



DURAFLEXTM

Printhead Cradle Repair Guide

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1 Introduction

This document is part of the OEM-facing documentation suite for Memjet DuraFlex® module-based printing systems. It references, and therefore requires access to, additional documentation available for download from your Memjet Partner Site.

1.1 Aim and Audience

This guide is intended for engineers and technicians at Original Equipment Manufacturers (OEMs) who are responsible for maintenance and servicing of DuraFlex components in a DuraFlex-based printing system.

1.2 Prerequisites and Scope

The reader is expected to be familiar with DuraFlex-based printing systems.

This document contains inspection and maintenance tasks, detailed replacement procedures for parts and consumables, and shipping instructions.

A general list of required Personal Protective Equipment (PPE) is provided in [2.3 Personal Protective Equipment \(PPE\)](#). Additional PPE, if required for specific tasks, is listed at the beginning of each replacement procedure.

Refer to [Table 3 – Estimated Time to Complete Replacement Tasks](#) to estimate the length of time needed to perform various tasks and then skip to the appropriate replacement section(s) to complete the task(s). Each replacement section includes a list of tools and supplies specific to that task so OEMs can gather the necessary items before starting a procedure. At the end of each replacement procedure, a testing section helps to verify successful replacement. Since many replacement procedures use similar verification checks, detailed steps are provided in section [4.4 Frequently Used System Commands](#) and linked to the appropriate procedure(s) instead of repeated for each task.

This document does not include operations information or troubleshooting content.

1.3 Typographic Conventions

Throughout this document, the following typographic conventions are used:

Code Character	<code>Courier</code> font is used to identify HTTP GET and POST commands with associated arguments, as well as references to source code, job states, registry settings, directory/file names, XCI commands, and XML settings.
Bold	Text that appears on-screen in the user interface is shown in bold font . This includes UI buttons, engine states, warning codes, and fault codes.
Yellow Highlighting	Yellow highlighting indicates sections that are new or updates in this version of the document, compared to the previous version.

1.4 Related Documentation

Other documents, besides this guide, provide further details for specific readers:

- *System Overview* – For OEM managers and non-technical personnel charged with evaluating the DuraFlex components for use within their products. This document describes the DuraFlex concept and Memjet-supplied DuraFlex components and gives an overview of the operational



considerations. It introduces the components an OEM is required to design and manufacture to ensure the DuraFlex Modules function as designed in a DuraFlex-based print engine.

- *Mechanical and Fluidic Databook and Design Guide* – For mechanical design engineers and developers, providing details of the Memjet hardware modules and components (including printhead and maintenance system) and specifications of the ink delivery system fluidics.
- *Electrical Databook and Design Guide* – For electrical design engineers and developers, providing details of the Memjet power requirements, electronic assemblies, and connections.
- *Software Databook and Design Guide* – For software and firmware engineers who need to understand the software interfaces, commands, scripts, and reference software applications.
- *Installation and Commissioning Guide* – For OEM personnel who are installing and commissioning a new printing system.
- *Operations Guide* – For OEM engineers and operators to perform operational tasks.
- *Troubleshooting Guide* – For OEM engineers and technicians to identify symptoms and resolve issues.
- *Service and Repair Guide* – For OEM engineers and technicians to perform DuraFlex inspection and maintenance tasks and component and consumable replacement.
- *Job Submission Library Guide* – For OEM software engineers to incorporate the Job Submission Library (JSL) into their chosen Raster Image Processor (RIP).
- *Technical Bulletins* – For various audiences to announce product or process update or to provide specifics on single-subject technical topics.
- *CAD and Schematics* – For various audiences to provide detailed dimensions related to specific areas.

Note: All technical documentation is available on your Memjet Partner Site.

1.5 Glossary

For terms, acronyms, and abbreviations used in this guide and some product-specific terms, see the [DuraFlex Glossary](#).

Note: This document is hyperlinked to the glossary. For offline reading, download the DuraFlex Glossary file from your Memjet Partner Site.

1.6 Additional Documentation or Access

For additional product-related technical documents, go to your Memjet Partner Site.

If you need Partner Site access, enter a case in Service Desk (<https://OEMsupport.memjet.com>), send an email to Memjet Customer Support (customer.support@memjet.com), or contact your Technical Account Manager.



2 Safety

This section identifies design considerations and practices for working safely with the DuraFlex print engine.

2.1 Electrical

2.1.1 System Power Supply Unit

The DuraFlex print engine requires a single 24 VDC power source capable of delivering at least 2A.

2.2 ESD Guidelines

CAUTION: Follow these precautions to avoid immediate or latent catastrophic failure of semiconductor devices in the print components.

As supplied, the print components are well protected against electro-static discharge (ESD). However, precautions must be taken to minimize the potential for ESD when working around harness interconnects and exposed interface connectors.

- Use static-free workstations for procedures when protective covers are removed.
- Wear grounded wrist straps when touching any exposed circuit assemblies.
- Transport electronic subassemblies in sealed, static-shielding packaging (metalized mylar).

WARNING: The printing system is powered by a 24-volt DC supply, and there is sufficient current to cause serious injury. Always power down the printing system before any cable connections or harness interconnects are connected or disconnected. Failure to turn the power off prior to removing cables will result in permanent damage to the printed circuit assemblies.

2.3 Personal Protective Equipment (PPE)

WARNING: In order to avoid personal injury, always use appropriate PPE when performing maintenance, servicing, and replacement tasks. Remove all jewelry and watches before working with the printing system. Serious burns may result from contact with energized components.

All technicians should wear personal protective equipment (PPE) when servicing the printing system, such as:

- Safety glasses
- Powder-free, nitrile gloves
- Clothing protection (smock, jacket, etc.)

Note: Details of additional required PPE, specific to the given task, are listed at the beginning of each procedure.

Technicians shall use proper lifting equipment and techniques when handling heavy components and media rolls or stacks.

2.4 Required Tools and Supplies

Details of the required tools and supplies are detailed at the beginning of each procedure in this guide.



2.5 Waste Disposal

Discard all maintenance waste, including soiled gloves and wipes, electrical waste, and ink disposal, according to local regulations.



3 Maintenance

3.1 Printhead Cleaning and Storage

This section provides cleaning and storage procedures for the DuraFlex printhead. For shipping instructions, refer to **Section 8** of the [Installation and Commissioning Guide](#).

The printhead does not require periodic cleaning but must be cleaned before storing.

3.1.1 Required Tools and Supplies

Gather the items listed below before beginning this procedure.

Figure 1 – Printhead Cleaning Supplies

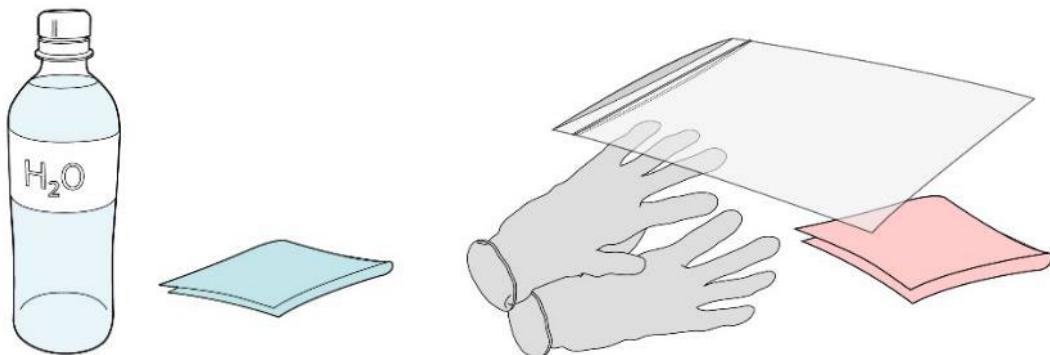


Table 1 – Required Tools and Supplies

	Description	Quantity	Type
Filtered or DI water	<p>Water used to clean any surface of the printhead must be:</p> <ul style="list-style-type: none"> • Colorless • Odorless • Free of any obvious impurities <p>Clean, room-temperature tap water and non-carbonated, non-mineral drinking water are suitable.</p> <p>Never use mineral water, soap, cleaning fluids, solvents, or hot water to clean the printhead.</p>	As needed	Supply
Lint-free cloths	<ul style="list-style-type: none"> • Must be clean and free of any contaminants including lint, chemicals, cleaning fluids or scents. Examples include: <ul style="list-style-type: none"> • Clean, lint-free cloth • Microfiber cloth such as spectacle/glasses cloth • Clean sponge (new) • The cloth used to wipe the printhead will likely become stained with ink and should be discarded appropriately, after use. • The following must not be used for cleaning printheads: <ul style="list-style-type: none"> • Tissue paper, paper towels or newspaper • Any wipes that may contain lint, chemicals, cleaning fluids or scent 	As needed	Supply
Powder-free, nitrile gloves	N/A	As needed	Supply
Resealable plastic bag	Should be large enough for the printhead and cover.	1	Supply
DuraFlex printhead protective case	Shipped with every DuraFlex printhead (Figure 3)	1	Supply
Ink port covers	Shipped with every DuraFlex printhead (Figure 3)	2	Supply



3.1.2 Cleaning

Note: Read these instructions carefully before removing a printhead from the printer. Ensure all tools and equipment are ready for use and are nearby. A printhead must not remain outside of the printer or its packaging for longer than 30 minutes.

1. Wearing a pair of powder-free, nitrile gloves moisten a cleaning cloth with clean water. The cloth should be damp but not dripping wet.
2. Remove the printhead from the printer. See the steps in section

Note: After removal from the printer, some residual ink may leak from the printhead. Ink will stain clothes or furnishings and can be difficult to wash off the skin.

3. Keep the ink couplings in an upright position to minimize any leakage.

CAUTION: Avoid touching the unprotected ink couplings, nozzle surface or electrical contacts. Avoid wetting the electrical contacts with ink.

4. Carefully wipe any ink from top of the contact pads area, if visible, with the damp cloth. Make sure there is no more ink dripping from the ink coupling after wiping.

Figure 2 – Remove Excess Ink with Damp Cloth



3.1.3 Preparing for Storage

CAUTION: All DuraFlex printheads ship with a protective case. If a protective case is not available, skip this step and proceed to the next one. However, there is a very high chance of damaging the printhead nozzles. There will likely be ink stains on clothing, skin, or surrounding areas.

1. Install the ink port covers on both ends of the printhead as shown in [Figure 3](#). There should be no ink dripping outside the protective cover or ink stains on the electrical contacts.

Figure 3 – Printhead in Protective Case with Ink Port Covers Installed



2. Place the printhead into the protective case and close it.



3. To maintain printhead hydration during storage, moisten a clean cloth, fold it, and place it into the zip bag with the printhead in the protective case as shown in [Figure 4](#). The cloth only needs to be damp, there should be no excess water in the bag. Remove air from the bag and seal the zip bag.

Figure 4 – Printhead Prepared for Storage or Shipping



4. Ensure that the printhead is stored with the nozzles facing down. Do not store in direct sunlight. Store at room temperature (5°C to 30°C).

Note: This storage method is dependent on ensuring the cloth stays wet and remains free of biological growth. Memjet recommends that printheads only be stored for up to 30 days using this technique. Storing a printhead for longer than 30 days may cause non-recoverable issues and render the printhead unusable for production printing. Ensure shipped printheads will arrive at their destination within 30 days or earlier to ensure RMA testing can be performed on functioning printheads.



4 Replacement Task Preparation

4.1 Estimated Time for Replacement Tasks

Use the following table to determine the length of time required to complete a specific replacement task in this guide. It is assumed that the task is being completed by a technician using the tools from the required tools list provided.

Table 2 – Estimated Time to Complete Replacement Tasks

Component (or Consumable)	Approximate Task Time (mins)
Printhead Cradle Assembly	65
FFCs – 2 per Printhead Cradle, 1 per Pinch Valve	15 per cable
Meander Board/s	60
Printhead	10

4.2 Contamination Prevention Guidelines

CAUTION: The printhead is a precision instrument. Clean assembly practices are critical to avoid permanent printhead contamination from particles entering the ink tubing.

Follow all the contamination prevention guidelines in this section:

1. Always install ink tubing in a clean, dust-free environment.
2. Wear nitrile, powder-free gloves and use lint-free cloths and clean water to wipe down all work surfaces before beginning ink tubing assembly. After cleaning, discard soiled gloves and cloths/wipes according to local regulations.
3. Plan to finish tubing assembly within one session without interruption. If a delay is unavoidable, provide approximately 2 cm extra length at the end of each unconnected tube and install a clean cap on the open tube end. When installation resumes, use a tubing cutter to remove the excess length from the exposed ends before connecting.
4. Wear a clean lab coat to avoid contamination from clothing.
5. Wear new, powder-free nitrile gloves when handling and inserting tubing. Fit gloves only when preparation is complete so that the gloves are not contaminated by handling fibrous or dusty surfaces, hair, skin, clothing, or tissue paper during tube assembly.
6. Store tubing in its original packaging. Only remove as much tubing as needed for each connection and reseal the package after the required tubing is removed.
7. Do not leave tubing ends open to the environment. Cap or plug open ends of tubing, fittings, and connectors to avoid exposure to contaminants.
8. To ensure precise, straight tubing ends, cut tubing with a tubing cutter only! Do not use scissors or razor blades to cut tubing! Store tubing cutters in clean packaging when not in use.
9. Do not touch critical ink surfaces (barb fittings and tubing ends) with bare hands. Do not leave critical ink tubing or connector exposed for longer than necessary to remove them from packaging, apply lubricant, and connect tube to fitting.
10. To ease connection of tubing to barbed fittings ([Figure 5](#)), apply a small amount of lubricant to the barb and tubing end. To apply this fluid, extract a small amount of fluid using a syringe ([Figure 5](#)), attach a new 0.8 µm syringe filter to the syringe, and apply sparingly to the coupling surfaces.



- Approved lubricants and syringes are provided in the *DuraFlex Installation and Commissioning Guide*.
- Apply one 2-3 drops to fittings, no more.
- Keep the tip of the syringe clean and do not touch it to any surface.
- Cap the syringe tip and lubricant container when not in use.

CAUTION: The lubricant syringe should only be uncapped for as short a time as possible to prevent contamination inside of the cap or wet tip of the syringe from dust in the air.

Figure 5 – Tube Fittings and Assembly Lubricant



Barbed Fitting



Lubricant in Syringe



Non-Barbed Fitting

11. When connecting tubing, press each tube completely onto all fittings to ensure full connection.
12. Ink tubing is either numbered or color coded at both ends of each tube. Ensure that the correct connections are made.
13. During tube routing, position ink tubing away from sharp edges to avoid cutting the tubing. If a sharp edge cannot be avoided, apply tape to the sharp edge to protect the tube from being cut.
14. Ensure tubes do not have kinks or any restriction of fluid or airflow.

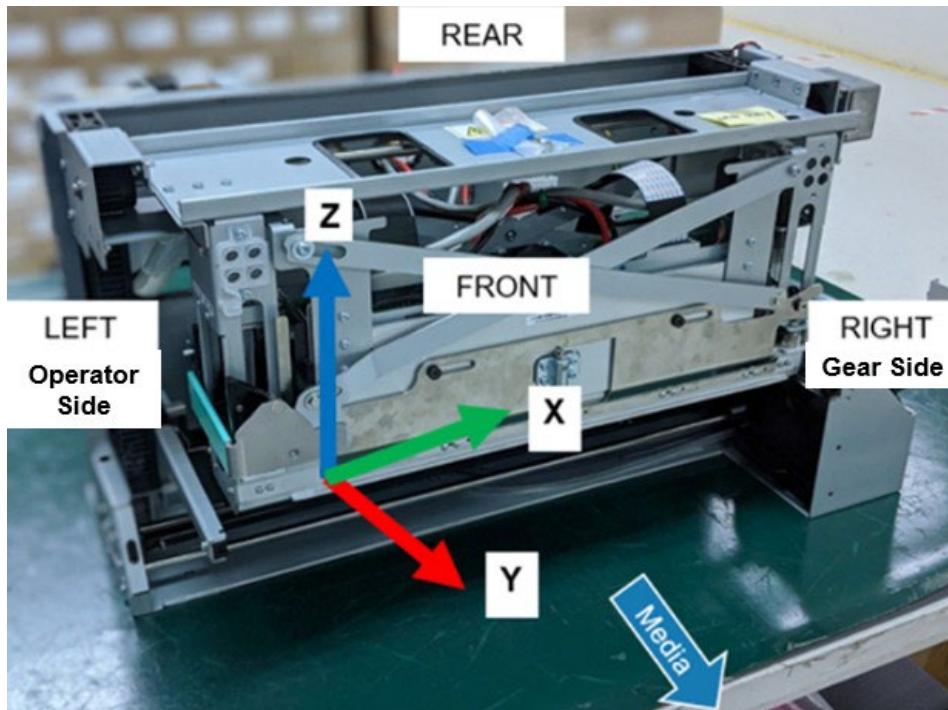
4.3 Module Orientation

The Print Module and Printhead use the same coordinates and orientation (left, right, front, and rear):

- X-axis is across the media, parallel to the printhead, considered “page width”
- Y-axis is the media travel direction, considered “page length”
- Z-axis is perpendicular to the plane of the media and is the direction of PPS

Figure 6 – Print Module Coordinates





4.4 Frequently Used System Commands

These software commands are required throughout the replacement and testing procedures in this document. To perform any of the tasks listed, use the OEM printer control software or PES commands (in this section):

- [Initialize the System](#)
- [Enable External RIP Mode](#)
- [Enable Internal RIP Mode](#)
- [Deprime the System](#)
- [Prime the System](#)
- [Perform a Light Service](#)
- [Perform a Medium Service](#)
- [Move the Printhead Cradle](#)
- [Move the Pinch Valve](#)
- [Move the Cap](#)
- [Circulate Ink Through the System](#)
- [Run the Circulation Pumps \(Custom Flush\)](#)

4.4.1 Initialize the System

1. On the Client PC, log in to DuraFlex using PuTTY with username `duraflex`
2. Open a Terminal window to start the PES interface:

```
cd /opt/memjet/PDL/test_rigs/latest/bin/
python start.py --mode=frontend
```
3. Shut down the print engine:

```
pes.shutdownEngine()
```



4. Check the print engine status:

```
pes.getStatus()
```

5. When the print engine status is OFF, run the following command:

```
printing.initialise()
```

6. Initializing the print engine may take a few minutes.

7. Check the print engine status again:

```
pes.getStatus()
```

If initialization is successful, the status will become PRIMED_IDLE or DEPRIMED_IDLE.

4.4.2 Deprime the System

1. Initialize the system.

2. Run the following PES command:

```
pes.startDepriming([])
```

3. Wait a minute and check the print engine status:

```
pes.getStatus()
```

The status should be DEPRIMED_IDLE.

4.4.3 Prime the System

1. Initialize the system.

2. Run the following PES command:

```
pes.startPriming([])
```

3. Wait a minute and check the print engine status:

```
pes.getStatus()
```

The status should be PRIMED_IDLE.

4.4.4 Perform a Light Service

1. Ensure that the system is powered on and the printhead is capped.

2. Run the following PES command:

```
pes.startServicing([], ServiceType.LIGHT)
```

4.4.5 Perform a Medium Service

1. Ensure that the system is powered on and the printhead is capped.

2. Run the following PES command:

```
pes.startServicing([], ServiceType.MEDIUM)
```



4.4.6 Move the Printhead Cradle

1. Run the following PES commands to move the printhead cradle to RAISE, CAP, and PRINT positions:

```
pes.startMovingPrintheads([], Position.MAINT)  
pes.startMovingPrintheads([], Position.CAP)  
pes.startMovingPrintheads([], Position.PRINT)
```

4.4.7 Move the Pinch Valve

Note: This procedure can only be performed with commands.

Enter combined mode and use commands to:

1. Change directory:

```
cd /opt/memjet/PDL/test_rigs/latest/bin
```

2. Stop the delegation service:

```
sudo systemctl stop delegation
```

3. Start the Python app in combined mode:

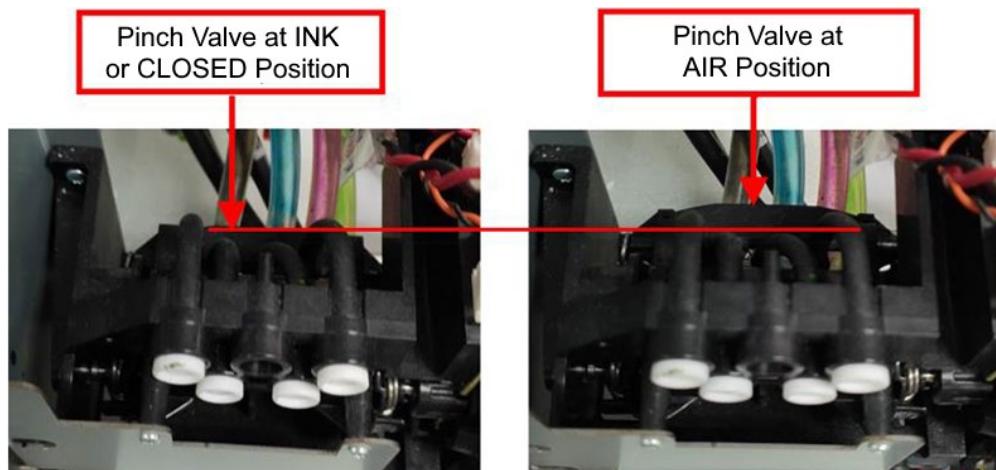
```
python start.py --mode=combined
```

4. Run the following `dtp` commands to move the pinch valve to INK, AIR, and CLOSED positions:

```
dtp.ids.valve.go_ink()  
dtp.ids.valve.go_air()  
dtp.ids.valve.go_closed()
```

5. Observe the pinch valve to see that it moved after each command as shown in [Figure 7](#) below.

Figure 7 – Pinch Valve Positions



6. In the PuTTY terminal, exit combined mode and return the system to a safe state:

```
sudo systemctl start delegation
```



4.4.8 Move the Cap

Note: This procedure can only be performed with commands.

Enter combined mode and use commands to:

1. Change directory:

```
cd /opt/memjet/PDL/test_rigs/latest/bin
```

2. Stop the delegation service:

```
sudo systemctl stop delegation
```

3. Start the Python app in combined mode:

```
python start.py --mode=combined
```

4. Run the following `dtp` commands to move the cap to CAP and HOME positions:

```
dtp.ss.go_cap()  
dtp.ss.go_home()
```

4.4.9 Circulate Ink Through the System

Note: This procedure can only be performed with commands.

The following procedure provides steps to circulate two (2) liters of ink.

CAUTION: Wait 24 hours after successful initial printing and priming before circulating ink.

To circulate ink through all IDS blades:

1. Open SSH or PuTTY and execute the following commands:

```
cd /opt/memjet/PDL/test_rigs/latest/bin
```

2. With the printer status in `PRIMED_IDLE`, run the following command to enter the combined mode:

```
python start.py --mode=frontend
```

3. From within combined mode, run:

```
printing.pes.circulateInk([])
```

4. Wait for the circulation process to complete. The complete circulation process will take approximately 40 minutes.

5. When the circulation process is complete, the pump will stop running. Run the following command to drain the set up cartridge:

```
printing.pes.drainInkFromPrinthead([])
```



4.4.10 Run the Circulation Pumps (Custom Flush)

Note: This procedure can only be performed with commands.

Enter the combined mode and run the circulation pumps for four (4) minutes.

1. Open a PuTTY terminal, log in to DuraFlex, and stop delegation service using these commands:

```
cd /opt/memjet/PDL/test_rigs/latest/bin
sudo systemctl stop delegation
```

2. Run the following command to start the combined mode:

```
python start.py --mode=combined
```

3. From within the combined mode, run the following command ([240](#) means 240 seconds):

```
dtp.ids.do_custom_flush(240,60)
```

This will pull all the ink from IR Tank into the waste ink container through the disconnected Return Line.

Cap – Vinyl, ID 1/4", length 1/2"	4	Supply
Cap – Vinyl, ID 1/8", length 1/2"	4	Supply
Large Ziploc-type plastic bag	As needed	Supply
Fluidic coupling covers (Error! Reference source not found.)	2	Supply
Printhead Ink port covers (Figure 8)	2	Supply
Printhead protective case (Figure 8)	1	Supply

4.5 Print Head Removal

CAUTION: To minimize ink contamination, always wear clean, nitrile, powder-free gloves when working on the DuraFlex system.

Note: Unless otherwise noted, keep all original hardware for installation.

This section provides the removal procedures for the Print Module. For shipping instructions, refer to the [Printhead Cleaning Storage & Shipping Guide](#).

4.5.1 Procedure

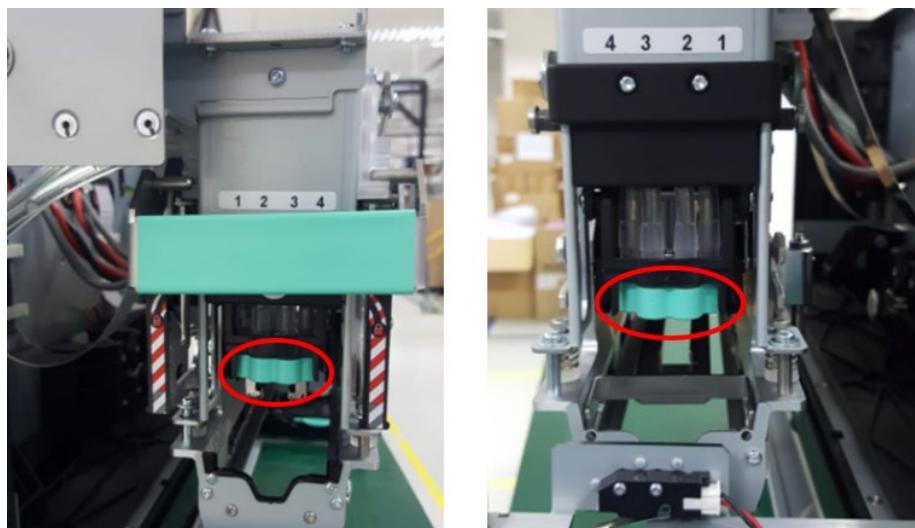
To remove the Print Head:

1. Deprime the DuraFlex printing system.
2. Use the OEM printer control software to move the Printhead Cradle to RAISE position and the Cap to HOME position.
3. Remove the printhead according to the steps in Section 8 of the [DuraFlex Installation and Commissioning Guide](#).
4. Store the printhead temporarily until the Print Head is required.
 - a. Install the ink port covers on both ends of the printhead to prevent ink dripping outside the protective cover.

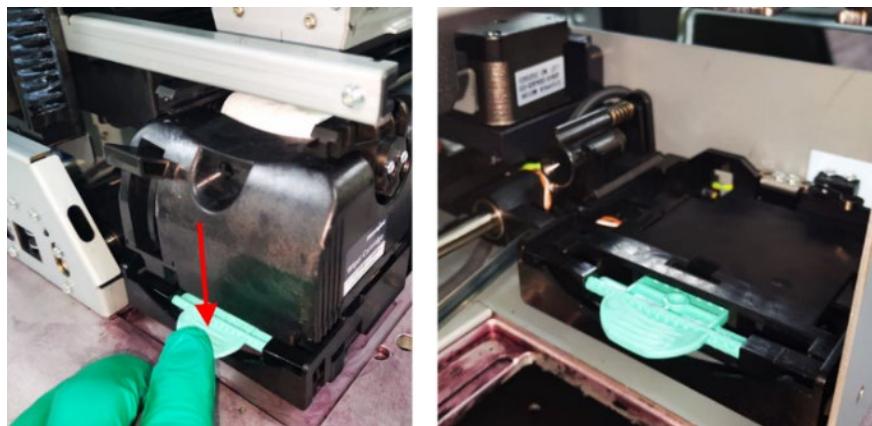


Figure 8 – Printhead in Protective Case with Ink Port Covers Installed

- b. Place the printhead into the protective case and close the case.
- c. Ensure that the protective case stays oriented with the printhead nozzles facing down. Do not store in direct sunlight and keep at room temperature (5°C to 30°C).
5. Install the fluidic coupling covers (one on each side) to protect the fluidic couplings from contamination.

Figure 9 – Fluidic Coupling Covers Installed

6. Power down the DuraFlex printing system.
7. Push down on the green tab to release the wiper cartridge from the wiper carrier.

Figure 10 – Wiper Cartridge Release

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8. Store the wiper cartridge in its original packaging or a clean plastic bag at room temperature (5°C to 30°C) until it can be reinserted.

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5 Printhead Cradle Assembly Removal

This section provides removal instructions for the Printhead Cradle Assembly (PHCL PH Cradle Module – PN 10005287).

Figure 11 – Printhead Cradle



5.1 Personal Protective Equipment (PPE)

CAUTION: To avoid injury, always use appropriate PPE when performing maintenance and replacement tasks. See Section [2.3 Personal Protective Equipment \(PPE\)](#) for details.

5.2 Required Tools and Supplies

Gather the items in the table before beginning this procedure.

Table 3 – Required Tools and Supplies

Description	Quantity	Type
Safety glasses	1 pair	PPE
Powder-free, nitrile gloves	As needed	Supply
Lint-free cloth	As needed	Supply
Printhead Cradle Assembly – PN 10005287	1	Part
Flat-head tweezer	1	Tool
T8, T10, T15 & T20 – M3 Torx driver, (with ~200 mm extension)	1	Tool
2.5mm Allen/Hex driver suitable for M3 socket head screws	1	Tool
Diagonal cutter	1	Tool
Tubing cutter	1	Tool
Flat-blade or slotted screwdriver (3/16")	1	Tool

5.3 Removal

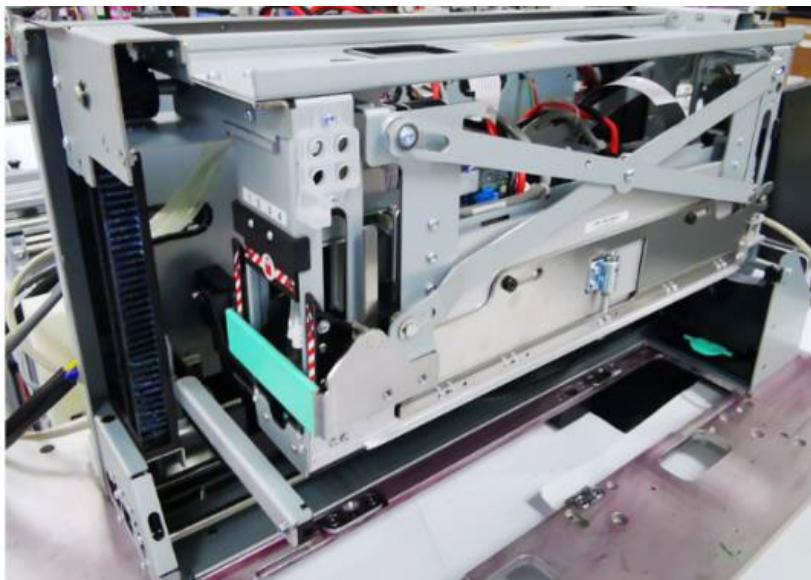
CAUTION: To minimize ink contamination, always wear clean, nitrile, powder-free gloves when working on the DuraFlex system.

Note: Unless otherwise noted, keep all original hardware for installation.



1. To remove the Printhead Cradle from the Print Module first Deprime the system.
2. Command the Printhead Cradle to RAISE position and Cap to HOME position ([Figure 12](#)).

Figure 12 – Printhead Cradle and Cap



3. Remove the printhead and store it in the protective printhead case temporarily while this procedure is being performed.

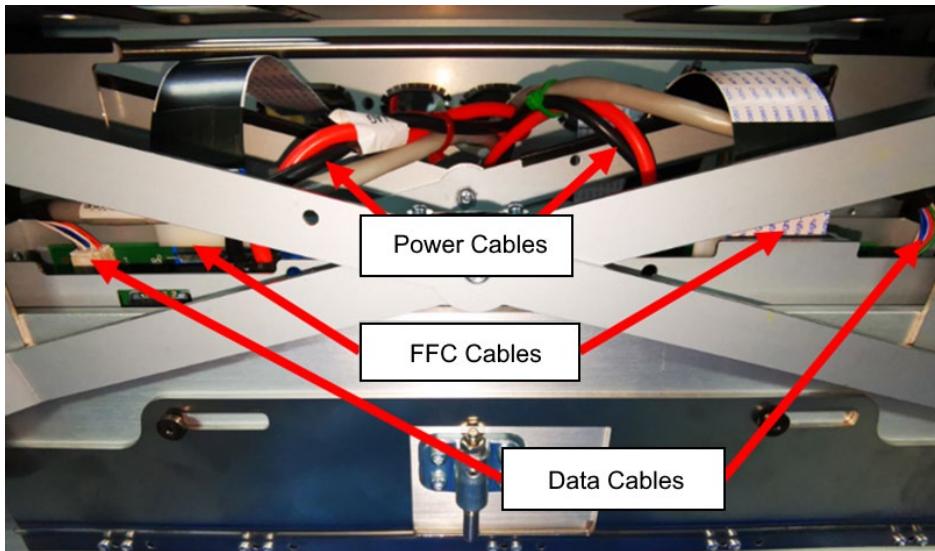
Figure 13 – Printhead in Protective Case



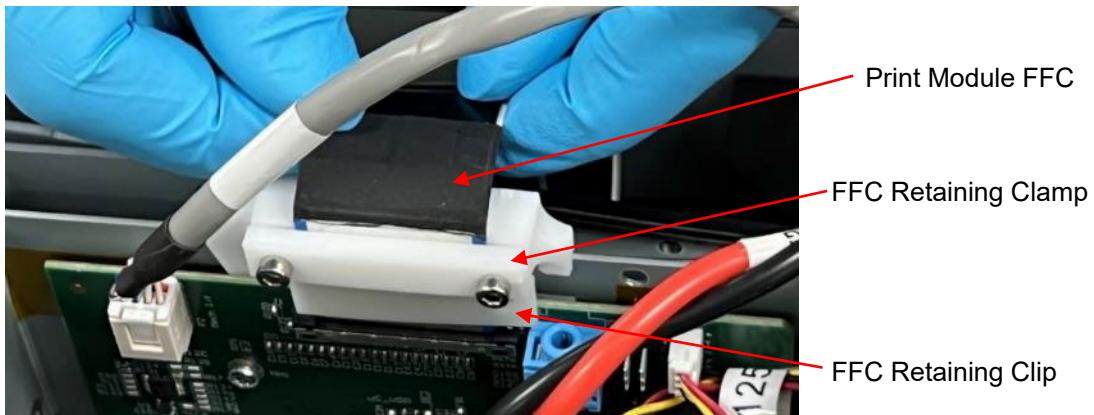
4. Power down the system.
5. [Figure 14](#) shows all the cables connected to the Printhead Power PCA. Disconnect the following:
 - Printhead Power PCA power cable (x2)
 - Printhead Power PCA data (I2C) cable (x2). Ensure you release the locking tab on the data cables before removing them.
 - Print Module Flat Flexible Cable (FFC) (x2) - connects the Print Module to the Ross Board

CAUTION: The Print Modules FFCs are very fragile, and the ends can be easily damaged. Follow these instructions carefully when connecting or disconnecting them.



Figure 14 – Print Module Cables

6. The Print Module FFC is secured by a white retaining clamp shown in [Figure 15](#). Remove the 2 socket head caps screws and the retaining clamp.

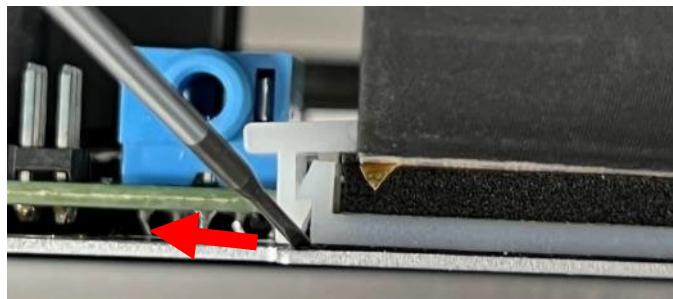
Figure 15 – Print Module FFC Retaining Clamp

7. With the clamp removed, you will be able to see the FFC retaining clip. Use a blunt tool to unclip it as shown in [Figure 16](#).

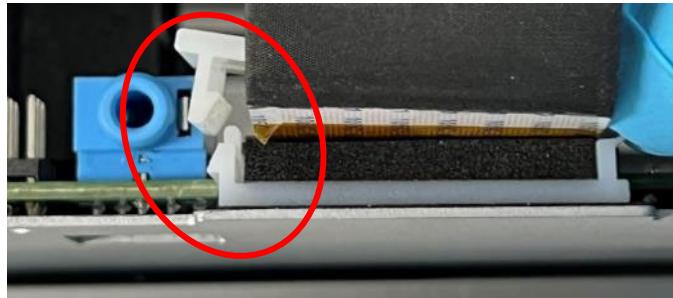


Figure 16 – Separating the Print Module FFC Clip

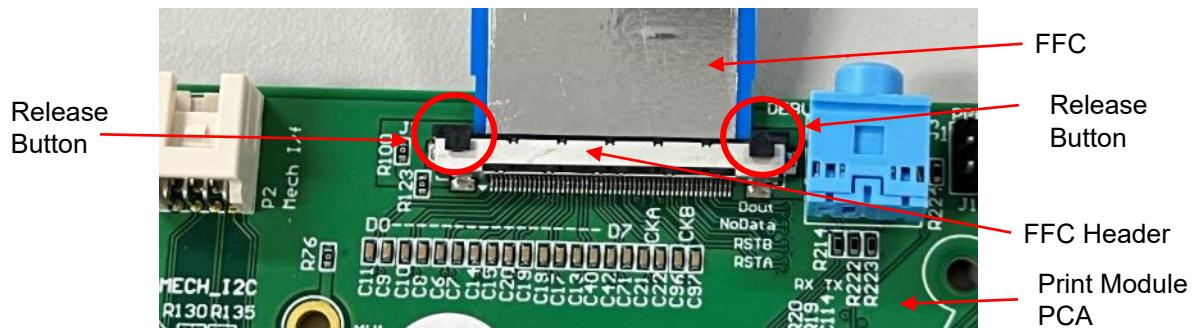
1. Insert the tool between the two halves of the FFC clip



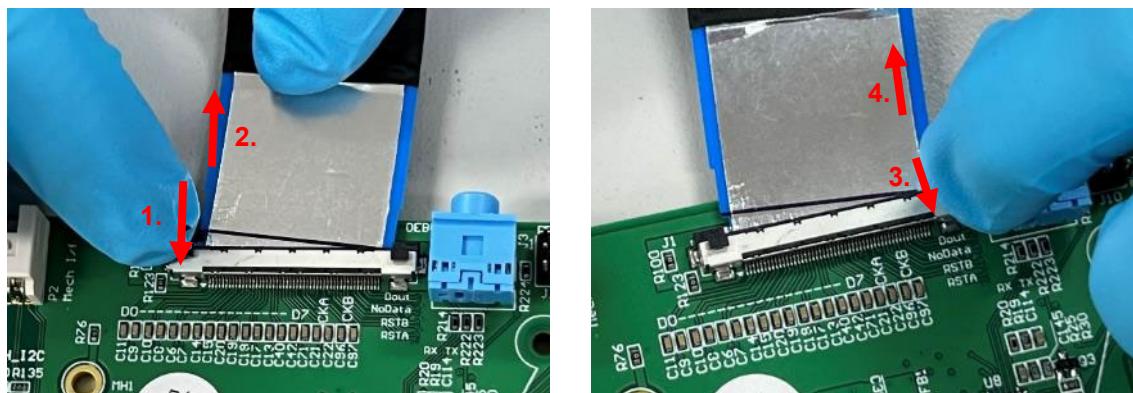
2. Gently twist the tool or lever the two halves apart to unclip them



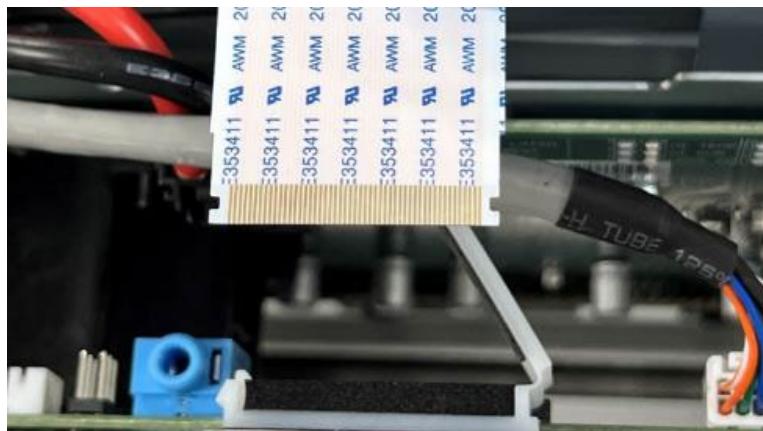
8. Once the FFC clip has been opened, you will be able to locate the FFC release buttons on the FFC header as shown in [Figure 17](#). The release buttons will not be visible on the PCA installed in the printer; you will need to find them by feel. The buttons are slightly raised and square shaped.

Figure 17 – Print Module FFC Release Button Locations on PCA

9. To release the FFC, press the release button on one side and gently pull on the FFC until one side of the cable pops out. Steps 1 and 2 in [Figure 18](#).
10. Then press the other button and gently pull the FFC out of the header. Steps 3 and 4 shown in [Figure 18](#).

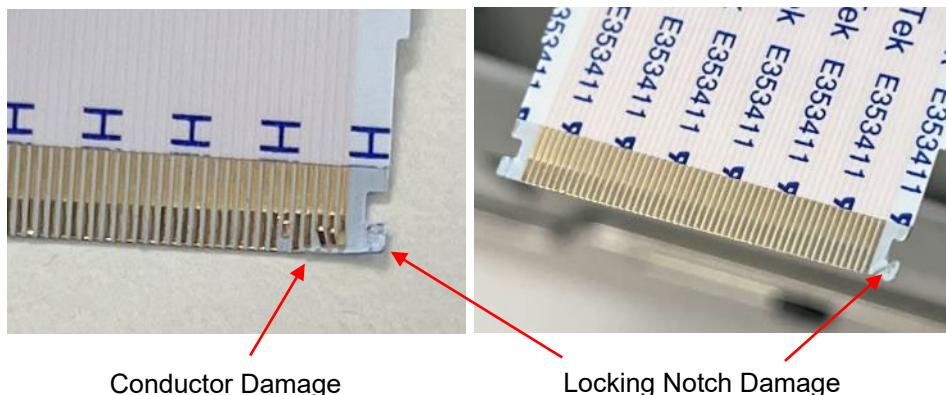
Figure 18 – Print Module FFC Release Button Steps

11. Ease the Print Module FFC away from the header so the cable contacts can be inspected.

Figure 19 – Released Print Module FFC

12. Inspect the end of the cable for any damage to the locking notches and the electrical conductors at the end of the cable. Examples are shown in [Figure 20](#).

Note: If cable damage is found, the FFC will need to be replaced otherwise the printhead electrical connection may be unreliable.

Figure 20 – Examples of Damaged Print Module FFCs

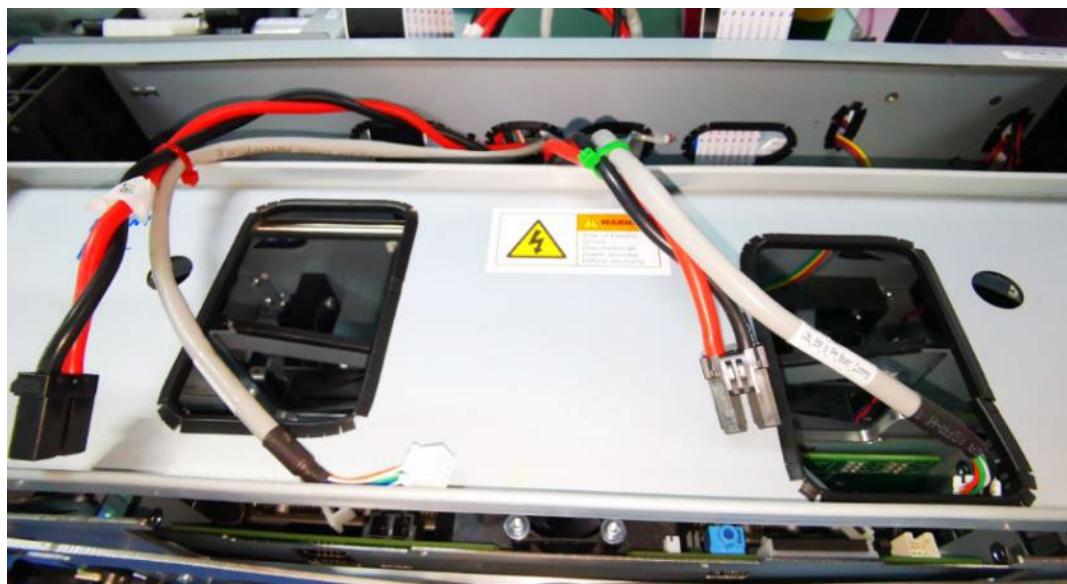
13. Remove and inspect the other Print Module FFC using the same method.

14. You should not need to release the Ross Board end of the Print Module FFC from its connector unless you are replacing the FFC cable. If the cable does need replacing undo the FFC from the Ross board using the same method shown in [Figure 18](#).

Figure 21 – Remove Ross Board End of the Print Module FFC



Figure 22 – FFCs Removed from Printhead Power PCA



15. On the right side of the Print Module, locate the four (4) ink tubes between the Pinch Valve and the Printhead Cradle.
16. Position a tubing cutter 50-60 mm from the Pinch Valve barb and cut one ink tube where indicated by the green "X" in [Figure 23](#).

Figure 23 – Pinch Valve Ink Tubing Cut Locations and Cap Installed

17. Remove the short piece of cut tubing from the Pinch Valve barb and install a vinyl cap on the barb. Repeat steps [16](#) and [17](#) for the remaining ink tubes.
18. Discard the cut tubing pieces.
19. At the rear of the Print Module, locate the four (4) ink tubes between the Printhead Cradle and the Compliance Chamber ([Figure 24](#)).
20. Position a tubing cutter 50-60 mm from the Compliance Chamber barb and cut one ink tube. The cut locations are shown in "X" in [Figure 24](#). Remove the left-over pieces of tubing from the Compliance Chamber barbs and install vinyl caps.

Figure 24 – Compliance Chamber Ink Tubing Cut Location and Capped Barbs

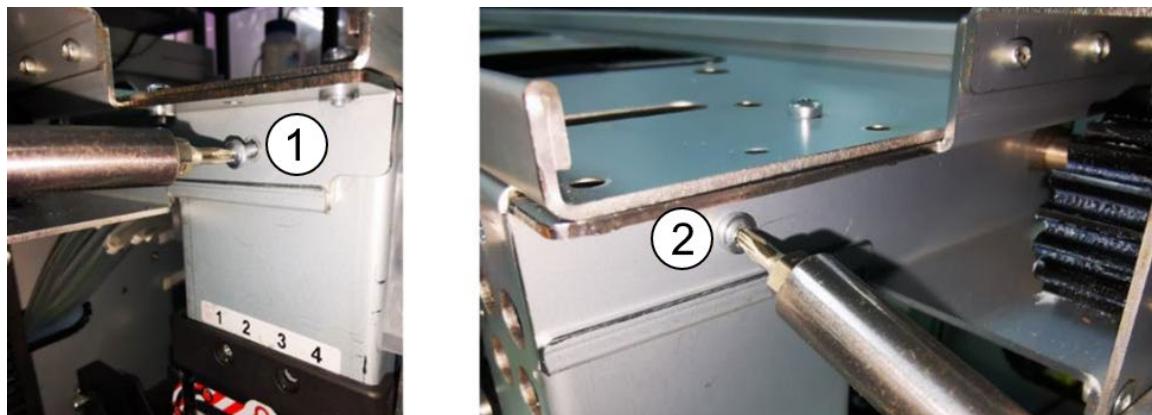
21. Remove the 14 screws that mount the Printhead Cradle to the Print Module Lift Mechanism. ([Figure 25](#)).

Figure 25 – Printhead Cradle Mounting Screws



22. Remove two (2) screws (one from each side) of the Printhead Cradle ([Figure 26](#)).

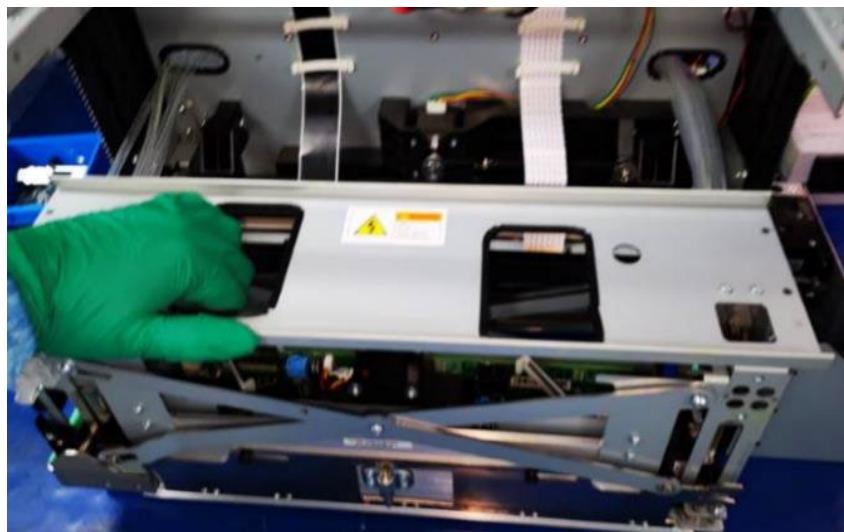
Figure 26 – Screws on Both Sides of Printhead Cradle



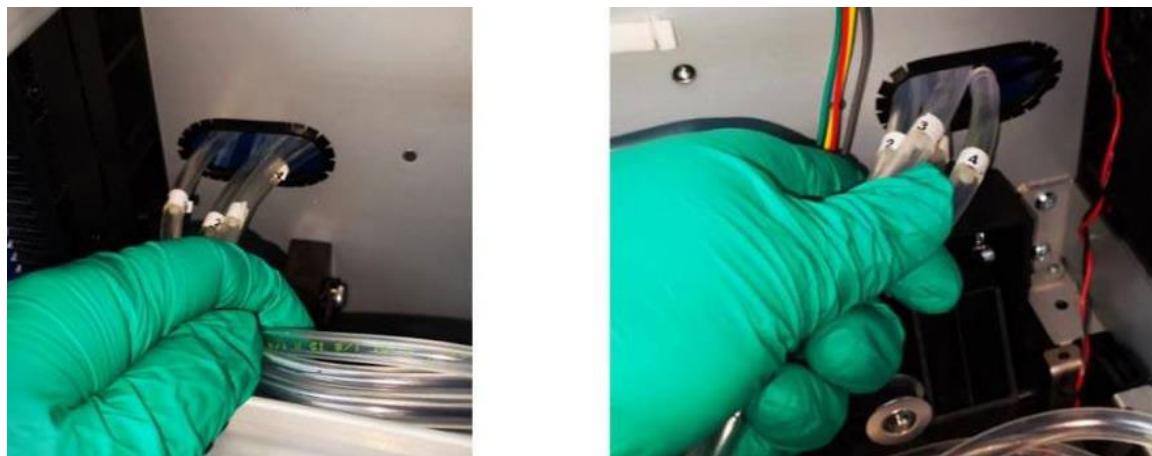
23. Place two hands in the openings in the top plate of the Printhead Cradle and slowly lift it up and set it gently on the surface in front of the Print Module.

Figure 27 – Lift Printhead Cradle by the Top Plate

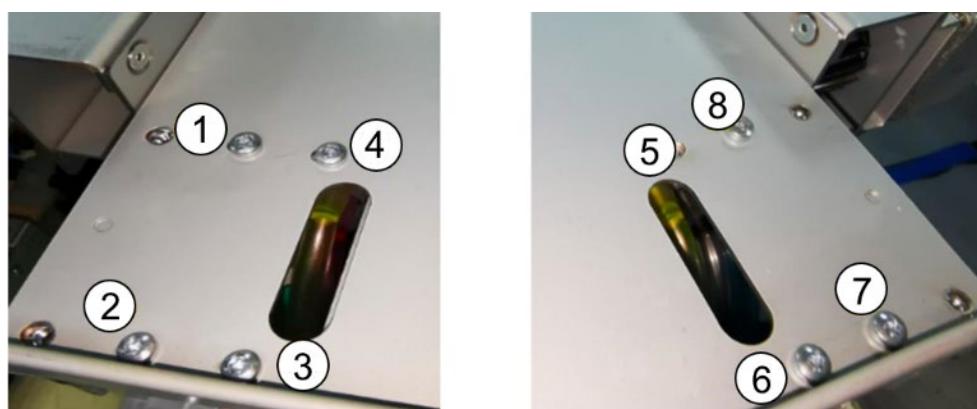


Figure 28 – Place Printhead Cradle in Front of Print Module

24. Pull the tubing through the holes in the Print Module frame on both left and right sides ([Figure 29](#)).

Figure 29 – Thread Tubing Through Frame

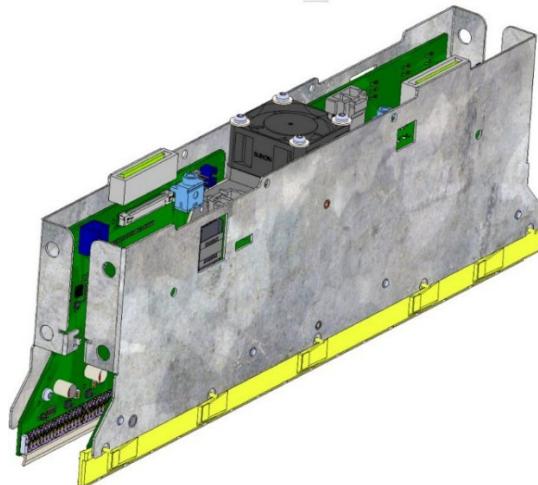
25. Remove the eight (8) screws that secure the Top Plate to the Printhead Cradle.

Figure 30 – Printhead Cradle Top Plate Mounting Screws

6 Printhead Cradle Meander Assembly

This section provides instructions for the Meander ‘sandwich’ assembly ([Figure 31](#)) removal from the cradle assembly.

Figure 31 - Meander assembly



CAUTION: To avoid injury, always use appropriate PPE when performing maintenance and replacement tasks. See Section [2.3 Personal Protective Equipment \(PPE\)](#) for details.

CAUTION: To avoid static discharge, follow the ESD guidelines these precautions to avoid immediate or latent catastrophic failure of semiconductor devices in the print components.

As supplied, the print components are well protected against electro-static discharge (ESD). However, precautions must be taken to minimize the potential for ESD when working around harness interconnects and exposed interface connectors.

- Use static-free workstations for procedures when protective covers are removed.
- Wear grounded wrist straps when touching any exposed circuit assemblies.
- Transport electronic subassemblies in sealed, static-shielding packaging (metallized mylar).

6.1 Required Tools and Supplies

Gather the items in the table before beginning this procedure.

Table 4 – Required Tools and Supplies

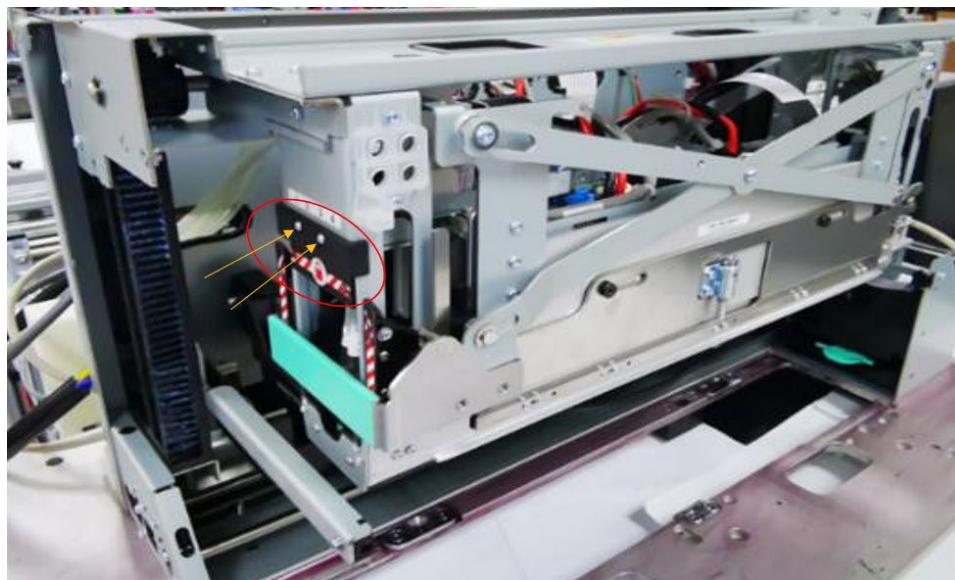
Description	Quantity	Type
Safety glasses	1 pair	PPE
Powder-free, nitrile gloves	As needed	Supply
Lint-free cloth	As needed	Supply
Loctite Thread Lock 290	10ml	Supply
Flat-head tweezer	1	Tool
T8, T10, T15 & T20 – M3 Torx driver, (with ~200 mm extension)	1	Tool
2.0 & 2.5mm Allen/Hex driver suitable for M3 socket head screws	1	Tool
Diagonal cutter	1	Tool
Tubing cutter	1	Tool
Flat-blade or slotted screwdriver (3/16”)	1	Tool
Torque Driver (Calibrated) – 2 to 6kgf.cm range	1	Tool



6.2 Meander Assembly Removal

1. Inspect the Printhead Cradle to verify there is no damage to it:
 - Tubing is not kinked cut or has suffered any damage.
 - Components are intact with no loose or missing parts.
2. Using a T8 Torx driver, remove the two (2) screws that secures the Guide indicator on the green handle side ([Figure 32](#)).

Figure 32 – Guide Indicator location



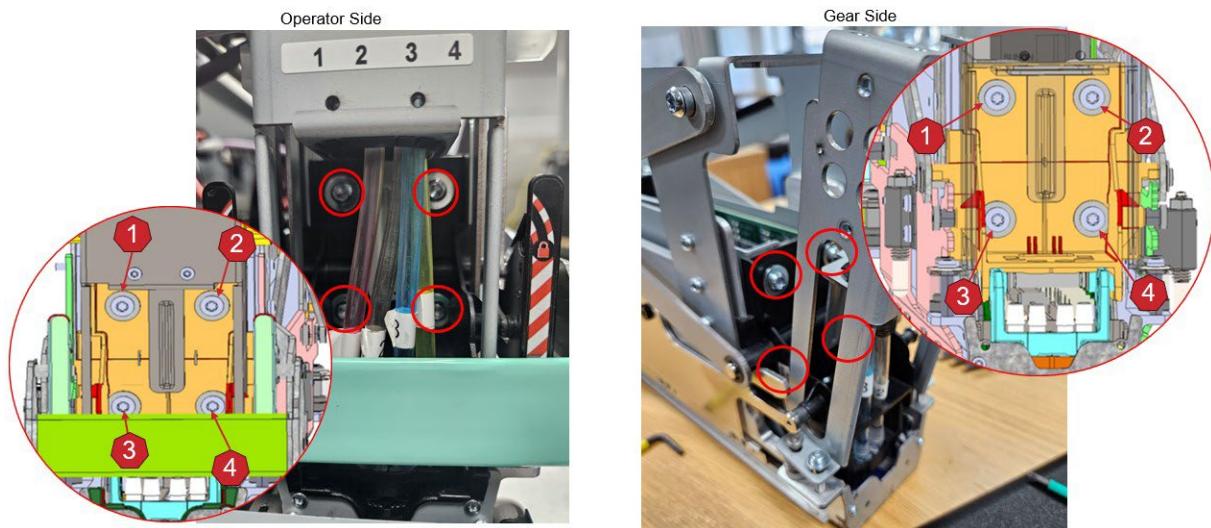
3. Using a T8 Torx driver, remove the single screws that secures the end cover on the gear side ([Figure 33](#)):

Figure 33 - Gear side end cover



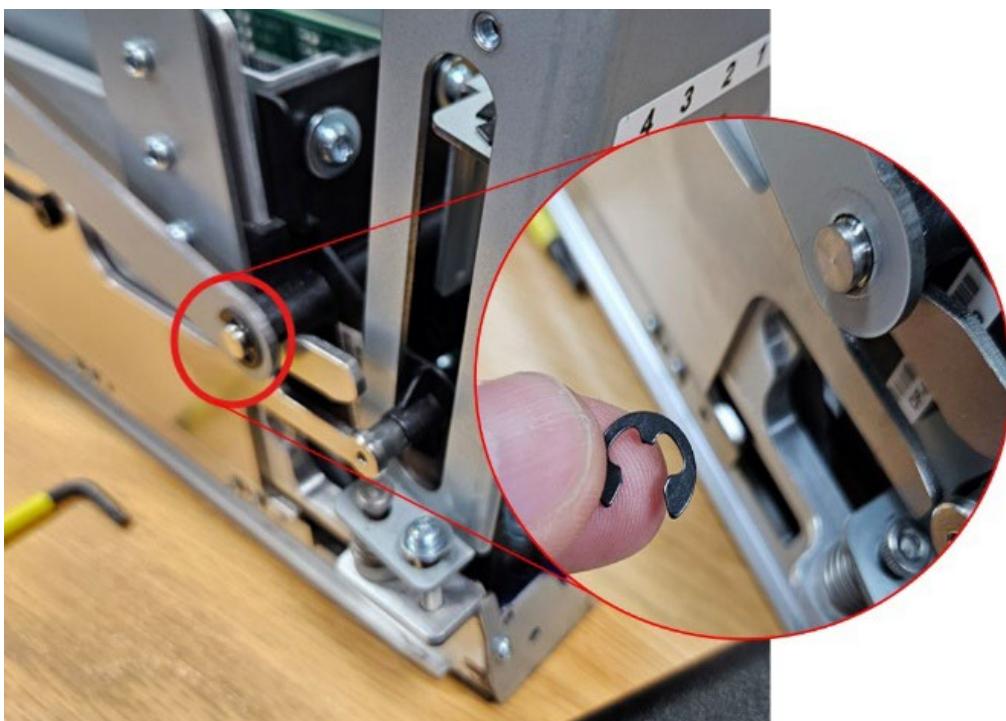
4. Using a T20 Torx Driver, remove the 8 (eight) screws holding both the operator and gear sides of the Coupling Guides ([Figure 34](#)).

Figure 34 - Coupling guide fixing screw locations

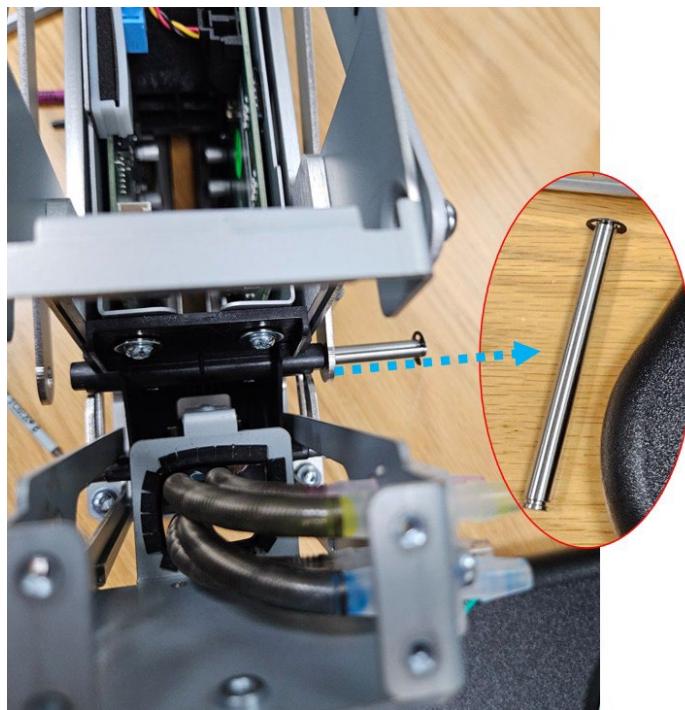


5. On the gear side lift-bracket, remove the front circlip ([Figure 35](#)):

Figure 35 - Shaft circlip

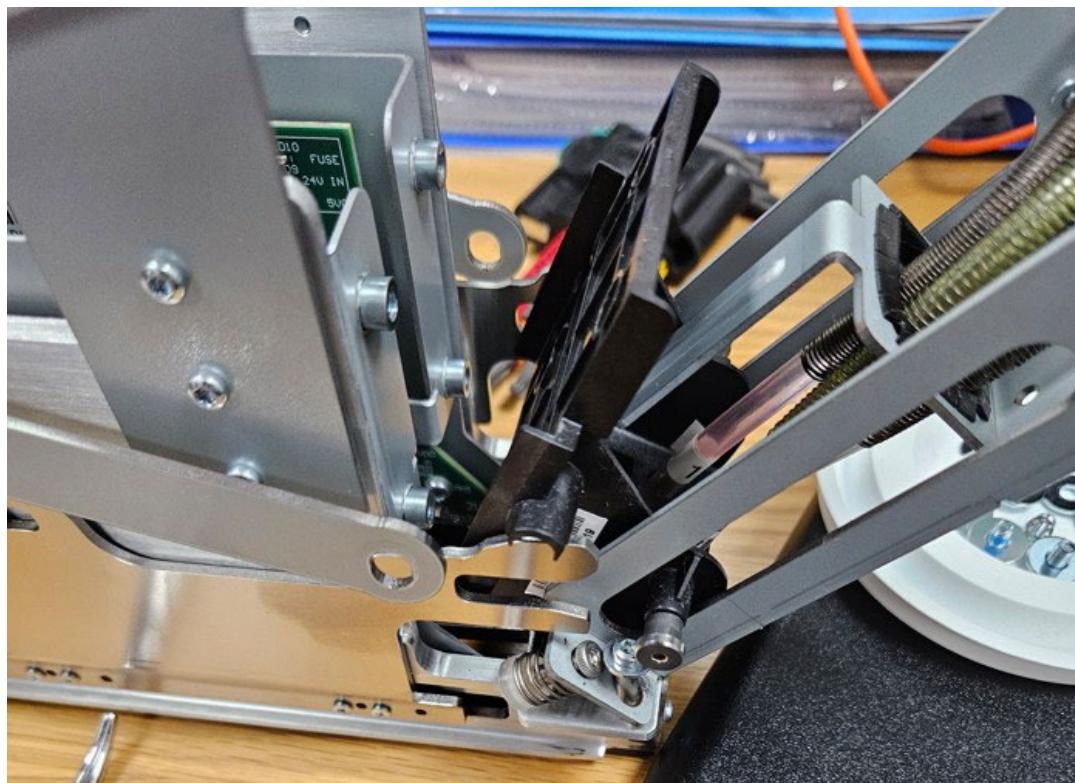


6. Slide the shaft out of the coupling guide and place to one side ([Figure 36](#)).

Figure 36 - Coupling guide shaft

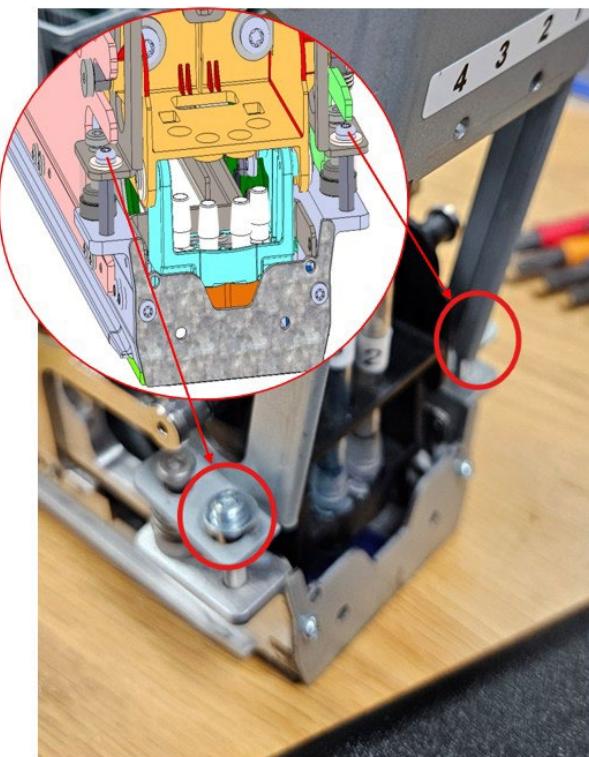
- This will allow the gear side Coupling Guide to hinge outwards ([Figure 37](#)).

Note: There is no need to remove the circlip from opposite end of the shaft.

Figure 37 - Gear side Coupling Guide fully released

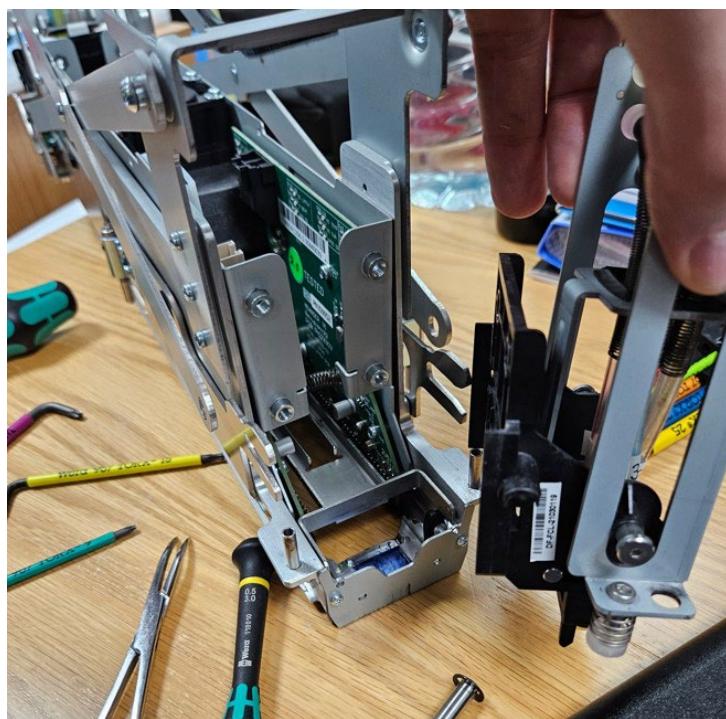
7. Using a T10 Torx driver, remove the two (2) screws that secure the Lift Bracket the gear side ([Figure 38](#)).

Figure 38 - Coupling Guide detached



- Ensure the screws are kept in a safe location.
- Removing the 2 screws will free the lift bracket from the nest ([Figure 39](#)).

Figure 39 - Lift Bracket securing screws



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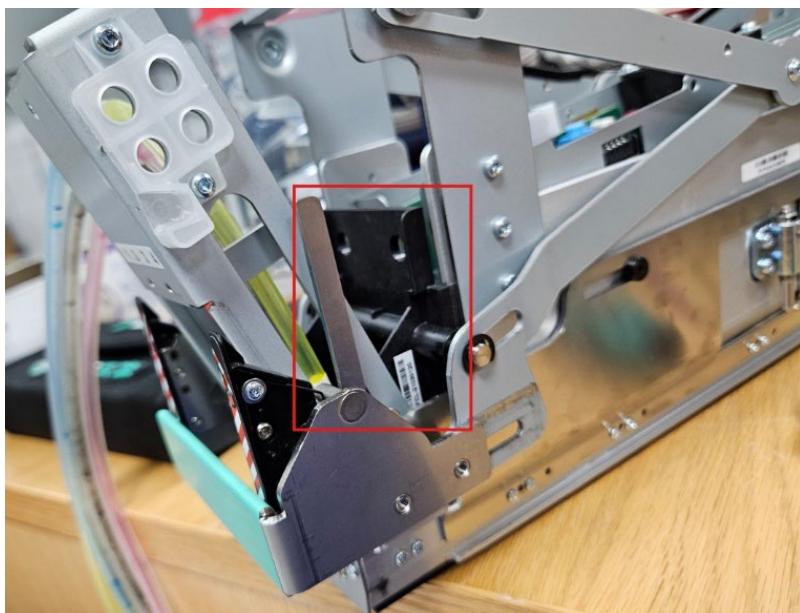
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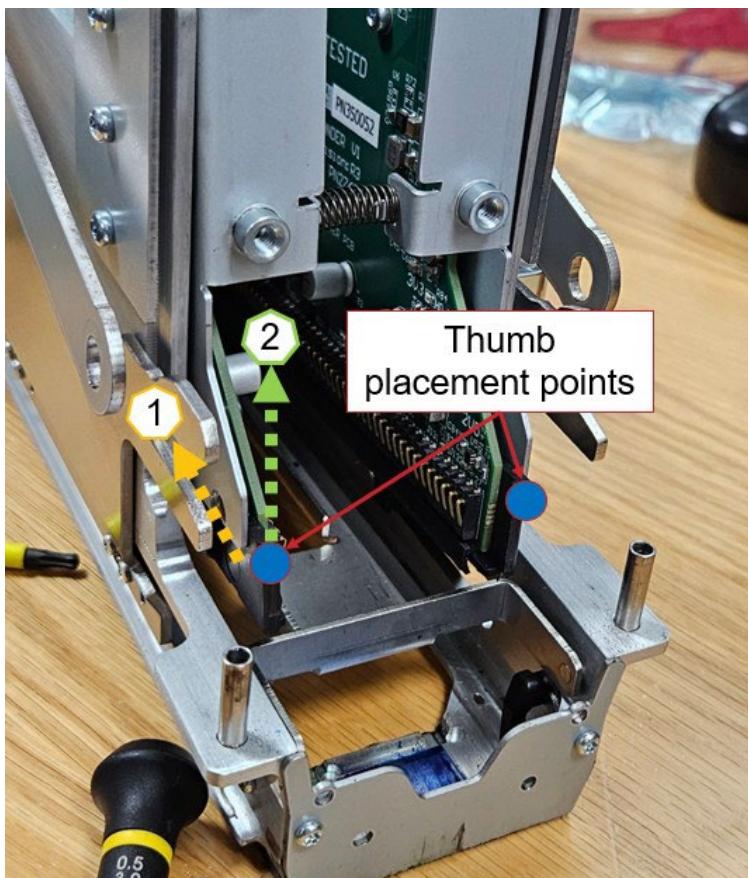
8. With the gear side Guide Coupling removed, ensure the Operator side is loosened from the meander board back planes. You should be able to hinge outwards by approx. 7mm ([Figure 40](#)).

Figure 40 - Operator side Guide Coupling



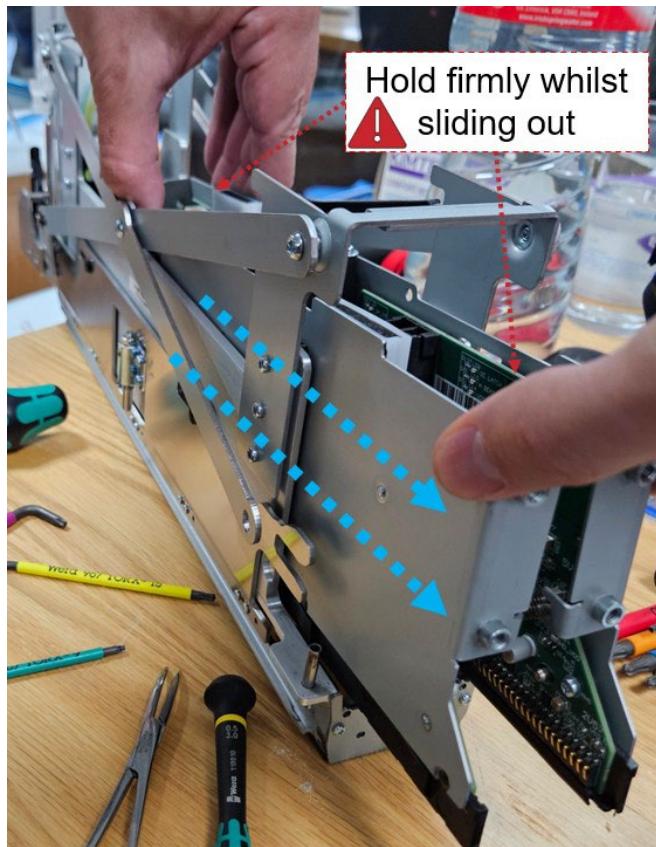
9. From the gear side, push in (#1), then up (#2) in one single motion to release the Meander sandwich from the nest frame ([Figure 41](#)).

Figure 41 - Meander thumb placement & release motion



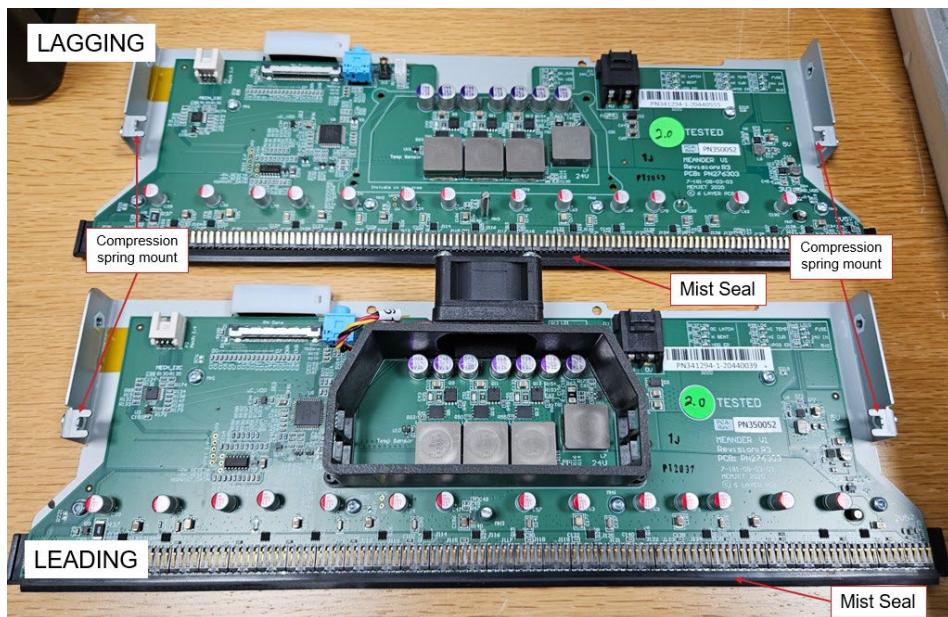
10. With the Meander sandwich release from the nest, slide out from the cradle ensuring a firm grasp ([Figure 42](#)) of either end to avoid losing the compression springs ([Figure 44](#)).

Figure 42 - Sliding out Meander sandwich



11. Using a clear and clean table, lay the 2 Meander boards (sandwich) down and separate. This will cause the compression springs to fall from their positions. Placing the boards in a face up arrangement will provide optimal access for removal ([Figure 43](#)).

Figure 43 – Arranged Meander PCA boards



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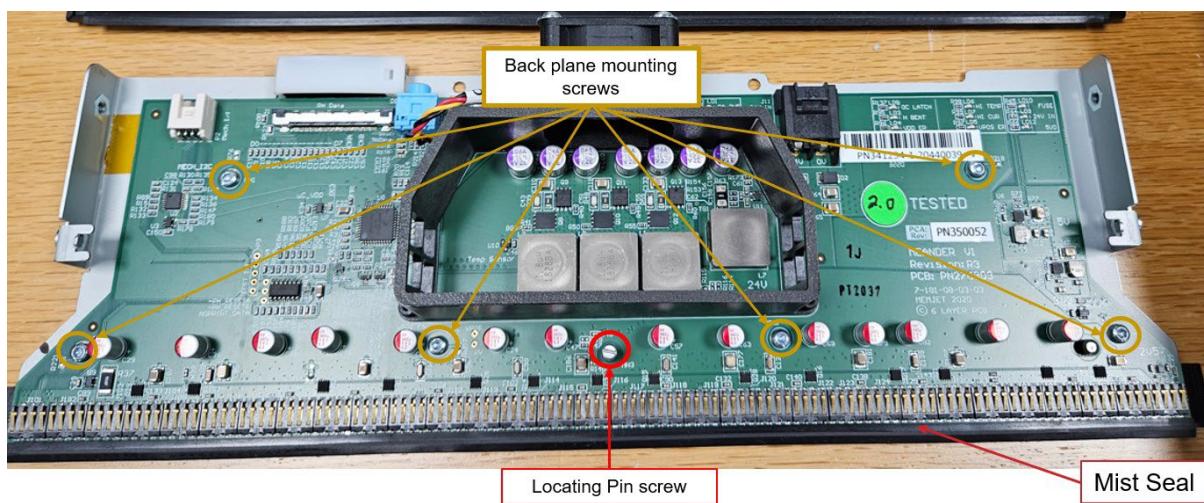
Figure 44 - Compression springs

Note: These compression springs are **critical**. Ensure they are kept safe.

6.3 LEADING Meander replacement

1. Visually Inspect the Printhead Cradle to verify there is no damage to it and clean off any excess ink deposits.
2. Using a flat blade screwdriver, carefully remove the 'Locating Pin screw' circled in **RED** in [Figure 45](#).
3. Using the T8 Torx driver, carefully remove the six (6) 'mounting screws' circled in **ORANGE** in [Figure 45](#).

Note: It is **critical** to keep these screws safe. They are crucial upon re-assembly.

Figure 45 – Meander Board Fixings

4. With the screw removed tilt the Meander board up from the FAN side first ([Figure 46](#))

Figure 46 - Removing Meander from back plane



Note: Take care upon removal. The mist seal can stick to the Meander board pulling it from position.

5. With the PCB removed, inspect mist seal for any damage and replace if required ([Figure 47](#)).

Figure 47 - Mist seal fitted



Note: The mist seal does NOT use any adhesive to stay in position. This is kept in position by the meander PCB when secured into position.



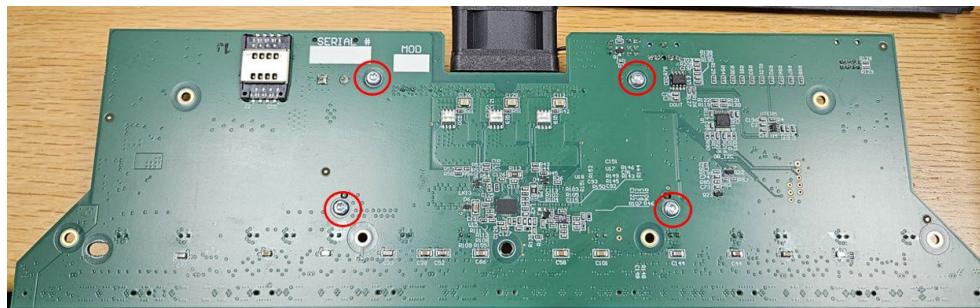
- Disconnect the Fan power cable from the FAN port on the PCB ([Figure 48](#)).

Figure 48 - Fan Power cable



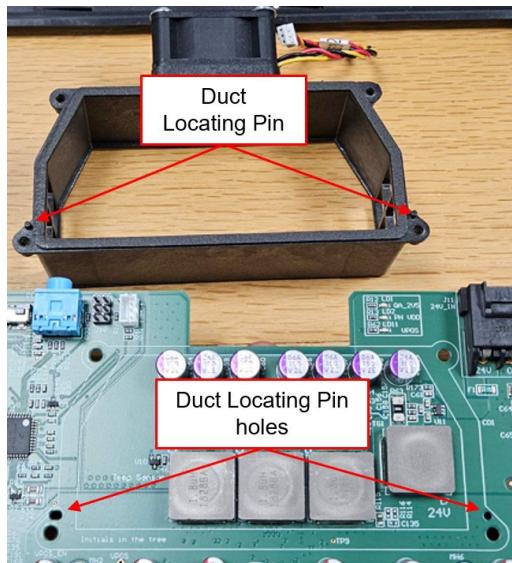
- To remove the PCB ventilation duct, turn the LEADING Meander board over and remove the four (4) T8 screws and place to one side ([Figure 49](#)).

Figure 49 - PCB Ventilation Duct screws



- Discard the damaged Meander PCB in accordance with local disposal regulations.
- Remove the replacement PCB from the box and mount the PCB ventilation duct ensuring the duct locating pins are aligned **BEFORE** inserting the four (4) T8 screws ([Figure 50](#)). Torque to ~3kgf.cm.

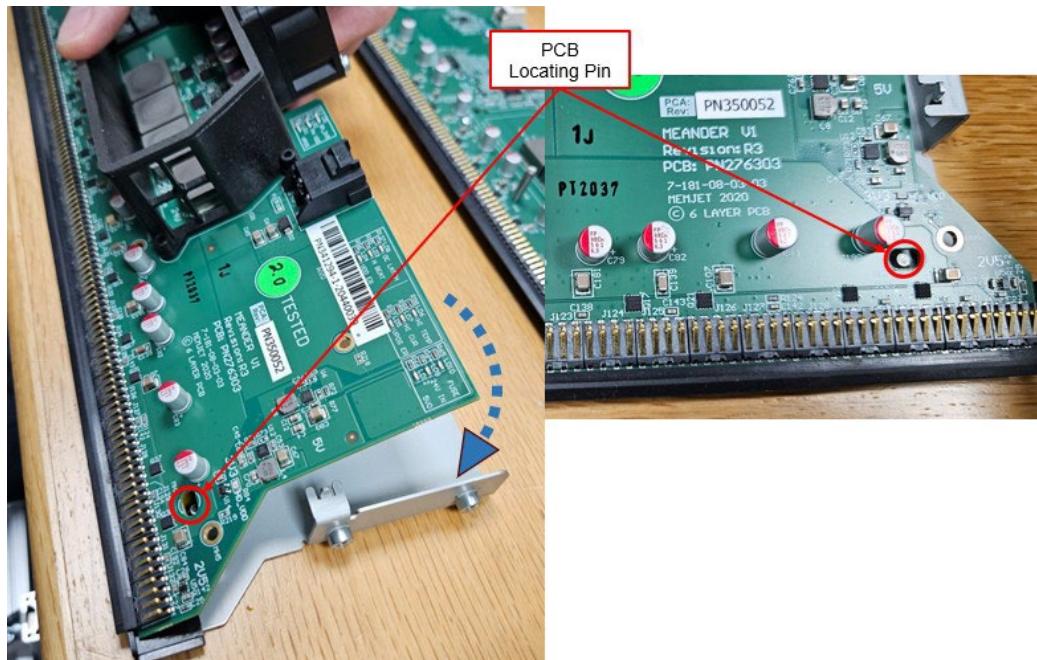
Figure 50 - Ventilation Duct locating pins



Note: When affixing the T8 screws, ensure you do NOT overtighten. Doing so will cause the PCB to bend.

10. Attach the duct to the FAN port on the new PCB ([Figure 48](#)).
11. Position the Meander pin array first into the PCB back plane and push into the mist seal whilst simultaneously moving the down into position ensuring the PCB locating pin is in the moves into the guide hole ([Figure 51](#)).

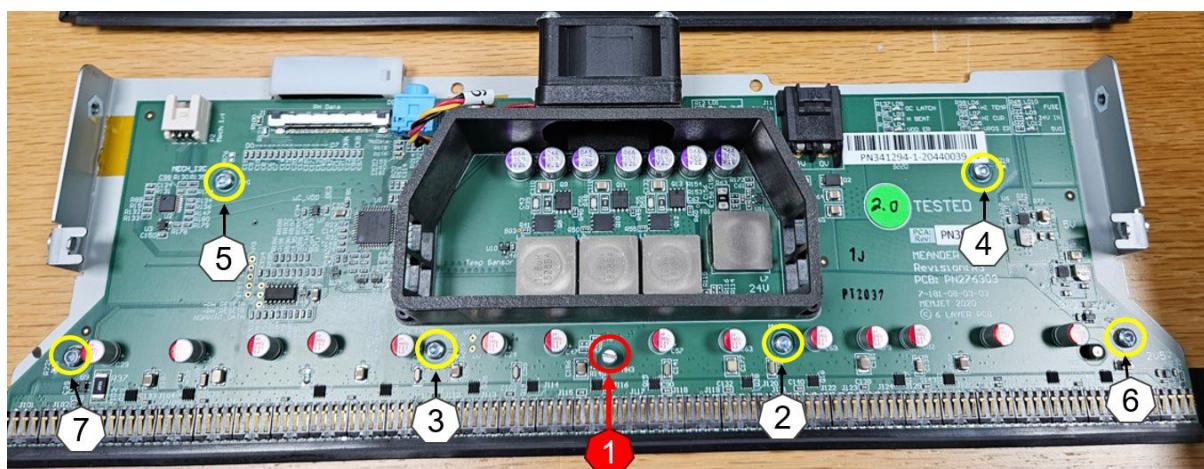
Figure 51 - Meander Location pin hole



12. Once in position, and aligned to the correct holes, Ensure the screws (T8 /7 flat blade drivers) are installed in the order shown in [Figure 52](#). Apply a drop of Loctite 290 to each screw thread and torque to ~6kgf.cm.

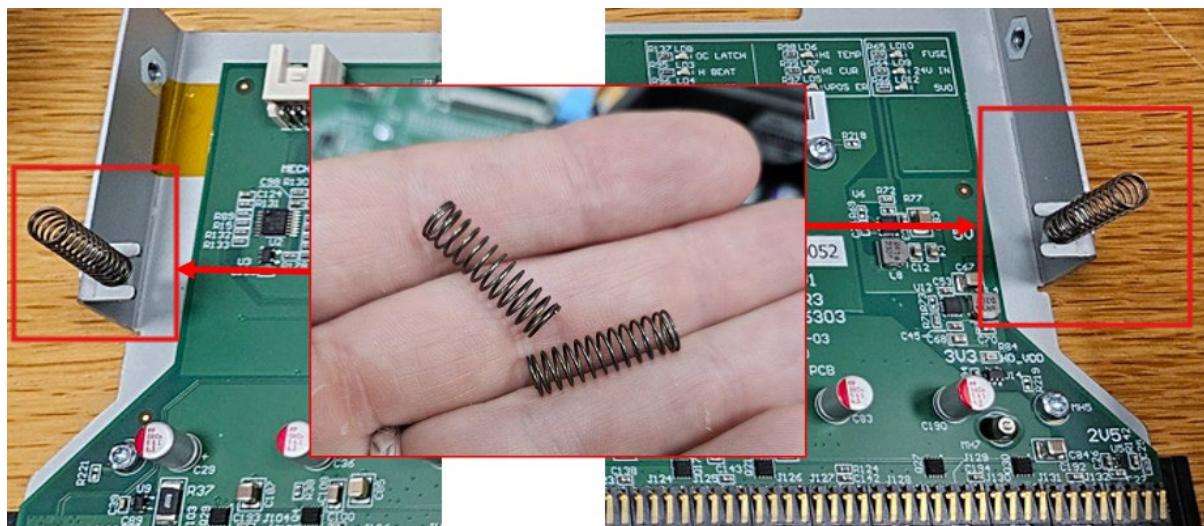
Note: It is **CRITICAL** the locating pin (#1 in [Figure 52](#)) is installed first. Ensure the screws are secured from the midpoint outwards as numbered.

Figure 52 - Meander securing screw order



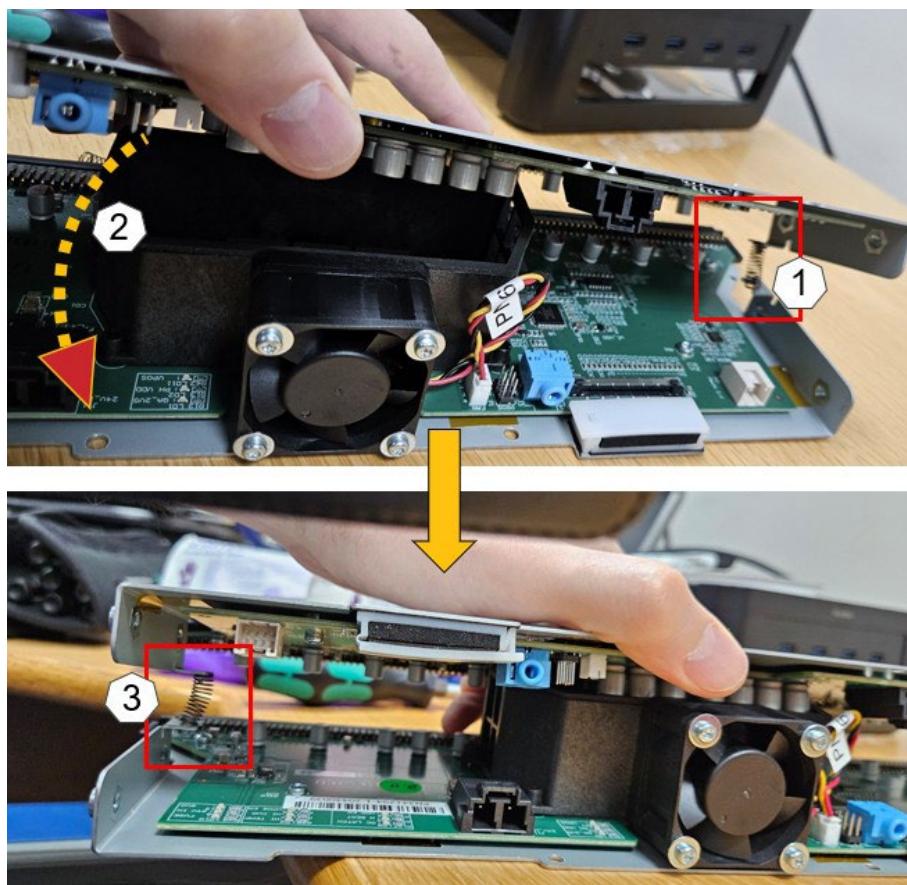
13. Place the compression springs on the respective mounts on the LEADING mounting plane ([Figure 53](#)).

Figure 53 - Compression spring mounted



14. Once in position, lay the LAGGING meander board over the top ensuring the compression mount meets the spring correctly, then the central components into the cooling duct via a swing action ([Figure 54](#)). Apply consistent and firm grasp.

Figure 54 - LAGGING Meander mounting



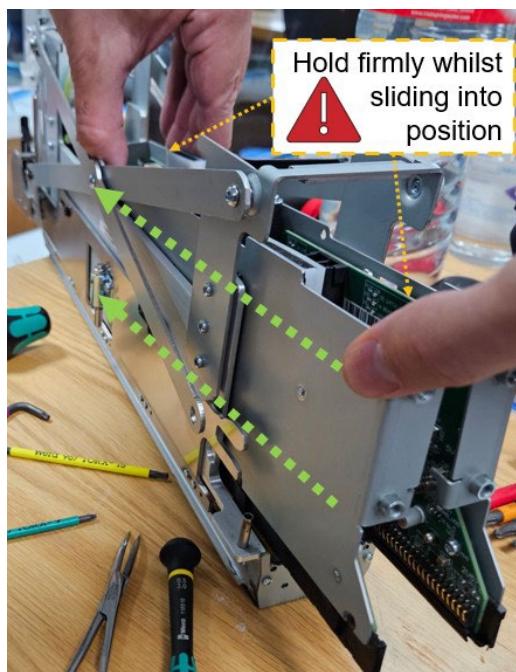
15. With the two Meander boards in a sandwich position, flip the sandwich upright, ensuring the boards are kept in position whilst maintaining a firm grasp and keeping the compression springs in position ([Figure 55](#)).

Figure 55 - Meander sandwich grasp example



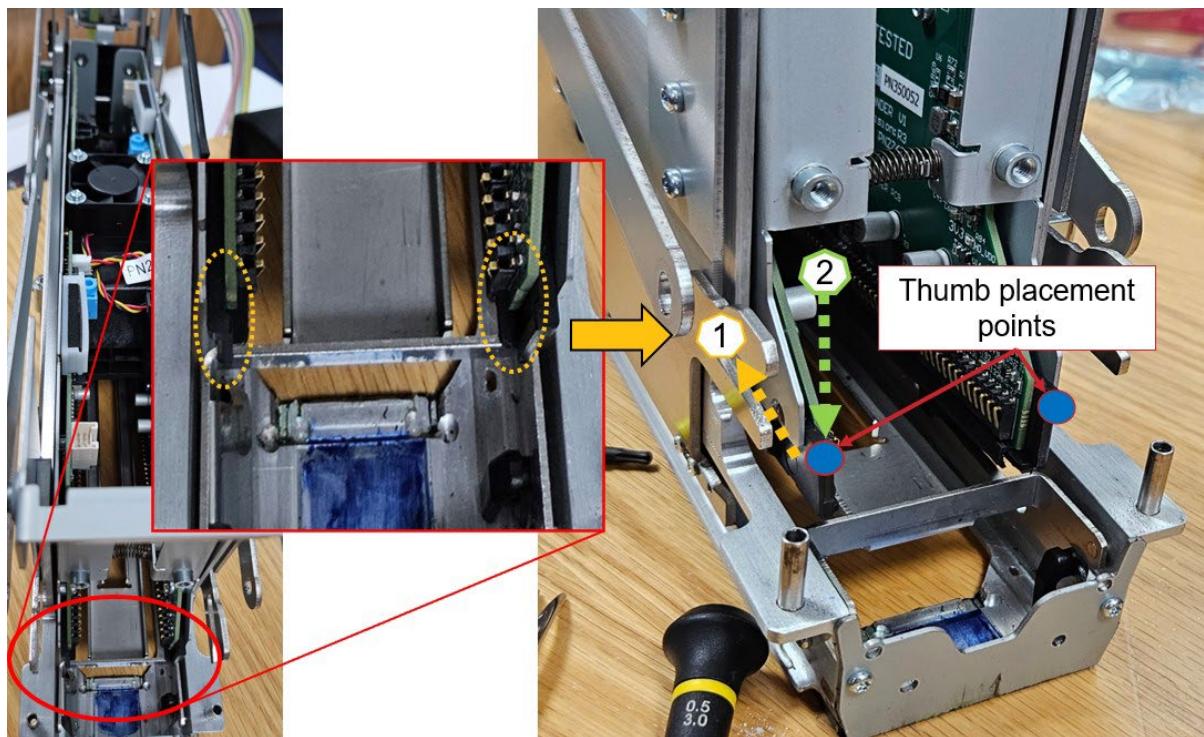
16. Slide the assembled back into the cradle in the reverse method as described in [Section 6.2](#) ensuring consistent and firm pressure keeps the boards in position as you slide into position ([Figure 56](#)).

Figure 56 - Sliding meander sandwich into position



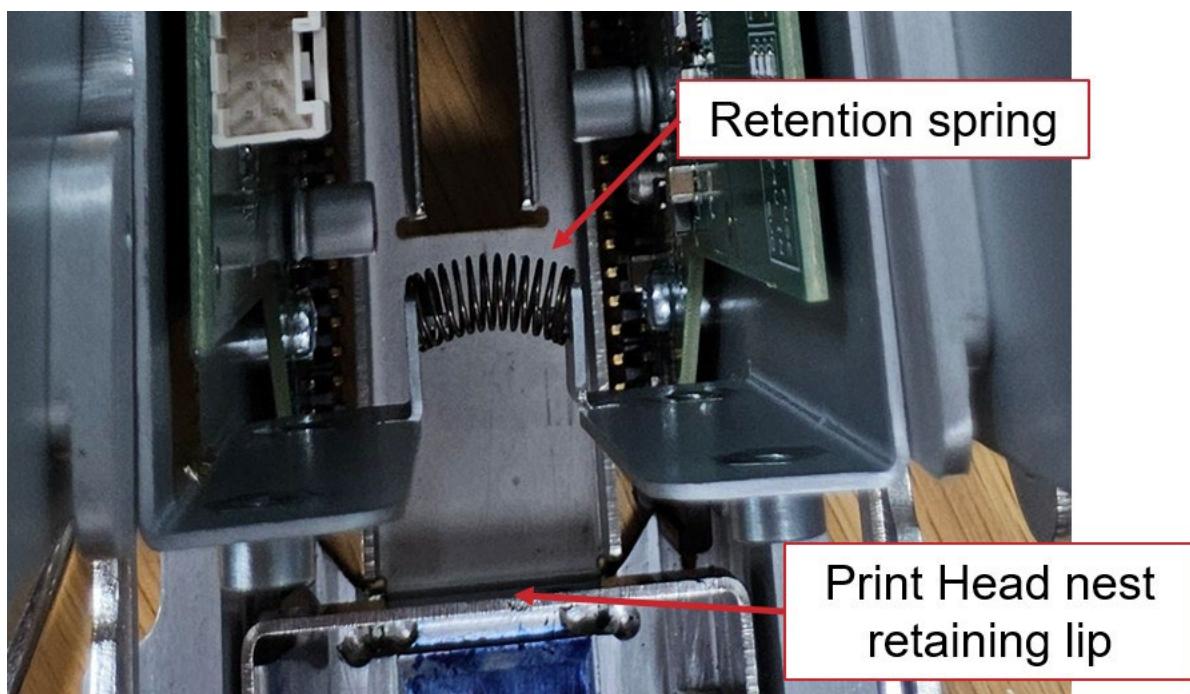
17. When inserted in place, put your thumbs on the 2 meander boards 'winged edges' and push inwards and downwards simultaneously to push the meander boards into the nest ([Figure 57](#)).

Figure 57 - Push Meander sandwich into the print head nest



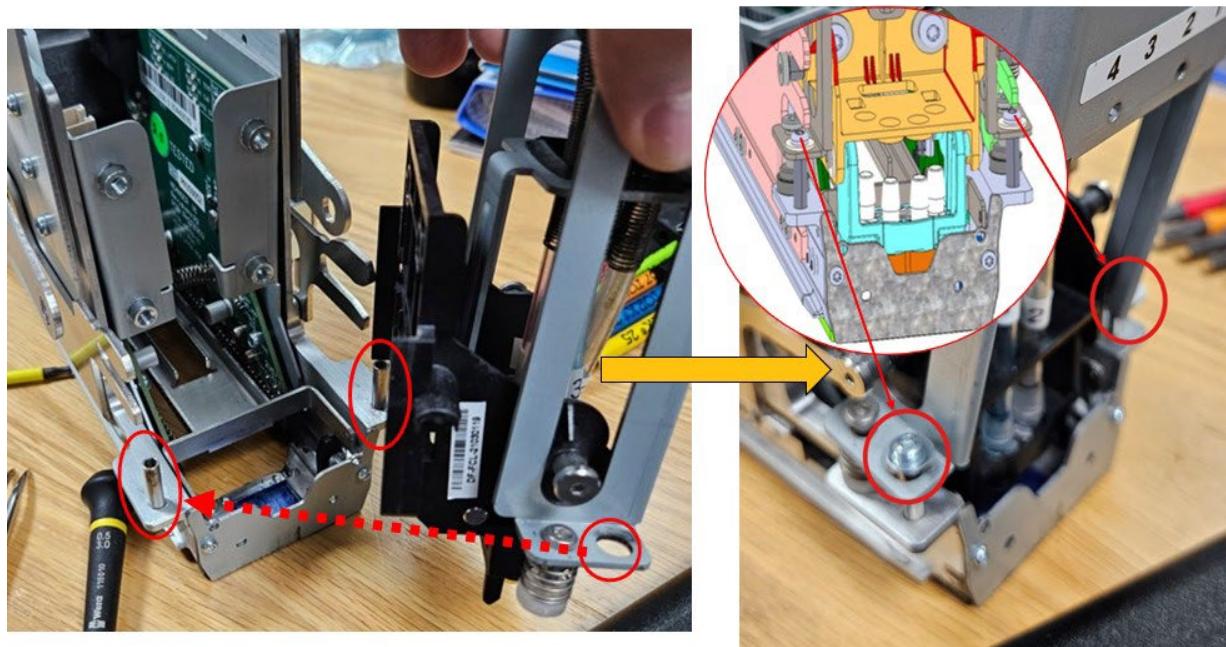
18. Once the Meanders are pushed into the nest, check the retention springs are in the correct position ([Figure 58](#)).

Figure 58 - Retention Spring positioning



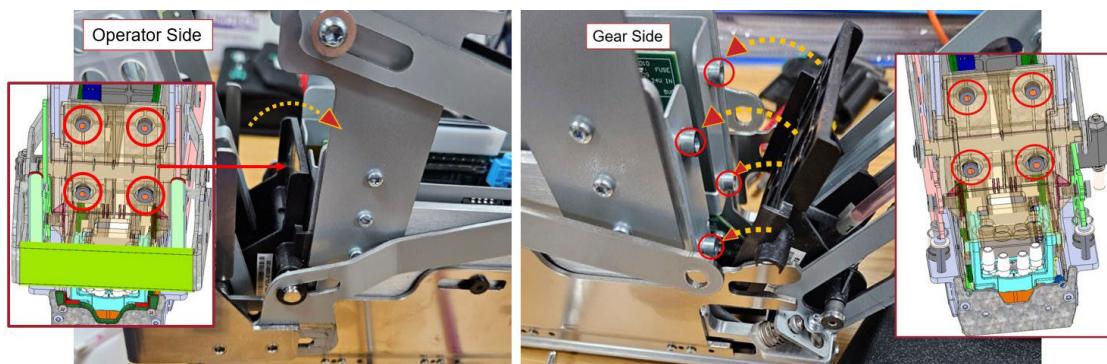
19. Re-install The Lift bracket (With coupling guide attached) and screws using a T10 Torx driver ([Figure 59](#)). Ensure to apply a little Loctite 290 thread lock to the screw threads and torque to ~6kgf.cm.

Figure 59 - Coupling Guide re-fitted



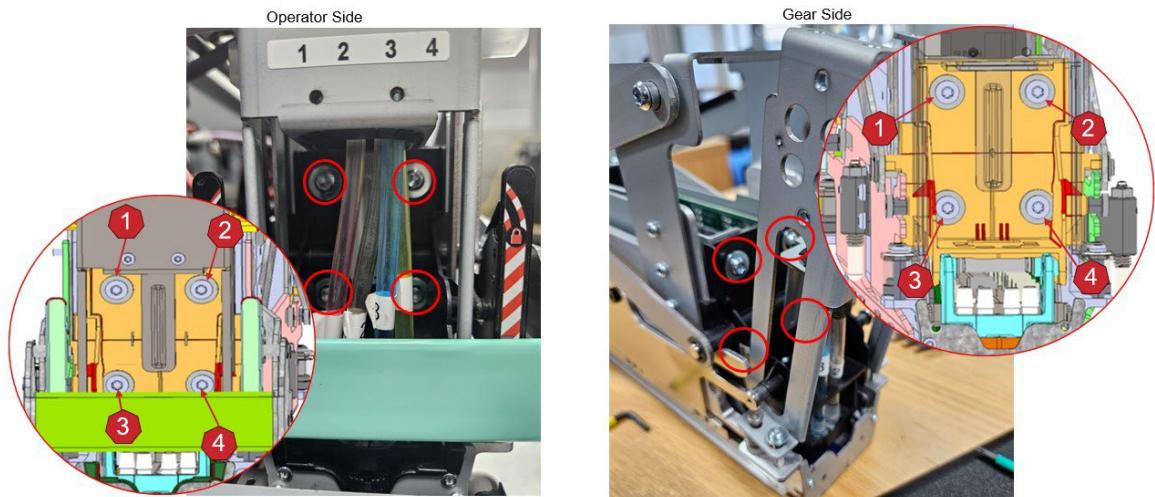
20. Leaver both (Operator & Gear side) guide couplings and couple to the Meander PCB back plane ([Figure 60](#)).

Figure 60 - Guide Coupling connections

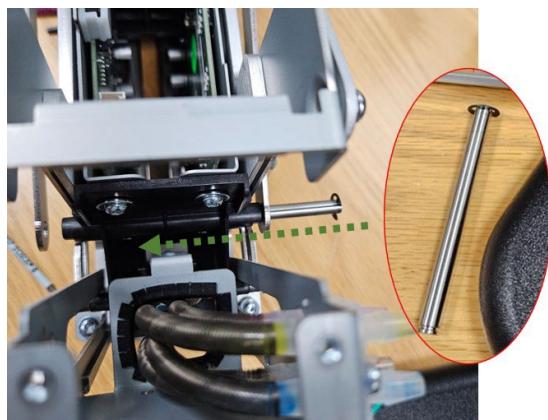


21. Using a T20 Torx Driver, fit the 8 (eight) screws holding both the operator and gear sides of the Coupling Guides to the Meander PCB back plane ([Figure 61](#)). Ensure to add a drop of Loctite 290 thread lock to the threads of the screws and torque to ~6kgf.cm.

Note: It is recommended not fully tighten the screws until all screws are in the corresponding position. Only once in position, torque up the 8 (eight) screws.

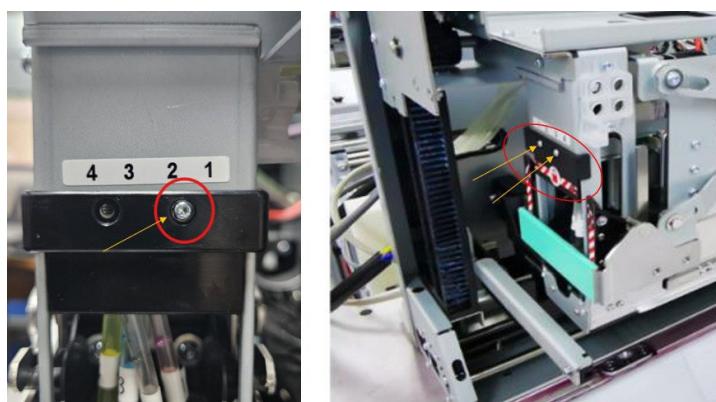
Figure 61 - Coupling guide fixing screw locations

22. Re-insert the Gear side coupling guide shaft ([Figure 62](#)).

Figure 62 - Coupling Guide Shaft insertion

23. Re-fit the Gear Side Coupling Guide shaft circlip ([Figure 35](#)).

24. Re-fit the End covers on both Operator side and Gear side. Using a T8 Torx driver, fit the securing screws ([Figure 63](#)) and torque to ~2kgf.cm.

Figure 63 - End Covers

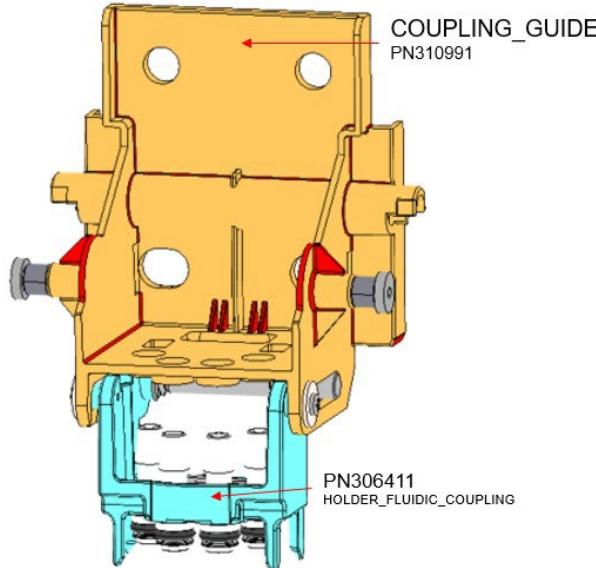
Note: Before installing the cradle (Section #[8 Printhead Cradle Assembly Installation](#)), perform a visual inspection of the cradle to ensure everything is assembled correctly.



7 Printhead Cradle Guide Coupling replacement

This section provides best practices on the dis-assembly and reassembly of the **Gear Side Coupling** ([Figure 64](#)). Read the instructions carefully before attempting this procedure.

Figure 64 – Coupling Guide assembly



7.1 Personal Protective Equipment (PPE)

CAUTION: To avoid injury, always use appropriate PPE when performing maintenance and replacement tasks. See Section [2.3 Personal Protective Equipment \(PPE\)](#) for details.

7.2 Required Tools and Supplies

Gather the items in the table before beginning this procedure.

Table 5 - Required Tools and Supplies

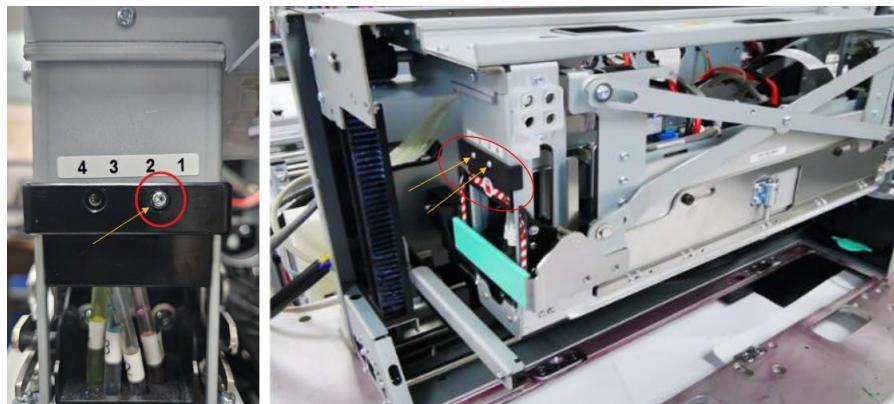
Description	Quantity	Type
Safety glasses	1 pair	PPE
Powder-free, nitrile gloves	As needed	Supply
Lint-free cloth	As needed	Supply
Tubing (Saint Gobain Versilon 2001 AE300007 1/8" ID)	~1400mm	Supply
Glycerol or LEG-1 for use as lubricant to easily connect tubing	100mL	Supply
Loctite 290 thread lock	10mL	Supply
Krytox Grease	mL	Supply
T6, T10 & T20 – M3 Torx driver, (with ~200 mm extension)	1	Tool
2mm Allen/Hex driver suitable for M3 socket head screws	1	Tool
Snipe nosed pliers	1	Tool
Tubing cutter	1	Tool
Flat-blade or slotted screwdriver (3/16")	1	Tool
TP2 – Crossed/Star/Philips screwdriver	1	Tool
Torque Driver (Calibrated) – 2 to 6kgf.cm range	1	Tool



7.3 Gear Side Coupling Guide

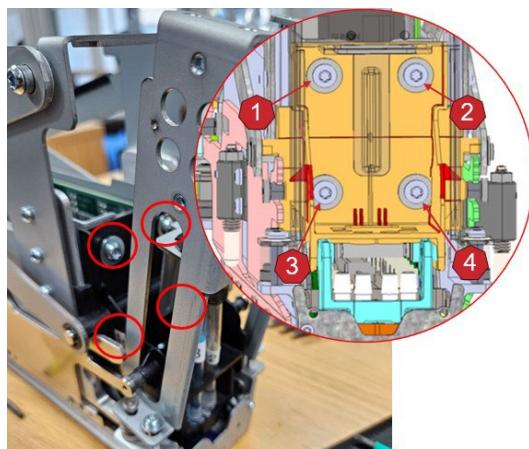
1. Using a T8 Torx driver, remove the screws that secures the Guide indicator on the green handle side and the gear side ([Figure 65](#)).

Figure 65 - Coupling covers



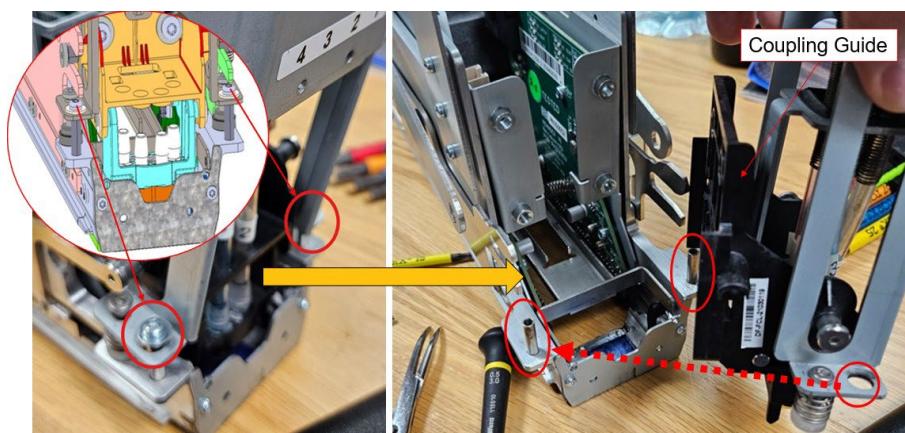
2. Using a T20 Torx Driver, remove the 4 (four) screws holding the gear side of the Coupling Guide to the Meander Back plane ([Figure 66](#)).

Figure 66 - Coupling secure screws



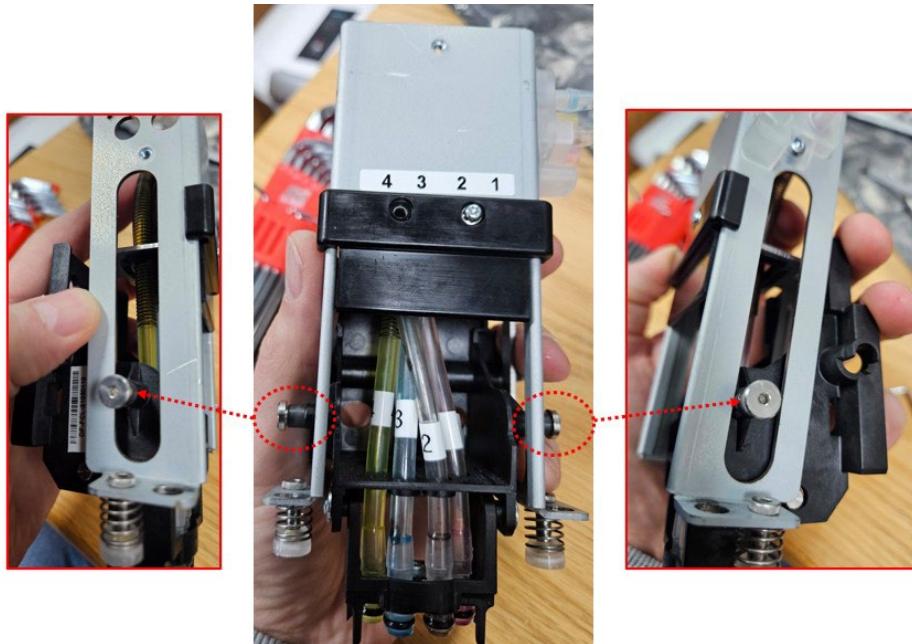
3. Using a T10 Torx driver, remove the two (2) screws that secure the Lift Bracket the gear side ([Figure 67](#)).

Figure 67 - Lift bracket screws



4. Using a 2mm hex key, remove the two (2) Coupling Guide shoulder bolts ([Figure 68](#)).

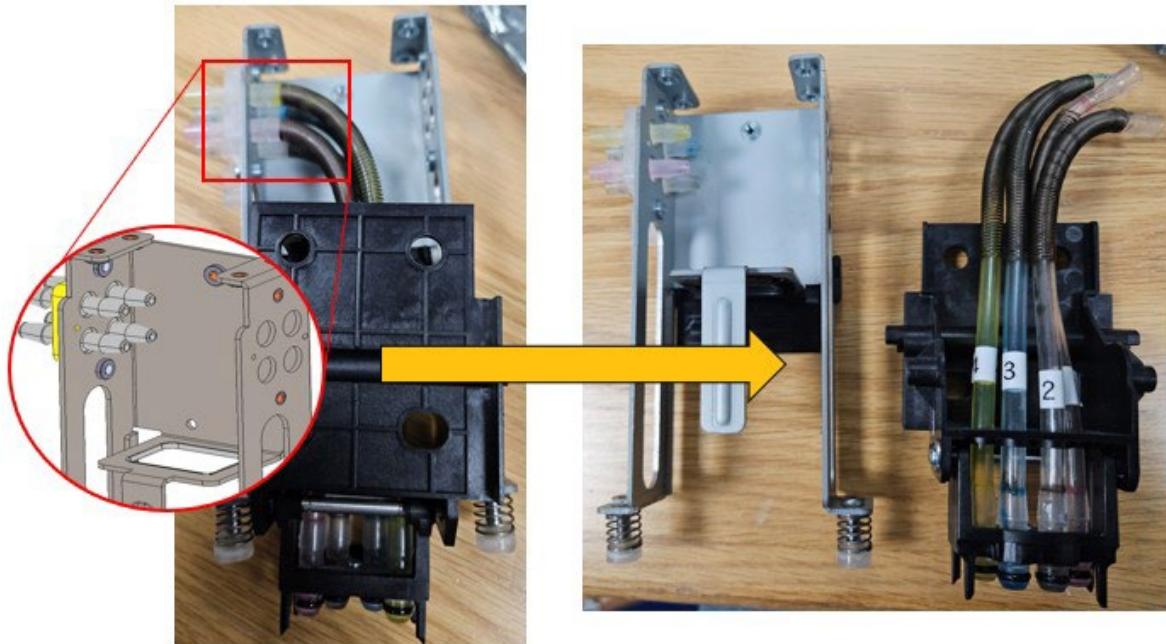
Figure 68 - Coupling Guide shoulder bolts



5. Disconnect the four (4) fluidic tubes from the barbed connectors ([Figure 69](#)).

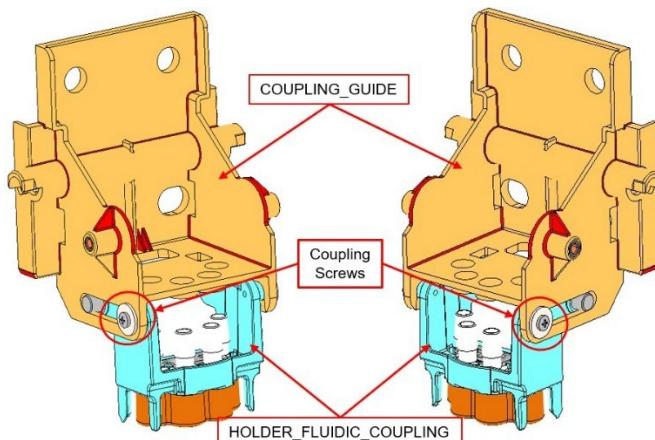
Note: Ensure the removal does not damage the barbed fittings. The tubing will likely need to be replaced. Take care not to damage the tubing support sleeves.

Figure 69 - Disconnected fluidic tubes

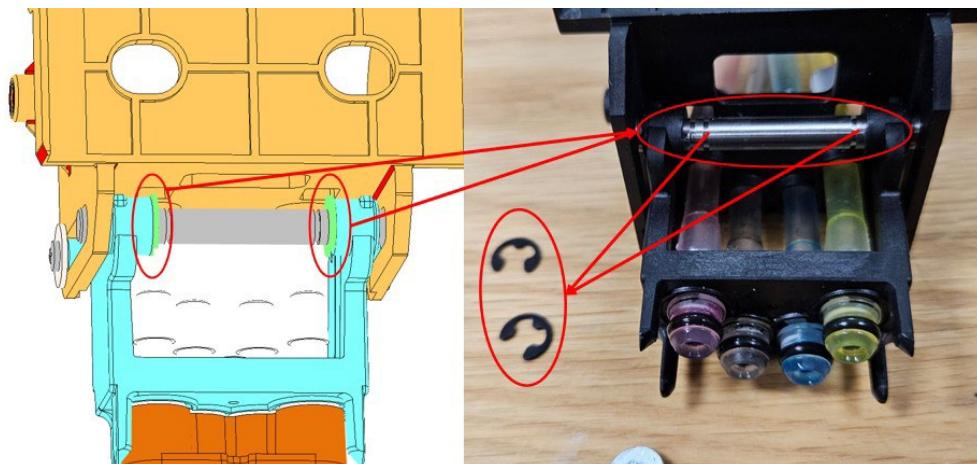


6. Using the TP2 – Crossed/Star/Philips screwdriver, remove the two (2) Fluidic Coupling retaining screws. Ensure you do not lose the washers ([Figure 70](#)). Remove the tubing support sleeves from the tubing.



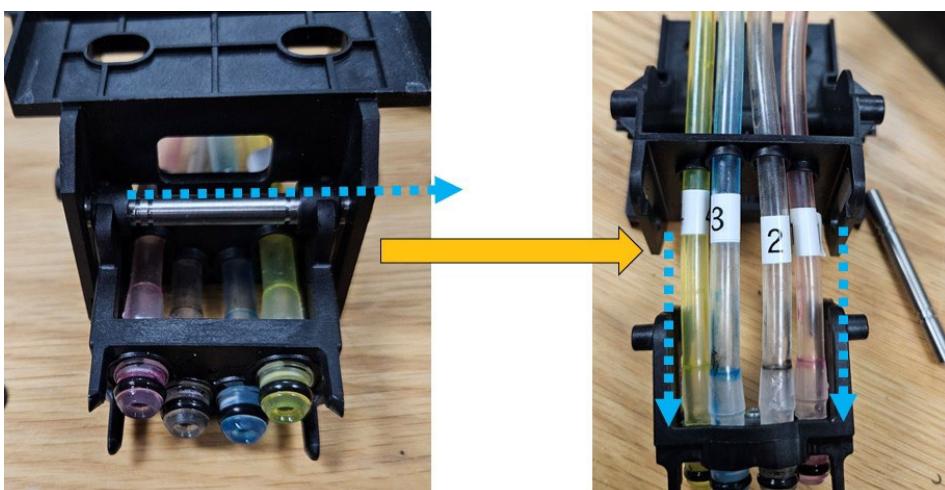
Figure 70 - Fluidic Coupling retaining screws

7. Using snipe nose pliers, remove the two (2) circlips from the coupling shaft ([Figure 71](#)).

Figure 71 - Coupling shaft circlips

8. With the circlips removed, slide out the shaft and remove the Fluidic coupling from the Coupling Guide, pulling through the tube guide holes ([Figure 72](#)).

Note: Make a note of the location of the tubes. Ensure they are not crossed.

Figure 72 - Fluidic Coupling removal

9. If required, remove the tubing from the printhead coupling barbed connection. Take great care **NOT** to damage the barbed fitting.

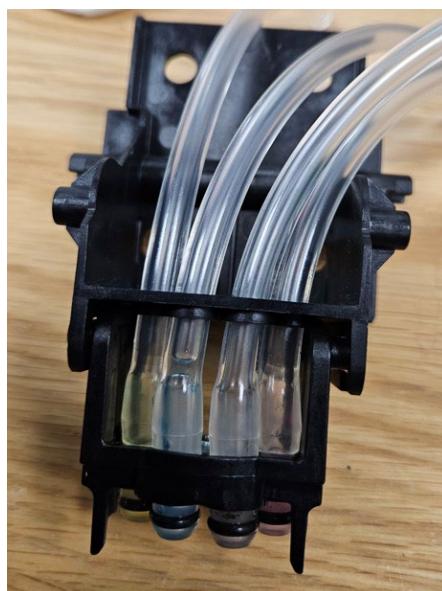
Caution: Take great care **NOT** to damage the coupling barbed fittings. These are **NOT** currently available as a replacement at the time of writing this document.

10. Discard the damaged Coupling Guide in accordance with local disposal regulations.
11. Prepare four (4) lengths of Versilon tubing approximately **150mm in length**.
12. Use the Glycerol or LEG-1 to lubricate the barbed fittings and connect the replacement fluidic tubing to the barbed coupling fittings

Note: It is important to lubricate the barbed coupling fittings before attempting to fit the replacement tubing.

13. With the new tubes fitted, feed them through the tube guide holes in the new coupling ([Figure 73](#)) and bring the coupling into the correct position within the Guide Coupling.

Figure 73 - New tube fed through coupling guide holes



14. Turn the coupling guide over and slide the fluidic coupling shaft back into position ([Figure 74](#)).

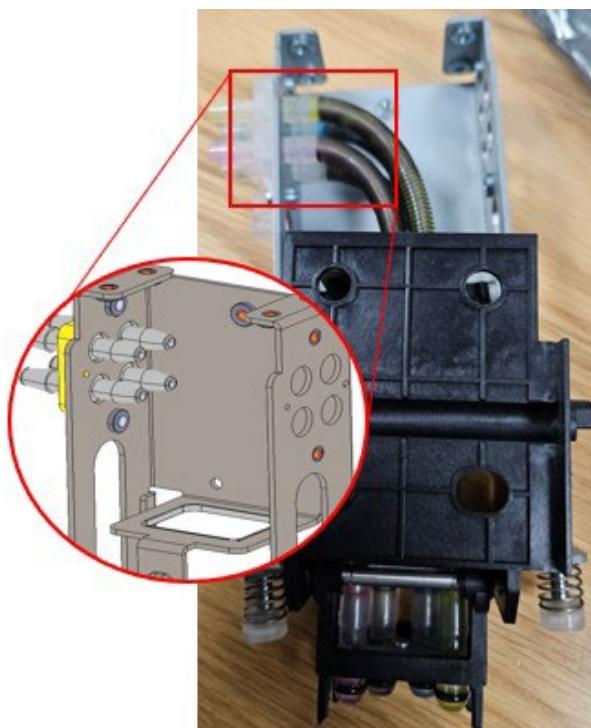
Figure 74 - Coupling Guide Shaft



15. Using the snipe nosed pliers, fit the circlips on the further outer slots of the shaft ([Figure 71 - Coupling shaft circlips](#)).
16. Using the TP2 – Crossed/Star/Philips screwdriver, re-fit the coupling securing screws with washers and tighten to $\sim 3\text{kgf.cm}$ ([Figure 70 - Fluidic Coupling retaining screws](#)).
17. Fit the tubing support sleeves over the new tubes.
18. Use the Glycerol or LEG-1 to lubricate the barbed fittings and connect the new fluidic tubing to the barbed coupling fittings ([Figure 75](#)).

Note: It is important to lubricate the barbed coupling fittings before attempting to fit the replacement tubing.

Figure 75 - Guide Coupling Barbed fluid fittings



19. Re-install The Lift bracket (With coupling guide attached) and screws using a T10 Torx driver as shown in [Figure 59 - Coupling Guide re-fitted](#) (Section #[6.3.19](#)). Ensure to apply a little Loctite 290 thread lock to the screw threads and torque to $\sim 6\text{kgf.cm}$.
20. Leave the Gear side guide coupling and couple to the Meander PCB back plane as shown in [Figure 60 - Guide Coupling connections](#) (Section# [6.3.20](#)).
21. Using a T20 Torx Driver, fit the 4 (four) screws to hold the gear side of the Coupling Guide to the Meander Back planes ([Figure 66 - Coupling secure screws](#)). Ensure to apply a little Loctite 290 thread lock to the screw threads and torque to $\sim 6\text{kgf.cm}$.
22. Re-insert the Gear side coupling guide shaft ([Figure 62 - Coupling Guide Shaft insertion](#)).
23. Re-fit the Gear Side Coupling Guide shaft circlip ([Figure 35 - Shaft circlip](#)).

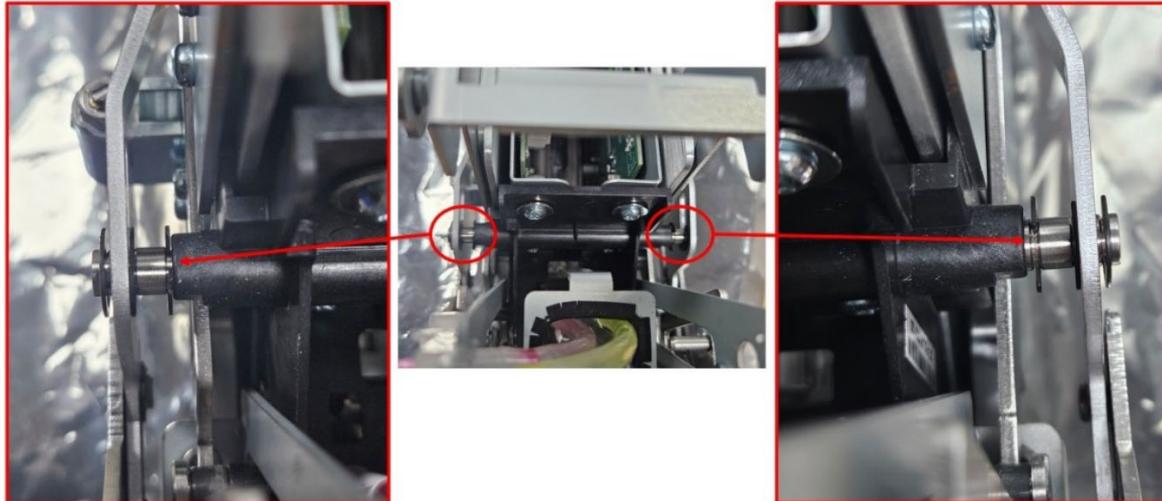
Note: Before installing the cradle (Section #[8 Printhead Cradle Assembly Installation](#)), perform a visual inspection of the cradle to ensure everything is assembled correctly.



7.4 Operator Side Coupling Guide

1. Using a T8 Torx driver, remove the screws that secures the Guide indicator on the green handle side and the gear side ([Figure 65](#)).
2. Using the snipe nosed pliers, remove the 4 circlips ([Figure 76](#)) from the coupling guide shaft and remove.

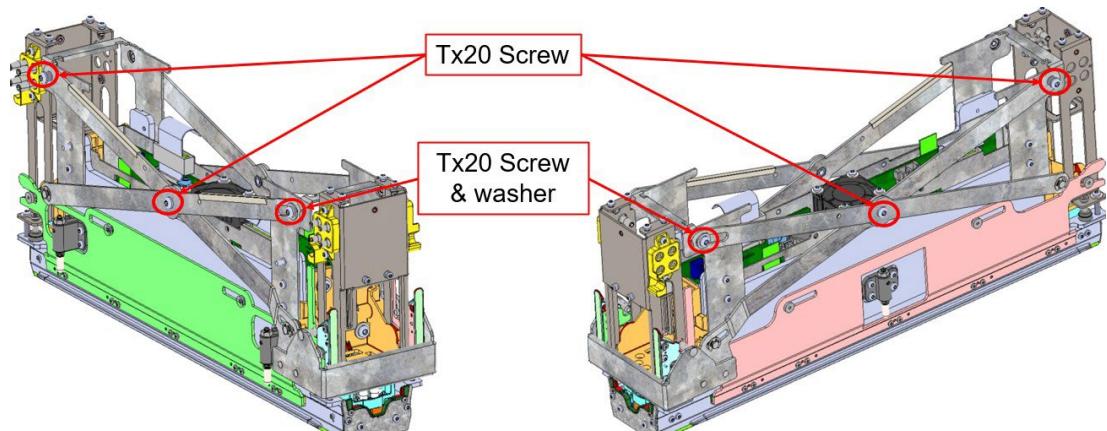
Figure 76 - Operator side coupling guide shaft circlips



3. Using a TX20 Torx driver, remove the upper scissor mechanism screws and the mid hinge screw as shown in [Figure 77](#).

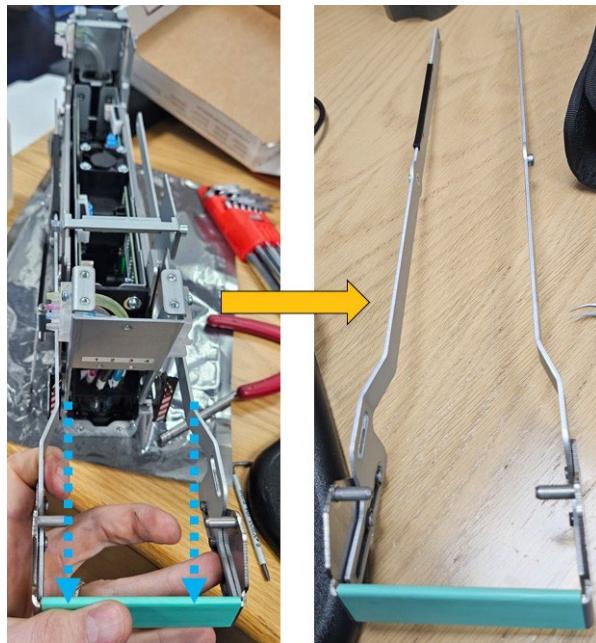
Note: Ensure the washer is kept safe and is re-used in the SAME position from which it was removed.

Figure 77 - Upper scissor screws



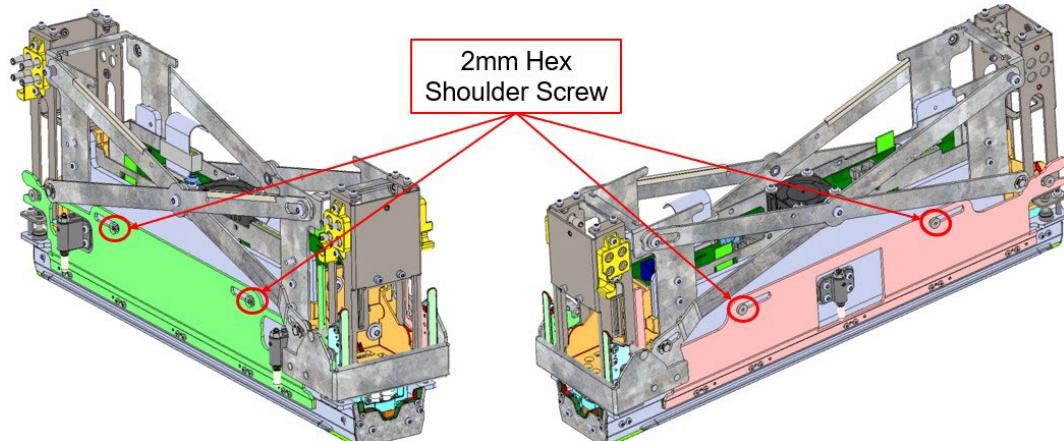
4. De-couple the scissor lift bars from the Operator side upper end and move them down to the work surface. This will provide some swing maneuverability.
5. Decouple the Gear side upper scissor lift bar and pull the green handle out to remove ([Figure 78](#)).



Figure 78 - Green locking handle removal

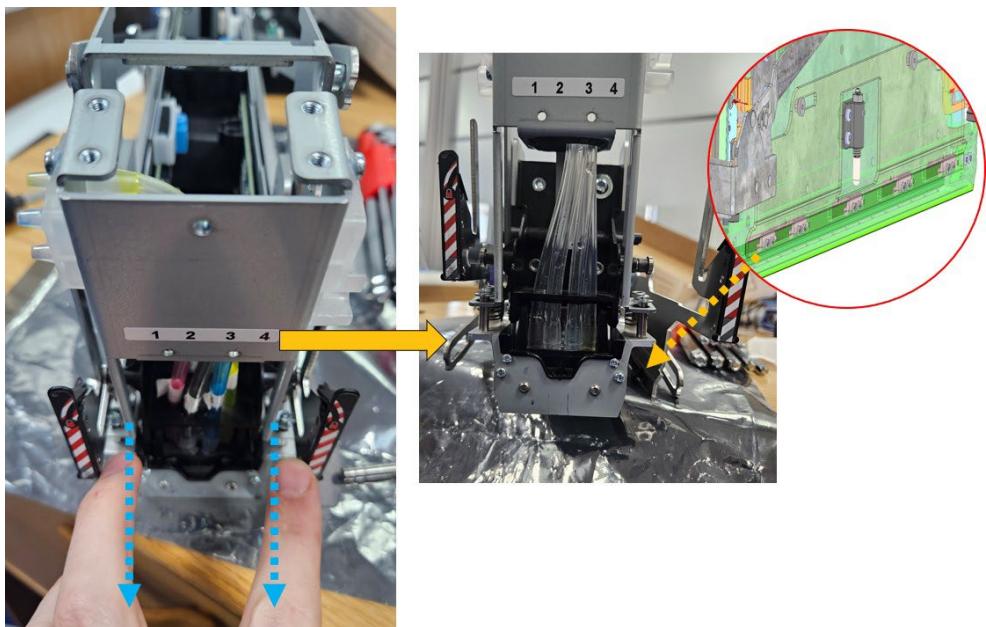
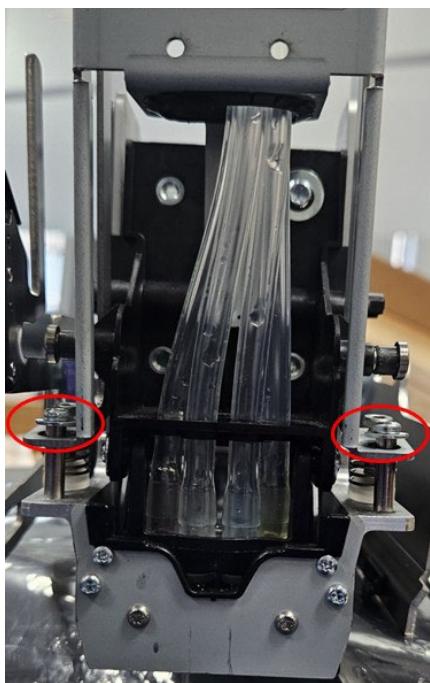
6. Using a 2mm hex key/Allen key, remove the 4 (four) slide shoulder bolt screws ([Figure 79](#)). This will provide accessibility

Note: Ensure these are kept safe. These are NOT currently available as a replacement at the time of writing this document.

Figure 79 - Slide mechanism shoulder screws

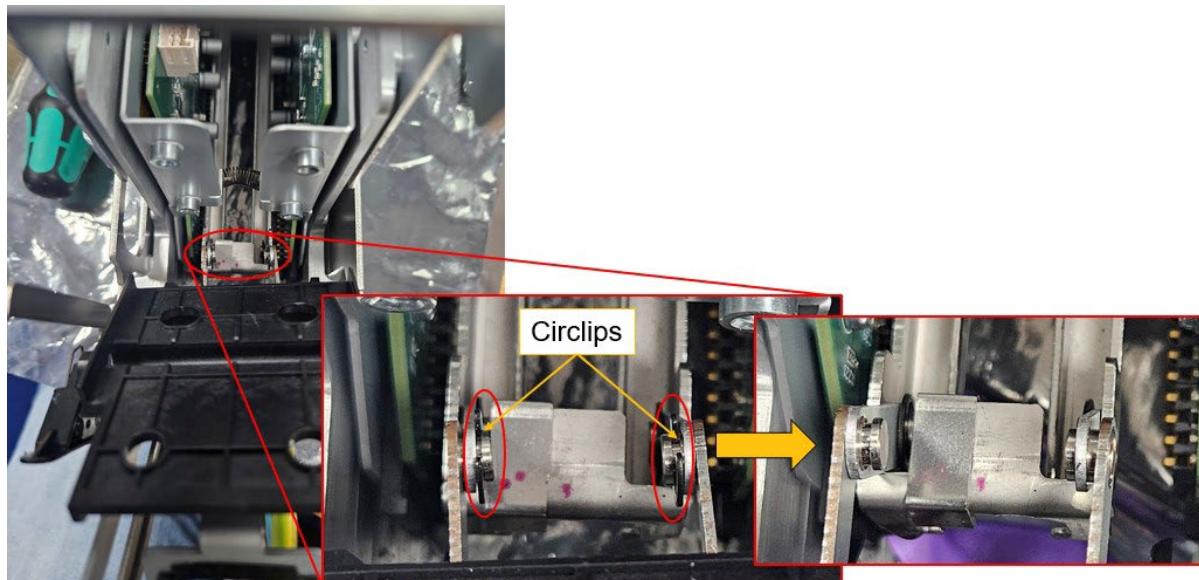
7. Slide out each side Z-Plate and unlatch from the PH nest ([Figure 80](#)). Swing them out to allow access to the Guide Coupling Assembly screws ([Figure 81](#)).



Figure 80 - Z-Plate unlatched**Figure 81 - Guide Coupling Assembly nest screws**

8. Using TX20 Torx driver, Remove the 4 (four) Coupling guide nest screws (*Figure 66 - Coupling secure screws*).
9. Once released, tilt the coupling away to expose the Guide Tray Link coupling. Use a pair of snipe-nosed pliers to carefully remove the 2 (two) circlips (*Figure 82 - Guide Tray Link coupling*).



Figure 82 - Guide Tray Link coupling

10. With the coupling guide de-coupled from the printhead guide rail, turn the Guide Coupling Assembly over and remove the Fluidic Coupling retaining screws ([Figure 70](#)).
11. Place on the work surface and remove the four (4) circlips holding the Fluidic Coupling shaft. As you slide the shaft out, take note of the printhead guide tray link orientation as this is important upon re-assembly ([Figure 83](#)).

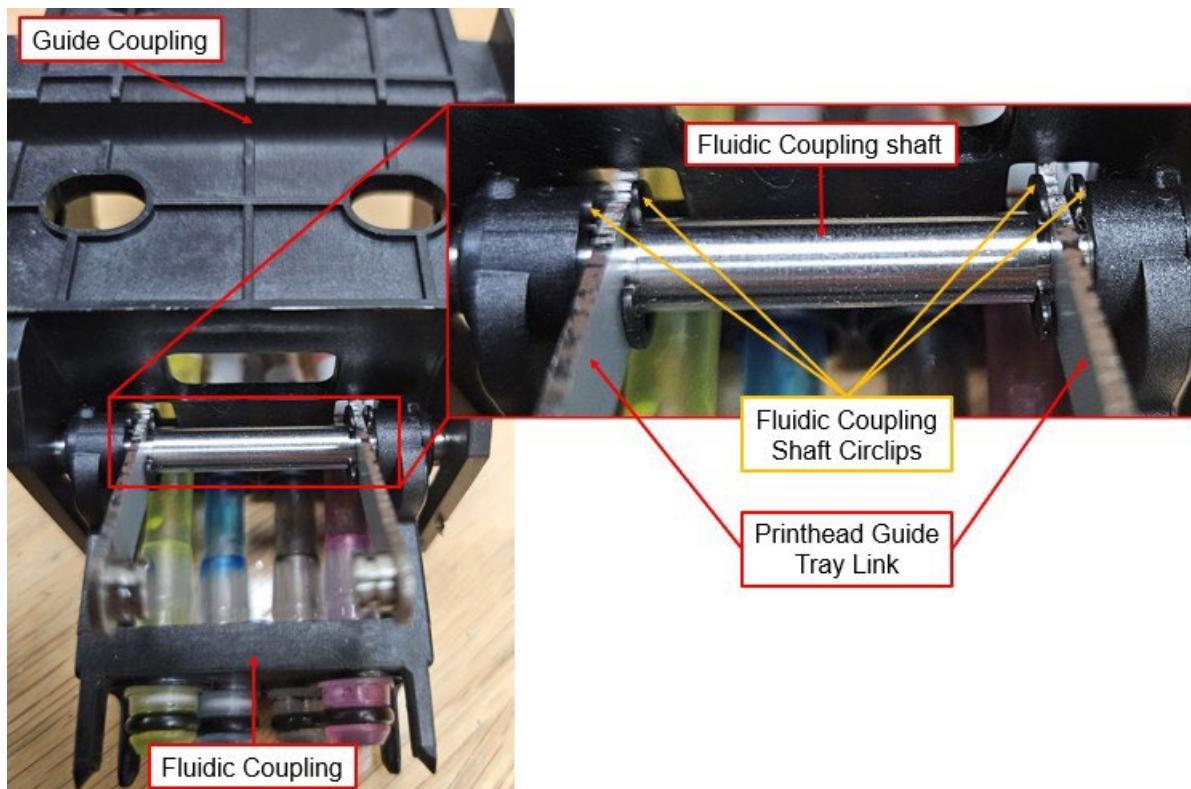
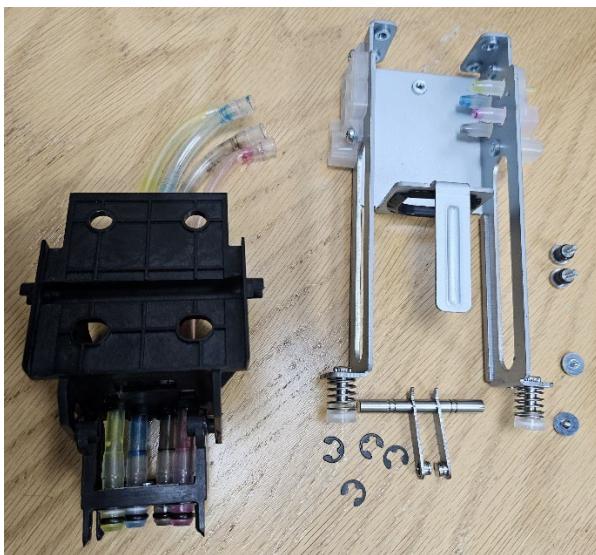
Figure 83 - Operator side Fluidic Coupling shaft

Figure 84 - Lay out best practice

Note: It would be good practice lay out the items on the work surface in the corresponding removal order for easy re-assembly ([Figure 84](#)).

12. In the same method as the Gear side, remove the Fluidic Coupling from the Guide Coupling and pull through the tubing out the guide holes ([Figure 85](#)).

Figure 85 - Fluid Coupling removal

13. If required, remove the tubing from the printhead coupling barbed connections. Take great care **NOT** to damage the barbed fittings.



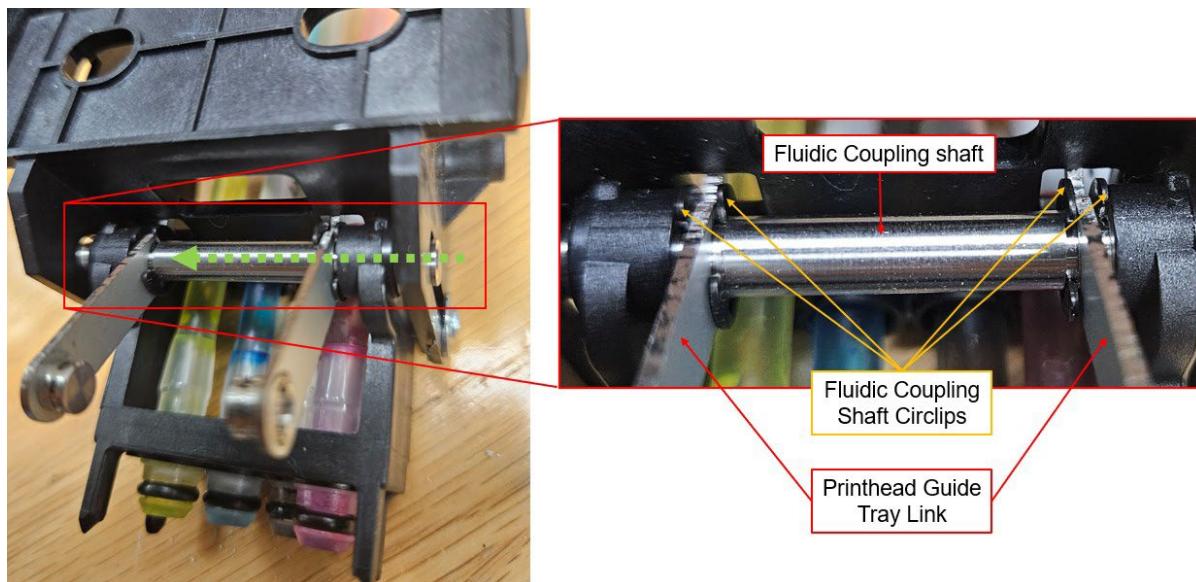
Caution: Take great care **NOT** to damage the coupling barbed fittings. These are **NOT** currently available as a replacement at the time of writing this document.

14. Discard the damaged Coupling Guide in accordance with local disposal regulations.
15. Prepare 4 (four) lengths of Versilon tubing approximately **150mm in length**.
16. Use the Glycerol or LEG-1 to lubricate the barbed fittings and connect the replacement fluidic tubing to the barbed coupling fittings.

Note: It is important to lubricate the barbed coupling fittings before attempting to fit the replacement tubing.

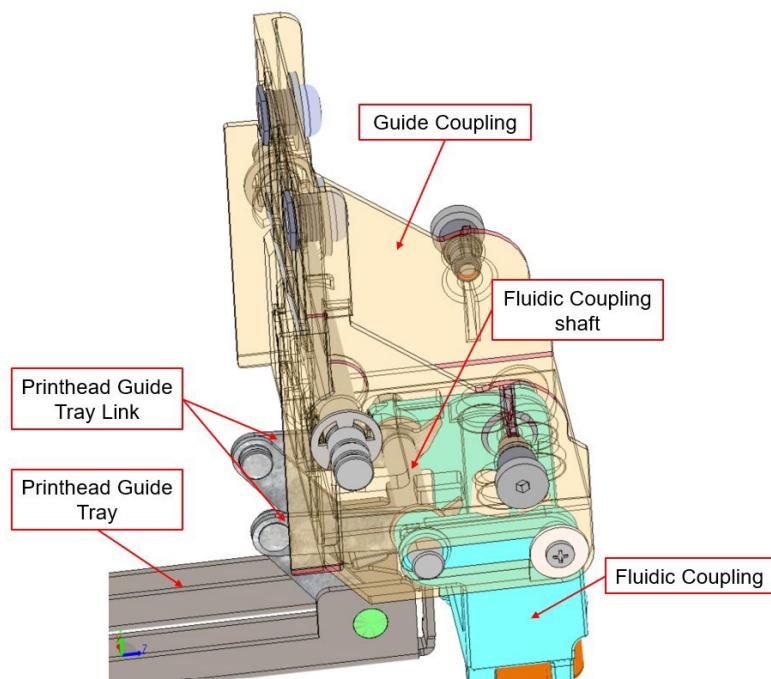
17. With the new tubes fitted to the fluid coupling, feed them through the tube guide holes in the new coupling ([Figure 73](#)) and bring the coupling into the correct position within the Guide Coupling.
18. Re-fit the 2 (two) fluidic Coupling retaining screws using a drop of Loctite thread lock 290 and torque to **~3kgf.cm** ([Figure 70](#)).
19. Turn the coupling guide over and slide the fluidic coupling shaft back into position ensuring the printhead guide links are added as the shaft is inserted. Use snipe nosed pliers to re-insert the circlips ([Figure 86](#)).

Figure 86 - Fluidic Coupling shaft insertion with printhead guide rail links



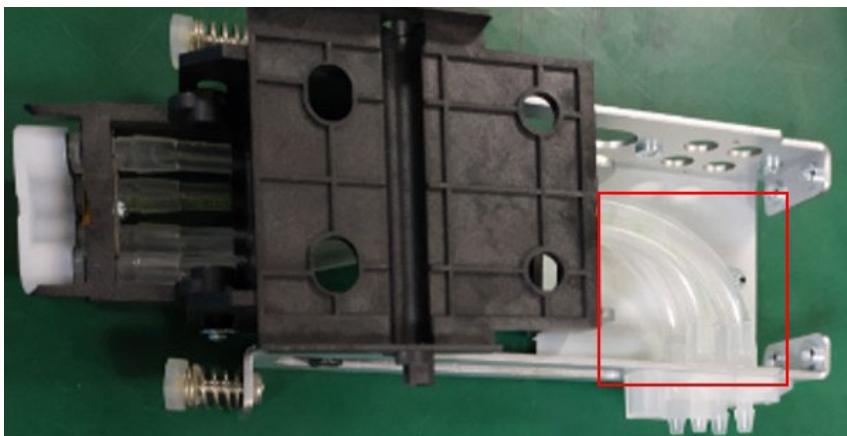
Note: Pay attention to the orientation of the links on the shaft ([Figure 87](#)). Failure to orientate will not allow correct link connection to the printhead guide rail.



Figure 87 - Guide Coupling showing ph guide link orientation

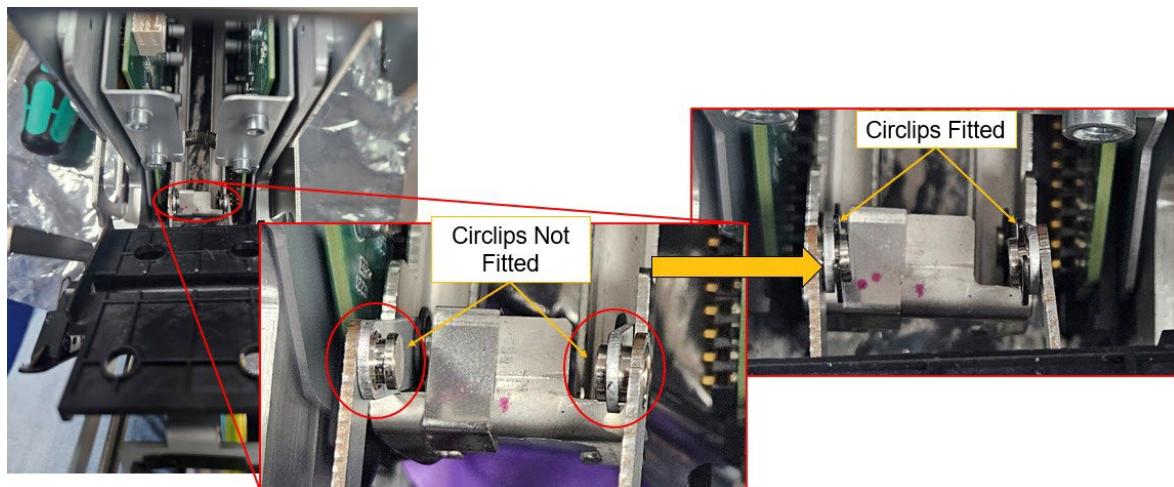
20. Insert the Guide coupling into the Lift Bracket in a similar method as the Gear Side.
21. Use the Glycerol or LEG-1 to lubricate the barbed fittings and connect the new fluidic tubing to the barbed coupling fittings ([Figure 88](#)).

Note: It is important to lubricate the barbed coupling fittings before attempting to fit the replacement tubing. Unlike the Gear Side, there are **no** tube sleeves to be installed.

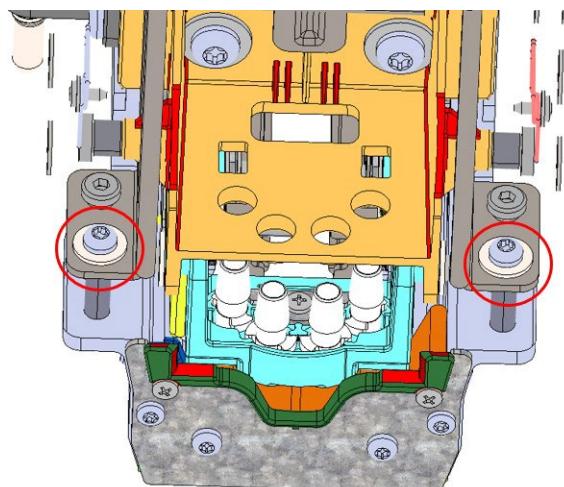
Figure 88 - Operator side coupling tubes connected

22. Use the snipe nosed pliers to re-fit the printhead guide tray links and secure the circlips ([Figure 89](#)). Ensure the Links are in the correct orientation ([Figure 87](#)).

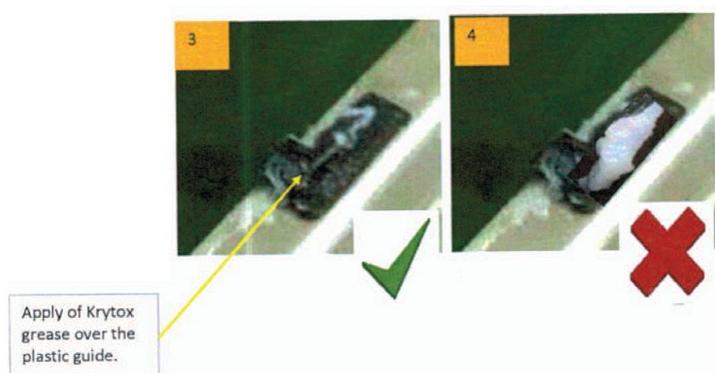


Figure 89 - Guide Tray Link coupling, circlips fitted

23. Re-install The Lift bracket (With coupling guide attached) and screws using a T10 Torx driver ([Figure 90](#)). Ensure to apply a little Loctite 290 thread lock to the screw threads and torque to ~6kgf.cm.

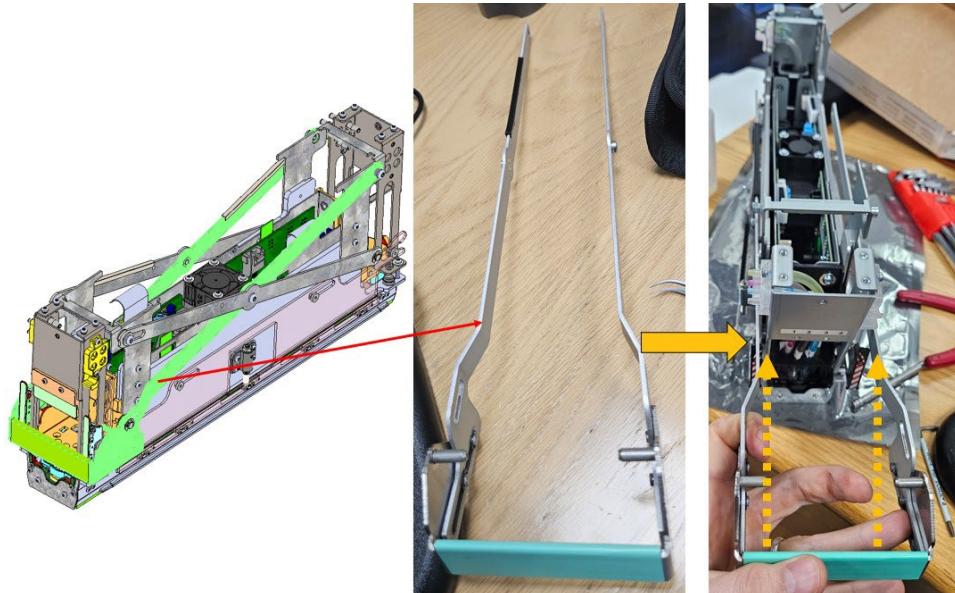
Figure 90 - Coupling guide screws fitted

24. Return the Z-Plate back to the nest ensuring the pusher connector are re-latched within the holes ([Figure 80](#)). If required, apply a little Krytox grease to the connectors ([Figure 91](#)).

Figure 91 - Application of Krytox grease

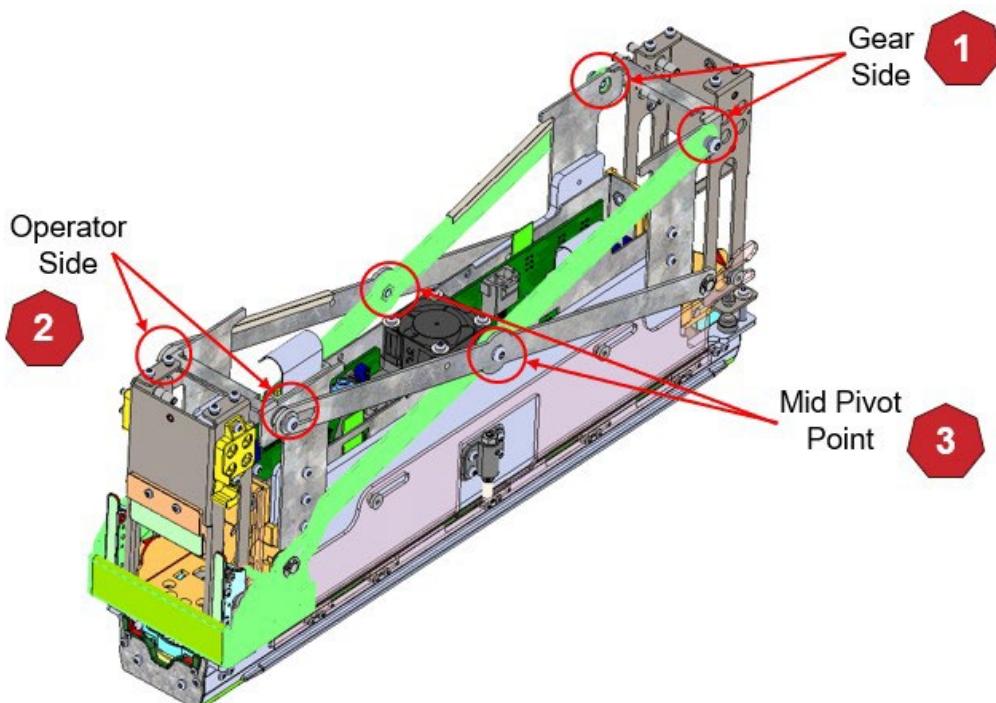
25. Once in place slide in each side Z-Plate and latch to the PH nest ([Figure 80](#)).
26. Using a 2mm hex key/Allen key, re-install the 4 (four) slide shoulder bolt screws ([Figure 79](#)). Ensure to apply a little Loctite 290 thread lock to the screw threads and torque to ~2kgf.cm.
27. Insert the green handle scissor arm assembly ([Figure 92](#)) (as removed in step #5 ([Page 54](#))).

Figure 92 - Handle scissor assembly insertion



28. Recouple the Gear side upper scissor lift bar to the gear side lift bracket (#One), then re-couple the Operator side lift bracket (#Two), then ensure the mid-point is coupled (#Three) - [Figure 93](#).

Figure 93 - Scissor lift upper re-coupled

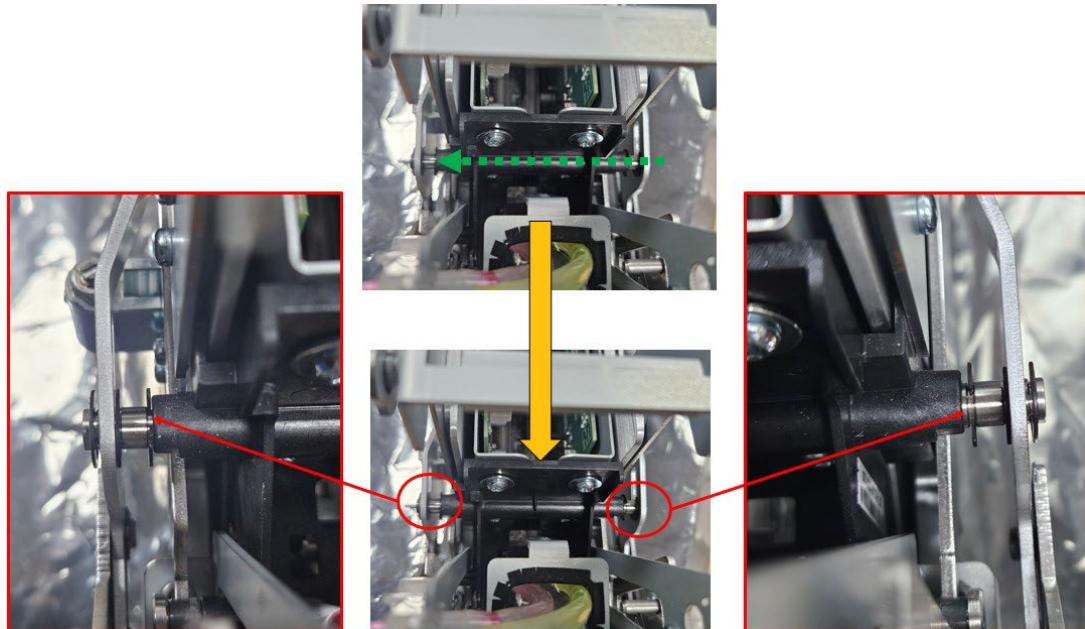


Note: Ensure the Scissor arms are in the shown orientation as per [Figure 93](#). Failure to do so may impact lifter mechanism and cause unforeseen problems during operational use.



29. Using a TX20 Torx driver, insert the upper scissor mechanism screws as shown in [Figure 77](#).
Torque to **~8kgf.cm**.
30. Using a T20 Torx Driver, fit the 4 (four) screws to hold the gear side of the Coupling Guide to the Meander Back planes ([Figure 66 - Coupling secure screws](#)). Ensure to apply a little Loctite 290 thread lock to the screw threads and torque to **~6kgf.cm**.
31. Re-insert the coupling guide shaft through the elongated scissor mechanism slots ([Figure 94](#)).
32. Using the snipe nosed pliers, re-fit the 4 circlips ([Figure 94](#)) to the coupling guide shaft.

Figure 94 - Coupling guide shaft inserted



Note: Before installing the cradle (Section #8 [Printhead Cradle Assembly Installation](#)), perform a visual inspection of the cradle to ensure everything is assembled correctly.



8 Printhead Cradle Assembly Installation

8.1 Personal Protective Equipment (PPE)

CAUTION: To avoid injury, always use appropriate PPE when performing maintenance and replacement tasks. See Section [2.3 Personal Protective Equipment \(PPE\)](#) for details.

8.2 Required Tools and Supplies

Gather the items in the table before beginning this procedure.

Table 6 – Required Tools and Supplies

Description	Quantity	Type
Safety glasses	1 pair	PPE
Powder-free, nitrile gloves	As needed	Supply
Lint-free cloth	As needed	Supply
Printhead Cradle Assembly – PN 10005287	1	Part
Flat-head tweezer	1	Tool
T8, T10, T15 & T20 – M3 Torx driver, (with ~200 mm extension)	1	Tool
2.5mm Allen/Hex driver suitable for M3 socket head screws	1	Tool
Diagonal cutter	1	Tool
Tubing cutter	1	Tool
Flat-blade or slotted screwdriver (3/16")	1	Tool

8.3 Installation

1. Visually Inspect the Printhead Cradle to verify there is no damage to it:

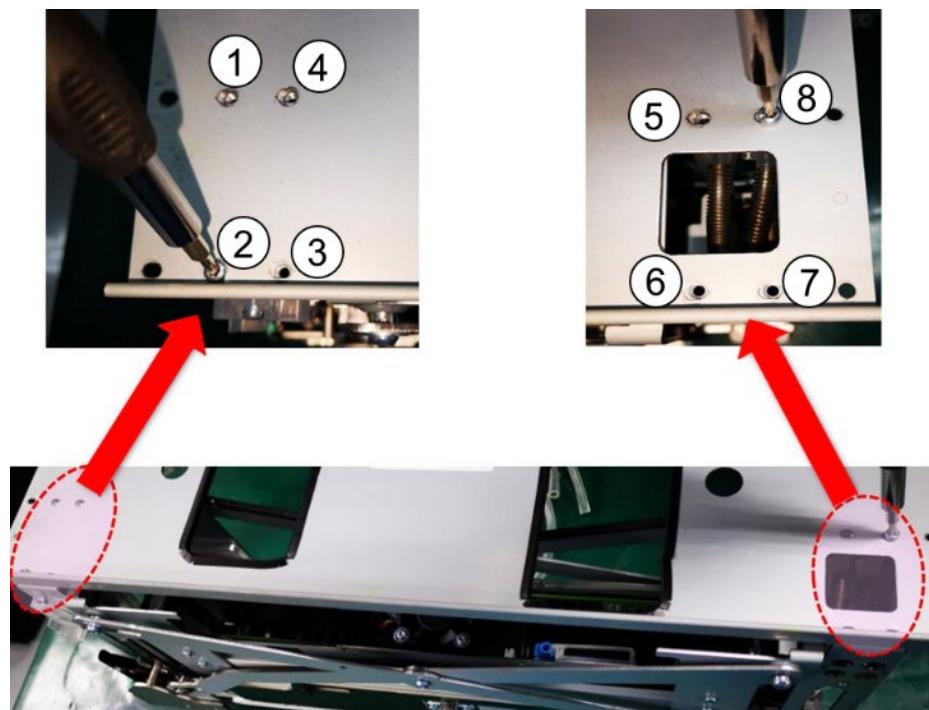
- Tubing is not kinked or cut
- Components are intact with no loose or missing parts

Figure 95 – Printhead Cradle

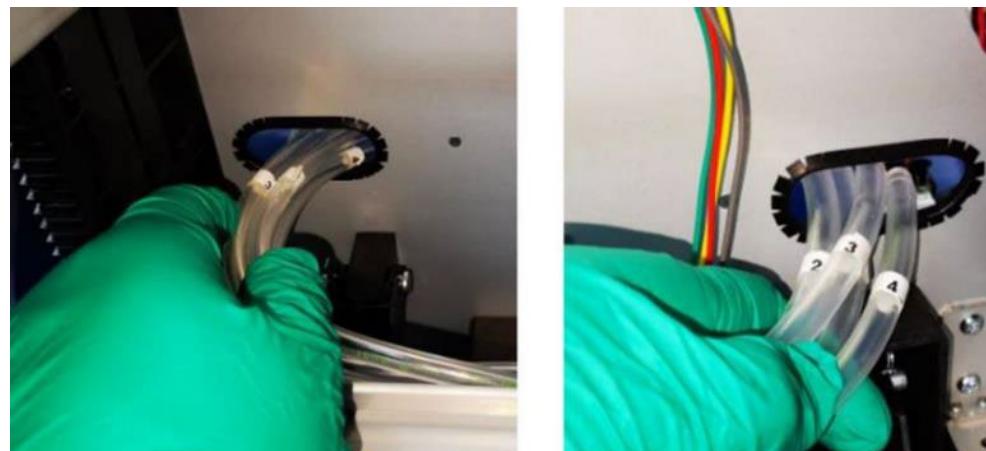


2. Align and secure the Top Plate with the eight (8) screws shown in the next figure ([Figure 96](#)).



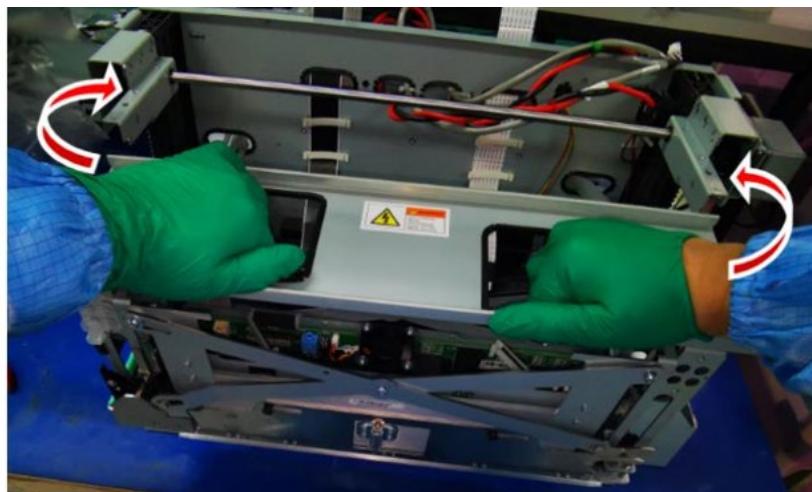
Figure 96 – Install Top Plate

3. Route the corresponding tubes and cables through the holes in the Print Module frame ([Figure 97](#)).

Figure 97 – Route Tubes and Cables

4. Hold the top plate of the Printhead Cradle with two hands, lift it, and carefully place it on both ends of the Print Module lift arm (left and right). Adjust the position until the screw holes are aligned ([Figure 98](#)).

Figure 98 – Top Plate Alignment



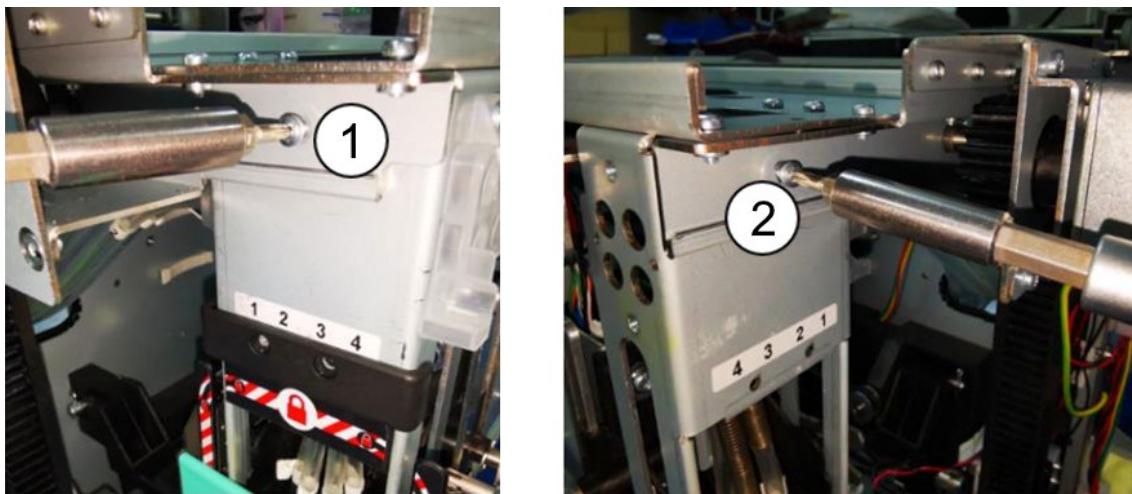
5. Tighten the six (6) screws mounting screws to secure the Printhead Cradle to the Print Module Lift mechanism ([Figure 99](#)).

Figure 99 – Printhead Cradle Mounting Screws



6. Tighten two (2) screws; one on each side of the Printhead Cradle ([Figure 100](#)).

Figure 100 – Screws on Two Sides of Printhead Cradle



7. Remove the vinyl cap from one (1) Pinch Valve barb. Connect one (1) tube from the new Printhead Cradle to the Pinch Valve barb.
- Remove 1 vinyl cap at a time, and immediately install the tube onto the Pinch Valve barb to minimize any possibility of contamination.
 - Apply LEG-1 on the inner side of the tubes before inserting it into Pinch Valve.
 - Repeat until all four (4) tubes are connected.
 - Make sure the correct color tubes are inserted to the Pinch Valve barbs.
 - Ensure no twisting of Pinch Valve tubes (black tubes underneath the Pinch Valve).
8. Remove the vinyl cap from one of the Compliance Chamber barbs.
9. Immediately connect the tube from the new Printhead Cradle to the Compliance Chamber barbs ([Figure 101](#)) and repeat this process on tube at a time until all four (4) tubes are connected.

Figure 101 – Tubing Installed on Pinch Valve Barbs and Compliance Chamber Barbs



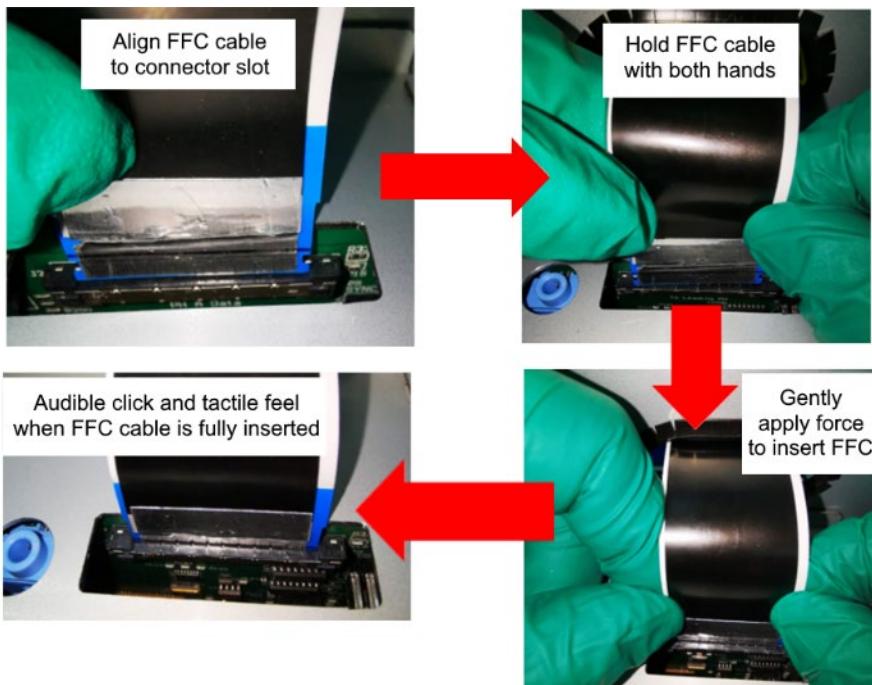
10. Connect all the cables (Power, Data and FFC) from the Datapath PCA and Mechanical Controller Board to the new Printhead Cradle.

CAUTION: To avoid damaging the FFCs during installation see [Figure 102](#).

11. To install the Leading FFC:

- Carefully align the end of the FFC with the open slot of the connector. For proper connection and to avoid damage, ensure that the edge of the FFC is parallel to the connector and not tilted to one side or at an angle.
- Hold the end of the FFC with both hands and gradually apply gentle force to insert the FFC into the connector. You will be able to feel a click when the FFC is correctly inserted.
- Repeat the process for the other FFC.

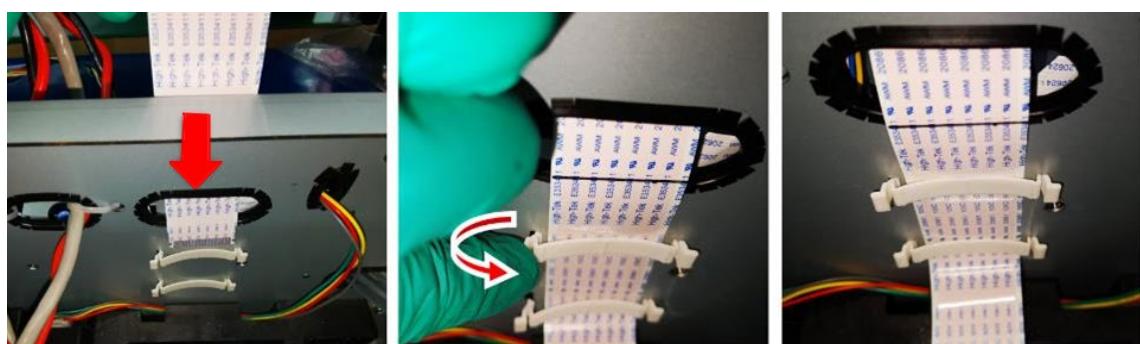
Figure 102 – Inserting the FFC



12. At the right side, attach the Lagging FFC to the connector on the Printhead Power PCA ([Figure 103](#)):

- Insert the cable into the hole in the rear of the Print Module frame.
- Secure it with the FFC holders.

Figure 103 – Lagging FFC (Right Side of Print Module)



13. Insert the FFC into the connectors on the Printhead Power PCA, by following the FFC insertion steps in [Figure 102](#).

14. Close the cable clip around the FFC ([Figure 104](#)).

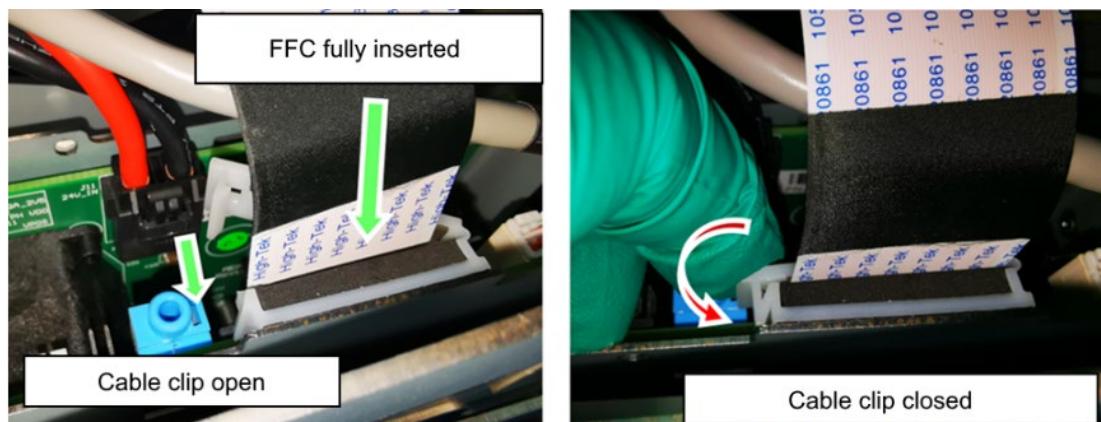
03-Oct-25

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Figure 104 – Lagging FFC Inserted (Right Side)

15. On the left Side, attach the leading FFC to the connector on the Printhead Power PCA ([Figure 105](#)). Insert the cable into the hole in the rear of the Print Module frame and secure it with the FFC holder.

Figure 105 – Leading FFC Installed (Left Side of Print Module)

16. Insert the FFC into the connectors on Printhead Power PCA according to the steps in [Figure 102](#).
 17. Snap the cable clip together ([Figure 106](#)).

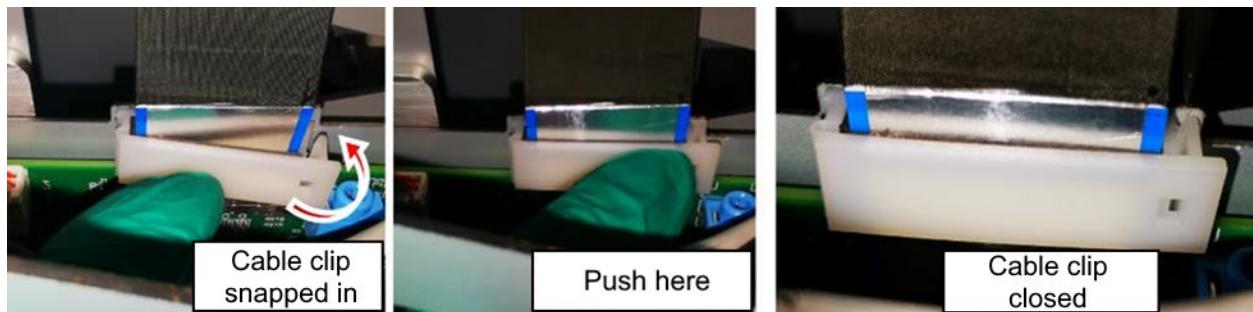
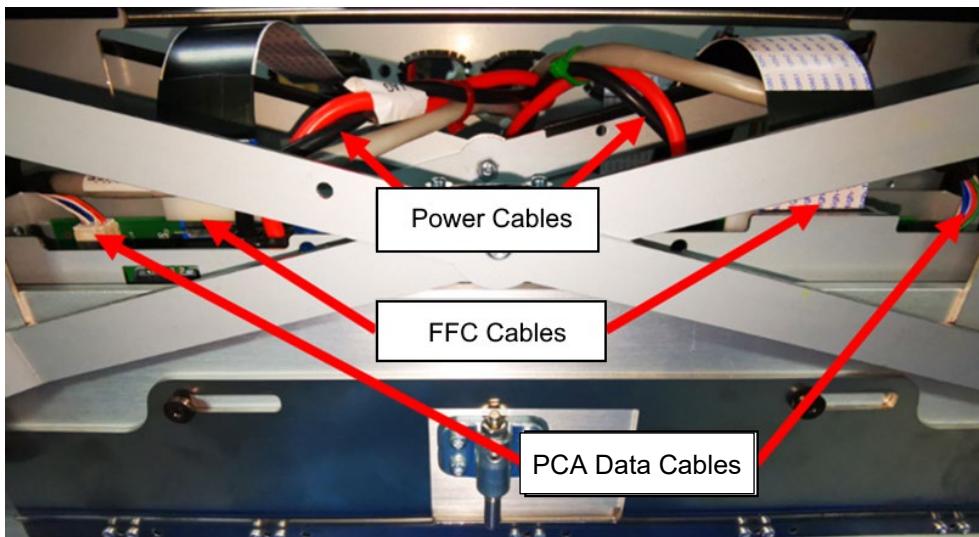
Figure 106 – Leading FFC Clipped in Place (Left Side)

Figure 107 – Cables to the Printhead Cradle

18. The PCA data cables will also need to be routed through specific areas and secured with cable ties to ensure they do not interfere with any of the moving parts of the printhead-+ cradle. The cable routing is shown in the following figures.

Figure 108 – PCA Data (I2C) Cable Routing (First Cable Tie),**Figure 109 – PCA Data (I2C) Cable Routing**

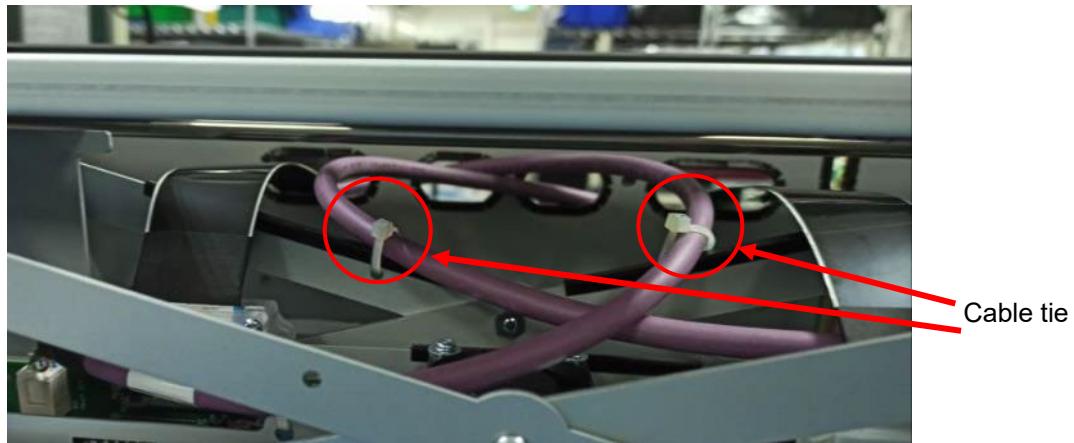
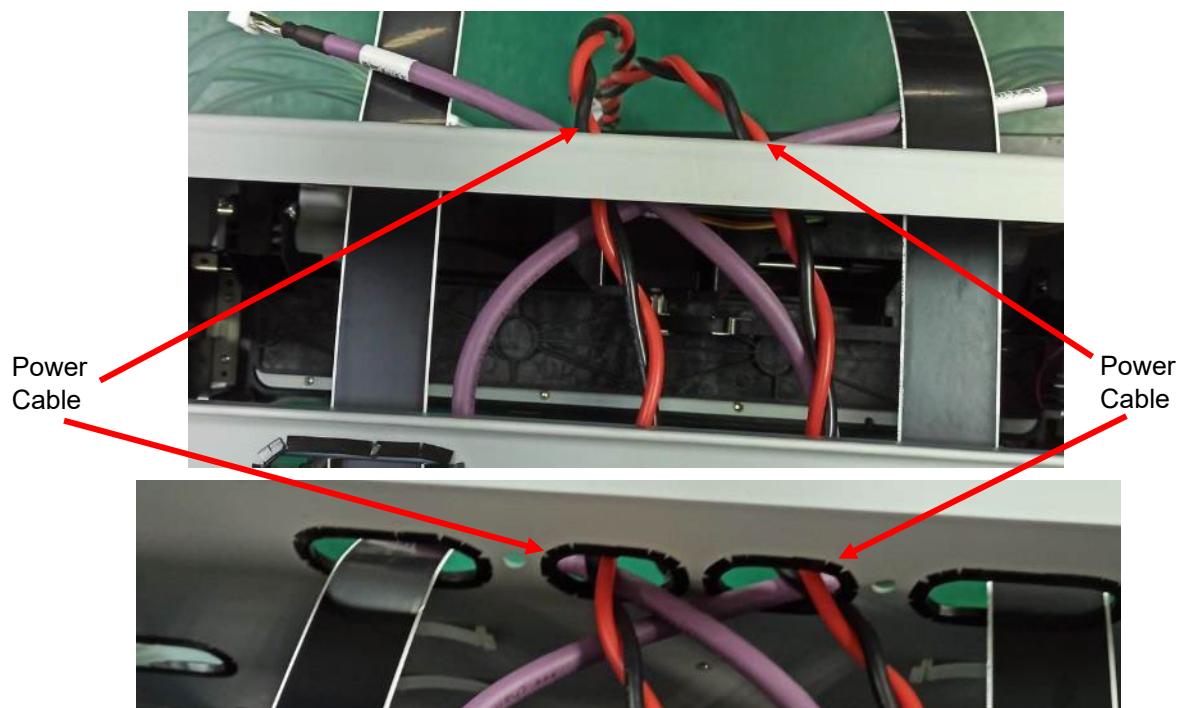
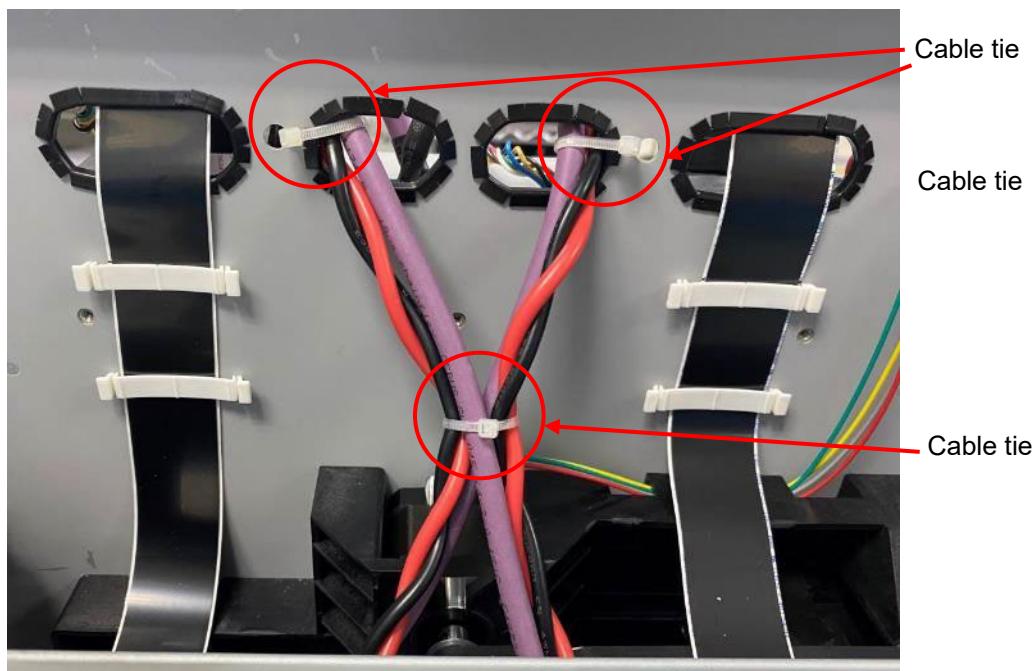
Figure 110 – PCA Data (I2C) Cable Routing and Cable Ties**Figure 111 – Power Cable Routing**

Figure 112 – PCA Data (I2C) Cable Routing (Seventh and Eight Cable Ties)

8.4 Testing

1. Install the Setup Printhead into the DuraFlex system.
2. Power on the system.

Note: With the installation of the new Meander board, the boot up process may be longer than usual.

3. Initialize the print engine.

Note: See Section [4.4 Frequently Used System Commands](#) for detailed instructions.

4. Check that the Printhead Lift Mechanism is working properly by moving it to RAISE, CAP, and PRINT positions. Repeat 5 times for each.
5. Install the Setup Printhead cartridge in the system.
6. Prime the system and observe if the priming is successful and all ink tubes are filled with ink.
7. Check for any leakage of ink at all barbs of the Pinch Valve and the Compliance Chamber.
8. Perform the Ink circulation procedure through the system.

Note: This is recommended as the couplings and tubing have been exposed to atmosphere for extended periods of time. A circulation procedure will ensure any residual cured ink is captured in the Ink filter. This will take approximately 40 minutes to complete.

9. Once the circulation is complete, drain the ink from the printhead.
10. Remove the Setup Printhead. Place the Printhead into the storage case properly.
11. Insert the original Printhead that is used before the Printhead Cradle replacement and prime the print head.
12. Once complete, perform test print.

