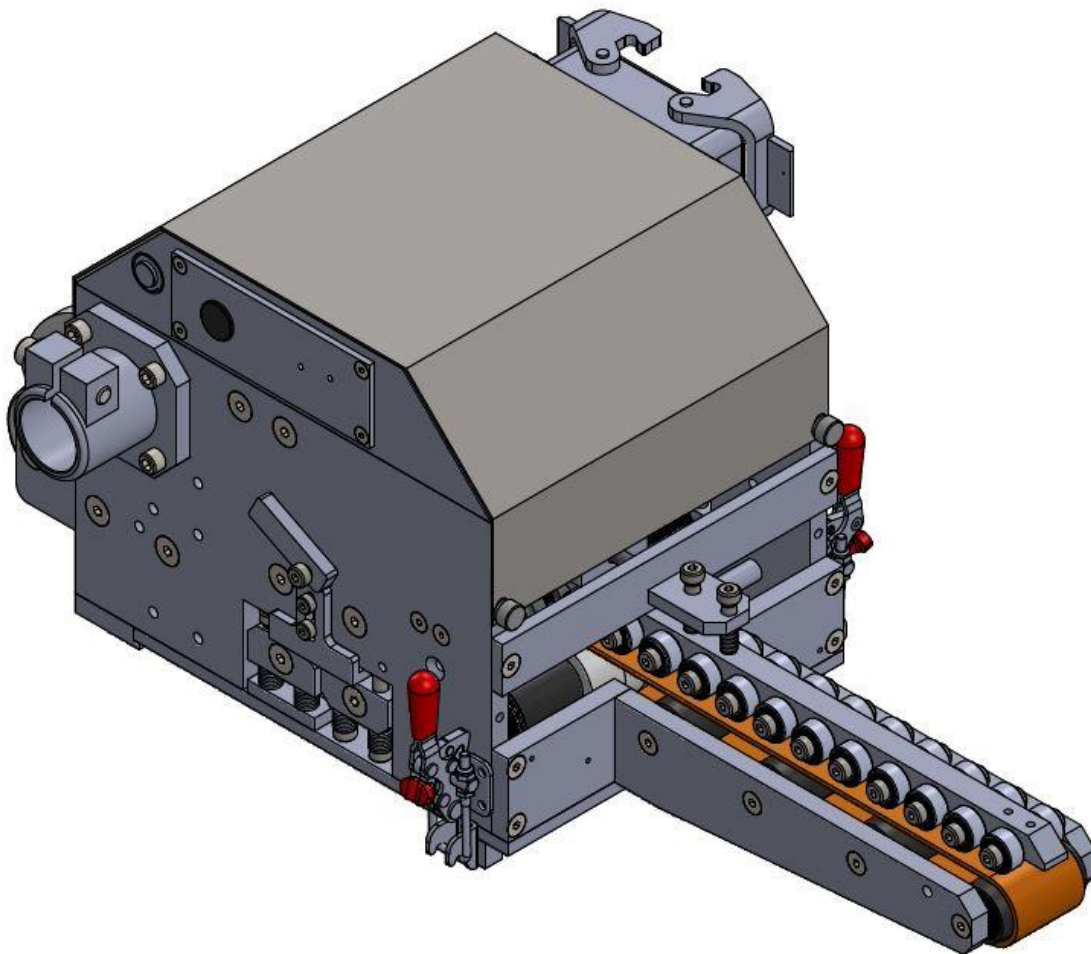


# Northfield Corp. 1600 SRV Coupon Inserter



1870 Commerce Drive. De Pere, WI 54115. 920-983-8122

MANUFACTURER:

**NORTHFIELD CORPORATION**

1870 COMMERCE DR.

DE PERE, WI 54115

UNITED STATES

MODEL:

**NORTHFIELD 1600 SRV AB 2021**

SPECIFICATIONS:

<i>VOLTAGE:</i>	120AC
<i>FREQUENCY:</i>	50/60Hz
<i>CURRENT:</i>	8 AMP

YEAR OF MANUFACTURE:

YEAR: 2021

FOR PARTS, SERVICE, AND  
TECHNICAL ASSISTANCE  
CALL:

**NORTHFIELD CORP.  
1870 COMMERCE DR.  
DE PERE, WI 54115  
920-983-8122 PHONE  
920-983-8124 FAX  
[WWW.NORTHIELDCORP.COM](http://WWW.NORTHIELDCORP.COM)**

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## **SECTION 1**

### **Manual Overview**

In this manual the Northfield Corporation will give you a comprehensive outlook and reference to help you set-up, maintain and run the *Northfield 1600 SRV Coupon Inserter*. We at Northfield have trained competent technicians to answer any questions that may arise or anything that is not covered in this manual. You can E-Mail, call, or fax us at northfieldcorp.com, (920) 983-8122 phone (920) 983-8124 fax. Our regular business hours are Monday thru Friday 7:30 AM to 4:00 PM central time zone with 24 hour emergency service. (Available upon request)

## Machine Overview

The *Northfield 1600 SRV Coupon Inserter* is a two dimensional in-pack coupon inserter.

This Machine is capable of handling coupons or inserts up to 6 inches (15.24cm) in length, 4 inches (10.16cm) in width. This inserter is powered by two AC servo motors, which allows the inserter to run faster and with more torque. The touchscreen allows fast and easy human / machine interface. The Streamline design, easy to understand mechanical features and operator friendly controls makes the *Northfield 1600 SRV Coupon Inserter* easy to operate and maintain.

## Warnings and Cautions

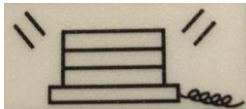


**REMEMBER: AT ANYTIME THERE IS STILL A RISK THAT YOU MAY INJURE YOURSELF, OTHERS OR CAUSE SERIOUS MACHINE DAMAGE. PLEASE USE CAUTION AND COMMON SAFETY PRACTICES WHEN WORKING ON THIS OR ANY MACHINE.**

- DO NOT OPERATE THE INSERTER WITHOUT THE PROPER TRAINING AND INSTRUCTION.
- KEEP HANDS CLEAR OF THE BELTS AT ALL TIMES, SERIOUS INJURY COULD RESULT IF INSERTER CYCLES. CYCLING IS CONTROLLED BY OUTSIDE SIGNALS THAT COULD START A CYCLE AT ANY TIME.
- DO NOT ATTEMPT TO CLEAR A JAM WITHOUT SHUTTING DOWN THE POWER.
- DO NOT OPERATE THE INSERTER WITHOUT PROTECTIVE GUARDS AND COVERS IN PLACE.
- DO NOT ATTEMPT TO WASH DOWN THE CONTROLLER OR THE INSERTER; THEY MUST BE REMOVED OR COVERED DURING WASH DOWN.
- ONLY QUALIFIED PERSONNEL SHOULD SERVICE THE INSERTER. SERIOUS PERSONAL INJURY OR EQUIPMENT DAMAGE COULD RESULT.
- WHEN CONNECTING THE CONTROLLER TO THE HEAD CONNECTIONS DO NOT HAVE ANY POWER HOOKED UP.
- IF ANY COMPONENTS OF THE MACHINE WEIGHS MORE THAN 39lbs (18kg) IT MUST BE LIFTED BY TWO PEOPLE.

## SYMBOLS

In this section all the symbols that are used on the 1600 SRV Inserter will be displayed.



= FAULT BEACON

for the FAULT BEACON plug.

This symbol is used



= INTERLOCK

INTERLOCK plug.

This symbol is used for the



## **Safety Procedures for Lock out Tag out**

### **LOCK OUT TAG OUT PROCEDURE**

Lock out for the electrical is done by unplugging the control box. The plug should be in the vicinity of the operator or who ever is doing the work.

Lock out for the pneumatic power supply is done by removing the supply hose from the inserter.

\* REMEMBER TO FOLLOW YOUR COMPANY'S LOCK OUT TAG OUT PROCEDURES.

## Illustrations

ILLUSTRATIONS SHOULD BE USED DURING AND AFTER TRAINING.  
ILLUSTRATIONS ALSO MAY BE USED AS A REFERENCE GUIDE.

Pictures, drawings and diagrams are inserted in the manual for explanation and illustration of machine and controller workings. These illustrations will be useful in showing you where specific items are placed on the machine as well as specific places to use caution when repairing, performing maintenance, or operating the *Northfield 1600 SRV Coupon Inserter*.

## SECTION 2

### *Machine specifications*

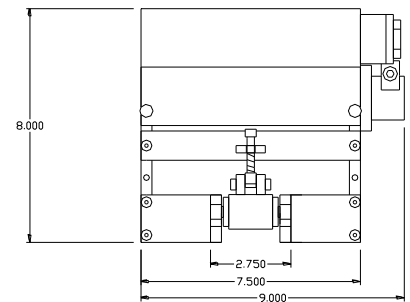
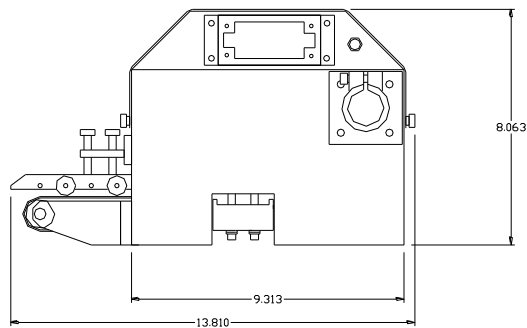
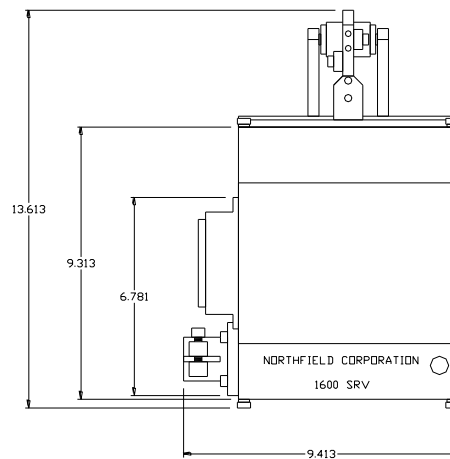
POWER REQUIREMENTS – 120 VAC 50/60Hz

AIR REQUIREMENTS - 80PSI (551KPA) (5BAR) only if the blow off option is installed on the inserter

WEIGHT OF THE CONTROLLER – 35lbs (16kg)

WEIGHT OF THE HEAD – 24lbs (11kg)

NOISE LEVEL OF INSERTER – 75dB (A)



## ***Parts and Functions***

### ❖ **Overview**

In this section the manual will give a break down of how the *Northfield 1600 SRV Coupon Inserter* works. In this section you should have the knowledge to assemble various parts of the *Northfield 1600 SRV Coupon Inserter*.

### ❖ **Basic Principles of Operation**

The *Northfield 1600 SRV Coupon Inserter* is a very simple machine in many aspects. By using a product signal from the package line it will trigger the machine to insert a coupon into the product. The *Northfield 1600 SRV Coupon Inserter* can handle both fanfold and roll types of inserts. The illustration will show the basic parts and their functions.

## **Fault Operation**

### **MISFEED:**

If after pressing the cycle button and no inserts enter the inserter or the coupon sensor does not see an insert, the fault MISFEED will be displayed on the screen.

### **PRODUCT RATE TOO FAST:**

If the product sensor has detected more product signals than the inserter could keep up with the display will read **“PRODUCT RATE TOO FAST”**. The output speed may not be fast enough or the product sensor is seeing multiple signals from one product.

### **COUPON SENSOR JAMMED:**

If the coupon sensor has an insert/coupon under it for a period of time the Inserter will go into a coupon jam fault. To clear the fault remove anything under the coupon sensor and press the Reset button.

## ❖ Basic Parts And Functions

### Overview

In the basic parts list there are all of the parts needed to familiarize yourself with the *Northfield 1600 SRV Coupon Inserter*, the explanations given will help you locate and identify the parts. If you can identify the parts, set up and operation of the machine will be easier for you to accomplish.

### ***NORTHFIELD 1600 SRV INSERTER DEFINITIONS OF PARTS AND OPTIONS***

**AUTO / MANUAL BUTTON** This button enables and disables the product signal. In **AUTO** mode the machine is set to run and it will also cycle. In **MANUAL** mode the inserter will only cycle and remain in fault.

**BLOW OFF OPTION** The blow off option is an added option that will blow a puff of air at the coupon sensor to keep it clean in dirty environments. In the control panel under **SETTING** you can adjust how often the air blast happens.

**COUPON SENSOR** This sensor is located after the Outfeed roller and before Outfeed transport belt. It detects the coupons or inserts coming out of the outfeed rollers. If the coupon sensor doesn't see the coupon or insert the display will read **MISFEED FAULT**.

**CYCLE BUTTON** There are two cycle buttons located on the inserter. One is located on the Touchscreen and the other is located on the side of the inserter. This button will feed the inserts or coupons into the machine.

**DRIVE BELTS** Located inside of the inserter and are used to drive the rollers and transport belts.

**FAULT BEACON** The fault beacon has Red light and a Green light. The Red light shows that the inserter is in fault. The steady Green light shows the inserter is ready to run. The Flashing Green light shows the box count has met the desired low level warning.

**FUSES** Located in the control panel, the fuses help to protect the electrical components from damage from power surges or shorts in the circuits. There are two fuses located in the control panel (Fuse #1 is an 8 amp Slow blow fuse, and is used for the 120 VAC incoming power. Fuse #2 is a 1 amp Fast act fuse, and is used for the 24 VDC power supply.)

**INFEED ROLLERS** These are the black rollers that feed the insert or coupons into the inserter. These are the rollers that take the insert or coupon into the machine.

**INFEED GUIDE ROLLER** These rollers are located at the back of the inserter and help guide the coupons or inserts into the infeed rollers.

**INSERT LENGTH OPTION** This option allows you to set the length of different inserts or coupons. The way to measure the insert to get the correct length is to measure from perforation to perforation then enter in the length in inches into the display. This option is located under **Settings page**.

**INTERLOCK** The interlock option locks the inserter and the machine that the product is running on together. It does this by completing a circuit between the inserter and the packaging machine, so if the inserter goes into to fault it will shutdown the packaging machine.

**ONLINE/OFFLINE** This button toggles the machine from Online to Offline. Online enables the servo drive. Offline disables the servo drives.

**OUT-FEED LENGTH** This is determined by measuring the length of the orange belt on the out-feed of the inserter.

**OUT-FEED ROLLERS AND TRANSPORT BELT** These are the rollers and belt that feed the coupon or inserts out of the inserter and this belt is located on the outfeed of the inserter. This belt has the roller bearings on top of it.

**PRODUCT RATE FAULT** When this option is turn on the inserter will go into fault if the product sensor sees more products than the inserter can keep up with.

**TIME DELAY OPTION** This option allows the operator to set a delay in time from when the product signal is given to when the insert or coupon is deployed. This option is located under **Settings page**.

**UNWIND** Provides a means to operate the inserter using continuous perforated inserts or coupons in a roll format.

**WEB TENSIONER** Guides the inserts or coupons into the infeed transport belts in a uniform and tangle free fashion. The web tensioner will also help guide the insert out of the box and guide them into the inserter without breaking the perforation before it enters the inserter.

## Section3

### Control Panel and Operator Interface

#### Overview

In this section you will familiarize yourself with the control panel, and how to navigate through the operator interface. There are illustrations to help you set up the interface. This section is designed to minimize downtime and increase your productivity by giving you detailed instruction on this important feature of the *Northfield 1600 SRV Coupon Inserter*.

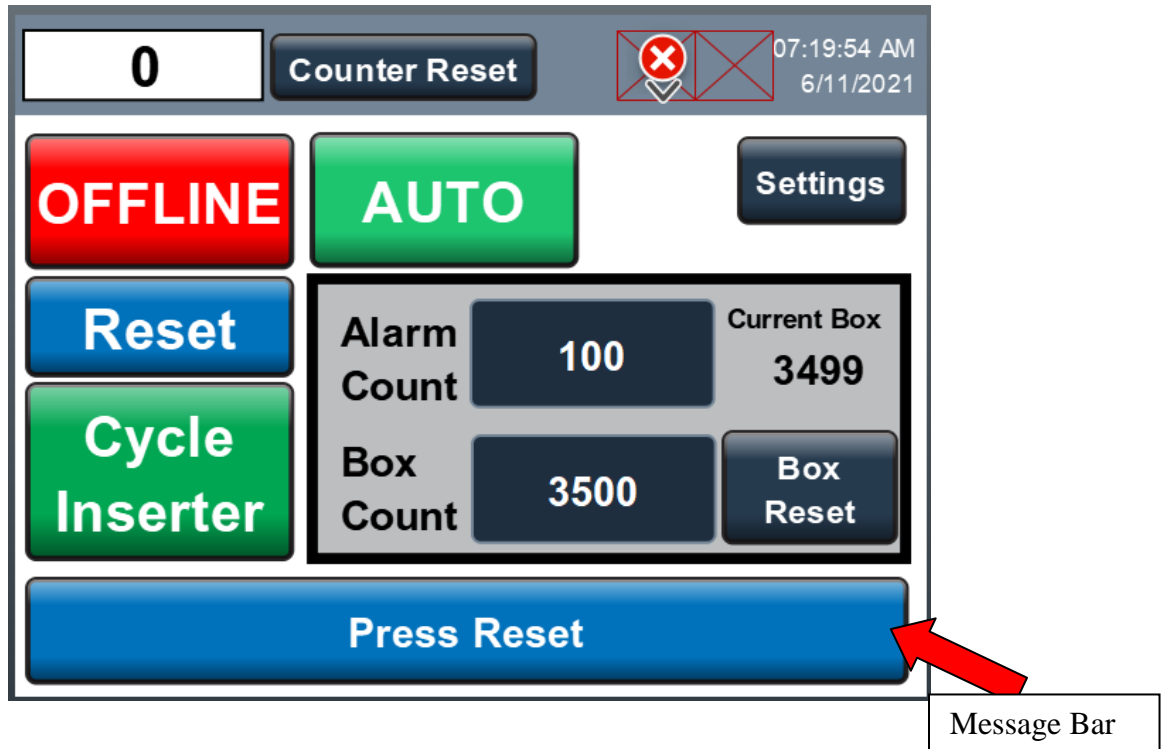
#### Operator Control Panel

The control panel is designed to be self-contained. There are some connections you will have to make on the bottom of the panel to the inserter for operation. Every connection has its own unique connector so there will be no confusion.

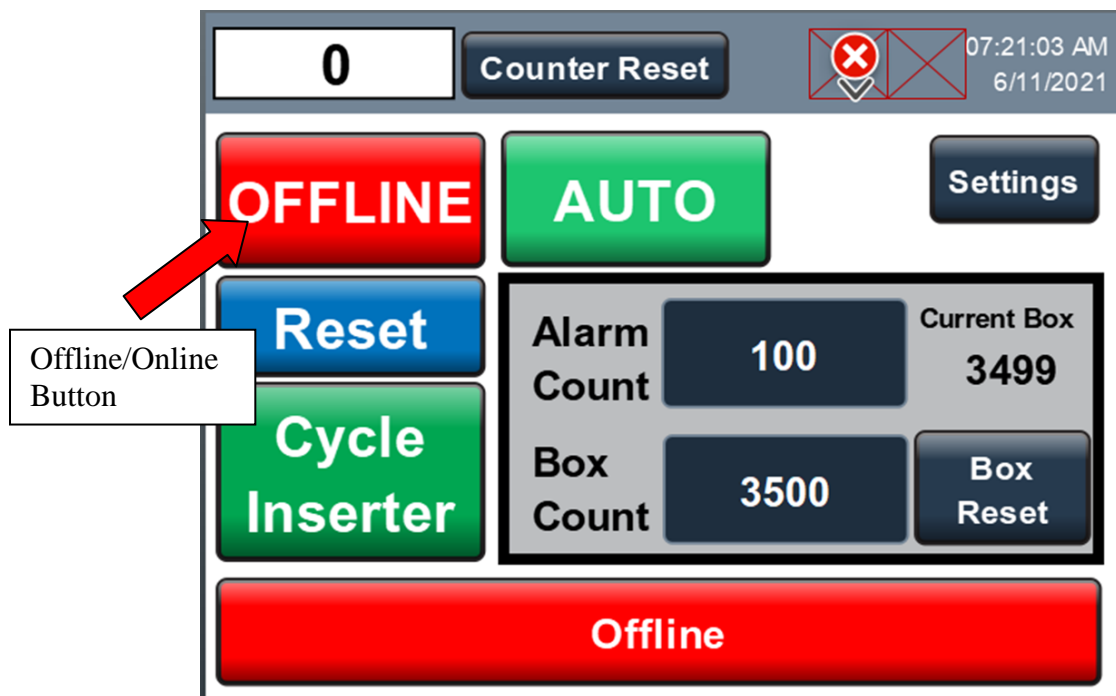


**REMEMBER: AT ANYTIME THERE IS STILL A RISK THAT YOU MAY INJURE YOURSELF, OTHERS, OR CAUSE SERIOUS MACHINE DAMAGE. PLEASE USE CAUTION AND COMMON SAFETY PRACTICES WHEN WORKING ON THIS OR ANY MACHINE.**

**WHEN CONNECTING THE CONTROLLER TO THE HEAD. DO NOT HAVE ANY POWER HOOKED UP.**

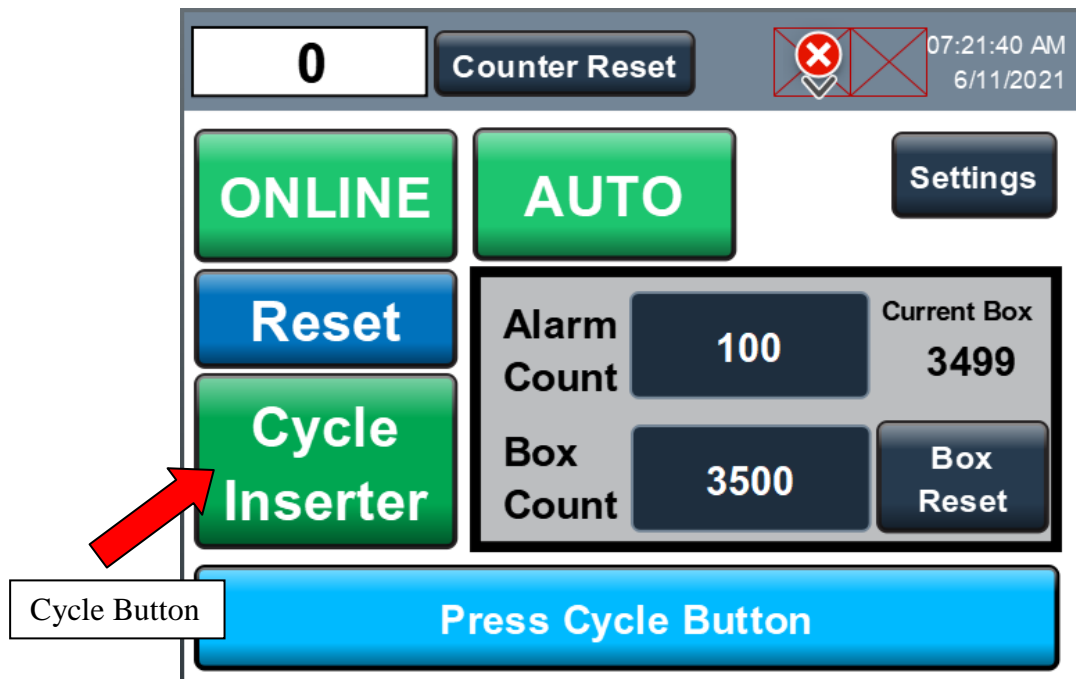


This is the Home screen you will see on Power Up. The Inserter Powers up Offline and in Fault. Follow the Message Bar on the bottom of the screen.

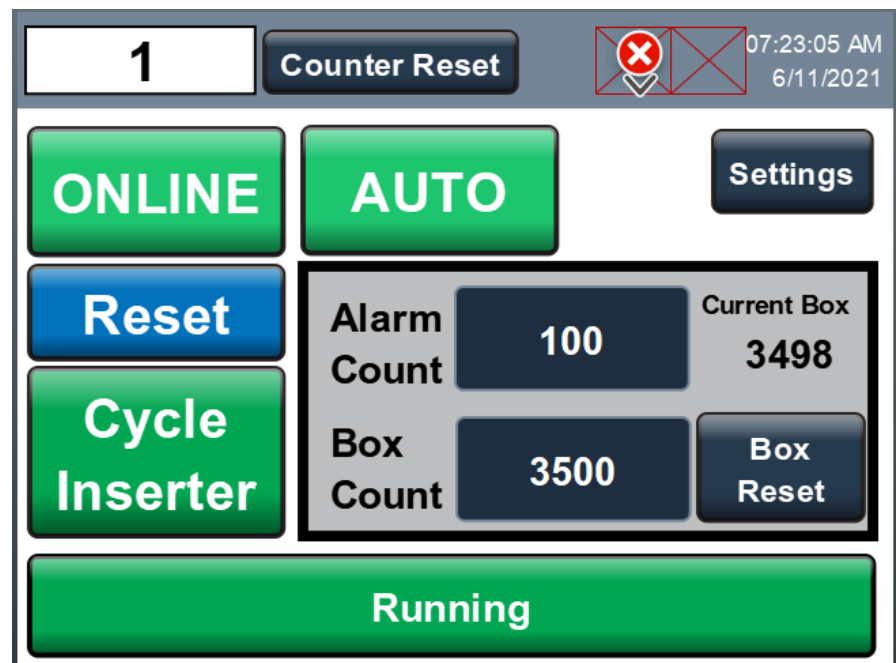


After pressing Reset, Press the Offline Button. This enables the servo drives.

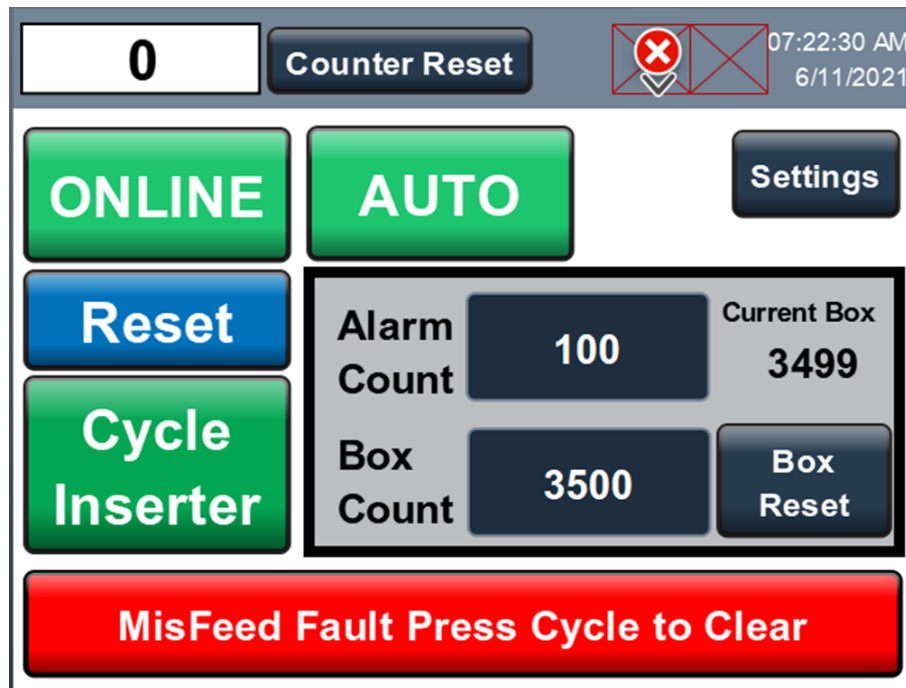




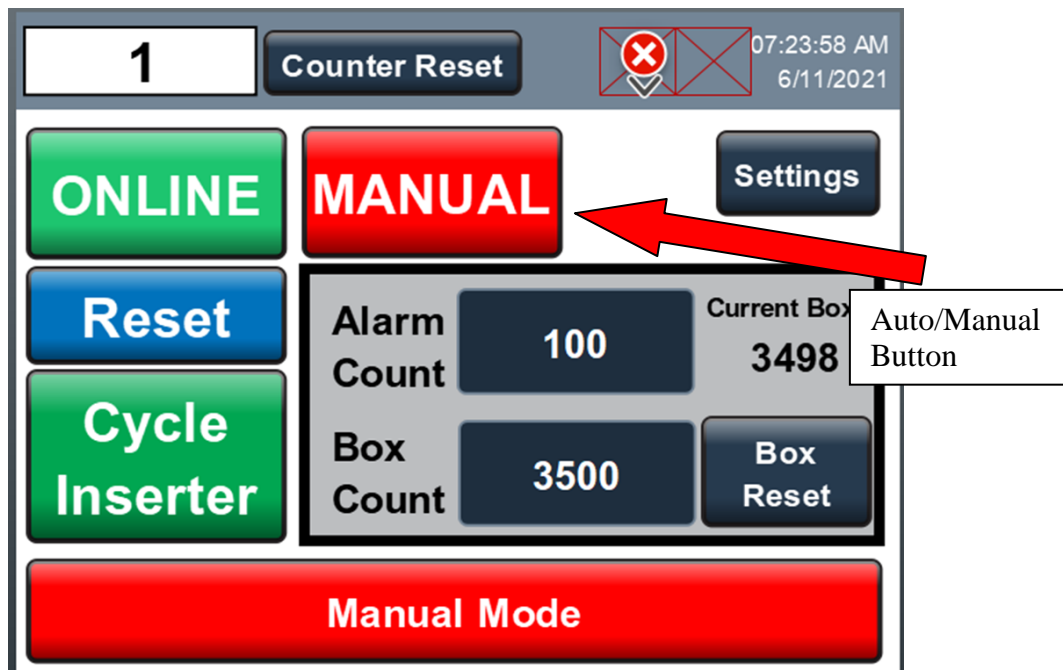
After Pressing the Offline/Online Button. The Servo drives are enabled and the inserter is ready. Feed the inserts into the Infeed rollers and press the Cycle Button.



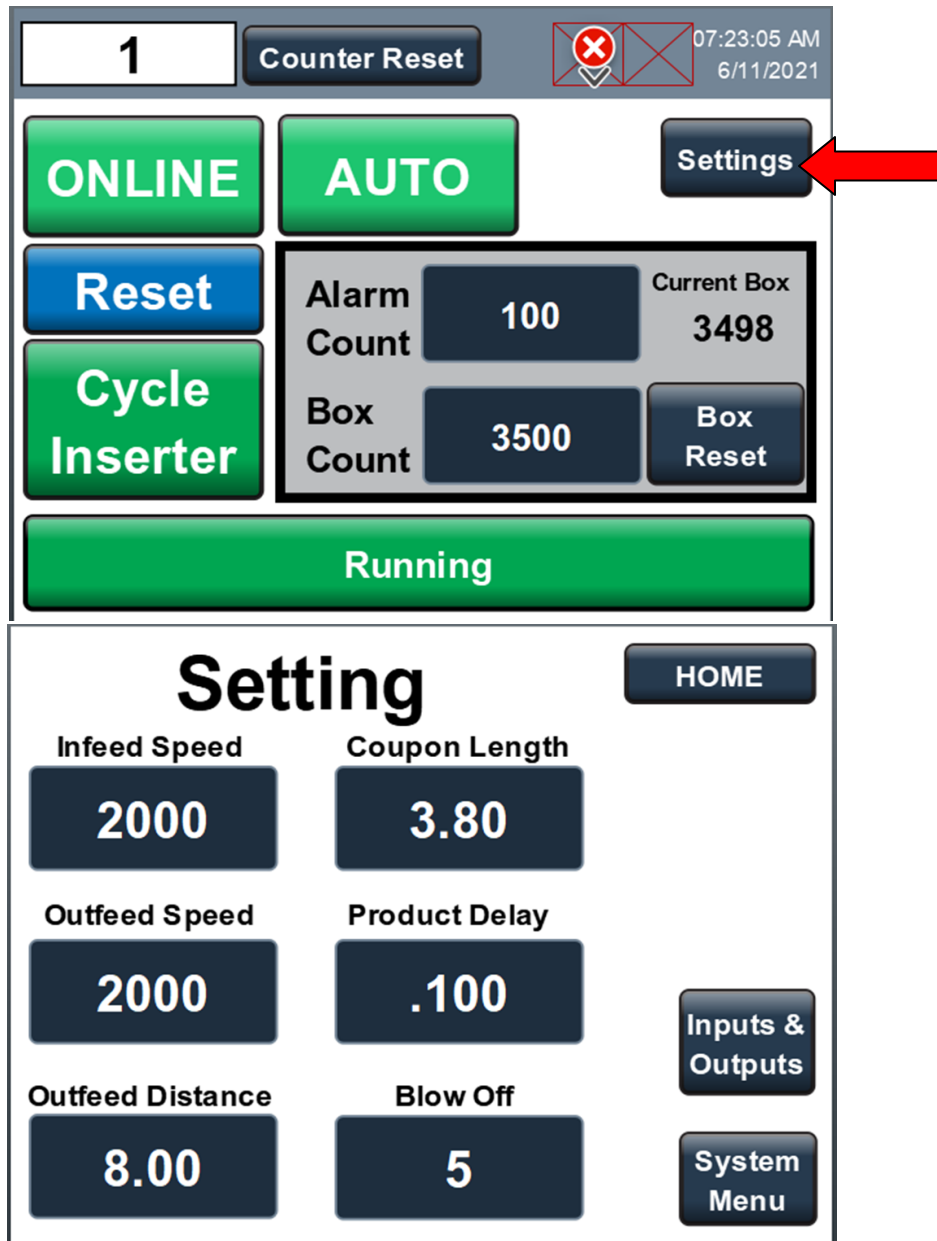
After the inserter sees one insert run through, it will then enter a Running State. The Green light will be on.



If at anytime the Inserter gets a signal to insert and no insert is seen by the Coupon Sensor, the Inserter goes into the Misfeed Fault. Loading inserts into the machine and pressing the Cycle button will clear the fault.



The Auto/Manual Button: If the Inserter is in Manual Mode the inserter will be in fault and the Cycle Button is the only thing that will signal the Inserter. The Inserter must be in Auto Mode to run.



The Setting Button will bring you to the page with all the settings for the Inserter.

**Infeed Speed:** the speed that the inserts are fed into the inserter.

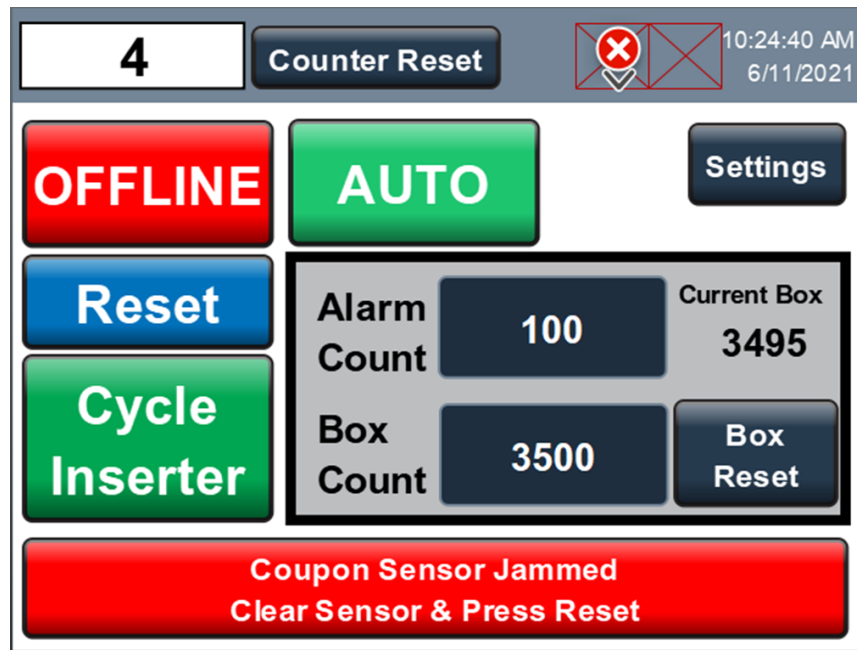
**Outfeed Speed:** the speed that the inserts are ejected out of the inserter.

**Outfeed Distance:** the length of the nose of the inserter, this is the distance the insert has to travel to exit the inserter.

**Coupon Length:** the measurement of the insert/coupon from perforation to perforation in inches.

**Product Delay:** the time from when the signal is given to the Inserter to when the Inserter starts to deploy the insert/coupon.

**Blow Off:** the number of signals to the inserter between air blast for clean out.



Coupon Sensor Jammed: This fault occurs when an insert/coupon gets stuck under the Coupon Sensor. To clear this fault clean out the inserter. Then press the Reset Button.

## Section 4

### Set-up Procedures

#### Overview

This section will help you set-up the *Northfield 1600 SRV Coupon Inserter* after it has been shipped to your location. It is a good idea to visually inspect the *Northfield 1600 SRV Coupon Inserter* for any damage before setting it up. If any damage occurred during the shipping process notify your supervisor immediately.

#### Bracketry set-up

Mount the inserter head in the location that inserting will take place using the supplied brackets or stand. When machines are sold without a stand the stability of the machine is then the responsibility of the end user when incorporating it within their system. A pre-installation survey is recommended for new applications to determine location, brackets, and any options needed to ensure a successful promotion. Other things taken into consideration are, product spacing and speed, orientation, linear speed, and convenience for the operators. For these survey services please contact Northfield Corporation.

#### Machine Set-up

Machine set-up is a very important part of any project.

- ✓ After the machine is inspected for shipping damage you should mount the inserter head on the brackets provided
- ✓ After the head is secure you can start the set-up procedure.
- ✓ Mount the controller in a place where it can be easily accessed
- ✓ Connect the Harting connections from the control panel to the inserter head

#### Alarms

There are five alarms to tell you when the machine is not working properly. These alarms will tell you what is happening to the machine, and what to look for.

1. Misfeed = No inserts entered the inserter
2. Product Rate Too Fast = The product sensor has seen more product than it can insert into.

## **Cleaning Procedures and Maintenance**

### **Cleaning**

The 1600 SRV must **not** be sprayed down. If the inserter is mounted on a piece of equipment that needs to be washed down, the inserter must be removed or covered in plastic and sealed so that no water touches the inserter. **The inserter is not water tight!** If the inserter needs to be cleaned you must wipe it down with a cleaning solution. If the inserter is running an edible insert, the inserter must be cleaned with a disinfectant. The black rollers should only be cleaned with soap and warm water. If the wrong solution is used on the black rollers, it could break down the rubber.

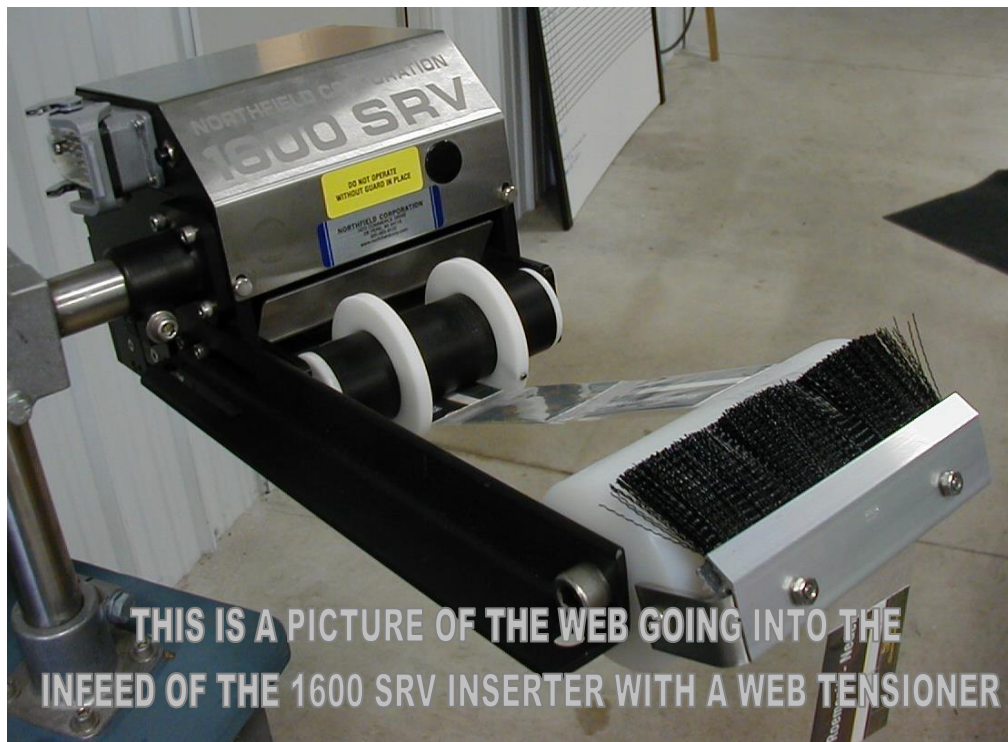
### **Preventative Maintenance**

- Inspect all rubber rollers for wear and that they spin freely.
- Inspect all belts for wear.
- Inspect the orange belt for cuts or wear.
- Check that bearing spin freely.
- Clean rollers.
- Blow out the inserter to remove dust and other foreign objects.

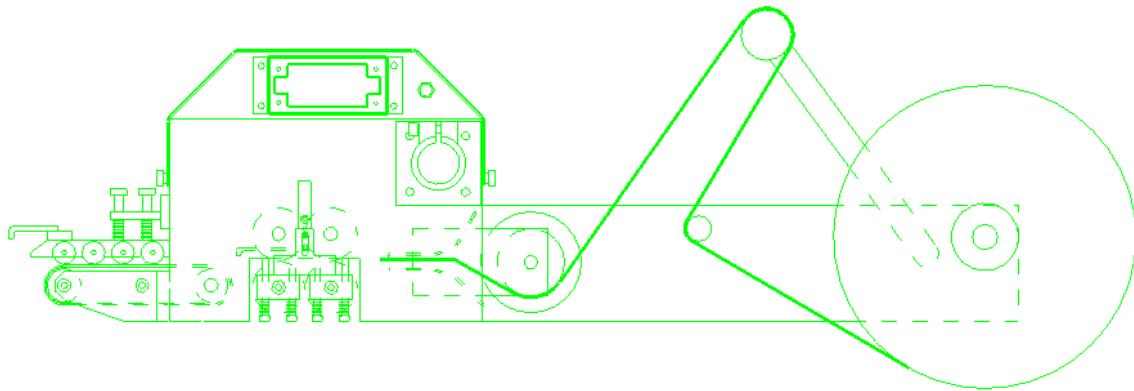
**On the next page you will find a copy of the Northfield Inserter setup record sheet. Once you have set up the inserter for the coupon, premium, prize, or insert, you should photo copy the record sheet and record all the information on this sheet and keep it on record for future setups.**

Setup Sheet

<b>DATE:</b>		<b>PLACE INSERT BELOW</b>
<b>SET-UP BY:</b>		
<b>COMPANY:</b>		
<b>PRODUCT:</b>		
<b>OTHER SETTINGS</b>		
<b>CONVEYOR SPEED:</b>	<b>IN/MIN</b>	
<b>PRODUCTS / MIN</b>		
<b>DETECTOR TO PRODUCT:</b>	<b>INCHES</b>	
<b>INTERFACE SETTING</b>		
<b>SETTING</b>		
<b>INFEEED SPEED</b> _____		<b>COUPON LENGTH</b> _____
<b>OUTFEED SPEED</b> _____		<b>PRODUCT DELAY</b> _____
<b>OUTFEED LENGTH</b> _____		<b>BLOW OFF</b> _____
<b>SERIAL NUMBER</b> _____		
<b>NOSE LENGTH</b> _____		



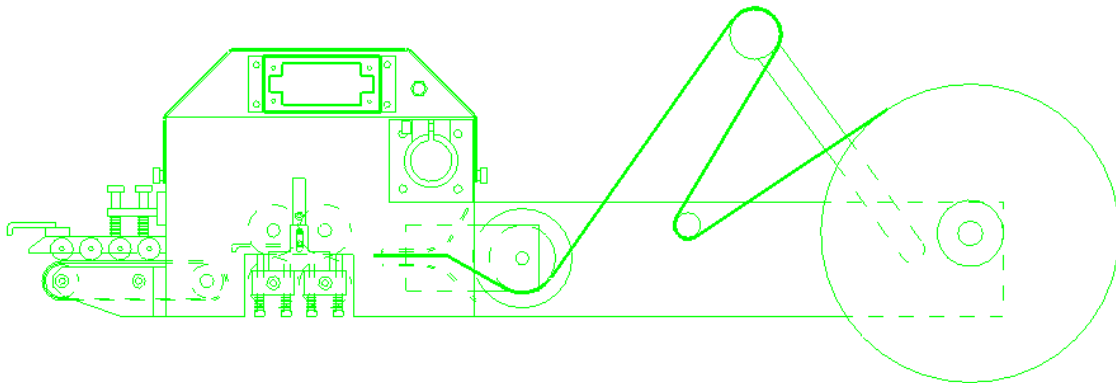




**This is a diagram of the 1600 SRV Inserter with an Unwind.**

**The unwind is used when the inserts are in roll form.**

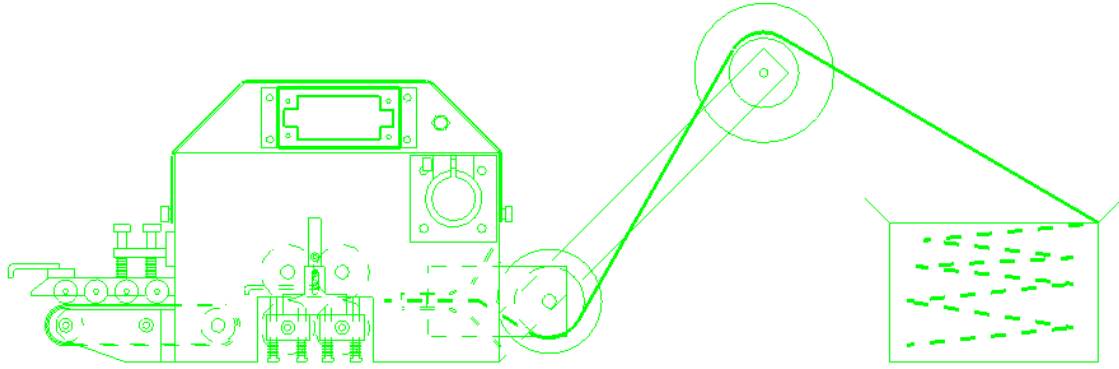
**This picture shows the roll stock coming from the bottom of the roll.**



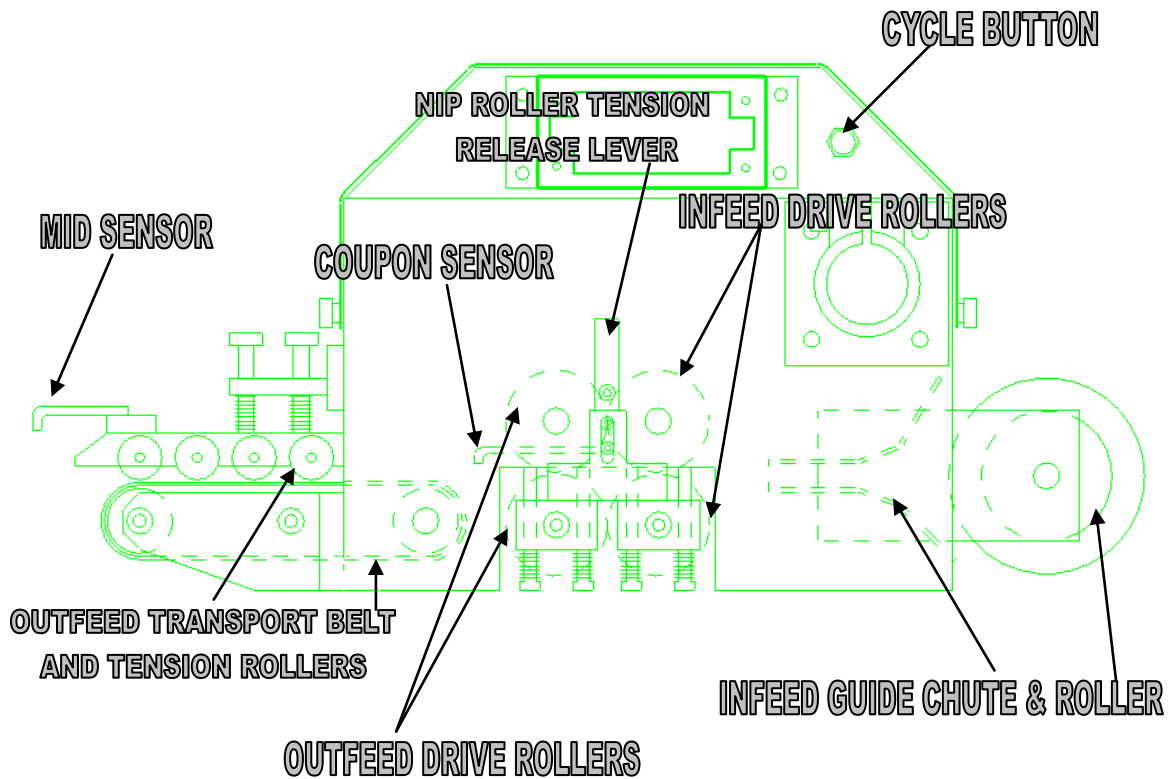
**This is a diagram of the 1600 SRV Inserter with an Unwind.**

**The unwind is used when the inserts are in roll form.**

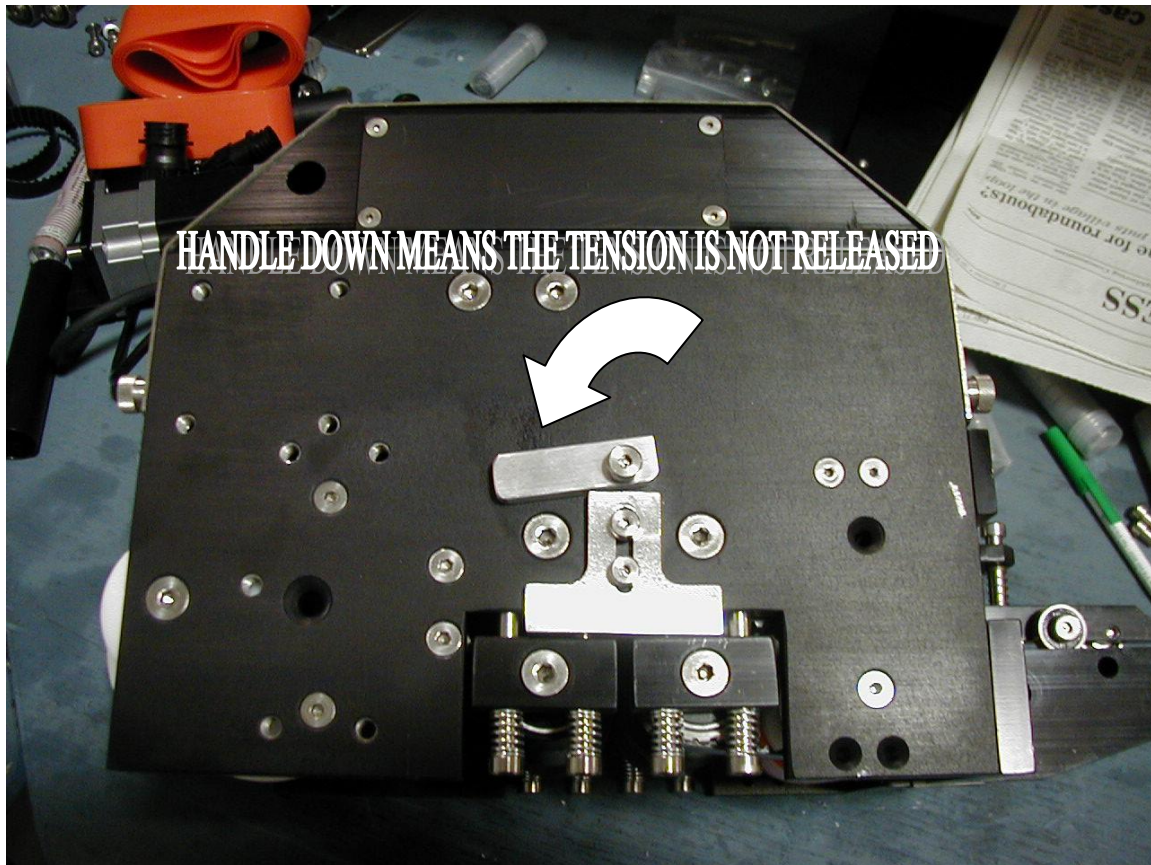
**This picture shows the roll stock coming from the top of the roll.**



This is a diagram of the 1600 SRV Inserter with web tensioner.  
The web tensioner is used when the inserts are fan fold or bandoleer form.



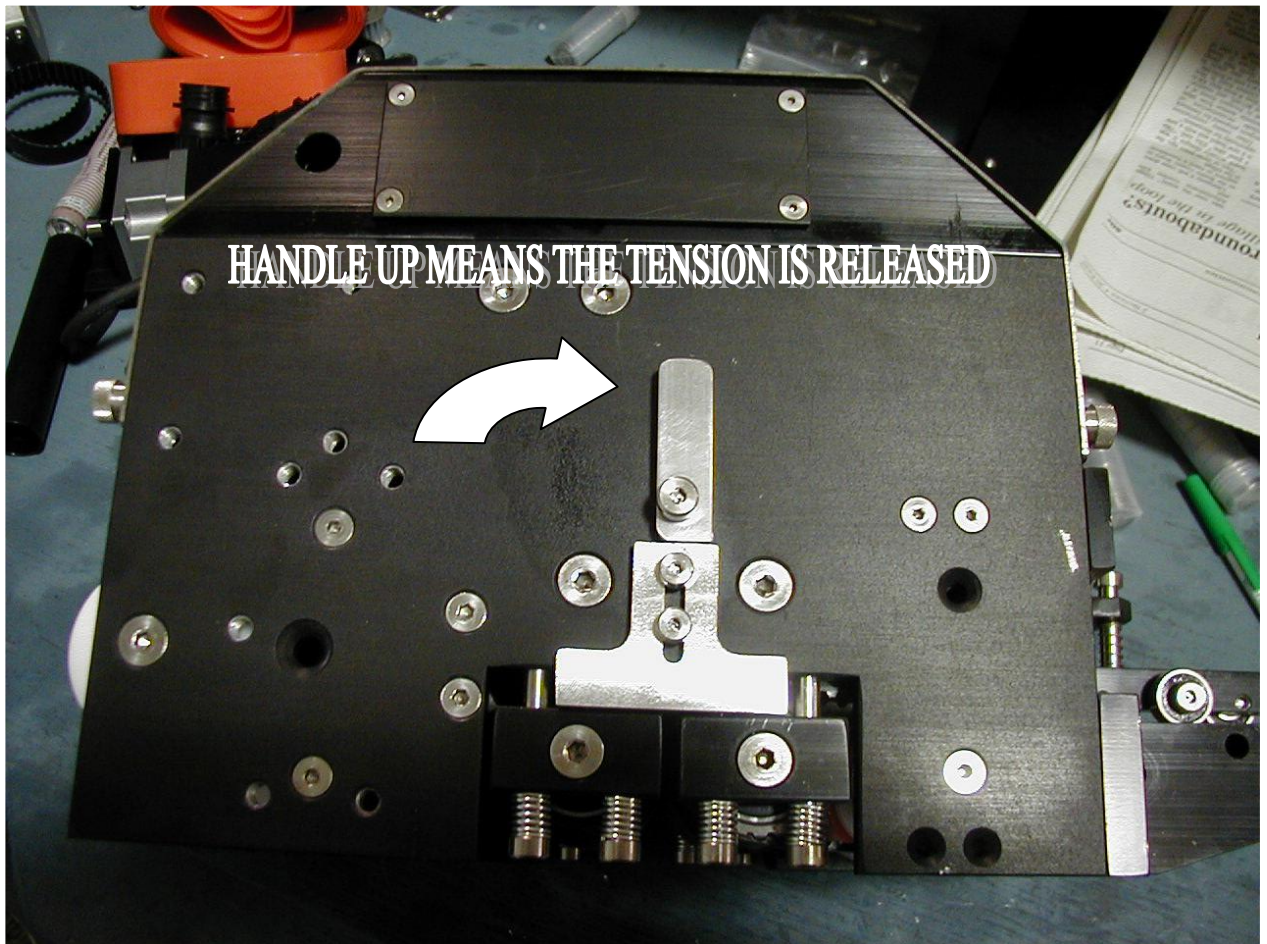
**This diagram of the 1600 SRV Inserter shows the location of some common parts.**



## **ROLLER TENSION RELEASE**

THE ROLLER TENSION RELEASE KEEPS THE ROLLERS FROM GETTING FLAT SPOTS, WHICH WILL CAUSE HARD STARTING FOR THE MOTORS. ALWAYS USE THE ROLLER TENSION RELEASE WHEN THE INSERTER IS NOT IN USE. THIS POSITION IS THE NORMAL OPERATING POSITION.

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## **ROLLER TENSION RELEASE**

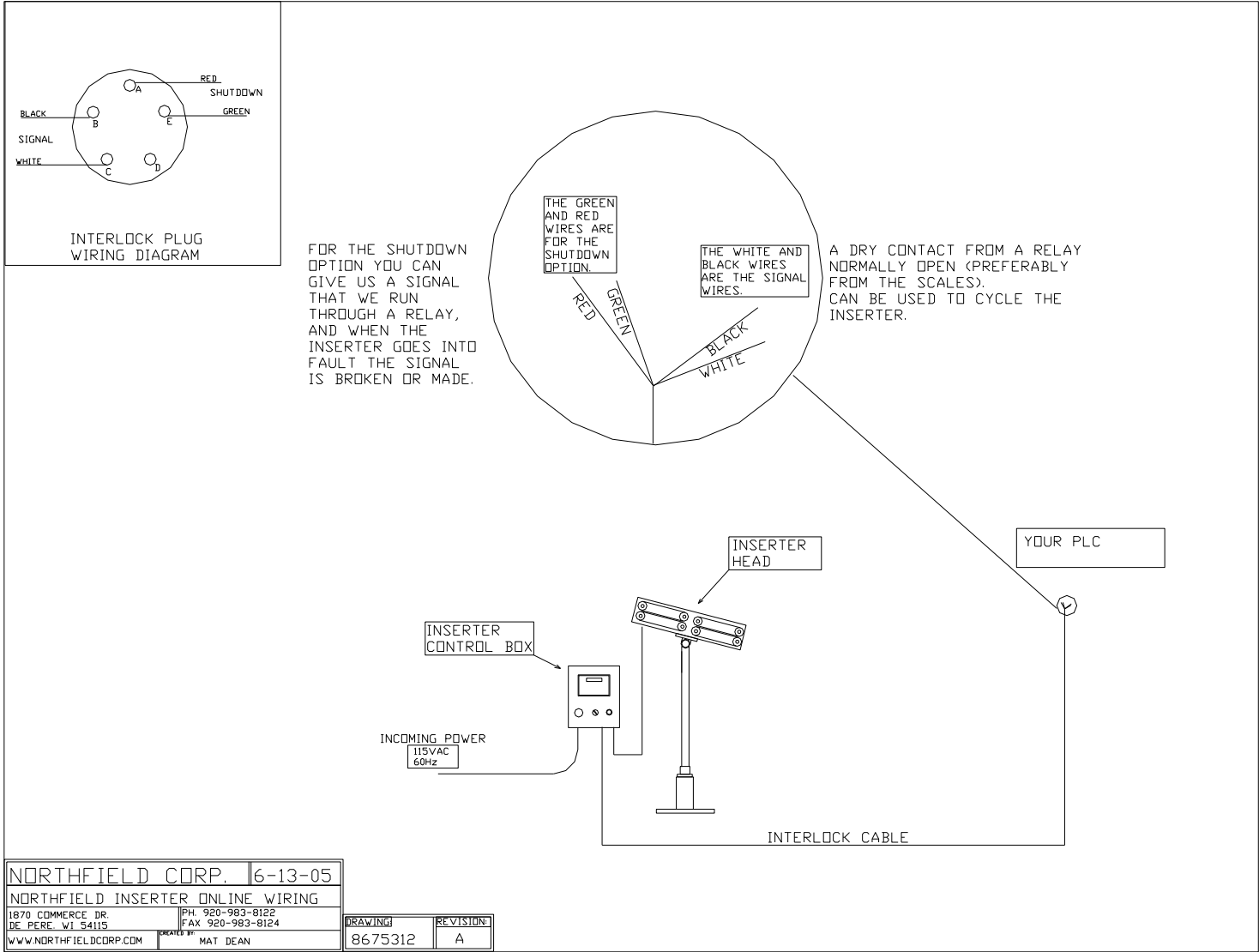
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### RECOMMENDED SPARE PARTS LIST

<b>Part#</b>	<b>Description</b>	<b>Quantity</b>
PE-DRIVE-0030	SRV HMI	1 PER PLANT
PE-DRIVE-0031	PLC W/MOD'S	1 PER PLANT
PE-DRIVE-0032	SRV SERVO DRIVE	2 PER 6 UNITS
PE-MOT-0010	SRV SERVO MOTOR	2 PER 6 UNITS
PE-SEN-0002	COUPON SENSOR	1 PER PLANT
ASY-SRV-0007	TOP OUTFEED DRIVE ROLLER	2 PER 6 UNITS
ASY-SRV-0004	TOP INFEED DRIVE ROLLER	2 PER 6 UNITS
ASY-SRV-0005	BOTTOM OUTFEED DRIVE ROL.	2 PER 6 UNITS
ASY-SRV-0006	BOTTOM INFEED DRIVE ROLLER	2 PER 6 UNITS
PM-BELT-0004	8" TRANSPORT BELT	2 PER 6 UNITS
ASY-SRV-0003	FLATBELT OUTFEED DRIVE ROL.	1 PER 6 UNITS
PE-SEN-0001	FIBER CABLE, COUPON SENSOR	1 PER PLANT
PM-BELT-0001	SRV DRIVE BELT	3 PER 6 UNITS
PE-FI1050	FAN FILTER	2 PER 6 UNITS
PE-TERM-0042	8 AMP FUSE	3 PER 6 UNITS
PE-TERM-0043	1 AMP FUSE	3 PER 6 UNITS
PE-DRIVE-0002	POWER SUPPLY	1 PER PLANT
PE-DRIVE-0035	ETHERNET SWITCH	1 PER PLANT
PE-TERM-0044	COOLING FAN	1 PER PLANT
14S000178	CLEANING WIPES (BOX 25)	2 PER PLANT
PM-BEAR-0004	OUTFEED T.T. BEARING	12 PER 6 UNITS
PM-FAST-0008	NIP ROLLER SHOULDER BOLTS	8 PER 6 UNITS
PM-FAST-0007	NIP ROLLER SPRINGS	8 PER 6 UNITS
ASY-SRV-0016	BLOW-OFF VALVE W/CABLE	1 PER PLANT
PM-CLAMP-0001	EASY CLEAN LATCHES	2 PER PLANT
PM-FAST-0004	TOP TRAP SPRINGS	2 PER 6 UNITS
ASY-SRV-0001	OUTFEED IDLER ROLLERS	2 PER 6 UNITS

Inter-Lock Cable Wiring Diagram





## CABINET LAYOUT AND PARTS

