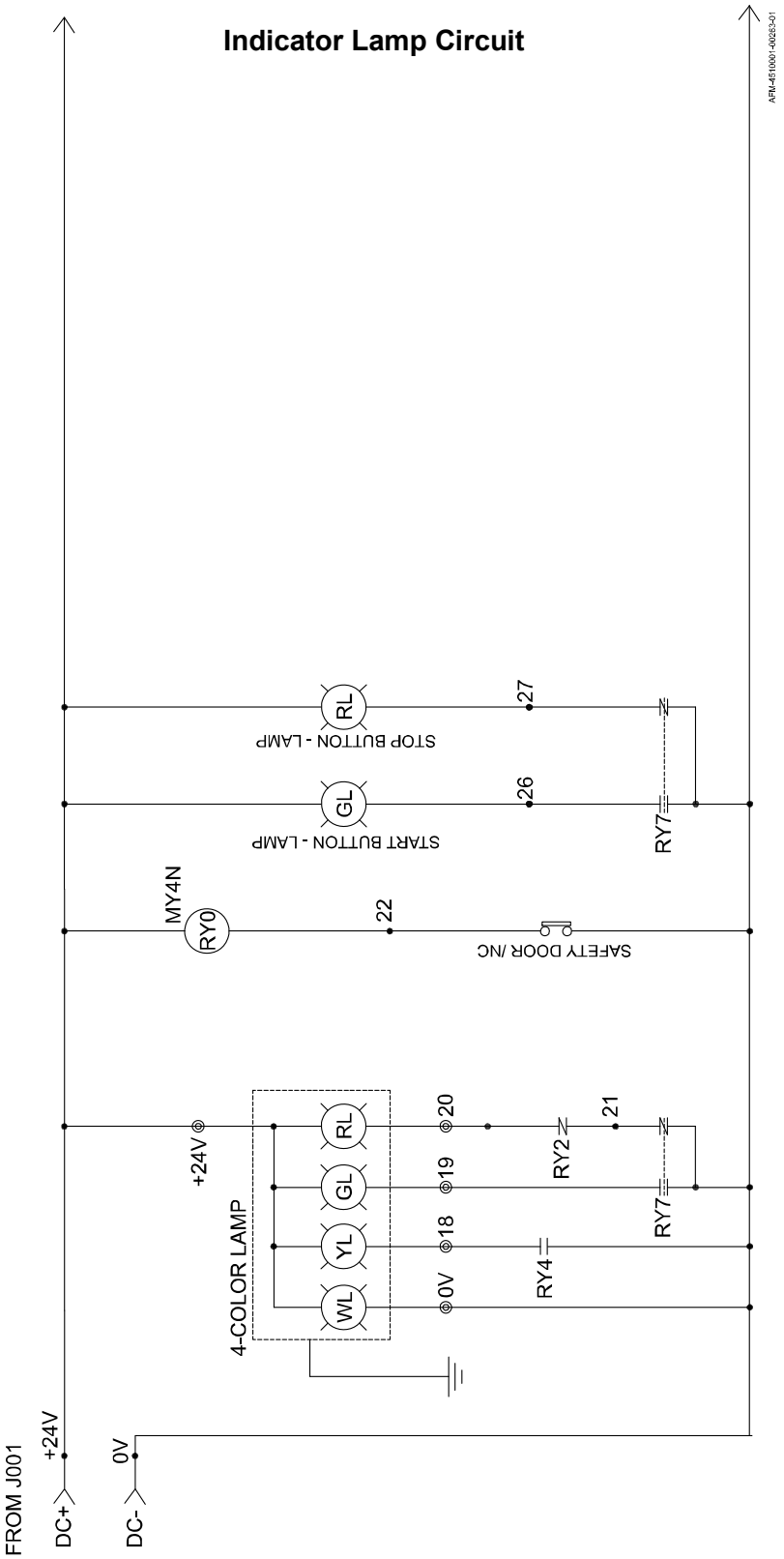
PLC I/O Extension



LX150N-J001 – 480V

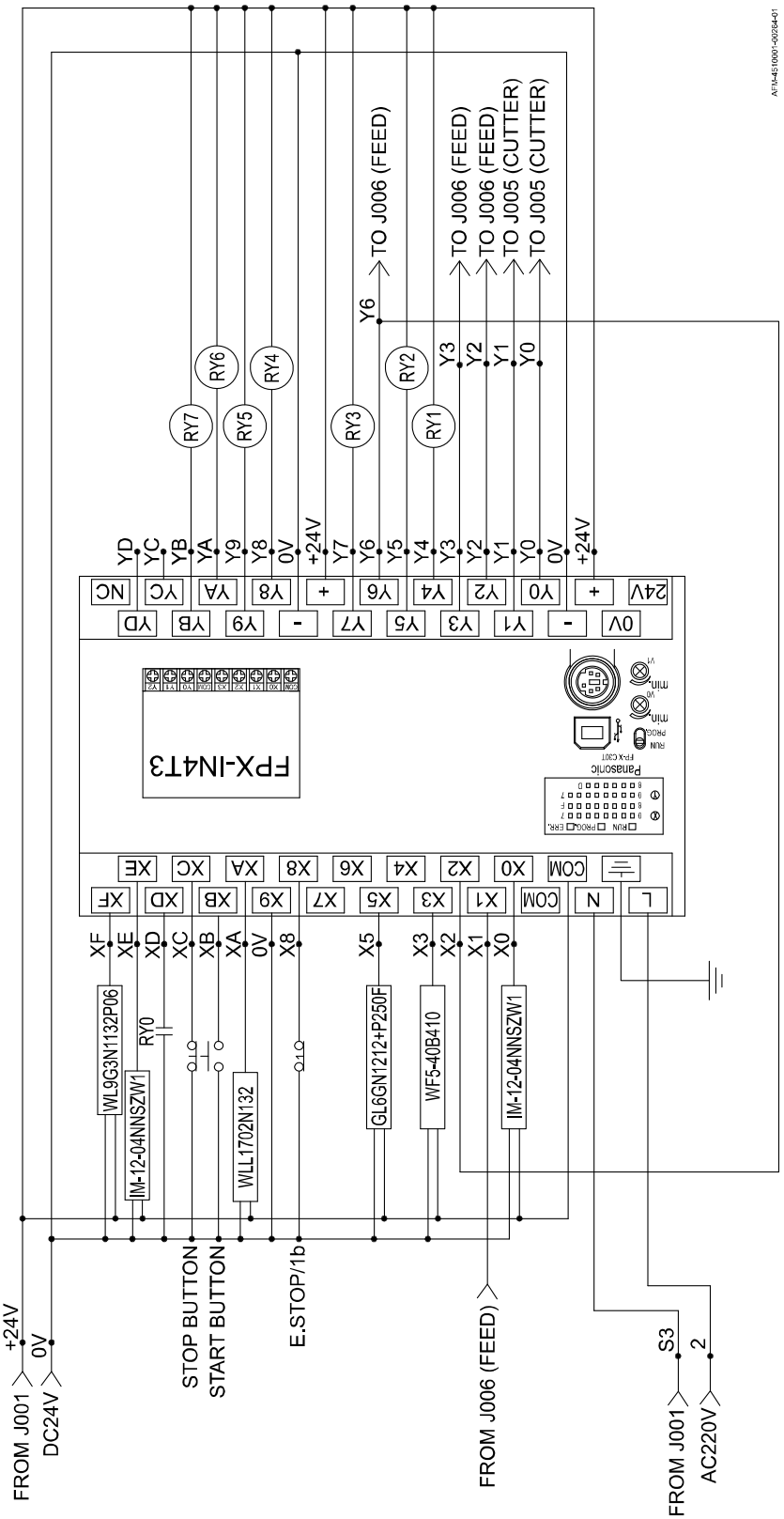


LX150N-J002 – 480V



LX150N-J003 – 480V

PLC



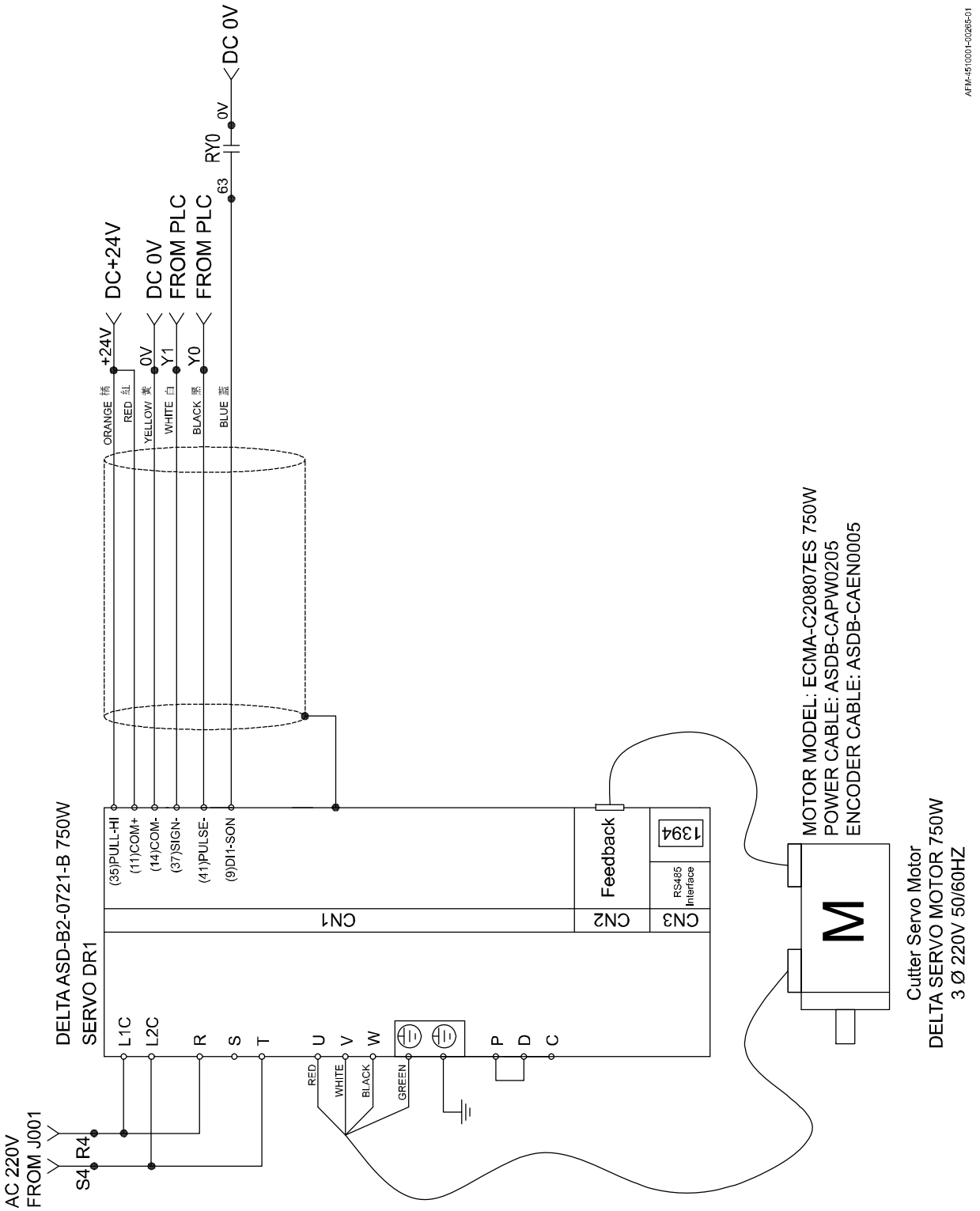
LX150N-J004 – 480V

PLC Input-Output Assignments

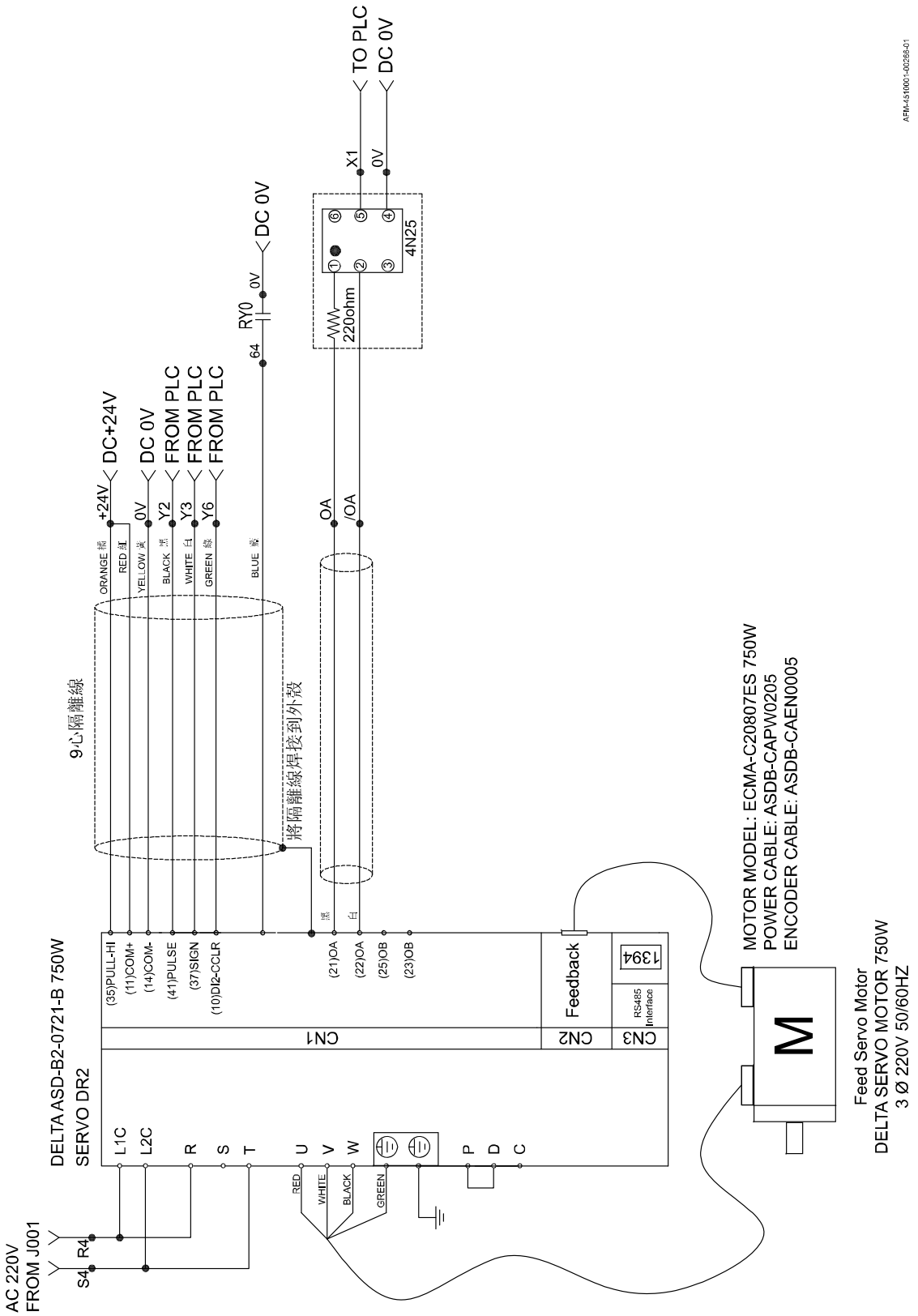
INPUT		REMARK
X0	KNIFE HOME POSITION DET.	IM12-04NNSZW1
X1		
X2	PRINT FUNCTION USE	
X3	PRINT REGISTRATION	WF5-40b410
X4		
X5	LABEL APPLICATOR SENSOR	GL6GN1212+P250F
X6		
X7		
X8	EMERGENCY STOP	BUTTON 1b
X9		0V
XA	APPLICATION FAIL DET.	WLL1702N132
XB	START BUTTON	1a
XC	STOP BUTTON	1b
XD	SAFETY FUNCTION FOR DOOR	RY0 (NO)
XE		
XF	TIMING SCREW SENSOR (SPARE)	WL9G3N1132PO6

OUTPUT		REMARK
Y0	TO CUTTER DRIVE “PULSE–”	
Y1	TO CUTTER DRIVER “SIGN–”	
Y2	TO INFEED DRIVER “PULSE–”	
Y3	TO INFEED DRIVER “SIGN–”	
Y4	WORKING (RY1, APPLICATING MOTOR)	
Y5	BUZZER (RY2)	
Y6	PRINT FUNCTION USE	
Y7	BRUSH MOTOR (RY3)	
Y8	TOWER LIGHT – YELLOW (RY4)	
Y9	FILM-ROLL MOTOR (RY5)	
YA	TIMING SCREW MOTOR (RY6)	
YB	TOWER LIGHT – GREEN (RY7)	
YC	H-PERF. TRIGGER (SPARE)	
YD	PRINTER TRIGGER (SPARE)	

LX150N-J005 – 480V

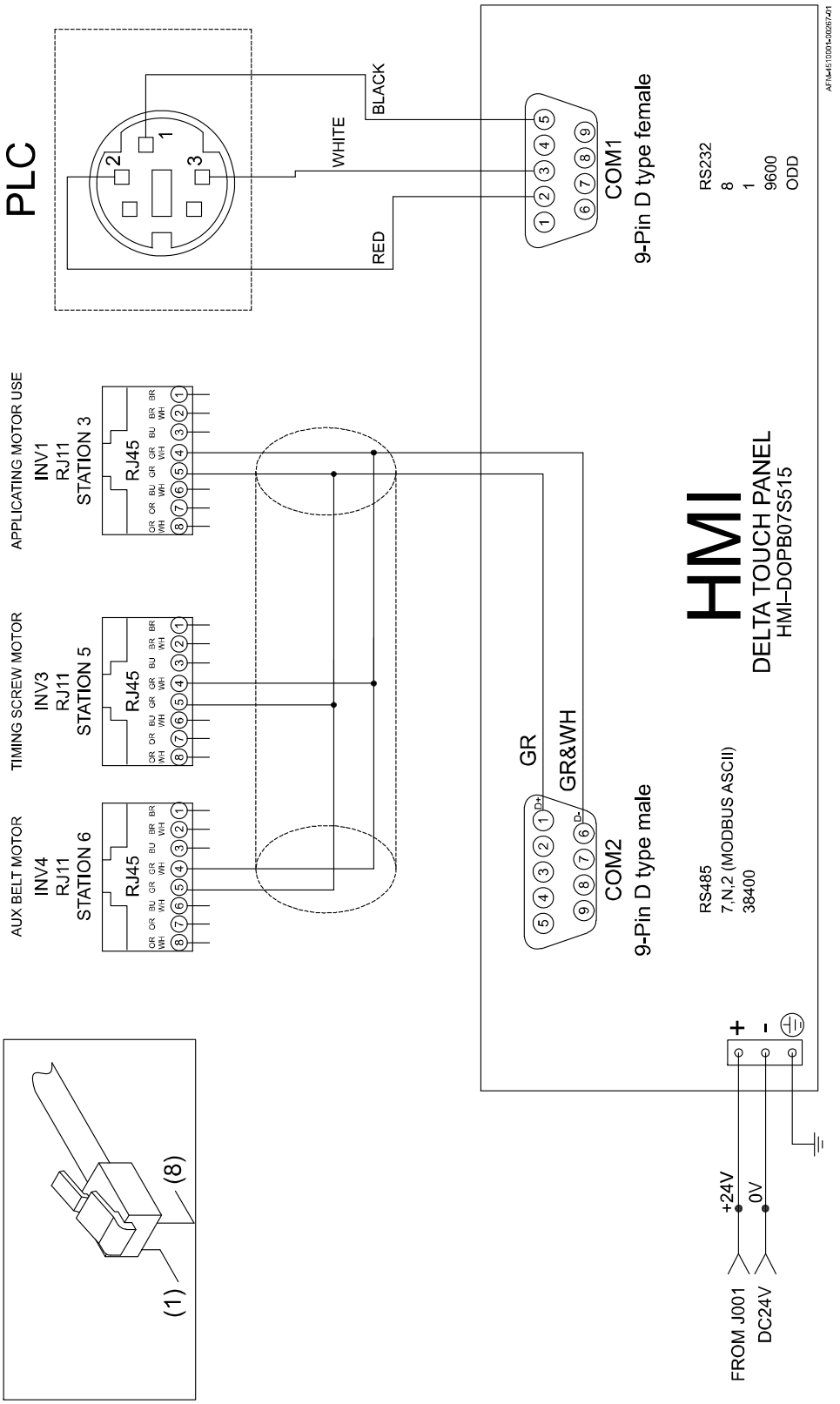


LX150N-J006 – 480V

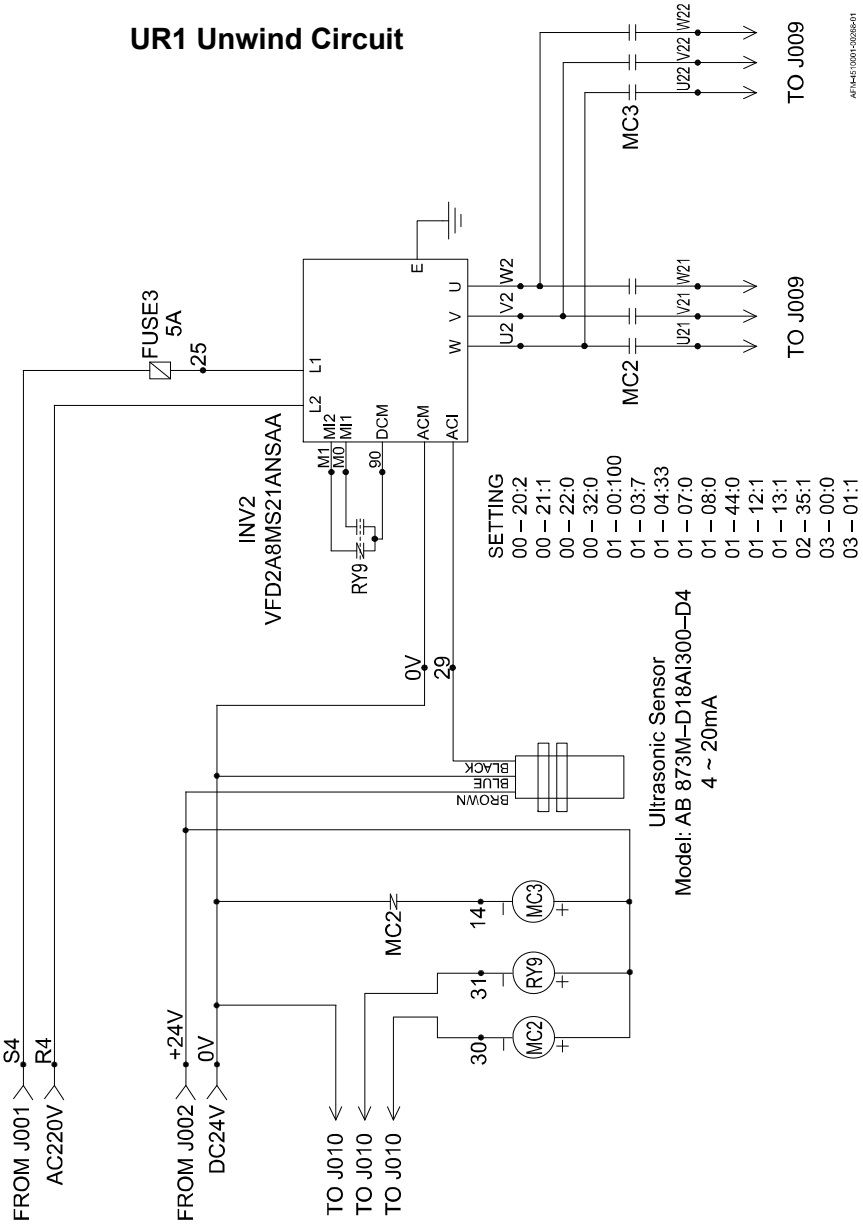


LX150N-J007 – 480V

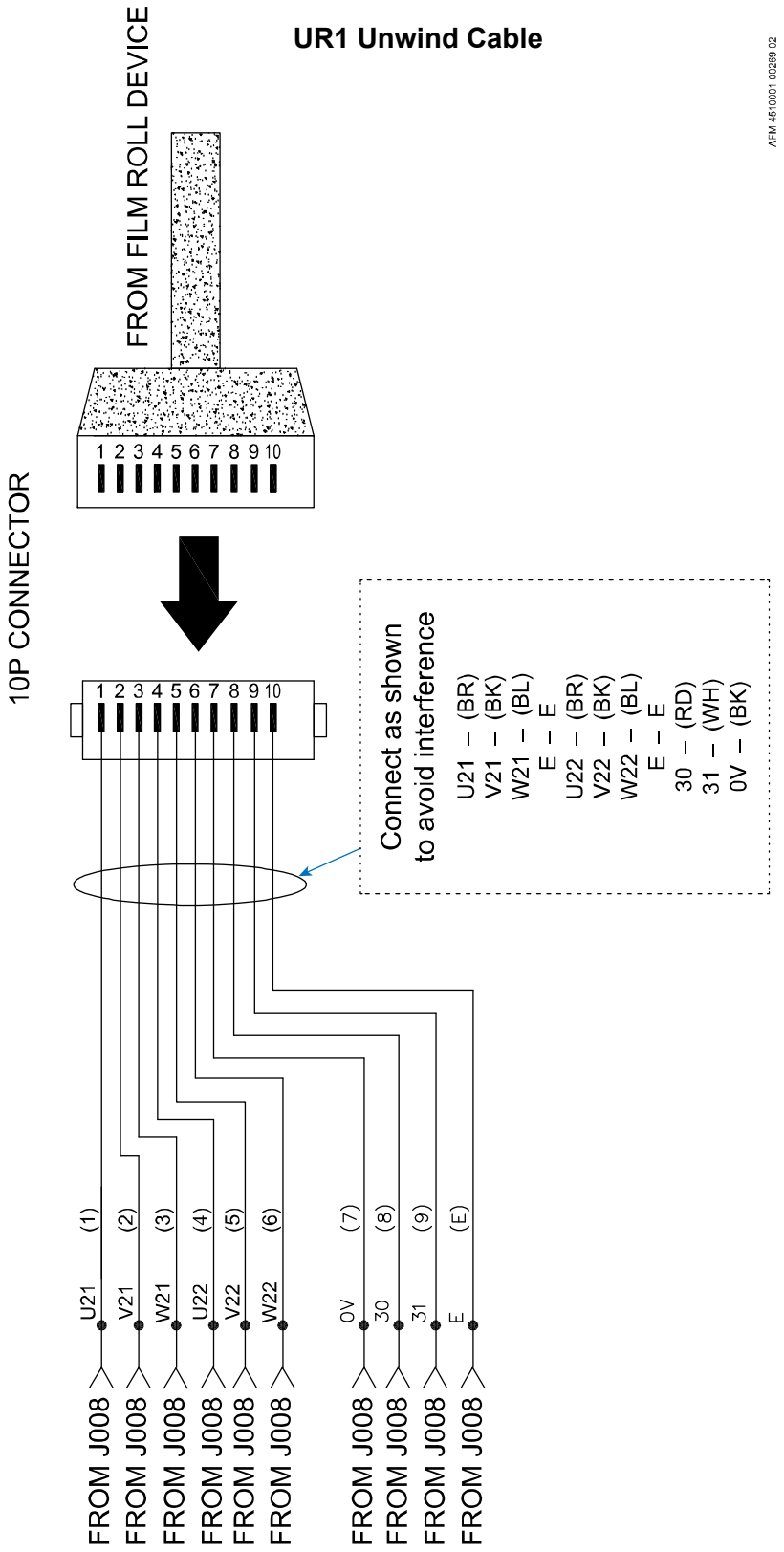
HMI



LX150N-J008 – 480V

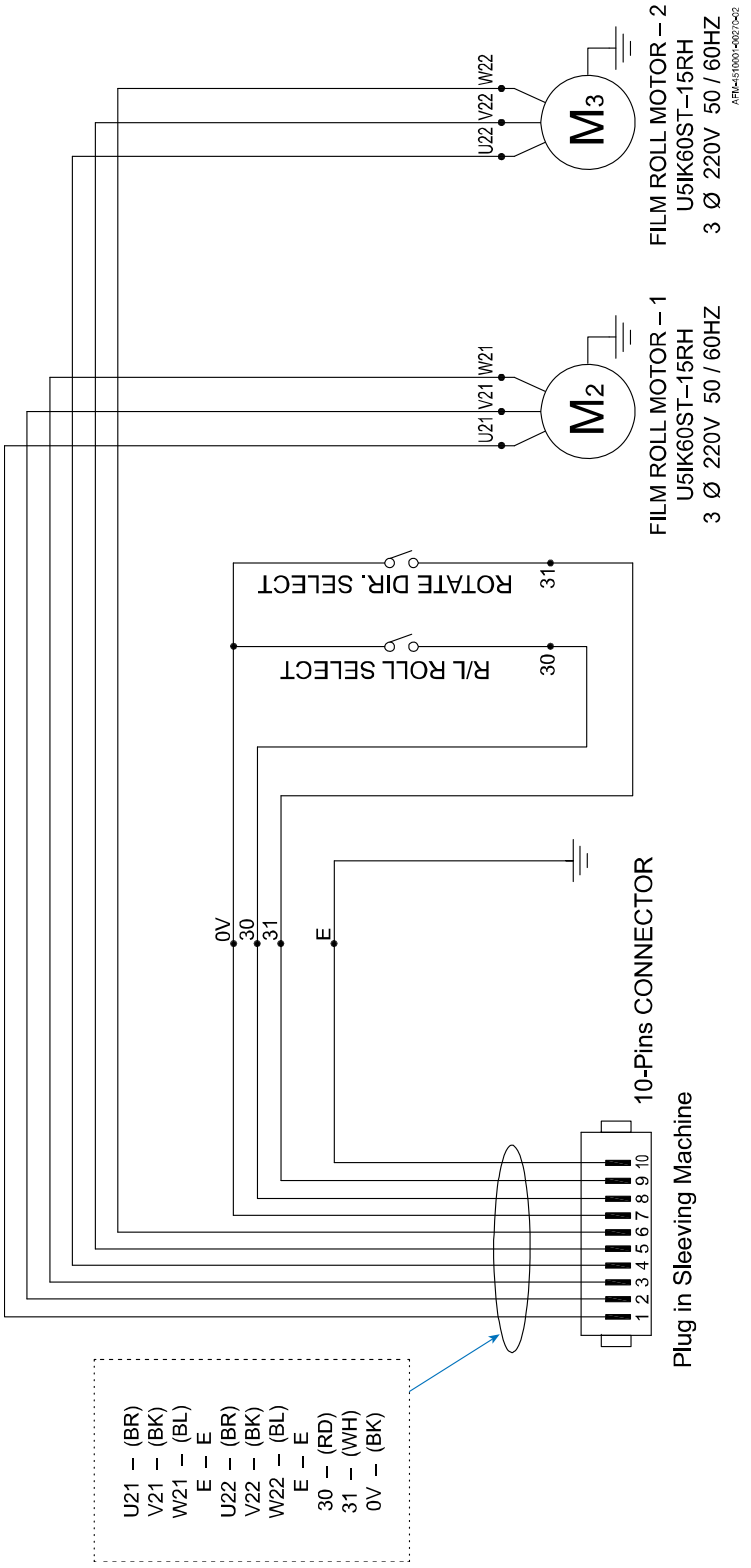


LX150N-J009 – 480V

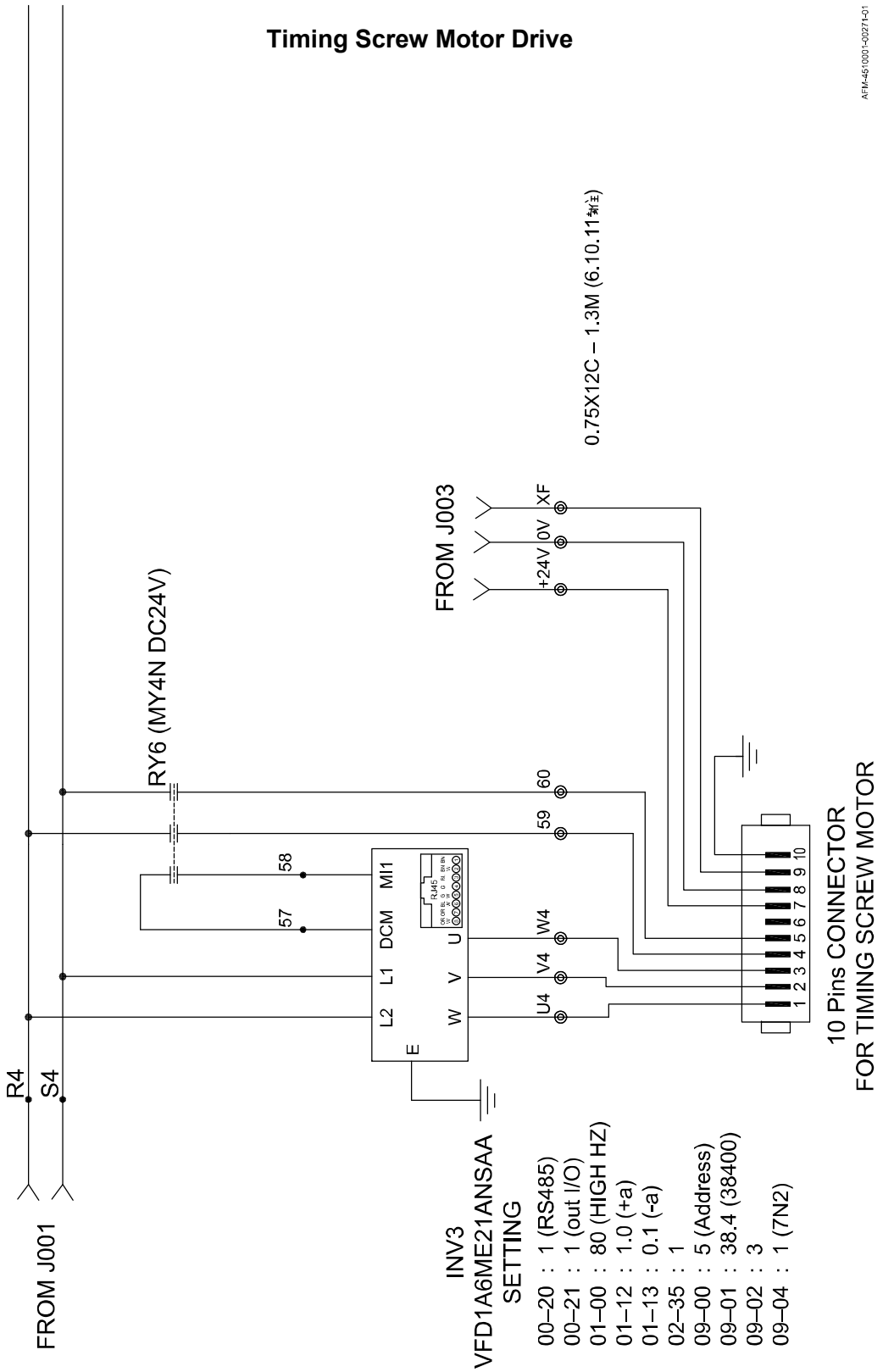


LX150N-J010 – 480V

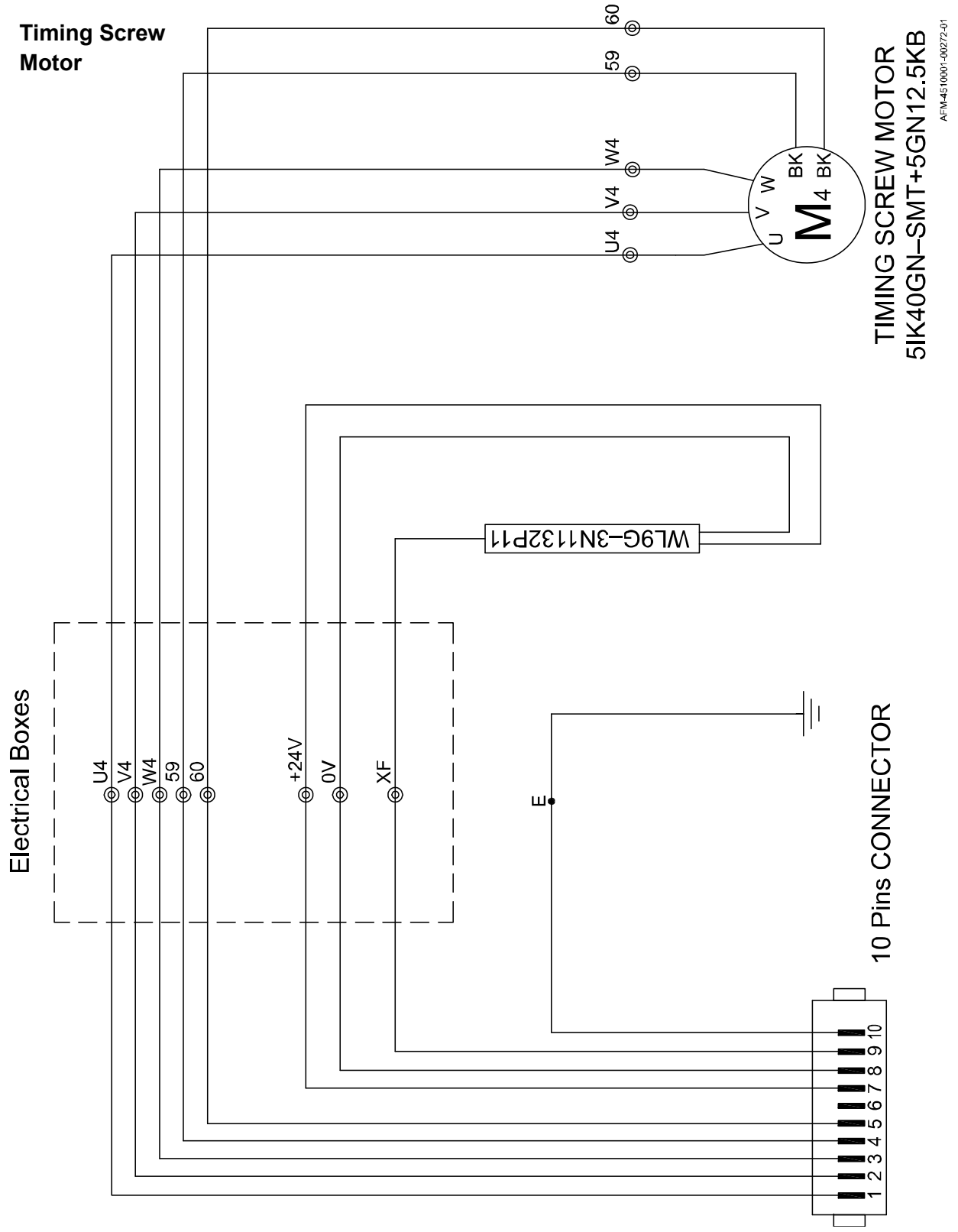
Film Roll Motor



LX150N-J011 – 480V



LX150N-J012 – 480V



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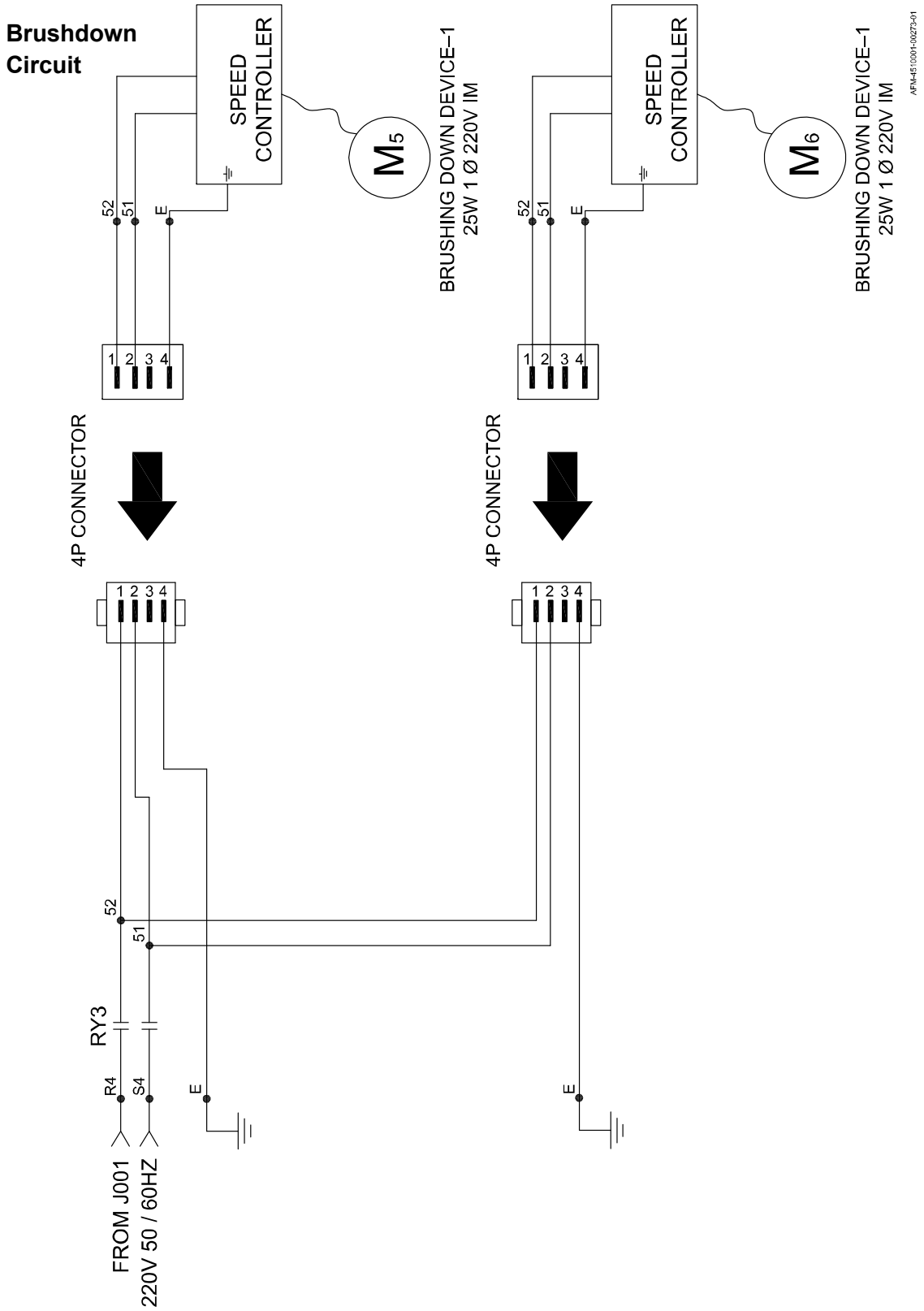
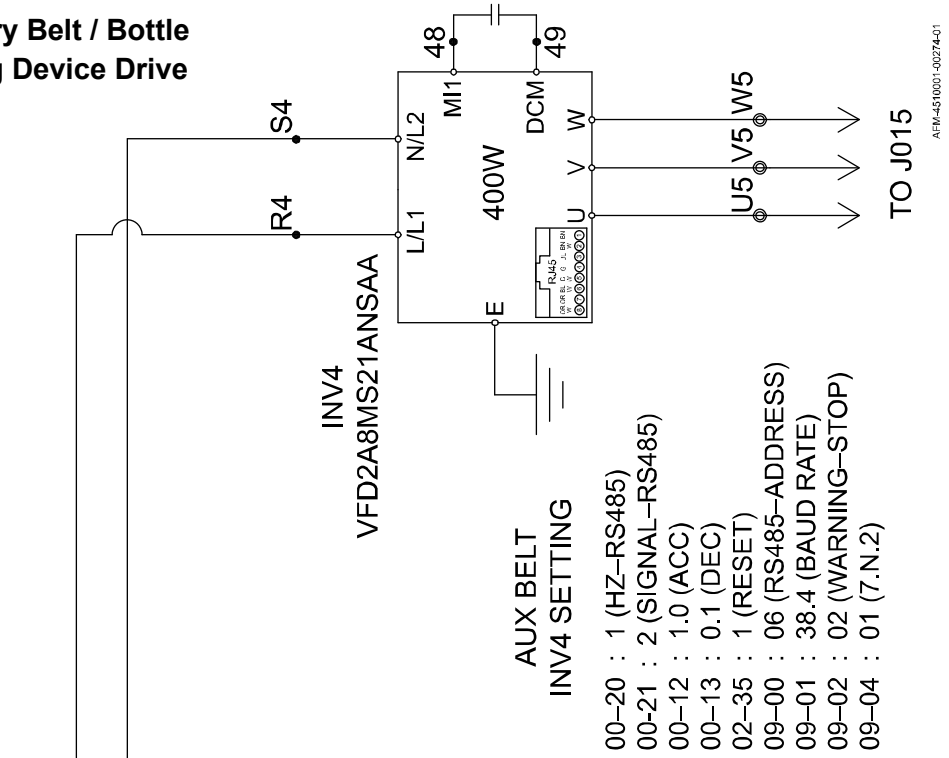
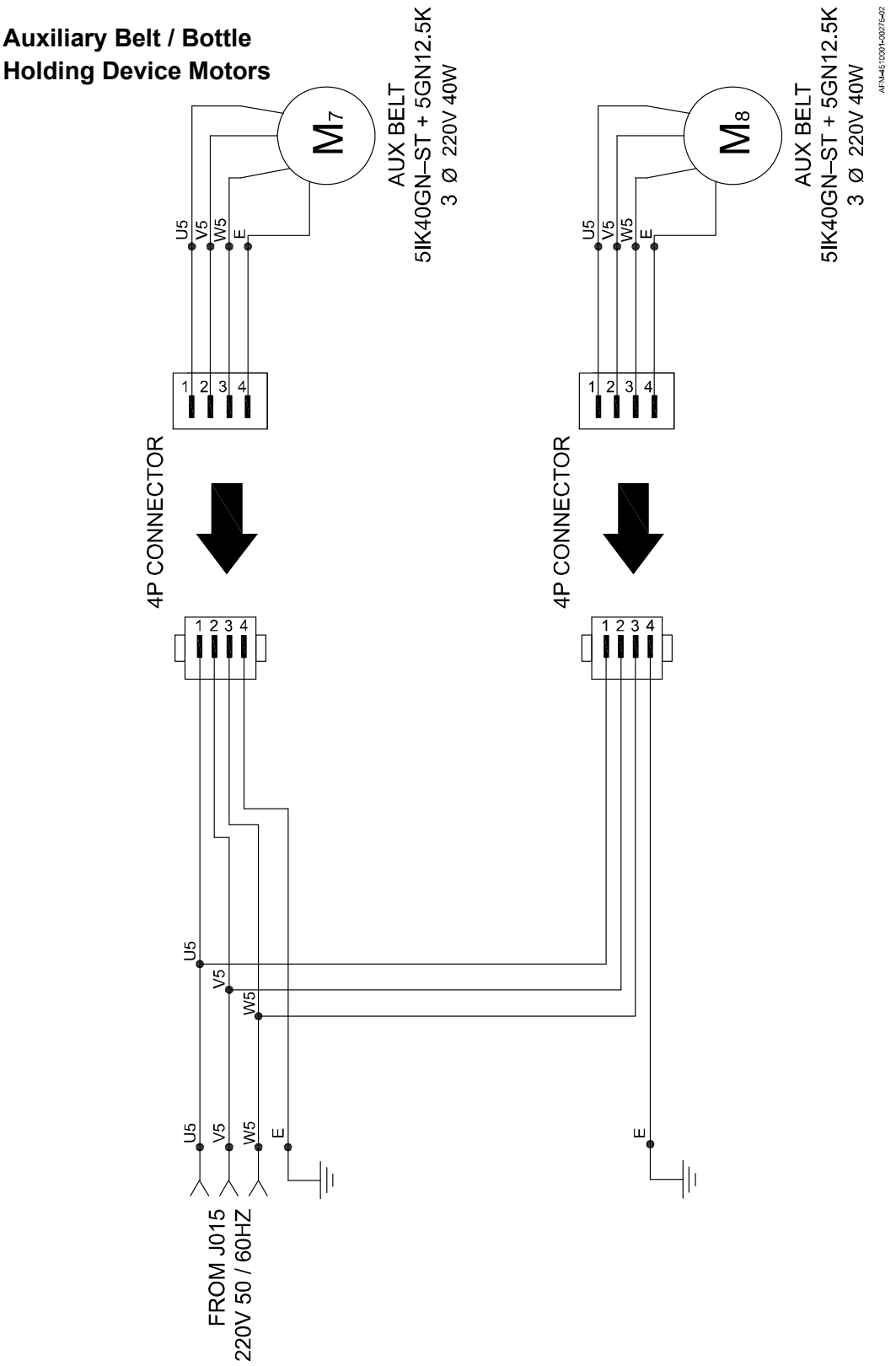


LX150N-J014 – 480V

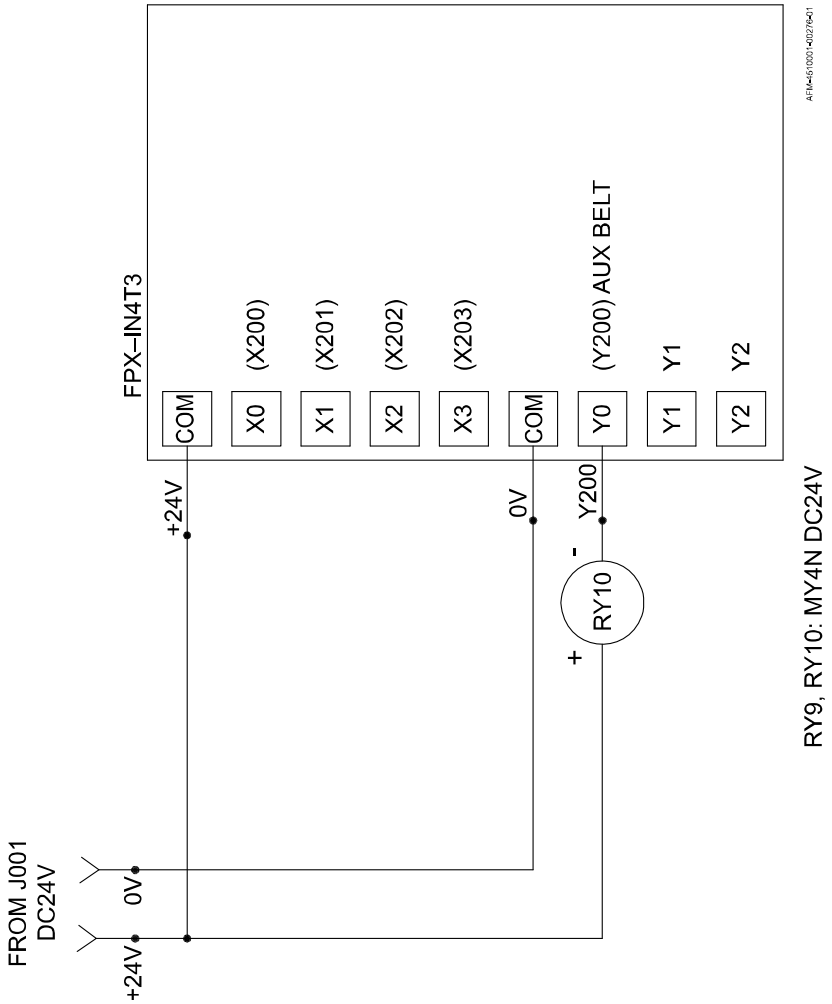


LX150N-J015 – 480V



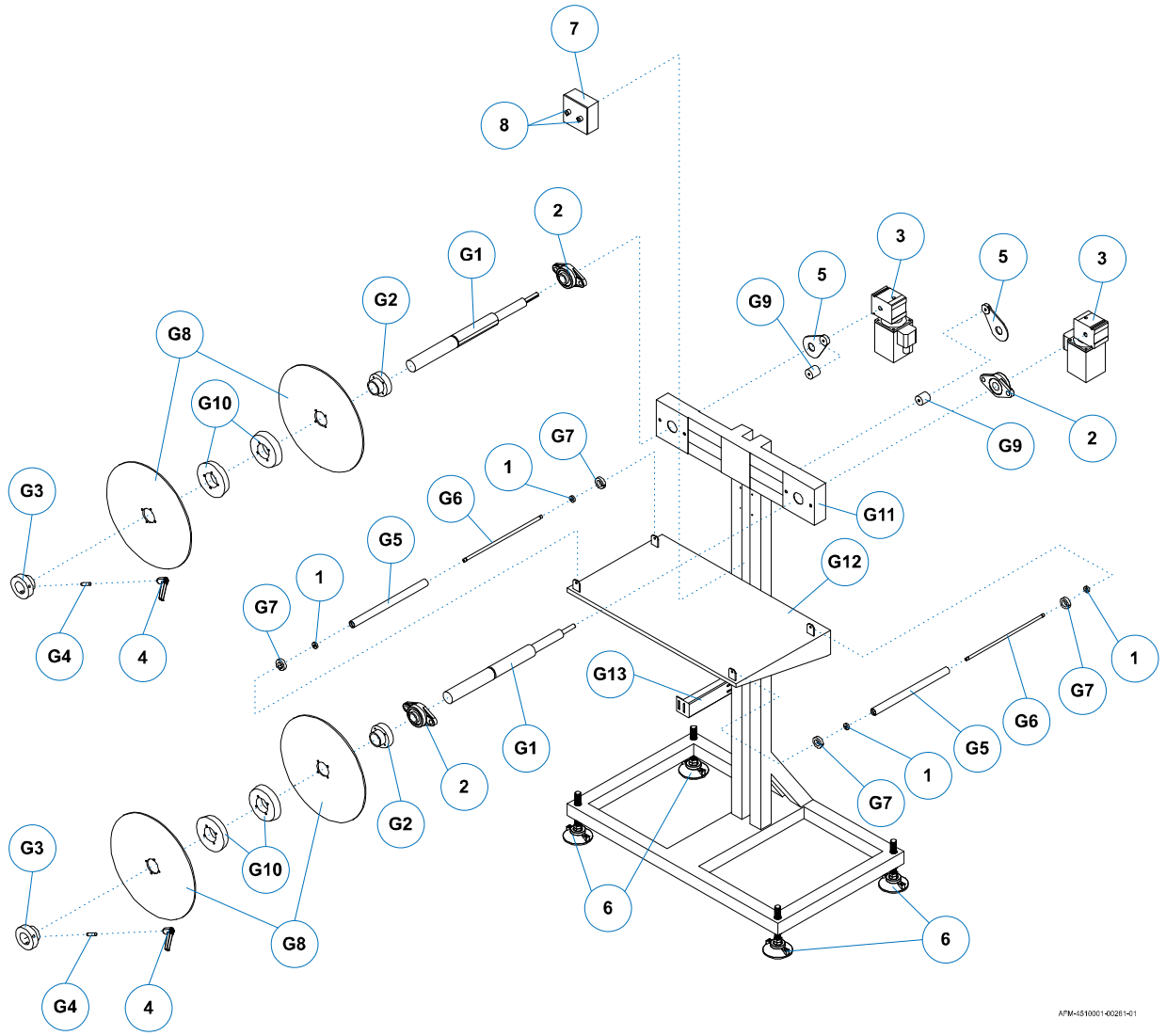
LX150N-J016 – 480V

PLC I/O Extension



Diagrams and Parts Lists

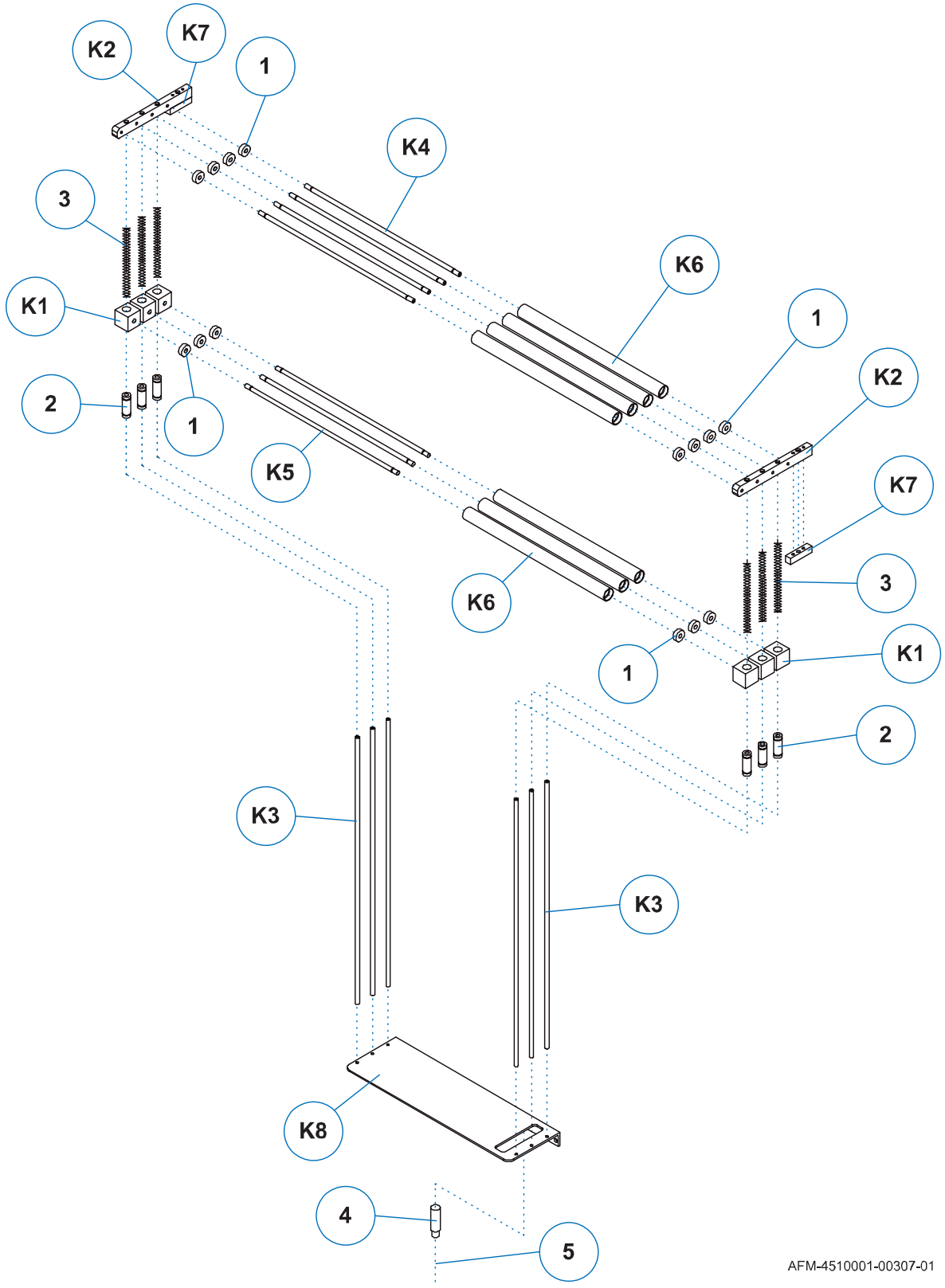
UR-1



Item	Part Number	Description	Specification	Quantity
1	4500171	Bearing	5BE016900ZZJ	4
2	4502132	Seat Bearing	5BE03UCFL20630	4
3	4502935	Motor	5CH65U5IK60ST+15RH	2
4	4502786	Handle	5BC024030X78M10SR	2
5	4503700	Torque Arm	5CH65FA40001	2
6	4503330	Tripod	5BD31M20X180S	4
7	4503701	Electric Box	5AC6100851	1
8	4503702	Knob Ø30	5AB61AC222PNA2B	2

Item	Part Number	Description	Specification	Quantity
G1	4503576	Adjust Lever	LE100-GM01	2
G2	4502784	Fixed Seat	LE100-GM02	2
G3	4502574	Slide Seat	LE100-GM03	2
G4	4502785	Screw	LE100TX1-GM05	2
G5	4503703	Roller	LG150-GM02	2
G6	4503704	Axis	LG150-GM03	2
G7	4502604	Ring	LG150-GM04	4
G8	4502776	Plate	LG150-GC02	4
G9	4503705	Mat Seat	LG150-GM11	2
G10	4502778	Plate	LG150-GM14	4
G11	4503706	Shelf	LG150-GP01	1
G12	4503707	Plate	LG150-GP02	1
G13	4503708	Fixed	LG150-GP05	1

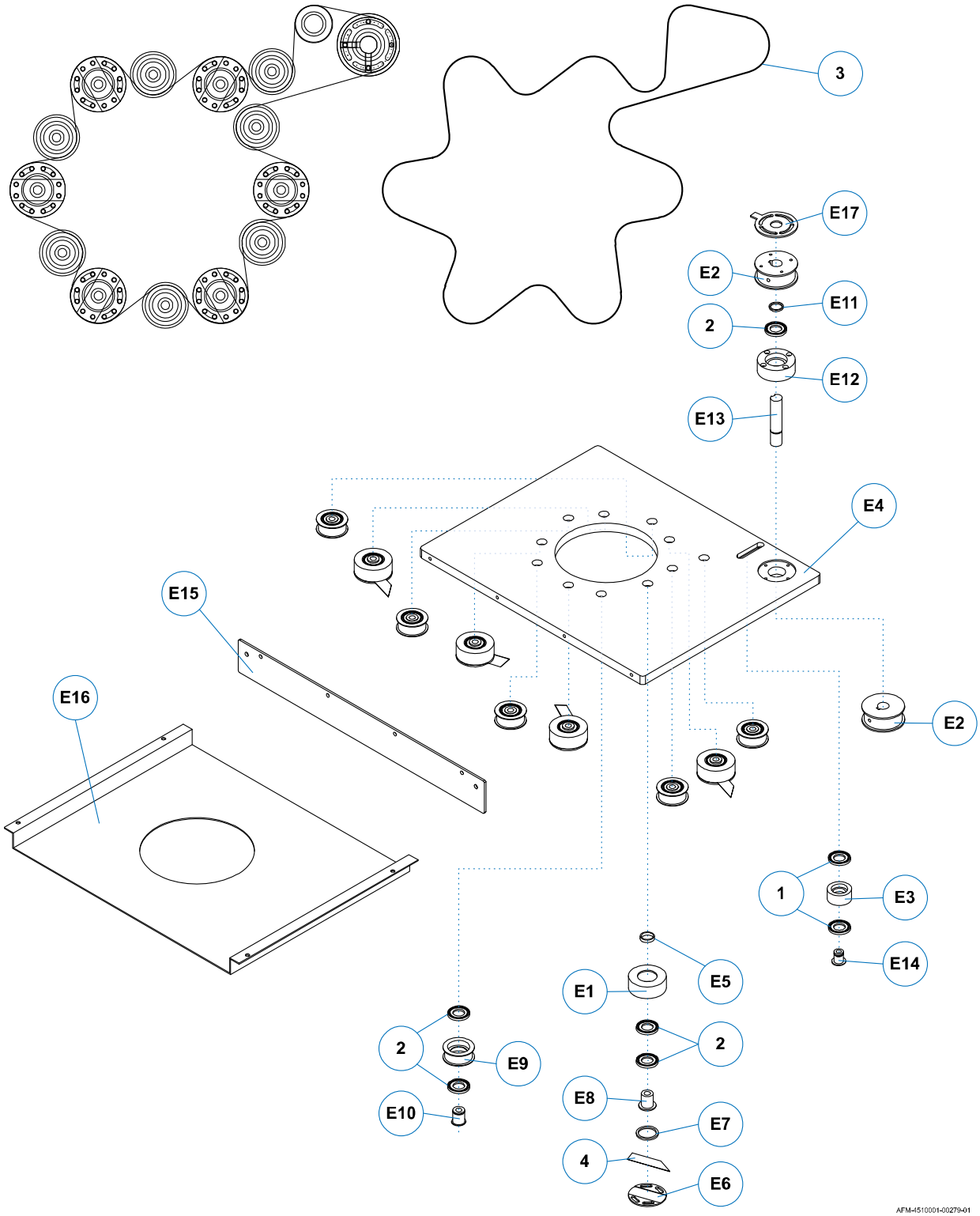
Dancer Assembly



Item	Part Number	Description	Specification	Quantity
1	4502131	Bearing – 606ZZ	5BE010606ZZ	14
2	4502133	Linear Bearing – LM6LUU	5BE06LM6LUU	6
3	4502908	Spring – 0.6X8.3X300X76N	5EH1406X8.2X300X76N	9
4	4502020	Ultrasoundsensor73M-D18AI300-D4	5AB04873MD18AI300DA	1
5	4503709	Straight Cable – M12-F5N-200 2M	5AB94M12F5N200	1

Item	Part Number	Description	Specification	Quantity
K1	4502898	Bearing Set - LG150K2-KM01	5HGLG150K2KM01	6
K2	4503710	Fixed Seat - LG150K2-KM02	5HGLG150K2KM02	2
K3	4502899	Guide Rod - LG150K2-KM03	5HGLG150K2KM03	6
K4	4502900	Axis - LG150K2-KM04	5HGLG150K2KM05	4
K5	4502901	Axis - LG150K2-KM05	5HGLG150K2KM05	3
K6	4502902	Roller - LG150K2-KM06	5HGLG150K2KM06	7
K7	4503711	Block - LG150K2-KM07	5HGLG150K2KM07	2
K8	4503712	Seat - LG150K2-KP01	5HHLG150K2KP01	1

Cutter Assembly

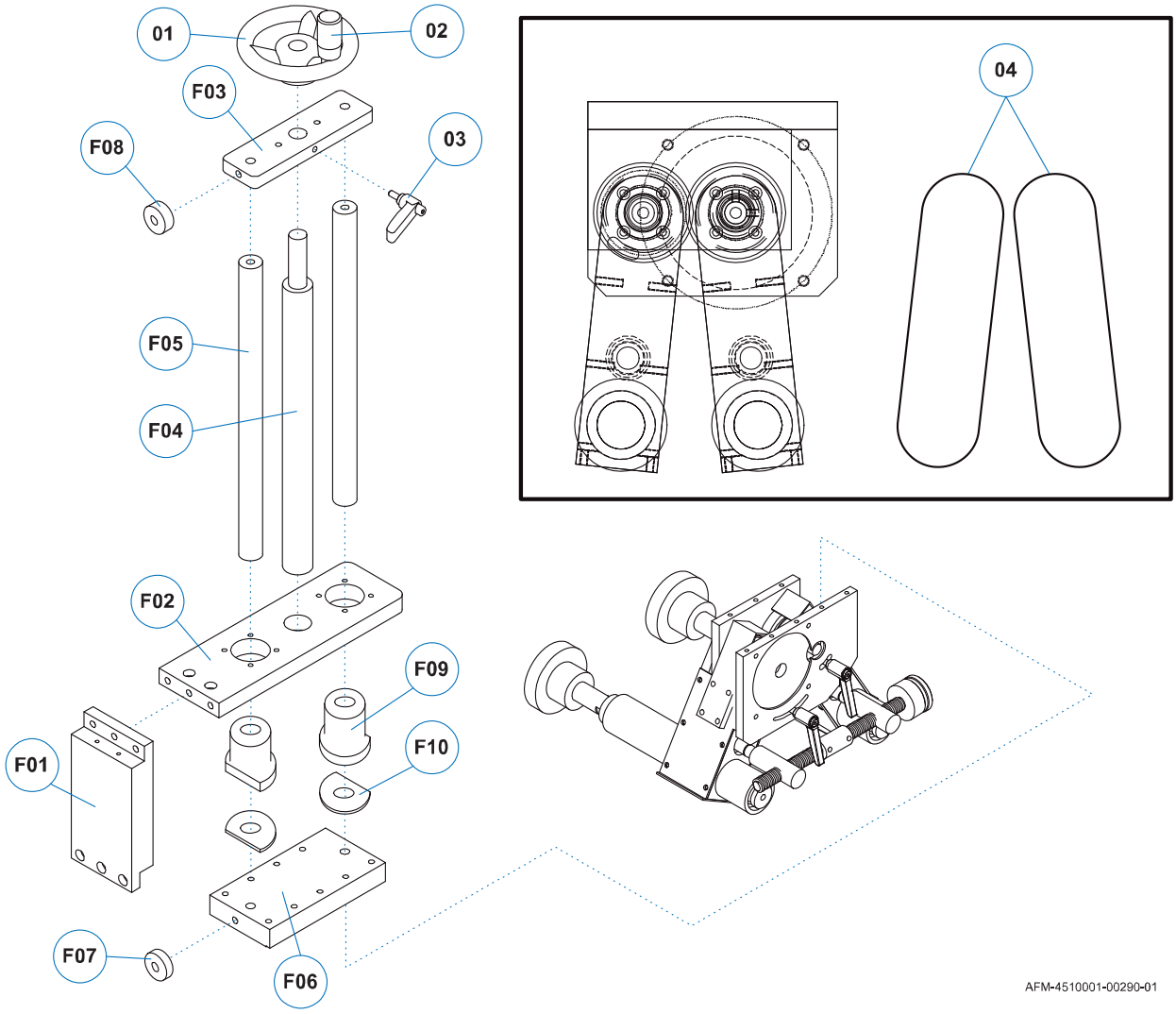


Item	Part Number	Description	Specification	Quantity
1	4500173	BEARING	5BE016801ZZJ	2
2	4500178	CUTTER BEARINGS	5BE016902ZZJ	22
3.1	4501171	TIMING BELT (D25~80)	W=3/8” XL L=384 5BB023X384XL	1
3.2	4501707	TIMING BELT (D50~120)	W=3/8” XL L=444 5BB023X444XL	1
3.3	4501697	TIMING BELT (D70~150)	W=3/8” XL L=480 5BB023X480XL	1
4	4501161	CUTTER BLADES	5EA650.5X18X110	Varies

Item	Part Number	Description	Specification	Quantity
E1	4501728	TIMING PULLEYS	LG150T-EC01	5
E2	4503003	TIMING PULLEYS	LG150T-EC02X2	2
E3	4501741	PULLEYS	LG150T-EC03	1
E4	4503713	PLATES	LG150T-EM01	1
E5	4503319	SET COLLARS	LG150T-EM02	5
E6	4500224	HOUSING	LG150T-EM03	5
E7	4503271	SET COLLARS	LG150T-EM04	5
E8	4503263	AXLS	LG150T-EM05	5
E9	4503261	PULLEYS	LG150T-EM06	6
E10	4503262	SET COLLARS	LG150T-EM07	6
E11	4503264	PLATES	LG150T-EM08	1
E12	4503328	CLAMPS	LG150T-EM09	1
E13	4503327	AXLS	LG150T-EM10	1
E14	4503265	AXLS	LG150T-EM11	1
E15	4503714	PANELS	LG150T-EP01	1
E16	4503715	PLATES	LG150T-EP02	1
E17	4503340	PLATES	LG150T-EP03	1

Applicator Wheel Vertical Adjust

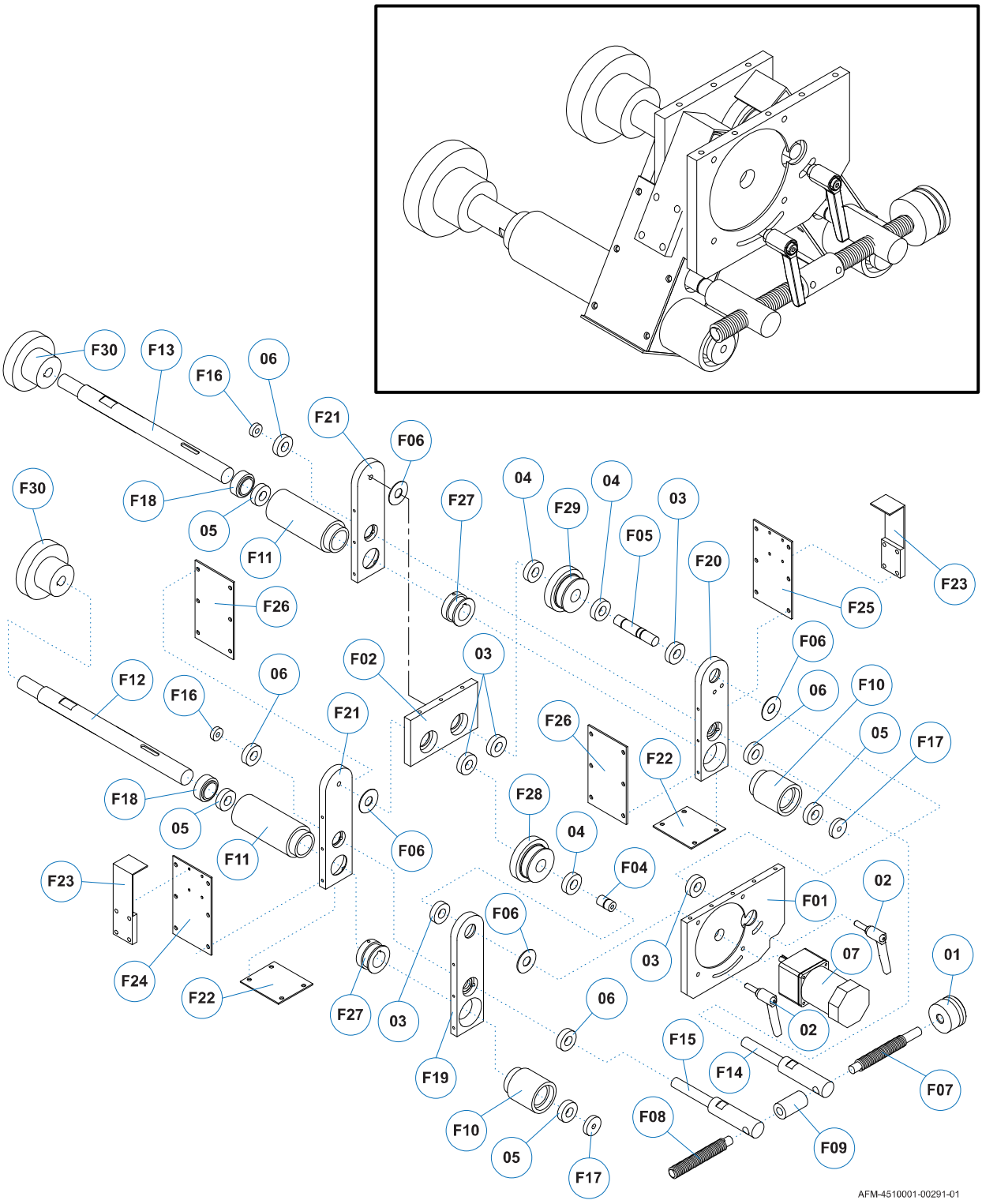
Drawing: LG150T-F01



Item	Part Number	Description	Specification	Quantity
01	4501158	HAND WHEEL: KRN80 D=10 M6-2 HOLE	5BC01KRN80	1
02	4502388	MOVABLE HANDLE – CB50M6	5BC01CB50M6	1
03	4501792	HANDLE – TRT40 M6X20 SILVER	5BC02TRT40M6X20	1
04	4501716	TIMING BELT – W=3/8” XL L=136	5BB023X136XL	2

Item	Part Number	Description	Specification	Quantity
F01	4503716	PLATES – LG150T-FM01	5HGLG150TFM01	1
F02	4503717	PLATES – LG150T-FM02	5HGLG150TFM02	1
F03	4503718	PLATES – LG150T-FM03	5HGLG150TFM03	1
F04	4503719	SCREWS – LG150T-FM04	5HGLG150TFM04	1
F05	4503720	SHAFTS – LG150T-FM05	5HGLG150TFM05	2
F06	4503721	PLATES – LG150T-FM08	5HGLG150TFM08	1
F07	4503722	PAD – LG150T-FM21	5HGLG150TFM21X1	1
F08	4503723	PAD – LG150T-FM22	5HGLG150TFM22X1	1
F09	4503580	GUIDE – LG150T-FM02X1	5HGLG150TFM02X1	2
F10	4503724	PLATES – LG150T-FM02X2	5HGLG150TFM02X2	2

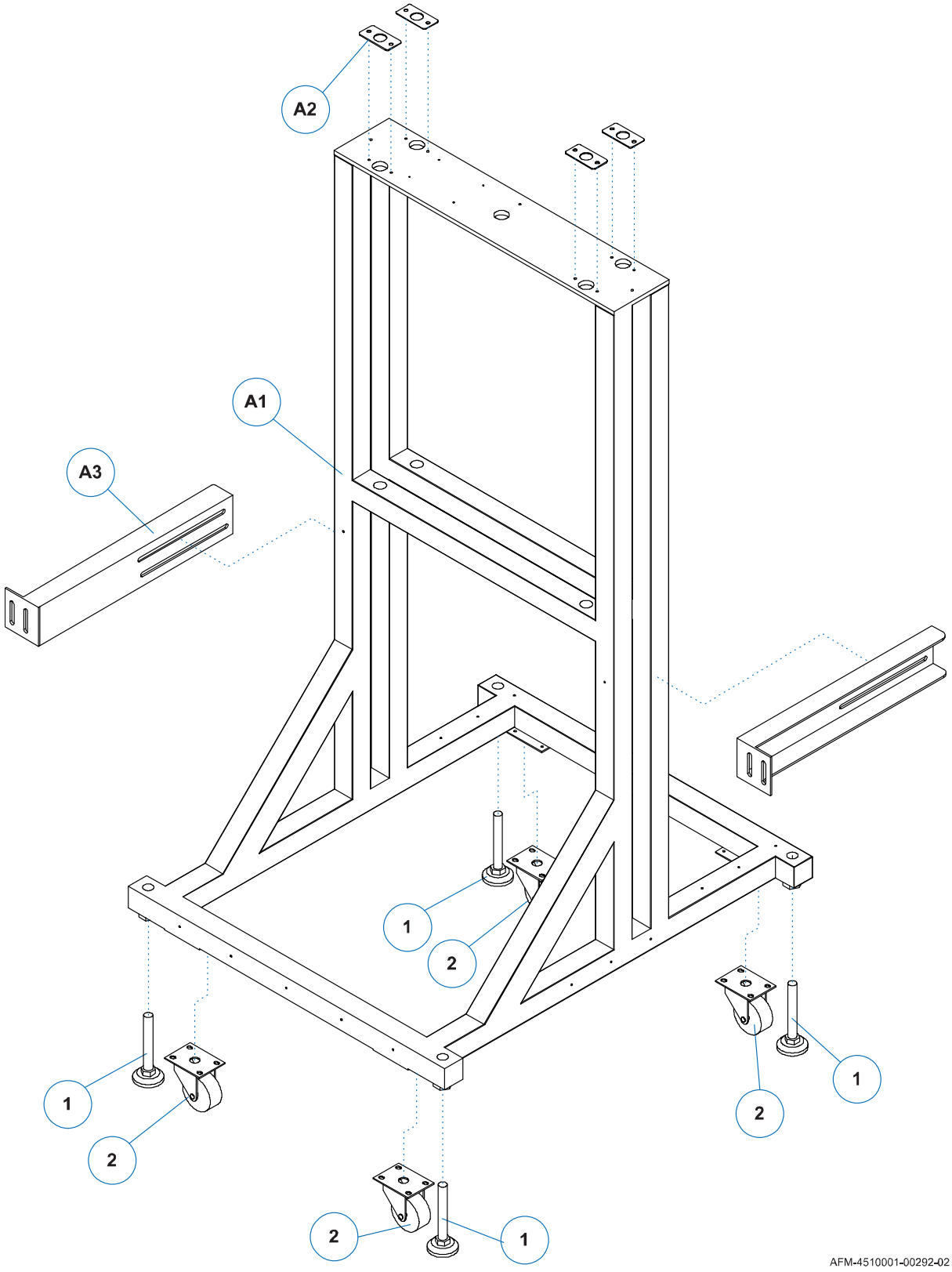
Applicator Assembly



Item	Part Number	Description	Specification	Quantity
01	4502390	HAND WHEEL – 7011-37-B10	5BC217011X37XB10	1
02	4501792	HANDLE – TRT40 M6X20	5BC02TRT40M6X20	2
03	4500175	BEARING – 6001ZZJ	5BE016001ZZJ	5
04	4500173	BEARING – 6801ZZJ	5BE016801ZZJ	3
05	4500181	BEARING – 6804ZZJ	5BE016804ZZJ	4
06	4500174	BEARING – 6901ZZJ	5BE016901ZZJ	4
07	4500926	MOTOR – H-5IK90A-STF	5CH015IK90ASTF	1

Item	Part Number	Description	Specification	Quantity
F01	4502245	PLATES – LG150T-FM06	5HGLG150TFM06	1
F02	4503512	PLATES – LG150T-FM07	5HGLG150TFM07	1
F03				
F04	4502248	AXIS – LG150T-FM12	5HGLG150TFM12	1
F05	4503360	AXIS – LG150T-FM13	5HGLG150TFM13	1
F06	4502515	PLATES – LG150T-FM14	5HGLG150TFM14	4
F07	4503597	SCREWS – LG150T-FM18	5HGLG150TFM18	1
F08	4503598	SCREWS – LG150T-FM19	5HGLG150TFM19	1
F09	4503599	AXIS – LG150T-FM20	5HGLG150TFM20	1
F10	4503361	AXIS – LG150T-FM23	5HGLG150TFM23	2
F11	4503362	AXIS – LG150T-FM24	5HGLG150TFM24	2
F12	4502675	AXIS – LG150T-FM25	5HGLG150TFM25	1
F13	4502675-1	AXIS – LG150T-FM26	5HGLG150TFM26	1
F14	4503086	SHAFTS – LG150T-FM27	5HGLG150TFM27	1
F15	4503085	SHAFTS – LG150T-FM28	5HGLG150TFM28	1
F16	4503359	PLATES – LG150T-FM29	5HGLG150TFM29	2
F17	4502712	PLATES – LG150T-FM30	5HGLG150TFM30	2
F18	4503051	FIXED BLOCK – LG150T-FM31	5HGLG150TFM31	2
F19	4503084	PLATES – LG150T-FM32	5HGLG150TFM32	1
F20	4503083	PLATES – LG150T-FM33	5HGLG150TFM33	1
F21	4502247	PLATES – LG150T-FM34	5HGLG150TFM34	2
F22	4503725	PLATES – LG150T-FP01	5HGLG150TFP01	2
F23	4503726	PLATES – LG150T-FP02	5HGLG150TFP02	2
F24	4503727	PLATES – LG150T-FP03	5HGLG150TFP03	1
F25	4503728	PLATES – LG150T-FP04	5HGLG150TFP04	1
F26	4503729	PLATES – LG150T-FP05	5HGLG150TFP05	2
F27	4503036	TIMING PULLEYS – C – XL20TD=20 W3/8” L20	5BF05LC100FC05	2
F28	4500132	TIMING PULLEYS – A – LG150T-FC04	5BF05LG150FC04	1
F29	4500133	TIMING PULLEYS – B – LG150T-FC054	5BF05LG150FC05	1
F30	4500128	APPLICATOR WHEELS 50 D=12 50ØX35X20XD12	5HFQLB100FM13	2

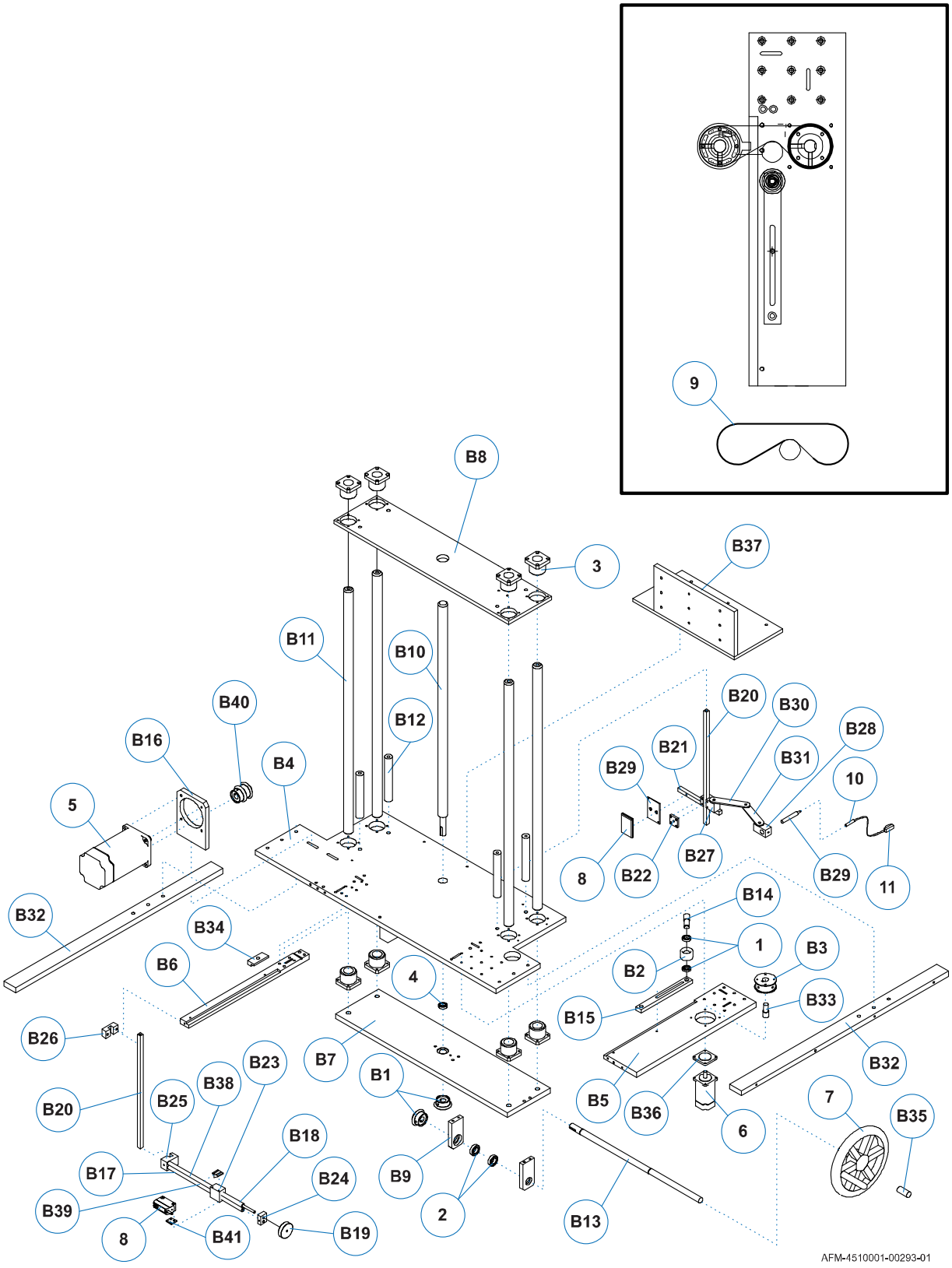
LX-150 Frame



Item	Part Number	Description	Specification	Quantity
1	4503330	ADJUSTER PADS – M20X150L DS9020150	5BD31M20X180S	4
2	4505240	CASTER – 3”X1”	5BD01075X25	4

Item	Part Number	Description	Specification	Quantity
A1	4503730	MAIN BODY	LG150T-AP01	1
A2	4503731	PLATES	LG150T-AP02	4
A3	4503732	PLATES	LG150T-AP03	2

Head Height Adjust

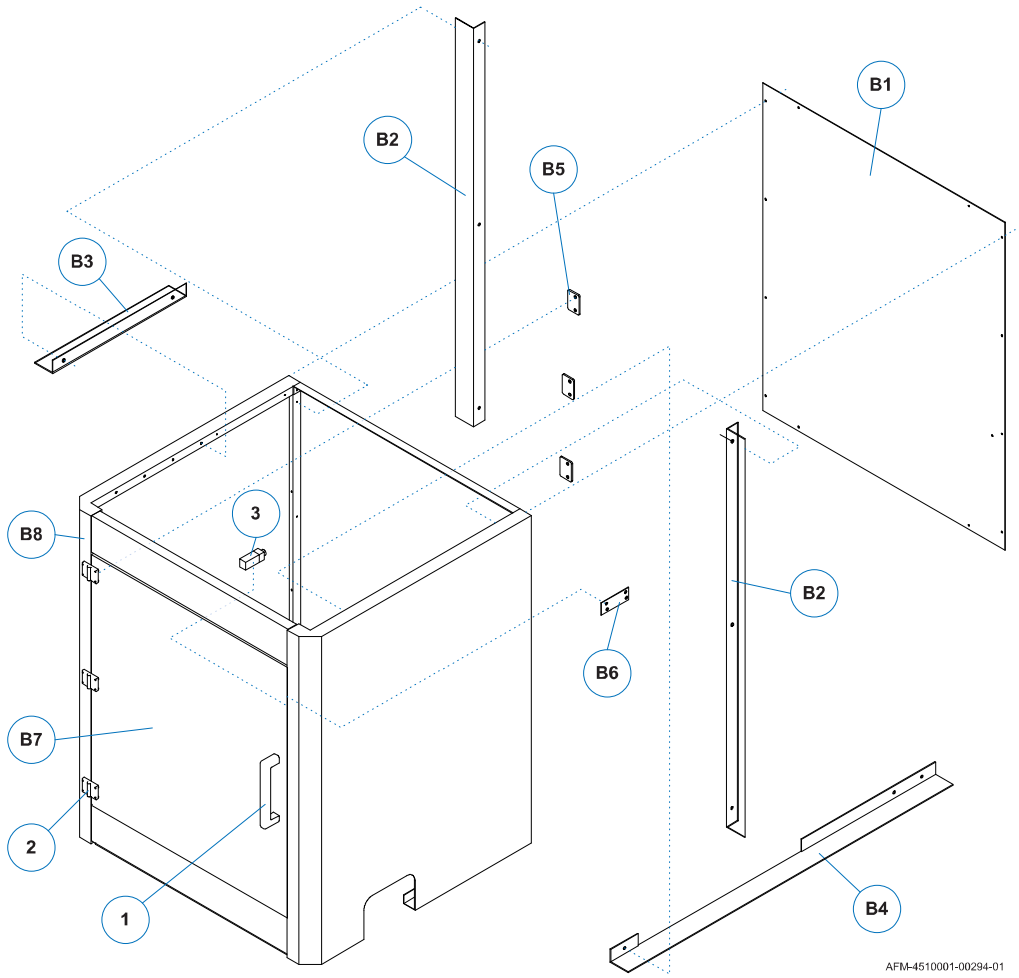


Item	Part Number	Description	Specification	Quantity
1	4500173	BEARINGS – 6801ZZJ	5BE016801ZZJ	2
2	4500178	BEARINGS – 6902ZZJ	5BE016902ZZJ	2
3	4502370	LINEAR SLIDE BEARINGS – TMK-25 CLIPPER	5BE06SFPJ25	8
4	4502365	THRUST BALL BEARINGS – 51102 KOYO	5BE0151102	1
5	4502933	MOTORS – ECMA-C20807ES 750W	5CD36ECMAC20807ES	1
6	4502933	MOTORS – ECMA-C20807ES 750W	5CD36ECMAC20807ES	1
7	4501159	HANDWHEELS – KRN250+FR90D= 18M8X2 5X2.5	5BC01KRN250+FR90	1
8	4502610	SENSOR – GL6G-N1212+P250F	5AB04GL6GN1212+P250F	1
9	4502129	TIMING BELT W=15MM XL L=150	5BB0215X150XL	1
10	4500690	FIBER TUBE – E32-DC200	5AB91E32DC200	1
11	4501449	SENSOR – WLL170-2N132	5AB04WLL1702N132	1

Item	Part Number	Description	Specification	Quantity
B1	4503733	BEVEL GEAR	LG150T-BC01	2
B2	4503734	TIMING PULLEYS	LG150T-BC02	1
B3	4503735	TIMING PULLEYS	LG150T-BC05	1
B4	4503736	PLATES	LG150T-BM01	1
B5	4503737	CLAMPS	LG150T-BM02	1
B6	4503738	CLAMPS	LG150T-BM03	1
B7	4503739	PLATES	LG150T-BM04	1
B8	4503740	PLATES	LG150T-BM05	1
B9	4503741	CLAMPS	LG150T-BM06	2
B10	4503742	SCREWS	LG150T-BM07	1
B11	4503743	SHAFTS	LG150T-BM08	4
B12	4503744	COUPLINGS	LG150T-BM09	4
B13	4503745	AXIS	LG150T-BM14	1
B14	4503746	AXIS	LG150T-BM15	1
B15	4503747	CLAMPS	LG150T-BM16	1
B16	4503748	CLAMPS	LG150T-WM31	1
B17	4503749	SHAFTS	LG150T-UM01	1
B18	4503750	SHAFTS	LG150T-UM02	1
B19	4503751	HANDWHEELS	LG150T-UM03	1
B20	4503752	SHAFTS	LG150T-UM04	2
B21	4503753	SHAFTS	LG150T-UM05	1
B22	4503754	PLATES	LG150T-UM07	1
B23	4503755	CLAMPS	LG150T-UM08	1
B24	4503756	PLATES	LG150T-UM09	1
B25	4503757	PLATES	LG150T-UM10	1
B26	4503577	CLAMPS	LG150T-UM11	1
B27	4503758	CLAMPS	LG150T-UM16	1

Item	Part Number	Description	Specification	Quantity
B28	4503759	CLAMPS	LG150T-UM17	1
B29	4503760	SHAFTS	LG150T-UM18	1
B30	4503761	PLATES	LG150T-UP02	1
B31	4503762	SCREWS	LG150T-UP03	1
B32	4503763	PLATES	LG150T-BM13	2
B33	4503764	SHAFTS	LG150T-BM17	1
B34	4503765	PLATES	LG150T-BM18	1
B35	4503766	PLATES	LG150T-BM19	1
B36	4503767	PLATES	LG150T-BM20	1
B37	4503768	PLATES	LG150-BP14	1
B38	4503769	PLATES	LG150-UP04	1
B39	4503770	PLATES	LG150-UP05	1
B40	4503004	PULLEY	LG150-WC04	1
B41	4503771	SENSOR HOLDER	LG150T-AP04	1

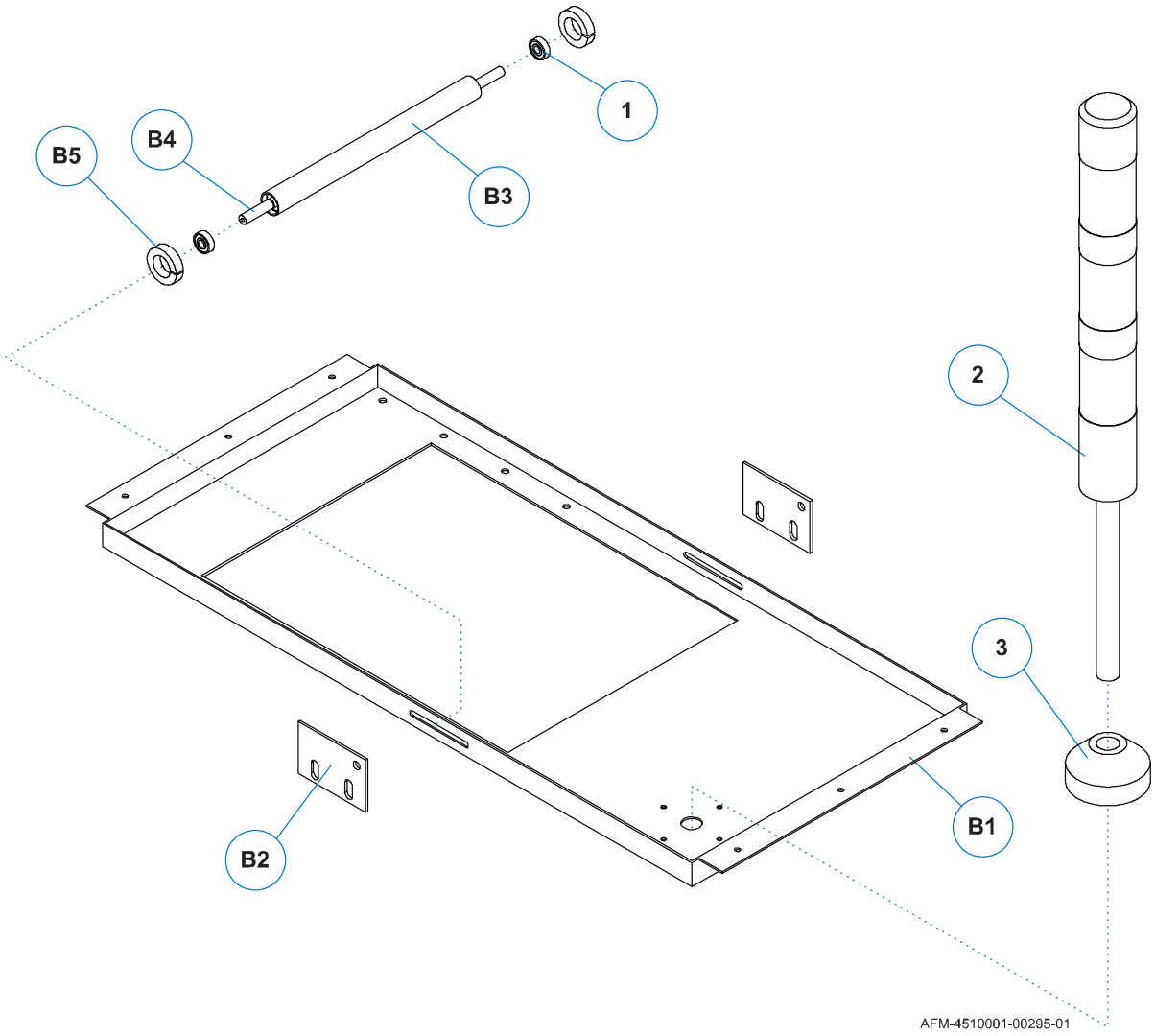
Housing



Item	Part Number	Description	Specification	Quantity
1	4500250	PULLS – AGS200	5BC03AGS200	1
2	4500892	HINGES – 14104	5BC4514104	3
3	4501419	SAFETY SWITCH – QKS-8 AC400V2A	5AB17QKS8	1

Item	Part Number	Description	Specification	Quantity
B1	4503772	PANELS	LG150T-BP03	1
B2	4503773	PANELS	LG150T-BP07	2
B3	4503774	PANELS	LG150T-BP08	1
B4	4503775	PANELS	LG150T-BP09	1
B5	4503776	PLATES	LG150T-BP11	3
B6	4503777	PLATES	LG150T-BP13	1
B7	4503778	DOOR	LG150T-BC03X1	1
B8	4503779	HEAD FRAME	LG150T-BP16	1

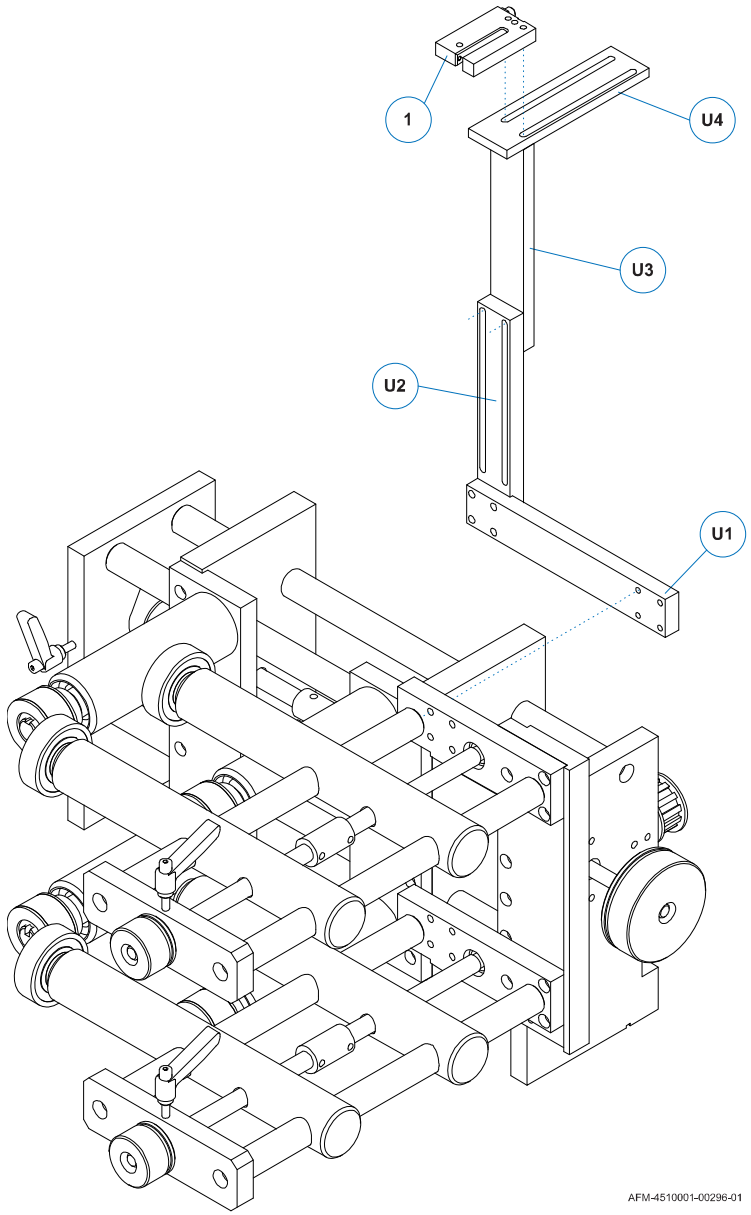
Housing Roof and Roller Bar



Item	Part Number	Description	Specification	Quantity
1	4500171	BEARINGS – 6900ZZJ	5BE016900ZZJ	2
2	4502939	TOWER LIGHT – TPTL5-74-4 24V	5AE05TRT244ROGW	1
3	4503780	HOLDER – TPTL6-F	5AE05TPTL6F	1

Item	Part Number	Description	Specification	Quantity
B1	4503781	PLATES	LG150T-BP04	1
B2	4503782	PLATES	LG150T-BP15	2
B3	4503783	ROLLER	LG150T-BM10	1
B4	4503784	AXIS	LG150T-BM11	1
B5	4503785	SET COLLARS	LG150T-WM35	2

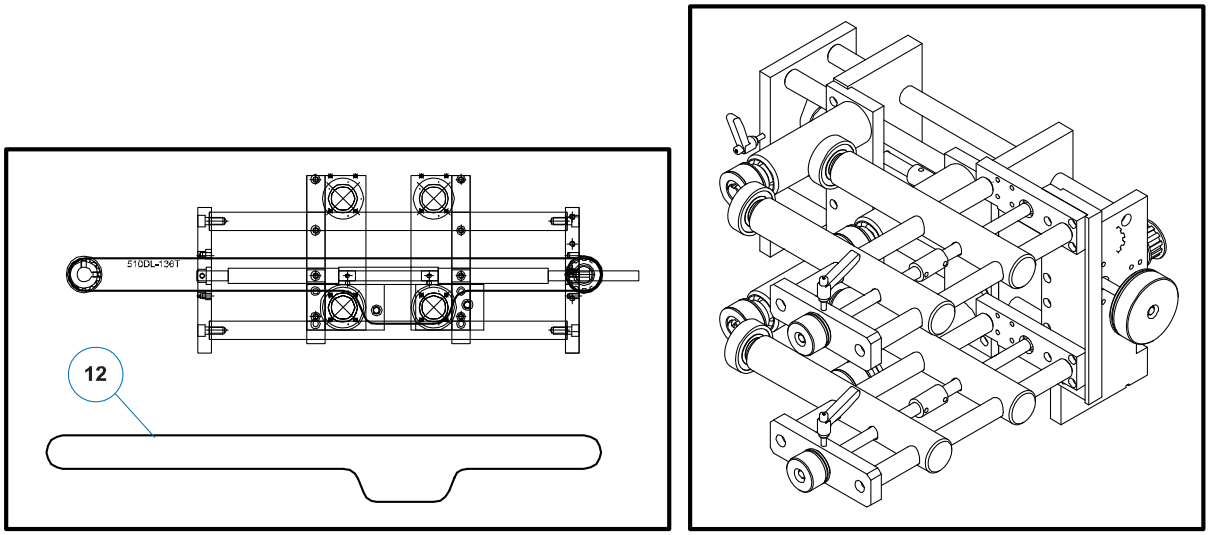
Print-Reading Sensor Mount

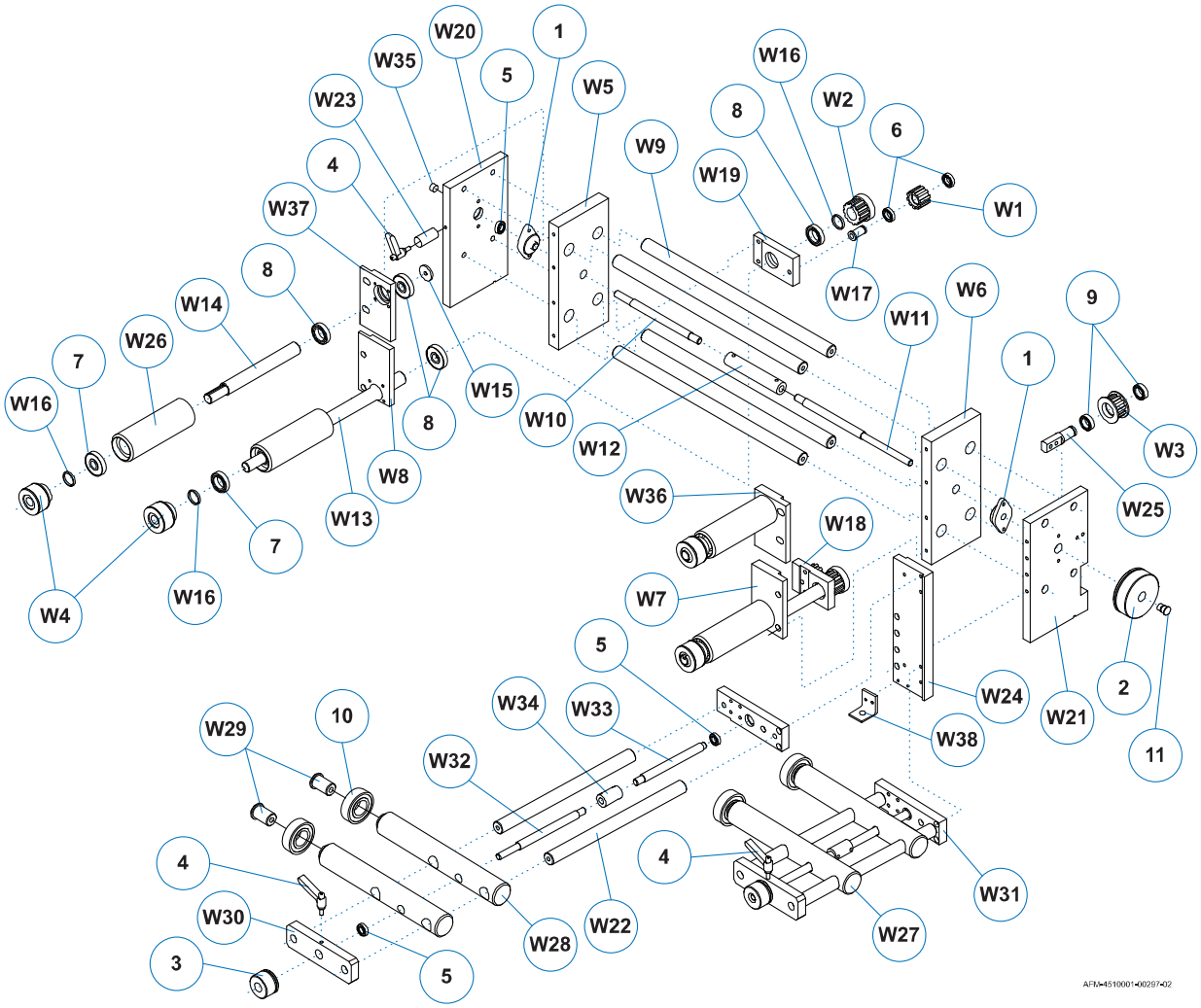


Item	Part Number	Description	Specification	Quantity
1	4501461	SENSOR – WF5-40B410	5AB04WF540B410	1

Item	Part Number	Description	Specification	Quantity
U1	4503786	PLATES	LG150T-UM12	1
U2	4502435	PLATES	LG150T-UM13	1
U3	4502436	PLATES	LG150T-UM14	1
U4	4503787	PLATES	LG150T-UM15	1

Support and Film Drive Wheel Assemblies



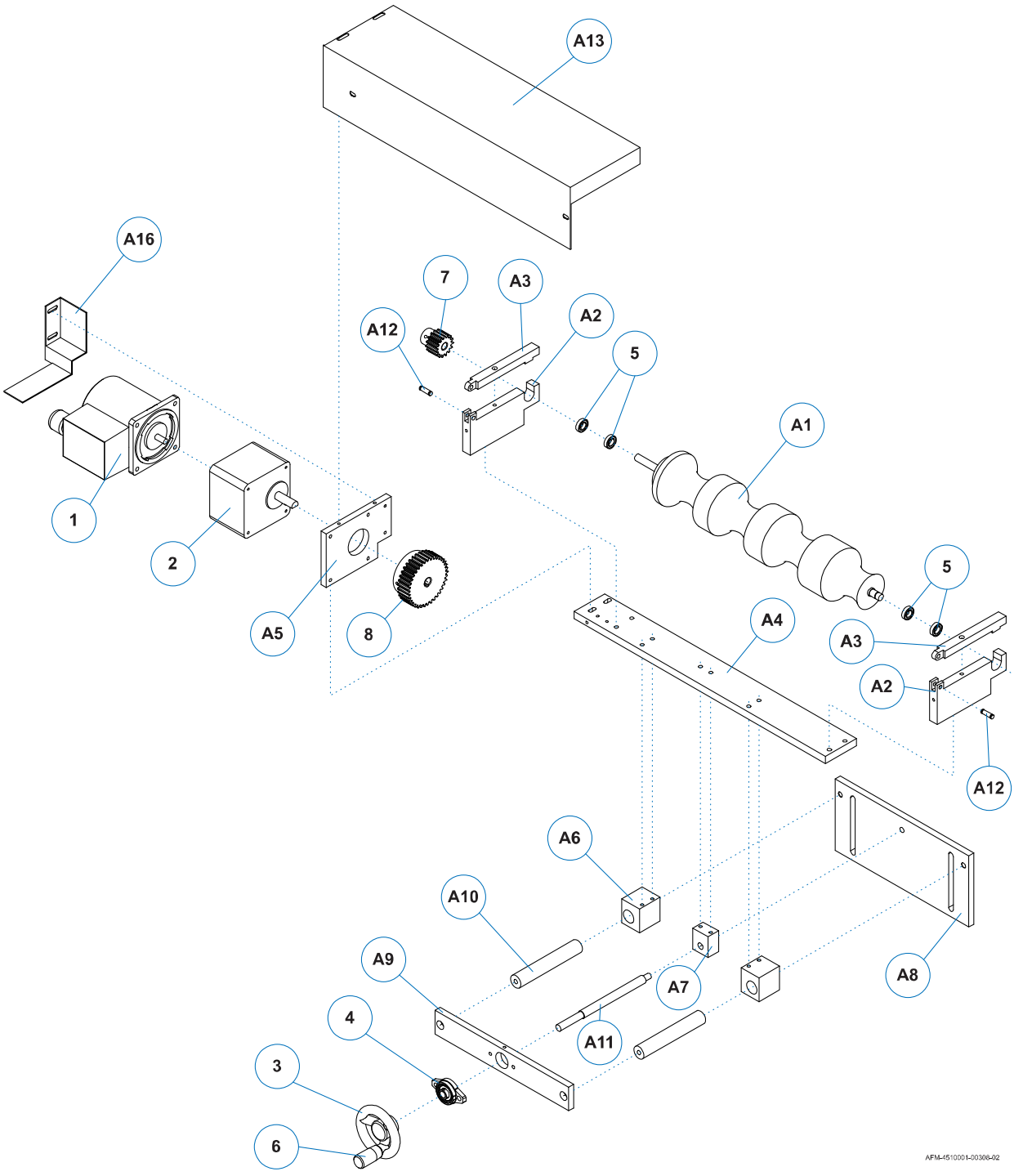


Item	Part Number	Description	Specification	Quantity
1	4502369	BEARING UNITS – UFL000	5BE03UFL000	2
2	4503788	HANDWHEELS – D73X25TXD15	HHLC100XY2	1
3	4502390	HANDWHEELS – 7011-37-B10, 37, D=10	5BC217011X37XB10	2
4	4501792	CLAMP LEVERS – TRT40 M6X20	5BC02TRT40M6X20	3
5	4500170	BEARINGS – 6800ZZJ	5BE016800ZZJ	6
6	4500173	BEARINGS – 6801ZZJ	5BE016801ZZJ	4
7	4500182	BEARINGS – 6904ZZJ	5BE016904ZZJ	4
8	4500181	BEARINGS – 6804ZZJ	5BE016804ZZJ	8
9	4500177	BEARINGS – 6802ZZJ	5BE016802ZZJ	2
10	4502130	BEARINGS – SS-6304ZZ	5BE01SS6304ZZ	4
11	4503789	AXIS – O1-AM01 D20X35MM SKD11	5HGO1AM01	1
12	4501718	TIMING BELT – 510DL =18MM	5BB028X510DL	1

Item	Part Number	Description	Specification	Quantity
W1	4500706	TIMING PULLEYS	LG150T-WC01	2
W2	4500705	TIMING PULLEYS	LG150T-WC02	2
W3	4503019	TIMING PULLEYS	LG150T-WC03	1
W4	4500704	FILM DRIVE WHEELS – D50X20X35XD16	5HFQLB100WM13X1	4
W5	4503790	PLATES	LG150T-WM01	1
W6	4503791	PLATES	LG150T-WM02	1
W7	4503792	CLAMPS	LG150T-WM03	1
W8	4503793	PLATES	LG150T-WM04	1
W9	4503794	AXIS	LG150T-WM05	4
W10	4503795	SCREWS	LG150T-WM06	1
W11	4503796	SCREWS	LG150T-WM07	1
W12	4503797	COUPLINGS	LG150T-WM08	1
W13	4503798	AXIS	LG150T-WM09	2
W14	4503799	AXIS	LG150T-WM10	2
W15	4503800	PLASTIC SHEET	LG150T-WM11	2
W16	4503801	PLASTIC SHEET	LG150T-WM12	6
W17	4503802	AXIS	LG150T-WM13	2
W18	4503803	PLATES	LG150T-WM14	1
W19	4503804	PLATES	LG150T-WM15	1
W20	4503805	PLATES	LG150T-WM16	1
W21	4503806	PLATES	LG150T-WM17	1
W22	4503807	AXIS	LG150T-WM18	4
W23	4503808	SHAFTS	LG150T-WM19	1
W24	4503809	PLATES	LG150T-WM20	1
W25	4503810	AXIS	LG150T-WM21	1
W26	4503811	CLAMPS	LG150T-WM22	4
W27	4503812	PLATES	LG150T-WM23	2
W28	4503813	PLATES	LG150T-WM24	2

Item	Part Number	Description	Specification	Quantity
W29	4503814	AXIS	LG150T-WM25	4
W30	4503815	PLATES	LG150T-WM26	2
W31	4503816	PLATES	LG150T-WM27	2
W32	4503817	SCREWS	LG150T-WM28	2
W33	4503818	SCREWS	LG150T-WM29	2
W34	4503819	CLAMPS	LG150T-WM30	2
W35	4503820	PLATES	LG150T-WM32	1
W36	4503821	PLATES	LG150T-WM33	1
W37	4503822	PLATES	LG150T-WM34	1
W38	4503823	PLATES	LG150T-BP10	1

400mm Timing Screw Assembly



Item	Part Number	Description	Specification	Quantity
1	4501752	Motor – 5CH025RK40RGNCMT	H-5RK40RGN-CMT	1
2	4500830	Gear Box – 5CH615GN18K	H-5GN18K	1
3	4501158	Handwheel – 5BC01KRN80	KRN80 D=10 M6-2	1
4	4500742	Block Bearing – 5BE03UFL000	UFL000	1
5	4500170	Bearing – 5BE016800ZZ	6800ZZ	4
6	4505207	Handle – 5BC01CB50M6	CB50M6	1
7	4501563	Gear – 5BF02M20X15T10M5	M2 15T D=10 M5-2	1
8	4501563	Gear – 5BF02M20X37T12M54	M2 37T D=12 M5-2 4X2	1

Item	Part Number	Description	Specification	Quantity
A1	Product Specific	Spiral Nylon	Product Specific	1
A2	4503857	Board – 5HGLB100L2LM01	LB100L2-LM01	2
A3	4503858	Board – 5HGLB100L2LM02	LB100L2-LM02	2
A4	4503846	Board – 5HGLB100L2LM03	LB100L2-LM03	1
A5	4503847	Place – 5HGLB100L2LM04	LB100L2-LM04	1
A6	4503848	Place – 5HGLB100L2LM05	LB100L2-LM05	2
A7	4503849	Place – 5HGLB100L2LM06	LB100L2-LM06	1
A8	4503850	Board – 5HGLB100L2LM07	LB100L2-LM07	1
A9	4503851	Board – 5HGLB100L2LM08	LB100L2-LM08	1
A10	4503852	Pole – 5HGLB100L2LM09	LB100L2-LM09	2
A11	4503853	Pole – 5HGLB100L2LM10	LB100L2-LM10	1
A12	4503854	Axle Center – 5HGLB100L2LM11	LB100L2-LM11	2
A13	4503855	Shell (Left) – 5HHLB100L2LP01	LB100L2-LP01	1
A13-1	4503856	Shell (Right) – 5HHLB100L2LP01X1	LB100L2-LP01X1	
A16	4503857	Shell (Left) – 5HHLB100L2LP04	LB100L2-LP04	1
A-16-1	4503858	Shell (Right) – 5HHLB100L2LP04-1	LB100L2-LP04X1	

Video Library

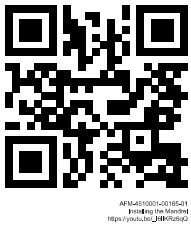
Instructional Videos

Below are links to instructional videos for the LX-150 and its various components. To view a video, either click the link or scan the QR code using the camera app on your mobile device.

Equipment Setup
TRT: 2:52
https://youtu.be/shn5o7MZXbM

Machine Adjustments and Fine Tuning
TRT: 1:42
https://youtu.be/Q3k865kFjmw

Film Setup
TRT: 2:52
https://youtu.be/bLK238uuRn0

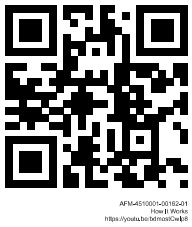


Installing the Mandrel
TRT: 1:07
https://youtu.be/_I6lIKRz6qQ

Cutter Adjustments
TRT: 2:52
https://youtu.be/036vSOgbL0A

Applicator Wheel Adjustment
TRT: 1:18
https://youtu.be/ZNER7s69QEA

Timing Screw Setup and Adjustments
TRT: 5:26
https://youtu.be/wBpQN2wkafA



How the LX-150 Works
TRT: 1:46
https://youtu.be/bdmostCwIp8

Capabilities

Multi-Pack Sleeving TRT: 1:19 https://youtu.be/wCvL-Gp2wTo	**Full Body** **Juice Label Application** TRT: 1:05 https://youtu.be/EJcKVPJ-5Fc	**Candle** **Sleeve Application** TRT: 1:00 https://youtu.be/ZDe4MC4_g2c

Warranty Statement

American Film & Machinery (AFM) warrants that all the products it ships will be in good working order and free from defects in material and workmanship for a period of one year from the date of shipment by AFM and will conform to the published specifications for that product.

Limitations

The warranty of AFM is contingent upon installation, operation, and maintenance of equipment under normal operating conditions. The warranty is void on equipment or parts: damaged by corrosion, improper use, accident, negligence or not operating within the specifications provided; damaged by fire, flood, earthquake, or such other causes beyond the control of AFM; that have been altered or repaired in any way changing the original performance and; that are normally expendable in the usual course of operation. Expendable items include, but are not limited to, heater elements, cutter blades and belts. The warranty period on each replacement equipment or part in fulfillment of the warranty on new equipment or parts shall be for the unexpired portion of the original warranty.

Repairs

All in-house repairs are rigorously tested for optimum operation and performance and warranted to be, under normal and proper use, free from defects in material and workmanship for a period of 90 days from the date of service.

Shrinking Quality

Shrinking quality achieved in a given application is dependent on the film, product, installation, material handling, and the maintenance provided. AFM makes no warranty that the shrinking quality achieved in an application will be the same as that achieved on a test piece in our demo facility.

Shipping Policy

Customer pays all incoming shipping charges for replacement components. If the item is defective and under warranty, AFM will pay all return shipping charges via the least costly method. If expedited shipping is desired, the customer must furnish their shipping account number and shipping fees will be charged to that account.

Exclusions

Damage due to tampering, abuse, improper adjustment, electrical interference, or the use of non-approved components will void any and all warranties by AFM and its distributors.

Warranty Verification

If you believe that a product or component may be defective and may be covered by warranty, obtain a Return Material Authorization number by contacting AFM technical support (Phone:

714-974-9006, Fax: 763-795-8867, or Email: info@afmsleeves.com). Based on the recommendation from AFM technical support, replacement components may be shipped out via UPS Ground or similar method. If expedited shipping is desired, customer must furnish their shipping account and shipping fees will be charged to that account.

Customer is required to return the defective component to AFM. If, after 30 days, AFM has not received the defective component, the customer will be invoiced for the replacement component. If the returned component is found to not be eligible for warranty, AFM will contact the customer, and the customer will be invoiced for the replacement component.

Warranty Eligibility

The warranty provided by AFM is only to the original buyer.

Limited Warranty

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For assistance with installing, operating, or maintaining the LX-150, contact your authorized AFM reseller or AFM Technical Support.

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