

# NORTHFIELD CORP.

## 1600 SRV

# INSERTER

## USER MANUAL



# TOUCHSCREEN

MANUFACTURER:

**NORTHFIELD CORPORATION**

1870 COMMERCE DR.

DE PERE, WI 54115

UNITED STATES

MODEL:

**NORTHFIELD 1600 SRV**

SPECIFICATIONS:

*VOLTAGE:* 115VAC-230VAC

*FREQUENCY:* 50/60Hz

*CURRENT:* 5 AMP

YEAR OF MANUFACTURE:

YEAR: (DATE HERE)



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.NORTHFIELDCORP.COM](http://WWW.NORTHFIELDCORP.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 display key pad 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.
- YOU WILL FIND THESE WARNING LABELS LOCATED ON THE INSERTER, DON'T REMOVE COVERS OR GUARDS.



FINGER PINCH



HIGH VOLTAGE



HAND PINCH

## SYMBOLS AND THEIR DEFINITIONS

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



= ON

This is used on the ON / OFF button.



= OFF

This is used on the ON / OFF button.



= AUTO

This symbol is used on the selector switch and means that the inserter was switched into AUTO mode. (for AUTO/MANUAL switch definition go to page #?)



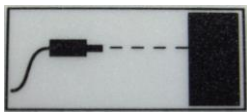
= MANUAL

This symbol is used on the selector switch and means that the inserter was switched into MANUAL mode. (for AUTO/MANUAL switch definition go to page #15)



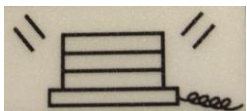
= CYCLE

This symbol is used on the push button that will cycle the inserter once. (For CYCLE definition go to page #15)



= PRODUCT SENSOR

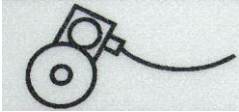
This symbol is used for the product sensor plug. (For product sensor definition go to page #17)



= FAULT BEACON

This symbol is used for the FAULT BEACON plug. (For FAULT BEACON definition go to page #16)





= ENCODER

This symbol is used for the  
ENCODER plug. (For ENCODER definition go to page #16)



= INTERLOCK

This symbol is used for the  
INTERLOCK plug. (For INTERLOCK definition go to page #16)

## **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*

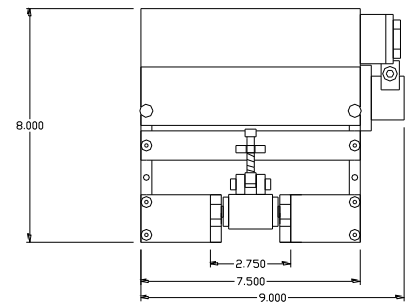
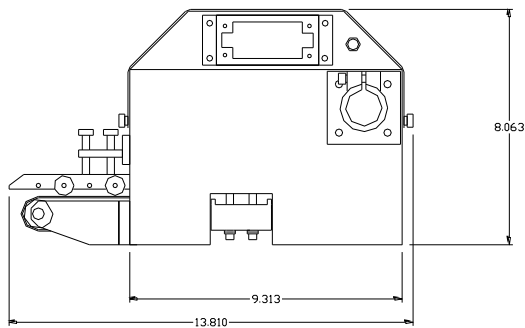
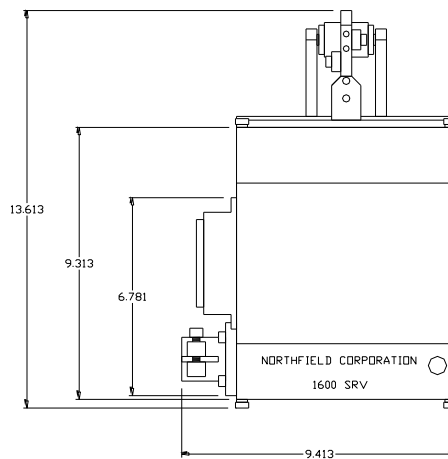
POWER REQUIREMENTS – 115/230 VAC 50/60Hz

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.

### **NORTHFIELD 1600 SRV OPERATIONAL SEQUENCE FOR SPEEDOUT MODE**

Pressing the cycle button starts the infeed and outfeed rollers. If there are inserts in the machine and the correct length is entered into the display one insert will exit the machine at the speed entered into the display. The next coupon will stage in the infeed set of rollers. If there are no inserts fed into the machine, the infeed rollers will start and turn for two seconds allowing you time to feed the inserts into the machine. If the infeed rollers stops before you get the inserters fed into the machine, press the cycle button again.

There are two sensors built into the *1600 SRV inserter*, the **COUPON** sensor and the **MID** sensor. The **COUPON** sensor detects the leading edge of the insert, the rollers travel the set distance entered into the display. Once the distance has been met, the infeed rollers stop and the insert is burst apart from the web. Now the insert travels out of the inserter, the **MID** sensor watches for the insert to exit the machine. If the **MID** sensor is turned on, and does not see the insert leave the machine, the inserter will go into fault. The display will read “**OUTFEED MISFEED FAULT**”. If the **MID** sensor is turned off, the sensor will not react to the inserts presence or lack of. If the **COUPON** sensor does not detect an insert, the machine will go into fault and the display will read “**MISFEED FAULT**”.

Once the *1600 SRV inserter* is cycled and the inserts are loaded into the machine and the faults have been cleared, the inserter is then ready to use the photo-eye or the external trigger. When the signal is received, the inserter will begin advancing the insert from the infeed rollers to the outfeed rollers, where the insert will be burst from the web and out of the machine. Then the cycle is repeated.

# 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. The relays R1 and R2 will change state. Relay R1 comes from factory wired to provide a normally open contact when the inserter is in fault or not powered. When the inserter is operating normally relay R1 will be closed. These contacts can be accessed at the five-pin amphenol on pins C and E. Relay R2 will close and cause 24volts to be present on terminals A and B on the three-pin amphenol, providing power for the fault beacon.

## **OUTFEED MISFEED:**

If the inserter receives a product signal, but no insert is detected leaving the inserter by the M.I.D. sensor, it causes an OUTFEED MISFEED fault to be displayed on the screen. A faulty motor, belt, improper set-up, or tracking could cause this. The relays R1 and R2 will change state. Relay R1 comes from factory wired to provide a normally open contact when the inserter is in fault or not powered. When the inserter is operating normally relay R1 will be closed. These contacts can be accessed at the five-pin amphenol on pins C and E. Relay R2 will close and cause 24volts to be present on terminals A and B on the three-pin amphenol, providing power for the fault beacon.

## **OUTFEED JAM:**

If the M.I.D. sensor stays blocked for approximately 1.5 seconds it will display an OUTFEED JAM. A dirty sensor may cause this, a sensor that is blocked by an insert; the sensor may be seeing the conveyor, or other packaging equipment. The relays R1 and R2 will change state. Relay R1 comes from factory wired to provide a normally open contact when the inserter is in fault or not powered. When the inserter is operating normally relay R1 will be closed. These contacts can be accessed at the five-pin amphenol on pins C and E. Relay R2 will close and cause 24volts to be present on terminals A and B on the three-pin amphenol, providing power for the fault beacon.

## **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. The relays R1 and R2 will change state. Relay R1 comes from factory wired to provide a normally open contact when the inserter is in fault or not powered. When the inserter is operating normally relay R1 will be closed. These contacts can be accessed at the five-pin amphenol on pins C and E. Relay R2 will close and cause 24volts to be present on terminals A and B on the three-pin amphenol, providing power for the fault beacon. In the display you can turn this fault **ON** or **OFF**. (See the programming section for further details).

(PRESSING THE CYCLE BUTTON WILL CLEAR THE FAULTS THAT ARE LISTED ABOVE IF ALL JAMS AND OTHER PROBLEMS ARE TAKEN CARE OF.)

## ❖ 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 SWITCH** This switch 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 and **MID** sensor to keep it clean in dirty environments. In the control panel under **MORE OPTIONS** you can adjust how often the air blast happens.

**CIRCUIT BOARD** The circuit board is located in the control panel. The circuit board distributes power to the drives for the I/O and allows the drives to communicate with each other.

**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 is two cycle buttons located on the inserter. One is located on the control box and the other is located on the side of the inserter. This button will feed the inserts or coupons into the machine.

**DEFLECTOR** Located at the out feed of the inserter, it deflects the insert or coupon into the product. It also holds the **MID** sensor.

**DISTANCE DELAY** This option is located under the **FOLLOWING OUTPUT MODE OPTION**. This option allows you to enter in a set distance in and when the product signal is flagged the encoder measures the distance then the insert is deployed.

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

**DUAL SPEED MODE** This mode allows you to feed in the inserts at one speed and feed the inserts out at a different speed. This will allow for better control of the web.

**EMERGENCY STOP SWITCH** This switch is used for turning the power **OFF** in case of an emergency.

**ENCODER** This is a device used for speed following on a conveyor line. This device used with the inserter will match the speed of the outfeed roller to the speed of the conveyor. Also see **FOLLOWING OUTPUT MODE** for further information.

**ENCODER RATIO** This option is located under the **FOLLOWING OUTPUT MODE OPTION**. This allows the encoder to be used in many ways: shaft to shaft, encoder wheel on conveyor, and different size encoder wheels.

**FAULT BEACON** The fault beacon is the strobe light that goes off if the inserter goes into fault.

**FOLLOWING OUTPUT MODE OPTION** This option is located under the **OPERATING MODES** menu. This option is for encoder use only. When this option is selected and a product signal is given, the inserter looks at the encoder for a signal that will tell the output motor how fast to feed the inserts. This is used to match conveyor line speed. Also see Encoder for further information.

**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 a 5 amp. Slow blow fuse and is used for the 110 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 **SET-UP OPTIONS**.

**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.



**MID SENSOR** (Missing Insert Detector) the **MID** sensor looks for **OUTFEED JAMS** and looks for **OUTFEED MISSFEEDS**. It also tells the inserter when it is ok to start the next cycle. (The **MID** sensor can be turned **ON** and **OFF** in the display under the operating mode menu).

**MOTORS** Located inside of the inserter under the cover. They are used to drive the rollers.

**MULTIPLES INSERTS** This option is located under the **SET-UP OPTION** menu. This option allows the operator to enter a number which will be the number of inserts that will be inserted per product signal.

**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.

**OUTPUT SPEED** This option is located under the **OPERATING MODE** menu in **SPEED-OUT MODE** only. This option allows you to select the output speed. The range of the output speed is 100 inches per minute to 10,000 inches per minute.

**OPERATING MODE SELECTION OPTION** This option allows the operator to select from four different output modes. The four output modes are **SPEEDOUT** mode, **DUAL SPEED** mode, **FOLLOWING** mode and **RATIO TURN UP** mode.

**POWER SUPPLY #1** Located in the control panel, this device supplies the 24vdc to the components in the control panel which requires 24vdc.

**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.

**PRODUCT SENSOR** This sensor detects the product and gives a signal to the machine and lets it know when it's time to release the coupon or insert.

**RATIO TURN UP MODE** This mode has the out-feed rollers running 60% faster than the in-feed rollers. This will allow the inserter to run inserts that are 1" to 2" in length.

**RELAYS** Located in the control panel, relay # 1 and relay # 2 takes a signal from the motor drives. When the inserter goes into fault the signal comes from the drive. It cuts the power to the relays which will open the signal on relay # 1 which is for the shutdown option. Relay # 2 will complete the circuit and turn on the fault beacon.

**SET-UP FILES** These are files that can be use to save different setting for different set-ups.

**SKIP OPTION** This option allows you to enter a product skip into the inserter. The way this option works is, if you enter 3 into the display under the skip option the inserter will fire one insert at the first product and then skip the next three products and fire an insert into the fifth. This option is located under **SET-UP OPTIONS**.

**SPEED OUT OPTION** This option is under the **OPERATING MODES** menu. When this option is selected and a product signal is given, the inserter looks at the speed that was selected in the output speed option and that's what speed the roller and output transport belt move at. Under this option you can turn the **MID SENSOR** on or off and change the **OUTPUT SPEED**.

**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 **SET-UP OPTIONS**.

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

**WEB DIAGRAMS** This option is under the **SET-UP OPTIONS** menu. It shows how to web the inserts into the inserter.

**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.



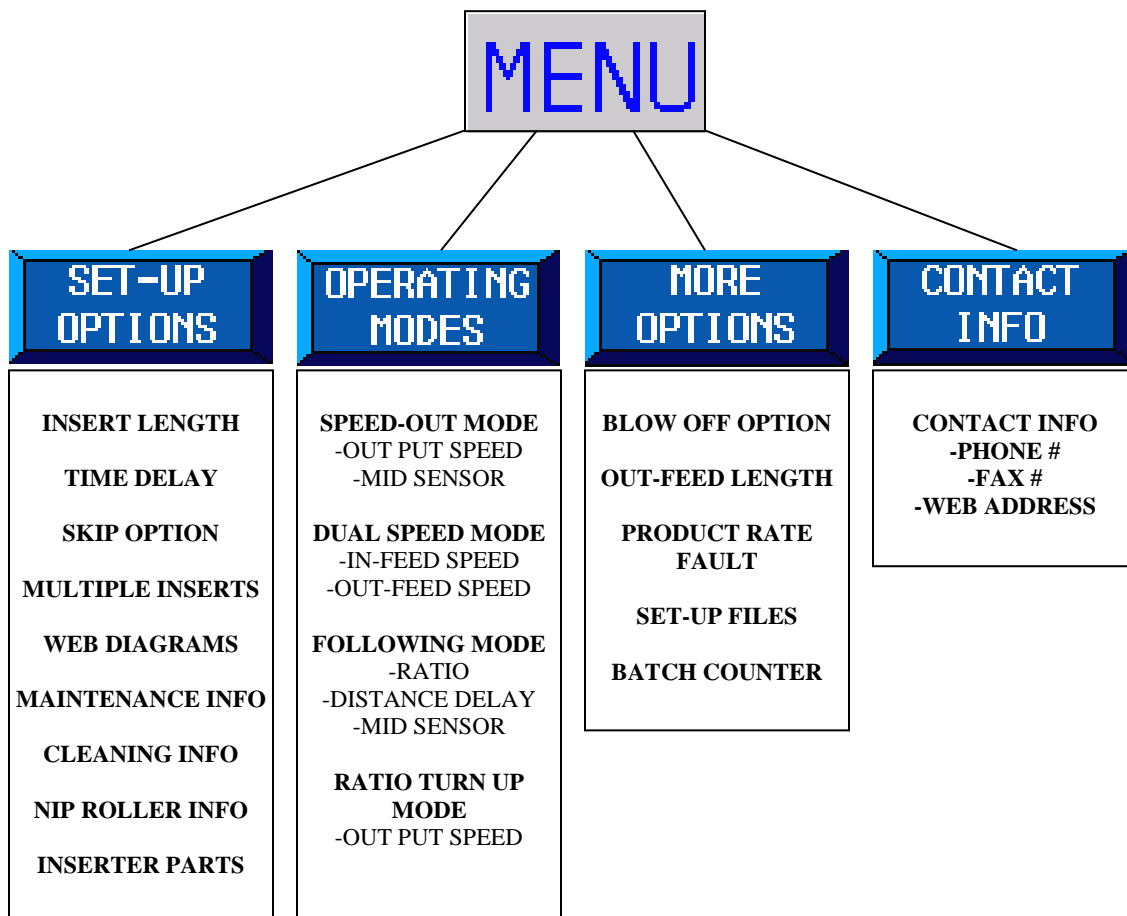
**REMEMBER: AT ANYTIME THERE IS STILL A RISK THAT YOU MAY INJURE YOURSELF, OTHERS, OR CAUSE SERIOUS MACHINE DAMAGE. PLEASE USE CAUTION AND COMMON SAFETY PRACTICES WHEN WORKING ON THIS OR ANY MACHINE.**

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

# PROGRAMMING GUIDE



This is the main screen. Pressing the HOME button on any page will bring you to the main screen. From this screen you can access all the option by pressing the MENU button.



For more definition of options you can look in the definition section of the manual or on the page of the option in the HMI touch screen you can press the question mark on the page (?).

## **PASSWORDS**

There are three levels of security in the control panel.

**SET-UP OPTIONS** has no password.

**OPERATING MODES** has password level 2.

**MORE OPTIONS** has password level 3.

## 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. Outfeed Misfeed = no insert left the inserter after a product signal / no insert was detected by the Missing Insert Detector.

3. Outfeed Jam = The Missing Insert Detector is blocked or seeing the conveyor of other packaging equipment.
4. Product Rate Too Fast = The product sensor has seen more product than it can insert into.
5. Infeed Drive Fault = The infeed drive has faulted and needs to be reset. This can occur if there was an over voltage, or a jam up in the inserter.
6. Outfeed Drive Fault = The outfeed drive has faulted and needs to be reset. This can occur if there was an over voltage, or a jam up in the inserter.

## Cleaning Procedures

### 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 use on the black rollers, it could break down the rubber.

**On the next page you will find a copy of the Northfield Universal 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.**



# NORTHFIELD 1600 SRV INSERTER

## SET-UP RECORD 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>SET-UP OPTIONS</b>			
<b>INSERT LENGTH</b>	<b>TIME DELAY</b>	<b>SKIP NUMBER</b>	<b># OF INSERT PER PRODUCT</b>
<b>ADVANCED OPTIONS</b>			
<b>SPEEDOUT MODE</b> <input type="checkbox"/>		<b>FOLLOWING MODE</b> <input type="checkbox"/>	
<b>MID SENSOR</b> ON <input type="checkbox"/> OR OFF <input type="checkbox"/>		<b>MID SENSOR</b> ON <input type="checkbox"/> OR OFF <input type="checkbox"/>	
<b>OUTPUT SPEED</b> <b>IN/MIN</b>		<b>RATIO</b> : 1	
		<b>DISTANCE DELAY</b> <b>INCHES</b>	
<b>DUAL SPEED MODE</b> <input type="checkbox"/>			
<b>INFEEED SPEED</b> <b>IN/MIN</b>		<b>RATIO TURN UP MODE</b> <input type="checkbox"/>	
<b>OUTFEED SPEED</b> <b>IN/MIN</b>		<b>OUTPUT SPEED</b> <b>IN/MIN</b>	
<b>MORE OPTIONS</b>			
<b>FAULT DISTANCE</b> <b>INCHES</b>	<b>PRODUCT RATE TOO FAST:</b> ON <input type="checkbox"/> OFF <input type="checkbox"/>	<b>SIGNAL BETWEEN AIR BLAST</b>	
<b>SERIAL NUMBER</b>			
<b>SNORKEL LENGTH</b>			

COMMENTS: \_\_\_\_\_

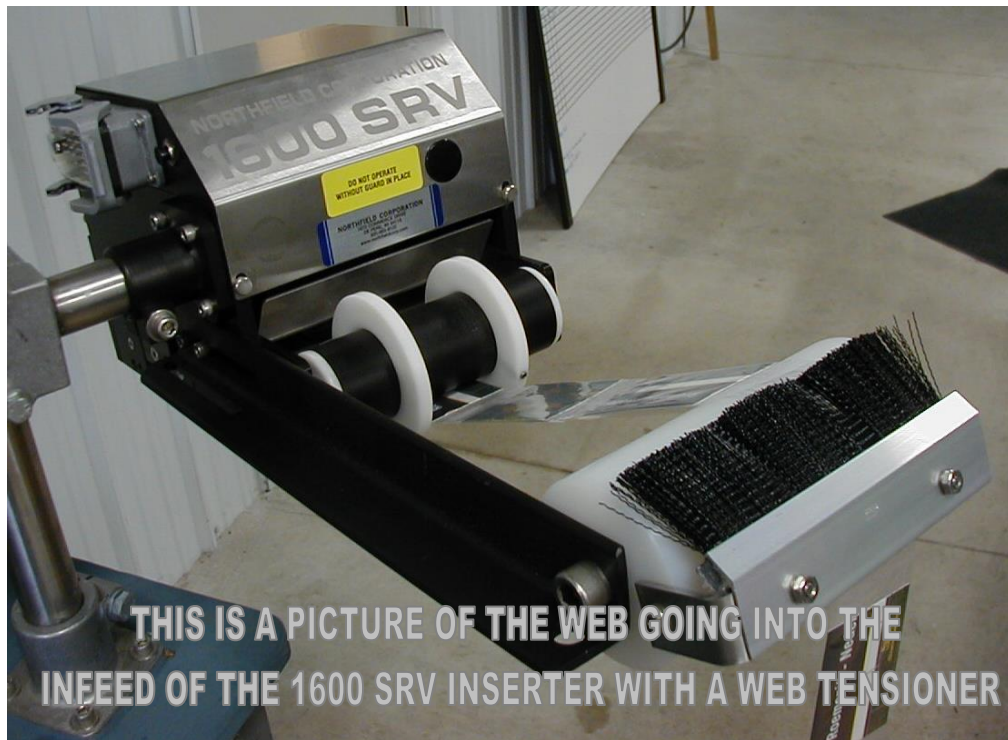
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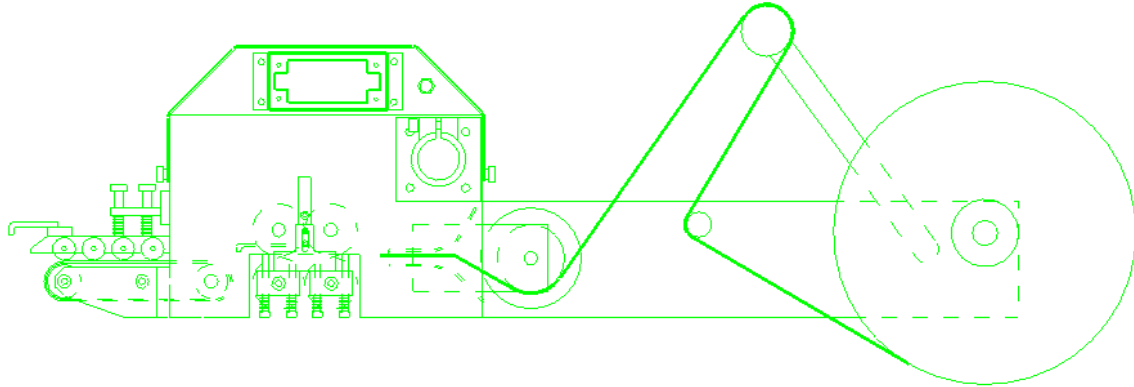
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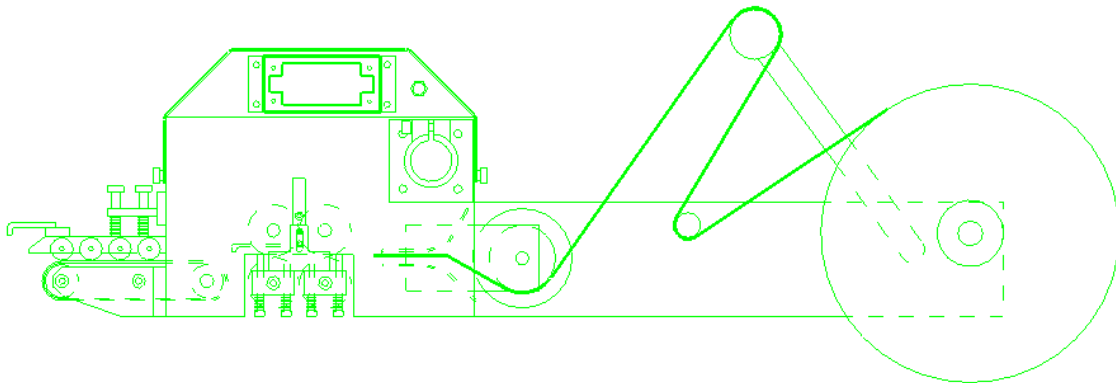




This is a diagram of the 1600 SRV Inserter with a Unwind.

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

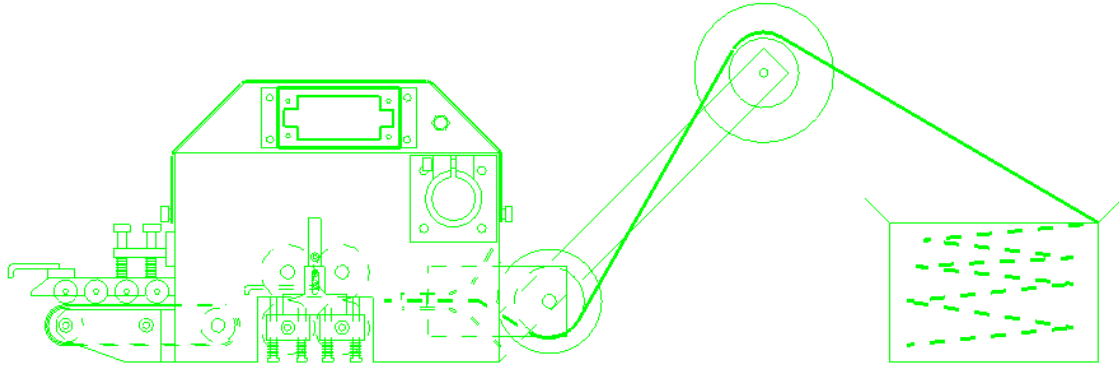
This picture shows the roll stock coming from the bottom of the roll.



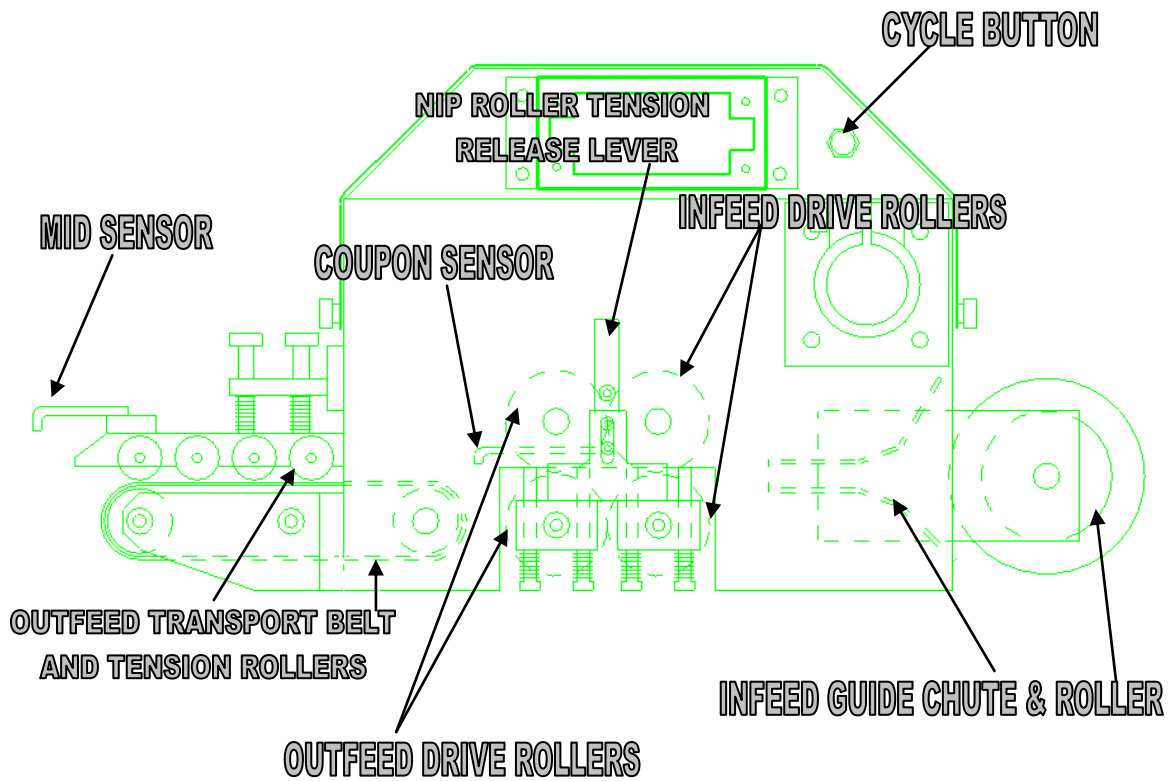
This is a diagram of the 1600 SRV Inserter with a Unwind.

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

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

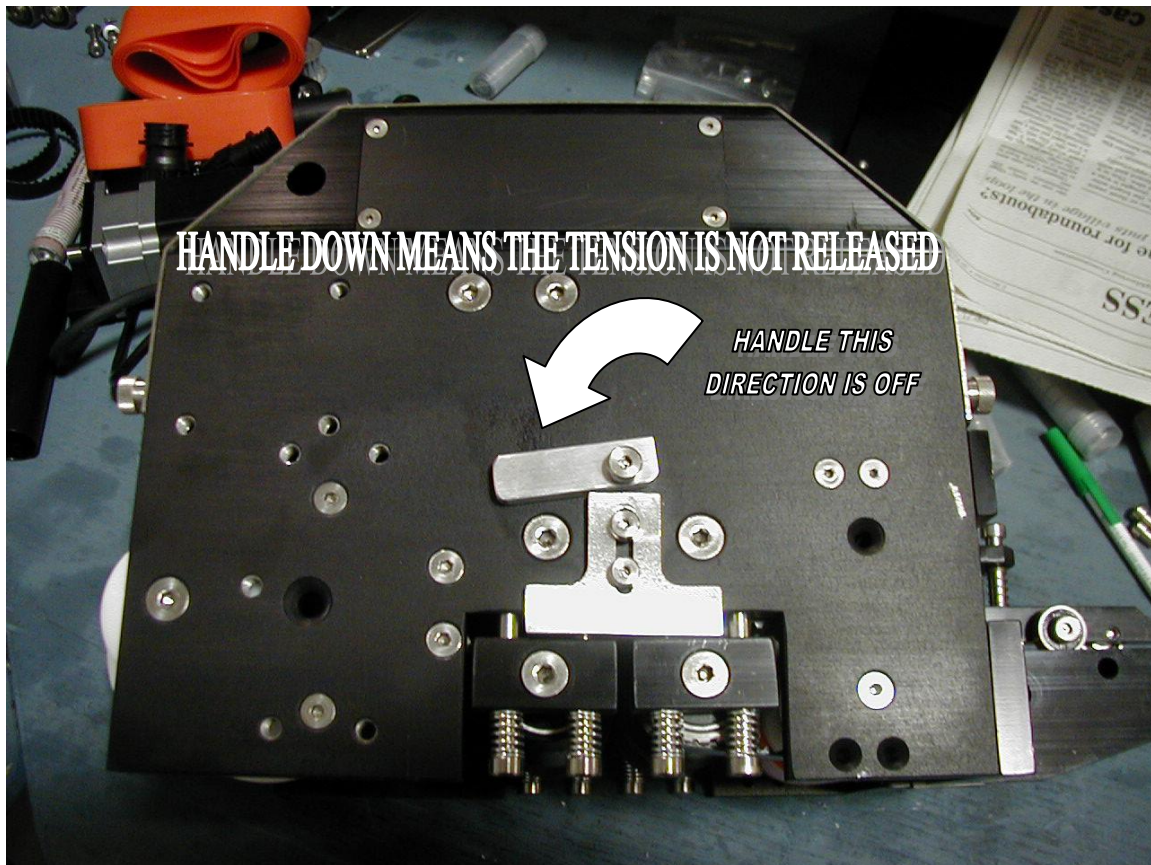


This is a diagram of the 1600 SRV Inserter with web tensioner.  
The web tensioner is used when the inserts are fan fold or bandoleer form.



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

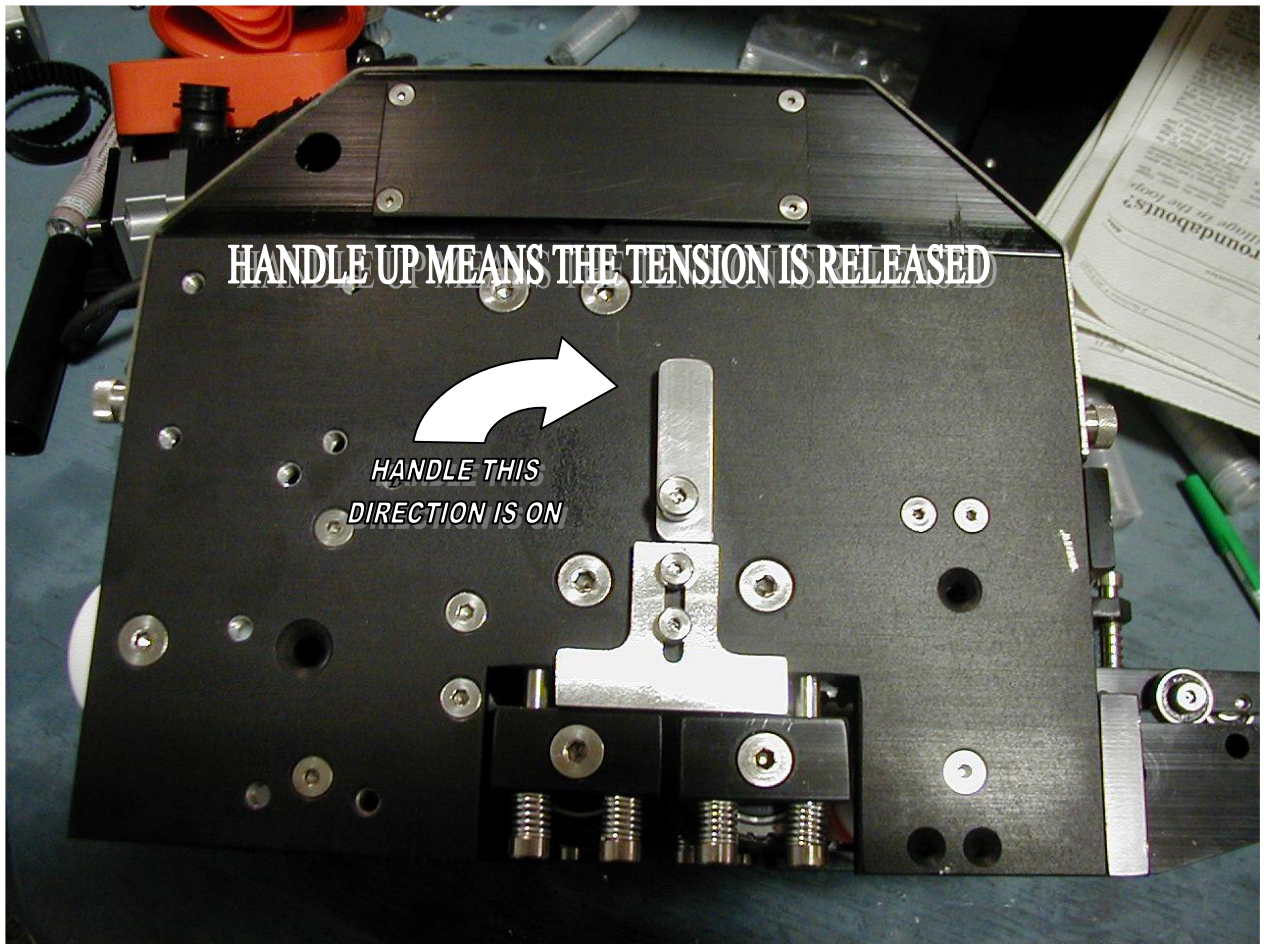




## ROLLER TENSION RELEASE

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

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.

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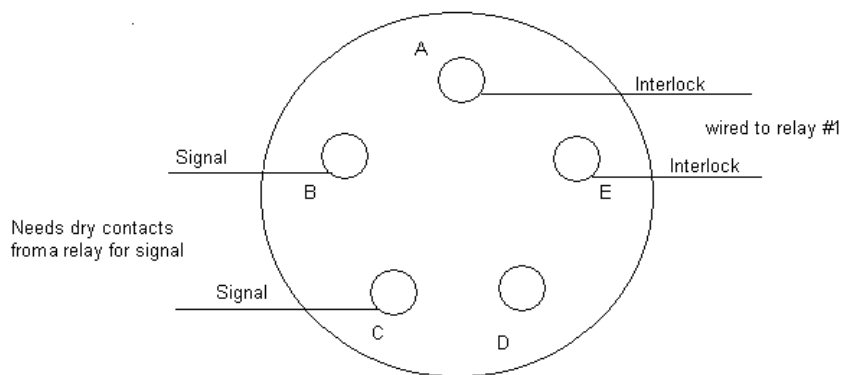
## Section 5

### APPENDIX

This section will provide a comprehensive parts list, electrical and mechanical schematics, of the head and the electrical panel, and any accessories that may come with the *Northfield 1600 SRV Coupon Inserter*.

Please feel free to contact Northfield if any questions or problems arise. For parts ordering please contact Randy at (920) 983-8122, or fax in your order at (920) 983-8124. Please have the part number and quantity when calling, in order to expedite your delivery.

#### 5 PIN WIRING DIAGRAM (INTERLOCK & SIGNAL)



This is a drawing of the five pin Amphenol on the bottom of the control box.

#### Pins B and C

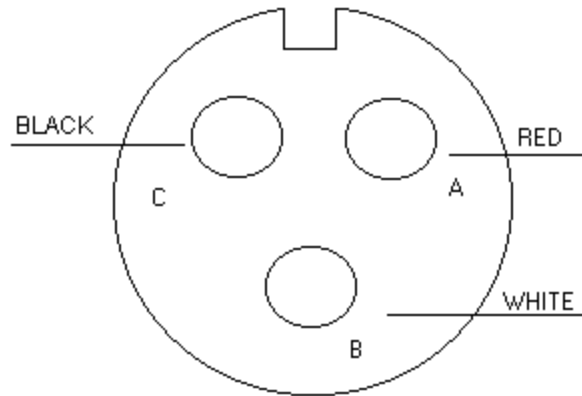
Pins B and C are used for a signal from a dry contact that will tell the inserter when the fire an insert. Do not apply power to these pins; it will destroy the input on the I/O card. If you only have a powered signal then use it to power a relay for a dry contact.

#### Pins A and E

Pins A and E are used for tying in the inserter to the product line's plc or shut down signal. Pins A and E are wired into a normally open contact. If the power is off or the inserter is in fault the insert the signal is broken and the product line will not run. This is done so you don't run product with out the coupon or insert.

# STROBE LIGHT

## WIRING DIAGRAM

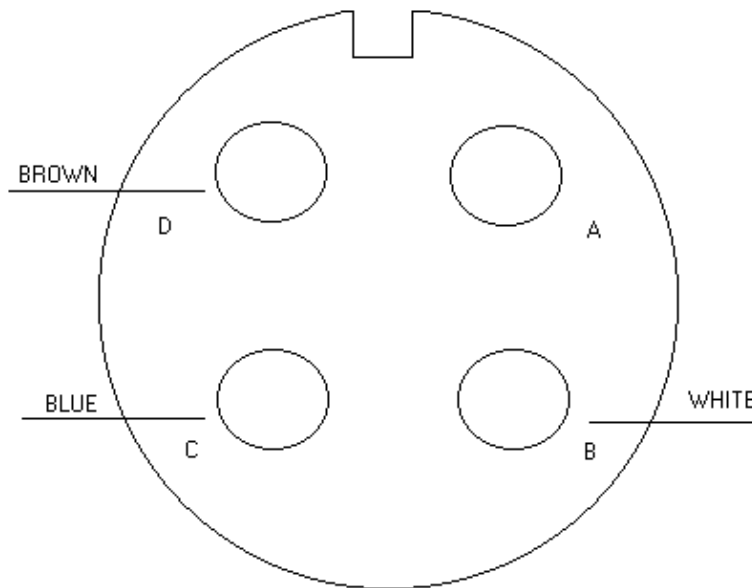


FEMALE CONNECTOR

This is a drawing of the connector on the strobe light. The red wire goes to pin A the white wire goes to pin B and the black wire goes to pin C.

## PRODUCT SENSOR

### *WIRING DIAGRAM*

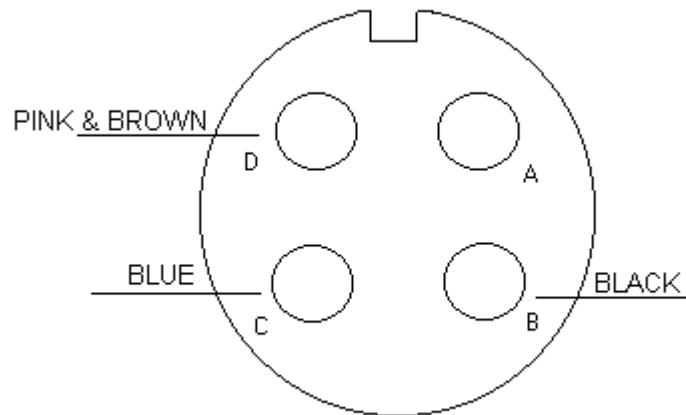


This is a drawing of the connector on the Banner product sensor.



# AROMAT PRODUCT SENSOR

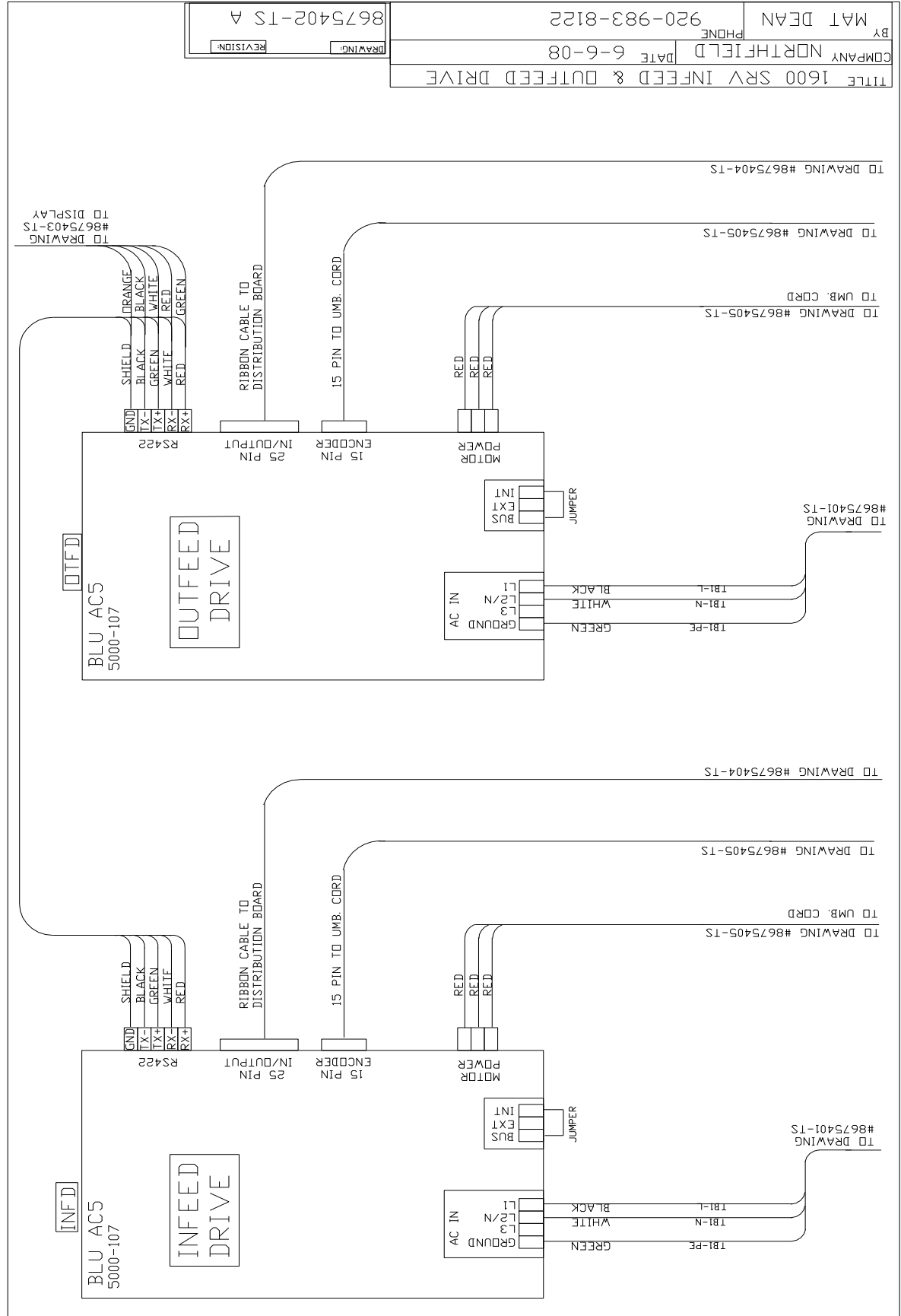
## WIRING DIAGRAM



This is a drawing of the Aromat product sensor.

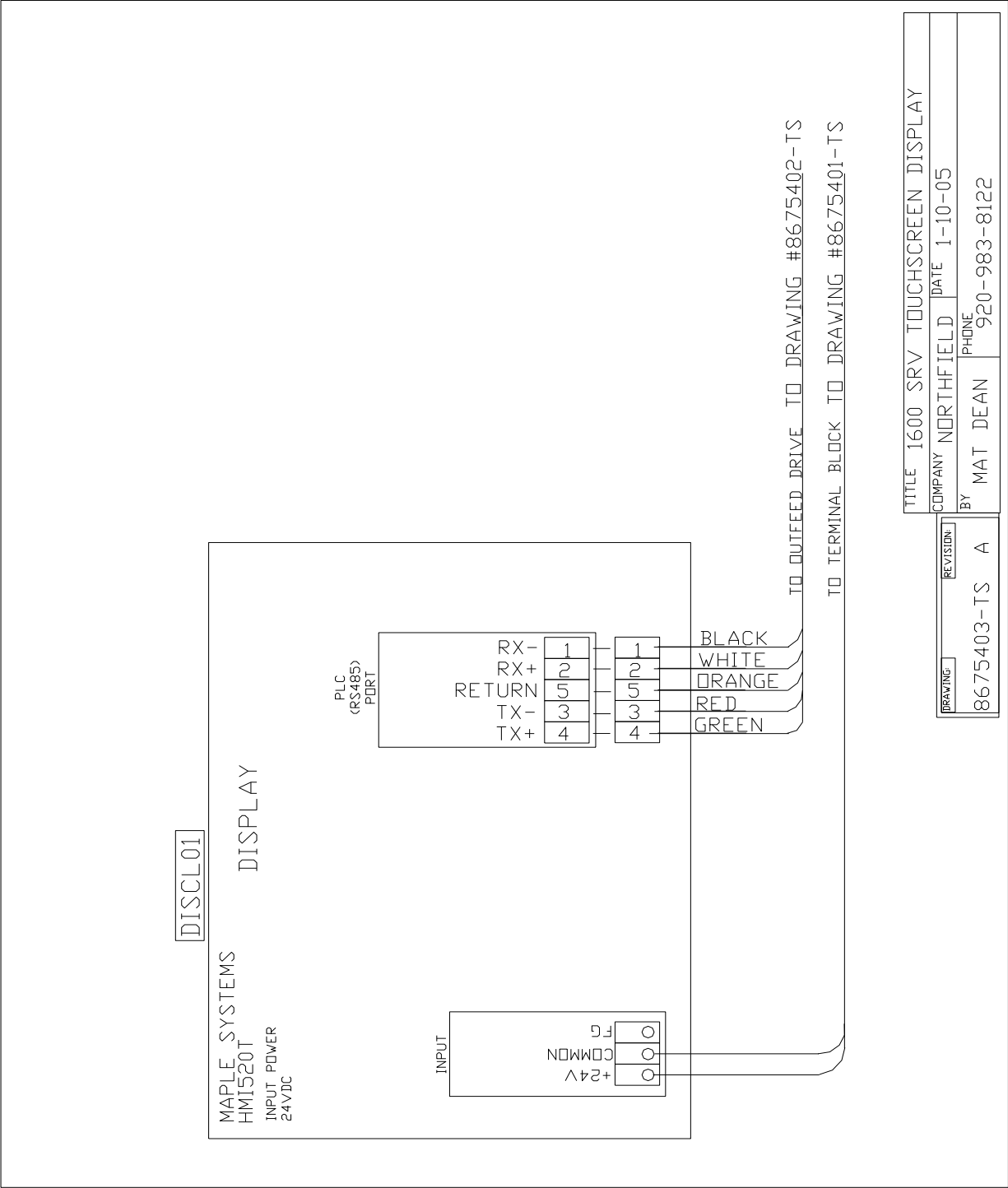




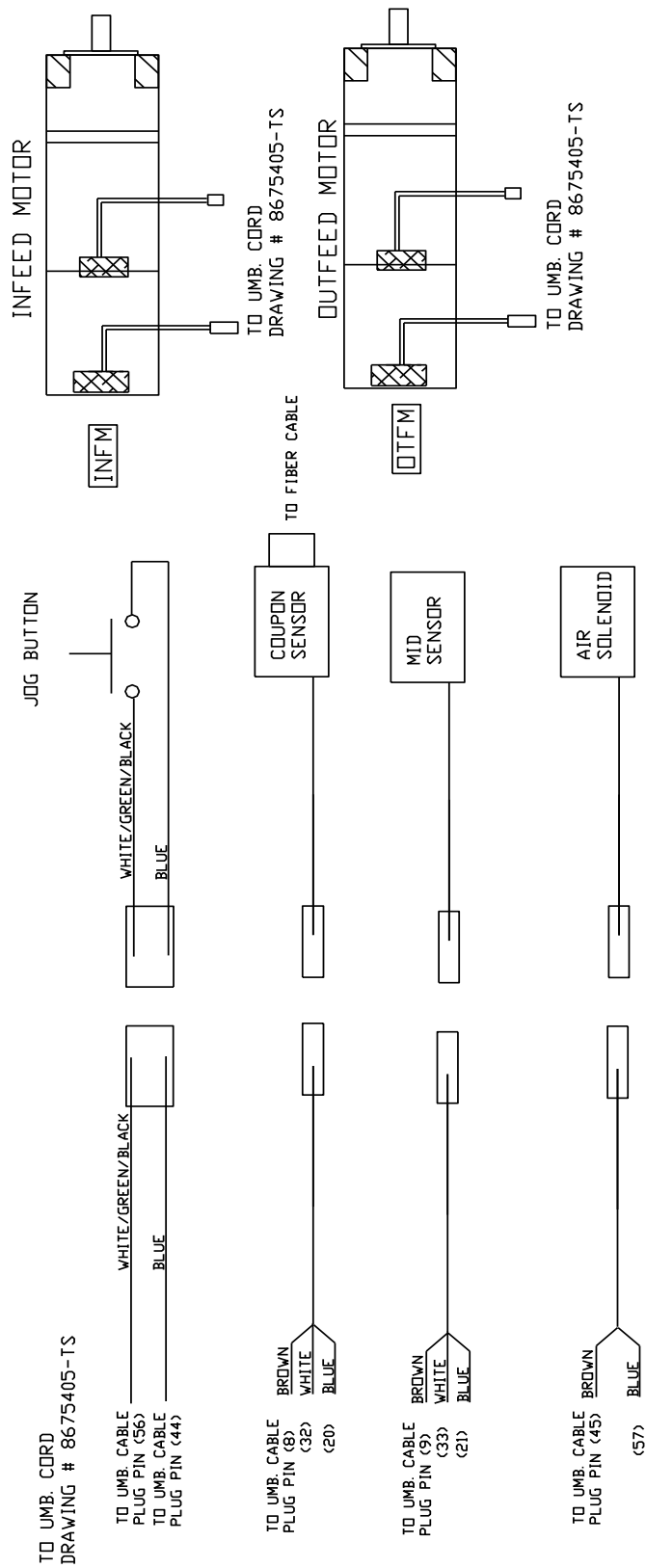


TITLE 1600 SRV INFED & OUTFED DRIVE	
COMPANY NORTHFIELD	DATE 6-6-08
BY MAT DEAN	PHONE 920-983-8122

DRAWING 8675402-TS A	REVISION
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TITLE 1600 SRV HEAD	
COMPANY NORTHFIELD	DATE 6-9-08
BY MAT DEAN	PHONE 920-983-8122
8675406-TS A	

UMB. PLUG  
FEMALE W/FEMALE PINS

①	⑬	⑳	㉓	㉔	㉕
②	⑭	㉑	㉔	㉕	㉖
③	⑮	㉒	㉕	㉖	㉗
④	⑯	㉑	㉕	㉖	㉗
⑤	⑰	㉑	㉕	㉖	㉗
⑥	⑱	㉑	㉕	㉖	㉗
⑦	⑲	㉑	㉕	㉖	㉗
⑧	㉑	㉑	㉕	㉖	㉗
⑨	㉑	㉑	㉕	㉖	㉗
⑩	㉑	㉑	㉕	㉖	㉗
⑪	㉑	㉑	㉕	㉖	㉗
⑫	㉑	㉑	㉕	㉖	㉗

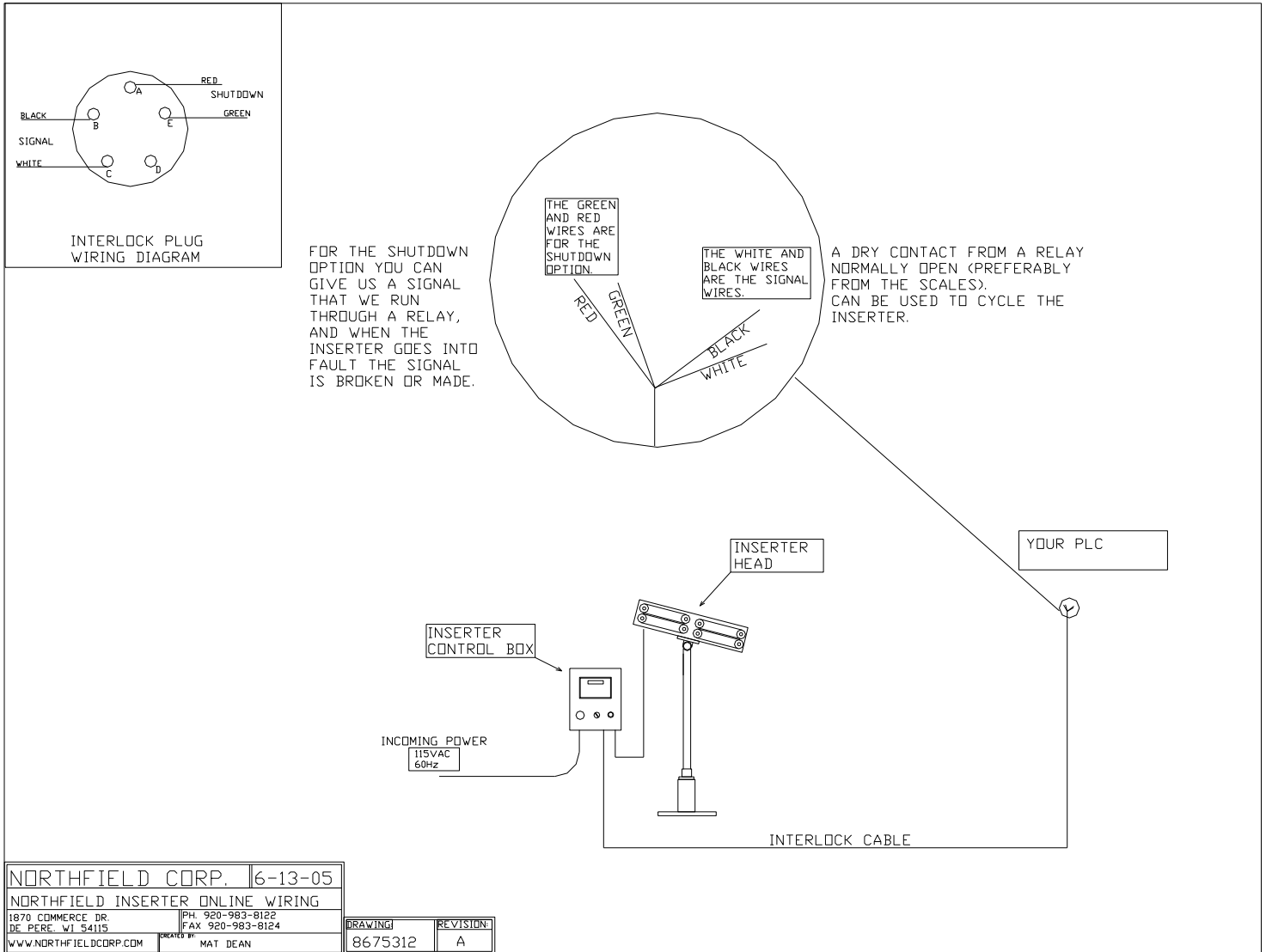
PLUG END

CONTROLLER PLUG (FEMALE) INFEED						
MOTOR COM. CABLE			MOTOR POWER CORD			
DRIVE END	COLOR	PLUG END	DRIVE END	COLOR	PLUG END	UMB.
1	BLUE	1	A	RED	12	1
2	BLUE/BLACK	13	B	WHITE	24	2
3	GREEN	25	C	BLACK	36	3
4	GREEN/BLACK	37	GROUND	GREEN	48	4
5	WHITE	49				
6	WHITE/BLACK	61				
7	RED	2				
8	BLACK	14				
9	YELLOW	26				
10	YELLOW/BLACK	38				
11	GREY	50				
12	GREY/BLACK	62				
13	BROWN	3				
14	BROWN/BLACK	15				
15	SHIELD	27				
CONTROLLER PLUG (FEMALE) OUTFEED						
MOTOR COM. CABLE			MOTOR POWER CORD			
DRIVE END	COLOR	PLUG END	DRIVE END	COLOR	PLUG END	UMB.
1	BLUE	4	A	RED	11	5
2	BLUE/BLACK	16	B	WHITE	23	6
3	GREEN	28	C	BLACK	35	7
4	GREEN/BLACK	40	GROUND	GREEN	47	8
5	WHITE	52				
6	WHITE/BLACK	64				
7	RED	5				
8	BLACK	17				
9	YELLOW	29				
10	YELLOW/BLACK	41				
11	GREY	53				
12	GREY/BLACK	65				
13	BROWN	6				
14	BROWN/BLACK	18				
15	SHIELD	30				
OTHER PLUG WIRES						
TO	FROM	COLOR	UMB.	LENGTH		AWG.
TB3	PLUG PIN (8)	BROWN	9	14"		18
TB3	PLUG PIN (9)	BROWN	12	14"		18
TB4	PLUG PIN (20)	BLUE	10	19"		18
TB4	PLUG PIN (21)	BLUE	13	19"		18
TB4	PLUG PIN (44)	BLUE	15	19"		18
DIS. BOARD (CPN)	PLUG PIN (32)	WHITE/RED	11	18"		18
DIS. BOARD (MID)	PLUG PIN (33)	WHITE/ORANGE	14	18"		18
DIS. BOARD (JOG)	PLUG PIN (56)	WHITE/GRN/BLK	16	18"		18
	PLUG PIN (45)		17			18
	PLUG PIN (57)		GRN/YLW			18

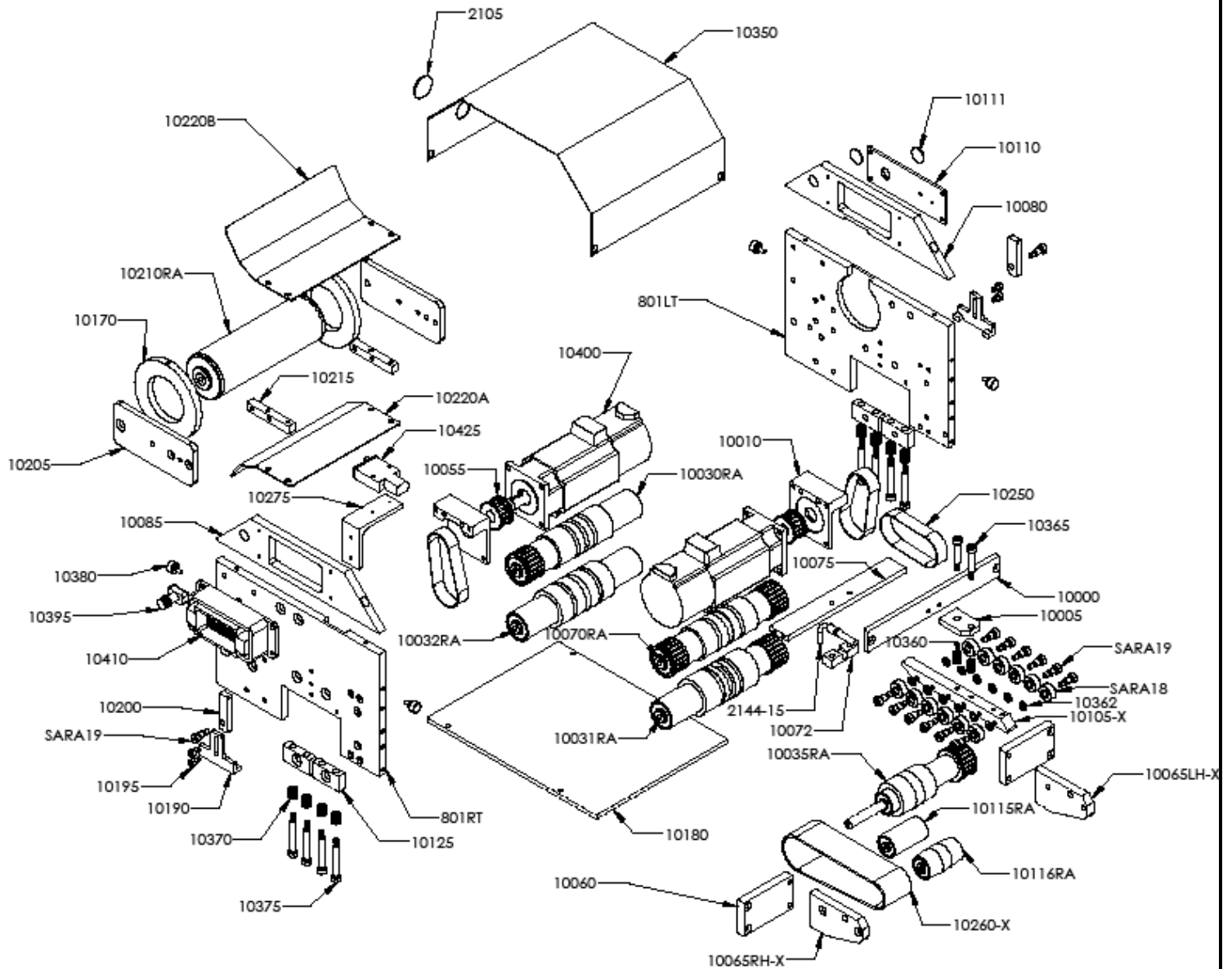
TITLE 1600 SRV UMB. CABLE PLUG		DRAWING		REVISION	
COMPANY NORTHFIELD		DATE 6-9-08		8675405-TS A	
BY MAT DEAN		PHONE 920-983-8122			



## PLUG WIRING PIN OUT



EXPLODED VIEW



# 1600 SRV PARTS LIST

## 1600SRV CONTROLLER

<u>PART#</u>	<u>DESCRIPTION</u>	<u>PRICE</u>
10500	CONTROLLER - COMPLETE	\$8,000.00
10505	DISPLAY, PREPROGRAMMED	\$650.00
10507	DISPLAY, TOUCHSCREEN	\$850.00
10510	INFEEED AC DRIVE, PREPROGRAMMED	\$1,814.55
10515	OUTFEED AC DRIVE, PREPROGRAMMED	\$1,814.55
10520	BREAKOUT BOARD	\$507.36
10525	RIBBON CABLE	\$35.00
10530	CONTROL BOX, SRV	\$325.00
10535	CONTROL PANEL, SRV	\$67.85
10540	HARTING PLUG, PREWIRED - ASSY.	\$925.00
10545	SRV UMBILICAL CABLE-ASSY.	\$785.00
10550	GROUNDING STRAP	\$22.45
10555	FERRITE FILTER	\$37.50
1015	POWER CORD	\$11.95
1020	PORD CORD STRAIN RELIEF	\$4.35
1055	24VDC POWER SUPPLY	\$138.50
1095	FUSE, 1 AMP	\$2.65
1100	FUSE, 5 AMP	\$2.65
5250	PRODUCT SENSOR AMPHENOL	\$13.75
5255	INTERLOCK AMPHENOL	\$15.15
5260	BEACON AMPHENOL	\$16.35
5265	ENCODER AMPHENOL	\$13.75
5301	E-STOP	\$21.70
5302	RUN/JOG SWITCH	\$20.91
5306	ACTUATOR SLEEVE	\$2.57
5307	ALUMINUM RING	\$3.22
5308	MOUNTING FLANGE	\$3.87
5309	DIFFUSER	\$0.72
5311	BLUE LENS CAP	\$1.17
5324	NO/NC CONTACT BLOCK	\$10.48
5325	SAFETY CAP	\$2.50
5335	E STOP COMPLETE	\$42.50
5340	RUN/JOG BUTTON, COMPLETE	\$50.00
5350	JOG BUTTON COMPLETE	\$25.00
5401	WAGO, GREY 4 COND	\$2.25
5402	WAGO, ORANGE 4 COND	\$2.36
5403	WAGO, BLUE 4 COND	\$2.36
5404	WAGO GRD, 4 COND	\$2.38
5410	FUSE HOLDER	\$10.05
5411	FUDE HOLDER ENDPLATE	\$1.17
5415	24VDC RELAY	\$21.37
5416	RELAY ENDPLATE	\$0.59
5420	JUMPER, 2 WAY	\$0.61

5421	JUMPER, 3 WAY	\$0.83
5601	ON/OFF LEGEND PLATE	\$10.50
5602	RUN/JOG LEGEND PLATE	\$10.50
5603	JOG LEGEND PLATE	\$10.50
5616	FAULT BEACON LEGEND PLATE	\$6.50

**1600SRV CONTROLLER**

<b><u>PART#</u></b>	<b><u>DESCRIPTION</u></b>	<b><u>PRICE</u></b>
5617	ENCODER LEGEND PLATE	\$6.50
5618	INTERLOCK LEGEND PLATE	\$6.50
5619	PRODUCT SIGNAL LEGEND PLATE	\$6.50
5725SRV	PANEL MT HOUSING	\$23.31
5730SRV	CABLE HOOD	\$61.07
5735SRV	MALE INSERT, 72 PIN	\$25.16
5740SRV	FEMALE INSERT, 72 PIN	\$26.46
5750	MALE PIN, 18 GA	\$0.83
5752	FEMALE PIN, 18 GA	\$0.83
5754	MALE PIN, 26 GA	\$0.83
5756	FEMALE PIN, 26 GA	\$0.83
5800	1" RACEWAY	\$6.05
5801	1" RACEWAY COVER	\$1.69
5802	.5" RACEWAY	\$5.72
5803	.5" RACEWAY COVER	\$1.55
5805	1.5" RACEWAY COVER	\$2.14

**1600SRV HEAD**

<b><u>PART#</u></b>	<b><u>SRV HEAD</u></b>	<b><u>RETAIL</u></b>
	HEAD COMPLETE	\$10,000.00
801LT	SRV SIDEPLATE, LEFT	\$625.00
801RT	SRV SIDEPLATE, RIGHT	\$625.00
10000	TOP TRAP SUPPORT	\$70.00
10005	TOP TRAP MOUNT	\$56.00
10010	MOTOR MOUNT	\$153.00
10015	ROLLER SHAFT	\$35.00
10025	OUTFEED DRIVE SHAFT	\$32.00
10030RA	RUBBER INFEED DRV ROLLER, TOP	\$367.50
10031RA	RUBBER DRV ROLLER, BOT.	\$367.50
10032RA	RUBBER INFEED IDLER ROLL, BOT.	\$279.00
10035RA	FLAT BELT DRV ROLLER ASSY	\$234.00
10040	OUTFEED DRIVE PULLEY	\$157.75
10050	DRIVE GEAR - SS	\$140.75
10055	MOTOR GEAR	\$135.00
10060	OUTFEED MT	\$67.50
10065LH	OUTFEED SIDE, LH	\$67.50
10065RH	OUTFEED SIDE, RH	\$67.50
10070RA	RUBBER OUTFEED DRV ROLL, DG	\$525.00
10075	SENSOR MOUNT	\$98.00
10080	HARTING MOUNT	\$165.00

10085	EXTENSION PLATE	\$165.00
10095	INFEED GUARD	\$70.00
10105	TOP TRAP	\$140.00
10106	DEFLECTOR	\$65.00

**1600SRV HEAD**

<b><u>PART#</u></b>	<b><u>SRV HEAD</u></b>	<b><u>RETAIL</u></b>
10110	HARTING COVER	\$45.50
10015RA	OUTFEED IDLER ASSY	\$75.00
10016RA	OUTFEED END ROLLER ASST	\$75.00
10120	OUTFEED IDLER SHAFT	\$24.00
10125	SPRING NIP MOUNT	\$45.00
10155	OUTFEED DRV ROLL SLEEVE	\$35.00
10170	2" LOCKING GUIDE COLLAR	\$13.50
10180	BOTTOM LEAXN GUARD	\$45.00
10190	TENSION RELEASE BLOCK	\$65.00
10195	TENSION BLOCK SHLDR BOLT	\$3.75
10200	TENSION RELEASE CAM	\$15.00
10205	INFEED GUIDE MOUNT	\$42.00
10210	2" INFEED ROLLER	\$65.00
10215	INFEED PLATE MOUNT	\$24.00
10220	SENSOR HOLD DOWN	\$38.25
10220A	UPPER DEFLECTOR	\$28.50
10220B	LOWER DEFLECTOR	\$28.50
10230	INFEED GUIDE SHAFT	\$42.00
10240	INFEED ASSY	\$350.00
10250	DRIVE BELT	\$28.75
10260	OUTFEED TRANSPORT BELT	\$18.50
10350	MOTOR GUARD - SS	\$145.00
10360	TOP TRAP TENSION SPRING	\$4.50
10362	TOP TRAP BRG SPACER	\$1.45
10365	TOP TRAP SHLDR BOLT	\$4.50
10370	NIP ROLLER TENSION SPRING	\$4.50
10375	NIP ROLLER SHLDR BOLT	\$4.50
10380	GUARD THUMBSCREW	\$7.50
10390	JOG BUTTON	\$22.00
10395	JOG BUTTON WRG HARNESS	\$23.00
10400	SRV DRIVE MOTOR	\$1,302.75
10410	SRV HEAD WIRING HARNESS	\$975.00
10420	FV SENSOR W/ PIGTAIL	\$225.00
10425	FV BLUE SENSOR W/ PIGTAIL	\$225.00
10435	FV SENSOR WRG HARNESS	\$30.00
10440	SENSOR BLOWOFF FIELD KIT	\$175.00
SARA18	HOLD DOWN BEARING	\$9.25
SARA19	SHLDR BOLT FOR BEARING	\$4.50

**SENSORS**

<b><u>PART#</u></b>	<b><u>DESCRIPTION</u></b>	<b><u>RETAIL</u></b>
---------------------	---------------------------	----------------------

2140	COUPON SENSOR, FV	\$150.00
2144-15	15" FIBER CABLE 90*	\$150.00
2144-36	36" FIBER CABLE 90*	\$150.00
2145	FIBER CABLE 45*	\$175.00
2146	FIBER CABLE STRAIGHT/THREADED	\$150.00
2147	FIBER CABLE 90* THREADED	\$150.00
2148	FIBER CABLE, SINGLE THREADED	\$150.00
2149	FIBER CABLE, SINGLE 90* THREADED	\$150.00
2150	SENSOR, RETRO	\$150.00
2150QD	SENOSR, RETRO QUICK DISCONNECT	\$150.00
2155	SENSOR, DIFFUSED	\$150.00
2155QD	SENSOR, DIFFUSED QUICK DISCONNECT	\$150.00
2156	MA5 DELAY MODULE	\$135.00
2160	SENSOR, FV -PRODUCT	\$150.00
2160QD	SENSOR, FV QUICK DISCONNECT	\$150.00
2160BQD	SENSOR, FV QD BLUE	\$150.00
2160GQD	SENSOR, FV QD GREEN	\$150.00
2165	PROD. RELAY, 24VDC	\$12.00
2166	PRODUCT RELAY BASE	\$12.00
2170	16 GA. 2 COND. CABLE (PER FOOT)	\$0.45
2175	SIGNAL CABLE W/4 PIN (FF&S)	\$34.75
2180	SHUT DOWN OUTPUT CABLE W/ 4 PIN	\$34.75
2185	QD CABLE, MALE	\$24.50
2186	QD CABLE, FEMALE	\$24.50
2187	QD CABLE, MALE 90*	\$24.50
2188	QD CABLE, FEMALE 90*	\$24.50
5275	4 PIN AMPHENOL-INSERTER SENSOR	\$28.00

### **ACCESSORIES**

<b><u>PART#</u></b>	<b><u>DESCRIPTION</u></b>	<b><u>RETAIL</u></b>
3002	HEAT SPLICE UNIT 2"	\$65.00
3004	HEAT SPLICE UNIT 4"	\$85.00
3005	WEB TENSIONER (FANFOLD STOCK)-BRUSH	\$176.50
3005SS	WEB TENSIONER STAINLESS-COLLARS	\$195.00
3006	90* WEB TRANSITION	\$435.00
3010	16" UNWIND	\$1,200.00
3011	45* UNWIND MOUNT	\$125.00
3012	6 " CORE ADAPTOR	\$59.00
3015	LOW ROLL DETECTION (ROLL STOCK ONLY)	\$675.00
3016	WEB FAULT OUTPUT (STD ON NEW MACHINES)	\$575.00
3017	MISSING INSERT DETECTION	\$950.00
3020	RED INDICATOR STROBE	\$127.00
3021	STROBE BULB	\$25.00
3022	YELLOW INDICATOR STROBE	\$127.00
3065	STATIC BAR ASSY	\$575.00
3070	STATIC BAR POWER SUPPLY	\$350.00

### **SRV 16" UNWIND PARTS LIST**

<b><u>PART#</u></b>	<b><u>DESCRIPTION</u></b>	<b><u>RETAIL</u></b>
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10265	UNWIND MANDREL	\$85.00
10270	SPRING MOUNT	\$30.00
10280	16" DANCER ARM	\$45.00
10282RA	DANCER ROLLER ASSY	\$125.00
10284RA	IDLER ROLLER ASSY	\$115.00
10285	BRAKE HUB	\$75.00
10290	DANCER ARM MOUNT	\$30.00
10294	BEARING	\$12.65
10295	BEARING BLOCK	\$110.00
10296	SPRING CAM	\$17.50
10300B	UNWIND FRAME	\$155.00
2010	1.25" GUIDE COLLAR	\$9.50
3025	16" DISK	\$100.00
3026L	LOCKING OUTER HUB	\$115.00
3027	INNER HUB	\$70.00
3028	NYLON SET SCREW	\$3.50
PM-OR1007	UNWIND BRAKE	\$1.65
PM-FASP30437	SPRING	\$4.75
PM-FASP30500	SPRING ANCHOR	\$8.25
PM-FASB10045	SHOULDER BOLT	\$4.45
PM-BEBF1015	DANCER ARM BUSHING	\$1.50
PM-CO1015	LOCK COLLAR	\$8.75

### **BRACKETRY**

4000	1.25" BASE CLAMP	\$32.00
4005	1.25" LOCKING CLAMP	\$15.00
4010	1.25" CROSS CLAMP	\$32.00
4011	1.5" LOCKING CLAMP	\$16.50
4013	1.5" FLANGE CLAMP	\$38.00
4015	1.5" BASE CLAMP	\$38.00
4020	1.5" CROSS CLAMP	\$32.00
4025	1.25" TUBING SS (PER FOOT)	\$12.60
4026	1.25" END PLUG	\$1.75
4030	1.5" TUBING SS (PER FOOT)	\$15.60
4031	1.5" END PLUG	\$1.95
4033	STAINLESS MOUNTING PLATE	\$113.00
4035	TABLE TOP ADJ.STAND 1 1/4" TUBE	\$195.00
4036	TABLE TOP ADJ. STAND 1 1/2" TUBE	\$225.00
4040	BASIC FORM FILL & SEAL ADJ. MOUNT	\$225.00
4045	THOMPSON LINEAR MOUNTING BRACKETRY	\$1,500.00
4050	MEZZANINE SUPPORT STAND	\$600.00

## **NORTHFIELD CORPORATION**

**1870 COMMERCE DRIVE  
DEPERE, WI 54115  
(920) 983-8122**

**NF1600SRV BASIC SPARE PARTS LIST**  
(PER UNIT)

<u>QTY.</u>	<u>PART#</u>	<u>DESCRIPTION</u>	<u>PRICE</u>
1	10030RA	RUBBER INFEED DRV ROLL, TOP	\$367.50
1	10031RA	RUBBER INFEED DRV ROLL, BOT	\$367.50
1	10032RA	RUBBER INFEED IDLER, BOT	\$279.00
1	10070RA	RUBBER OUTFEED DRV ROLL, BOT	\$525.00
2	10250	DRIVE BELT	\$28.75/EA
1	10260	OUTFEED TRANSPORT BELT	\$18.50
1	10425	FV BLUE SENSOR W/PIGTAIL	\$225.00
4	SARA18	OUTFEED BEARING	\$9.25/EA
1	1100	5 AMP FUSE	\$2.75/ea
1	1095	1 AMP FUSE	\$2.75/ea

SRV3080	TOTAL	\$1,882.50
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**NF1600SRV COMPREHENSIVE SPARE PARTS KIT**  
(PER UNIT)

<u>QTY.</u>	<u>PART#</u>	<u>DESCRIPTION</u>	<u>PRICE</u>
1	10030RA	RUBBER INFEED DRV ROLL, TOP	\$367.50
1	10031RA	RUBBER INFEED DRV ROLL, BOT	\$367.50
1	10032RA	RUBBER INFEED IDLER, BOT	\$279.00
1	10070RA	RUBBER OUTFEED DRV ROLL, BOT	\$525.00
2	10250	DRIVE BELT	\$28.75
1	10260	OUTFEED TRANSPORT BELT	\$18.50
1	10425	FV BLUE SENSOR W/ PIGTAIL	\$225.00
4	SARA18	OUTFEED BEARING	\$9.25/EA
1	1100	5 AMP FUSE	\$2.75/ea
1	1095	1 AMP FUSE	\$2.75/ea
1	10400	DRIVE MOTOR	\$1,302.75
1	10510	INFEED AC DRIVE	\$1,814.55
1	10512	OUTFEED AC DRIVE	\$1,814.55

SRV3090	TOTAL	\$6,815.35
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