

BUSKRO

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Atlas/Aurora Systems



Atlas/Aurora Systems User's Guide

Published by:

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First Edition, 2009

Printed in Canada

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Manual History

Version	Date	Description	ECO No.
1.0	19-Oct-09	Manual Released.	N/A
1.1	10-Nov-09	Updated BK792-U-15-RM80 and BK793-U-15-RM80 in Appendix A to add check valve.	1200
1.2	18-May-10	Updated BK792-A-15-RM80 and BK792-C-15-RM80 in Appendix A	1238
2.0	02-Nov-10	Added 2500 and 5100 series Printheads	

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Appendix A – Assembly Drawings

Appendix B – Electrical Drawings

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)

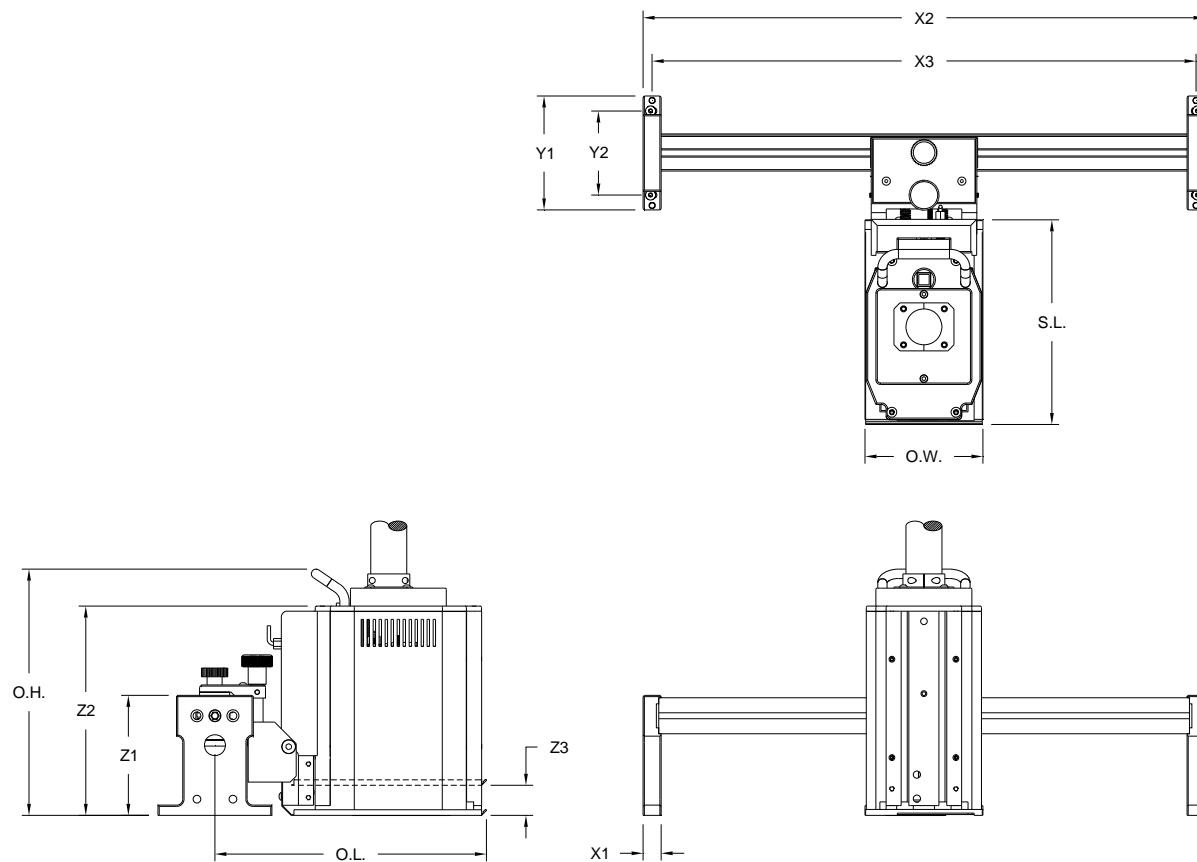


Table 1-1: 1250 Printhead Dimensions on Standard BK79B-22 Bridge

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)

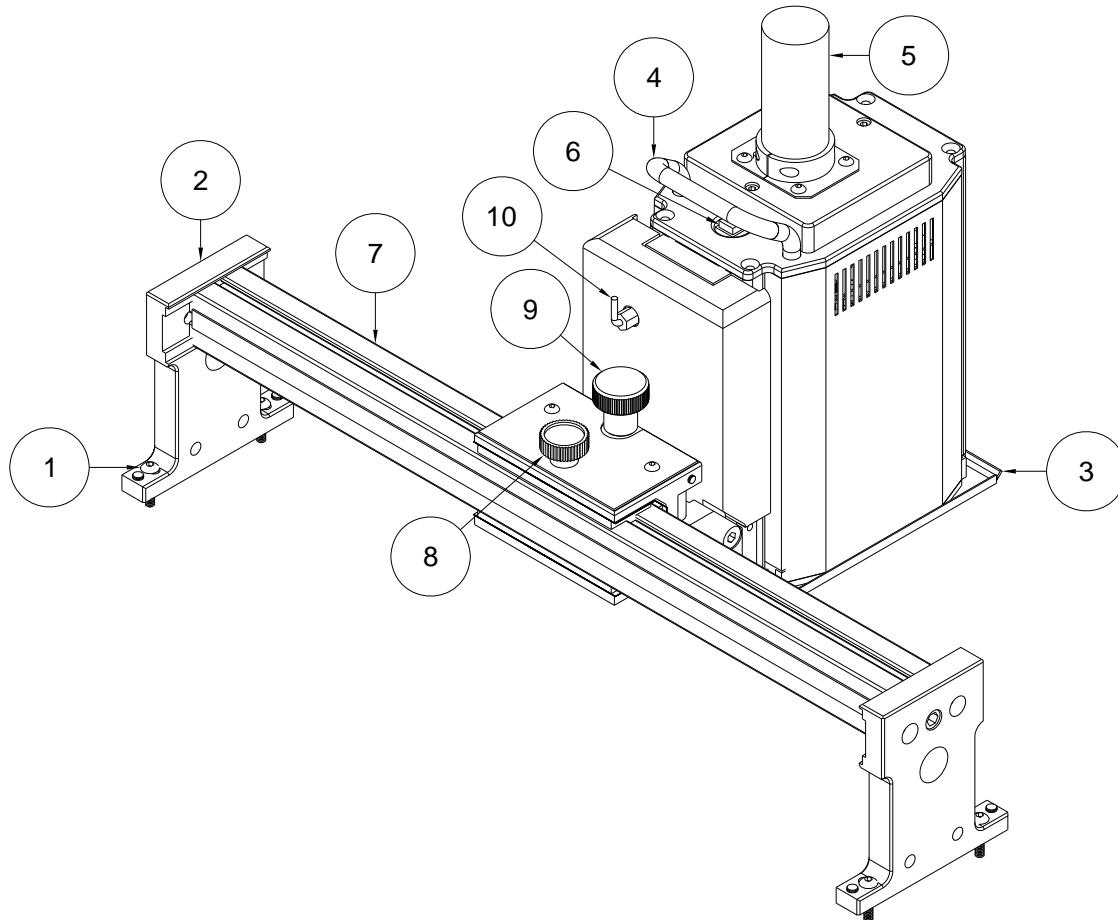


Table 1-2: BK79 Series Printhead Components (1250)

Item	Description
1	Mounting screw (four 1/4-20 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)

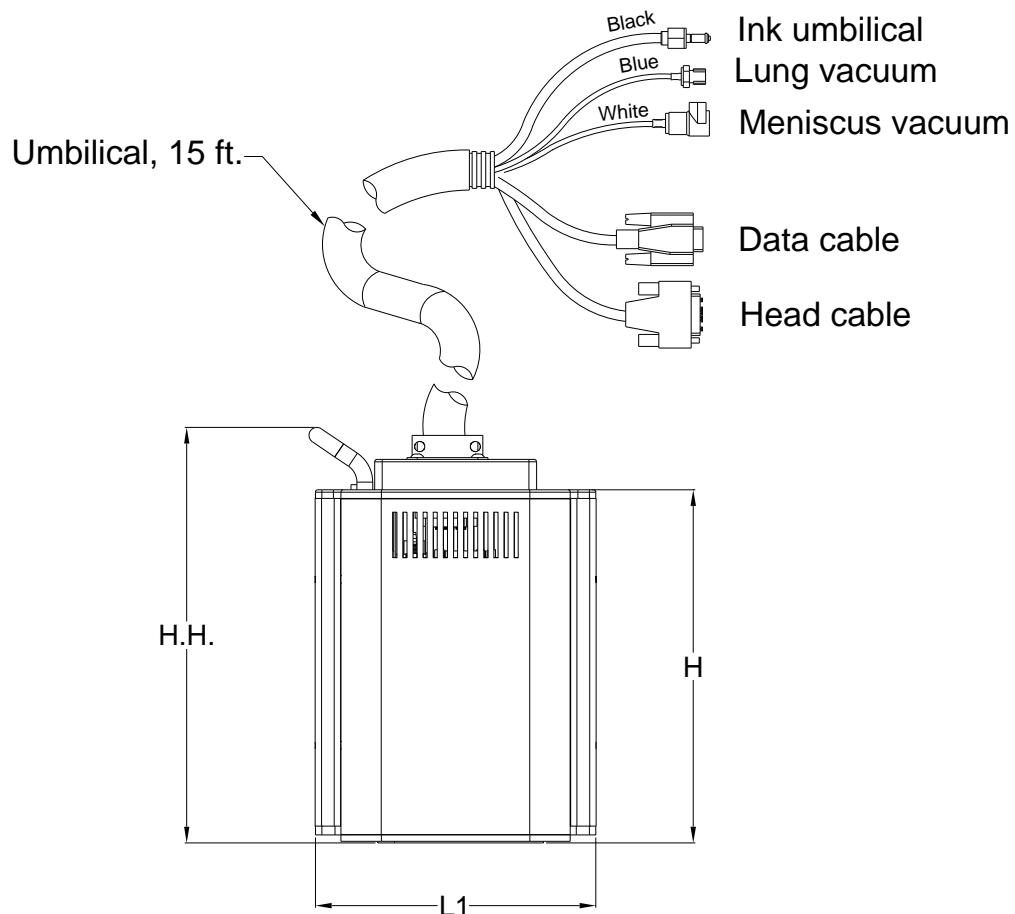


Table 1-3: Printhead Specifications (1250)

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)

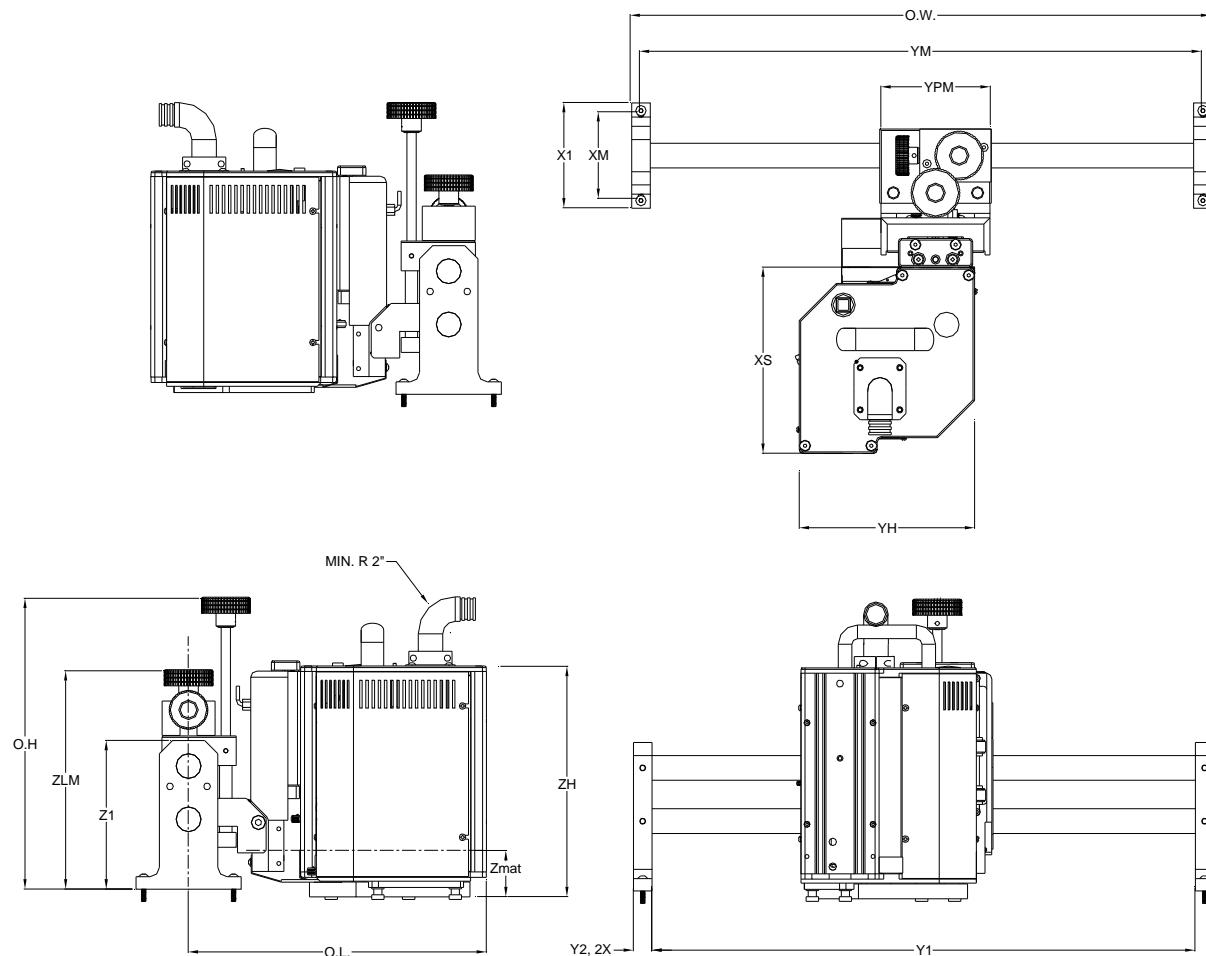


Table 1-4: 2250/3250 Printhead Dimensions on BK80B-22" Bridge

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)

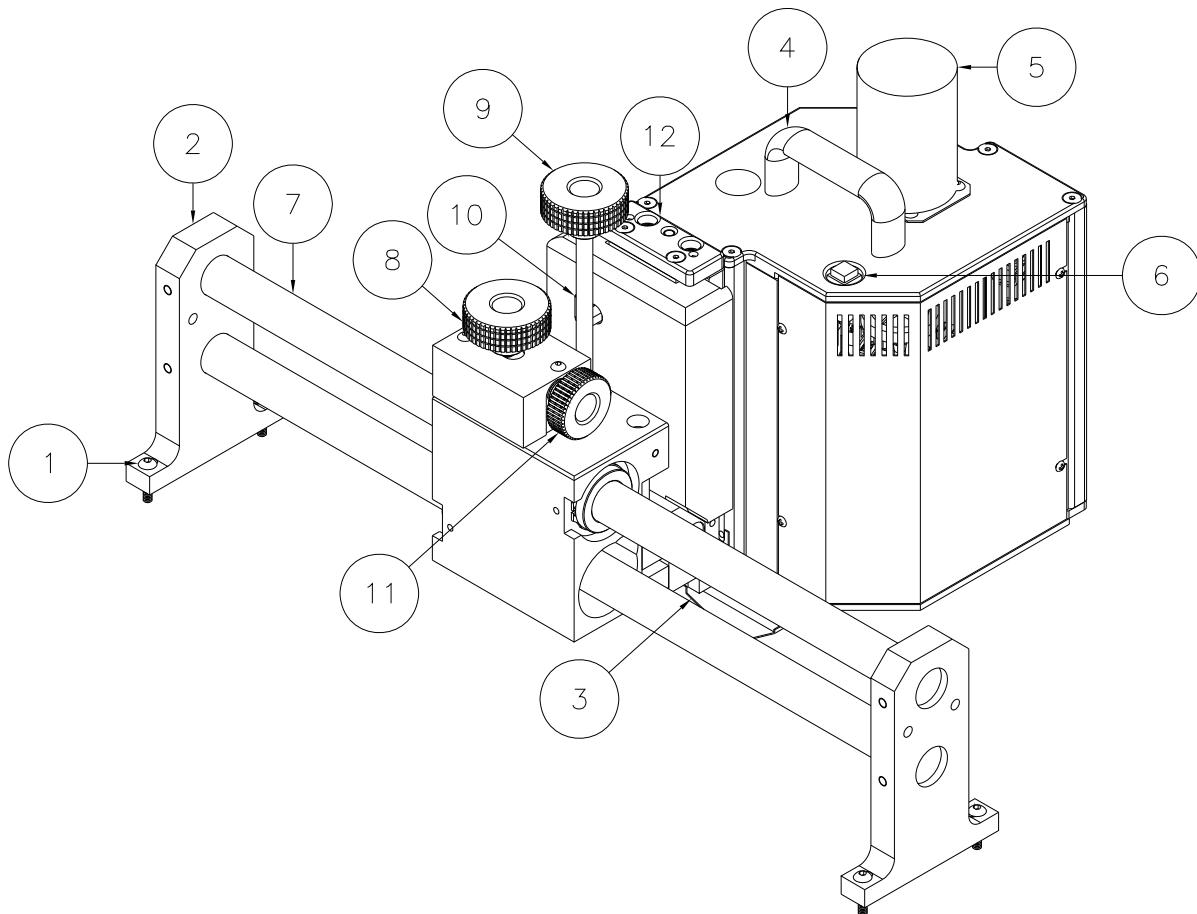


Table 1-5: 2250/3250 Printhead Components

Item	Description
1	Mounting screw (four 1/4-20 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

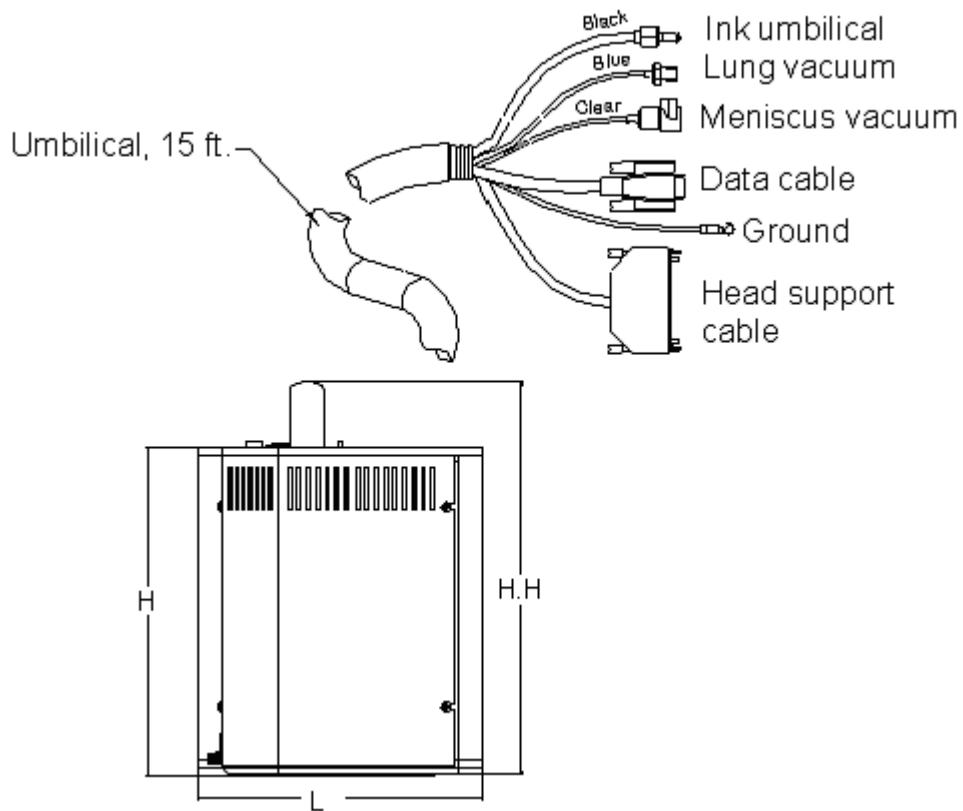


Table 1-6: 2250/3250 Printhead Specifications

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.

1.2.7 Printhead Dimensions (2500 Series)

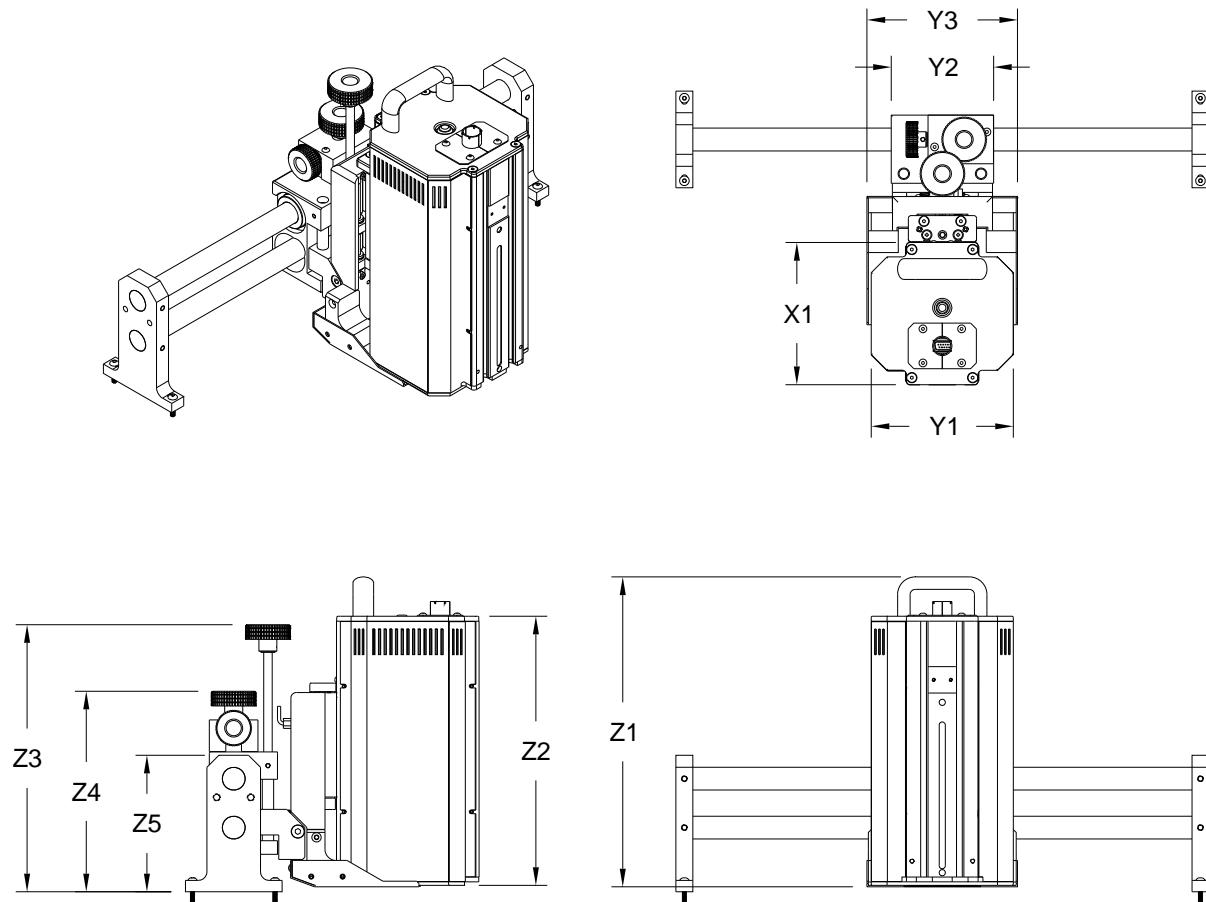


Table 1-7: 2500 Series Printhead Dimensions on BK80B-22" Bridge

Symbol	Description	Dimensions	
X1	Printhead Length	6.25"	159 mm
Y1	Printhead Width	6.25"	159 mm
Y2	Printhead Mount Width	4.50"	114 mm
Y3	Printhead Shield Width	6.63"	169 mm
Z1	Overall Height	13.63"	346 mm
Z2	Printhead Height	11.84"	301 mm
Z3	Height Adjustment Knob Height	11.74"	298 mm
Z4	Locking Mechanism Height	8.82"	224 mm
Z5	Bridge Rail Mount Height	6.00"	152 mm

General		
Vertical Resolution	2520 (200 DPI), 2530 (300 DPI), 2540 (400 DPI)	
Horizontal Resolution	110, 220, 330, 440, 660 DPI or 100, 200, 300, 400, 600 DPI	
Vertical Print Swath	2.5"	64 mm

1.2.8 Printhead Dimensions (5100 Series)

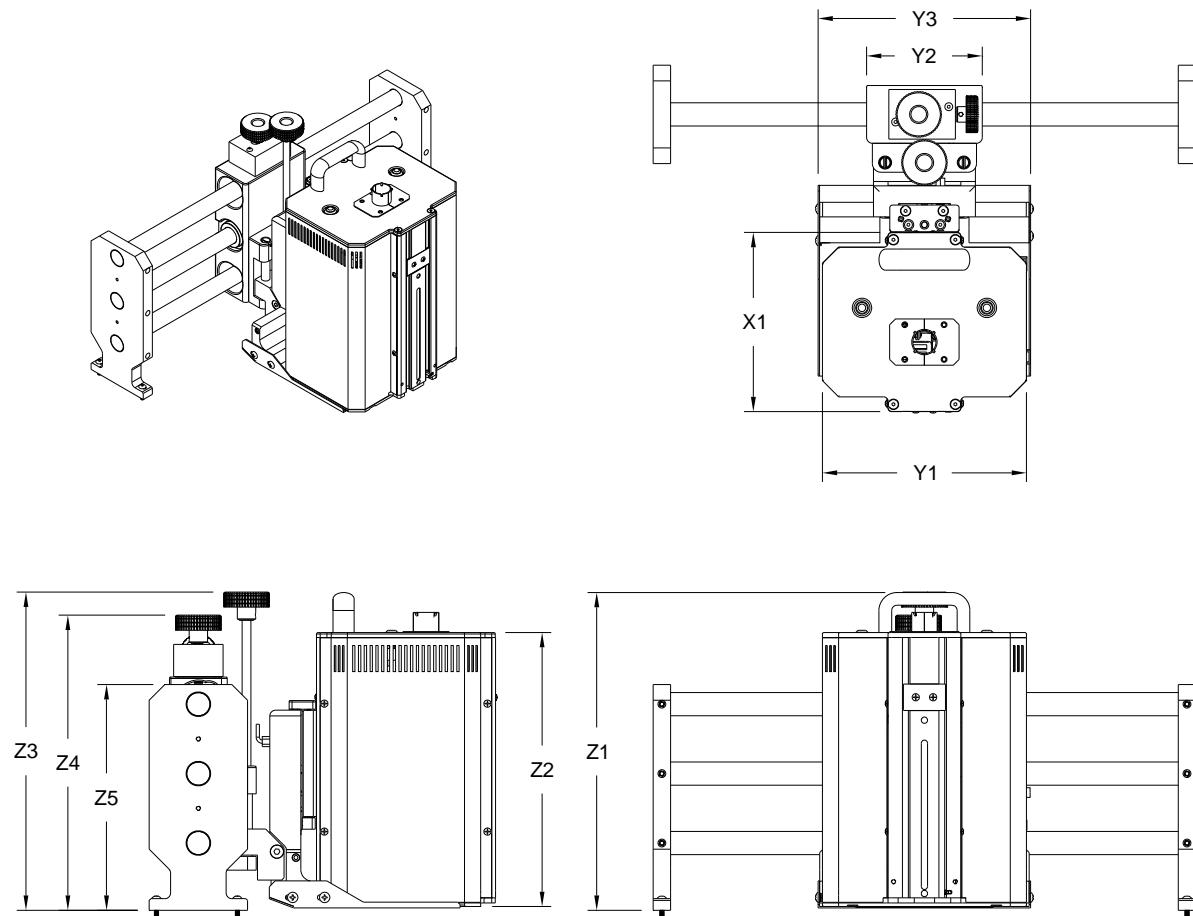


Table 1-8: 5100 Series Printhead Dimensions on BK83B-22" Bridge

Symbol	Description	Dimensions	
X1	Printhead Length	7.74"	197 mm
Y1	Printhead Width	8.82"	224 mm
Y2	Printhead Mount Width	5.00"	127 mm
Y3	Printhead Shield Width	9.19"	233 mm
Z1	Overall Height	13.73"	349 mm
Z2	Printhead Height	11.84"	301 mm
Z3	Height Adjustment Knob Height	13.75"	349 mm
Z4	Locking Mechanism Height	12.75"	324 mm
Z5	Bridge Rail Mount Height	9.75"	248 mm

General		
Vertical Resolution	5120 (200 DPI), 5130 (300 DPI), 5140 (400 DPI)	
Horizontal Resolution	110, 220, 330, 440, 660 DPI or 100, 200, 300, 400, 600 DPI	
Vertical Print Swath	5.0"	127 mm

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
Max. # Atlas or Aurora 2520 Printheads (200 DPI)	1	2	4	8
Max. # Atlas or Aurora 2530 Printheads (300 DPI)	1	2	4	8
Max. # Atlas or Aurora 2540 Printheads (400 DPI)	1	2	4	8
Max. # Atlas or Aurora 5120 Printheads (200 DPI)	0	1	2	4
Max. # Atlas or Aurora 5130 Printheads (300 DPI)	0	1	2	4
Max. # Atlas or Aurora 5140 Printheads (400 DPI)	0	1	2	4

Figure 2-1: Buskro Controllers



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)

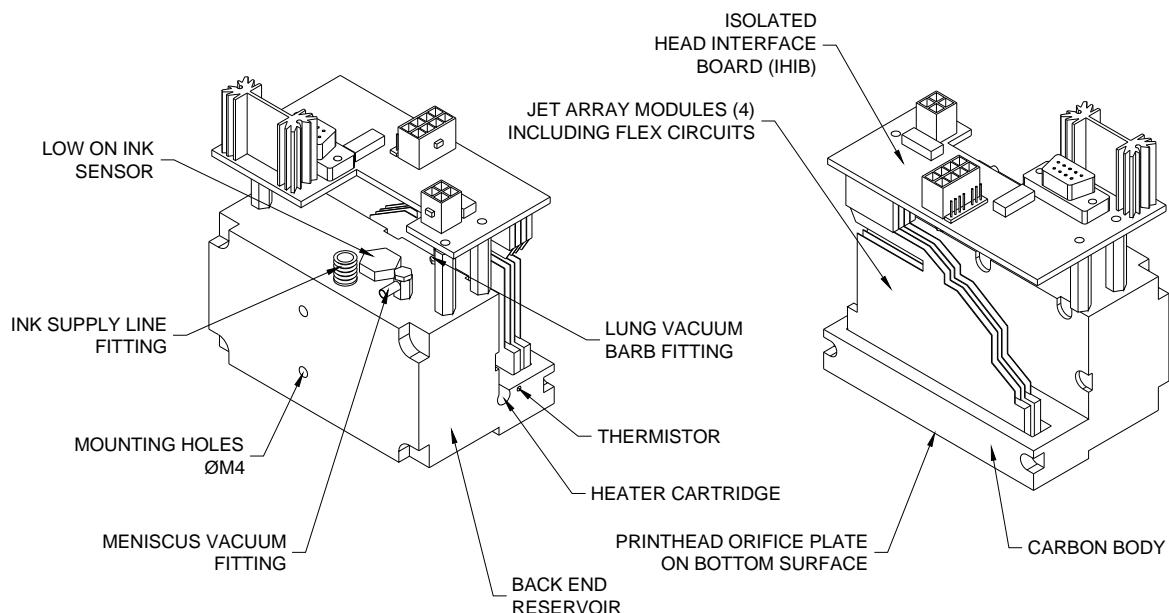
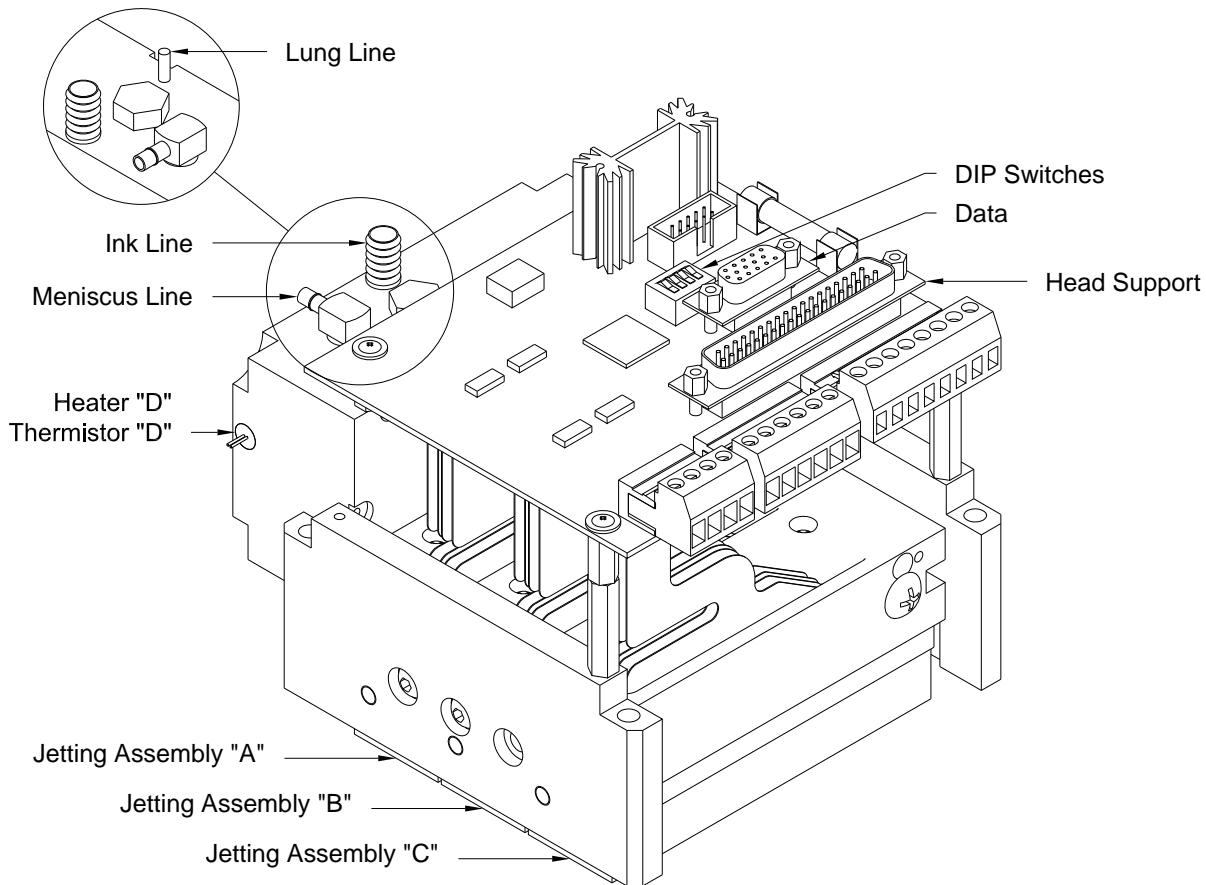
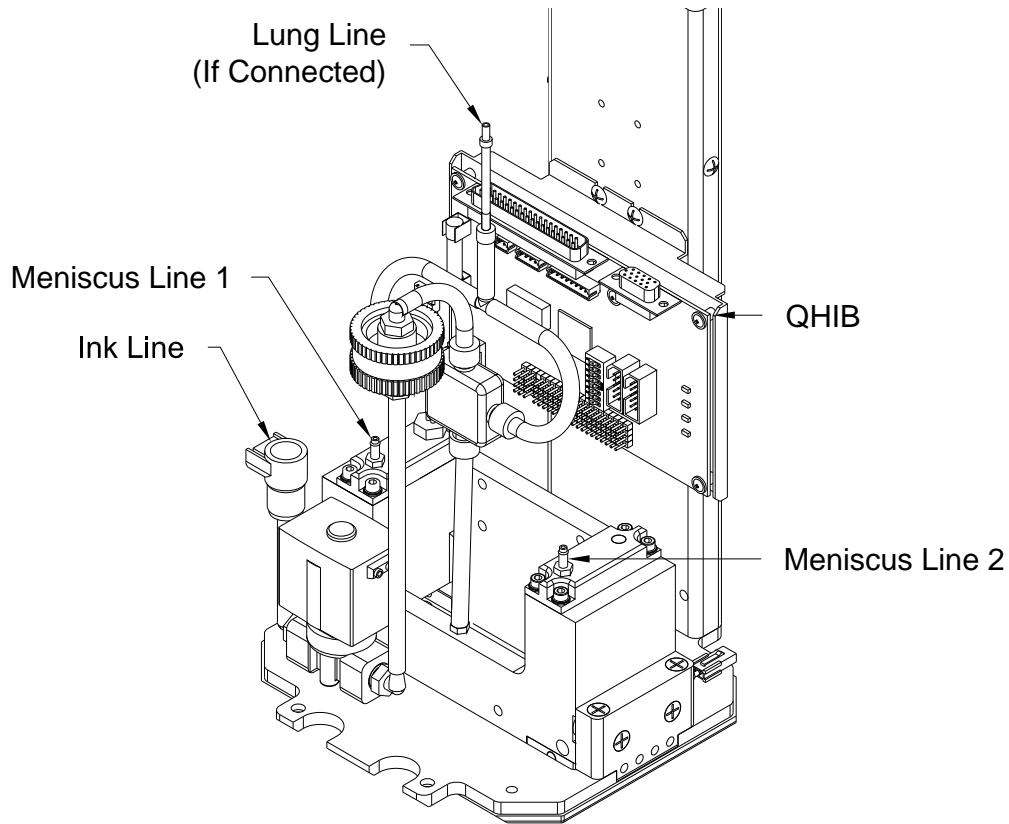


Figure 3-2: Manifold Assembly (2250 and 3250)



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.

Figure 3-3: Manifold Assembly (2500 and 5100 Series), 2500 Series Shown



In the case of the 2500 and 5100 Series printheads, multiple 256-jet arrays are interlaced together to achieve 200, 300, or 400 DPI vertically depending on the model purchased. The 2500 and 5100 series printheads utilize the latest piezo technology in a more compact design.

3.2.2 THIB II Board

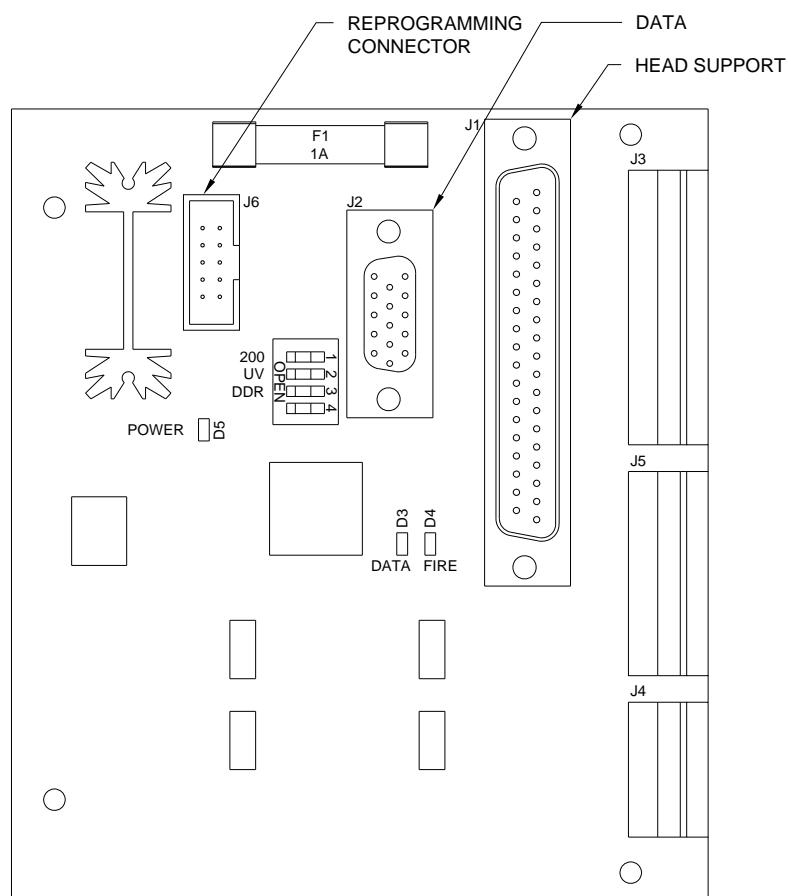


Table 3-1: THIB II Board - DIP Switch Settings

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

Table 3-2: THIB II Board – LED Functions

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

3.2.3 QHIB – Quad Head Interface Board

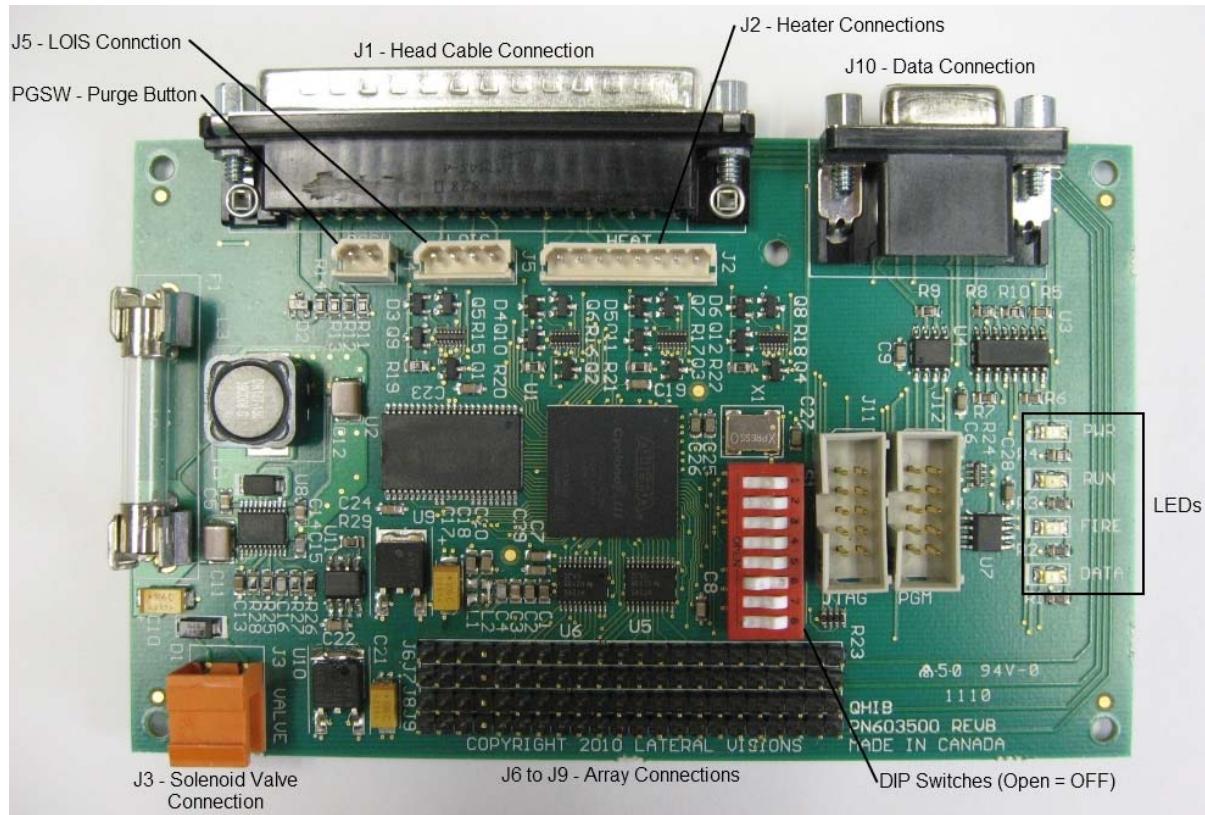


Table 3-3: QHIB LED Functions

LED	Color	Function
PWR	Green	Indicates 12V power from the IA Card Head Data cable is applied.
RUN	Green	Blinks to indicate that the QHIB CPU is operating.
FIRE	Red	Indicates high voltage fire pulses from the HCC Head Support cable are being applied.
DATA	Green	Indicates data from the IA Card Head Data cable is being transferred.

Table 3-4: QHIB DIP Switch Settings

Position 1 2 3 4	Function Head Address	Notes			
		Position 4	Position 3	Position 2	Position 1
	Head 1	OFF	OFF	OFF	OFF
	Head 2	OFF	OFF	OFF	ON
	Head 3	OFF	OFF	ON	OFF
	Head 4	OFF	OFF	ON	ON
	Head 5	OFF	ON	OFF	OFF
	Head 6	OFF	ON	OFF	ON
	Head 7	OFF	ON	ON	OFF
	Head 8	OFF	ON	ON	ON
	Head 9	ON	OFF	OFF	OFF
	Head 10	ON	OFF	OFF	ON
	Head 11	ON	OFF	ON	OFF
	Head 12	ON	OFF	ON	ON
	Head 13	ON	ON	OFF	OFF
	Head 14	ON	ON	OFF	ON
	Head 15	ON	ON	ON	OFF
	Head 16	ON	ON	ON	ON
5 6	DPI	Position 6 Position 5			
		100 DPI	OFF	OFF	
		200 DPI	OFF	ON	
		300 DPI	ON	OFF	
		400 DPI	ON	ON	
7	Reserved				
8	Reserved				

3.2.4 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.

3.2.5 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, 3250, 2500, and 5100 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.

3.2.6 Priming Button

The priming button(s), located on the top of the printhead assembly, is available to recover missing jets in the print. 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.

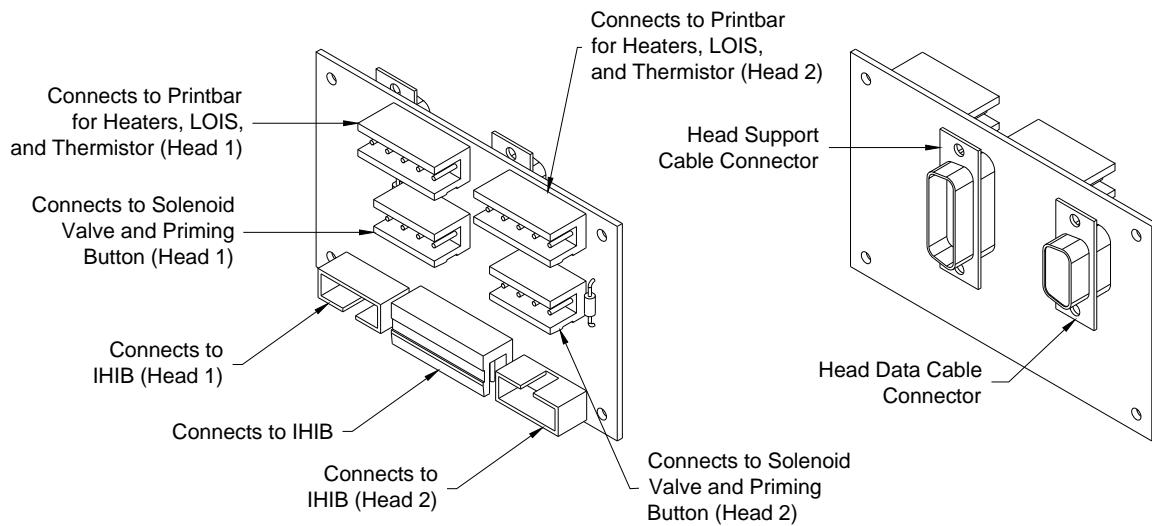
1. The Atlas/Aurora Power Supply Module must be ON.
2. The printhead must be at its operating temperature.
3. The ink refill process must be inactive.
4. There must be sufficient ink in the subcontainer of the Ink Delivery System.
5. A period of 10 seconds must elapse between the start of one prime to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

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

3.2.7 Dual Atlas Connector Interface Board (DACIB)

In the 1250 printheads, the DACIB (Figure 3-4) is used to interface the printhead with the Controller through the head support cable and head data cable respectively.

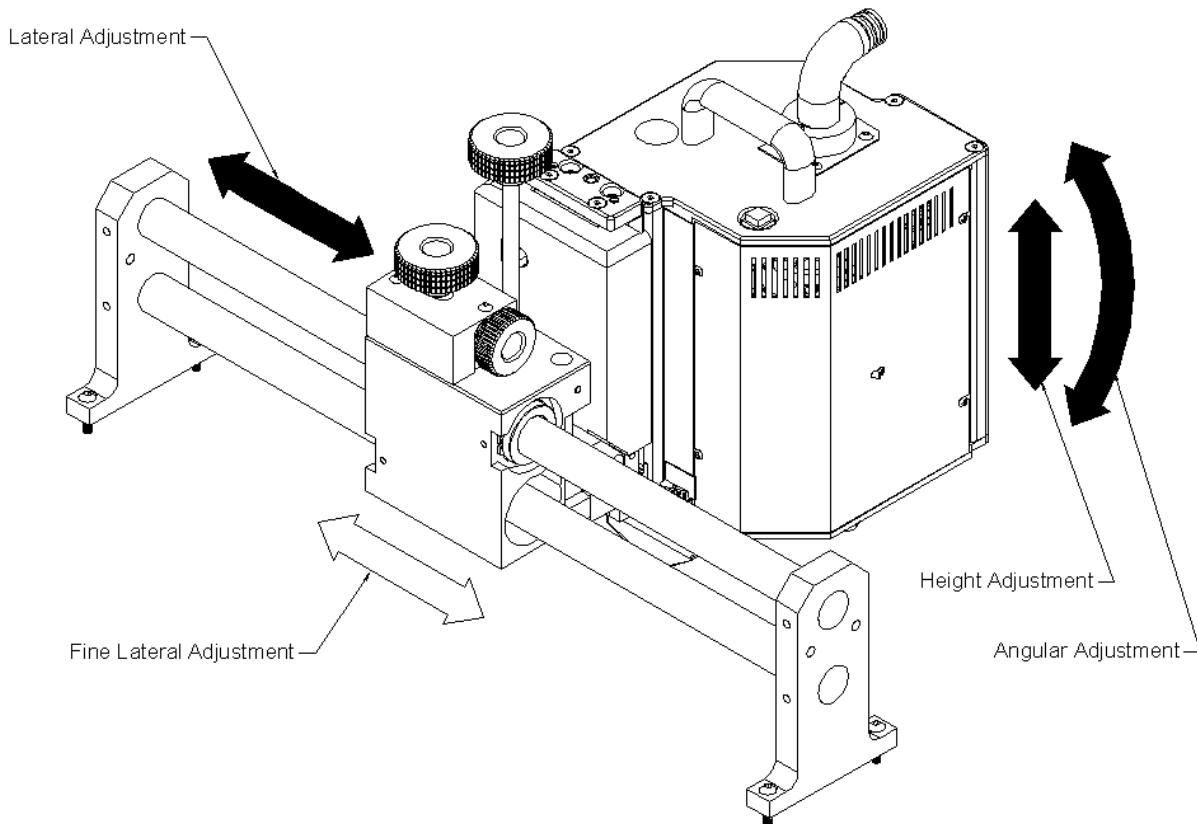
Figure 3-4: Dual Atlas Connector Interface Board (DACIB)



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 3-5).

Figure 3-5: 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.

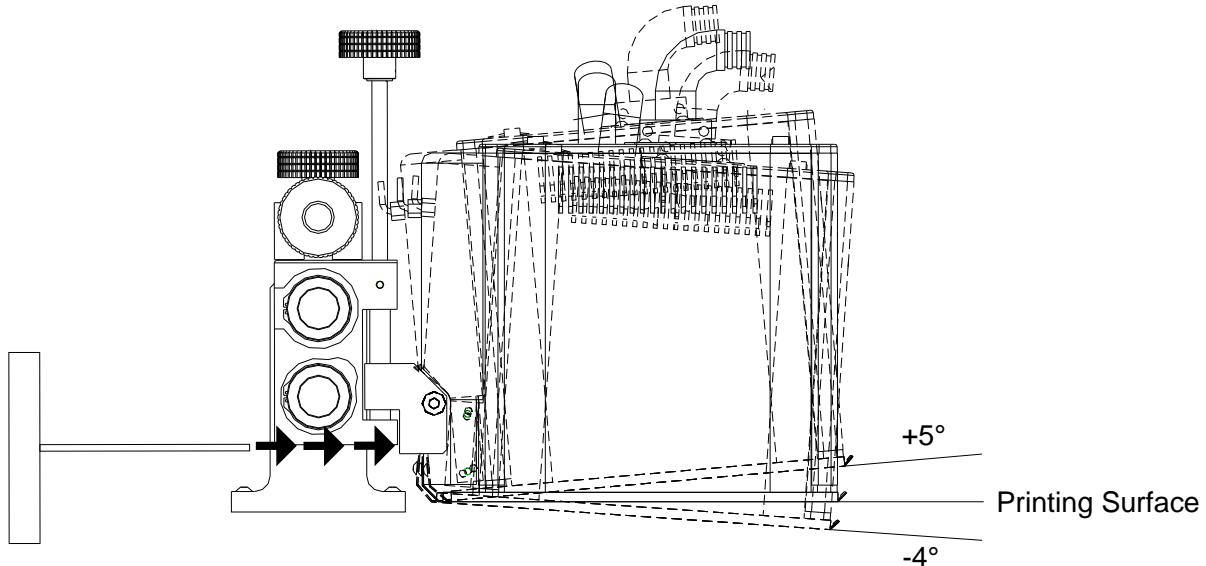
3.3.2 Height Adjustment

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 3-6. In order to obtain optimum print quality, the lower surface (shield) must be parallel with the tabletop.

Figure 3-6: Printhead Angular Adjustment

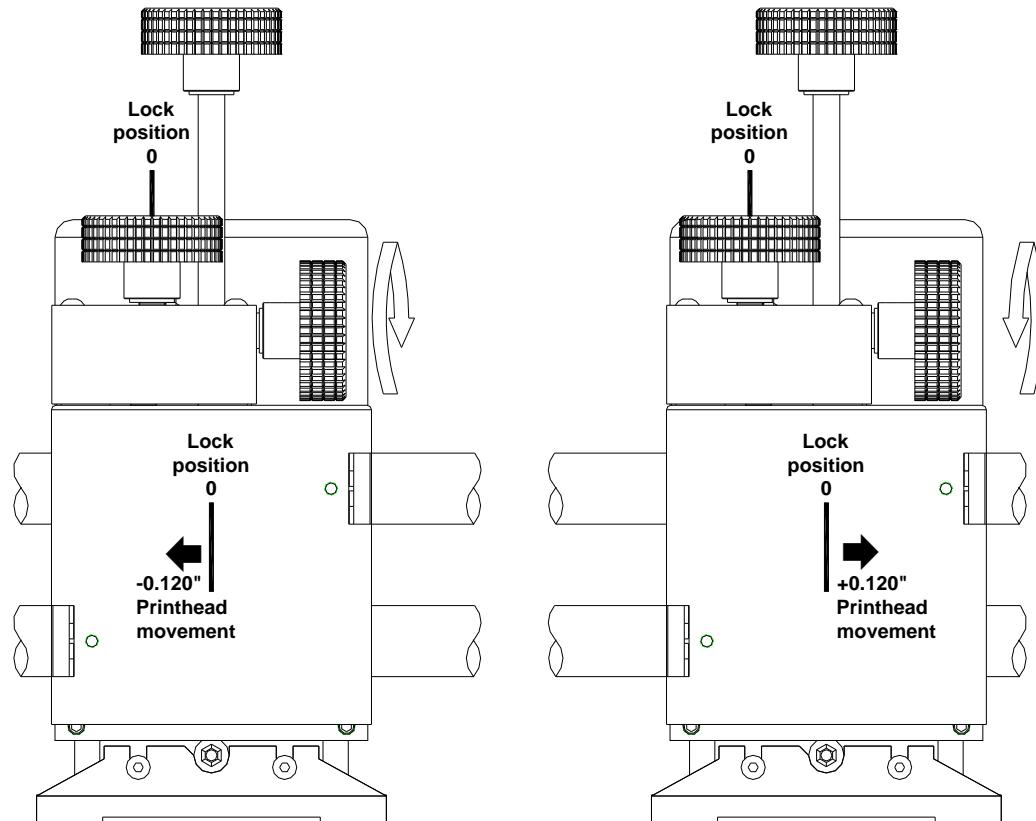


Note: Height and angular printhead adjustments are important to achieve optimum print quality.

3.3.4 Fine Lateral Adjustment (BK80 or BK83 Bridge)

When using a BK80 or BK83 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 3-7.

Figure 3-7: Print head Fine Lateral Adjustment

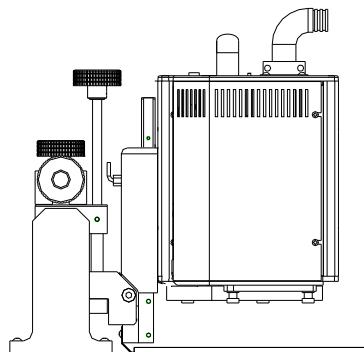


3.3.5 Raising the Printhead

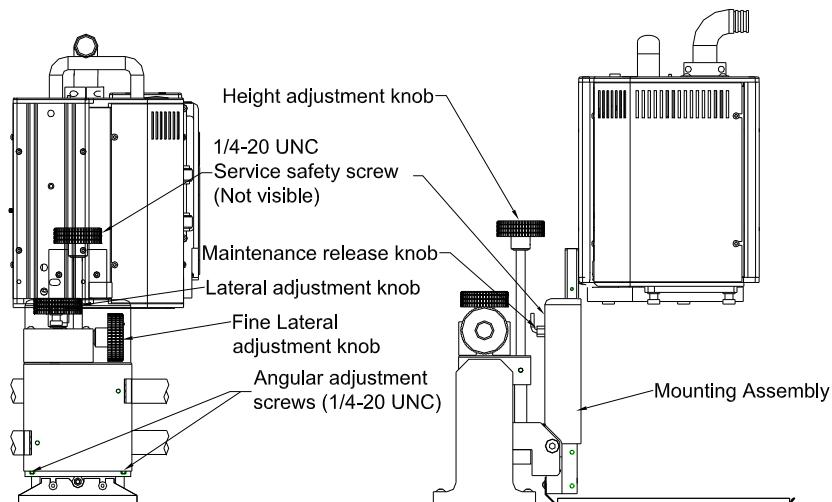
In order to simplify maintenance and service, the printhead housing can slide vertically relative to the mounting assembly. In order to clean or wipe the printhead, the maintenance release knob shown in Figure 3-8 can be pulled to automatically raise the head to the required level. When cleaning is completed, 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 3-8: 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:

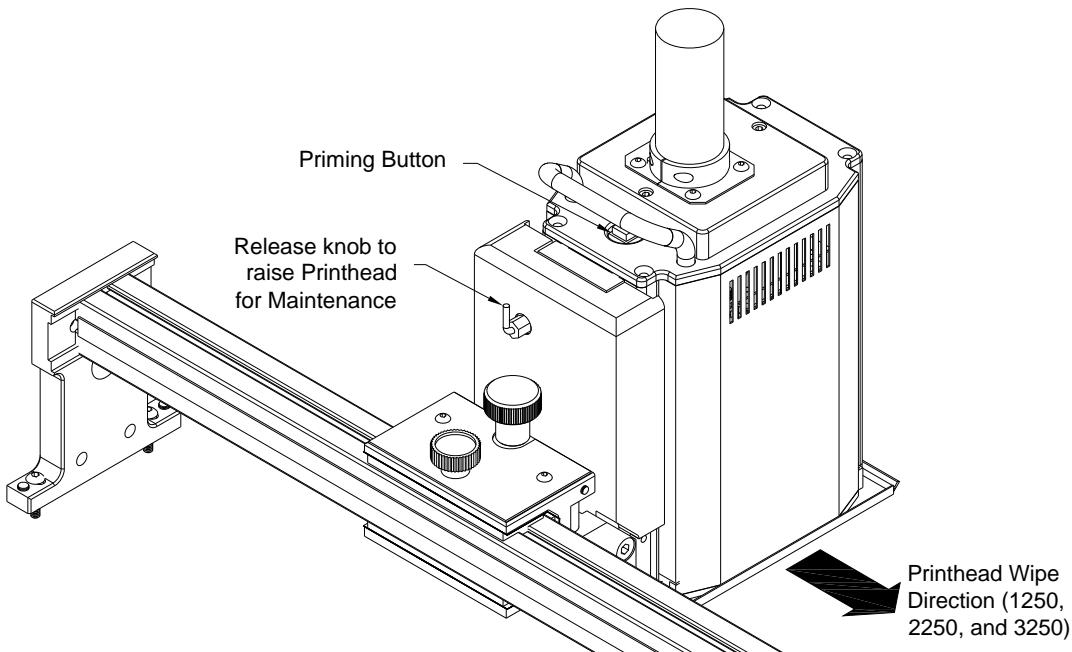
1. Pull the maintenance release knob to raise the printhead.
2. Apply Maintenance Spray or Flush (P/N BKSPR-MON125 for Monet, BKSPR-CEZ125 for Cezanne, and BKFSH-REN1000 for Renoir) to the approved fibreless wipe. Monet and Renoir inks use the blue wipes (P/N 800900) and Cezanne uses the white wipes (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

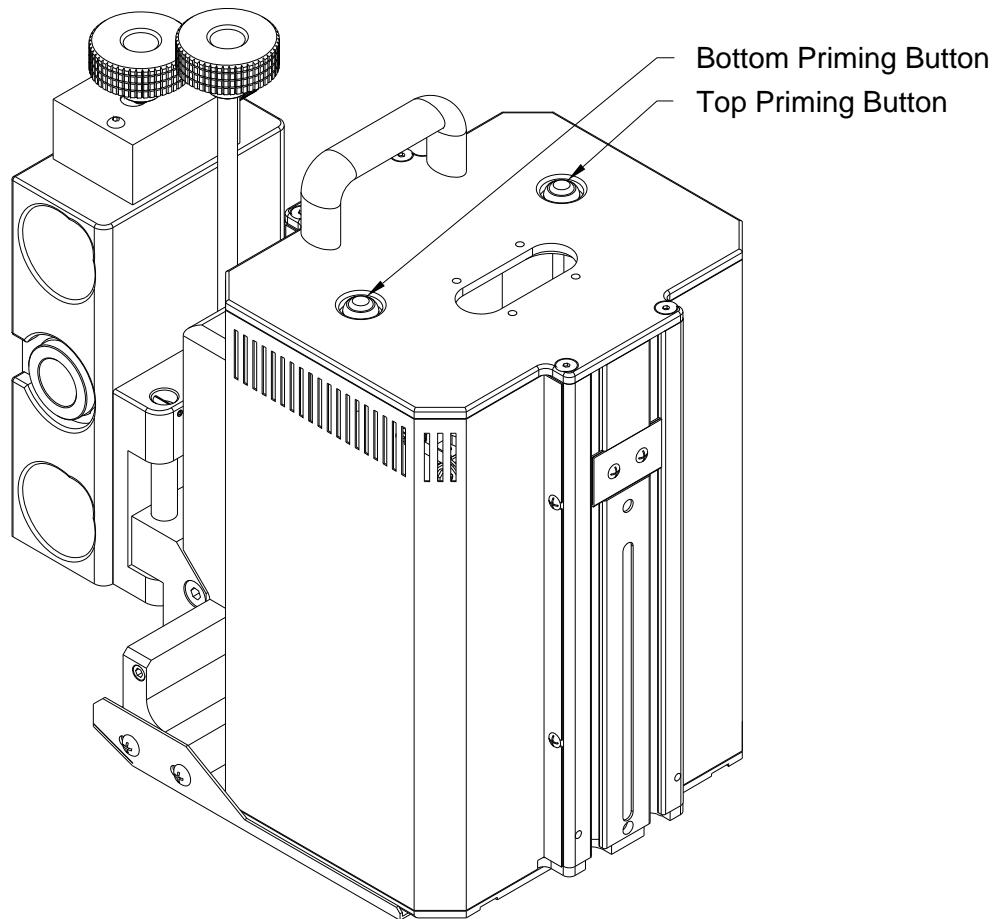
In cases where a wet wipe is not sufficient, purging (also known as priming) is recommended. This applies pressure to eject ink through the orifice plate. Note that a wet wipe should be conducted afterwards. To prime and clean the printhead:

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.

In the case of the 5100 series printhead, there are two priming buttons (Figure 4-2). The top priming button primes the top half of the printhead while the bottom priming button primes the bottom half. This minimizes the amount of ink used during priming by allowing the user to focus on the area where the jetout is occurring.

Figure 4-2: 5100 Series Printhead Priming Buttons



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 0.
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.

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

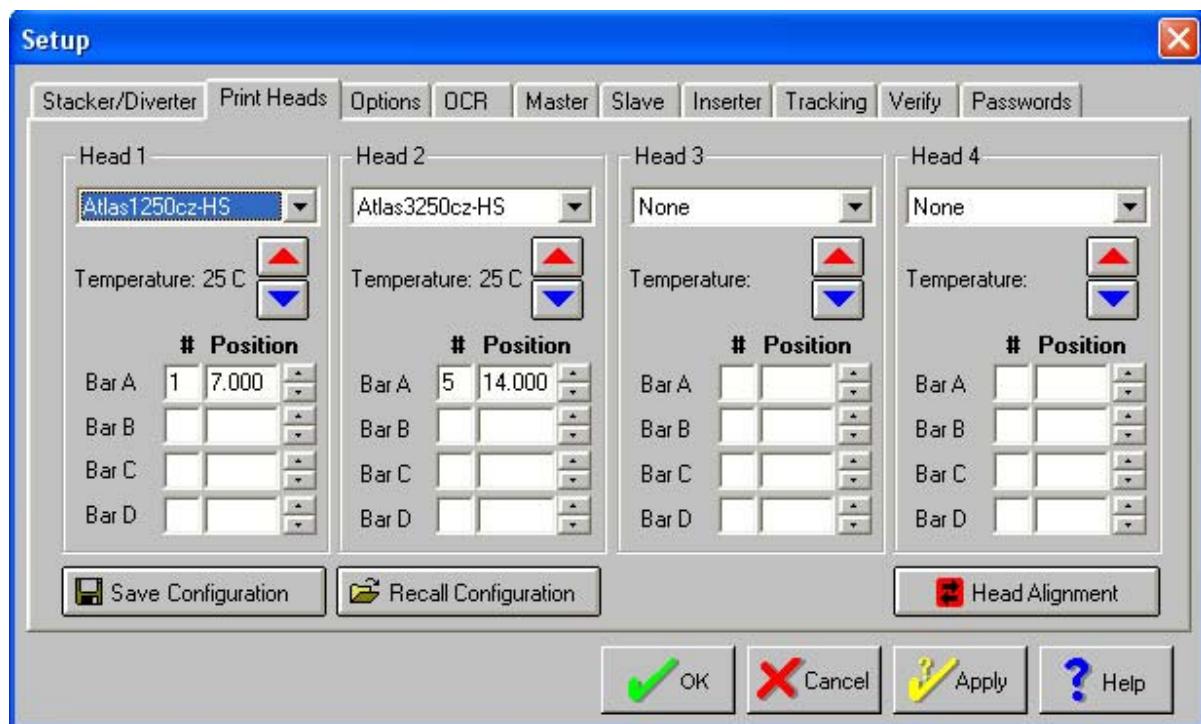


Table 5-1: Standard Printhead Drivers

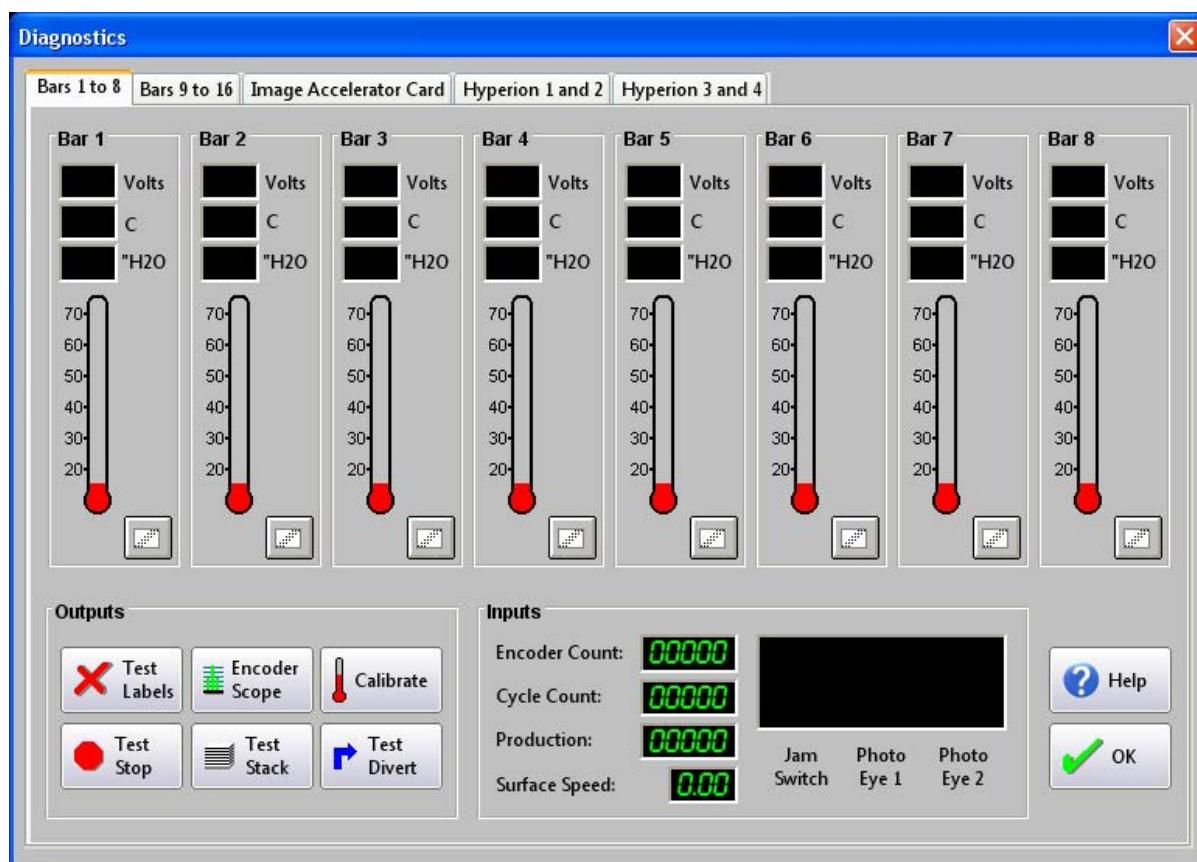
Print Type	Inches of Print	Driver Name	Description
Atlas 1250 (Monet)	1	Atlas1250-HS	High Speed Driver (Default)
		Atlas1250	Regular Driver
Atlas 2250 (Monet)	2	Atlas2250-XS	DDR Driver
		Atlas2250-HS	High Speed Driver (Default)
Atlas 3250 (Monet)	3	Atlas2250	Regular Driver
		Atlas3250-XS	DDR Driver
		Atlas3250-HS	High Speed Driver (Default)
Atlas 2520 (Monet)	2.5	Atlas3250	Regular Driver
		Atlas2520	200 DPI Driver
Atlas 2530 (Monet)	2.5	Atlas2530	300 DPI Driver
Atlas 2540 (Monet)	2.5	Atlas2540	400 DPI 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)
Atlas 3250 (Cezanne)	3	Atlas2250cz	Regular Driver
		Atlas3250cz-XS	DDR Driver
		Atlas3250cz-HS	High Speed Driver (Default)
Atlas 2520 (Cezanne)	2.5	Atlas3250cz	Regular Driver
		Atlas2520cz	200 DPI Driver
Atlas 2530 (Cezanne)	2.5	Atlas2530cz	300 DPI Driver
Atlas 2540 (Cezanne)	2.5	Atlas2540cz	400 DPI 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
Aurora 2520 (Renoir, UV)	2.5	Aurora2520	200 DPI Driver
Aurora 2530 (Renoir, UV)	2.5	Aurora2530	300 DPI Driver
Aurora 2540 (Renoir, UV)	2.5	Aurora2540	400 DPI Driver

Note: In Compose 9.02 and 9.03, the 5100 series printheads used two 2500 series drivers.

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



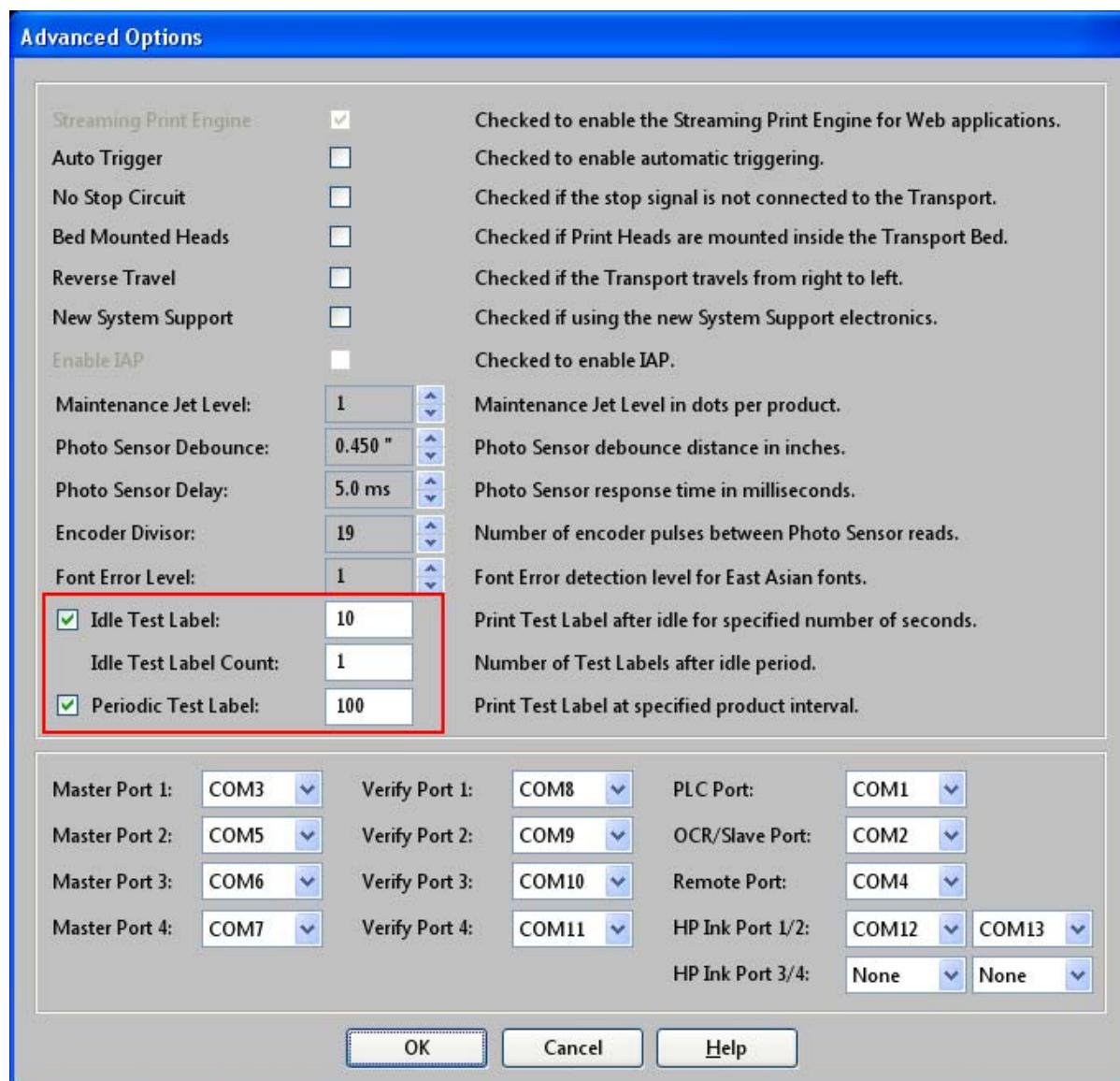
Note: Only trained technicians should make adjustments to the Voltage as it can affect print performance. In the case of Cezanne ink, it is not recommended to exceed the rated voltage otherwise more frequent jetouts will occur during printing.

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:

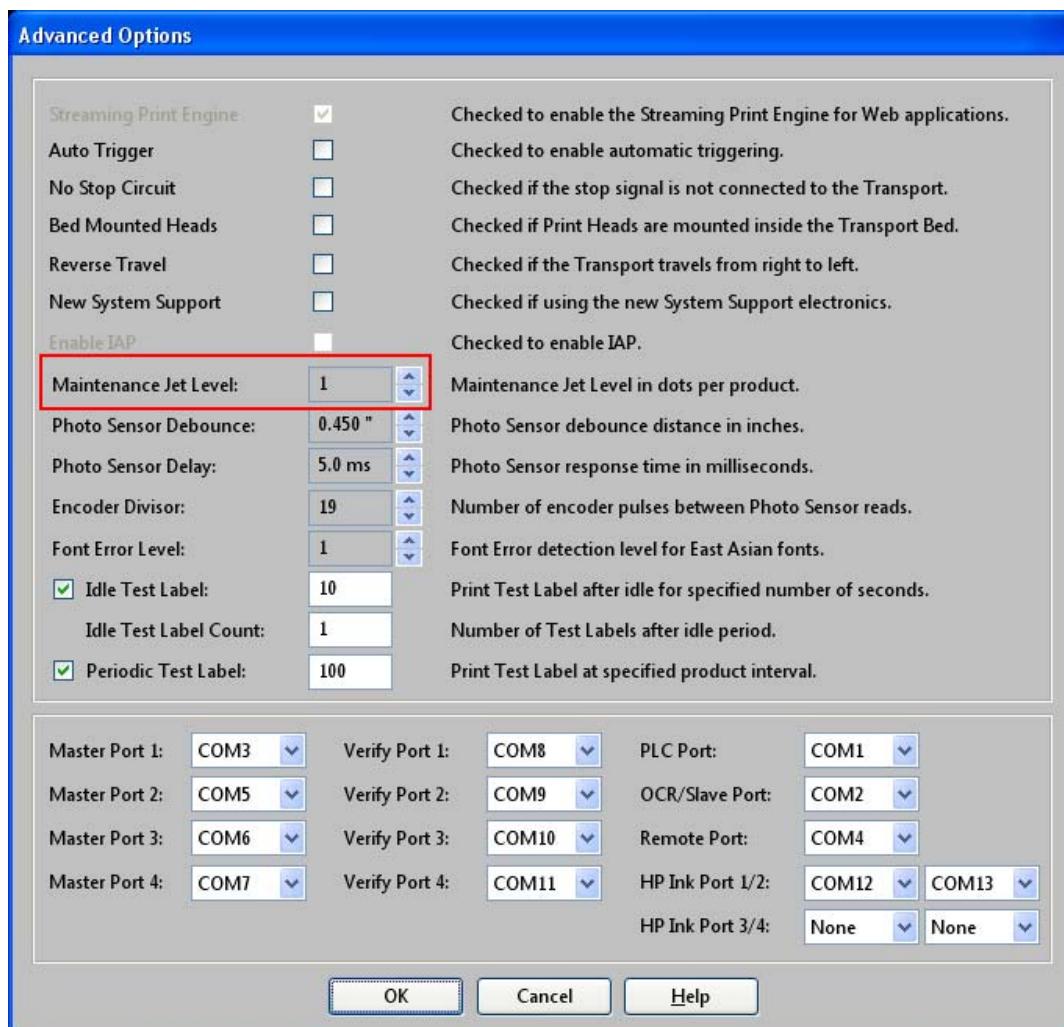
1. **Idle Test Label** – Check to activate the Idle Test Label feature. Enter the minimum number of seconds of inactivity before a test pattern is automatically printed.
2. **Idle Test Label Count** – Specifies the number of Test Labels to be printed after an idle period.
3. **Periodic Test Label** – 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
 Bar 1	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.
 Bar 1	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 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



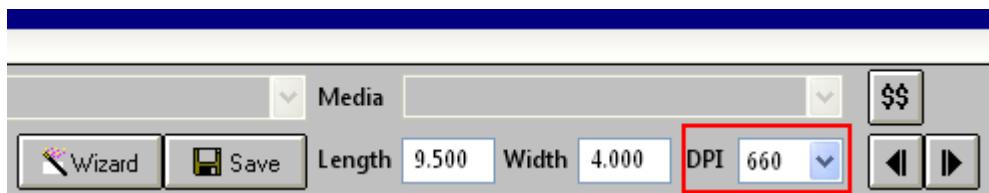
This feature will automatically run the Maintenance Firing Sequence every 15 minutes.

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.

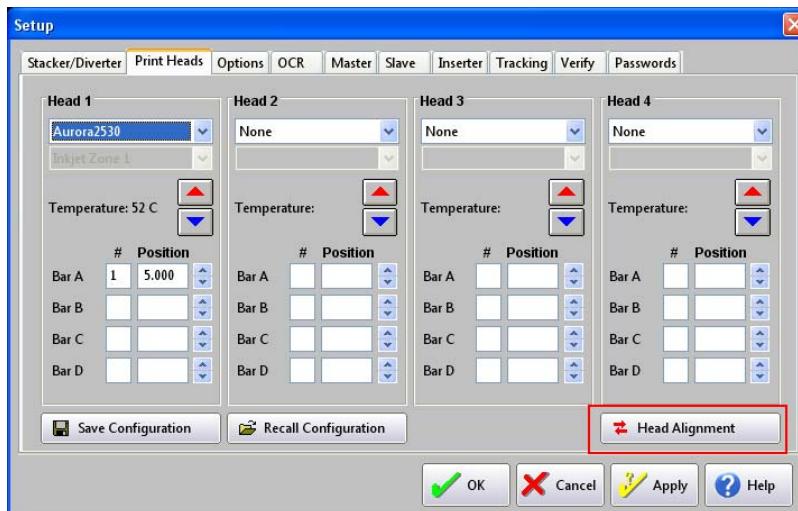
5.3 Print Alignment (2500 and 5100 Series Printheads)

In order to maximize the quality of the print, the print alignment must be properly set. This refers to proper drop placement vertically and horizontally. Vertical print alignment is set by controlling the physical position of each array. This is set at the factory and must be done by a trained technician. Horizontal print alignment is based on the timing of firing each jet. This can be adjusted through the Compose software. In order to adjust the horizontal print alignment:

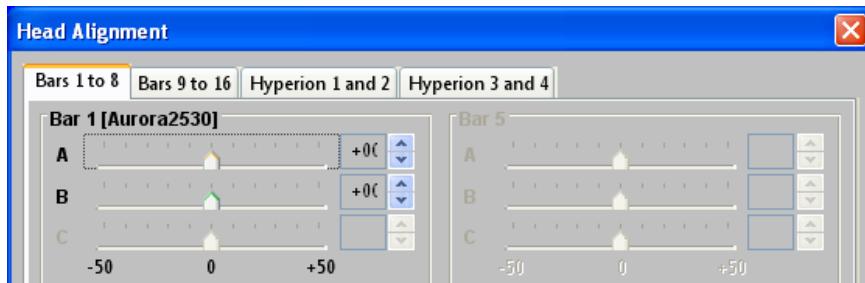
1. Set the print resolution to 600 or 660 DPI in the Layout Editor (F5).



2. Enter the Head Alignment Screen (Setup (F7) → Print Heads → Head Alignment).



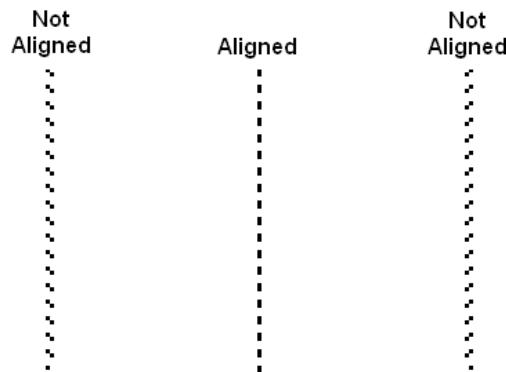
3. For the printhead being adjusted, set all the alignment values to 0. Click on Apply.



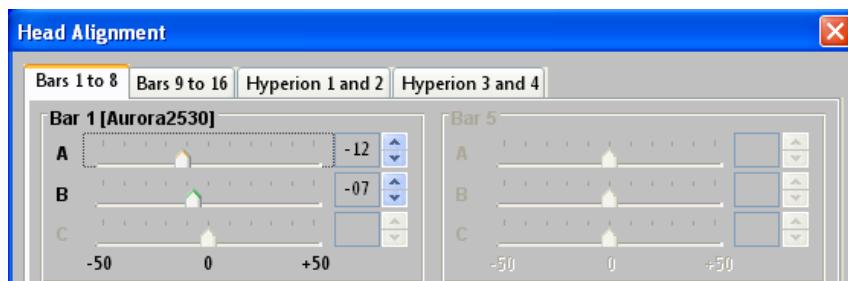
4. While in the Head Alignment screen, print on a piece. This will print a special alignment test pattern. The number of rows in the alignment pattern will depend on the type of printhead. For example, a 2520 will show one row (A), a 2530 will show two rows (A & B), and a 2540 will show three rows (A, B & C).



5. Looking at the alignment test pattern, for each row, determine the number where the two lines converge to form a single line. This represents the alignment value that must be entered into Compose.



For example, for a 2530 printhead, if the lines converge at -12 for row A, and -7 for row B, enter these values into the Head Alignment screen and click OK.



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°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 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 Use protective gloves made of Nitrile .
	Protective Clothing Recommended 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.

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°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.

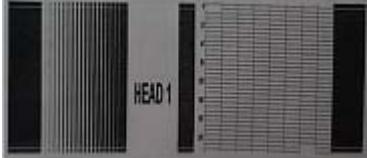
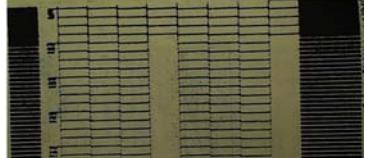
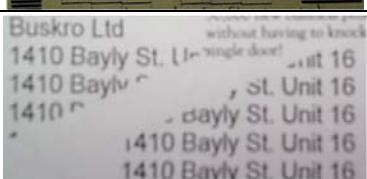
Troubleshooting

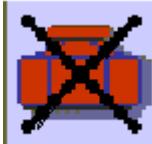
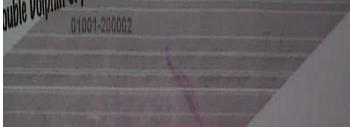
Chapter **8**

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		<ul style="list-style-type: none"> Follow procedures in Section 4.1 Check for material contact. Make sure head is level and does not contact the material After purging, wait 2 minutes to allow ink to deaerate before printing Check ink temperature and voltage (Section 5.1.2). In the case of Cezanne, confirm the SSB CPU II (BK705 or BK1705) or HCC (BK1710 / BK1720) is set for 10% heater power. Measure Lung Vacuum (23.5 in Hg) Measure Meniscus Pressure (3.3 in Wg for 1250, 4.7 in Wg for 2250 or 3250) Measure Purge Pressure (50 in Wg) Confirm that the check valve on the lung line in the head is connected with airflow away from the printhead For Cezanne, lower jetting voltage 10V (technician only)
Head Prints every other Channel		<ul style="list-style-type: none"> Check Data Cable to Printhead Defective HDC Board (BK705 or BK1705)
Head missing ¼ of print		<ul style="list-style-type: none"> Check flex connectors at the head Defective driver chips on head that must be factory repaired
Split Image		<ul style="list-style-type: none"> Belt speed is below minimum speed of 0.15 m/s. Increase speed.
Peristaltic Pump constantly pumping ink		<ul style="list-style-type: none"> Low ink level in the head (temporary) SSB malfunction LOIS malfunction

Problem	Example	Action
Ink is Dripping from Print Head		<ul style="list-style-type: none"> Measure Meniscus Pressure at head (3.3 in Wg for 1250, 4.7 in Wg for 2250 or 3250). Check meniscus hose and hydrophobic filter for ink blockage Check solenoid valve that allows permanent meniscus vacuum
No ink in the Ink Supply Line		<ul style="list-style-type: none"> Check that the UMB LED is lit on the SSB (BK705 or BK1705 only) Measure ink low reading on head (LOIS/GND) Check solenoid valve installed in the printhead Check PVC membrane disc in the filter holder mounted behind peristaltic pump head. Replacement is necessary if ink is recycled from the ink tray No ink in the subcontainer
Pump Fail Icon		<ul style="list-style-type: none"> Loss of power in 12 VDC wiring related to float switch installed inside the subcontainer.
Low on ink icon		<ul style="list-style-type: none"> Check ink bottle Subcontainer low on ink (temporary)
Print is streaking		<ul style="list-style-type: none"> Check 3 Pin connector on printhead Change 10 Pin ribbon cable on printhead
Printhead Temperature too High (Cezanne)		<ul style="list-style-type: none"> For BK705 or BK1705 check temperature calibration. For BK705 or BK1705 check if SSB CPU II board is used and if DIP 6 is ON. 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)		<ul style="list-style-type: none"> Run the maintenance firing and purging sequence.
Error Icon appears and printing is disabled (Aurora)		<ul style="list-style-type: none"> Run the maintenance firing and purging sequence.

Assembly Drawings

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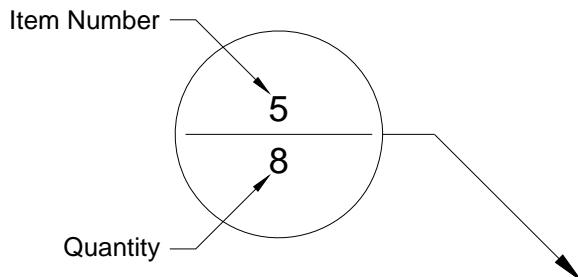
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Balloon Annotation and Parts Listing



Item	Part Number	Quantity	Description	Reference
1				
2				

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

Item:

This column indicates the item number used for each unique part in an assembly drawing.

It is matched with the top number in the balloon pointing at the associated part.

Part Number:

This column represents the Buskro part number.

Quantity:

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

Description:

This column contains a brief description of the part.

Reference:

This column indicates the page location for sub-assemblies.

Table A-1: 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-66
8	BK791-A	1	Printhead, BK791 Atlas	Page A-52
9	BK79M-1	1	Mount, BK791 Series Printhead	Page A-59

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

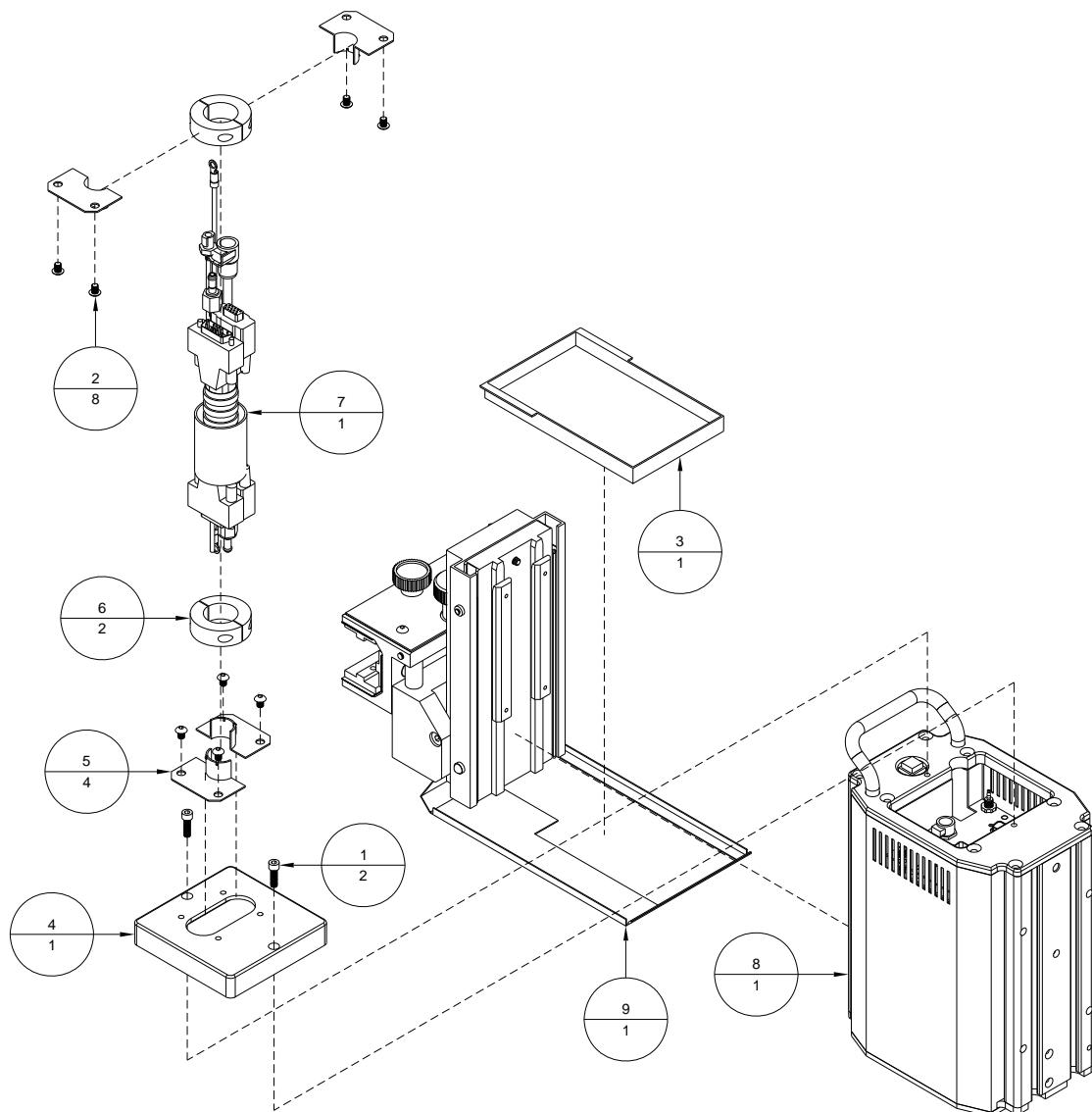


Table A-2: BK791-C-15 - Printhead, Cezanne, 1", BK705 / BK1705

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-66
8	BK791-C	1	Printhead, BK791 Cezanne	Page A-53
9	BK79M-1	1	Mount, BK791 Series Printhead	Page A-59

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

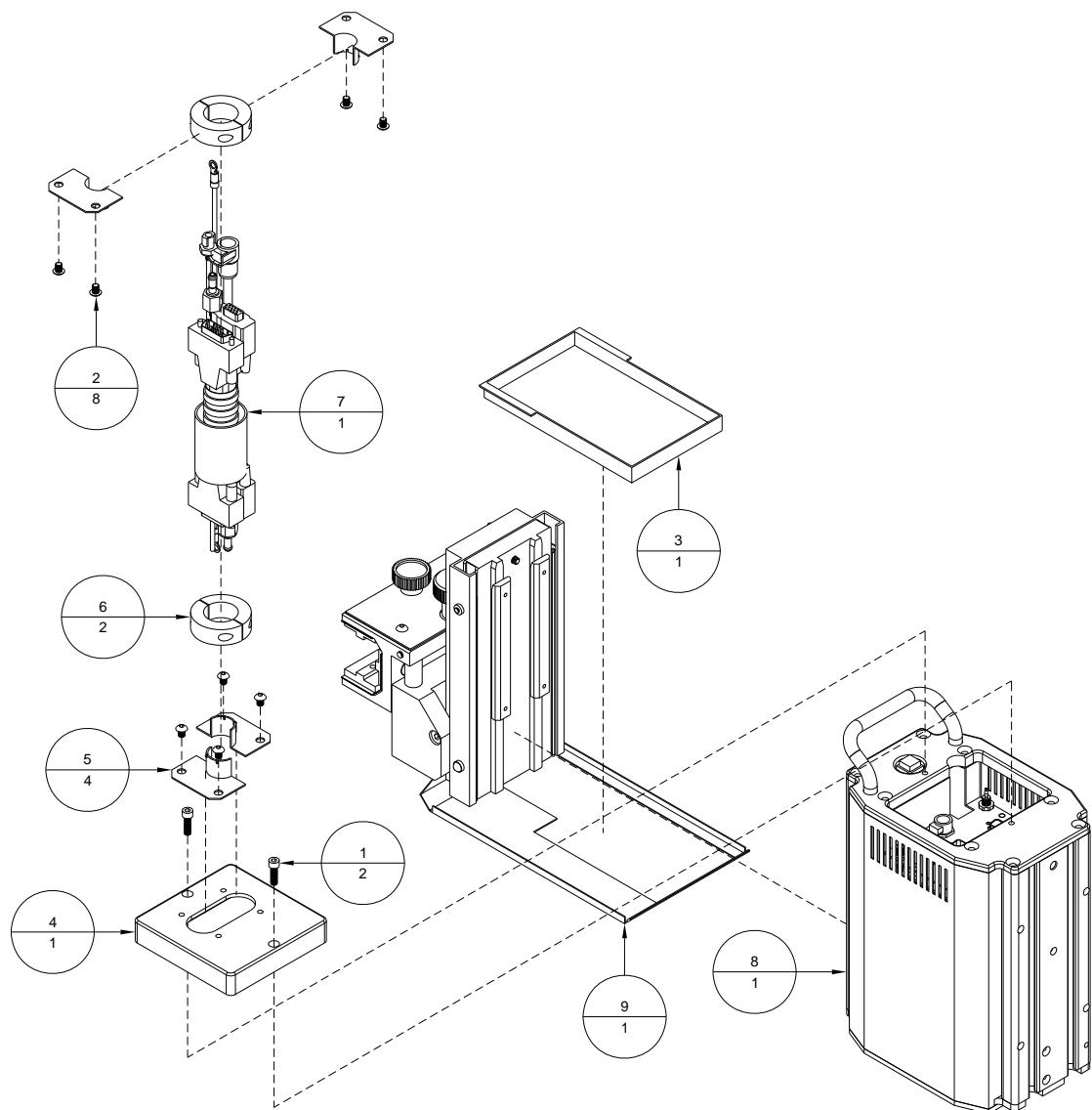


Table A-3: BK791-U-15 - Printhead, Aurora, 1", BK705 / BK1705

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-66
8	BK791-U	1	Printhead, BK791 Aurora	Page A-54
9	BK79M-1	1	Mount, BK791 Series Printhead	Page A-59

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

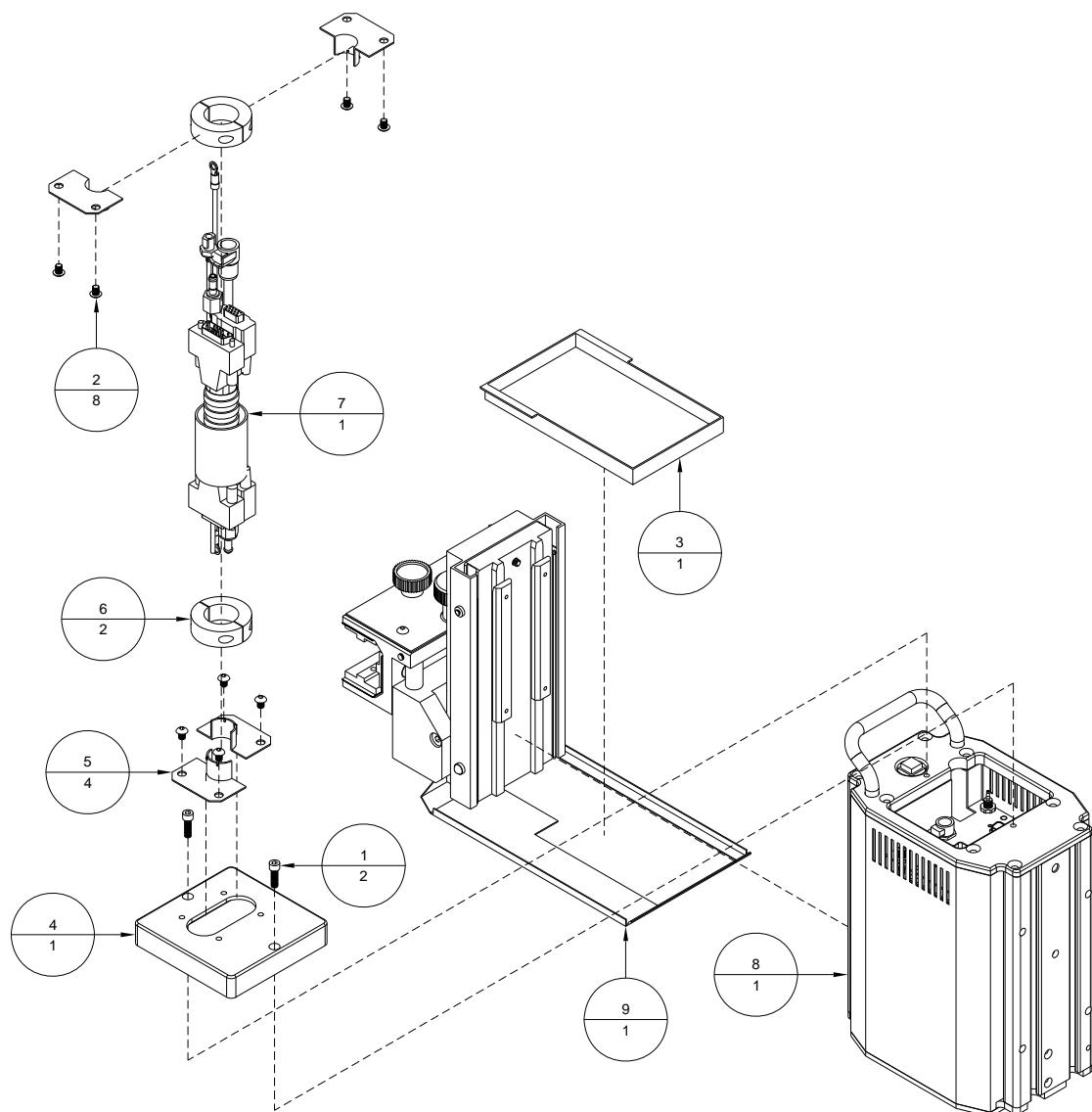


Table A-4: BK791-A-15E - Printhead, Atlas, 1", BK1710 / 20

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-74
8	BK791-A	1	Printhead, BK791 Atlas	Page A-52
9	BK79M-1	1	Mount, BK791 Series Printhead	Page A-59

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

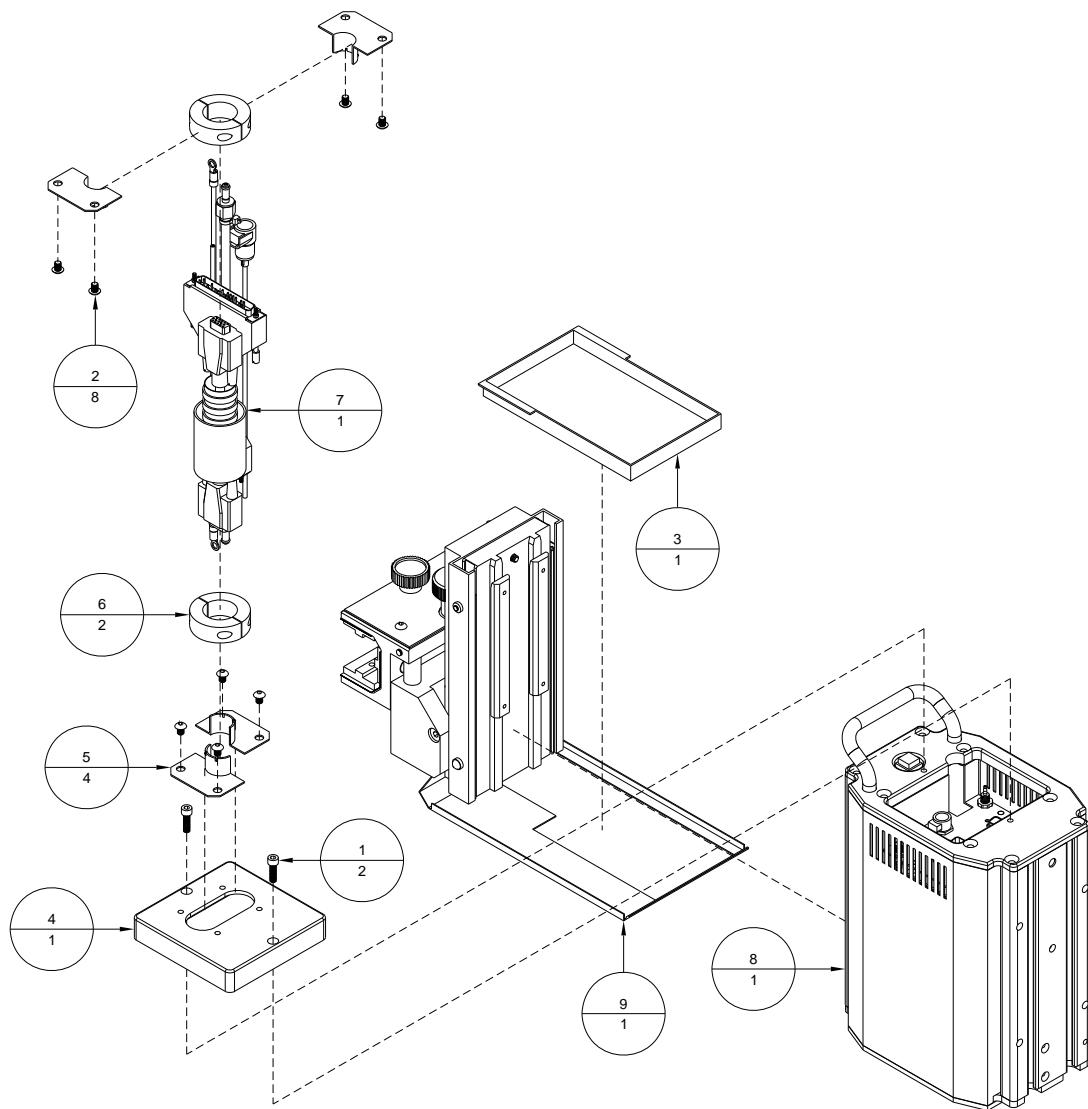


Table A-5: BK791-C-15E - Printhead, Cezanne, 1", BK1710 / 20

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-74
8	BK791-C	1	Printhead, BK791 Cezanne	Page A-53
9	BK79M-1	1	Mount, BK791 Series Printhead	Page A-59

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

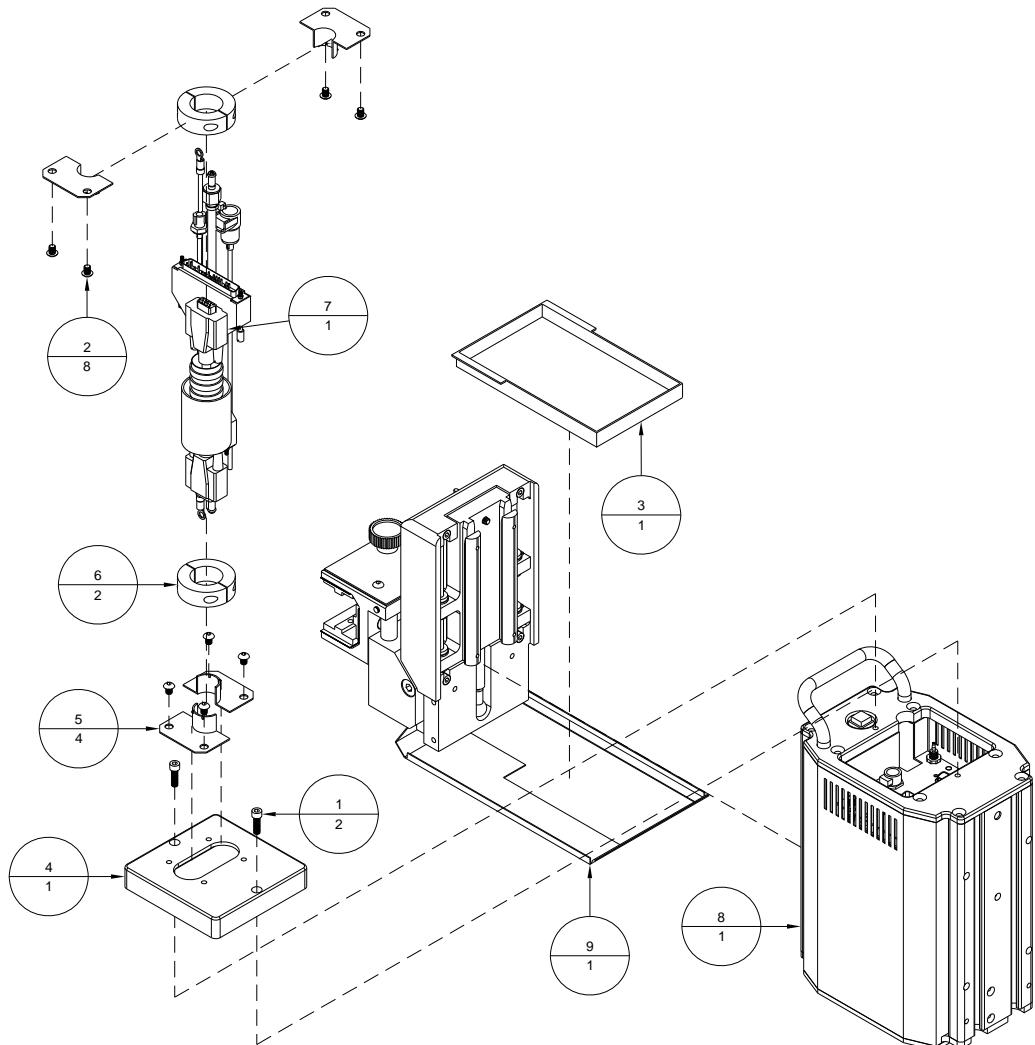


Table A-6: BK791-U-15E - Printhead, Aurora, 1", BK1710 / 20

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-74
8	BK791-U	1	Printhead, BK791 Aurora	Page A-54
9	BK79M-1	1	Mount, BK791 Series Printhead	Page A-59

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

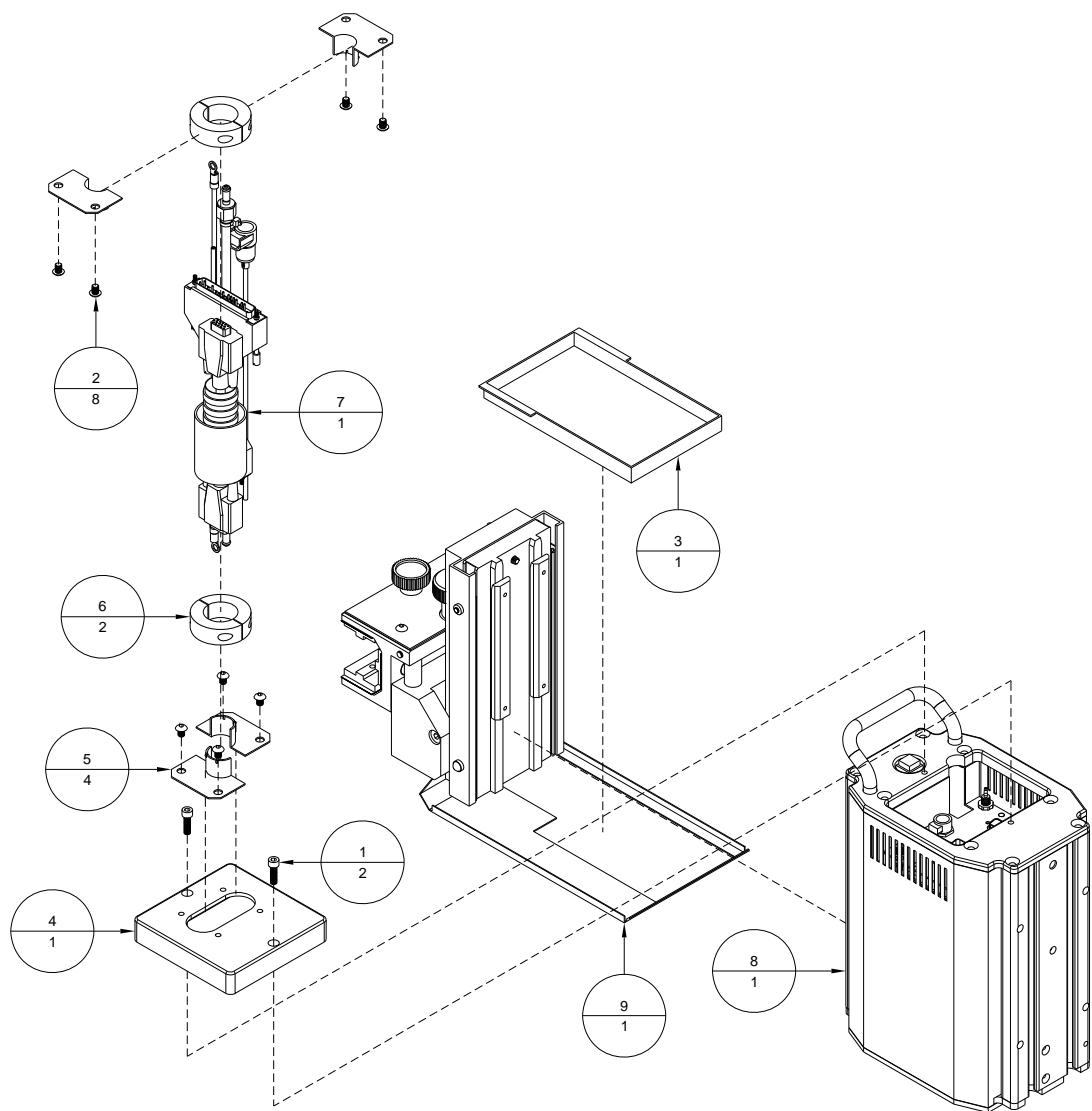


Table A-7: BK791-A-15ERM80 - Printhead, Atlas, 1", BK80, BK1710 / 20

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-74
10	BK791-A	1	Printhead, BK791 Atlas	Page A-52
11	BK80M-1	1	Mount, BK80 Bridge, BK791	Page A-60

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

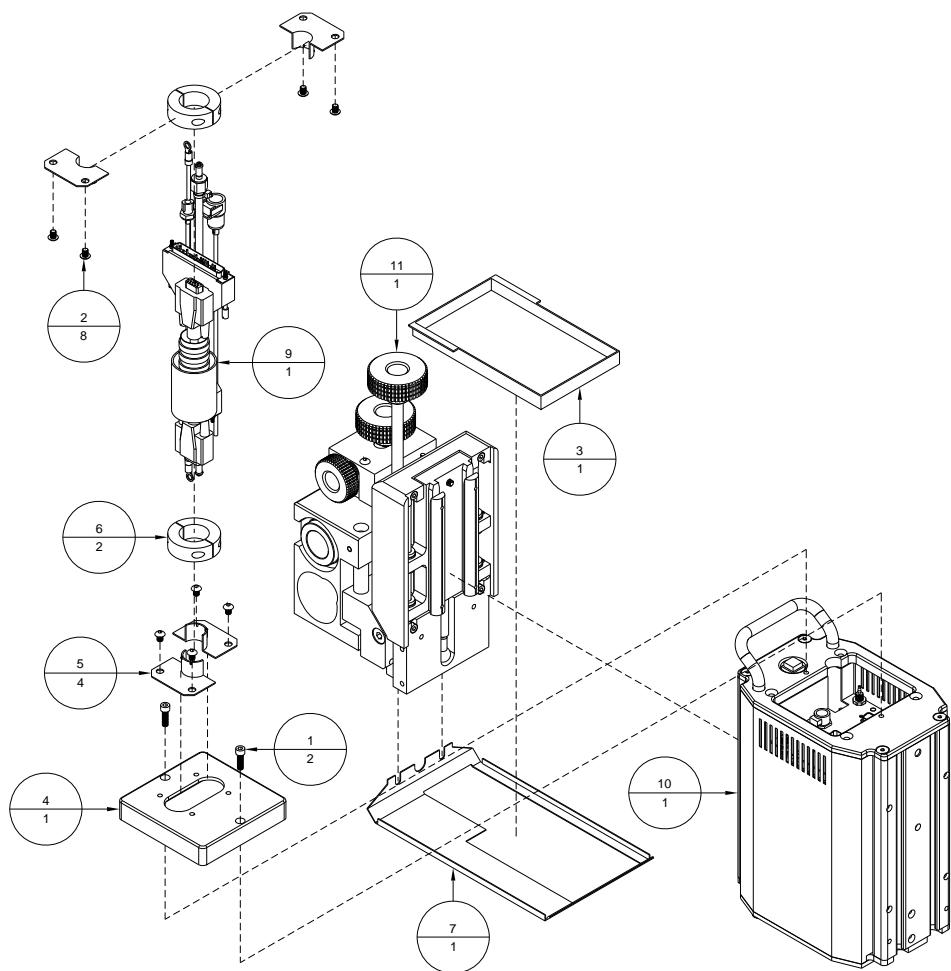


Table A-8: BK791-C-15ERM80 - Printhead, Cezanne, 1", BK80, BK1710 / 20

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-74
10	BK791-C	1	Printhead, BK791 Atlas Cezanne	Page A-53
11	BK80M-1	1	Mount, BK80 Bridge, BK791	Page A-60

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

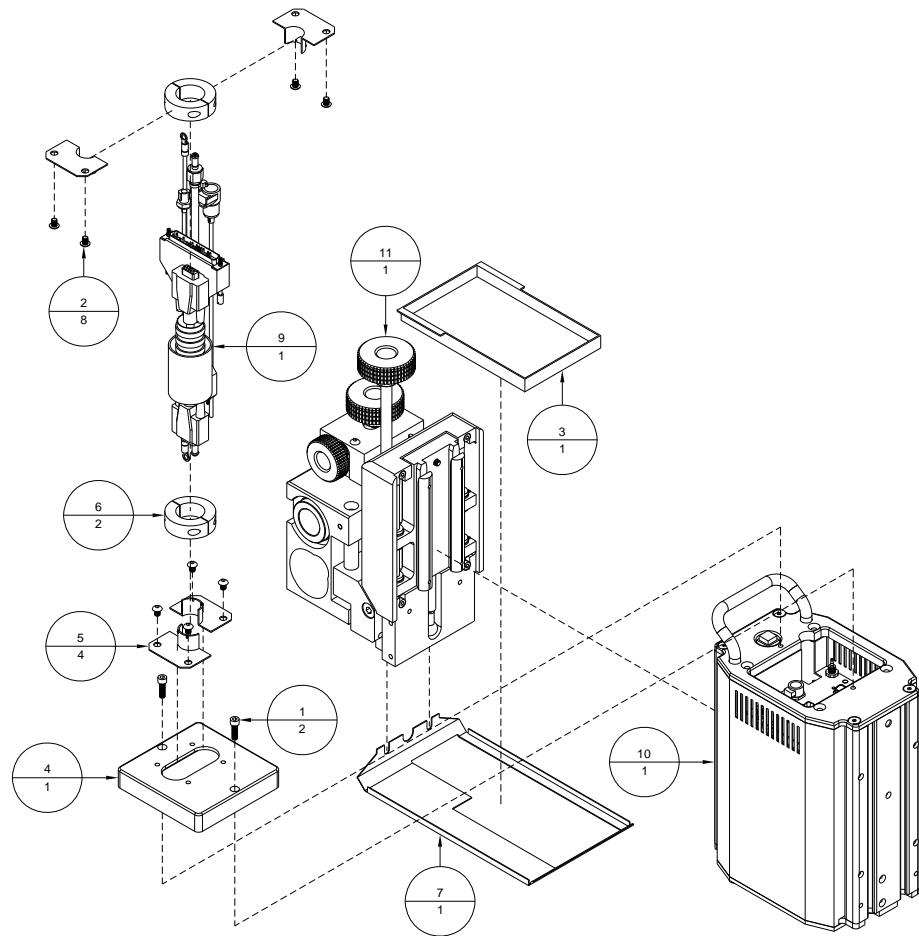


Table A-9: BK791-U-15ERM80 - Printhead, Aurora, 1", BK80, BK1710 / 20

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-74
10	BK791-U	1	Printhead, BK791 Aurora	Page A-54
11	BK80M-1	1	Mount, BK80 Bridge, BK791	Page A-60

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

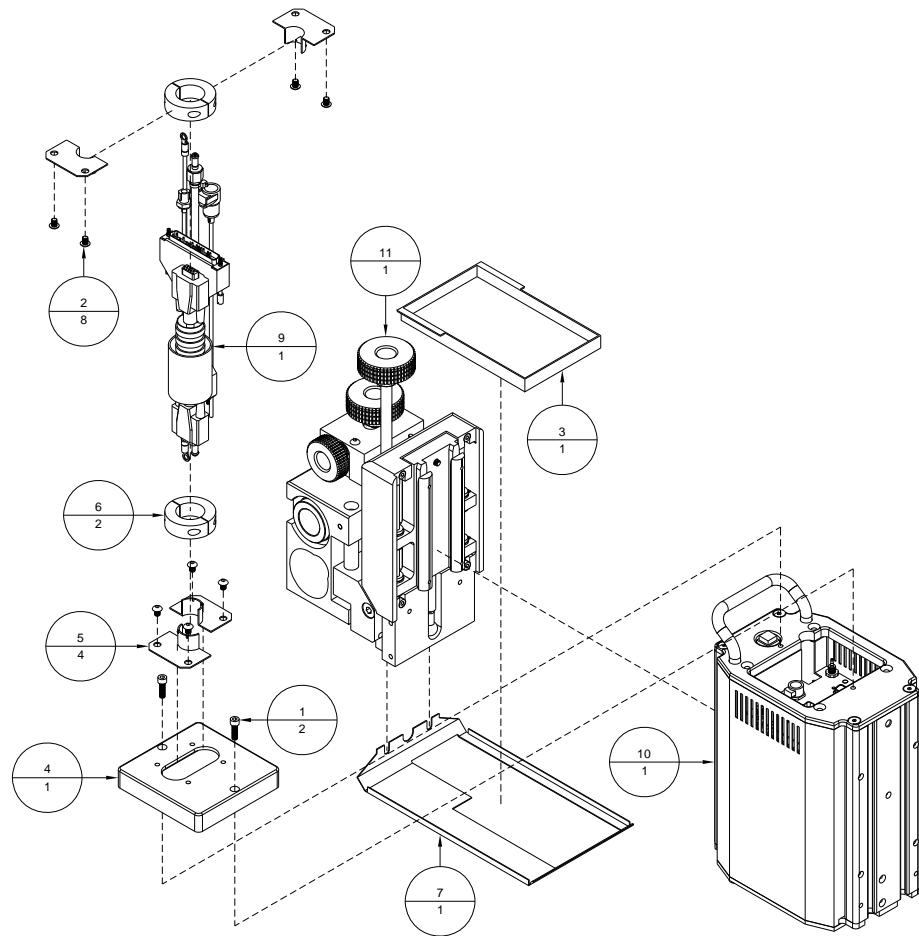


Table A-10: BK792-A-15-RM80 - Printhead, Atlas, 2", BK80, BK1710 / 20

Item	Part Number	Quantity	Description	Reference
1	402310SS	8	Screw, PHMS, 6-32 UNC x 1/4"	
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-94
7	9103992	2	Cover, 2250/3250 Printhead	
8	9103999A	1	Bottom Plate Assembly, 2250	Page A-96
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-61

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

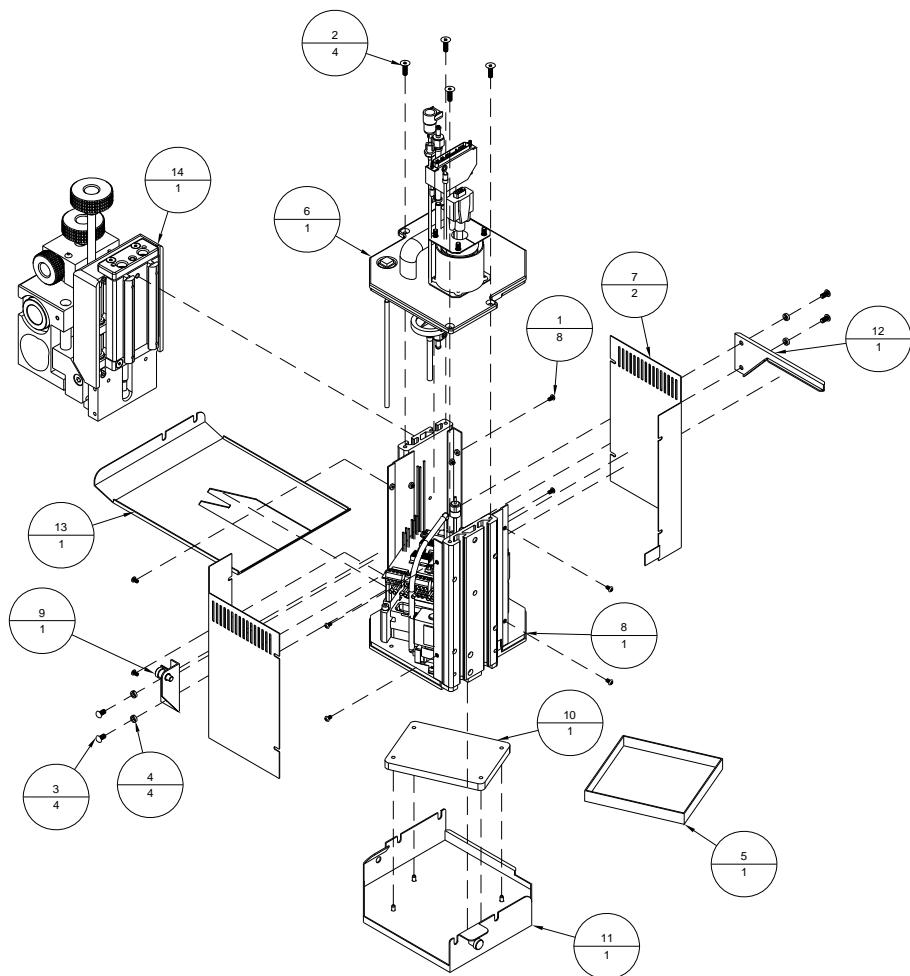


Table A-11: BK792-C-15-RM80 - Printhead, Cezanne, 2", BK80, BK1710 / 20

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-55
10	BK80M-4	1	Mount, Printhead 2250 / 3250, BK80 Bridge	Page A-61

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

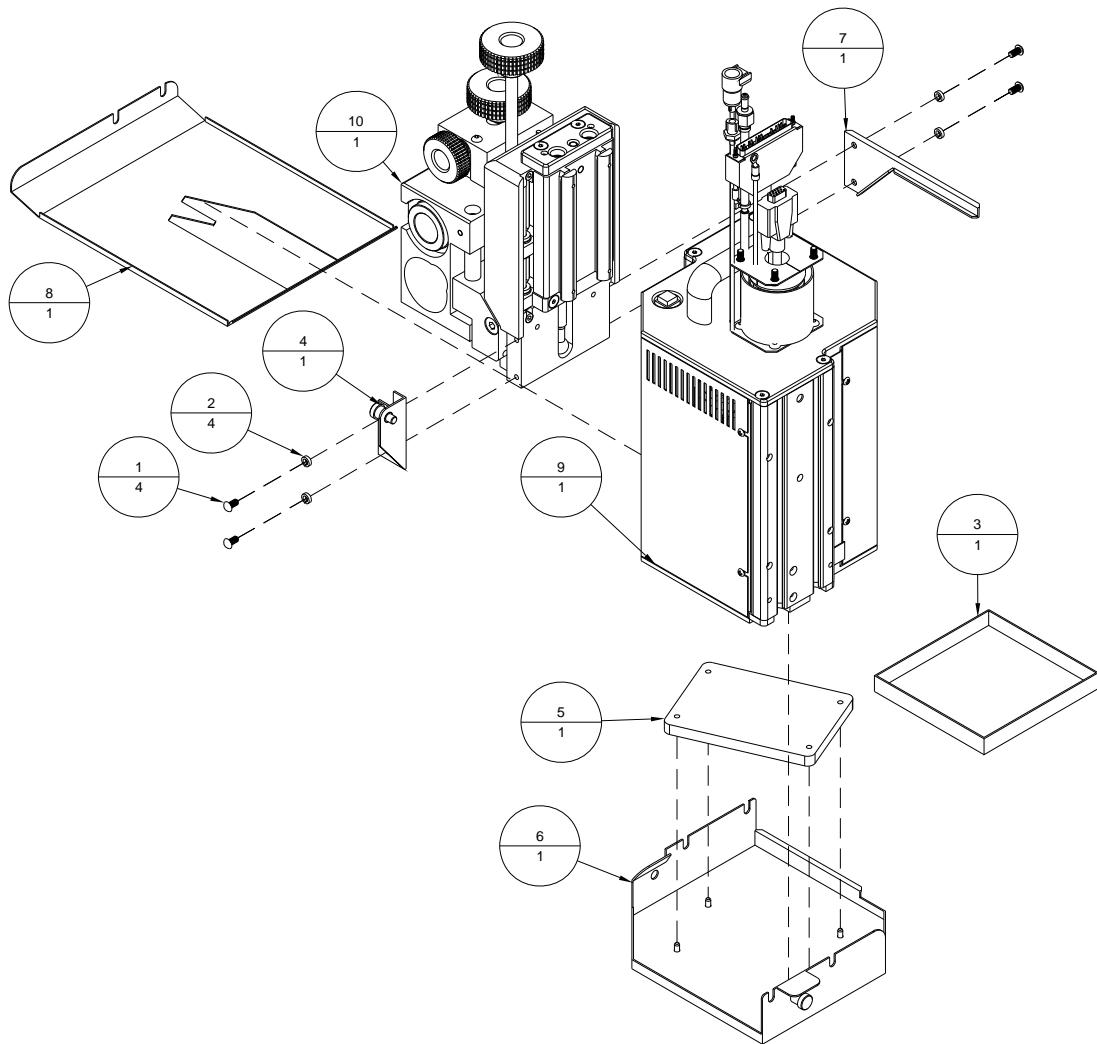


Table A-12: BK792-U-15-RM80 - Printhead, Aurora, 2", BK80, BK1710 / 20

Item	Part Number	Quantity	Description	Reference
1	402310SS	8	Screw, PHMS, 6-32 UNC x 1/4"	
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, 1/4" OD x 1/8" ID, 6" Lg.	
6	9100472	2	Tubing, Silicone, 1/4" 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-85
9	9103451	1	Tray, Ink	
10	9103991A	1	Top Plate Assembly	Page A-94
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-61

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

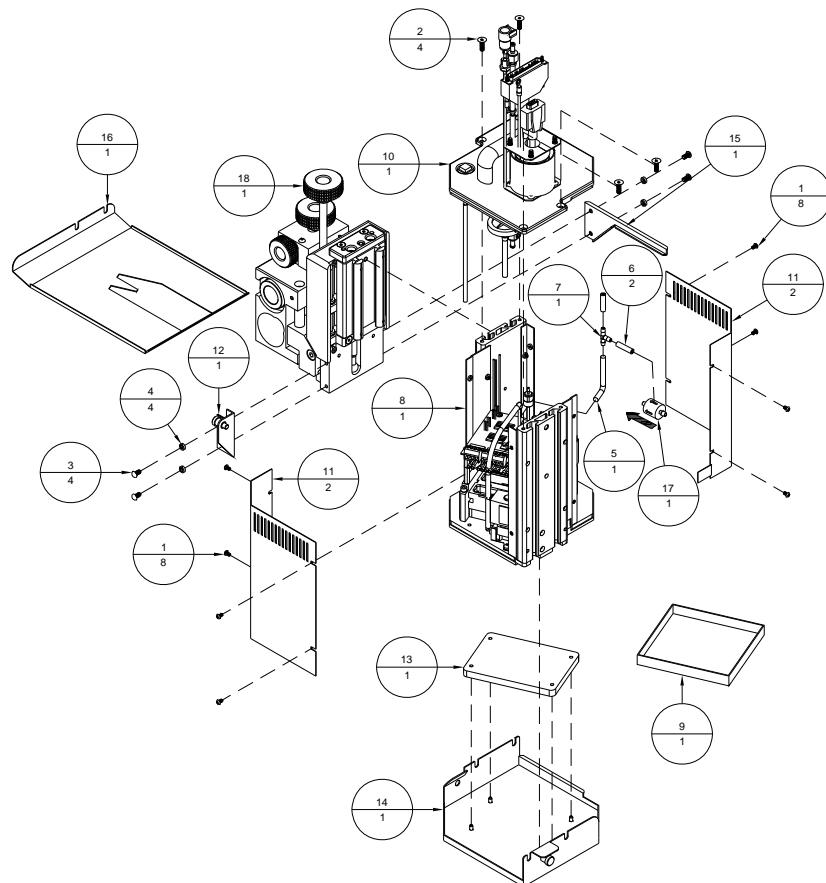


Table A-13: BK793-A-15-RM80 - Printhead, Atlas, 3", BK80, BK1710 / 20

Item	Part Number	Quantity	Description	Reference
1	402310SS	8	Screw, PHMS, 6-32 UNC x 1/4"	
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-93
7	9103991A	1	Top Plate Assembly	Page A-94
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-61

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

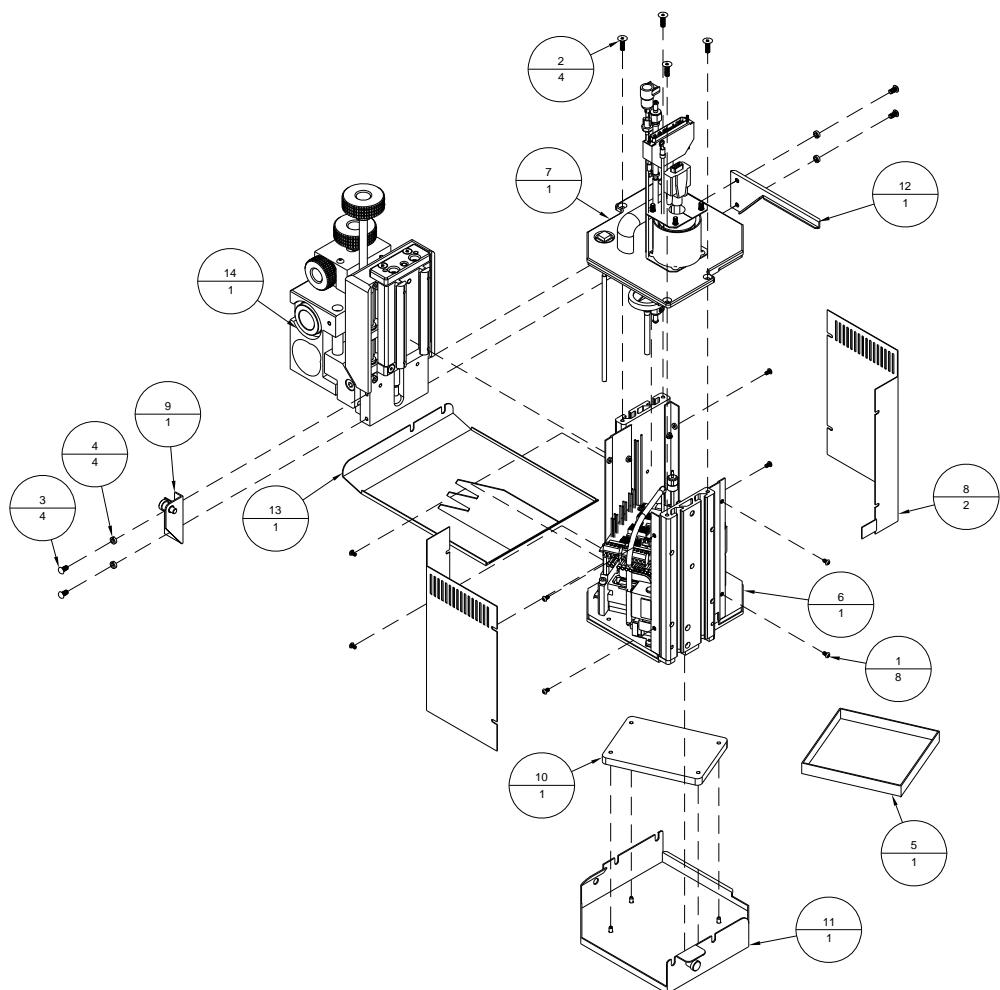


Table A-14: BK793-C-15-RM80 - Printhead, Cezanne, 3", BK80, BK1710 / 20

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-56
10	BK80M-4	1	Mount, Printhead, 2250/3250, BK80	Page A-61

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

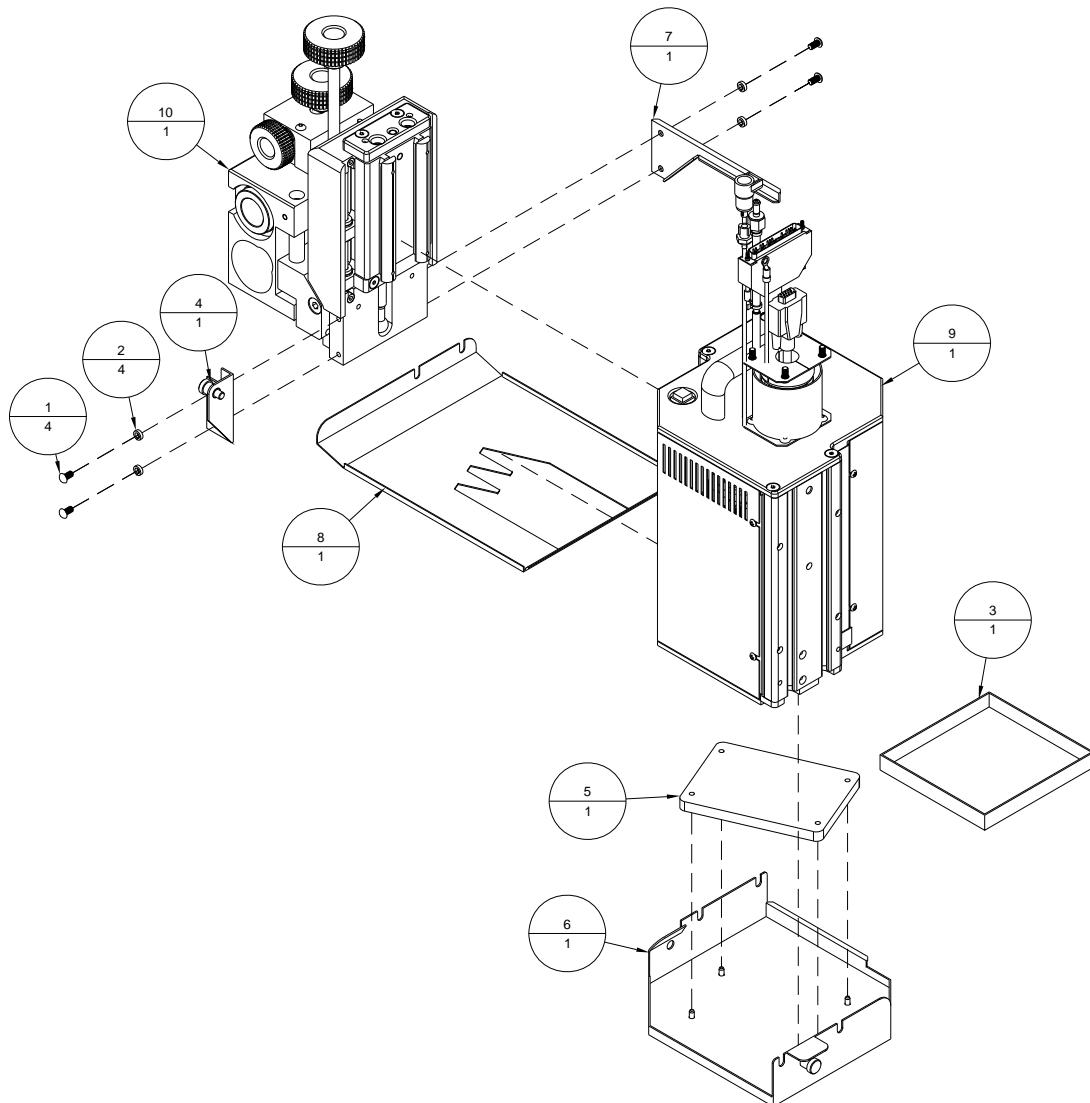


Table A-15: BK793-U-15-RM80 - Printhead, Aurora, 3", BK80, BK1710 / 20

Item	Part Number	Quantity	Description	Reference
1	402310SS	8	Screw, PHMS, 6-32 UNC x 1/4"	
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, 1/4" OD x 1/8" ID, 6" Lg.	
6	9100472	2	Tubing, Silicone, 1/4" 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-82
9	9103451	1	Tray, Ink	
10	9103991A	1	Top Plate Assembly	Page A-94
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-61

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

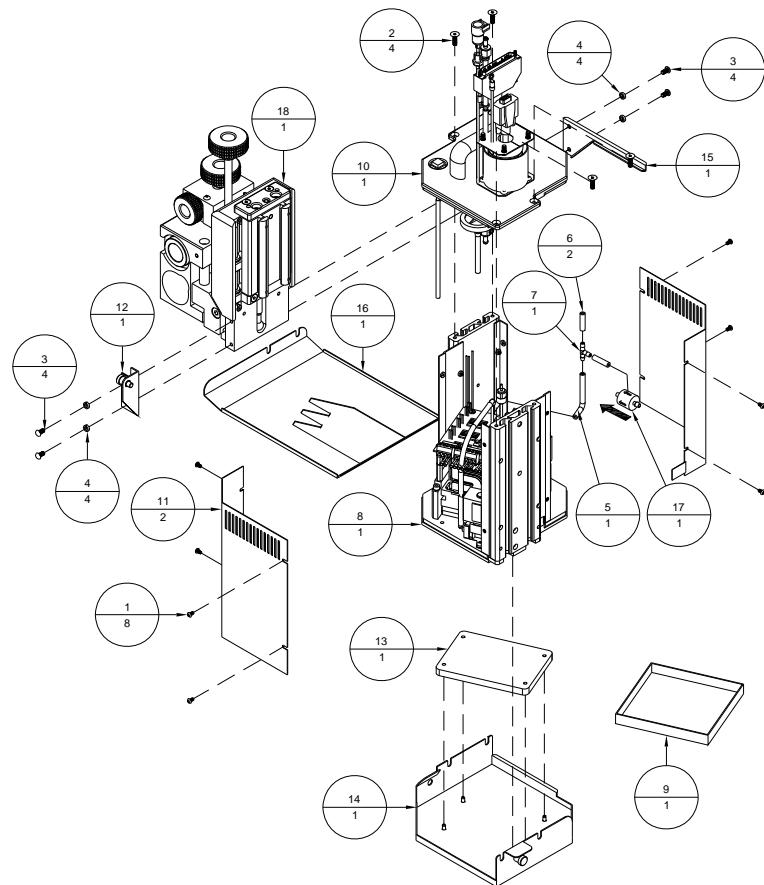


Table A-16: BK2520A-15-M80 - Printhead, Atlas, 200 DPI, BK1710 / 20

Item	Part Number	Quantity	Description	Reference
1	9105570A	2	Jetting Array Assembly	Page A-107
2	9105827A	2	Blind Cap Block Assembly, Jetting Array	Page A-109
3	9105911A	1	Umbilical Assembly, BK2500, 15 ft.	Page A-115
4	9105992A	1	Filter/Degassing Module Assembly	Page A-123
5	BK2500-M80	1	Printhead, BK2500 Series, BK80	Page A-57

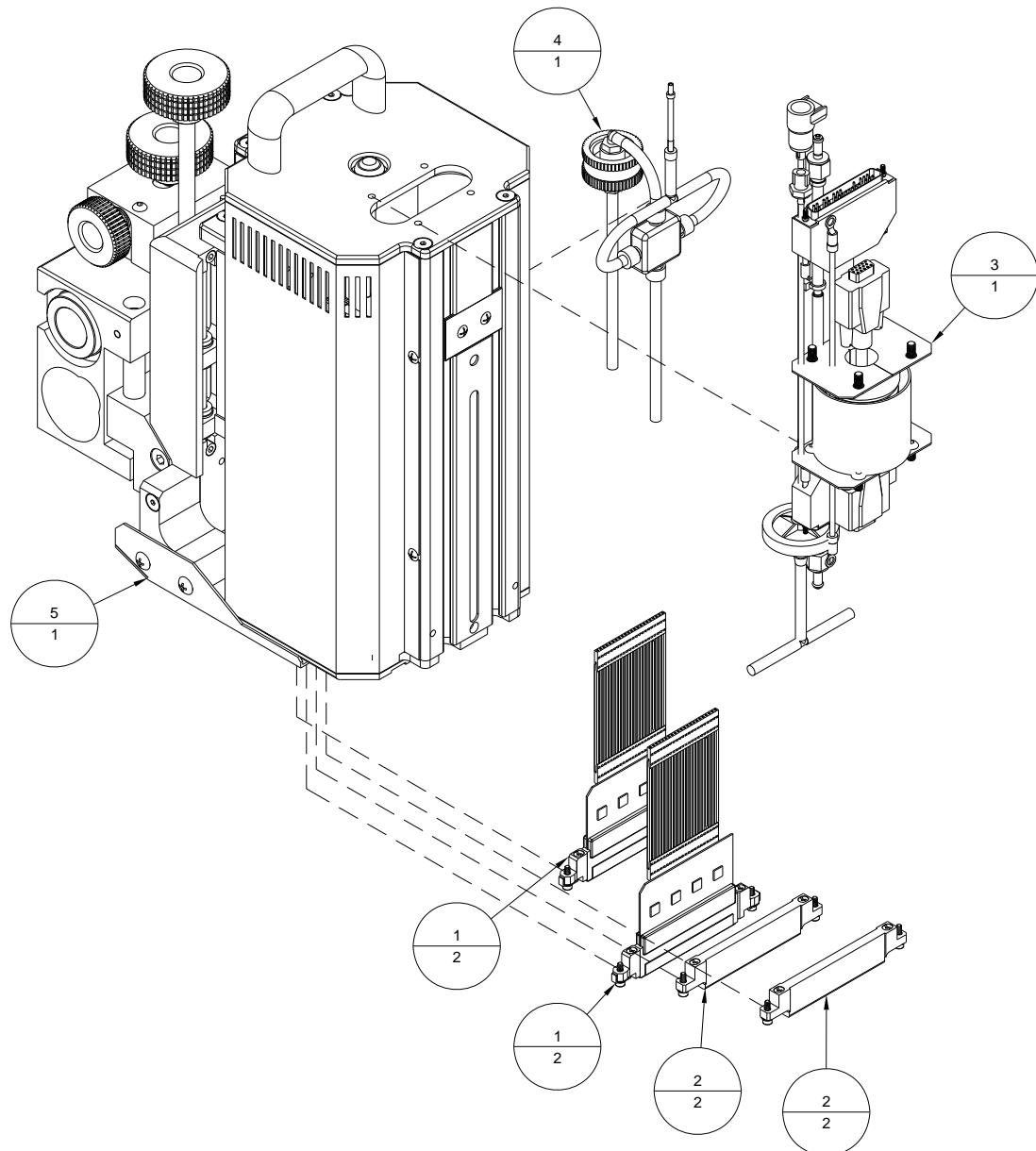
Figure A-16: BK2520A-15-M80 - Printhead, Atlas, 200 DPI, BK1710 / 20

Table A-17: BK2520C-15-M80 - Printhead, Cezanne, 200 DPI, BK1710 / 20

Item	Part Number	Quantity	Description	Reference
1	9105570A	2	Jetting Array Assembly	Page A-107
2	9105827A	2	Blind Cap Block Assembly, Jetting Array	Page A-109
3	9105911A	1	Umbilical Assembly, BK2500, 15 ft.	Page A-115
4	9105992A	1	Filter/Degassing Module Assembly	Page A-123
5	BK2500-M80	1	Printhead, BK2500 Series, BK80	Page A-57

Figure A-17: BK2520C-15-M80 - Printhead, Cezanne, 200 DPI, BK1710 / 20

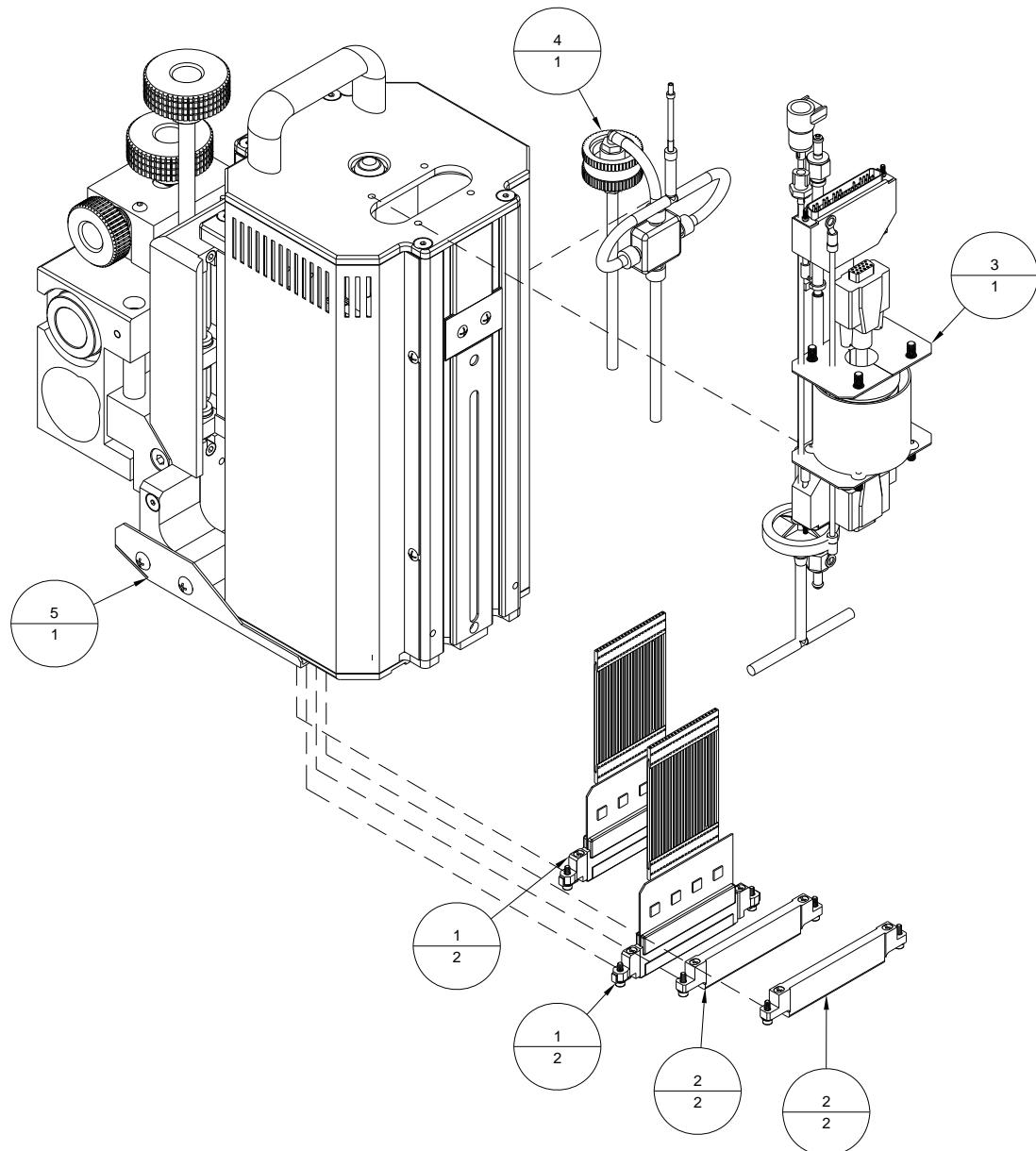


Table A-18: BK2520U-15-M80 - Printhead, Aurora, 200 DPI, BK1710 / 20

Item	Part Number	Quantity	Description	Reference
1	9100472	2	Tubing, Silicone, 1/4" OD x 1/8" ID, 1.25"	
2	9101290	1	Fitting, Tee, 1/8" ID	
3	9104734	1	Check Valve, 1/8" ID, Barbed, 0.22 PSI	
4	9105570A	2	Jetting Array Assembly	Page A-107
5	9105827A	2	Blind Cap Block Assembly, Jetting Array	Page A-109
6	9105833A	1	Filter Assembly, BK2500/5100 UV	Page A-111
7	9105911A	1	Umbilical Assembly, BK2500, 15 ft.	Page A-115
8	BK2500-M80	1	Printhead, BK2500 Series, BK80	Page A-57

Figure A-18: BK2520U-15-M80 - Printhead, Aurora, 200 DPI, BK1710 / 20

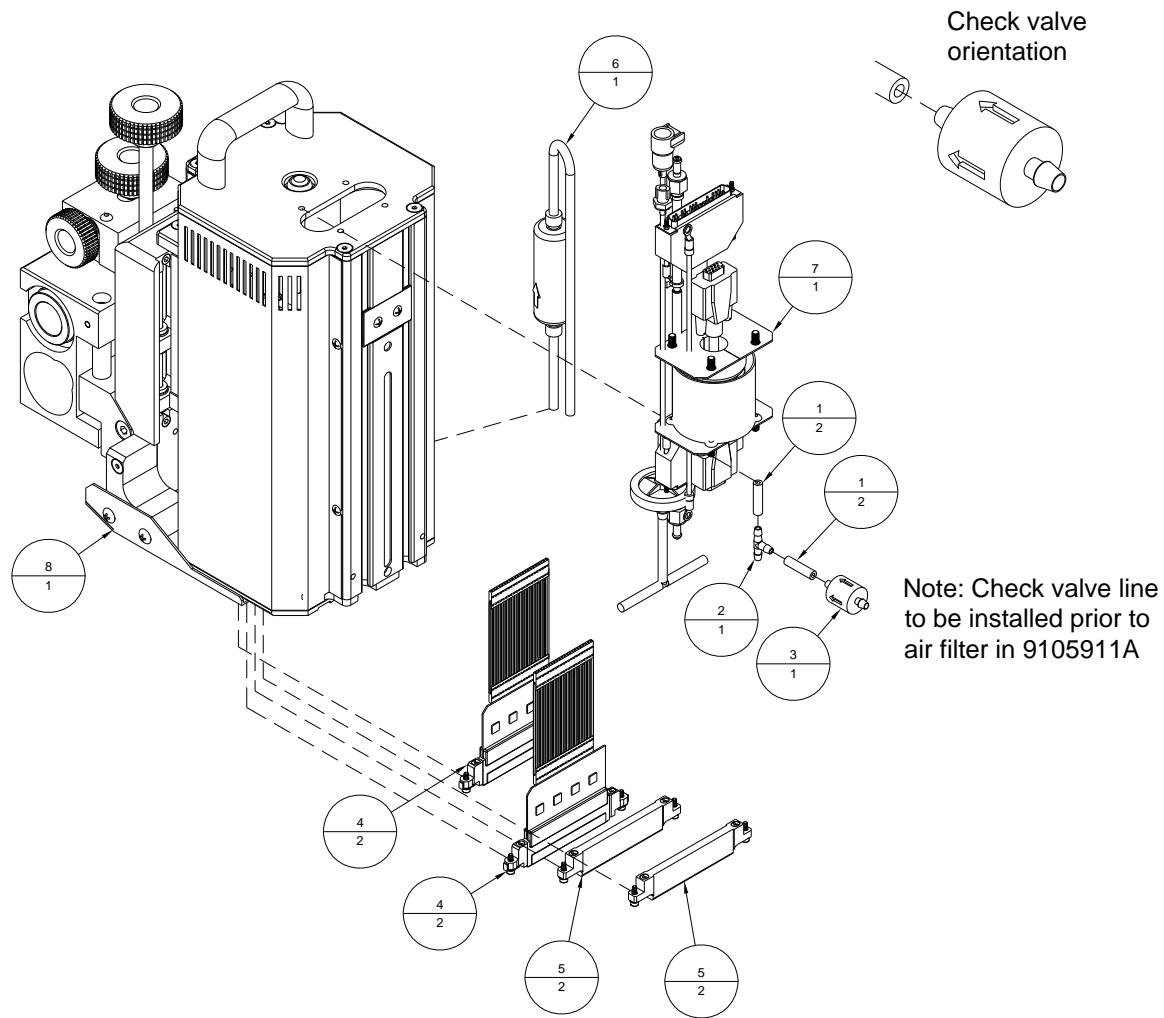


Table A-19: BK2520A-15TM80 - Printhead, Atlas, 200 DPI, BK705 / 1705

Item	Part Number	Quantity	Description	Reference
1	9100510A	1	Cable, Dual HDC	
2	9105570A	2	Jetting Array Assembly	Page A-107
3	9105827A	2	Blind Cap Block Assembly, Jetting Array	Page A-109
4	9105909A	1	Umbilical Assembly, BK2500, BK705/1705	Page A-114
5	9105992A	1	Filter/Degassing Module Assembly	Page A-123
6	9106100	1	Board, QHIB System Support	
7	BK2500-M80	1	Printhead, BK2500 Series, BK80	Page A-57

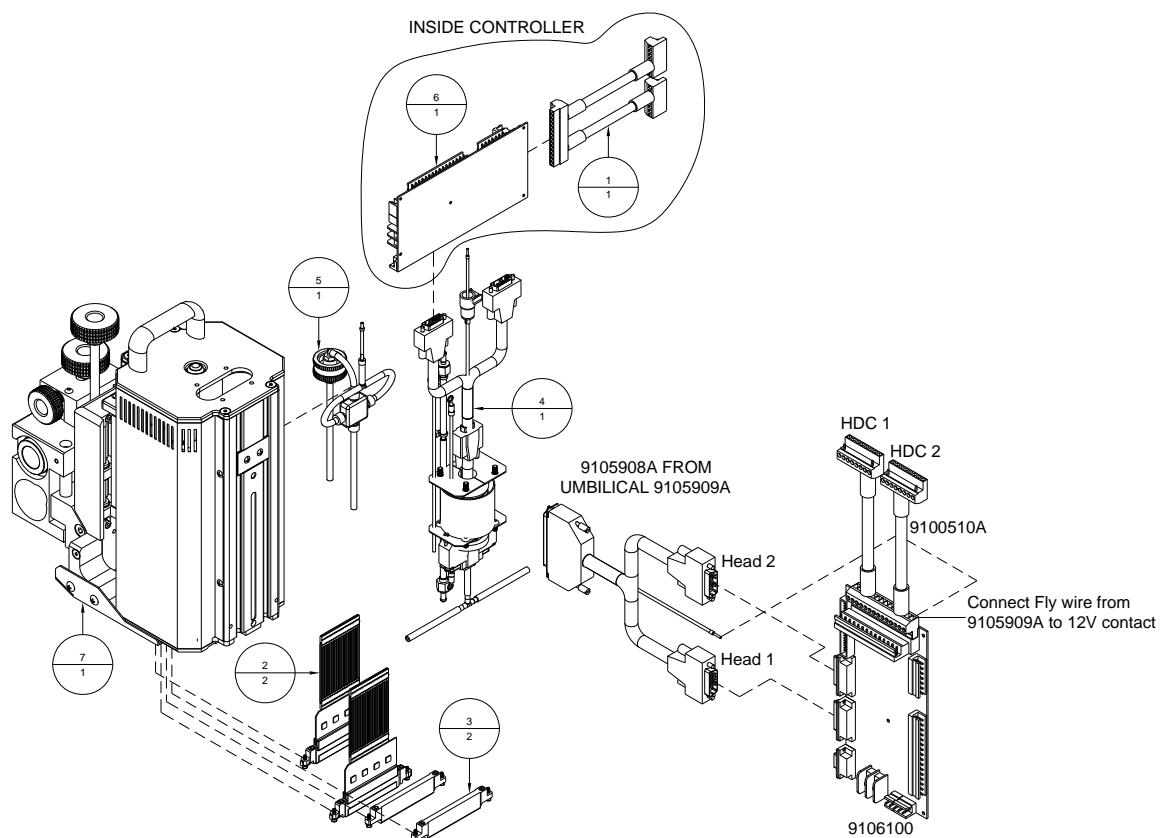
Figure A-19: BK2520A-15TM80 - Printhead, Atlas, 200 DPI, BK705 / 1705

Table A-20: BK2520C-15TM80 - Printhead, Cezanne, 200 DPI, BK705 / 1705

Item	Part Number	Quantity	Description	Reference
1	9100510A	1	Cable, Dual HDC	
2	9105570A	2	Jetting Array Assembly	Page A-107
3	9105827A	2	Blind Cap Block Assembly, Jetting Array	Page A-109
4	9105909A	1	Umbilical Assembly, BK2500, BK705/1705	Page A-114
5	9105992A	1	Filter/Degassing Module Assembly	Page A-123
6	9106100	1	Board, QHIB System Support	
7	BK2500-M80	1	Printhead, BK2500 Series, BK80	Page A-57

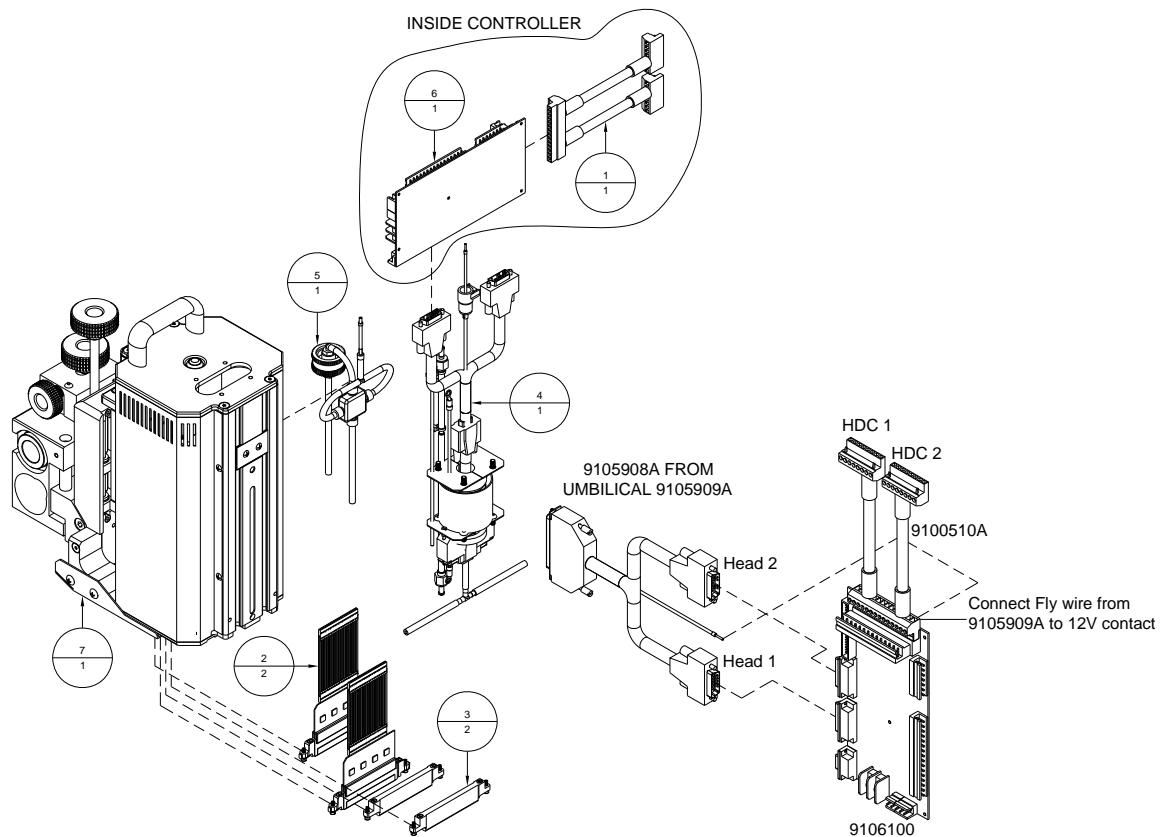
Figure A-20: BK2520C-15TM80 - Printhead, Cezanne, 200 DPI, BK705 / 1705

Table A-21: BK2520U-15TM80 - Printhead, Aurora, 200 DPI, BK705 / 1705

Item	Part Number	Quantity	Description	Reference
1	9100472	2	Tubing, Silicone, 1/4" OD x 1/8" ID, 1.25"	
2	9100510A	1	Cable, Dual HDC	
3	9101290	1	Fitting, Tee, 1/8" ID	
4	9104734	1	Check Valve, 1/8" ID, Barbed, 0.22 PSI	
5	9105570A	2	Jetting Array Assembly	Page A-107
6	9105827A	2	Blind Cap Block Assembly, Jetting Array	Page A-109
7	9105833A	1	Filter Assembly, BK2500/5100 UV	Page A-111
8	9105909A	1	Umbilical Assembly, BK2500, BK705/1705	Page A-114
9	9106100	1	Board, QHIB System Support	
10	BK2500-M80	1	Printhead, BK2500 Series, BK80	Page A-57

Figure A-21: BK2520U-15TM80 - Printhead, Aurora, 200 DPI, BK705 / 1705

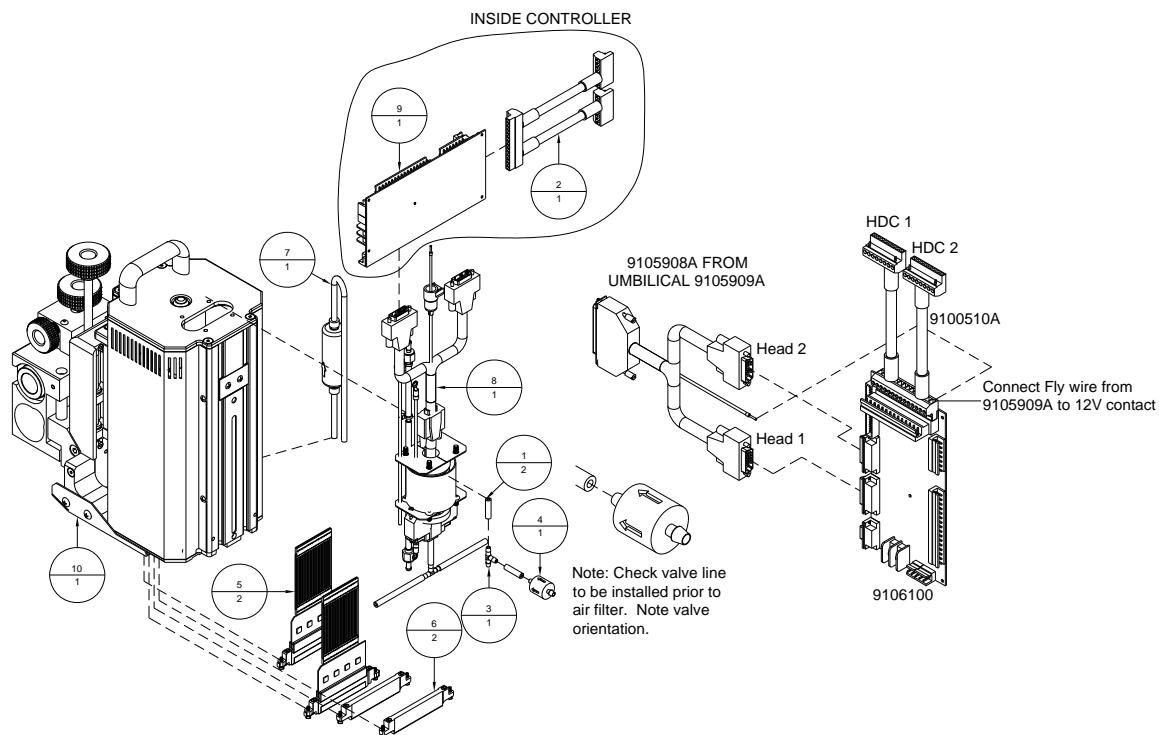


Table A-22: BK2530A-15-M80 - Printhead, Atlas, 300 DPI, BK1710 / 20

Item	Part Number	Quantity	Description	Reference
1	9105570A	3	Jetting Array Assembly	Page A-107
2	9105827A	1	Blind Cap Block Assembly, Jetting Array	Page A-109
3	9105911A	1	Umbilical Assembly, BK2500, 15 ft.	Page A-115
4	9105992A	1	Filter/Degassing Module Assembly	Page A-123
5	BK2500-M80	1	Printhead, BK2500 Series, BK80	Page A-57

Figure A-22: BK2530A-15-M80 - Printhead, Atlas, 300 DPI, BK1710 / 20

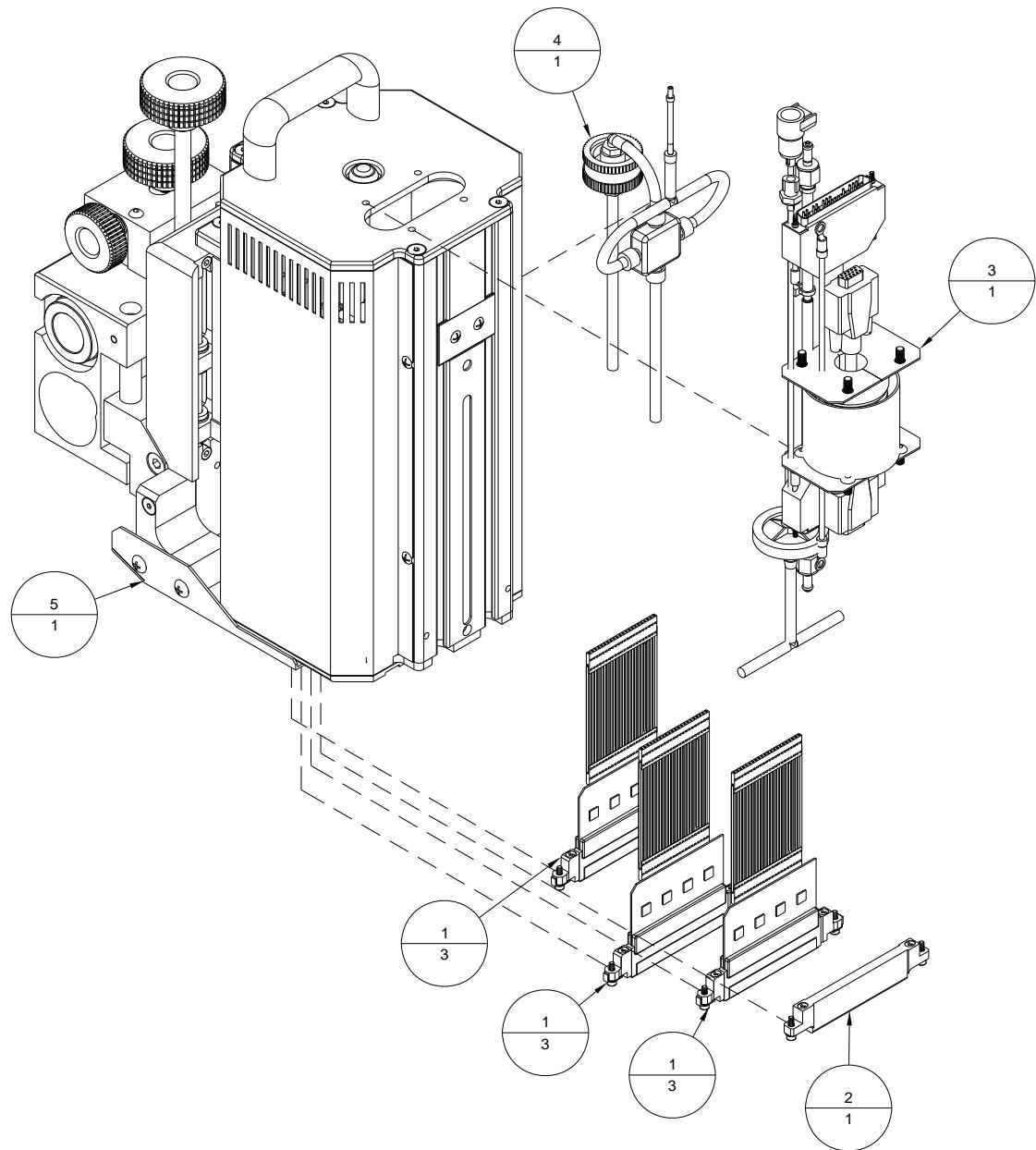


Table A-23: BK2530C-15-M80 - Printhead, Cezanne, 300 DPI, BK1710 / 20

Item	Part Number	Quantity	Description	Reference
1	9105570A	3	Jetting Array Assembly	Page A-107
2	9105827A	1	Blind Cap Block Assembly, Jetting Array	Page A-109
3	9105911A	1	Umbilical Assembly, BK2500, 15 ft.	Page A-115
4	9105992A	1	Filter/Degassing Module Assembly	Page A-123
5	BK2500-M80	1	Printhead, BK2500 Series, BK80	Page A-57

Figure A-23: BK2530C-15-M80 - Printhead, Cezanne, 300 DPI, BK1710 / 20

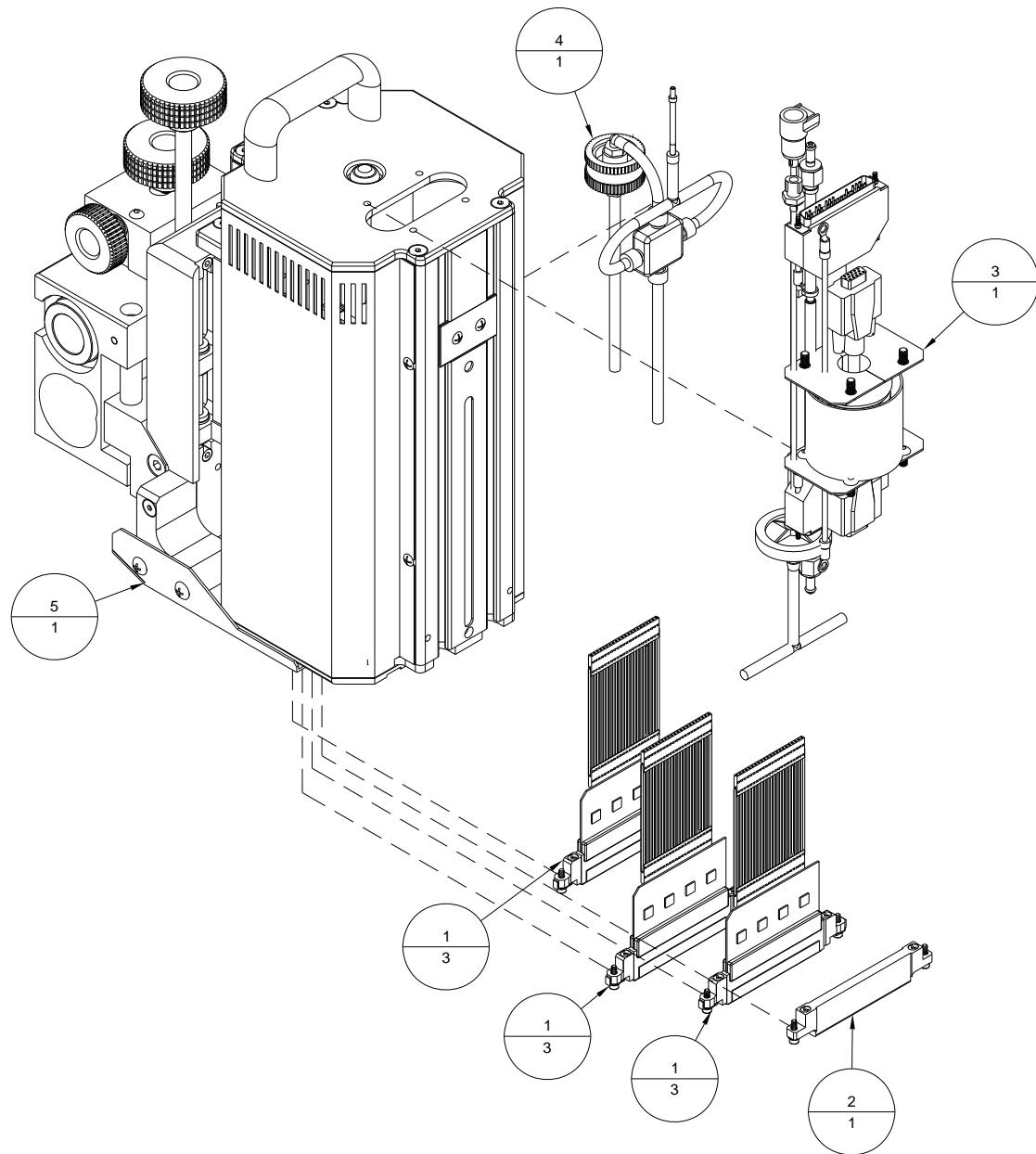


Table A-24: BK2530U-15-M80 - Printhead, Aurora, 300 DPI, BK1710 / 20

Item	Part Number	Quantity	Description	Reference
1	9100472	2	Tubing, Silicone, 1/4" OD x 1/8" ID, 1.25"	
2	9101290	1	Fitting, Tee, 1/8" ID	
3	9104734	1	Check Valve, 1/8" ID, Barbed, 0.22 PSI	
4	9105570A	3	Jetting Array Assembly	Page A-107
5	9105827A	1	Blind Cap Block Assembly, Jetting Array	Page A-109
6	9105833A	1	Filter Assembly, BK2500/5100 UV	Page A-111
7	9105911A	1	Umbilical Assembly, BK2500, 15 ft.	Page A-115
8	BK2500-M80	1	Printhead, BK2500 Series, BK80	Page A-57

Figure A-24: BK2530U-15-M80 - Printhead, Aurora, 300 DPI, BK1710 / 20

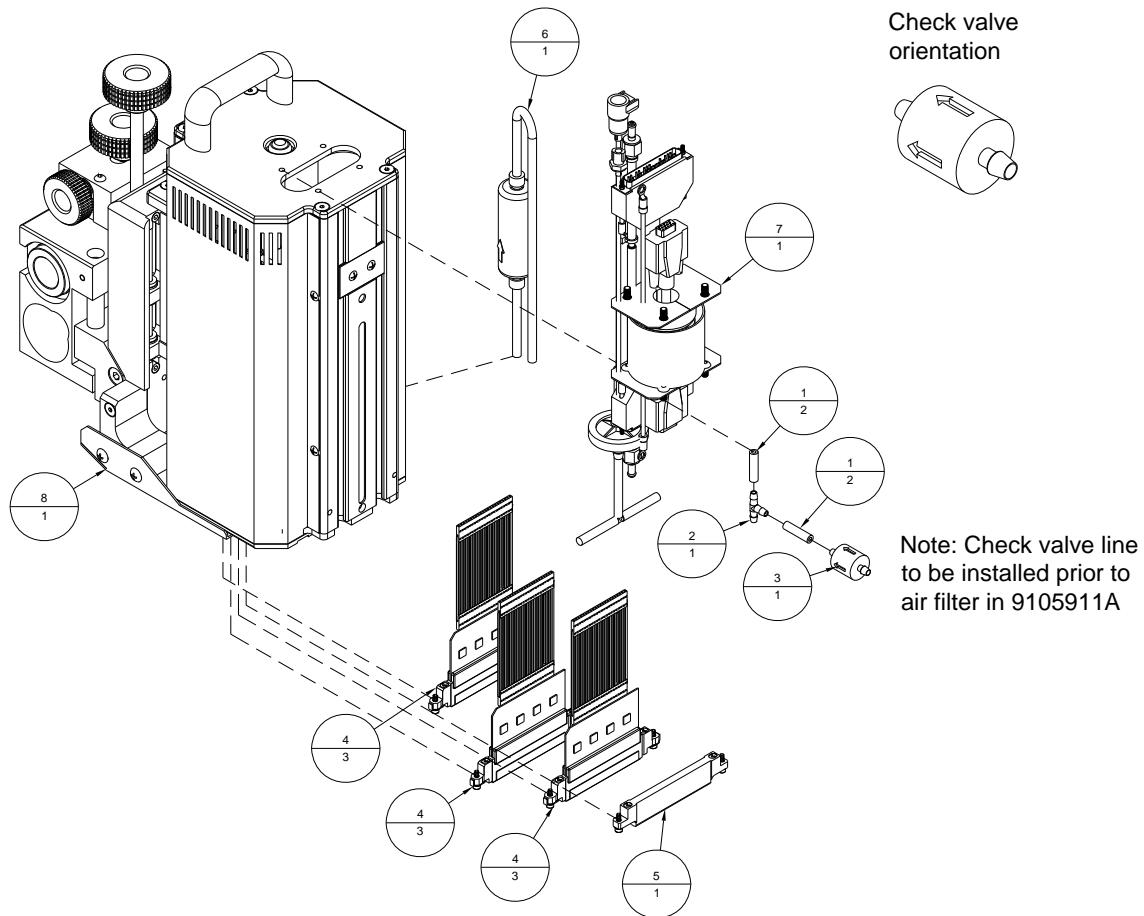


Table A-25: BK2530A-15TM80 - Printhead, Atlas, 300 DPI, BK705 / 1705

Item	Part Number	Quantity	Description	Reference
1	9100510A	1	Cable, Dual HDC	
2	9100994	1	Board, Head Drive Circuit (HDC)	
3	9105570A	3	Jetting Array Assembly	Page A-107
4	9105827A	1	Blind Cap Block Assembly, Jetting Array	Page A-109
5	9105909A	1	Umbilical Assembly, BK2500, BK705/1705	Page A-114
6	9105992A	1	Filter/Degassing Module Assembly	Page A-123
7	9106100	1	Board, QHIB System Support	
8	BK2500-M80	1	Printhead, BK2500 Series, BK80	Page A-57

Figure A-25: BK2530A-15TM80 - Printhead, Atlas, 300 DPI, BK705 / 1705

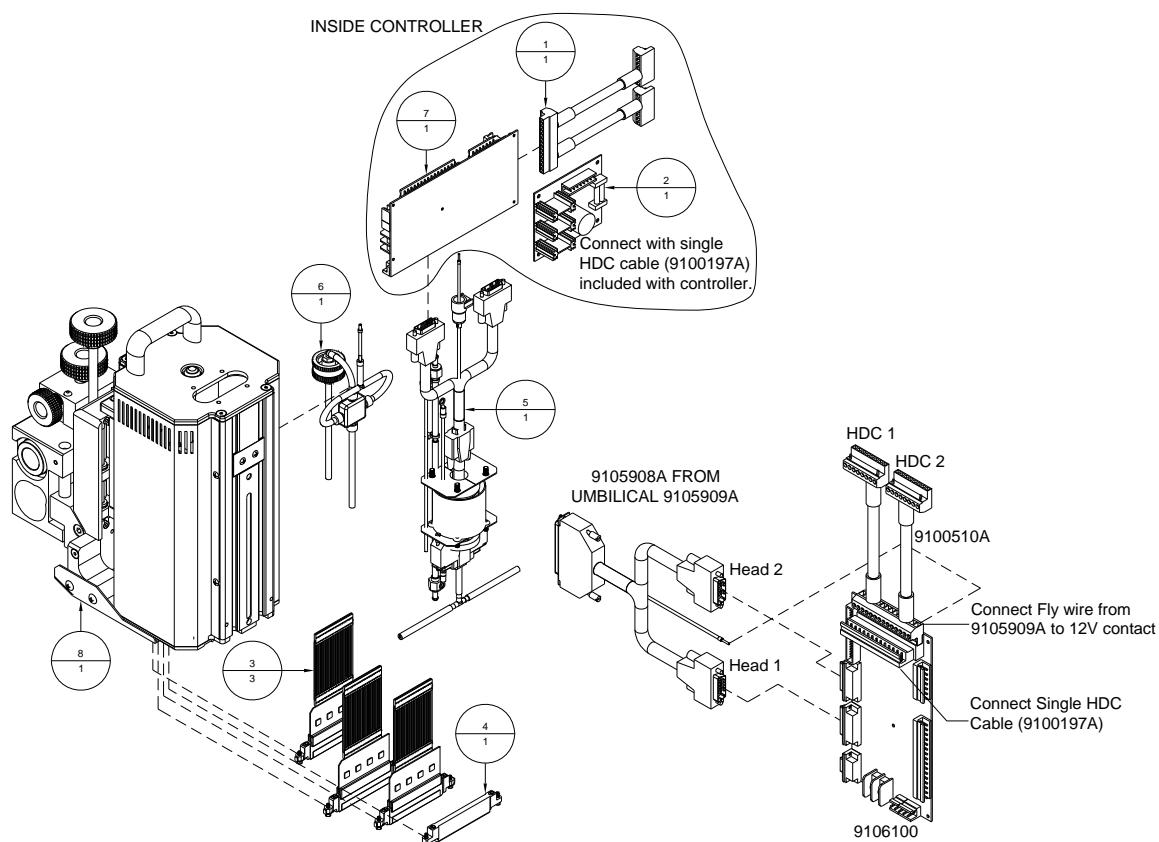


Table A-26: BK2530C-15TM80 - Printhead, Cezanne, 300 DPI, BK705 / 1705

Item	Part Number	Quantity	Description	Reference
1	9100510A	1	Cable, Dual HDC	
2	9100994	1	Board, Head Drive Circuit (HDC)	
3	9105570A	3	Jetting Array Assembly	Page A-107
4	9105827A	1	Blind Cap Block Assembly, Jetting Array	Page A-109
5	9105909A	1	Umbilical Assembly, BK2500, BK705/1705	Page A-114
6	9105992A	1	Filter/Degassing Module Assembly	Page A-123
7	9106100	1	Board, QHIB System Support	
8	BK2500-M80	1	Printhead, BK2500 Series, BK80	Page A-57

Figure A-26: BK2530C-15TM80 - Printhead, Cezanne, 300 DPI, BK705 / 1705

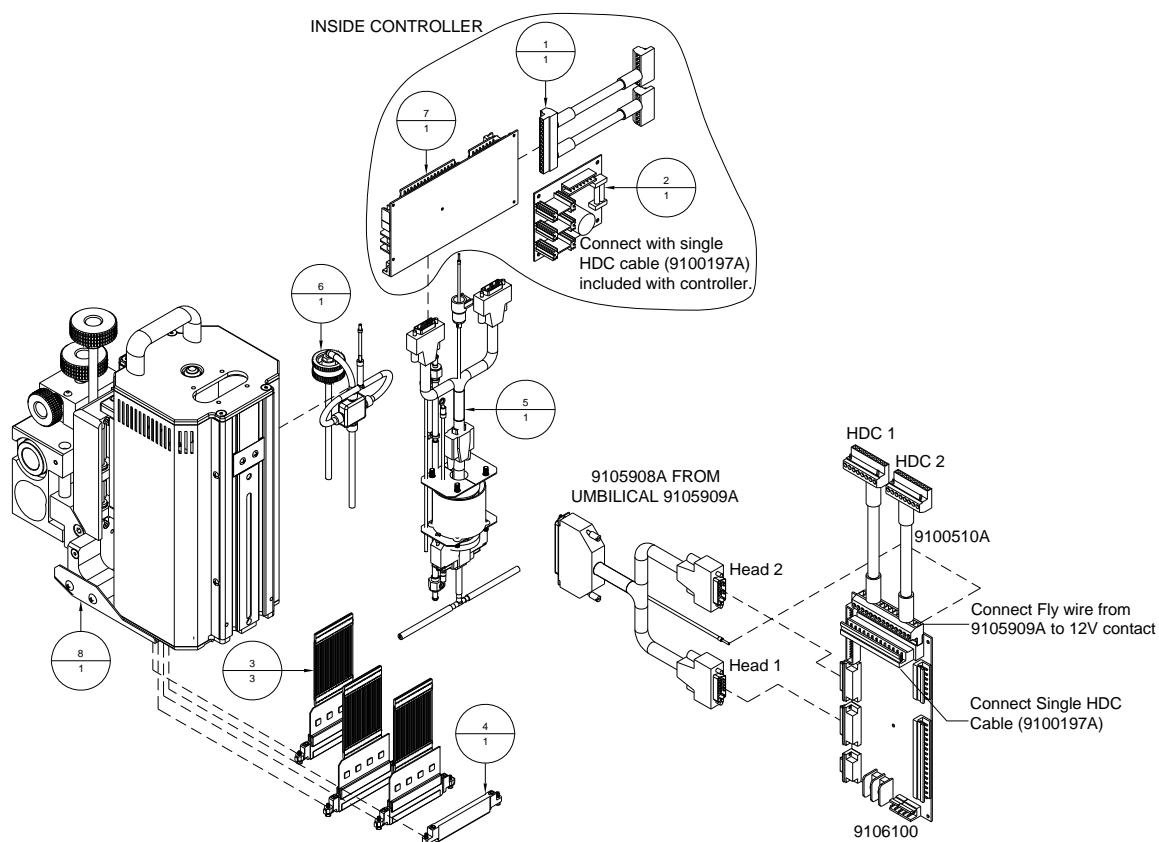


Table A-27: BK2530U-15TM80 - Printhead, Aurora, 300 DPI, BK705 / 1705

Item	Part Number	Quantity	Description	Reference
1	9100472	2	Tubing, Silicone, 1/4" OD x 1/8" ID, 1.25"	
2	9100510A	1	Cable, Dual HDC	
3	9100994	1	Board, Head Drive Circuit (HDC)	
4	9101290	1	Fitting, Tee, 1/8" ID	
5	9104734	1	Check Valve, 1/8" ID, Barbed, 0.22 PSI	
6	9105570A	3	Jetting Array Assembly	Page A-107
7	9105827A	1	Blind Cap Block Assembly, Jetting Array	Page A-109
8	9105833A	1	Filter Assembly, BK2500/5100 UV	Page A-111
9	9105909A	1	Umbilical Assembly, BK2500, BK705/1705	Page A-114
10	9106100	1	Board, QHIB System Support	
11	BK2500-M80	1	Printhead, BK2500 Series, BK80	Page A-57

Figure A-27: BK2530U-15TM80 - Printhead, Aurora, 300 DPI, BK705 / 1705

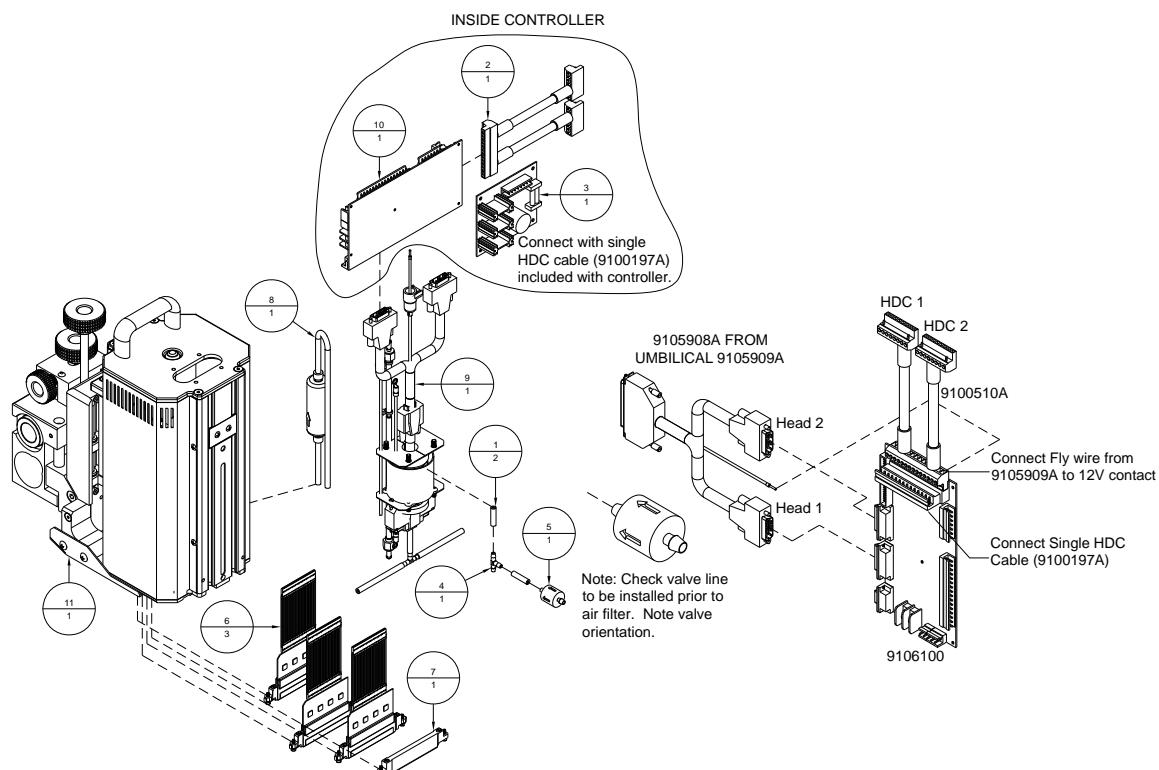


Table A-28: BK2540A-15-M80 - Printhead, Atlas, 400 DPI, BK1710 / 20

Item	Part Number	Quantity	Description	Reference
1	9105570A	4	Jetting Array Assembly	Page A-107
2	9105911A	1	Umbilical Assembly, BK2500, 15 ft.	Page A-115
3	9105992A	1	Filter/Degassing Module Assembly	Page A-123
4	BK2500-M80	1	Printhead, BK2500 Series, BK80	Page A-57

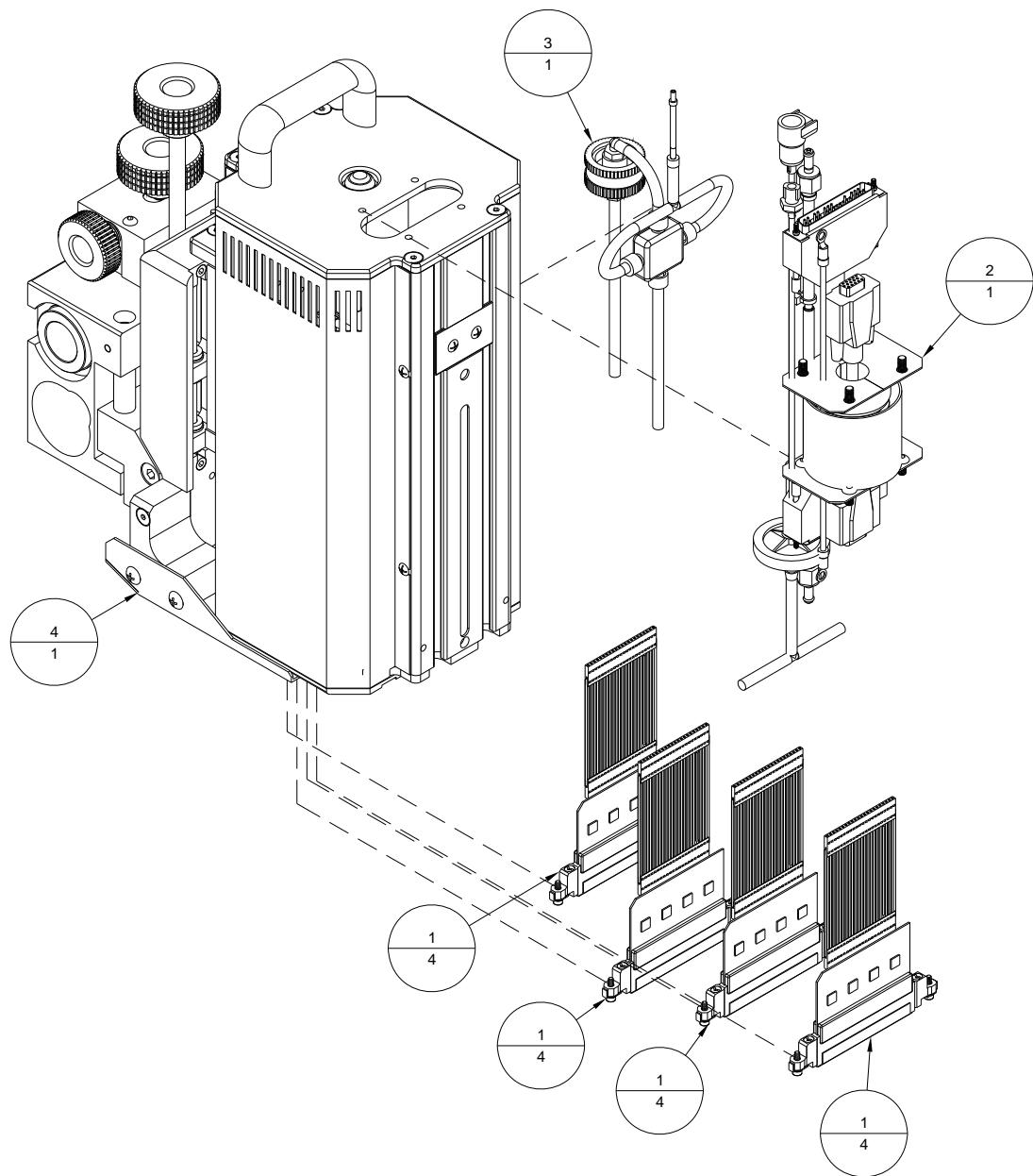
Figure A-28: BK2540A-15-M80 - Printhead, Atlas, 400 DPI, BK1710 / 20

Table A-29: BK2540C-15-M80 - Printhead, Cezanne, 400 DPI, BK1710 / 20

Item	Part Number	Quantity	Description	Reference
1	9105570A	4	Jetting Array Assembly	Page A-107
2	9105911A	1	Umbilical Assembly, BK2500, 15 ft.	Page A-115
3	9105992A	1	Filter/Degassing Module Assembly	Page A-123
4	BK2500-M80	1	Printhead, BK2500 Series, BK80	Page A-57

Figure A-29: BK2540C-15-M80 - Printhead, Cezanne, 400 DPI, BK1710 / 20

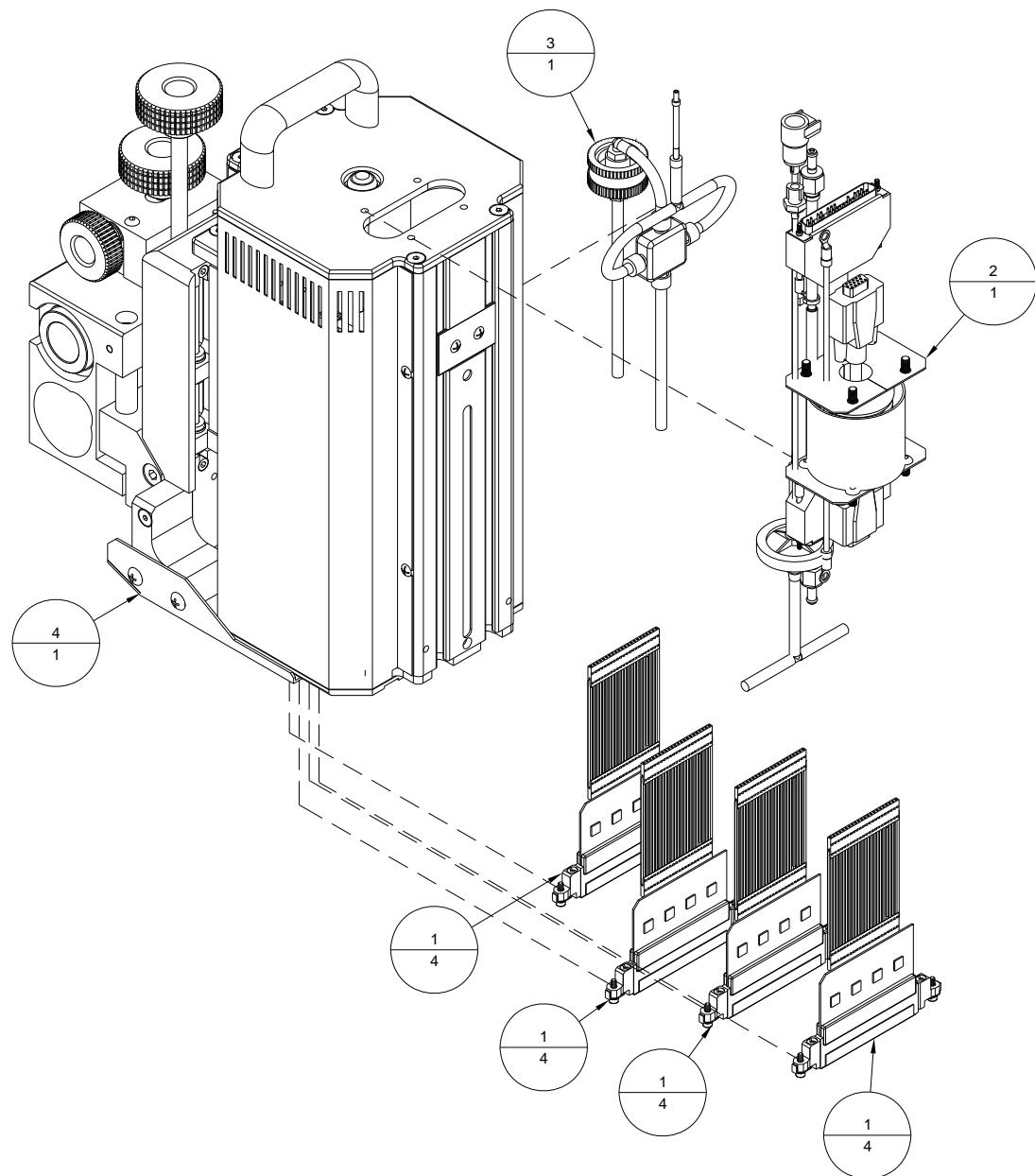


Table A-30: BK2540U-15-M80 - Printhead, Aurora, 400 DPI, BK1710 / 20

Item	Part Number	Quantity	Description	Reference
1	9100472	2	Tubing, Silicone, 1/4" OD x 1/8" ID, 1.25"	
2	9101290	1	Fitting, Tee, 1/8" ID	
3	9104734	1	Check Valve, 1/8" ID, Barbed, 0.22 PSI	
4	9105570A	4	Jetting Array Assembly	Page A-107
5	9105833A	1	Filter Assembly, BK2500/5100 UV	Page A-111
6	9105911A	1	Umbilical Assembly, BK2500, 15 ft.	Page A-115
7	BK2500-M80	1	Printhead, BK2500 Series, BK80	Page A-57

Figure A-30: BK2540U-15-M80 - Printhead, Aurora, 400 DPI, BK1710 / 20

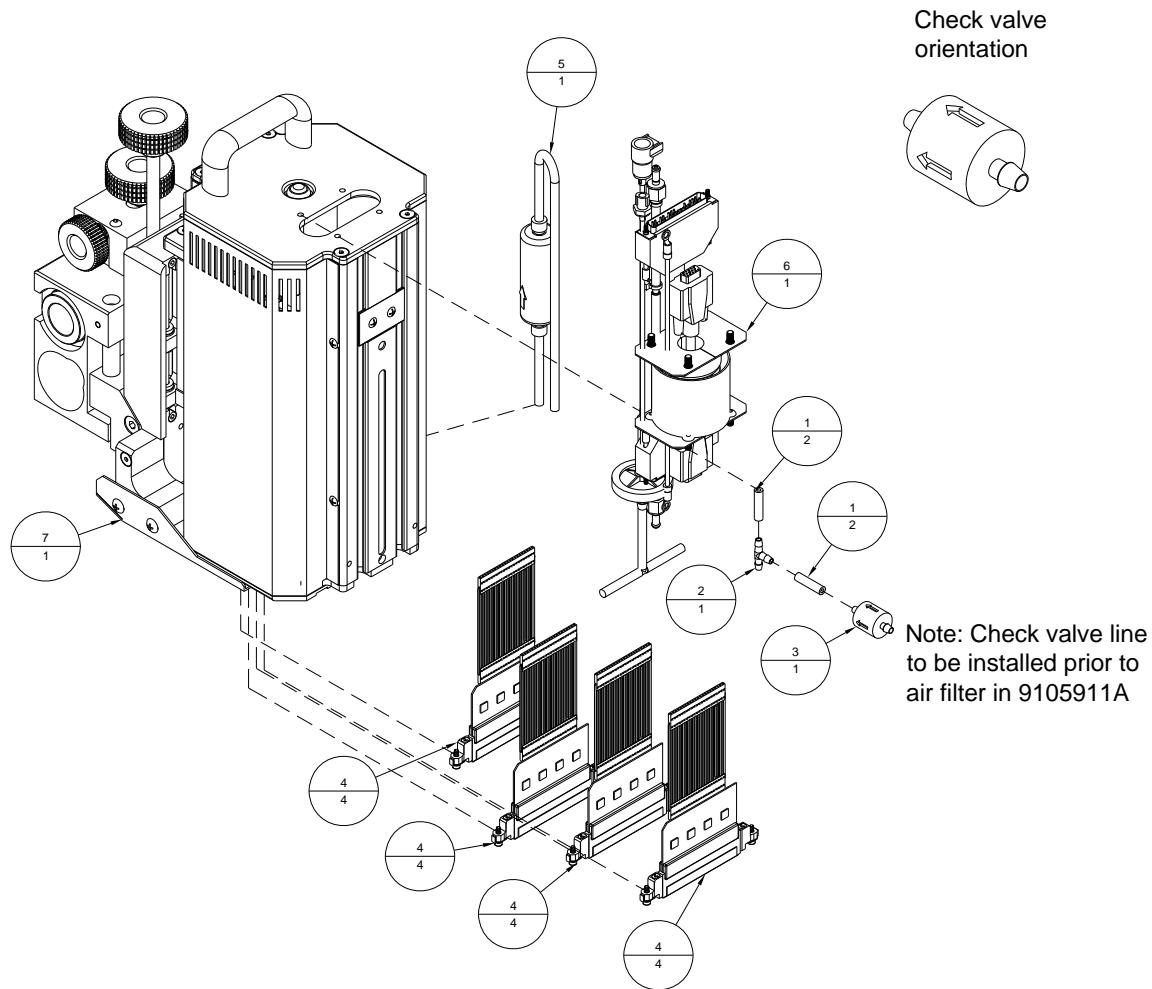


Table A-31: BK2540A-15TM80 - Printhead, Atlas, 400 DPI, BK705 / 1705

Item	Part Number	Quantity	Description	Reference
1	9100510A	2	Cable, Dual HDC	
2	9100994	2	Board, Head Drive Circuit (HDC)	
3	9105570A	4	Jetting Array Assembly	Page A-107
4	9105909A	1	Umbilical Assembly, BK2500, BK705/1705	Page A-114
5	9105992A	1	Filter/Degassing Module Assembly	Page A-123
6	9106100	1	Board, QHIB System Support	
7	BK2500-M80	1	Printhead, BK2500 Series, BK80	Page A-57

Figure A-31: BK2540A-15TM80 - Printhead, Atlas, 400 DPI, BK705 / 1705

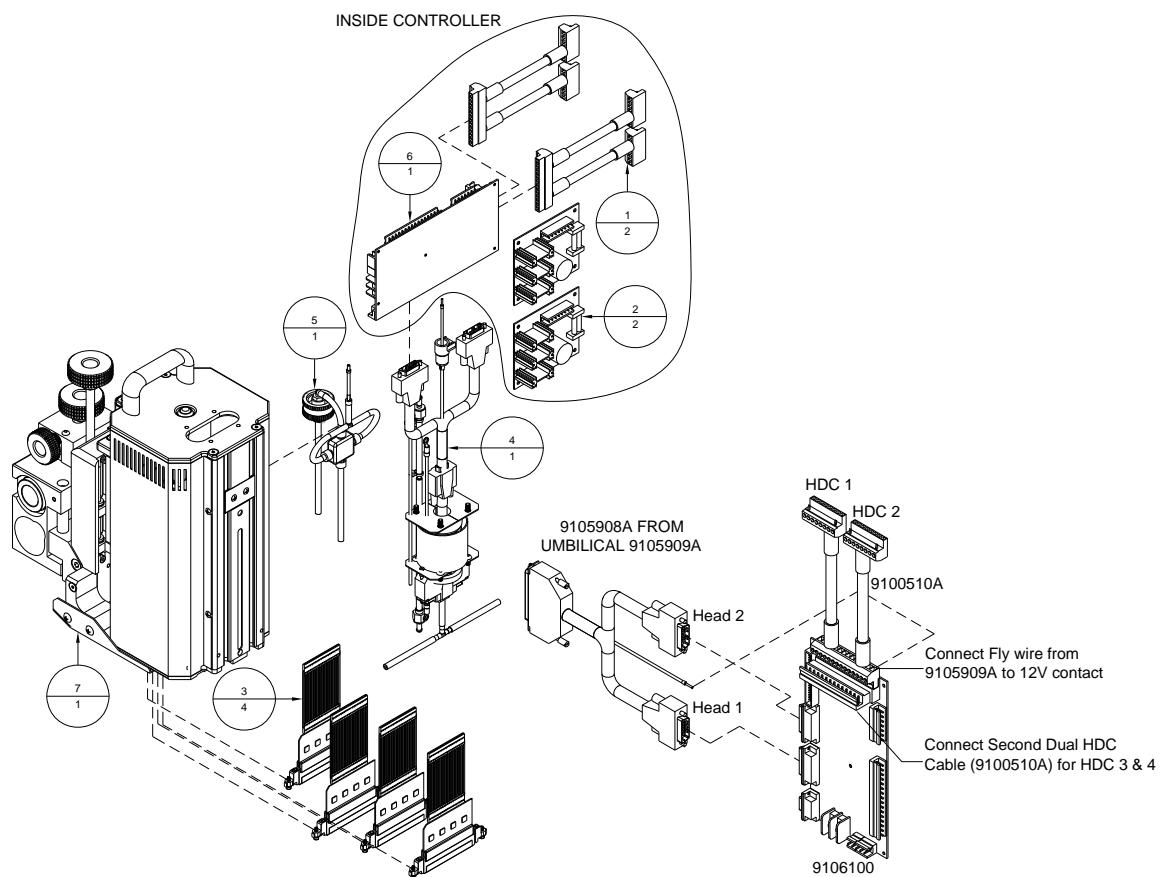


Table A-32: BK2540C-15TM80 - Printhead, Cezanne, 400 DPI, BK705 / 1705

Item	Part Number	Quantity	Description	Reference
1	9100510A	2	Cable, Dual HDC	
2	9100994	2	Board, Head Drive Circuit (HDC)	
3	9105570A	4	Jetting Array Assembly	Page A-107
4	9105909A	1	Umbilical Assembly, BK2500, BK705/1705	Page A-114
5	9105992A	1	Filter/Degassing Module Assembly	Page A-123
6	9106100	1	Board, QHIB System Support	
7	BK2500-M80	1	Printhead, BK2500 Series, BK80	Page A-57

Figure A-32: BK2540C-15TM80 - Printhead, Cezanne, 400 DPI, BK705 / 1705

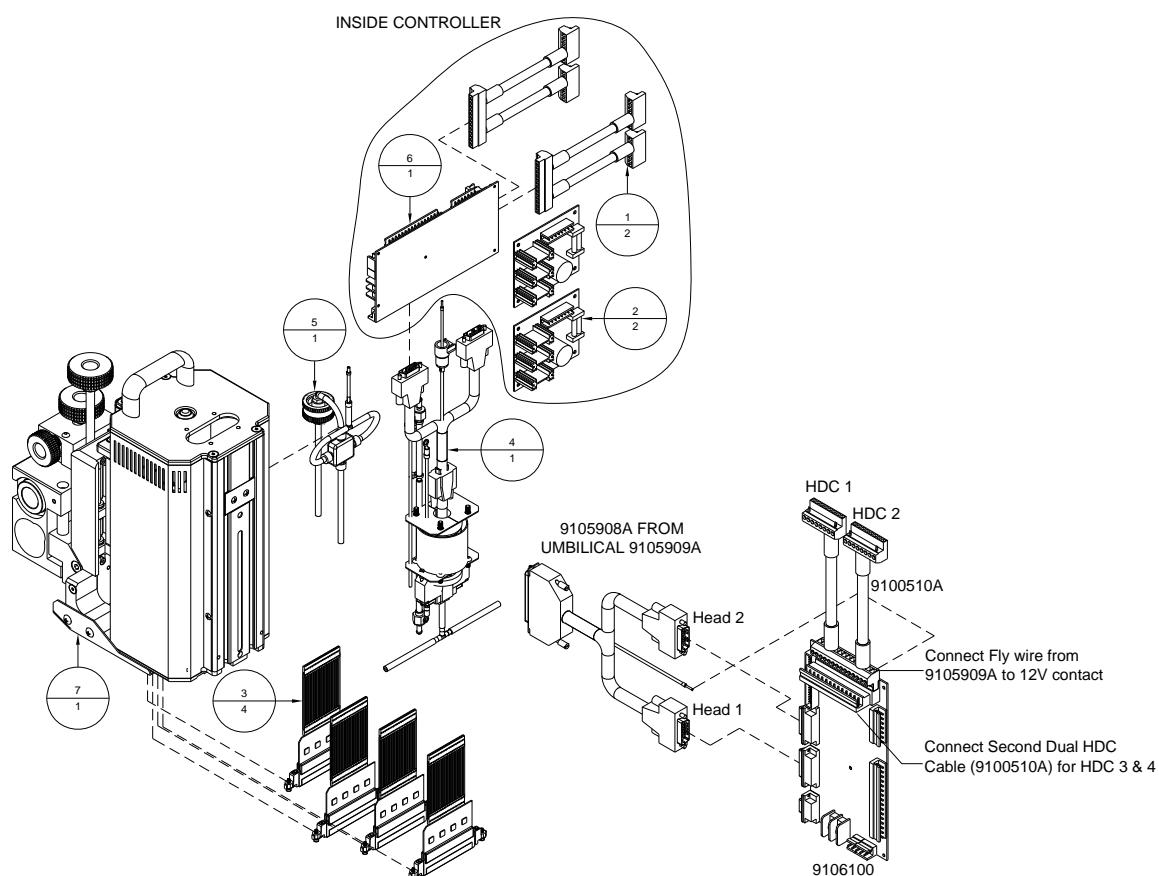


Table A-33: BK2540U-15TM80 - Printhead, Aurora, 400 DPI, BK705 / 1705

Item	Part Number	Quantity	Description	Reference
1	9100472	2	Tubing, Silicone, 1/4" OD x 1/8" ID, 1.25"	
2	9100510A	2	Cable, Dual HDC	
3	9100994	2	Board, Head Drive Circuit (HDC)	
4	9101290	1	Fitting, Tee, 1/8" ID	
5	9104734	1	Check Valve, 1/8" ID, Barbed, 0.22 PSI	
6	9105570A	4	Jetting Array Assembly	Page A-107
7	9105833A	1	Filter Assembly, BK2500/5100 UV	Page A-111
8	9105909A	1	Umbilical Assembly, BK2500, BK705/1705	Page A-114
9	9106100	1	Board, QHIB System Support	
10	BK2500-M80	1	Printhead, BK2500 Series, BK80	Page A-57

Figure A-33: BK2540U-15TM80 - Printhead, Aurora, 400 DPI, BK705 / 1705

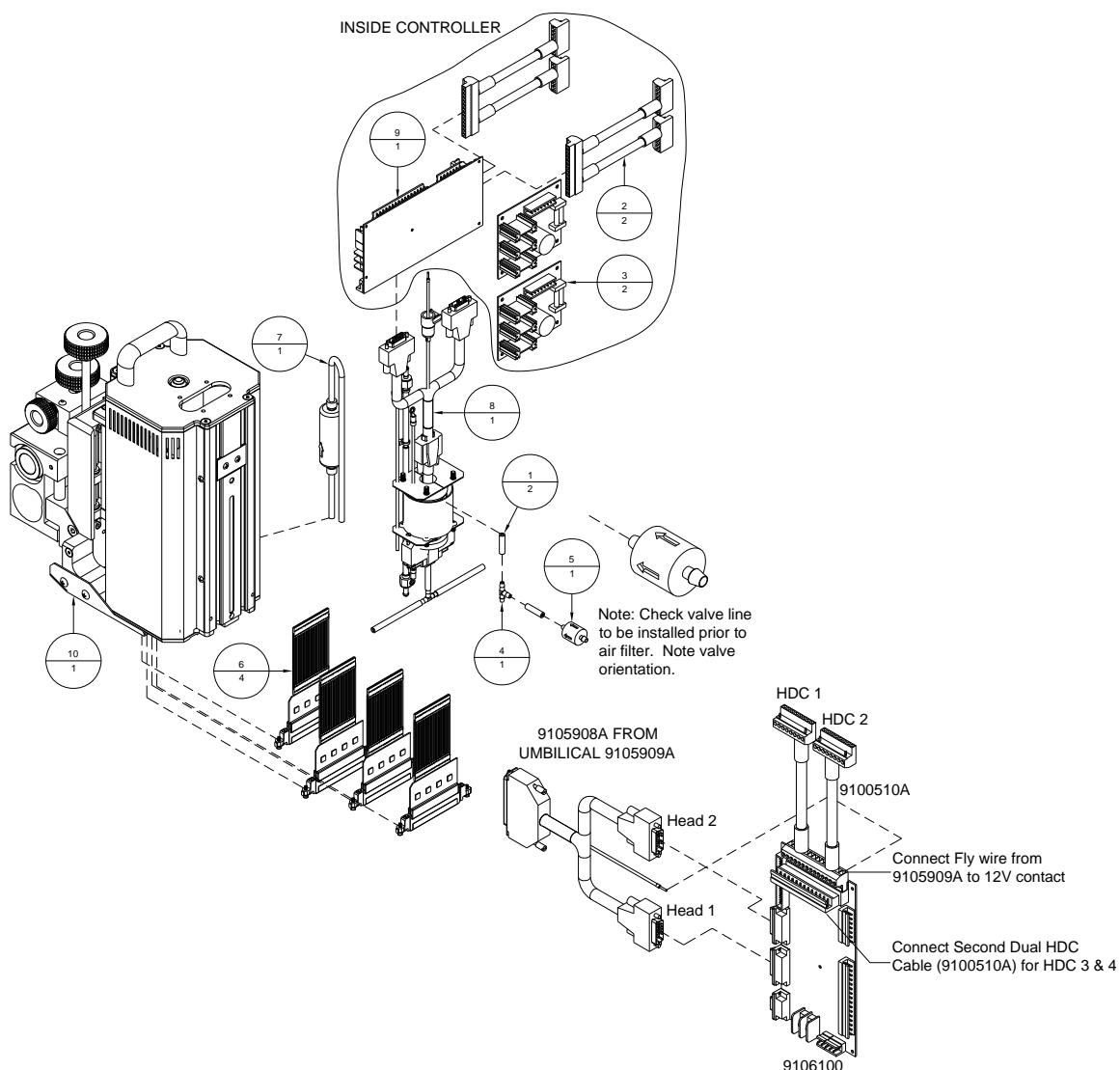


Table A-34: BK5120A-15-M83 - Printhead, 5" Atlas, 200 DPI, BK1710 / 20

Item	Part Number	Quantity	Description	Reference
1	9105570A	4	Jetting Array Assembly	Page A-107
2	9105827A	4	Blind Cap Block Assembly, Jetting Array	Page A-109
3	9105992A	2	Filter/Degassing Module Assembly	Page A-123
4	9105996A	1	Umbilical Assembly, BK5100, 15 ft.	Page A-126
5	BK5100-M83	1	Printhead, BK5100 Series, BK83	Page A-58

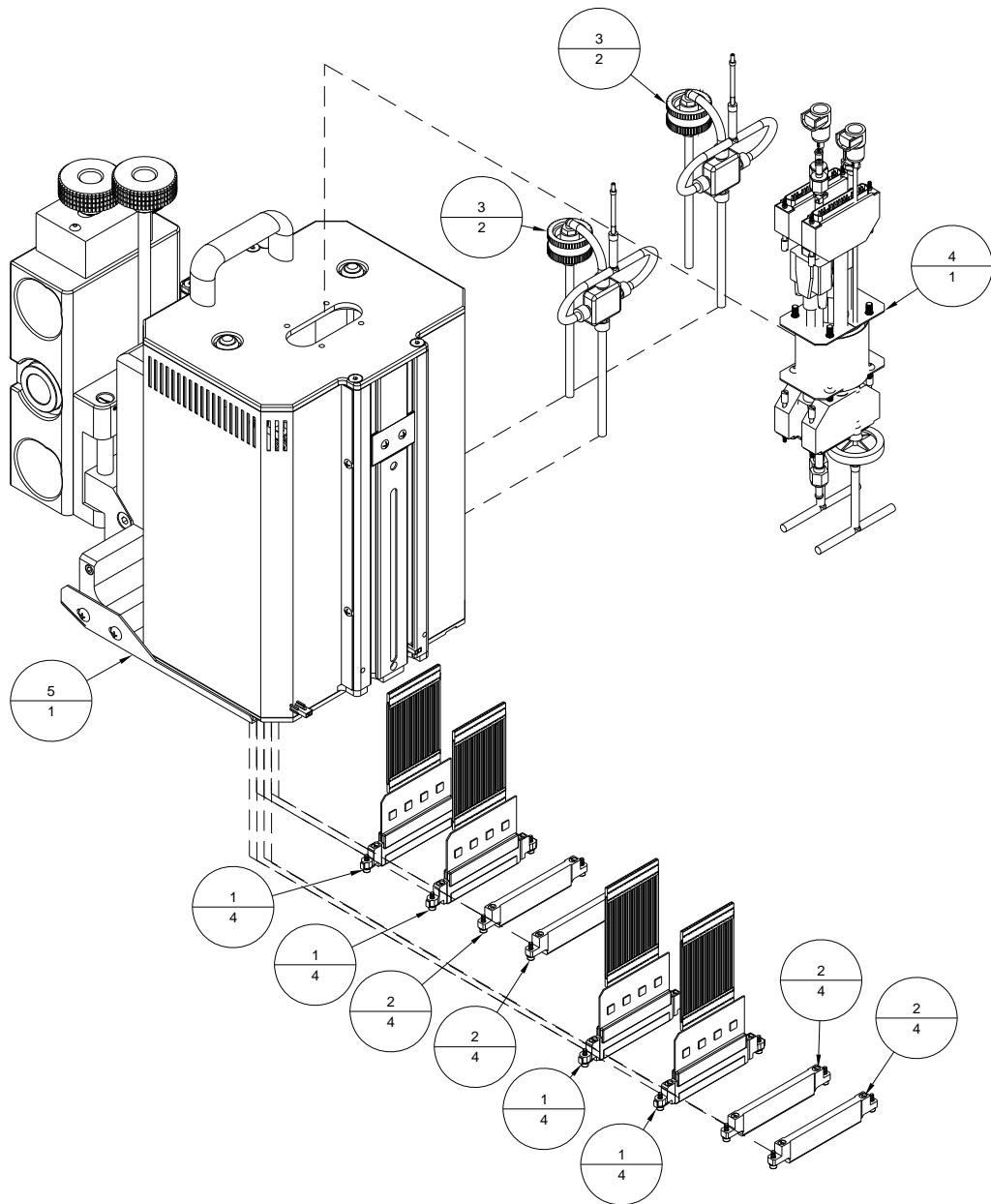
Figure A-34: BK5120A-15-M83 - Printhead, 5" Atlas, 200 DPI, BK1710 / 20

Table A-35: BK5120C-15-M83 - Printhead, 5" Cezanne, 200 DPI, BK1710 / 20

Item	Part Number	Quantity	Description	Reference
1	9105570A	4	Jetting Array Assembly	Page A-107
2	9105827A	4	Blind Cap Block Assembly, Jetting Array	Page A-109
3	9105992A	2	Filter/Degassing Module Assembly	Page A-123
4	9105996A	1	Umbilical Assembly, BK5100, 15 ft.	Page A-126
5	BK5100-M83	1	Printhead, BK5100 Series, BK83	Page A-58

Figure A-35: BK5120C-15-M83 - Printhead, 5" Cezanne, 200 DPI, BK1710 / 20

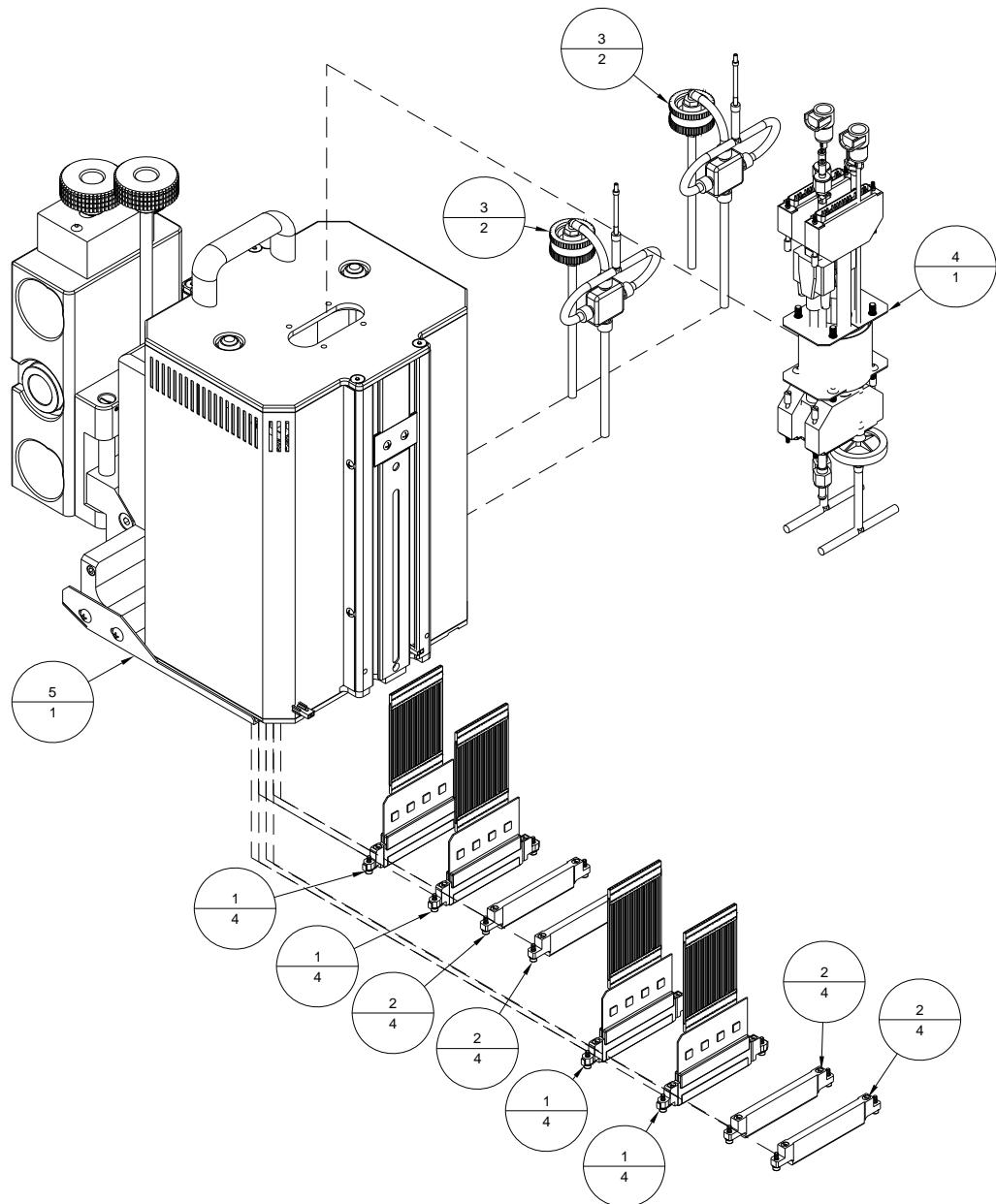


Table A-36: BK5120U-15-M83 - Printhead, 5" Aurora, 200 DPI, BK1710 / 20

Item	Part Number	Quantity	Description	Reference
1	9100472	4	Tubing, Silicone, 1/4" OD x 1/8" ID, 1.25"	
2	9101290	2	Fitting, Tee, 1/8" ID	
3	9104734	2	Check Valve, 1/8" ID, Barbed, 0.22 PSI	
4	9105570A	4	Jetting Array Assembly	Page A-107
5	9105827A	4	Blind Cap Block Assembly, Jetting Array	Page A-109
6	9105833A	2	Filter Assembly, BK2500/5100 UV	Page A-111
7	9105996A	1	Umbilical Assembly, BK5100, 15 ft.	Page A-126
8	BK5100-M83	1	Printhead, BK5100 Series, BK83	Page A-58

Figure A-36: BK5120U-15-M83 - Printhead, 5" Aurora, 200 DPI, BK1710 / 20

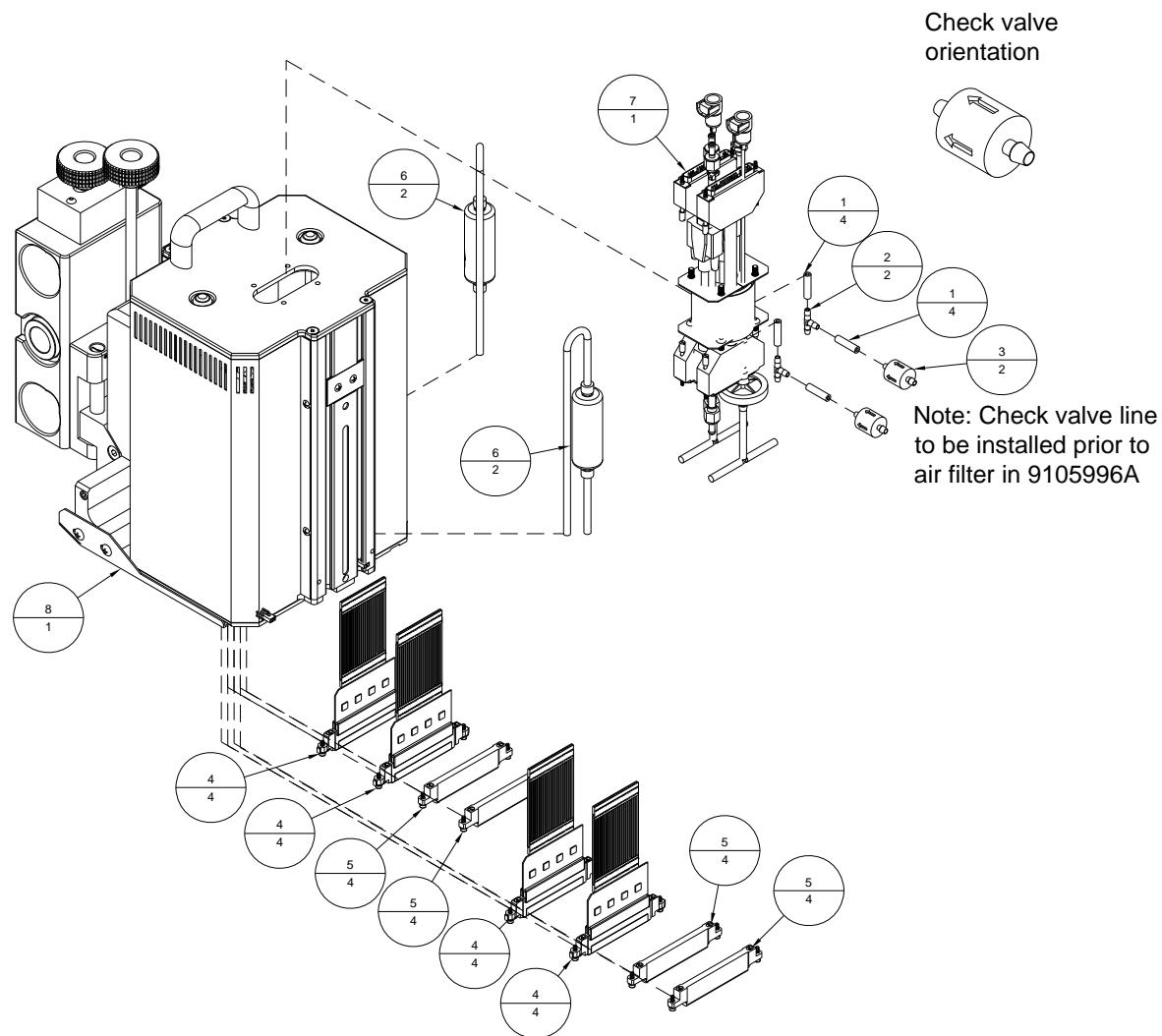


Table A-37: BK5120A-15TM83 - Printhead, 5" Atlas, 200 DPI, BK705 / 1705

Item	Part Number	Quantity	Description	Reference
1	9100510A	2	Cable, Dual HDC	
2	9105570A	4	Jetting Array Assembly	Page A-107
3	9105827A	4	Blind Cap Block Assembly, Jetting Array	Page A-109
4	9105992A	2	Filter/Degassing Module Assembly	Page A-123
5	9105997A	1	Umbilical Assembly, BK5100, BK705/1705	Page A-127
6	9106100	2	Board, QHIB System Support	
7	BK5100-M83	1	Printhead, BK5100 Series, BK83	Page A-58

Figure A-37: BK5120A-15TM83 - Printhead, 5" Atlas, 200 DPI, BK705 / 1705

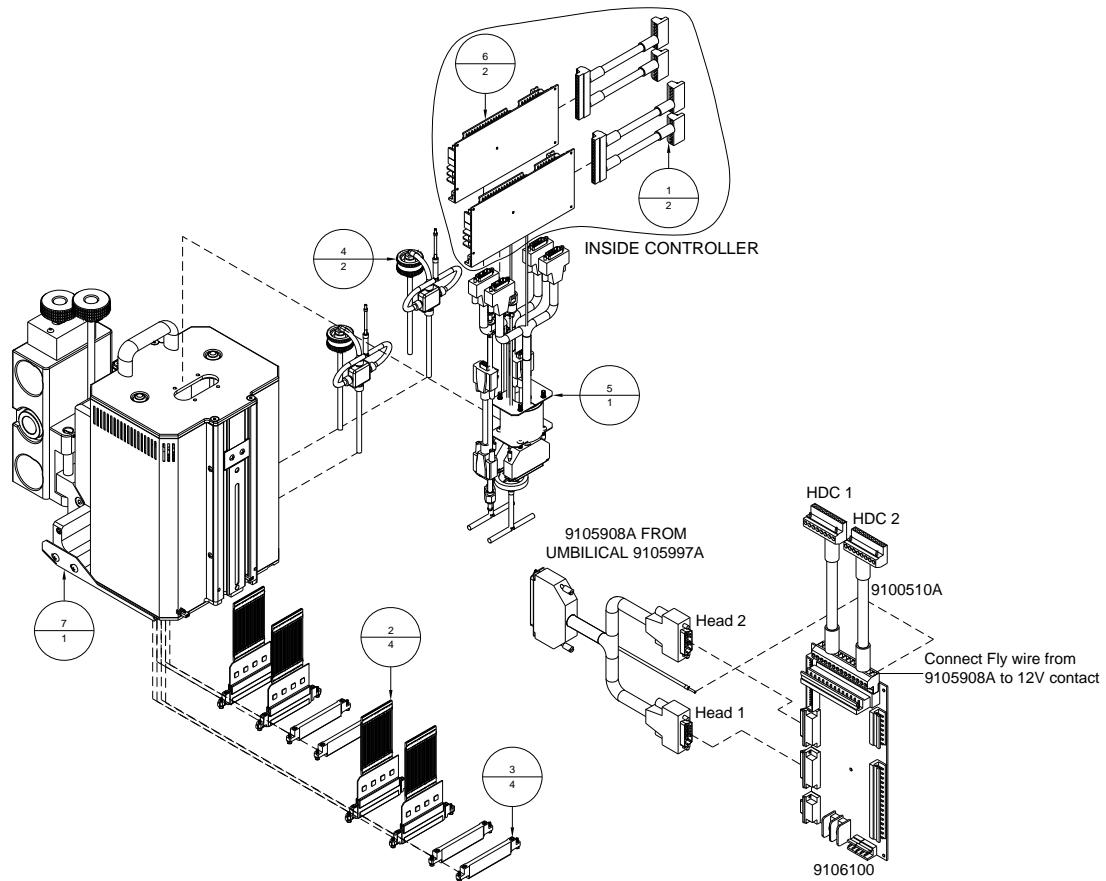


Table A-38: BK5120C-15TM83 - Printhead, 5" Cezanne, 200 DPI, BK705 / 1705

Item	Part Number	Quantity	Description	Reference
1	9100510A	2	Cable, Dual HDC	
2	9105570A	4	Jetting Array Assembly	Page A-107
3	9105827A	4	Blind Cap Block Assembly, Jetting Array	Page A-109
4	9105992A	2	Filter/Degassing Module Assembly	Page A-123
5	9105997A	1	Umbilical Assembly, BK5100, BK705/1705	Page A-127
6	9106100	2	Board, QHIB System Support	
7	BK5100-M83	1	Printhead, BK5100 Series, BK83	Page A-58

Figure A-38: BK5120C-15TM83 - Printhead, 5" Cezanne, 200 DPI, BK705 / 1705

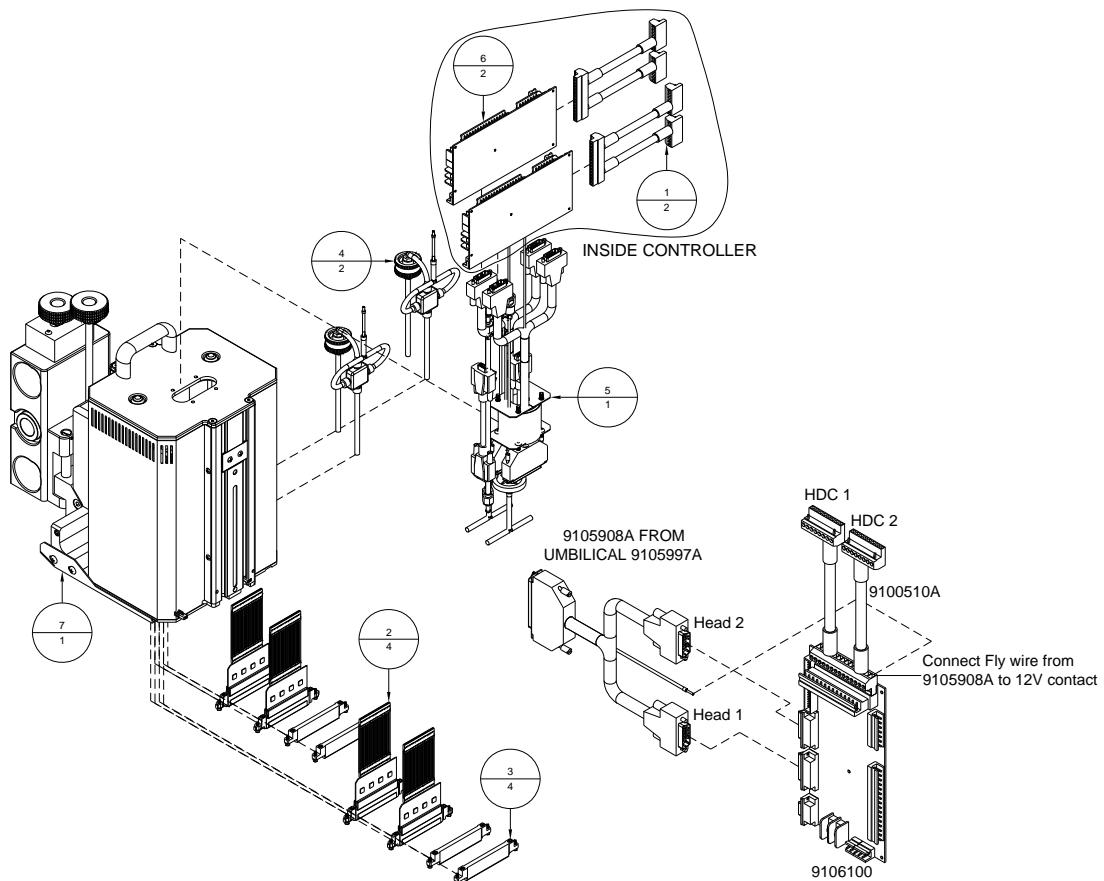


Table A-39: BK5120U-15TM83 - Printhead, 5" Aurora, 200 DPI, BK705 / 1705

Item	Part Number	Quantity	Description	Reference
1	9100472	4	Tubing, Silicone, 1/4" OD x 1/8" ID, 1.25"	
2	9100510A	2	Cable, Dual HDC	
3	9101290	2	Fitting, Tee, 1/8" ID	
4	9104734	2	Check Valve, 1/8" ID, Barbed, 0.22 PSI	
5	9105570A	4	Jetting Array Assembly	Page A-107
6	9105827A	4	Blind Cap Block Assembly, Jetting Array	Page A-109
7	9105833A	2	Filter Assembly, BK2500/5100 UV	Page A-111
8	9105997A	1	Umbilical Assembly, BK5100, BK705/1705	Page A-127
9	9106100	2	Board, QHIB System Support	
10	BK5100-M83	1	Printhead, BK5100 Series, BK83	Page A-58

Figure A-39: BK5120U-15TM83 - Printhead, 5" Aurora, 200 DPI, BK705 / 1705

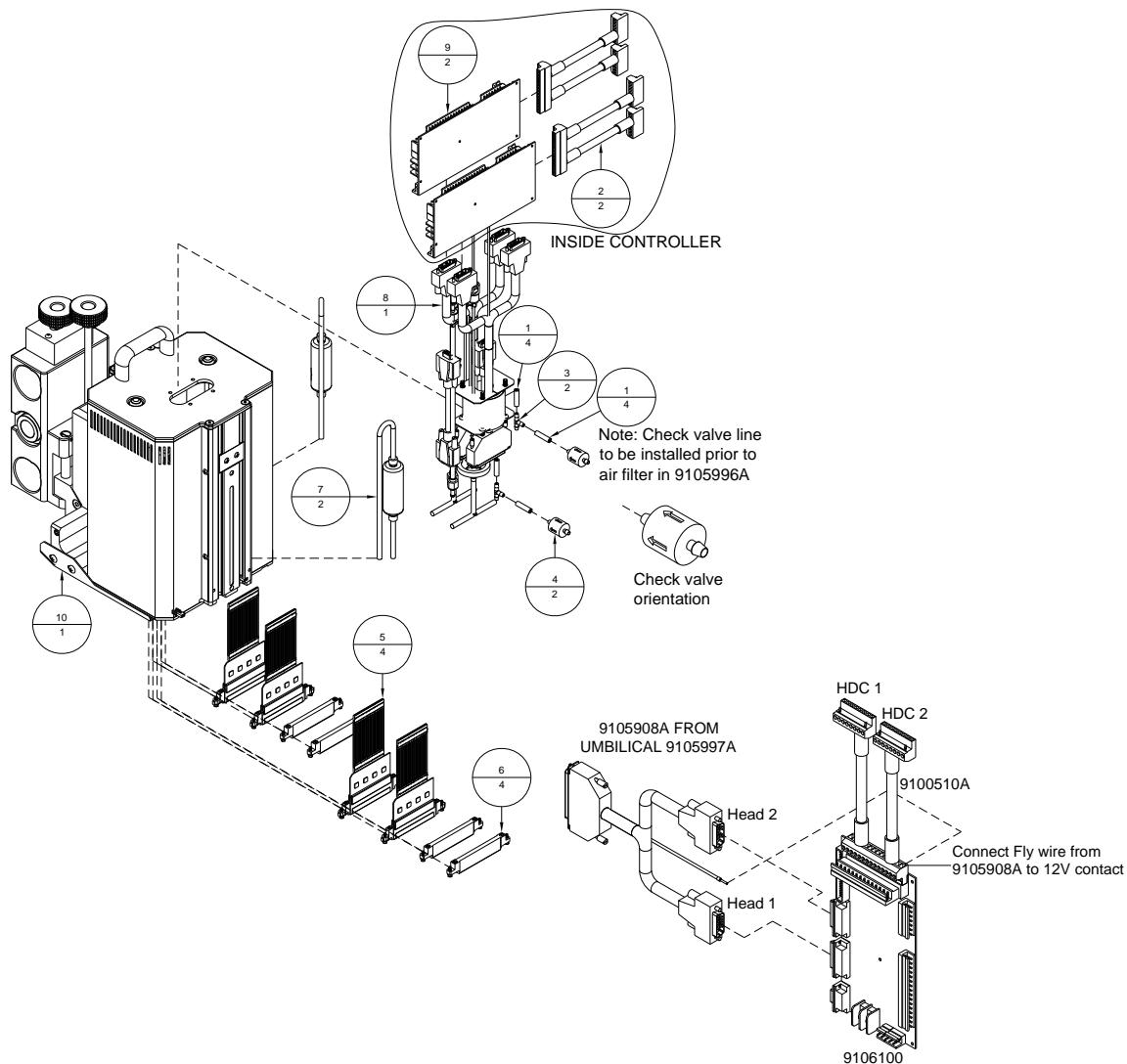


Table A-40: BK5130A-15-M83 - Printhead, 5" Atlas, 300 DPI, BK1710 / 20

Item	Part Number	Quantity	Description	Reference
1	9105570A	6	Jetting Array Assembly	Page A-107
2	9105827A	2	Blind Cap Block Assembly, Jetting Array	Page A-109
3	9105992A	2	Filter/Degassing Module Assembly	Page A-123
4	9105996A	1	Umbilical Assembly, BK5100, 15 ft.	Page A-126
5	BK5100-M83	1	Printhead, BK5100 Series, BK83	Page A-58

Figure A-40: BK5130A-15-M83 - Printhead, 5" Atlas, 300 DPI, BK1710 / 20

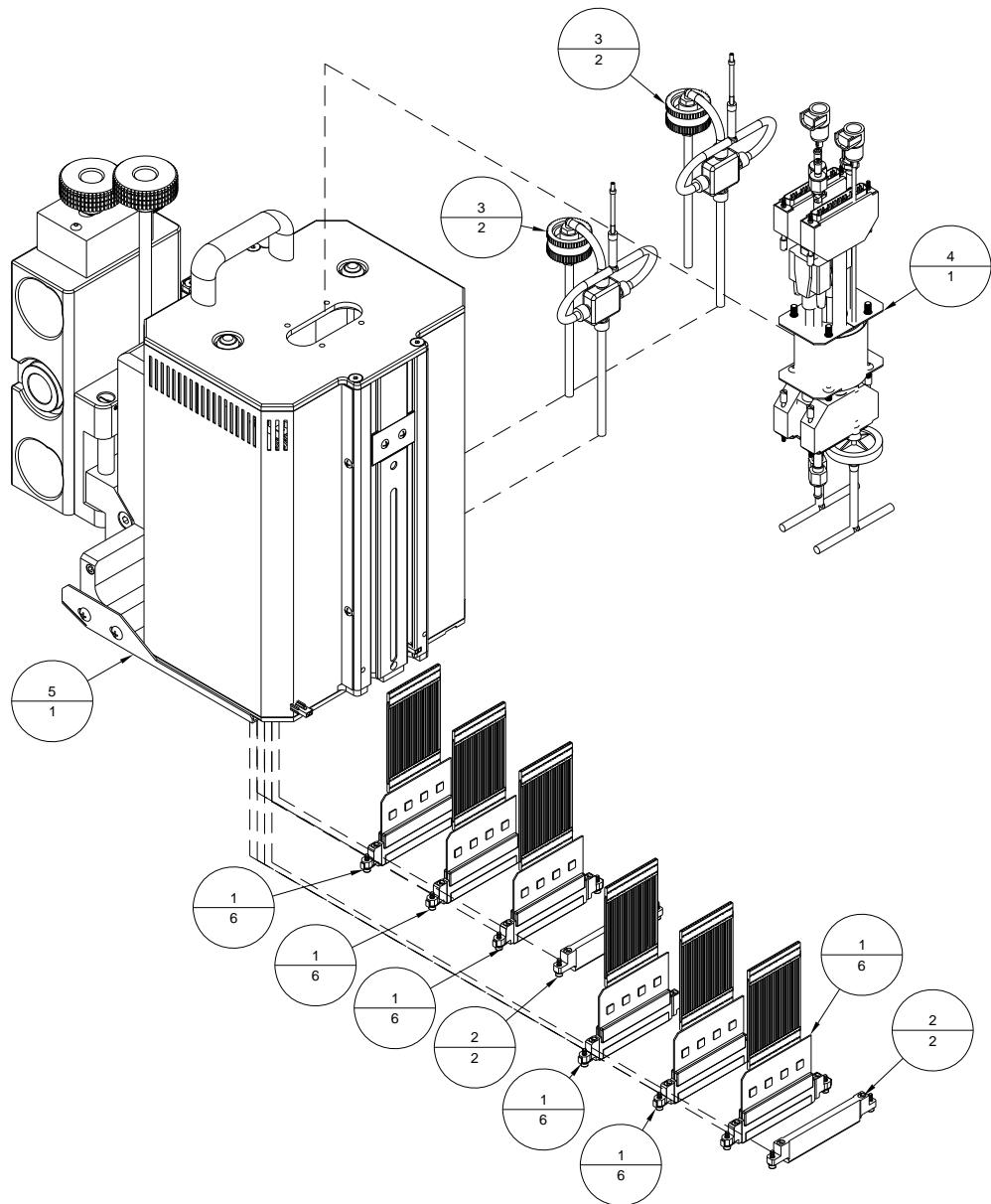


Table A-41: BK5130C-15-M83 - Printhead, 5" Cezanne, 300 DPI, BK1710 / 20

Item	Part Number	Quantity	Description	Reference
1	9105570A	6	Jetting Array Assembly	Page A-107
2	9105827A	2	Blind Cap Block Assembly, Jetting Array	Page A-109
3	9105992A	2	Filter/Degassing Module Assembly	Page A-123
4	9105996A	1	Umbilical Assembly, BK5100, 15 ft.	Page A-126
5	BK5100-M83	1	Printhead, BK5100 Series, BK83	Page A-58

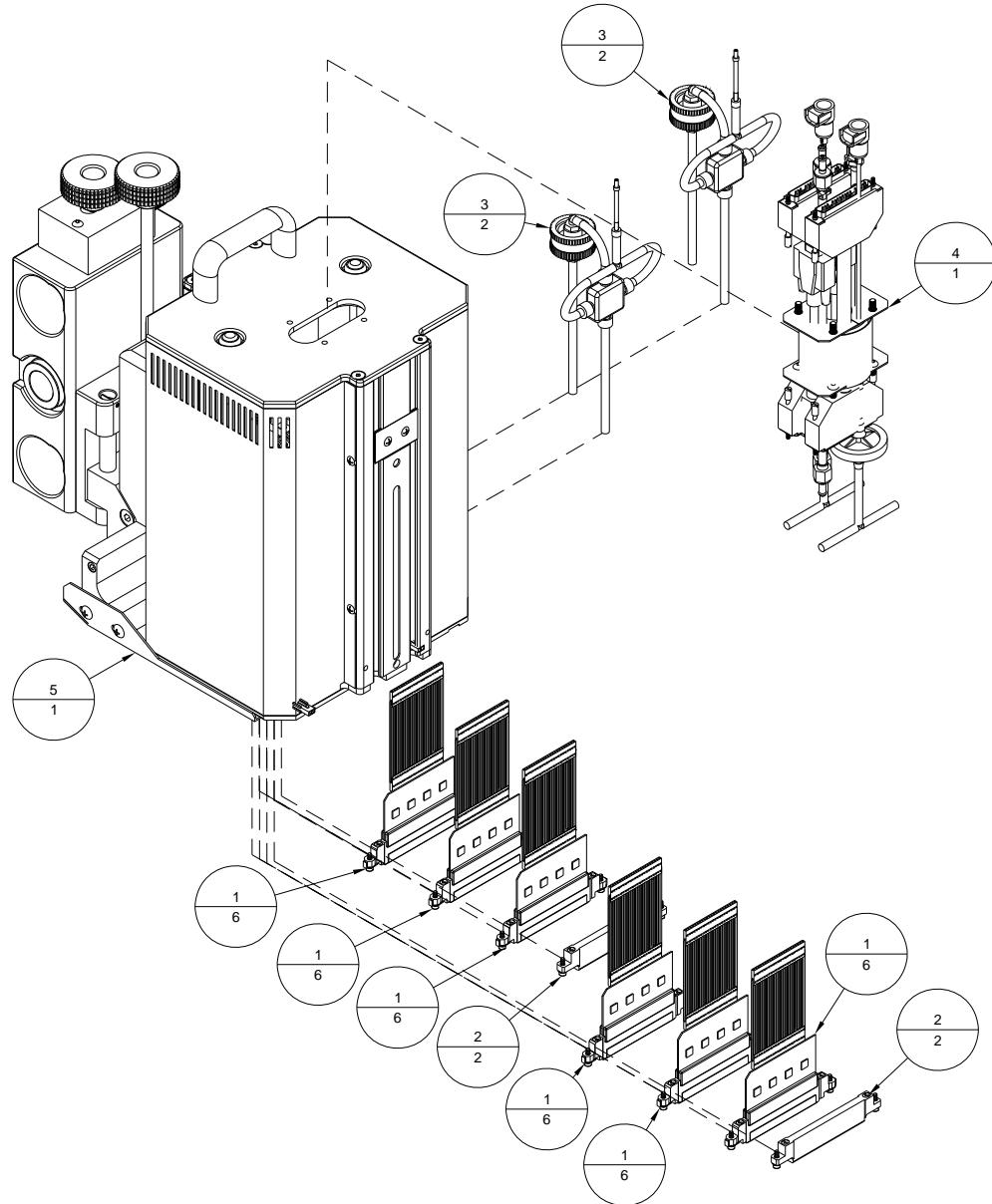
Figure A-41: BK5130C-15-M83 - Printhead, 5" Cezanne, 300 DPI, BK1710 / 20

Table A-42: BK5130U-15-M83 - Printhead, 5" Aurora, 300 DPI, BK1710 / 20

Item	Part Number	Quantity	Description	Reference
1	9100472	4	Tubing, Silicone, 1/4" OD x 1/8" ID, 1.25"	
2	9101290	2	Fitting, Tee, 1/8" ID	
3	9104734	2	Check Valve, 1/8" ID, Barbed, 0.22 PSI	
4	9105570A	6	Jetting Array Assembly	Page A-107
5	9105827A	2	Blind Cap Block Assembly, Jetting Array	Page A-109
6	9105833A	2	Filter Assembly, BK2500/5100 UV	Page A-111
7	9105996A	1	Umbilical Assembly, BK5100, 15 ft.	Page A-126
8	BK5100-M83	1	Printhead, BK5100 Series, BK83	Page A-58

Figure A-42: BK5130U-15-M83 - Printhead, 5" Aurora, 300 DPI, BK1710 / 20

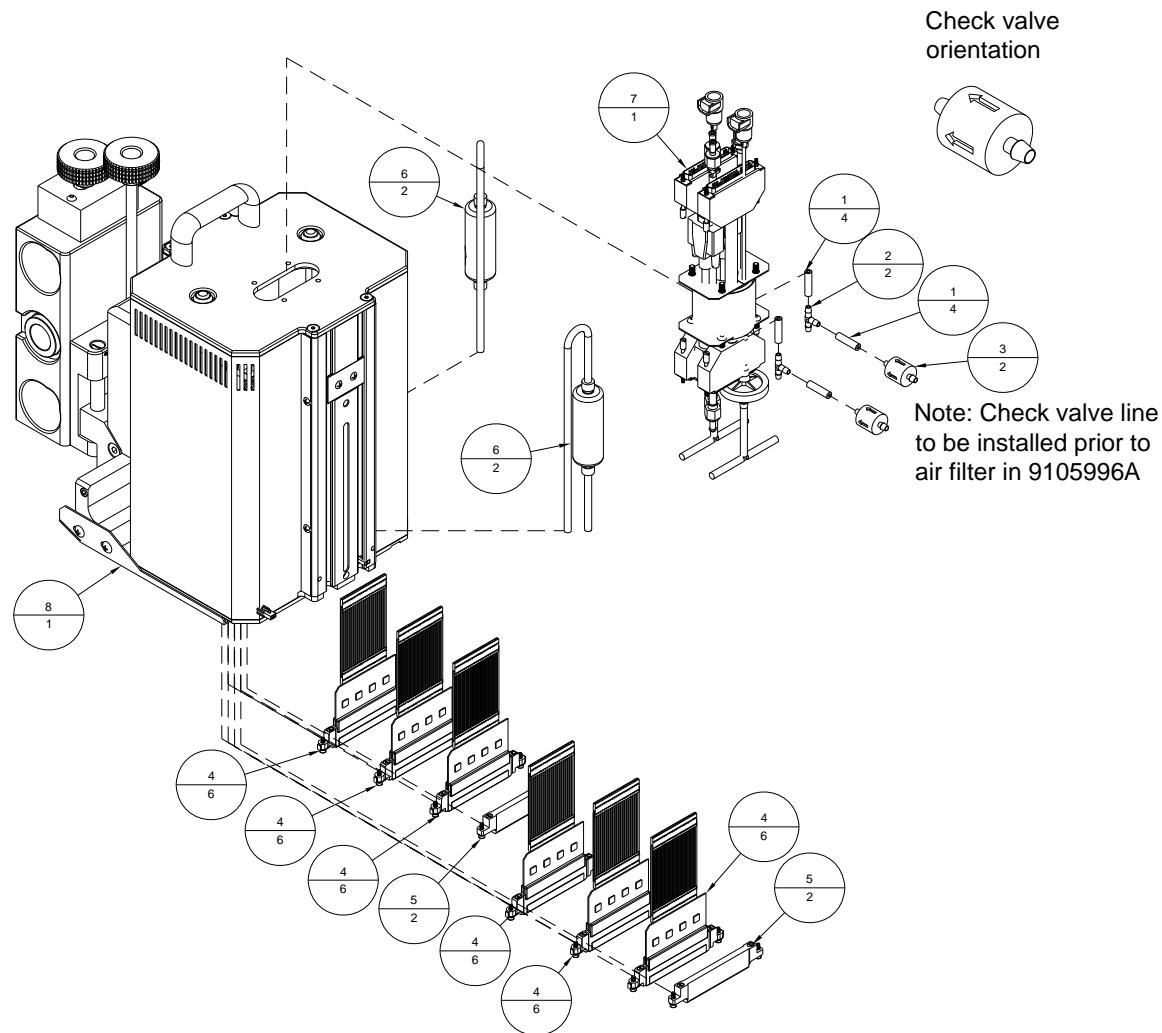


Table A-43: BK5130A-15TM83 - Printhead, 5" Atlas, 300 DPI, BK705 / 1705

Item	Part Number	Quantity	Description	Reference
1	9100510A	2	Cable, Dual HDC	
2	9100994	2	Board, Head Drive Circuit (HDC)	
3	9105570A	6	Jetting Array Assembly	Page A-107
4	9105827A	2	Blind Cap Block Assembly, Jetting Array	Page A-109
5	9105992A	2	Filter/Degassing Module Assembly	Page A-123
6	9105997A	1	Umbilical Assembly, BK5100, BK705/1705	Page A-127
7	9106100	2	Board, QHIB System Support	
8	BK5100-M83	1	Printhead, BK5100 Series, BK83	Page A-58

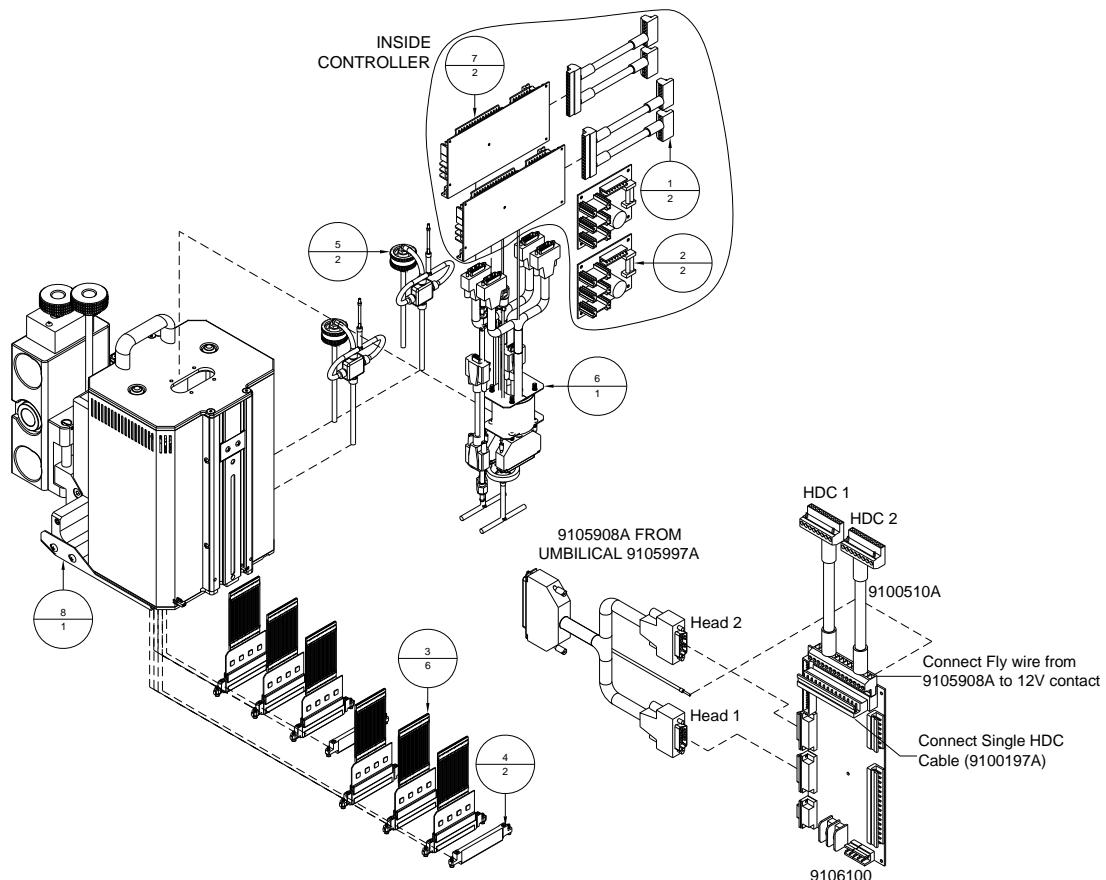
Figure A-43: BK5130A-15TM83 - Printhead, 5" Atlas, 300 DPI, BK705 / 1705

Table A-44: BK5130C-15TM83 - Printhead, 5" Cezanne, 300 DPI, BK705 / 1705

Item	Part Number	Quantity	Description	Reference
1	9100510A	2	Cable, Dual HDC	
2	9100994	2	Board, Head Drive Circuit (HDC)	
3	9105570A	6	Jetting Array Assembly	Page A-107
4	9105827A	2	Blind Cap Block Assembly, Jetting Array	Page A-109
5	9105992A	2	Filter/Degassing Module Assembly	Page A-123
6	9105997A	1	Umbilical Assembly, BK5100, BK705/1705	Page A-127
7	9106100	2	Board, QHIB System Support	
8	BK5100-M83	1	Printhead, BK5100 Series, BK83	Page A-58

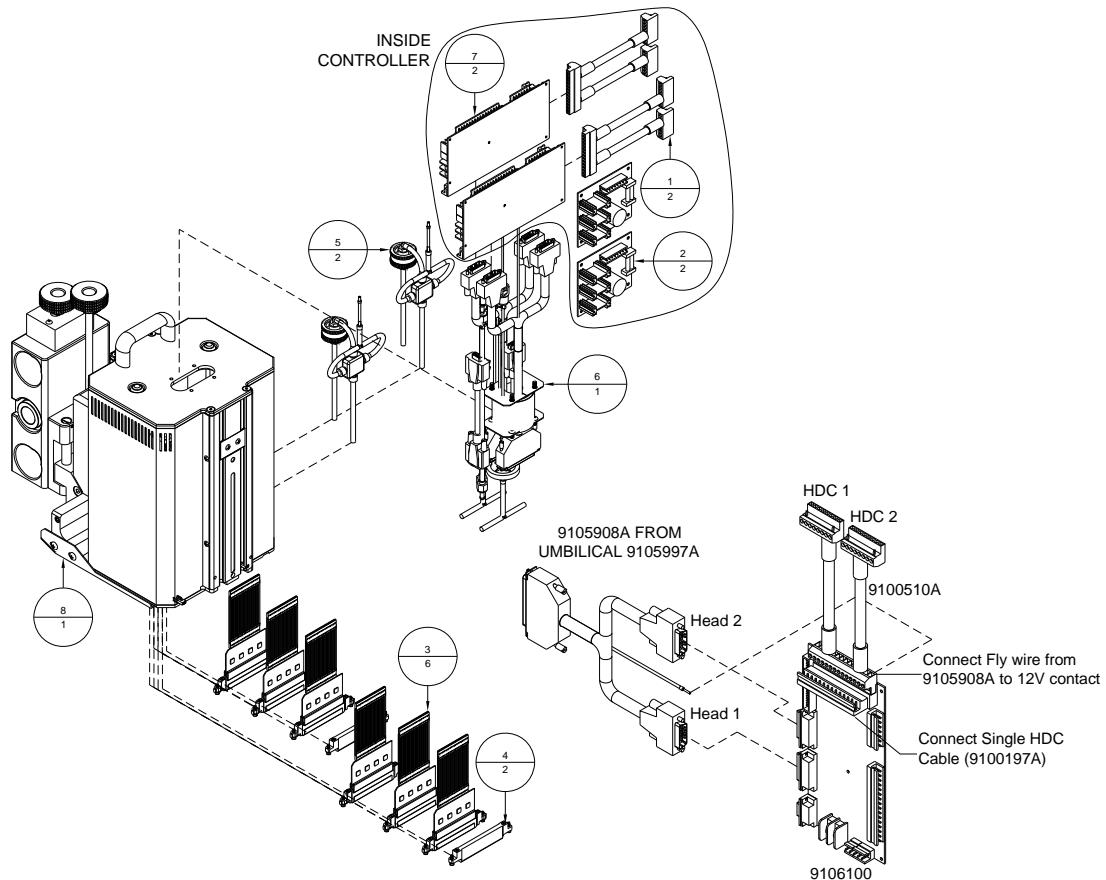
Figure A-44: BK5130C-15TM83 - Printhead, 5" Cezanne, 300 DPI, BK705 / 1705

Table A-45: BK5130U-15TM83 - Printhead, 5" Aurora, 300 DPI, BK705 / 1705

Item	Part Number	Quantity	Description	Reference
1	9100472	4	Tubing, Silicone, 1/4" OD x 1/8" ID, 1.25"	
2	9100510A	2	Cable, Dual HDC	
3	9100994	2	Board, Head Drive Circuit (HDC)	
4	9101290	2	Fitting, Tee, 1/8" ID	
5	9104734	2	Check Valve, 1/8" ID, Barbed, 0.22 PSI	
6	9105570A	6	Jetting Array Assembly	Page A-107
7	9105827A	2	Blind Cap Block Assembly, Jetting Array	Page A-109
8	9105833A	2	Filter Assembly, BK2500/5100 UV	Page A-111
9	9105997A	1	Umbilical Assembly, BK5100, BK705/1705	Page A-127
10	9106100	2	Board, QHIB System Support	
11	BK5100-M83	1	Printhead, BK5100 Series, BK83	Page A-58

Figure A-45: BK5130U-15TM83 - Printhead, 5" Aurora, 300 DPI, BK705 / 1705

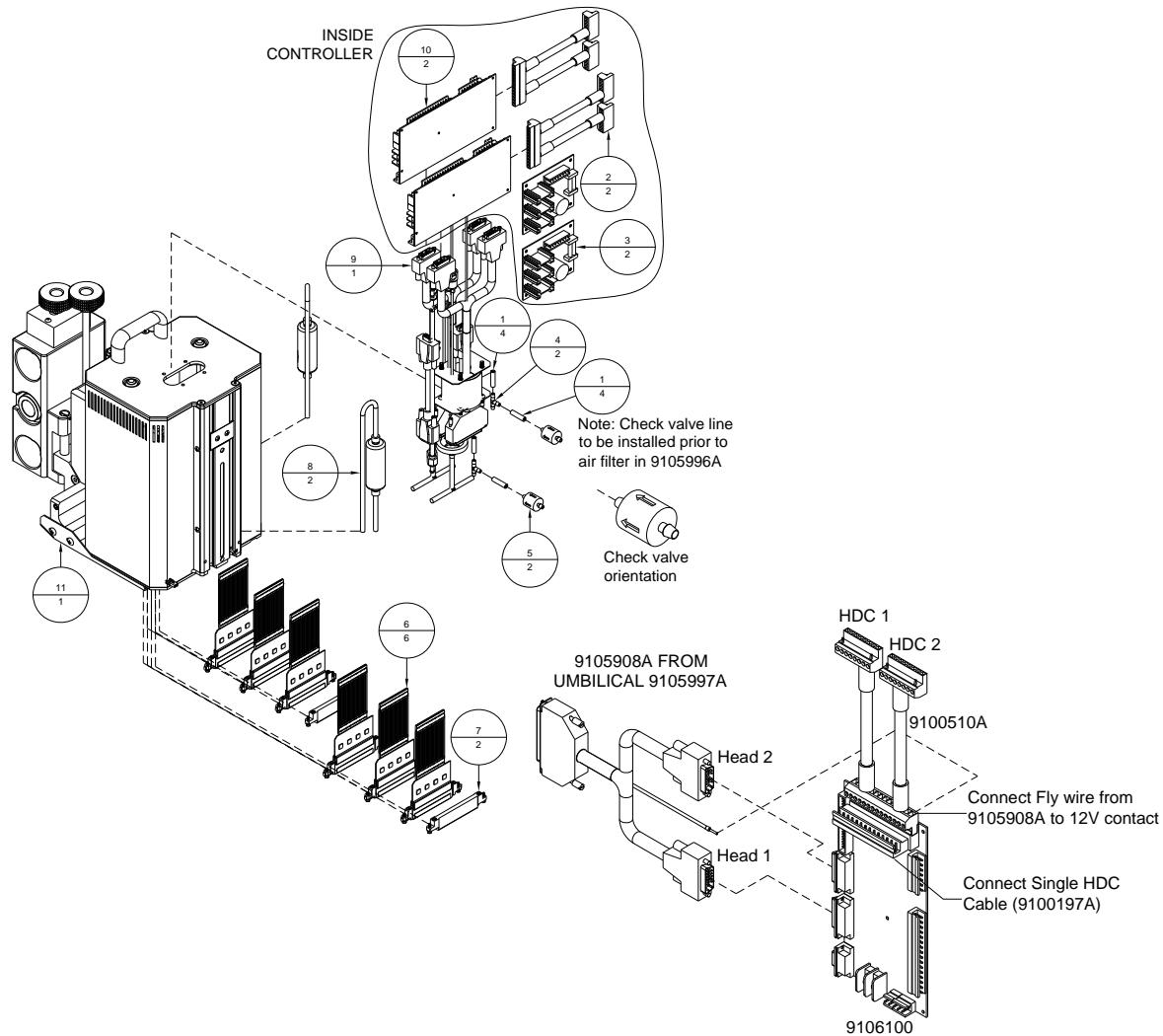


Table A-46: BK5140A-15-M83 - Printhead, 5" Atlas, 400 DPI, BK1710 / 20

Item	Part Number	Quantity	Description	Reference
1	9105570A	8	Jetting Array Assembly	Page A-107
2	9105992A	2	Filter/Degassing Module Assembly	Page A-123
3	9105996A	1	Umbilical Assembly, BK5100, 15 ft.	Page A-126
4	BK5100-M83	1	Printhead, BK5100 Series, BK83	Page A-58

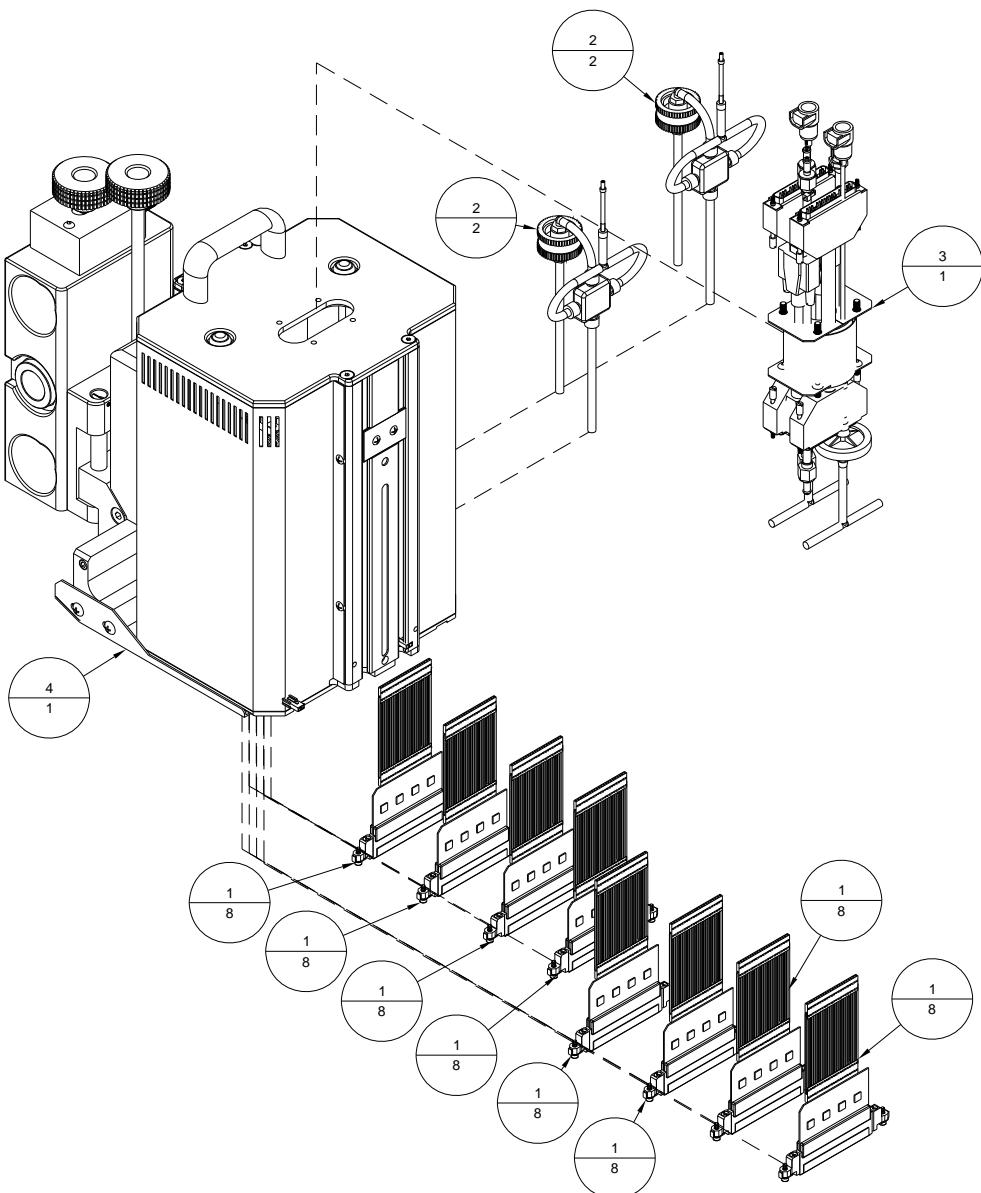
Figure A-46: BK5140A-15-M83 - Printhead, 5" Atlas, 400 DPI, BK1710 / 20

Table A-47: BK5140C-15-M83 - Printhead, 5" Cezanne, 400 DPI, BK1710 / 20

Item	Part Number	Quantity	Description	Reference
1	9105570A	8	Jetting Array Assembly	Page A-107
2	9105992A	2	Filter/Degassing Module Assembly	Page A-123
3	9105996A	1	Umbilical Assembly, BK5100, 15 ft.	Page A-126
4	BK5100-M83	1	Printhead, BK5100 Series, BK83	Page A-58

Figure A-47: BK5140C-15-M83 - Printhead, 5" Cezanne, 400 DPI, BK1710 / 20

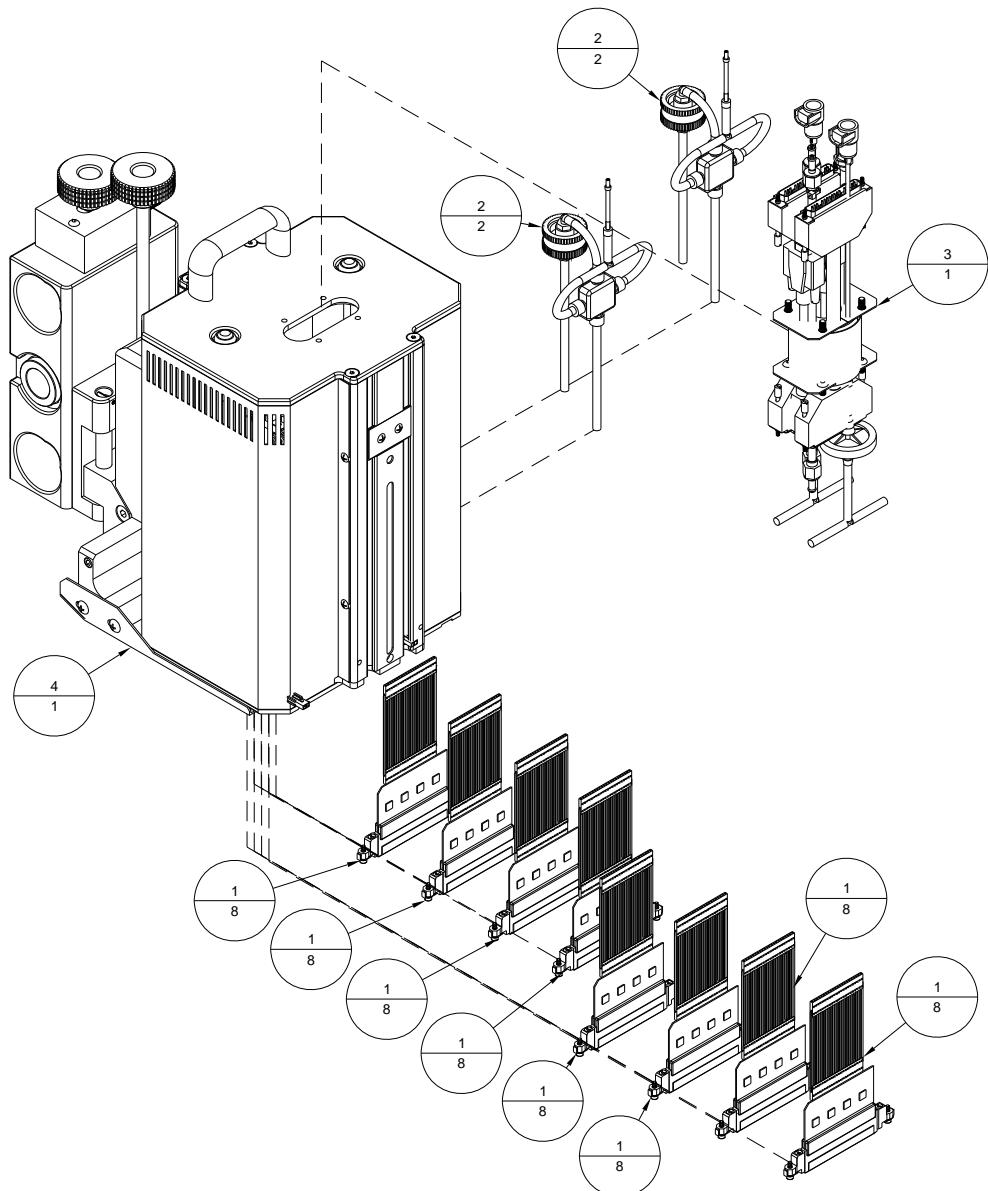


Table A-48: BK5140U-15-M83 - Printhead, 5" Aurora, 400 DPI, BK1710 / 20

Item	Part Number	Quantity	Description	Reference
1	9100472	4	Tubing, Silicone, 1/4" OD x 1/8" ID, 1.25"	
2	9101290	2	Fitting, Tee, 1/8" ID	
3	9104734	2	Check Valve, 1/8" ID, Barbed, 0.22 PSI	
4	9105570A	8	Jetting Array Assembly	Page A-107
5	9105833A	2	Filter Assembly, BK2500/5100 UV	Page A-111
6	9105996A	1	Umbilical Assembly, BK5100, 15 ft.	Page A-126
7	BK5100-M83	1	Printhead, BK5100 Series, BK83	Page A-58

Figure A-48: BK5140U-15-M83 - Printhead, 5" Aurora, 400 DPI, BK1710 / 20

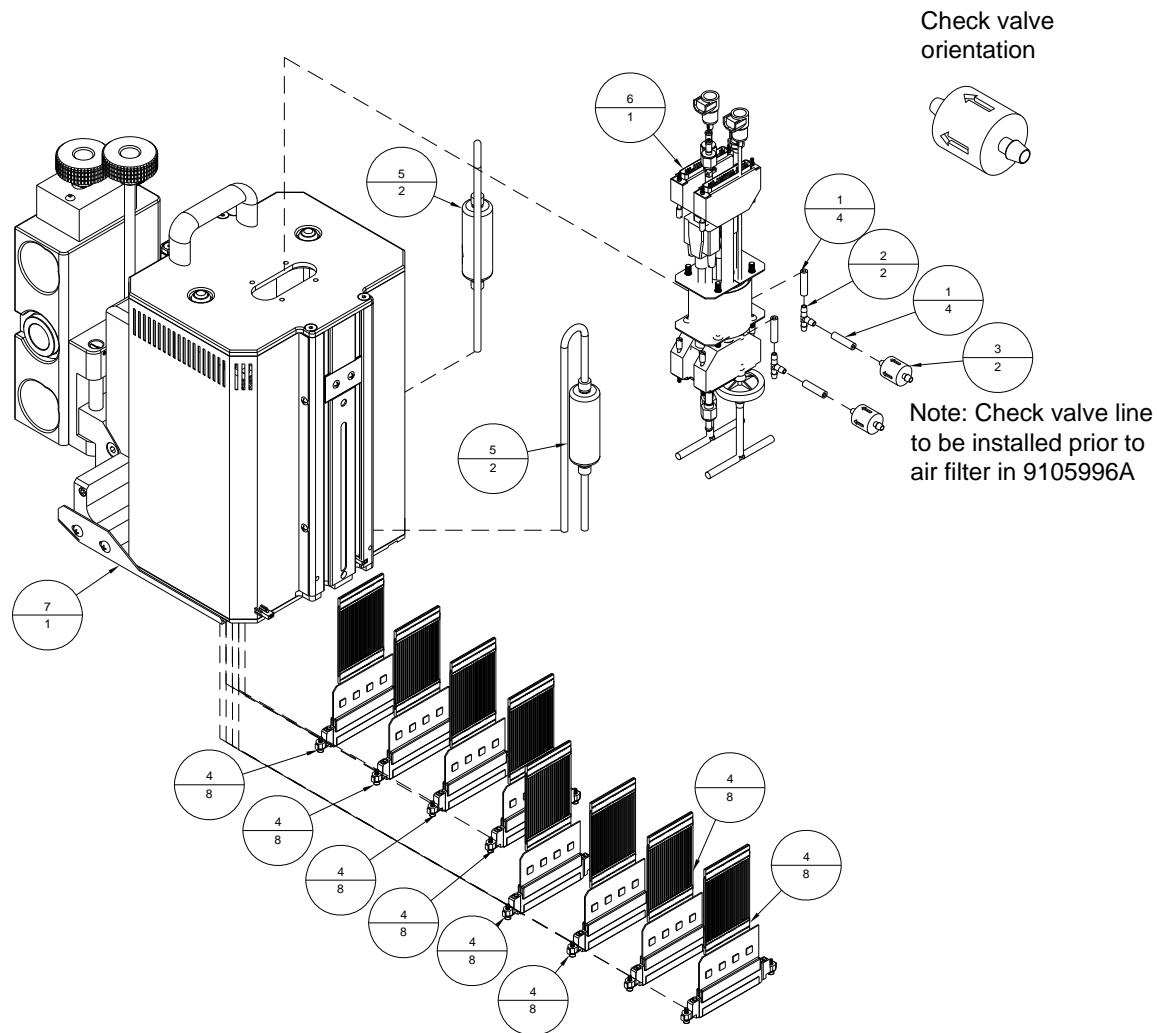


Table A-49: BK5140A-15TM83 - Printhead, 5" Atlas, 400 DPI, BK705 / 1705

Item	Part Number	Quantity	Description	Reference
1	9100510A	4	Cable, Dual HDC	
2	9100994	4	Board, Head Drive Circuit (HDC)	
3	9105570A	8	Jetting Array Assembly	Page A-107
4	9105992A	2	Filter/Degassing Module Assembly	Page A-123
5	9105997A	1	Umbilical Assembly, BK5100, BK705/1705	Page A-127
6	9106100	2	Board, QHIB System Support	
7	BK5100-M83	1	Printhead, BK5100 Series, BK83	Page A-58

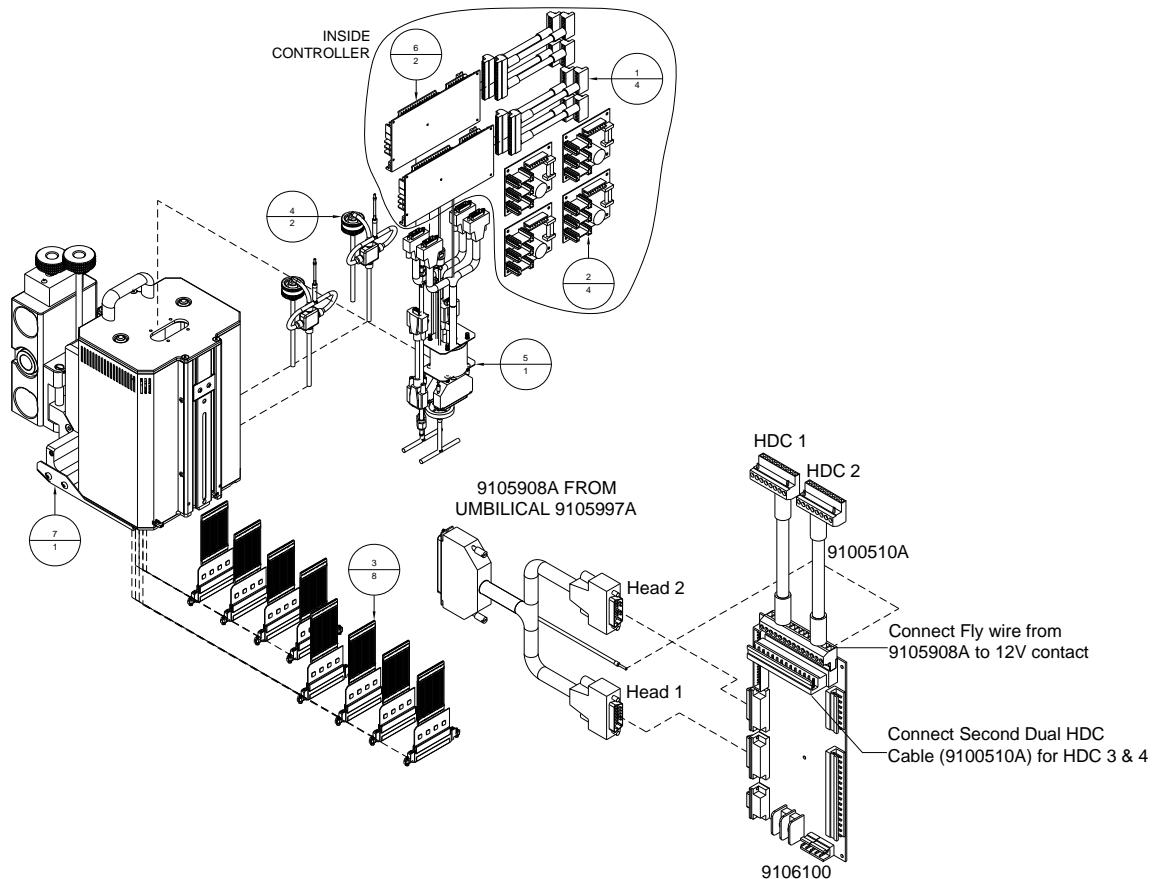
Figure A-49: BK5140A-15TM83 - Printhead, 5" Atlas, 400 DPI, BK705 / 1705

Table A-50: BK5140C-15TM83 - Printhead, 5" Cezanne, 400 DPI, BK705 / 1705

Item	Part Number	Quantity	Description	Reference
1	9100510A	4	Cable, Dual HDC	
2	9100994	4	Board, Head Drive Circuit (HDC)	
3	9105570A	8	Jetting Array Assembly	Page A-107
4	9105992A	2	Filter/Degassing Module Assembly	Page A-123
5	9105997A	1	Umbilical Assembly, BK5100, BK705/1705	Page A-127
6	9106100	2	Board, QHIB System Support	
7	BK5100-M83	1	Printhead, BK5100 Series, BK83	Page A-58

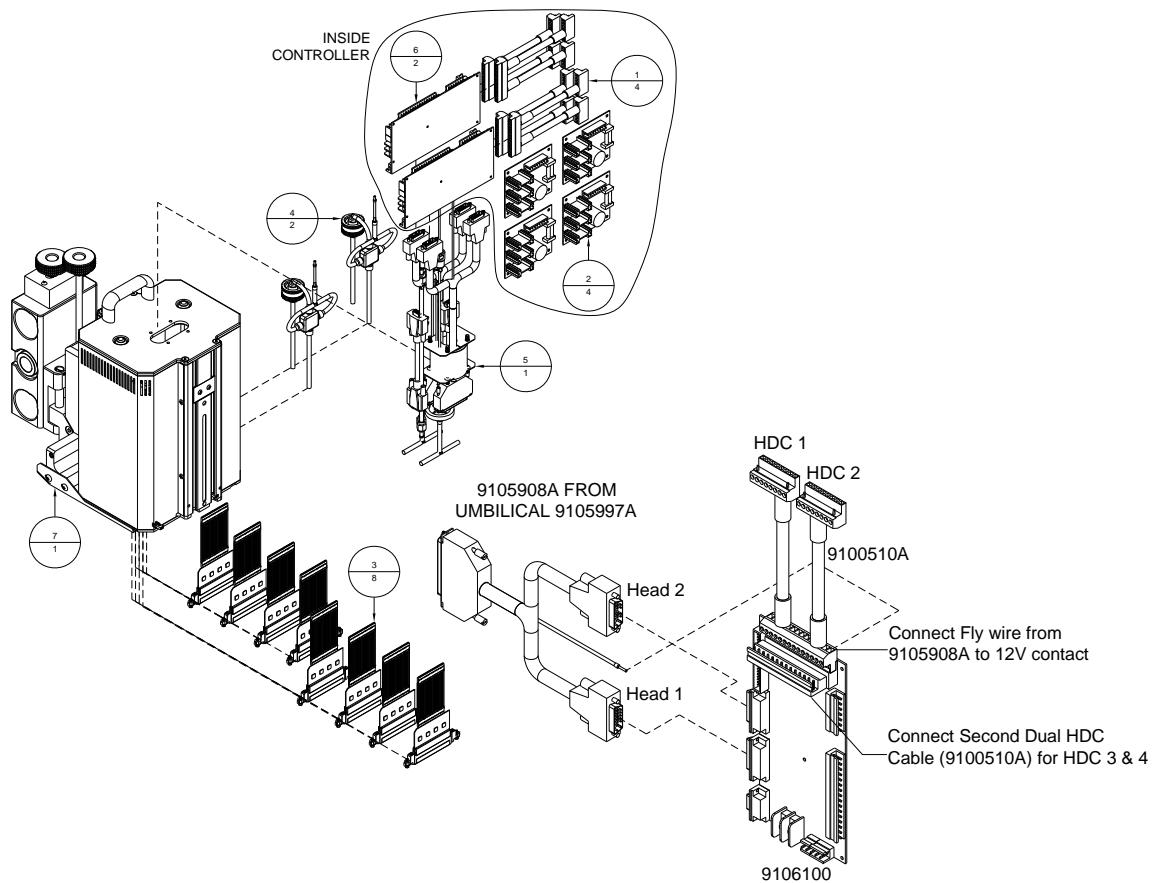
Figure A-50: BK5140C-15TM83 - Printhead, 5" Cezanne, 400 DPI, BK705 / 1705

Table A-51: BK5140U-15TM83 - Printhead, 5" Aurora, 400 DPI, BK705 / 1705

Item	Part Number	Quantity	Description	Reference
1	9100472	4	Tubing, Silicone, 1/4" OD x 1/8" ID, 1.25"	
2	9100510A	4	Cable, Dual HDC	
3	9100994	4	Board, Head Drive Circuit (HDC)	
4	9101290	2	Fitting, Tee, 1/8" ID	
5	9104734	2	Check Valve, 1/8" ID, Barbed, 0.22 PSI	
6	9105570A	8	Jetting Array Assembly	Page A-107
7	9105833A	2	Filter Assembly, BK2500/5100 UV	Page A-111
8	9105997A	1	Umbilical Assembly, BK5100, BK705 / 1705	Page A-127
9	9106100	2	Board, QHIB System Support	
10	BK5100-M83	1	Printhead, BK5100 Series, BK83	Page A-58

Figure A-51: BK5140U-15TM83 - Printhead, 5" Aurora, 400 DPI, BK705 / 1705

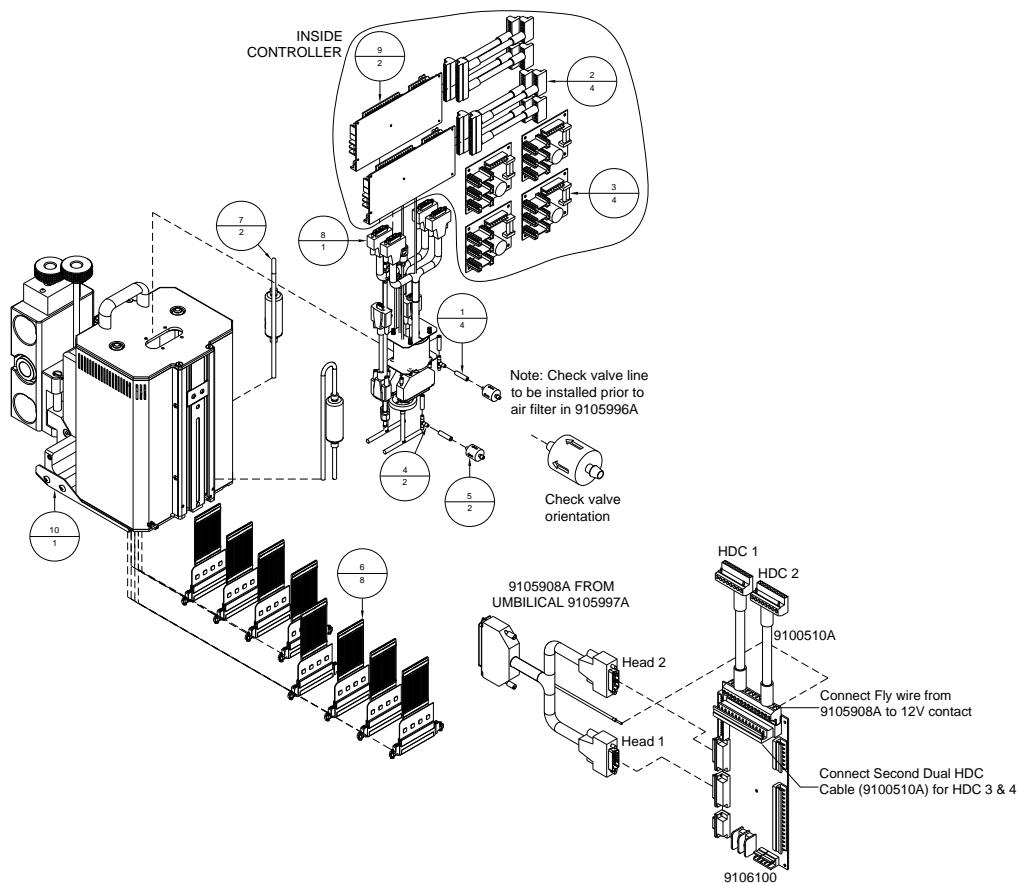


Table A-52: BK791-A - Printhead, BK791 Atlas

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-69
5	9102106A	1	Top Plate Assembly, BK791	Page A-70
6	9102107	2	Cover, BK791	
7	9104302	1	Bracket, Cap, Hook-up	
8	9104593	1	Padding, 3/8"	
9	9104596	1	Cap, 1250	

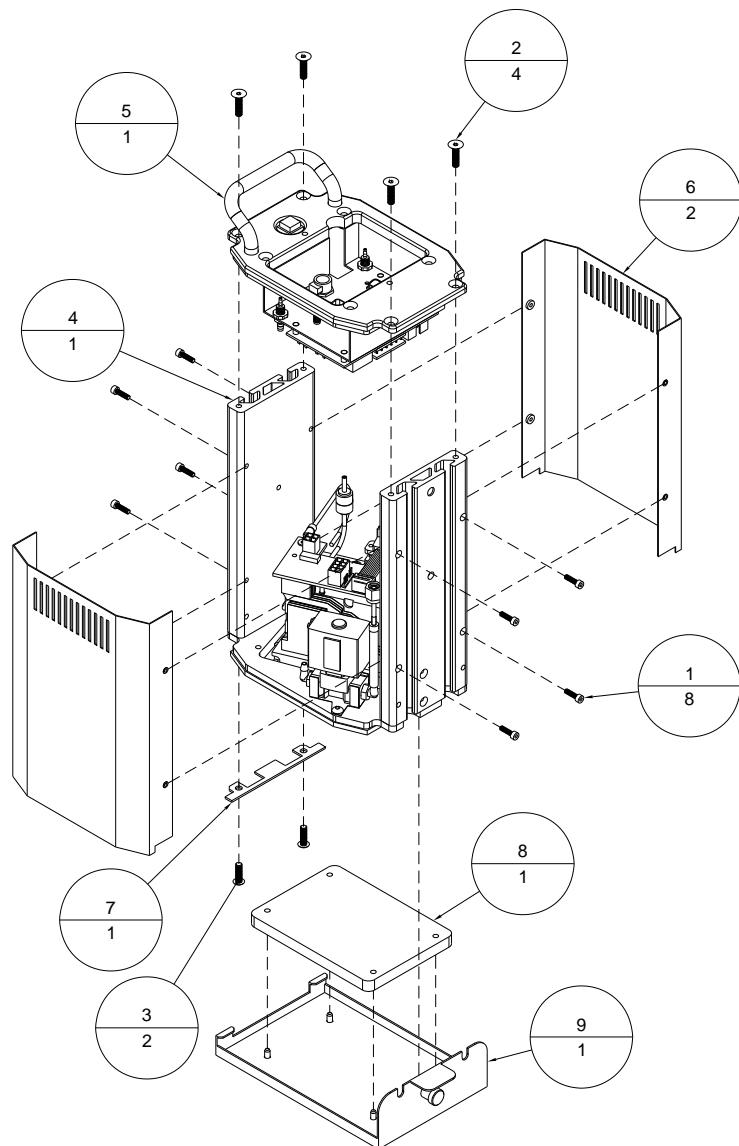
Figure A-52: BK791-A - Printhead, BK791 Atlas

Table A-53: 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-70
5	9102107	2	Cover, BK791	
6	9102108A	1	Bottom Plate Assembly, Cezanne BK791	Page A-72
7	9104302	1	Bracket, Cap, Hook-up	
8	9104593	1	Padding, 3/8"	
9	9104596	1	Cap, 1250	

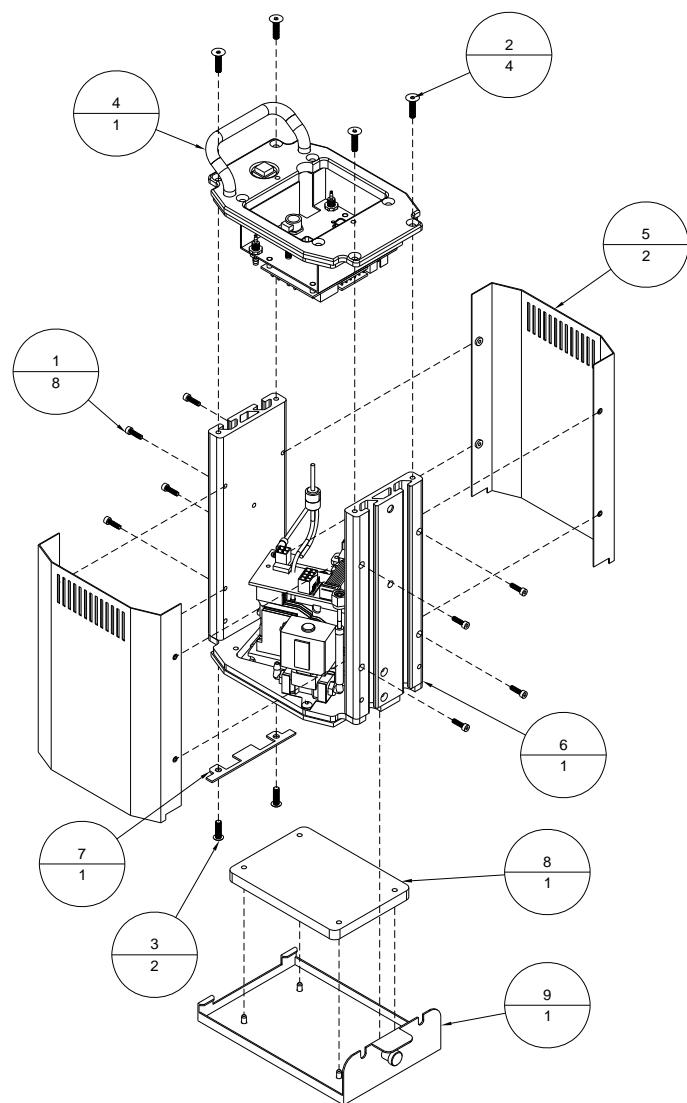
Figure A-53: BK791-C - Printhead, BK791 Cezanne

Table A-54: 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, 1/4" OD x 1/8" ID, 1" Lg.	
5	9100472	1	Tubing, Silicone, 1/4" OD x 1/8" ID, 2" Lg.	
6	9101290	1	Fitting, Tee, 1/8" ID	
7	9102106A	1	Top Plate Assembly, BK791	Page A-70
8	9102107	2	Cover, BK791	
9	9102107A	1	Bottom Plate Assembly, Aurora 1250	Page A-71
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-54: BK791-U - Printhead, BK791 Aurora

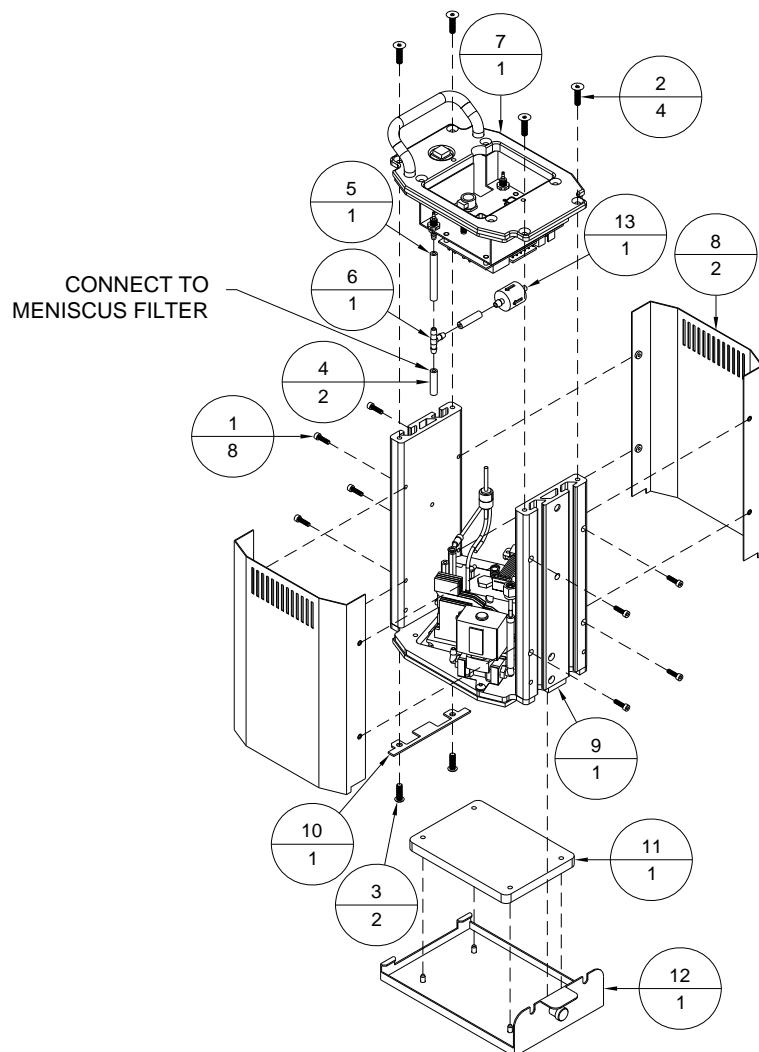


Table A-55: BK792-C - Printhead, Cezanne 2250

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-94
4	9103992	2	Cover, Triple Slant Print Head	
5	9105159A	1	Bottom Plate Assembly, Cezanne 2250	Page A-103

Figure A-55: BK792-C - Printhead, Cezanne 2250

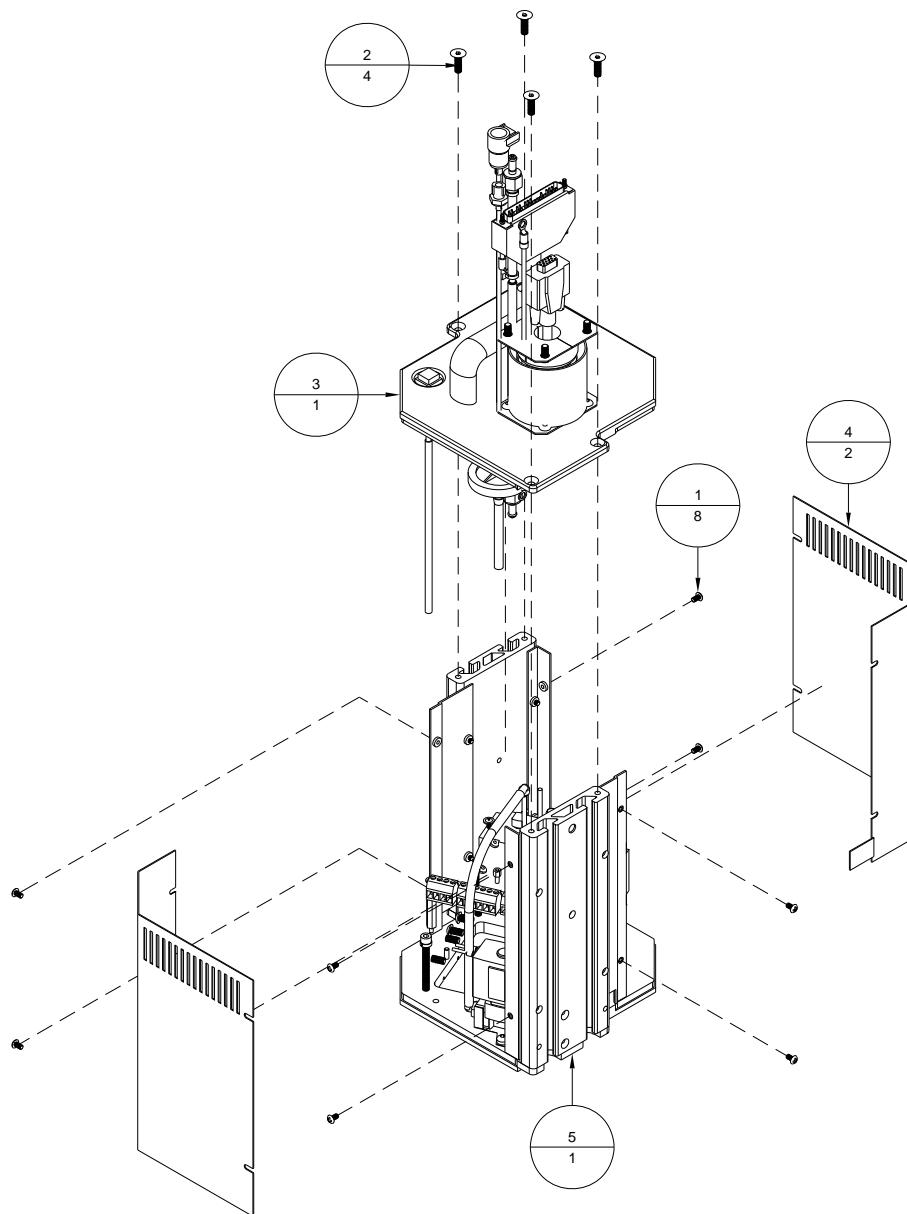


Table A-56: BK793-C - Printhead, Cezanne 3250

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-94
4	9103992	2	Cover, Triple Slant Print Head	
5	9105161A	1	Bottom Plate Assembly, Cezanne 3250	Page A-106

Figure A-56: BK793-C - Printhead, Cezanne 3250

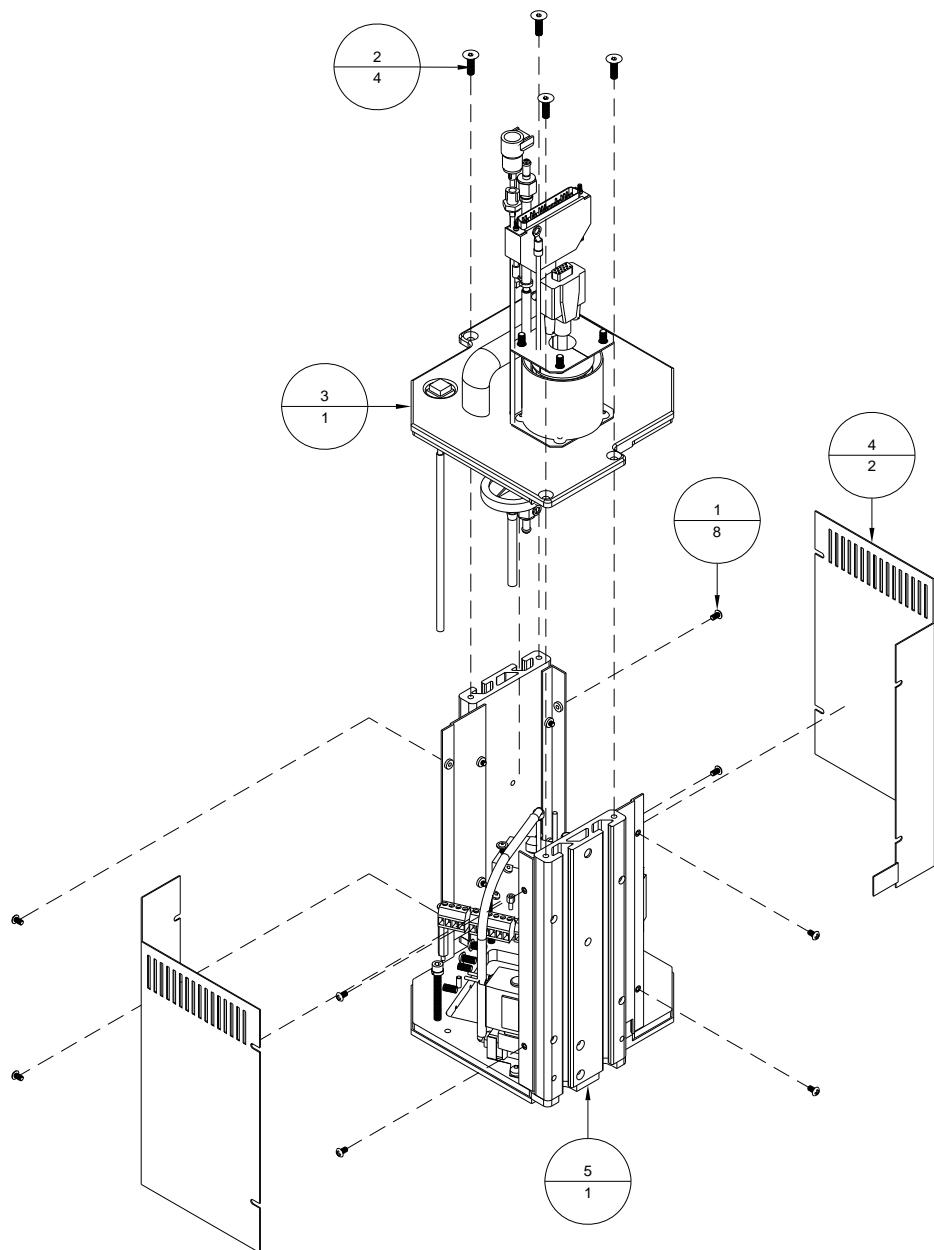


Table A-57: BK2500-M80 - Printhead, BK2500 Series, BK80

Item	Part Number	Quantity	Description	Reference
1	404082	4	Screw, FHCS, 10-32 UNF x 1-3/4"	
2	439009	4	Lockwasher, #10	
3	440008SS	4	Washer, #10 ID	
4	9104501	4	Screw, SS, Truss, 10-32 UNF x 1/2"	
5	9105832A	1	Printhead Assembly, BK2500	Page A-110
6	9105839	1	Shield, BK2500 Downstream	
7	9105861	2	Support Block, BK2500 Shield	
8	9105975	1	Shield, BK2500, Upstream (Special Order)	
9	9105977A	1	Parking Cap Assembly, BK2500	Page A-120
10	BK80M-4	1	Mount, Printhead, BK80 Bridge	Page A-61

Figure A-57: BK2500-M80 - Printhead, BK2500 Series, BK80

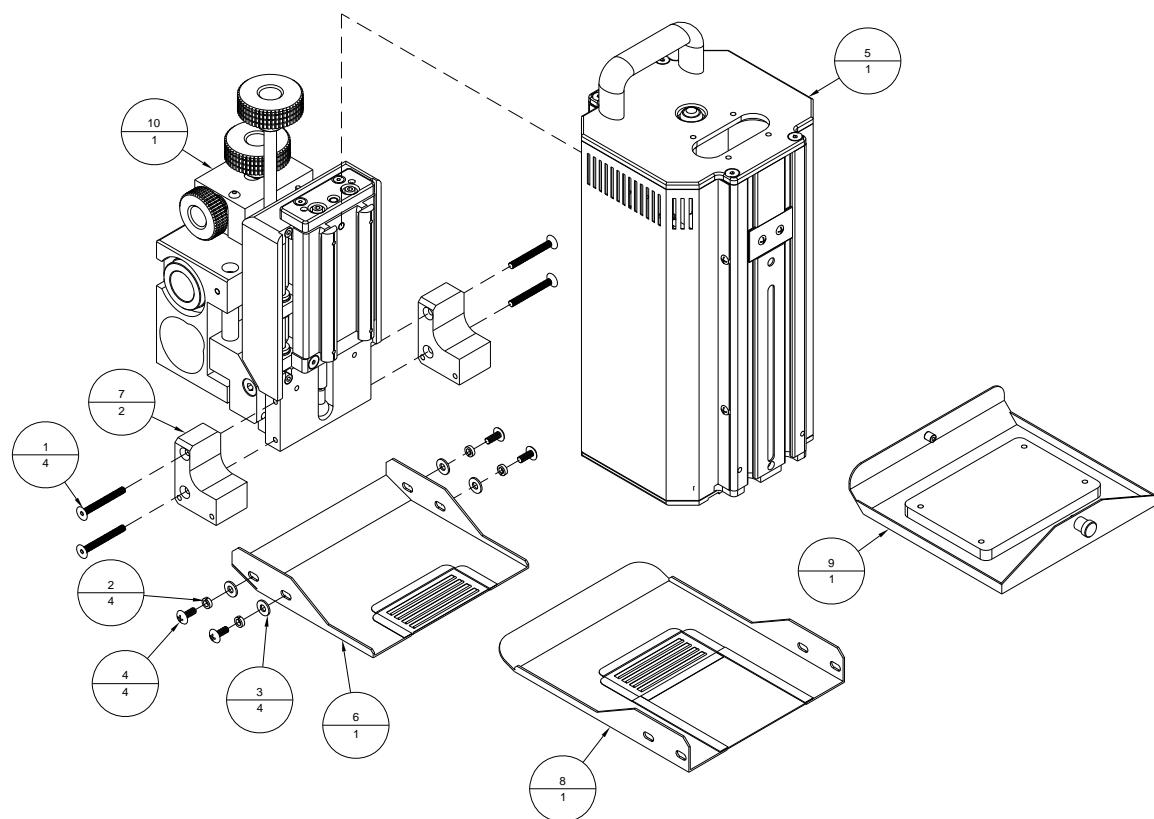


Table A-58: BK5100-M83 - Printhead, BK5100 Series, BK83

Item	Part Number	Quantity	Description	Reference
1	439009	4	Lockwasher, #10	
2	440008SS	4	Washer, #10 ID	
3	9104501	4	Screw, SS, Truss, 10-32 UNF x 1/2"	
4	9105948A	1	Printhead Assembly, BK5100	Page A-116
5	9105942	1	Shield, BK5100	
6	9105954	2	Support Block, BK5100 Shield	
7	9105955	4	Screw, SHCS, 10-32 UNF x 2.75"	
8	9105966	1	Shield, BK5100, Upstream (Special Order)	
9	9105976A	1	Parking Cap Assembly, BK5100	Page A-119
10	BK83M-3	1	Mount, Printhead, BK83 Bridge	Page A-62

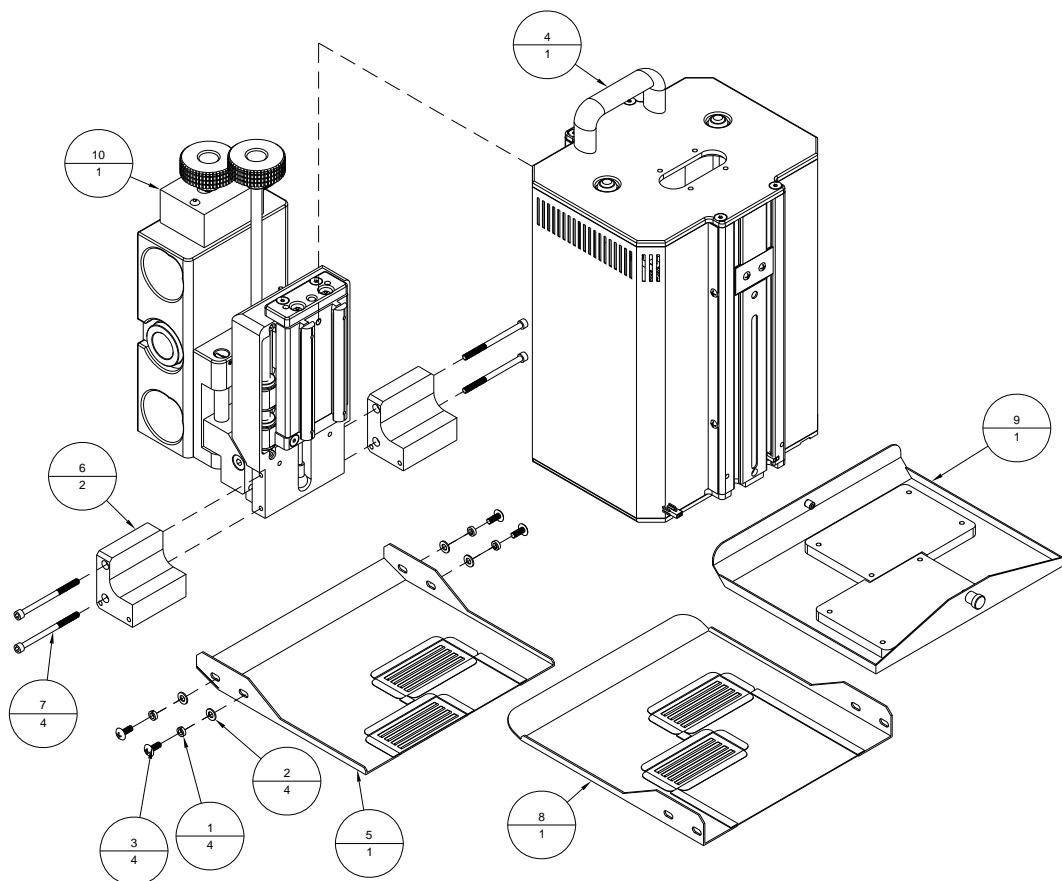
Figure A-58: BK5100-M80 - Printhead, BK5100 Series, BK83

Table A-59: 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-67
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-76
8	9102596	1	Mounting Block, Printhead Slider	

Figure A-59: BK79M-1 – Printhead Mount Assembly, 1250

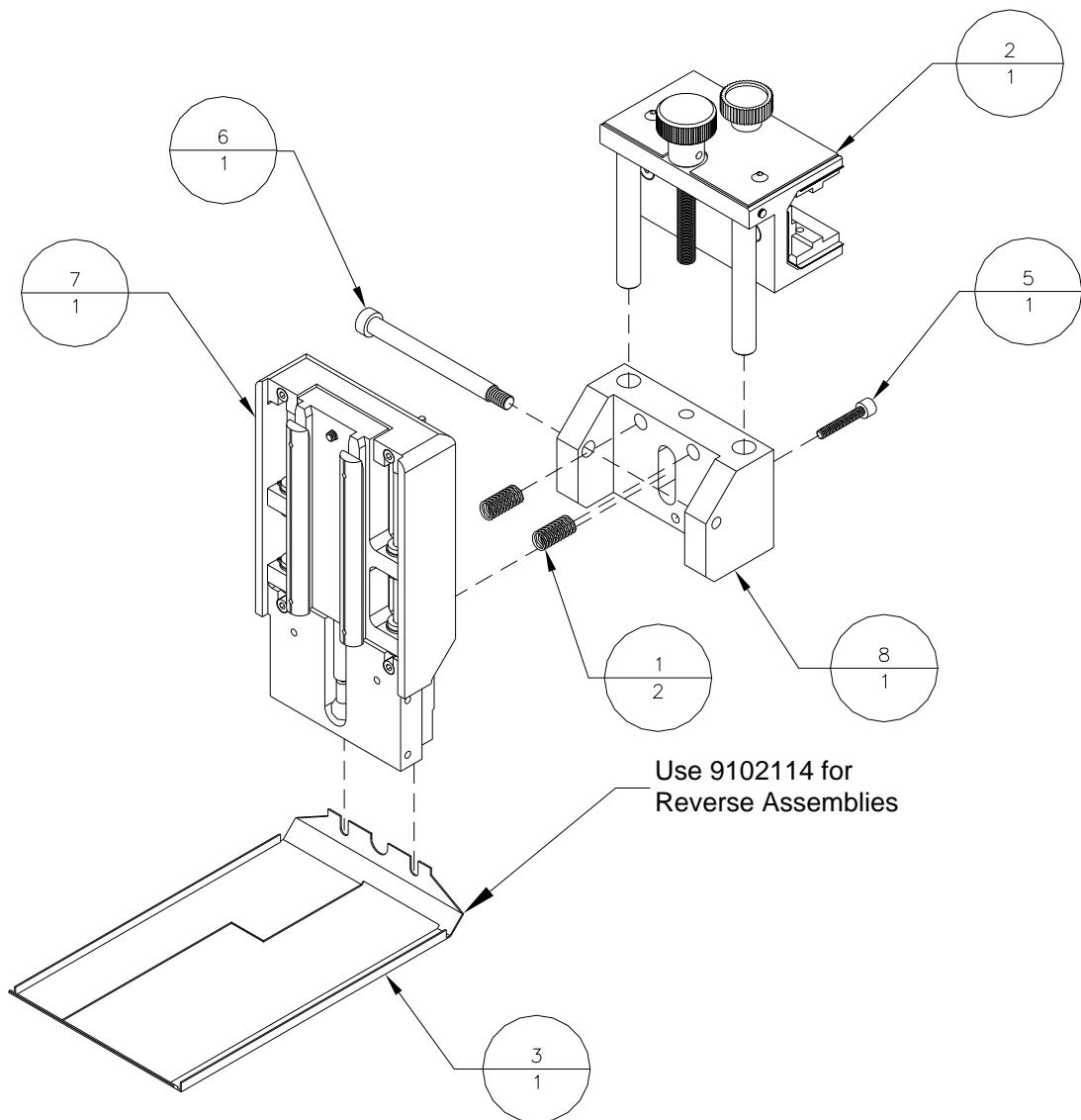


Table A-60: BK80M-1 - Mount, BK791, BK80 Bridge

Item	Part Number	Quantity	Description	Reference
1	9102595A	1	Solid mount assembly	Page A-76
2	9102819A	1	Bridge mount assembly	Page A-77

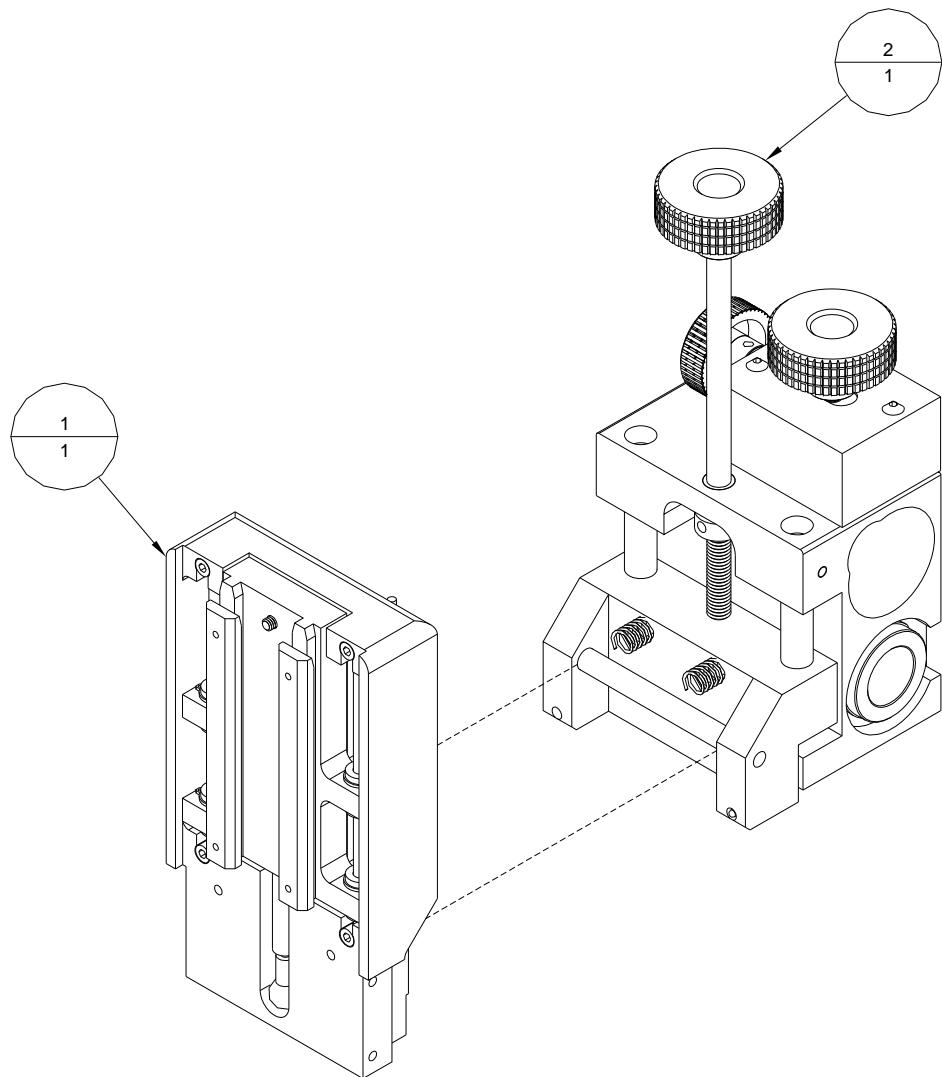
Figure A-60: BK80M-1 - Mount, BK791, BK80 Bridge

Table A-61: BK80M-4 - Mount, Printhead 2250/3250, BK80

Item	Part Number	Quantity	Description	Reference
1	9102819A	1	Bridge mount assembly	Page A-77
2	9104008A	1	Printhead Support Assembly, Angle	Page A-97

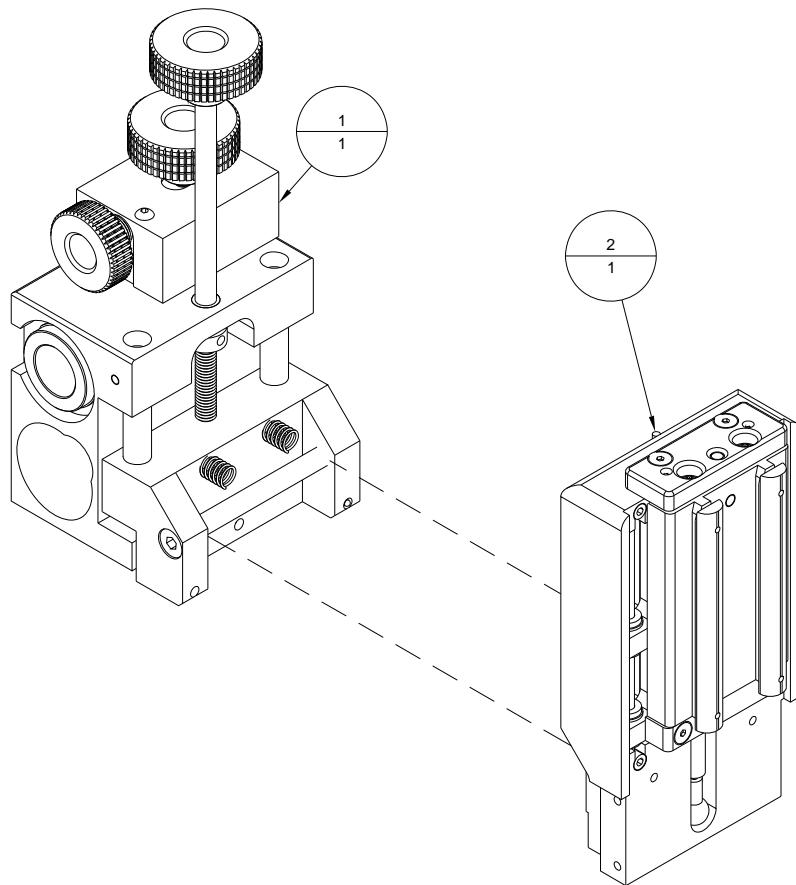
Figure A-61: BK80M-4 - Mount, Printhead 2250/3250, BK80

Table A-62: BK83M-3 - Mount, BK83 Bridge, Triple

Item	Part Number	Quantity	Description	Reference
1	9104413A	1	Bridge mount assembly, Triple	Page A-99
2	9105986A	1	Printhead Support Assembly, Angle, Triple	Page A-122

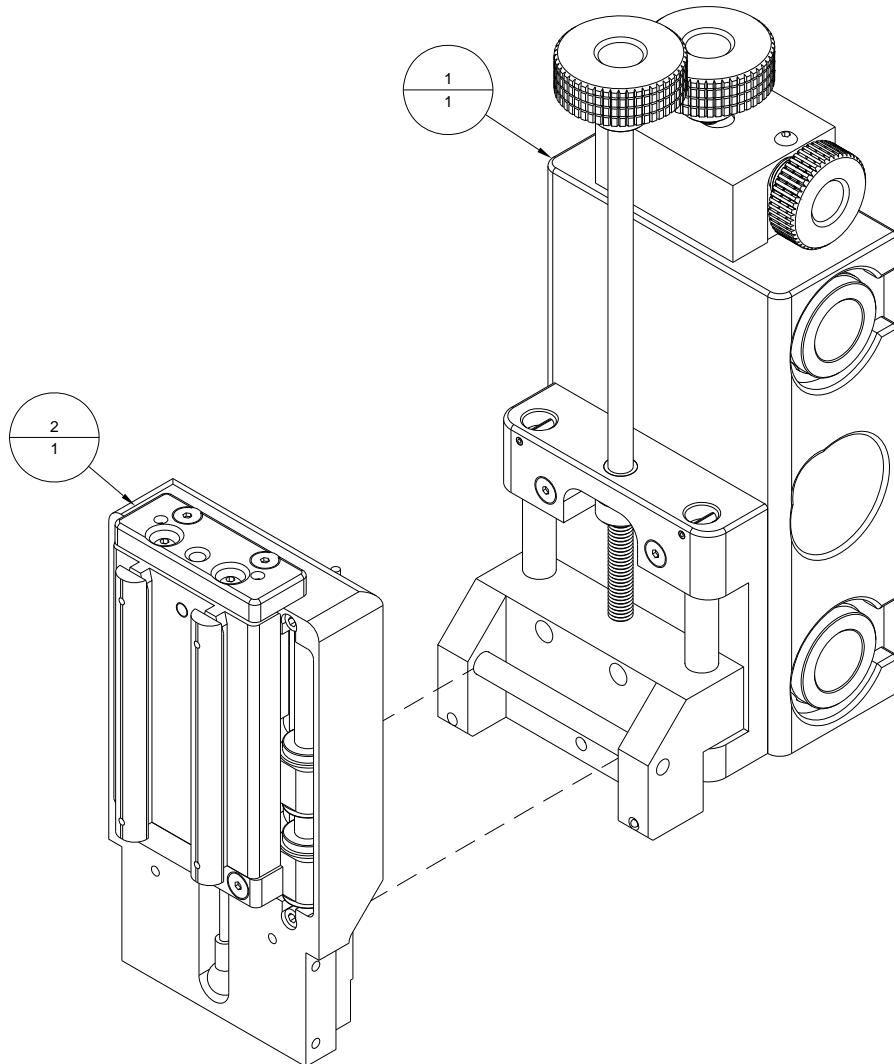
Figure A-62: BK83M-3 - Mount, BK83 Bridge, Triple

Table A-63: 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-63: 9101212A - Ink Umbilical Assembly, 15'

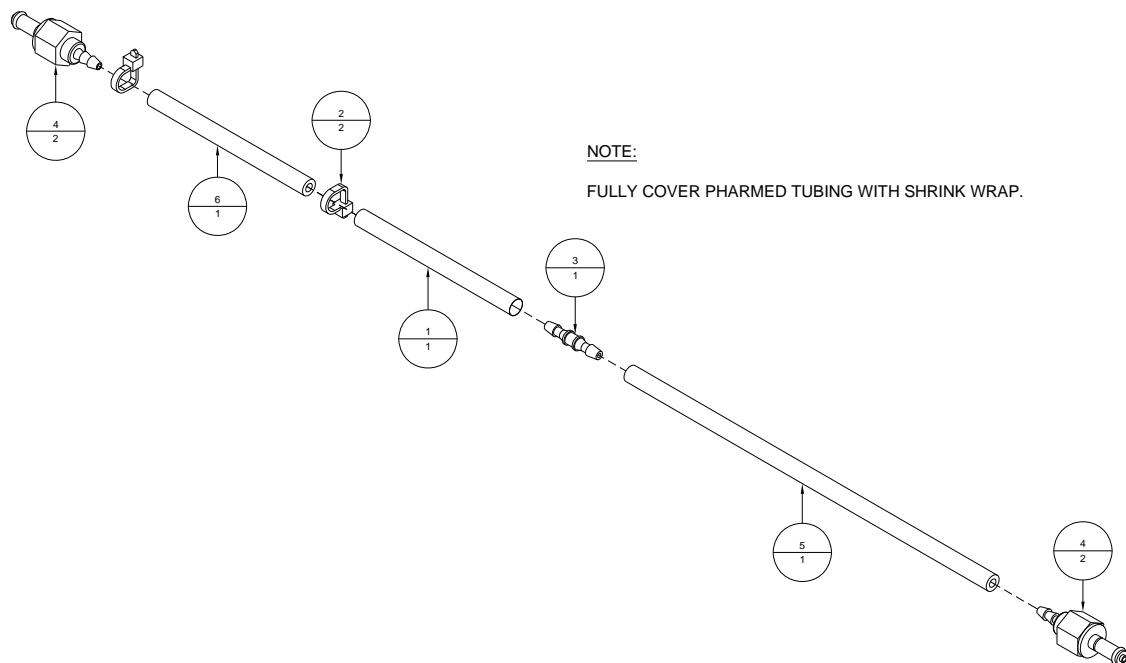


Table A-64: 9101694A - Meniscus Vacuum Hose Assembly, 15'

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	

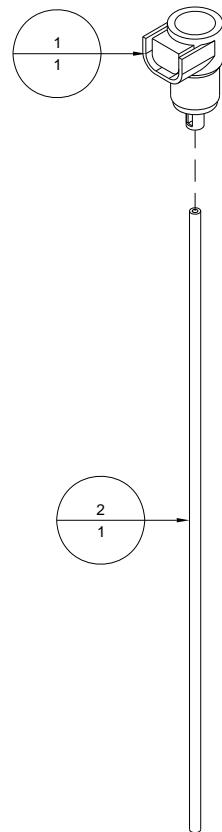
Figure A-64: 9101694A - Meniscus Vacuum Hose Assembly, 15'

Table A-65: 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	

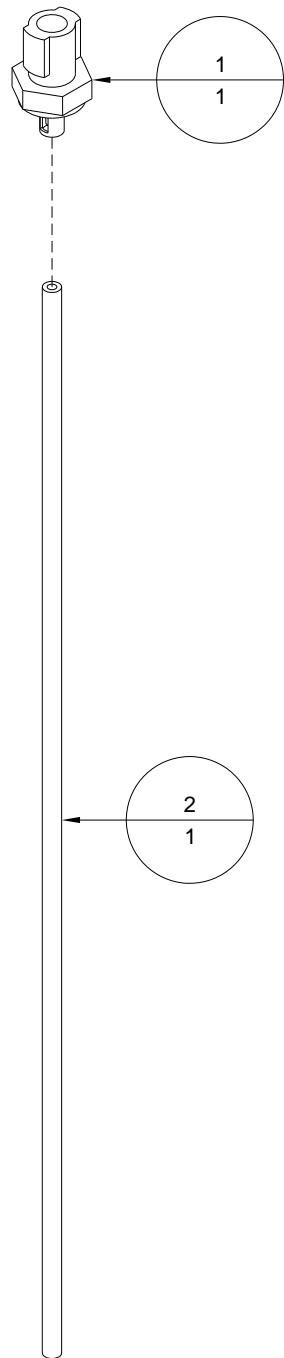
Figure A-65: 9101699A - Lung Vacuum Hose Assembly, 15'

Table A-66: 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-63
5	9101694A	1	Meniscus Vacuum Hose Assembly, 15'	Page A-64
6	9101699A	1	Lung Vacuum Hose Assembly, 15'	Page A-65
7	9101775	1	Hose, Corrugated Loom, 170"	
8	9101776	1	Sleeving, Braided Expandable, 170"	
9	9102687A	1	Cable, Printhead Data, 15'	

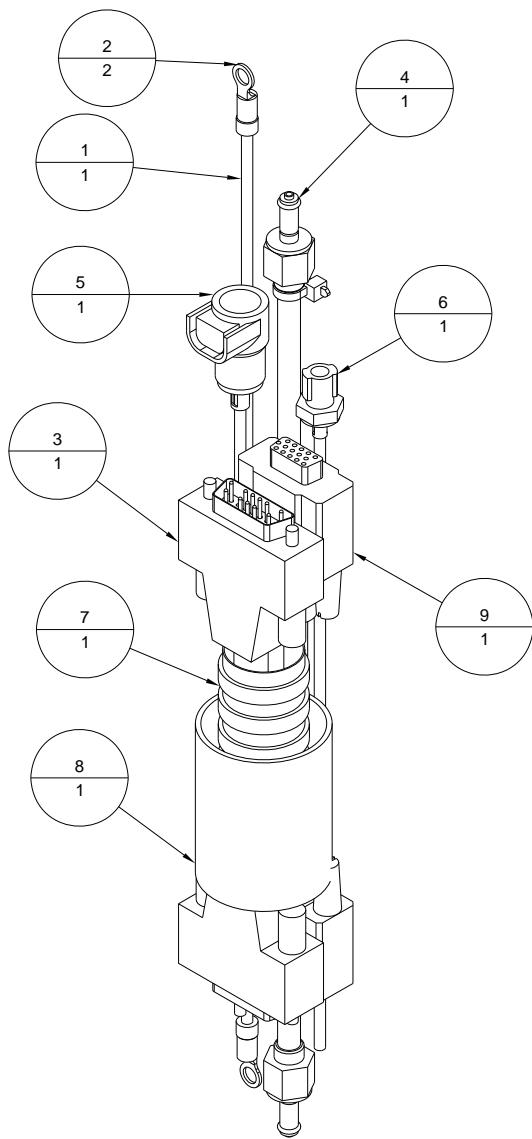
Figure A-66: 9101784A - Umbilical Assembly, BK791, 15'

Table A-67: 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-67: 9101994A - Rail Mounting Assembly

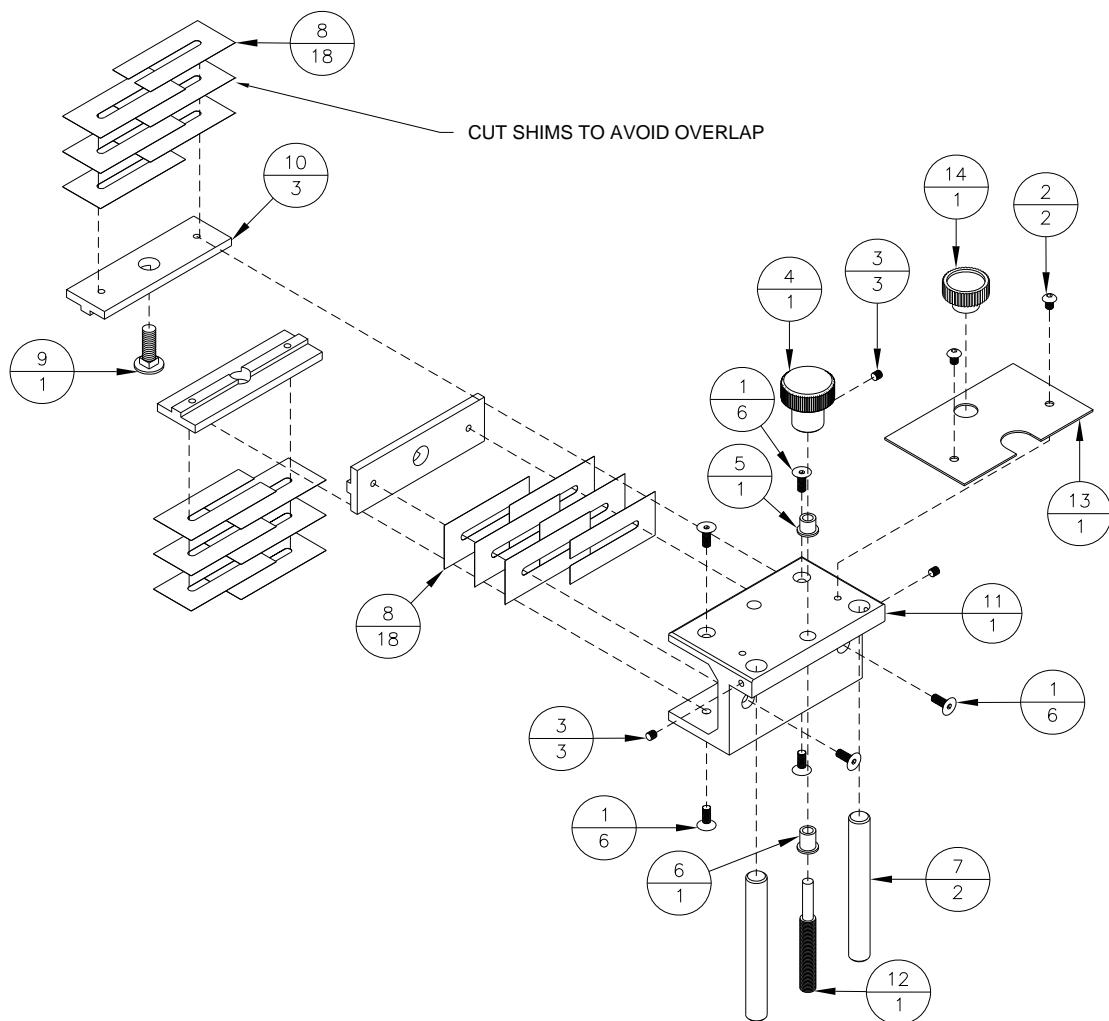


Table A-68: 9102085A - Solenoid Valve Assembly

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-68: 9102085A - Solenoid Valve Assembly*NOTE:

Use teflon (PTFE) tape as thread seal.
"IN" side on body to be oriented as intake.
Connect wires to +12V, UMB to BLA4 on connector interface board.
Singlehead - fittings upright.

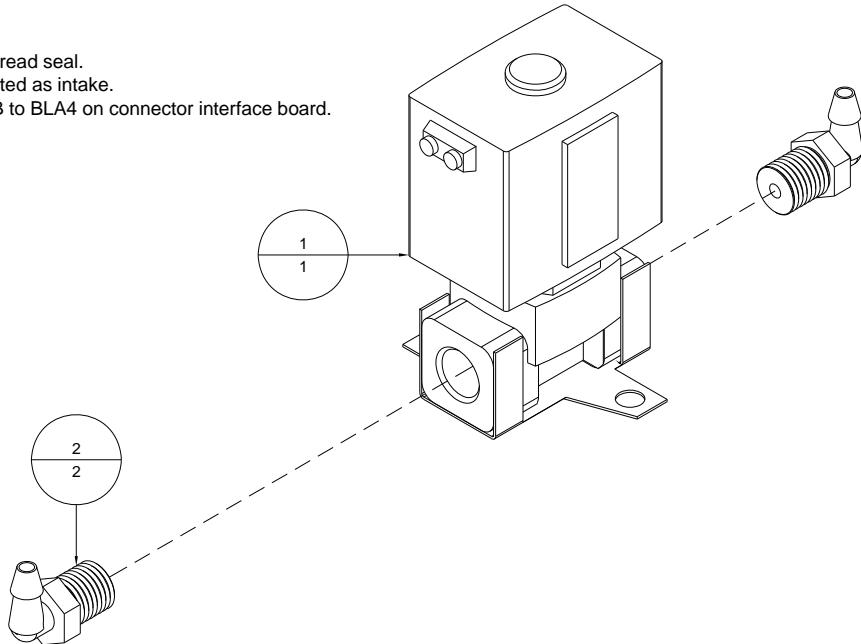


Table A-69: 9102105A – Bottom Plate Assembly, BK791

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, #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-68
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-75
21	9103562	1	Check Valve, 1/16" ID, 1.5 psi	
22	9104156	1	Printhead, Atlas w/IHIB, 256/30	

Figure A-69: 9102105A – Bottom Plate Assembly, BK791

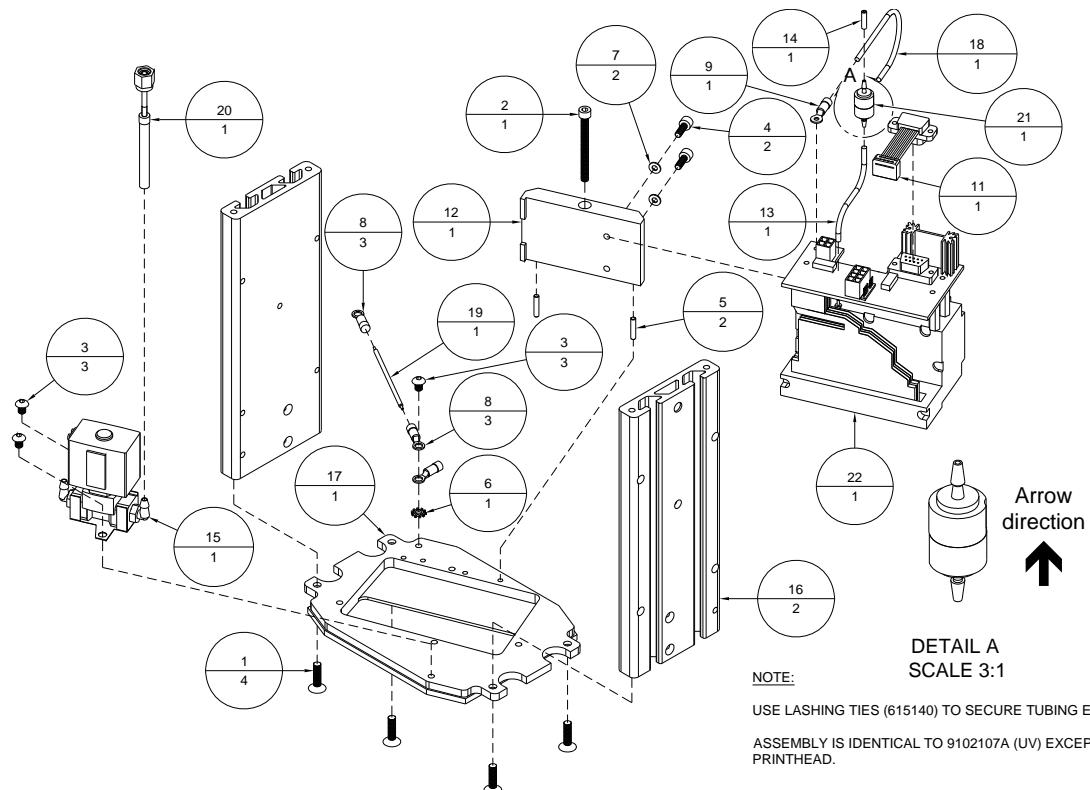


Table A-70: 9102106A - Top Plate Assembly, BK791

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-73
10	9102111	1 x 6.5"	Tubing, PE, 1/4" x 1/8", UV Resistant	

Figure A-70: 9102106A - Top Plate Assembly, BK791

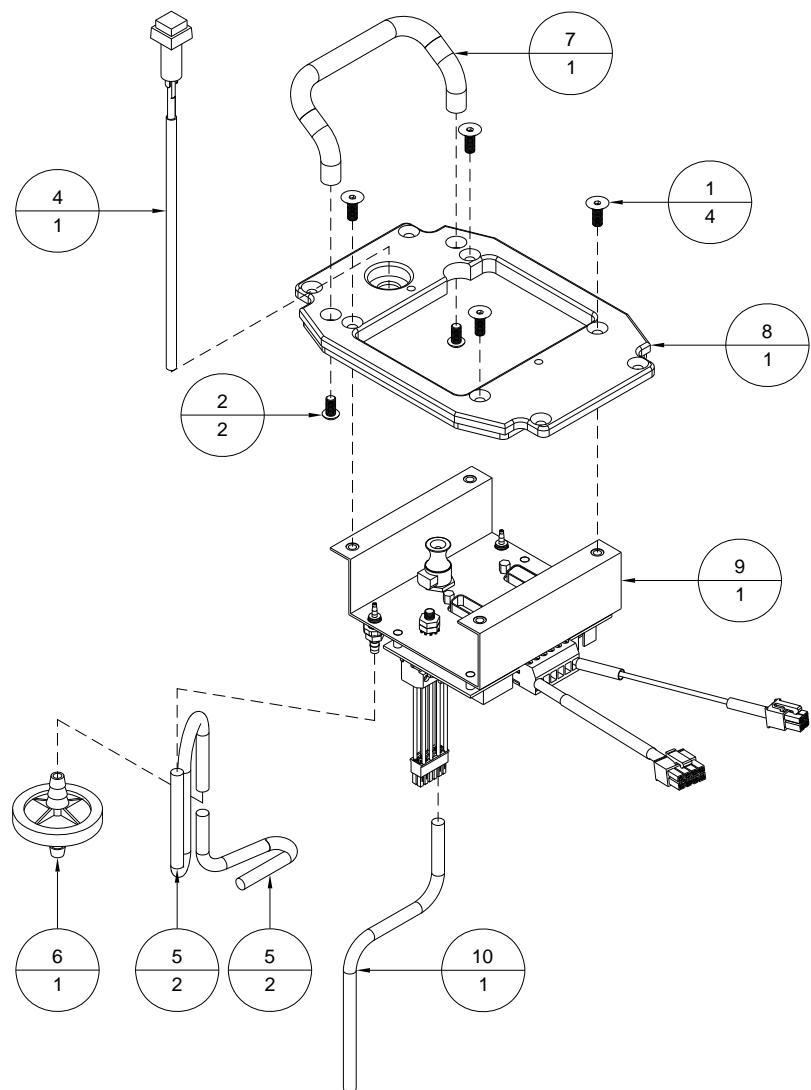


Table A-71: 9102107A - Bottom Plate Assembly, Aurora BK791

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-68
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-75
22	9103562	1	Check Valve, 1/16" I.D., 1.5 PSI	

Figure A-71: 9102107A - Bottom Plate Assembly, Aurora BK791

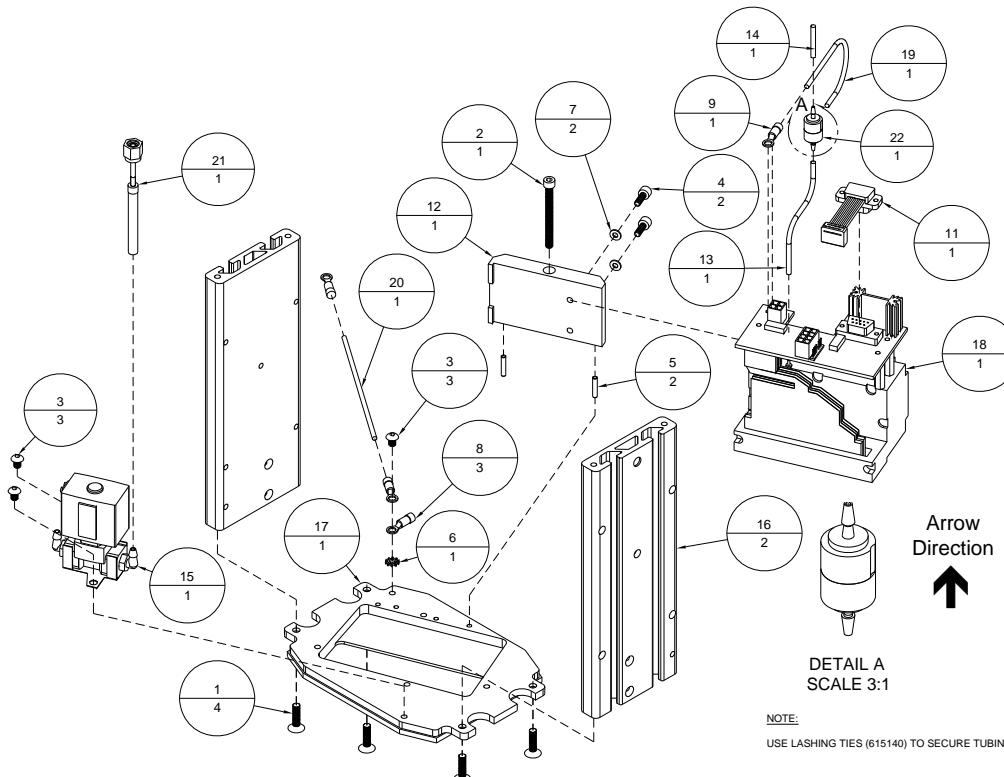


Table A-72: 9102108A - Bottom Plate Assembly, Cezanne BK791

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-68
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-75
21	9103562	1	Check Valve, 1/16" I.D., 1.5 PSI	
22	9105156	1	Printhead, Atlas PH 256/30, Cezanne	

Figure A-72: 9102108A - Bottom Plate Assembly, Cezanne BK791

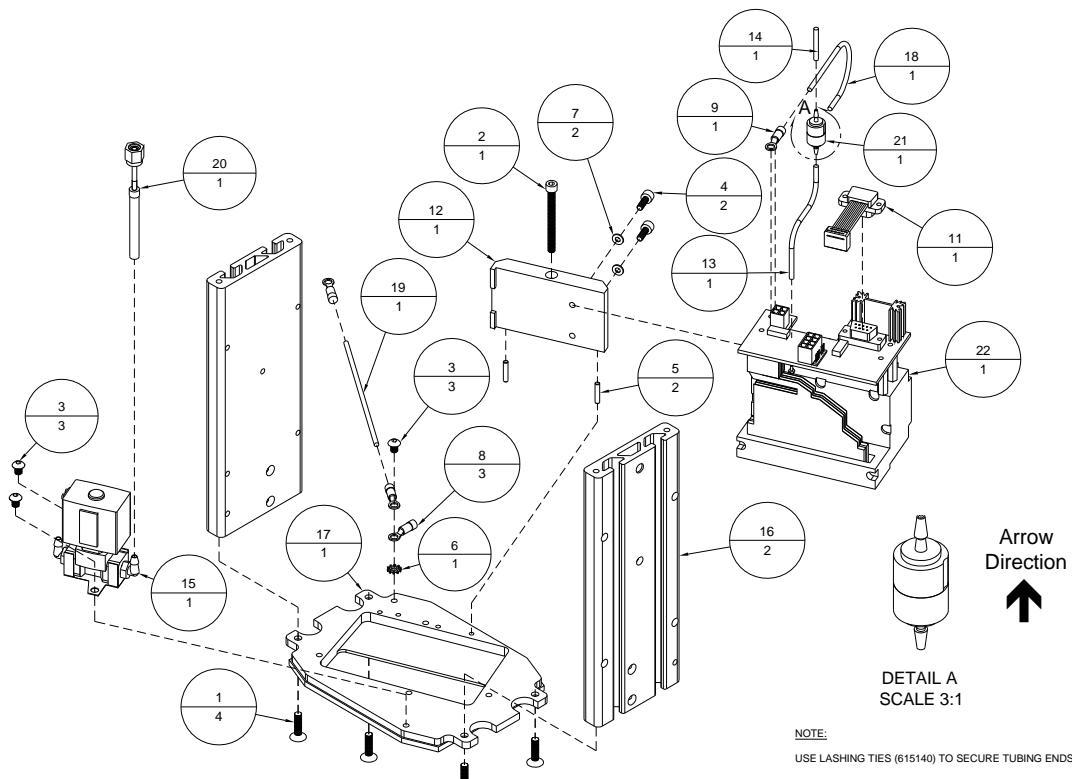


Table A-73: 9102109A - Port Bracket Assembly, BK791

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-73: 9102109A - Port Bracket Assembly, BK791

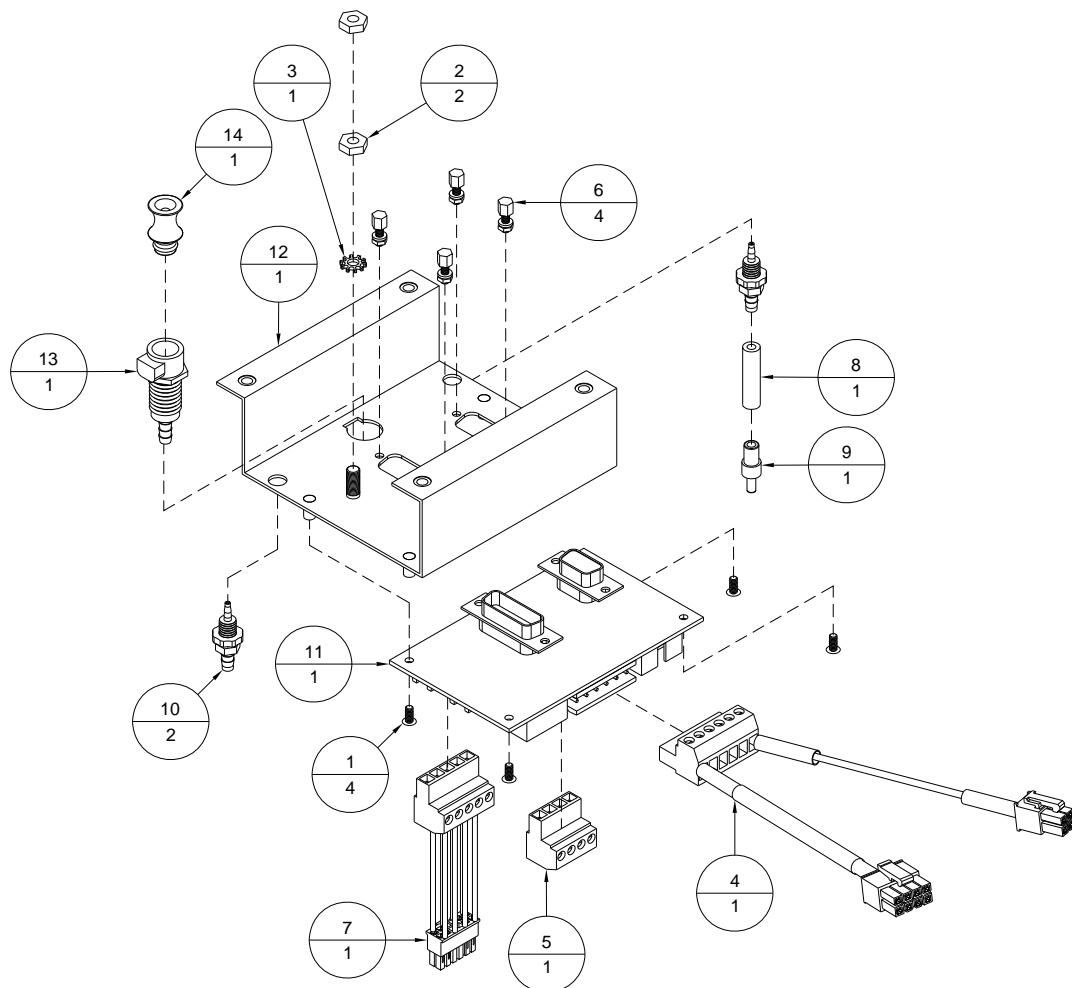


Table A-74: 9102220A - Umbilical Assembly, BK791, BK1710, 15'

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-63
4	9101694A	1	Meniscus Vacuum Hose Assembly, 15'	Page A-64
5	9101699A	1	Lung Vacuum Hose Assembly, 15'	Page A-65
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-74: 9102220A - Umbilical Assembly, BK791, BK1710, 15'

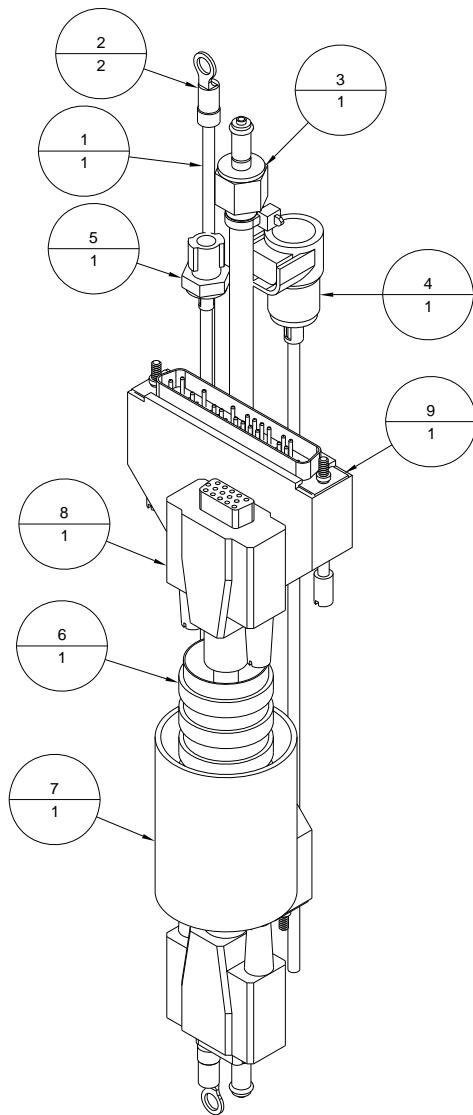


Table A-75: 9102350A - Ferrule Assembly, BK791 Printhead

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"	

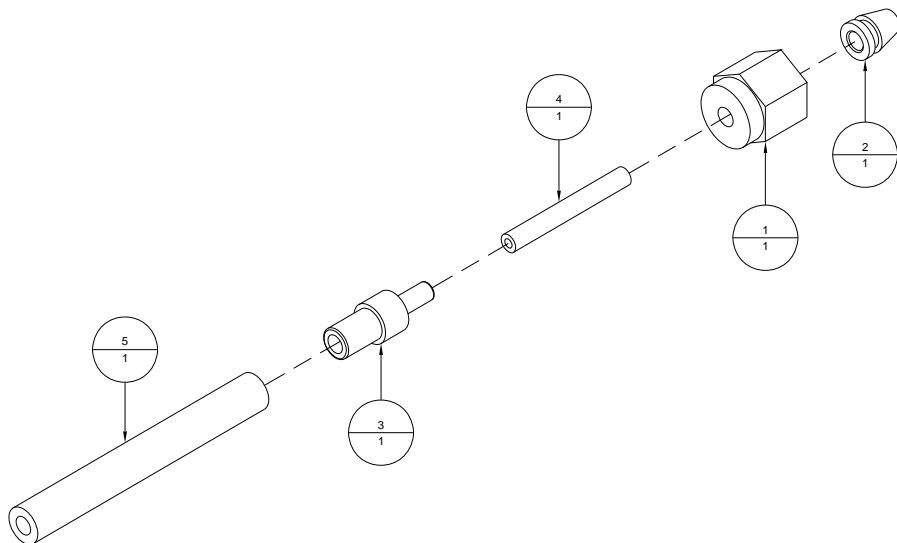
Figure A-75: 9102350A - Ferrule Assembly, BK791 Printhead

Table A-76: 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-76: 9102595A - Printhead Support Assembly, Solid

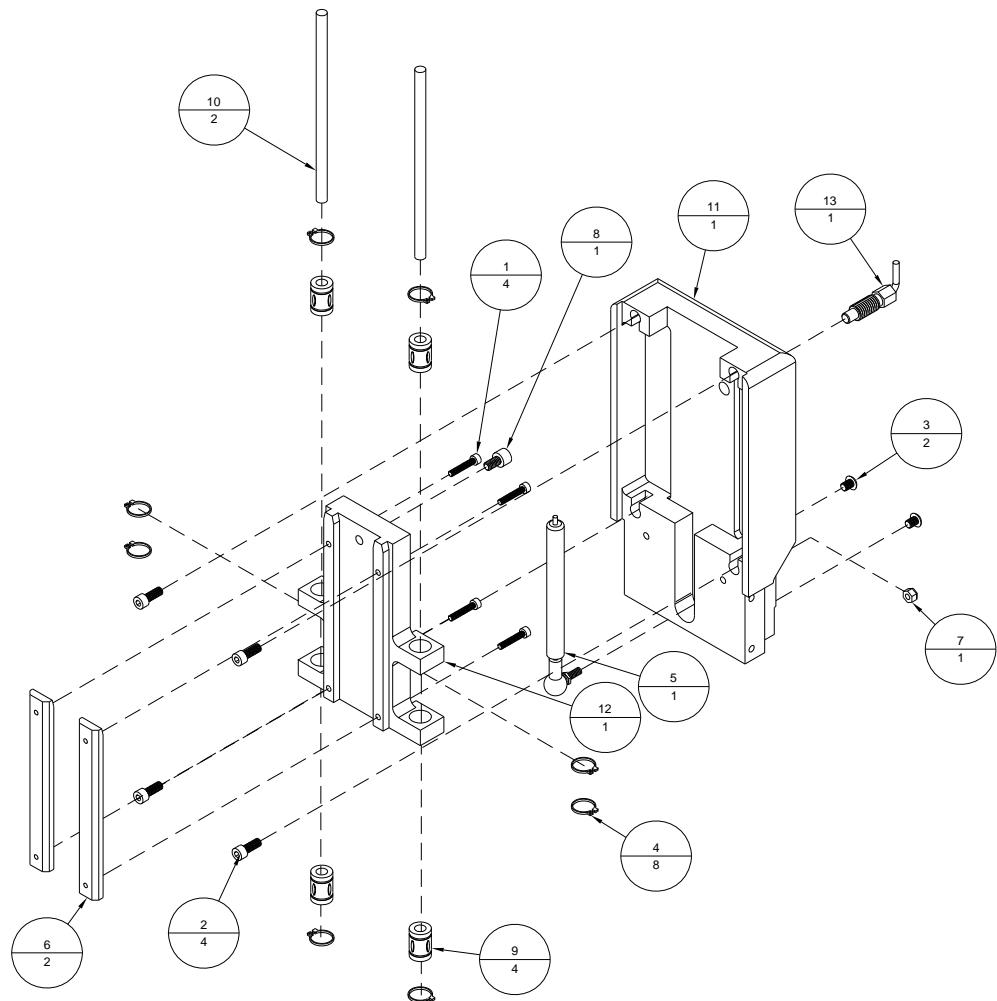


Table A-77: 9102819A - Bridge Mount Assembly

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-86

Figure A-77: 9102819A - Bridge Mount Assembly

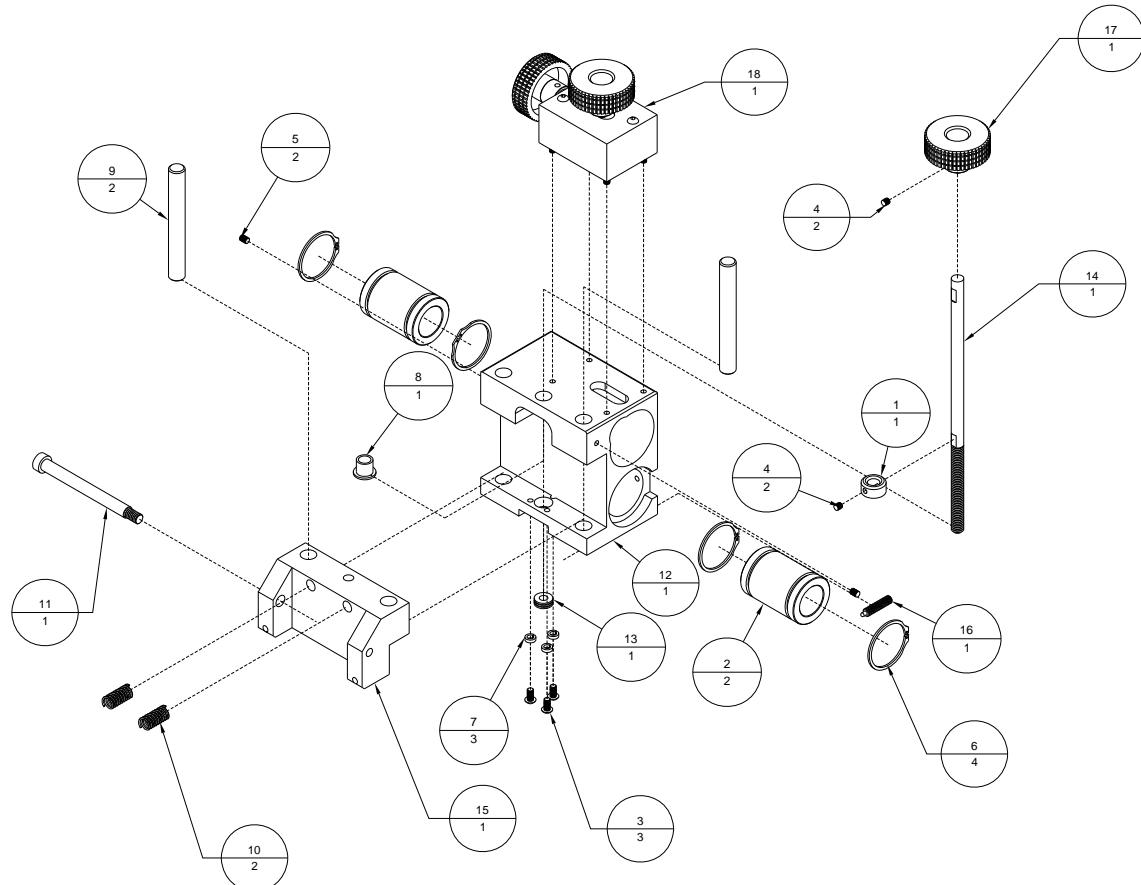


Table A-78: 9102911A - Umbilical Assembly, 2250 / 3250, 15'

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-63
5	9101694A	1	Meniscus Vacuum Hose Assembly, 15'	Page A-64
6	9101699A	1	Lung Vacuum Hose Assembly, 15'	Page A-65
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-78: 9102911A - Umbilical Assembly, 2250 / 3250, 15'

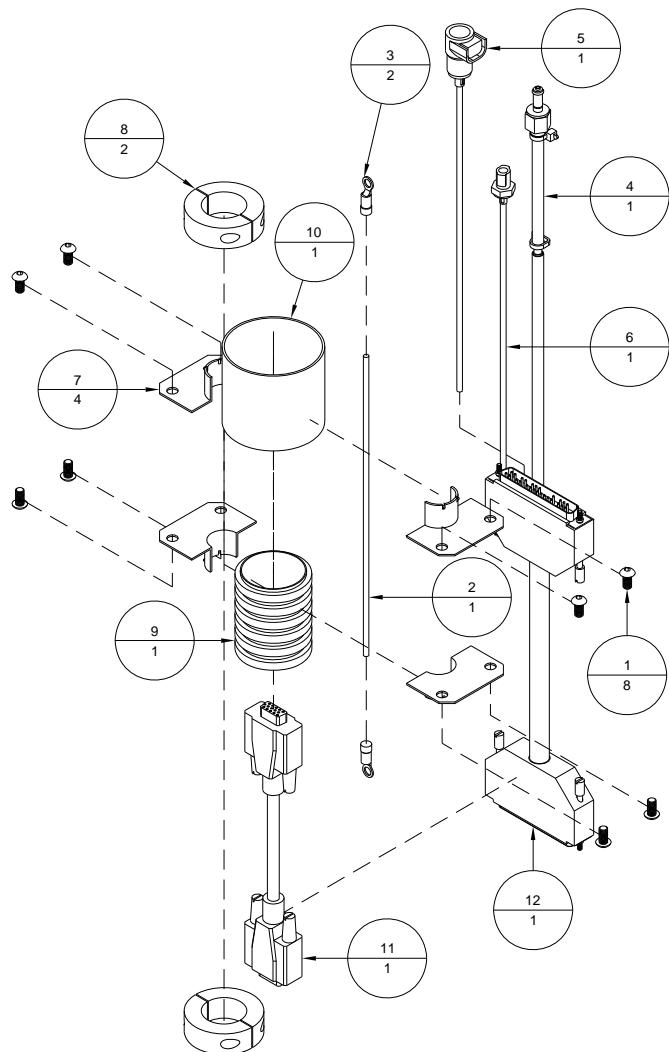


Table A-79: 9103168A - Slide Bar Assembly, 80 pL

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-79: 9103168A - Slide Bar Assembly, 80 pL

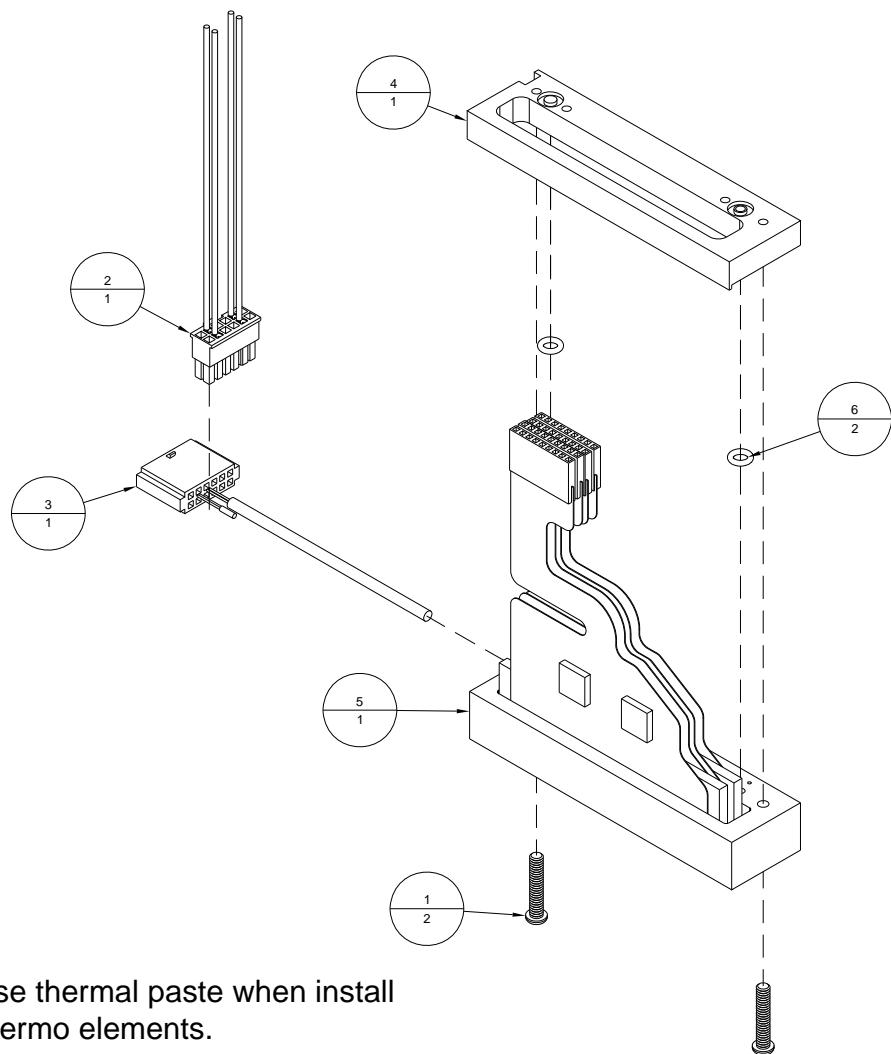


Table A-80: 9103169A - Manifold Assembly, Adjustable, 80 pL, UV

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-79
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-80: 9103169A - Manifold Assembly, Adjustable, 80 pL, UV

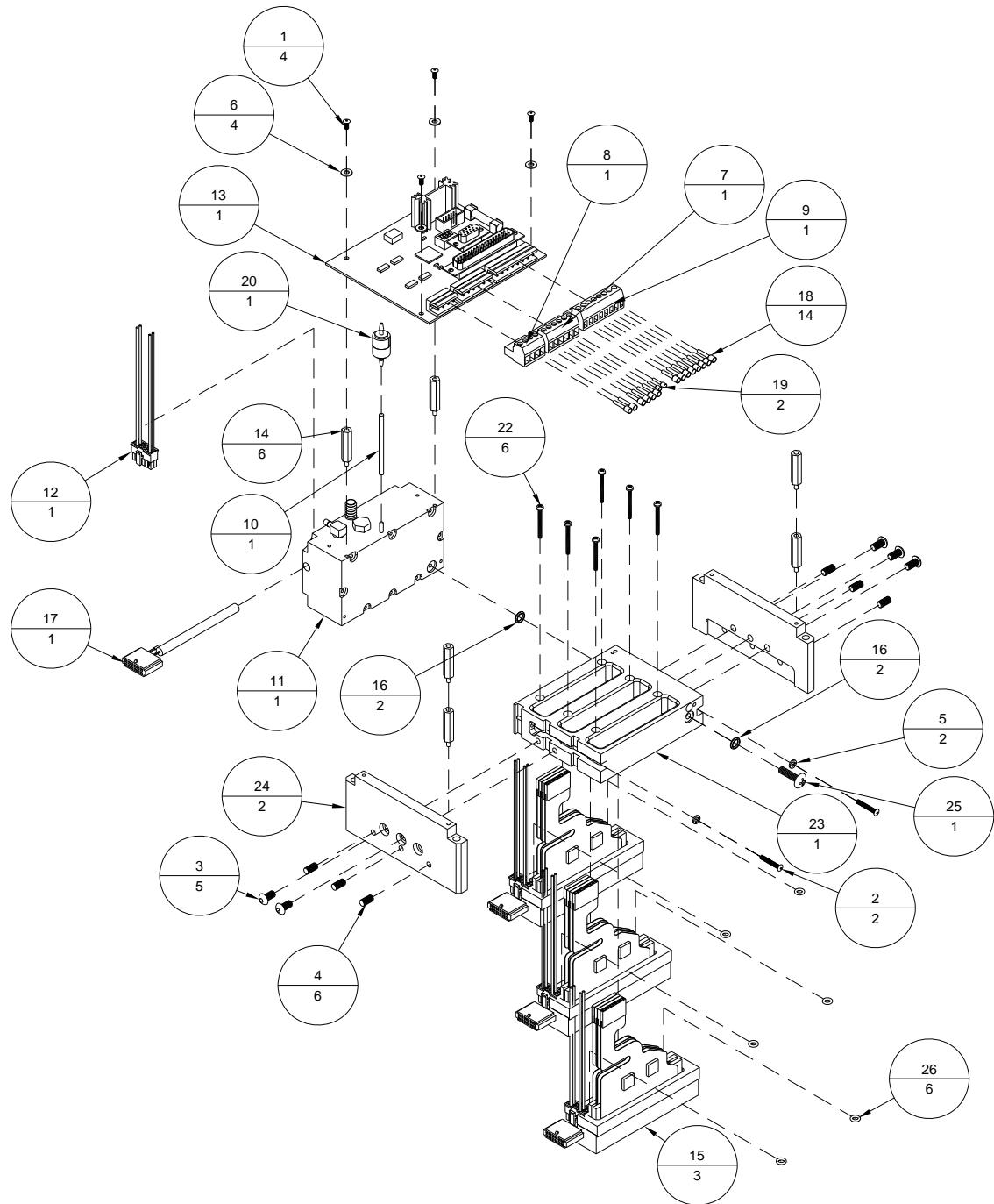


Table A-81: 9103170A - Bottom Plate Assembly, Aurora 3250

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-80
14	9103989	1	Plate, Bottom, Triple Slant	
15	9103998	2	Bracket, Corner	
16	9103998A	1	Solenoid assembly	Page A-95
17	9103999	2	Bracket, Straight	

Figure A-81: 9103170A - Bottom Plate Assembly, Aurora 3250

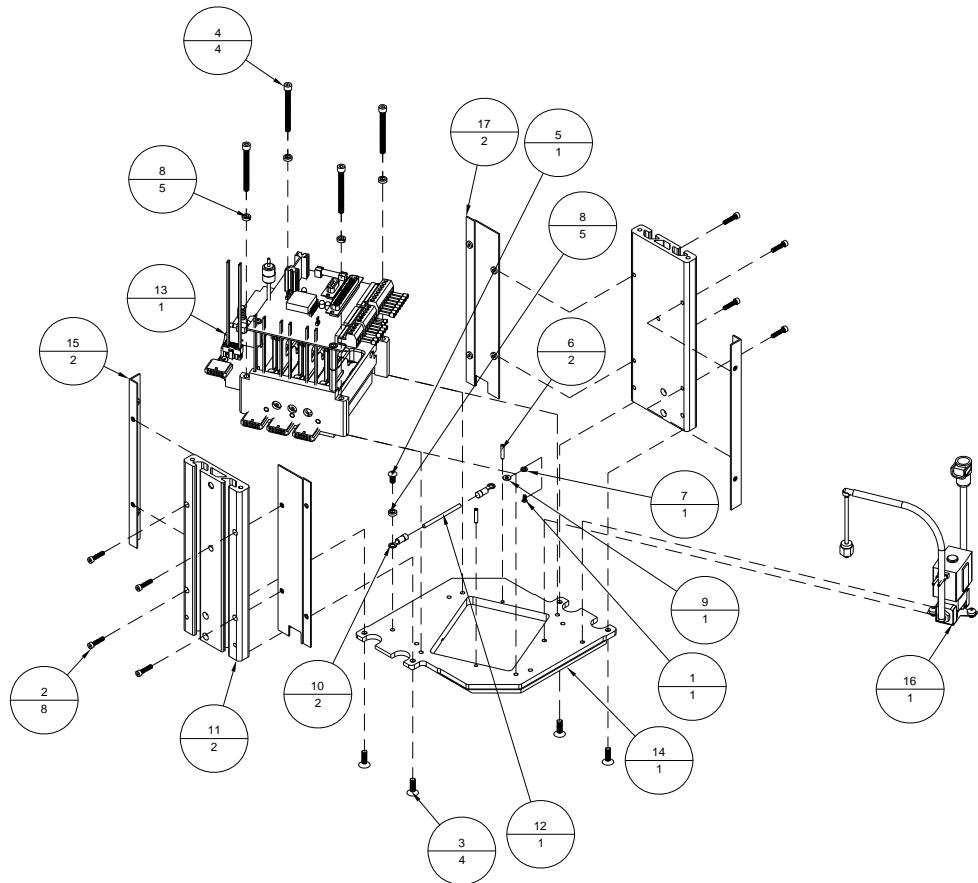


Table A-82: 9103183A – Adjustable Manifold Assembly, Aurora 2”

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	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-79
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 3/4" SS	
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"	

Figure A-82: 9103183A – Adjustable Manifold Assembly, Aurora 2"

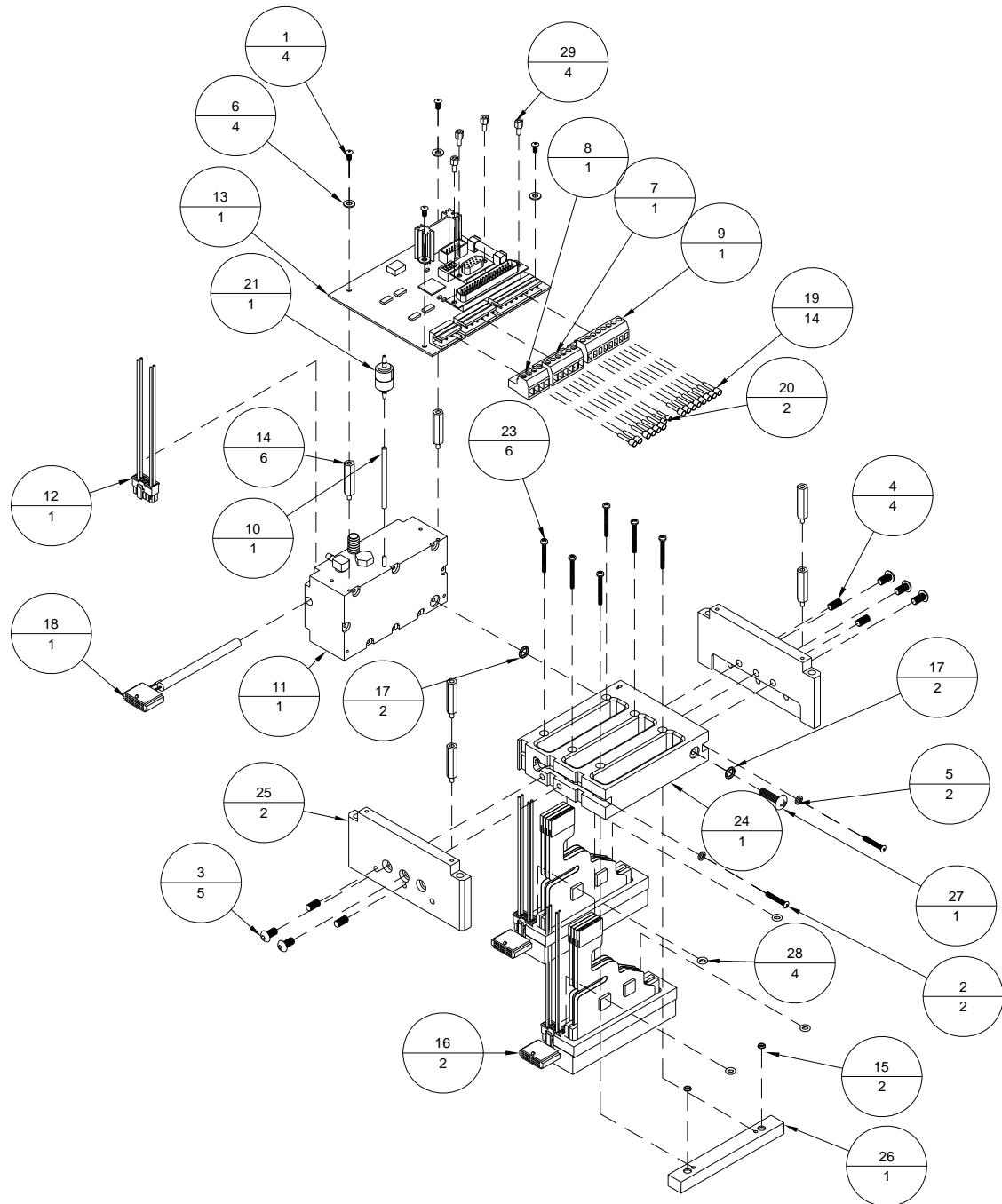


Table A-83: 9103185A - Bottom Plate Assembly, Aurora 2250

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-83
14	9103989	1	Plate, Bottom, Triple Slant	
15	9103998	2	Bracket, Corner	
16	9103998A	1	Solenoid assembly	Page A-95
17	9103999	2	Bracket, Straight	

Figure A-83: 9103185A - Bottom Plate Assembly, Aurora 2250

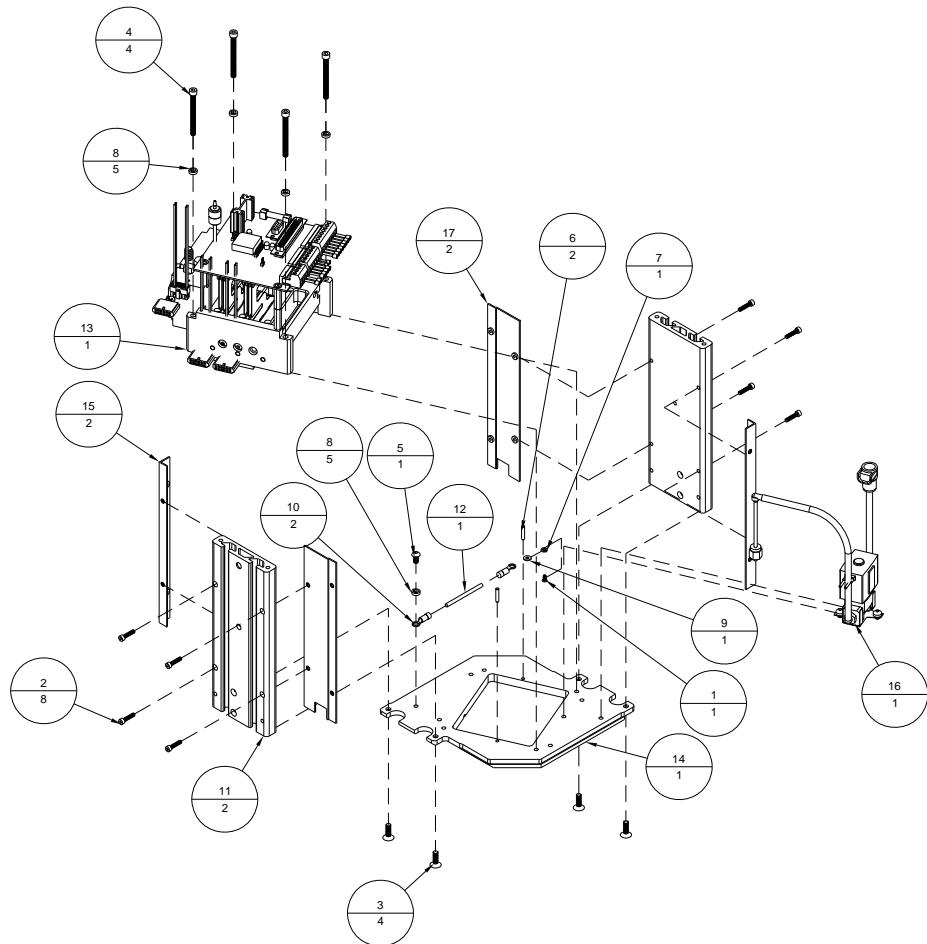


Table A-84: 9103460A - Locking Mechanism

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-84: 9103460A - Locking Mechanism

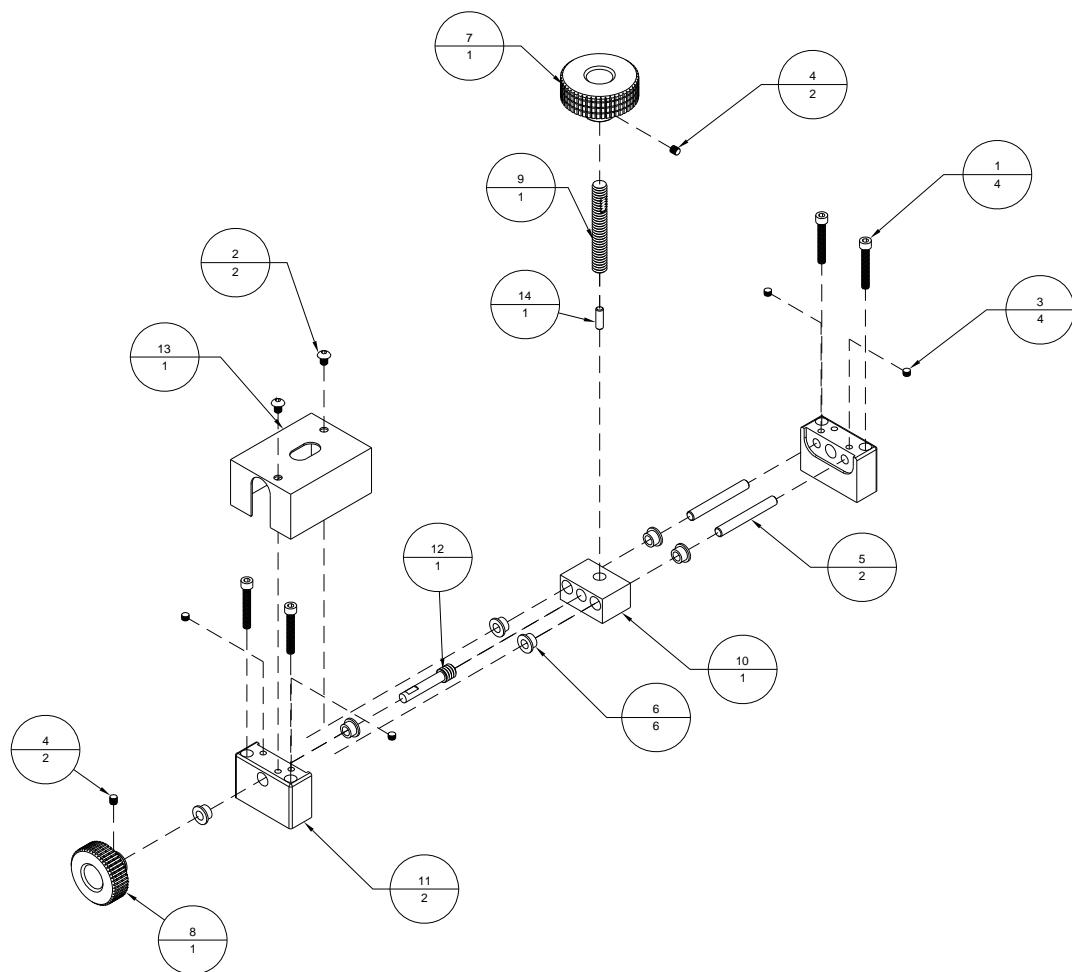


Table A-85: 9103922A - Ferrule Assembly

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.	

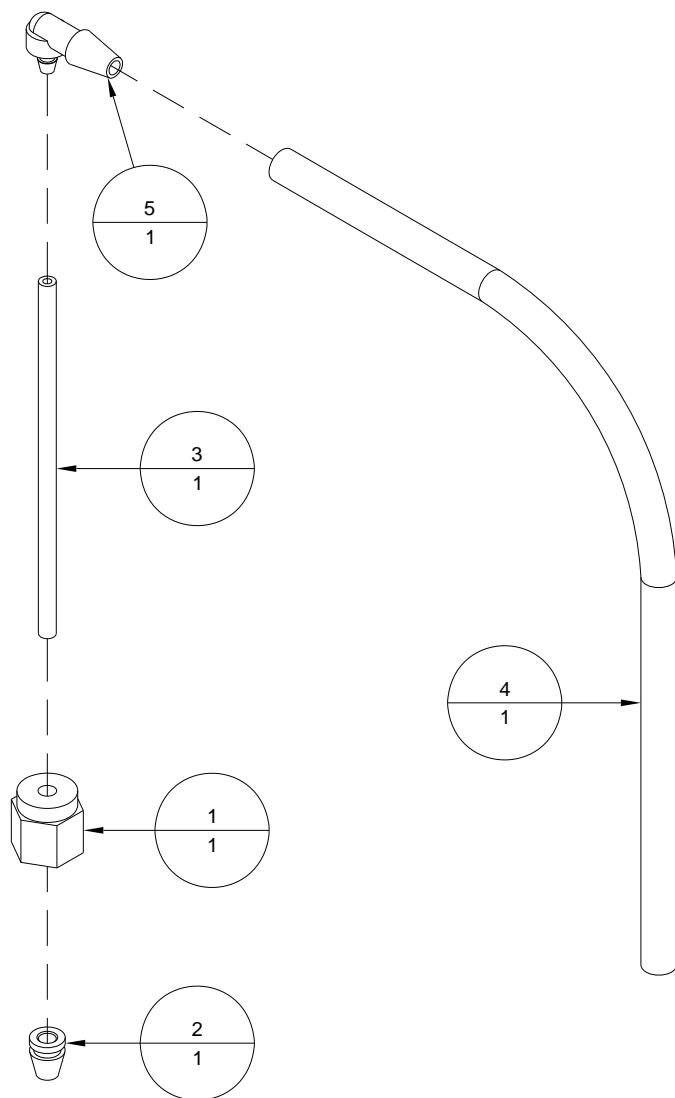
Figure A-85: 9103922A - Ferrule Assembly

Table A-86: 9103986A – Adjustable Manifold Assembly, 2"

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	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 1/2"	
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-92
26	9103990	2	Bracket, Manifold Support	
27	9104061	1	Cap, Block Off	
28	9104365	1	Screw, Truss, 10-32 UNF x 3/4" SS	
29	9104366	4	O-Ring, EPDM, 9/32 x 5/32 x 1/16	
30	9104530	4	Hex Spacer, 4-40 UNC x 1/4"	

Figure A-86: 9103986A – Adjustable Manifold Assembly, 2"

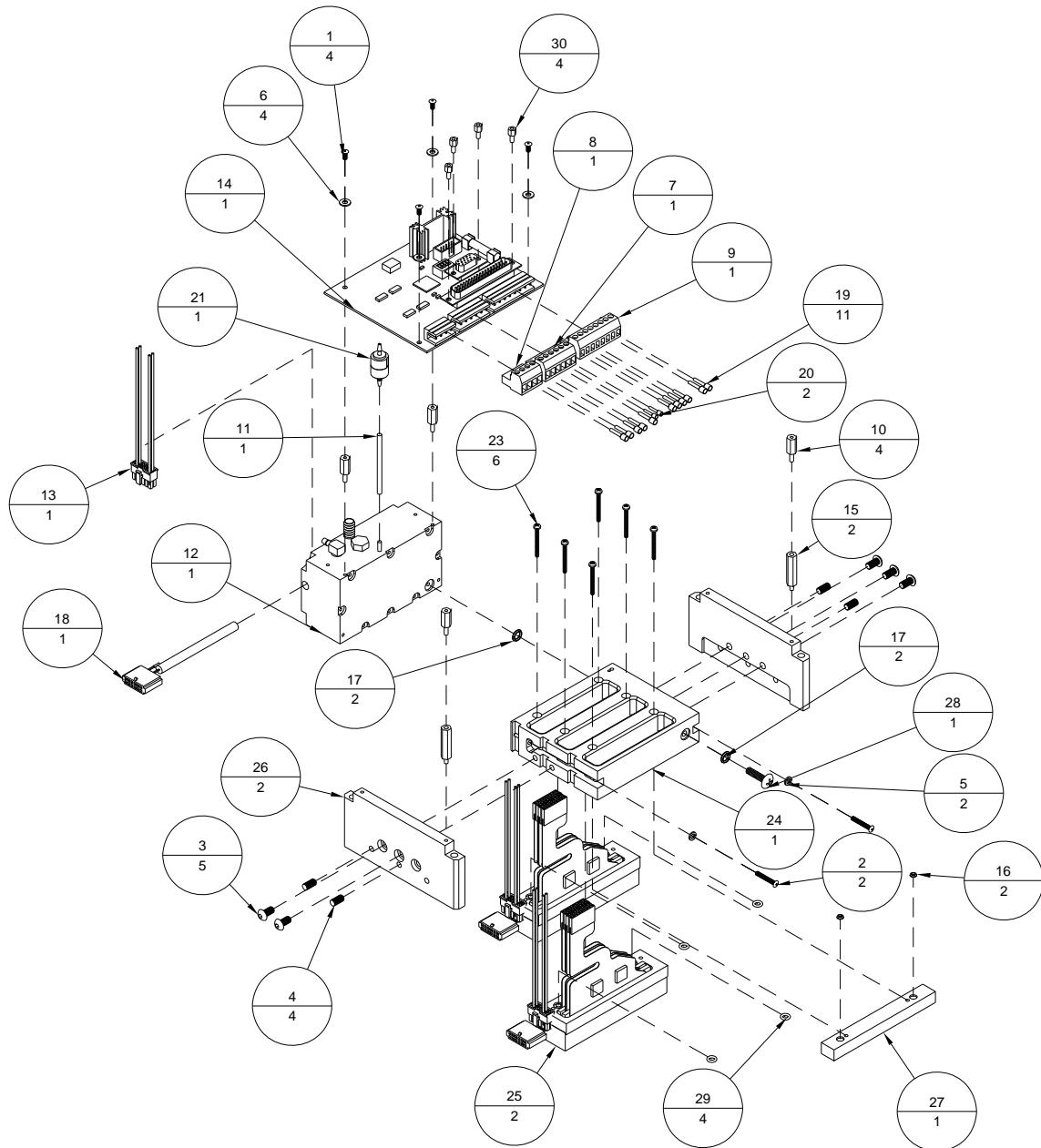


Table A-87: 9103987A – Manifold Assembly, Adjustable 30 pL

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, #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 1/2"	
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-92
25	9103990	2	Bracket, Manifold Support	
26	9104365	1	Screw, Truss, 10-32 UNF x 3/4", 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 1/4"	

Figure A-87: 9103987A – Manifold Assembly, Adjustable 30 pL

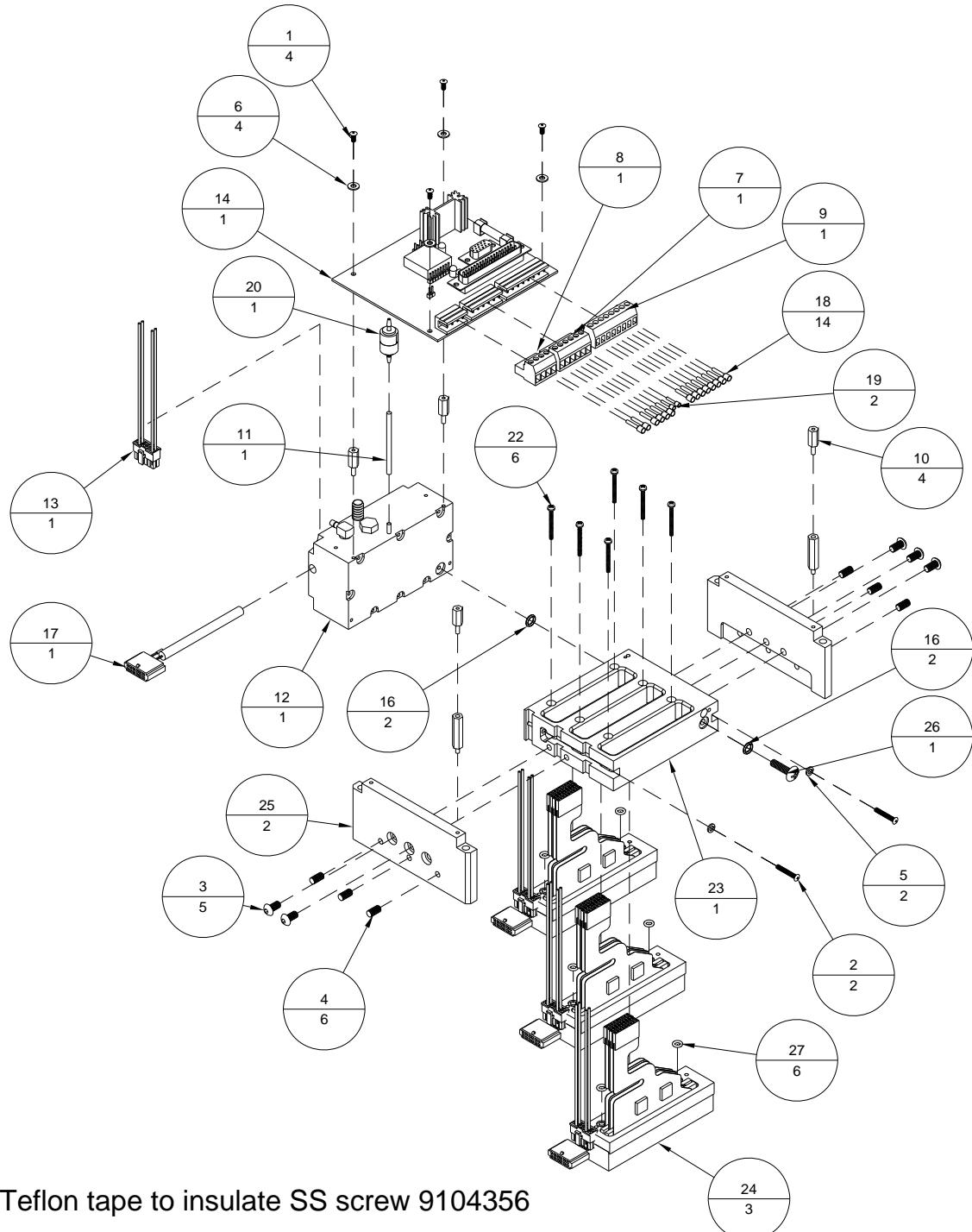


Table A-88: 9103988A - Slide Bar Assembly, 30 pL

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-88: 9103988A - Slide Bar Assembly, 30 pL

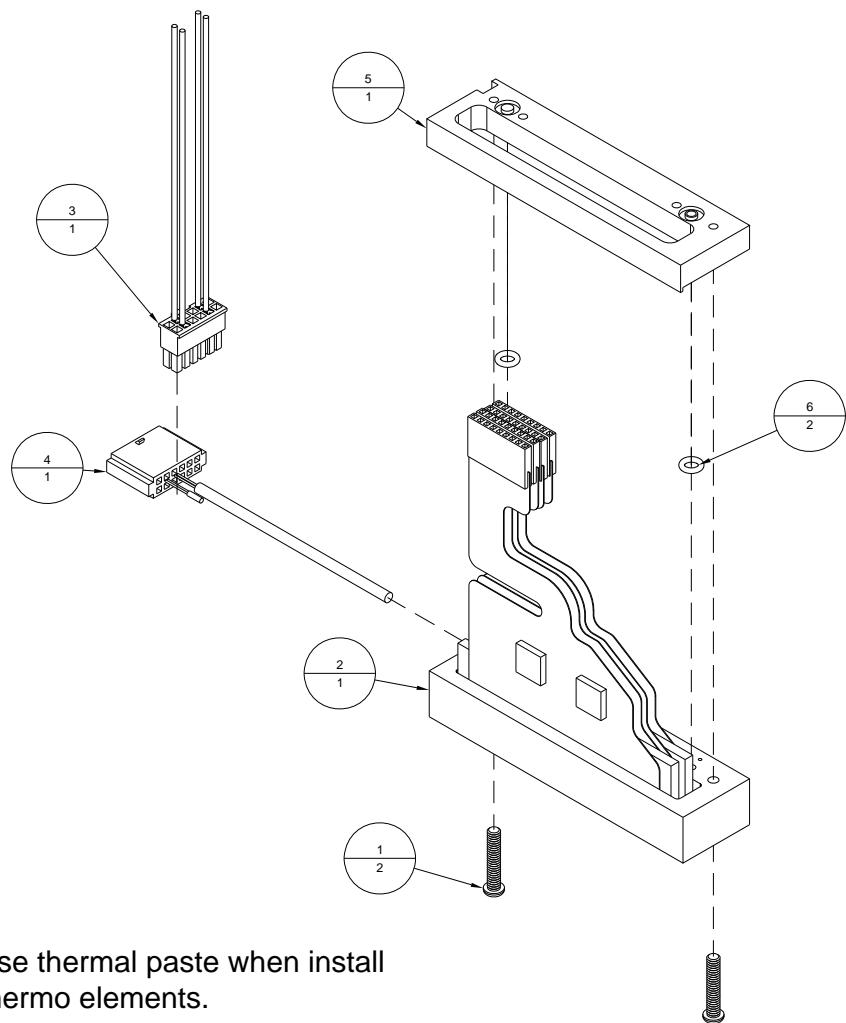


Table A-89: 9103989A – Bottom Plate Assembly, Atlas 3”

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, #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-90
14	9103989	1	Plate, Bottom	
15	9103998	2	Bracket, Corner	
16	9103998A	1	Solenoid Assembly	Page A-95
17	9103999	2	Bracket, Straight	

Figure A-89: 9103989A – Bottom Plate Assembly, Atlas 3”

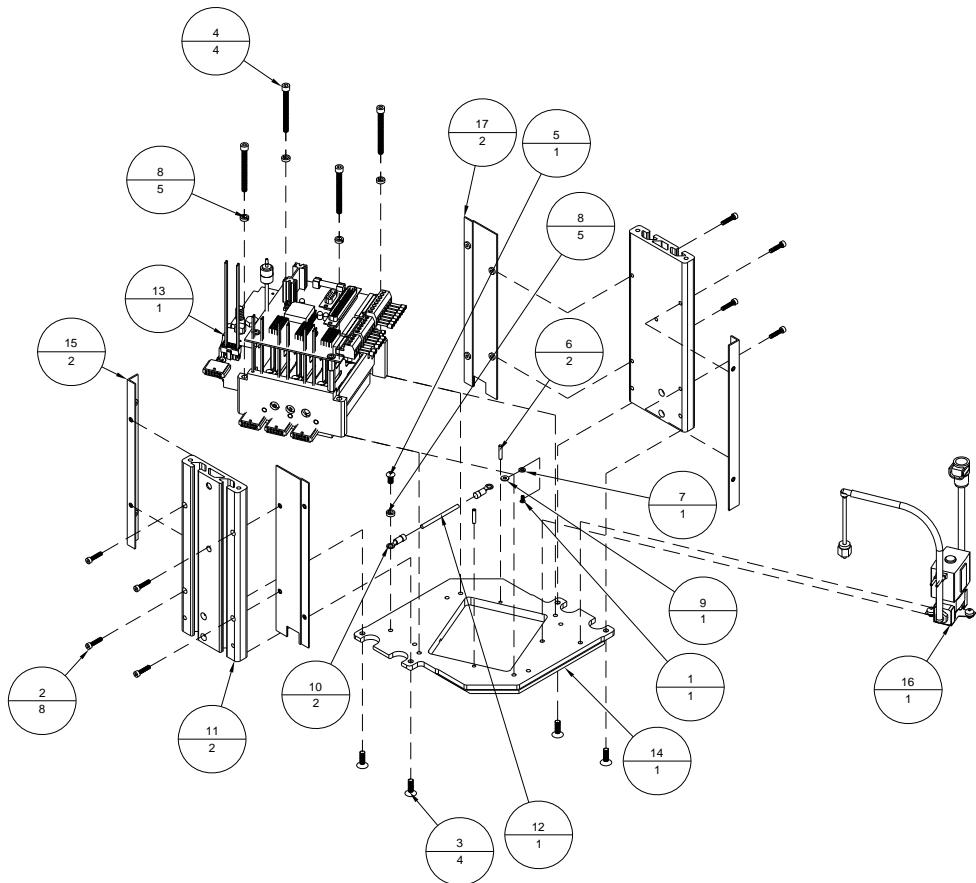


Table A-90: 9103991A - Top Plate Assembly

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-78
10	9103991	1	Plate, Top, 2250 / 3250	

Figure A-90: 9103991A - Top Plate Assembly

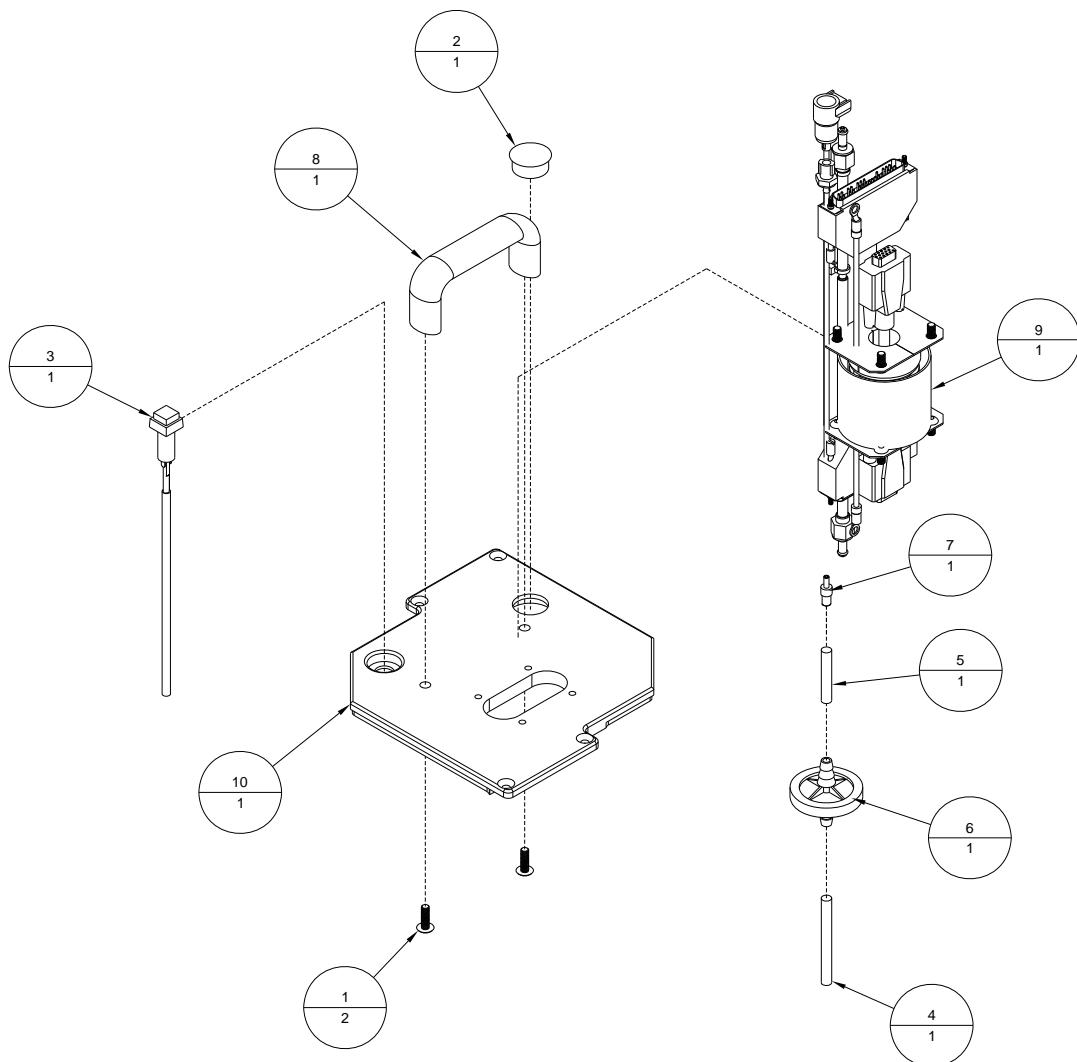


Table A-91: 9103998A - Solenoid Assembly

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-68
5	9102111	5.5"	Tubing, Polyethylene, 1/4" x 1/8", UV Resistant	
6	9103435	2	Ferrule, #16 AWG, Red	
7	9103922A	1	Ferrule Assembly, BK791	Page A-87

Figure A-91: 9103998A - Solenoid Assembly

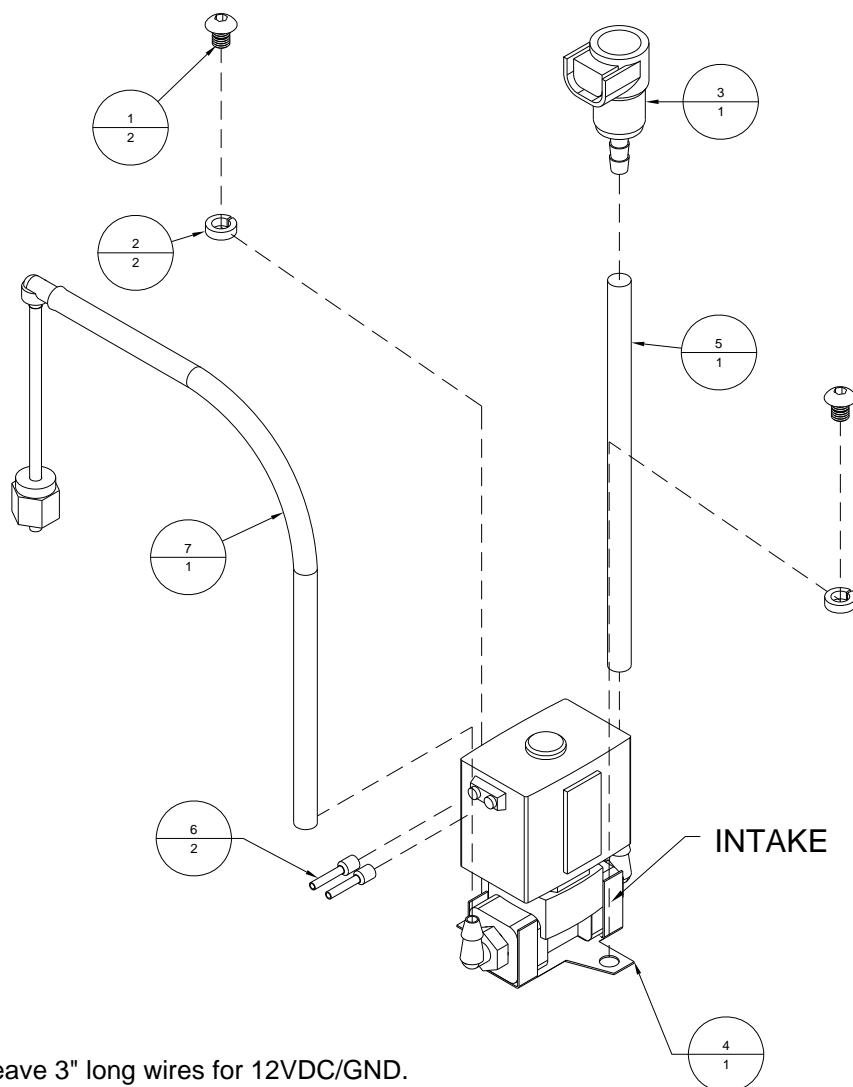


Table A-92: 9103999A – Bottom Plate Assembly, Atlas 2”

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, #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-88
14	9103989	1	Plate, Bottom	
15	9103998	2	Bracket, Corner	
16	9103998A	1	Solenoid Assembly	Page A-95
17	9103999	2	Bracket, Straight	

Figure A-92: 9103999A – Bottom Plate Assembly, Atlas 2”

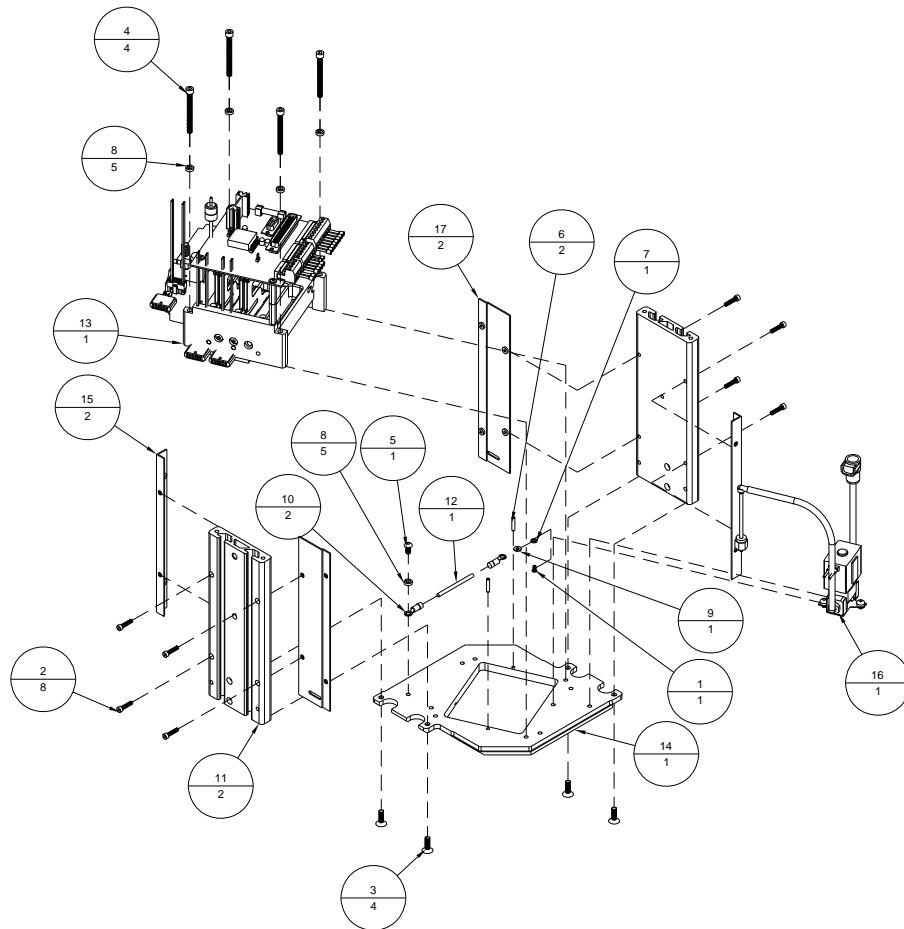


Table A-93: 9104008A - Printhead Support Assembly, Angle

Item	Part Number	Quantity	Description	Reference
1	402250	4	Screw, SHCS, 6-32 UNC X 3/4"	
2	403050	2	Screw, FHCS, 8-32 UNC x 3/4"	
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-93: 9104008A - Printhead Support Assembly, Angle

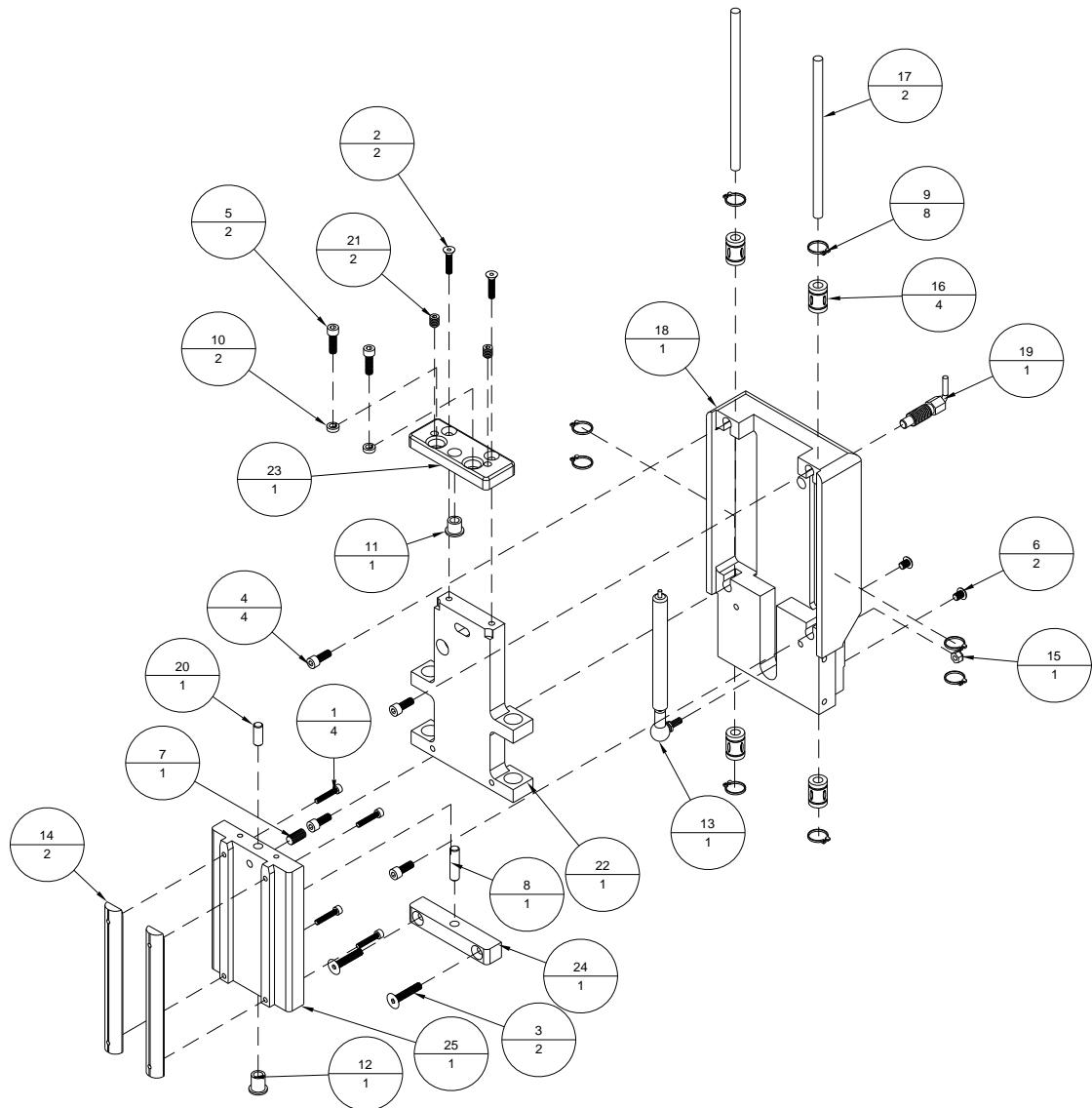


Table A-94: 9104413A – Bridge Mount Assembly, Triple

Item	Part Number	Quantity	Description	Reference
1	131020	1	Collar, 3/8" ID	
2	212533	3	Linear Bearing, 1" ID	
3	404040	2	Screw, FHCS, 10-32 UNF x 5/8"	
4	404080	2	Screw, FHCS, 10-32 UNF x 1 1/2"	
5	404520	3	Screw, BHCS, 10-32 UNF x 3/8"	
6	404807	1	Screw, SHSS, 10-32 UNF x 3/16"	
7	436060	4	Spring Pin, 1/8" DIA x 1"	
8	437156	6	Retaining Ring, 1 9/16" ID, External	
9	439009	3	Lockwasher, #10	
10	505384	1	Flange Bushing, 3/8 ID x 1/2 OD x 1/2 Lg.	
11	9101128	2	Dowel Pin, 1/2" DIA x 4"	
12	9102592	1	Shoulder Bolt, 3/8" x 3 1/2, 5/16-18 UNC	
13	9102877	1	Bearing, Thrust, 1/4" ID	
14	9102883	1	Mounting Block, Slider	
15	9102884	1	Plunger, Spring Loaded, Threaded, 1/4-20 UNC	
16	9102885	1	Knob, Diamond Cut, Knurled, 2" DIA	
17	9103460A	1	Locking Mechanism	Page A-86
18	9104412	1	Bracket, Head Guide Block	
19	9104413	1	Mount, Triple Bridge	
20	9104414	1	Rod, Threaded, Triple Bridge	

Figure A-94: 9104413A – Bridge Mount Assembly, Triple

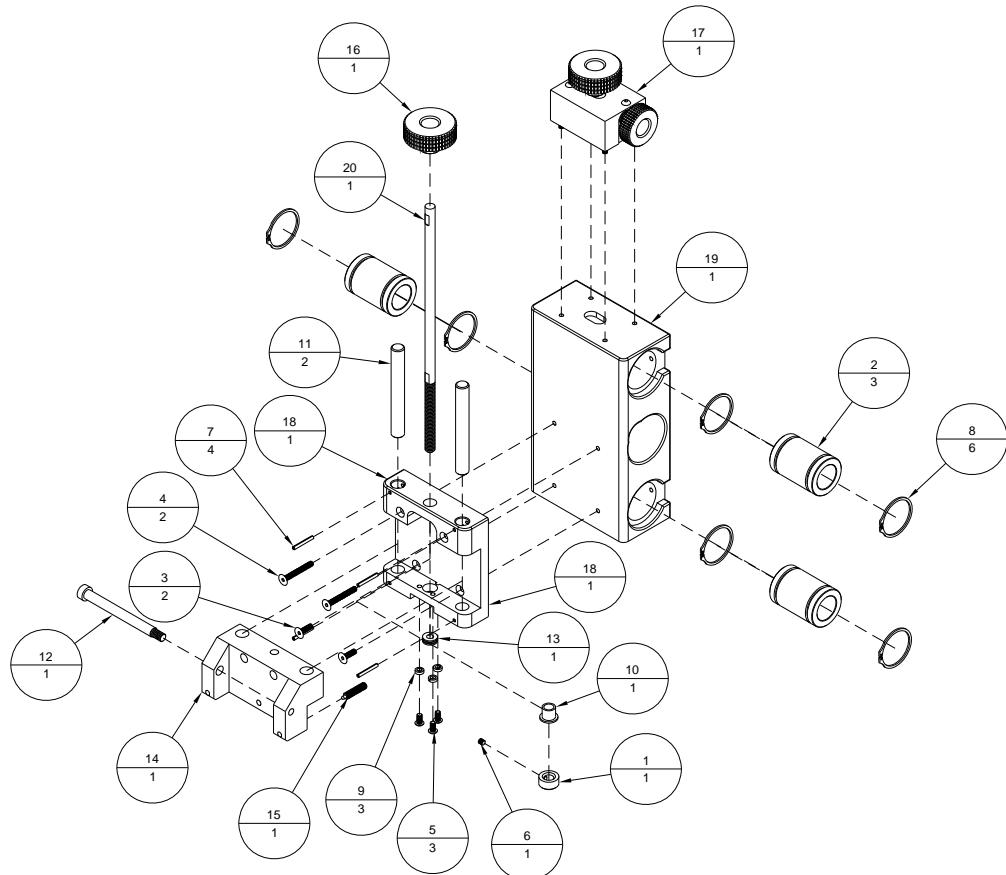


Table A-95: 9105157A - Slide Bar Assembly, 30 pl, Cezanne

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-95: 9105157A - Slide Bar Assembly, 30 pl, Cezanne

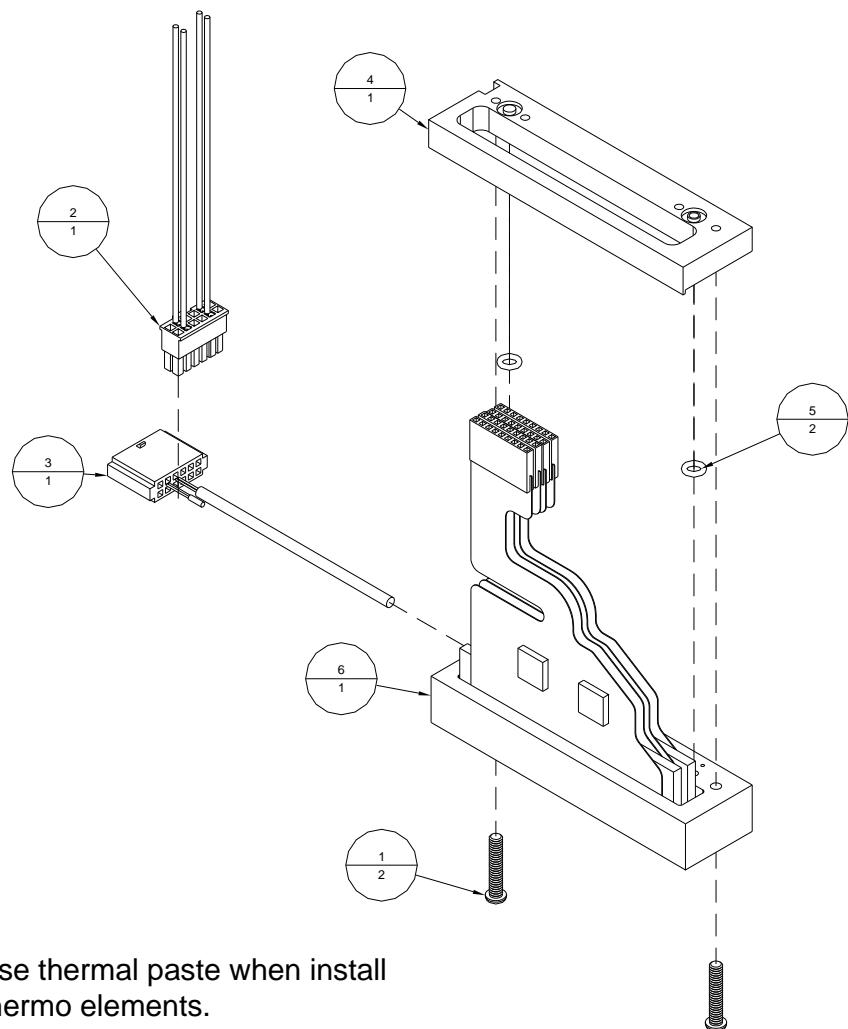


Table A-96: 9105158A - Manifold Assembly, Adjustable, 30 pL, Cezanne 2250

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-100

Figure A-96: 9105158A - Manifold Assembly, Adjustable, 30 pL, Cezanne 2250

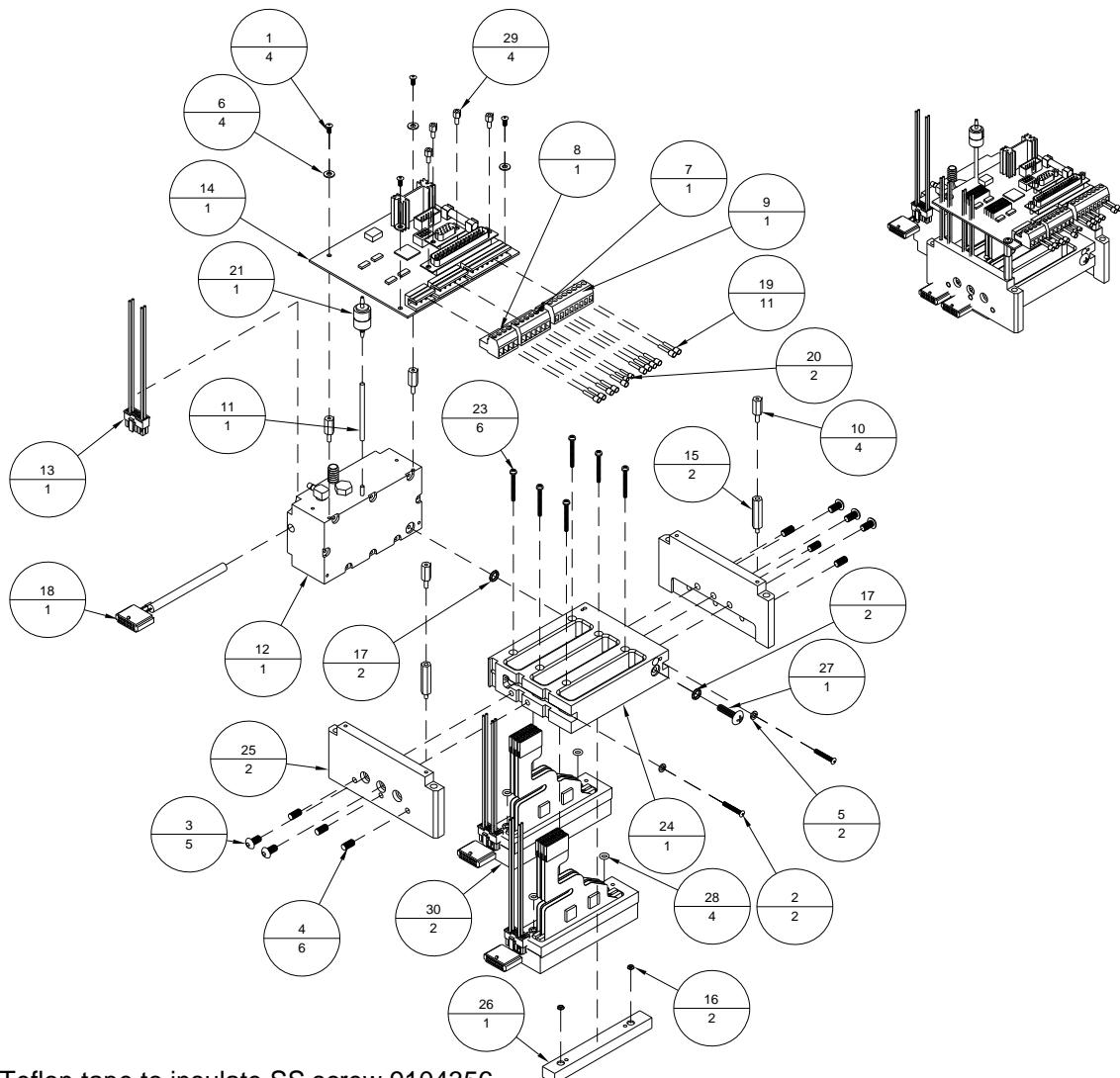


Table A-97: 9105159A - Bottom Plate Assembly, Cezanne 2250

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-95
16	9103999	2	Bracket, Straight	
17	9105158A	1	Manifold Assembly, 30 pl, Cezanne 2250	Page A-101

Figure A-97: 9105159A - Bottom Plate Assembly, Cezanne 2250

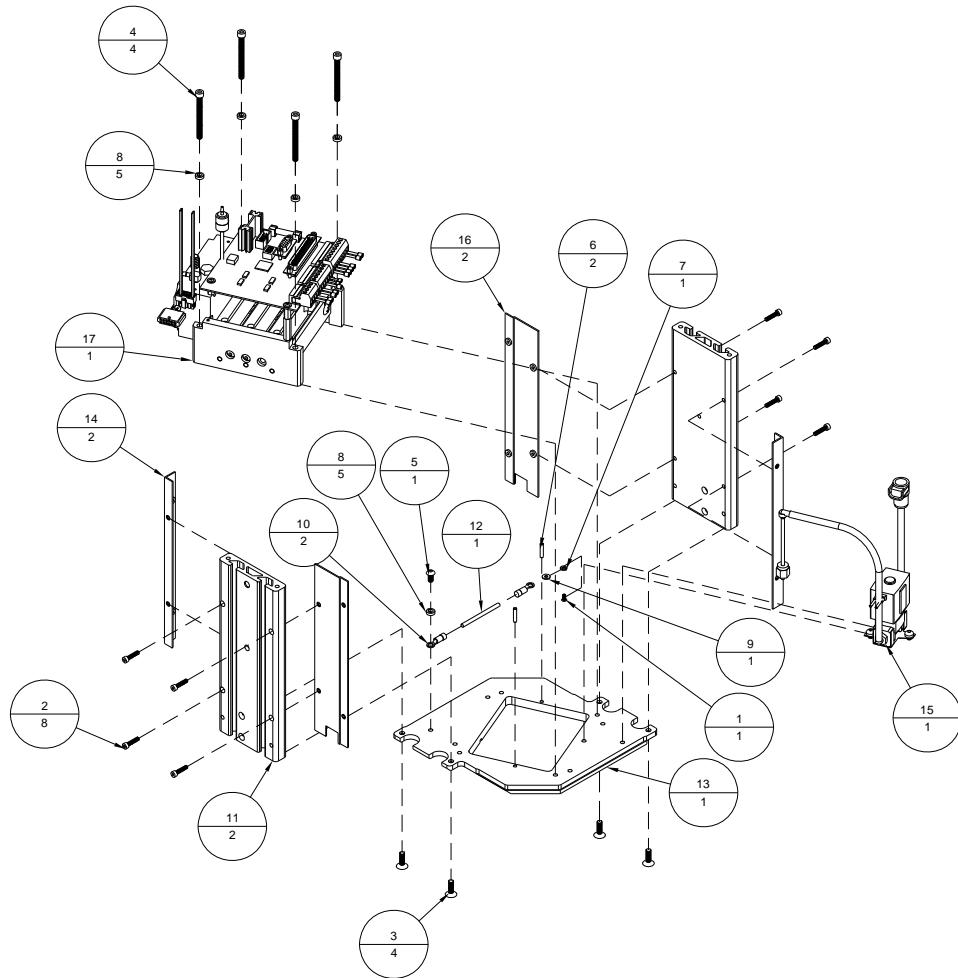


Table A-98: 9105160A - Manifold Assembly, Adjustable, 30 pL, Cezanne

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-100

Figure A-98: 9105160A - Manifold Assembly, Adjustable, 30 pL, Cezanne

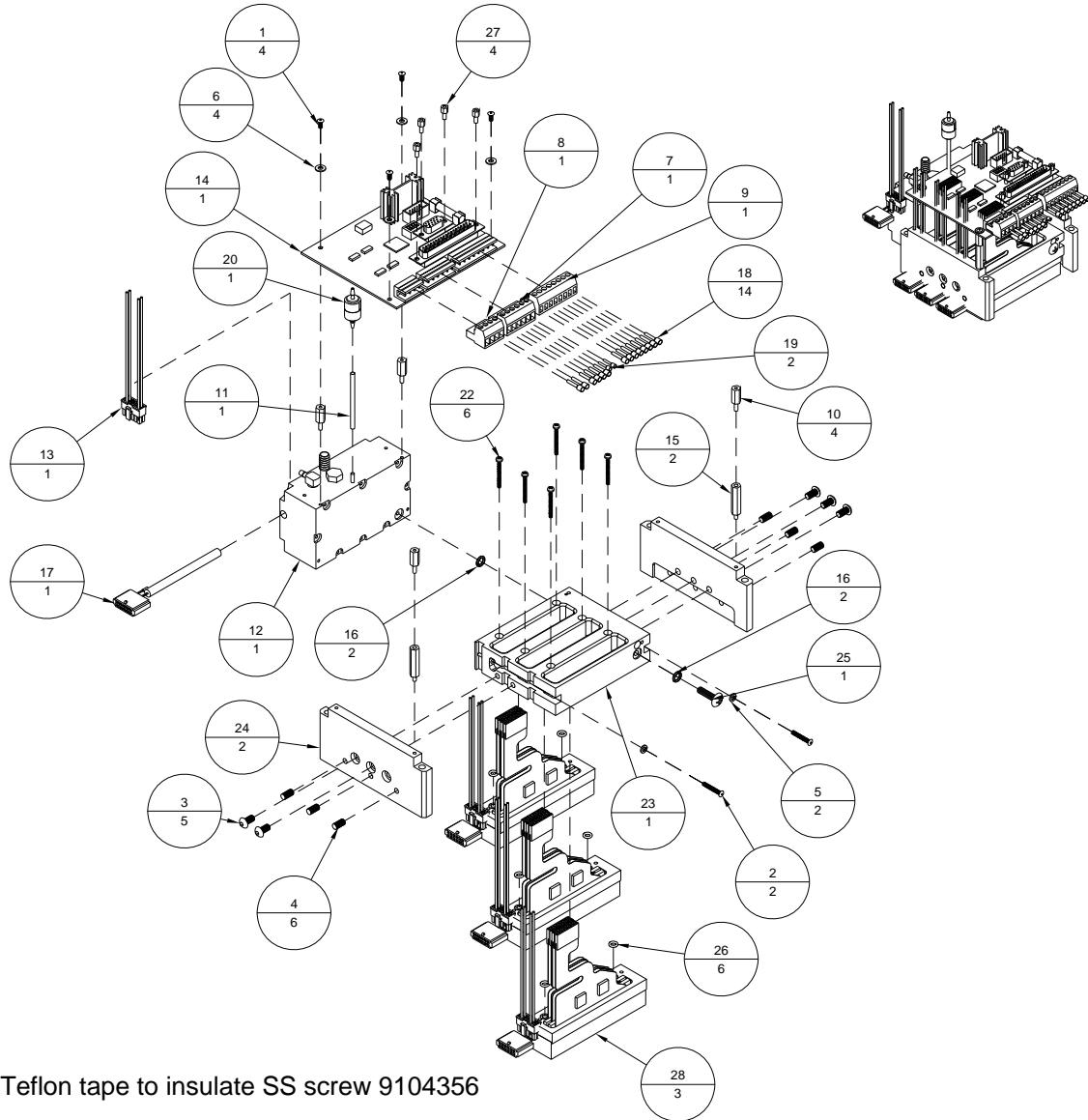


Table A-99: 9105161A - Bottom Plate Assembly, Cezanne 3250

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-95
16	9103999	2	Bracket, Straight	
17	9105160A	1	Manifold Assembly, Adjustable, 30 pl, Cezanne	Page A-104

Figure A-99: 9105161A - Bottom Plate Assembly, Cezanne 3250

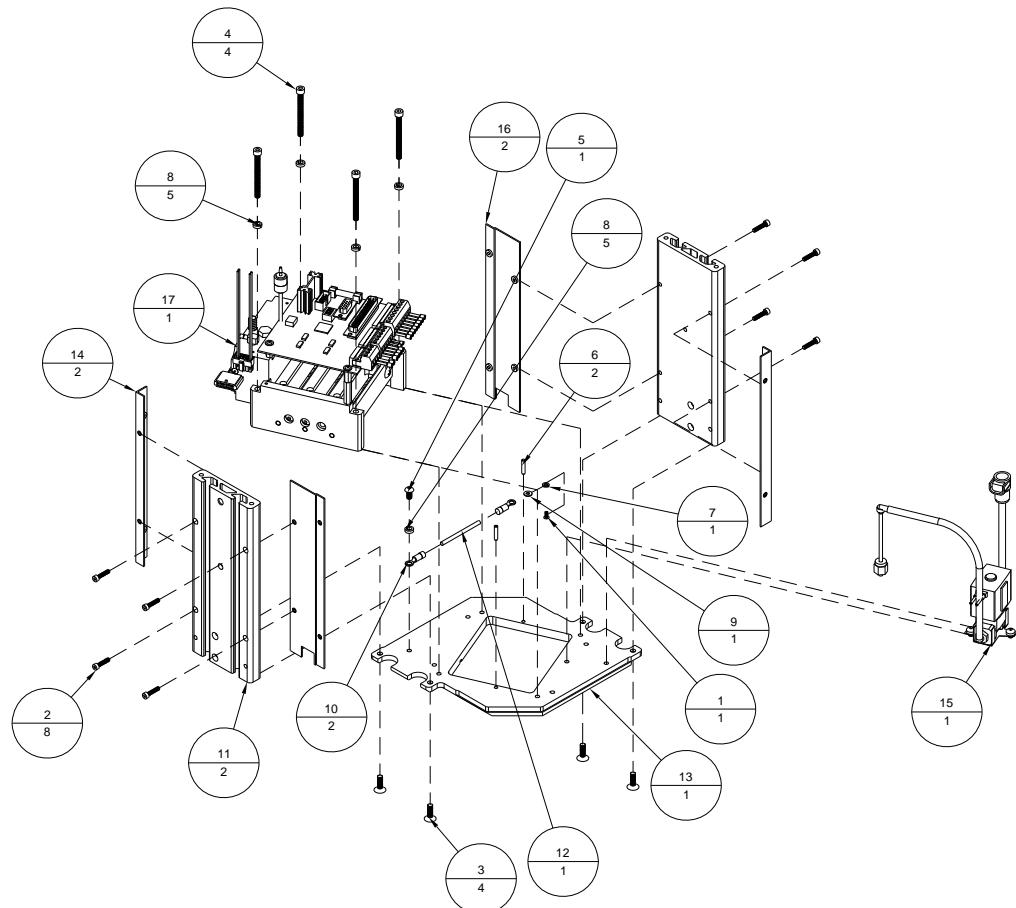


Table A-100: 9105570A - Jetting Array Assembly

Item	Part Number	Quantity	Description	Reference
1	9105570	1	Jetting Array	
2	9105726	2	Screw, SHCS, M3 x 12	
3	9105748	2	Washer, Flat, SS, M3 Screw	
4	9105749	2	Lockwasher, Disc Spring, #4, Spring Steel	
5	9105826	2	Bracket, Push, JA	
6	9105864A	1	Cable, Array Flex, 22-Pin, 3" Lg.	

Figure A-100: 9105570A - Jetting Array Assembly

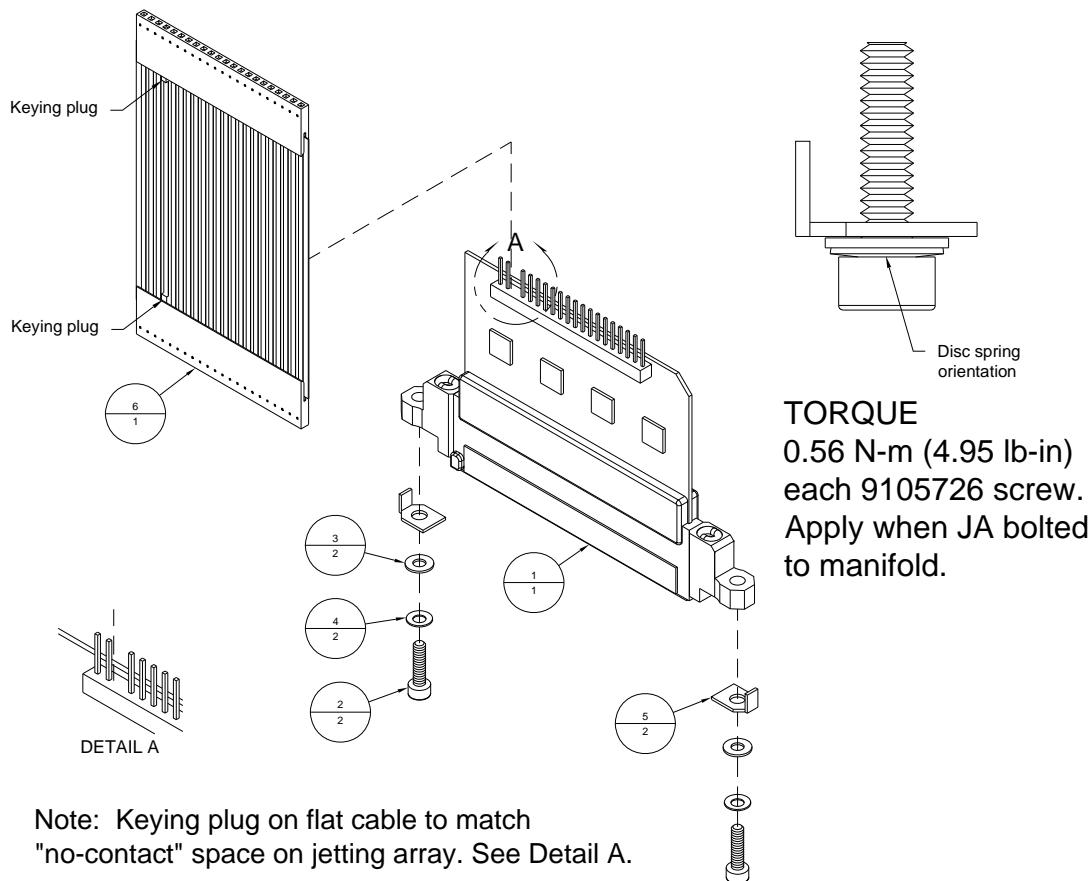


Table A-101: 9105824A – Alignment Bracket Assembly

Item	Part Number	Quantity	Description	Reference
1	9102963	6	Screw, SHSS, 10-32 UNF x 3/16", Brass Tip	
2	9105824	1	Bracket, Alignment	

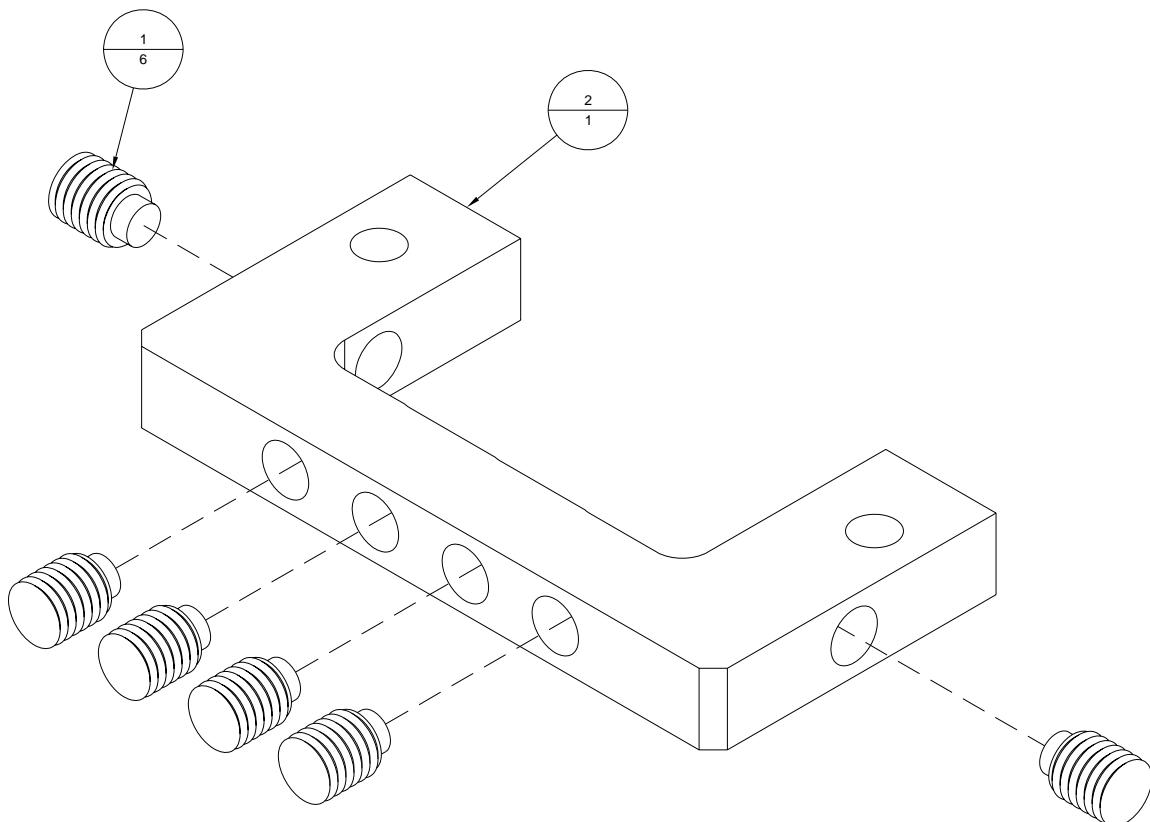
Figure A-101: 9105824A – Alignment Bracket Assembly

Table A-102: 9105827A – Blind Cap Block Assembly, Jetting Array

Item	Part Number	Quantity	Description	Reference
1	9105726	2	Screw, SHCS, M3 x 12	
2	9105748	2	Washer, Flat, SS, M3 Screw	
3	9105749	2	Lockwasher, Disc Spring, #4, Spring Steel	
4	9105827	1	Block, Jetting Array Cap	
5	9105828	2	O-Ring, 3/32 x 7/32 x 1/16, EPDM PC	

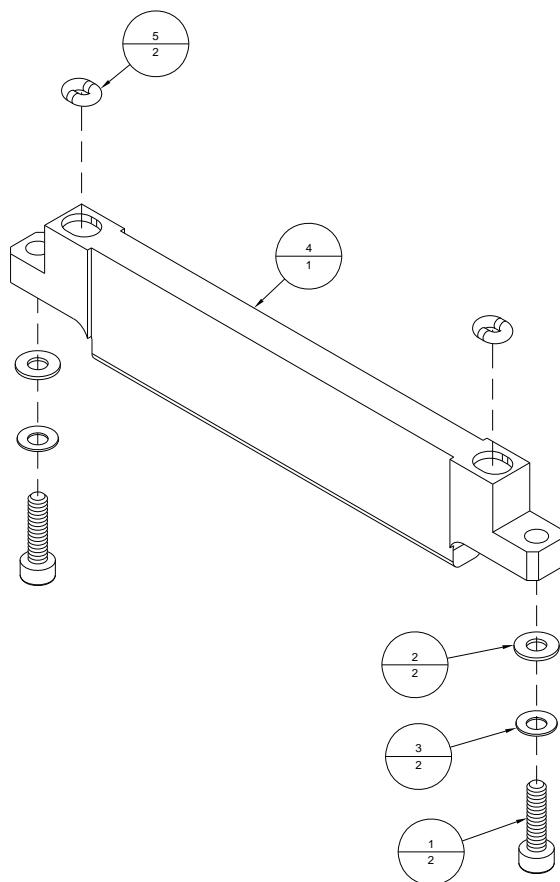
Figure A-102: 9105827A – Blind Cap Block Assembly, Jetting Array

Table A-103: 9105832A - Printhead Assembly, BK2500

Item	Part Number	Quantity	Description	Reference
1	401310	5	Screw, PHMS, 4-40 UNC x 1/4"	
2	404040	8	Screw, FHCS, 10-32 UNF x 5/8"	
3	416510	2	Screw, BHCS, M4 x 10	
4	439005	2	Lockwasher, #8	
5	9105725	16	Screw, SS, Truss, 6-32 UNC x 1/4"	
6	9105755	1	Board, Quad Head Interface	
7	9105770	2	Side Profile, BK2500/5100 Printhead	
8	9105771	2	Stopper Bracket, Side Profile	
9	9105778	4	Screw, FHCS, 8-32 UNC, 1-1/4" SS	
10	9105779	4	Screw, FHCS, 8-32 UNC, 5/8" SS	
11	9105832	1	Bottom Plate, BK2500	
12	9105833	2	Manifold Support, BK2500/5100	
13	9105835	1	Bracket, QHIB Support, BK2500	
14	9105836A	1	Top Plate Assembly, BK2500	Page A-112
15	9105838	2	Cover, BK2500 Series Printhead	
16	9105840A	1	Manifold Assembly, BK2500/5100	Page A-113
17	9105953A	1	Solenoid Valve Assembly, BK2500/5100	Page A-118
18	9105954A	1	Cable, HC Split Adapter	
19	9105974	5	Washer, #4, Retaining, Nylon	

Figure A-103: 9105832A - Printhead Assembly, BK2500

NOTE: Install Arrays first.

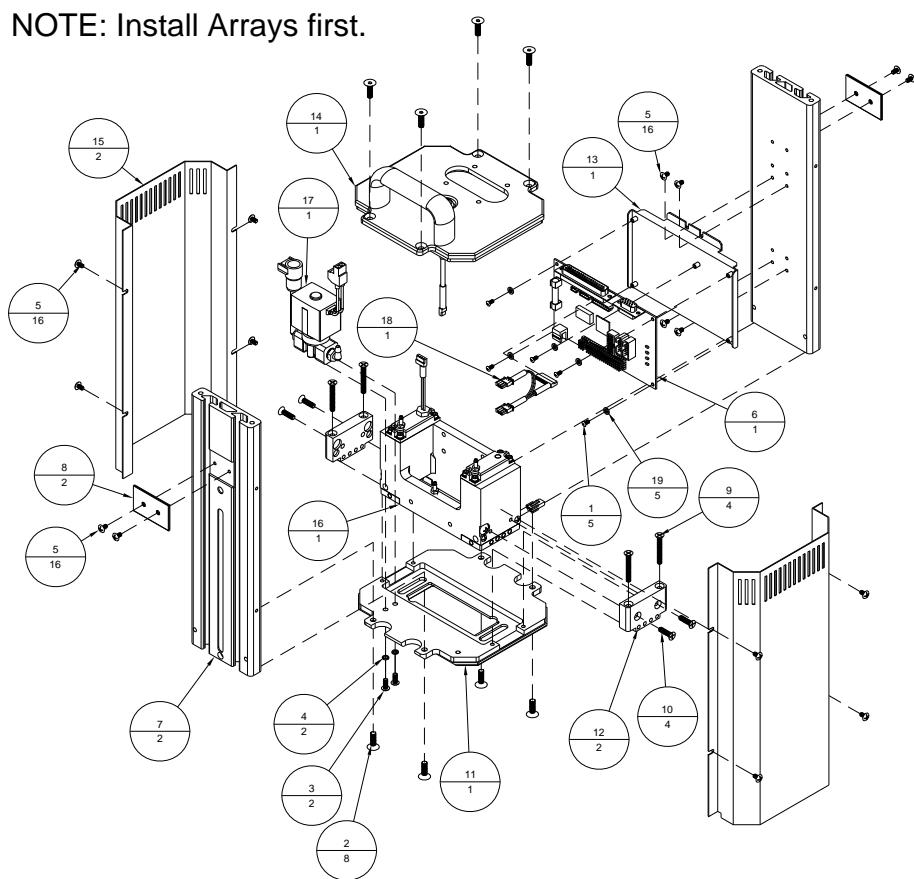


Table A-104: 9105833A - Filter Assembly, BK2500/5100 Aurora

Item	Part Number	Quantity	Description	Reference
1	9102111	1	Tubing, Polyethylene, $\frac{1}{4}$ " x $\frac{1}{8}$ ", 2.5" Lg.	
2	9102111	1	Tubing, Polyethylene, $\frac{1}{4}$ " x $\frac{1}{8}$ ", 10" Lg.	
3	9103390A	1	Filter, Assembly, 10 μ m, UV	

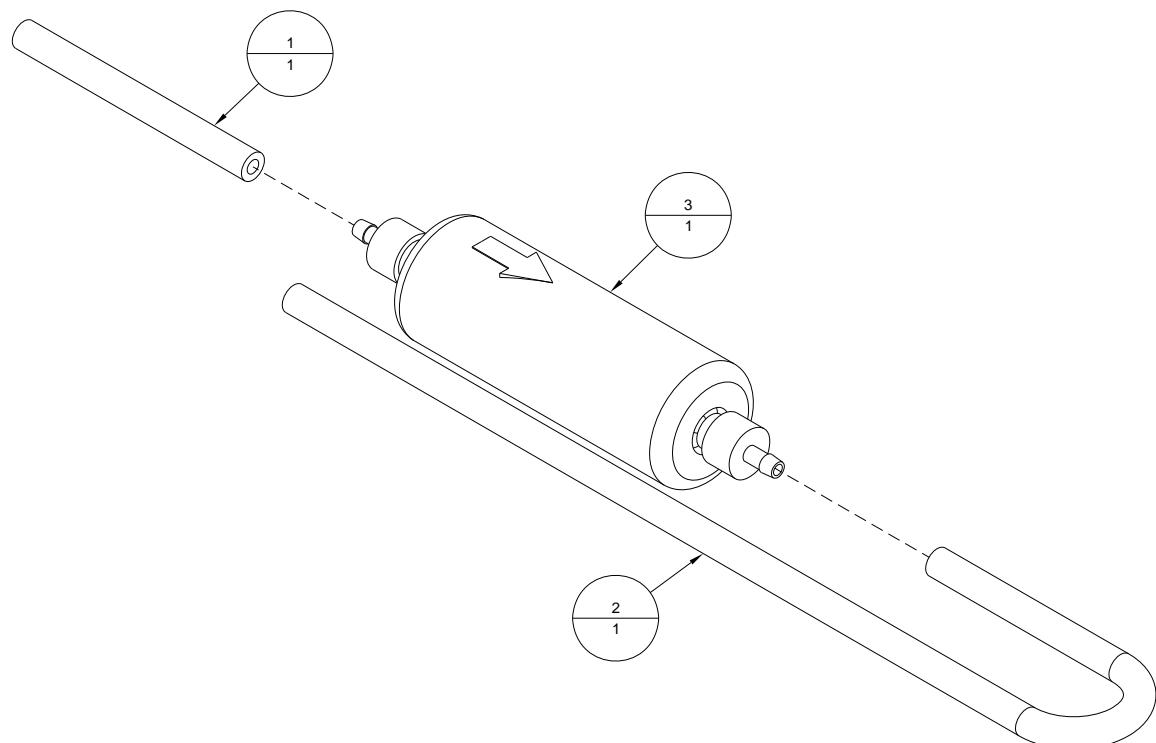
Figure A-104: 9105833A - Filter Assembly, BK2500/5100 Aurora

Table A-105: 9105836A – Top Plate Assembly, BK2500

Item	Part Number	Quantity	Description	Reference
1	405540	2	Screw, BHCS, 1/4-20 UNC x 5/8"	
2	9102846	1	Handle, Pull, 1/4-20	
3	9105836	1	Top Plate, BK2500	
4	9105837A	1	Switch Assembly, Momentary	

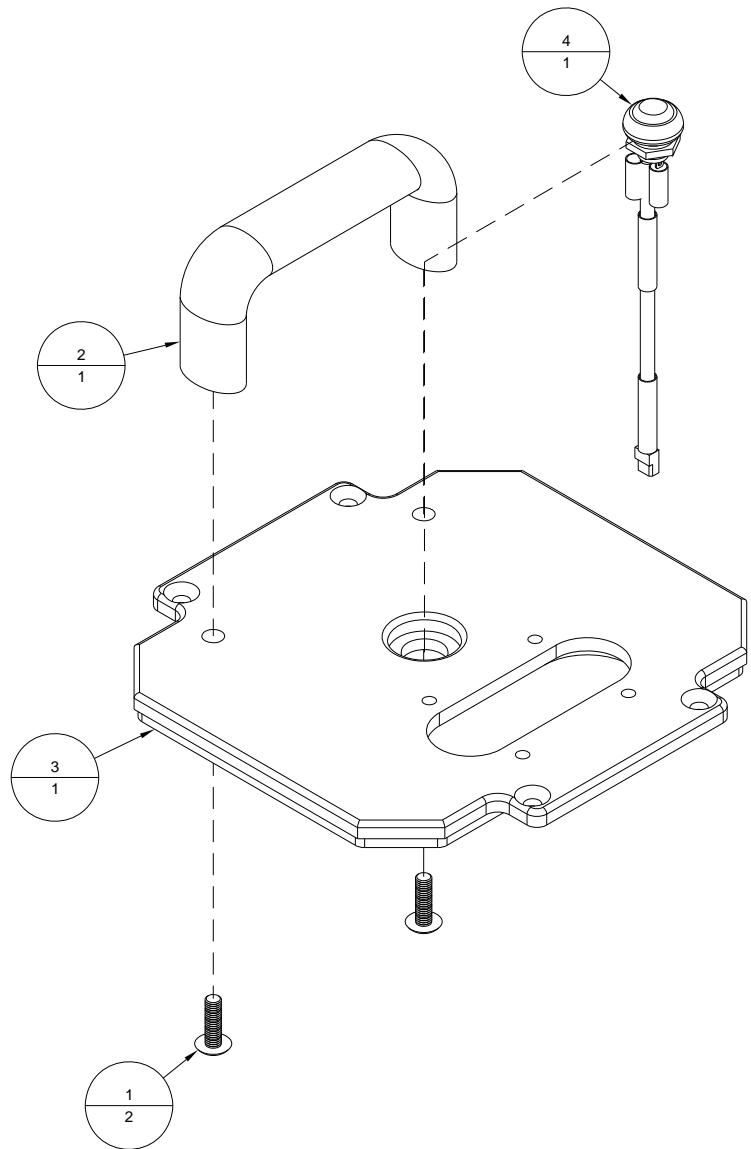
Figure A-105: 9105836A – Top Plate Assembly, BK2500

Table A-106: 9105840A – Manifold Assembly, BK2500/5100

Item	Part Number	Quantity	Description	Reference
1	9100128A	1	LOIS Assembly	
2	9102606A	2	Heater Cartridge Assembly	
3	9102973	3	Fitting, 10-32 UNF x 1/8" ID	
4	9103170	2	O-Ring, EPDM, 11/32" x 7/32", 1/16" Thick	
5	9104501	2	Screw, SS, Truss, 10-32 UNF x 3/8"	
6	9104839	1	O-Ring, 3/8" OD x 1/4" ID x 1/16", EPDM PC	
7	9105726	8	Screw, SHCS, M3 x 12	
8	9105748	8	Washer, Flat, SS, M3 Screw	
9	9105749	8	Lockwasher, Disc Spring, #4, Spring Steel	
10	9105776	4	Screw, SS, Truss, 4-40 UNC x 1/4"	
11	9105824A	2	Alignment Bracket Assembly, 400 DPI	Page A-108
12	9105825	4	Screw, FHCS, 6-32 UNC, 1/2", SS	
13	9105829	2	Cover, Integrated Reservoir	
14	9105831	2	O-Ring, 1-1/4 x 1-3/8 x 1/16, EPDM PC	
15	9105840	1	Manifold, BK2500/5100	
16	9105890	1	Screw, HSCS, 1/4-20 UNC x 3/8", SS	

Figure A-106: 9105840A – Manifold Assembly, BK2500/5100

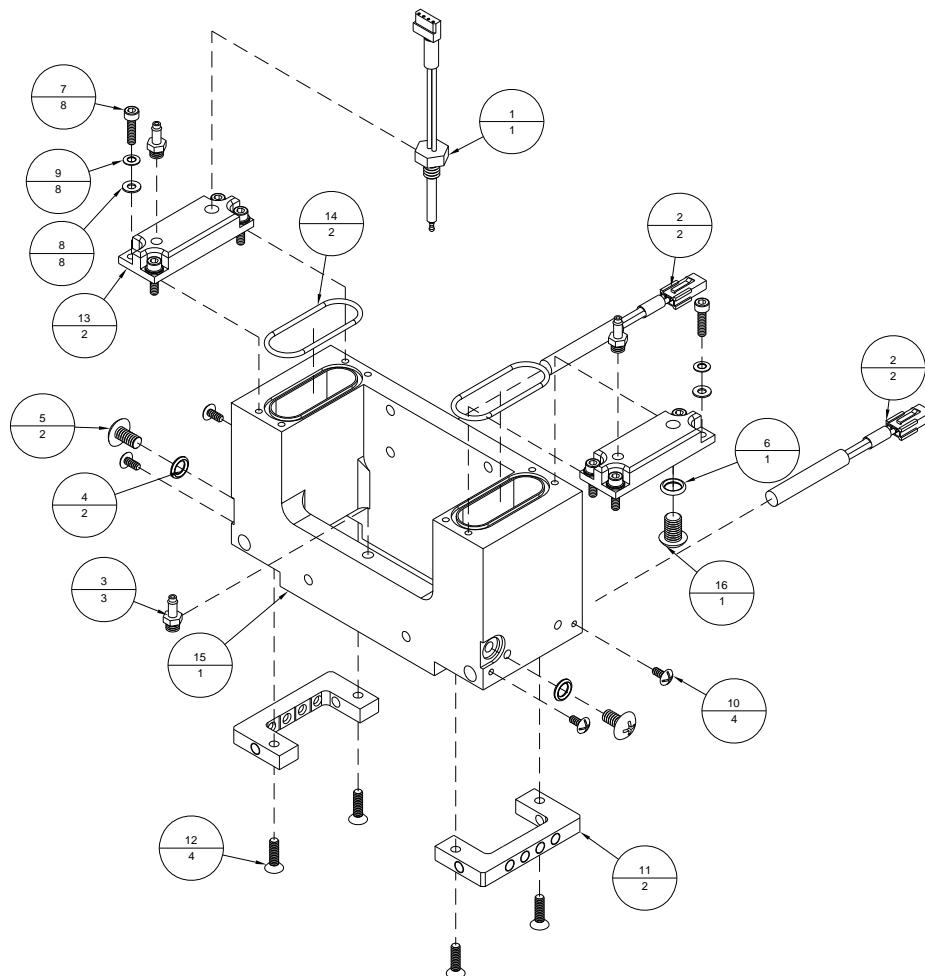


Table A-107: 9105909A - Umbilical Assembly, BK2500, BK705 / 1705

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	9100472	1	Tubing, Silicone, 1/4" OD x 1/8" ID, 2.5" Lg.	
5	9100472	1	Tubing, Silicone, 1/4" OD x 1/8" ID, 1.5" Lg.	
6	9100472	2	Tubing, Silicone, 1/4" OD x 1/8" ID, 3" Lg.	
7	9100965	1	Filter, Air, 0.2 μ m	
8	9101170	1	Fitting, Straight Reducer, 1/8 To 1/16 ID	
9	9101212A	1	Ink Umbilical Assembly, 15'	Page A-63
10	9101290	1	Fitting, Tee, 1/8" ID	
11	9101694A	1	Meniscus Vacuum Hose Assembly, 15'	Page A-64
12	9101699A	1	Lung Vacuum Hose Assembly, 15'	Page A-65
13	9101735	4	Fitting, Half	
14	9101773	2	Collar, Locking Shaft	
15	9101775	1	Hose, Corrugated Loom, 170"	
16	9101776	1	Sleeving, Braided Expandable, 170"	
17	9102687A	1	Cable, Printhead Data, 15'	
18	9105908A	1	Cable, Head Support, QHIB To SSB	

Figure A-107: 9105909A - Umbilical Assembly, BK2500, BK705 / 1705

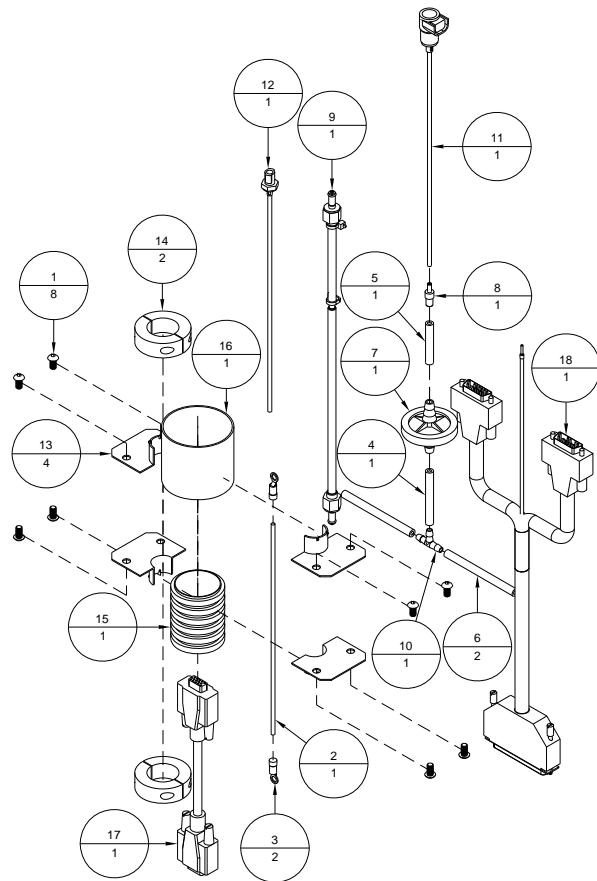


Table A-108: 9105911A – Umbilical Assembly, BK2500, 15 ft.

Item	Part Number	Quantity	Description	Reference
1	9100472	1	Tubing, Silicone, 1/4" OD x 1/8" ID, 2.5" Lg.	
2	9100472	1	Tubing, Silicone, 1/4" OD x 1/8" ID, 1.5" Lg.	
3	9100472	2	Tubing, Silicone, 1/4" OD x 1/8" ID, 3" Lg.	
4	9100965	1	Filter, Air, 0.2 µm	
5	9101170	1	Fitting, Straight Reducer, 1/8 To 1/16" ID	
6	9101290	1	Fitting, Tee, 1/8" ID	
7	9102911A	1	Umbilical Assembly, 15 Ft.	Page A-78

Figure A-108: 9105911A – Umbilical Assembly, BK2500, 15 ft.

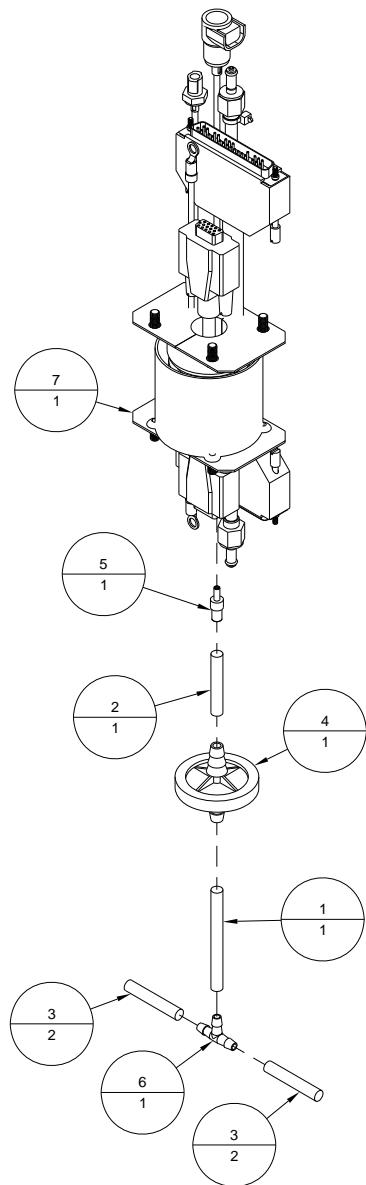


Table A-109: 9105948A – Printhead Assembly, BK5100

Item	Part Number	Quantity	Description	Reference
1	402310	2	Screw, PHMS, 6-32 UNC x 1/4"	
2	404040	8	Screw, FHCS, 10-32 UNF x 5/8"	
3	416510	2	Screw, BHCS, M4 x 10	
4	439005	2	Lockwasher, #8	
5	9105725	12	Screw, SS, Truss, 6-32 UNC x 1/4"	
6	9105770	2	Side Profile, BK2500/5100 Printhead	
7	9105771	2	Stopper Bracket, Side Profile	
8	9105778	8	Screw, FHCS, 8-32 UNC, 1-1/4", SS	
9	9105779	8	Screw, FHCS, 8-32 UNC x 5/8", SS	
10	9105833	4	Manifold Support, BK2500/5100	
11	9105948	1	Bottom Plate, BK5100	
12	9105950	1	Bracket, Solenoid Support	
13	9105951A	1	Top Plate Assembly, BK5100	Page A-117
14	9105953	2	Cover, BK5100 Series Printhead	
15	9105953A	2	Solenoid Valve Assembly	Page A-118
16	9105993A	2	QHIB Support Assembly	Page A-124
17	9105994A	2	Manifold Assembly, BK5100	Page A-125

Figure A-109: 9105948A – Printhead Assembly, BK5100

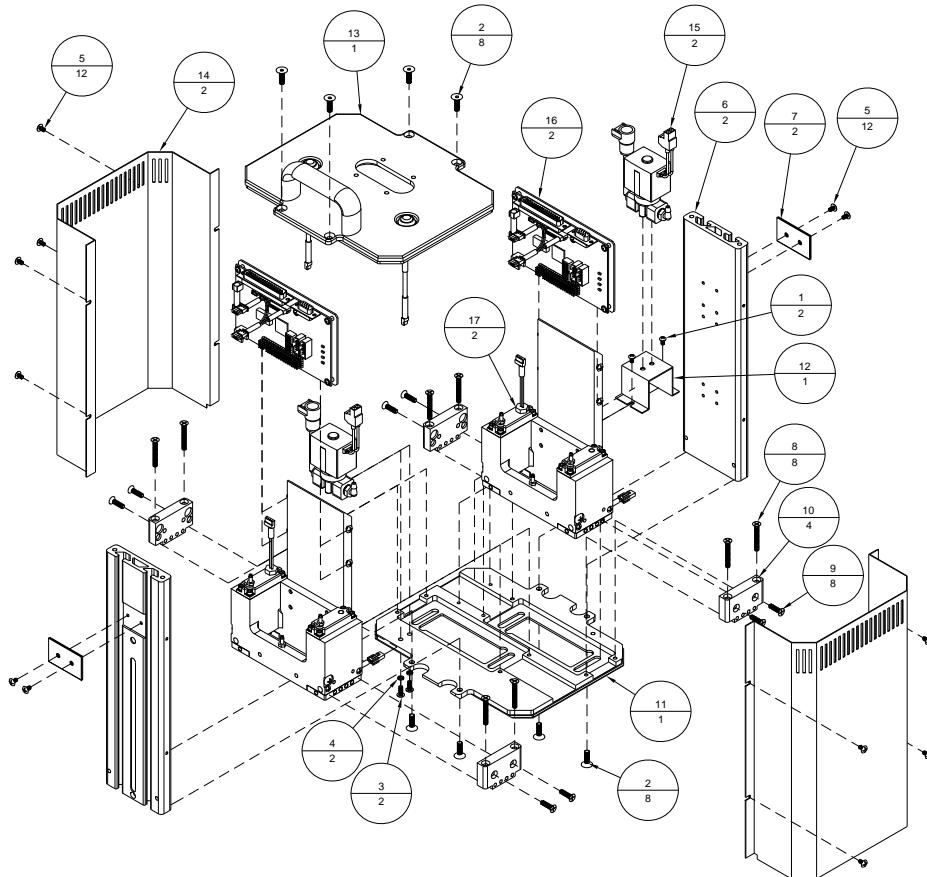


Table A-110: 9105951A – Top Plate Assembly, BK5100

Item	Part Number	Quantity	Description	Reference
1	405540	2	Screw, BHCS, 1/4-20 UNC x 5/8"	
2	9102846	1	Handle, Pull, 1/4-20	
3	9105837A	2	Switch Assembly, Momentary	
4	9105951	1	Top Plate, BK5100	

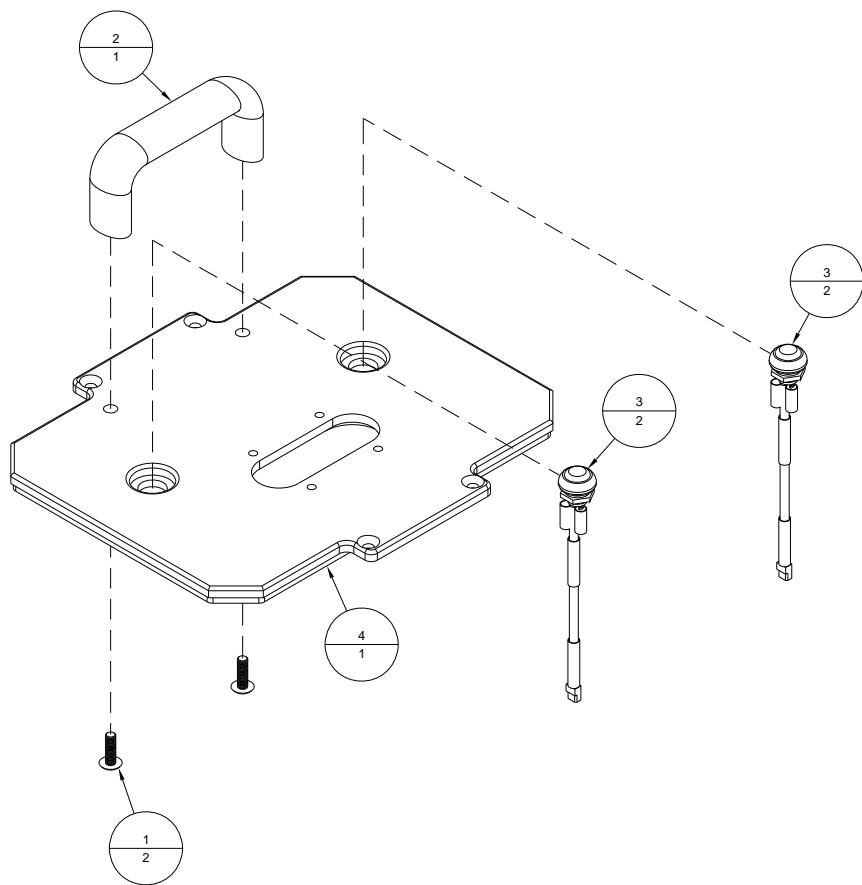
Figure A-110: 9105951A – Top Plate Assembly, BK5100

Table A-111: 9105953A – Solenoid Valve Assembly

Item	Part Number	Quantity	Description	Reference
1	615062	1	Connector, Female, 2-Pin, BLA2	
2	9101436	1	Solenoid Valve, 12 VDC	
3	9101694	1	Coupling Body, 1/8" ID, Inline, Hose Barb	
4	9102085	2	Connector, "L", 1/8-27 NPT, 1/8" ID	
5	9102111	1	Tubing, Polyethylene, 1/4" x 1/8", Black, 2"	
6	9103538	2	Ferrule, #20 AWG, Orange	

Figure A-111: 9105953A – Solenoid Valve Assembly

Note: Cut wires to 8", apply teflon tape to fitting threads, crimp ferrules to wires, remove solenoid valve bracket.

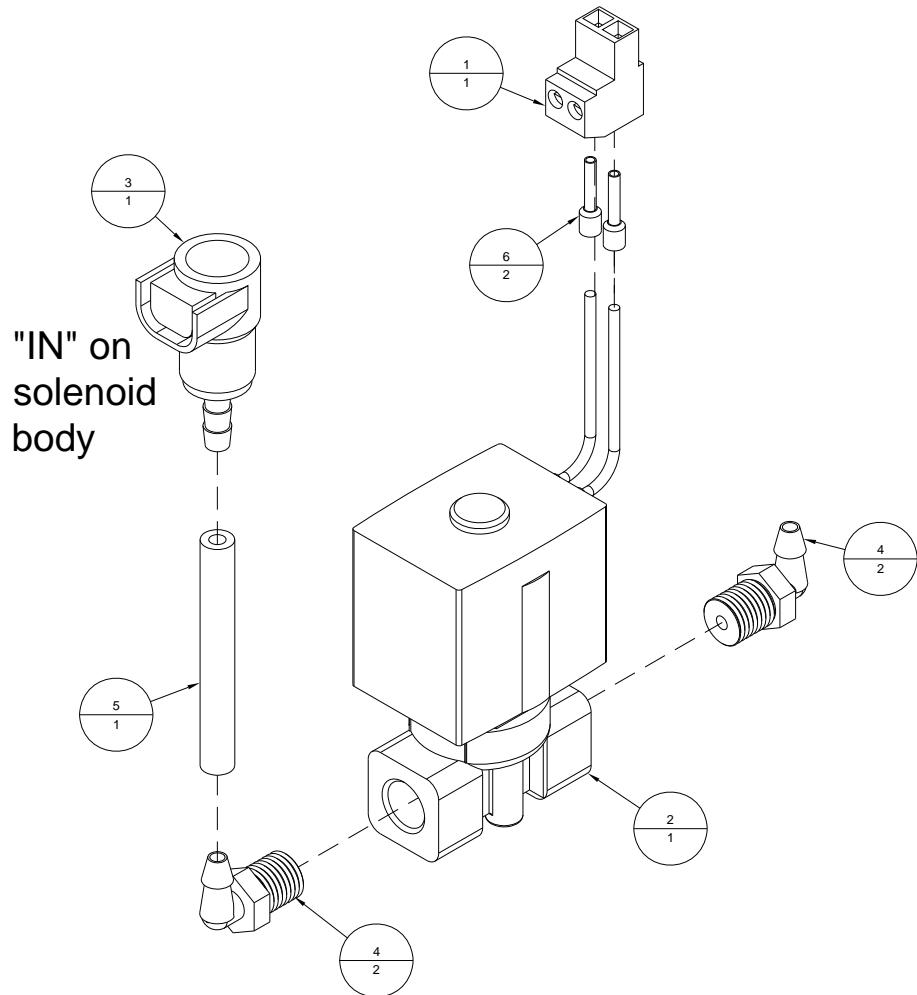


Table A-112: 9105976A – Parking Cap Assembly, BK5100

Item	Part Number	Quantity	Description	Reference
1	402320	1	Screw, PHMS, 6-32 UNC x 3/8"	
2	439006	1	Lockwasher, #6	
3	440005	1	Washer, #6	
4	9105976	1	Cap, Parking, BK5100	
5	9105979	1	Spacer, Round, Aluminum, 6-32 UNC	
6	9106080	2	Padding, EPDM Foam, 3/8", BK5100	

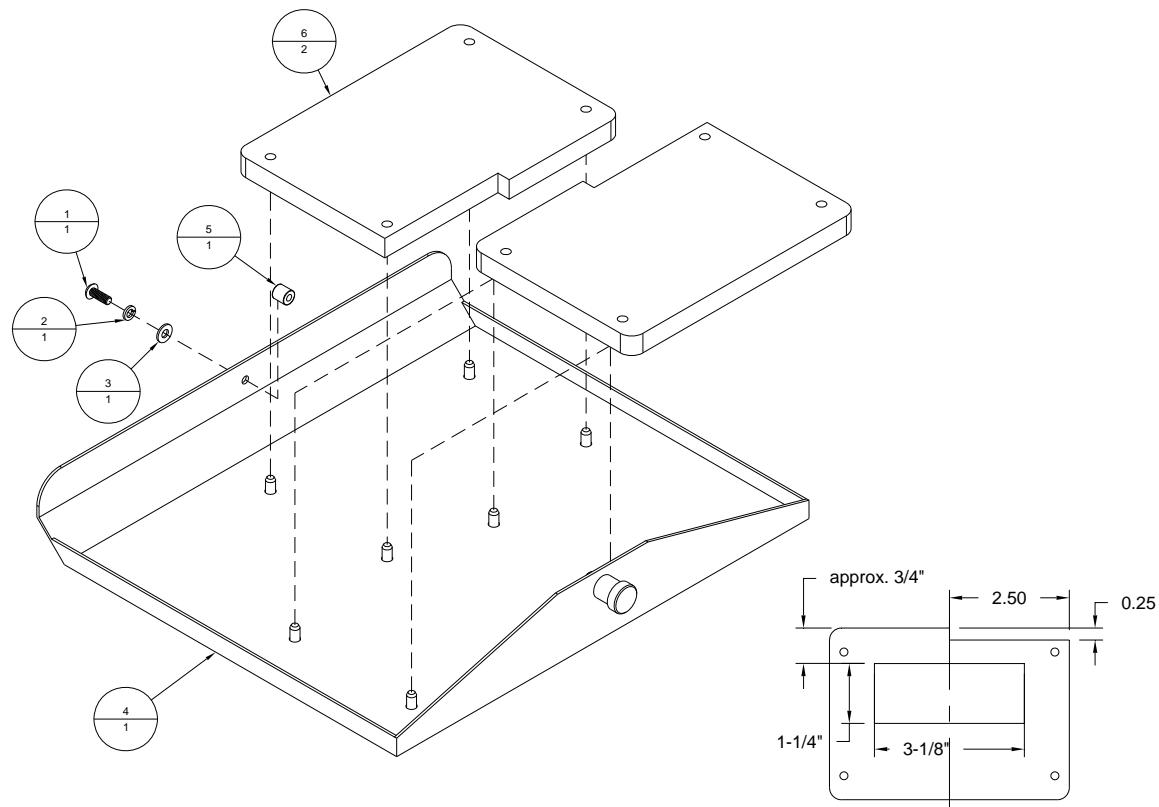
Figure A-112: 9105976A – Parking Cap Assembly, BK5100

Table A-113: 9105977A – Parking Cap Assembly, BK2500

Item	Part Number	Quantity	Description	Reference
1	402320	1	Screw, PHMS, 6-32 UNC x 3/8"	
2	439006	1	Lockwasher, #6	
3	440005	1	Washer, #6	
4	9104593	1	Padding, EPDM Foam, 3/8"	
5	9105977	1	Cap, Parking, BK2500	
6	9105979	1	Spacer, Round, Aluminum, 6-32 UNC	

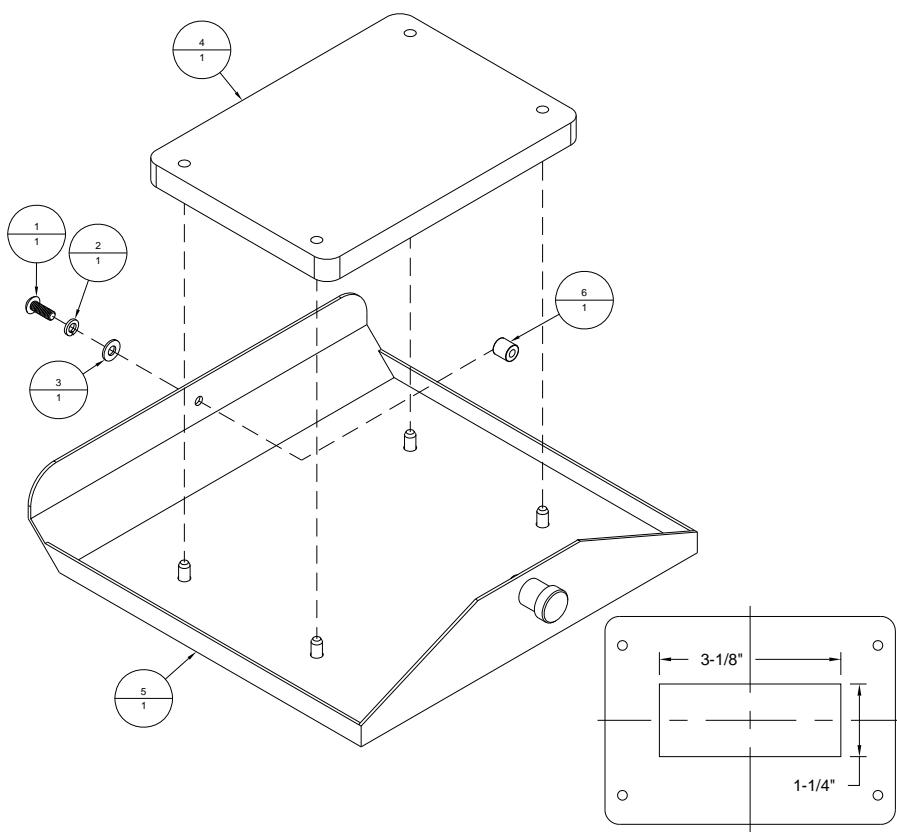
Figure A-113: 9105977A – Parking Cap Assembly, BK2500

Table A-114: 9105984A – Shuttle Assembly, Printhead Mount

Item	Part Number	Quantity	Description	Reference
1	402250	4	Screw, SHCS, 6-32 UNC x 3/4"	
2	404050SS	4	Screw, FHCS, 10-32 UNF x 3/4" SS	
3	404530SS	2	Screw, BHCS, 10-32 UNF x 1/2" SS	
4	405830	1	Screw, SHSS, 1/4-20 UNC x 1/2"	
5	436313	1	Dowel Pin, 1/4" DIA. x 1"	
6	439009	2	Lockwasher, #10	
7	440008SS	2	Washer, #10 SS	
8	505463	1	Flange Bushing, 1/4 ID x 3/8 OD x 3/8 Lg.	
9	505464	1	Flange Bushing, 1/4 ID x 3/8 OD x 1/2 Lg.	
10	9102094	2	Profile Bar	
11	9103994	2	Screw, SHSS, 1/4-20 x 3/8, Cone Point	
12	9104010	1	Bracket, Angular, Top	
13	9104011	1	Bracket, Angular, Bottom	
14	9104012	1	Bracket, Swivel	
15	9105925	4	Bearing, Linear, 10 mm ID	
16	9105926	8	Retaining Ring, 10 mm Linear Bearing	
17	9105984	1	Shuttle Block	

Figure A-114: 9105984A – Shuttle Assembly, Printhead Mount

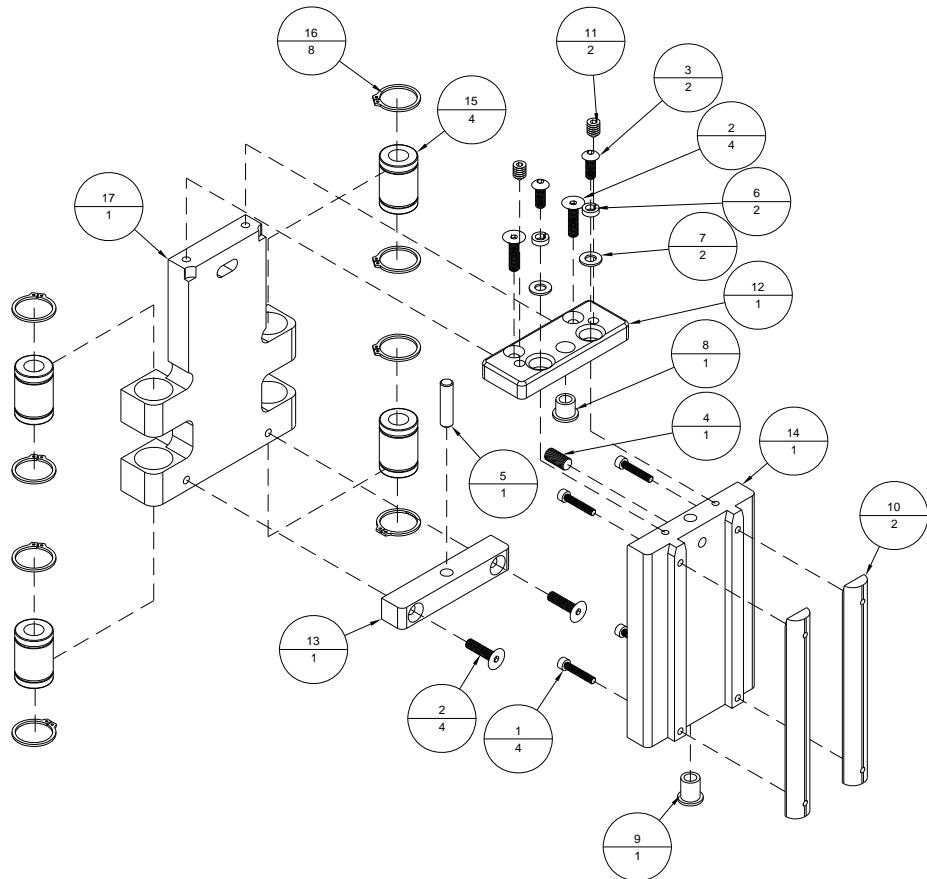


Table A-115: 9105986A – Printhead Support Assembly, Angle, HD

Item	Part Number	Quantity	Description	Reference
1	404230	4	Screw, SHCS, 10-32 UNF x 1/2"	
2	9102126	1	Locknut, M4 x 0.7, Nylon Insert	
3	9102792	1	Plunger, 3/8-16 UNC, Lever Type, Non-Locking	
4	9105984A	1	Shuttle Assembly, Printhead Mount	Page A-121
5	9105985	2	Shaft, 10 mm OD x 131 mm Lg.	
6	9105986	1	Solid Head Mount, HD	
7	9105995	1	Gas Spring, 140 N	

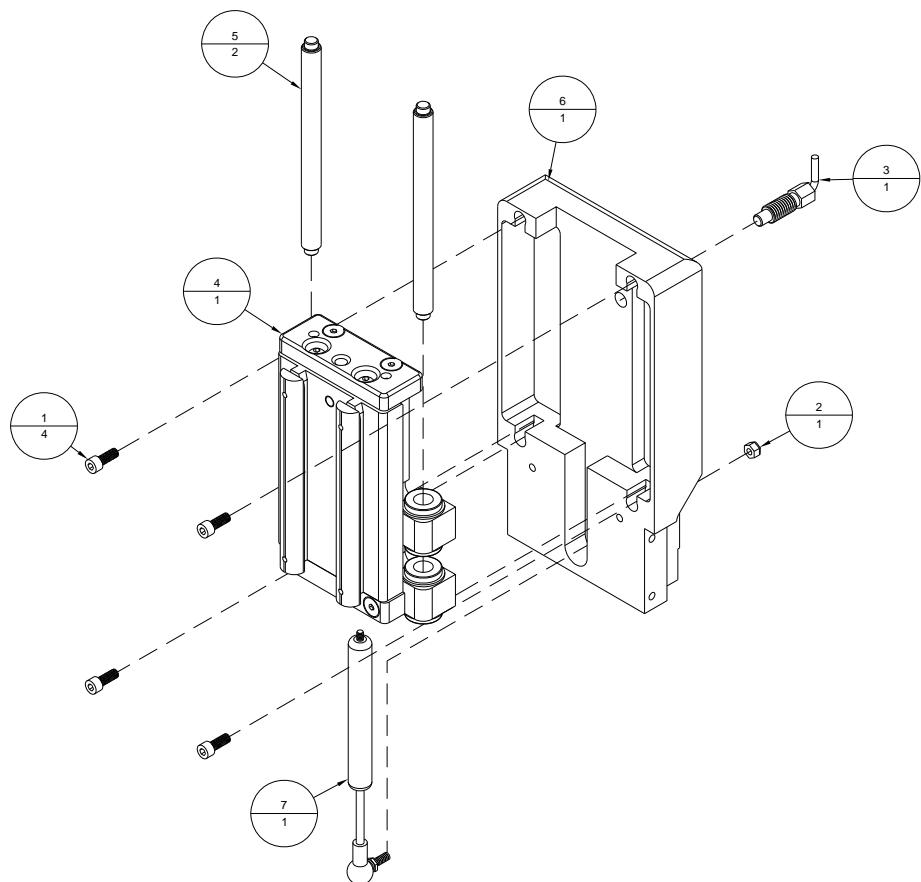
Figure A-115: 9105986A – Printhead Support Assembly, Angle, HD

Table A-116: 9105992A – Filter/Degassing Module Assembly

Item	Part Number	Quantity	Description	Reference
1	9100149	1	Connector, 1/8" NPT, 1/8" ID	
2	9100472	2	Tubing, Silicone, 1/4" OD x 1/8" ID, 3" Lg.	
3	9100472	1	Tubing, Silicone, 1/4" OD x 1/8" ID, 1.5" Lg.	
4	9101170	1	Fitting, Straight Reducer, 1/8" To 1/16" ID	
5	9101213	1	Connector, Inline (1/8-1/16)	
6	9101290	1	Fitting, Tee, 1/8" ID	
7	9101697	1	Tubing, PVC, 1/8" x 1/16", Blue, 2" Lg.	
8	9102085	1	Connector, "L", 1/8-27 NPT, 1/8" ID	
9	9102116	1	Tubing, Pharmed, 1/4" x 1/8", 2.5" Lg.	
10	9102116	1	Tubing, Pharmed, 1/4" x 1/8", 4" Lg.	
11	9102116	1	Tubing, Pharmed, 1/4" x 1/8", 5" Lg.	
12	9102675A	1	Filter Body Assembly	
13	9103257	4	Luer, Male, 1/8" ID Tubing, Black	
14	9105992	1	Degassing Module, 0.5 x 1, Superphobic	

Figure A-116: 9105992A – Filter/Degassing Module Assembly

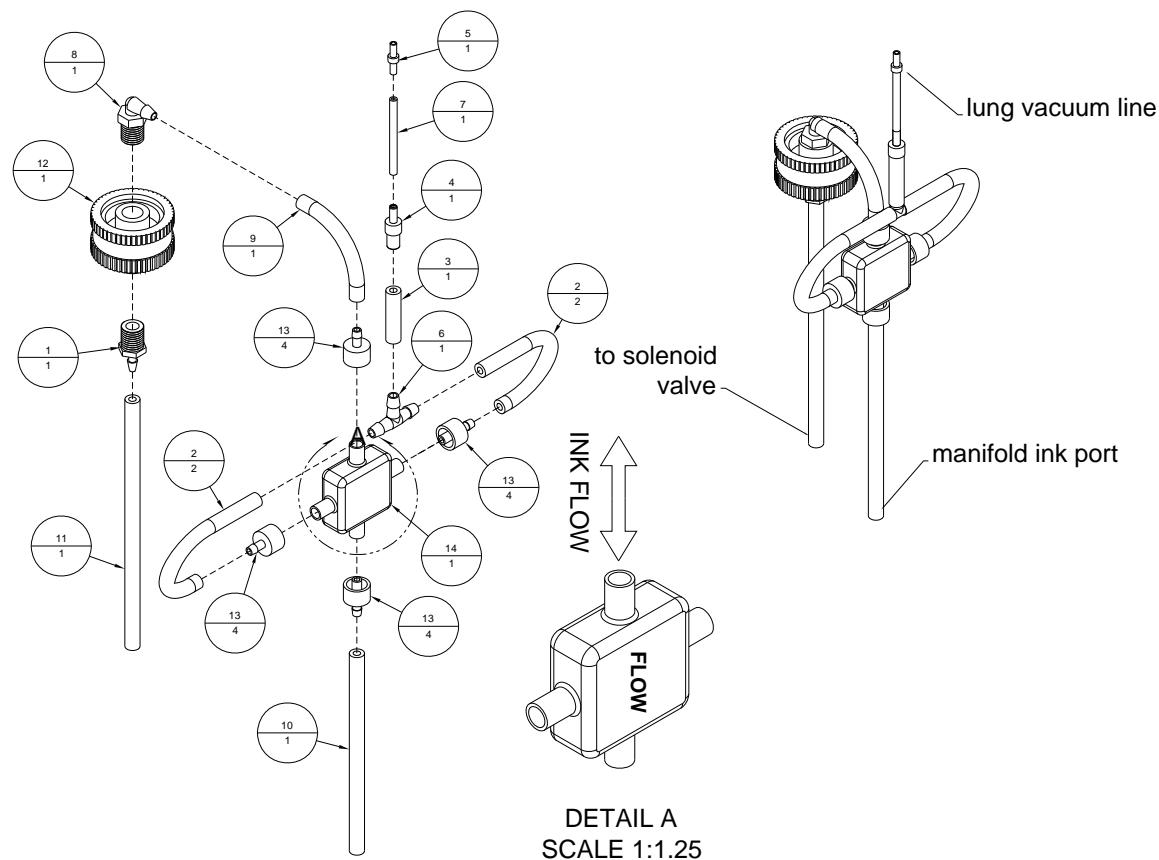


Table A-117: 9105993A – QHIB Support Assembly

Item	Part Number	Quantity	Description	Reference
1	401310	5	Screw, PHMS, 4-40 UNC x 1/4"	
2	9105755	1	Board, Quad Head Interface	
3	9105954A	1	Cable, HC Split Adapter	
4	9105974	5	Washer, #4, Retaining, Nylon	
5	9105993	1	Bracket, QHIB Support, BK5100	

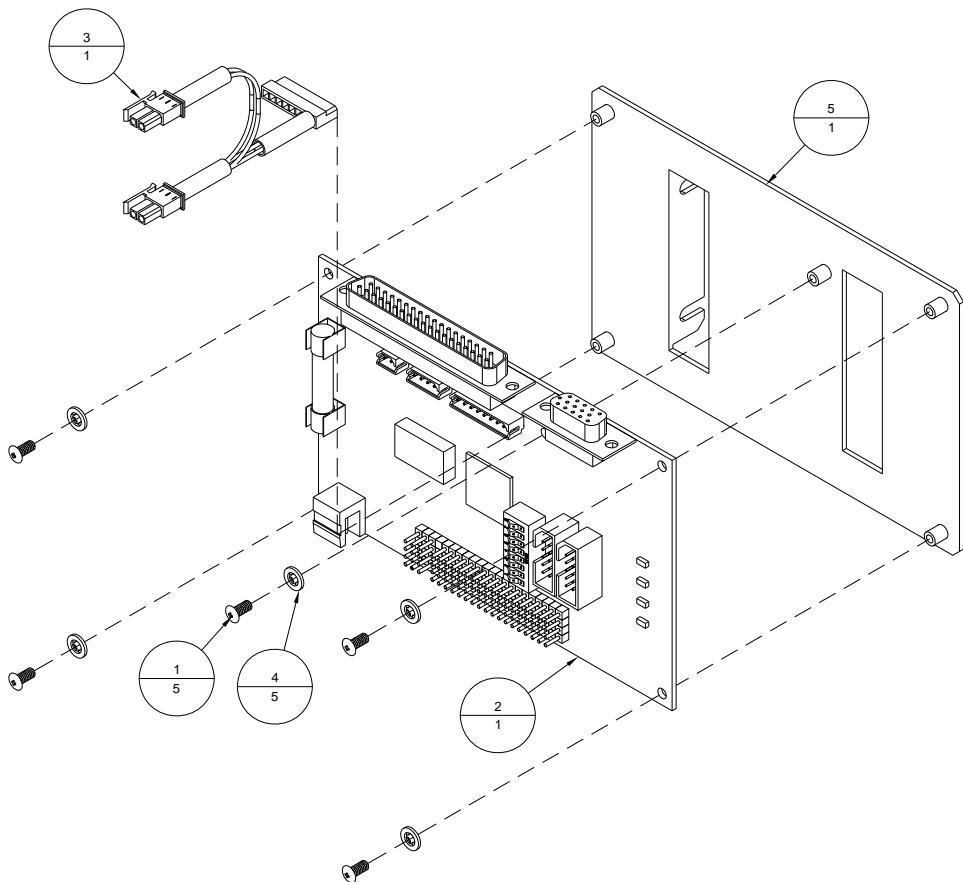
Figure A-117: 9105993A – QHIB Support Assembly

Table A-118: 9105994A – Manifold Assembly, BK5100

Item	Part Number	Quantity	Description	Reference
1	404520	4	Screw, BHCS, 10-32 UNF x 3/8"	
2	9105725	4	Screw, SS, Truss, 6-32 UNC x 1/4"	
3	9105840A	1	Manifold Assembly, BK2500/5100	Page A-113
4	9105994	1	Bracket, QHIB Support Assembly, BK5100	

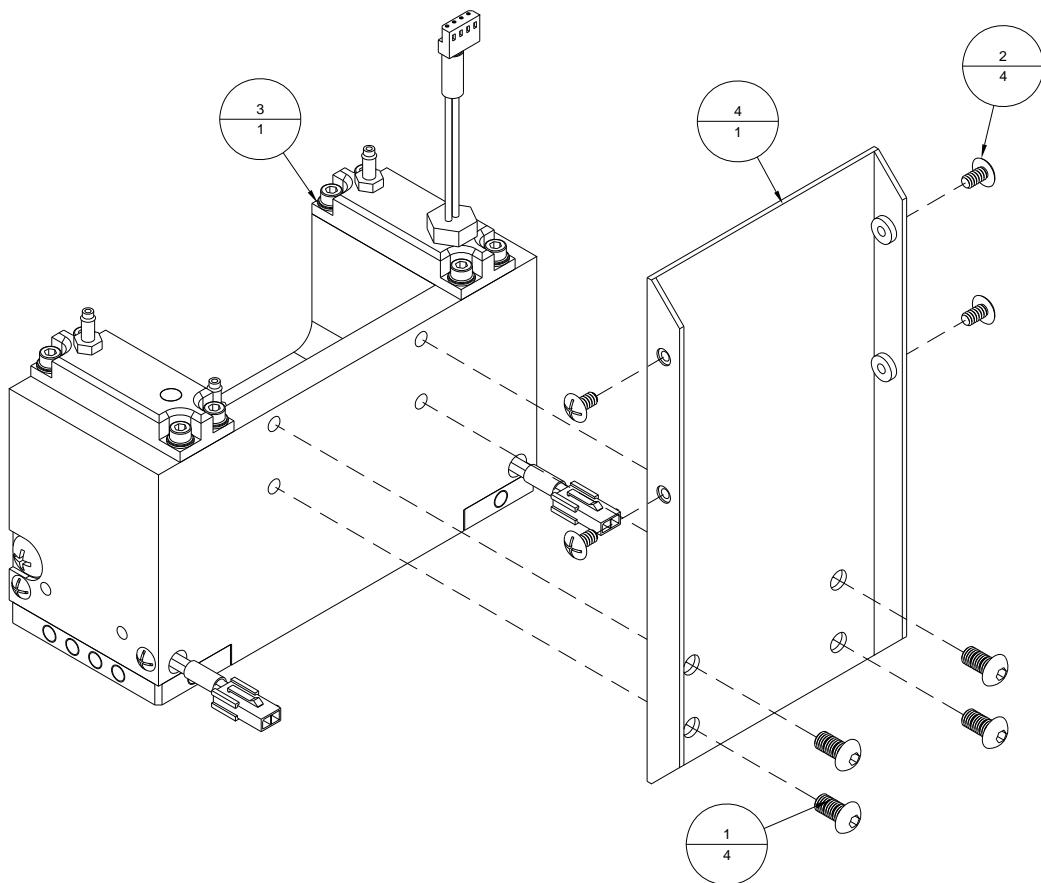
Figure A-118: 9105994A – Manifold Assembly, BK5100

Table A-119: 9105996A – Umbilical Assembly, BK5100, 15'

Item	Part Number	Quantity	Description	Reference
1	404520	8	Screw, BHCS, 10-32 UNF x 3/8"	
2	606023	2	Wire, #18, Green, 15 Ft.	
3	609116	4	Terminal, Ring, #10, 22-18 AWG, Red	
4	9100472	2	Tubing, Silicone, 1/4" OD x 1/8" ID, 2.5"	
5	9100472	2	Tubing, Silicone, 1/4" OD x 1/8" ID, 1.5"	
6	9100472	4	Tubing, Silicone, 1/4" OD x 1/8" ID, 3"	
7	9100965	2	Filter, Air, 0.2 µm	
8	9101170	2	Fitting, Straight Reducer, 1/8 To 1/16 ID	
9	9101212A	2	Ink Umbilical Assembly, 15'	Page A-63
10	9101290	2	Fitting, Tee, 1/8" ID	
11	9101694A	2	Meniscus Vacuum Hose Assembly, 15'	Page A-64
12	9101699A	2	Lung Vacuum Hose Assembly, 15'	Page A-65
13	9102687A	2	Cable, Printhead Data, 15'	
14	9102914A	2	Cable, Head Support	
15	9105988	4	Fitting, Half Bracket, Large	
16	9105989	2	Collar, Locking Shaft, 1.25" ID	
17	9105996	1	Tubing, Slit Corrugated Loom, 0.915" ID, 170" Lg	
18	9105997	1	Sleeving, Braided Expandable, 1.5" DIA, 170" Lg	

Figure A-119: 9105996A – Umbilical Assembly, BK5100, 15'

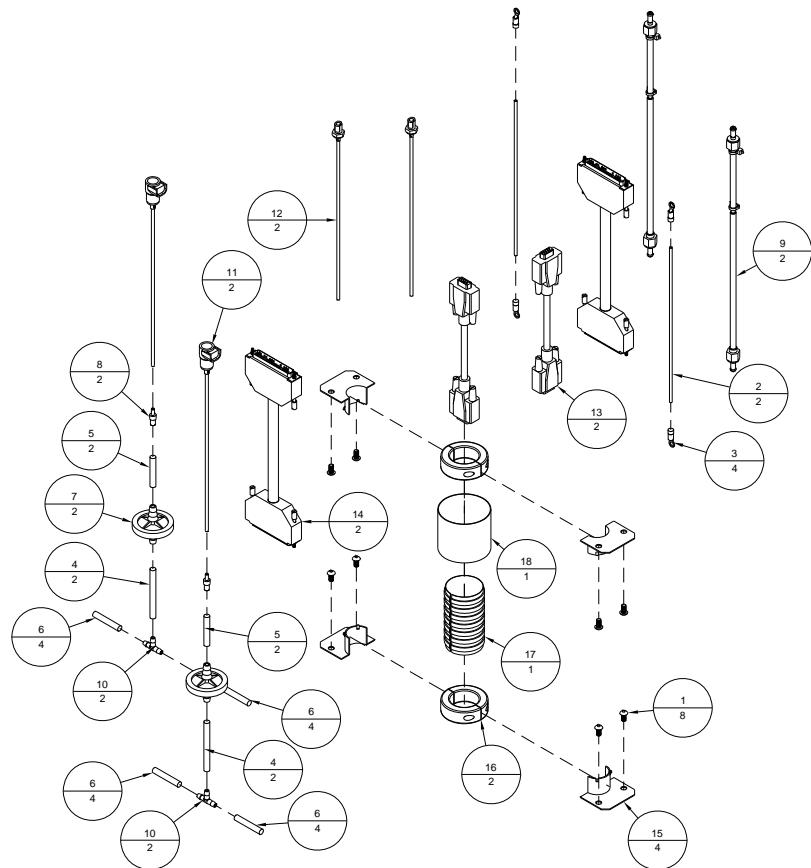
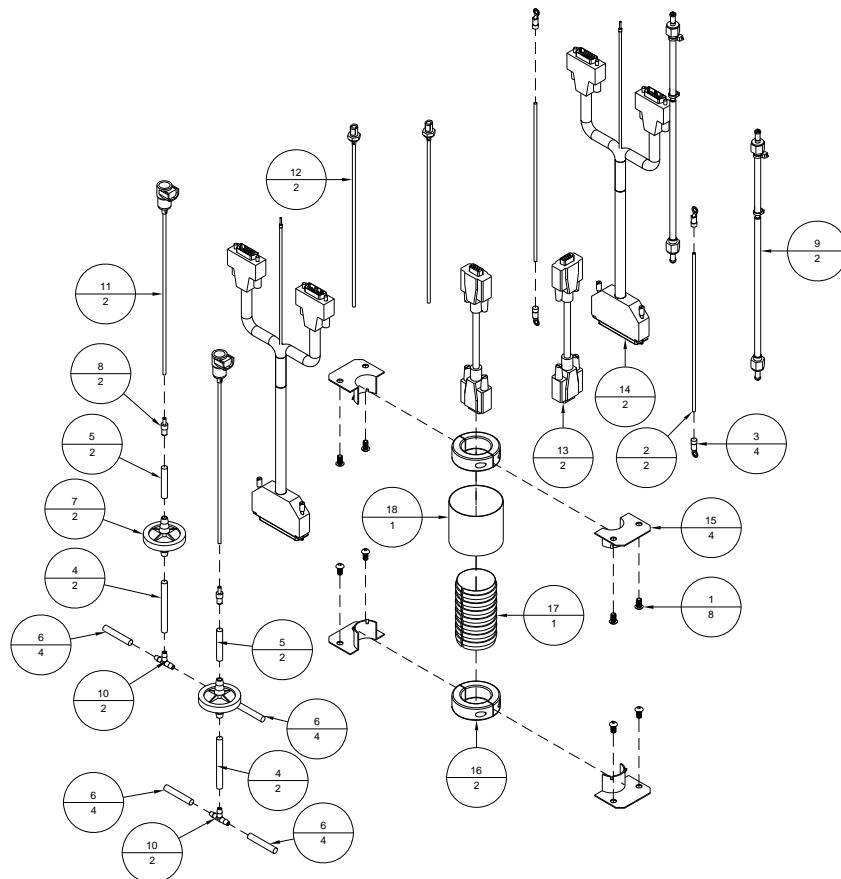


Table A-120: 9105997A – Umbilical Assembly, BK5100, 15', BK705 / 1705

Item	Part Number	Quantity	Description	Reference
1	404520	8	Screw, BHCS, 10-32 UNF x 3/8"	
2	606023	2	Wire, #18, Green, 15 Ft.	
3	609116	4	Terminal, Ring, #10, 22-18 AWG, Red	
4	9100472	2	Tubing, Silicone, 1/4" OD x 1/8" ID, 2.5"	
5	9100472	2	Tubing, Silicone, 1/4" OD x 1/8" ID, 1.5"	
6	9100472	4	Tubing, Silicone, 1/4" OD x 1/8" ID, 3"	
7	9100965	2	Filter, Air, 0.2 µm	
8	9101170	2	Fitting, Straight Reducer, 1/8 To 1/16 ID	
9	9101212A	2	Ink Umbilical Assembly, 15'	Page A-63
10	9101290	2	Fitting, Tee, 1/8" ID	
11	9101694A	2	Meniscus Vacuum Hose Assembly, 15'	Page A-64
12	9101699A	2	Lung Vacuum Hose Assembly, 15'	Page A-65
13	9102687A	2	Cable, Printhead Data, 15'	
14	9105908A	2	Cable, Head Support, QHIB To SSB	
15	9105988	4	Fitting, Half Bracket, Large	
16	9105989	2	Collar, Locking Shaft, 1.25" ID	
			Tubing, Slit Corrugated Loom, 0.915" ID, 170"	
17	9105996	1	Lg	
18	9105997	1	Sleeving, Braided Expandable, 1.5" DIA, 170" Lg	

Figure A-120: 9105997A – Umbilical Assembly, BK5100, 15', BK705 / 1705



Electrical Drawings

Appendix B

List of Schematics

Figure B-1: Printhead, 1250, Wiring Diagram (BK791AE).....	B-1
Figure B-2: Printhead, 1250, Grounding Diagram (BK791AE).....	B-2
Figure B-3: Printhead, 2250 / 3250 (BK793C).....	B-3

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

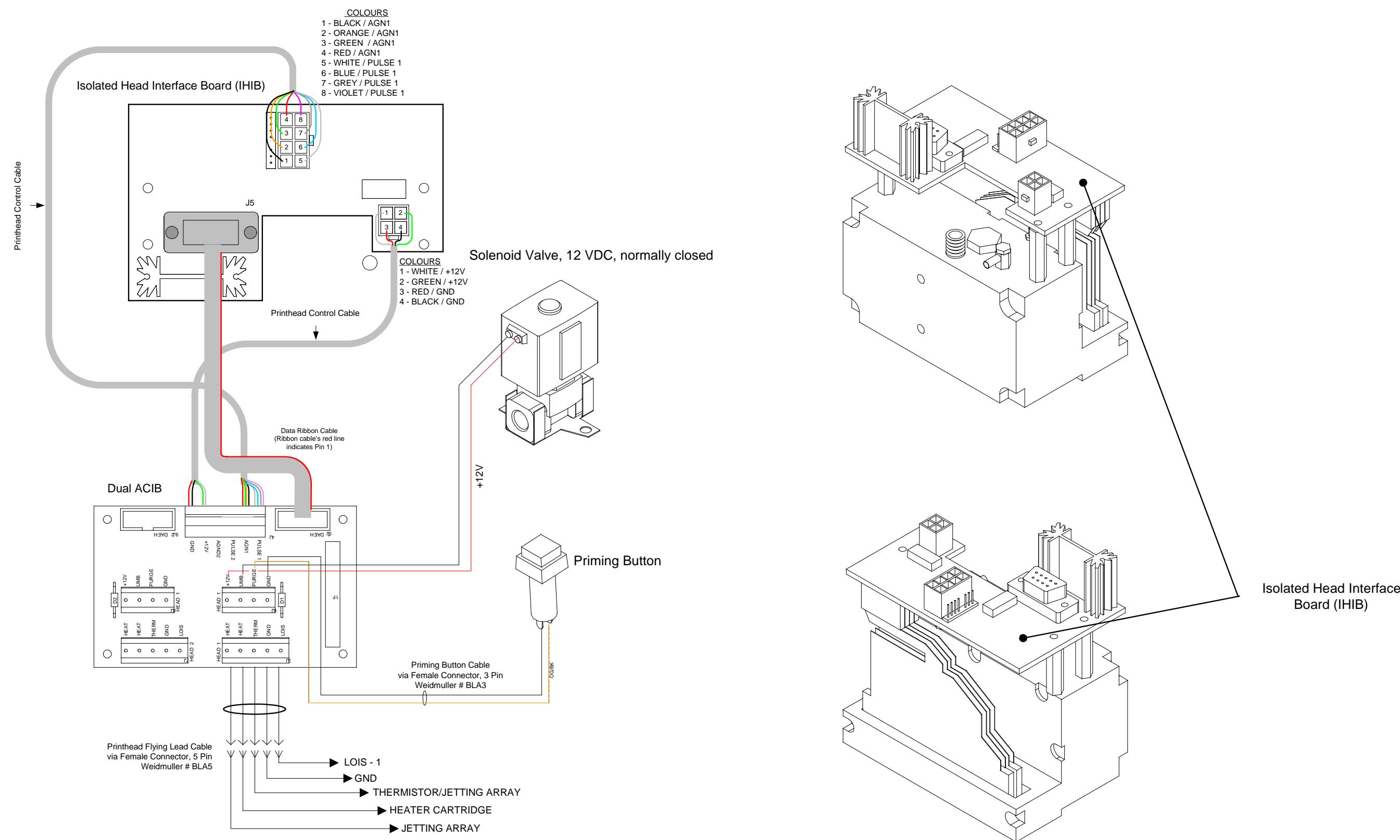


Figure B-2: Printhead, 1250, Grounding Diagram (BK791AE)

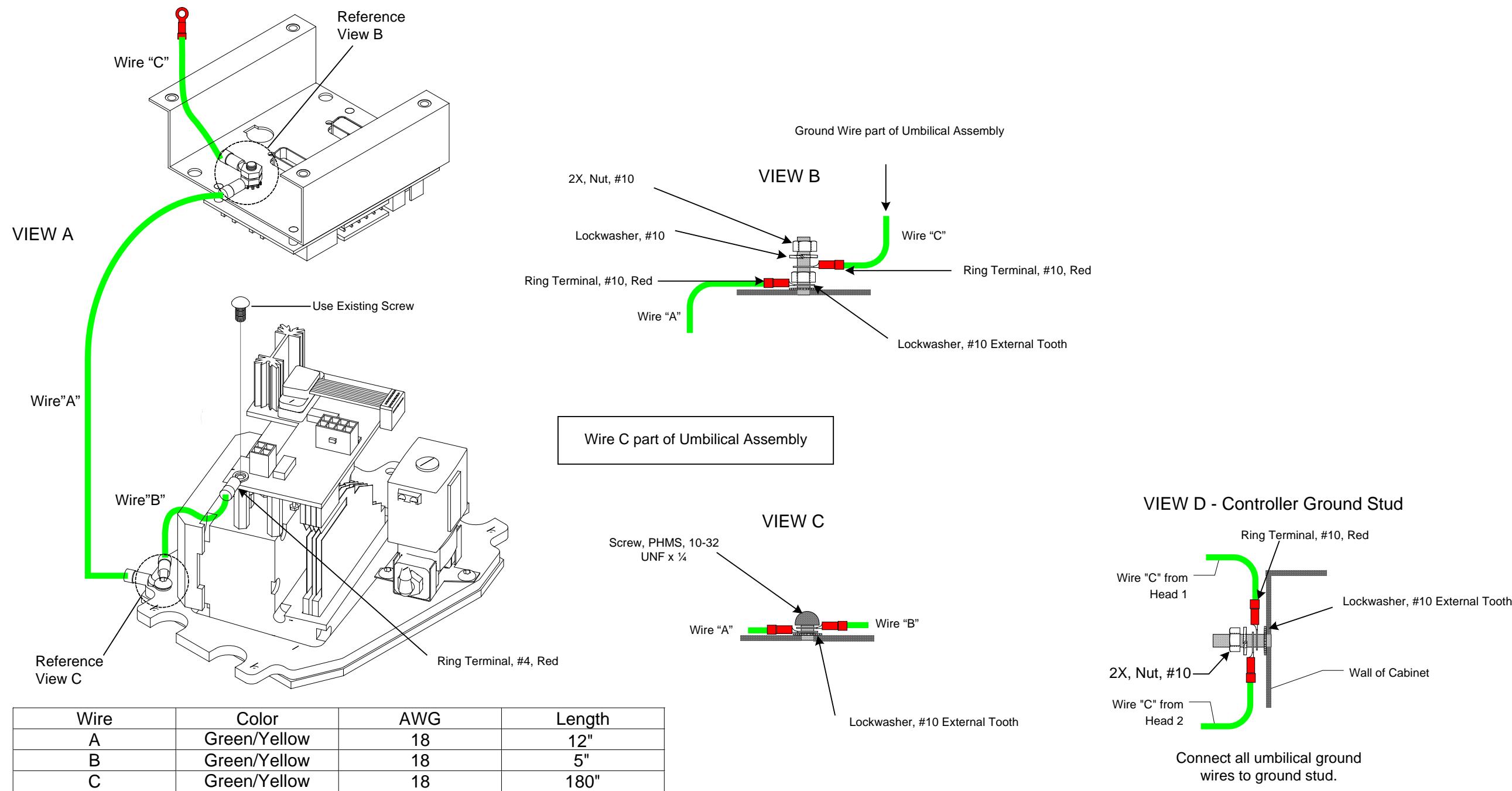


Figure B-3: Printhead, 2250 / 3250 (BK793C)

