SECTION 4 – *Maintenance*

General, periodic maintenance is needed to keep Printer in good working order. This section covers how to care for Ink Tanks, Printhead Cartridge, Service Station, and clear paper jams.

Replace Ink Tanks

Replace Ink Tanks when ink runs out.

1. **Look at the Control Panel Touchscreen.** Ink Tank Status information appears left side of the Touchscreen. Note that some or all of ink boxes may be low or empty.
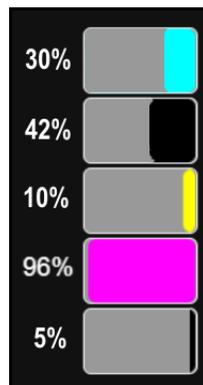
2. **Open Ink Tank Door** (*hinged at bottom*). (*Disconnects Printer communication with Ink Tanks and allows safe installation and replacement*.) Open Ink Tank Latches **[A]** and pull Ink Tank(s) **[B]** out of the Printer.
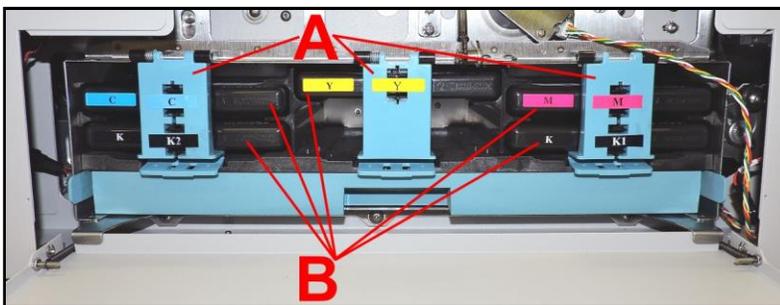
3. Remove new Ink Tank(s) from packaging.

4. Slide new Ink Tanks (*labels up*) into appropriate color slots **[B]**. Close Ink Tank Latches. **INSTALLATION TIP: Make sure Ink Tanks seat properly. Insert Ink Tank into appropriate Ink Station, then pull Ink Tank back about an inch and push forward firmly to insure that Ink Nozzles penetrate seals on Ink Tanks.**
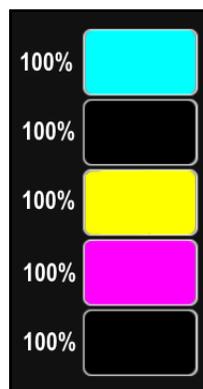
5. **Close the Ink Tank Door.** Ink colors fill in as Ink Tanks are installed. If ink colors do not fill in after a few seconds, open the Ink Tank Door and reinstall Ink Tank(s).

    NOTE: If Ink Tank is installed, but Ink Tank indicator still does not refresh, see "Clean Ink Tank Contacts" below.

WARNING!
Ink in Ink Tanks may be harmful if swallowed. Keep new and used Ink Tanks out of reach of children. Discard empty Ink Tanks immediately.

Clean Ink Tank Contacts

When reinstalling or replacing Ink Tanks, the Ink Level indicators on the Touchscreen may not refresh.
This may be due to a dirty Ink Tank Level Prism and/or QA Chip contacts on that Ink Tank(s).

Clean contacts as follows:

1. **Remove Ink Tank(s).** Open Ink Tank Door. Release Ink Tank Latch(es) **[A]**. Remove Ink Tank(s) **[B]** that did not refresh.
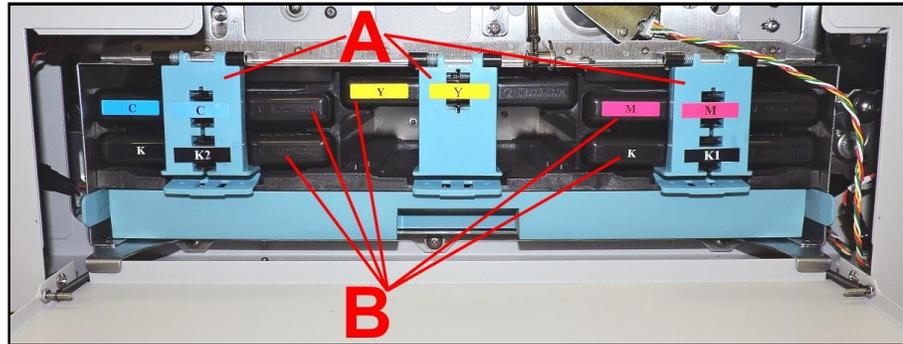
2. Clean Ink Level Prism **[A]** and QA Chip contacts **[B]** with a clean, dry, lint-free cloth. **NOTE: Dampen cloth with distilled water to wipe Prism, but DO NOT get QA Chip contacts wet.**

3. Reinstall Ink Tank(s) (*labels up*), close Ink Tank Latch(es). Close Ink Tank Door.
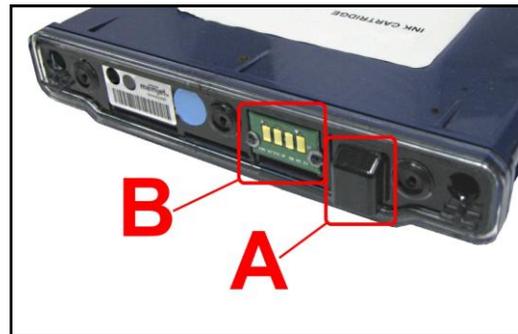
Storage

New Ink Tanks should be stored in original packaging and kept away from heat.

Opened Ink Tanks should remain in Printer.

Nominal Ink expiration date: 24 months following date of manufacture (*ink fill date*).

Disposal

Safely dispose of Ink and Ink Tanks in accordance with local/national regulations.

Clean up spills with soap and water. Abrasive soap is effective in cleaning ink off your hands.

Works Cited:
FP. "Operator Manual." Edge Pro Support, 12 Mar. 2019, download.fp-usa.com/product_docs/EDGE-Print-Series/m1_operator_manual.pdf.

Clean/Replace Printhead Cartridge

Cleaning

The Printhead is cleaned automatically each time Printer is turned on or when the **"Quick Clean Printhead"** routine is performed. This can be found under **"Service" Tab**, **"Normal Clean Printhead"** in **Printer Driver** or **"Maintenance"** drop-down menu on **Touchscreen**. If running automated Cleaning Levels doesn't help improve print quality, Printhead Cartridge can be cleaned manually.

1. **Open Top Cover.** From the Touchscreen, tap **"Setup"** in the **Menu** drop-down, then tap **"System Deprime"**. The Printer pumps any ink in system back into Tanks. Then the Printhead Latch pops open.
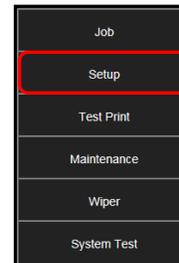
CAUTION
DO NOT PRY OR MANUALLY LIFT PRINTHEAD LATCH OR LATCH MAY BREAK. ONLY OPEN LATCH USING THE RELEASE PRINTHEAD BUTTON ON THE TOUCHSCREEN OR IN THE PRINTER TOOLBOX.

2. Make sure Printhead Latch is fully opened to retract ink lines. Remove used Printhead Cartridge by tilting it toward ink lines, then carefully lifting it out of Printhead Compartment.

3. Moisten Printhead nozzles using deionized/distilled water (*reference ASTM D5127-90 Type E-II Electronic Grade Water*) and a damp, lint-free cloth, wiping end to end. (*Gray strip located below orange strip.*) **Take care not to damage copper contacts, metal plate, or gold Printhead surface.**

4. Reinstall Printhead, close Printhead Latch and close Top Cover.
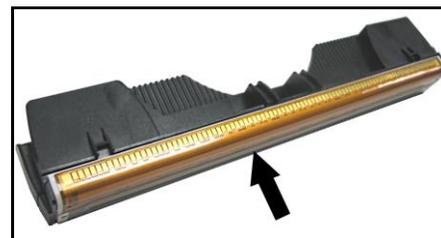
Generally, when ink supply is adequate and print quality remains poor, or when automated cleaning processes or manually cleaning Printhead does not help image quality, replace Printhead.

CAUTION
• **Use electrostatic discharge (ESD) protection when handling.**
• **Hold Printhead Cartridge by handles ONLY.**
• **DO NOT touch ink couplings, nozzle surface or electrical contacts.**
• **DO NOT unpack Printhead Cartridge until Printer is ready for installation. Once unwrapped, delay in installing Printhead can compromise print quality due to dehydration.**
• **DO NOT place an unwrapped Printhead on any surface before installing. Protect Printhead from scratches, dust, fibers, dirt and other contaminants at all times.**

Works Cited:
FP. "Operator Manual." Edge Pro Support, 12 Mar. 2019, download.fp-usa.com/product_docs/EDGE-Print-Series/m1_operator_manual.pdf.

Replace Printhead Cartridge

1. **Open Top Cover.** From the Touchscreen, tap **"Setup"** in the **Menu** drop-down, then tap **"System Deprime"**. The Printer pumps any ink in system back into Tanks. Then the Printhead Latch pops open.
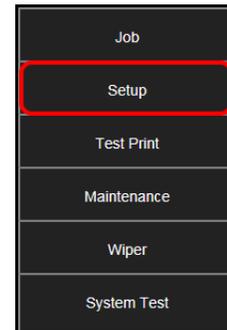
CAUTION
DO NOT PRY OR MANUALLY LIFT PRINTHEAD LATCH OR LATCH MAY BREAK. ONLY OPEN LATCH USING THE RELEASE PRINTHEAD BUTTON ON THE TOUCHSCREEN OR IN THE PRINTER TOOLBOX.

2. Make sure the Printhead Latch is fully opened to retract ink lines. Remove used Printhead Cartridge by tilting it toward ink lines, then carefully lifting it out of the Printhead Compartment.
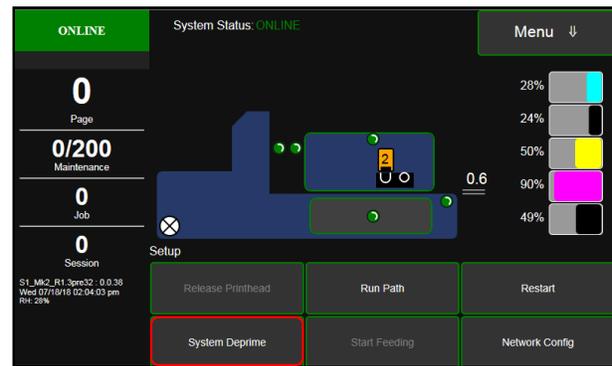
3. **[A] Carefully remove Printhead Cartridge from foil packaging**. Tear foil at notch or cut the end with scissors.
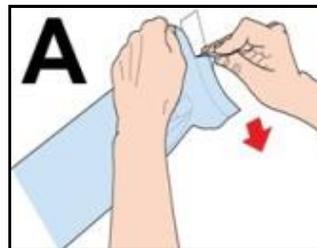
   [B] Remove protective plastic cover. Hold Printhead by handle and unclip cover from Printhead.
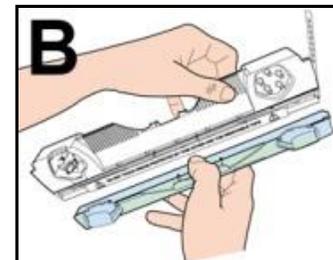
   [C] Remove protective strip from Printhead electrical contacts.
   Once removed, DO NOT allow strip to touch electrical contacts.
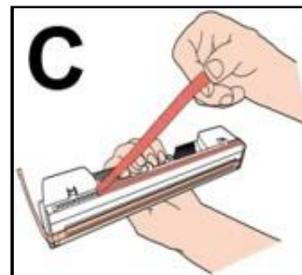
   [D] Remove protective strip from Printhead Nozzles. Hold Printhead by handle. Pull strip tab and slowly peel strip from Printhead.
   DO NOT pull strip at less than a 45° angle from Printhead surface.
   DO NOT allow removed strip to touch Printhead Nozzles.
   NOTE: Keep foil packaging to store/dispose of old Printhead Cartridge.
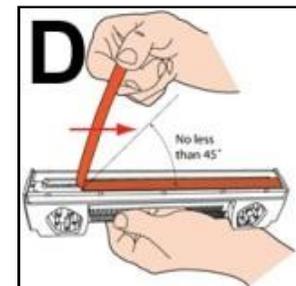
4. **Wet Printhead Surface. (*Ensures that Printhead will prime correctly*.)** Moisten Printhead nozzles using distilled water and a damp, lint-free cloth, wiping end to end. (*Gray strip located below orange strip*.) **Take care not to damage copper contacts, metal plate, or gold Printhead surface.**
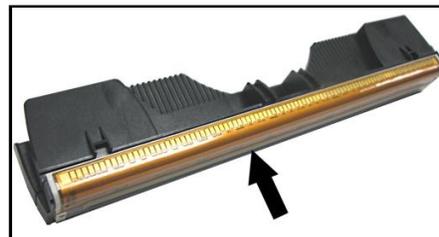
5. Carefully insert Cartridge into compartment at an angle **[4]**, with Printhead surface facing down and Ink Nozzles facing Ink Hoses. Once seated, gently tilt Cartridge back until it snaps into an upright position **[5]**. **DO NOT FORCE Printhead Cartridge into position.**
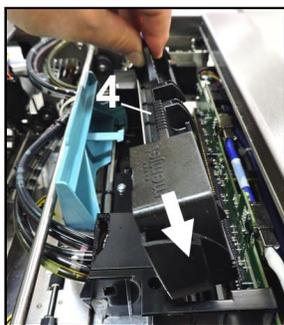
6. **Close Printhead Latch [6]**. Printer starts up and primes ink into Printhead. (*This may take a few minutes*.) Make sure ink is flowing through hoses. If air bubbles appear, tap lines or click **"Circulate Ink"** on Touchscreen to clear them.

7. **Watch Control Panel Touchscreen.** Check that Printhead icon **[7]** in Printer image is primed (*solid color*).

8. When **ONLINE [8]** appears, the Printer is ready for use. Close the Top Cover.
    NOTE: If the Printhead icon continues to display an outline or a question mark (?) try the following procedures:
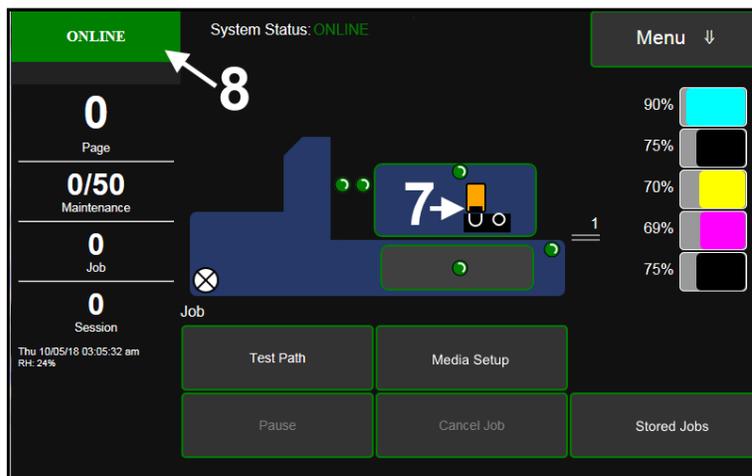
[1] **Printhead icon shows an outline (*Printhead unprimed*):** Click **"Circulate Ink"** under **"Maintenance"** drop-down in Printer Toolbox. If issue persists, try the **"Install Printhead"** procedure again. If this does not clear up the issue, call for technical support.

[2] **Printhead icon displays a question mark (*Printhead not recognized*):** Try the **"Install Printhead"** procedure again. If the issue continues, call for technical support.

NOTE: Printer may take up to 12 minutes to set itself up during initial startup. This is normal.

IMPORTANT!
CHECK INK TANKS. PRINTER MAY NOT FULLY REPRIME IF INK TANKS ARE LESS THAN 1/3 FULL.

Works Cited:
FP. "Operator Manual." Edge Pro Support, 12 Mar. 2019, download.fp-usa.com/product_docs/EDGE-Print-Series/m1_operator_manual.pdf.

Printhead Storage

Store and transport cartridge as indicated by **"this side up"** arrow symbol on packaging.

Cartridge and ink supply must be within operating temperature range before attempting to prime cartridge with ink and starting to print. When stored at temperatures below operating range, it may take up to 3 hours for a cartridge in its packaging to reach operating temperature. **NOTE: Additional packaging will increase time needed to reach operating temperature.**
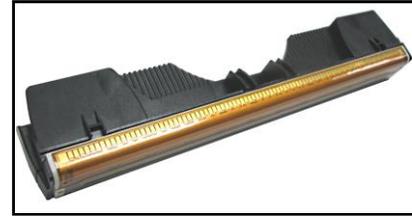
Storage Life: 12 months from date of manufacture (*printed on shipping box*).

Storage Temperature Range:	**Long Term:** 14° F to 86° F (-10° C to 30° C) **Short Term:** -11° F to 140° F (-25° C to 60° C) **NOTE:** Cumulative storage duration above 86° F (30° C) must not exceed 72 hours.
Humidity Range:	5% to 95% Relative Humidity, non-condensing
Atmospheric Pressure Range:	70 kPa to 106 kPa
Electrostatic Discharge:	8 kV air discharges or 4 kV contact discharges* ***When tested in accordance with IEC 61000-4-2**

Printhead Service Life

Projected: 50,000,000 ejections per nozzle. Printhead has a total of 70,400 nozzles (*14,080 per color channel.*) Since printing does not use the entire length of Printhead, some nozzles do not fire as often. The most often used Nozzles will degrade more quickly. Noticing effects of failing nozzles depends partly on the relative position of those nozzles to each other. In simple terms, number of images printed and amount of ink that will pass through printhead prior to printhead degradation will depend on make-up of the images printed, operating environment, servicing, media characteristics (*including cleanliness*) and other factors.

S-Series Printhead Return Policy

Return Policy and Return Procedure for Memjet Printheads for S-Series Printers:

Limited Printhead Replacement Policy: S-Series Printheads are manufactured to be free from defects in materials and workmanship. However, should an S-Series Printhead display an obvious defect or exhibit a significant degradation of print quality prematurely, Printhead may be returned for replacement.
Returns for these conditions can be made:

- Up to 12 months after shipping date from Astro Machine Corp. *and*
- Printhead's **"Total pages printed"** = 40,000 or fewer pages (*at 15% page coverage*), whichever comes first.

This return policy excludes damage due to mishandling, tampering or misuse, improper storage or transport, or material incompatibility*.

*See "Printhead Installation" and "Replacement" sections of this manual.

Works Cited:
FP. "Operator Manual." Edge Pro Support, 12 Mar. 2019, download.fp-usa.com/product_docs/EDGE-Print-Series/m1_operator_manual.pdf.

Return Procedure:

1. Make sure Printer is powered up and connected via USB or network.

   To check Printhead Page count: Open **"View"** drop-down menu in computer's **Toolbox**. Select **"Service Menus"**. The **"Diagnostics** screen opens. Select **"Upload Debug Log"**. Open and print the file **[A]** to include with your return.
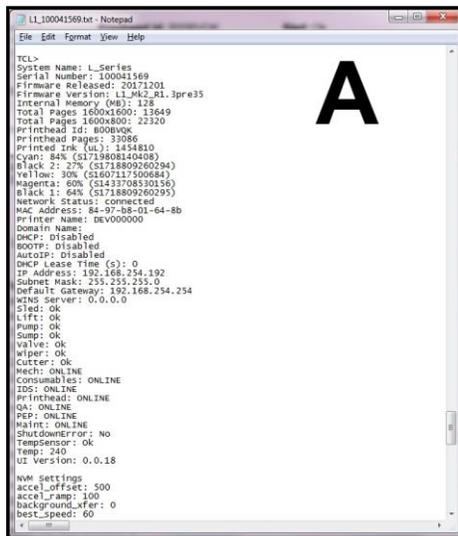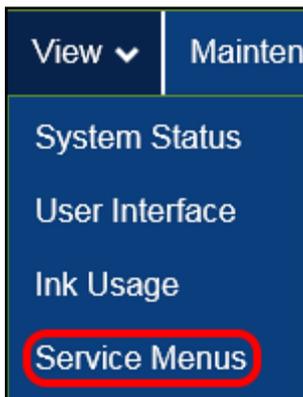
2. **From Touchscreen (*or open Printer Toolbox*).** Open the **"Print Menu"** drop-down. Tap **"Print"**. Then tap the **"Print Color Bars"** button.

   Color Bars Printout
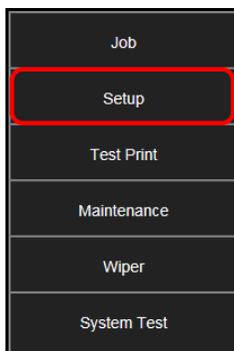
3. Remove Printhead Cartridge from Printer per replacement instructions found in Operator's Manual.

4. Snap Printhead back into orange plastic protective cover it was shipped in. **IMPORTANT! Make sure all foam pads that came with protective cover are installed and in place (*two versions shown in images at right*).**

5. Reseal Printhead and Cover in a plastic bag (*reuse and reseal original packaging if possible*).

6. Place Printhead, Printhead Page Count printout and Color Bars printout in a shipping box. Remember to include your company name, contact information and return address as well.

7. Return to your Astro Machine distributor.

Works Cited:
FP. "Operator Manual." Edge Pro Support, 12 Mar. 2019, download.fp-usa.com/product_docs/EDGE-Print-Series/m1_operator_manual.pdf.

Inspect the Service Station

The Service Station (*located directly under the Printhead Assembly*) cleans Printhead Cartridge of excess ink and debris, keeps Printhead hydrated and protected when not in use, and captures and removes ink used to keep nozzles clear. It moves out of the way of the Printhead during printing. It is designed to provide a long service life.

To access the Service Station for inspection and cleaning:

1. Using the **Touchscreen**, select **"Menu,"** then tap **"Maintenance"** from the drop-down menu. Tap **"Inspect Sled"**. The Service Station **[A]** moves out from under the Printhead Assembly.

2. Open the Top Cover.

3. Visually inspect the Service Station for cleaning or service.
   Use a dry, lint-free cloth to soak up any excess ink from the Cap Station **[B]**.

4. Tap **"End Inspection"** on the Touchscreen to move the Service Station back under the Printhead Assembly.

5. Close the Top Cover.
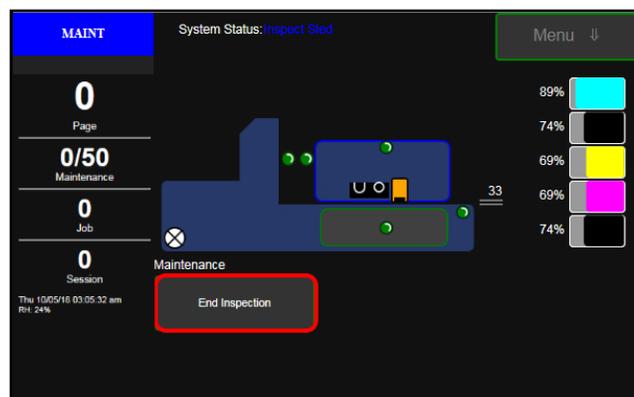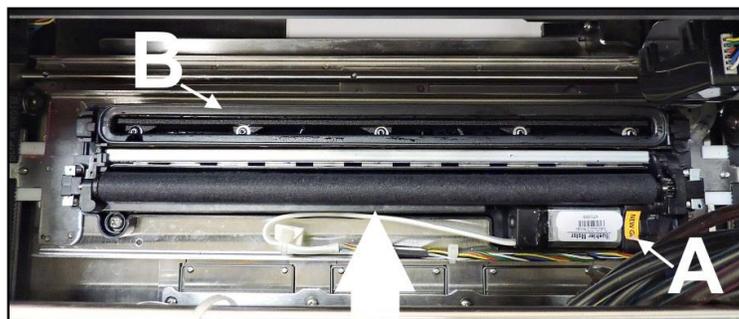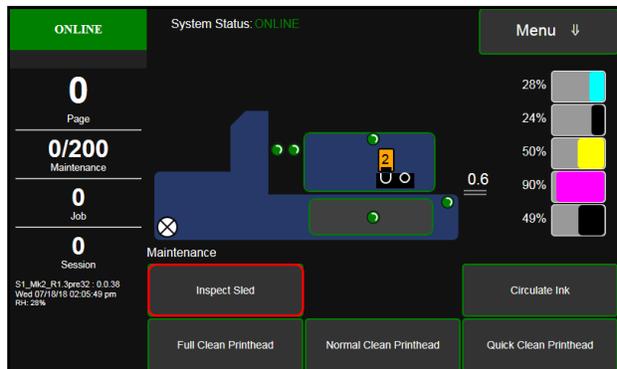
Replace Ink Waste Tray

Ink Waste Tray soaks up any excess ink that may drip from Print Engine during operation.
After a period of time it may become saturated and need replacement.

1. Open Ink Tank Door.

2. Pull on tabs to slide Ink Waste
    Tray **[A]** out of Printer.

3. Replace with a new Ink
    Waste Tray.
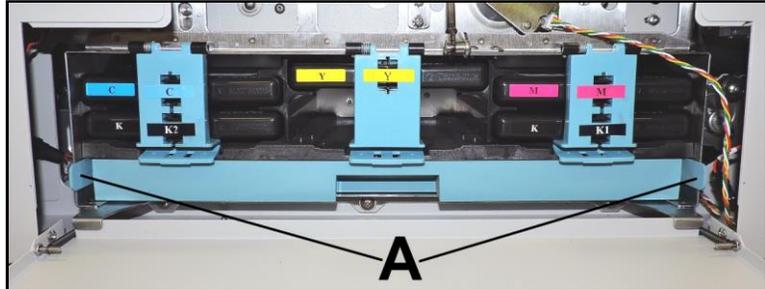
Replace Sheet Separators

Sheet Separators ensure separation of pieces as they are being fed.
If experiencing double sheet feeding and cannot adjust Separators
to prevent it, replace Separators.
Replacing Sheet Separators is not difficult:

1. Turn Printer OFF and unplug it from power source.
2. Release Separator by loosening Locking Knob and
    moving Media Side Guides to maximum opened position.
3. Lower Separators so they touch Feed Roller.
4. Remove screw **[A]** and Separator Cover **[B]**.
    Remove Separator **[C]** by prying it out of Holder.
5. Install a new Separator and reinstall Separator Support and screw.
    DO NOT overtighten screw to prevent distorting or damaging Separator.
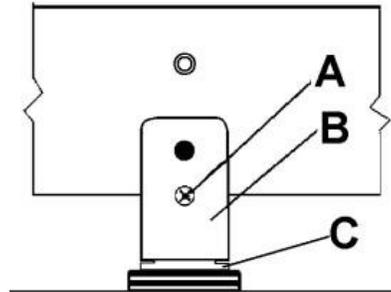
Jams in Printer

If a jam occurs, **STOP the Printer.** Some possible causes for jamming are:

1. Feeding more than one piece of media (*double-feeding*).

2. Damaged media, such as dog-eared (*turned down corners*).

3. Media that is not stiff enough may not be usable. Media that meets Postal stiffness requirements for automated feeding is acceptable in Printer.

4. Envelopes caught under flap of another envelope or stick to one another.

Remove Jammed Media

Clearing a jam depends on where jam occurred.

Feed Section:
Loosen Sheet Separators and remove jammed media.
Readjust Sheet Separators to media.

Print Area:

If you are sure nothing is obstructing the paper path:

- Open **Touchscreen "Setup" screen**. Press **"Run Path"**; this will clear the media from the paperpath without feeding more media..

- Press **"Clear Error"**.

- Press **"Resume"** to continue printing.

If you are not sure if the paper path is obstructed:

- Open the Ink Tank Door.

- Pull the Clamshell Latch **[A]** toward you to unlatch the Clamshell

- Raise Clamshell **[B]**.

- Clear jam, the carefully lower the Clamshell.
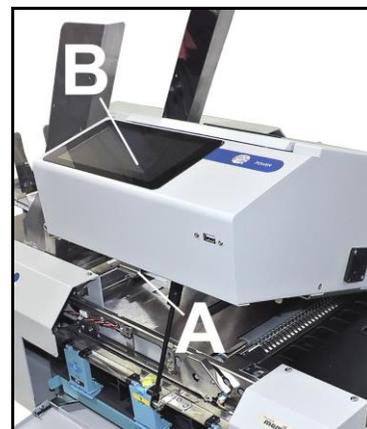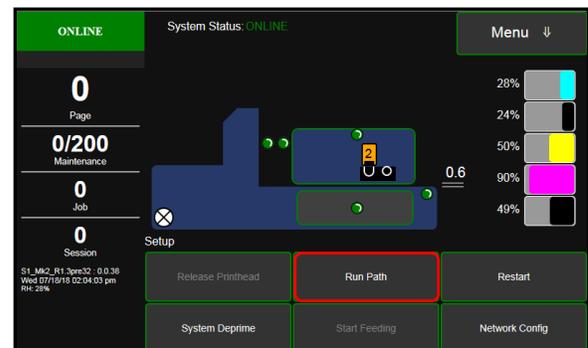
Misfeeds

Misfeeds can be corrected by readjusting or replacing the Sheet Separators. See **"Replacing Sheet Separators"** on previous page.

Cleaning

WARNING!
PRINTER IS A PRECISION MACHINE. CLEAN REGULARLY TO INSURE MANY YEARS OF SERVICE. BEFORE PERFORMING ANY MAINTENANCE, DISCONNECT MACHINE FROM ITS POWER SOURCE! **DO NOT REMOVE SIDE COVERS! HIGH VOLTAGES PRESENT.**

Clean Printer regularly to remove accumulated paper dust and ink. Depending on types of media run, paper dust may accumulate inside Printer and on Transport.

1. Turn Printer OFF and unplug it from power receptacle. Then open or remove Covers.

2. **Interior:** Use a vacuum with a soft brush attachment or a can of compressed air to help loosen dust particles. **NOTE: Be careful around ink tray and capping station** in Print Engine area as accumulated ink may splash onto other parts of Printer. Take care not to damage PC Boards or electrical wiring.

3. **Exterior:** Wipe clean with a lint-free cloth using any standard nonabrasive household cleaner that does not contain plastic-harming solvents.

CAUTION
NEVER SPRAY OR POUR CLEANERS DIRECTLY ON OR INTO PRINTER. EXCESS LIQUID COULD HARM ELECTRONIC PARTS. DAMPEN A LINT-FREE CLOTH WITH THE CLEANER AND APPLY IT TO PARTS TO BE CLEANED.

Feed Rollers and Forwarding Rollers

Feed, Forwarding and Transport Rollers can become glazed with paper lint and ink from media. Clean regularly with a mild abrasive household cleaner on a damp lint-free cloth.

NOTE: Avoid using solvents on Rubber Rollers.

Print Engine

Areas in Print Engine can become glazed with a buildup of dust, paper lint and accumulated ink and have to be cleaned regularly. Open Top Cover. Use a vacuum to pick up any loose debris.

NOTE: Be careful around Ink Tray and Capping Station in Print Engine area as accumulated ink may splash onto other parts of Printer. Take care not to damage PC Boards or electrical wiring.

CAUTION
USE ONLY DEIONIZED/DISTILLED WATER TO CLEAN PRINT ENGINE COMPONENTS. AVOID CONTAMINATING PRINTHEAD WITH CLEANERS, LUBRICANTS OR OTHER CHEMICALS.

[A] Media Sensors: Paper lint and dust may build up on Media Sensors. Use a can of compressed air or a damp (*not wet*) foam or lint-free cotton swab to gently swab Sensors. Take care not to drip water into Circuit Boards. Use a clean, dry swab to dab surfaces dry.
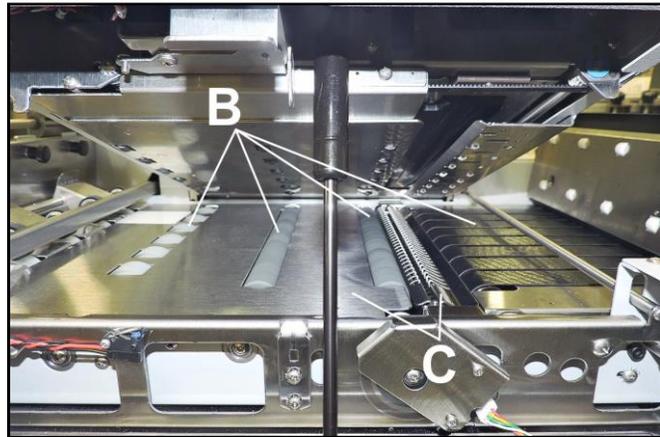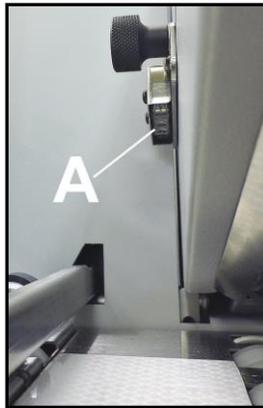
[B]. **Rubber Rollers and Conveyor Belts.**
Clean as needed using distilled water with a damp, lint-free cloth.
NOTE: Be careful not to splash or drip ink on other parts of Printer.
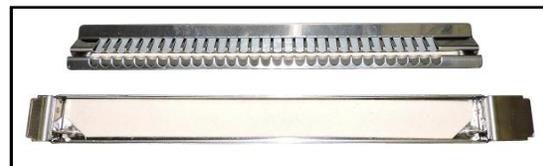
[C] Printing Surfaces, Ink Drip Cover and Tray.
Wipe using distilled water and a damp, lint-free cloth.
Pat dry with a lint-free cloth. **Ink Drip Tray:** Carefully remove Ink Drip Tray Cover and Ink Drip Tray.
DO NOT tip the Tray or ink may spill. Wipe off excess ink then clean using distilled water and a damp, lint-free cloth.

Cleaning Ink Revolver Couplings

1. **First Deprime system and remove Printhead Cartridge.**

2. Moisten a foam swab in distilled water.

3. Insert the swab into one of the ink channels and rotate swab to clean chamber.

4. Use a new swab for each of remaining ink channels until all 10 openings are clean. (*5 on each side.*)

63
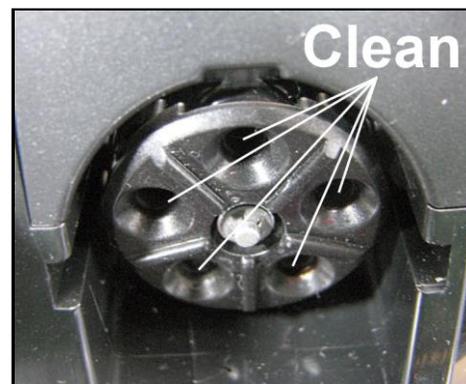
Shipping or Transporting Printer

If you have to ship or transport Printer for any reason, unit will have to be prepared. Once Printer is prepared, carefully package Printer, Printhead Cartridge, Service Station and Ink Tanks in original packaging.

Remove Printhead Cartridge

1. **Open Top Cover.** From the Touchscreen, tap **"Setup"** in the **Menu** drop-down, then tap **"System Deprime"**. The Printer pumps any ink in system back into Tanks. Then the Printhead Latch pops open.

CAUTION
DO NOT PRY OR MANUALLY LIFT PRINTHEAD LATCH OR LATCH MAY BREAK. ONLY OPEN LATCH USING THE RELEASE PRINTHEAD BUTTON ON THE TOUCHSCREEN OR IN THE PRINTER TOOLBOX.

2. Make sure Printhead Latch is fully opened to retract ink lines. Remove used Printhead Cartridge by tilting it toward ink lines, then carefully lifting it out of Printhead Compartment.

3. Pack Printhead Cartridge area with absorbent towels to catch any ink drips or spills. Carefully pack Cartridge using original packaging.
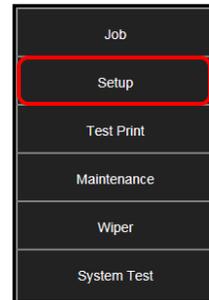
Empty and Clean Ink Drip Tray

1. **Open Clamshell.**

2. Carefully lift the two tabs out of the slots in the Print Engine Frame and remove Ink Drip Tray Assembly **[A]**. **DO NOT tip the Tray or ink may spill.** Empty the Tray if necessary and wipe off excess ink. Clean using distilled water and a damp, lint-free cloth.

3. Reinstall the Ink Drip Tray Assembly.
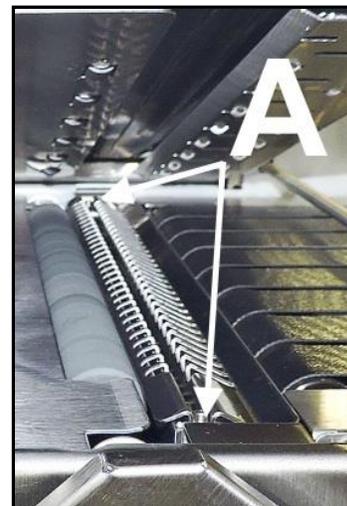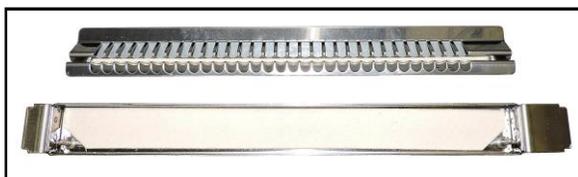
TURN PRINTER POWER OFF.

CAUTION

WHENEVER POWERING DOWN UNIT, ALWAYS:
    1.   PRESS POWER BUTTON ON CONTROL PANEL.
    2.   WAIT FOR PRINTER TO STOP PROCESSING.
    3.   THEN PRESS MAIN POWER SWITCH ON REAR PANEL.

Remove Ink Tanks

1. After depriming the system. Open Front Cover (*hinged at bottom*). Open the Ink Tank Latches **[A]** and pull Ink Tank(s) **[B]** out of Printer.

2. Carefully package Ink Tanks in original packaging.
    IMPORTANT: Make sure ink seals on Ink Tanks face up to prevent leakage.

3. Pack Ink Tank bays with absorbent towels to catch any ink drips or spills.

Works Cited:
FP. "Operator Manual." Edge Pro Support, 12 Mar. 2019, download.fp-usa.com/product_docs/EDGE-Print-Series/m1_operator_manual.pdf.
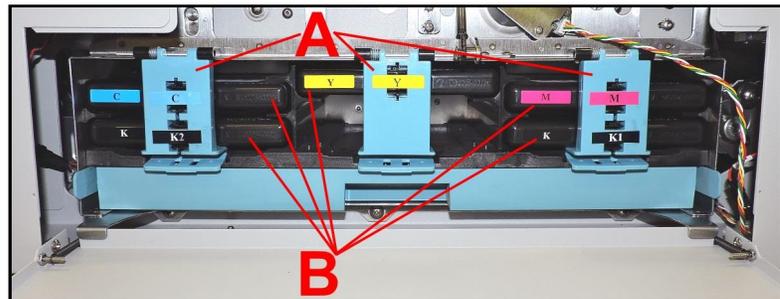
PRINTER MAINTENANCE SCHEDULE

General, periodic maintenance is needed to keep Printer in good working order. Many tasks can be performed by operators with basic supplies, no special tools needed. Other tasks should only be performed by trained service personnel. **NOTE:** High volume usage may require more frequent maintenance.

Maintenance Supplies & Equipment: Flashlight, small telescoping mirror, hard-bristled toothbrush or equivalent, powder-free nitrile gloves, protective clothing and eyewear, small flathead screwdriver, tweezers, vacuum with wand, deionized distilled water, can of compressed air, foam or lint-free cotton swabs, lint-free wipes, disposable shop towels.

COMPONENTS/TASKS	MAINTENANCE TYPE				
	DAILY	BI-WEEKLY	MONTHLY	YEARLY	AS NEEDED
PERFORMED BY OPERATOR					
Printhead (Manual Wiping)					WIPE
Ink Revolver Couplings and Connections: Inspection/Cleaning					EVERY PRINTHEAD REMOVAL
Residue and Debris Removal	CLEAN	CLEAN	CLEAN	CLEAN	CLEAN
Optical Sensors (Media Path)		CLEAN	CLEAN	CLEAN	
Wiper Assembly: Inspection		INSPECT	INSPECT	INSPECT	
Ink Tank Latches/Ink Bay				INSPECT	
Ink Tubing, Couplings, Components			INSPECT	INSPECT	
Ink Drip Tray	CLEAN WEEKLY OR AS NEEDED				
Ink Waste Tray			INSPECT	INSPECT	REPLACE
Printhead Lift Motor Belts, Service Station Motor Belts, Feed Motor Belt, Paper Path Motor Belt, Media Thickness Adjustment Belts			INSPECT	INSPECT	
PERFORMED BY SERVICE TECHNICIAN					
Lubrication				APPLY	APPLY
Pen Driver PCA Contacts: Cleaning					EVERY PRINTHEAD REMOVAL
Moving Parts/Motor				TEST	
Service Station Sled Assembly				CLEAN	
Wiper Assembly: Cleaning				CLEAN	

WARNING!

ALWAYS POWER DOWN PRINTER BEFORE CONNECTING OR DISCONNECTING ANY WIRING HARNESSES OR CABLE CONNECTIONS TO AVOID SERIOUS SHOCK OR INJURY.

CAUTION

- **ALWAYS USE APPROPRIATE PERSONAL PROTECTION EQUIPMENT (PPE).**
- **USE ELECTROSTATIC DISCHARGE (ESD) PROTECTION WHEN MAINTAINING EQUIPMENT.**
- **DISPOSE OF ALL MAINTENANCE WASTE IN ACCORDANCE WITH LOCAL REGULATIONS.**

Works Cited:

FP. "Operator Manual." Edge Pro Support, 12 Mar. 2019, download.fp-usa.com/product_docs/EDGE-Print-Series/m1_operator_manual.pdf.