# Atlas/Aurora Systems


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User's Guide V1.2

# Atlas/Aurora Systems User's Guide

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## Manual History

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| 1.2 | 18-May-10 | Updated BK792-A-15-RM80 and BK792-C-15-RM80 in Appendix A | 1238 |

# Table Of Contents

# General Information

Chapter 1

## 1.1 Description

The Atlas and Aurora inkjet system is a series of print technologies that includes the Monet, Renoir, and Cezanne inks to provide high-resolution images at high speeds on a wide variety of materials. Although all three inks provide outstanding image quality, they have varying strengths. As a result, it is important to choose the ink that best suits the situation.

Although the ink delivery systems and printheads are almost identical between the three inks, they are not interchangeable. As a result, it is important not to mix inks or unapproved fluids in the same ink delivery system or printhead otherwise ***serious*** damage can occur.

**Note:** Never mix inks or other fluids otherwise serious and permanent damage can occur to the system. This applies to both Buskro and non-Buskro fluids. For example, a mixture of Monet and Cezanne ink will cause permanent damage to a printhead.

### 1.1.1 Monet Ink

The Monet ink is a solvent-based ink formulation designed for general use and is known to dry on a wide variety of porous and coated materials. It is a reliable, has low operational costs, and can print at high speeds.

### 1.1.2 Cezanne Ink

The Cezanne ink is a fast-drying solvent-based ink formulation that is recommended for applications where dry time and adhesion are the critical parameters. In general, where reliability and stability are paramount, the traditional Monet ink should be used.

### 1.1.3 Renoir Ink

The Renoir ink is a UV-curable ink that can print on a large variety of materials including plastics and metal with no solvent emissions. It is the darkest of the three inks but requires a UV Curing Station to cure the ink.

# 1.2 Printhead Drawings

## 1.2.1 Printhead Dimensions (1250)

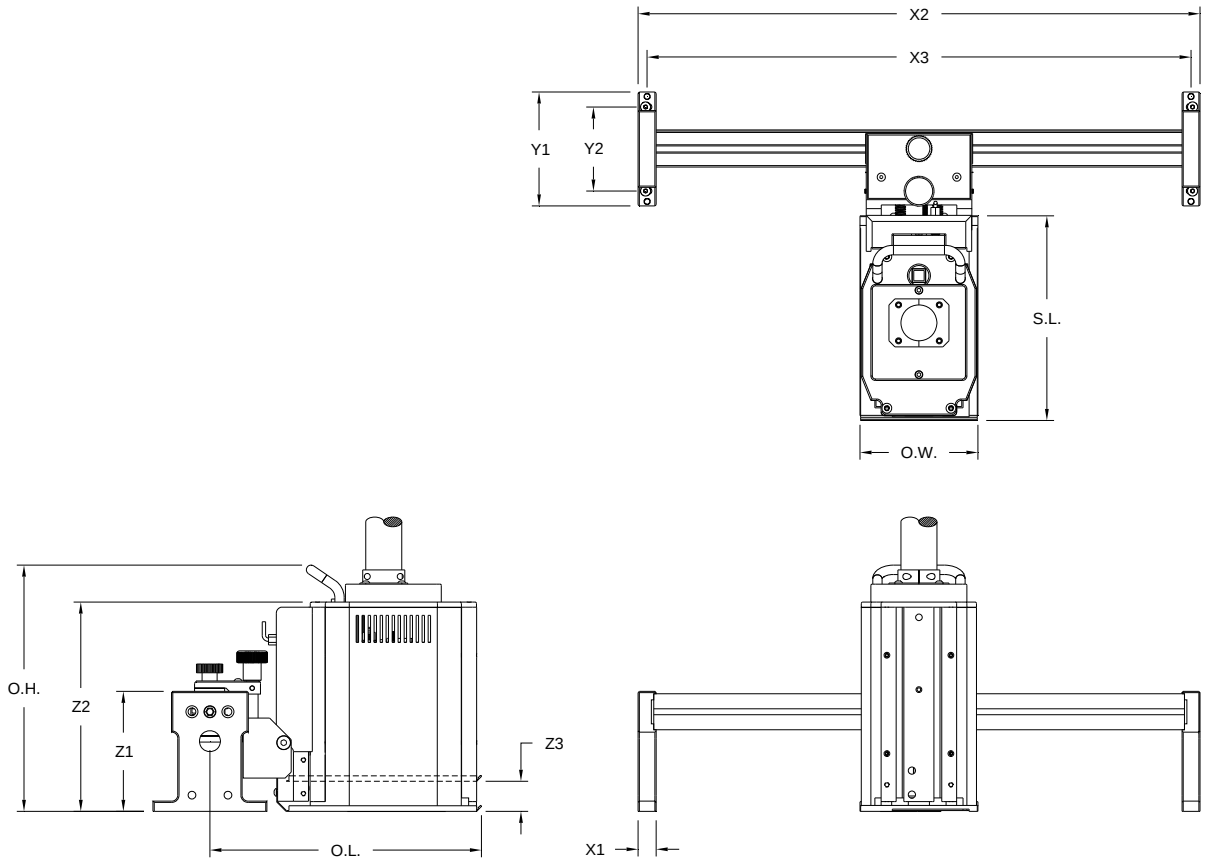



*Table 1-1: 1250 Printhead Dimensions on Standard BK79B-22 Bridge*

| Symbol | Description | Dimensions | |
|---|---|---|---|
| O.L. | Overall Length from center of rail | 11.32” | 288 mm |
| O.H. | Overall Height | 10.26” | 261 mm |
| O.W. | Overall Width (Shield Width) | 4.92” | 125 mm |
| Z1 | Bridge rail mount height | 5.00” | 127 mm |
| Z2 | Height to top surface | 8.80” | 224 mm |
| Z3 | Height adjustment | 1.25” | 32 mm |
| S.L. | Overall Shield Length | 8.53” | 217 mm |
| X1 | Bridge rail mount thickness | 0.75” | 19 mm |
| X2 | Overall width of bridge | 23.43” | 595 mm |
| X3 | Bridge rail mount mounting screw spacing | 22.68” | 576 mm |
| Y1 | Bridge rail mount length | 4.75” | 121 mm |
| Y2 | Bridge rail mount mounting screw spacing | 3.50” | 89 mm |

### 1.2.2 Printhead Components (1250)

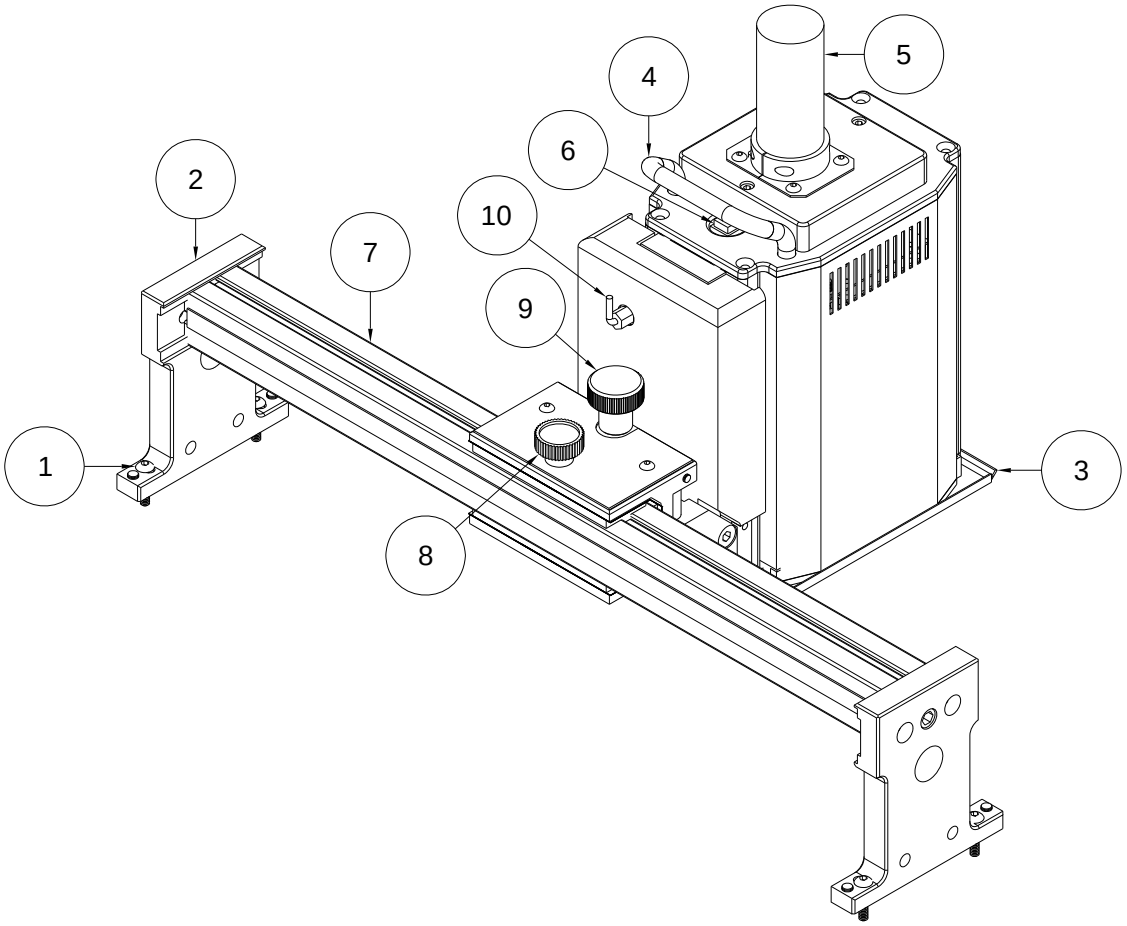



*Table 1-2: BK79 Series Printhead Components (1250)*

| Item | Description |
|---|---|
| 1 | Mounting screw (four ¼-20 UNC) |
| 2 | Bridge rail mount (two per bridge) |
| 3 | Printhead shield |
| 4 | Printhead handle |
| 5 | Printhead umbilical (connect to inkwell) |
| 6 | Priming button |
| 7 | Bridge rail (standard 22” but other lengths are available) |
| 8 | Lateral adjustment release knob |
| 9 | Height adjustment knob |
| 10 | Release knob for maintenance |

### 1.2.3 Printhead Specifications (1250)

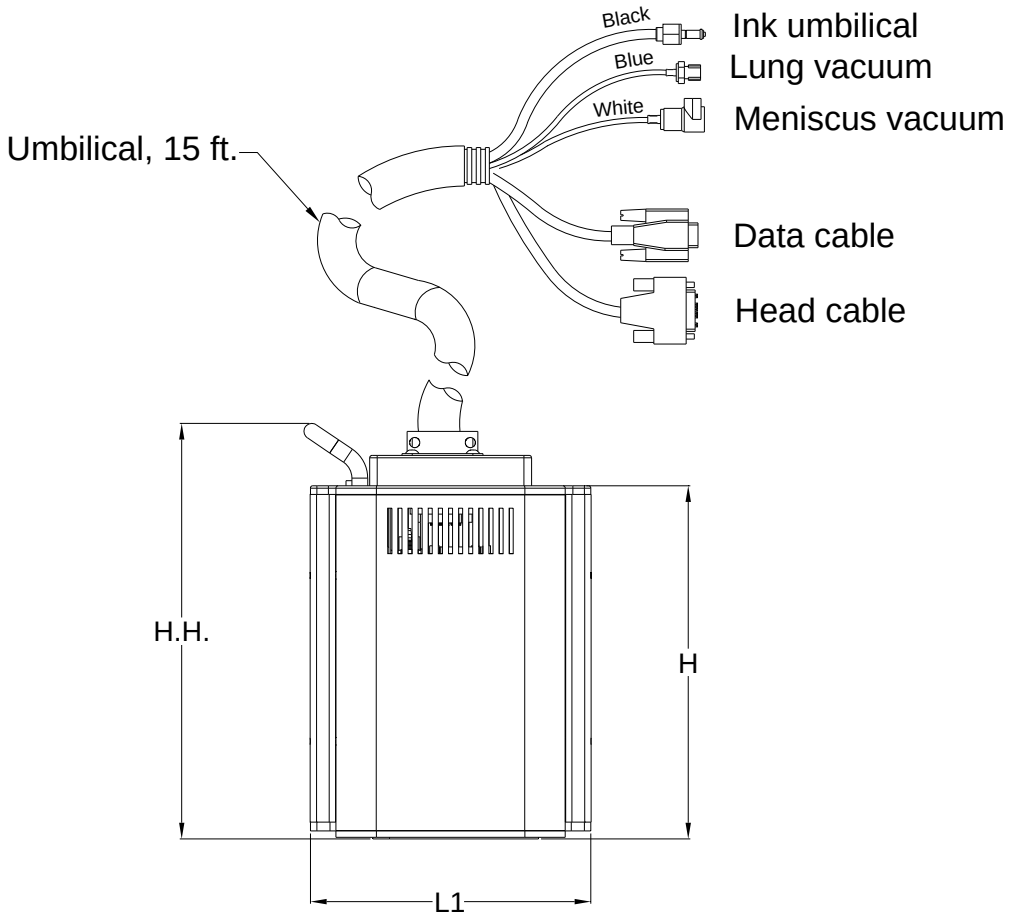



*Table 1-3: Printhead Specifications (1250)*

| General | | |
|---|---|---|
| Vertical Resolution | 256 DPI | |
| Horizontal Resolution | 110, 220, 330, 440, 660 DPI | |
| Vertical Print Swath | 1” | 25.4 mm |
| Horizontal Print Swath | 39” | 990.6 mm |
| **Physical** | | |
| Printhead Length (L1) | 6.93” | 176 mm |
| Printhead Height to Handle (H.H.) | 10.27” | 261 mm |
| Printhead Height (H) | 8.73” | 222 mm |
| Printhead Weight | 9 lbs | 4 kg |

### 1.2.4 Printhead Dimensions (2250 and 3250)

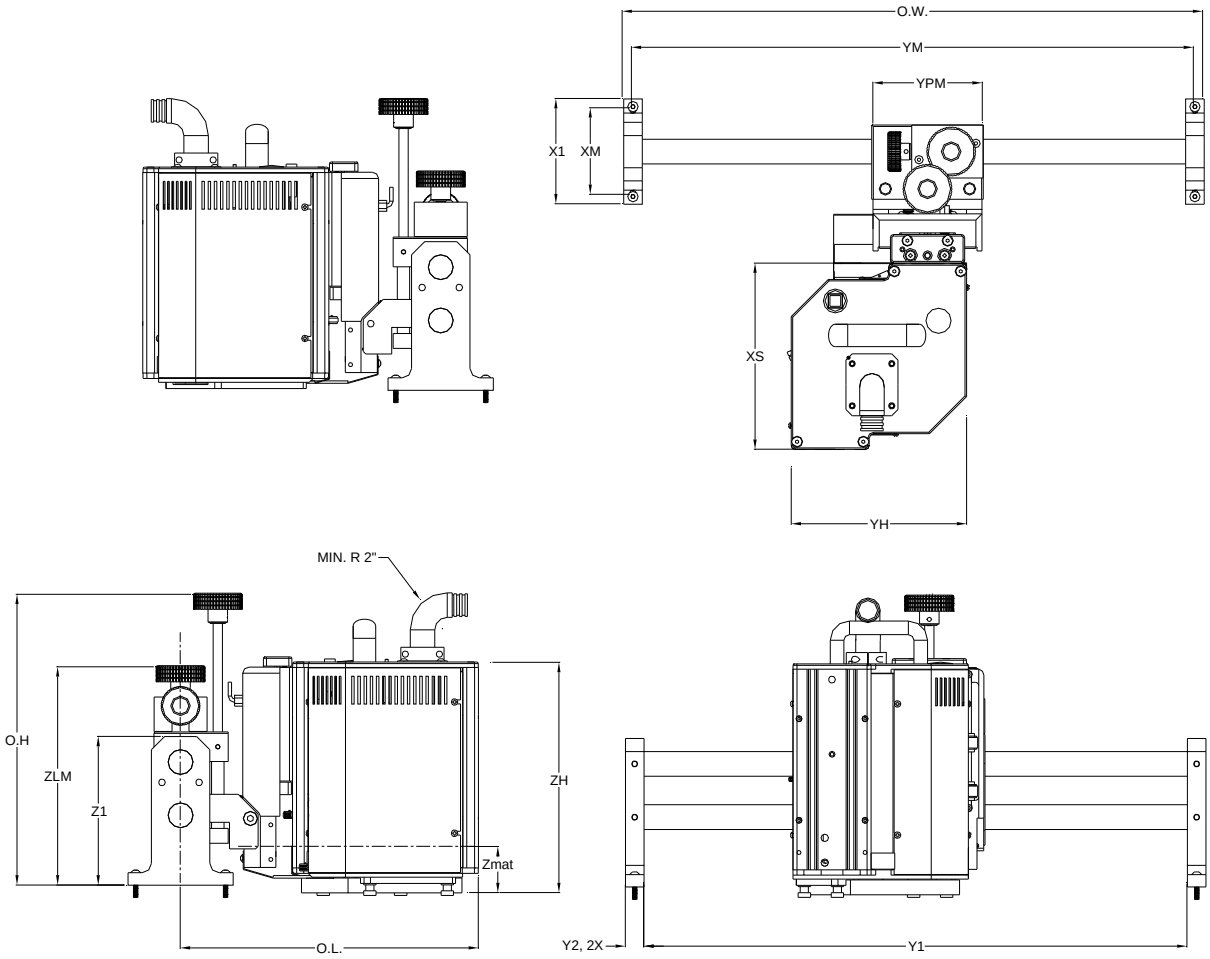



*Table 1-4: 2250/3250 Printhead Dimensions on BK80B-22" Bridge*

| Symbol | Description | Dimensions | |
|---|---|---|---|
| O.L. | Atlas 2250/3250 print head overall length from center of rail | 12.89" | 327 mm |
| O.W. | Overall width of bridge | 23.45" | 596 mm |
| O.H. | Overall height to height adjustment knob | 11.74" | 298 mm |
| X1 | Bridge rail mount length | 4.25" | 108 mm |
| XM | Bridge rail mount mounting screw spacing | 3.50" | 89 mm |
| XS | Atlas print head overall shield length | 7.53" | 191 mm |
| Y1 | Bridge exposed length | 21.95" | 556 mm |
| Y2 | Bridge rail mount thickness | 0.75" | 19 mm |
| YH | Atlas print head shield width | 7.08" | 179 mm |
| YPM | Print head mount width | 4.50" | 114 mm |
| Z1 | Bridge rail mount height | 6.00" | 152 mm |
| ZLM | Height of locking mechanism | 8.82" | 224 mm |
| Zmat | Height adjustment | 1.50" | 38 mm |
| ZH | Atlas print head height | 8.94" | 227 mm |

### 1.2.5 Print head Components (2250 and 3250)

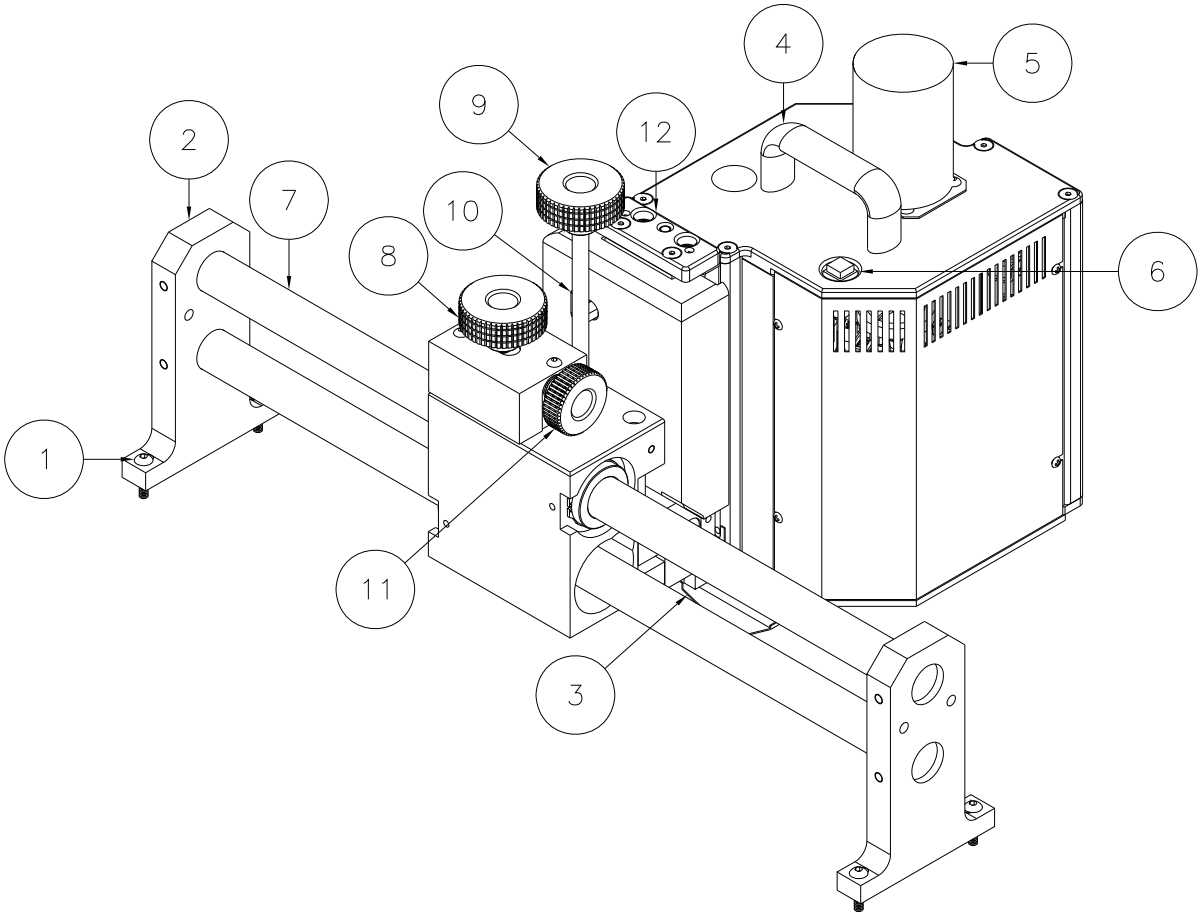



*Table 1-5: 2250/3250 Printhead Components*

| Item | Description |
|---|---|
| 1 | Mounting screw (four ¼-20 UNC) |
| 2 | Bridge rail mount (two per bridge) |
| 3 | Printhead shield |
| 4 | Printhead handle |
| 5 | Printhead umbilical |
| 6 | Priming button |
| 7 | Bridge rail (2 per Bridge) |
| 8 | Lateral adjustment release knob |
| 9 | Height adjustment knob |
| 10 | Release knob for maintenance |
| 11 | Lateral Fine Adjustment Knob |
| 12 | Angular Adjustment |

### 1.2.6 2250/3250 Printhead Specifications

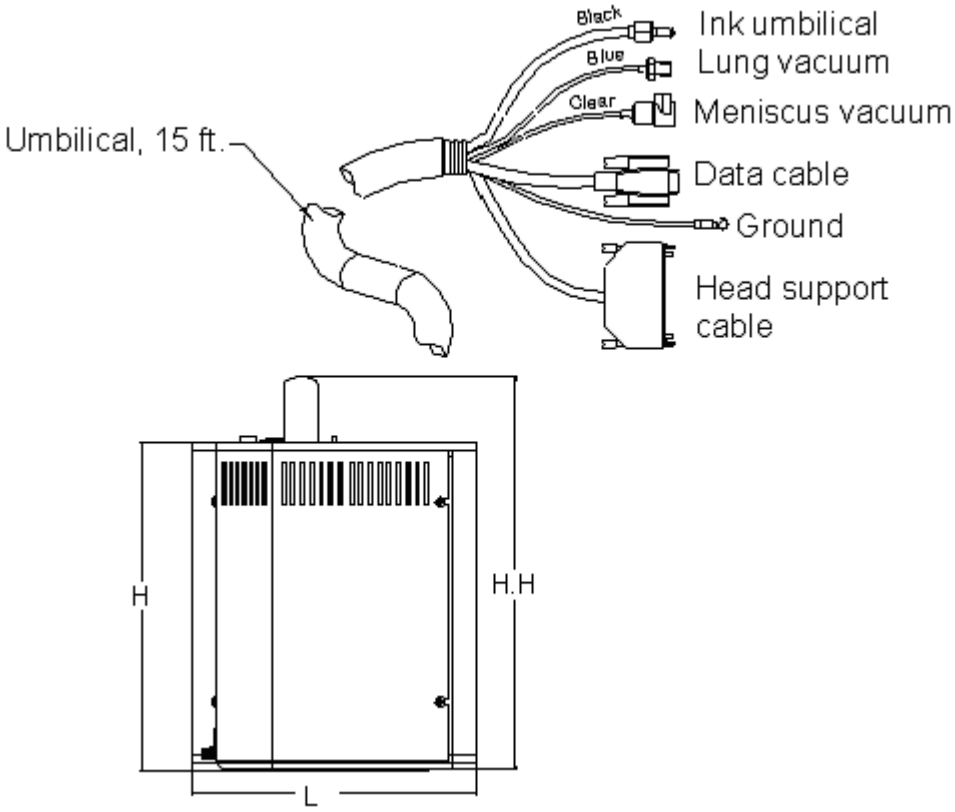



*Table 1-6: 2250/3250 Printhead Specifications*

| **General** | | |
|---|---|---|
| Vertical Resolution | 256 DPI | |
| Horizontal Resolution | 110, 220, 330, 440, 660 DPI | |
| Vertical Print Swath | 2” or 3” | 51 mm or 76 mm |
| Horizontal Print Swath | 39” | 990.6 mm |
| **Physical** | | |
| Length (L) | 7.53” | 191 mm |
| Overall Height to Handle (H.H.) | 10.43 | 265 mm |
| Enclosure Height (H) | 8.73” | 222 mm |
| Weight | 18 lbs | 8.1 kg |

**Note:** The 3250 is only available on the BK1710 and BK1720 controllers. Contact Buskro for more details.

# Controller

Chapter 2

## 2.1 Introduction

The Atlas and Aurora print systems are supported by all current Buskro controllers (BK705, BK1705, and BK1710 / BK1720). With the exception of the entry-level BK705, the Atlas or Aurora technology can also be combined with Thermal Ink-Jet (TIJ) technology (Apollo or full-process color with Apollo-4C). A summary of some of the capabilities of each controller type can be found in Table 2-1.

*Table 2-1: Buskro Controller Summary*

| Support | BK705 | BK1705 | BK1710 | BK1720 |
|---|---|---|---|---|
| Compose IQ | Yes | Yes | Yes | Yes |
| Tracking Option Capable | Yes | Yes | Yes | Yes |
| Combo Option Capable (e.g. Atlas & Apollo) | No | Yes | Yes | Yes |
| Max. inches Apollo (1 to 4" Printheads) | 4" | 8" | 16" | 16" |
| Max. # Apollo-4C Printheads | 1 | 2 | 4 | 4 |
| Max. # Atlas or Aurora Printheads | 2 | 4 | 4 | 8 |
| Max. inches of Atlas or Aurora Print | 3" | 4" | 12" | 24" |
| Max. # Atlas or Aurora 1250 Printheads (1") | 2 | 4 | 4 | 8 |
| Max. # Atlas or Aurora 2250 Printheads (2") | 1 | 2 | 4 | 8 |
| Max. # Atlas or Aurora 3250 Printheads (3") | 0 | 0 | 4 | 8 |

*Figure 2-1: Buskro Controllers*

| BK705 | BK1705 | BK1710 | BK1720 |
|---|---|---|---|
|  |  |  |  |

For more specific information on the controllers or their respective ink delivery systems, reference the manuals specific to the controller.

# Printheads

Chapter 3

# 3.1 Features

## 3.1.1 Universal front/back Mounting

The printhead is constructed with identical aluminum extrusions on either end permitting universal front or back mounting depending on the arrangement of the bridge.

## 3.1.2 Rugged Umbilical

All printhead “life support” requirements emanating from the controller are ported through a single ruggedly encased umbilical providing excellent protection. These essential elements include vacuum, ink, and data lines.

## 3.1.3 Individual Height Control

In order to accommodate various product thicknesses, the height of each printhead can be adjusted individually.

## 3.1.4 Leveling Control for Print Optimization

A simple spring-loaded head leveling arrangement is provided to permit convenient and rapid head leveling for the purpose of optimizing the print quality. In addition, this construction provides head compliance in the event of a double-feed situation.

## 3.1.5 Portable

Since the printhead is capable of sliding relative to the mounting assembly, the printhead can be easily attached or removed from the mount for unparalleled portability.

## 3.1.6 Convenient Maintenance System

The printhead mount is equipped with a convenient release knob that automatically raises the printhead for rapid access to the printhead face in the event wiping and purging is required.

## 3.2 Components

### 3.2.1 The Printbar / Jetting Assembly

The jetting assembly is a monochrome 256-jet head that uses Drop-On-Demand (DOD) technology that applies voltage to the Piezo-electric crystals in the head to jet ink. In the case of 1250 printhead (1”), only one printbar is used while in the 2250 (2”) and 3250 (3”) printheads, two or three jetting assemblies respectively are used. An illustration of the 1250 printbar can be seen in Figure 3-1 while the 2250 and 3250 manifold assembly can be seen in Figure 3-2.

*Figure 3-1: The Printbar (1250)*

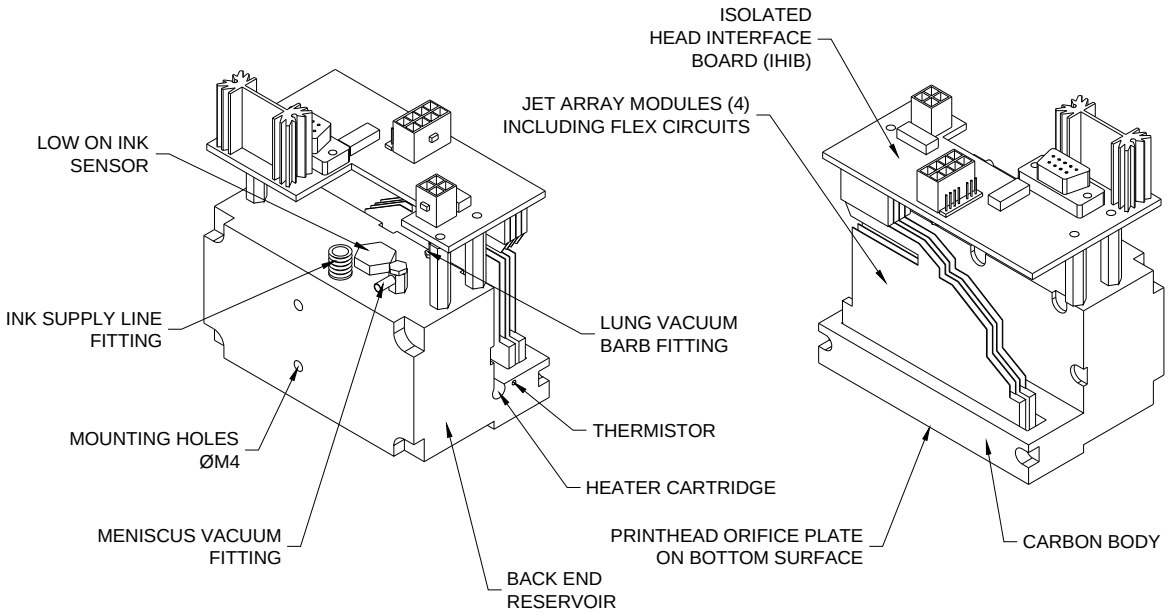
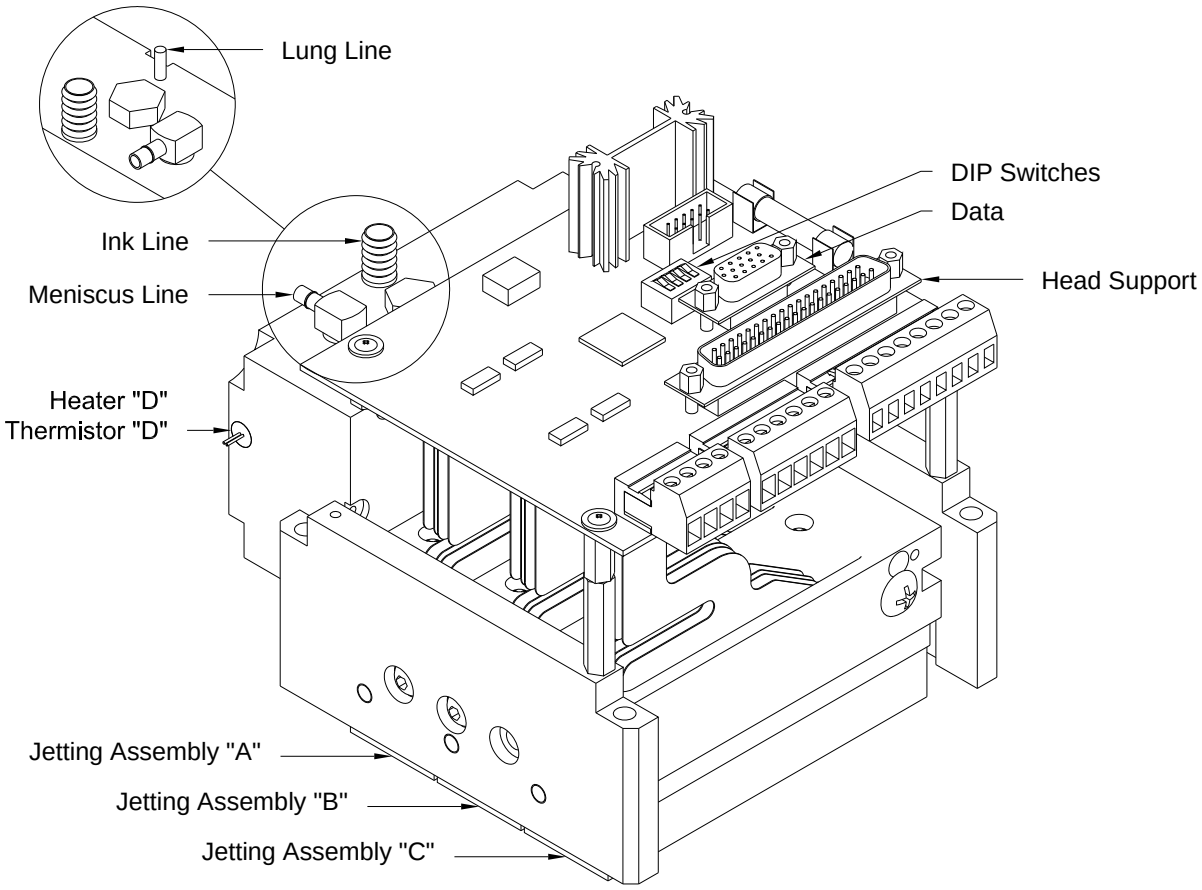


*Figure 3-2: Manifold Assembly (2250 and 3250)*




The ink reservoir in the printbar normally holds 40 mL of ink and also contains a Low On Ink Sensor (LOIS), a heater cartridge and thermistor to maintain the required temperature, and a lung vacuum feature to remove air from the ink.

### 3.2.2 THIB II Board

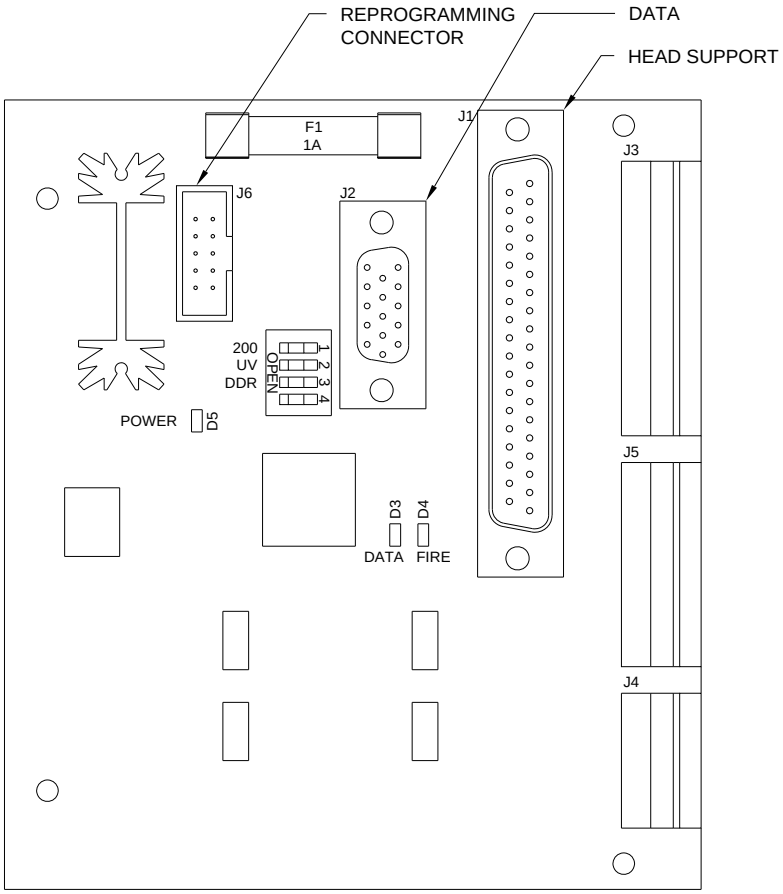



*Table 3-1: THIB II Board - DIP Switch Settings*

| DIP | Setting | Function |
|---|---|---|
| 1 | ON<br>OFF (OPEN) | 2300 or 3250 Printhead<br>2200 or 2250 Printhead |
| 2 | ON<br>OFF (OPEN) | Solvent Ink (Monet, Cezanne)<br>Aurora UV Ink (Renoir) |
| 3 | ON<br>OFF (OPEN) | Normal Transfer Rate<br>Double Data Rate (DDR) Transfer Mode (Use with –XS Drivers) |
| 4 | OFF | For Future Use |

*Table 3-2: THIB II Board – LED Functions*

| LED | Setting | Function |
|---|---|---|
| D3 | Green | Data being transferred |
| D4 | Red | High voltage fire pulse applied |
| D5 | Green | Power (12V from Head Cable) |

### 3.2.3 Lung Vacuum Line

The lung vacuum is designed to de-aerate the ink to prevent loss of jets due to air bubbles. If a large volume of ink is consumed (i.e. purging), wait a couple of minutes to allow the lung to remove the air bubbles. Otherwise, jets may be lost within a few minutes of printing.

### 3.2.4 Meniscus Vacuum Line

The meniscus vacuum should measure approximately 3.3 inches of water (in Wg) for 1250 printheads and 4.7 in Wg for 2250 and 3250 printheads. If the meniscus vacuum is too low, ink may leak from the printhead. Conversely, if the meniscus vacuum is too high, air may be drawn into the nozzles. Both cases can result in a loss of jets during printing. If either of these conditions are observed, the meniscus vacuum can be measured using a low-pressure gauge (P/N 9100338A). If an incorrect meniscus vacuum is measured at the head, another reading should be taken directly from the pressure regulator to ensure that the problem is not in the meniscus vacuum line itself.

**Note:** If the hydrophobic filter in the printhead on the meniscus line fills with ink, it must be replaced.

### 3.2.5 Priming Button

The priming button(s), located on the top of the printhead assembly, is available to remove air from the printhead. To prime the printhead, the button must be pressed and held for approximately 4 seconds. A number of conditions must be met in order for priming to occur. These conditions are outlined below.

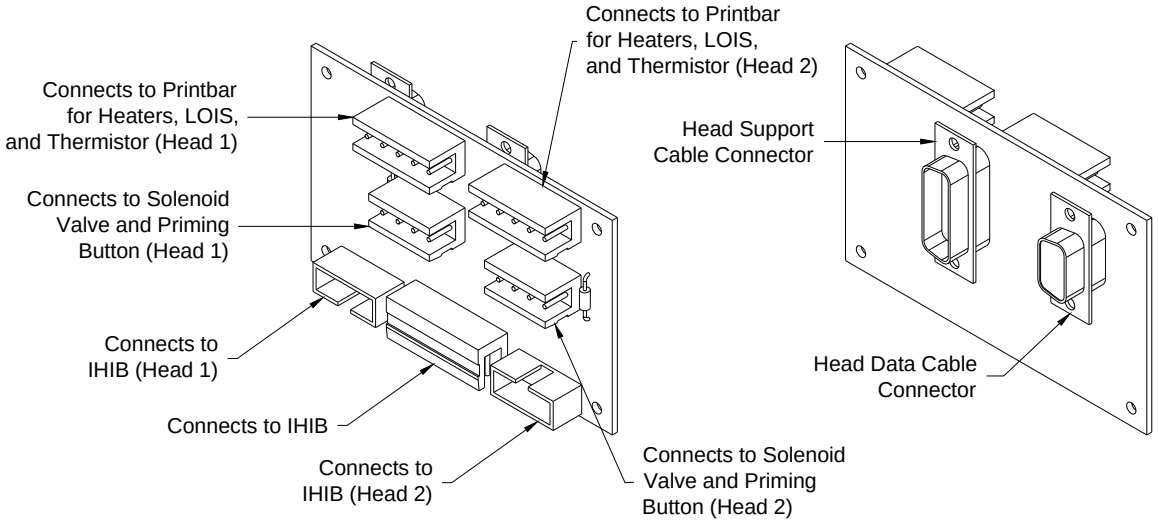
1. The Atlas/Aurora Power Supply Module must be ON.
2. The printhead must be at its operating temperature.
3. The ink refill process must be inactive.
4. There must be sufficient ink in the subcontainer of the Ink Delivery System.
5. A period of 10 seconds must elapse between the start of one prime to the start of another.

If any of the above conditions are not met, priming may not occur.

### 3.2.6 Dual Atlas Connector Interface Board (DACIB)

In the 1250 printheads, the DACIB (Figure 3-3) is used to interface the printhead with the Controller through the head support cable and head data cable respectively.

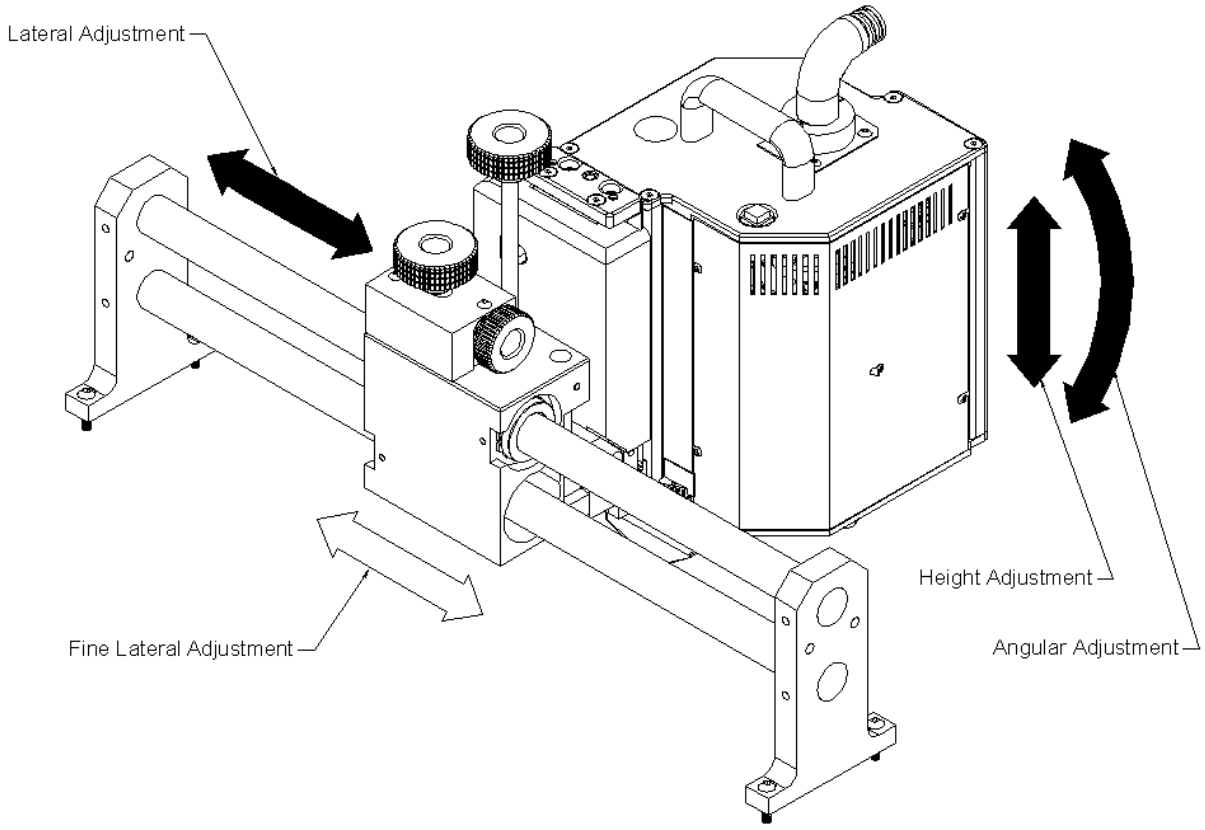
*Figure 3-3: Dual Atlas Connector Interface Board (DACIB)*



## 3.3 Printhead Adjustments

In order to provide flexibility, each printhead is designed to allow individual lateral, vertical, and angular adjustments. This is achieved by adjusting the associated knobs and screw (Section 1.2.2, 1.2.5, and Figure 3-4).

*Figure 3-4: Printhead Adjustments*




### 3.3.1 Lateral Adjustment

Lateral adjustment is achieved by turning the release knob counter-clockwise and sliding the printhead along the rail. Once in position, the release knob should be turned clockwise to lock the printhead in place. This adjustment provides proper placement of print on the piece.

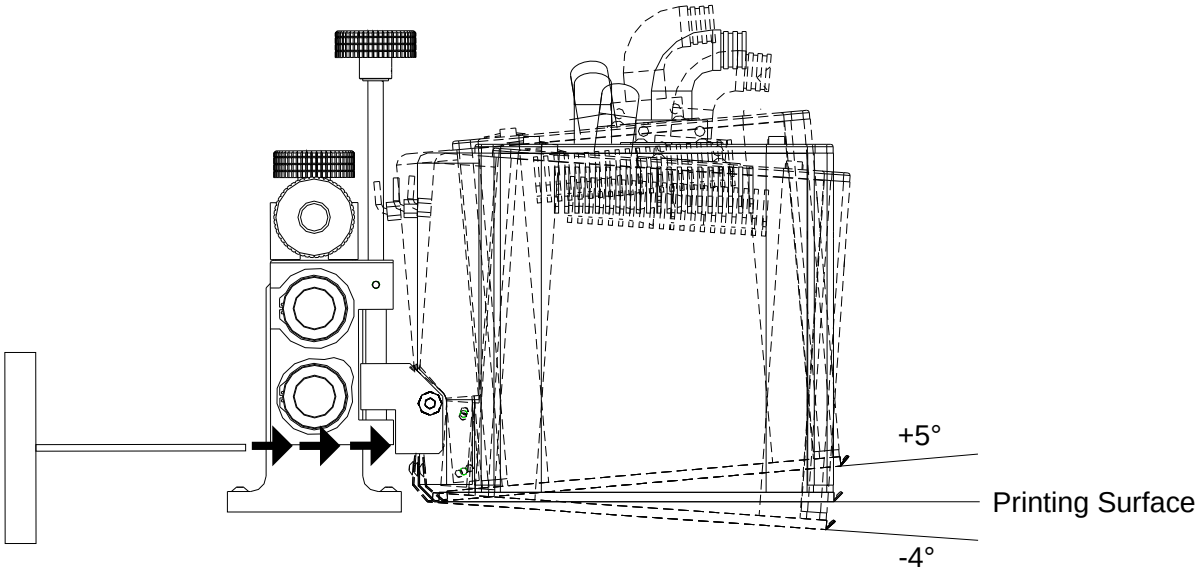
### 3.3.2 Height Adjustment

Height adjustment is achieved by turning the height adjustment knob. Clockwise rotation raises the printhead while counter-clockwise lowers it. In general, the printhead should be as close to the material (without interfering with transport) as possible in order to obtain optimum print quality.

### 3.3.3 Angular Adjustment (Printhead Leveling)

Angular adjustment is achieved by turning the angular adjustment screw with a 3/16 hex key tool. This provides a 9-degree adjustment range as shown in Figure 3-5. In order to obtain optimum print quality, the lower surface (shield) must be parallel with the tabletop.

*Figure 3-5: Printhead Angular Adjustment*

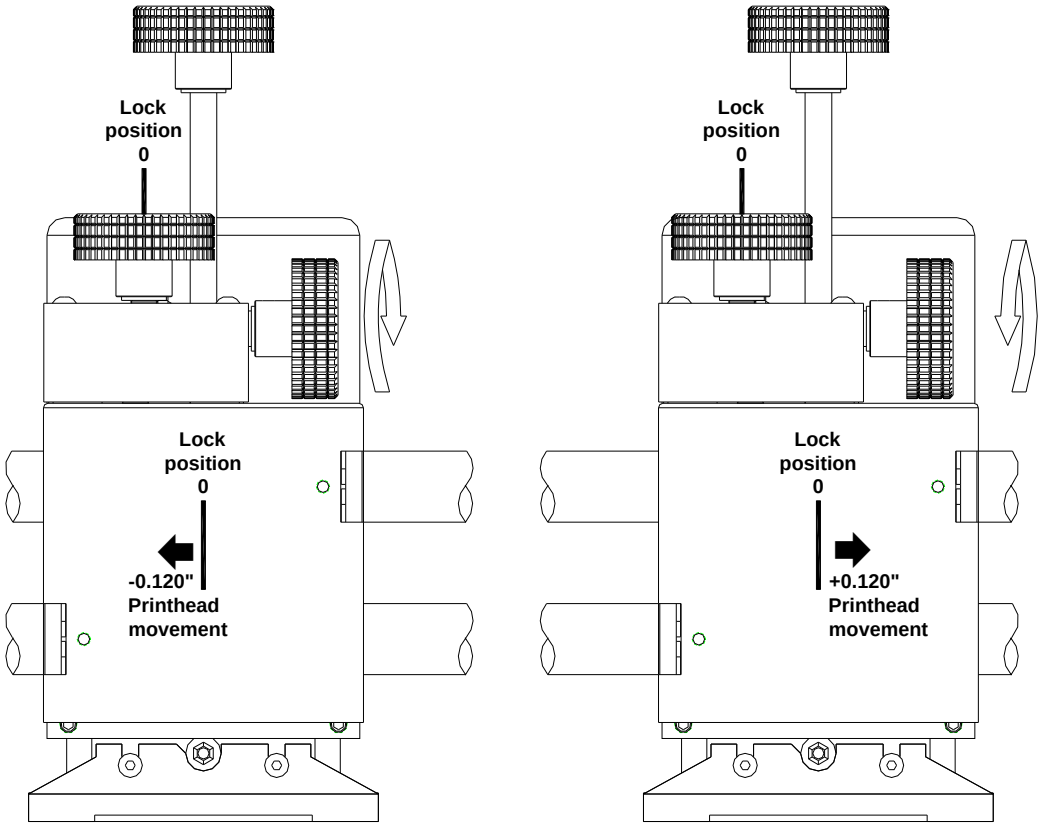



**Note:** Height and angular printhead adjustments are important to achieve optimum print quality.

### 3.3.4 Fine Lateral Adjustment (BK80 Bridge)

When using a BK80 bridge, fine lateral adjustment is available. The Fine lateral adjustment is crucial when attempting to stitch print between multiple printheads. In order to avoid gaps between prints, it is required to use the "Fine lateral adjustment" feature to align the prints rapidly and efficiently. The Fine lateral adjustment is obtained by turning the horizontally placed knob until full alignment occurs, shown in Figure 3-6.

*Figure 3-6: Print head Fine Lateral Adjustment*

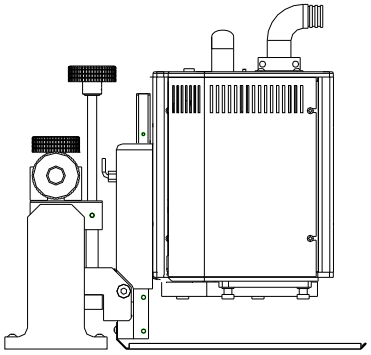


### 3.3.5 Raising the Printhead

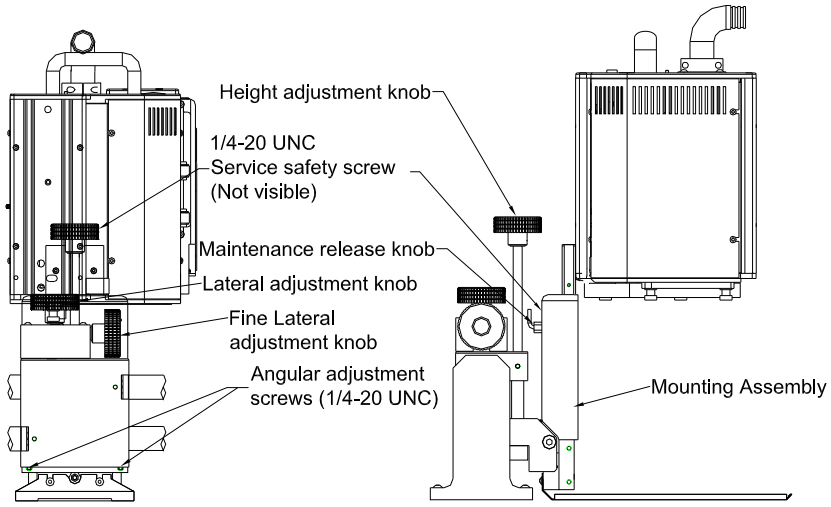
In order to simplify maintenance and service, the printhead housing can slide vertically relative to the mounting assembly. In order to clean or wipe the printhead, the maintenance release knob shown in Figure 3-7 can be pulled to automatically raise the head to the required level. When cleaning is completed, the printhead can be pushed down until it snaps in place.

In cases where the printhead needs to be serviced, the printhead must either be removed from the mounting assembly or raised high enough to access the screws securing the main covers. In order to do this, the service safety screw must be loosened.

*Figure 3-7: Raising the Printhead*



**Maintenance elevation**




**Service elevation**

# Printhead Maintenance

Chapter 4

# 4.1 General Maintenance

## 4.1.1 Wet Wiping

Wet wiping is recommended when the printhead has not been used for an extended period of time or if voids in the print (loss of jets) are seen or are occurring frequently during production runs. This process assists in removing dust, debris, and dried ink from the orifice plate (bottom of the printhead where the jets are fired from). To wipe the printhead:

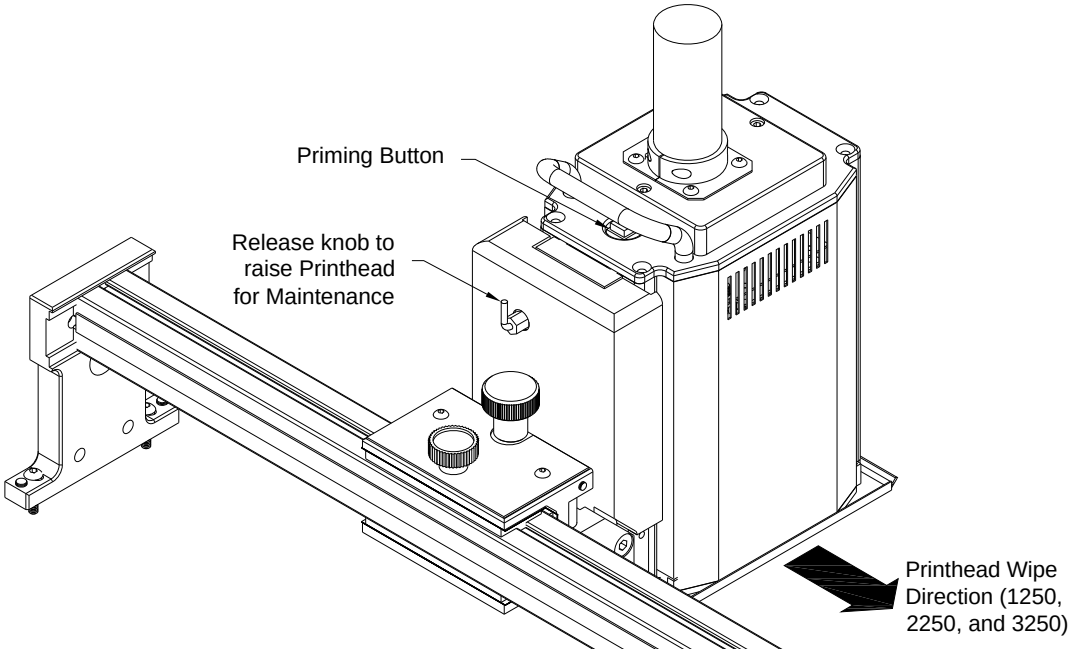
1. Pull the maintenance release knob to raise the printhead.
2. Apply Maintenance Spray or Flush (P/N BKSPR-MON125 for Monet, BKSPR-CEZ125 for Cezanne, and BKFSH-REN1000 for Renoir) to the approved fibreless wipe. Monet and Renoir inks use the blue wipes (P/N 800900) and Cezanne uses the white wipes (P/N 9104195). The wipe should be new (clean and free of dust and particles) and wet (saturated with maintenance spray or flush but not dripping wet).
3. Using the specified wipes, lightly press against the bottom of the printhead and move the wipe in the direction shown in Figure 4-1. Repeat until the orifice plate is clean.

**Note:** Only the Buskro approved fibreless wipes should be used otherwise the printhead can be damaged or fibres from the wipe may cause blockages and voids in the print. Do NOT apply unapproved materials to the orifice plate.

Do not use unapproved chemicals to assist in cleaning the printhead. Only use the Maintenance Spray or Flush specifically designed for the ink.

In order to keep the wipes clean, it is recommended that they be stored in a sealed bag. This is to minimize contamination from the environment (such as dust and debris) which can be transferred to the printhead.

*Figure 4-1: Priming and Wiping (1250 Printhead shown)*




### 4.1.2 Purging / Priming

In cases where a wet wipe is not sufficient, purging (also known as priming) is recommended. This applies pressure to eject ink through the orifice plate. Note that a wet wipe should be conducted afterwards. To prime and clean the printhead:

1. Pull the maintenance release knob to raise the printhead.
2. Place the ink tray underneath the printhead. Alternatively, hold an approved fibreless wipe underneath the printhead (recommend wearing gloves).
3. Press the priming button on the top of the printhead. Hold for approximately four seconds to allow ink to drip out of the printhead and then release.
4. Using the specified wipes, lightly press against the bottom of the printhead and move the wipe in the direction shown in Figure 4-1.
5. If one purge is not sufficient, repeat the process. Wait approximately ten seconds between each purge.

**Note:** If jets are lost shortly after purging during a production run (i.e. after a few minutes), there may be air bubbles in the ink. Repeat the purge process and wait at least two minutes before printing. This will provide time for the lung vacuum to remove air bubbles from the ink.

### 4.1.3 Shut-down Procedure

During periods where the printhead is not being used for extended periods of time (i.e. overnight), it is recommended to cap the printheads to minimize dry-out and contamination from outside sources (i.e. paper dust). To shut-down the printhead, reference the following steps:

1. Pull the maintenance release knob to raise the printhead.
2. Apply the ink specific Maintenance Spray or Flush to the approved fibreless wipe (Reference Section 4.1.1). The wipe should be new (clean and free of dust and particles) and wet (saturated with maintenance spray or flush but not dripping wet).
3. Place the wet wipe on the printhead cap and attach the printhead cap to the bottom of the printhead. The wet wipe should contact the orifice plate. If it does not, add another wipe underneath the wet wipe.
4. Place the ink tray underneath the printhead.
5. Shut off the controller.

### 4.1.4 Start-up Procedure

To start-up the printhead, reference the following steps:

1. Turn the controller ON and start Compose. Wait until the **"Normal Status"** icon appears.
2. Remove the printhead cap and use a wet wipe to clean excess fluid from the orifice plate. Wipe in the direction shown in Figure 4-1.
3. In many cases, printheads can be recovered by simply printing a few test patterns at a 330 DPI or higher. If this does not work, follow the wet wipe or purging procedure described in Sections 4.1.1 and 4.1.2.

**Note:** The system can also be capped and left on. This may speed up the process of starting up the system.

## 4.2 Renoir Printhead Maintenance

Since the Renoir ink has different properties from the Monet and Cezanne inks, maintenance requirements are different. As a result, it is important to follow the proper maintenance section based on the technology being used.

### 4.2.1 Renoir Printhead Shut-down

To shut-down the printhead overnight, reference the following steps:

1. Follow the priming procedure outlined in **Section 4.1.2**. Use nitrile gloves.
2. Run the Maintenance Firing Sequence (**Section 5.2.1**).
3. Run the Maintenance Purge (**Section 5.2.1**).
4. Follow Section 4.1.3.
5. Shut off the power to the system.

### 4.2.2 Renoir Printhead Start-up

To start-up the printhead, reference the following steps:

1. Put on Nitrile gloves and turn the controller.
2. Follow Section 4.1.4.

### 4.2.3 Renoir Printhead Regular Maintenance

The key to proper printhead maintenance is to exercise the printhead jets and to regularly refresh the ink in the printhead. This is normally done by running the system during a print job and following the daily maintenance requirements. In cases where there are longer idle times, more care is needed to ensure maintenance is completed as recommended.

**Note:** If regular maintenance is not properly followed, this can result in a permanent loss of jets in the printhead.

### 4.2.4 Periods up to 3 days

Renoir Inks can be left in the printhead for a period of 3 days with the machine switched off. The printhead temperature should be below 35C. It is switched off in order to drop the temperature applied to the ink in order to minimize the possibility of increasing ink viscosity over time (which can occur at elevated temperatures over extended periods of time). It is important to follow the daily shutdown procedure found in **Section 4.2.1**. Alternatively, the automatic maintenance feature can be activated (**Section 5.2.3**).

### 4.2.5 Periods of 3+ days

For Aurora printheads that are unused for 3+ days, it is important to continue to regularly cycle the ink through the jetting assembly. This is to avoid causing jet blockages in the printhead. In order to do this, the automatic maintenance feature must be activated to automatically expel ink at set intervals (**Section 5.2.3**). In order to do this, an ink tray must be placed under the printhead to catch the ink and there must be sufficient ink in the inkbottle to supply this process. It is also highly recommended that the operator print a full test pattern every 3 days to ensure that no jets have been lost.

**Note:** It is important to check the ink tray regularly to prevent overfilling and to check the ink supply to ensure there is sufficient ink to allow for maintenance.

It is highly recommended that the operator print a full test pattern every 3 days to ensure that no jets have been lost.

Do not exceed 15 days of inactivity for any printhead utilizing Renoir ink otherwise permanent missing jets can occur. Follow the proper maintenance procedures.

# Compose IQ

Chapter 5

## 5.1 Compose Software

In general, Buskro print technology is designed to work with a Buskro controller equipped with Compose IQ software. Compose IQ is a Windows® based application that controls all operational aspects of a Buskro inkjet system.

### 5.1.1 Printhead Drivers

In order to integrate the print technology with Compose, the proper printhead driver (Table 5-1) must be specified in the Setup menu (Figure 5-1).

*Figure 5-1: Compose Setup Window*

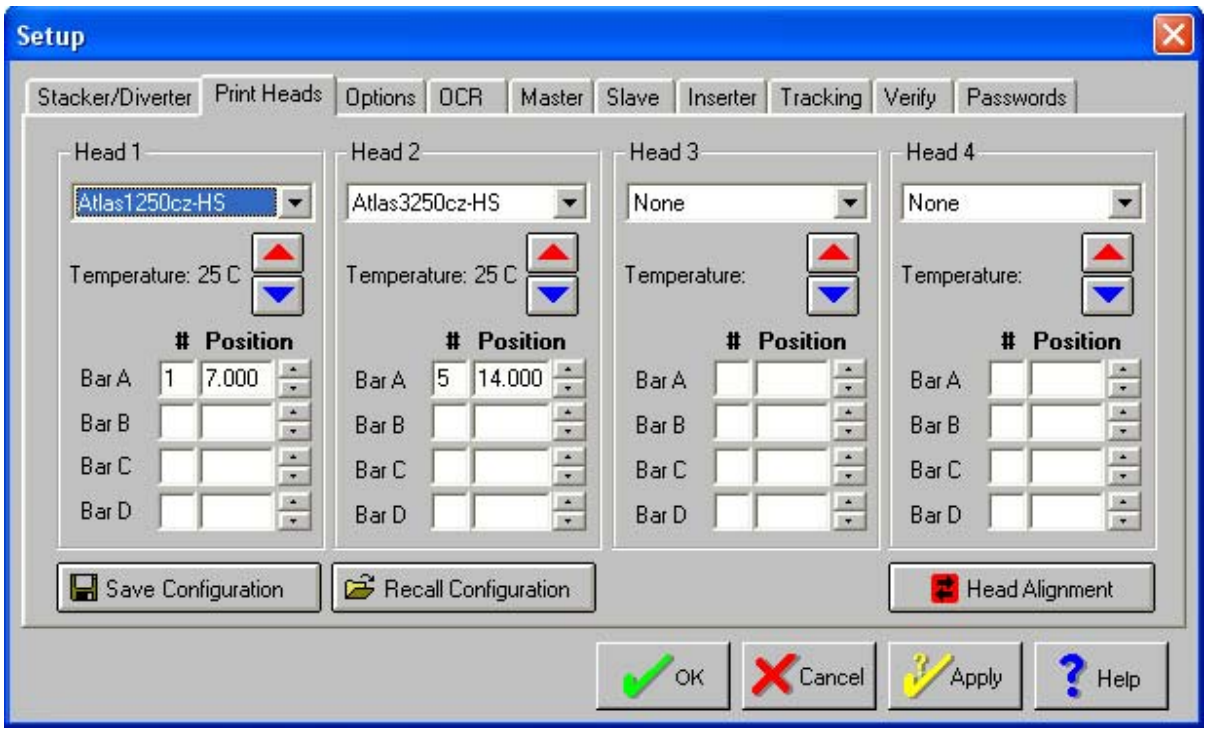


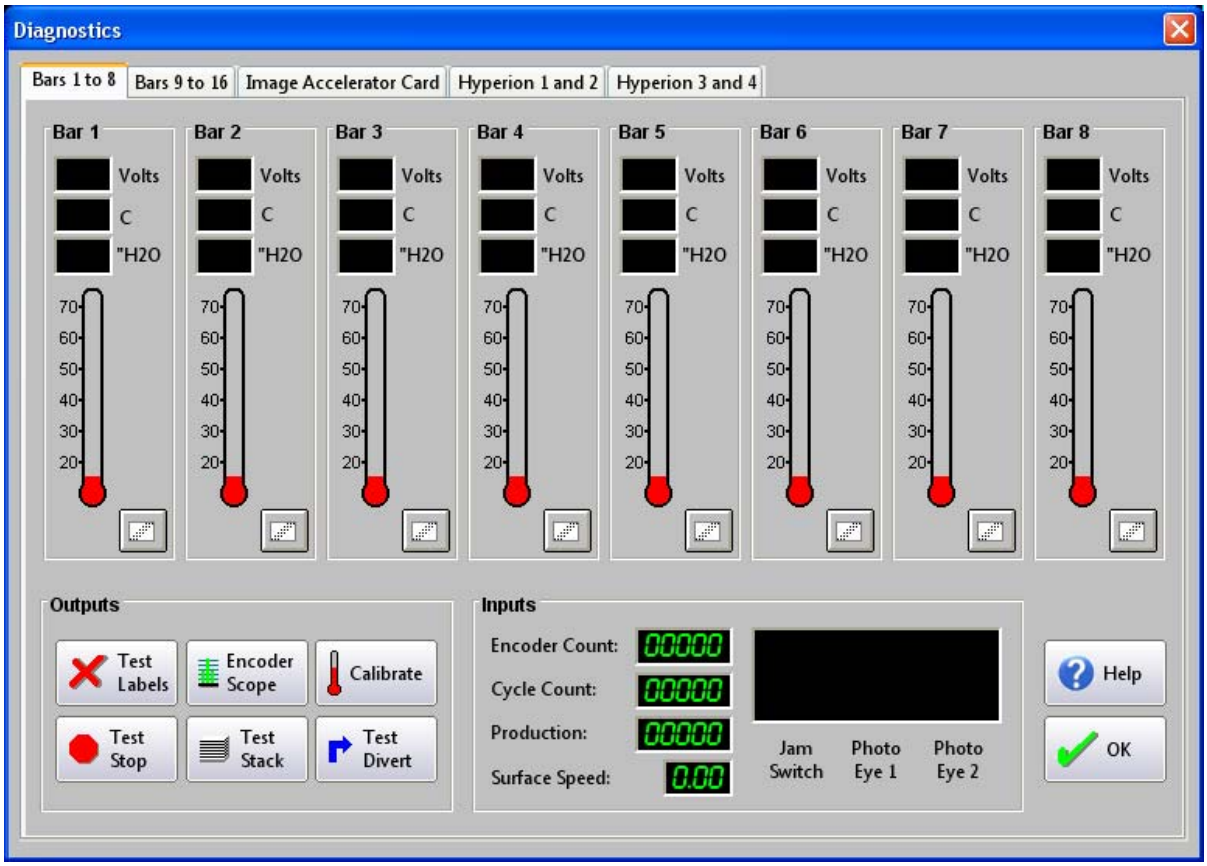
*Table 5-1: Standard Printhead Drivers*

| Print Type | Inches of Print | Driver Name | Description |
|---|---|---|---|
| Atlas 1250 (Monet) | 1 | Atlas1250-HS | High Speed Driver (Default) |
| | | Atlas1250 | Regular Driver |
| Atlas 2250 (Monet) | 2 | Atlas2250-XS | DDR Driver |
| | | Atlas2250-HS | High Speed Driver (Default) |
| | | Atlas2250 | Regular Driver |
| Atlas 3250 (Monet) | 3 | Atlas3250-XS | DDR Driver |
| | | Atlas3250-HS | High Speed Driver (Default) |
| | | Atlas3250 | Regular Driver |
| Print Type | Inches of Print | Driver Name | Description |
| Atlas 1250 (Cezanne) | 1 | Atlas1250cz-HS | High Speed Driver (Default) |
| | | Atlas1250cz | Regular Driver |
| Atlas 2250 (Cezanne) | 2 | Atlas2250cz-XS | DDR Driver |
| | | Atlas2250cz-HS | High Speed Driver (Default) |
| | | Atlas2250cz | Regular Driver |
| Atlas 3250 (Cezanne) | 3 | Atlas3250cz-XS | DDR Driver |
| | | Atlas3250cz-HS | High Speed Driver (Default) |
| | | Atlas3250cz | Regular Driver |
| Print Type | Inches of Print | Driver Name | Description |
| Aurora 1250 (Renoir, UV) | 1 | Aurora1250-HS | High Speed Driver (Default) |
| | | Aurora1250 | Regular Driver |
| Aurora 2250 (Renoir, UV) | 2 | Aurora2250-HS | High Speed Driver (Default) |
| | | Aurora2250 | Regular Driver |
| Aurora 3250 (Renoir, UV) | 3 | Aurora3250-HS | High Speed Driver (Default) |
| | | Aurora3250 | Regular Driver |

### 5.1.2 Diagnostics Screen

The Compose diagnostic screen displays the voltage and temperature readings for each printbar (Figure 5-2). The voltage value can be different for each jetting assembly. As a result, it is preset before shipment with the factory settings. The normal voltage range is 80-100 volts. The temperature reading depends on the ink technology used (40°C for Monet, 25-30°C for Cezanne, and 52°C for Renoir).

*Figure 5-2: Compose Diagnostics Window*




**Note:** Only trained technicians should make adjustments to the Voltage as it can affect print performance. In the case of Cezanne ink, it is not recommended to exceed the rated voltage otherwise more frequent jetouts will occur during printing.

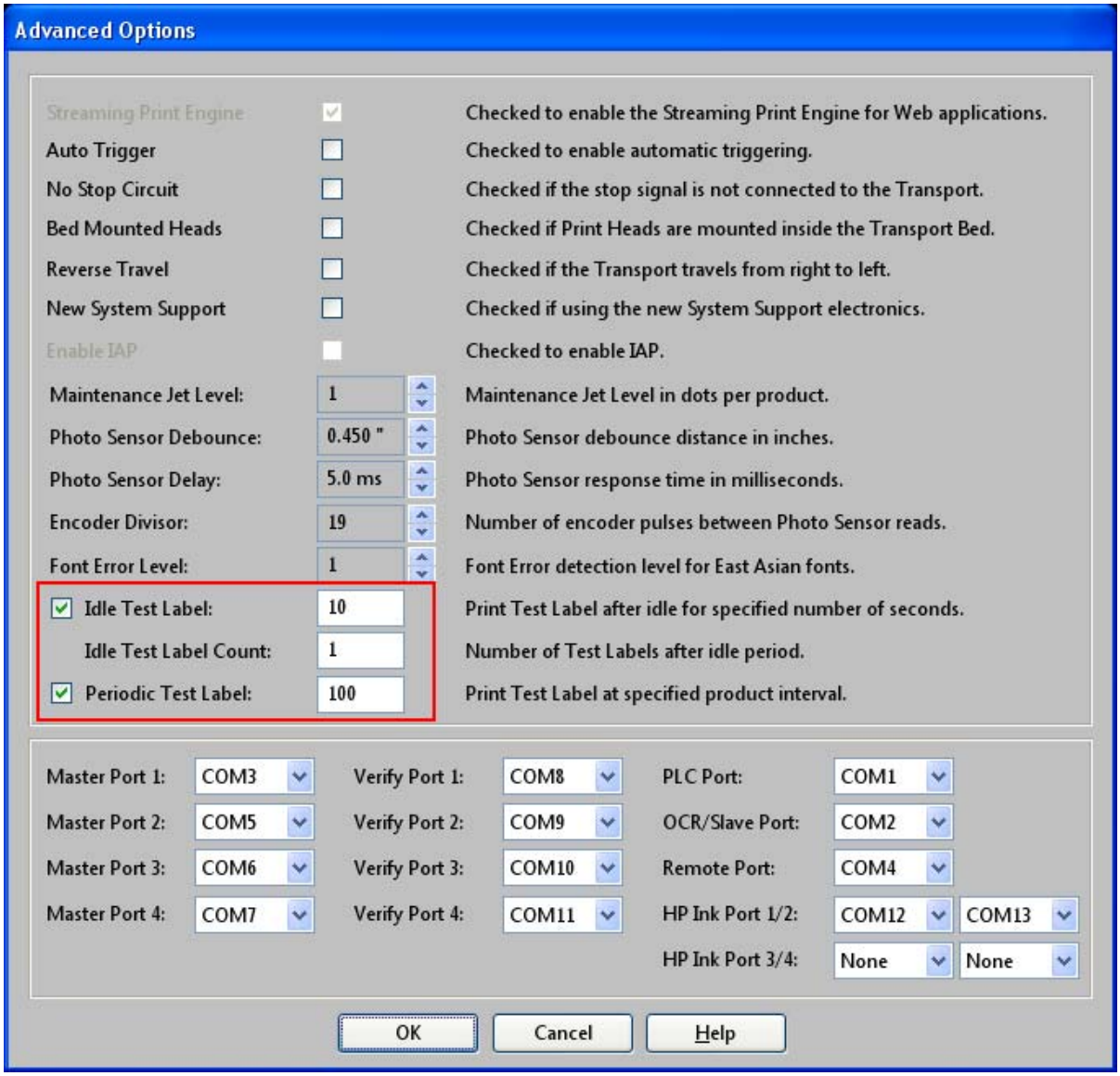
### 5.1.3 Idle Test Labels

After an idle period where no printing occurs, it is possible for the print quality to degrade (e.g. causing feathered leading edges, missing jets, or voids in the print). This idle period varies from ink to ink. However, in many cases, the print quality can be fully recovered without purging or wiping by just printing test labels. In order to assist with this, Compose has the ability to automatically print test labels prior to continuing with the print job after a user specified idle period. This is especially useful for fast drying inks like Cezanne.

The Idle Test Label feature is found under the "**Advanced >>**" menu of the **Options** tab in the **Setup** window (Figure 5-3). This feature is broken down into three user controllable fields:

1. **Idle Test Label** – Check to activate the Idle Test Label feature. Enter the minimum number of seconds of inactivity before a test pattern is automatically printed.
2. **Idle Test Label Count** – Specifies the number of Test Labels to be printed after an idle period.
3. **Periodic Test Label** – Print a Test Label every $n^{th}$ piece. Useful if print is variable and certain lines are not always printed.

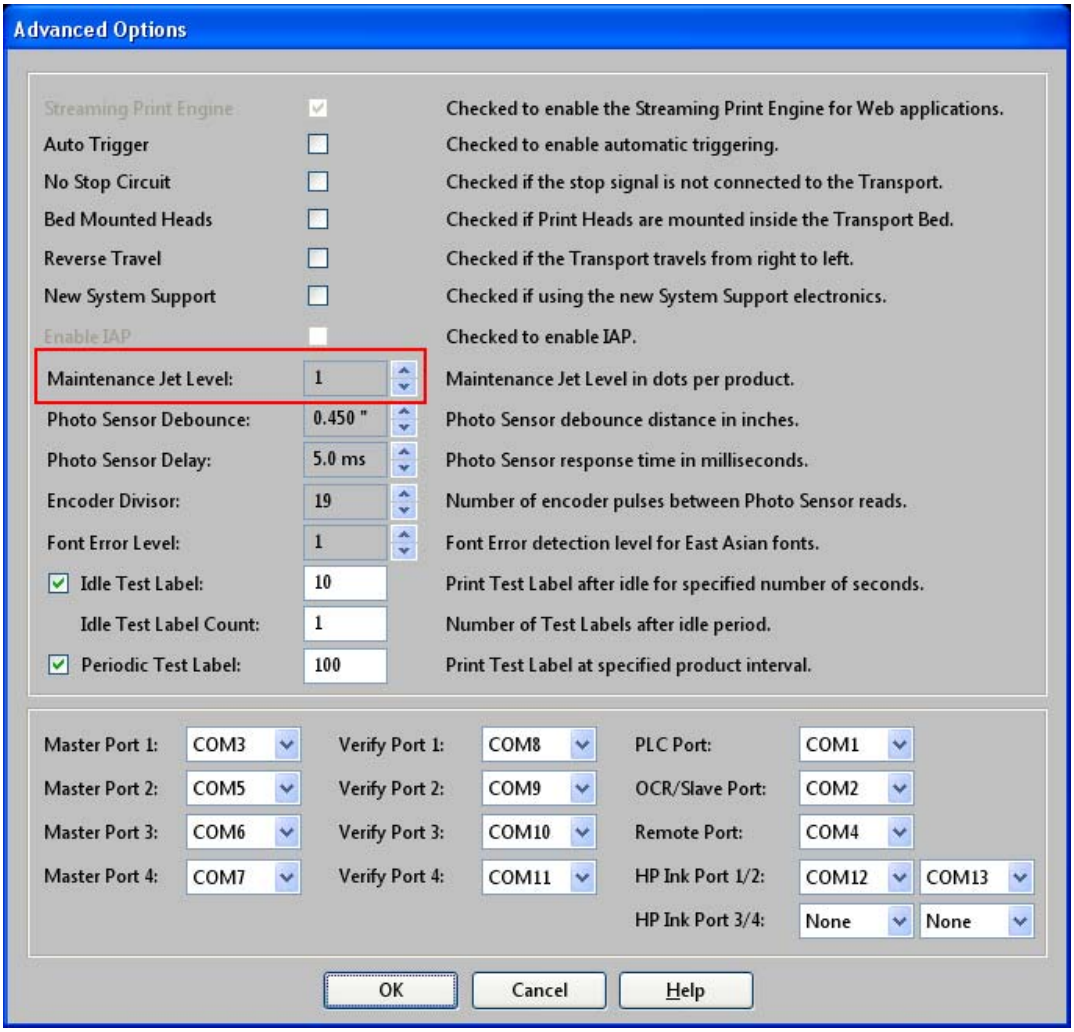
*Figure 5-3: Advanced Options - Automatic Test Labels*



### 5.1.4 Maintenance Jets

The maintenance jet feature in Compose is used to fire unused jets during printing in a manner not visible to the naked eye. In a given print job, it is highly unlikely that 100% of the jets are always in use. As a result, maintenance jets are fired to exercise unused jets during printing. This feature can be found in the **Advanced Options** dialog box shown in Figure 5-4. The recommended value is 20, but this can be optimized by visually inspecting the print. Although a higher value is recommended to help exercise the jets, this will also increase the possibility of seeing the maintenance jets on the piece. The higher the value, the more likely the maintenance jets will become visible on the piece.

*Figure 5-4: Advanced Options Dialog Box*



## 5.2 Enhanced Maintenance

In order to assist users, Compose was designed to partially automate the maintenance requirements for the Aurora system. This includes enhanced purge and firing sequences for maintaining the printhead and recovering lost jets, maintenance alarms to notify users of the maintenance needs of the system, and automated maintenance when the printheads sit for long periods of time.

### 5.2.1 Enhanced Maintenance Firing and Purging

The enhanced maintenance features are available under the **Diagnostics Screen** in Compose (Figure 5-2). Pressing the **Test Fire** buttons in combination with the **Shift** or **Ctrl** keys on the keyboard accesses them. Alternatively, the keyboard function keys (F1 to F8 with F1 referring to Head 1, F2 for Head 2, to F8 for Head 8) can be pressed instead of the **Test Fire** button.

*Table 5-2: Enhanced Maintenance Controls*

| Button | Description |
|---|---|
|  | **Test Fire button**. Test fires the head with 10 pulses. |
| Shift +  | **Maintenance Firing Sequence**. Fires all jets and automatically uses known techniques for jet recovery such as increasing jetting voltage, and creating a frequency sweep. |
| Ctrl +  | **Maintenance Purge**. Creates a 2-second pressure purge that is repeated four times. There is a 2-second delay between purges. |
| Shift + Ctrl +  | Combines the Maintenance Firing Sequence with the Maintenance Purge. |

### 5.2.2 Maintenance Alarms

In order to ensure that maintenance is completed for Aurora systems, Compose will display alarm icons.

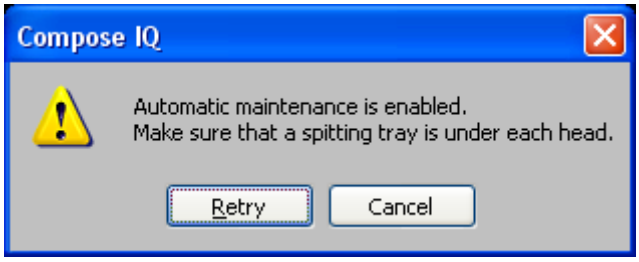
*Table 5-3: Maintenance Alarms*

| Icon | Description |
|---|---|
|   | **Warning icon appears after four hours**. At this point, it is recommended that the user activate the Maintenance Firing Sequence or Maintenance Purge to remove this warning icon. There is an alarm icon for each head. |
|   | **Error icon appears after five hours**. At this point, printing is locked out until maintenance is performed. This icon can be removed by activating the Maintenance Firing Sequence or Maintenance Purge. There is an alarm icon for each head. |

### 5.2.3 Automatic Maintenance

The purpose of the automatic maintenance is to maintain the system between jobs when the system is idle. This ensures that that the printhead jets are exercised and that ink is regularly refreshed. In order to access this function, place the ink catch tray underneath the printhead, go to the **File** pull-down menu and select **Automatic Maintenance**. This will display the dialog box shown in Figure 5-5.

*Figure 5-5: Automatic Maintenance Dialog Box*




This feature will automatically run the Maintenance Firing Sequence every 15 minutes.

**Note:** Ensure that an ink catch tray is placed underneath the printhead before activating the automatic maintenance. It is important to check the tray regularly to see if ink needs to be removed in order to avoid overfilling. This process expels approximately 1 cc of ink per hour.

# Renoir Ink

Chapter 6

## 6.1 Renoir Ink

The Renoir ink used in the Aurora system is a UV curable ink. The main advantage of the Renoir ink is its ability to adhere to a wide variety of materials including high gloss materials, plastic, and even metal. Although the Monet and Cezanne inks are able to dry on a wide variety of materials, Renoir ink is even stronger in this category. In addition, although Monet, Cezanne, and Renoir inks are all capable of the same resolutions, the Renoir ink produces a darker, shinier image. However, with Renoir, the overall production speed is lower than Monet because of the requirement to cure the ink after printing.

### 6.1.1 Stray UV Light

It is important that any ink related components (i.e. printhead, umbilical, or inkwell) avoid unnecessary exposure to UV light (i.e. sunlight) or excessive heat (greater than $55^{o}$C). This may cause premature curing of the ink. As a result, all covers must be attached and the controller should be situated away from natural light.

## 6.2 Renoir Ink Safety

The Renoir ink is an acrylate-based UV curable ink. Since the chemistry of UV curable inks is different from conventional solvent or water-based inks, the hazards associated with handling them are different and require more attention. Since Renoir inks in liquid form (before curing or hardening) can cause eye, respiratory, and skin irritation, it is important to wear the proper protection to reduce exposure to direct contact as detailed in the MSDS (Material Safety Data Sheet). This includes wearing splash-proof goggles, protective gloves made of Nitrile and ensuring a well ventilated work area and/or use of a respirator in extreme circumstances.

Energy curable printing inks such as the Renoir are well established. As with all printing processes, CEPE (European Council of the Paint, Printing Ink and Artists' Colors Industry) emphasizes that it is the legal responsibility of users to carry out risk assessments based on their specific applications and in doing so to refer to the ink’s MSDS or contact the supplier if necessary. Attention must also be paid to any specific national legislation, code, practice or guidelines.

If good working practices are not observed, it is possible that prolonged direct skin contact with these materials could cause skin irritation. The effect can depend upon intensity and duration of contact as well as individual susceptibility. Persons known to have a history of skin sensitization should not be employed using these materials. Certain individuals may develop sensitization or allergic reaction after repeated exposure and will need to be moved from the source of contact. As a result, it is essential to observe the guidance in this chapter as well as comply with obligations in the supplier's MSDS.

### 6.2.1 Spills and Cleaning

In case of spills, full protective clothing and protective Nitrile gloves should be worn to prevent skin contact with the ink. The area should be cleaned immediately and thoroughly by absorbing the spill in vermiculite, dry sand, or earth and shoveling the waste into dry containers. This is because the ink will not dry by evaporation and will remain as a continued source of exposure. Any used wipes and gloves from cleaning should be placed in a separate, labeled container to prevent others in the work area from being exposed.

If clothing becomes exposed to the ink, remove and wash residual material from exposed skin by showering. This will prevent continued exposure. Badly soiled leather items like belts and shoes should be discarded. Protective clothing and cleaning rags can be adequately cleaned by an industrial cleaning service. They should not be laundered at home. Cleaning services should also be cautioned about handling contaminated clothing and/or wipers. Disposable wipers are an alternative provided they are disposed of in a separate bag or container.

## 6.3 Safe Handling

In order to properly handle Renoir ink, the items in Table 6-1 and the following must be fully understood:

1. Carefully read the supplier's Material Safety Data Sheet (MSDS).
2. Wear appropriate personal protection equipment such as protective clothing, rubber Nitrile gloves, and eye protection when handling inks, servicing or maintaining the system, purging printheads, and cleaning spills. Well-ventilated areas are required for all handling of the Renoir ink. In exceptional circumstances when excessive air contamination exists, it is recommended that a respirator be used.
3. Clean up spills immediately and thoroughly by wearing the necessary protective equipment and absorbing the ink in vermiculite, dry sand or earth and shovel into dry containers. Cover and move the containers and flush the area with water.
4. Avoid prolonged skin contact with ink. Wash skin thoroughly with soap and water for several minutes if exposed and avoid sources of UV light (i.e. sunlight) until cleaned. If irritation persists seek medical attention.
5. Change protective clothing and gloves when significantly contaminated. All clothing must be laundered before re-use.
6. Do not launder any contaminated clothing at home.
7. Eating, drinking, and smoking are prohibited in the immediate area where Renoir inks are handled or used. This is to avoid accidental ingestion.
8. Hands must be thoroughly washed before washroom and standard break periods.

**Note:** Seek medical attention immediately if ink contacts the eyes or if severe skin irritation/damage occurs. Reference the MSDS.

*Table 6-1: Required Protection*

| | |
|---|---|
|  | **Eye Protection Required**<br><br>Wear splash-proof eye goggles to prevent any possibility of eye contact. This is especially important when servicing the system because ink may be under pressure in the ink delivery system. As UV inks are used with UV curing lamps, UV rated goggles are recommended. |
|  | **Protective Gloves Required**<br><br>Use protective gloves made of **Nitrile**. |
|  | **Protective Clothing Recommended**<br><br>Wear appropriate clothing to avoid skin contact with the ink. |

### 6.3.1 Storage

Since Renoir inks are reactive, they must be stored under conditions that will prevent polymerization and product degradation. The containers should be stored using the following guidelines:

- Avoid excessive heat and direct sunlight.
- Avoid areas where they can be contaminated by oxidizing agents, peroxides or free radical initiators.
- Keep containers closed.
- Keep ink in original container.
- Store in an area where the ambient temperature is between 50 – 80 °F (10-27°C).
- Store separated from: Acids, Alkalies, and Oxidizing material.
- Avoid storing for very long periods.

### 6.3.2 Disposal

**For the US.** All waste materials must be disposed of in accordance with local, state, and federal regulations. These products as shipped are not corrosive, reactive, or flammable under the federal RCRA definition. Waste products should be prevented from contaminating any waterways, sewers, etc.

**For EC countries**. In common with many other materials, the uncured products are typically classified as "hazardous waste" for disposal purposes (*European Waste Catalogue No 08-03-12 for waste inks and No 08-03-14 for ink sludge).* Disposal should be done according to national regulations. It is ***not*** anticipated that they would have an adverse effect on the disposal process and may provide a positive energy source in the case of incineration. (*See EC Directive 91/689/EEC*).

### 6.3.3 First aid

**Skin contact**. In the event of an accident involving skin contact with substantial amounts of UV-curable inks, clothing should be removed and the body showered using soap and water. Particular attention should be given to those areas not easily cleaned, i.e., hair, ears, nose and eyes. If skin redness or irritation should develop, consult a physician.

**Eye contact**. In the case of eye contact, flush eyes with large quantities of water for at least 15 minutes. Consult a physician.

**Inhalation**. Although unlikely to occur with normal use of these products, move affected person to fresh air.

**Ingestion**. DO NOT INDUCE VOMITING! NEVER MAKE AN UNCONSCIOUS PERSON VOMIT OR DRINK FLUIDS!

## 6.4 Questions and Answers

### 6.4.1 Is the Renoir ink safe to use?

**Yes.** Tests conducted show a low oral toxicity. The materials can irritate the eyes and are classified as low to moderate skin irritants. However, proper precautions (protective clothing, gloves, and goggles) should still be taken to prevent ingestion and skin or eye exposure to the uncured ink.

### 6.4.2 Is it a problem that the ink smells "different"?

**No**. Although there is a distinct odor, it does not pose a health and safety problem. Since the vapour pressure of the ink is very low, the concentration in the atmosphere is extremely low.

### 6.4.3 Are there hazards associated with the cured ink?

**No**. Once cured, the various components of the ink "lock" together and are no longer freely available to cause skin irritation etc. However, it is important to ensure that the ink is properly cured by using the proper curing equipment such as the BK750 curing station.

# Monet / Cezanne Inks

Chapter 7

## 7.1 Monet / Cezanne Ink

The Cezanne ink is a fast-drying solvent-based ink formulation that is recommended for applications where dry time and adhesion are the critical parameters. However, in order to obtain faster-dry times, the ink is more volatile. As a result, some operating stability is sacrificed. In general, where reliability and stability are paramount, the traditional Monet ink (a non-volatile solvent-based ink with moderate drying characteristics) should be used. Some important facts about Cezanne:

- **Recommended ink temperature is 25-30$^{o}$C.** It is recommended to keep the system in an environment that does not exceed this temperature otherwise it may result in more frequent wiping or purging due to lines in the print.

- **Due to the fast drying properties of the ink, the printhead itself can dry out quickly.** This is an area where the Monet ink is superior. During periods of inactivity (between prints), the printhead can dry out resulting in a fuzzy leading edge or even missing jets. This can normally be recovered by printing, but it may also require a maintenance wipe or purge (Section 4.1). In order to assist with this problem, Compose has the ability to automatically print a full test pattern to assist in recovering jets during set periods of inactivity (Section 5.1.3).

- **Use in a well-ventilated area.**

- **Monet ink can be printed at higher speeds.** While Cezanne print quality can be maintained at high speeds, Monet has greater stability at high speeds. As a result, it is capable of maintaining quality print at higher speeds than Cezanne.

- **Cezanne ink is darker than Monet.** Based on tests on standard materials, Cezanne was found to be consistently darker than Monet (the magnitude of difference varies with substrate and DPI).

- **Cezanne ink dries faster than Monet.** Based on tests on standard materials with and without the use of a heater, Cezanne consistently matched or exceeded Monet in terms of reduced dry times. While dry times were equal on porous materials (nearly instantaneous), a significant improvement was seen on glossier materials.

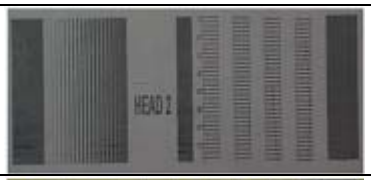
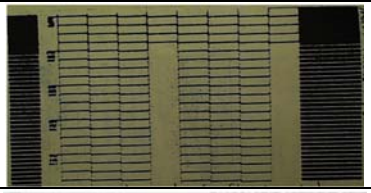
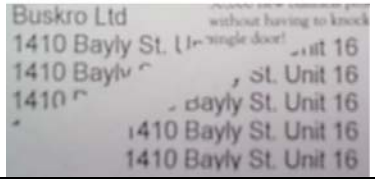
# Troubleshooting

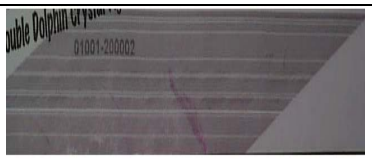
Chapter 8

## 8.1 Troubleshooting Guide

The purpose of this chapter is to provide a basic troubleshooting guide for basic print problems. Some possible problems are described in Table 8-1.

*Table 8-1: Troubleshooting Guide*

| Problem | Example | Action |
|---|---|---|
| Lines in Print |   | • Follow procedures in Section 4.1<br>• Check for material contact. Make sure head is level and does not contact the material<br>• After purging, wait 2 minutes to allow ink to deaerate before printing<br>• Check ink temperature and voltage (Section 5.1.2).<br>• In the case of Cezanne, confirm the SSB CPU II (BK705 or BK1705) or HCC (BK1710 / BK1720) is set for 10% heater power.<br>• Measure Lung Vacuum (23.5 in Hg)<br>• Measure Meniscus Pressure (3.3 in Wg for 1250, 4.7 in Wg for 2250 or 3250)<br>• Measure Purge Pressure (50 in Wg)<br>• Confirm that the check valve on the lung line in the head is connected with airflow away from the printhead<br>• For Cezanne, lower jetting voltage 10V (technician only) |
| Head Prints every other Channel |   | • Check Data Cable to Printhead<br>• Defective HDC Board (BK705 or BK1705) |
| Head missing ¼ of print |  | • Check flex connectors at the head<br>• Defective driver chips on head that must be factory repaired |
| Split Image |   | • Belt speed is below minimum speed of 0.15 m/s. Increase speed. |
| Peristaltic Pump constantly pumping ink | | • Low ink level in the head (temporary)<br>• SSB malfunction<br>• LOIS malfunction |

| Problem | Example | Action |
|---|---|---|
| Ink is Dripping from Print Head |  | • Measure Meniscus Pressure at head (3.3 in Wg for 1250, 4.7 in Wg for 2250 or 3250).<br>• Check meniscus hose and hydrophobic filter for ink blockage<br>• Check solenoid valve that allows permanent meniscus vacuum |
| No ink in the Ink Supply Line | | • Check that the UMB LED is lit on the SSB (BK705 or BK1705 only)<br>• Measure ink low reading on head (LOIS/GND)<br>• Check solenoid valve installed in the printhead<br>• Check PVC membrane disc in the filter holder mounted behind peristaltic pump head. Replacement is necessary if ink is recycled from the ink tray<br>• No ink in the subcontainer |
| Pump Fail Icon |  | • Loss of power in 12 VDC wiring related to float switch installed inside the subcontainer. |
| Low on ink icon | | • Check ink bottle<br>• Subcontainer low on ink (temporary) |
| Print is streaking |  | • Check 3 Pin connector on printhead<br>• Change 10 Pin ribbon cable on printhead |
| Printhead Temperature too High (Cezanne) | | • For BK705 or BK1705 check temperature calibration.<br>• For BK705 or BK1705 check if SSB CPU II board is used and if DIP 6 is ON.<br>• For BK1700 / BK1710 / BK1720 check that HCC Eprom is 1.3 or higher and that DIP 8 on Switch 2 is ON. |
| Warning Icon appears (Aurora) |  | • Run the maintenance firing and purging sequence. |
| Error Icon appears and printing is disabled (Aurora) |  | • Run the maintenance firing and purging sequence. |

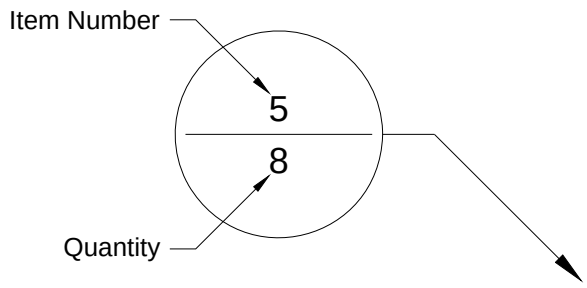
# Assembly Drawings

Appendix **A**

## List of Tables

## List of Figures

## 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: BK791-A-15 - Printhead, Atlas, 1", BK705 / BK1705*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 404240 | 2 | Screw, SHCS, 10-32 UNF x 5/8" | |
| 2 | 404510 | 8 | Screw, BHCS, 10-32 UNF x 1/4" | |
| 3 | 9101302 | 1 | Ink Tray | |
| 4 | 9101598 | 1 | Bracket, Top Port, Single/Dual | |
| 5 | 9101735 | 4 | Fitting, Half | |
| 6 | 9101773 | 2 | Collar, Locking Shaft | |
| 7 | 9101784A | 1 | Umbilical Assembly, BK791, 15' | Page A-27 |
| 8 | BK791-A | 1 | Printhead, BK791 Atlas | Page A-16 |
| 9 | BK79M-1 | 1 | Mount, BK791 Series Printhead | Page A-21 |

*Figure A-1: BK791-A-15 - Printhead, Atlas, 1", BK705 / BK1705*

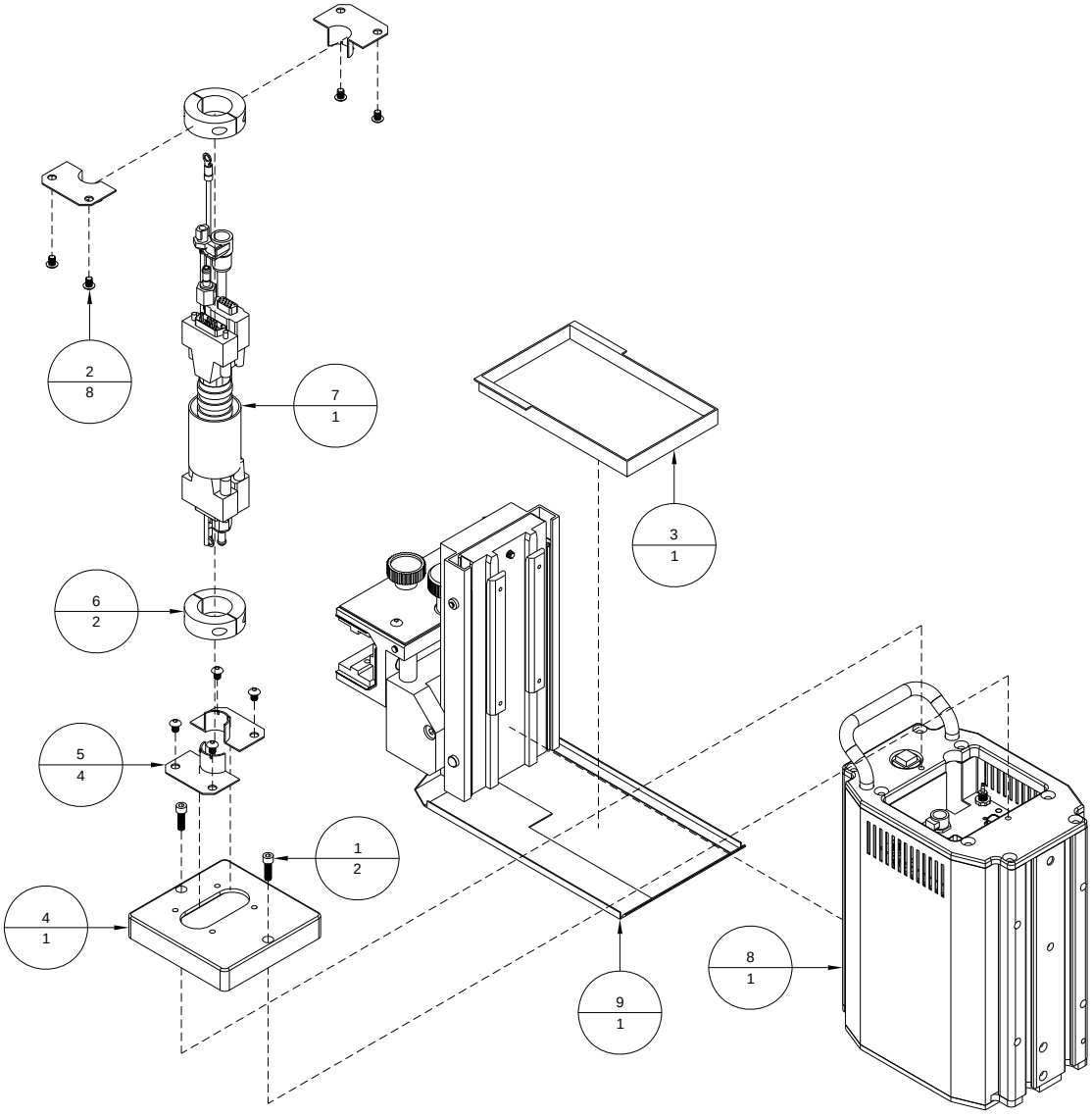


*Table A-2: BK791-C-15 - Printhead, Cezanne, 1", BK705 / BK1705*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 404240 | 2 | Screw, SHCS, 10-32 UNF x 5/8" | |
| 2 | 404510 | 8 | Screw, BHCS, 10-32 UNF x 1/4" | |
| 3 | 9101302 | 1 | Ink Tray | |
| 4 | 9101598 | 1 | Bracket, Top Port, Single/Dual | |
| 5 | 9101735 | 4 | Fitting, Half | |
| 6 | 9101773 | 2 | Collar, Locking Shaft | |
| 7 | 9101784A | 1 | Umbilical Assembly, BK791, 15' | Page A-27 |
| 8 | BK791-C | 1 | Printhead, BK791 Cezanne | Page A-17 |
| 9 | BK79M-1 | 1 | Mount, BK791 Series Printhead | Page A-21 |

*Figure A-2: BK791-C-15 - Printhead, Cezanne, 1", BK705 / BK1705*

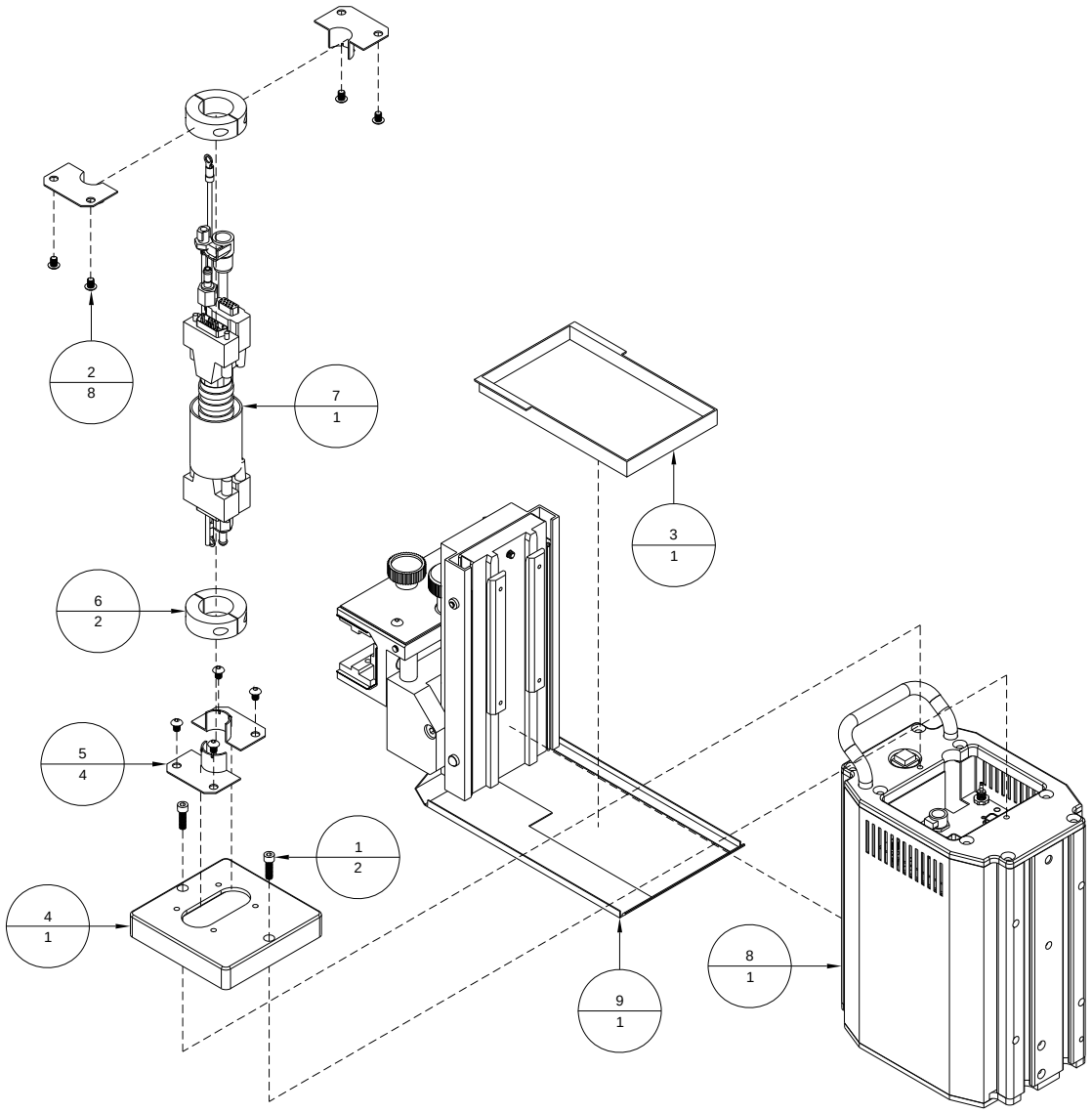


*Table A-3: BK791-U-15 - Printhead, Aurora, 1", BK705 / BK1705*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 404240 | 2 | Screw, SHCS, 10-32 UNF x 5/8" | |
| 2 | 404510 | 8 | Screw, BHCS, 10-32 UNF x 1/4" | |
| 3 | 9101302 | 1 | Ink Tray | |
| 4 | 9101598 | 1 | Bracket, Top Port, Single/Dual | |
| 5 | 9101735 | 4 | Fitting, Half | |
| 6 | 9101773 | 2 | Collar, Locking Shaft | |
| 7 | 9101784A | 1 | Umbilical Assembly, BK791, 15' | Page A-27 |
| 8 | BK791-U | 1 | Printhead, BK791 Aurora | Page A-18 |
| 9 | BK79M-1 | 1 | Mount, BK791 Series Printhead | Page A-21 |

*Figure A-3: BK791-U-15 - Printhead, Aurora, 1", BK705 / BK1705*

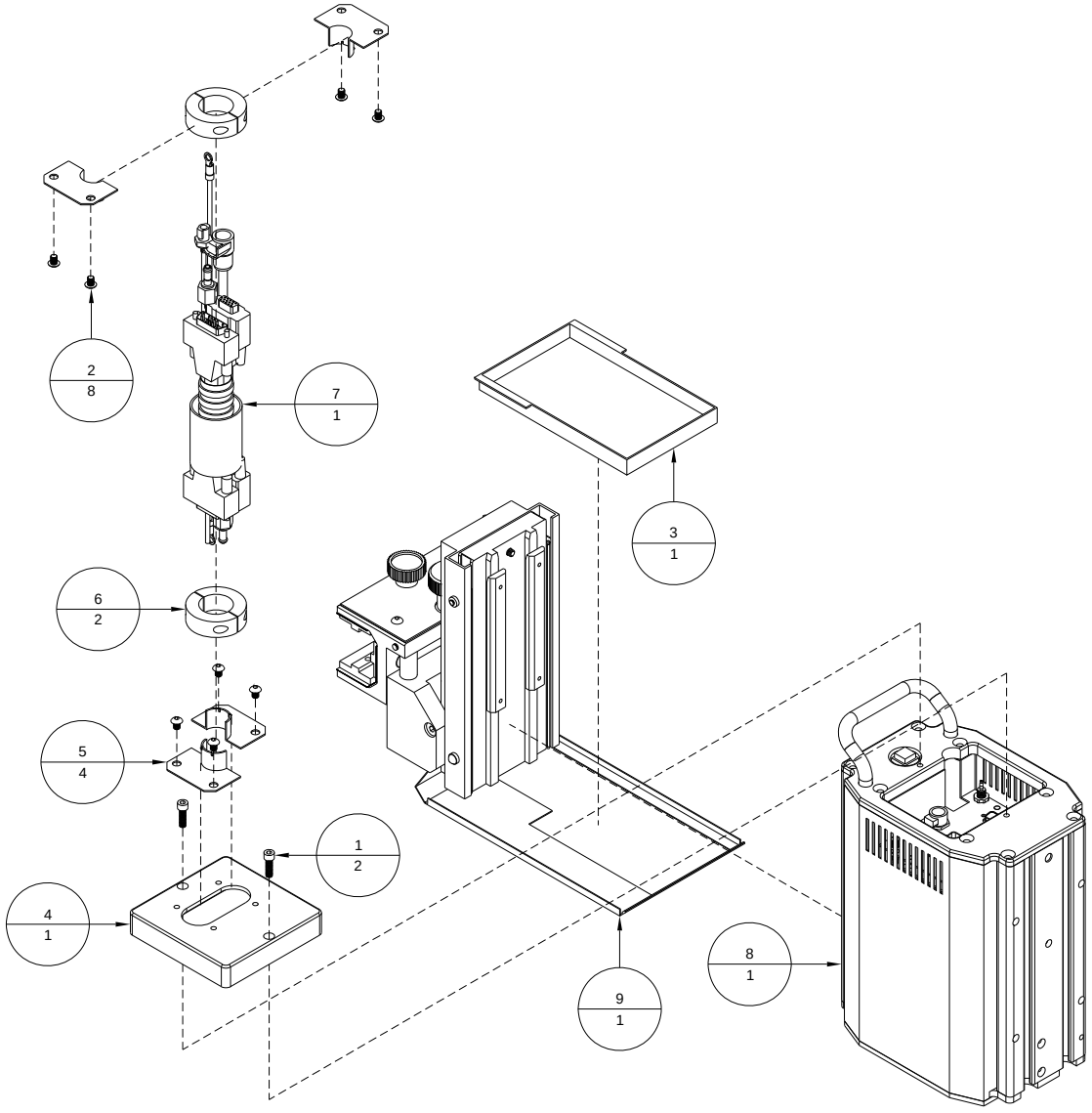


*Table A-4: BK791-A-15E - Printhead, Atlas, 1", BK1710 / 20*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 404240 | 2 | Screw, SHCS, 10-32 UNF x 5/8" | |
| 2 | 404510 | 8 | Screw, BHCS, 10-32 UNF x 1/4" | |
| 3 | 9101302 | 1 | Ink Tray | |
| 4 | 9101598 | 1 | Bracket, Top Port, Single/Dual | |
| 5 | 9101735 | 4 | Fitting, Half | |
| 6 | 9101773 | 2 | Collar, Locking Shaft | |
| 7 | 9102220A | 1 | Umbilical Assembly, BK791, GIB/NSS, 15' | Page A-35 |
| 8 | BK791-A | 1 | Printhead, BK791 Atlas | Page A-16 |
| 9 | BK79M-1 | 1 | Mount, BK791 Series Printhead | Page A-21 |

*Figure A-4: BK791-A-15E - Printhead, Atlas, 1", BK1710 / 20*

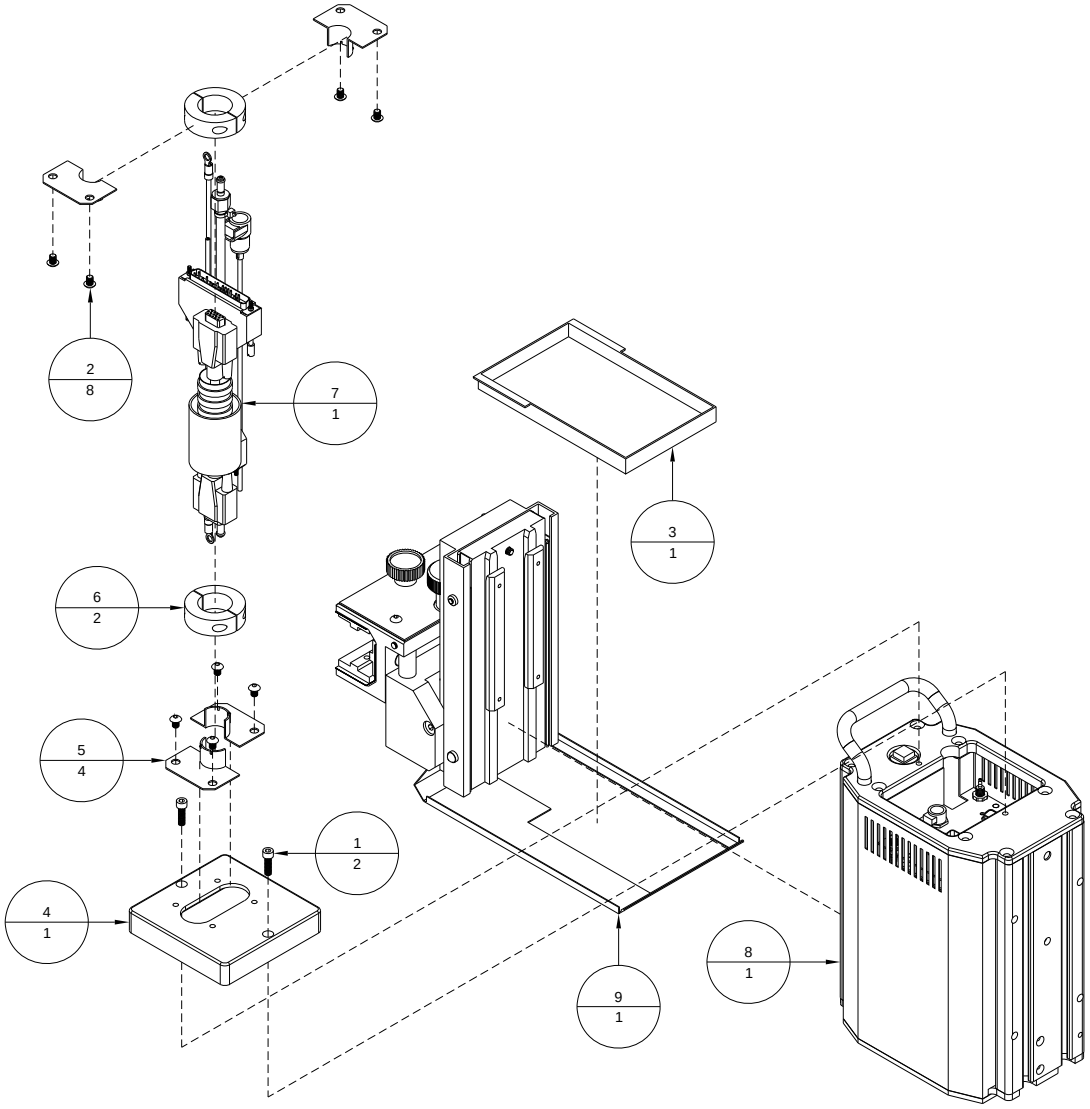


*Table A-5: BK791-C-15E - Printhead, Cezanne, 1", BK1710 / 20*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 404240 | 2 | Screw, SHCS, 10-32 UNF x 5/8" | |
| 2 | 404510 | 8 | Screw, BHCS, 10-32 UNF x 1/4" | |
| 3 | 9101302 | 1 | Ink Tray | |
| 4 | 9101598 | 1 | Bracket, Top Port, Single/Dual | |
| 5 | 9101735 | 4 | Fitting, Half | |
| 6 | 9101773 | 2 | Collar, Locking Shaft | |
| 7 | 9102220A | 1 | Umbilical Assembly, BK791, BK1710, 15' | Page A-35 |
| 8 | BK791-C | 1 | Printhead, BK791 Cezanne | Page A-17 |
| 9 | BK79M-1 | 1 | Mount, BK791 Series Printhead | Page A-21 |

*Figure A-5: BK791-C-15E - Printhead, Cezanne, 1", BK1710 / 20*

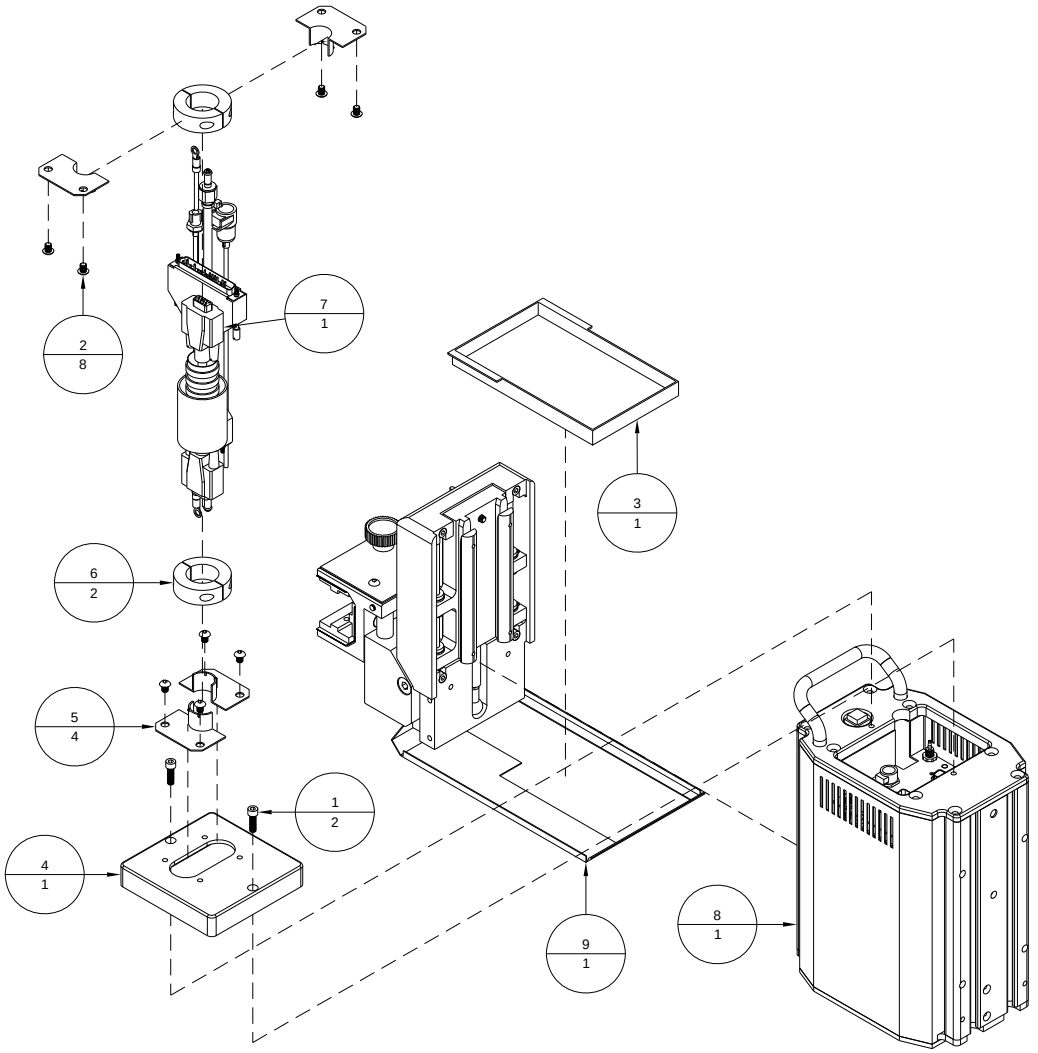


*Table A-6: BK791-U-15E - Printhead, Aurora, 1", BK1710 / 20*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 404240 | 2 | Screw, SHCS, 10-32 UNF x 5/8" | |
| 2 | 404510 | 8 | Screw, BHCS, 10-32 UNF x 1/4" | |
| 3 | 9101302 | 1 | Ink Tray | |
| 4 | 9101598 | 1 | Bracket, Top Port, Single/Dual | |
| 5 | 9101735 | 4 | Fitting, Half | |
| 6 | 9101773 | 2 | Collar, Locking Shaft | |
| 7 | 9102220A | 1 | Umbilical Assembly, BK791, GIB/NSS, 15' | Page A-35 |
| 8 | BK791-U | 1 | Printhead, BK791 Aurora | Page A-18 |
| 9 | BK79M-1 | 1 | Mount, BK791 Series Printhead | Page A-21 |

*Figure A-6: BK791-U-15E - Printhead, Aurora, 1", BK1710 / 20*

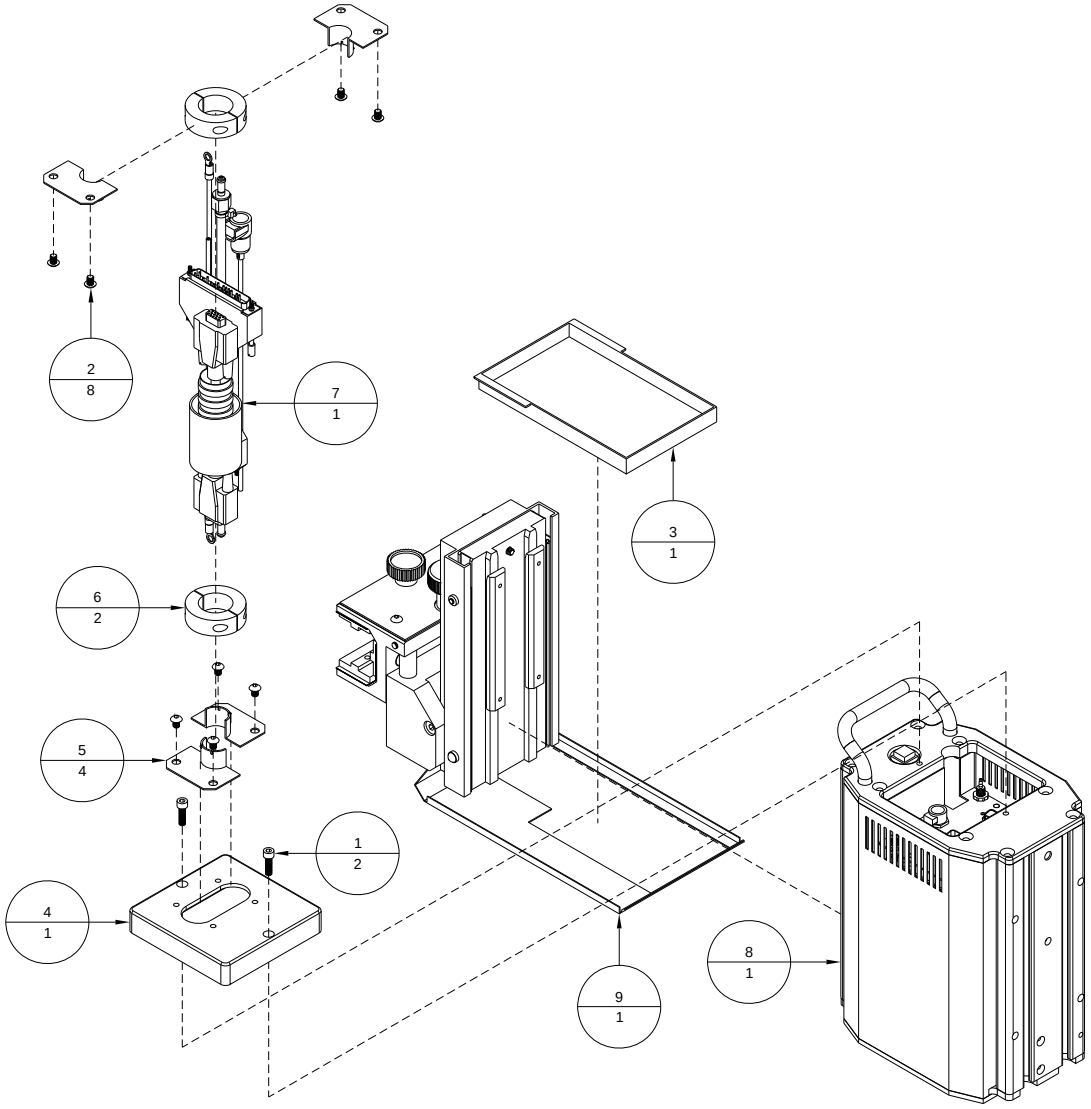


*Table A-7: BK791-A-15ERM80 - Printhead, Atlas, 1", BK80, BK1710 / 20*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 404240 | 2 | Screw, SHCS, 10-32 UNF x 5/8" | |
| 2 | 404510 | 8 | Screw, BHCS, 10-32 UNF x 1/4" | |
| 3 | 9101302 | 1 | Ink Tray | |
| 4 | 9101598 | 1 | Bracket, Top Port, Single/Dual | |
| 5 | 9101735 | 4 | Fitting, Half | |
| 6 | 9101773 | 2 | Collar, Locking Shaft | |
| 7 | 9102108 | 1 | Shield, 1250 | |
| 8 | 9102114 | 1 | Shield, 1250, Reverse (Not Shown) | |
| 9 | 9102220A | 1 | Umbilical Assembly, BK791, BK1710, 15 ft | Page A-35 |
| 10 | BK791-C | 1 | Printhead, BK791 Atlas Cezanne | Page A-17 |
| 11 | BK80M-1 | 1 | Mount, BK80 Bridge, BK791 | Page A-22 |

*Figure A-7: BK791-A-15ERM80 - Printhead, Atlas, 1", BK80, BK1710 / 20*

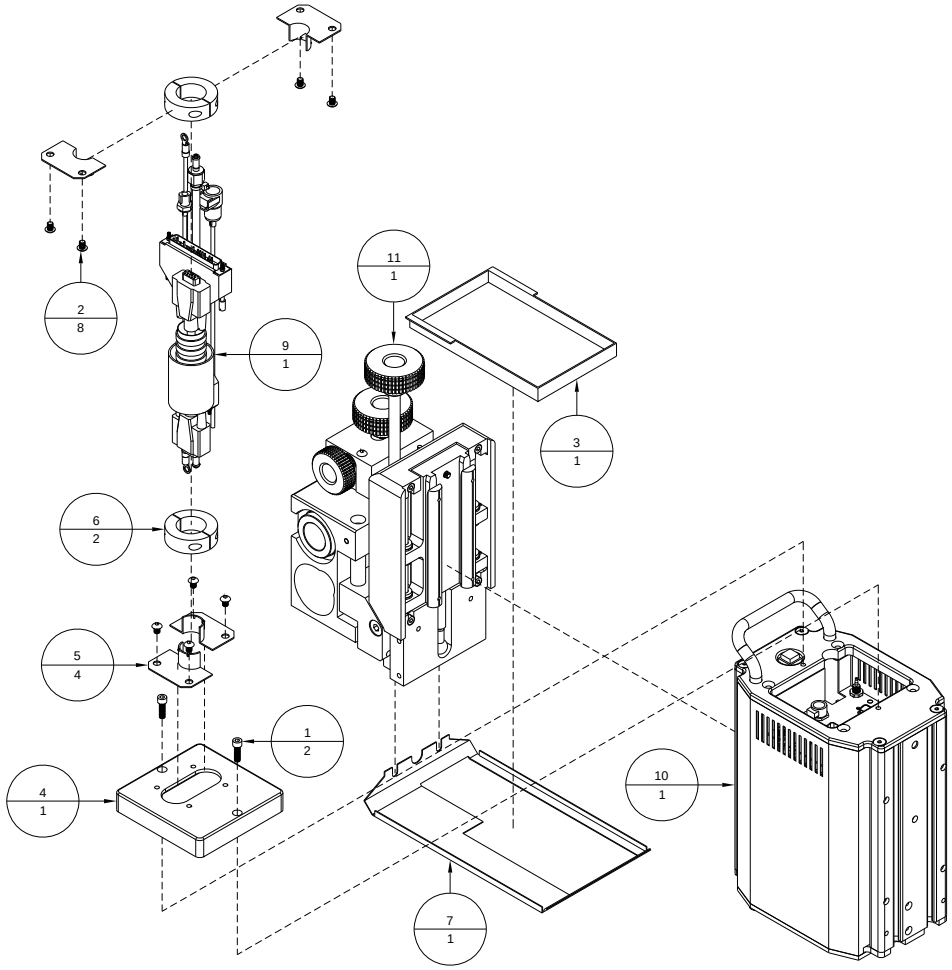


*Table A-8: BK791-C-15ERM80 - Printhead, Cezanne, 1", BK80, BK1710 / 20*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 404240 | 2 | Screw, SHCS, 10-32 UNF x 5/8" | |
| 2 | 404510 | 8 | Screw, BHCS, 10-32 UNF x 1/4" | |
| 3 | 9101302 | 1 | Ink Tray | |
| 4 | 9101598 | 1 | Bracket, Top Port, Single/Dual | |
| 5 | 9101735 | 4 | Fitting, Half | |
| 6 | 9101773 | 2 | Collar, Locking Shaft | |
| 7 | 9102108 | 1 | Shield, 1250 | |
| 8 | 9102114 | 1 | Shield, 1250, Reverse (Not Shown) | |
| 9 | 9102220A | 1 | Umbilical Assembly, BK791, BK1710, 15 ft | Page A-35 |
| 10 | BK791-C | 1 | Printhead, BK791 Atlas Cezanne | Page A-17 |
| 11 | BK80M-1 | 1 | Mount, BK80 Bridge, BK791 | Page A-22 |

*Figure A-8: BK791-C-15ERM80 - Printhead, Cezanne, 1", BK80, BK1710 / 20*

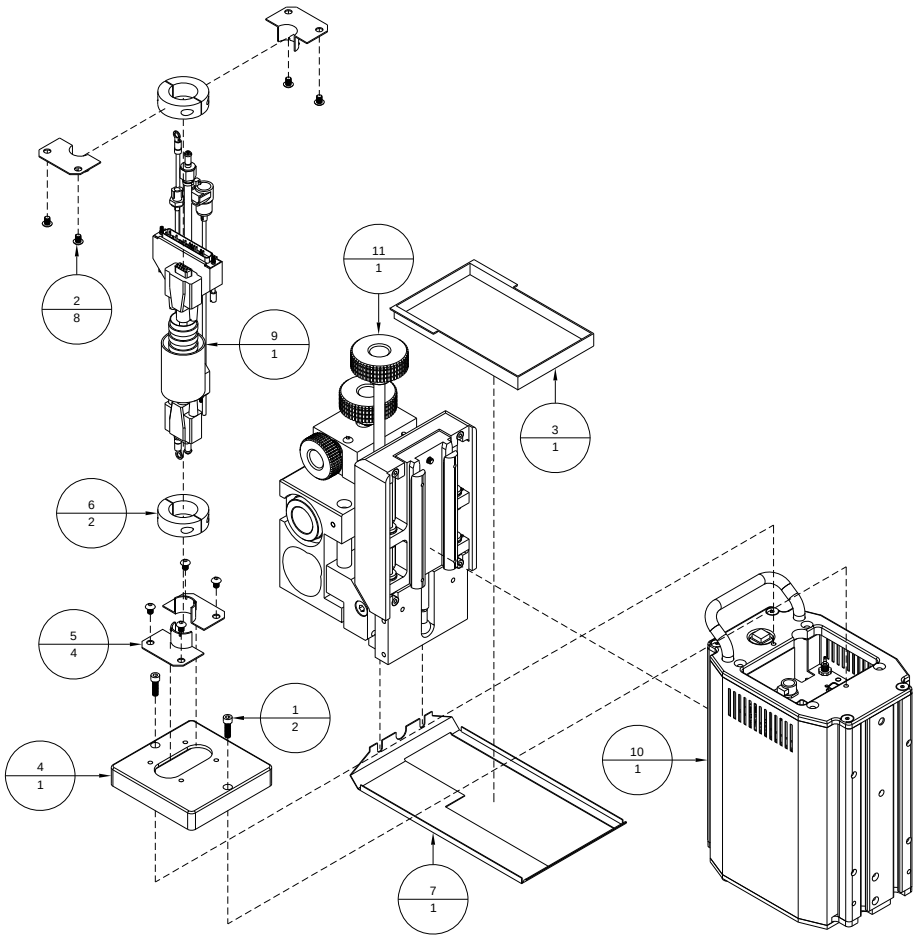


*Table A-9: BK791-U-15ERM80 - Printhead, Aurora, 1", BK80, BK1710 / 20*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 404240 | 2 | Screw, SHCS, 10-32 UNF x 5/8" | |
| 2 | 404510 | 8 | Screw, BHCS, 10-32 UNF x 1/4" | |
| 3 | 9101302 | 1 | Ink Tray | |
| 4 | 9101598 | 1 | Bracket, Top Port, Single/Dual | |
| 5 | 9101735 | 4 | Fitting, Half | |
| 6 | 9101773 | 2 | Collar, Locking Shaft | |
| 7 | 9102108 | 1 | Shield, Singlehead | |
| 8 | 9102114 | 1 | Shield, Singlehead, Reverse (Not Shown) | |
| 9 | 9102220A | 1 | Umbilical Assembly, BK791, BK1710, 15 ft | Page A-35 |
| 10 | BK791-U | 1 | Printhead, BK791 Aurora | Page A-18 |
| 11 | BK80M-1 | 1 | Mount, BK80 Bridge, BK791 | Page A-22 |

*Figure A-9: BK791-U-15ERM80 - Printhead, Aurora, 1", BK80, BK1710 / 20*

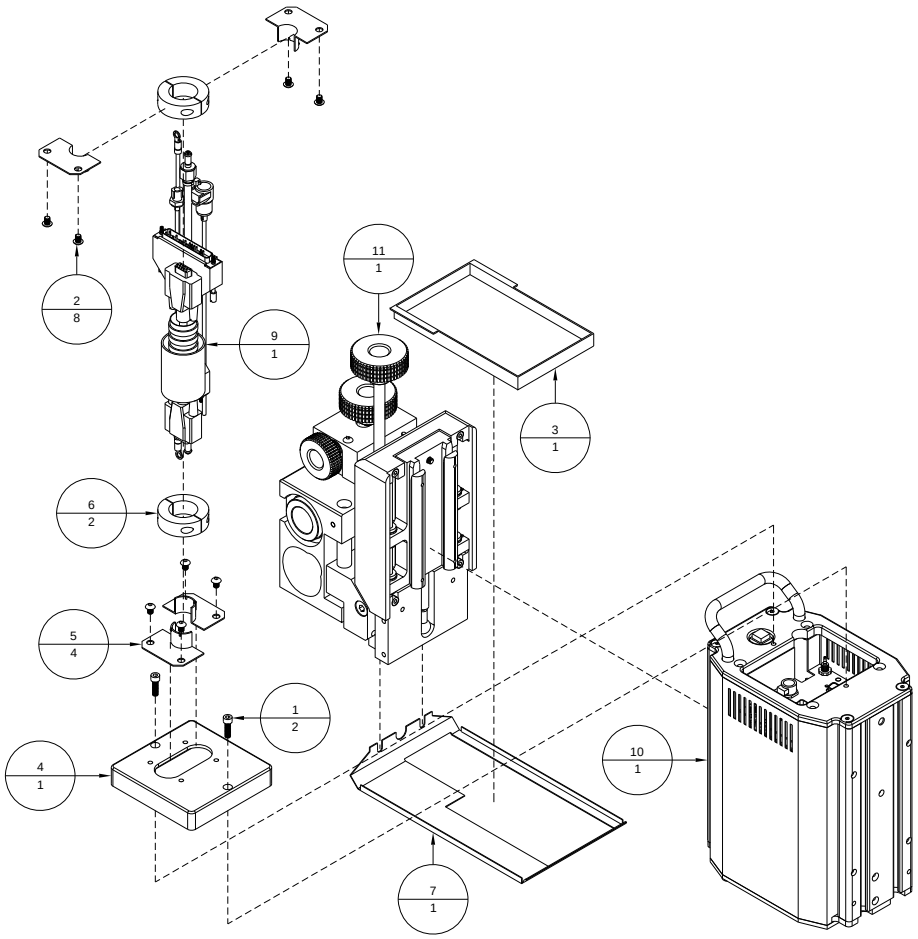


*Table A-10: BK792-A-15-RM80 - Printhead, Atlas, 2", BK80, BK1710 / 20*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 402310SS | 8 | Screw, PHMS, 6-32 UNC x ¼” | |
| 2 | 404040 | 4 | Screw, FHCS, 10-32 UNF x 5/8” | |
| 3 | 404320 | 4 | Screw, PHMS, 10-32 UNF x 3/8” | |
| 4 | 439009 | 4 | Lockwasher, #10 | |
| 5 | 9103451 | 1 | Tray, Ink | |
| 6 | 9103991A | 1 | Top Plate Assembly | Page A-55 |
| 7 | 9103992 | 2 | Cover, 2250/3250 Printhead | |
| 8 | 9103999A | 1 | Bottom Plate Assembly, 2250 | Page A-57 |
| 9 | 9104537 | 1 | Bracket, Snap-in | |
| 10 | 9104593 | 1 | Padding, 3/8” | |
| 11 | 9104594 | 1 | Cap, 2250/3250 | |
| 12 | 9104597 | 1 | Bracket, Cap Support | |
| 13 | 9104732 | 1 | Shield, Downstream | |
| 14 | BK80M-4 | 1 | Mount, Printhead, 2250/3250, BK80 | Page A-23 |

*Figure A-10: BK792-A-15-RM80 - Printhead, Atlas, 2", BK80, BK1710 / 20*

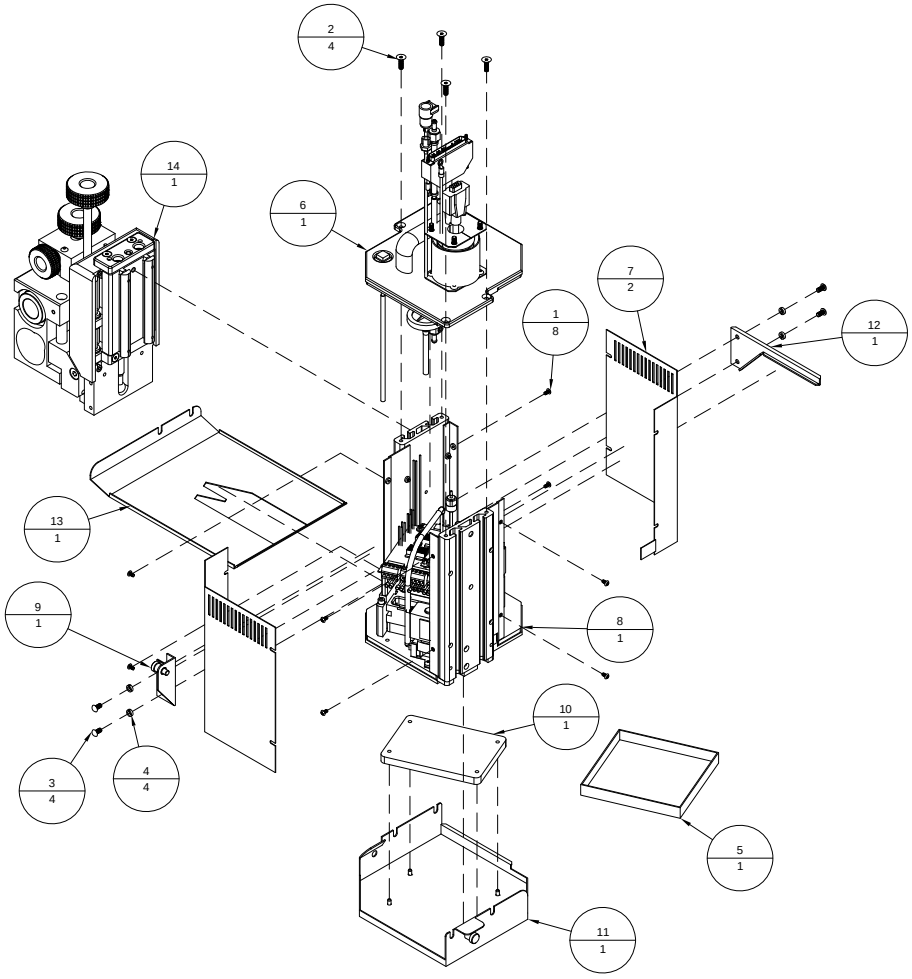


*Table A-11: BK792-C-15-RM80 - Printhead, Cezanne, 2", BK80, BK1710 / 20*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 404320 | 4 | Screw, PHMS, 10-32 UNF x 3/8” | |
| 2 | 439009 | 4 | Lockwasher, #10 | |
| 3 | 9103451 | 1 | Tray, Ink | |
| 4 | 9104537 | 1 | Bracket, Snap-in | |
| 5 | 9104593 | 1 | Padding, 3/8” | |
| 6 | 9104594 | 1 | Cap, 2250/3250 | |
| 7 | 9104597 | 1 | Bracket, Cap Support | |
| 8 | 9104732 | 1 | Shield, Downstream | |
| 9 | BK792-C | 1 | Printhead, Cezanne 2250 | Page A-19 |
| 10 | BK80M-4 | 1 | Mount, Printhead 2250 / 3250, BK80 Bridge | Page A-23 |

*Figure A-11: BK792-C-15-RM80 - Printhead, Cezanne, 2", BK80, BK1710 / 20*

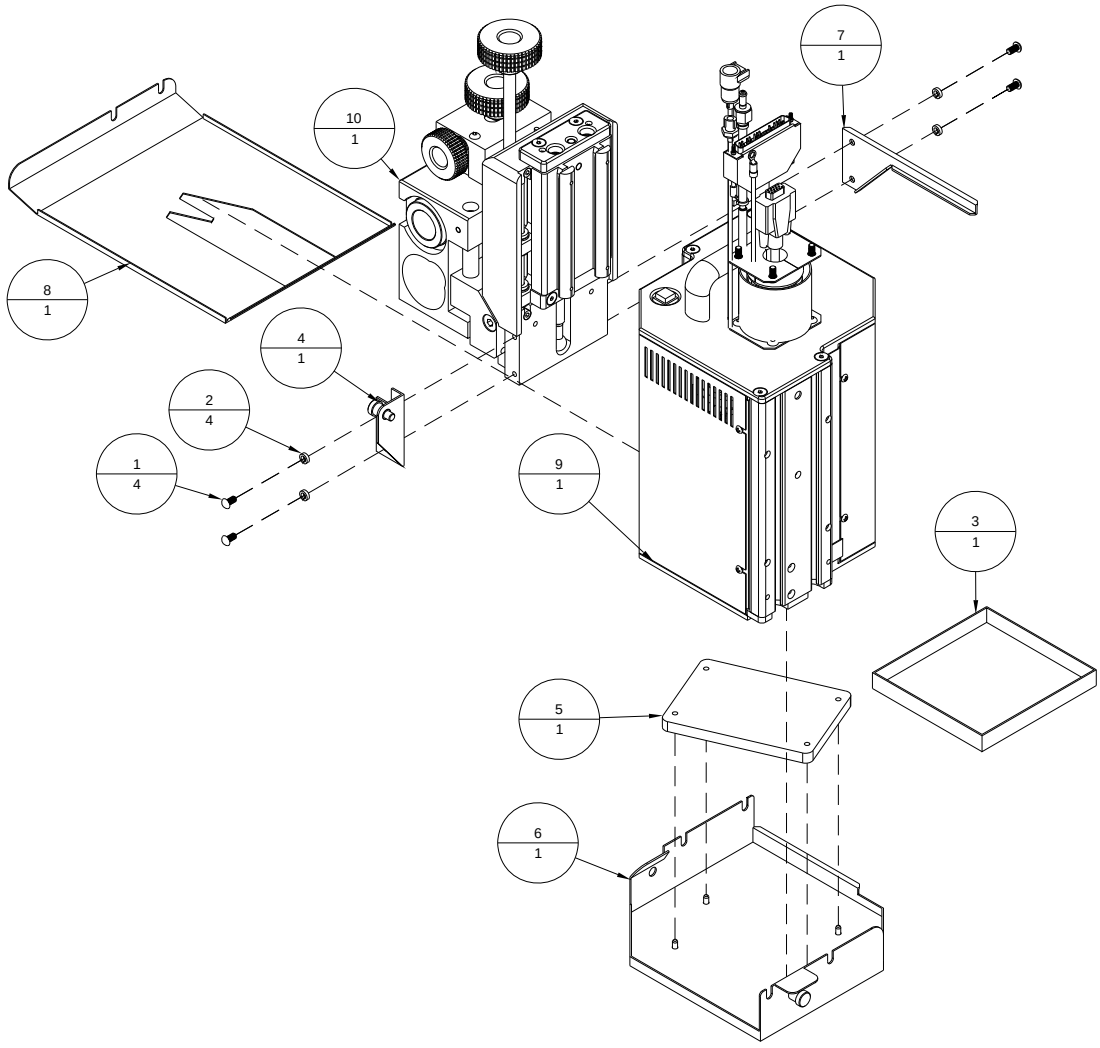


*Table A-12: BK792-U-15-RM80 - Printhead, Aurora, 2", BK80, BK1710 / 20*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 402310SS | 8 | Screw, PHMS, 6-32 UNC x ¼” | |
| 2 | 404040 | 4 | Screw, FHCS, 10-32 UNF x 5/8” | |
| 3 | 404320 | 4 | Screw, PHMS, 10-32 UNF x 3/8” | |
| 4 | 439009 | 4 | Lockwasher, #10 | |
| 5 | 9100472 | 1 | Tubing, Silicone, ¼” OD x 1/8” ID, 6” Lg. | |
| 6 | 9100472 | 2 | Tubing, Silicone, ¼” OD x 1/8” ID, 1” Lg. | |
| 7 | 9101290 | 1 | Fitting, Tee, 1/8” ID | |
| 8 | 9103185A | 1 | Bottom Plate Assembly, Aurora 2250 | Page A-46 |
| 9 | 9103451 | 1 | Tray, Ink | |
| 10 | 9103991A | 1 | Top Plate Assembly | Page A-55 |
| 11 | 9103992 | 2 | Cover, 2250/3250 Printhead | |
| 12 | 9104537 | 1 | Bracket, Snap-in | |
| 13 | 9104593 | 1 | Padding, 3/8” | |
| 14 | 9104594 | 1 | Cap, 2250/3250 | |
| 15 | 9104597 | 1 | Bracket, Cap Support | |
| 16 | 9104732 | 1 | Shield, Downstream, 2” | |
| 17 | 9104734 | 1 | Check Valve, 1/8” ID Barbed | |
| 18 | BK80M-4 | 1 | Mount, Printhead, 2250/3250, BK80 | Page A-23 |

*Figure A-12: BK792-U-15-RM80 - Printhead, Aurora, 2", BK80, BK1710 / 20*

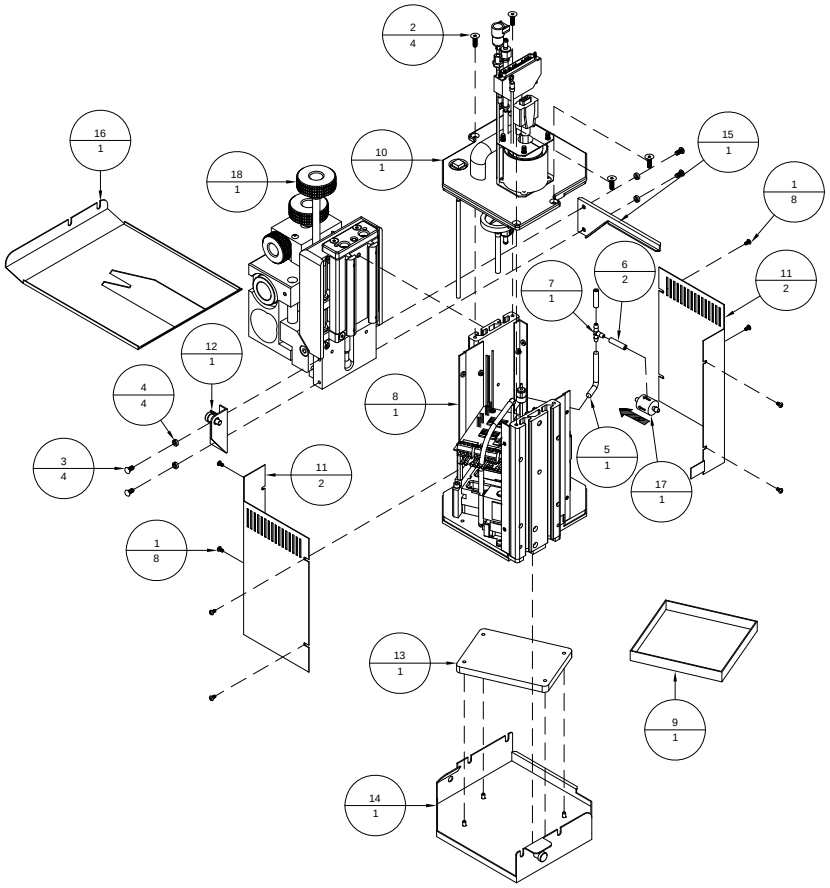


*Table A-13: BK793-A-15-RM80 - Printhead, Atlas, 3", BK80, BK1710 / 20*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 402310SS | 8 | Screw, PHMS, 6-32 UNC x ¼” | |
| 2 | 404040 | 4 | Screw, FHCS, 10-32 UNF x 5/8” | |
| 3 | 404320 | 4 | Screw, PHMS, 10-32 UNF x 3/8” | |
| 4 | 439009 | 4 | Lockwasher, #10 | |
| 5 | 9103451 | 1 | Tray, Ink | |
| 6 | 9103989A | 1 | Bottom Plate Assembly, 3” | Page A-54 |
| 7 | 9103991A | 1 | Top Plate Assembly | Page A-55 |
| 8 | 9103992 | 2 | Cover, 2250/3250 Printhead | |
| 9 | 9104537 | 1 | Bracket, Snap-in | |
| 10 | 9104593 | 1 | Padding, 3/8” | |
| 11 | 9104594 | 1 | Cap, 2250/3250 | |
| 12 | 9104597 | 1 | Bracket, Cap Support | |
| 13 | 9104641 | 1 | Shield, Downstream | |
| 14 | BK80M-4 | 1 | Mount, Printhead, 2250/3250, BK80 | Page A-23 |

*Figure A-13: BK793-A-15-RM80 - Printhead, Atlas, 3", BK80, BK1710 / 20*

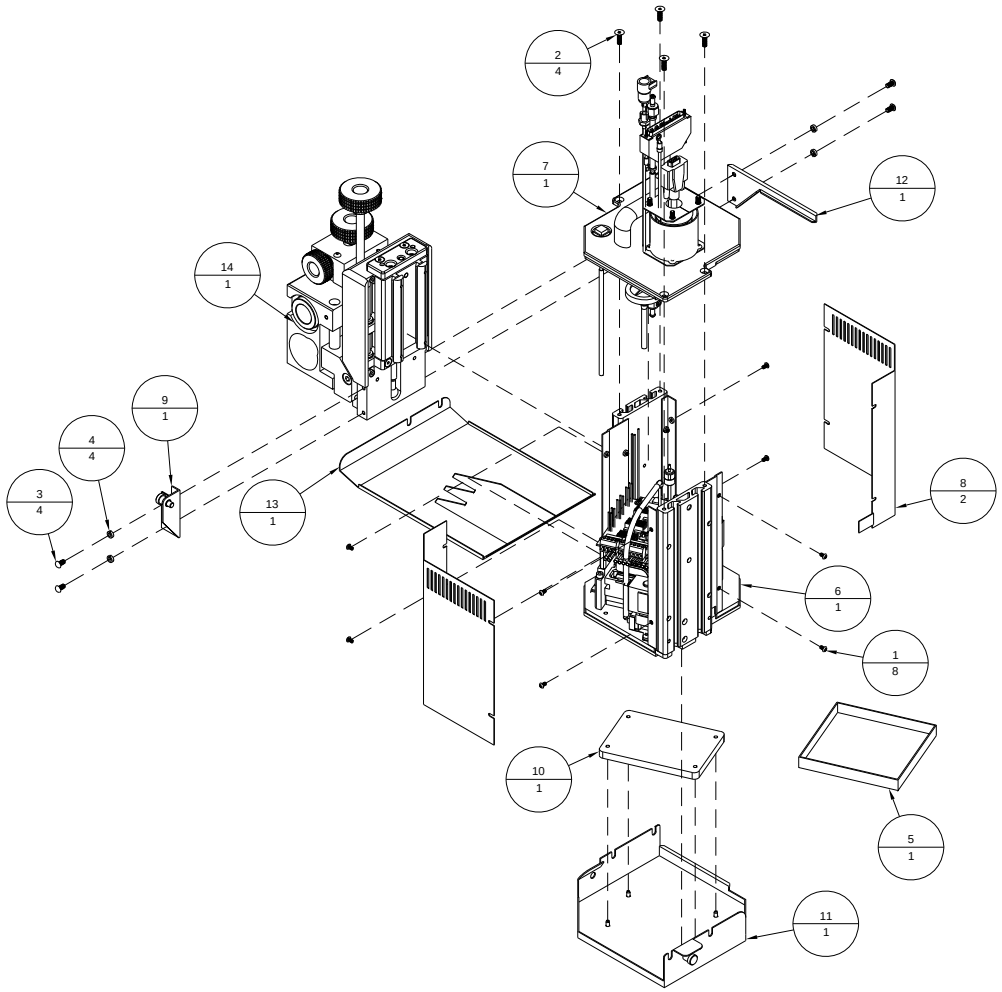


*Table A-14: BK793-C-15-RM80 - Printhead, Cezanne, 3", BK80, BK1710 / 20*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 404320 | 4 | Screw, PHMS, 10-32 UNF x 3/8” | |
| 2 | 439009 | 4 | Lockwasher, #10 | |
| 3 | 9103451 | 1 | Tray, Ink | |
| 4 | 9104537 | 1 | Bracket, Snap-in | |
| 5 | 9104593 | 1 | Padding, 3/8” | |
| 6 | 9104594 | 1 | Cap, 2250/3250 | |
| 7 | 9104597 | 1 | Bracket, Cap Support | |
| 8 | 9104641 | 1 | Shield, Downstream | |
| 9 | BK793-C | 1 | Printhead, Cezanne 3250 | Page A-20 |
| 10 | BK80M-4 | 1 | Mount, Printhead, 2250/3250, BK80 | Page A-23 |

*Figure A-14: BK793-C-15-RM80 - Printhead, Cezanne, 3", BK80, BK1710 / 20*

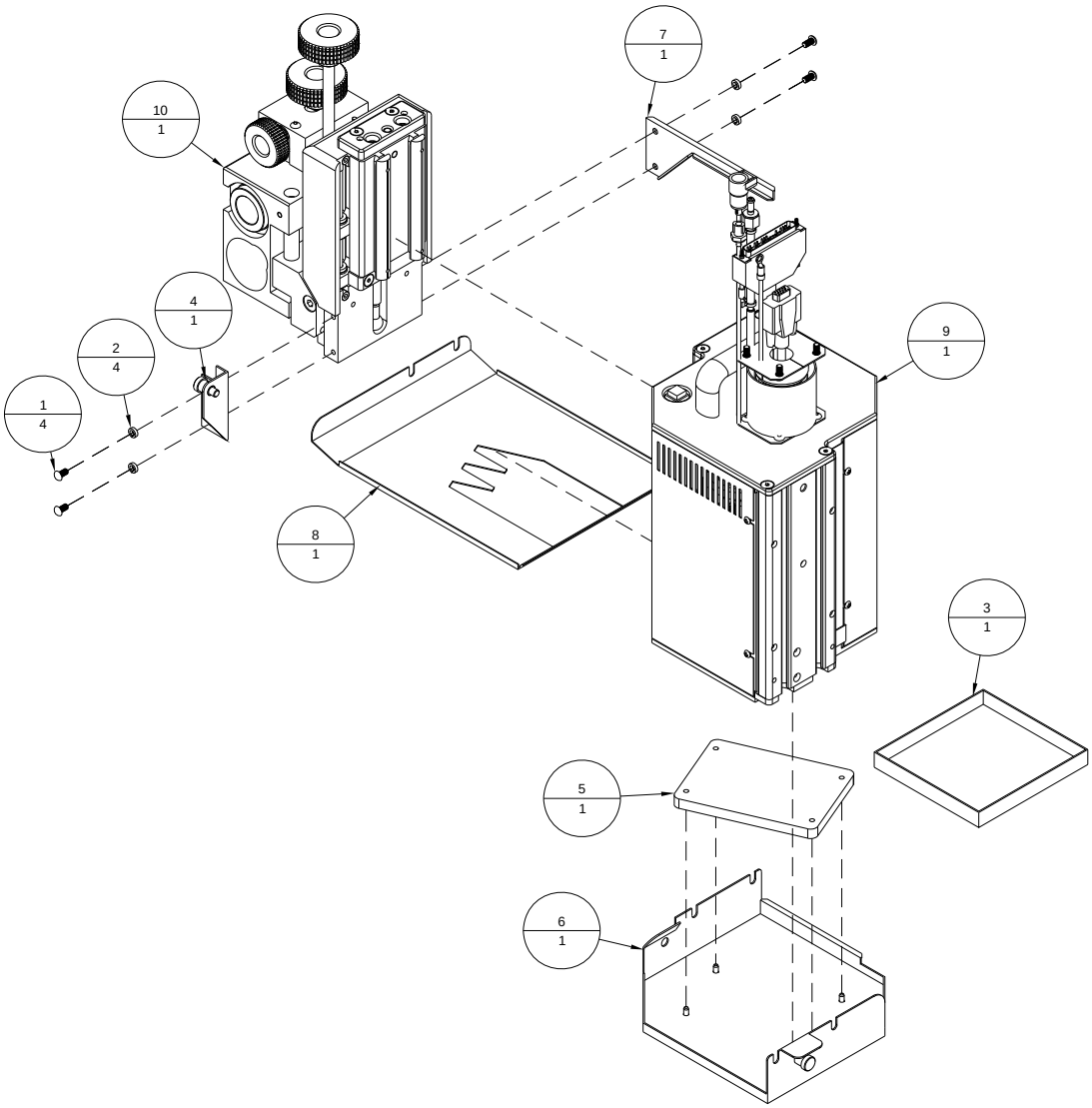


*Table A-15: BK793-U-15-RM80 - Printhead, Aurora, 3", BK80, BK1710 / 20*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 402310SS | 8 | Screw, PHMS, 6-32 UNC x ¼” | |
| 2 | 404040 | 4 | Screw, FHCS, 10-32 UNF x 5/8” | |
| 3 | 404320 | 4 | Screw, PHMS, 10-32 UNF x 3/8” | |
| 4 | 439009 | 4 | Lockwasher, #10 | |
| 5 | 9100472 | 1 | Tubing, Silicone, ¼” OD x 1/8” ID, 6” Lg. | |
| 6 | 9100472 | 2 | Tubing, Silicone, ¼” OD x 1/8” ID, 1” Lg. | |
| 7 | 9101290 | 1 | Fitting, Tee, 1/8” ID | |
| 8 | 9103170A | 1 | Bottom Plate Assembly, Aurora 3” | Page A-43 |
| 9 | 9103451 | 1 | Tray, Ink | |
| 10 | 9103991A | 1 | Top Plate Assembly | Page A-55 |
| 11 | 9103992 | 2 | Cover, 2250/3250 Printhead | |
| 12 | 9104537 | 1 | Bracket, Snap-in | |
| 13 | 9104593 | 1 | Padding, 3/8” | |
| 14 | 9104594 | 1 | Cap, 2250/3250 | |
| 15 | 9104597 | 1 | Bracket, Cap Support | |
| 16 | 9104641 | 1 | Shield, Downstream | |
| 17 | 9104734 | 1 | Check Valve, 1/8” ID Barbed | |
| 18 | BK80M-4 | 1 | Mount, Printhead, 2250/3250, BK80 | Page A-23 |

*Figure A-15: BK793-U-15-RM80 - Printhead, Aurora, 3", BK80, BK1710 / 20*

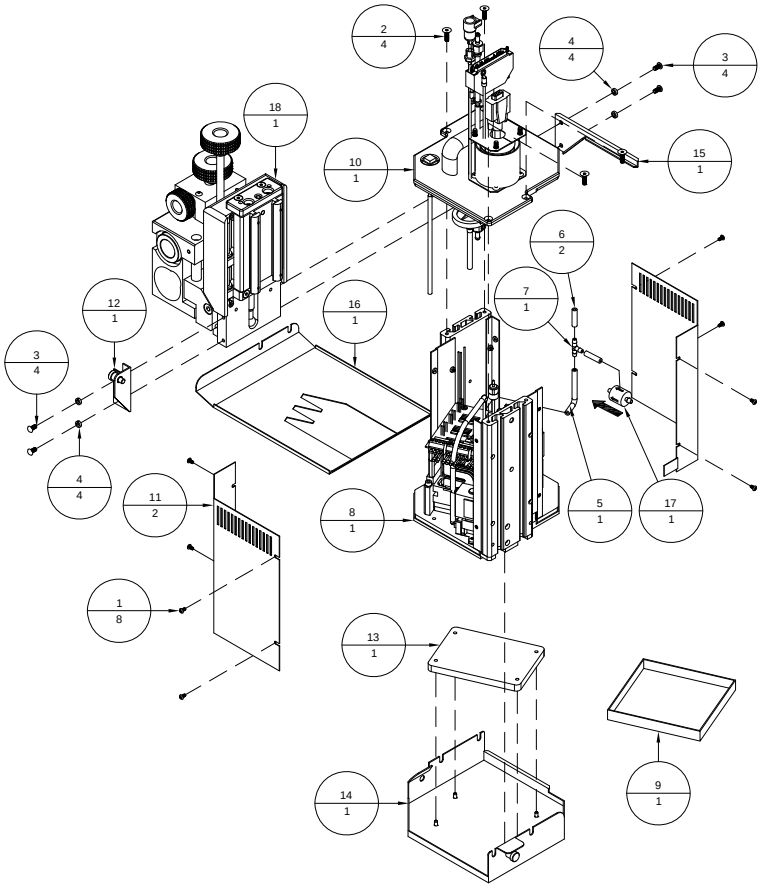


*Table A-16: BK791-A - Printhead, BK791 Atlas*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 402230 | 8 | Screw, SHCS, 6-32 UNC X 1/2" | |
| 2 | 404050 | 4 | Screw, FHCS, 10-32 UNF x 3/4" | |
| 3 | 404540 | 2 | Screw, BHCS, 10-32 UNF x 5/8" | |
| 4 | 9102105A | 1 | Bottom Plate Assembly, BK791 | Page A-30 |
| 5 | 9102106A | 1 | Top Plate Assembly, BK791 | Page A-31 |
| 6 | 9102107 | 2 | Cover, BK791 | |
| 7 | 9104302 | 1 | Bracket, Cap, Hook-up | |
| 8 | 9104593 | 1 | Padding, 3/8" | |
| 9 | 9104596 | 1 | Cap, 1250 | |

*Figure A-16: BK791-A - Printhead, BK791 Atlas*

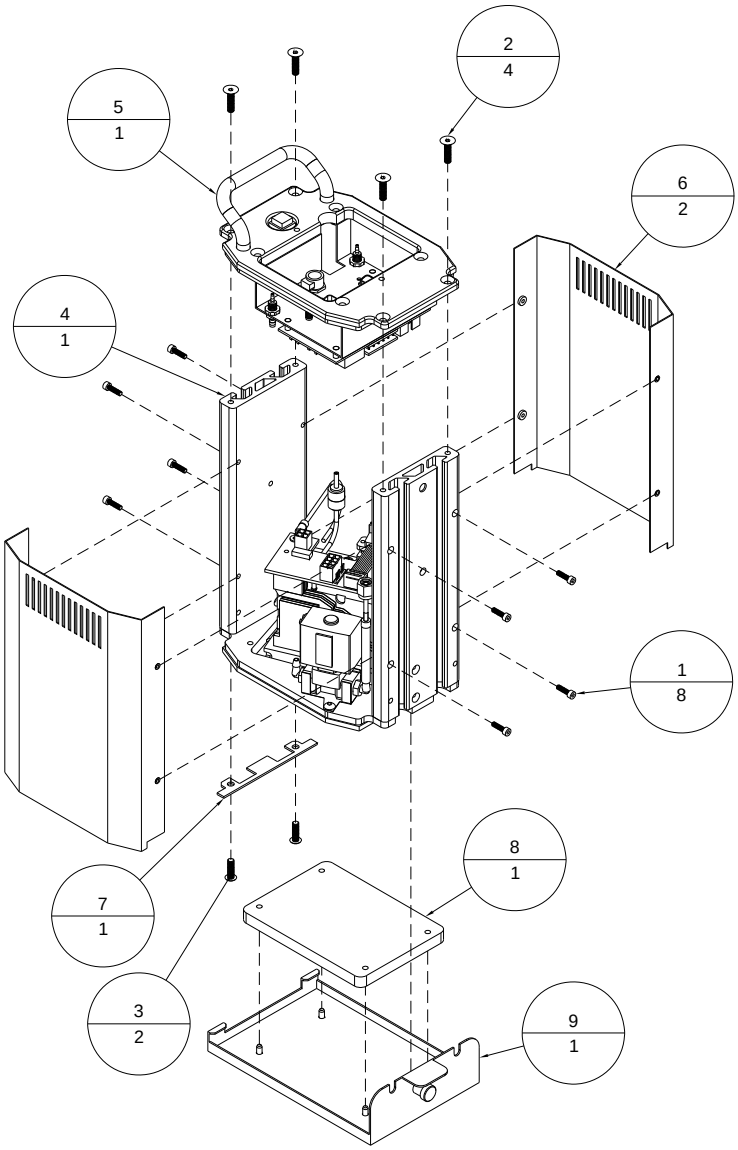


*Table A-17: BK791-C - Printhead, BK791 Cezanne*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 402230 | 8 | Screw, SHCS, 6-32 UNC X 1/2" | |
| 2 | 404050 | 4 | Screw, FHCS, 10-32 UNF x 3/4" | |
| 3 | 404540 | 2 | Screw, BHCS, 10-32 UNF x 5/8” | |
| 4 | 9102106A | 1 | Top Plate Assembly, BK791 | Page A-31 |
| 5 | 9102107 | 2 | Cover, BK791 | |
| 6 | 9102108A | 1 | Bottom Plate Assembly, Cezanne BK791 | Page A-33 |
| 7 | 9104302 | 1 | Bracket, Cap, Hook-up | |
| 8 | 9104593 | 1 | Padding, 3/8” | |
| 9 | 9104596 | 1 | Cap, 1250 | |

*Figure A-17: BK791-C - Printhead, BK791 Cezanne*

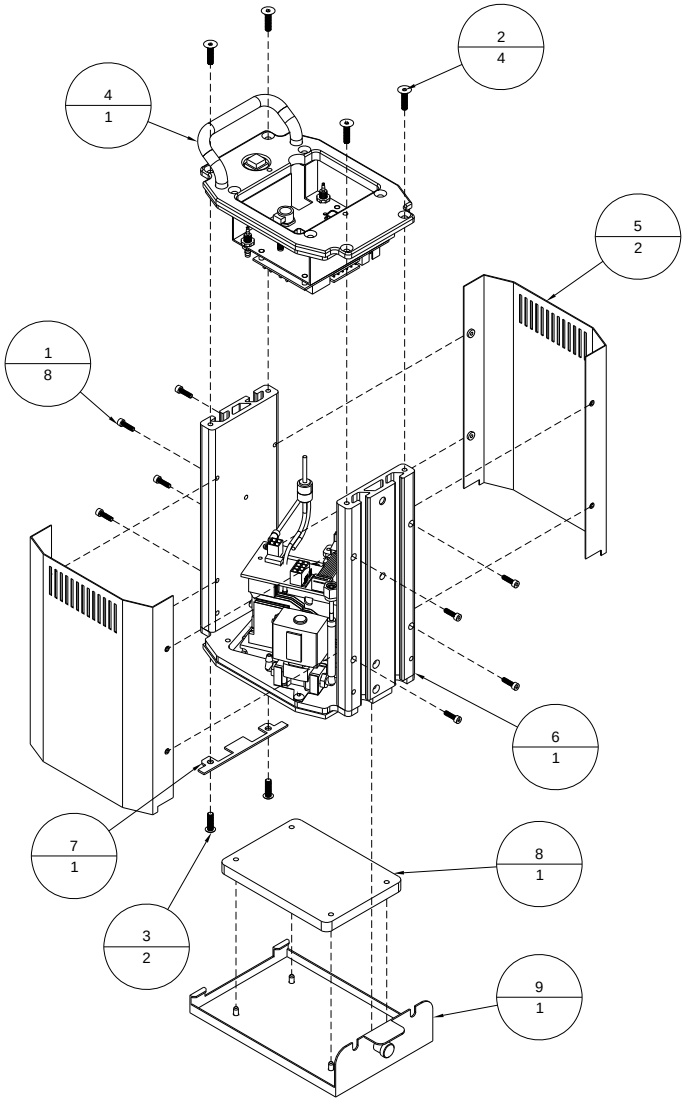


*Table A-18: BK791-U - Printhead, BK791 Aurora*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 402230 | 8 | Screw, SHCS, 6-32 UNC X 1/2" | |
| 2 | 404050 | 4 | Screw, FHCS, 10-32 UNF x 3/4" | |
| 3 | 404540 | 2 | Screw, BHCS, 10-32 UNF x 5/8" | |
| 4 | 9100472 | 2 | Tubing, Silicone, ¼" OD x 1/8" ID, 1" Lg. | |
| 5 | 9100472 | 1 | Tubing, Silicone, ¼" OD x 1/8" ID, 2" Lg. | |
| 6 | 9101290 | 1 | Fitting, Tee, 1/8" ID | |
| 7 | 9102106A | 1 | Top Plate Assembly, BK791 | Page A-31 |
| 8 | 9102107 | 2 | Cover, BK791 | |
| 9 | 9102107A | 1 | Bottom Plate Assembly, Aurora 1250 | Page A-32 |
| 10 | 9104302 | 1 | Bracket, Cap, Hook-up | |
| 11 | 9104593 | 1 | Padding, 3/8" | |
| 12 | 9104596 | 1 | Cap, 1250 | |
| 13 | 9104734 | 1 | Check Valve, 1/8" ID, Barbed | |

*Figure A-18: BK791-U - Printhead, BK791 Aurora*

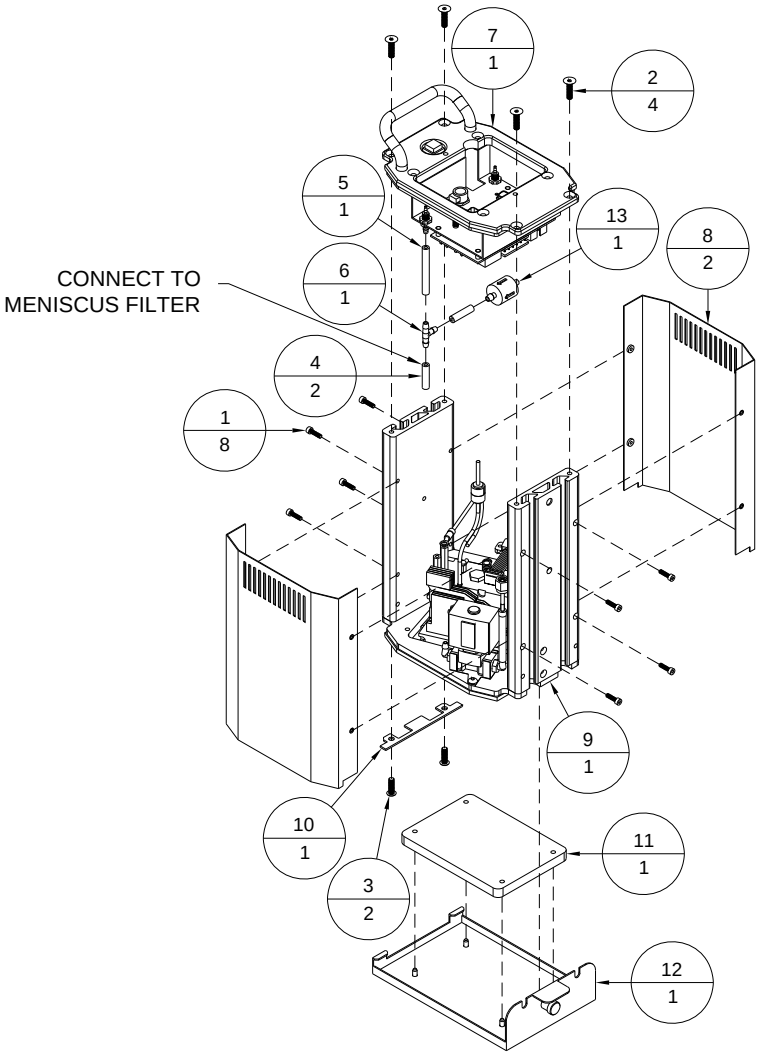


*Table A-19: BK792-C - Printhead, Cezanne 2250*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 402310SS | 8 | Screw, PHMS, 6-32 UNC x 1/4" | |
| 2 | 404040 | 4 | Screw, FHCS, 10-32 UNF x 5/8" | |
| 3 | 9103991A | 1 | Top plate assembly | Page A-55 |
| 4 | 9103992 | 2 | Cover, Triple Slant Print Head | |
| 5 | 9105159A | 1 | Bottom Plate Assembly, Cezanne 2250 | Page A-63 |

*Figure A-19: BK792-C - Printhead, Cezanne 2250*

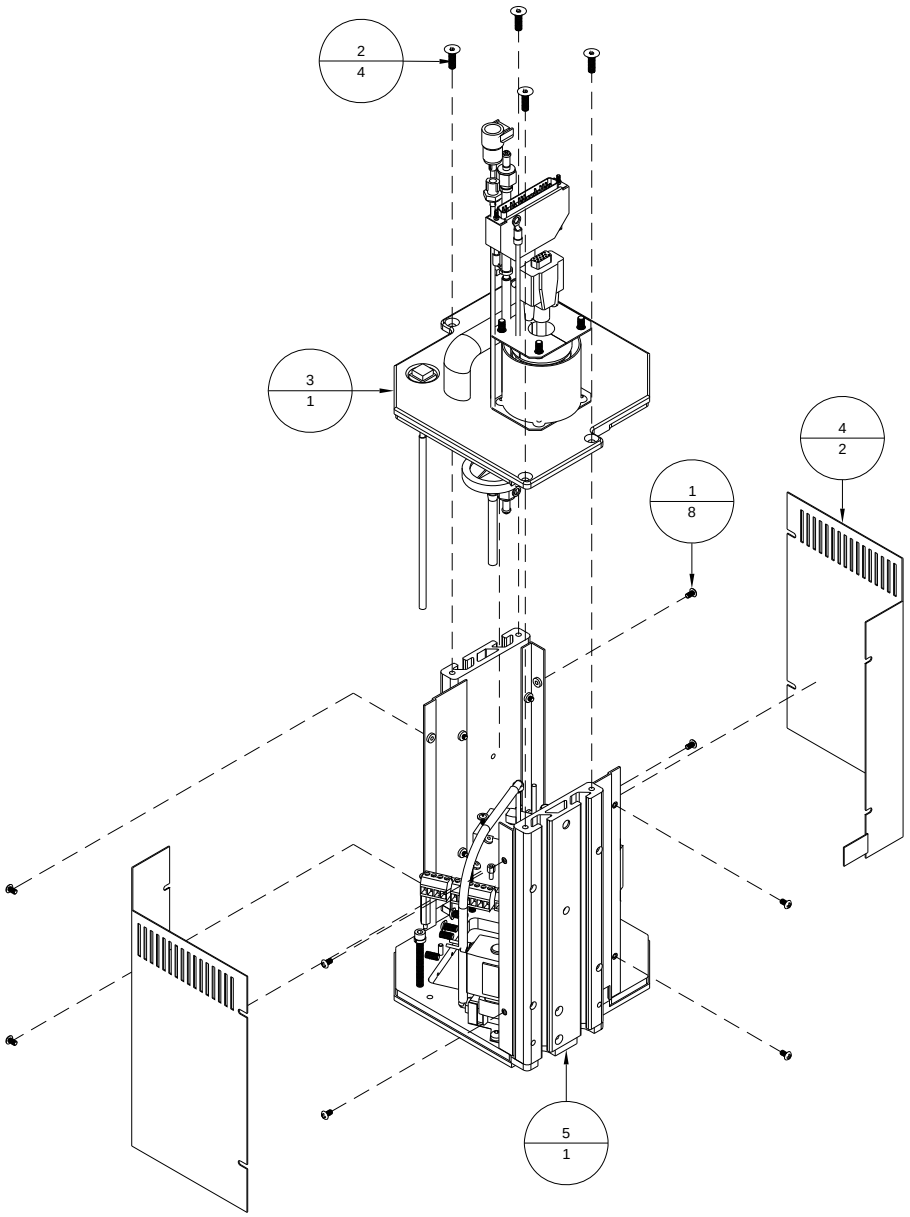


*Table A-20: BK793-C - Printhead, Cezanne 3250*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 402310SS | 8 | Screw, PHMS, 6-32 UNC x 1/4" | |
| 2 | 404040 | 4 | Screw, FHCS, 10-32 UNF x 5/8" | |
| 3 | 9103991A | 1 | Top plate assembly | Page A-55 |
| 4 | 9103992 | 2 | Cover, Triple Slant Print Head | |
| 5 | 9105161A | 1 | Bottom Plate Assembly, Cezanne 3250 | Page A-66 |

*Figure A-20: BK793-C - Printhead, Cezanne 3250*

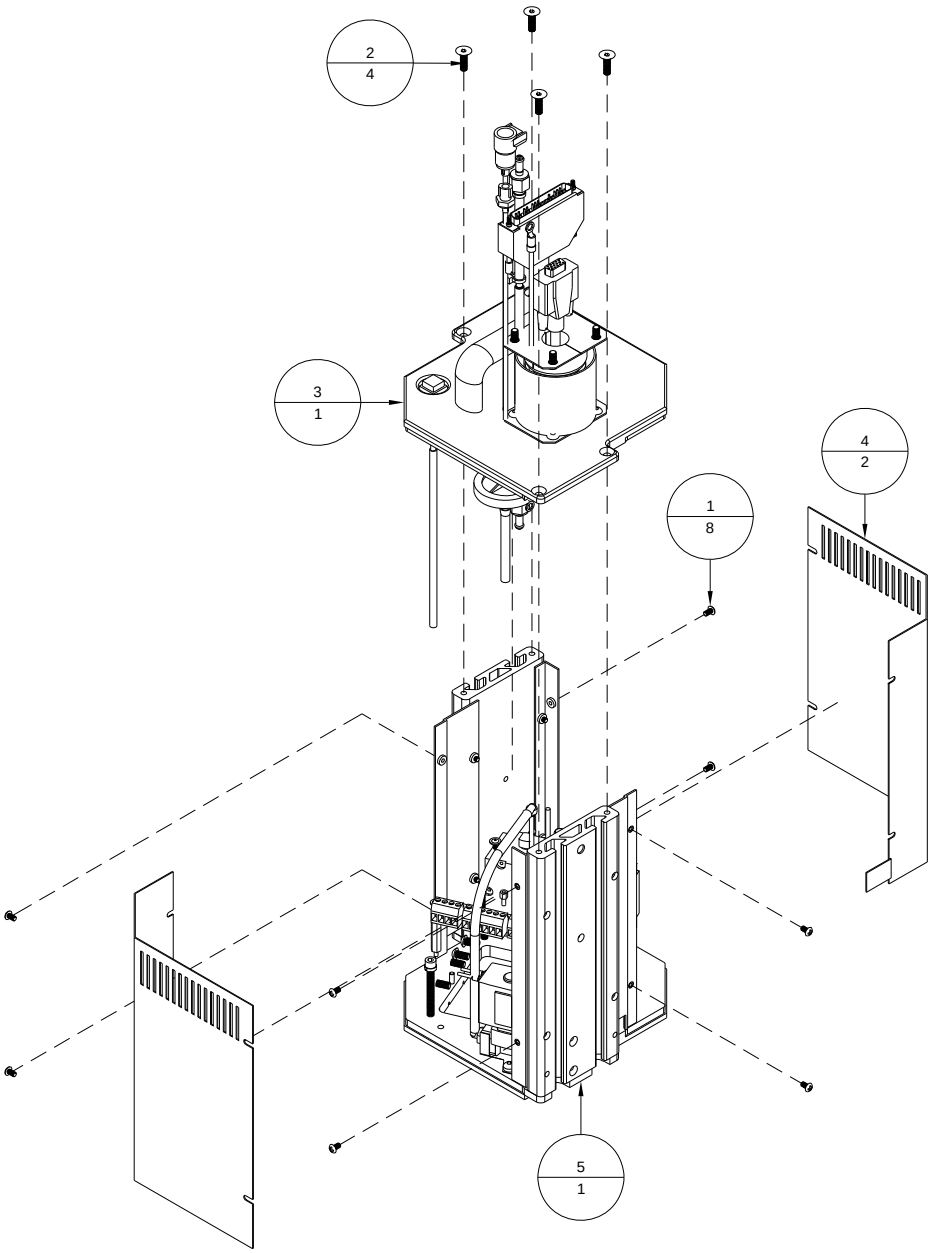


*Table A-21: BK79M-1 – Printhead Mount Assembly, 1250*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 9101874 | 2 | Spring, Compression | |
| 2 | 9101994A | 1 | Rail Mounting Assembly | Page A-28 |
| 3 | 9102108 | 1 | Shield, 1250 | |
| 4 | 9102114 | 1 | Shield, 1250, Reverse | |
| 5 | 9102127 | 1 | Screw, SHCS, 1/4-20 UNC x 1.25" | |
| 6 | 9102592 | 1 | Shoulder Bolt, 3/8" x 3 1/2, 5/16-18 UNC | |
| 7 | 9102595A | 1 | Solid mount assembly | Page A-37 |
| 8 | 9102596 | 1 | Mounting Block, Printhead Slider | |

*Figure A-21: BK79M-1 – Printhead Mount Assembly, 1250*

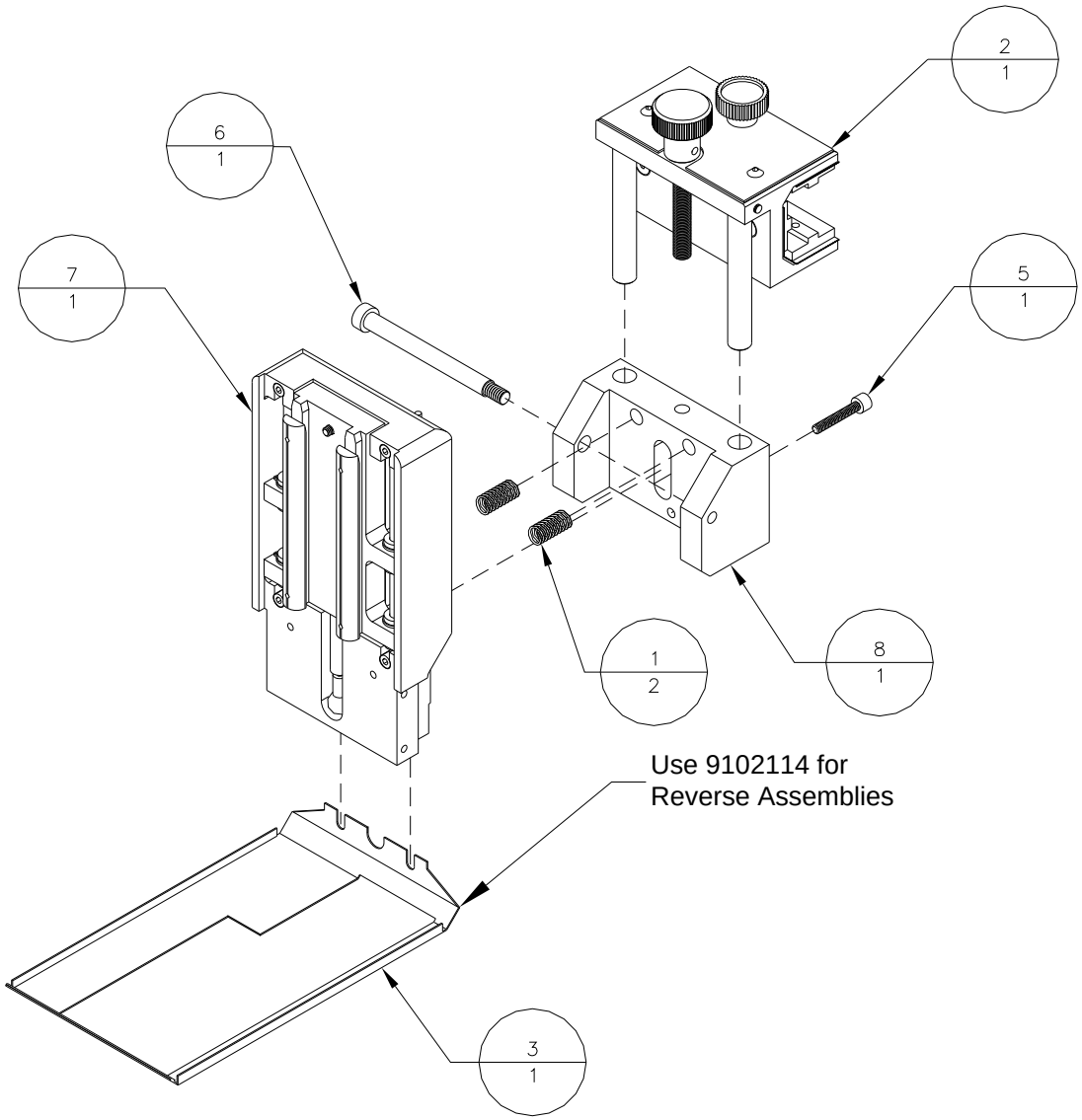


*Table A-22: BK80M-1 - Mount, BK791, BK80 Bridge*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 9102595A | 1 | Solid mount assembly | Page A-37 |
| 2 | 9102819A | 1 | Bridge mount assembly | Page A-38 |

*Figure A-22: BK80M-1 - Mount, BK791, BK80 Bridge*

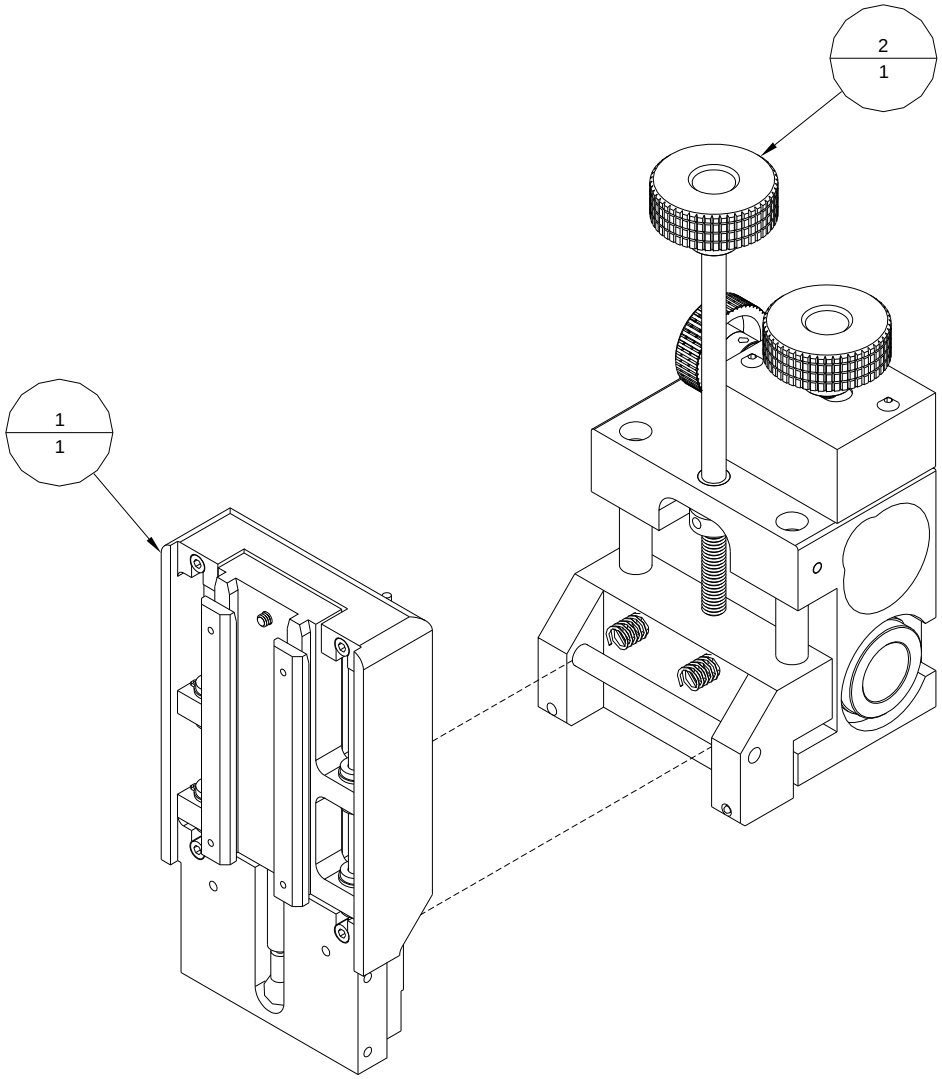


*Table A-23: BK80M-4 - Mount, Printhead 2250/3250, BK80*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 9102819A | 1 | Bridge mount assembly | Page A-38 |
| 2 | 9104008A | 1 | Printhead Support Assembly, Angle | Page A-58 |

*Figure A-23: BK80M-4 - Mount, Printhead 2250/3250, BK80*

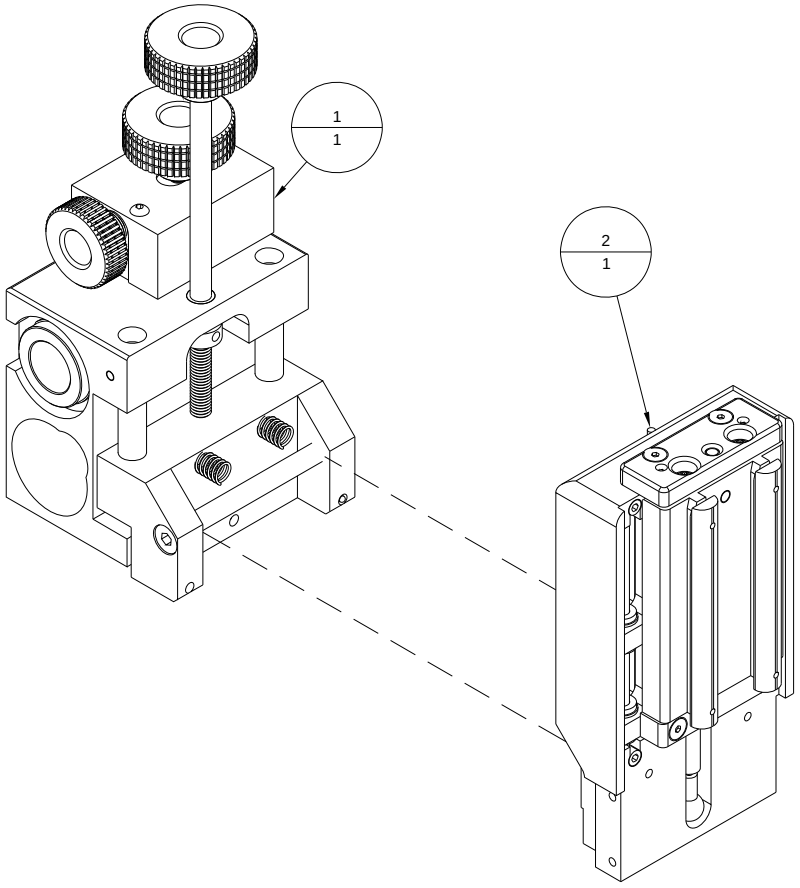


*Table A-24: 9101212A - Ink Umbilical Assembly, 15'*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 609003 | 1 x 16” | Shrink Wrap, 3/8" I.D. | |
| 2 | 615140 | 2 | Lashing Tie | |
| 3 | 9101212 | 1 | Connector - Inline (1/4-1/4) | |
| 4 | 9101691 | 2 | Coupling Insert,1/8" I.D.,In-line,Hose Barb | |
| 5 | 9102111 | 1 x 167” | Tubing, Polyethylene, 1/4" x 1/8", Black | |
| 6 | 9102116 | 1 x 16” | Tubing, Pharmed, 1/4"x 1/8" (Almond) | |

*Figure A-24: 9101212A - Ink Umbilical Assembly, 15'*

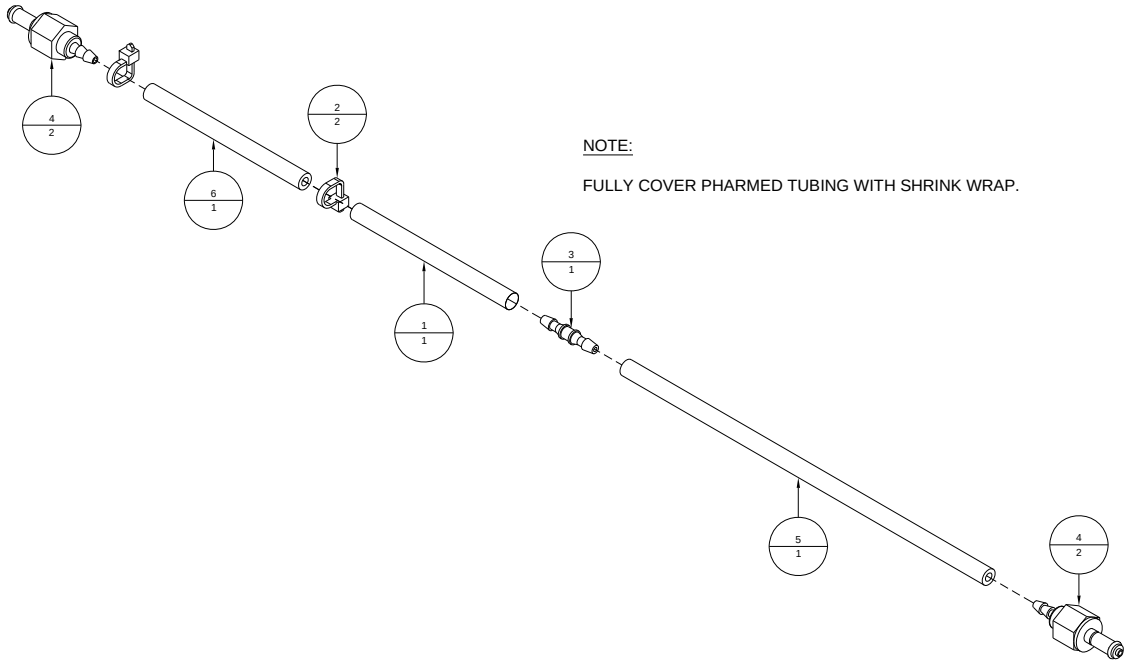


*Table A-25: 9101694A - Meniscus Vacuum Hose Assembly, 15'*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 9100961 | 1 | Coupling, In-line | |
| 2 | 9102333 | 1 | Tubing, Teflon, 1/8" O.D. x 1/16" I.D., White | |

*Figure A-25: 9101694A - Meniscus Vacuum Hose Assembly, 15'*

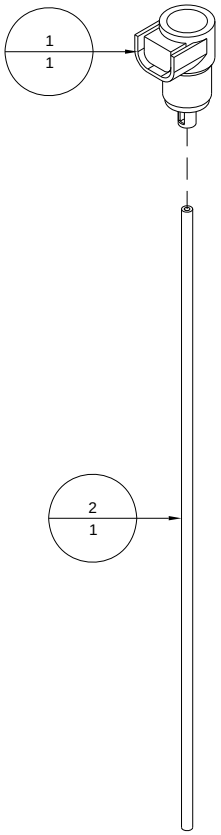


*Table A-26: 9101699A - Lung Vacuum Hose Assembly, 15'*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 9100982 | 1 | Coupling, In-line | |
| 2 | 9103454 | 1 | Tubing,Teflon, 1/8" x 1/16", Blue | |

*Figure A-26: 9101699A - Lung Vacuum Hose Assembly, 15'*

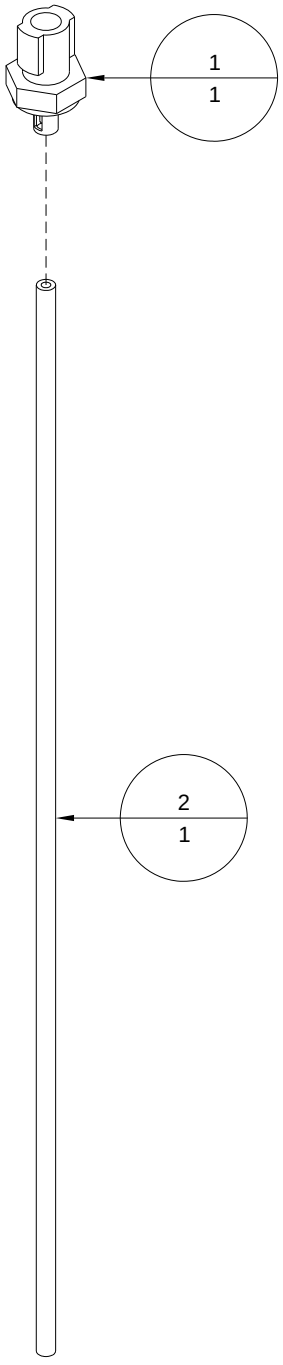


*Table A-27: 9101784A - Umbilical Assembly, BK791, 15'*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 606023 | 1 | Wire, #18, Green, 15’ | |
| 2 | 609116 | 2 | Terminal, Ring, #10, 22-18 AWG, Red | |
| 3 | 9101163A | 1 | Cable, Head Support, 15’ | |
| 4 | 9101212A | 1 | Ink Umbilical Assembly, 15’ | Page A-24 |
| 5 | 9101694A | 1 | Meniscus Vacuum Hose Assembly, 15’ | Page A-25 |
| 6 | 9101699A | 1 | Lung Vacuum Hose Assembly, 15’ | Page A-26 |
| 7 | 9101775 | 1 | Hose, Corrugated Loom, 170” | |
| 8 | 9101776 | 1 | Sleeving, Braided Expandable, 170” | |
| 9 | 9102687A | 1 | Cable, Printhead Data, 15’ | |

*Figure A-27: 9101784A - Umbilical Assembly, BK791, 15'*

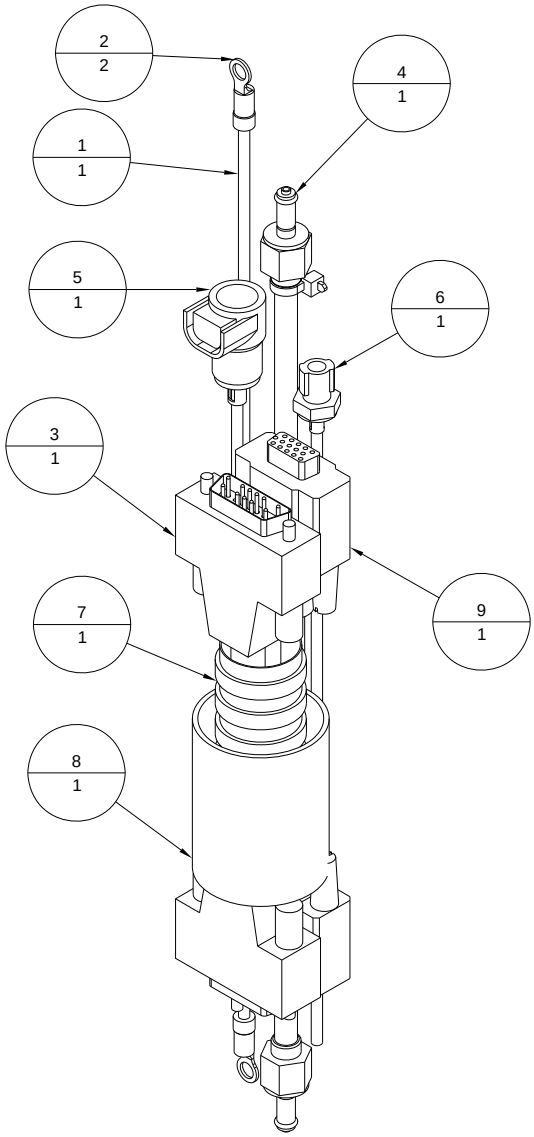


*Table A-28: 9101994A - Rail Mounting Assembly*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 404030 | 6 | Screw, FHCS, 10-32 UNF x 1/2" | |
| 2 | 404510 | 2 | Screw, BHCS, 10-32 UNF x 1/4" | |
| 3 | 404807 | 3 | Screw, SHSS, 10-32 UNF x 3/16" | |
| 4 | 438010 | 1 | Knob, Gate Adjustment | |
| 5 | 505463 | 1 | Flange Bushing, 1/4 ID X 3/8 OD X 3/8 LG | |
| 6 | 505464 | 1 | Flange Bushing, 1/4 ID x 3/8 OD x 1/2 LG | |
| 7 | 9101128 | 2 | Dowel Pin, 1/2" DIA x 4" | |
| 8 | 9101260 | 18 | Shim, 1.25 x 2.812 x 0.005", 15 Series | |
| 9 | 9101398 | 1 | Economy T-slot Stud, 5/16-18 UNC X 1" | |
| 10 | 9101603 | 3 | Bearing Pad, 15 Series, 4.3" Long | |
| 11 | 9101994 | 1 | Rail Mounting Bracket | |
| 12 | 9101995 | 1 | Rod, Threaded, 3/8-24 UNF | |
| 13 | 9102155 | 1 | Rail Bracket Cover | |
| 14 | 9102240 | 1 | Knob, Thumb, Knurled | |

*Figure A-28: 9101994A - Rail Mounting Assembly*

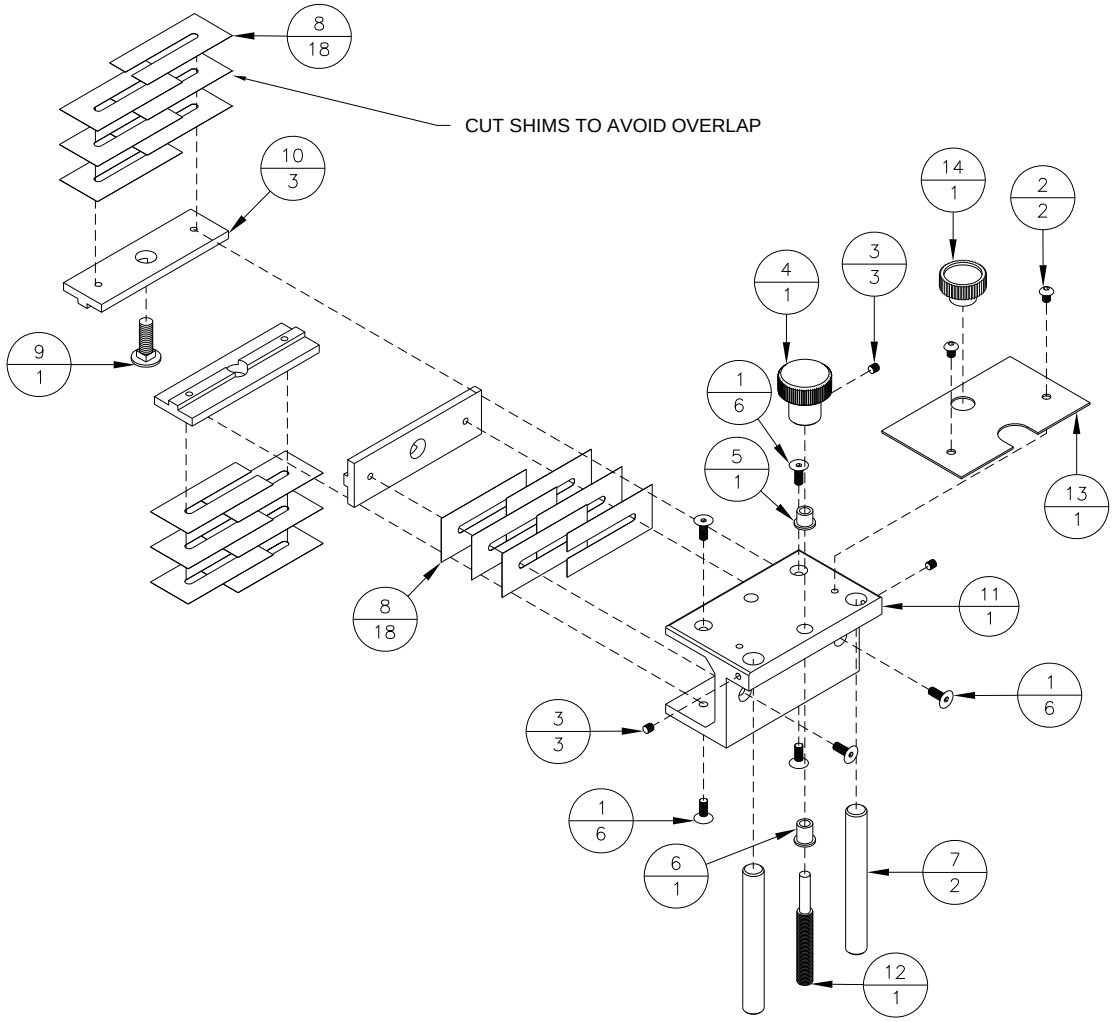


*Table A-29: 9102085A - Solenoid Valve Assembly*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 9101436 | 1 | Solenoid Valve, 12 VDC | |
| 2 | 9102085 | 2 | Connector, Elbow, 1/4" O.D. tube | |

*Figure A-29: 9102085A - Solenoid Valve Assembly*

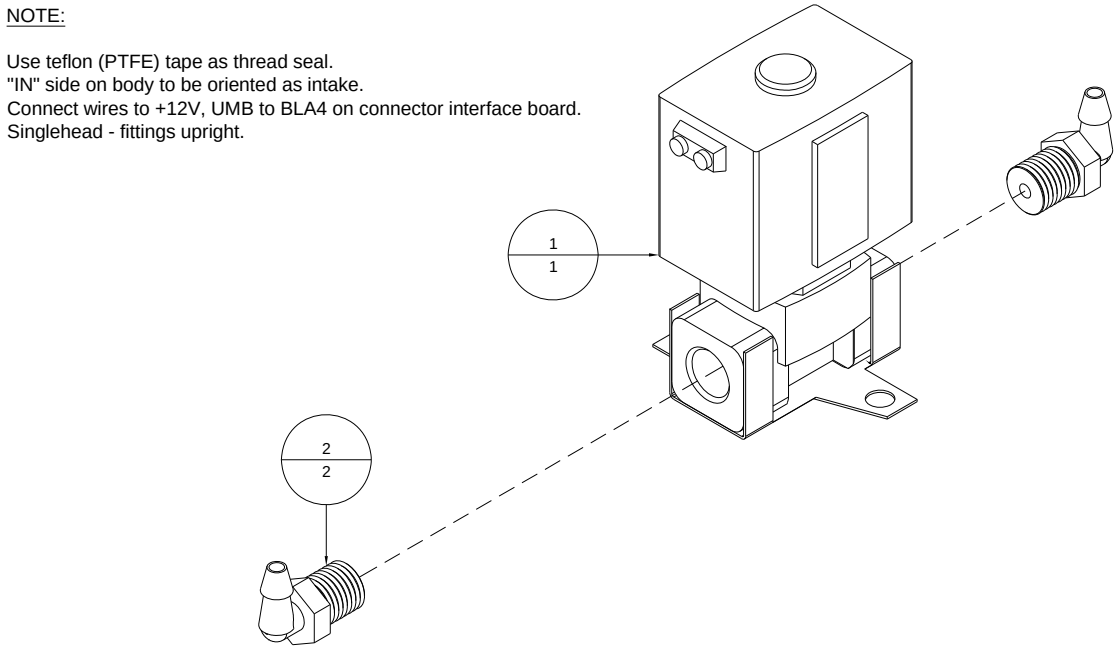


*Table A-30: 9102105A – Bottom Plate Assembly, BK791*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 404050 | 4 | Screw, FHCS, 10-32 UNF x ¾” | |
| 2 | 404285 | 1 | Screw, SHCS, 10-32 UNF x 2” | |
| 3 | 404510 | 3 | Screw, BHCS, 10-32 UNF x ¼” | |
| 4 | 414212 | 2 | Screw, SHCS, M4 x 12 | |
| 5 | 436325 | 2 | Dowel Pin, 1/8” DIA x 5/8” | |
| 6 | 439008 | 1 | Lockwasher, #10, External Tooth | |
| 7 | 440005 | 2 | Washer, #6, ID | |
| 8 | 609116 | 3 | Terminal, Ring, #10, 22-18 AWG, Red | |
| 9 | 609119 | 1 | Terminal, Ring, #4, 22-18 AWG, Red | |
| 10 | 615140 | 3 | Lashing Tie, Small (Not Shown) | |
| 11 | 9100135A | 1 | Cable, Data Ribbon | |
| 12 | 9101591 | 1 | Insulation Block, Fixed | |
| 13 | 9101697 | 1 | Tubing, PVC, 1/8” x 1/16”, Blue, 5” | |
| 14 | 9101697 | 1 | Tubing, PVC, 1/8” x 1/16”, Blue, 1” | |
| 15 | 9102085A | 1 | Solenoid Valve Assembly | Page A-29 |
| 16 | 9102088 | 2 | Extrusion, Al, Profile 8 | |
| 17 | 9102105 | 1 | Plate, Bottom, BK791 | |
| 18 | 9102246 | 1 | Wire, #18, Green/Yellow, 5” | |
| 19 | 9102246 | 1 | Wire, #18, Green/Yellow, 12” | |
| 20 | 9102350A | 1 | Ferrule Assembly, BK791 | Page A-36 |
| 21 | 9103562 | 1 | Check Valve, 1/16” ID, 1.5 psi | |
| 22 | 9104156 | 1 | Printhead, Atlas w/IHIB, 256/30 | |

*Figure A-30: 9102105A – Bottom Plate Assembly, BK791*

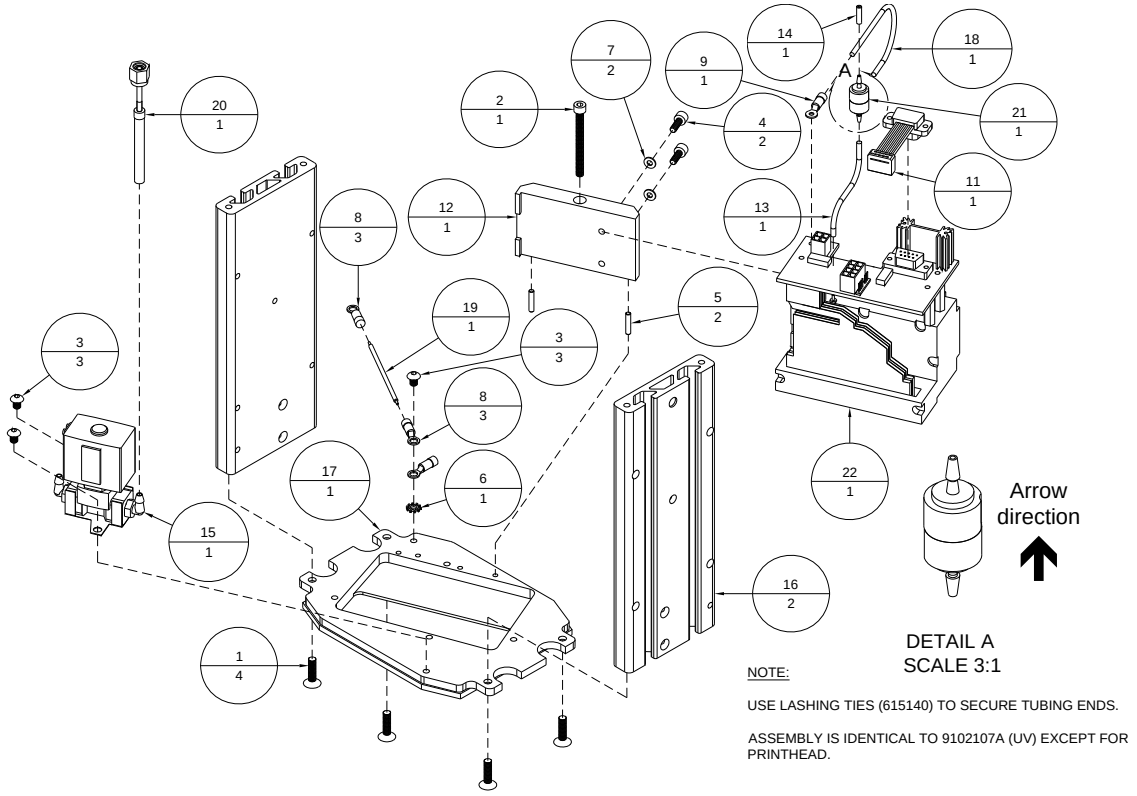


*Table A-31: 9102106A - Top Plate Assembly, BK791*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 404030 | 4 | Screw, FHCS, 10-32 UNF x 1/2" | |
| 2 | 404520 | 2 | Screw, BHCS, 10-32 UNF x 3/8" | |
| 3 | 615140 | 3 | Lashing Tie, Small | |
| 4 | 9100216A | 1 | Priming Button Cable | |
| 5 | 9100472 | 2 | Silicone Tubing, 1/4" ID x 1/8" ID, 3" Long | |
| 6 | 9100965 | 1 | Air Filter | |
| 7 | 9101774 | 1 | Handle, Double Curved | |
| 8 | 9102106 | 1 | Plate, Top, Reversible Singlehead | |
| 9 | 9102109A | 1 | Port Bracket Assembly, Singlehead | Page A-34 |
| 10 | 9102111 | 1 x 6.5” | Tubing, PE, 1/4" x 1/8", UV Resistant | |

*Figure A-31: 9102106A - Top Plate Assembly, BK791*

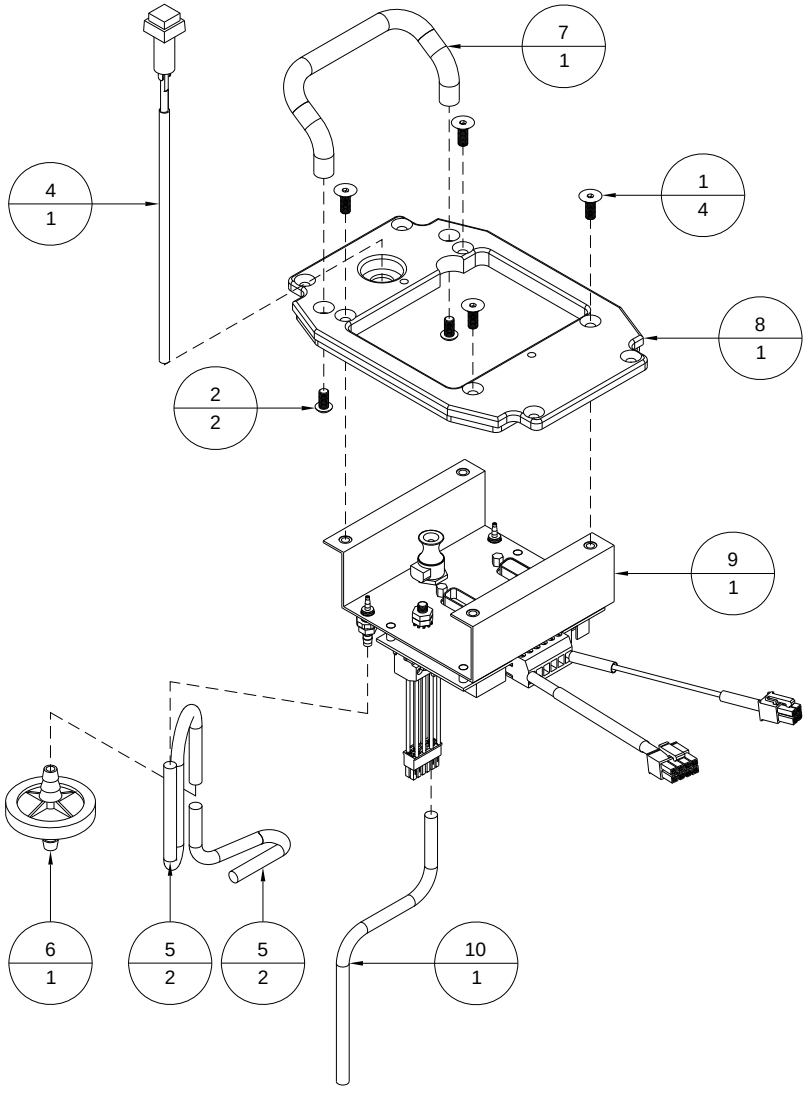


*Table A-32: 9102107A - Bottom Plate Assembly, Aurora BK791*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 404050 | 4 | Screw, FHCS, 10-32 UNF x 3/4" | |
| 2 | 404285 | 1 | Screw, SHCS, 10-32 UNF x 2" | |
| 3 | 404510 | 3 | Screw, BHCS, 10-32 UNF x 1/4" | |
| 4 | 414212 | 2 | Screw, SHCS, M4 x 12 | |
| 5 | 436325 | 2 | Dowel Pin, 1/8"DIA x 5/8" | |
| 6 | 439008 | 1 | Lockwasher, No.10, External Tooth | |
| 7 | 440005 | 2 | Washer, #6, I.D. | |
| 8 | 609116 | 3 | Terminal, Ring, #10, 18-22 AWG, Red | |
| 9 | 609119 | 1 | Terminal, Ring, #4, 18-22 AWG, Red | |
| 10 | 615140 | 3 | Lashing Tie, Small (Not Shown - See Note) | |
| 11 | 9100135A | 1 | Cable, Data Ribbon, Atlas | |
| 12 | 9101591 | 1 | Insulation Block, Fixed | |
| 13 | 9101697 | 1 | Tubing, PVC, 1/8" x 1/16", Blue, 5" | |
| 14 | 9101697 | 1 | Tubing, PVC, 1/8" x 1/16", Blue, 1" | |
| 15 | 9102085A | 1 | Solenoid Valve Assembly | Page A-29 |
| 16 | 9102088 | 2 | Extrusion, Al, Profile 8 | |
| 17 | 9102105 | 1 | Plate, Bottom, Reversible Singlehead | |
| 18 | 9104057 | 1 | Printhead, UV | |
| 19 | 9102246 | 1 | Wire, #18, Green/Yellow, 5” | |
| 20 | 9102246 | 1 | Wire, #18, Green/Yellow, 12” | |
| 21 | 9102350A | 1 | Ferrule Assembly, BK791 Printhead | Page A-36 |
| 22 | 9103562 | 1 | Check Valve, 1/16" I.D., 1.5 PSI | |

*Figure A-32: 9102107A - Bottom Plate Assembly, Aurora BK791*

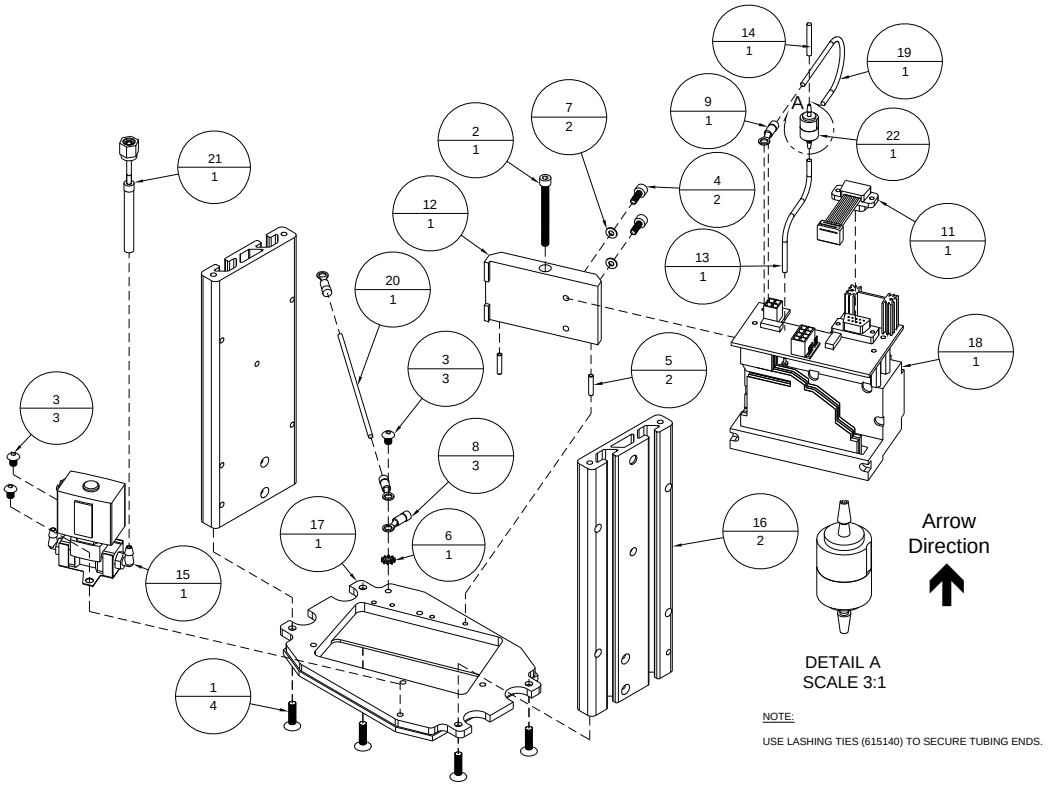


*Table A-33: 9102108A - Bottom Plate Assembly, Cezanne BK791*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 404050 | 4 | Screw, FHCS, 10-32 UNF x 3/4" | |
| 2 | 404285 | 1 | Screw, SHCS, 10-32 UNF x 2" | |
| 3 | 404510 | 3 | Screw, BHCS, 10-32 UNF x 1/4" | |
| 4 | 414212 | 2 | Screw, SHCS, M4 x 12 | |
| 5 | 436325 | 2 | Dowel Pin, 1/8"DIA x 5/8" | |
| 6 | 439008 | 1 | Lockwasher, No.10, External Tooth | |
| 7 | 440005 | 2 | Washer, #6, I.D. | |
| 8 | 609116 | 3 | Terminal, Ring, #10, 18-22 AWG, Red | |
| 9 | 609119 | 1 | Terminal, Ring, #4, 18-22 AWG, Red | |
| 10 | 615140 | 3 | Lashing Tie, Small (Not Shown - See Note) | |
| 11 | 9100135A | 1 | Cable, Data Ribbon, Atlas | |
| 12 | 9101591 | 1 | Insulation Block, Fixed | |
| 13 | 9101697 | 1 | Tubing, PVC, 1/8" x 1/16", Blue, 5" | |
| 14 | 9101697 | 1 | Tubing, PVC, 1/8" x 1/16", Blue, 1" | |
| 15 | 9102085A | 1 | Solenoid Valve Assembly | Page A-29 |
| 16 | 9102088 | 2 | Extrusion, Al, Profile 8 | |
| 17 | 9102105 | 1 | Plate, Bottom, Reversible Singlehead | |
| 18 | 9102246 | 1 x 5” | Wire, #18, Green/Yellow | |
| 19 | 9102246 | 1 x 12” | Wire, #18, Green/Yellow | |
| 20 | 9102350A | 1 | Ferrule Assembly, Atlas BK791 Printhead | Page A-36 |
| 21 | 9103562 | 1 | Check Valve, 1/16" I.D., 1.5 PSI | |
| 22 | 9105156 | 1 | Printhead, Atlas PH 256/30, Cezanne | |

*Figure A-33: 9102108A - Bottom Plate Assembly, Cezanne BK791*

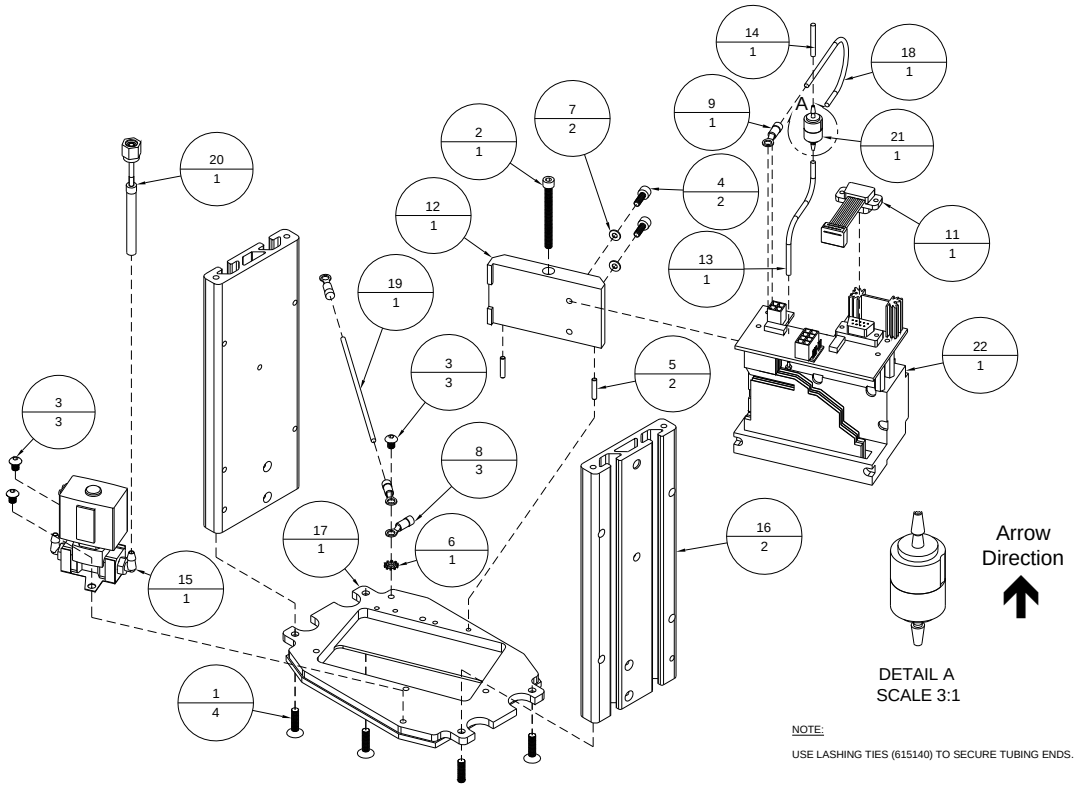


*Table A-34: 9102109A - Port Bracket Assembly, BK791*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 401310 | 4 | Screw, PHMS, 4-40 UNC x 1/4" | |
| 2 | 420008 | 2 | Nut, 10-32 UNF | |
| 3 | 439008 | 1 | Lockwasher, No.10, External Tooth | |
| 4 | 606014A | 1 | Cable, Singlehead Control, Atlas | |
| 5 | 615066 | 1 | Connector, Female, 4-Pin, BLA4 | |
| 6 | 615322 | 4 | Female Screwlock, 4-40 UNC | |
| 7 | 9100214A | 1 | Cable, Printhead Flying Lead | |
| 8 | 9100472 | 1 | Tubing, Silicone, 1" | |
| 9 | 9101170 | 1 | Fitting, Straight Reducer, 1/8 To 1/16 ID | |
| 10 | 9101588 | 2 | Connector, Reducing Bulkhead, 1/8" x 1/4" | |
| 11 | 9101599 | 1 | Dual Atlas Interface Board | |
| 12 | 9102109 | 1 | Mounting Bracket, Singlehead | |
| 13 | 9102625 | 1 | Coupling, Panel Mount, 1/4" O.D. Straight Thru | |
| 14 | 9102627 | 1 | Plug, Body, EPDM O-ring | |

*Figure A-34: 9102109A - Port Bracket Assembly, BK791*

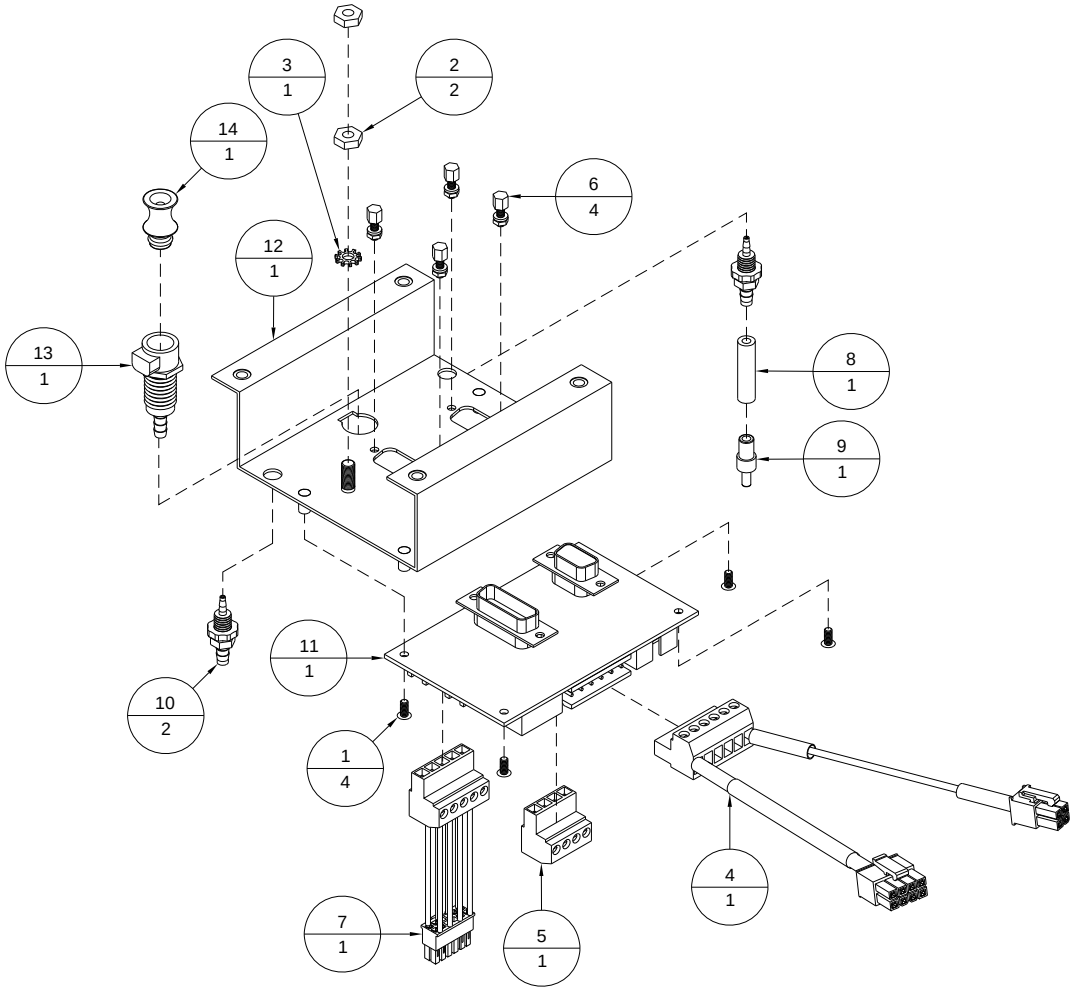


*Table A-35: 9102220A - Umbilical Assembly, BK791, BK1710, 15'*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 606023 | 1 x 15’ | Wire, #18, Green | |
| 2 | 609116 | 2 | Terminal, Ring, #10, 22-18 AWG, Red | |
| 3 | 9101212A | 1 | Ink Umbilical Assembly, 15' | Page A-24 |
| 4 | 9101694A | 1 | Meniscus Vacuum Hose Assembly, 15' | Page A-25 |
| 5 | 9101699A | 1 | Lung Vacuum Hose Assembly, 15' | Page A-26 |
| 6 | 9101775 | 1 | Hose, Corrugated Loom, 170" | |
| 7 | 9101776 | 1 | Sleeving, Braided Expandable, 170" | |
| 8 | 9102687A | 1 | Cable, Printhead Data, 15' | |
| 9 | 9102916A | 1 | Cable, Head Support, BK1710, 15' | |

*Figure A-35: 9102220A - Umbilical Assembly, BK791, BK1710, 15'*

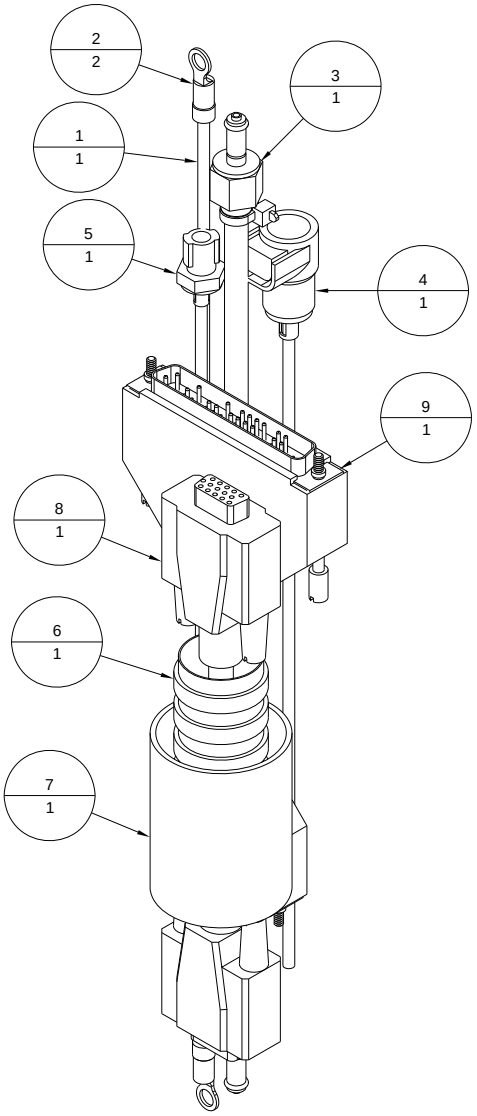


*Table A-36: 9102350A - Ferrule Assembly, BK791 Printhead*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 9100938 | 1 | Fitting, Nut | |
| 2 | 9100958 | 1 | Ferrule Set | |
| 3 | 9101170 | 1 | Fitting, Straight Reducer, 1/8 To 1/16 ID | |
| 4 | 9101695 | 1 | Tubing, PE, 1/8" x 1/16", UV Resistant, 9" | |
| 5 | 9102111 | 1 | Tubing, PE, 1/4" x 1/8", UV Resistant, 2" | |

*Figure A-36: 9102350A - Ferrule Assembly, BK791 Printhead*

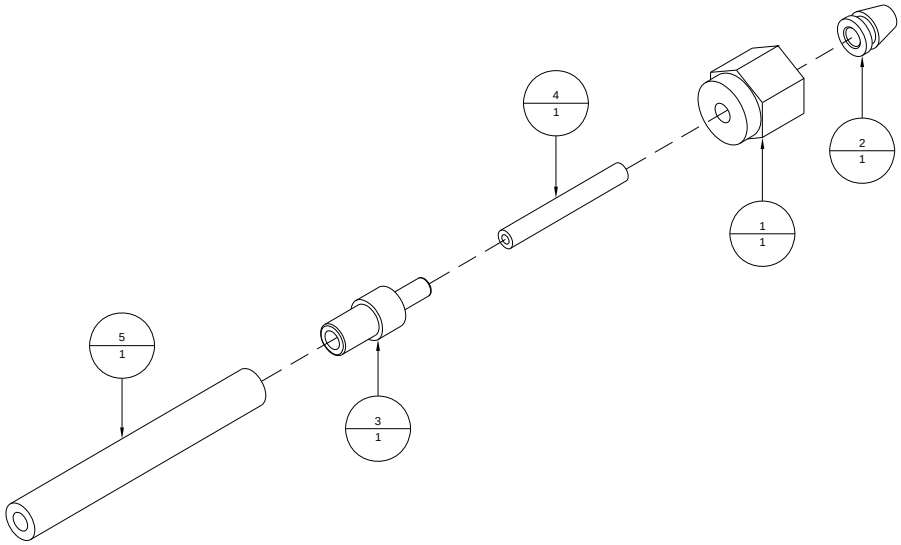


*Table A-37: 9102595A - Printhead Support Assembly, Solid*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 402250 | 4 | Screw, SHCS, 6-32 UNC X 3/4" | |
| 2 | 404230 | 4 | Screw, SHCS, 10-32 UNF x 1/2" | |
| 3 | 404510 | 2 | Screw, BHCS, 10-32 UNF x 1/4" | |
| 4 | 437050 | 8 | Retaining Ring, 1/2" I.D., External | |
| 5 | 9101996 | 1 | Gas Spring | |
| 6 | 9102094 | 2 | Profile Bar | |
| 7 | 9102126 | 1 | Locknut, M4 x 0.7, Nylon Insert | |
| 8 | 9102128 | 1 | Screw, SHCS, 1/4-20 UNC x 3/8", SS | |
| 9 | 9102341 | 4 | Bushing, Linear Ball Bearing | |
| 10 | 9102411 | 2 | Rod, 0.25" OD x 5.19" Lg. | |
| 11 | 9102594 | 1 | Mount, Printhead, Solid | |
| 12 | 9102595 | 1 | Shuttle Block, Solid Mount | |
| 13 | 9102792 | 1 | Plunger, 3/8-16 UNC, Lever Type, Non-Locking | |

*Figure A-37: 9102595A - Printhead Support Assembly, Solid*

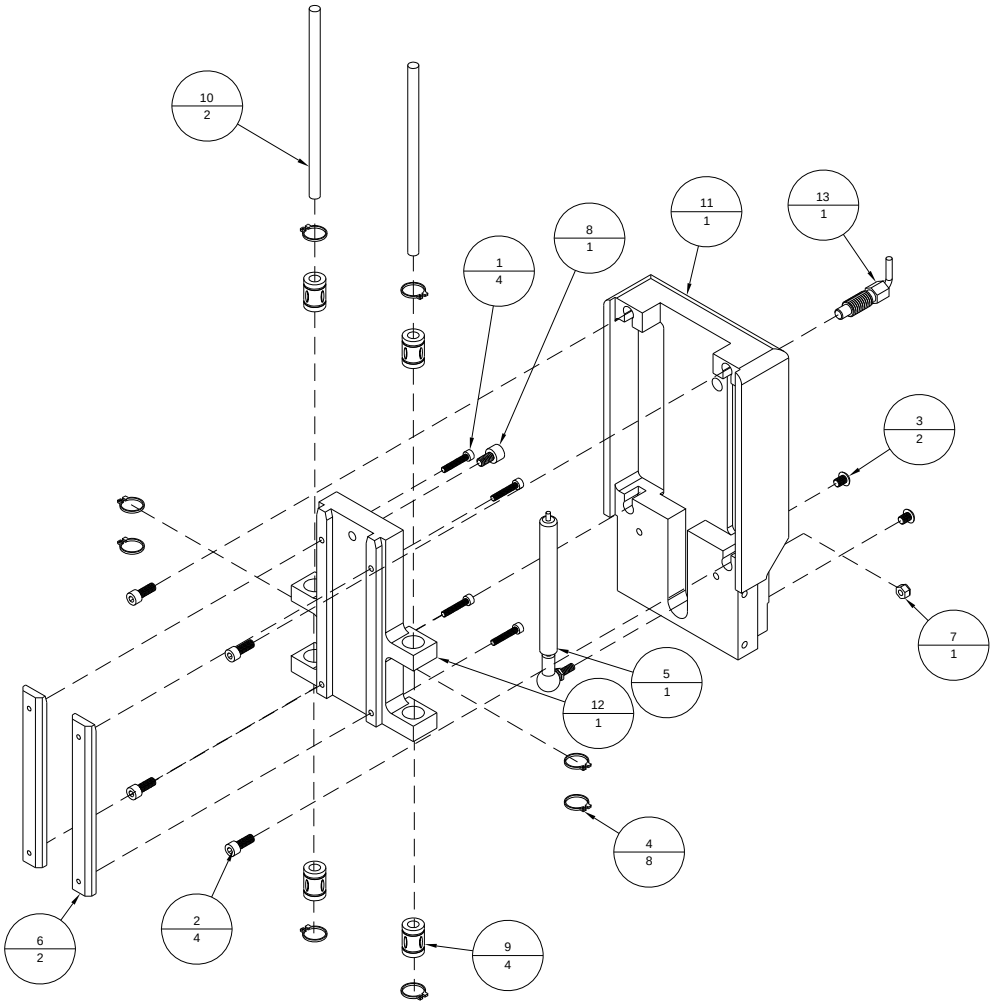


*Table A-38: 9102819A - Bridge Mount Assembly*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 131020 | 1 | Collar, 3/8" I. D. | |
| 2 | 212533 | 2 | Linear Bearing, 1" ID | |
| 3 | 404520 | 3 | Screw, BHCS, 10-32 UNF x 3/8" | |
| 4 | 404807 | 2 | Screw, SHSS, 10-32 UNF x 3/16" | |
| 5 | 404810 | 2 | Screw, SHSS, 10-32 UNF x 1/4" | |
| 6 | 437156 | 4 | Retaining Ring, 1 9/16" ID, External | |
| 7 | 439009 | 3 | Lockwasher, No. 10 | |
| 8 | 505384 | 1 | Flange Bushing, 3/8 ID X 1/2 OD X 1/2 LG | |
| 9 | 9101128 | 2 | Dowel Pin, 1/2" DIA x 4" | |
| 10 | 9101874 | 2 | Spring, Compression | |
| 11 | 9102592 | 1 | Shoulder Bolt, 3/8" x 3 1/2, 5/16-18 UNC | |
| 12 | 9102819 | 1 | Mount, Linear bearing, Automatic | |
| 13 | 9102877 | 1 | Bearing, Thrust, 1/4" I.D. | |
| 14 | 9102879 | 1 | Rod, Threaded, Thickness | |
| 15 | 9102883 | 1 | Mounting Block, Slider | |
| 16 | 9102884 | 1 | Plunger, spring loaded, Threaded, 1/4-20 UNC | |
| 17 | 9102885 | 1 | Knob, Diamond cut, Knurled, 2" dia. | |
| 18 | 9103460A | 1 | Locking mechanism | Page A-47 |

*Figure A-38: 9102819A - Bridge Mount Assembly*

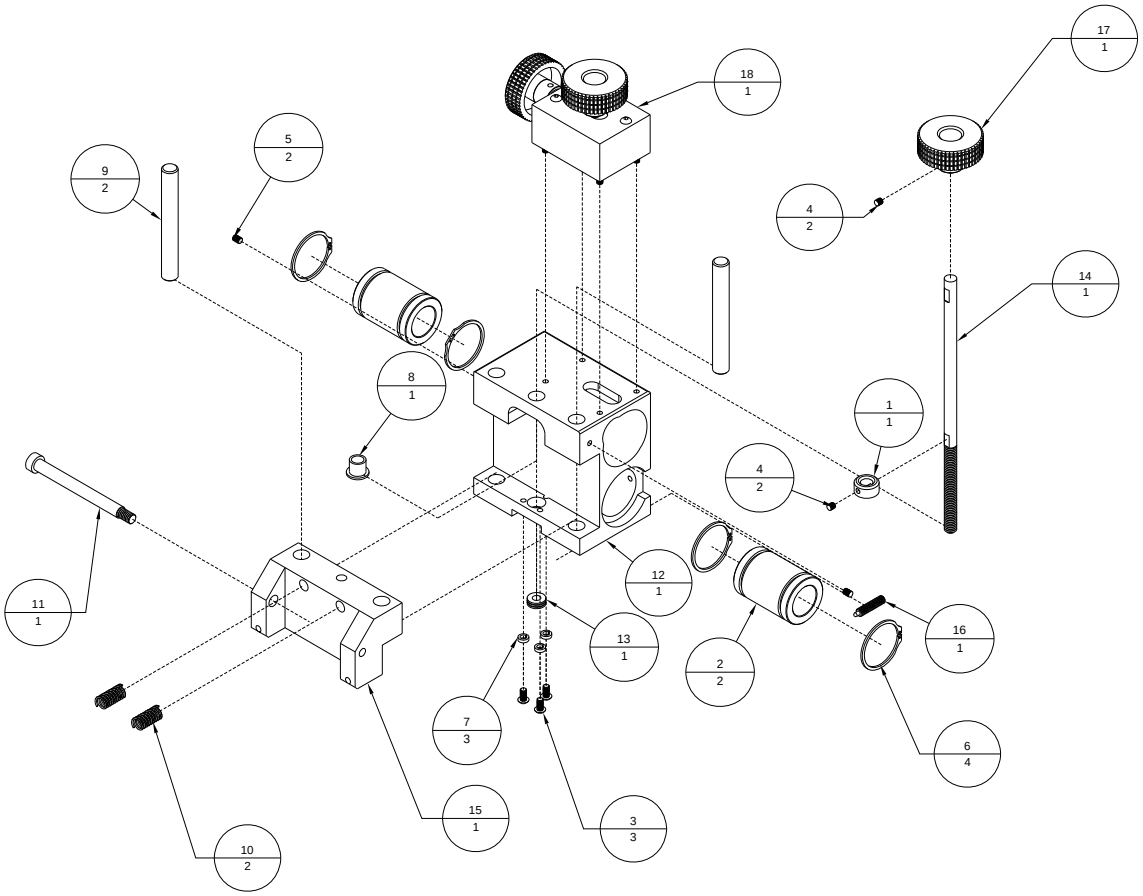


*Table A-39: 9102911A - Umbilical Assembly, 2250 / 3250, 15'*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 404520 | 8 | Screw, BHCS, 10-32 UNF x 3/8" | |
| 2 | 606023 | 1 | Wire, #18, Green, Hookup, 15 ft | |
| 3 | 609116 | 2 | Terminal, Ring, #10, 22-18 AWG, Red | |
| 4 | 9101212A | 1 | Ink Umbilical Assembly, 15' | Page A-24 |
| 5 | 9101694A | 1 | Meniscus Vacuum Hose Assembly, 15' | Page A-25 |
| 6 | 9101699A | 1 | Lung Vacuum Hose Assembly, 15' | Page A-26 |
| 7 | 9101735 | 4 | Fitting, Half | |
| 8 | 9101773 | 2 | Collar, Locking Shaft | |
| 9 | 9101775 | 1 | Hose, Corrugated Loom, 170" | |
| 10 | 9101776 | 1 | Sleeving, Braided Expandable, 170" | |
| 11 | 9102687A | 1 | Cable, Printhead Data, 15' | |
| 12 | 9102914A | 1 | Cable, Head support | |

*Figure A-39: 9102911A - Umbilical Assembly, 2250 / 3250, 15'*

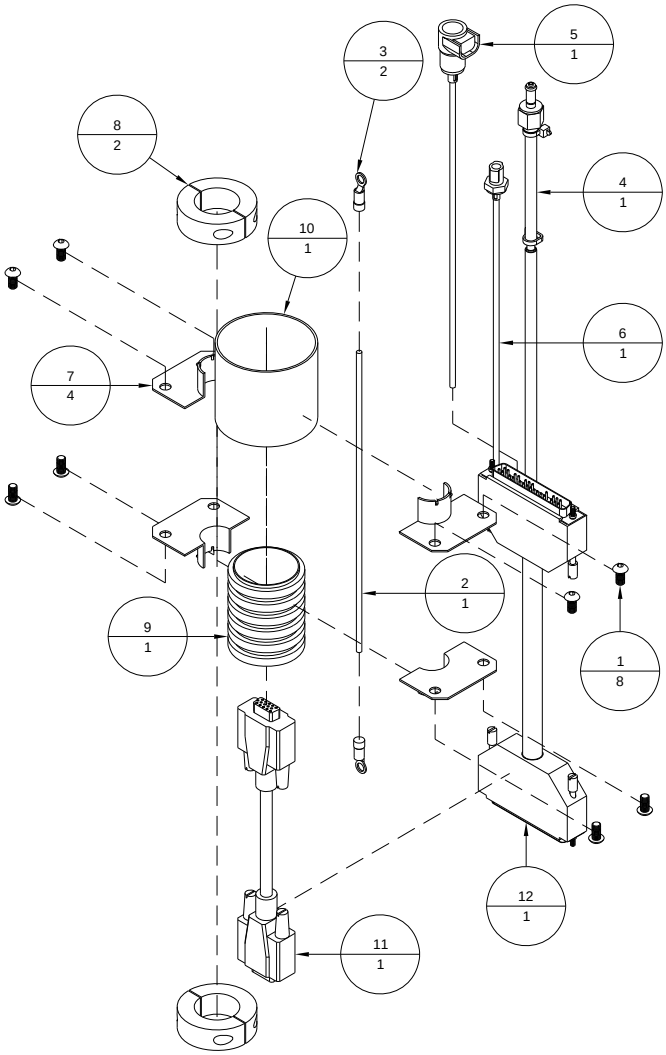


*Table A-40: 9103168A - Slide Bar Assembly, 80 pL*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 9101936 | 2 | Screw, Slotted Pan Head, M3 x 20mm | |
| 2 | 9102310A | 1 | Cable, Collar Harness Adapter | |
| 3 | 9103195 | 1 | Thermo-electric assembly, Jetting assembly | |
| 4 | 9103988 | 1 | Bar, JA Slide | |
| 5 | 9104058 | 1 | Jetting Array, Galaxy 256/80 AAA | |
| 6 | 9104366 | 2 | O-Ring, EPDM, 9/32 x 5/32 x 1/16 | |

*Figure A-40: 9103168A - Slide Bar Assembly, 80 pL*

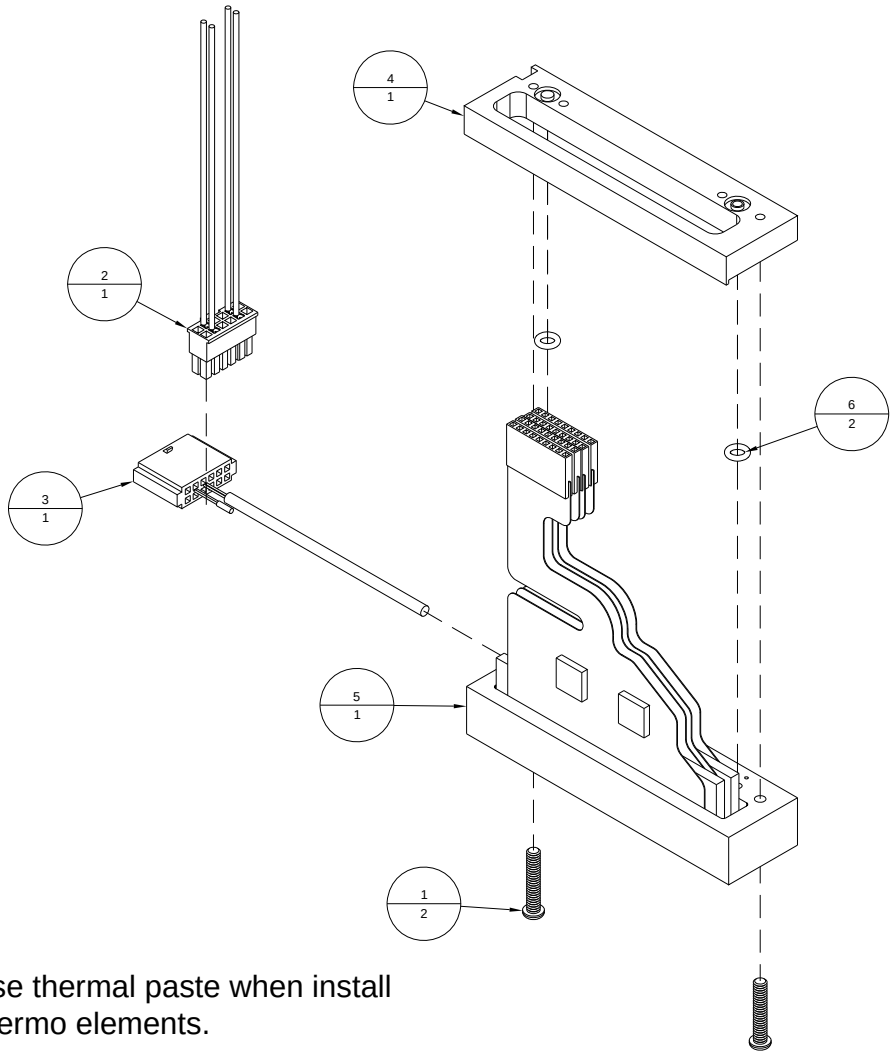


*Table A-41: 9103169A - Manifold Assembly, Adjustable, 80 pL, UV*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 401310 | 4 | Screw, PHMS, 4-40 UNC x 1/4" | |
| 2 | 401350 | 2 | Screw, PHMS, 4-40 UNC x 3/4" | |
| 3 | 404520 | 5 | Screw, BHCS, 10-32 UNF x 3/8" | |
| 4 | 404820 | 6 | Screw, SHSS, 10-32 UNF x 3/8" | |
| 5 | 439004 | 2 | Lockwasher, No.4 | |
| 6 | 440530 | 4 | Washer, #6, Nylon | |
| 7 | 615064 | 1 | Connector, Female, 6-Pin, BLA6 | |
| 8 | 615066 | 1 | Connector, Female, 4-Pin, BLA4 | |
| 9 | 615076 | 1 | Connector, Female, 8-Pin, BLA8 | |
| 10 | 9101697 | 1 | Tubing, PVC, 1/8" x 1/16", Blue, 3" | |
| 11 | 9102311 | 1 | Reservoir, Printhead | |
| 12 | 9102313A | 1 | Cable, Reservoir harness adapter | |
| 13 | 9102549 | 1 | THIB, Tri Head Interface Board | |
| 14 | 9102579 | 6 | Hex Spacer, 4-40 UNC, 1" long | |
| 15 | 9103168A | 3 | Slide Bar Assembly, 80 pL | Page A-40 |
| 16 | 9103170 | 2 | O-Ring, EPDM, 11/32" x 7/32", 1/16 thick | |
| 17 | 9103197 | 1 | Thermo-electric assembly, Reservoir assembly | |
| 18 | 9103538 | 14 | Ferrule, #20 AWG, Orange | |
| 19 | 9103540 | 2 | Ferrule, #24 AWG, Light blue | |
| 20 | 9103562 | 1 | Check Valve, 1/16" I.D., 1.5 PSI | |
| 21 | 9103682 | 1 | Label, Printhead Serial (Not Shown) | |
| 22 | 9103986 | 6 | Screw, PHMS, M3 x 25mm | |
| 23 | 9103987 | 1 | Manifold, Universal, Triple | |
| 24 | 9103990 | 2 | Bracket, Manifold Support, Triple | |
| 25 | 9104365 | 1 | Screw, Truss, 10-32 UNF x 3/4", S.S. | |
| 26 | 9104366 | 6 | O-Ring, EPDM, 9/32 x 5/32 x 1/16 | |

*Figure A-41: 9103169A - Manifold Assembly, Adjustable, 80 pL, UV*

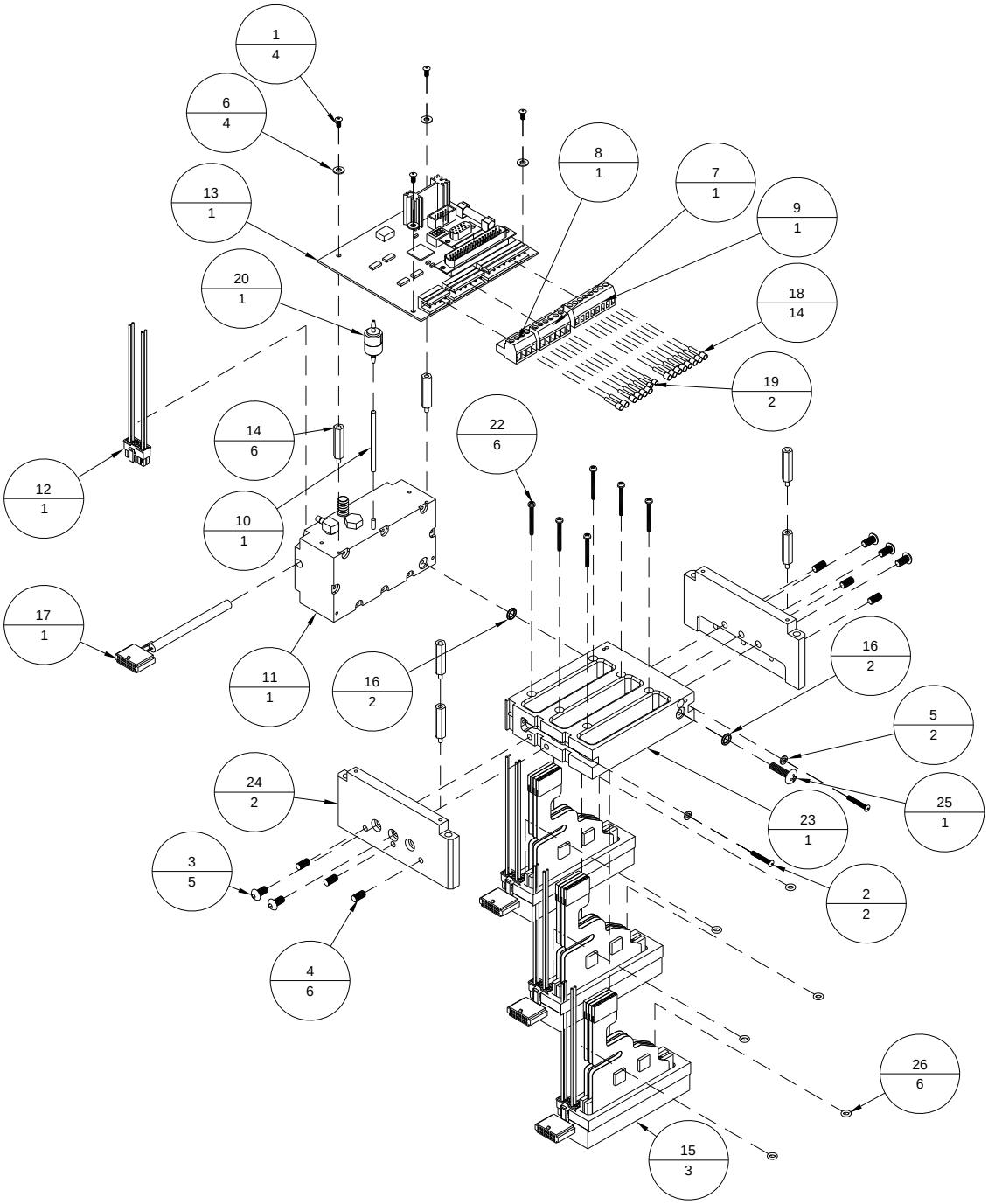


*Table A-42: 9103170A - Bottom Plate Assembly, Aurora 3250*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 401310 | 1 | Screw, PHMS, 4-40 UNC x 1/4" | |
| 2 | 402240 | 8 | Screw, SHCS, 6-32 UNC X 5/8" | |
| 3 | 404040 | 4 | Screw, FHCS, 10-32 UNF x 5/8" | |
| 4 | 404285 | 4 | Screw, SHCS, 10-32 UNF x 2" | |
| 5 | 404520 | 1 | Screw, BHCS, 10-32 UNF x 3/8" | |
| 6 | 436325 | 2 | Dowel Pin, 1/8"DIA x 5/8" | |
| 7 | 439004 | 1 | Lockwasher, No.4 | |
| 8 | 439009 | 5 | Lockwasher, No. 10 | |
| 9 | 440003 | 1 | Washer, #4 ID | |
| 10 | 609111 | 2 | Terminal, Ring, #10, 16-14 AWG, Blue | |
| 11 | 9102088 | 2 | Extrusion, Al, Profile 8 | |
| 12 | 9102681 | 1 | Wire, #14, Green/Yellow, 7” Lg. | |
| 13 | 9103169A | 1 | Manifold Assembly, Adjustable, 80 pL, UV | Page A-41 |
| 14 | 9103989 | 1 | Plate, Bottom, Triple Slant | |
| 15 | 9103998 | 2 | Bracket, Corner | |
| 16 | 9103998A | 1 | Solenoid assembly | Page A-56 |
| 17 | 9103999 | 2 | Bracket, Straight | |

*Figure A-42: 9103170A - Bottom Plate Assembly, Aurora 3250*

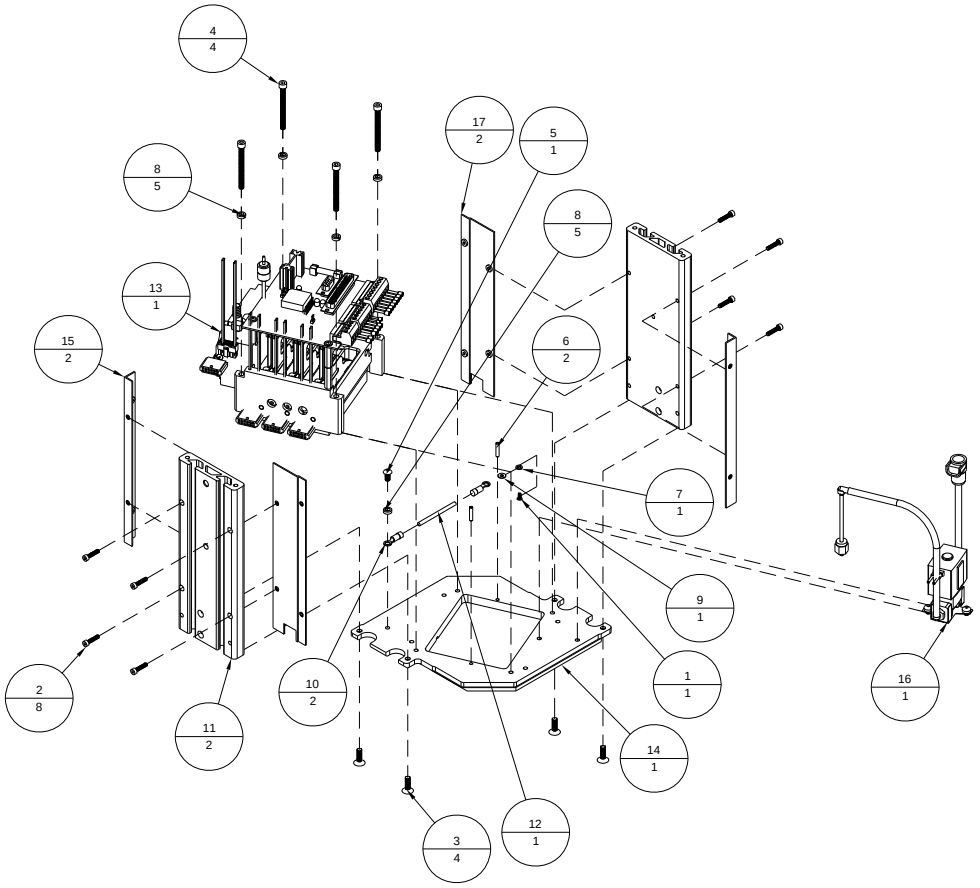


*Table A-43: 9103183A – Adjustable Manifold Assembly, Aurora 2”*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 401310 | 4 | Screw, PHMS, 4-40 UNC x ¼” | |
| 2 | 401350 | 2 | Screw, PHMS, 4-40 UNC x ¾” | |
| 3 | 404520 | 5 | Screw, BHCS, 10-32 UNF x 3/8” | |
| 4 | 404820 | 4 | Screw, SHSS, 10-32 UNF x 3/8” | |
| 5 | 439004 | 2 | Lockwasher, #4 | |
| 6 | 440530 | 4 | Washer, #6, Nylon | |
| 7 | 615064 | 1 | Connector, Female, 6-Pin | |
| 8 | 615066 | 1 | Connector, Female, 4-Pin | |
| 9 | 615076 | 1 | Connector, Female, 8-Pin | |
| 10 | 9101697 | 1 | Tubing, PVC, 1/8” x 1/16”, Blue, 3” Lg. | |
| 11 | 9102311 | 1 | Reservoir, Printhead | |
| 12 | 9102313A | 1 | Cable, Reservoir Harness Adapter | |
| 13 | 9102549 | 1 | THIB, Tri Head Interface Board | |
| 14 | 9102579 | 6 | Hex Spacer, 4-40 UNC, 1” Lg. | |
| 15 | 9103168 | 2 | O-Ring, EPDM, 3/16” x 1/16”, 1/16” Thick | |
| 16 | 9103168A | 2 | Slide Bar Assembly, 80 pL | Page A-40 |
| 17 | 9103170 | 2 | O-Ring, EPDM, 11/32” x 7/32”, 1/16” Thick | |
| 18 | 9103197 | 1 | Thermo-electric Assembly, Reservoir Assembly | |
| 19 | 9103538 | 14 | Ferrule, #20 AWG, Orange | |
| 20 | 9103540 | 2 | Ferrule, #24 AWG, Light Blue | |
| 21 | 9103562 | 1 | Check Valve, 1/16” ID, 1.5 PSI | |
| 22 | 9103682 | 1 | Label, Printhead Serial | |
| 23 | 9103986 | 6 | Screw, PHMS, M3 x 25 mm | |
| 24 | 9103987 | 1 | Manifold, Universal, Triple | |
| 25 | 9103990 | 2 | Bracket, Manifold Support | |
| 26 | 9104061 | 1 | Cap, Block Off | |
| 27 | 9104365 | 1 | Screw, Truss, 10-32 UNF x ¾” SS | |
| 28 | 9104366 | 4 | O-Ring, EPDM, 9/32 x 5/32 x 1/16 | |
| 29 | 9104530 | 4 | Hex Spacer, 4-40 UNC x ¼” | |

*Figure A-43: 9103183A – Adjustable Manifold Assembly, Aurora 2”*

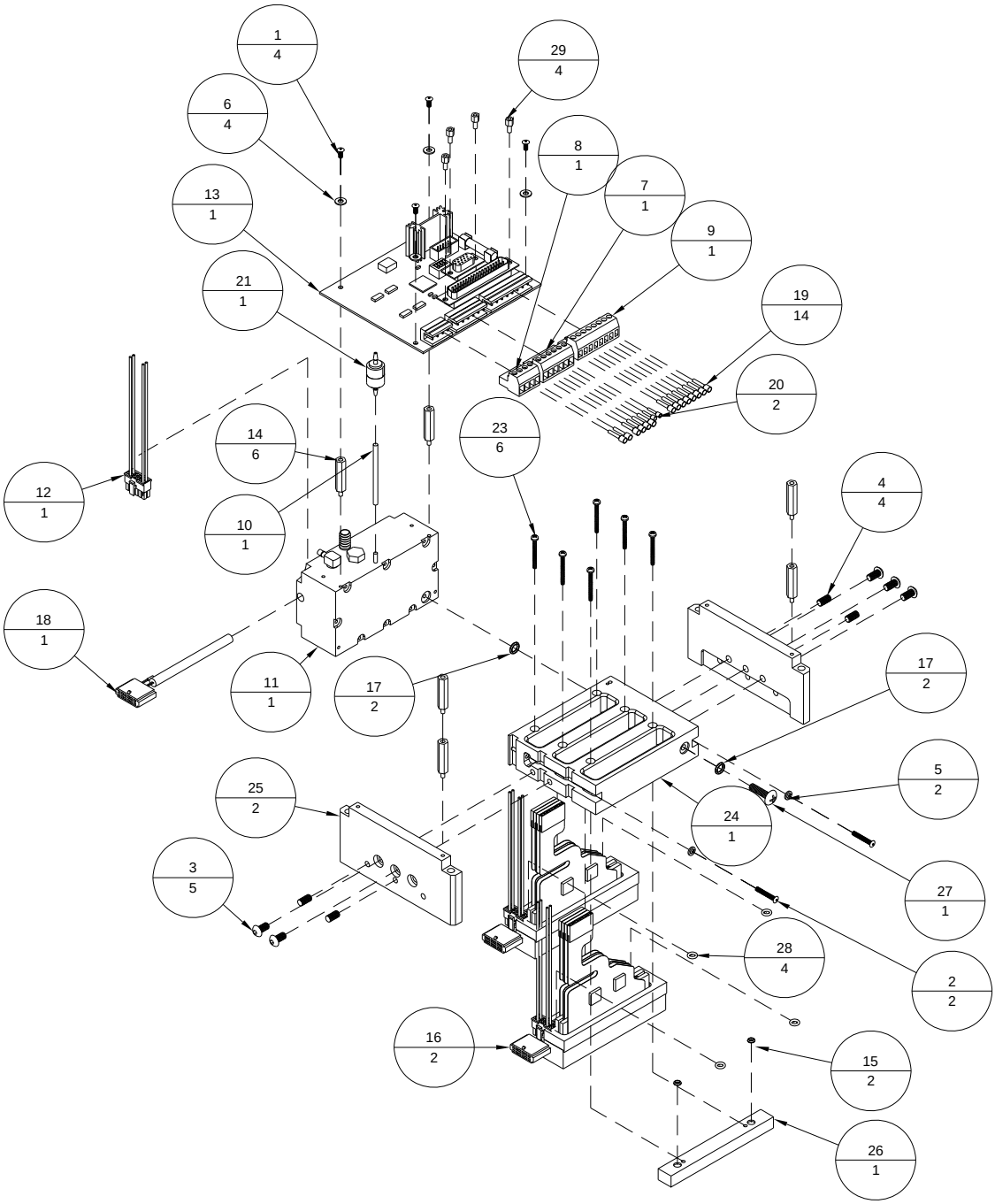


*Table A-44: 9103185A - Bottom Plate Assembly, Aurora 2250*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 401310 | 1 | Screw, PHMS, 4-40 UNC x 1/4" | |
| 2 | 402240 | 8 | Screw, SHCS, 6-32 UNC X 5/8" | |
| 3 | 404040 | 4 | Screw, FHCS, 10-32 UNF x 5/8" | |
| 4 | 404285 | 4 | Screw, SHCS, 10-32 UNF x 2" | |
| 5 | 404520 | 1 | Screw, BHCS, 10-32 UNF x 3/8" | |
| 6 | 436325 | 2 | Dowel Pin, 1/8"DIA x 5/8" | |
| 7 | 439004 | 1 | Lockwasher, No.4 | |
| 8 | 439009 | 5 | Lockwasher, No. 10 | |
| 9 | 440003 | 1 | Washer, #4 ID | |
| 10 | 609111 | 2 | Terminal, Ring, #10, 16-14 AWG, Blue | |
| 11 | 9102088 | 2 | Extrusion, Al, Profile 8 | |
| 12 | 9102681 | 1 | Wire, #14, Green/Yellow, 7” Lg. | |
| 13 | 9103183A | 1 | Adjustable Manifold Assembly, 80 pL, 2” | Page A-44 |
| 14 | 9103989 | 1 | Plate, Bottom, Triple Slant | |
| 15 | 9103998 | 2 | Bracket, Corner | |
| 16 | 9103998A | 1 | Solenoid assembly | Page A-56 |
| 17 | 9103999 | 2 | Bracket, Straight | |

*Figure A-44: 9103185A - Bottom Plate Assembly, Aurora 2250*

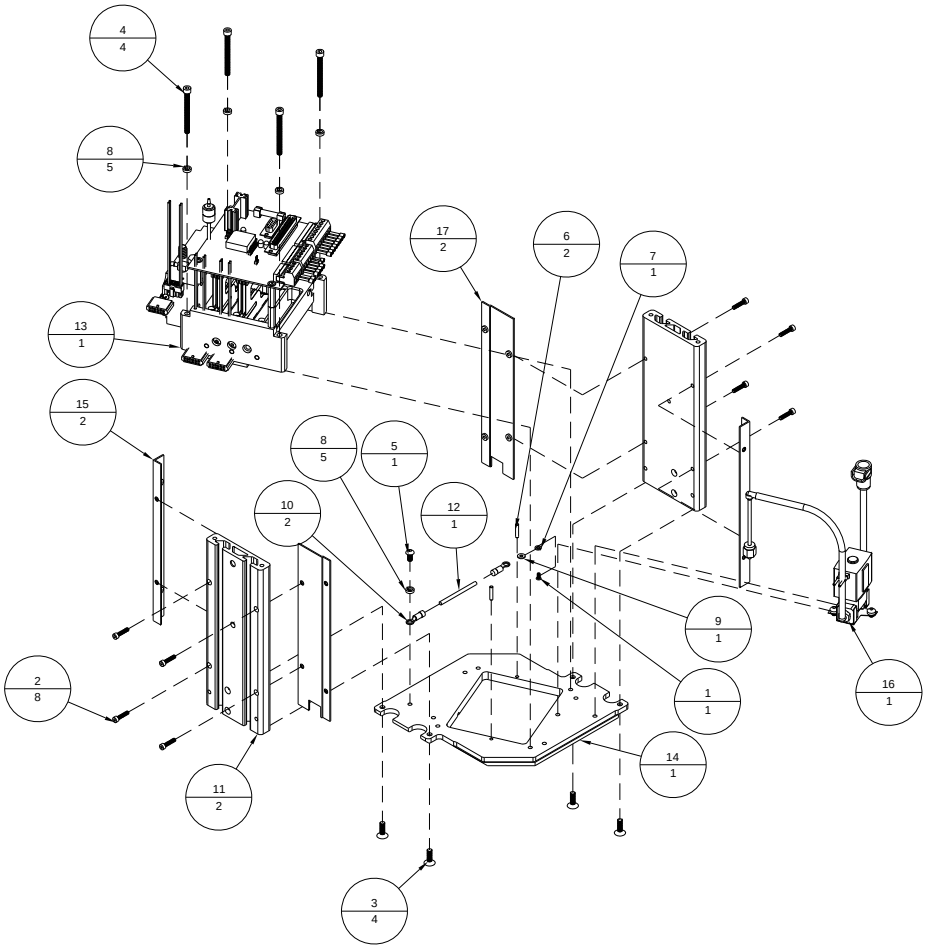


*Table A-45: 9103460A - Locking Mechanism*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 404275 | 4 | Screw, SHCS, 10-32 UNF x 1 1/4 | |
| 2 | 404510 | 2 | Screw, BHCS, 10-32 UNF x 1/4" | |
| 3 | 404805 | 4 | Screw, SHSS, 10-32 UNF x 1/8" | |
| 4 | 404807 | 2 | Screw, SHSS, 10-32 UNF x 3/16" | |
| 5 | 436348 | 2 | Dowel Pin, 1/4"DIA x 2" | |
| 6 | 505056 | 6 | Flange Bushing, 1/4 ID X 3/8 OD X 1/4 LG | |
| 7 | 9102885 | 1 | Knob, Diamond cut, Knurled, 2" dia. | |
| 8 | 9103457 | 1 | Knob, Diamond cut, Knurled, 1.57" dia. | |
| 9 | 9103458 | 1 | Threaded rod, 3/8-16 UNC | |
| 10 | 9103459 | 1 | Slider nut, 3/8-16 UNC | |
| 11 | 9103460 | 2 | Bracket, slider block | |
| 12 | 9103461 | 1 | Threaded rod, 3/8-24 UNF, lateral adjustment | |
| 13 | 9103462 | 1 | Cover, Lateral adjustment mechanism | |
| 14 | 9103463 | 1 | Pin, Brass, 3/16" dia x 0.6" long | |

*Figure A-45: 9103460A - Locking Mechanism*

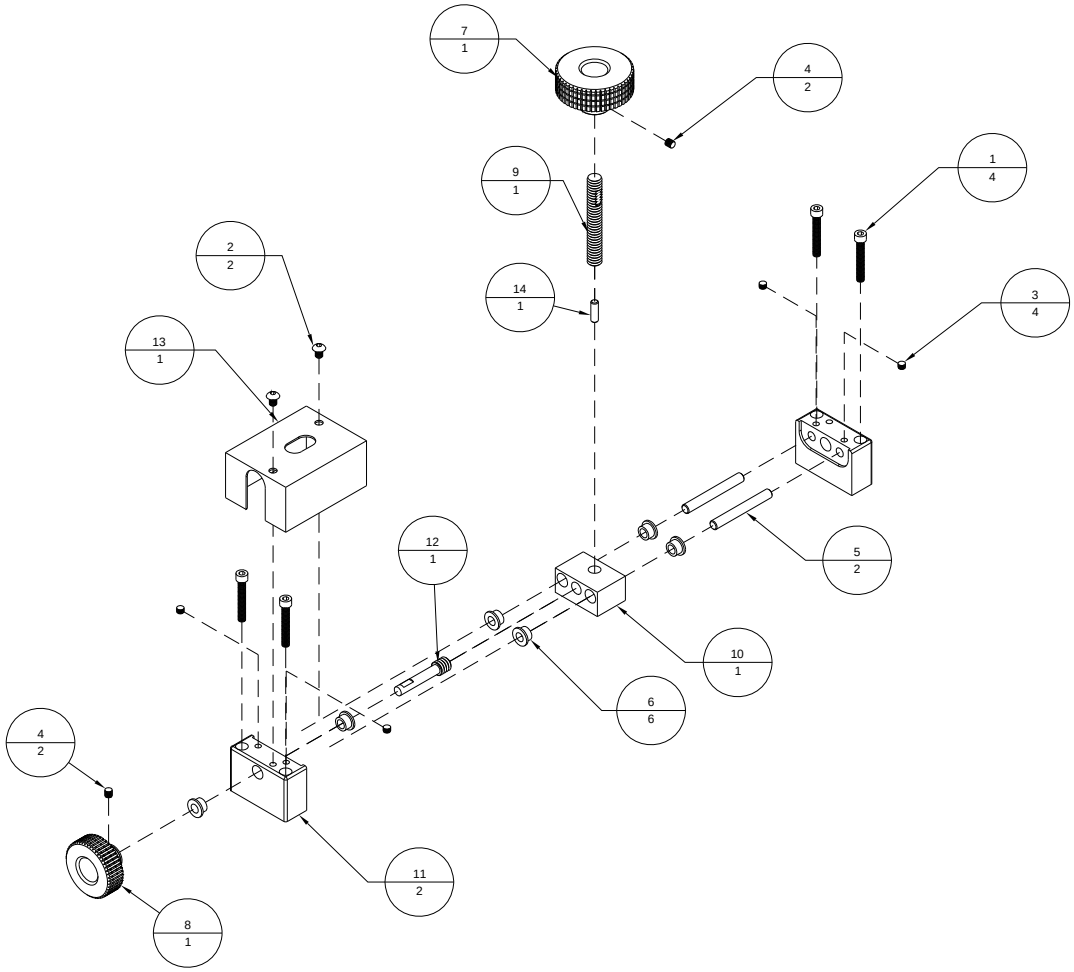


*Table A-46: 9103922A - Ferrule Assembly*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 9100938 | 1 | Fitting, Nut | |
| 2 | 9100958 | 1 | Ferrule Set | |
| 3 | 9101695 | 1 | Tubing, Polyethylene, 1/8" x 1/16", UV Resistant | |
| 4 | 9102116 | 1 | Tubing, Pharmed, 1/4"x 1/8", 6” Lg. | |
| 5 | 9103922 | 1 | Connector, Elbow reduction, 1/8" to 1/16" I.D. | |

*Figure A-46: 9103922A - Ferrule Assembly*

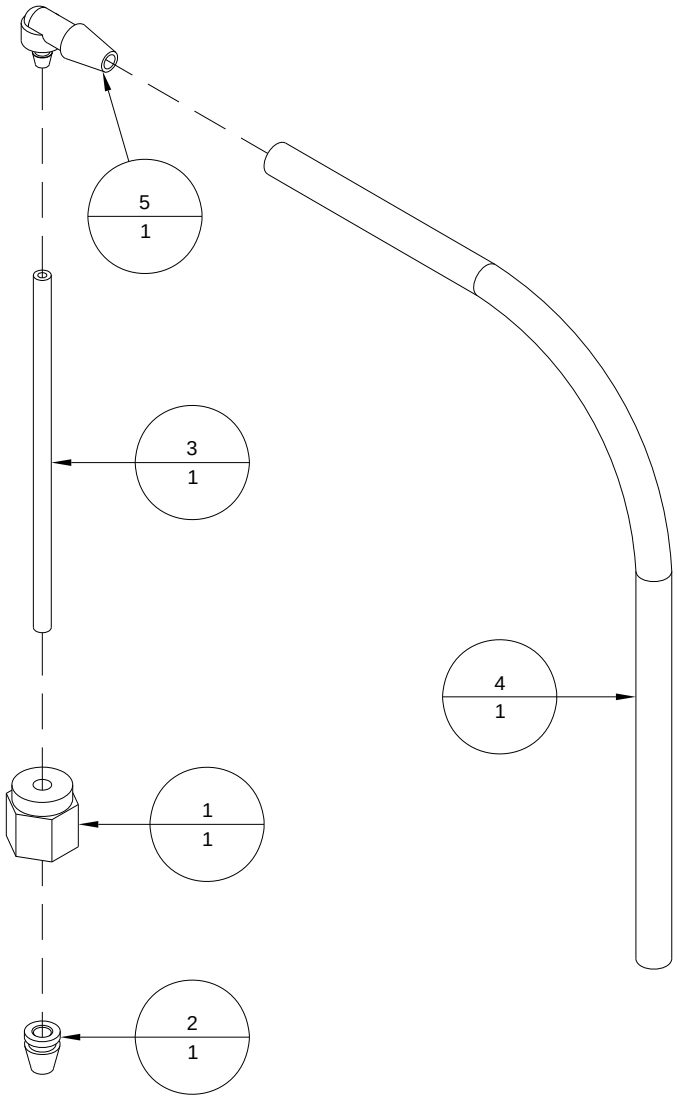


*Table A-47: 9103986A – Adjustable Manifold Assembly, 2”*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 401310 | 4 | Screw, PHMS, 4-40 UNC x ¼” | |
| 2 | 401350 | 2 | Screw, PHMS, 4-40 UNC x ¾” | |
| 3 | 404520 | 5 | Screw, BHCS, 10-32 UNF x 3/8” | |
| 4 | 404820 | 4 | Screw, SHSS, 10-32 UNF x 3/8” | |
| 5 | 439004 | 2 | Lockwasher, #4 | |
| 6 | 440530 | 4 | Washer, #6, Nylon | |
| 7 | 615064 | 1 | Connector, Female, 6-Pin | |
| 8 | 615066 | 1 | Connector, Female, 4-Pin | |
| 9 | 615076 | 1 | Connector, Female, 8-Pin | |
| 10 | 9100157 | 4 | Hex Spacer, 4-40 UNC x ½” | |
| 11 | 9101697 | 1 | Tubing, PVC, 1/8” x 1/16”, Blue, 3” Lg. | |
| 12 | 9102311 | 1 | Reservoir, Printhead | |
| 13 | 9102313A | 1 | Cable, Reservoir Harness Adapter | |
| 14 | 9102549 | 1 | THIB, Tri Head Interface Board | |
| 15 | 9102579 | 2 | Hex Spacer, 4-40 UNC, 1” Lg. | |
| 16 | 9103168 | 2 | O-Ring, EPDM, 3/16” x 1/16”, 1/16” Thick | |
| 17 | 9103170 | 2 | O-Ring, EPDM, 11/32” x 7/32”, 1/16” Thick | |
| 18 | 9103197 | 1 | Thermo-electric Assembly, Reservoir Assembly | |
| 19 | 9103538 | 11 | Ferrule, #20 AWG, Orange | |
| 20 | 9103540 | 2 | Ferrule, #24 AWG, Light Blue | |
| 21 | 9103562 | 1 | Check Valve, 1/16” ID, 1.5 PSI | |
| 22 | 9103682 | 1 | Label, Printhead Serial | |
| 23 | 9103986 | 6 | Screw, PHMS, M3 x 25 mm | |
| 24 | 9103987 | 1 | Manifold, Universal, Triple | |
| 25 | 9103988A | 2 | Slide Bar Assembly, 30 pL | Page A-53 |
| 26 | 9103990 | 2 | Bracket, Manifold Support | |
| 27 | 9104061 | 1 | Cap, Block Off | |
| 28 | 9104365 | 1 | Screw, Truss, 10-32 UNF x ¾” SS | |
| 29 | 9104366 | 4 | O-Ring, EPDM, 9/32 x 5/32 x 1/16 | |
| 30 | 9104530 | 4 | Hex Spacer, 4-40 UNC x ¼” | |

*Figure A-47: 9103986A – Adjustable Manifold Assembly, 2”*

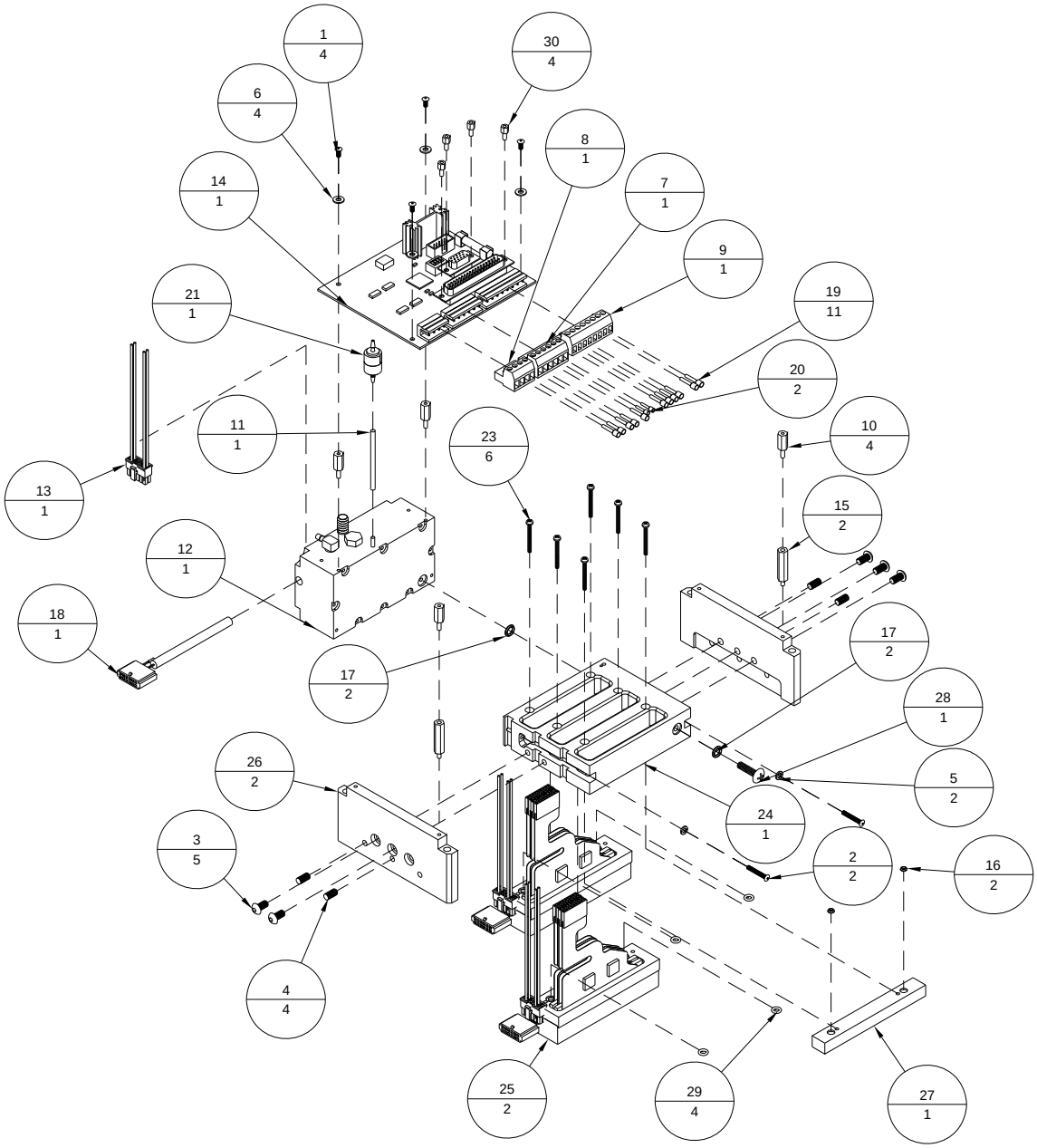
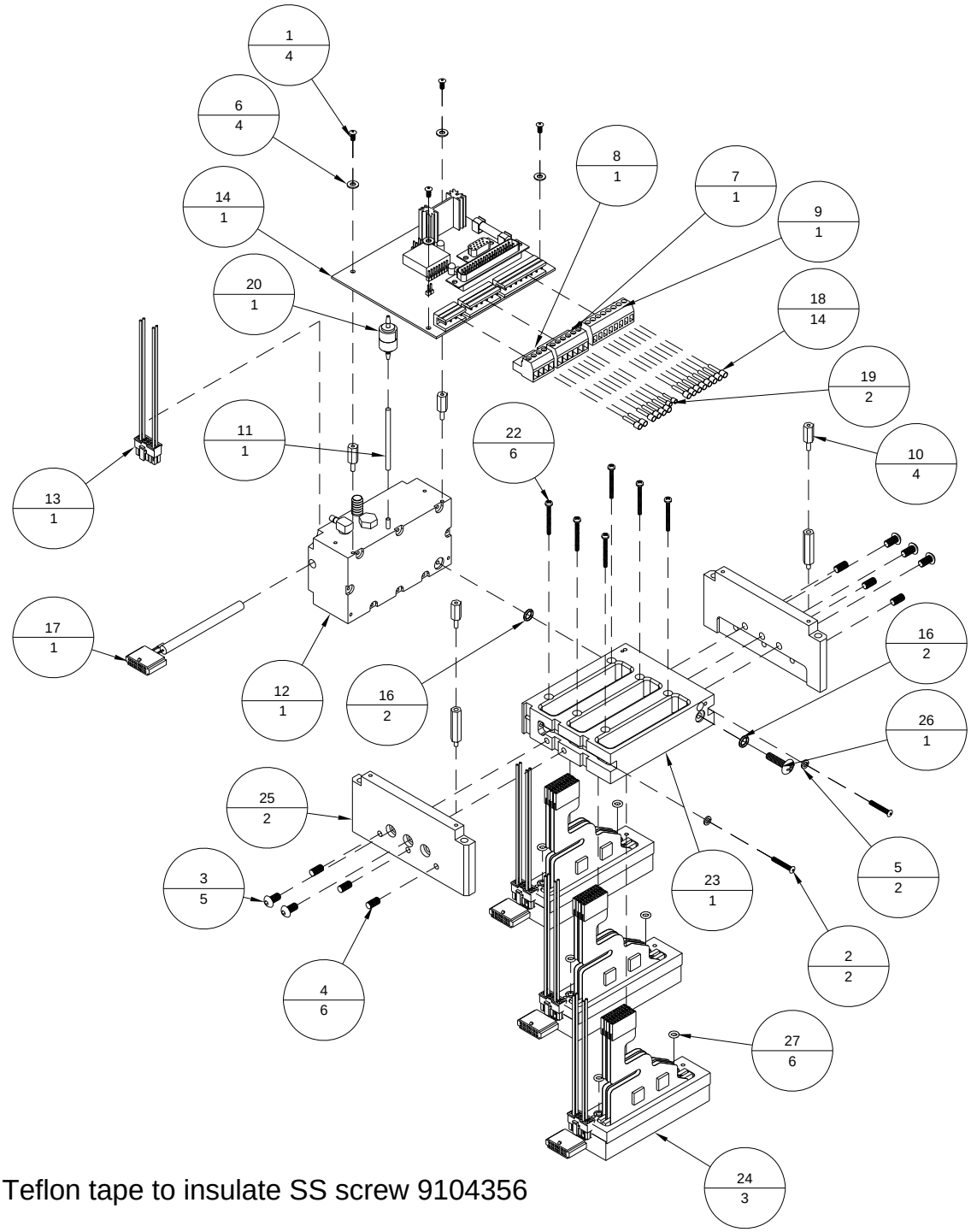


*Table A-48: 9103987A – Manifold Assembly, Adjustable 30 pL*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 401310 | 4 | Screw, PHMS, 4-40 UNC x ¼” | |
| 2 | 401350 | 2 | Screw, PHMS, 4-40 UNC x ¾” | |
| 3 | 404520 | 5 | Screw, BHCS, 10-32 UNF x 3/8” | |
| 4 | 404820 | 6 | Screw, SHSS, 10-32 UNF x 3/8” | |
| 5 | 439004 | 2 | Lockwasher, #4 | |
| 6 | 440530 | 4 | Washer, #6, Nylon | |
| 7 | 615064 | 1 | Connector, Female, 6-Pin | |
| 8 | 615066 | 1 | Connector, Female, 4-Pin | |
| 9 | 615076 | 1 | Connector, Female, 8-Pin | |
| 10 | 9100157 | 4 | Hex Spacer, 4-40 UNC x ½” | |
| 11 | 9101697 | 1 | Tubing, PVC, 1/8” x 1/16”, Blue, 3” Lg. | |
| 12 | 9102311 | 1 | Reservoir, Printhead | |
| 13 | 9102313A | 1 | Cable, Reservoir Harness Adapter | |
| 14 | 9102549 | 1 | THIB, Tri Head Interface Board | |
| 15 | 9102579 | 2 | Hex Spacer, 4-40 UNC, 1” Lg. | |
| 16 | 9103170 | 2 | O-Ring, EPDM, 11/32” x 7/32”, 1/16” Thick | |
| 17 | 9103197 | 1 | Thermo-electric Assembly, Reservoir Assembly | |
| 18 | 9103538 | 14 | Ferrule, #20 AWG, Orange | |
| 19 | 9103540 | 2 | Ferrule, #24 AWG, Light Blue | |
| 20 | 9103562 | 1 | Check Valve, 1/16” ID, 1.5 psi | |
| 21 | 9103682 | 1 | Label, Printhead Serial | |
| 22 | 9103986 | 6 | Screw, PHMS, M3 x 25 mm | |
| 23 | 9103987 | 1 | Manifold, Universal, Triple | |
| 24 | 9103988A | 3 | Slide Bar Assembly, 30 pL | Page A-53 |
| 25 | 9103990 | 2 | Bracket, Manifold Support | |
| 26 | 9104365 | 1 | Screw, Truss, 10-32 UNF x ¾”, S.S. | |
| 27 | 9104366 | 6 | O-Ring, EPDM, 9/32 x 5/32 x 1/16 | |
| 28 | 9104530 | 4 | Hex Spacer, 4-40 UNC x ¼” | |

*Figure A-48: 9103987A – Manifold Assembly, Adjustable 30 pL*




Teflon tape to insulate SS screw 9104356

*Table A-49: 9103988A - Slide Bar Assembly, 30 pL*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 9101936 | 2 | Screw, Slotted Pan Head, M3 x 20mm | |
| 2 | 9102310 | 1 | Jetting Array, 256/30 | |
| 3 | 9102310A | 1 | Cable, Collar Harness Adapter | |
| 4 | 9103195 | 1 | Thermo-electric assembly, Jetting assembly | |
| 5 | 9103988 | 1 | Bar, JA Slide | |
| 6 | 9104366 | 2 | O-Ring, EPDM, 9/32 x 5/32 x 1/16 | |

*Figure A-49: 9103988A - Slide Bar Assembly, 30 pL*

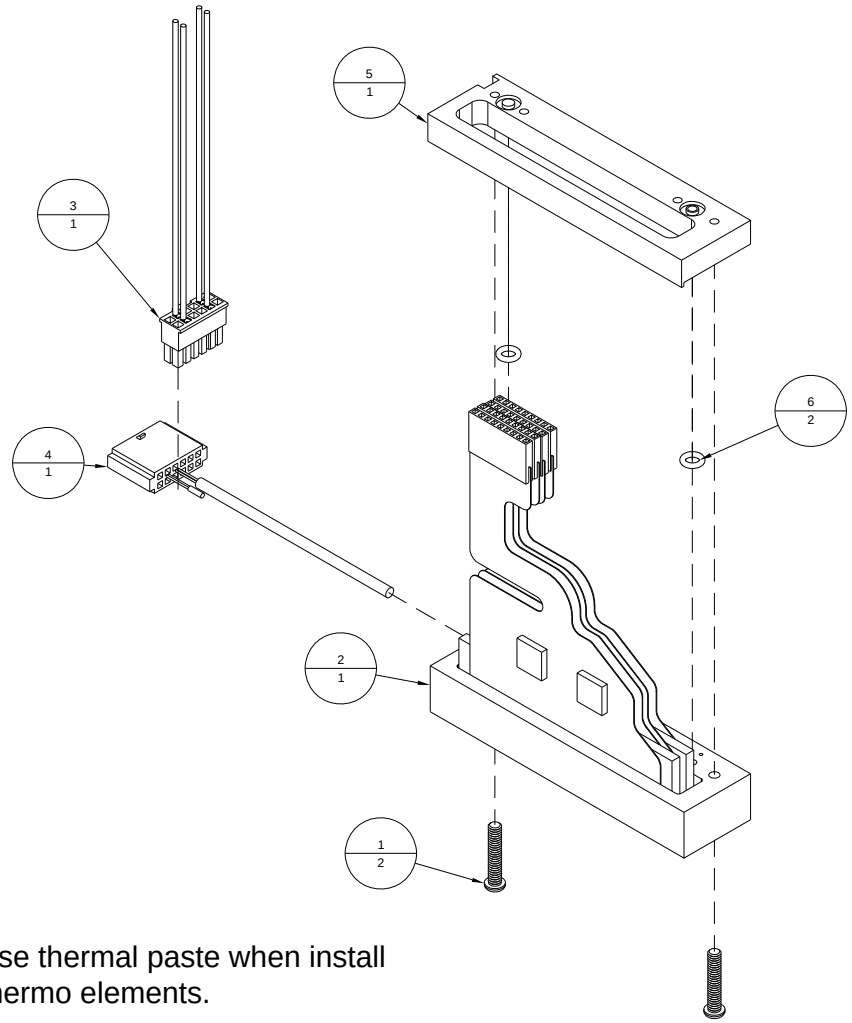


*Table A-50: 9103989A – Bottom Plate Assembly, Atlas 3”*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 401310 | 1 | Screw, PHMS, 4-40 UNC x ¼” | |
| 2 | 402240 | 8 | Screw, SHCS, 6-32 UNC x 5/8” | |
| 3 | 404040 | 4 | Screw, FHCS, 10-32 UNF x 5/8” | |
| 4 | 404285 | 4 | Screw, SHCS, 10-32 UNF x 2” | |
| 5 | 404520 | 1 | Screw, BHCS, 10-32 UNF x 3/8” | |
| 6 | 436325 | 2 | Dowel Pin, 1/8” DIA x 5/8” | |
| 7 | 439004 | 1 | Lockwasher, #4 | |
| 8 | 439009 | 5 | Lockwasher, #10 | |
| 9 | 440003 | 1 | Washer, #4 ID | |
| 10 | 609111 | 2 | Terminal, Ring, #10, 16-14 AWG, Blue | |
| 11 | 9102088 | 2 | Extrusion, Al, Profile 8 | |
| 12 | 9102681 | 1 | Wire, #14, Green/Yellow, 7” Lg. | |
| 13 | 9103987A | 1 | Manifold Assembly, Adjustable, 30 pL | Page A-51 |
| 14 | 9103989 | 1 | Plate, Bottom | |
| 15 | 9103998 | 2 | Bracket, Corner | |
| 16 | 9103998A | 1 | Solenoid Assembly | Page A-56 |
| 17 | 9103999 | 2 | Bracket, Straight | |

*Figure A-50: 9103989A – Bottom Plate Assembly, Atlas 3”*

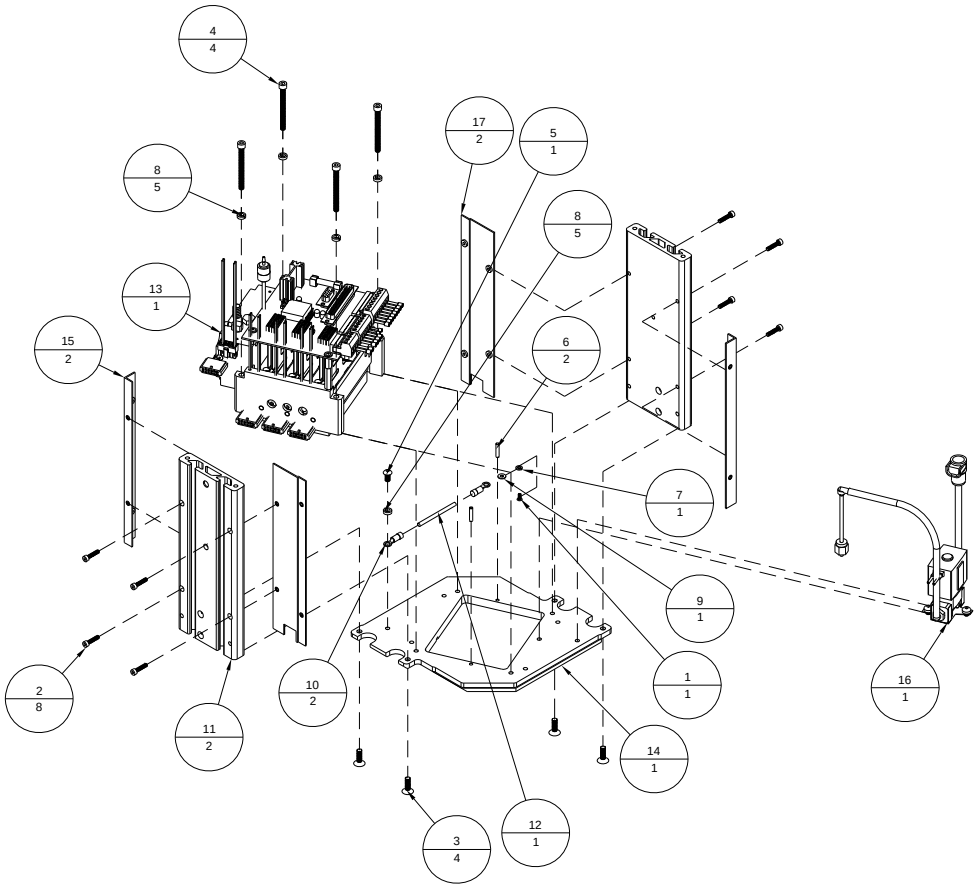


*Table A-51: 9103991A - Top Plate Assembly*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 405540 | 2 | Screw, BHCS, 1/4-20 UNC x 5/8" | |
| 2 | 615425 | 1 | Hole Plug, 7/8" | |
| 3 | 9100216A | 1 | Cable, Priming Button | |
| 4 | 9100472 | 1 | Tubing, Silicone, 1/4" OD x 1/8" ID, 7" | |
| 5 | 9100472 | 1 | Tubing, Silicone, 1/4" OD x 1/8" ID, 3" | |
| 6 | 9100965 | 1 | Filter, Air, 0.2 um | |
| 7 | 9101170 | 1 | Fitting, Straight Reducer, 1/8 To 1/16 ID | |
| 8 | 9102846 | 1 | Handle, Pull, 1/4-20 | |
| 9 | 9102911A | 1 | Umbilical Assembly, 2250 / 3250, 15 ft. | Page A-39 |
| 10 | 9103991 | 1 | Plate, Top, 2250 / 3250 | |

*Figure A-51: 9103991A - Top Plate Assembly*

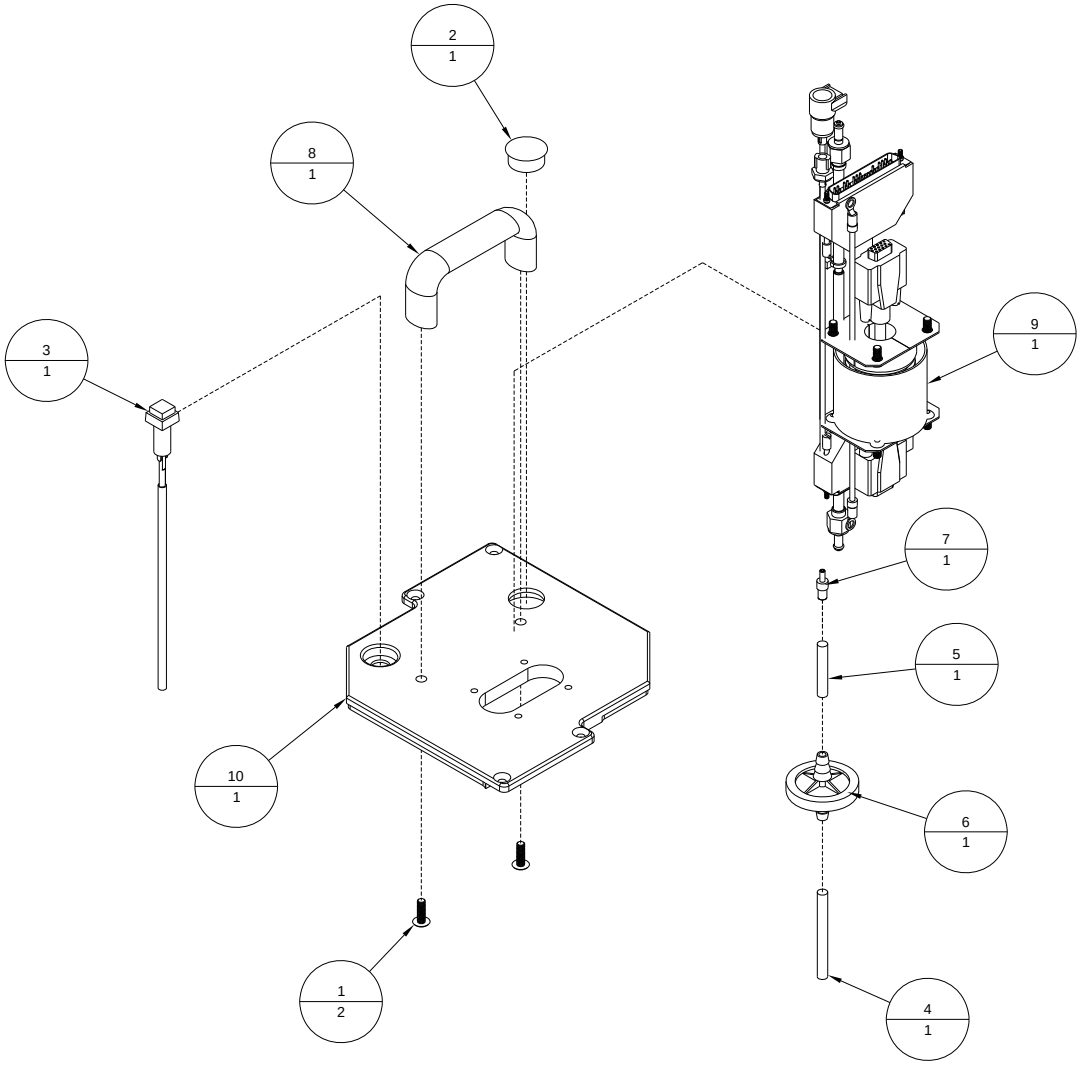


*Table A-52: 9103998A - Solenoid Assembly*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 404510 | 2 | Screw, BHCS, 10-32 UNF x 1/4" | |
| 2 | 439009 | 2 | Lockwasher, No. 10 | |
| 3 | 9101694 | 1 | Coupling Body,1/8" I.D.Tubing,In-line,Hose Barb | |
| 4 | 9102085A | 1 | Solenoid Valve Assembly | Page A-29 |
| 5 | 9102111 | 5.5” | Tubing, Polyethylene, ¼" x 1/8", UV Resistant | |
| 6 | 9103435 | 2 | Ferrule, #16 AWG, Red | |
| 7 | 9103922A | 1 | Ferrule Assembly, BK791 | Page A-48 |

*Figure A-52: 9103998A - Solenoid Assembly*

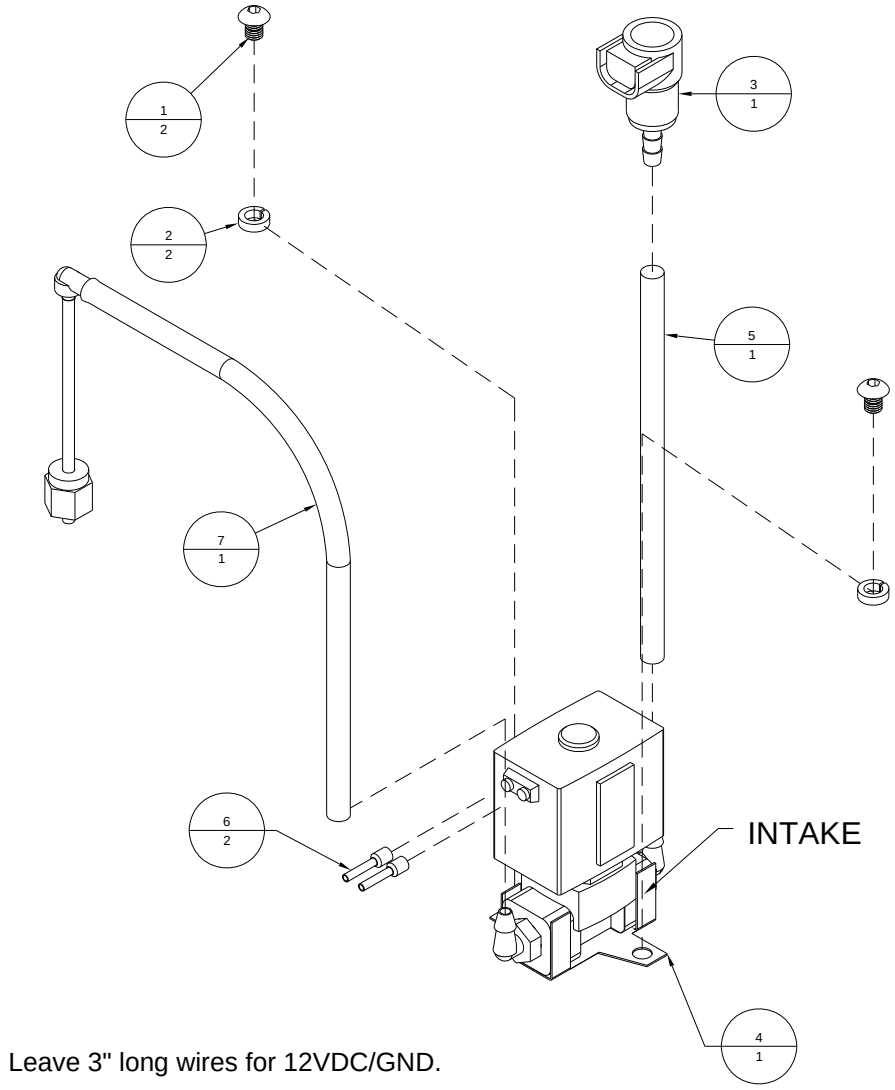


*Table A-53: 9103999A – Bottom Plate Assembly, Atlas 2”*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 401310 | 1 | Screw, PHMS, 4-40 UNC x ¼” | |
| 2 | 402240 | 8 | Screw, SHCS, 6-32 UNC x 5/8” | |
| 3 | 404040 | 4 | Screw, FHCS, 10-32 UNF x 5/8” | |
| 4 | 404285 | 4 | Screw, SHCS, 10-32 UNF x 2” | |
| 5 | 404520 | 1 | Screw, BHCS, 10-32 UNF x 3/8” | |
| 6 | 436325 | 2 | Dowel Pin, 1/8” DIA x 5/8” | |
| 7 | 439004 | 1 | Lockwasher, #4 | |
| 8 | 439009 | 5 | Lockwasher, #10 | |
| 9 | 440003 | 1 | Washer, #4 ID | |
| 10 | 609111 | 2 | Terminal, Ring, #10, 16-14 AWG, Blue | |
| 11 | 9102088 | 2 | Extrusion, Al, Profile 8 | |
| 12 | 9102681 | 1 | Wire, #14, Green/Yellow, 7” Lg. | |
| 13 | 9103986A | 1 | Adjustable Manifold Assembly, 2” | Page A-49 |
| 14 | 9103989 | 1 | Plate, Bottom | |
| 15 | 9103998 | 2 | Bracket, Corner | |
| 16 | 9103998A | 1 | Solenoid Assembly | Page A-56 |
| 17 | 9103999 | 2 | Bracket, Straight | |

*Figure A-53: 9103999A – Bottom Plate Assembly, Atlas 2”*

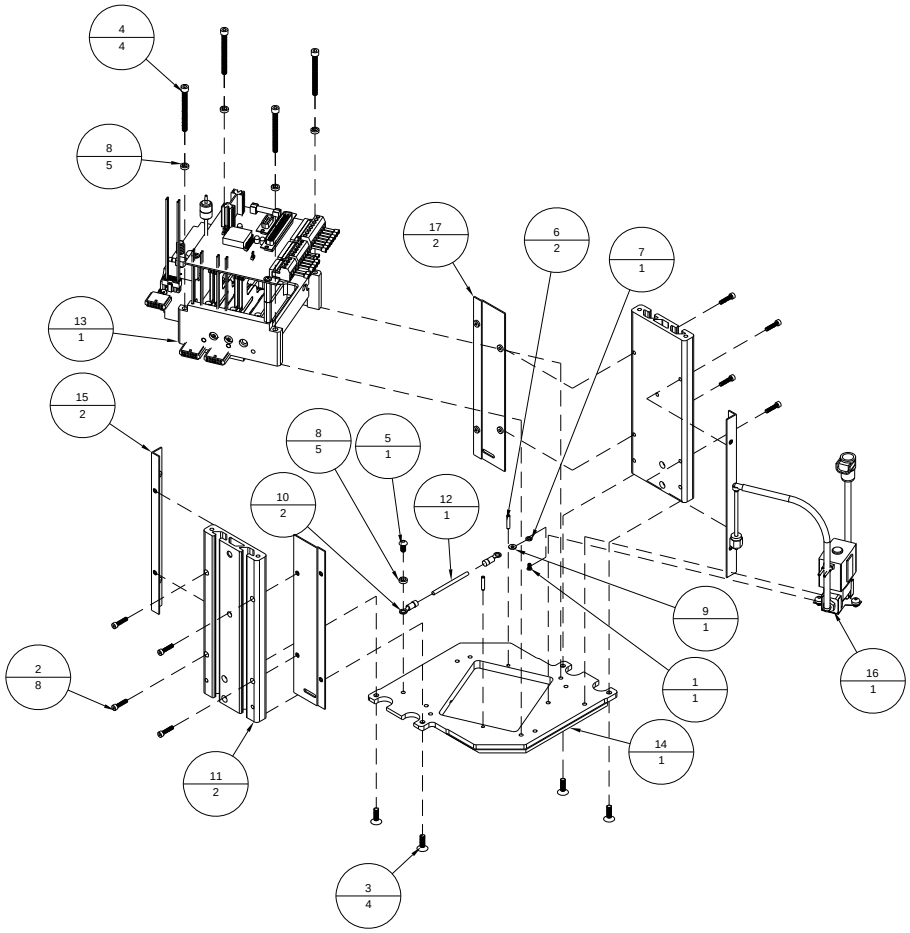


*Table A-54: 9104008A - Printhead Support Assembly, Angle*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 402250 | 4 | Screw, SHCS, 6-32 UNC X ¾" | |
| 2 | 403050 | 2 | Screw, FHCS, 8-32 UNC x ¾" | |
| 3 | 404070 | 2 | Screw, FHCS, 10-32 UNF x 1" | |
| 4 | 404230 | 4 | Screw, SHCS, 10-32 UNF x 1/2" | |
| 5 | 404240 | 2 | Screw, SHCS, 10-32 UNF x 5/8" | |
| 6 | 404510 | 2 | Screw, BHCS, 10-32 UNF x 1/4" | |
| 7 | 405830 | 1 | Screw, SHSS, 1/4-20 UNC x 1/2" | |
| 8 | 436313 | 1 | Dowel Pin, 1/4"DIA X 1" | |
| 9 | 437050 | 8 | Retaining Ring, 1/2" I.D., External | |
| 10 | 439009 | 2 | Lockwasher, #10 | |
| 11 | 505463 | 1 | Flange Bushing, 1/4 ID X 3/8 OD X 3/8 LG | |
| 12 | 505464 | 1 | Flange Bushing, 1/4 ID x 3/8 OD x 1/2 LG | |
| 13 | 9101996 | 1 | Gas Spring | |
| 14 | 9102094 | 2 | Profile Bar | |
| 15 | 9102126 | 1 | Locknut, M4 x 0.7, Nylon Insert | |
| 16 | 9102341 | 4 | Bushing, Linear Ball Bearing | |
| 17 | 9102411 | 2 | Rod, 0.25" OD x 5.19" Lg. | |
| 18 | 9102594 | 1 | Mount, Printhead, Solid | |
| 19 | 9102792 | 1 | Plunger, 3/8-16 UNC, Lever Type, Non-Locking | |
| 20 | 9103993 | 1 | Dowel pin, 1/4" DIA., 0.625" long. | |
| 21 | 9103994 | 2 | Screw, SHSS, 1/4-20 X 3/8, cone point | |
| 22 | 9104008 | 1 | Shuttle Block, Angular Adjustment | |
| 23 | 9104010 | 1 | Bracket, Angular, Top | |
| 24 | 9104011 | 1 | Bracket, Angular, Bottom | |
| 25 | 9104012 | 1 | Bracket, Swivel | |

*Figure A-54: 9104008A - Printhead Support Assembly, Angle*

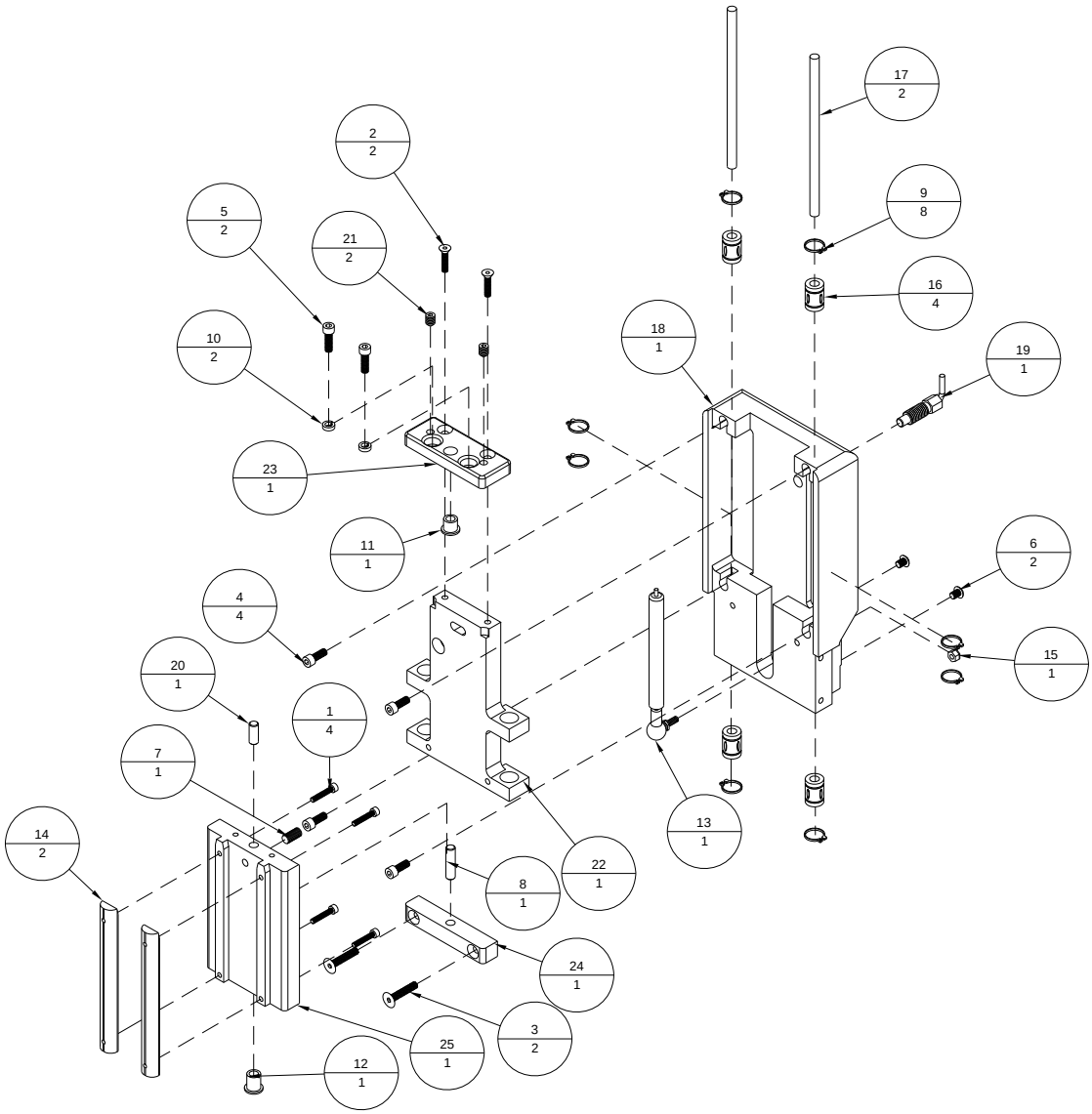


*Table A-55: 9105157A - Slide Bar Assembly, 30 pl, Cezanne*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 9101936 | 2 | Screw, Slotted Pan Head, M3 x 20mm | |
| 2 | 9102310A | 1 | Cable, Collar Harness Adapter | |
| 3 | 9103195 | 1 | Thermo-electric assembly, Jetting assembly | |
| 4 | 9103988 | 1 | Bar, JA Slide | |
| 5 | 9104366 | 2 | O-Ring, EPDM, 9/32 x 5/32 x 1/16 | |
| 6 | 9105157 | 1 | Jetting Array, JA256/30 LQ Top Port | |

*Figure A-55: 9105157A - Slide Bar Assembly, 30 pl, Cezanne*

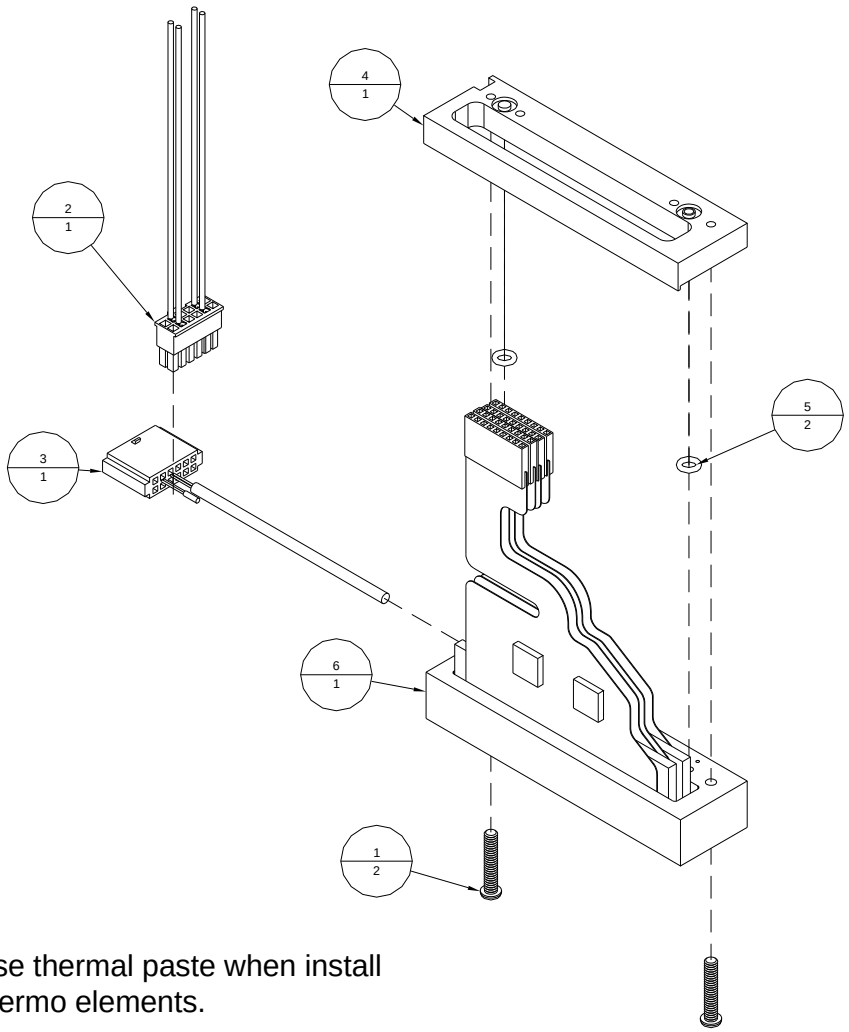
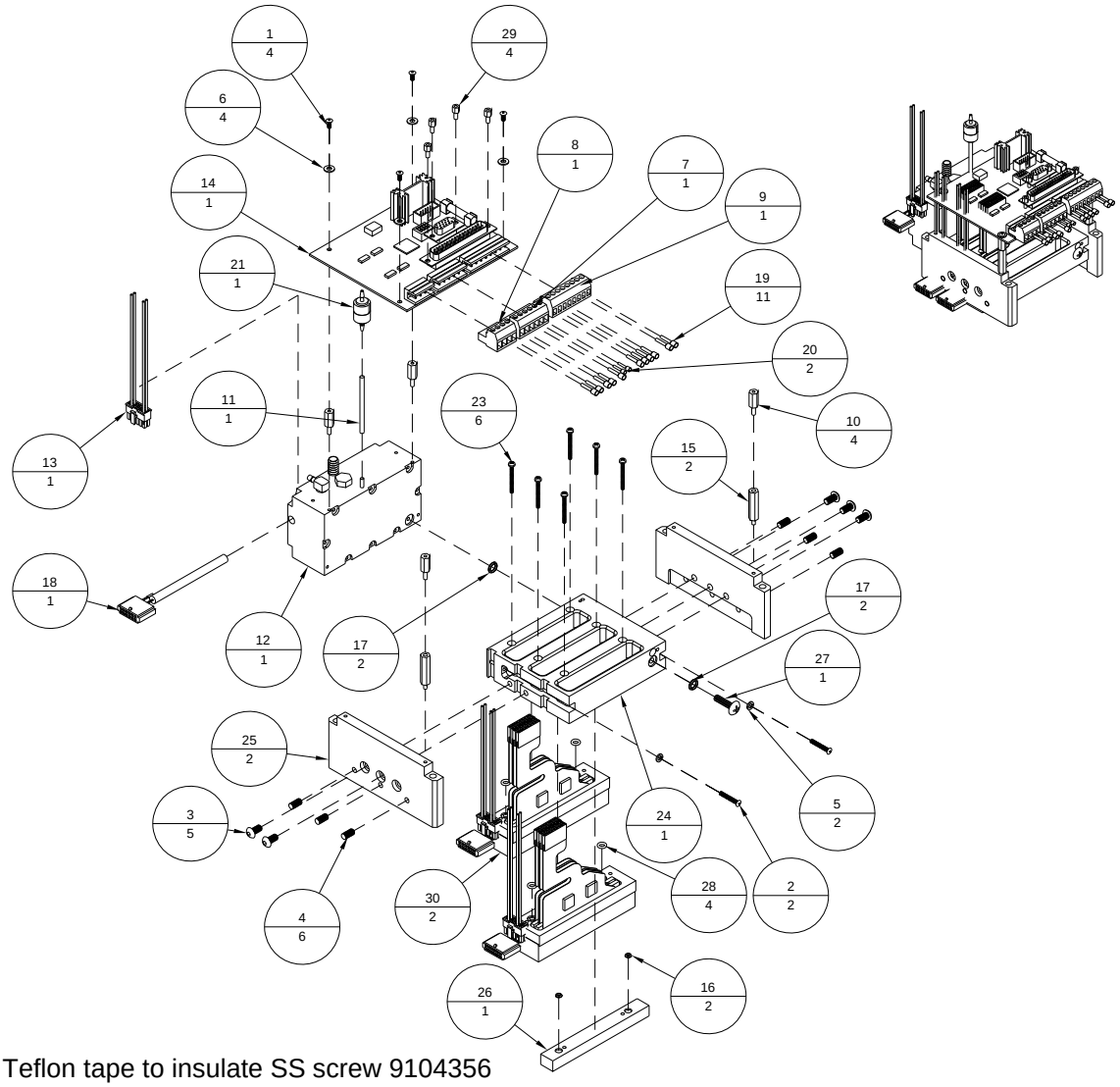


*Table A-56: 9105158A - Manifold Assembly, Adjustable, 30 pL, Cezanne 2250*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 401310 | 4 | Screw, PHMS, 4-40 UNC x 1/4" | |
| 2 | 401350 | 2 | Screw, PHMS, 4-40 UNC x 3/4" | |
| 3 | 404520 | 5 | Screw, BHCS, 10-32 UNF x 3/8" | |
| 4 | 404820 | 6 | Screw, SHSS, 10-32 UNF x 3/8" | |
| 5 | 439004 | 2 | Lockwasher, No.4 | |
| 6 | 440530 | 4 | Washer, #6, Nylon | |
| 7 | 615064 | 1 | Connector, Female, 6-Pin, BLA6 | |
| 8 | 615066 | 1 | Connector, Female, 4-Pin, BLA4 | |
| 9 | 615076 | 1 | Connector, Female, 8-Pin, BLA8 | |
| 10 | 9100157 | 4 | Hex Spacer, 4-40 UNC x 1/2" | |
| 11 | 9101697 | 1 | Tubing, PVC, 1/8" x 1/16", Blue, 3" | |
| 12 | 9102311 | 1 | Reservoir, Printhead | |
| 13 | 9102313A | 1 | Cable, Reservoir harness adapter | |
| 14 | 9102549 | 1 | THIB, Tri Head Interface Board | |
| 15 | 9102579 | 2 | Hex Spacer, 4-40 UNC, 1" long | |
| 16 | 9103168 | 2 | O-ring, EPDM, 3/16" x 1/16", 1/16 thick | |
| 17 | 9103170 | 2 | O-Ring, EPDM, 11/32" x 7/32", 1/16 thick | |
| 18 | 9103197 | 1 | Thermo-electric assembly, Reservoir assembly | |
| 19 | 9103538 | 11 | Ferrule, #20 AWG, Orange | |
| 20 | 9103540 | 2 | Ferrule, #24 AWG, Light blue | |
| 21 | 9103562 | 1 | Check Valve, 1/16" I.D., 1.5 PSI | |
| 22 | 9103682 | 1 | Label, Printhead Serial (Not Shown) | |
| 23 | 9103986 | 6 | Screw, PHMS, M3 x 25mm | |
| 24 | 9103987 | 1 | Manifold, Universal, Triple | |
| 25 | 9103990 | 2 | Bracket, Manifold Support, Triple | |
| 26 | 9104061 | 1 | Cap, Triple slant block-off | |
| 27 | 9104365 | 1 | Screw, Truss, 10-32 UNF x 3/4", S.S. | |
| 28 | 9104366 | 4 | O-Ring, EPDM, 9/32 x 5/32 x 1/16 | |
| 29 | 9104530 | 4 | Hex Spacer, 4-40 UNC x 1/4" | |
| 30 | 9105157A | 2 | Slide Bar Assembly, 30 pL, Cezanne | Page A-60 |

*Figure A-56: 9105158A - Manifold Assembly, Adjustable, 30 pL, Cezanne 2250*




Teflon tape to insulate SS screw 9104356

*Table A-57: 9105159A - Bottom Plate Assembly, Cezanne 2250*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 401310 | 1 | Screw, PHMS, 4-40 UNC x 1/4" | |
| 2 | 402240 | 8 | Screw, SHCS, 6-32 UNC X 5/8" | |
| 3 | 404040 | 4 | Screw, FHCS, 10-32 UNF x 5/8" | |
| 4 | 404285 | 4 | Screw, SHCS, 10-32 UNF x 2" | |
| 5 | 404520 | 1 | Screw, BHCS, 10-32 UNF x 3/8" | |
| 6 | 436325 | 2 | Dowel Pin, 1/8"DIA x 5/8" | |
| 7 | 439004 | 1 | Lockwasher, No.4 | |
| 8 | 439009 | 5 | Lockwasher, No. 10 | |
| 9 | 440003 | 1 | Washer, #4 ID | |
| 10 | 609111 | 2 | Terminal, Ring, #10, 16-14 AWG, Blue | |
| 11 | 9102088 | 2 | Extrusion, Al, Profile 8 | |
| 12 | 9102681 | 1 | Wire, #14, Green/Yellow, 7” Lg. | |
| 13 | 9103989 | 1 | Plate, Bottom, Triple Slant | |
| 14 | 9103998 | 2 | Bracket, Corner | |
| 15 | 9103998A | 1 | Solenoid assembly | Page A-56 |
| 16 | 9103999 | 2 | Bracket, Straight | |
| 17 | 9105158A | 1 | Manifold Ass'y, Adjustable, 30 pl, Cezanne 2250 | Page A-61 |

*Figure A-57: 9105159A - Bottom Plate Assembly, Cezanne 2250*

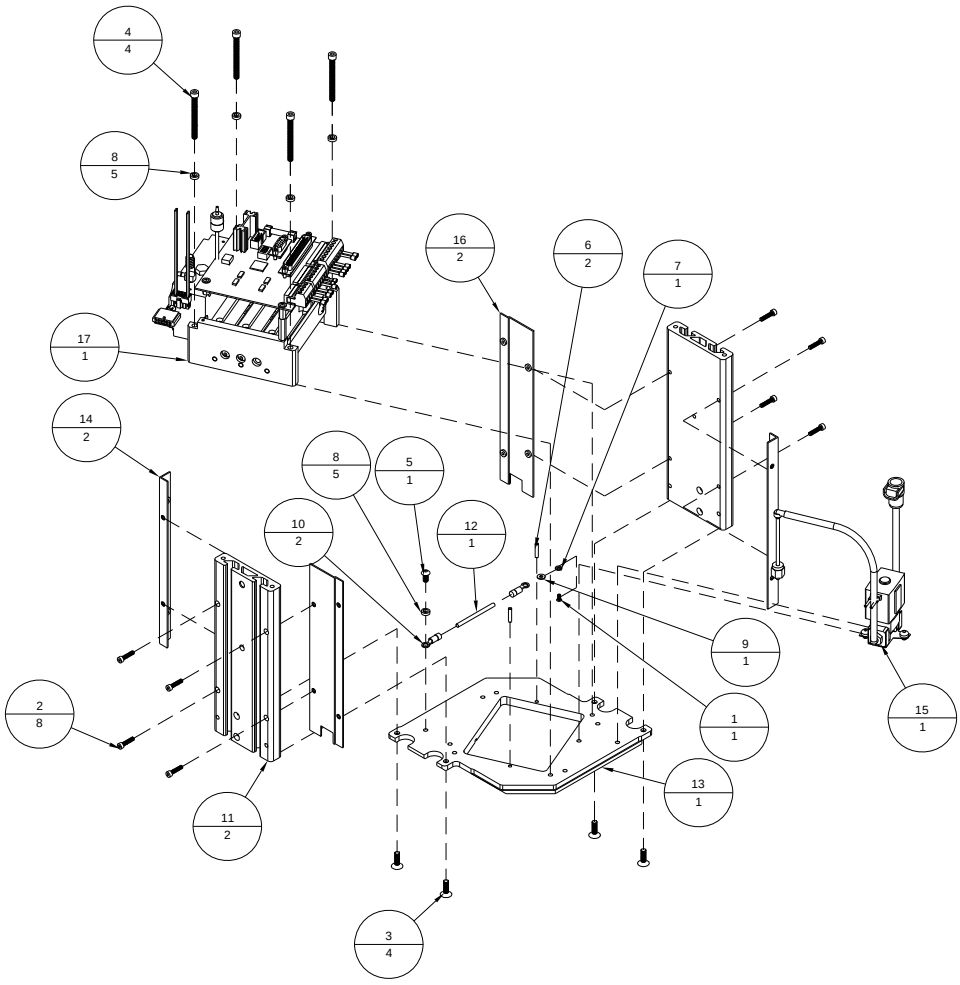
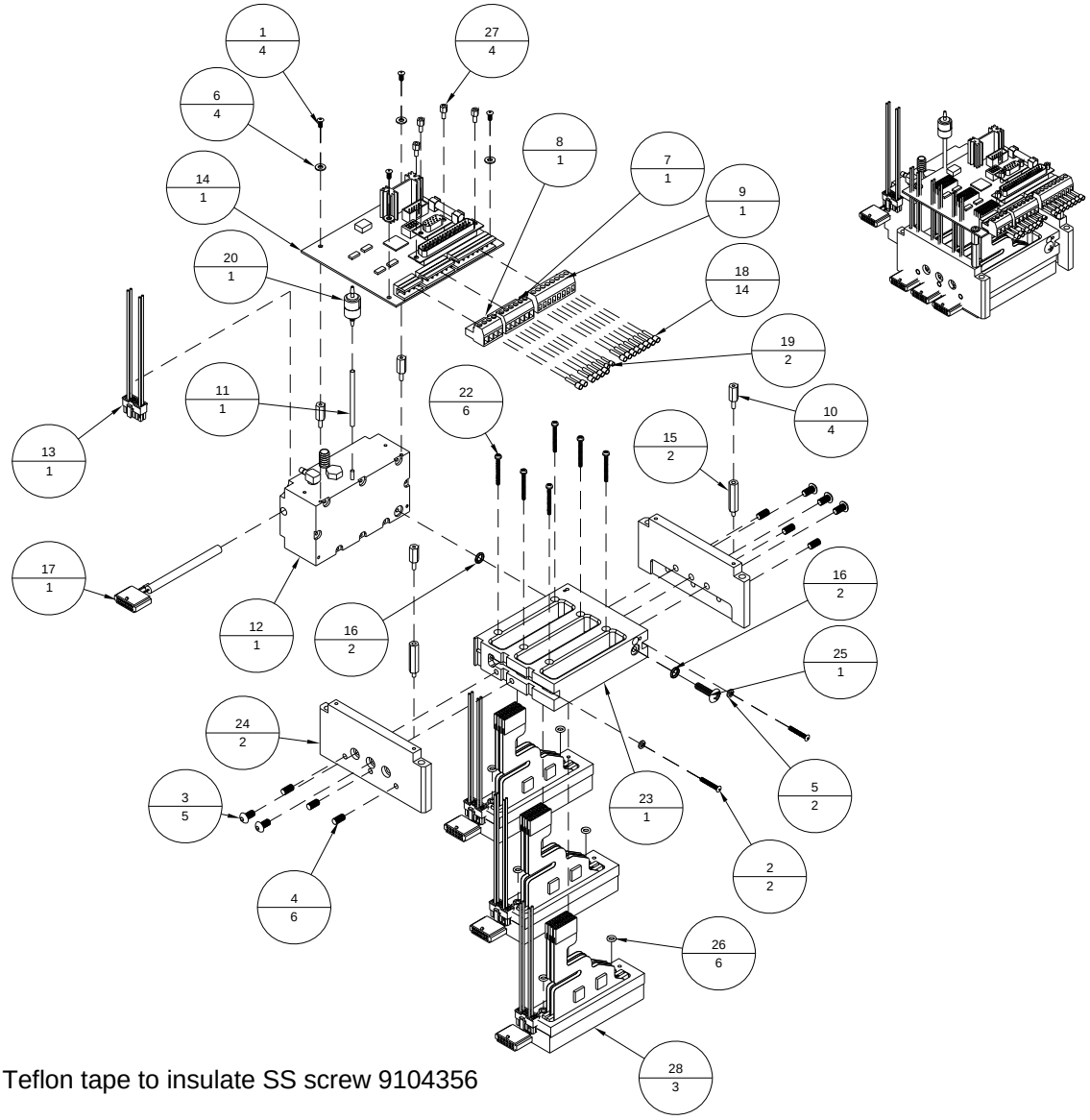


*Table A-58: 9105160A - Manifold Assembly, Adjustable, 30 pL, Cezanne*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 401310 | 4 | Screw, PHMS, 4-40 UNC x 1/4" | |
| 2 | 401350 | 2 | Screw, PHMS, 4-40 UNC x 3/4" | |
| 3 | 404520 | 5 | Screw, BHCS, 10-32 UNF x 3/8" | |
| 4 | 404820 | 6 | Screw, SHSS, 10-32 UNF x 3/8" | |
| 5 | 439004 | 2 | Lockwasher, No.4 | |
| 6 | 440530 | 4 | Washer, #6, Nylon | |
| 7 | 615064 | 1 | Connector, Female, 6-Pin, BLA6 | |
| 8 | 615066 | 1 | Connector, Female, 4-Pin, BLA4 | |
| 9 | 615076 | 1 | Connector, Female, 8-Pin, BLA8 | |
| 10 | 9100157 | 4 | Hex Spacer, 4-40 UNC x 1/2" | |
| 11 | 9101697 | 1 | Tubing, PVC, 1/8" x 1/16", Blue, 3" | |
| 12 | 9102311 | 1 | Reservoir, Printhead | |
| 13 | 9102313A | 1 | Cable, Reservoir harness adapter | |
| 14 | 9102549 | 1 | THIB, Tri Head Interface Board | |
| 15 | 9102579 | 2 | Hex Spacer, 4-40 UNC, 1" long | |
| 16 | 9103170 | 2 | O-Ring, EPDM, 11/32" x 7/32", 1/16 thick | |
| 17 | 9103197 | 1 | Thermo-electric assembly, Reservoir assembly | |
| 18 | 9103538 | 14 | Ferrule, #20 AWG, Orange | |
| 19 | 9103540 | 2 | Ferrule, #24 AWG, Light blue | |
| 20 | 9103562 | 1 | Check Valve, 1/16" I.D., 1.5 PSI | |
| 21 | 9103682 | 1 | Label, Printhead Serial (Not Shown) | |
| 22 | 9103986 | 6 | Screw, PHMS, M3 x 25mm | |
| 23 | 9103987 | 1 | Manifold, Universal, Triple | |
| 24 | 9103990 | 2 | Bracket, Manifold Support, Triple | |
| 25 | 9104365 | 1 | Screw, Truss, 10-32 UNF x 3/4", S.S. | |
| 26 | 9104366 | 6 | O-Ring, EPDM, 9/32 x 5/32 x 1/16 | |
| 27 | 9104530 | 4 | Hex Spacer, 4-40 UNC x 1/4" | |
| 28 | 9105157A | 3 | Slide Bar Assembly, 30 pL, Cezanne | Page A-60 |

*Figure A-58: 9105160A - Manifold Assembly, Adjustable, 30 pL, Cezanne*

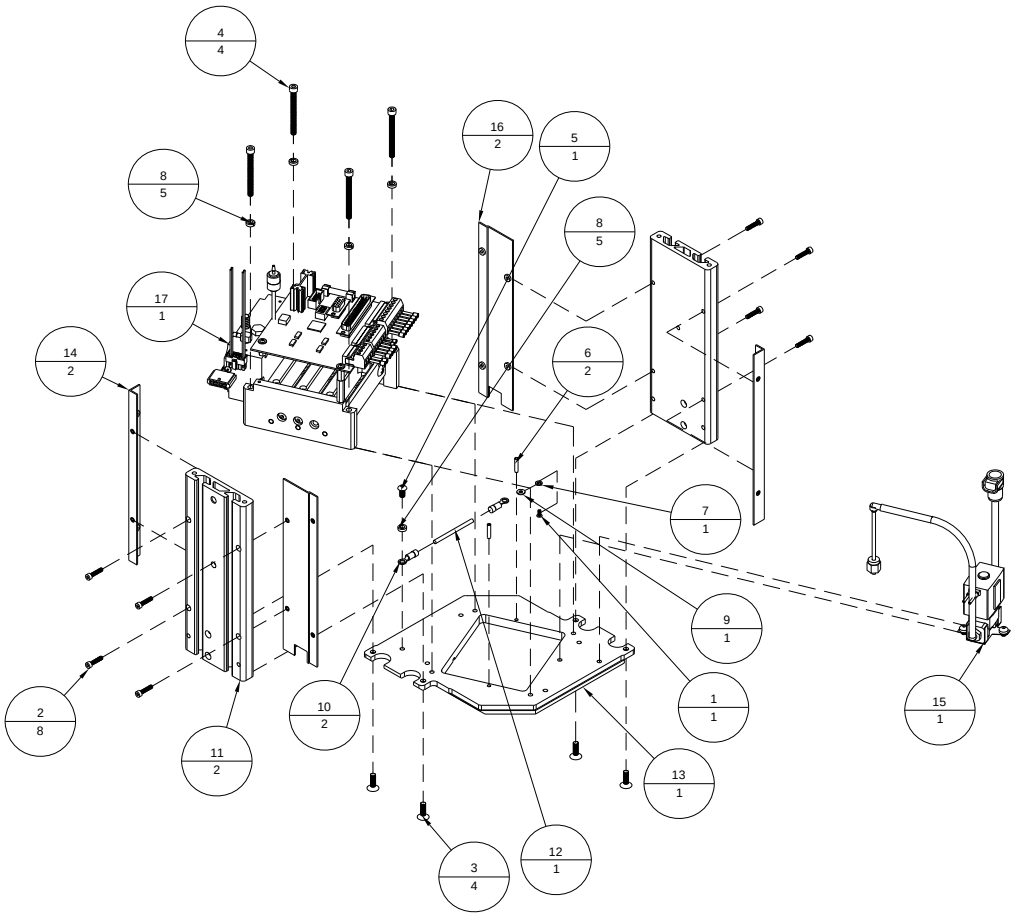



Teflon tape to insulate SS screw 9104356

*Table A-59: 9105161A - Bottom Plate Assembly, Cezanne 3250*

| Item | Part Number | Quantity | Description | Reference |
|---|---|---|---|---|
| 1 | 401310 | 1 | Screw, PHMS, 4-40 UNC x 1/4" | |
| 2 | 402240 | 8 | Screw, SHCS, 6-32 UNC X 5/8" | |
| 3 | 404040 | 4 | Screw, FHCS, 10-32 UNF x 5/8" | |
| 4 | 404285 | 4 | Screw, SHCS, 10-32 UNF x 2" | |
| 5 | 404520 | 1 | Screw, BHCS, 10-32 UNF x 3/8" | |
| 6 | 436325 | 2 | Dowel Pin, 1/8"DIA x 5/8" | |
| 7 | 439004 | 1 | Lockwasher, No.4 | |
| 8 | 439009 | 5 | Lockwasher, No. 10 | |
| 9 | 440003 | 1 | Washer, #4 ID | |
| 10 | 609111 | 2 | Terminal, Ring, #10, 16-14 AWG, Blue | |
| 11 | 9102088 | 2 | Extrusion, Al, Profile 8 | |
| 12 | 9102681 | 1 | Wire, #14, Green/Yellow, 7” Lg. | |
| 13 | 9103989 | 1 | Plate, Bottom, Triple Slant | |
| 14 | 9103998 | 2 | Bracket, Corner | |
| 15 | 9103998A | 1 | Solenoid assembly | Page A-56 |
| 16 | 9103999 | 2 | Bracket, Straight | |
| 17 | 9105160A | 1 | Manifold Assembly, Adjustable, 30 pl, Cezanne | Page A-64 |

*Figure A-59: 9105161A - Bottom Plate Assembly, Cezanne 3250*



# Electrical Drawings

Appendix **B**

## List of Schematics

*Figure B-1: Printhead, 1250, Wiring Diagram (BK791AE)*

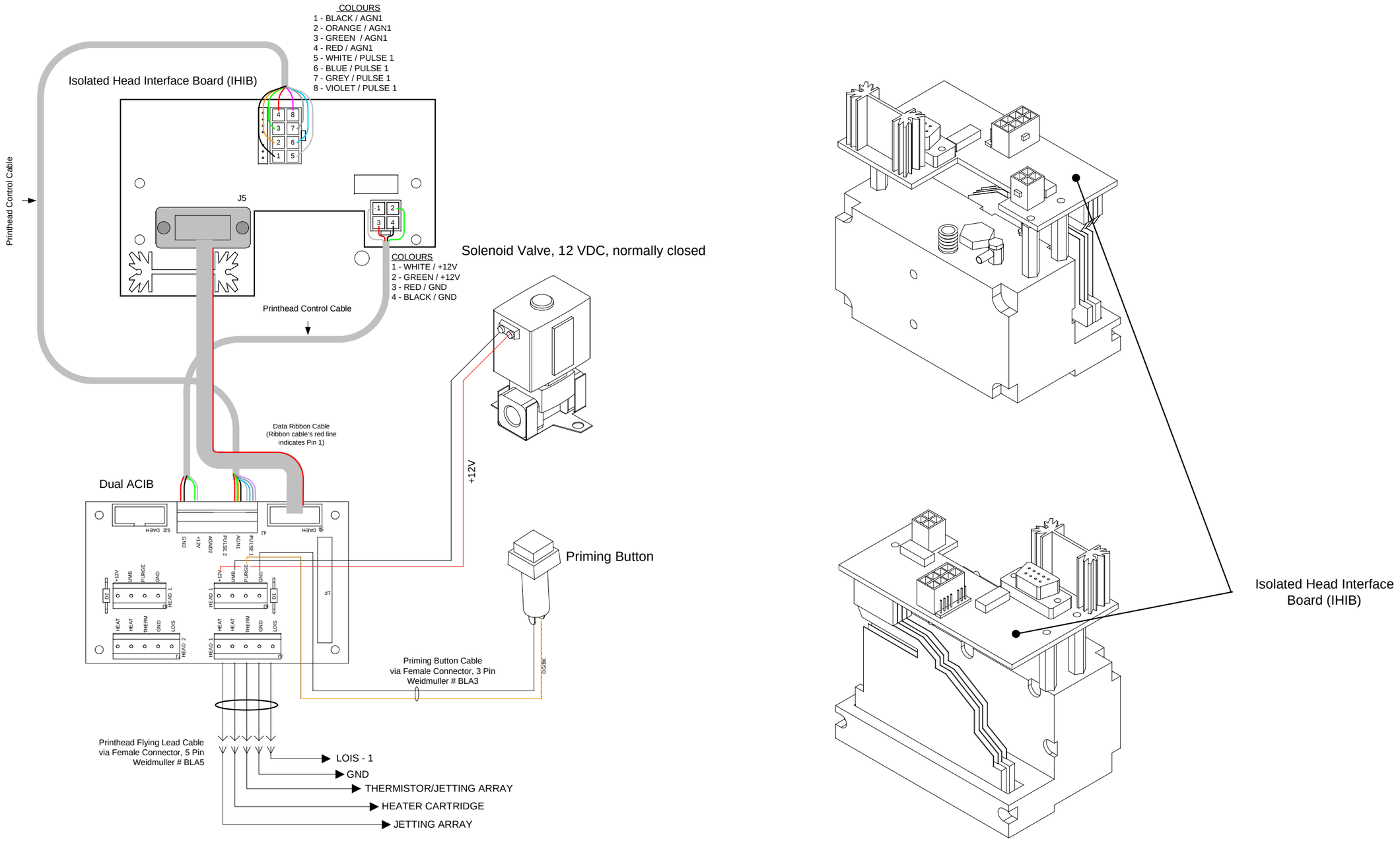
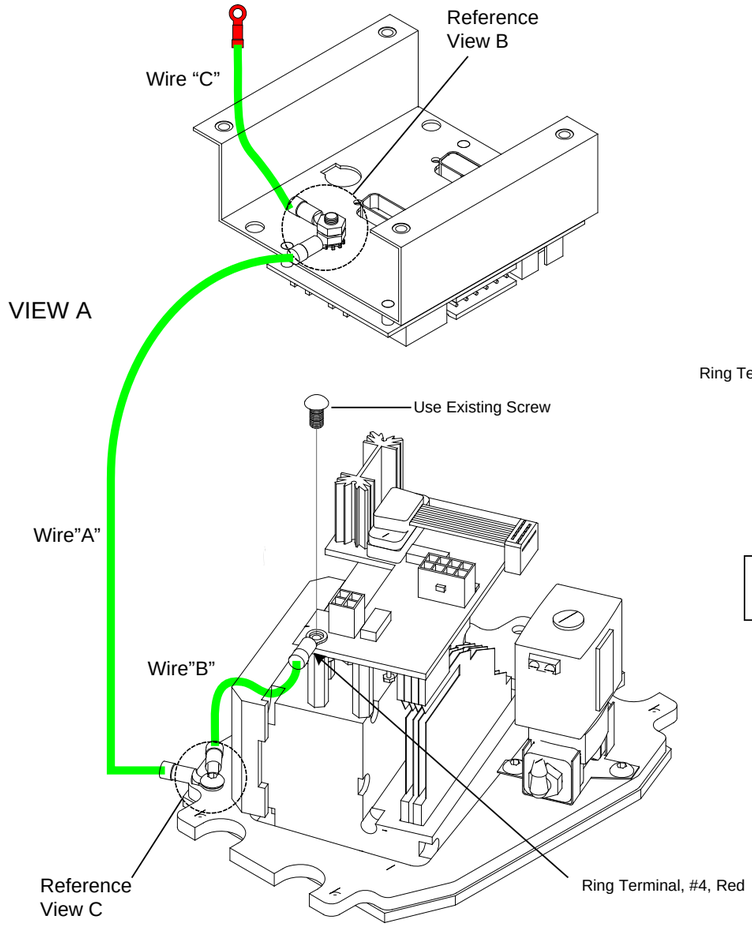
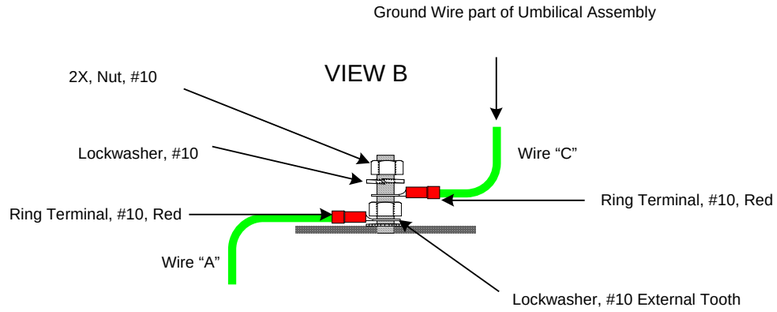
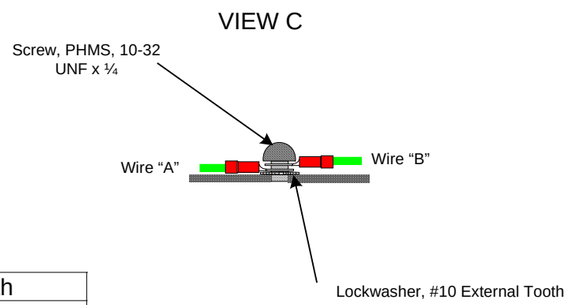


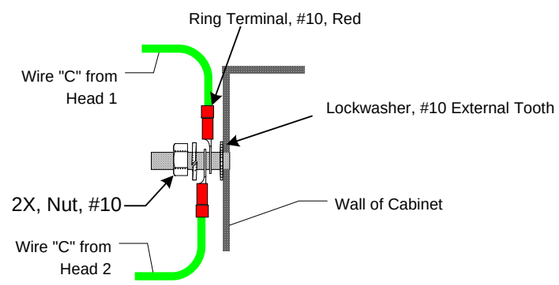
*Figure B-2: Printhead, 1250, Grounding Diagram (BK791AE)*




Wire C part of Umbilical Assembly




Connect all umbilical ground wires to ground stud.

| Wire | Color | AWG | Length |
|---|---|---|---|
| A | Green/Yellow | 18 | 12" |
| B | Green/Yellow | 18 | 5" |
| C | Green/Yellow | 18 | 180" |

*Figure B-3: Printhead, 2250 / 3250 (BK793C)*