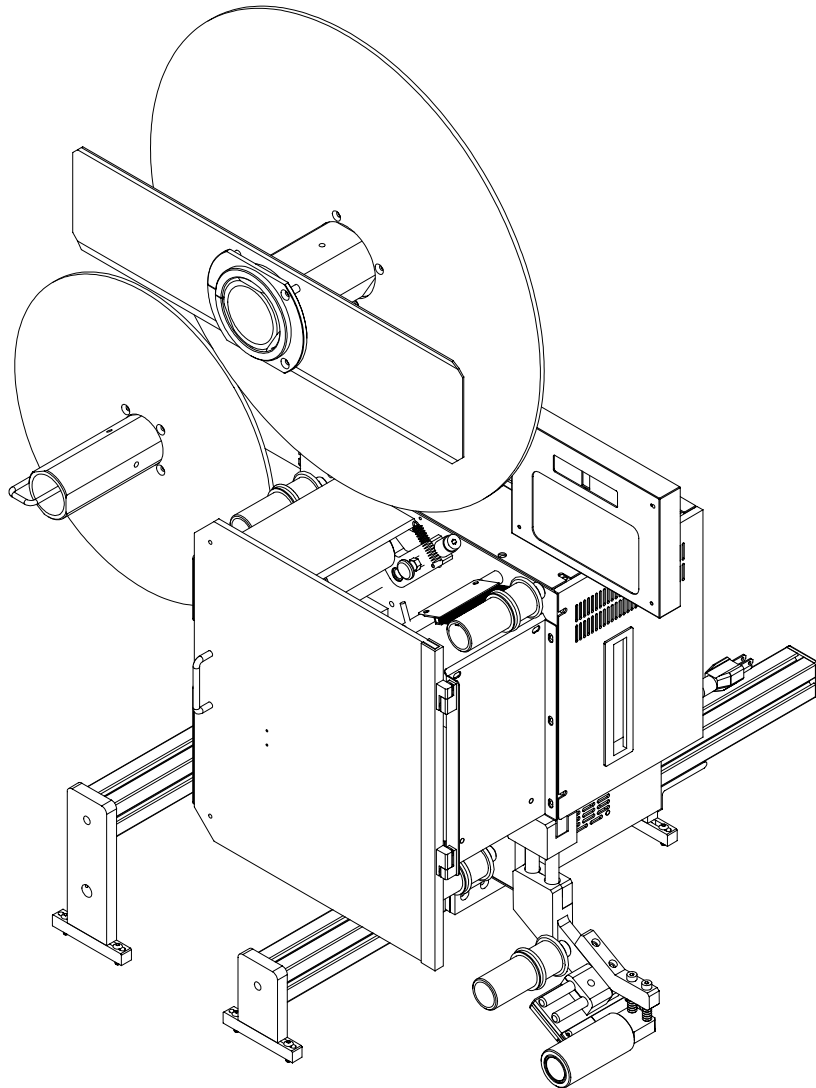


# BUSKRO®

## BK731 Labeler



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# **BK731 Labeler User's Guide**

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## **Appendix A – Assembly Drawings**

## **Appendix B – Electrical Drawings**



## **1.1 Description**

The Buskro BK731 Labeler is designed to apply pressure-sensitive labels onto mail pieces. The system offers full flexibility in its ability to apply labels onto mail pieces. Simplified mechanical adjustments and software controlled label placement functions offer unsurpassed ease of use permitting rapid job setups.

In keeping with Buskro's philosophy of ease of use, the Labeling head is designed with many innovative features. The Labeling head is controlled through software via an operator keypad that permits rapid selection of the number of labels dispensed and their placement positions. A unique label-sensing feature allows the operator to easily adjust the label pitch at a touch of a button. The Labeling head mechanism was designed with few mechanical parts to allow easy label threading and machine setup to improve productivity. The Labeling head is mounted on two aluminum extrusion rails, which allow the Labeling head to be moved easily from side to side to allow labels to be placed at different locations on the mail piece and facilitate fine tune adjustment. In addition, the peel point assembly can be adjusted up, down, and laterally for different material thicknesses and label widths.

All these features, in addition to the manufacturing quality and innovative product design add up to an extremely functional labeling system capable of years of reliable and trouble free operation.

## **1.2 Features**

### **1.2.1 High Speed Production**

The BK731 Labeling head is capable of high production speeds in excess of 35,000 PPH for single label operation, 30,000 PPH for double label operation, and 28,000 PPH for triple label operation. The unit has been solidly constructed with electrical components capable of delivering reliable, full-day production.

### **1.2.2 Simplified Mechanical Adjustments**

The BK731 Labeling head is design for ease of use and portability. The operator keypad is easily accessible simply by sliding it in and out of view. The BK731 Labeler is mounted on two aluminum extrusion rails, which allow easy movement of the Labeling head to place labels at different locations on the mail piece and facilitate fine adjustment of label placement on the product. The peel point can also be adjusted up, down, and laterally for different product thicknesses and width. Label threading is easy since the Labeler has few rollers and a large label bin. In addition, the despool roller is not controlled by a motor but a simple adjustment knob thus reducing the cost of repair. The Labeler is also fully portable as all the electronics are located inside the unit.

### **1.2.3 Software Controlled Labeler Head Functions**

All Labeling head functions are controlled through software and use an operator keypad interface for command entry. A unique feature is the automatic label pitch setting, which allows the operator to set the distance between each label on the backing paper at a touch of a button. Other features include type of labels, position of labels, full labeling head diagnostics, product sensor selection, peel point sensor sensitivity adjustment and production and life counters.

### **1.2.4 Construction, Safety Features, and Maintenance**

All mechanical and electrical system components in the Labeler have been designed for long-lasting and extensive use. Included is a full safety package with feedback through the operator display, monitored by a series of interlocking sensors. The Labeling head operator interface is easily accessible with a simple slide rail design on the Labeling head.

## 1.3 Labeler Specifications

**Table 1-1:** *Labeler head system specifications*

Label Specifications		
Number of Labels	1,2 or 3	
Label Roll Size	Up to 50,000 – 3/4” (paper)	
Label Core Diameter	3.00”	76.2 mm
Label Spool Size	19.75”	502 mm
Label Length	1/2” to 7.0”	12.7 mm to 51 mm
Label Width	Up to 3”	76mm
Label Style	Circle, square, rectangle, stamps	
Label Type	Clear (c/w engineered backer), Paper, Translucent	
Label Placement	Front, back or flat label (gate fold)	
Physical		
Length	32.2”	818 mm
C/w Unwind & rewind spools		
Height	37.3”	947 mm
C/w Unwind & rewind spools		
Overall Width	14.1”	330 mm
Weight	72 lbs	32.6 kg
Software Controls		
Product Sensor Selection	Selection of Front or Back Product Sensor	
Label Sensor Positioning	Set distance between product and peel point sensor	
Product Counter Resetting	Reset product counter	
Software Version	Display software version	
Factory Reset	Reset all setting to factory default	
Life Count Display	Display the total production to date (can not be reset)	
System Test	Test all system components for malfunction	
Label Spacing	Selection of automatic or manual label spacing	
Number of Labels	Select # of label per product	
Label Position Entries	Set the distance between labels on a product	
Label Pitch setting	Set label pitch automatically or manually	
Type of Label setting	Set opaque or clear type label	
Peel Point Sensor Sensitivity	Adjust the peel point sensor gain	
Electrical Requirements		
Line Voltage	115 ± 15% VAC	
Line Current	1.5 Amps	
Power	173 W	
Mechanical Controls		
Head Position	Slide head on extrusion rail c/w locking lever	
Peel Point ↑ ↓ Adjustment	Adjustable for materials up to 1 ½” thick	
Peel Point Lateral Adjustment	Adjustment for different label width up to 3”	
Despool Brake Adjust	Adjustable for different production speed	



### 1.3.1 Labeler System Drawing

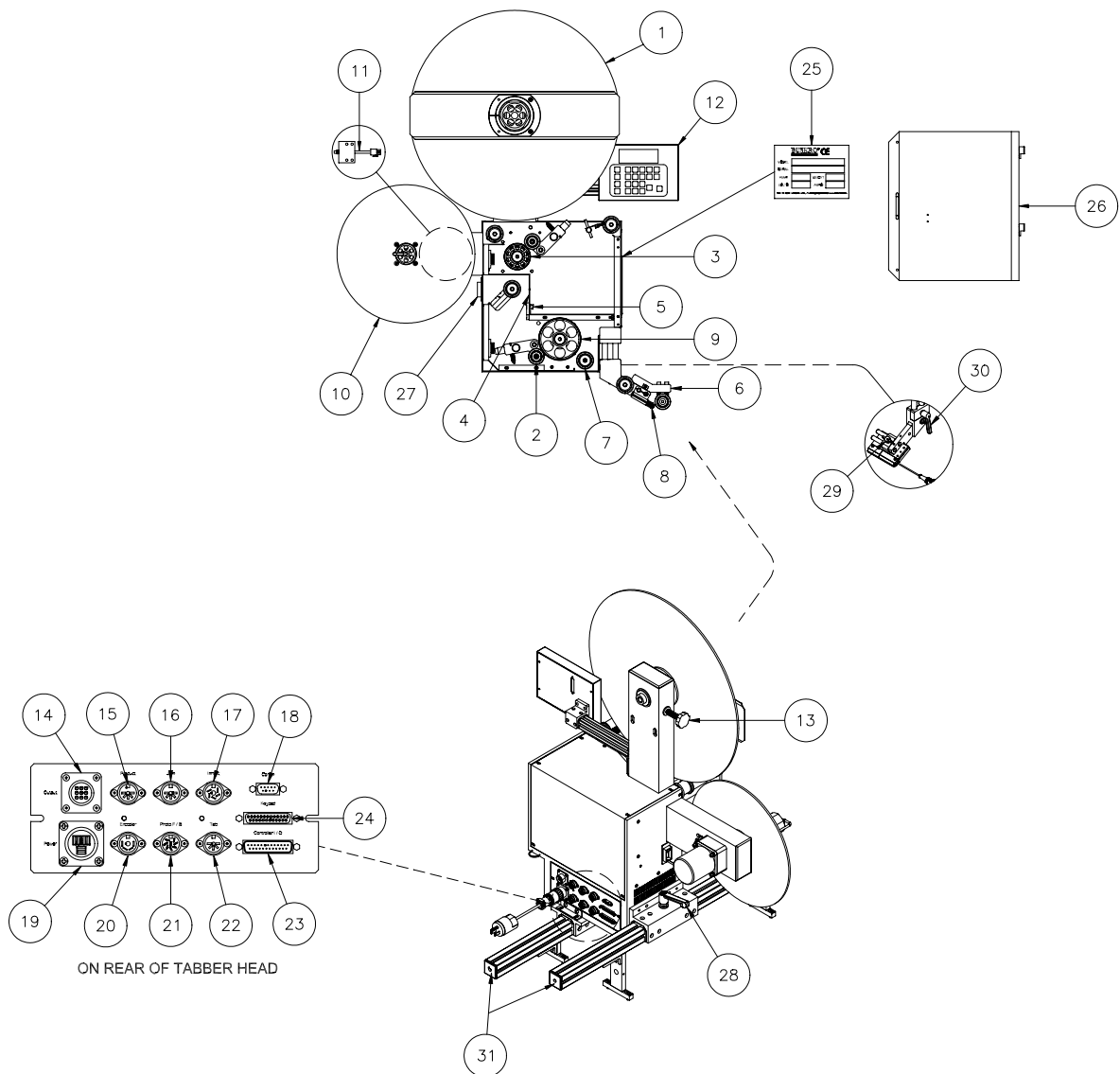


Figure 1-1: *Illustration of the Labeler components.*

Table 1-2: *Labeler system components*

Item	Description	Reference
1	Despool Roll	
2	Pressure Roller	
3	Despool Drive Roller	
4	Label Bin	
5	Bin Sensor	
6	Suspension Base Block Assembly	
7	Idler Roller c/w Label Guides (5)	
8	Peel Point	
9	Label Drive Roller	
10	Take-Up Spool	
11	Take-Up Sensor	
12	Labeler Keypad	
13	Despool Brake Adjust Knob	
14	Output Connector	
15	Product Connector (PNP Sensor)	
16	Jam Connector	
17	Inhibit Connector	
18	Comm Connector	
19	Power Connector	
20	Encoder Connector	
21	Photo F/B connector	
22	Label Connector	
23	Controller I/O Connector	
24	Keypad Connector	
25	Labeler Head Serial Label	
26	Front Safety Cover	
27	Labeler Head Power Switch	
28	Labeler Head Position Lock Handle	
29	Peel Point Lateral Position Lock Knob	
30	Peel Point Up/Down Position Lock Knob	
31	Labeler Head Mounting Rails	

## 1.4 Labeler Dimensions

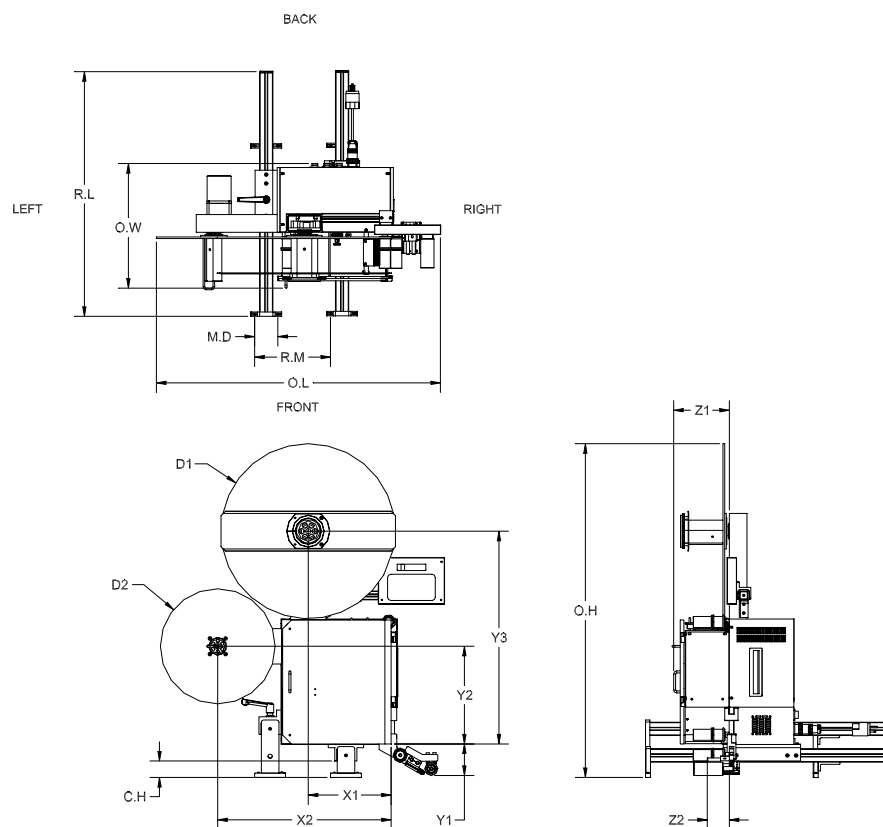


Figure 1-2: *Labeler dimensions.*

Table 1-3: *Labeler Dimensions.*

Symbol	Description	Dimensions	
O.W.	Overall Labeler Head Width	14.11"	358 mm
O.L.	Overall Labeler Head Length	32.15"	816 mm
O.H.	Overall Labeler Head Height	37.69"	948 mm
R.L.	Rail Length	27.63"	702 mm
M.D.	Rail Mounting Hole Dimension	2.63"	67 mm
R.M.	Distance Between Mounting Rails	8.59"	218 mm
C.H.	Clearance Height	1.86"	47 mm
X1	Despool Center Distance	9.39"	238 mm
X2	Take-up Spool Distance	19.64"	499 mm
Y1	Peel Point Height	2.18" - 3.68"	55 mm – 93 mm
Y2	Take-up Spool Height	11.00"	279 mm
Y3	Despool Height	24.00"	609 mm
Z1	Front Face Width	8.31"	211 mm
Z2	Peel point lateral distance	2.33" – 3.83 "	59 mm – 97 mm
D1	Despool Diameter	19.75"	502 mm
D2	Take-up Spool Diameter	13.00"	330 mm



## 2.1 Introduction

This chapter describes the BK731 Labeling Head and the accessories required to successfully install and operate it on equipment other than the BK730 tabbing base.

Proper installation will require the following steps:

- Attachment of the labeling head to the transport base.
- Installation of a Photo sensor to trigger the label placement on the product.
- Installation of the encoder assembly.

**Note:** If a customized mounting solution is desired, please provide as much detailed information as possible prior to ordering so that it may be considered.

Section 2.3 lists a number of photo sensor and encoder options available to meet the needs of the application. These options (ordered as separate items), will have the System Integration Discount (SID) discount applied when ordered with the system.

**Note :** SID discount applies to the Photocue sensor and encoder assembly when ordered with the BK731 Labeling Head.

## 2.2 Labeling Head Mounting fixture

In order to mount the labeling head on a base other than the BK730 base, modifications may be required. Eight 10-32 UNF holes must be drilled (2-3/8" apart for each mounting foot) with the mounting hole locations shown in Figure 1-2. Note that the mounting location along the length of the rail is adjustable in order to accommodate different size bases.

## 2.3 Photo sensor

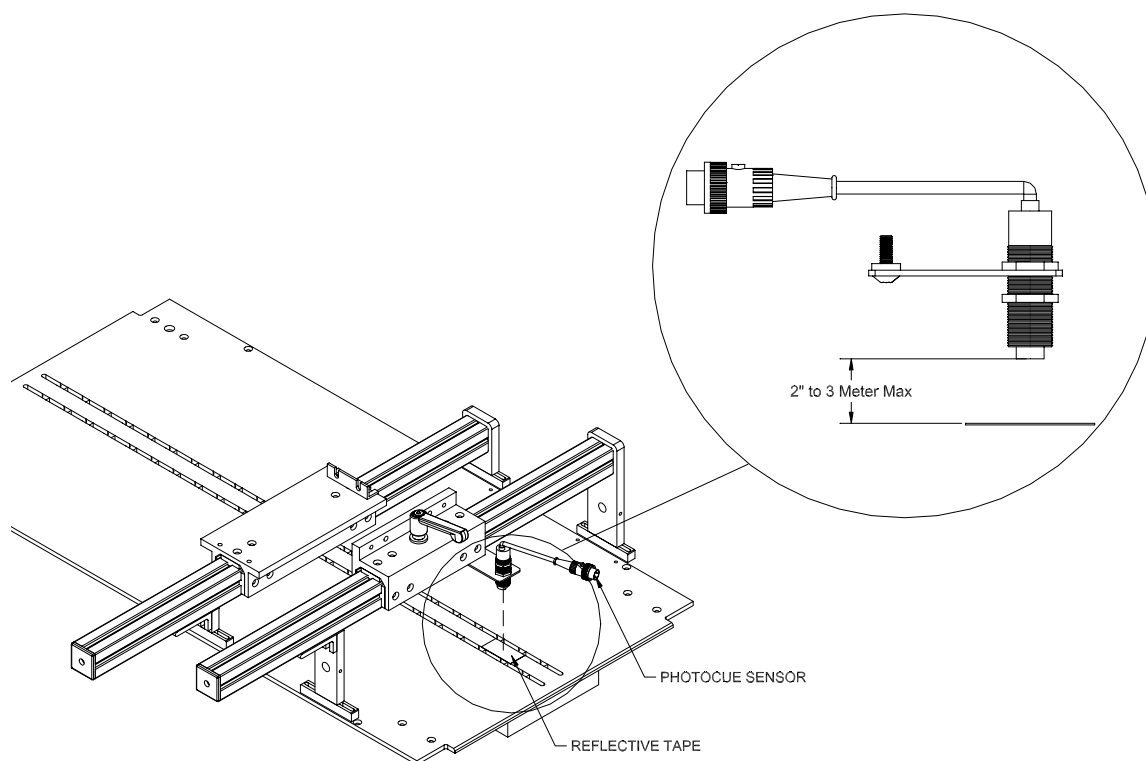
There are three main photo sensors available for purchase depending on the application (one must be ordered in order for the Labeler to operate). They are the reflective, through-beam, and diffuse sensors (Table 2-1).

Table 2-1: List of recommended photo sensors

Option	Description	Part Number
A	Reflective Photo Sensor	9101262A
B	Through-Beam Sensor	615537A
C	Diffuse Photo Sensor	9102036A

### 2.3.1 Option A – Reflective Photo Sensor

The reflective sensor is the PNP version of the standard NPN Buskro photo sensor. Although reliable in most cases, it may be adversely affected by materials with reflective properties. It is recommended that this photo sensor be mounted under the second rail (Figure 2-1).

Figure 2-1: *Reflective photo sensor mounting*

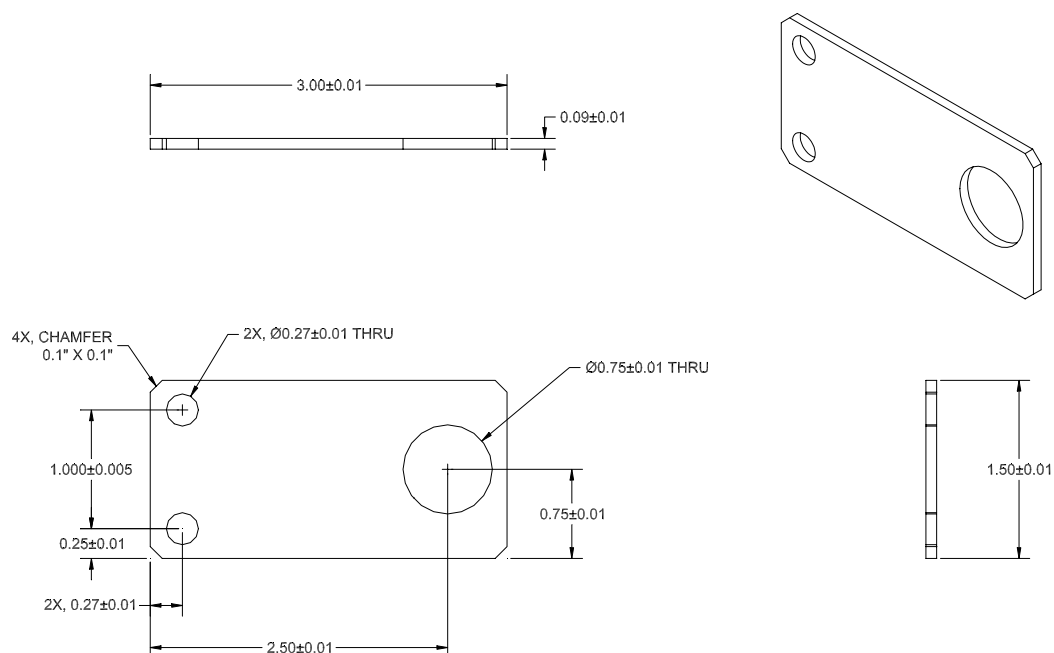


Figure 2-2: *Mounting Bracket Dimensions (For Reflective and Diffuse Sensors)*

### 2.3.2 Option B – Through-Beam Sensor

The through-beam sensor (standard on BK730 systems) provides more reliable operation for a wide range of products. However, it requires more complicated mounting than the other two. This sensor consists of a white housing LED (emitter) and a black housing phototransistor (receiver). It is recommended that this sensor be mounted underneath the front rail. A 1/2" diameter hole must be drilled through the tabletop to allow a clear line of sight between the emitter and receiver. A mounting example can be seen in Figure 2-3.

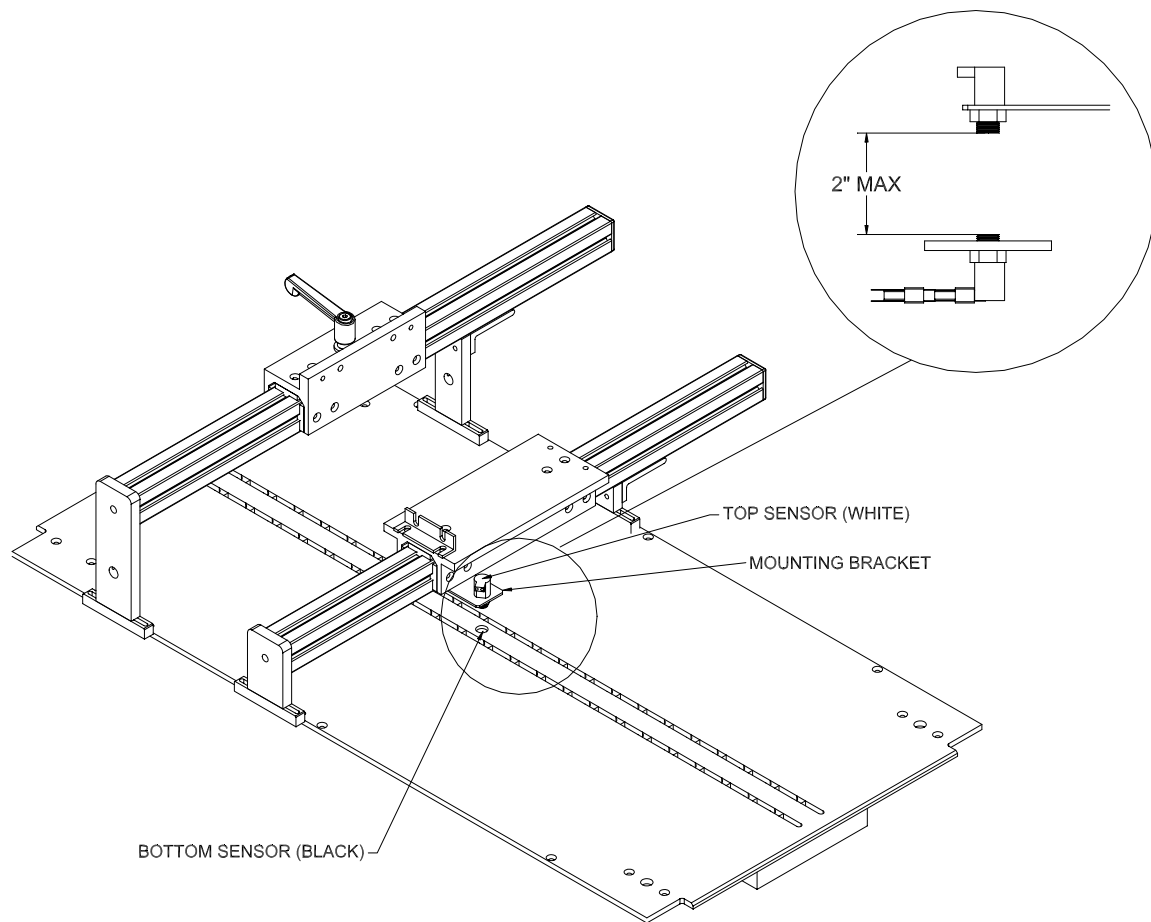


Figure 2-3: *Through-Beam Sensor Mounting*

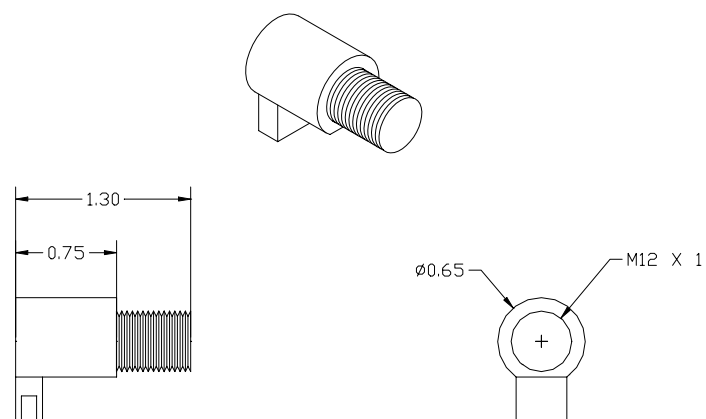
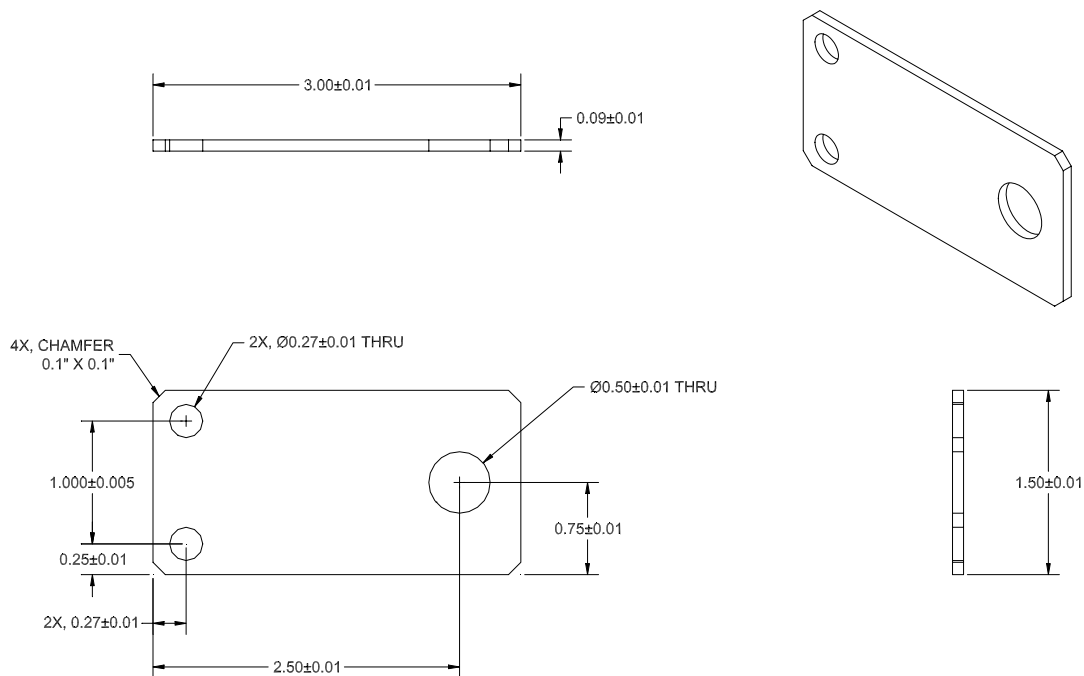
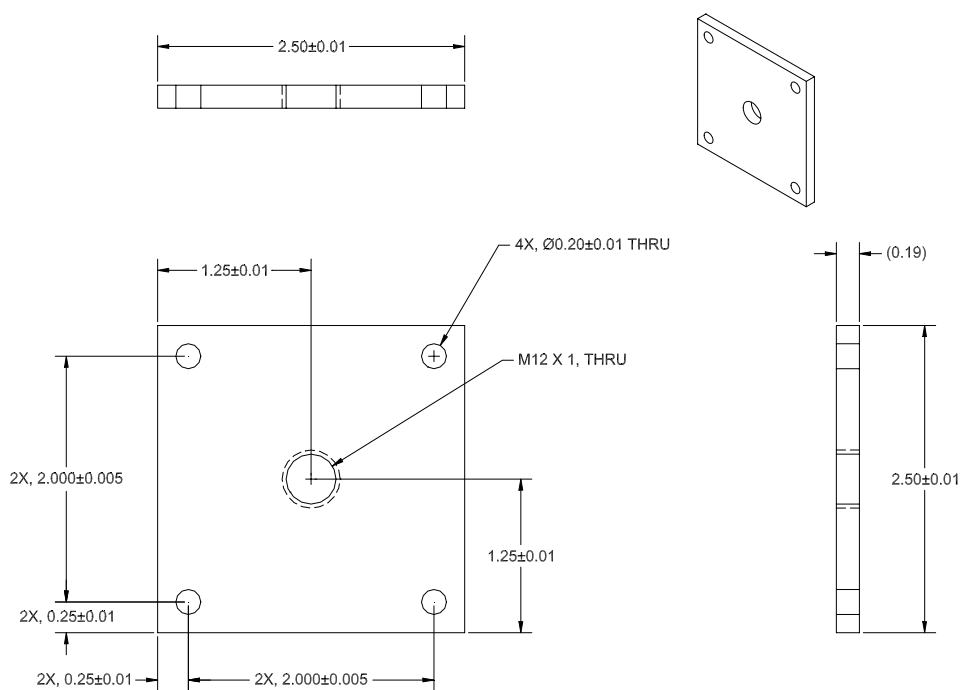


Figure 2-4: *Through-Beam Photo Sensor*



Figure 2-5: *Top Mounting Bracket (Through-Beam Sensor)*Figure 2-6: *Bottom Mounting Bracket (Through-Beam Sensor)*

### 2.3.3 Option C – Diffuse Sensor

The diffuse sensor can be used in applications where the product must be detected off the transport belt. The diffuse sensor works by detecting the difference in color between two backgrounds (i.e. the transport belt and the product). The disadvantage of the diffuse sensor is that it may require adjustment for different jobs. In addition, if the product is the same color as the transport belts, it may affect performance. The diffuse photo sensor should only be used if the through-beam and reflective sensors are not options. It is recommended that this photo sensor be mounted under the second rail (Figure 2-7).

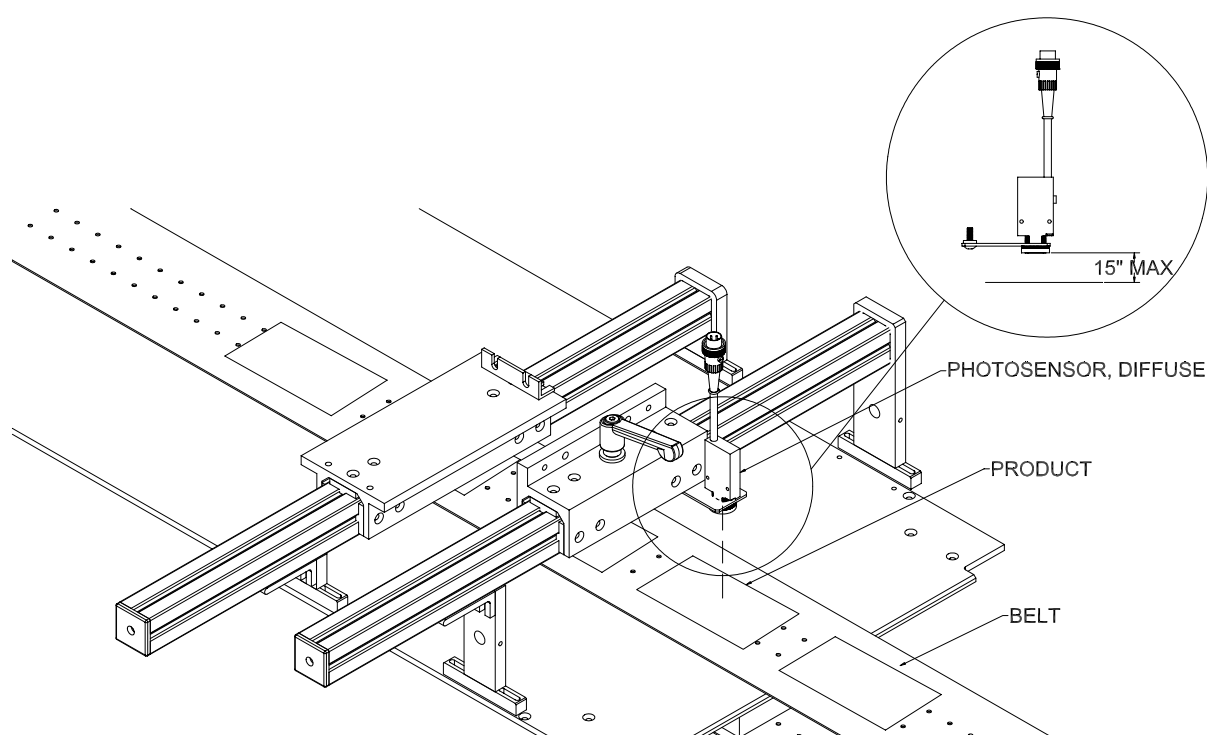
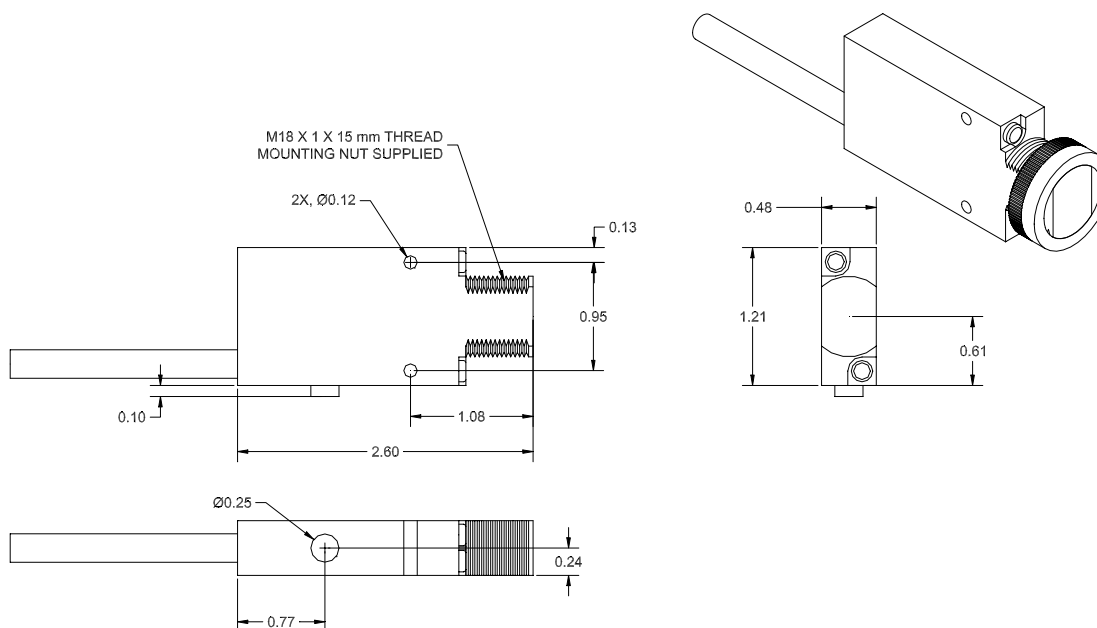


Figure 2-7: *Diffuse Photo Sensor Mounting*

Figure 2-8: *Diffuse Sensor*

## 2.4 Encoder Assembly

To make the BK731 functional, an encoder must be ordered and integrated with the transport base. A summary of the options can be found in **Figure 2-2**.

Table 2-2: *Encoder Options for the BK731*

Option	Encoder	Description	Part No.
A	6000 PPR	Encoder Wheel Assembly with Standard Encoder.	9101543A
B	Programmable	Programmable Encoder	9101839A
C	6000 PPR	Standard Encoder	9101259A

**Note:** PPR indicates pulses per revolution (number of pulses produced by an encoder for each complete revolution of the encoder disk).

### 2.4.1 Option A - Encoder Wheel Assembly

The encoder wheel assembly (Figure 2-9) is a friction wheel 3.19" in diameter that contacts the surface of the transport belts. This option includes the standard 6000 PPR encoder (P/N 9100188A), the encoder wheel, and the mounting hardware. The mounting hardware (which is fixed using two 1/4-20 UNC screws) must be installed with sufficient pressure on the wheel so that the transport belt rotates it upon movement.

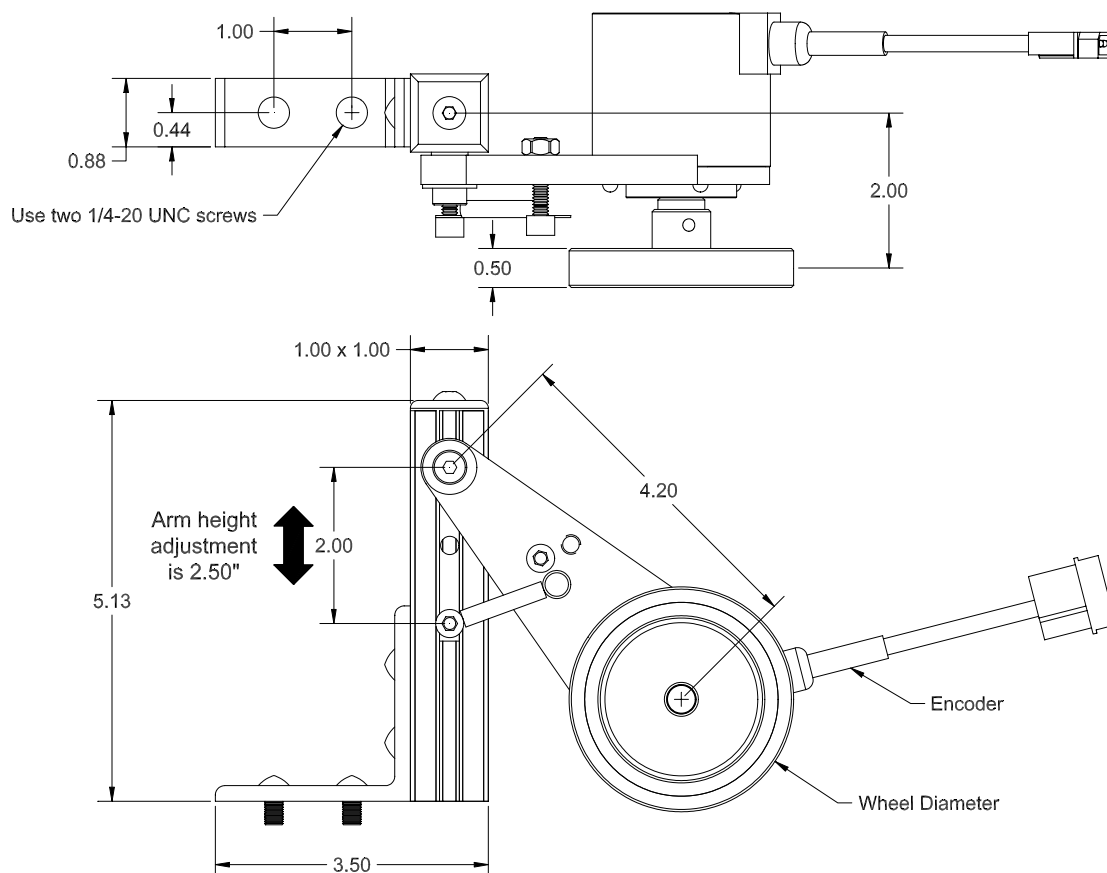


Figure 2-9: *Encoder Wheel assembly (P/N 9101543A)*

### 2.4.2 Option B - Programmable Encoder

A programmable encoder is available for applications in which a shaft encoder is to be mounted directly onto the transport belt drive shaft. It is the responsibility of the dealer/customer to properly mount the encoder to the transport base and to properly program the unit. Programming of the encoder would require a special PC Adapter Kit (P/N 9101755A) available from Buskro LTD.

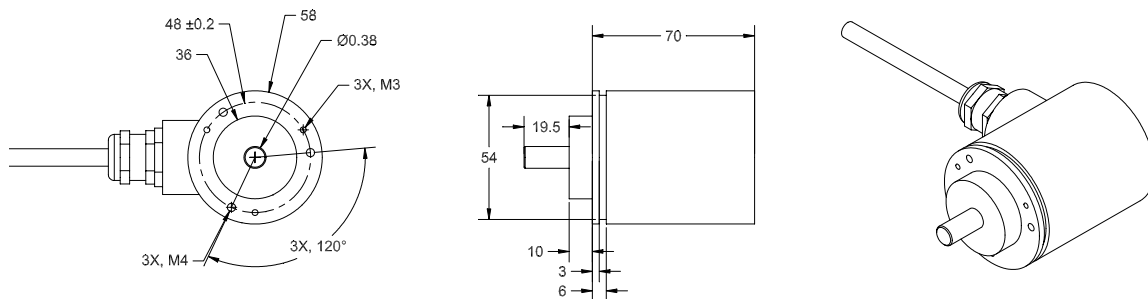


Figure 2-10: *Programmable encoder dimensions. Dimensions are in metric excluding the shaft diameter which is in inches.*

**Note:** The encoder will have to be programmed for the correct number of pulses to match the drive roller size. To program the encoder, a special programming unit (P/N 9101755A) is required.

### 2.4.3 Option C - Standard Encoder

This option includes the standard 6000 PPR encoder used on the BK730 tabbing base. Unlike the programmable encoder, this unit produces a fixed 6000 pulses per revolution. As a result, it requires that the overall diameter of the drive roller be sized accurately with a diameter of 3.19" (including belt thickness).

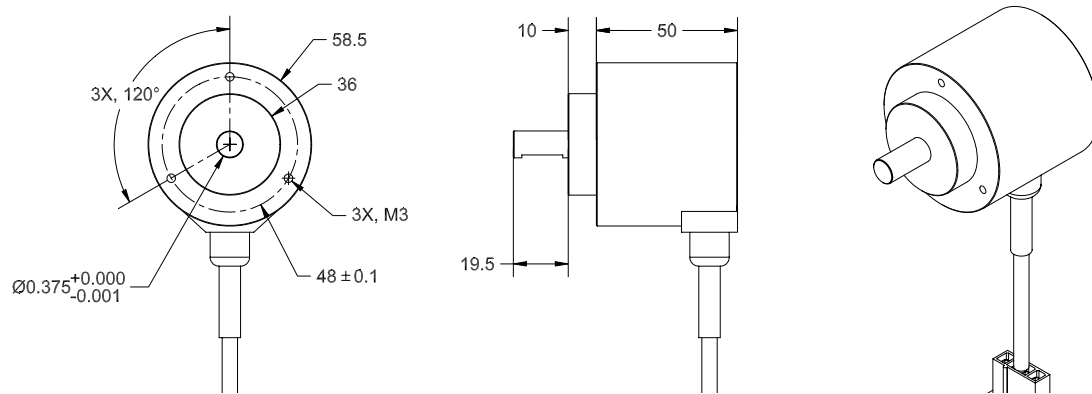


Figure 2-11: *Standard encoder dimensions (P/N 9100188A). Dimensions are in metric excluding the shaft diameter which is in inches.*

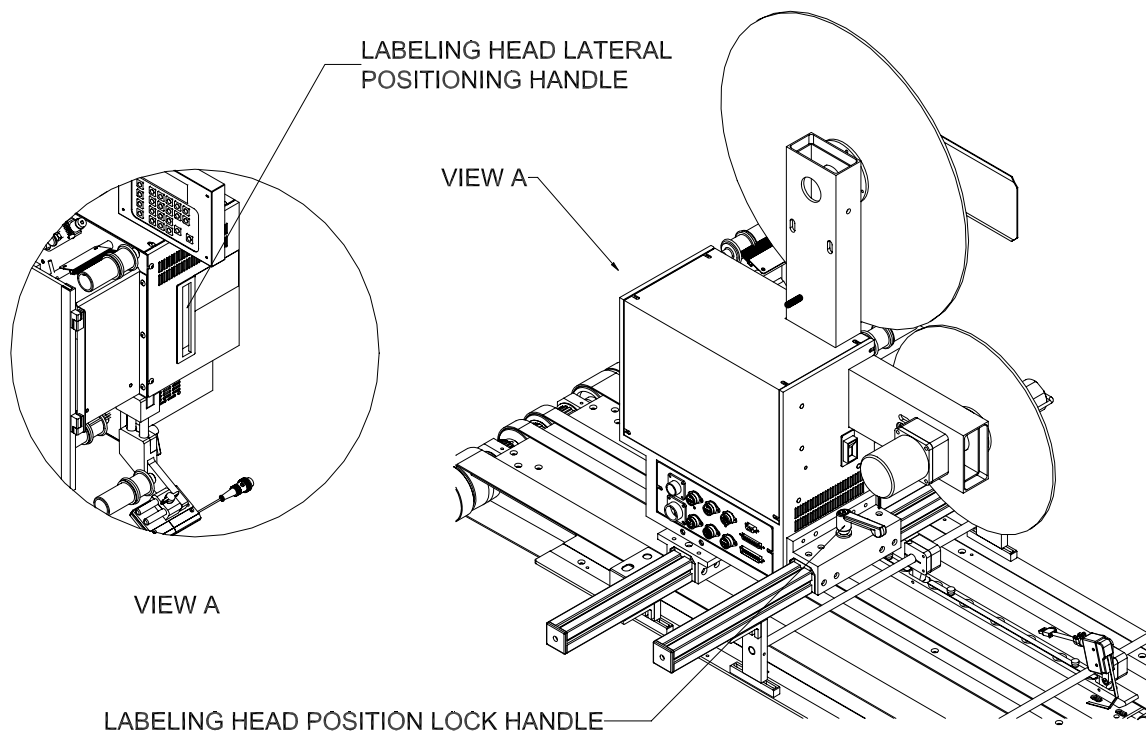


## 3.1 Mechanical Adjustments

### 3.1.1 Labeling Head Lateral Positioning

The Labeling head may be moved laterally in order to place labels on different locations of the product. The head rests on two aluminum extrusion rails, which permits easy lateral adjustment to achieve the desired labeling location with little effort.

During labeling operations, lateral positioning of the peel point must compensate for the label's width to ensure even label placement on the upper and lower side of the product. Lateral positioning of the head is accomplished by first loosening the head position lock handle (Figure 3-1) and then pushing or pulling the head in the desired direction. Once this is done, the lock handle is retightened to secure the head in place.



**Figure 3-1:** *Illustration of the Labeling head lateral adjustment*



### 3.1.2 Adjust Peel Point For Different Product Thickness

The peel point assembly needs to be adjusted for different material thickness when the product's thickness changes after a labeling operation. The Labeler can handle material thickness up to 1½".

In order to make adjustments for different product thicknesses:

1. Loosen the Peel Point Up/Down Position Lock Handle.
2. Pull the peel point and the suspension roller up approximately 4 mm from the top of the mail piece as shown in Figure 3-2 below.
3. Pull the mail piece in the direction shown to make sure that the mail piece is snugly held between the suspension roller and the tabletop belt.
4. Lock Peel Point Handle once adjustment is made.

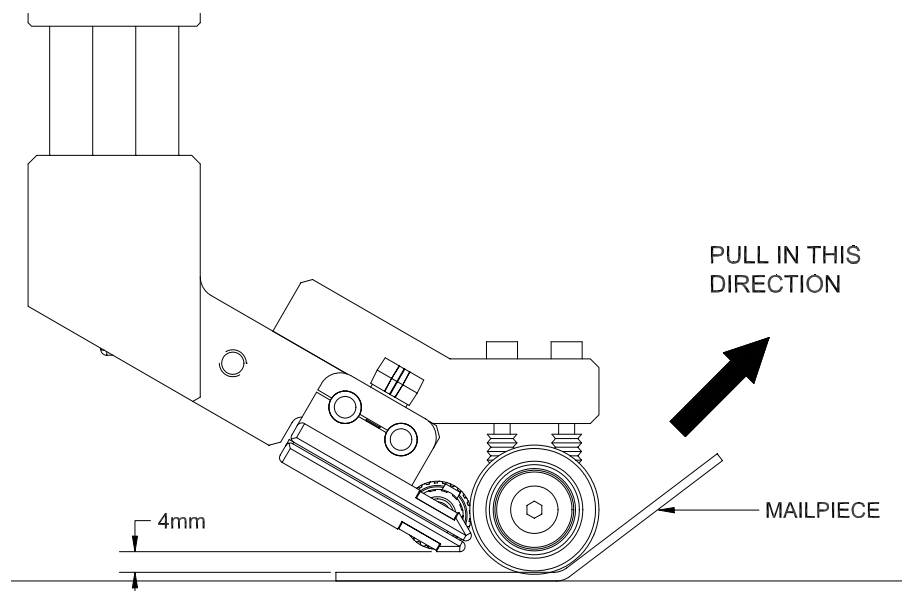


Figure 3-2: *Illustration of peel point adjustment for different product thickness*

### 3.1.3 Peel Point Lateral Adjustment

In order to accommodate a different range of label widths, the peel point lateral adjustment needs to be adjusted. It is important to properly set the width for each job. Lateral positions can be adjusted by loosening the lock knob as shown in Figure 3-3.

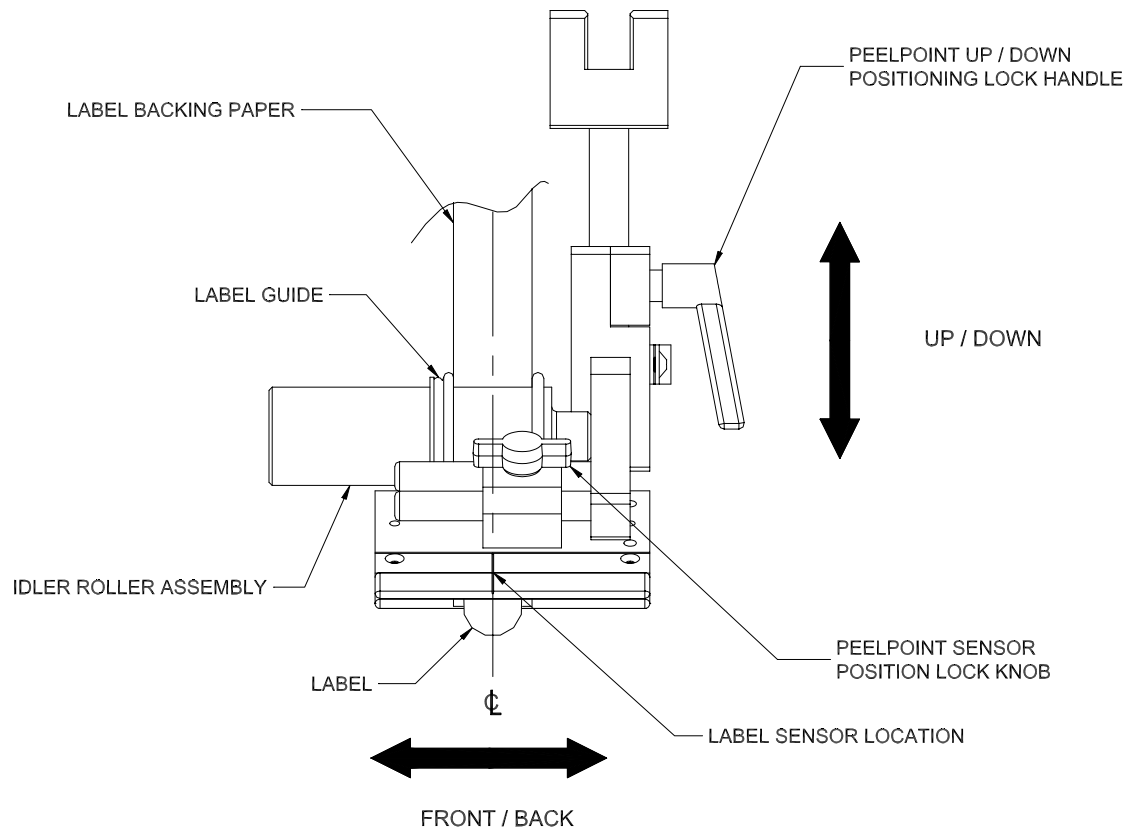


Figure 3-3: *Peel Point Assembly*

### 3.1.4 Label Spool Threading and Lateral Positioning

When initially loading on a new roll of labels, it is very important that the centerline of the labels are aligned to the sensor location on the peel point as shown in Figure 3-3. A groove line on the peel point indicates the label sensor location. This line must be placed at the center of the label. Labels that are sensed off-center will result in incorrect label placement on the product.

In order to properly thread the labels, the following instructions as well as Figure 3-4 should be referenced:

1. Load the roll of labels onto the despool roll. Despooling is done in a clockwise direction. Assemble the hub guide to the core to lock the roll of labels in place.
2. Pull back Pressure Roller 1 situated at the Despool Drive. The pressure roller should lock in an open position. Repeat for Pressure Roller 2.
3. Rotate the Brush Pivot Arm off Idler 2.
4. Create a leader in the label backing paper by removing the labels from the first 18 to 24 inches of the label roll on the despool roll. Thread the leader into the head as shown in the figure.
5. Position each individual label guide on the idler rollers so that they can guide the label backing paper (Figure 3-3). Ensure that they are not set too tightly.
6. Thread the label backing paper around the lock pin at the Take-Up roller. Rotate the Take-Up roller a few revolutions in the direction shown to lock the backing paper in place.
7. Ensure that the label backing paper is resting straight on the Despool Drive and then pull the release knob on Pressure Roller 1.
8. Ensure that the label backing paper is resting straight on the Label Drive Roller and then pull the release knob on Pressure Roller 2.
9. Rotate the Brush Pivot Arm clockwise in order to brush lightly against the label backing paper.

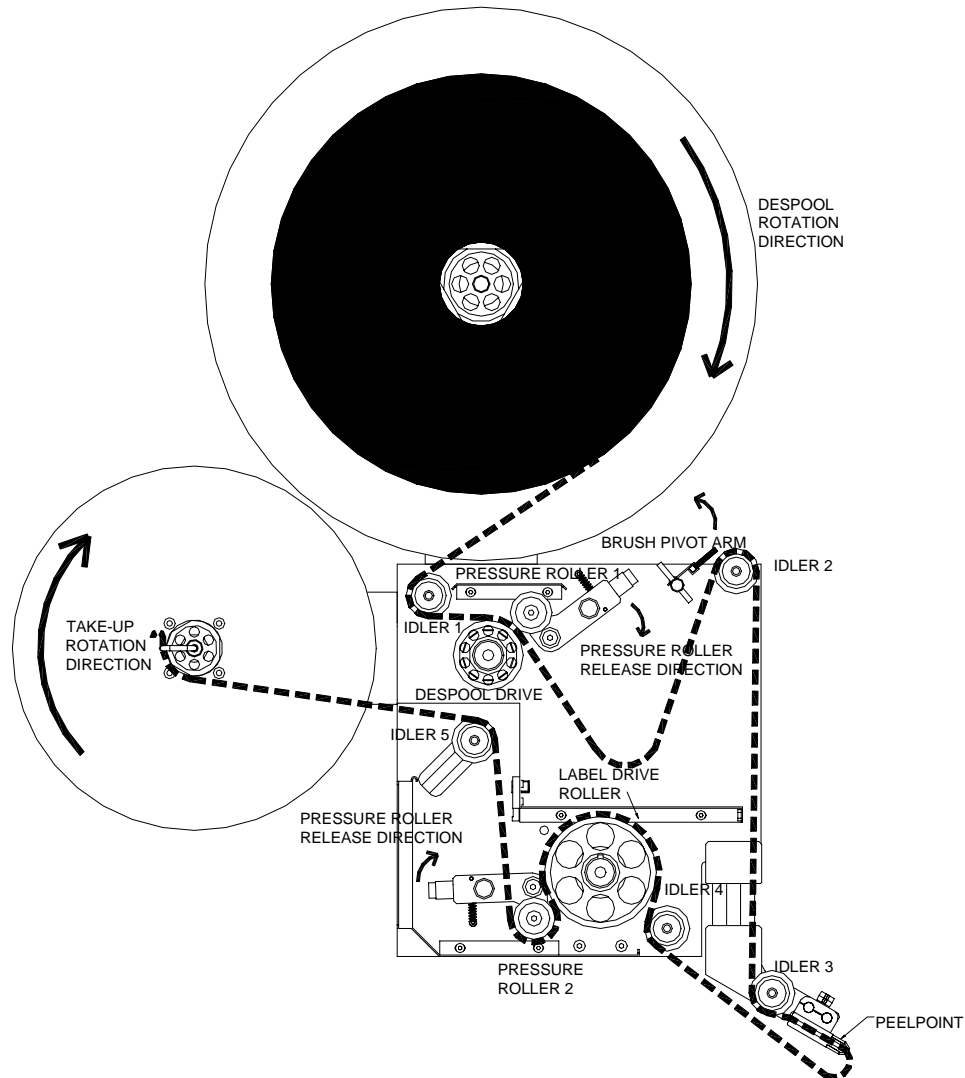
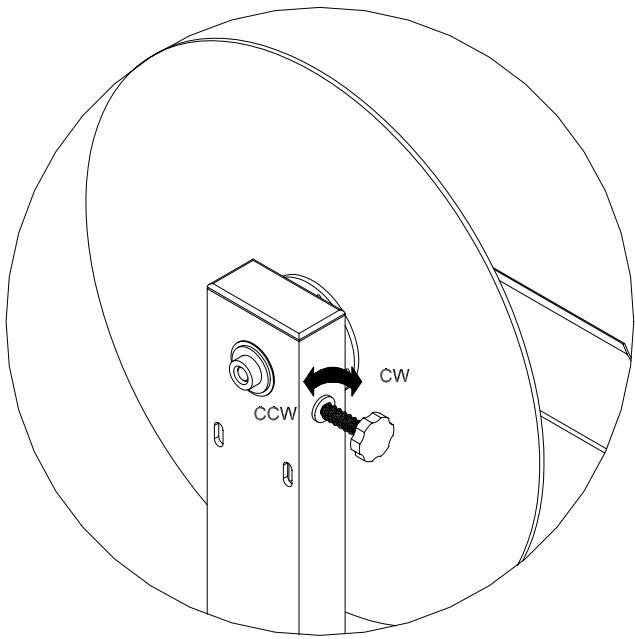


Figure 3-4: *Threading Path for the BK731*

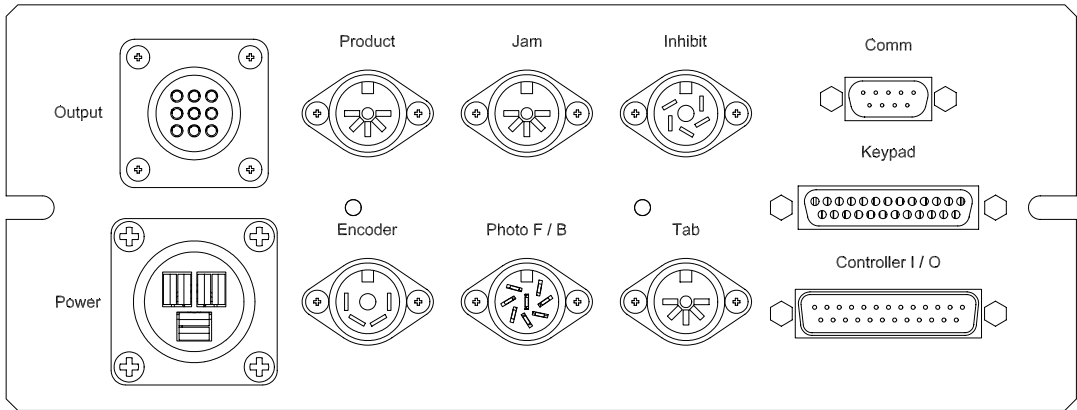
### 3.1.5 Despool Brake Adjustment.

The despool speed is driven by the Despool Drive. At high speed, the despool speed needs to be decreased in order to avoid tangling of the label backing paper. The despool speed can be adjusted by turning the Brake Adjust Knob as shown in Figure 3-5. A clockwise rotation of the knob will decrease speed while a counter-clockwise rotation will increase speed.



**Figure 3-5:** *Illustration of Despool Brake Adjust Knob*

**3.2 Labeler Connector Panel**



**Figure 3-6:** *Illustration of the labeler connector plate*

The Labeler Connector Panel provides an electrical interface with the head (i.e. to interconnect the head with sensors and the transport base). The functions are listed in Table 3-1.

Table 3-1: *Labeler Connector Panel Functions*

Connector	Function
Output	Provides output signals (stop relay uses pins 1 and 2). Requires Connector (614125), contacts (614108), and cable clamp (614126).
Product	Connection for Photocue sensor (Reflective, Through-Beam, or Diffuse).
Jam	Connection for Jam switch.
Inhibit	Used for future designs.
Comm	Used for future designs.
Power	Incoming Power (115 VAC).
Encoder	Connection for Encoder sensor.
Photo F/B	Used on the BK730 base (for front <i>and</i> back Through-Beam sensors).
Tab	Connection for Tab Sensor in the Peel Point.
Keypad	Connection for the Labeler Keypad.
Controller I/O	Connection for Labelers mounted on a BK71B.

**Note:** The Product and Photo F/B cables cannot be connected simultaneously.



## 4.1 Labeler Keypad Interface

The BK731 keypad shown in Figure 4-1 provides the user interface for all setup and diagnostic functions. The white buttons are for inputting setup changes (number pad, enter, + and -), the yellow buttons (scroll up and down) are to cycle through menus, the blue buttons (setup, test, position, and labels) are sub-menus for job setup and diagnostics, and the green button (online) sets the head operation mode.

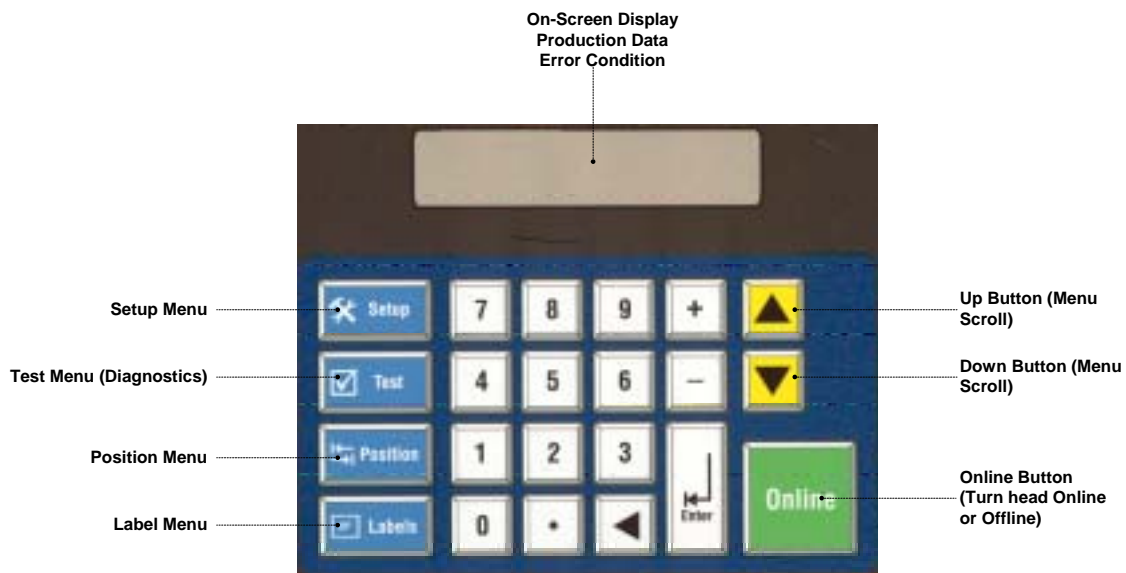


Figure 4-1: *BK731 Keypad Controls*



## 4.2 Keypad Setup Menu

The “**Setup**” button on the keypad permits the configuration of the head. The sub-commands under **Setup** are as follows:

- Front or Back Product Sensor Selection
- Product Sensor Position Setting
- Reset production count
- Display software version
- Reset to default factory setting
- Life count

### 4.2.1 Front or Back Product Sensor Selection

The Product sensor detects the presence of a product to be labeled. This setting is mainly used on the BK730 which includes both a front and back through-beam sensor and requires the ability to switch between them. For a standalone Labeler, only the FWD setting is used. In order to switch between sensors, refer to the following instructions:

1. If the keypad does not say “OFFLINE”, press the <**Online**> key.
2. Press the <**Setup**> button. The display should read “**PRODUCT SENSOR:** **FWD**” or “**PRODUCT SENSOR: BAK**”. If not, scroll through the menu by pressing the Up or Down arrow until the Product Sensor option is displayed.
3. Press <-> or <+> in order to select FWD or BAK. When your selection is made, press <**Online**>.

**Note:** If an incorrect product sensor has been chosen, then the system will not detect the conveyed products and no label will be dispensed from the Labeling head.

### 4.2.2 Product Sensor Positional Adjustment

The Product Sensor Position (PS POS) indicates the distance the photo sensor is from the tip of the peel point. This setting determines the position of the label being placed on the product. An incorrect setting will result in inaccurate placement of the label on the product. This value must be changed to match the location of the photo sensor. This can be accomplished by completing the following:

1. If the keypad does not say “OFFLINE”, press the **<Online>** key.
2. Press the **<Setup>** button. Press the Down button until the display reads “**PS POS: ##.###**” (where ##.### indicates the current position).
3. Using the keypad, enter in the distance (in inches) the center of the product sensor is from the tip of the peel point (where the label is released) and then press **<Enter>**. It is also possible to press **<+>** or **<->** to increment this value by  $\pm 1/8$ ”.
4. Press **<Online>** to exit the Setup menu.

**Note:** The factory setting for the product sensor location is 6.25”. The BK731 head allows for values between 1 to 40 inches. However, it is recommended that the sensor be as close to the peel point as possible to avoid the possibility of the product moving out of position after passing the photo sensor.

### 4.2.3 Production Counter Resetting

The production counter indicates the number of pieces labeled in a given job. In order to reset this value after a job is complete, the following must be completed:

1. If the keypad does not say “OFFLINE”, press the **<Online>** key.
2. Press the **<Setup>** button. Press the Down button until the display reads “**RESET COUNT <++++>**”.
3. Press **<+>** three times. The head should beep and reset the counter.
4. Press **<Online>** to exit the Setup menu.

#### 4.2.4 Software Version

In order to display the BK731 head software version, refer to the following instructions:

1. If the keypad does not say “OFFLINE”, press the **<Online>** key.
2. Press the **<Setup>** button. Press the Down button until the display reads **“VERSION #.#”** (where #.# represents the version number).
3. Press **<Online>** to exit the Setup menu.

#### 4.2.5 Factory Reset

The factory reset allows the operator to reset all operation variables except the life count back to their original factory settings. This operation might be necessary in the event the Labeler is unable to operate under normal conditions or an upgrade has been performed. The most common requirement for a factory reset is when labels are misplaced on the product, or no labels are being placed at all, without any explanation. In order to execute a factory reset:

1. If the keypad does not say “OFFLINE”, press the **<Online>** key.
2. Press the **<Setup>** button. Press the Down button until the display reads **“FACTORY RESET <+++>”**.
3. Press **<+>** three times. The head should beep indicating a complete reset.
4. Press **<Online>** to exit the Setup menu.

#### 4.2.6 Life Count Display

The Labeler is equipped with a non-resetable counter, which records and displays the total number of labels applied over the course of the system’s life. This counter is intended as a service counter and cannot be reset by the operator. To view the life count:

1. If the keypad does not say “OFFLINE”, press the **<Online>** key.
2. Press the **<Setup>** button. Press the Down button until the display reads **“LIFE COUNT: #####”**. This is the total number of labels applied.
3. Press **<Online>** to exit the Setup menu.

## 4.3 Keypad Test Menu

The Labeler is equipped with diagnostic tools that allow for the testing of various functions of the head. This is an important troubleshooting tool that can be used to isolate a given problem. If any one of these tests fails, it can compromise the performance or even functionality of the system. In order to access the diagnostic tools, reference the following instructions:

1. If the keypad does not say “OFFLINE”, press the <Online> key.
2. Press the <Test> button.
3. Press the Up or Down arrow keys to scroll through the different tests.
4. Press <Online> to exit the Test menu.

There are a total of 12 different tests under the Test menu. They are described in Table 4-1. Also reference **Section 1.3.1** for the sensor locations.

Table 4-1: Head Diagnostic Tools

Test	Display	Description
Encoder Test	ENCODER COUNT:	This display value should increase when the transport base is running.
Peel Point Label Sensor Test	LABEL:	Insert labeling material between the peel point. The display should read "BLOCKED" when a label is blocking the sensor and "UNBLOCKED" when there is no label on the backing material.
Front Product Sensor Test	FWD PROD:	Physically block the product sensor with your hand (do not touch the sensor). The display should read, "BLOCKED" when your hand covers the sensor and "UNBLOCKED" when your hand is clear.
Rear Product Sensor Test	BAK PROD:	Not used on the standalone head. Same procedure as FWD PROD test.
Bin Sensor Test	BIN:	Physically block the bin sensor with your hand (do not touch the sensor). The display should read, "BLOCKED" when your hand covers the sensor and "UNBLOCKED" when your hand is clear.
Take-Up Sensor Test	TAKE-UP:	Rotate the take-up spool one full rotation. The keypad display should say "UNBLOCKED" during part of the rotation and "UNBLOCKED" for the remainder of the rotation.
Jam Test	JAM:	Lifting the Jam lever should display "JAMMED". Otherwise it should display "NOT JAMMED".
Front Door Cover Test	COVER:	When the BK731 head front door is closed it should display "CLOSED". Otherwise it should display "OPEN".
Label Drive Motor Test	LABEL STEP:	The label drive roller should rotate counter-clockwise one step each time <b>&lt;ENTER&gt;</b> is pressed.
Despool Drive Motor Test	UNWIND STEP <ENTER>	The despool drive motor should rotate clockwise one step each time <b>&lt;ENTER&gt;</b> is pressed.
Take-Up Test	TAKEUP TEST <ENTER>	When performed WITHOUT a roll of label installed, the take-up spool should rotate clockwise and stop automatically.
Stop Relay Test	STOP RELAY <ENTER>	While the transport base is running, pressing <b>&lt;ENTER&gt;</b> will cause the transport base to stop.

## 4.4 Keypad Position Menu

The “**Position**” button on the keypad provides the user with the ability to change the number of labels per product and where they are positioned on the product. This includes automatic symmetrical positioning of labels or manual placement.

### 4.4.1 Label Spacing Option

The Label Spacing function allows the spacing between each label to be set manually or automatically. The automatic spacing allows the labels to be spaced equally. If the manual option is selected, the user can key in the spacing between labels manually. In order to set the label spacing to auto or manual:

1. If the keypad does not say “OFFLINE”, press the <**Online**> key.
2. Press the <**Position**> button.
3. The display should read “**SPACING: AUTO**” or “**SPACING: MANUAL**”. If not, press the Down key until it does.
4. Press the <+> or <-> key to change between the Auto and Manual settings.
5. If you wish to manually change the label position, go to **Section 4.4.4**.
6. Press <**Online**> to exit the Position menu.

**Note:** If automatic label spacing is chosen, label position cannot be keyed in.

### 4.4.2 Number of Labels

The Buskro labeler has the ability to apply 1 to 3 labels on a piece during a single pass. In order to change the number of labels applied, reference the following steps:

1. If the keypad does not say “OFFLINE”, press the <Online> key.
2. Press the <Position> button.
3. Press the Down key until the display reads “**LABELS PER PIECE: #**” where # indicates the number of labels. This value can be changed by either pressing <+> or <-> or by hitting the number corresponding to the number of required labels and hitting <Enter>.
4. Press <Online> to exit the Position menu.

### 4.4.3 Product Length Entry

Anytime a different length material is used, the product length must be entered into the head. Otherwise, the labels will not be placed in the proper locations. To set the product length:

1. Measure the product length.
2. If the keypad does not say “OFFLINE”, press the <Online> key.
3. Press the <Position> button.
4. Press the Down key until the display reads “**LENGTH: ##.###**” where ##.### indicates the product length.
5. Using the keypad, enter in the length of the product and press <Enter>.
6. Press <Online> to exit the Position menu.

#### 4.4.4 Manual Label Position

This section is only relevant if the label spacing is set on manual (**Section 4.4.1**). The label position entry is defined as the distance from the leading edge of the product to the leading edge of the label with label position #1 being closest to the leading edge of the product (*Figure 4-2*).

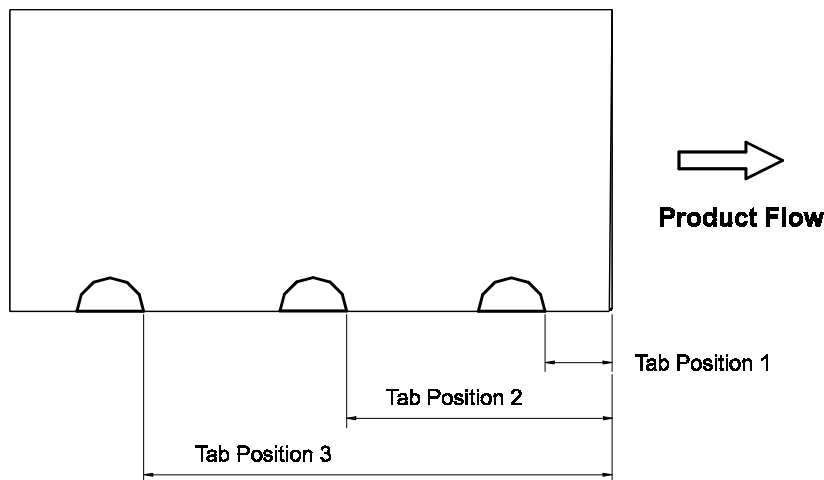


Figure 4-2: *Label position*

In order to set the label position (assuming 3 labels per pass):

1. If the keypad does not say “OFFLINE”, press the <Online> key.
2. Press the <Position> button.
3. Follow the instructions in **Section 4.4.1** and set the spacing to manual.
4. Press the Down key until the display reads “POS 1: ##.###” where ##.### indicates the position of the first label in inches.
5. Using the keypad, enter in the position of the label and press <Enter>.
6. Press the Down key until the display reads “POS 2: ##.###” and repeat step 5.
7. Press the Down key until the display reads “POS 3: ##.###” and repeat step 5.
8. Press <Online> to exit the Position menu.

**Note:** 0.00” is the minimum setting.

A material size error condition could occur if the label positions are set too close together. The result is immediate.



#### 4.4.5 Keypad Labels Menu

The “**Labels**” button on the keypad provides the user with the ability to set up the type, position, and pitch of a label. The sub-commands under **Labels** are as follows:

- Label Pitch Auto Configuration
- Label Pitch Manual Configuration
- Type of Label
- Sensor Sensitivity Setting
- Sensor Nudge Factor

#### 4.4.6 Label Pitch Auto and Manual Setting

The BK731 utilizes the Label Pitch value to determine how much of an incremental move the label drive roller has to make between each label. This value is extremely important to maintain accurate label placement. The pitch is determined by measuring the distance from the beginning of the first label to that of the second label (Figure 4-3). This value must be within  $\pm 0.05''$  to ensure that each successive label is accurately placed on the product. Failure to set this parameter accurately will result in label “drift” with labels being incorrectly placed on successive products. Although it is possible to manually enter in the label pitch, the BK731 is capable of automatically determining both the appropriate pitch and sensor gain (Section 4.4.8).

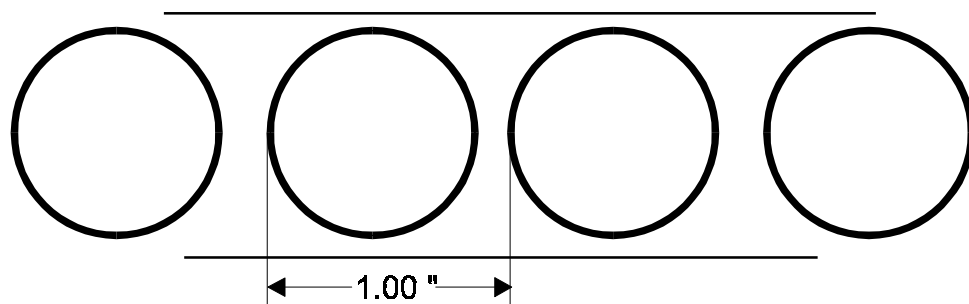


Figure 4-3: *Label Pitch Example (In this case Label Pitch is 1.00")*

In order to set the label pitch automatically:

1. If the keypad does not say “OFFLINE”, press the **<Online>** key.
2. Press the **<Labels>** button. The display should read “**AUTO CONFIG**  
**<ENTER>**”. If not, press the Down arrow key until it does.
3. Place a product underneath the peel point. Now press **<ENTER>**. The BK731 should release a small number of labels.
4. Repeat step 3.
5. Press **<Online>** to exit the Labels menu.

In order to set the label pitch manually:

1. If the keypad does not say “OFFLINE”, press the **<Online>** key.
2. Press the **<Labels>** button.
3. Press the Down arrow key until the display reads “**PITCH: #.###**”.
4. Using the keypad, enter in the label pitch and press **<Enter>** (Figure 4-3).
5. Press **<Online>** to exit the Labels menu.

**Note:** It is recommended that the automatic label pitch setting be used.

If the Label Pitch entry is not accurately set, the result will be that each successive label applied will drift incrementally on successive products. That is, the first label may be applied at 1” from the lead edge, with the second applied at 1.05”, the third one at 1.1” and so on.

The label sensor gain will also need adjustment for accurate label placement when the manual label pitch function is used.

#### 4.4.7 Type of Label Setting

The BK731 was designed to operate using two main types of labels, clear or solid (transparent or opaque). Clear labels require backing paper that comes with two black lines acting as leading and trailing edge for the peel point sensor to detect. In order to set the type of label:

1. If the keypad does not say “OFFLINE”, press the <Online> key.
2. Press the <Labels> button.
3. Press the Down arrow key until the display reads “**LABEL TYPE: CLEAR**” or “**LABEL TYPE: SOLID**”.
4. Press <+> or <-> to change the setting to solid or clear labels.
5. Press <Online> to exit the Labels menu.

#### 4.4.8 Peel Point Sensor Adjustment

The label sensor in the peel point assembly is a photo-sensor that detects the presence of the label’s leading edge. Label sensor adjustment involves setting the gain such that its beam is strong enough to pass through the label backer yet weak enough to be blocked by the label. This adjustment should be made if there is a noticeable misalignment in the placement of the labels on the product. To set the peel point sensor gain:

1. If the keypad does not say “OFFLINE”, press the <Online> key.
2. Press the <Labels> button.
3. Press the Down arrow key until the display reads “**SENSOR VALUE: ###**”.
4. Press the <+> or <-> key to increase or decrease the sensor gain to an appropriate value.
5. Press <Online> to exit the Labels menu.
6. Test the peel point sensor by referencing Table 4-1. If the display indicates the peel point is “BLOCKED” when a label is inserted between the peel point sections and “UNBLOCKED” when only the backing paper is inserted, the setting is correct. If not, repeat this section until the system operates properly.

**Note:** It is recommended that the automatic label pitch function be used. This function will also adjust the sensor gain automatically. If the Peel Point sensor gain is not properly set, the label placement will not be accurate.

This setting should only be used if there is a noticeable degradation in the positioning of the labels on the product and when the manual label pitch function is used to set label pitch.

#### 4.4.9 Peel Point Sensor Nudge Factor

The nudge factor allows the BK731 to automatically offset the label relative to the peel point. A positive nudge factor will cause the labels to protrude outside of the peel point tip more during labeling operation. This setting can help in improving accurate label placement when set properly. In order to set the peel point nudge factor:

1. If the keypad does not say “OFFLINE”, press the <Online> key.
2. Press the <Labels> button.
3. Press the Down arrow key until the display reads “**SENSOR NUDGE: ±**”.
4. Press the <+> or <-> key to increase or decrease the nudge factor
5. Press <Online> to exit the Labels menu.

### 4.5 Operational Controls

This section describes the functions available during normal operation of the Labeler system.

#### 4.5.1 Online/Offline Status

The head must be placed online if the labeling operation is to be enabled. Conversely, placing the system offline will result in the suspension of the labeling operation. To place the system online or offline, press the <ONLINE> button. The system will be offline during initial startup, whenever an error condition is detected, or when the user manually takes the system offline.

**Note:** When the system is placed offline, the Labeler system will immediately cease operation.

### 4.5.2 Product Count, Production Rate, and Belt Speed Display

The Labeler is capable of displaying the job product count (number of products with labels applied), production rate (in Pieces Per Hour or PPH), or line/transport speed (in Feet per Minute or FPM). During normal operation (Online mode), the user can cycle through these displays by pressing the Up or Down arrow keys on the keypad.

### 4.5.3 Error Conditions

The Labeler is designed to automatically go offline when an error condition is triggered. This will automatically stop the labeling process and display an error message. As a result, the user will need to remedy the problem that caused the error condition. The main error conditions are listed in *Table 4-2* below.

Table 4-2: *Error conditions reported by the Labeler head controller*

Error Condition	Cause	Remedy
<b>ONLINE</b>	All systems are operating normally and no errors are detected	None. Normal operation.
<b>PRODUCT JAM</b>	Product jammed or the upper transport was opened during operation.	Remove jammed product from jam switch.
<b>TAKEUP ERROR</b>	The take-up spool rotates freely.	Empty label backing paper from take-up roll and rethread the label backing paper onto the roll.
<b>COVER OPEN</b>	The Labeler head front safety cover is opened during operation.	Close the Labeler head cover.
<b>MATERIAL SIZE ERROR</b>	There is a misfeed or product skew.	Check if the product is fed correctly.

## 4.6 Maintenance Schedule

The maintenance schedule in Table 4-3 below applies to equipment operated daily on an 8-hour basis. If the equipment is to be used more frequently, the maintenance schedule must be adjusted accordingly.

**Table 4-3:** *Head Maintenance Schedule*

Period	Maintenance Function
<b>Daily</b>	Remove the front safety cover and clean any debris, which may have fallen into the machine. Remove any labels, which may have settled on the rollers and sensor bin. Wipe debris off all sensors to prevent malfunction.
<b>Monthly</b>	Grease all moving parts to help reduce wear due to friction. The peel point sensor must be cleaned to prevent material build up. An air compressor is recommended.
<b>Semi Annually</b>	Examine all moving parts for wear. Replace if necessary.

**Note:** Acquiring a small air compressor is recommended as compressed air is useful in removing debris.

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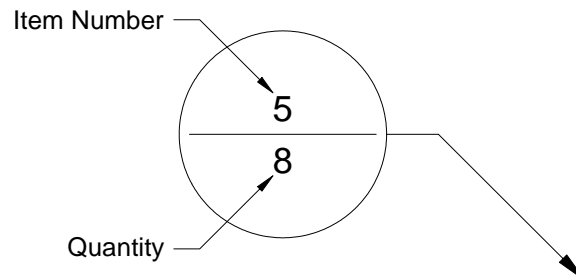
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## Balloon Annotation and Parts Listing



Item	Part Number	Quantity	Description	Reference
1				
2				

The following is a description of how to interpret the information in this section:

### Item:

This column indicates the item number used for each unique part in an assembly drawing. It is matched with the top number in the balloon pointing at the associated part.

### Part Number:

This column represents the Buskro part number.

### Quantity:

This represents the total number of a given part in an assembly. It is matched with the bottom number in the balloon pointing at the associated part.

### Description:

This column contains a brief description of the part.

### Reference:

This column indicates the page location for sub-assemblies.

Table A-1: *Labeling Head Assembly (BK731)*

Item	Part Number	Quantity	Description	Reference
1	404550	8	Screw, BHCS, 10-32 UNF x 3/4"	
2	405520	4	Screw, BHCS, 1/4-20 UNC x 3/8"	
3	405560	2	Screw, BHCS, 1/4-20 UNC x 7/8"	
4	603520A	1	Jam Switch Assembly, Tabber	Page A-5
5	614104A	1	Power Cable Assembly, Tabber	Page A-6
6	9100724A	1	Jam/Proxi/Photocue Sensor Extension Cable	Page A-9
7	9101064A	1	Tabber Left Mounting Rail Assembly	Page A-14
8	9101077A	1	Front Mounting Rail Assembly	Page A-16
9	9101565A	1	Suspension Base Block Assembly	Page A-14
10	BK731A	1	Tabber Head Assembly	Page A-2

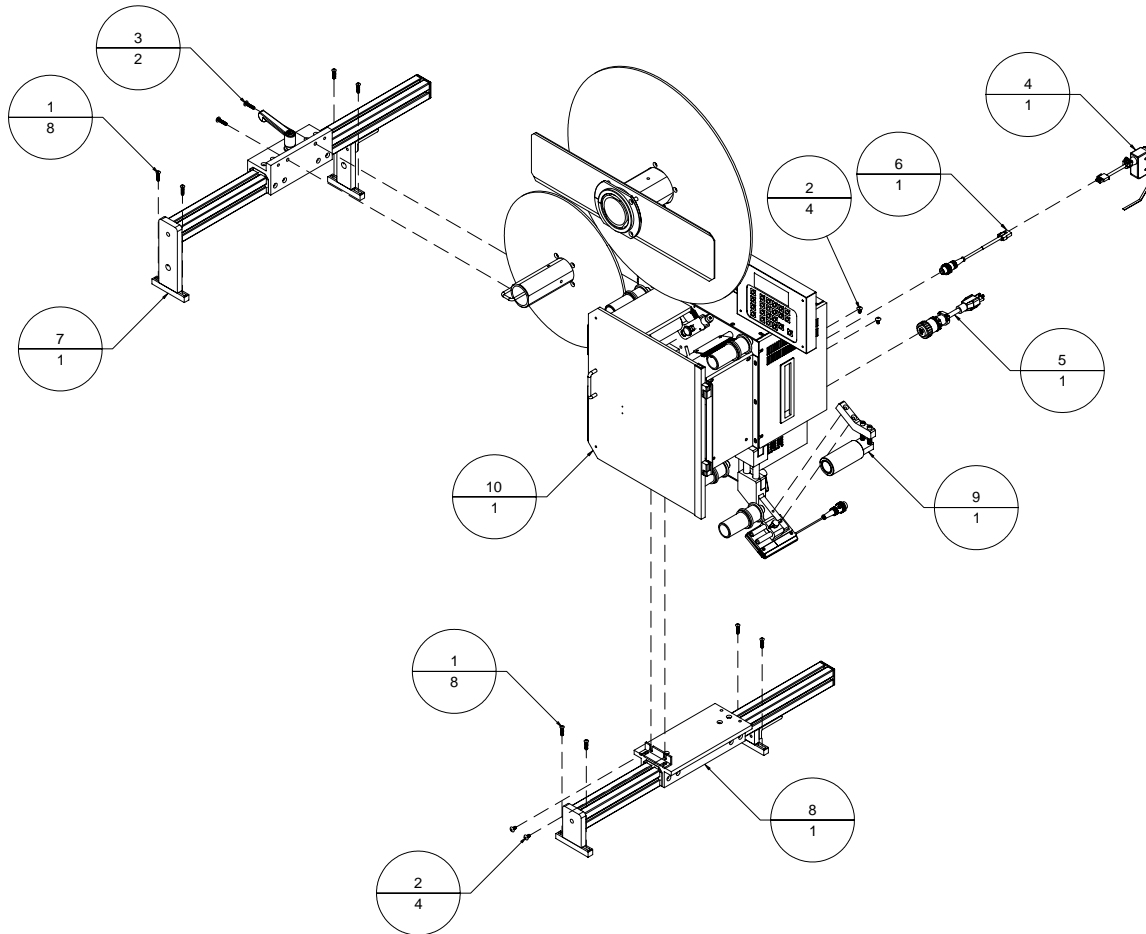
Figure A-1: *Labeling Head Assembly (BK731)*

Table A-2: *Tabber Head Assembly (BK731A)*

Item	Part Number	Quantity	Description	Reference
1	401510	5	Screw, BHCS, 4-40 UNC x 1/4"	
2	402250	2	Screw, SHCS, 6-32 UNC x 3/4"	
3	402520	4	Screw, BHCS, 6-32 UNC x 3/8"	
4	403530	4	Screw, BHCS, 8-32 UNC x 1/2"	
5	404070	1	Screw, FHCS, 10-32 UNF x 1"	
6	404250	4	Screw, SHCS, 10-32 UNF x 3/4"	
7	404510	35	Screw, BHCS, 10-32 UNF x 1/4"	
8	404530	2	Screw, BHCS, 10-32 UNF x 1/2"	
9	404805	3	Screw, SHSS, 10-32 UNF x 1/8"	
10	405240	2	Screw, SHCS, 1/4-20 UNC x 3/4"	
11	405270	4	Screw, SHCS, 1/4-20 UNC x 1"	
12	405510	2	Screw, BHCS, 1/4-20 UNC x 1/4"	
13	405530	2	Screw, BHCS, 1/4-20 UNC x 1/2"	
14	405540	6	Screw, BHCS, 1/4-20 UNC x 5/8"	
15	406585	4	Screw, BHCS, 5/16-18 UNC x 2"	
16	416160	2	Shoulder Bolt, 3/8" x 7/8" (5/16-18 UNC)	
17	416185	5	Shoulder Bolt, 3/8" x 2" (5/16-18 UNC)	
18	420006	2	Nut, 6-32 UNC	
19	420008	2	Nut, 10-32 UNF	
20	433000	2	Keystock, 3/16 x 3/16 (3/4" Long)	
21	455030	1	Ball Plunger, 1/4-20 UNC X 1/2" Long	
22	500055	1	Bearing UBR204-12S, 3/4" I.D.	
23	600600	1	Power Supply, 12 VDC	
24	606020	1	Wire, #18, Black Hookup (15" Long)	
25	606020	4	Wire, #18, Black Hookup (18" Long)	
26	606022	1	Wire, #18, Red Hookup (18" Long)	
27	606025	1	Wire, #18, Orange Hookup (18" Long)	
28	606026	1	Wire, #18, Blue Hookup (10" Long)	
29	606029	1	Wire, #18, White Hookup (10" Long)	
30	606029	1	Wire, #18, White Hookup (15" Long)	
31	606029	2	Wire, #18, White Hookup (18" Long)	
32	609000	1	Shrink Wrap, 3/16" I.D. (10" Long)	
33	609110	1	Connector, Push-on, Blue	
34	609113	1	Connector, Push-on, Yellow	
35	609117	3	Connector, Push-on, Red	
36	609118	3	Connector, Tab, Red	
37	615534	1	Sensor, Proximity, Magnetic, NO	
38	9101051A	1	Unwind Assembly	Page A-5
39	9101052A	1	Rewind Base Assembly	Page A-11
40	9101053	1	Tabber Head Base Plate	
41	9101054	1	Tab Storage Bin	
42	9101055	1	Tab Drive Shaft	
43	9101056	1	Abrasive Roller	
44	9101058	1	Stepper Motor, 2 Phase	
45	9101060A	5	Idler Roller Assembly	Page A-13
46	9101061	1	Polyurethane Drive Shaft Roller	
47	9101062	1	Shaft, Unwind Motor	
48	9101063	1	Stepper Motor, 5 Phase	
49	9101066	2	Collar, 1/4" Thick	

Item	Part Number	Quantity	Description	Reference
50	9101069A	2	Lower Pivot Arm Assembly	Page A-14
51	9101081A	1	Peel Point Base Assembly	Page A-16
52	9101085	1	Bin Sensor	
53	9101107	2	Mounting Block, Stepper Motor	
54	9101111A	1	Front Cover Assembly	Page A-18
55	9101112A	1	Brush Pivot Assembly	Page A-19
56	9101113A	1	Stepper Motor Driver Assembly	Page A-20
57	9101121A	1	Keypad Mounting Rail Assembly	Page A-21
58	9101131	1	Support Post	
59	9101134A	1	Tabber Connector Plate Assembly	
60	9101148	1	Front Cover Guard Plate	
61	9101233A	1	Oscillating Idler Assembly	Page A-24
62	9101235	2	Washer, 25/64" I.D., Bow Spring Tension	
63	9101244A	1	Tabber Backcover Assembly	Page A-25
64	9101256	1	Tabber Head Removable Back Cover	
65	9101274	1	Power Supply, Linear, 24V, 2A	
66	9101552	1	Tab Threading Label	
67	9101577	1	Top Guard Plate	
68	9101619	2	Magnetic Latch	

Figure A-2: Tabber Head Assembly - Page 1 of 2 (BK731A)

NOTE:

CAPACITOR IS PART OF 9101065 IN ASSEMBLY 9101052A.

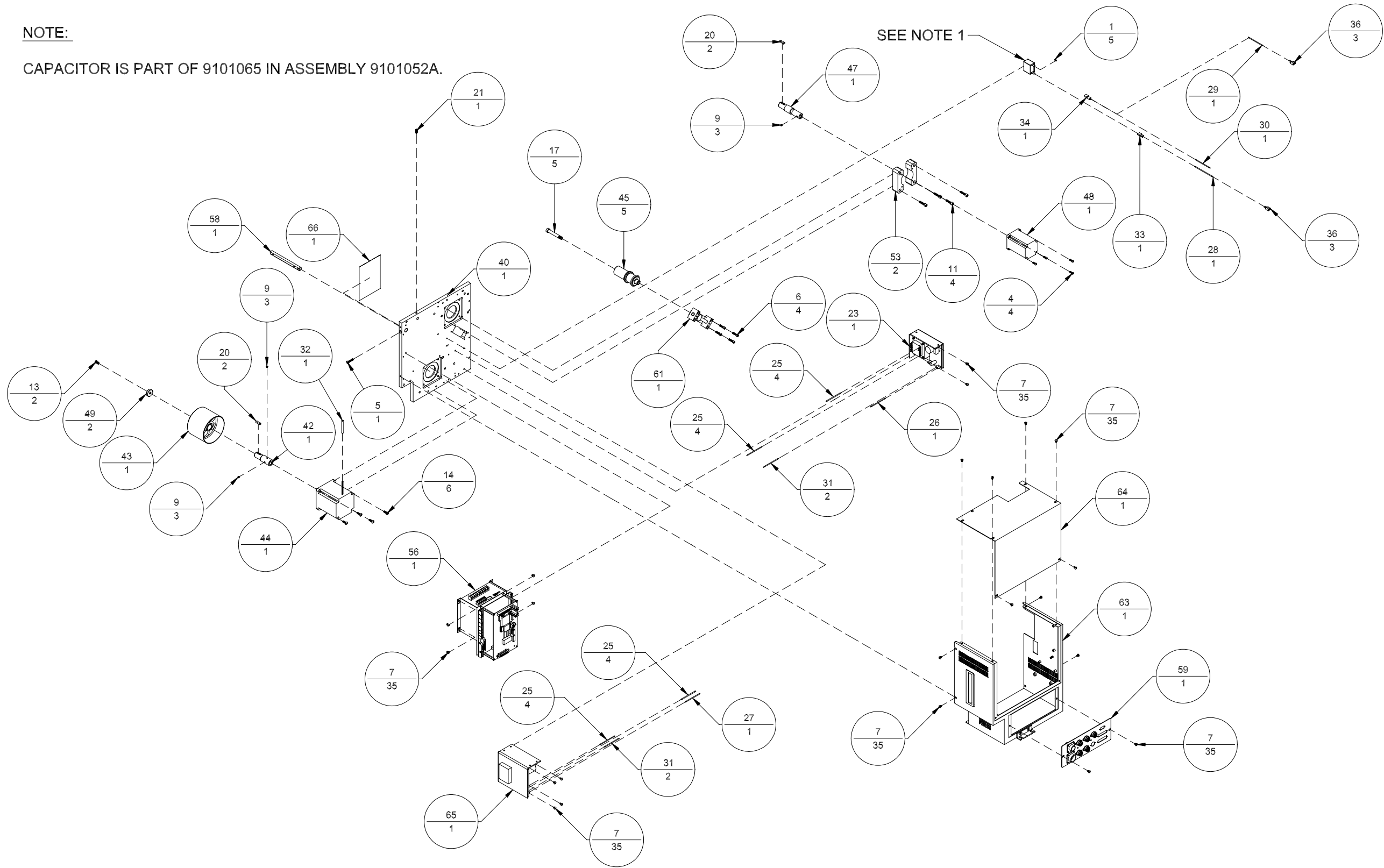


Figure A-3: Tabber Head Assembly Page 2 of 2 (BK731A)

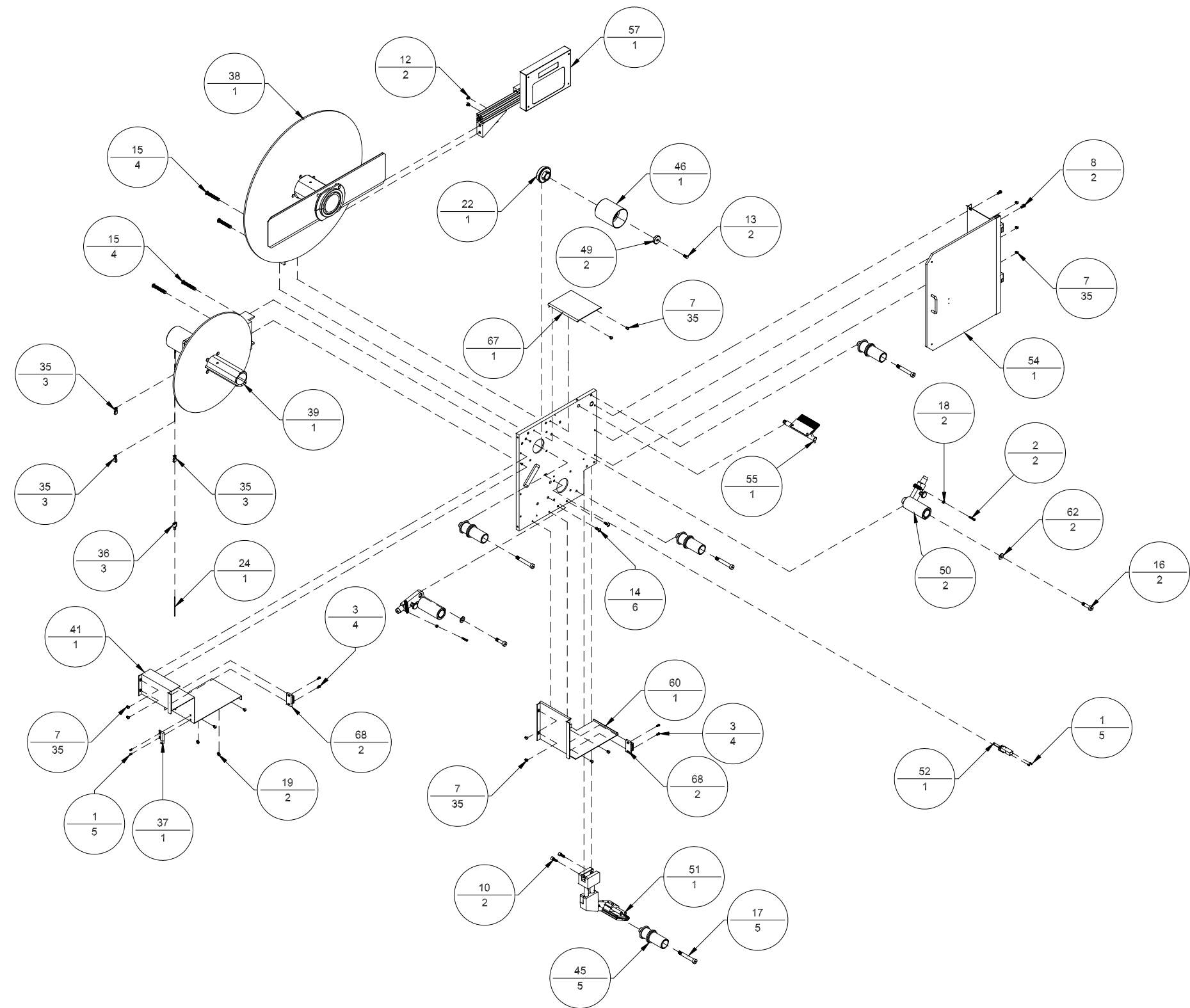


Table A-3: *Jam Switch Assembly, Tabber (603520A)*

Item	Part Number	Quantity	Description	Reference
1	603020	1	Microswitch	
2	603021	1	Microswitch Cover	
3	606531	20"	Cable, #22-2	
4	609000	1"	Shrink Wrap, 3/16" I.D.	
5	609116	2	Ring Tongue Terminal #10, Red	
6	614000	2	Male Contact Pin	
7	614001	1	Plug, Cap Pin Housing	

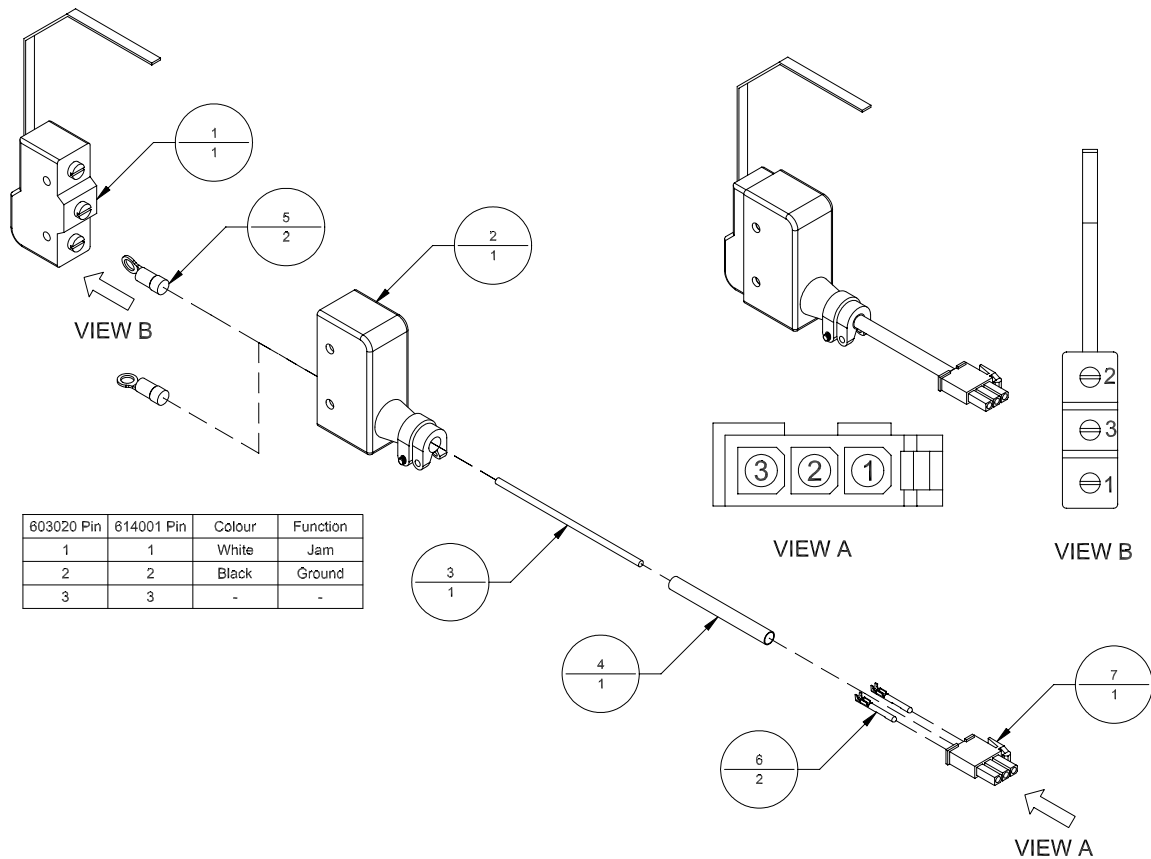
Figure A-4: *Jam Switch Assembly, Tabber (603520A)*

Table A-4: *Power Cable Assembly, Tabber (614104A)*

Item	Part Number	Quantity	Description	Reference
1	606330	1	Replacement Cord, #16-3 x 15'	
2	614104	1	Plug Connector 17-3, Standard	
3	614110	3	Socket, Power Contact	
4	614140	1	Cable Clamp, Shell 17	

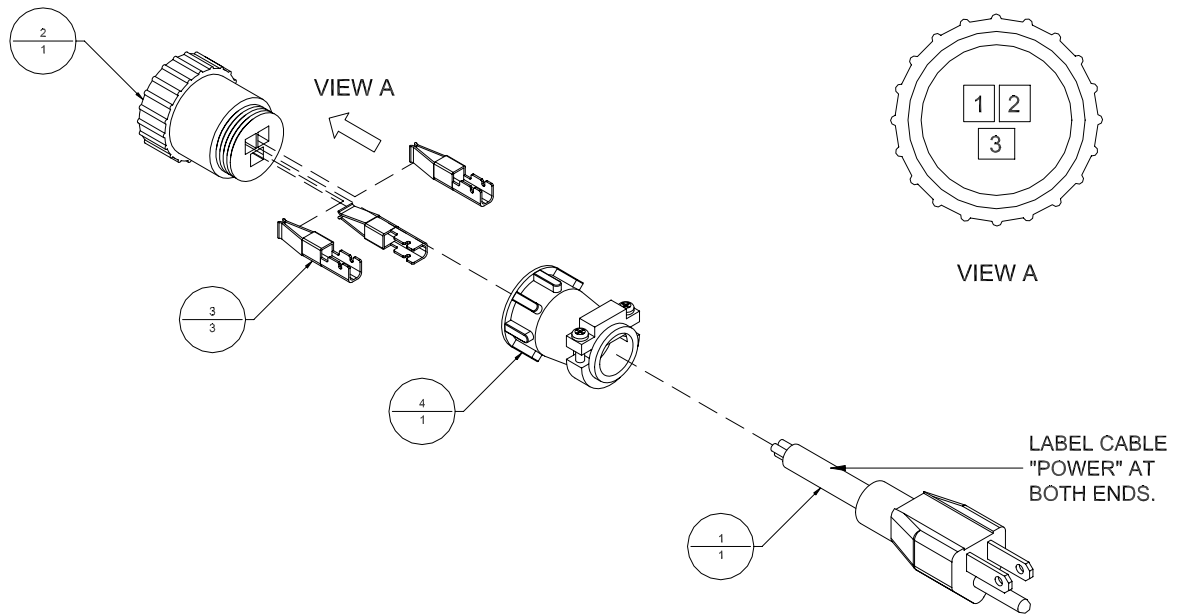
Figure A-5: *Power Cable Assembly, Tabber (614104A)*

Table A-5: *Cycle Proximity Switch Assembly (630004A)*

Item	Part Number	Quantity	Description	Reference
1	609000	0.75"	Shrink Wrap, 3/16" I.D.	
2	614000	3	Male Contact, Pin	
3	614001	1	Plug, Cap Pin Housing	
4	630004	1	Proximity Switch	

Figure A-6: *Cycle Proximity Switch Assembly (630004A)*

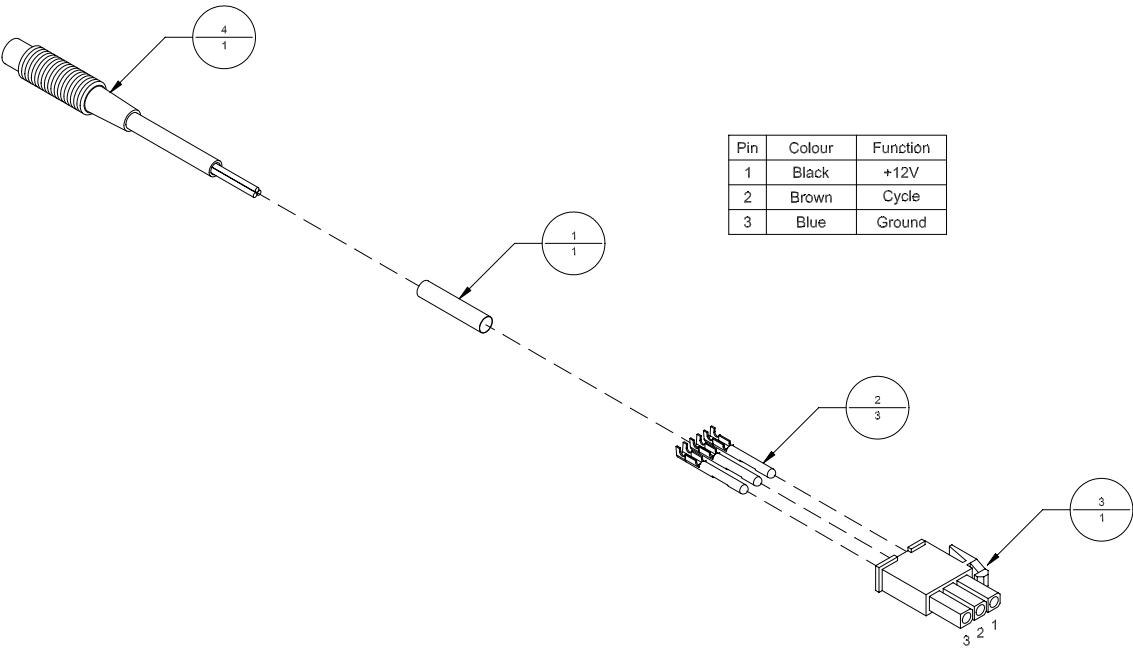




Table A-6: *Shaft Encoder Assembly (9100188A)*

Item	Part Number	Quantity	Description	Reference
1	609000	0.75"	Shrink Wrap, 3/16" I.D.	
2	614008	4	Male Contact, Pin	
3	614009	1	Plug, Pin Housing	
4	9100188	1	Shaft Encoder	

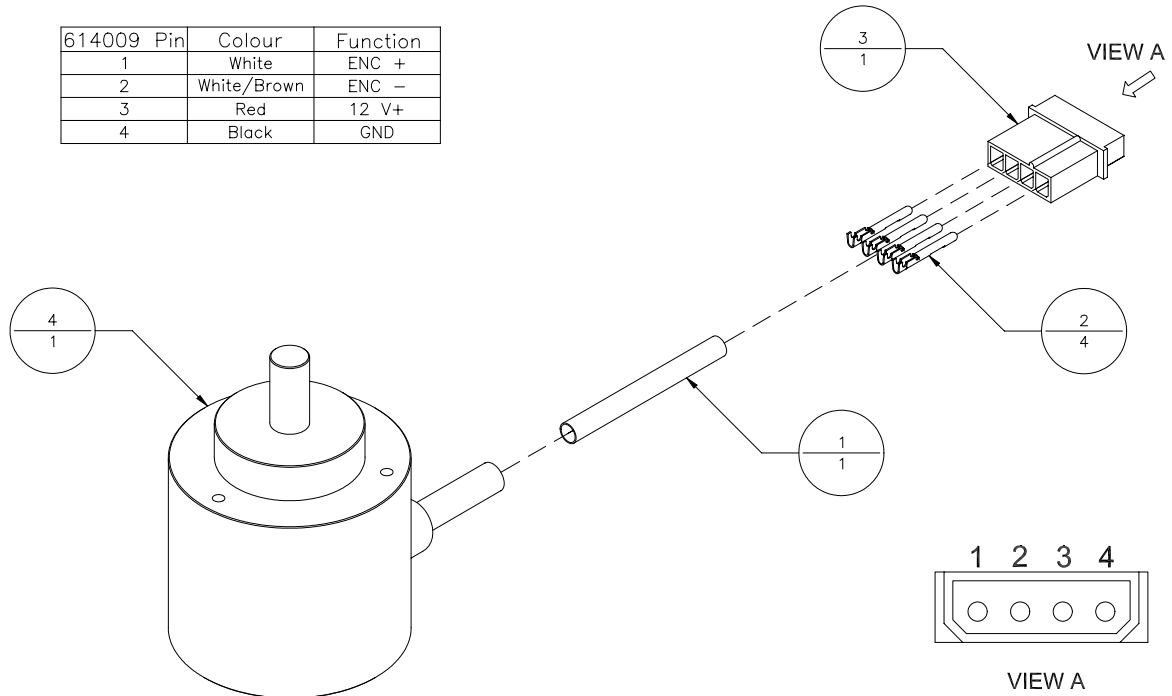
Figure A-7: *Shaft Encoder Assembly (9100188A)*

Table A-7: *Jam/Proxi/Photocue Extension Cable (9100724A)*

Item	Part Number	Quantity	Description	Reference
1	606013	1	Cable, #22-3, Shielded (60" Long)	
2	609000	1	Shrink Wrap, 3/16" ID (1" Long)	
3	614002	3	Female Contact, Socket	
4	614003	1	Cap Receptacle	
5	9100724	1	Plug, Preh, Locking, 3 pin	

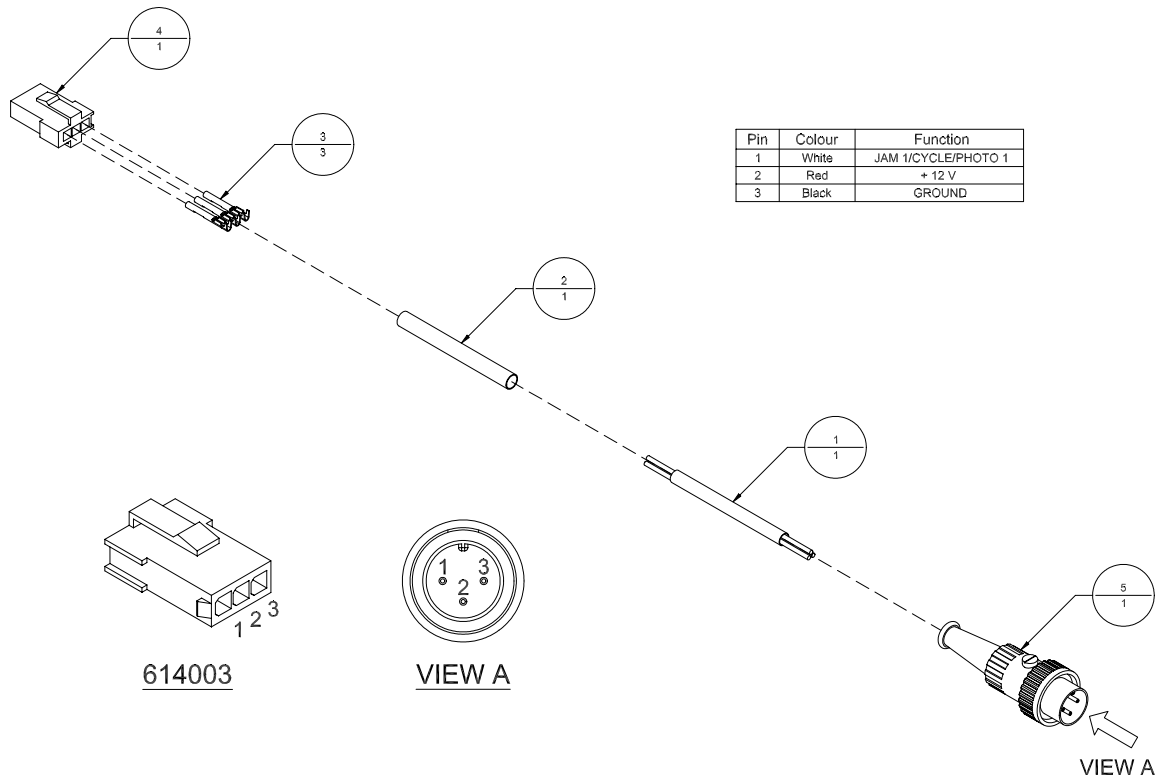
Figure A-8: *Jam/Proxi/Photocue Extension Cable (9100724A)*

Table A-8: *Unwind Assembly (9101051A)*

Item	Part Number	Quantity	Description	Reference
1	404510	8	Screw, BHCS, 10-32 UNF x 1/4"	
2	405830	2	Screw, SHSS, 1/4-20 UNC x 1/2"	
3	407285	1	Screw, SHCS, 3/8-16 UNC x 2"	
4	438503	1	Rosette Knob, Black Plastic, 3/8" Screw	
5	440008	4	Washer, #10 I.D.	
6	440020	2	Washer, 3/8" I.D.	
7	500045	2	Bearing UBR202-10S, 5/8" I.D.	
8	9101051	1	Unwind Mounting Extrusion	
9	9101088	2	Mounting Bracket, Brake Belt	
10	9101103	1	Extrusion Cap	
11	9101143	1	Shaft, Unwind Motor	
12	9101145A	1	Unwind Disc Assembly	Page A-23
13	9101146	1	Unwind Braking Pad	
14	9101147	1	Unwind Brake Belt	
15	9101258	1	Oscillating Idler Roller Spring	

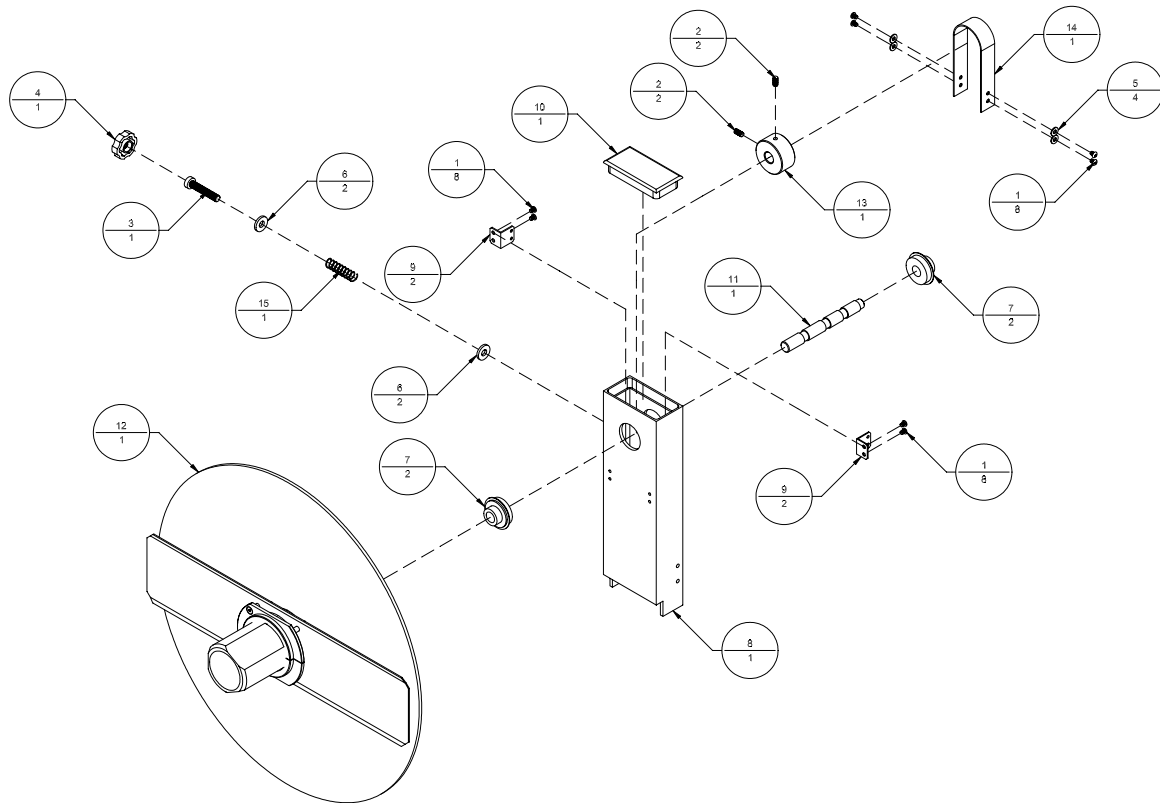
Figure A-9: *Unwind Assembly (9101051A)*

Table A-9: *Rewind Assembly (9101052A)*

Item	Part Number	Quantity	Description	Reference
1	404282	4	Screw, SHCS, 10-32 UNF x 1 3/4"	
2	404510	2	Screw, BHCS, 10-32 UNF x 1/4"	
3	404807	2	Screw, SHSS, 10-32 UNF x 3/16"	
4	439009	4	Lockwasher, #10	
5	440010	4	Washer, 1/4" I.D.	
6	500045	1	Bearing, UBR202-10S, 5/8"	
7	609000	1	Shrink Wrap, 3/16" I.D. (10" Long)	
8	630004A	1	Take-Up Sensor (Cycle Proximity Assembly)	Page A-5
9	9101052	1	Rewind Mounting Extrusion	
10	9101065	1	Motor, Torque, 900 RPM	
11	9101078	1	Tab Retaining Rod	
12	9101103	1	Extrusion Cap	
13	9101130A	1	Rewind Disc Assembly	Page A-22
14	9101140	1	Rewind Torque Motor Gear Head	
15	9101141	1	Cam, 90 Degree	
16	9101142	1	Shaft, Winding Motor	
17	9101270	1	Strain Relief Bushing, SR 5M-3	
18	9101569	1	Mounting Bracket, Proximity Sensor	

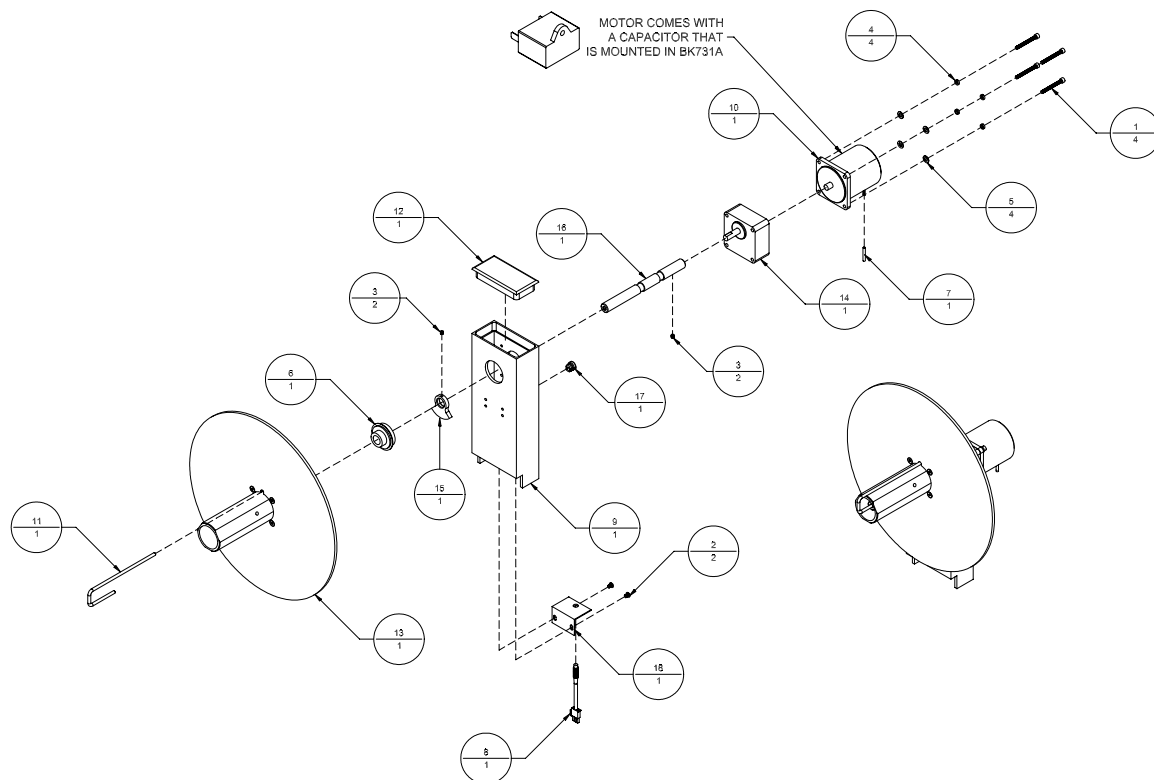
Figure A-10: *Rewind Assembly (9101052A)*

Table A-10: *Tabber Keypad Assembly (9101057A)*

Item	Part Number	Quantity	Description	Reference
1	402310	4	Screw, PHMS, 6-32 UNC x 1/4"	
2	615322	2	Female Screwlock, 4-40 UNC	
3	9101079	1	Tabber Keyboard Box	
4	9101080A	1	Tabber Keypad Board Assembly	
5	9101083	1	Cover, Rear Tabber Keypad	
6	9101083A	1	Tabber Keypad Ribbon Cable Assembly	
7	9101119	4	Hex Spacer, 6-32 UNC x 1/2"	

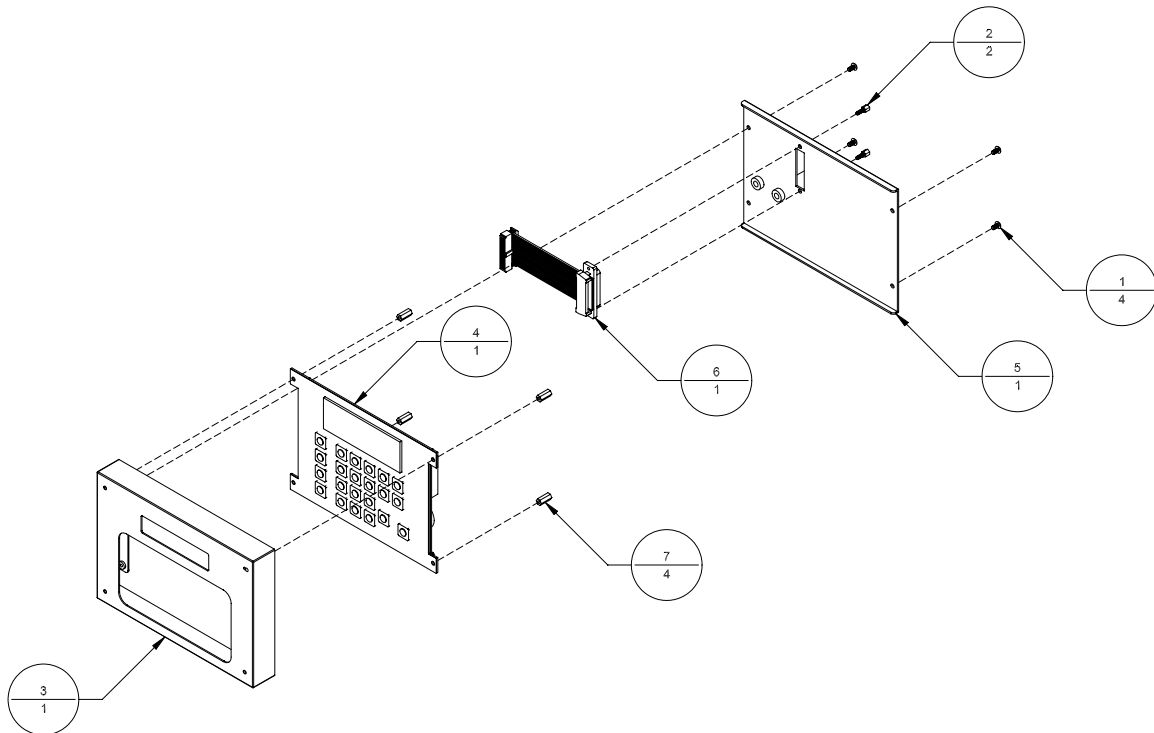
Figure A-11: *Tabber Keypad Assembly (9101057A)*

Table A-11: *Idler Roller Assembly (9101060A)*

Item	Part Number	Quantity	Description	Reference
1	9101060	1	Backer Idler Roller	
2	9101071	1	Tab Backer Guide	
3	9101075	1	O-Ring, 1-1/4 I.D. x 1-1/2 x 1/8"	

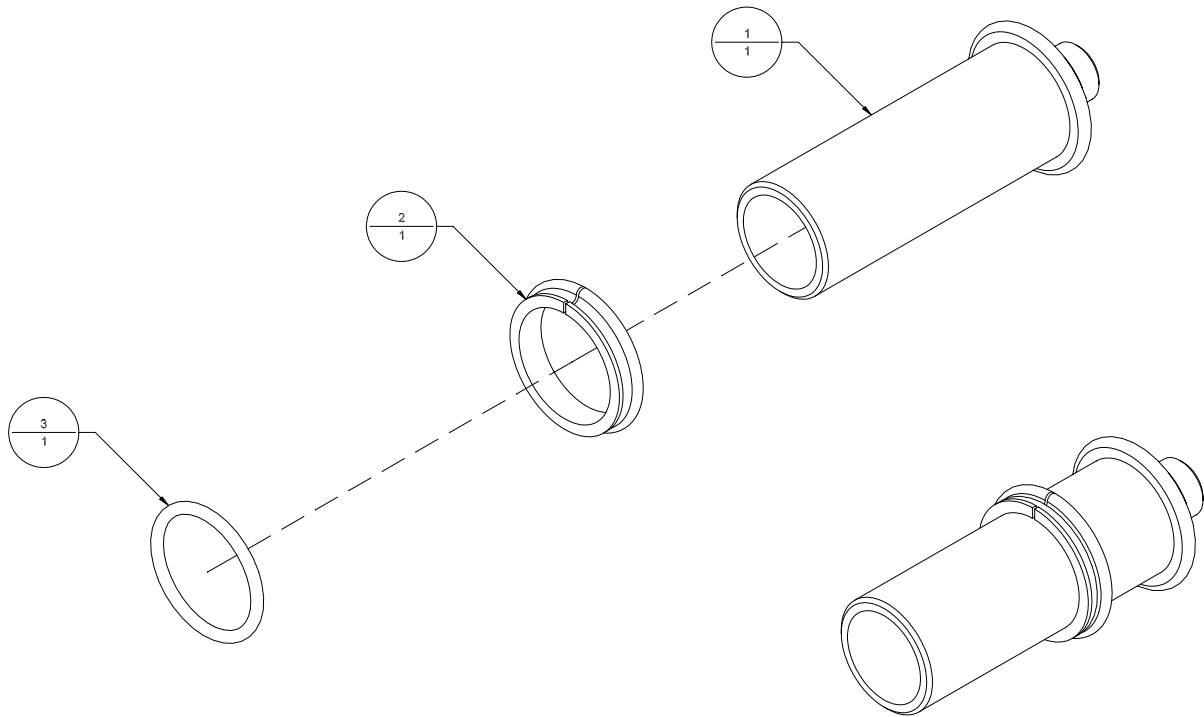
Figure A-12: *Idler Roller Assembly (9101060A)*

Table A-12: *Tabber Left Mounting Rail Assembly (9101064A)*

Item	Part Number	Quantity	Description	Reference
1	404030	8	Screw, FHCS, 10-32 UNF x 1/2"	
2	404040	4	Screw, FHCS, 10-32 UNF x 5/8"	
3	404240	4	Screw, SHCS, 10-32 UNF x 5/8"	
4	405520	2	Screw, BHCS, 1/4-20 UNC x 3/8"	
5	405530	2	Screw, BHCS, 1/4-20 UNC x 1/2"	
6	406530	2	Screw, BHCS, 5/16-18 UNC x 1/2"	
7	440020	1	Washer, 3/8" ID	
8	9101059	2	Support Block, Tabber Rail	
9	9101064	1	Tabber Mounting Rail	
10	9101126	1	Double T nut	
11	9101248	6	Bearing Pad, Tabber Head Mount	
12	9101249	1	Rail Mounting Block	
13	9101269	1	Handle, Ratcheting, 15 Series	
14	9101398	1	Economy T-slot Stud, 5/16-18 UNC x 1"	
15	9101492	1	Mounting Slide, AL	
16	9101622	1	Mounting Bracket, Aligning Rail	
17	9101623	1	Mounting Block, Slide Rail	
18	9101624	1	End Caps (15 Series)	

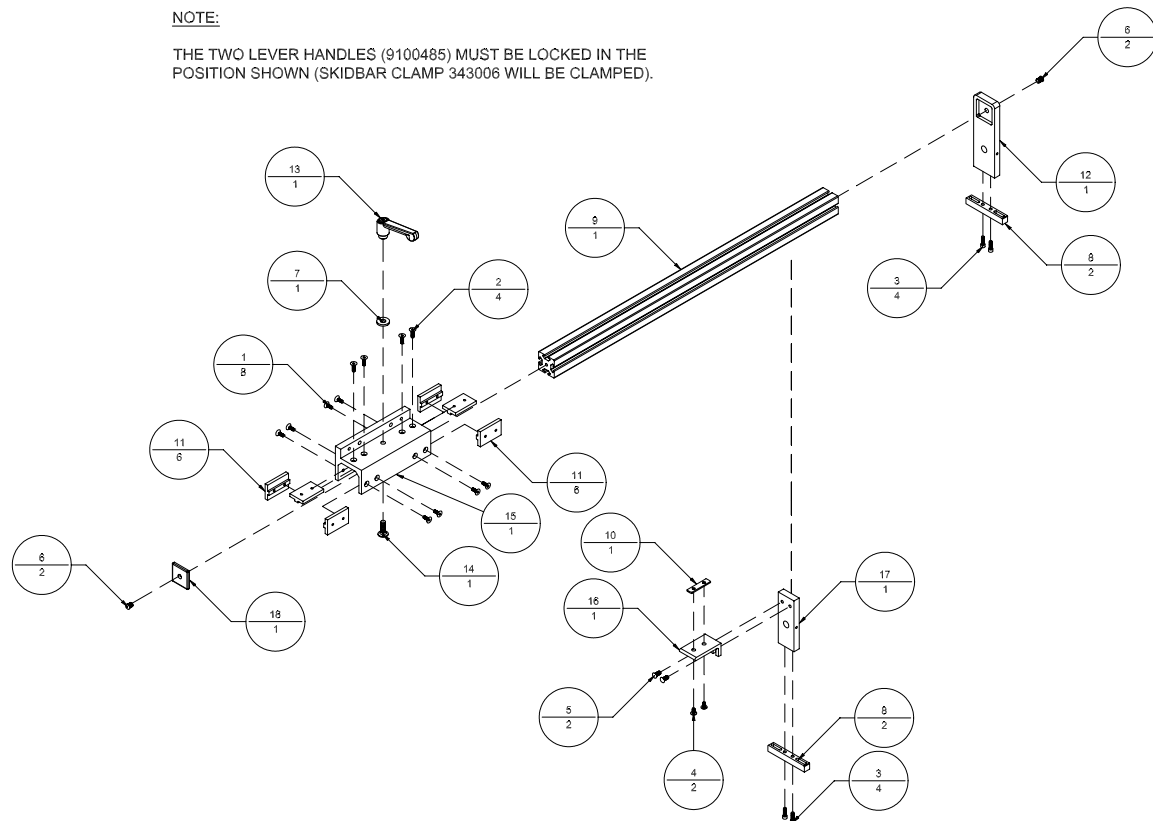
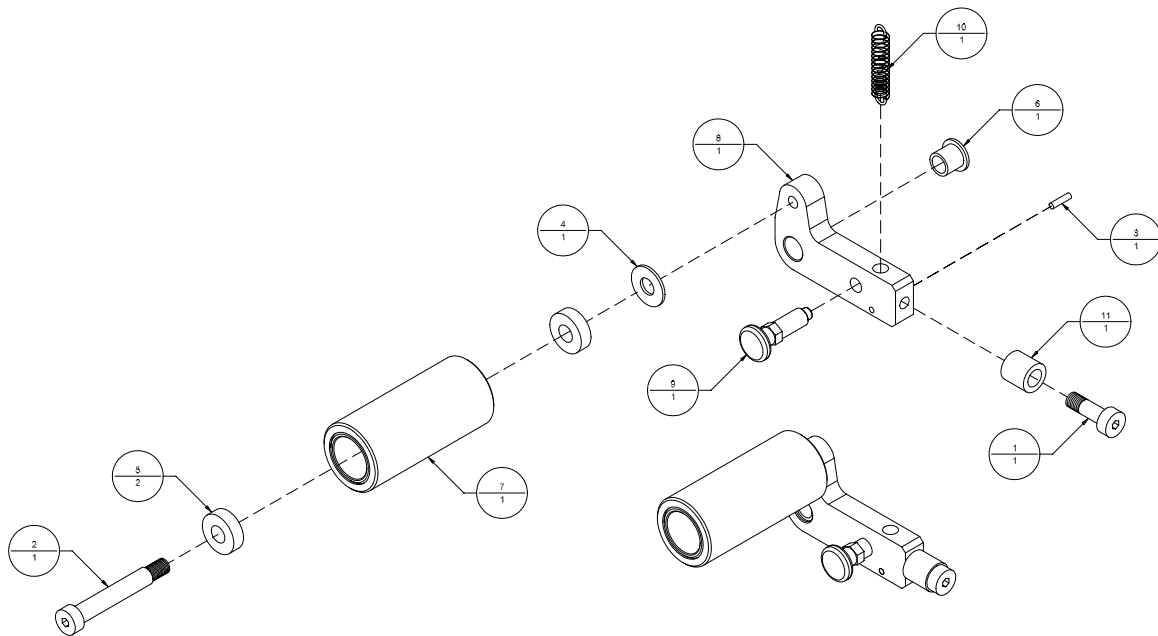
Figure A-13: *Tabber Left Mounting Rail Assembly (9101064A)*

Table A-13: *Lower Pivot Arm Assembly (9101069A)*

Item	Part Number	Quantity	Description	Reference
1	416140	1	Shoulder Bolt, 3/8" X 5/8", 5/16-18 UNC	
2	416185	1	Shoulder Bolt, 3/8" X 2", 5/16-18 UNC	
3	436030	1	Spring Pin, 1/8" Dia X 1/2"	
4	440533	1	Washer, 3/8" I.D. X 0.06"	
5	500020	2	Bearing, R6, 3/8" I.D.	
6	505384	1	Flange Bushing, 3/8 I.D. x 1/2 O.D. x 1/2 LG.	
7	9101069	1	Pressure Roller	
8	9101070	1	Pivot Arm	
9	9101082	1	Quick Release Plunger	
10	9101240	1	Spring, Pivot Arm	
11	9101638	1	Bushing, Nylon, 3/8 "I.D. X 5/8" O.D. X 5/8"	

Figure A-14: *Lower Pivot Arm Assembly (9101069A)*



**Table A-14:** Front Mounting Rail Assembly (9101077A)

Item	Part Number	Quantity	Description	Reference
1	404030	12	Screw, FHCS, 10-32 UNF x 1/2"	
2	404230	4	Screw, SHCS, 10-32 UNF x 1/2"	
3	405520	6	Screw, BHCS, 1/4-20 UNC x 3/8"	
4	406530	2	Screw, BHCS, 5/16-18 UNC x 1/2"	
5	9101059	2	Tabber Rail Support Block	
6	9101064	1	Tabber Head Mounting Rail	
7	9101077	1	Front Rail Mounting Block	
8	9101126	1	Double T-nut	
9	9101247	1	Bearing Profile, Double Flange	
10	9101248	6	Bearing Pad, Tabber Head Mount	
11	9101620	1	Mounting Bracket, Slide Rail	
12	9101621	1	Mounting Block, Right Slide Rail	
13	9101622	1	Mounting Bracket, Aligning Rail	
14	9101624	1	End Caps (15 Series)	

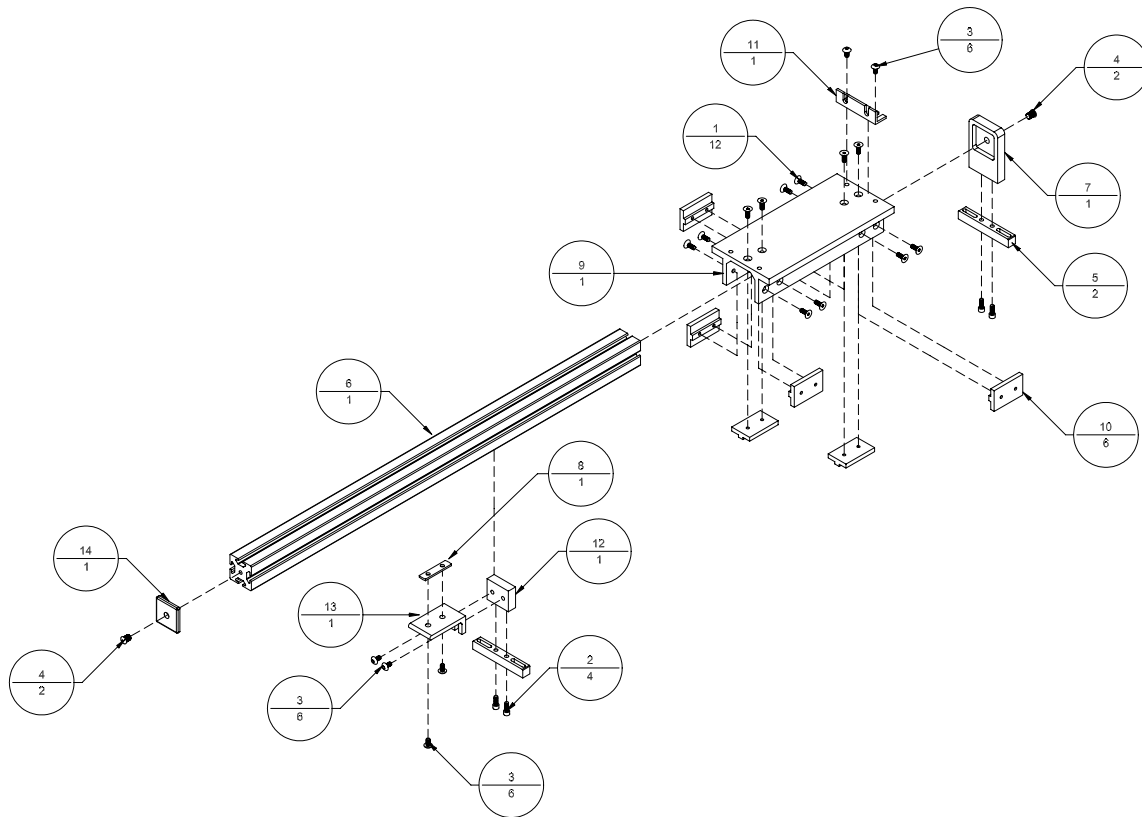
Figure A-15: *Front Mounting Rail Assembly (9101077A)*

Table A-15: *Peel Point Base Assembly (9101081A)*

Item	Part Number	Quantity	Description	Reference
1	206010	1	Side Guide Locking Lever	
2	404520	1	Screw, BHCS, 10-32 UNF x 3/8"	
3	405230	1	Screw, SHCS, 1/4-20 UNF X 1/2"	
4	405805	2	Screw, SHSS, 1/4-20 UNC X 1/8"	
5	405830	2	Screw, SHSS, 1/4-20 UNC x 1/2"	
6	438505	1	Tee Knob, Black Plastic, 1/4-20 Screw	
7	440010	1	Washer, 1/4" I.D.	
8	9101081	1	Peel Point Base Plate	
9	9101087	1	Mounting Block, Peel Point Shaft	
10	9101115	2	Dowel Pin, 1/2" DIA x 3"	
11	9101128	2	Dowel Pin, 1/2" DIA x 4"	
12	9101264A	1	Peel Point Assembly	Page A-26
13	9101687	1	Peel Point Lock Plate	
14	9101743	1	Cable Clamp, 3/16 Dia.	

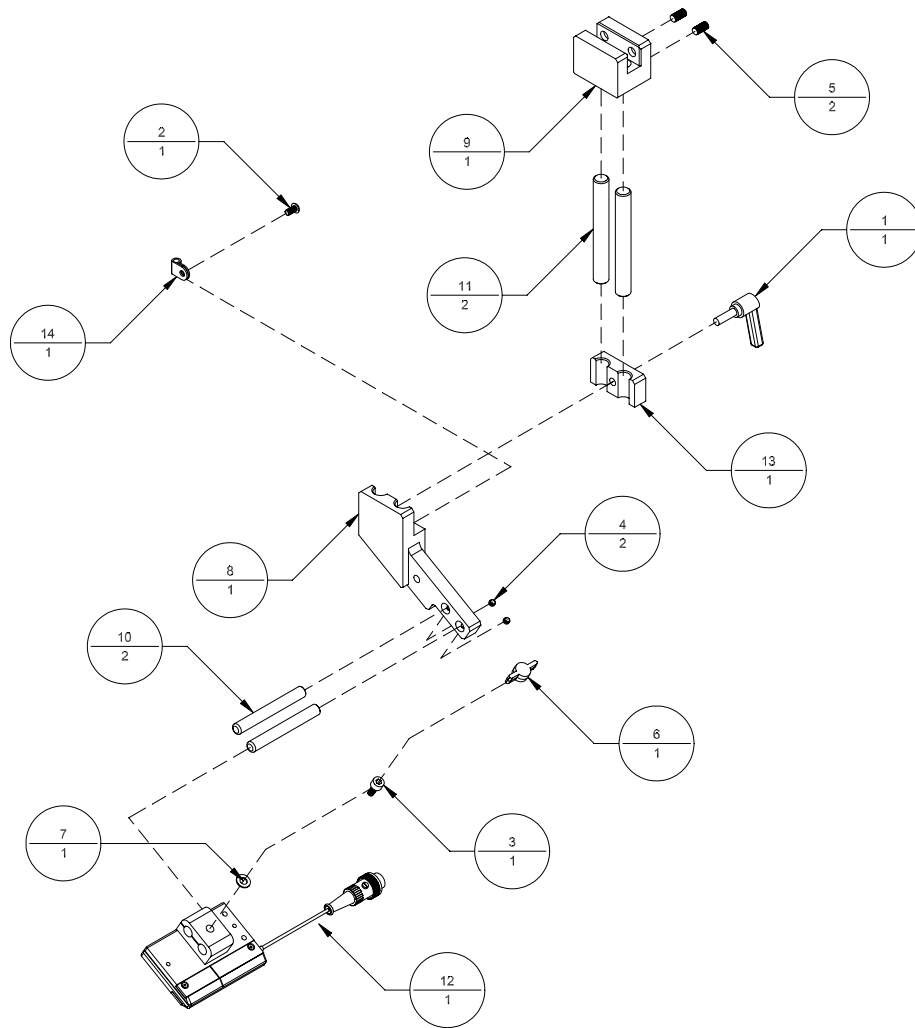
Figure A-16: *Peel Point Base Assembly (9101081A)*

Table A-16: *Front Cover Assembly (9101111A)*

Item	Part Number	Quantity	Description	Reference
1	401510	2	Screw, BHCS, 4-40 UNC x 1/4"	
2	402020	4	Screw, FHCS, 6-32 UNC x 3/8"	
3	402210	2	Screw, SHCS, 6-32 UNC x 1/4"	
4	402510	2	Screw, BHCS, 6-32 UNC x 1/4"	
5	402530	2	Screw, BHCS, 6-32 UNC x 1/2"	
6	404510	4	Screw, BHCS, 10-32 UNF x 1/4"	
7	438314	1	Inkwell Door Handle	
8	615533	1	Actuator, Magnetic	
9	630006	1"	Reflective Tape	
10	9101110	2	Hinge, Mini Lift-off, In-line	
11	9101111	1	Front Safety Cover	
12	9101663	1	Tabber Right Side Cover	
13	9101664	1	Panel Stiffener	
14	9101686	1	Front Cover Magnetic Catch	

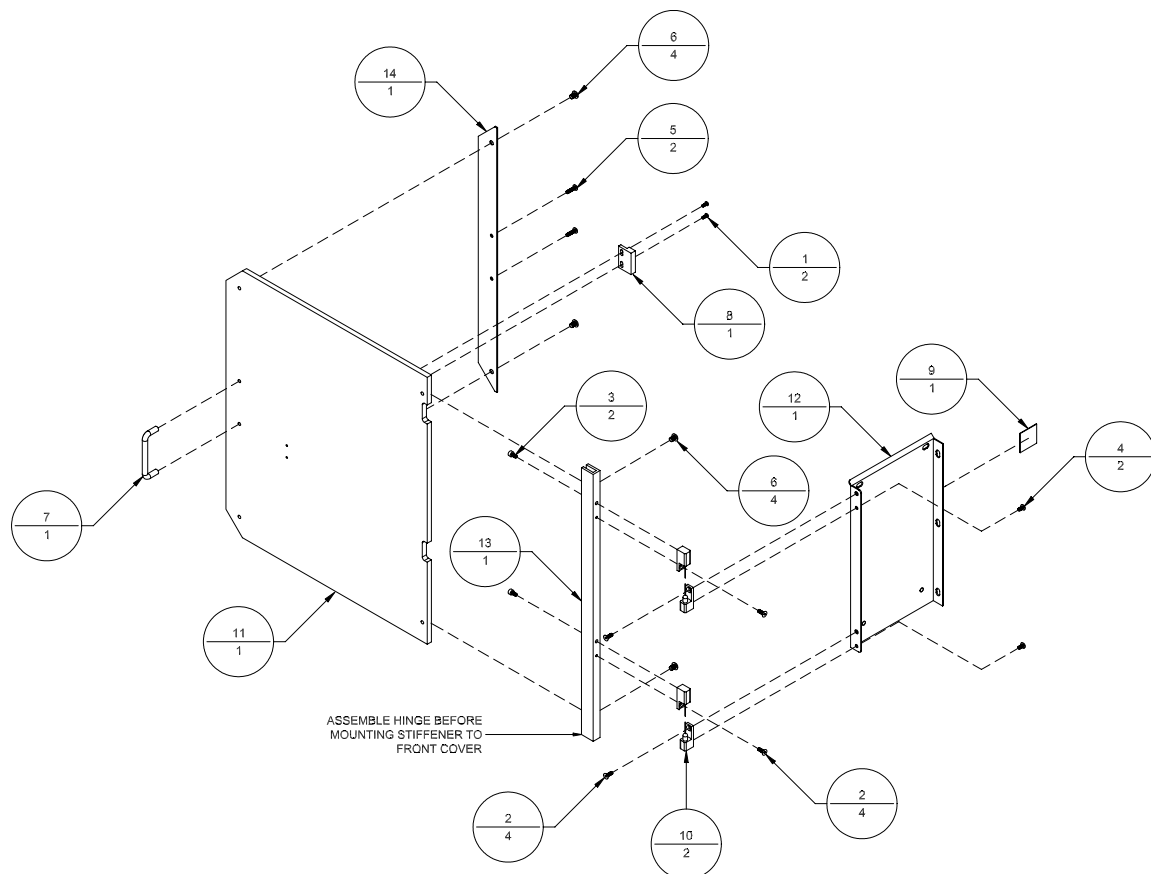
Figure A-17: *Front Cover Assembly (9101111A)*

Table A-17: *Brush Pivot Assembly (9101112A)*

Item	Part Number	Quantity	Description	Reference
1	404520	2	Screw, BHCS, 10-32 UNF x 3/8"	
2	436300	1	Spring Pin, 3/16" Dia. X 1 3/4" Long	
3	9101116A	1	Brush Assembly	
4	9101626	1	Brush Pivot Shaft	

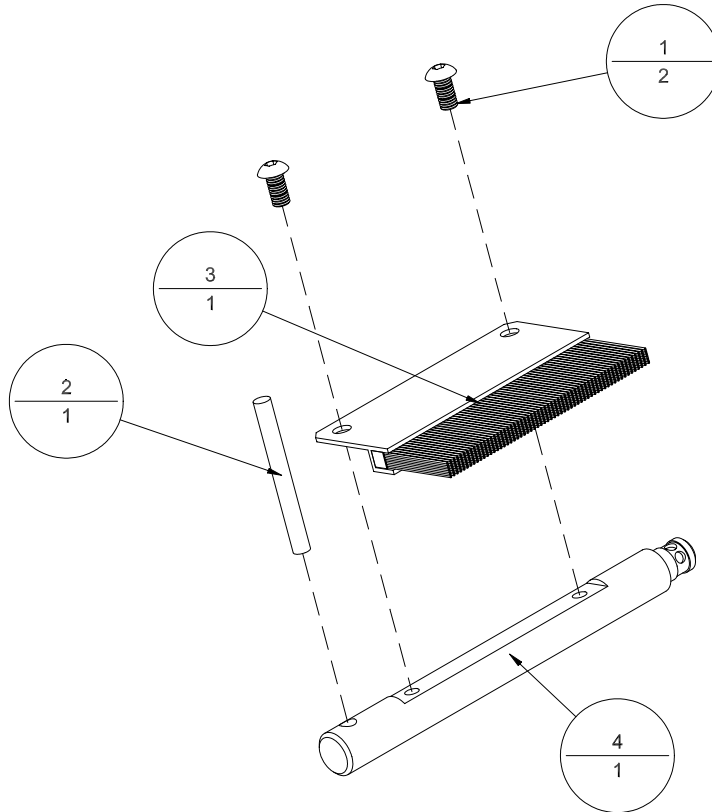
Figure A-18: *Brush Pivot Assembly (9101112A)*

Table A-18: *Stepper Motor Driver Cover Assembly (9101113A)*

Item	Part Number	Quantity	Description	Reference
1	401310	4	Screw, PHMS, 4-40 UNC x 1/4"	
2	402310	4	Screw, PHMS, 6-32 UNC x 1/4"	
3	606013	1	Cable, #22-3, Shielded (8" Long)	
4	606013	1	Cable, #22-3, Shielded (15" Long)	
5	606020	5	Wire, #18, Black, Hookup (18" Long)	
6	606022	1	Wire, #18, Red, Hookup (18" Long)	
7	606023	1	Wire, #18, Green, Hookup (18" Long)	
8	606025	1	Wire, #18, Orange, Hookup (18" Long)	
9	606029	2	Wire, #18, White, Hookup (18" Long)	
10	606311A	1	System Support Interface Cable (Atlas)	
11	609000	4	Shrink Wrap, 3/16" I.D. (1" Long)	
12	609107	9	Terminal, Fork, #4, Red	
13	609112	2	Terminal, Fork, #10, Blue	
14	615062	1	Female Connector, 2 Pin, BLA2	
15	615063	1	Female Connector, 3 Pin, BLA3	
16	9101073	1	Stepper Motor Driver, 2 Phase	
17	9101113	1	Step Motor Driver Cover	
18	9101114	4	Hex Spacer, 6-32 UNC x 2"	
19	9101123	1	Stepper Motor Driver, 5 Phase	
20	9101133	1	Tabber Interface Board	
21	9101275	1	Tabber CPU Board	
22	9101672	4	Screw, BHCS, M3 x 6	

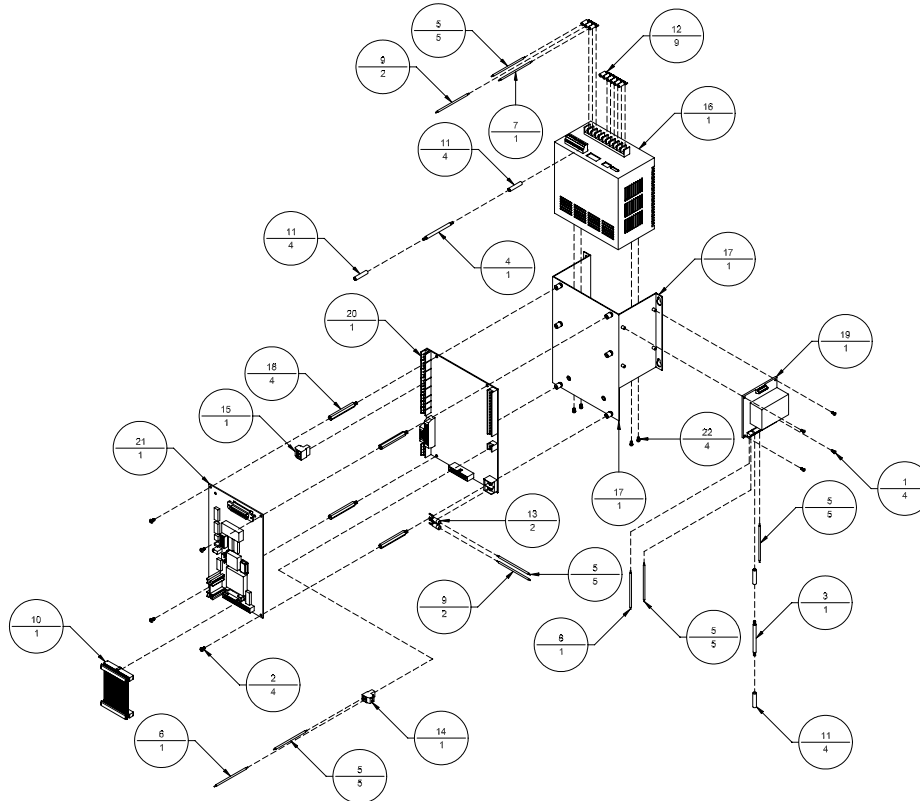
Figure A-19: *Stepper Motor Driver Cover Assembly (9101113A)*

Table A-19: *Keypad Mounting Rail Assembly (9101121A)*

Item	Part Number	Quantity	Description	Reference
1	402020	6	Screw, FHCS, 6-32 UNC x 3/8"	
2	405520	3	Screw, BHCS, 1/4-20 UNC x 3/8"	
3	405530	2	Screw, BHCS, 1/4-20 UNC x 1/2"	
4	606324	1	Serial Extension Cable, 3 Ft, 25 Cond.	
5	9100222	3	Shim Stock	
6	9100360	1	Endcap (10 series)	
7	9101057A	1	Tabber Keyboard Assembly	Page A-12
8	9101121	1	Tabber Keyboard Rail Mounting Bracket	
9	9101122	1	Tabber Sliding Rail	
10	9101124	1	Bearing Profile, Keypad Mount	
11	9101125	3	Bearing Pad, Keypad Mount	
12	9101126	1	Double T-Nut	

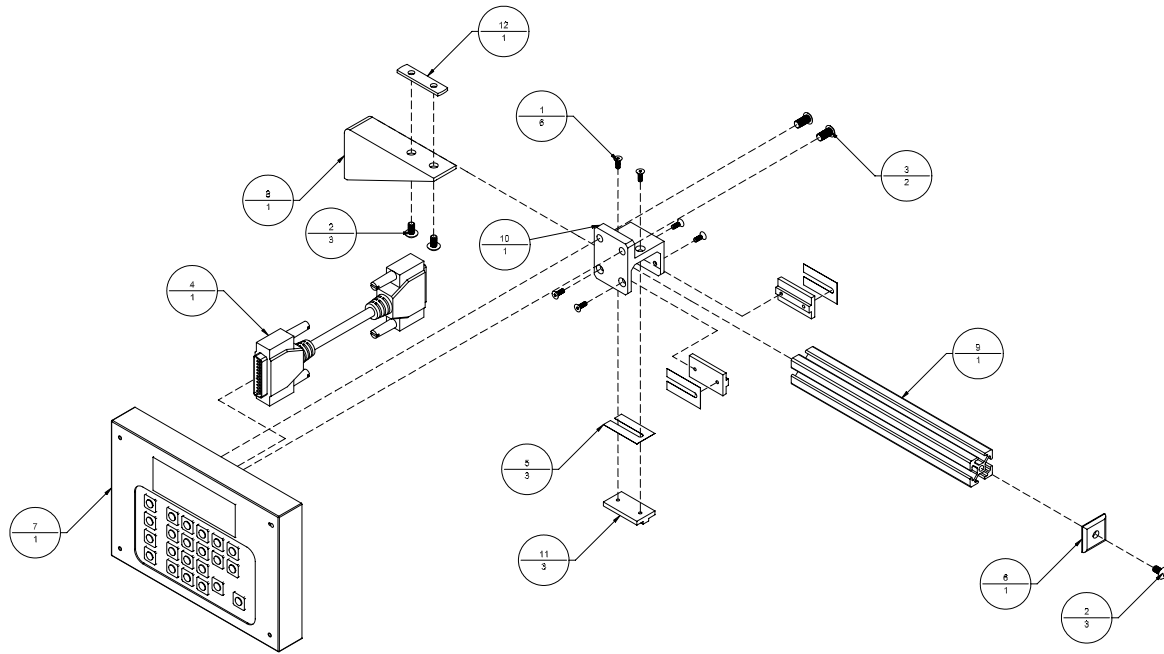
Figure A-20: *Keypad Mounting Rail Assembly (9101121A)*

Table A-20: *Rewind Disc Assembly (9101130A)*

Item	Part Number	Quantity	Description	Reference
1	404020	4	Screw, FHCS, 10-32 UNF x 3/8"	
2	405830	2	Screw, SHSS, 1/4-20 UNC x 1/2"	
3	9101129	1	Rewind Hub	
4	9101130	1	Rewind Tab Retaining Plate	

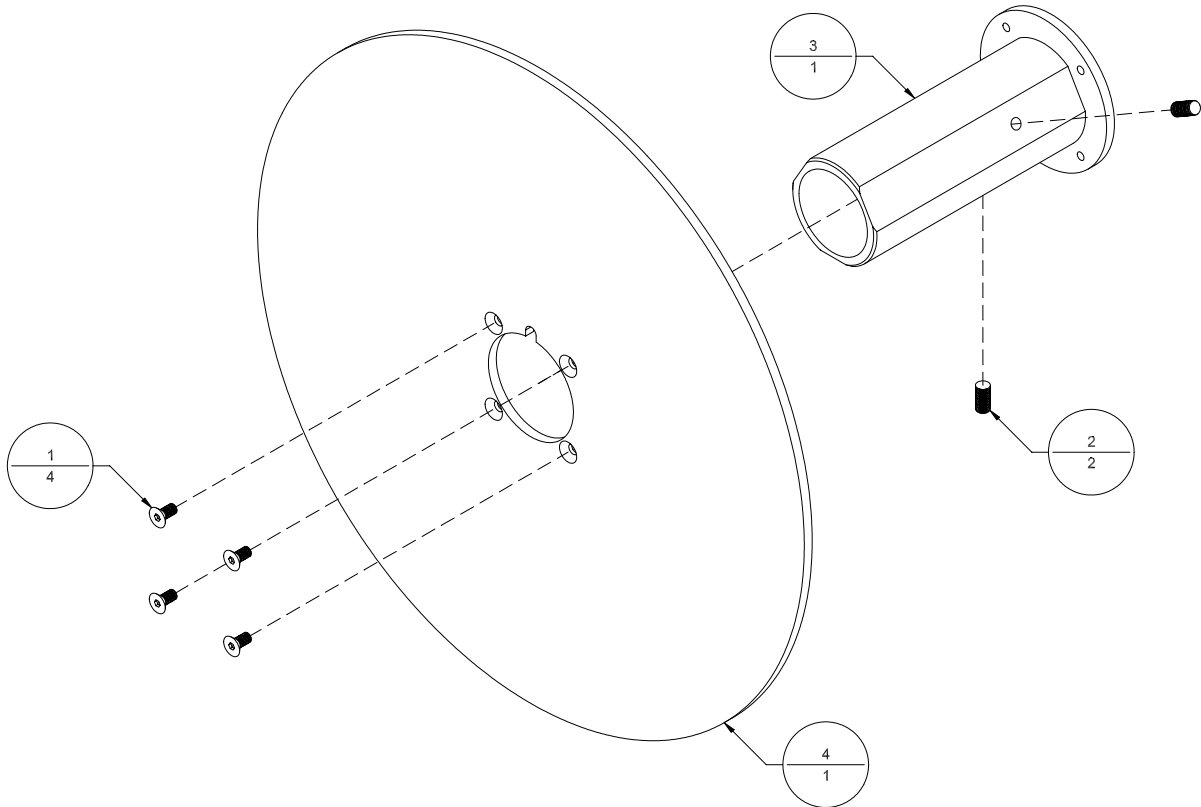
Figure A-21: *Rewind Disc Assembly (9101130A)*

Table A-21: *Unwind Disc Assembly (9101145A)*

Item	Part Number	Quantity	Description	Reference
1	404020	4	Screw, FHCS, 10-32 UNF x 3/8"	
2	404030	2	Screw, FHCS, 10-32 UNF x 1/2"	
3	405850	2	Screw, SHSS, 1/4-20 UNC x 3/4"	
4	9101144	1	Unwind Hub	
5	9101145	1	Unwind Tab Retaining Plate	
6	9101149	1	Tab Retaining Plate	
7	9101150	1	Unwind Hub Guide	

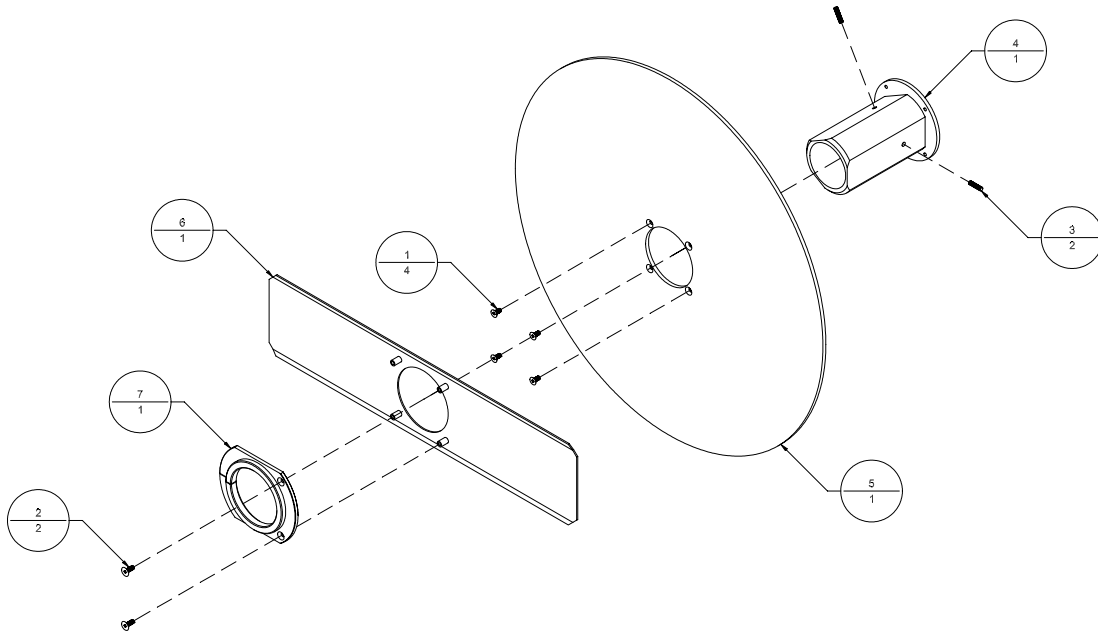
Figure A-22: *Unwind Disc Assembly (9101145A)*



Table A-22: *Oscillating Idler Assembly (9101233A)*

Item	Part Number	Quantity	Description	Reference
1	404810	2	Screw, SHSS, 10-32 UNF X 1/4"	
2	437075	2	Retaining Ring, 3/4" I.D. External	
3	440020	1	Washer, 3/8" I.D.	
4	9100749	2	Rubber Washer, 3/8" I.D. X 1" X 1/8"	
5	9101109	1	Linear Bearing	
6	9101232	1	Oscillating Idler Shaft	
7	9101233	1	Oscillating Idler Slide Block	
8	9101234	2	Oscillating Idler Mount Block	
9	9101258	1	Oscillating Idler Roller Spring	

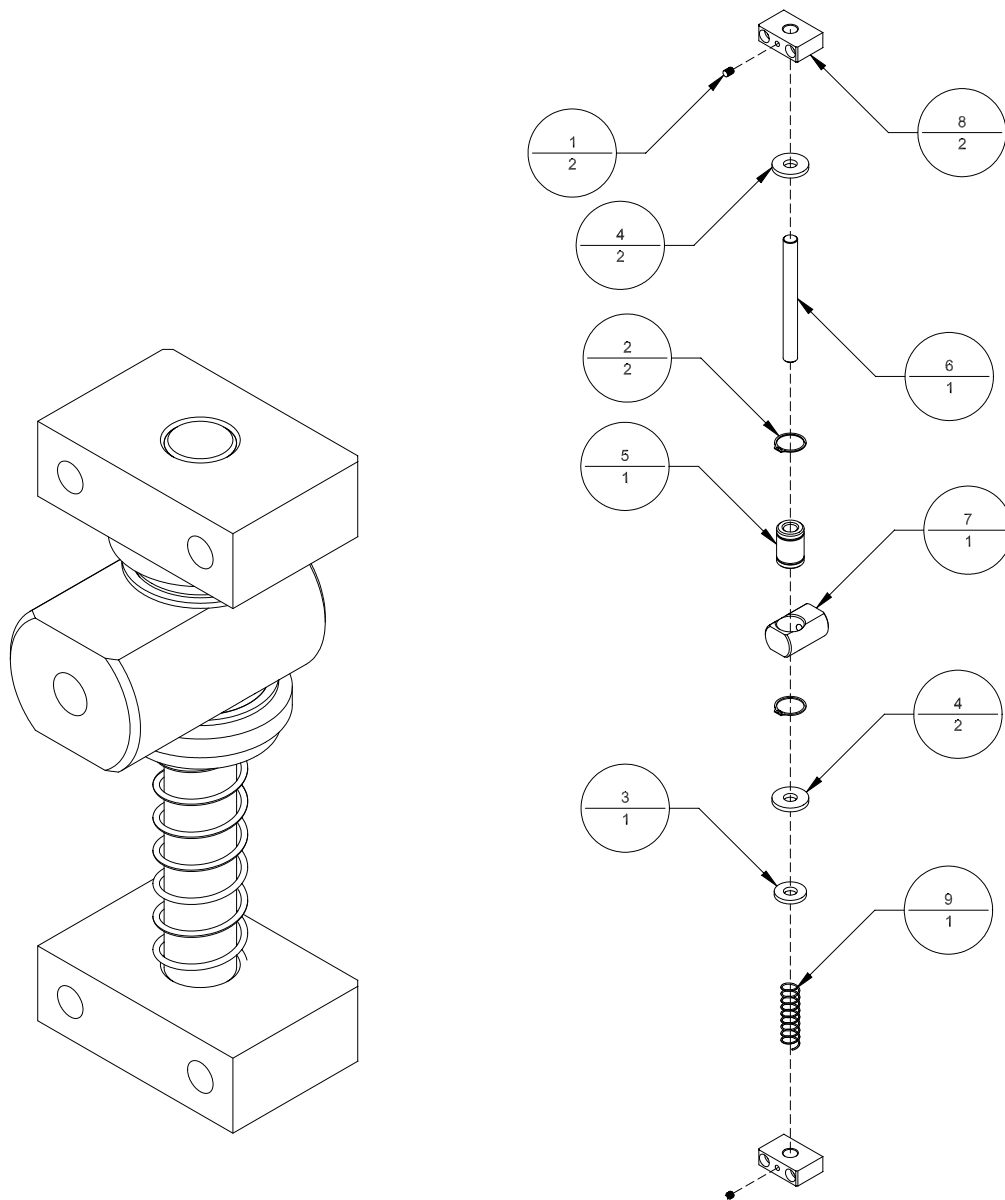
Figure A-23: *Oscillating Idler Assembly (9101233A)*

Table A-23: *Tabber Back Cover Assembly (9101244A)*

Item	Part Number	Quantity	Description	Reference
1	401330	4	Screw, PHMS, 4-40 UNC X 1/2"	
2	403510	4	Screw, BHCS, 8-32 UNC X 1/4"	
3	405520	2	Screw, BHCS, 1/4-20 UNC X 3/8"	
4	420007	1	Nut, 8-32 UNC	
5	420008	2	Nut, 10-32 UNF	
6	603300	1	Circuit Breaker Switch, 5 A, 1 Pole, 115 VAC	
7	606000	2	Wire #16, Black, Hookup (10" Long)	
8	606005	1	Wire #16, Green, Hookup (10" Long)	
9	606005	1	Wire #16, Green, Hookup (15" Long)	
10	606009	1	Wire #16, White, Hookup (10" Long)	
11	606020	1	Wire, #18, Black, Hookup (10" Long)	
12	606022	1	Wire, #18, Red, Hookup (10" Long)	
13	609102	2	Marrette, Black	
14	609110	5	Connector, Push-on, Blue	
15	609114	2	Ring Tongue Terminal, #10	
16	615140	1	Lashing Tie	
17	9100343	1	Fan, 12VDC	
18	9100674	1	Filter, Corcom, 10 A	
19	9100728	1	Tie Anchor Mount, #8 Screw	
20	9101244	1	Tabber Head Back Cover	
21	9101575A	1	Tabber Terminal Block Assembly	Page A-28
22	9101620	1	Mounting Bracket, Slide Rail	
23	9101627	1	Buskro Serial Number Label	
24	9101640	1	Handle, Panel Snap Style	

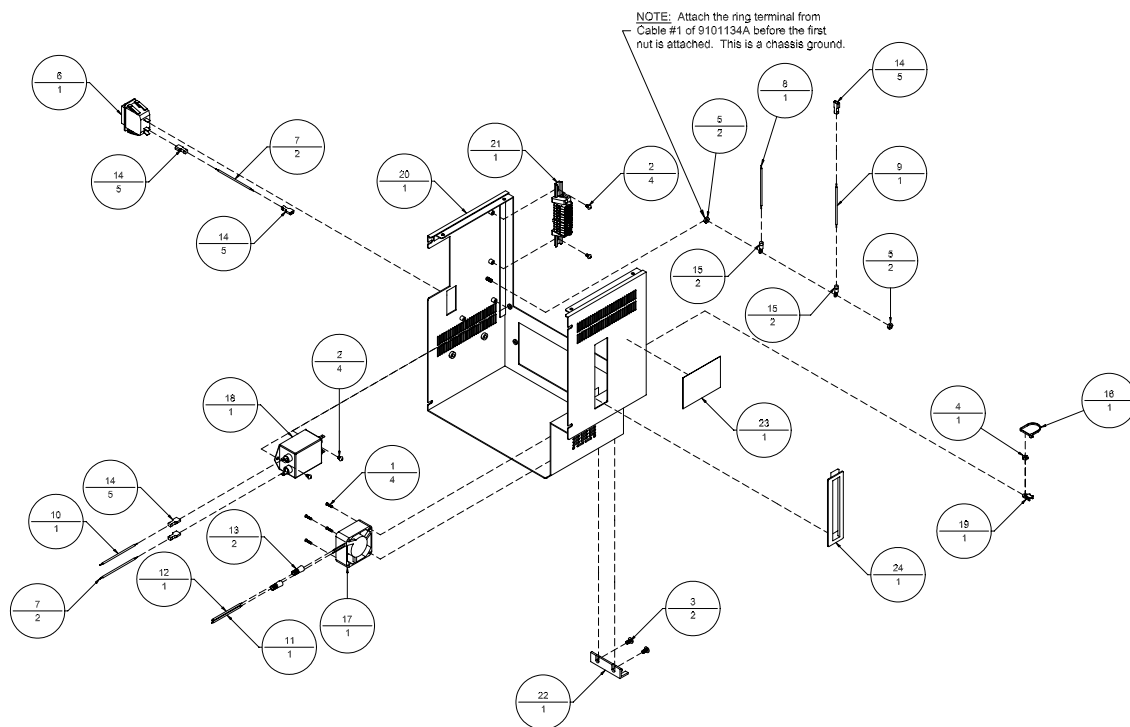
Figure A-24: *Tabber Back Cover Assembly (9101244A)*

Table A-24: *Peel Point Assembly (9101264A)*

Item	Part Number	Quantity	Description	Reference
1	401010	4	Screw, FHCS, 4-40 UNC x 1/4"	
2	606014	24"	Cable, #22-4, Shielded	
3	9100724	1	Plug, Preh, Locking, 3 Pin	
4	9101072	1	AlGaAs Infrared Emitting Diode	
5	9101074A	1	Peel Point	
6	9101104	2	Peel Point Top Cover	
7	9101264	1	Sidelooker Phototransistor	
8	9101669	4	Shrink Wrap, 1/16" I.D., 125 C, 500V (1" Long)	
9	9101670	2	Shrink Wrap, 1/4" I.D., 125 C, 500V (3" Long)	
10	9101671	1	Shrink Wrap, 1/2" I.D., 125 C, 500V (3" Long)	

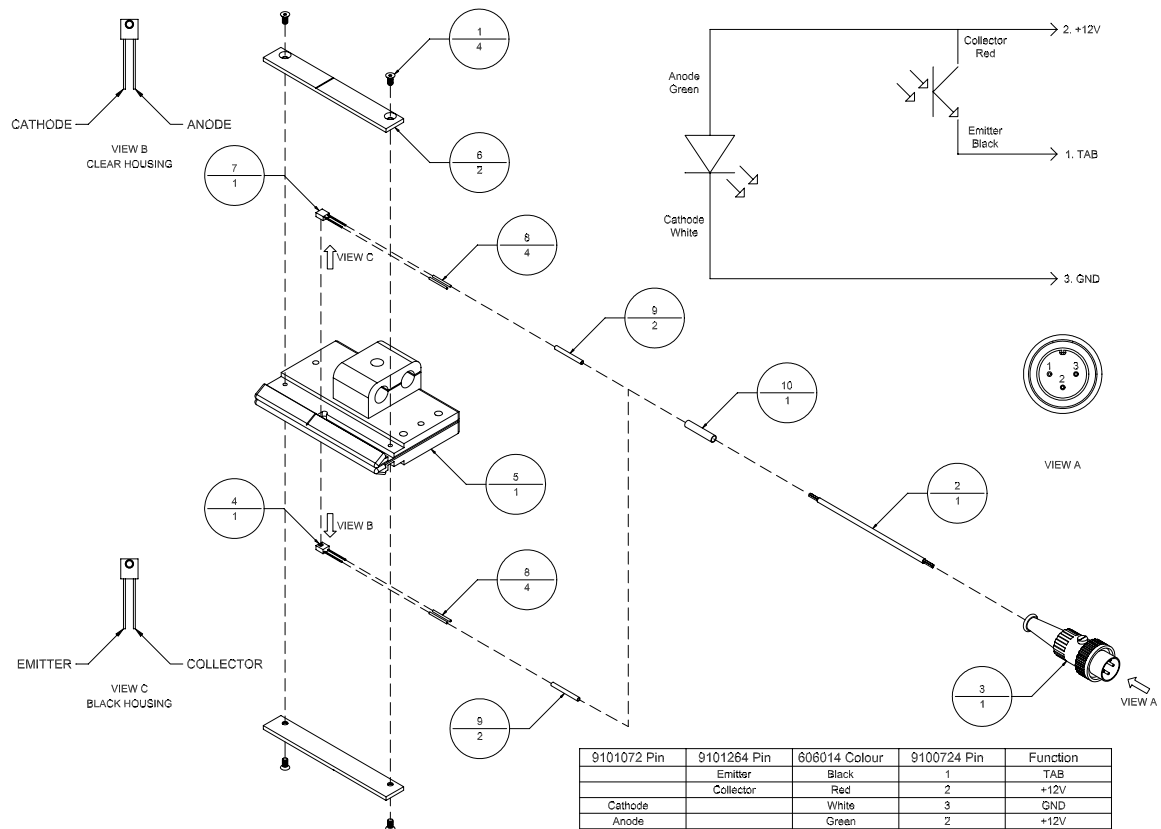
Figure A-25: *Peel Point Assembly (9101264A)*

Table A-25: *Suspension Base Block Assembly (9101565A)*

Item	Part Number	Quantity	Description	Reference
1	404075	2	Screw, FHCS 10-32 UNF x 1 1/4"	
2	414180	2	Shoulder Bolt, 1/4" ID x 1 1/2" (10-24 UNC)	
3	416185	1	Shoulder Bolt, 3/8" ID x 2" (5/16-18 UNC)	
4	440533	1	Washer, 3/8" ID x 0.06" Wide	
5	500020	2	Bearing, R6, 3/8 ID	
6	9101069	1	Pressure Roller	
7	9101564	1	Mounting Block, Pressure Roller	
8	9101565	1	Suspension Base Block	
9	9101813	2	Suspension Compression Spring	

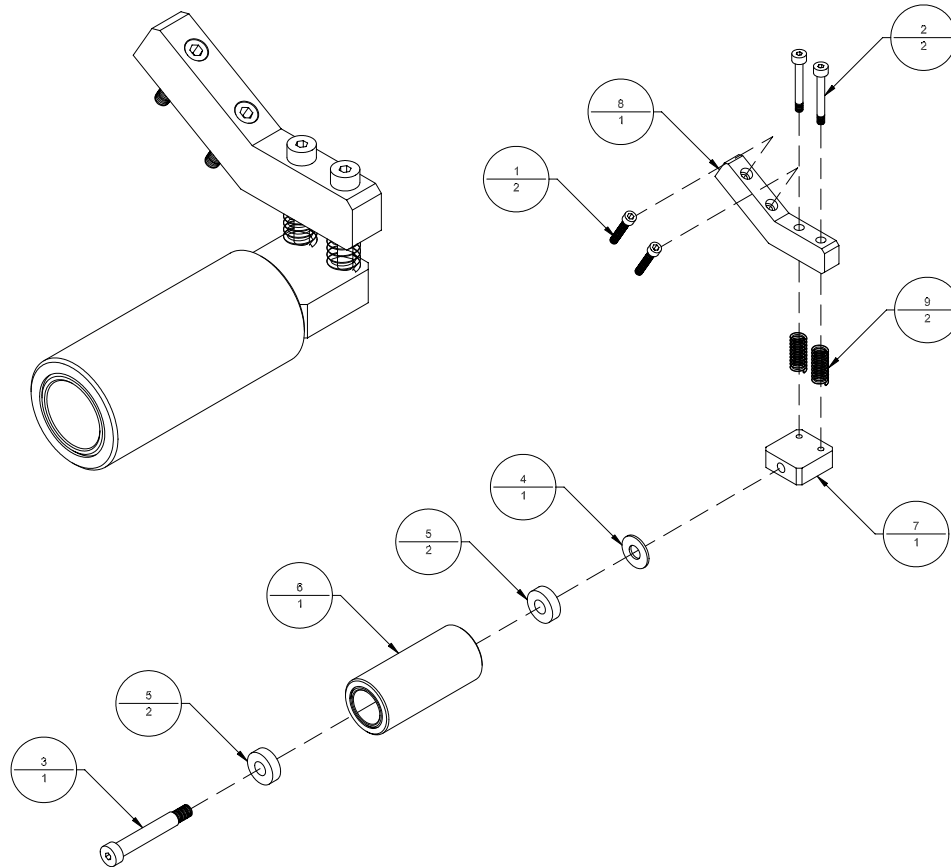
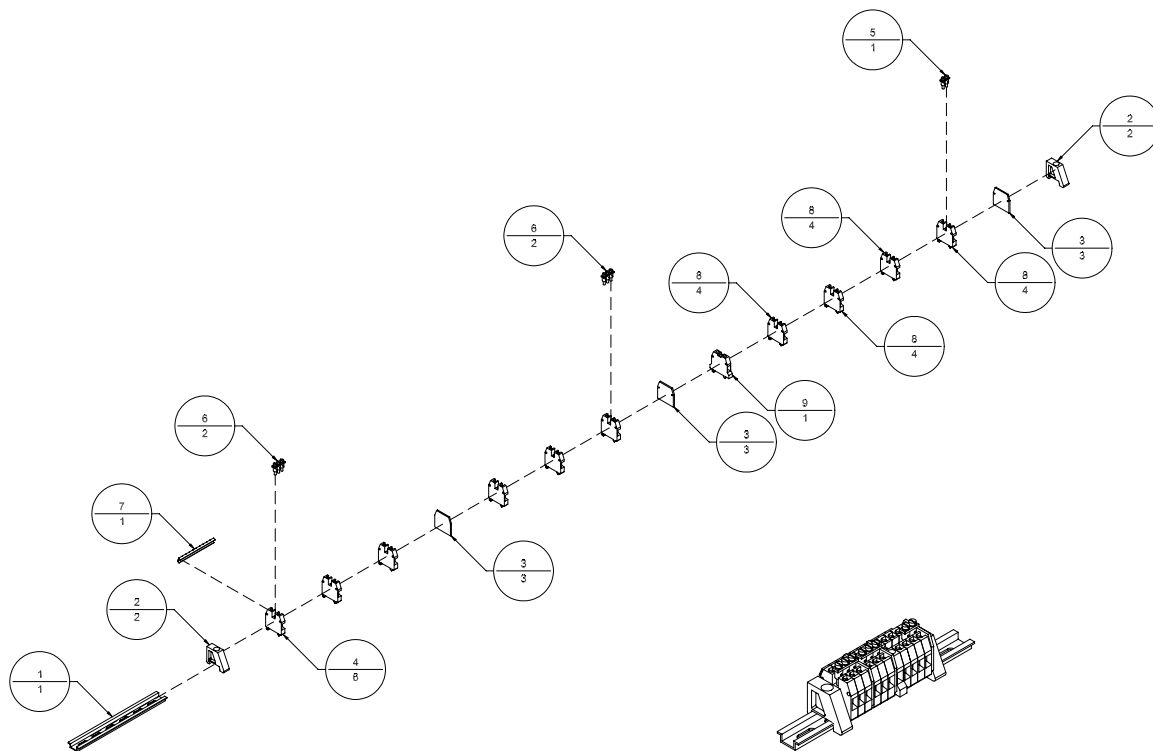
Figure A-26: *Suspension Base Block Assembly (9101565A)*

Table A-26: *Terminal Block Assembly, BK731 (9101575A)*

Item	Part Number	Quantity	Description
1	9101570	5"	Terminal Block Rail
2	9101573	2	End Stop, Terminal Block, EW 15
3	9101574	3	End Plate, Terminal Block, AKZ 2.5
4	9101575	6	Terminal Block AKZ 2.5
5	9101576	1	Jumper, AKZ 1.5/AKZ 2.5, Q2
6	9101580	2	Jumper, AKZ 1.5/AKZ 2.5, Q3
7	9101662	1	Terminal Block Label, DEK5
8	9101688	4	Terminal Block, AKZ 2.5, Blue
9	9101689	1	Ground Block, AKE 2.5

Figure A-27: *Terminal Block Assembly, BK731 (9101575A)*

List of Figures

Figure B-1: BK731 Tabber Head Wiring - Page 1 of 6.....B-1

Figure B-2: BK731 Tabber Head Wiring - Page 2 of 6.....B-2

Figure B-3: BK731 Tabber Head Wiring - Page 3 of 6.....B-3

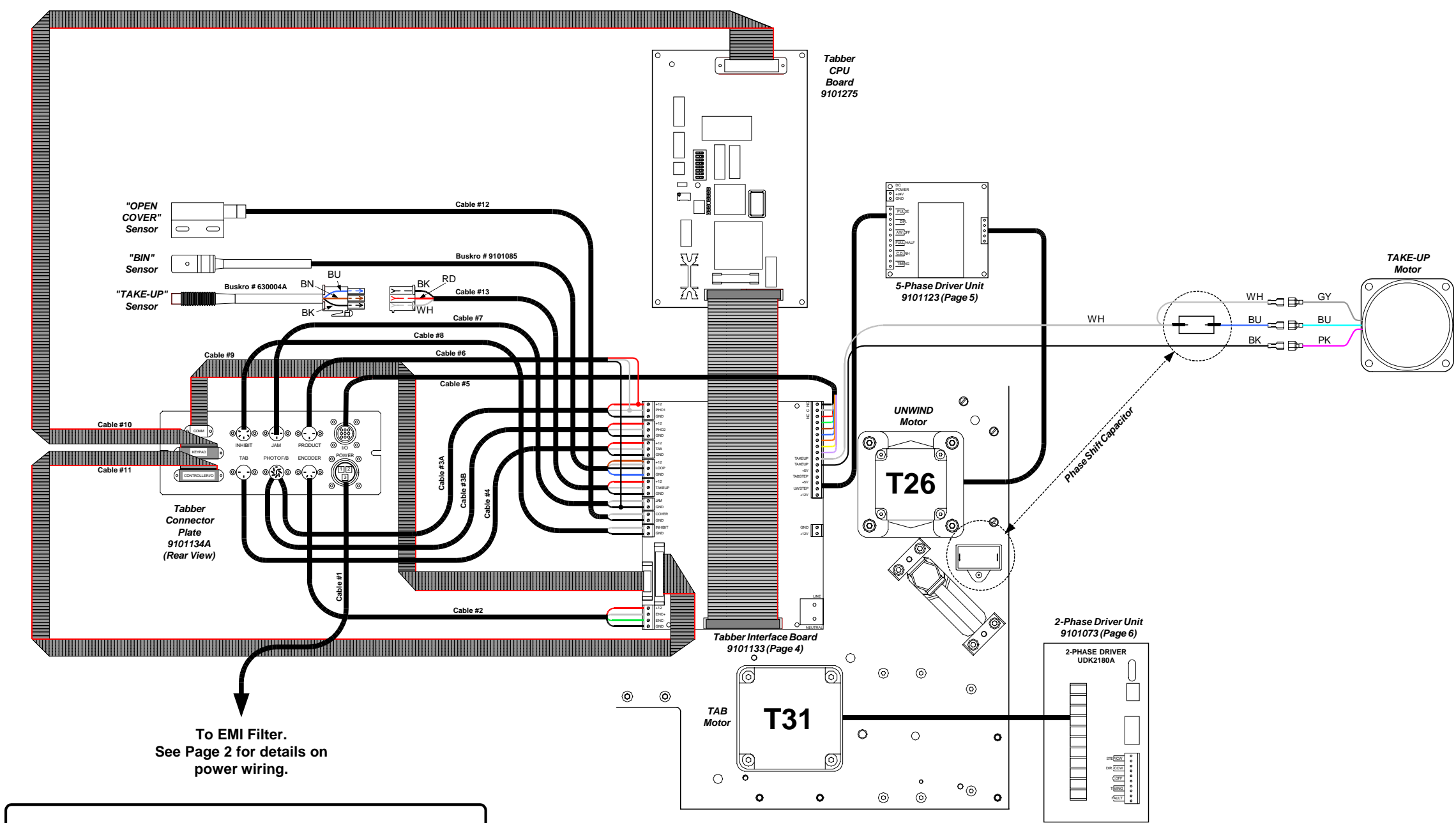
Figure B-4: BK731 Tabber Head Wiring - Page 4 of 6.....B-4

Figure B-5: BK731 Tabber Head Wiring - Page 5 of 6.....B-5

Figure B-6: BK731 Tabber Head Wiring - Page 6 of 6.....B-6

Figure B-7: Tabber CPU Board DIP Switches Setting.....B-7

Figure B-1: *BK731 Tabber Head Wiring - Page 1 of 6*



**Note:**

1. For details on power wiring, see Page 2.
2. For details on Tabber Connection Plate wiring, see Page 3.
3. For details on Tabber Interface Board wiring, see Page 4.
4. For details on 5-Phase Driver Unit wiring, see Page 5.
5. For details on 2-Phase Driver Unit wiring, see Page 6.

Figure B-2: BK731 Tabber Head Wiring - Page 2 of 6

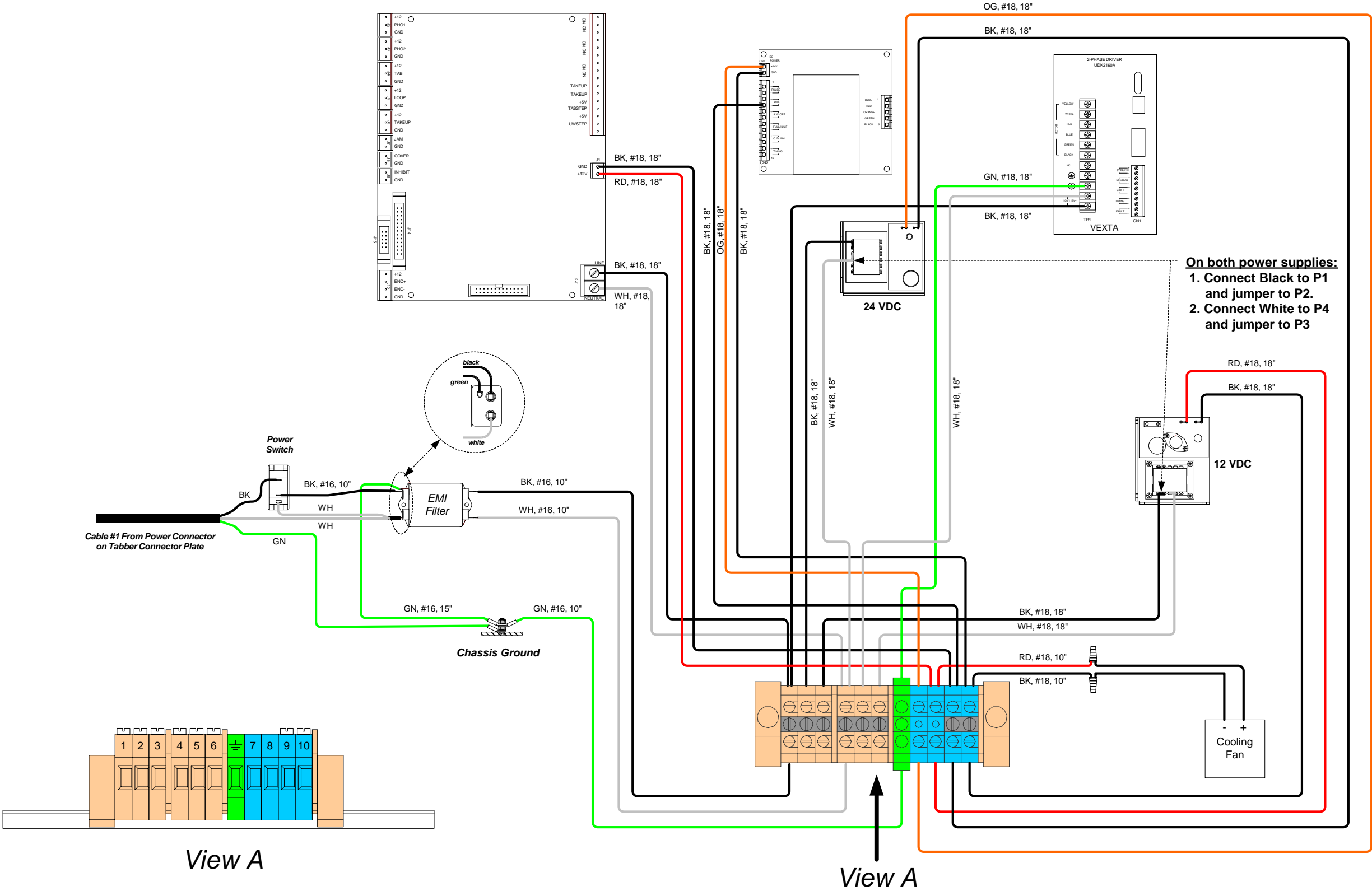






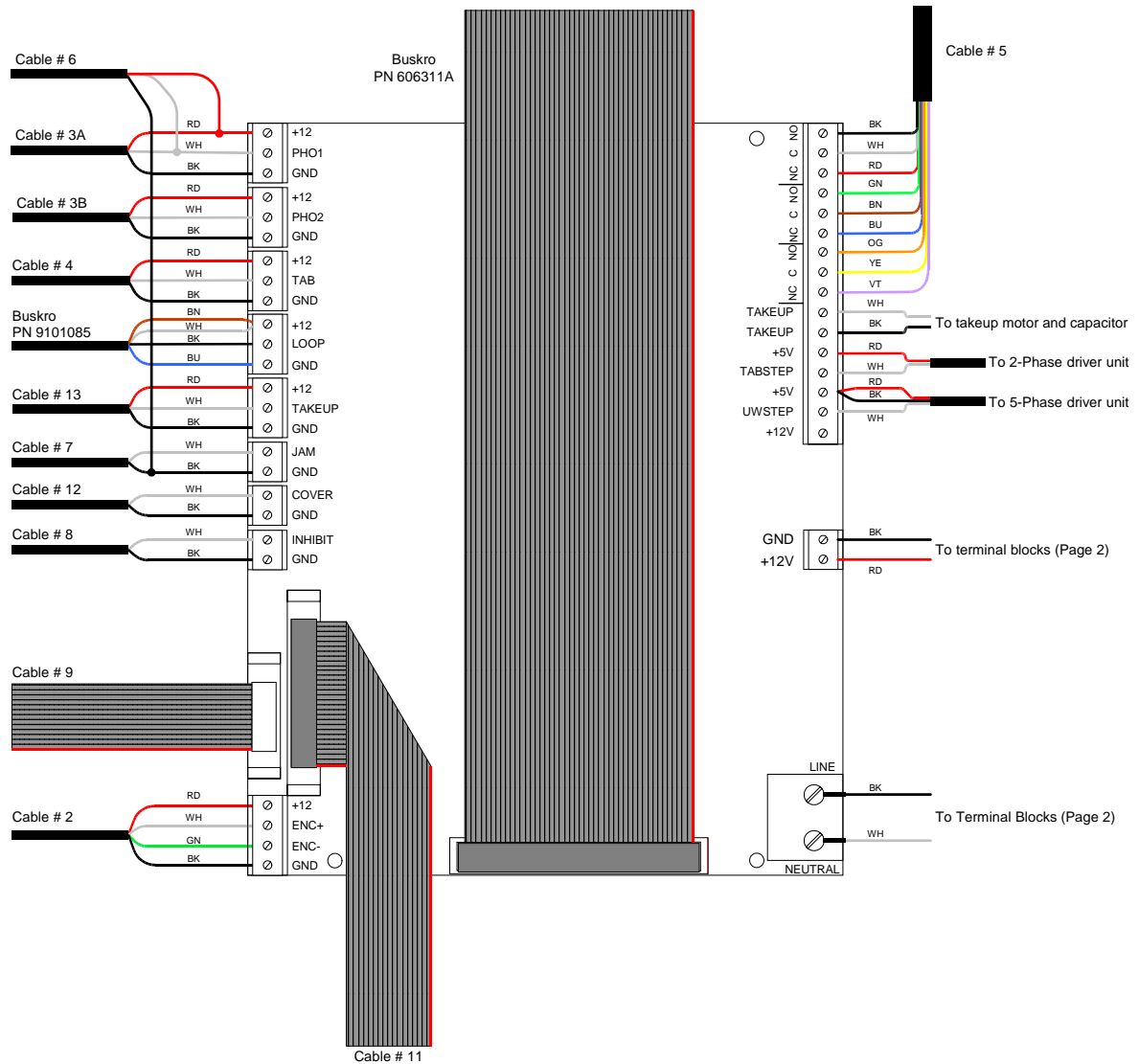
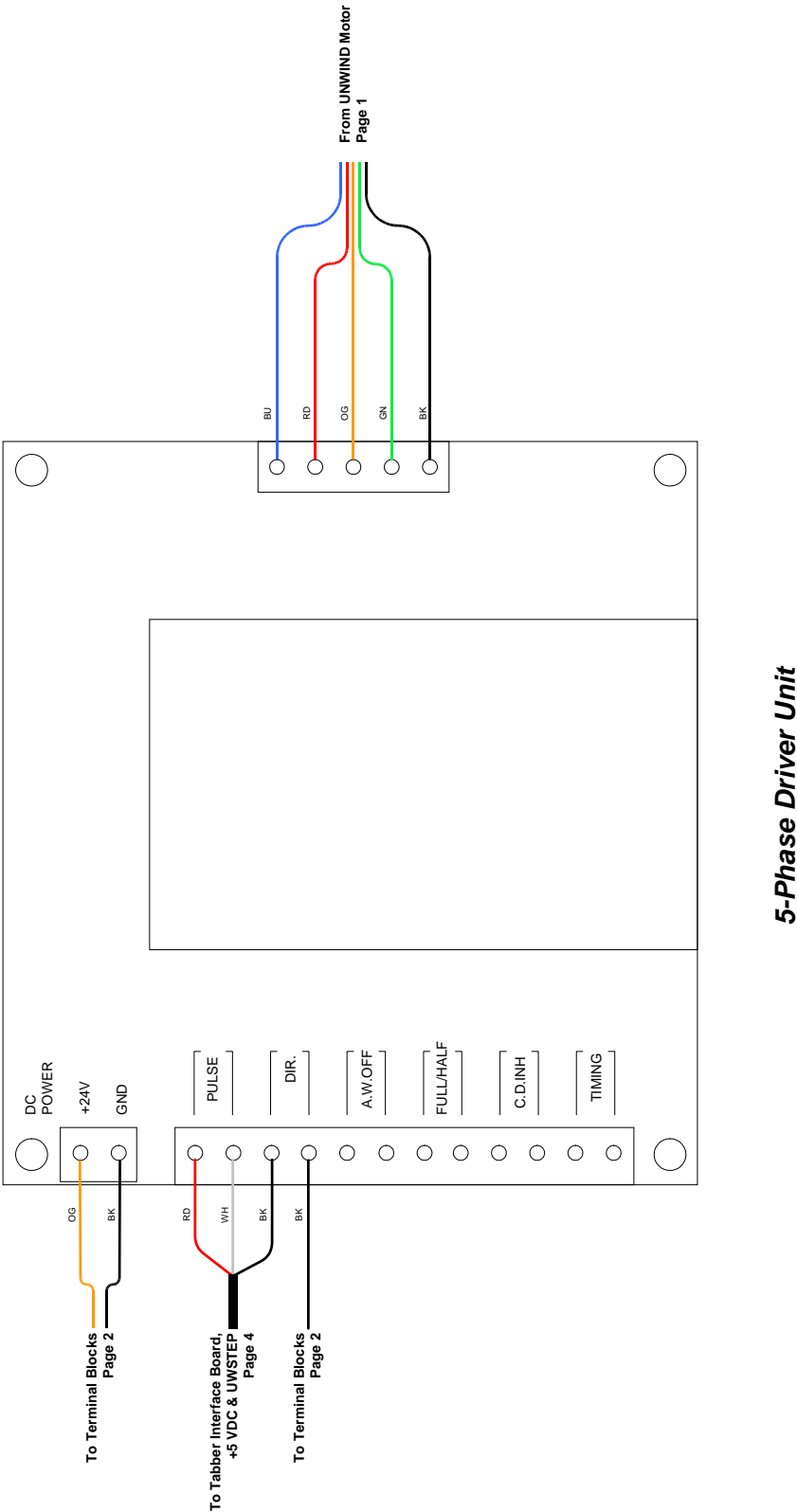
Figure B-4: *BK731 Tabber Head Wiring - Page 4 of 6*

Figure B-5: *BK731 Tabber Head Wiring - Page 5 of 6*



5-Phase Driver Unit

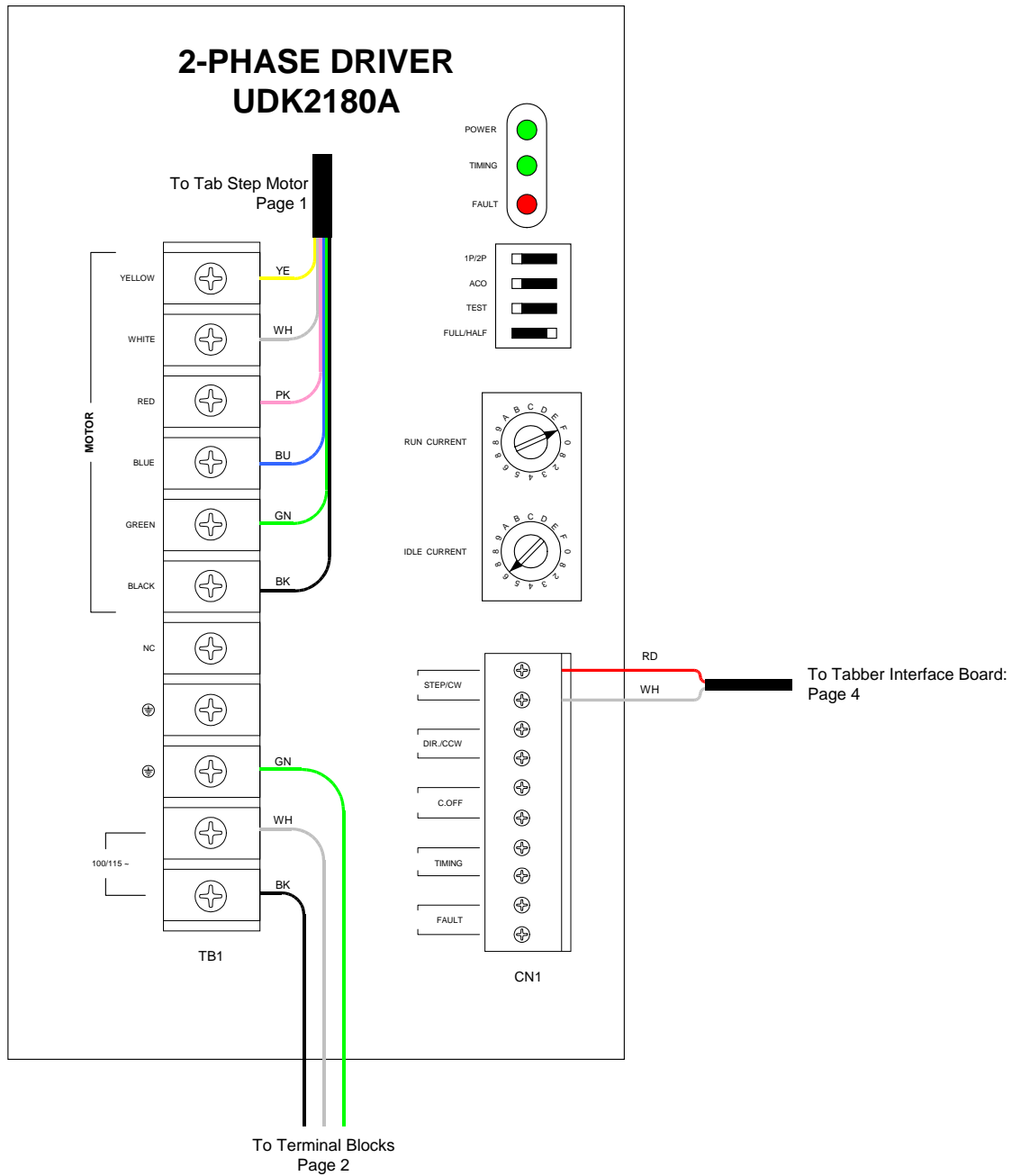
Figure B-6: *BK731 Tabber Head Wiring - Page 6 of 6*

Figure B-7: *Tabber CPU Board DIP Switches Setting.*

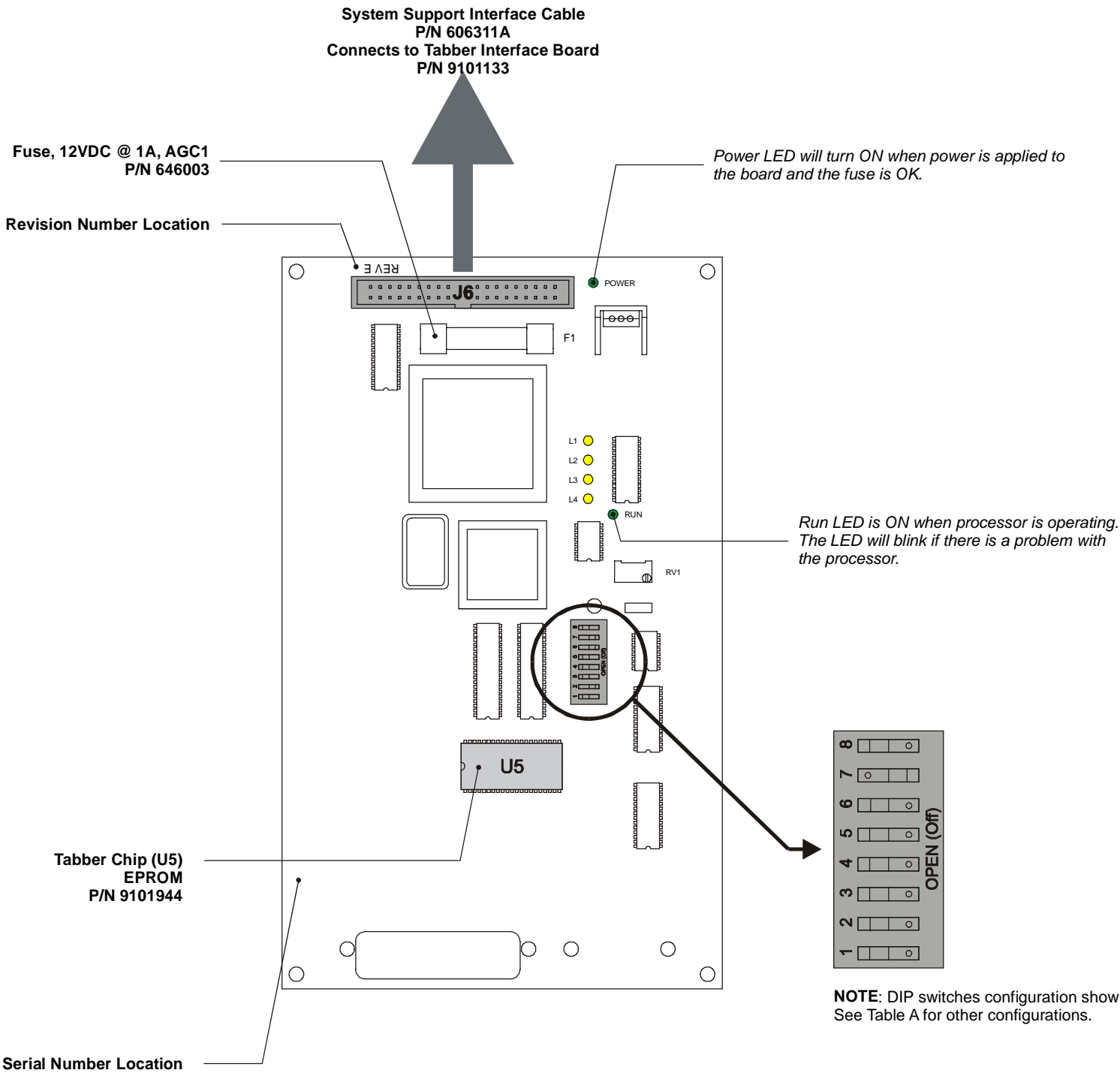


Table A - Tabber CPU Board Dip Switch Assignments

DIP	Setting	Function
8	On	Factory Reset (all other DIP switches must be Off)
	Off	Reserved for Factory Reset
7	On	For Rev E Board
	Off	For Rev A-D Board
3 - 6	Off	Future Use
2	On	Standard Encoder, 660 DPI (for BK7IB base)
	Off	Standard Encoder, 600 DPI (BK730 Tabber)
1	On	Stop output relay de-energized (for BK7IB base)
	Off	Stop Output Relay Energized (for standard BK730 base)

To reprogram the board:

1. Turn the base power off.
2. Switch DIP 8 ON and all other DIP switches OFF.
3. Turn the base power on and wait at least 60 seconds.
4. Turn the base power off.
5. Return the DIP switch settings to normal (Reference Table A).

The board is now reprogrammed.