AstroJet™ M1C
HIGH SPEED COLOR LABEL AND TAG PRINTER

OPERATOR MANUAL

Powered by memjet®

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SAFETY PRECAUTIONS

THIS EQUIPMENT PRESENTS NO PROBLEM WHEN USED PROPERLY. OBSERVE SAFETY RULES WHEN OPERATING M1C LABEL PRINTER.

BEFORE USING PRINTER, READ THIS MANUAL CAREFULLY AND FOLLOW RECOMMENDED PROCEDURES, SAFETY WARNINGS, AND INSTRUCTIONS:

- ✓ Keep hands, hair, and clothing clear of rollers and other moving parts.
- ✓ Avoid touching moving parts or materials while machine is in use. Before clearing a jam, be sure machine mechanisms come to a stop.
- ✓ Always turn machine off before making adjustments, cleaning machine, or performing any maintenance covered in this manual.
- ✓ Power cord and power supply supplied with machine. Plug it into a properly grounded, easily accessible wall outlet located near machine. Failure to properly ground machine can result in severe personal injury and/or fire.
- ✓ Power cord and wall plug are primary means of disconnecting machine from power supply.
- ✓ **DO NOT** use an adapter plug on line cord or wall outlet.
- ✓ **DO NOT** remove ground pin from line cord.
- ✓ **DO NOT** route power cord over sharp edges or trap it between furniture.
- ✓ Avoid using wall outlets that are controlled by wall switches or shared with other equipment.
- ✓ Make sure there is no strain on power cord caused by jamming it between equipment, walls or furniture.
- ✓ **DO NOT** remove covers. Covers enclose hazardous parts that should only be accessed by a qualified service representative. Report any cover damage to your service representative.
- ✓ This machine requires periodic maintenance. Contact your authorized service representative for required service schedules.
- ✓ To prevent overheating, do not cover vent openings.
- ✓ Use this equipment only for its intended purpose.

In addition, follow any specific occupational safety and health standards for your workplace or area.

This manual is intended solely for the use and information of Astro Machine Corp., its designated agents, customers, and their employees. The information in this guide was obtained from several different sources that are deemed reliable by all industry standards. To the best of our knowledge, that information is accurate in all respects. However, neither Astro Machine Corp. nor any of its agents or employees shall be responsible for any inaccuracies contained herein.

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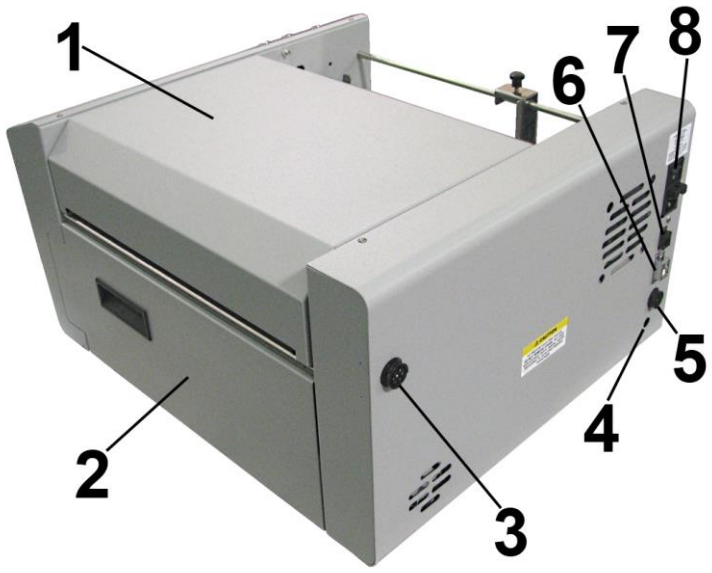
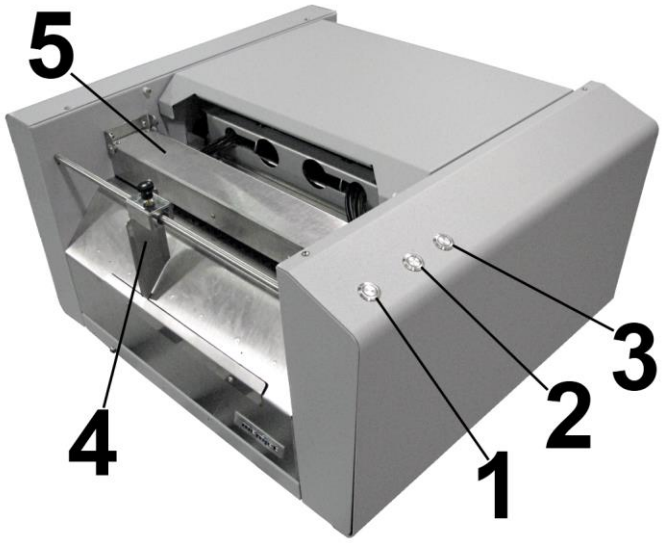
SECTION 1 – *Getting Acquainted*



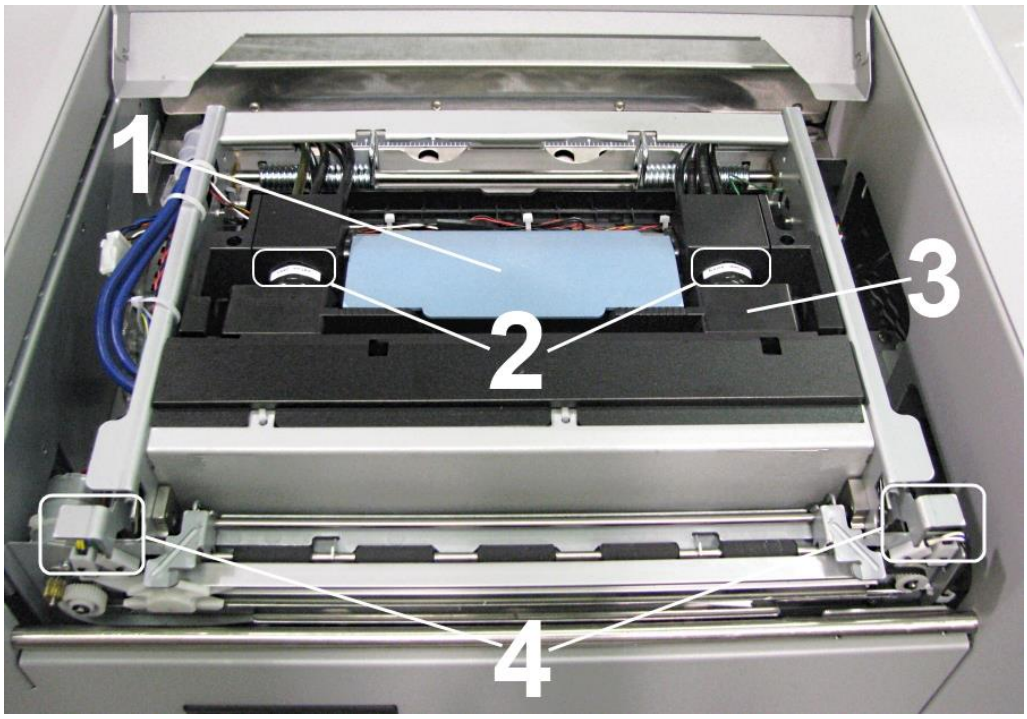
Front View

1.	**Top Cover** – Provides access to Print Engine.
2.	**Ink Tank Door –** Access to Ink Tanks. When open, disconnects Printer communication to Ink Tanks and allows safe installation and replacement.
3.	**Winder Interface Connection** – Winder Interface Cable plugs in here.
4.	**Service Port** – Provides advanced diagnostic access for service technicians.
5.	**Unwinder Interface Connection** – Unwinder Interface Cable plugs in here.
6.	**USB Port Connection** – Attach USB cable to Printer here.
7.	**Network Connection** – Attach network cable here.
8.	**Main Power Switch, Receptacle and Fuse – Receptacle:** Power cord plugs in here. **Power Switch:** Turns main power ON/OFF. (*Use Control Panel LED Power switch to turn machine OFF for cleaning and maintenance*). **Fuse:** Protects Printer's electronic circuits.



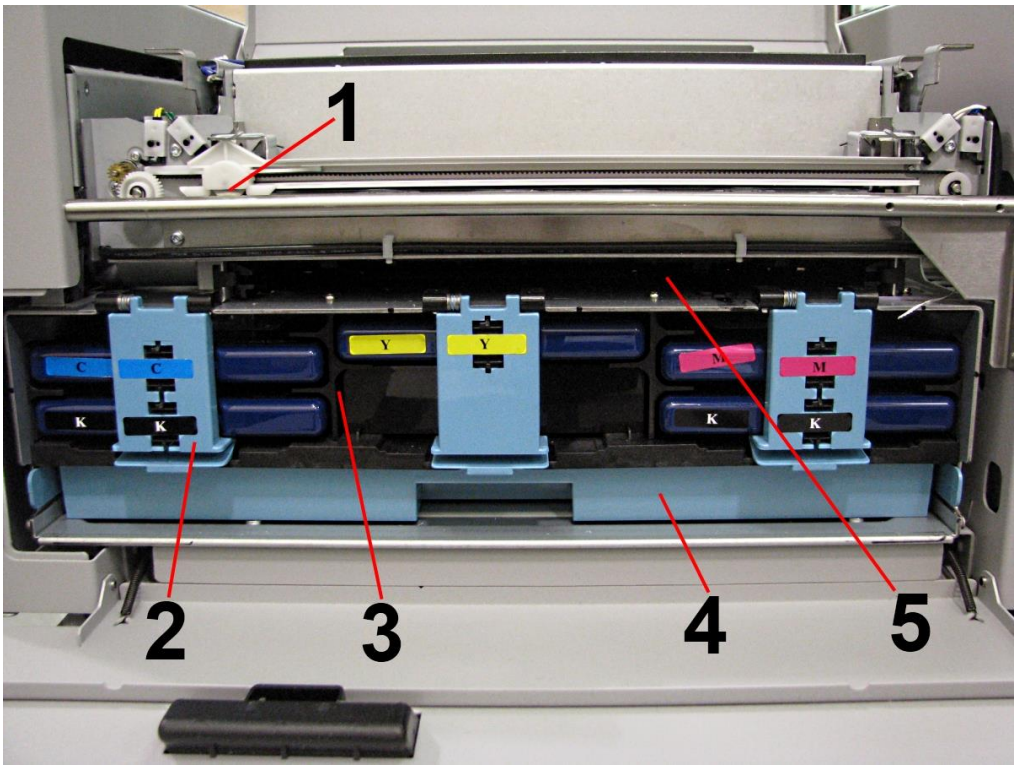
Rear View

1.	**ON/OFF LED Button** – Use to turn power ON or OFF during idle time and maintenance.
2.	**Print/Pause LED Button** – Press to stop printing, press to restart printing. Press switch to continue printing.
3.	**Cancel/Cut LED Button** – Press switch to cancel the job being printed. Also activates cutter to cut labels or roll at point desired.
4.	**Adjustable Media Guide** – Adjusts to hold paper/media against Alignment Guides.
5.	**Top Center Chamber Assembly (Brush Assembly)** – Keeps media flat as it feeds into Printer. Brushes remove debris and reduce static. Lift Assembly to load or clear media.



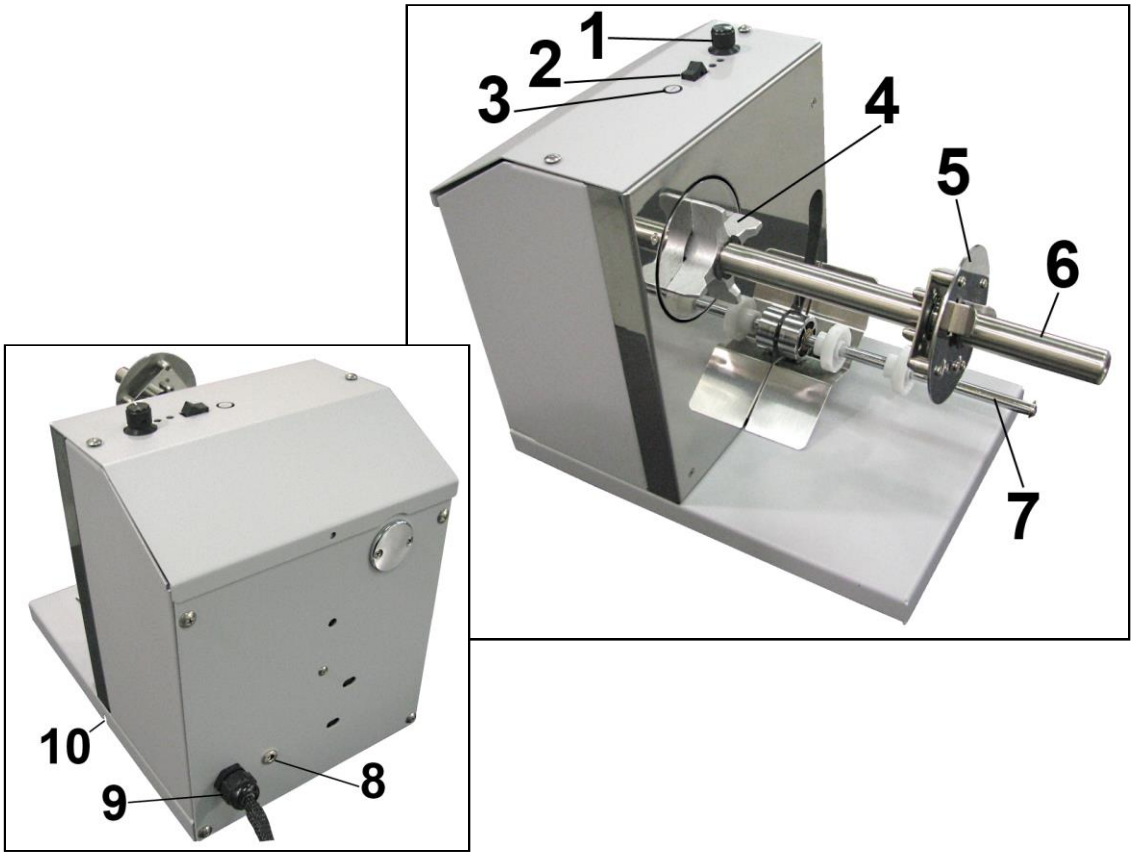
Print Engine View

1.	**Printhead Latch** – When closed, connects Ink Revolver Couplings with Printhead Cartridge. When opened, retracts Ink Couplings from Printhead Cartridge and provides access to Printhead Cartridge for cleaning and replacement. **WARNING!** Never attempt to open Printhead Latch manually, severe damage will result. Use Printhead Release function in Toolbox on your PC.
2.	**Ink Revolver Couplings** – Connect ink hoses to Printhead Cartridge. Printhead Latch extends and retracts couplings from Printhead.
3.	**Printhead Cartridge** – Memjet® Printhead produces an 8.5" wide full color print area.
4.	**Clamshell Latches** – Lift both latches at same time to open top half of Print Engine. **DO NOT** open while Printer is operating. **DO NOT** lift assembly more than 60 degrees. **DO NOT** let assembly drop, close it gently.



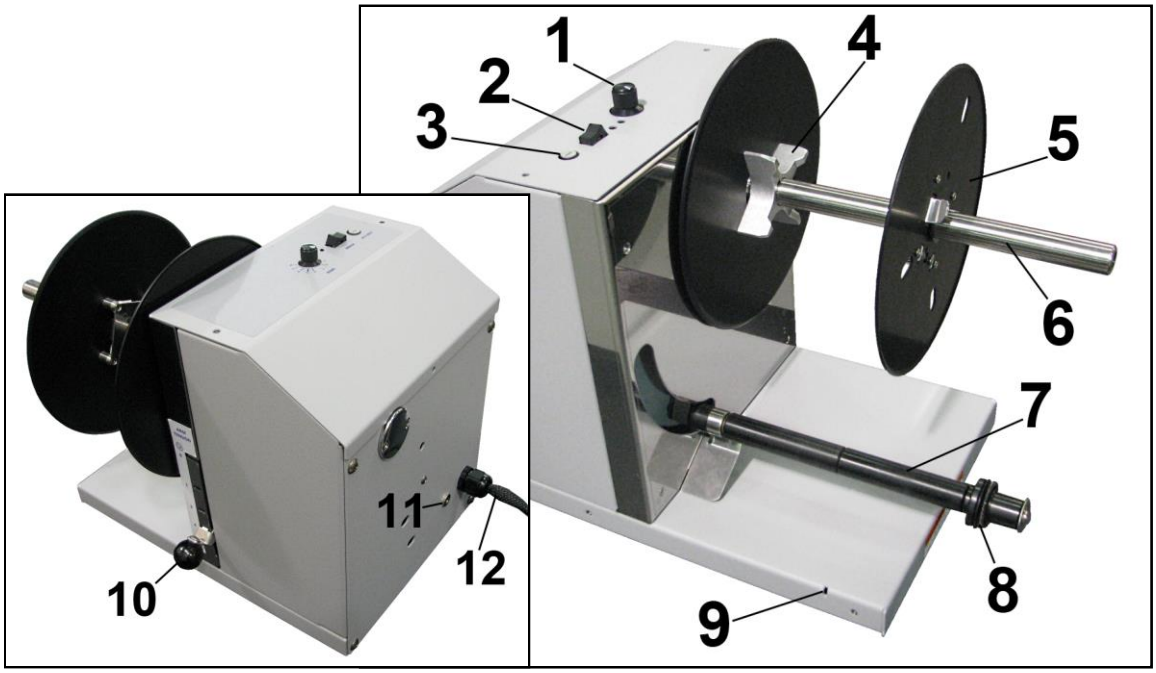
Ink Tank View

1.	**Cutting Blade Assembly** – Cuts media after each piece or at end of a job.
2.	**Ink Tank Latches** – Hold Ink Tanks in place.
3.	**Ink Tank Dock** – Holds 5 Ink Tanks. (*Ink Tanks shown installed*).
4.	**Ink Waste Tray** – Absorbs excess ink and drips that may occur during Printer operation and maintenance. Release Tabs located on both sides.
5.	**Service Station Dock** – Service Station is located here. Service Station keeps Printhead clean and hydrated during operation and maintenance cycles.



UW-1C Unwinder/Roll Feeder (Optional)

1.	**Speed Control** – Turn clockwise to speed up, counterclockwise to slow down.
2.	**AUTO/Manual Mode Switch** – Use to set Unwinder in **Automatic** or **Manual** Mode.
3.	**Fuse** – Unwinder fuse is located here.
4.	**Hub Assembly** – Reversible to fit 1-1/2" and 3" cores.
5.	**Spindle Lock** – Holds Label Roll on Spindle.
6.	**Label Roll Spindle** – Holds Label Roll.
7.	**Label Tension Guide Shaft** – Spring-loaded shaft controls starting and stopping as tension is maintained or released by media.
8.	**24V, 2.5A External Power Connector*** – For connecting printers or equipment other than M1C. **NOTE:** External power supply must be a UL Listed power supply. *Requires disconnecting wire from Unwinder circuit board and connecting wire from External Power Connector.
9.	**Unwinder Interconnect Cord** – Connects Feeder/Unwinder to Printer.
10.	**Alignment Notch** – Fits over Alignment Screw on Printer to keep Printer and Unwinder aligned.



RW-1C Winder (Optional)

1.	**Speed Control** – Turn clockwise to speed up, counterclockwise to slow down.
2.	**ON/OFF Switch** – Use to turn Winder power ON or OFF.
3.	**Fuse** – Winder fuse is located here.
4.	**Hub Assembly/Guide** – Fits 3" cores.
5.	**Spindle Lock/Guide –** Holds Label Roll in place on Spindle.
6.	**Label Roll Spindle** – Used to wind Printed Labels around an empty core.
7.	**Label Tension Arm –** Spring-loaded shaft controls starting and stopping as tension is maintained or released by media.
8.	**Adjustable Media Guide Ring –** Slides to fit width of media exiting Printer.
9.	**Winder Alignment Notch –** Aligns with notch on Spacer Plate mounted on Printer. Plate is then attached to Winder to keep Printer and Winder properly aligned and spaced apart.
10.	**Tension Control Selector –** Increases or decreases spring tension on Label Tension Arm to accommodate different media widths.
11.	**24V, 2.5A External Power Connector* –** For connecting printers or equipment other than Label Printer. **NOTE:** External power supply must be a UL Listed power supply. *Requires disconnecting wire from Winder circuit board and connecting wire from External Power Connector.
12.	**Winder Interconnect Cord –** Connects Winder to Printer.

Control Panel Button/LED Indicators:

3 Control Panel buttons with LED indicators.

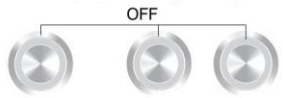
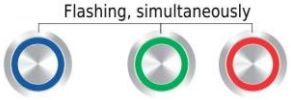
POWER (ON/OFF) – Turns Printer power ON and OFF. Turns off power for cleaning and maintenance.

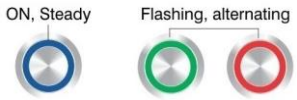
PRINT/PAUSE (PAUSE JOB/RESUME) – Temporarily stops Feed or Resumes Printing.

- **Press to Pause Job Temporarily.** Printer finishes printing media in progress, then stops and holds. Press once to pause jobs for up to 30 seconds to clear jams or other quick maintenance. (*Does not cap printhead*).
- **Press to Resume Printing.** Restart printing after a feed error (*media jams or out of labels*).

CANCEL/CUT (CANCEL JOB) – Stops a Job indefinitely (*for maintenance or problems that take longer to resolve*.) Caps Printhead to prevent dehydration and damage. Also Cancels a Job or Cuts the media.

- **Press to Stop Media Feeding.** Press a second time to cancel job.
  NOTE: Cancelled Jobs must be reloaded before printing can resume.
- **Press to Cut the Roll.** Once job is finished, pressing this button advances last printed label to cutter, cuts the roll and retracts media to start position.

LED Sequence	Printer Status	Recommended	Control Panel Options
	Power cord plugged in, Power Switch ON/OFF		◯ - Power Up ◯ - Inactive ◯ - Inactive
	***Normal operation:*** Downloading firmware. Power up. Power down.	Wait for process to finish.	◯ - Inactive ◯ - Inactive ◯ - Inactive
	Unit powered up. No job loaded.	Power down. Load media.	◯ - Power Down ◯ - Load media ◯ - Inactive
	Media loaded, No job pending	Load job or forward media to attach to Winder reel (*when loading roll-to-roll)*	◯ - Power Down ◯ - 3 sec – Forward media to Winder ◯ - 3 sec – Retracts media

LED Sequence	Printer Status	Recommended	Control Panel Options
	Busy Signal: Maintenance running Job loading	Wait for process to finish.	◯ - Inactive ◯ - Inactive ◯ - Inactive
	Job submitted, printing	Wait for process to finish. Power down. **Pause:** Printer stops & holds. (*Printhead not capped.*) **Cancel:** Forwards, cuts last label, retracts to start position. (*Printhead capped.*)	◯ - Power Down ◯ - Pause Printing ◯ - Pause Printing, Cancel Job
	Paused, job pending	**Print/Resume:** Press to resume printing. **Cancel/Cut:** Press to cancel job.	◯ - Power Down ◯ - Resume printing ◯ - Cancel Job
	EOR – End of Roll (*Paper Out*)	Load new media.	◯ - Power Down ◯ - Reload media ◯ - Cancel Job
	Hardware Error: Tilt Error Door Open Service Station Error Ink Valve Error Lifter Motor Error	Find and fix error(s).	◯ - Power Down ◯ - Clear Error, Resume Job ◯ - Clear Error, Cancel Job
	IDS Error: Ink Out Ink Tank missing Printhead missing	Replace Ink Tank(s) and/or Printhead. Reseat Ink Tank(s) and/or Printhead. Press “Refresh Ink Tanks” or “Circulate” in Toolbox.	◯ - Power Down ◯ - Clear Error, Resume Job ◯ - Clear Error, Cancel Job
	Any other errors	Find and fix error(s)	◯ - Power Down ◯ - Pause Printing ◯ - Pause Printing

Printer Default Printing Modes

Printer has three default **Printing Modes** *"Roll-to-Roll", "Roll-to-Cut",* and *"Fanfold"*. What is connected or disconnected from Printer determines what mode Printer will operate in and disables or enables automatic function of Cutter.

NOTE: These defaults will override any presets built into job being run. Before starting to print a job make sure Printer, Unwinder and Winder are set up correctly for that particular job.

PRINT MODE	UNWINDER	WINDER	CUTTER
Roll-to-Roll	Powered ON/Connected to Printer	Powered ON/Connected to Printer	Disabled. (*Still cuts manually by pressing **'CANCEL'** button*.)
Roll-to-Cut	Powered ON/Connected to Printer	Powered OFF or Disconnected from Printer	Enabled for automatic cutting
Fanfold	Powered OFF or Disconnected from Printer	Powered OFF or Disconnected from Printer	Enabled for automatic cutting

See Section 2 – Installing Printer, "Loading Labels" for how to load Roll and Fanfold Labels

SECTION 2 – *Installing Printer*

Contents of Packaging

1.	M1C Printer
2.	UW-1C Unwinder (*Optional*)
3.	RW-1C Winder (*Optional*) Includes Printer/Winder Spacer Plate, 2 shims
4.	Ink Tanks – Cyan, Magenta, Yellow, Black, Black
5.	Printhead
6.	Adjustable Media Guide
7.	AC Power Cord
8.	USB Cable
9.	Operator Manual
10.	Driver Software CD

Before using Printer:

- Choose a location for Printer (*plus optional UW-1C Unwinder and RW-1C Winder if used*)
- Unpack Printer (*plus optional UW-1C Unwinder and RW-1C Winder if used*)
- Pull Transport Tab from Service Station and remove Shipping Tape
- Install Printer/Winder Spacer Plate on Printer (*if RW-1C Winder used*)
- Plug in Printer and connect it to computer
- Install Printer Driver
- Install Ink Tanks
- Install Printhead
- Align Printer with UW-1C Unwinder and RW-1C Winder (*If used*)
- Connect UW-1C Unwinder and RW-1C Winder to Printer (*If used*)
- Load Labels (*Roll or Fanfold*) and Set Up Feed on Printer

Choose a Location

Place Printer on a sturdy level worktable or cabinet at least 9" from any walls. Use Bubble Gauge mounted on Print Engine (*or a small level*) to make sure Printer is level. Surface should be large enough to accommodate Printer, and UW-1C Unwinder and RW-1C Winder if used, in a line together. Protect Printer and optional Unwinder/Winder from excessive heat, dust, and moisture. Avoid placing it in direct sunlight.

Unpacking and Setup

Remove Printer, and optional UW-1C Unwinder and RW-1C Winder if used, and all parts from cartons. Remove all packing tape.

Remove Service Station Transport Tab

1. Open Top Cover.

2. Release two latches (*one on either side of Print Engine*). Open top half of Clamshell by lifting both levers at same time.

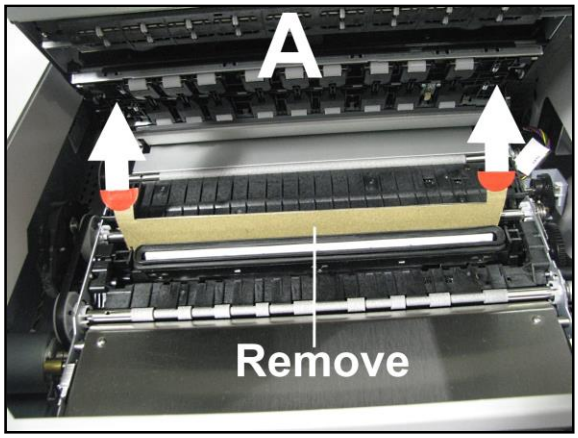
CAUTION

HOLD ONTO BOTH LATCHES WHEN OPENING AND CLOSING PRINT ENGINE CLAMSHELL COVER TO PREVENT DAMAGE.

DO NOT ALLOW CLAMSHELL TO DROP OR SLAM CLOSED.

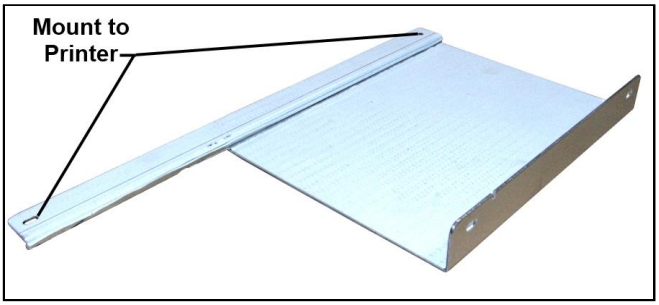
TO PREVENT DAMAGE TO INK LINES, A STOP LIMITS RAISING CLAMSHELL MORE THAN 60°.

3. Remove cardboard Transport Tab **[A]** from Service Station.



Install Printer/Winder Spacer Plate (Optional Winder):

1. Remove all four Printer feet.
   NOTE: To prevent ink from spilling or leaking, lift Printer only as high as needed to remove/replace feet.
   Move Printer to edge of bench or table to remove feet.
2. Install long edge of Spacer Plate under Exit End of Printer. Reinstall 2 feet to secure Plate to Printer.

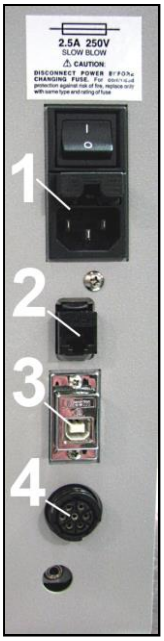


3. Install 1 washer/spacer on both remaining feet and reinstall on Printer. (*This will keep Printer level*.) See **"Position Winder"** in **"Aligning Unwinder and Winder".**

Connecting Printer

Plugging in Printer

Plug power cord into receptacle **[1]** on non-operator side of Label Printer. Internal power supply in Printer is rated 115 to 240VAC, 50/60 Hz.



CAUTION

DO NOT USE ADAPTER PLUGS OR EXTENSION CORDS TO CONNECT LABEL PRINTER TO WALL RECEPTACLE.

DO NOT USE OUTLETS CONTROLLED BY WALL SWITCHES.

DO NOT USE OUTLETS THAT SHARE THE SAME CIRCUIT WITH LARGE ELECTRICAL MACHINES OR APPLIANCES.

Connecting to Computer

Label Printer connects to computer through **USB port [3]**.
Network port [2] is provided for operating in a network environment.
Unwinder Interconnect port [4] is located just below USB port.

Turning Power ON and OFF

Powering Up Printer:

1. **Press Main Power Switch on Side Panel.**
2. **Press Power Button on Control Panel.**

Powering Down Printer:

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 SIDE PANEL.**

Install Printer Driver

For Printer software to operate properly, check that computer system meets these **minimum requirements:**

- **Operating System:** Windows 8/8.1, Windows 10 (*Desktop Mode only*). Windows XP, Windows Vista, Windows 7. Supports 32 and 64 bit systems. (*You must have administrative privileges on system*.) **NOTE:** Win 8, 8.1 and Windows 10 will only work in desktop mode. No Win 8 or 10 metro apps will be supported (*applications that work in a Windows 8 or 10 only environment*).
- **Microprocessor:** Pentium II, 2 GHz minimum (*Pentium Dual Core, 2.5 GHz or better, is optimal*)
- **System memory:** 2 GB minimum; or as recommended for your operating system.
- **Free hard-disk space:** At least 10 GB.
- **Web Browser:** Firefox recommended; Chrome, Safari, and Opera also supported.
- CD/DVD drive.
- **USB port (2.0/3.0):** (*Ports will be identified as "USB" or "Enhanced" in Device Manager*)
- Microsoft .Net Framework version 3.5 (*for 32 bit systems*) or Microsoft .Net Framework version 4 (*for 64 bit systems*) must be installed. **NOTE:** Even if you have a higher .NET Framework version installed; version 3.5 or 4 must also be installed, or Toolbox will not open.

IMPORTANT: Before installing Printer software (*Toolbox and Driver*), **temporarily disable all antivirus programs and firewalls**. In addition, you must be logged onto system with full administrative privileges (*admin rights*).

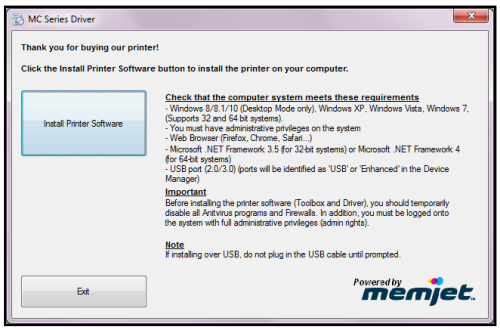
NOTE: If installing over USB, **do not plug in USB cable until prompted**.

Install Over USB Connection

This is the procedure for installing the Print Driver over the USB connection. The procedures for installing the Print Driver over a network connection follow.

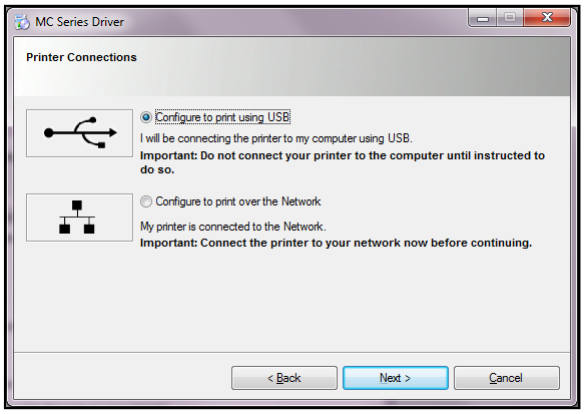
1. Check that Printer is plugged in and turned OFF. **Disconnect USB connection if already plugged in.** Install disk (*supplied*) in your CD drive to download driver.

Install Printer Software. Click **"Install Printer Software"** to start.

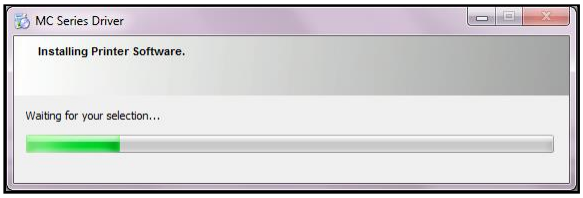


2. **License Agreement.** Check "I accept…" then click **"Next>"**.

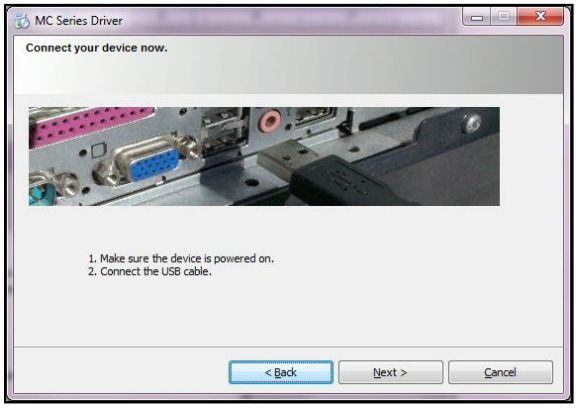
3. **Printer Connections.** Click **"Configure to print using USB"**. Click **"Next>"**.



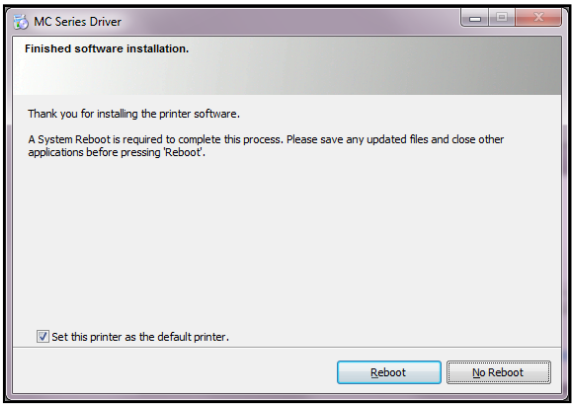
4. **Installing Printer Software.**



5. **Connect Device Now.**
Switch Printer ON and connect USB cable. **Don't click on either button.** Software will then finish installing.



6. **Finished software installation.** Do not check **Print Test Page** as Printer is not set up yet. You can also set printer to be default printer. To complete process, restart computer. Click **"Reboot"**.

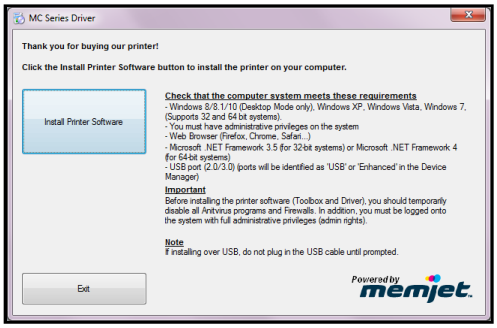


Install Over Network Connection, Version A

Use this procedure to install the Print Driver over the Network connection. This procedure works for almost all networks that allow automatic assignment of the IP address (*factory default*). **NOTE: Copy the 12-digit Hardware ID number listed on the Printer(s) on the label located just below the Ethernet port so you can identify the Printer(s) in a later step.**

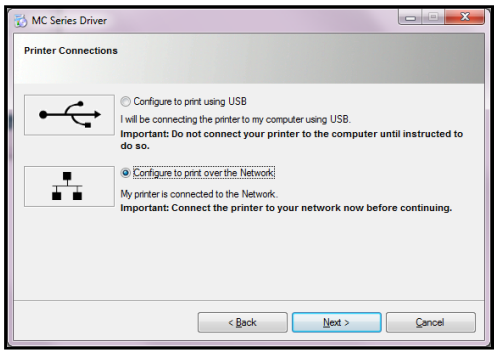
1. Check that Printer is plugged in and turned ON. **Make sure the Ethernet (*network*) cable is plugged into the Ethernet port on the Printer.** Install disk supplied with Printer in your CD drive. When **AutoPlay** Window opens, click **"Run Setup.exe"** to start.

2. **Install Printer Software.** Make sure computer system meets **minimum requirements** and you followed other instructions listed on screen. Click **"Install Printer Software"**.



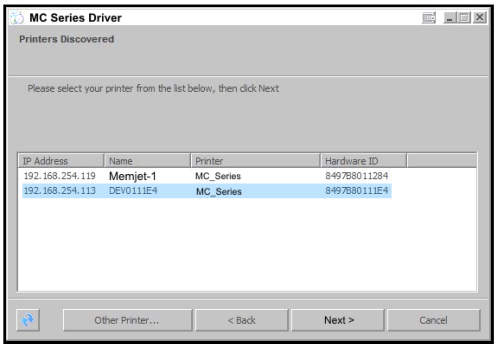
3. **License Agreement.**
Check "I accept…" then click **"Next>"**.

4. **Printer Connections.** Click **"Configure to print using the Network"**. Make sure the Printer is connected to the Network. Then click **"Next>"**.



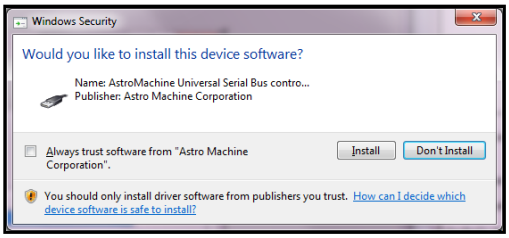
5. **Printers Discovered.** A list of available Printers opens. Check the **Printer** column to verify you have an **MC-Series** printer. Check the **Hardware ID** column and match the number listed to the number you copied previously from the Printer label. Select that Printer. Click **"Next>".**

   NOTE: If the Printer does not appear on the list, the IP address may have to be assigned manually. See "Install Over Network Connection, Version B".

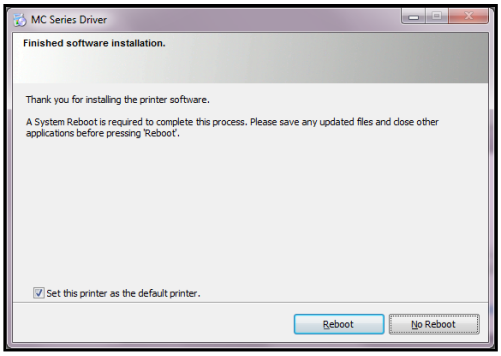


6. **Installing Printer Software.**
   Software download begins.

7. **Would You Like to Install This Device Software?** Click **"Install"**.

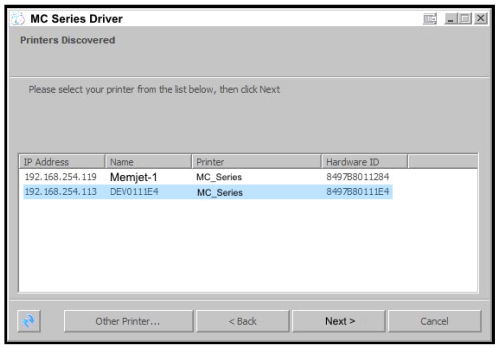


8. **Finished software installation.** Do not check the **Print Test Page** as Printer is not set up yet. You can check "Set this printer as the default printer" at this time. Click **"Next>"**.



Tip: To help distinguish between multiple MC-Series Drivers on your system; open the **"Printers and Faxes"** (*Devices and Printers*) folder and rename the Printers. **For example,** rename a network-configured printer **"MC Series (Network-1)"** and a USB-configured printer **"MC Series (USB)"**.

To open the "Toolbox" utility over an Ethernet (network) connection:
Click **Start**, **All Programs**, **Memjet**, **MC Series Driver**, **Toolbox**.



If more than one copy of the MC-Series Driver is installed, you will have to choose which device you want the **Toolbox** to connect to. To help choose the proper device, you can identify the Printer(s) using the **Hardware ID** you copied earlier or you can rename the Printer(s) as outlined in the **Tip** above.

Example:

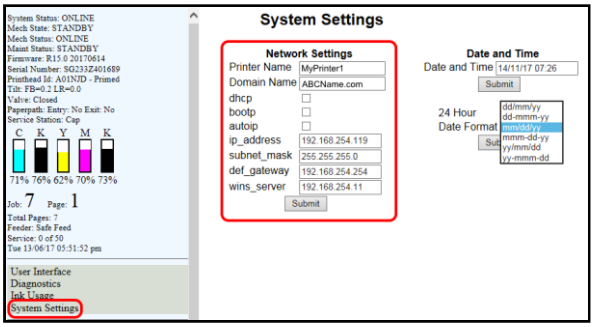
MC-Series Driver configured for USB: suggested name **"MC Series (USB)"**
MC-Series Driver (Copy 1) configured for Network: suggested name **"MC Series (Network-1)"**.
MC-Series Driver (Copy 2) configured for Network:
suggested name **"MC Series (Network-2)"**.

Install Over Network Connection, Version B

Use this procedure to install the Print Driver over the Network connection on **Static IP** systems requiring that an IP address is assigned manually. **NOTE: Copy the 12-digit Hardware ID number listed on the Printer(s) on the label just below the Ethernet port so you can identify the Printer(s) in a later step.**

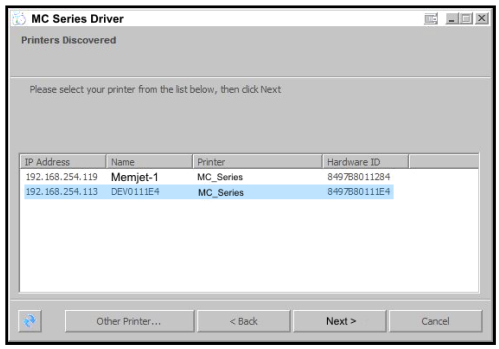
1. Install the Printer Software over a USB connection. This can be done using a nearby computer or laptop. Once the Driver and Firmware are installed on the Printer, use that same computer to open the **Printer Toolbox**.

2. Click **"System Settings"** on the **User Interface** window. The **System Settings** window opens. Under **Network Settings**, your IT support person can fill in the necessary information (*or you can get it from them.*) Click **"Submit"**.

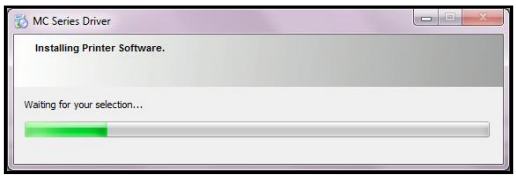


3. Disconnect the USB from the local computer or laptop. If not using that computer for printing, the MC-Series Software can be uninstalled.

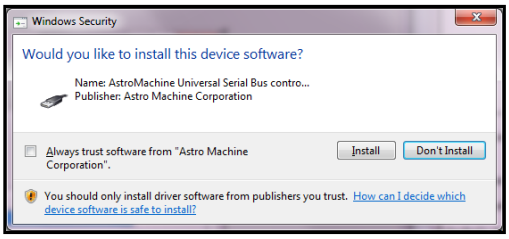
4. Connect the Ethernet cable to the Ethernet port and rerun the **"Install Over Network Connection, Version A"** procedure again. The Printer should now appear on the **"Printers Discovered"** window. The Printer can still be identified by its **"Hardware ID"**, but the new IP address entered by your IT support person (*or operator*) is shown. Select the desired Printer and click **"Next>"**. Follow the remaining steps.



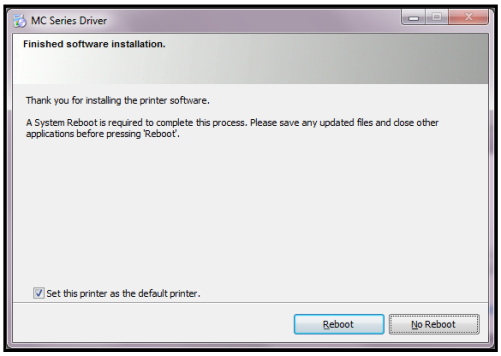
5. **Installing Printer Software.**
Software download begins.



6. **Would You Like to Install This Device Software?** Click **"Install"**.



7. **Finished software installation.** Do not check the **Print Test Page** as Printer is not set up yet. You can check "Set this printer as the default printer" at this time. Click **"Reboot"**.



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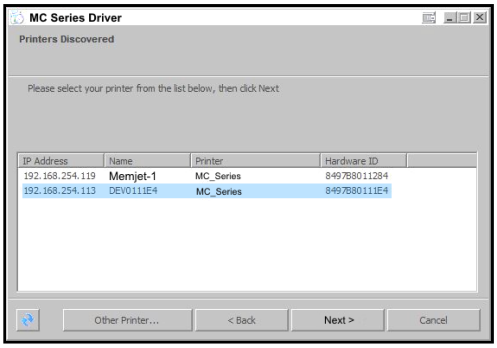
To open the "Toolbox" utility over an Ethernet (network) connection:
Click **Start**, **All Programs**, **Memjet**, **MC Series Driver**, **Toolbox**.

If more than one copy of the MC-Series Driver is installed, you will have to choose which device you want the **Toolbox** to connect to. To help choose the proper device, you can identify the Printer(s) using the **Hardware ID** you copied earlier or you can rename the Printer(s) as outlined in the **Tip** above.

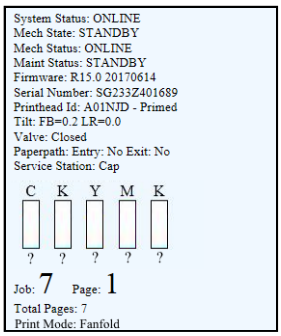


Example:

MC-Series Driver configured for USB: suggested name **"MC Series (USB)"**
MC-Series Driver (Copy 1) configured for Network: suggested name **"MC Series (Network-1)"**
MC-Series Driver (Copy 2) configured for Network: suggested name **"MC Series (Network-2)"**

Install Ink Tanks

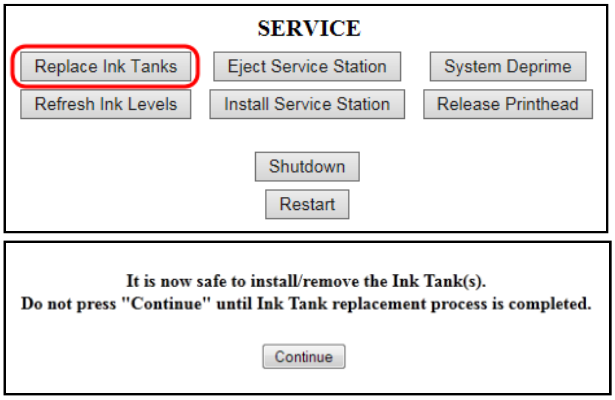
Printer uses one Printhead Cartridge and five Ink Tanks (*two Black, one Cyan, one Magenta, and one Yellow*).



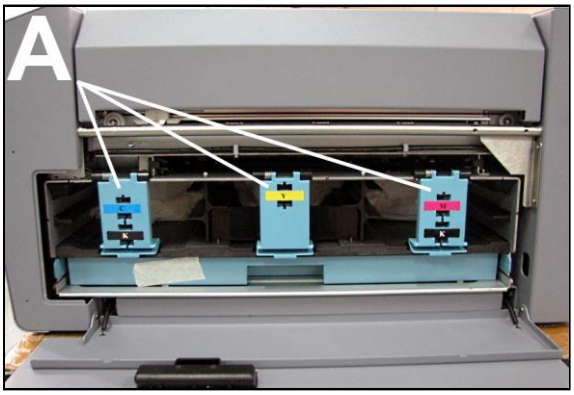
Install Ink Tanks as follows:

1. **Open Printer Toolbox.** Go to **Start Menu** and open **"Toolbox"**. System Status information appears in upper left corner of **User Interface** window. Note that **"CKMYK"** boxes are empty.

2. **Click "Replace Ink Tanks".** (*Disconnects Printer communication with Ink Tanks and allows safe installation and replacement.*) Once **"Confirm"** screen displays, it is safe to install Ink Tanks. **IMPORTANT: DO NOT press "Continue" until after you have installed Ink Tank(s) and closed Ink Tank Latches.**



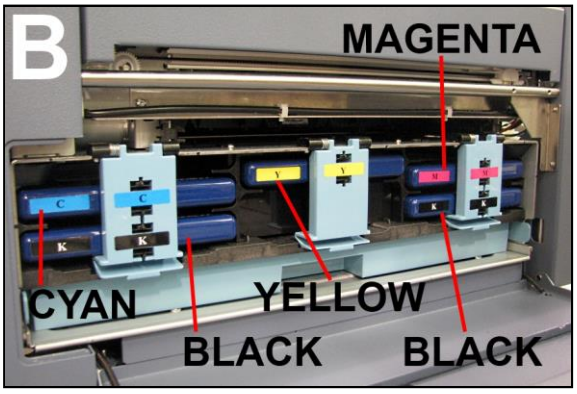
3. **Open Front Cover** (*hinged at bottom*). Open three Latches **[A]**.



4. Remove new Ink Tank(s) from packaging.

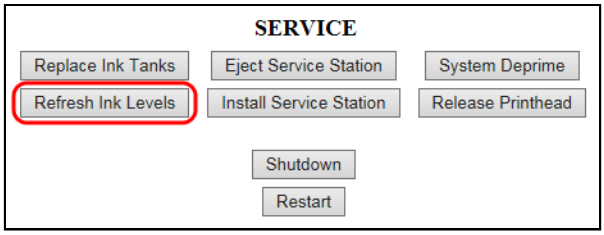
5. Insert new Ink Tanks (*labels up*) into appropriate color slots **[B]**. Close Latches.

   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.



6. Click **"Continue"** on **Confirm** screen, then **"Refresh Ink Levels"** on **User Interface** screen. Ink colors fill in as Ink Tanks are installed. If ink colors do not fill in after a few seconds, click **"Replace Ink Tanks"** again and reinstall Ink Tank(s).

7. Close Front Cover.



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.

Install Printhead Cartridge

Printhead Cartridge is a delicate precision device. Handle with extreme care to avoid damage and issues that could degrade print quality.

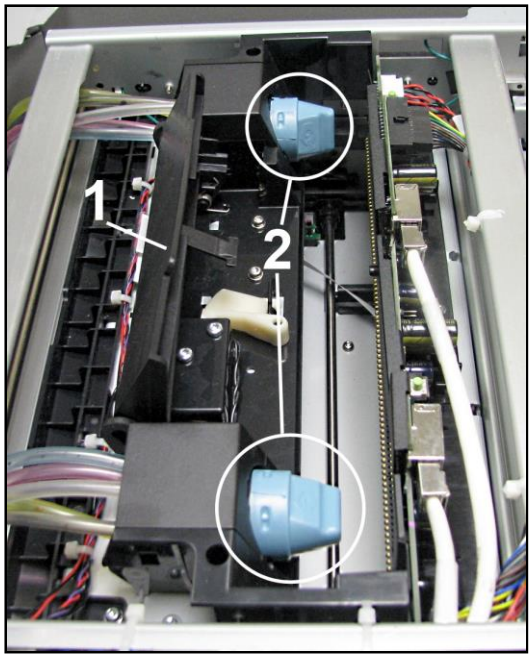
CAUTION

- **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.**

1. With Printer power ON, open Top Cover. Printhead Latch **[1]** should be already opened.

   NOTE: If Latch is closed, open it using **Printhead Release** button in Printer Toolbox.

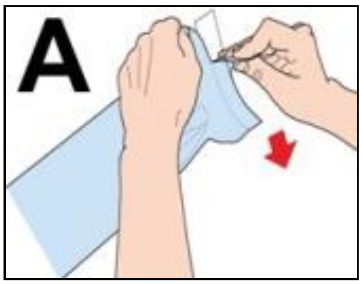
   Remove Cap Protectors on Ink Nozzles **[2]**. Open Latch fully to retract Ink Nozzles.

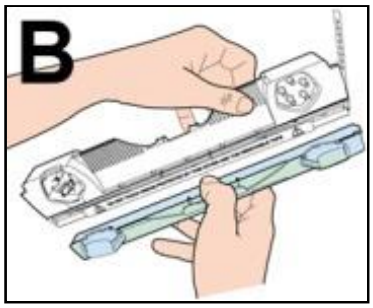


CAUTION

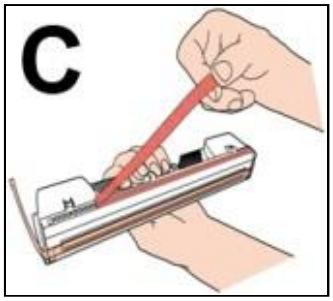
DO NOT PRY OR MANUALLY LIFT PRINTHEAD LATCH OR LATCH MAY BREAK. ONLY OPEN LATCH USING PRINTHEAD RELEASE COMMAND IN PRINTER TOOLBOX.

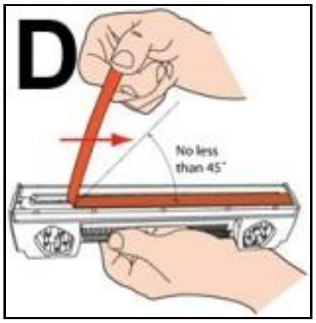
2. **[A] Carefully remove Printhead Cartridge from foil packaging**. Tear foil at notch or cut the end with scissors.





[B] Remove protective plastic cover. Hold Printhead by handle and unclip cover from Printhead.

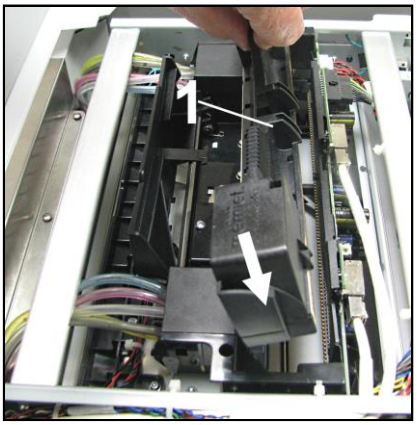


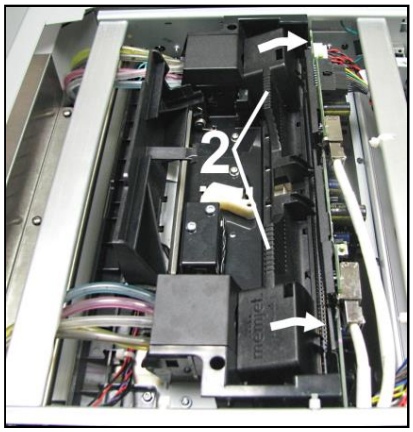


[C] Remove protective strip from Printhead Electrical Contacts. **Once removed, DO NOT allow strip to touch electrical contacts.**

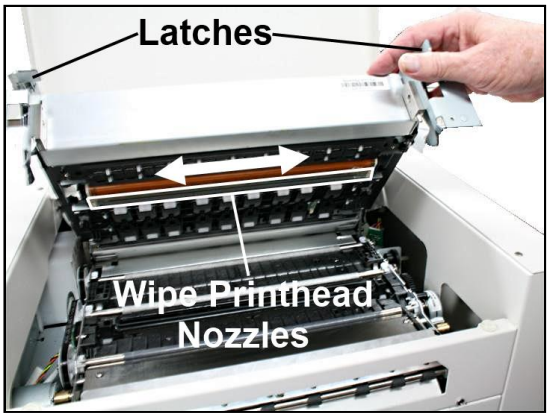
[D] Remove protective strip from Printhead Nozzles. Hold Printhead by handle. Pull strip tab and slowly peel strip from Printhead. **DO NOT pull strip at less than a 45° angle from Printhead surface. DO NOT allow removed strip to touch Printhead Nozzles.**

3. Carefully insert Cartridge into compartment at an angle **[1]**, with Printhead surface facing down and Ink Nozzles facing Ink Hoses. Once seated, gently tilt Cartridge back until it snaps into an upright position **[2]**. **DO NOT FORCE Cartridge into position.**





4. **Wet Printhead Surface. (*Ensures Printhead will prime correctly*.)** Open Top Cover. Release and lift two latches **at same time** to raise Print Engine Clamshell. **Moisten Printhead nozzles using distilled water and a damp, lint-free cloth, wiping end to end. (*Gray strip located below orange strip.*) Close and latch Print Engine Clamshell.**

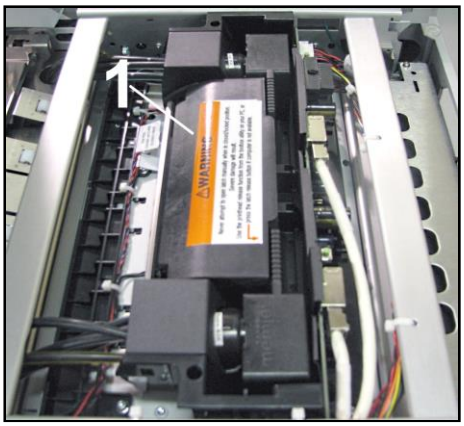


CAUTION

HOLD ONTO BOTH LATCHES WHEN OPENING AND CLOSING PRINT ENGINE CLAMSHELL TO PREVENT DAMAGE.

DO NOT ALLOW CLAMSHELL TO DROP OR SLAM CLOSED.

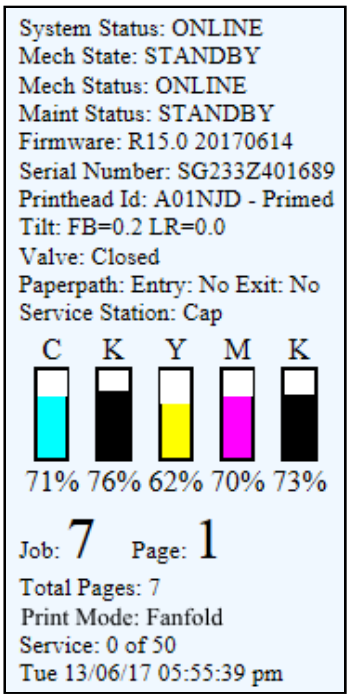
TO PREVENT DAMAGE TO INK LINES, A STOP LIMITS RAISING CLAMSHELL MORE THAN 60°.



5. **Close Printhead Latch [1]**. Printer will start up and prime ink into Printhead. (*May take a few minutes*.) Make sure that ink is flowing through hoses.

6. Watch Toolbox screen. Notice that some information is in *red*. As Printer circulates ink and primes the system, these fields should turn *black*.

7. When Printer stops processing and all fields in System Status are *black*, Printer is ready for use. Close Top Cover.



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

Removing Media Guide

Plastic Media Guide helps prevent smearing by holding down media such as roll-fed, die-cut, matrix-removed and perforated label stock. If necessary, it is easily removable by hand.

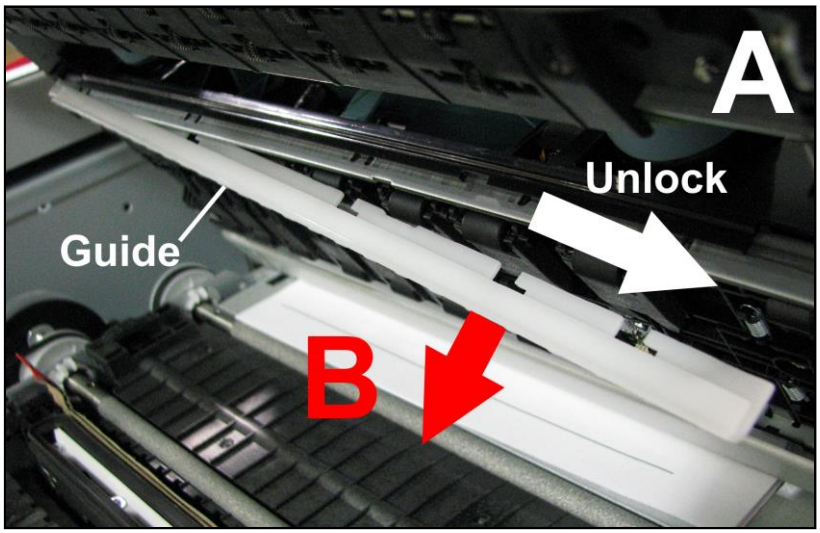
1. Open Top Cover

2. Open Print Engine Clamshell.

CAUTION
HOLD ONTO BOTH LATCHES WHEN OPENING AND CLOSING PRINT ENGINE CLAMSHELL TO PREVENT DAMAGE. **DO NOT ALLOW CLAMSHELL TO DROP OR SLAM CLOSED.** **TO PREVENT DAMAGE TO INK LINES, A STOP LIMITS RAISING CLAMSHELL MORE THAN 60°.**

3. **[A] & [B]** Slide Media Guide to the right and pull down on Guide to release it from metal support**.**

   [C] Remove Guide from Printer. **Save for later use.**



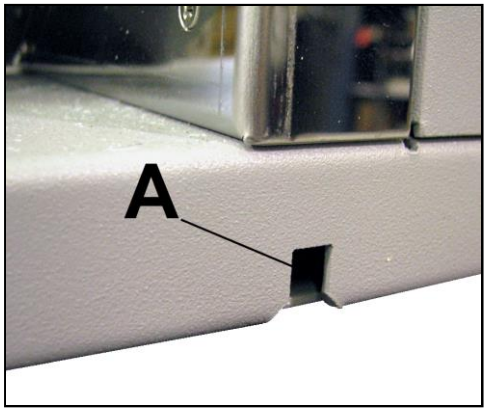
Aligning Printer with UW-1C Unwinder and RW-1C Winder

Roll-to-Roll Label Printing

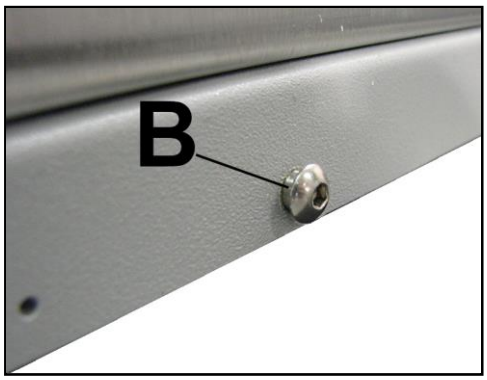
Make sure Unwinder and Winder are properly connected to Printer and turned ON, this will disable automatic function of Cutter. (*Cutter still operates manually by pressing CANCEL button*). Proper alignment of Unwinder, Printer and Winder is critical to operation of Label Printer. Position Printer on a sturdy, stable level work surface with enough room to place Unwinder and Winder at either end.

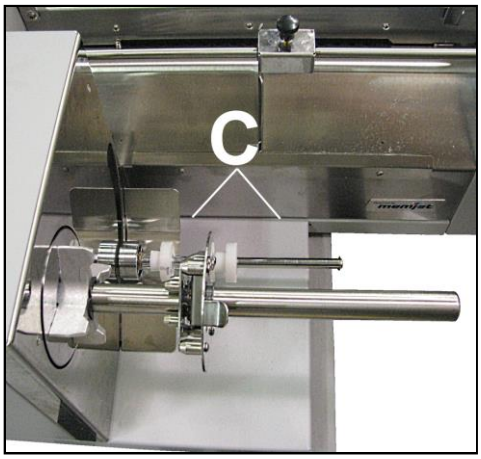
Position the Unwinder:

1. Fit square notch cut into Unwinder Base **[A]** over pin located along base of feed end of Printer **[B]**.



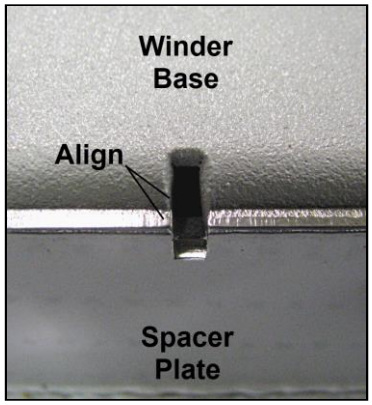
2. Make sure base of Unwinder and base of Label Printer are flush **[C].**

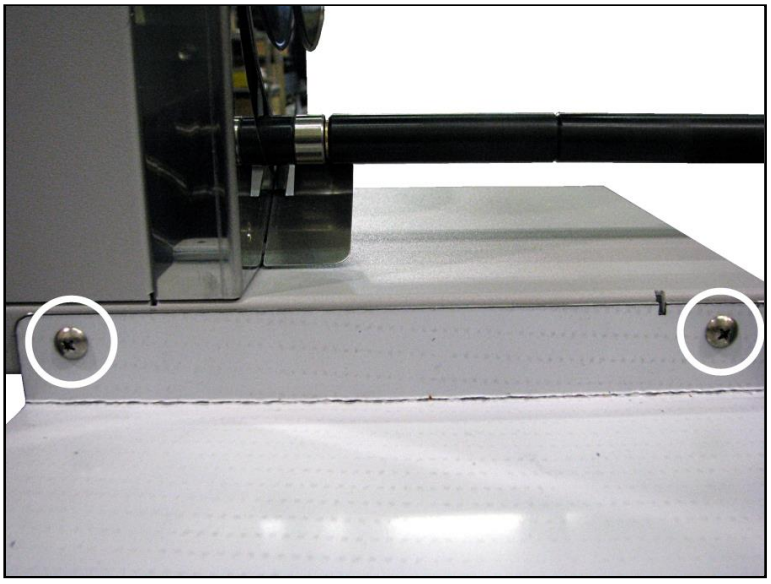


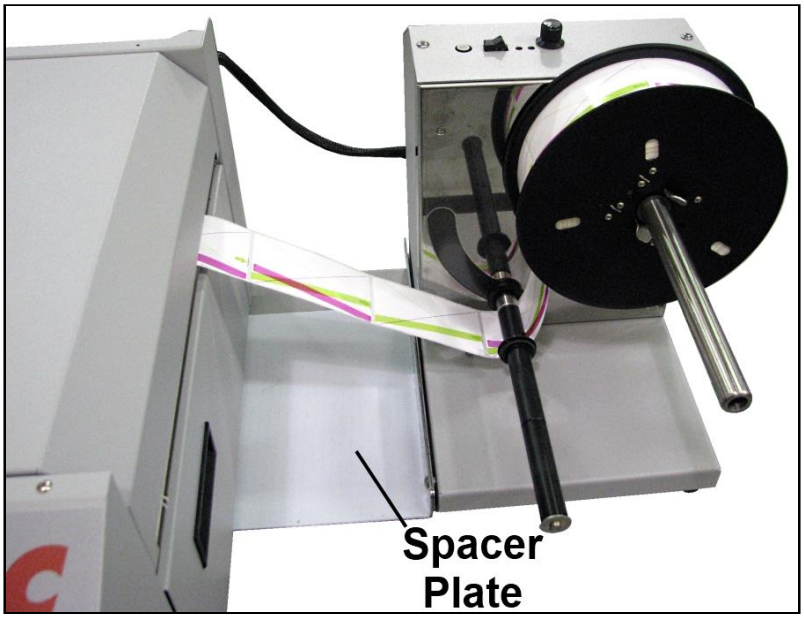


Position Winder:

1. Align notch on Printer Spacer Plate with corresponding notch on Winder Base (*as shown*). When aligned, attach Spacer Plate to Winder Base with two screws (*included*).







2. **Test Alignment.** Run a job. If extreme web drifting is observed or web runs to one side, readjust Winder alignment. Loosen two Spacer Plate mounting screws. Slide Winder forward or backward as needed, then tighten screws.

Roll-to-Cut Label Printing

Make sure Unwinder is properly connected to Printer and turned ON. Winder should be turned OFF or disconnected to enable automatic operation of Cutter. Proper alignment of Unwinder and Printer is critical to operation of Label Printer. Position Printer on a sturdy, stable level work surface with enough room to place Unwinder at feed end of Printer.

See **"Position Unwinder" Steps 1-2** above.

Connecting Printer to Optional Unwinder and Winder

WARNING!

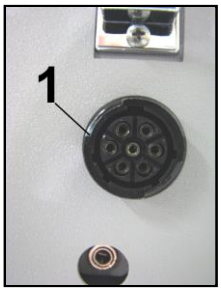
HAZARDOUS MOVING PARTS!
KEEP FINGERS AND OTHER BODY PARTS AWAY!

CAUTION

MAKE SURE THAT PRINTER IS TURNED OFF BEFORE CONNECTING UNWINDER AND WINDER.

Connecting to UW-1C Unwinder:

Connect one interconnect cable into 7-pin connector port on Printer **[1]** (*located just below USB port*).



Connecting to RW-1C Winder:

Connect other 7-pin interconnect cable into 7-pin connector port (*located on exit end of Printer's non-operator side panel*) **[1]**.

Unwinder Mode Switch

Unwinder has a Mode Switch for **"Auto"** or **"Manual"** operation. When used with M1C, Unwinder can be left in **"Auto"** position.

Auto – Unwinder is OFF. Unwinder is controlled by Printer (*or other external device*) thru interface cable. Allows easy roll loading since Unwinder will not start turning when Drive Press Roller is lifted, only when Printer is running a job.

Manual – Unwinder is always ON. When Drive Press Roller is balanced (*in center position of its arc*), unit is OFF. If tension from media increases (*Roller raises*), unit turns clockwise to relieve tension. If tension from media decreases (*Roller drops*), unit turns counterclockwise to increase tension. This is useful if using Unwinder with a non-interface external device.

Loading Labels

Roll-to-Roll Printing

IMPORTANT! Make sure Unwinder and Winder are connected to Printer.
This ensures that Cutter's automatic cut function is disabled.
(*Cutter can still be engaged manually by pressing Cancel button*).

Printer is equipped with one Adjustable Side Media Guide. Make sure Unwinder is set to **"Auto"** and Winder (*if used*) is turned OFF and that both are connected to Printer via appropriate ports.

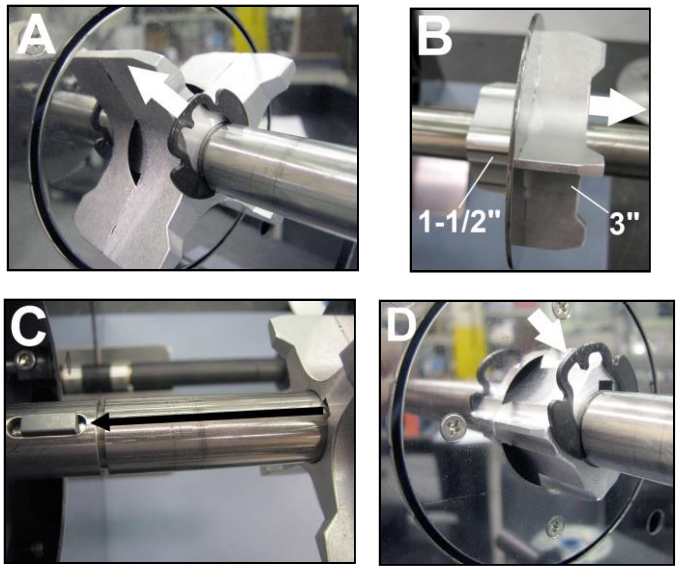
1. **Adjust Core Size (*Unwinder only*)**: Unwinder can fit 1-1/2" or 3" cores using reversible Hub Assembly. **To change core sizes:**

   [A] Carefully remove retaining-clip holding Hub Assembly in place.

   [B] Slide Hub Assembly off Shaft. **NOTE: Do not lose key in slot in Shaft.** Each side of Hub fits a different size core. (*Larger side fits 3" cores; smaller side fits 1-1/2" cores.*)

   [C] Turn Hub so desired core size is facing out. Slide Hub Assembly back into place over key in Shaft.

   [D] Reinstall retaining-clip into groove cut in Shaft.

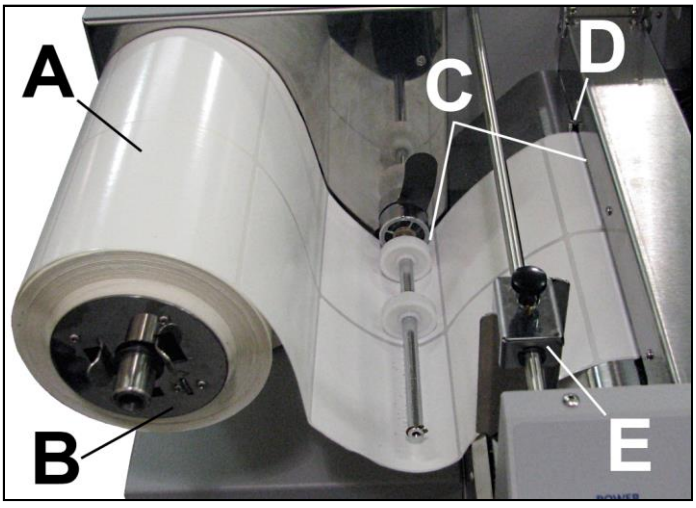


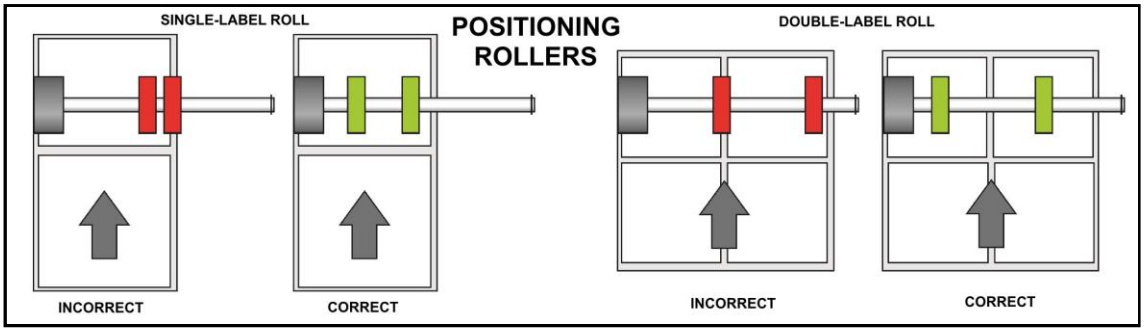
2. **Load Label Roll:**

   [A] Slide Roll onto Unwinder Shaft, labels facing up with Roll End facing Printer.

   [B] Slide Roll Lock onto Unwinder Shaft until 4 pins fit into roll core.

   [C] Pull roll leader under Drive Press Roller, under crossbar, raise Brush Assembly and push leader to entry of Print Engine. Lower Brush Assembly. **NOTE:** Position Drive Press Rollers evenly on label or labels, **NOT** on label backing. (*See illustration below.*)

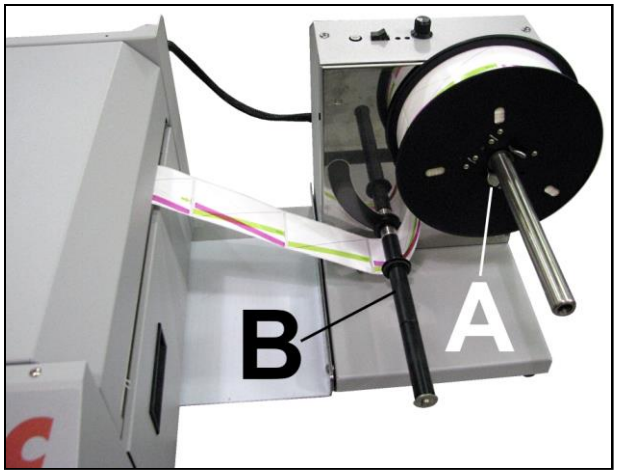




[D] Align side edge of roll with two alignment pins on Printer and feed roll end into Print Engine.

[E] Slide Adjustable Side Guide until it just touches labels.
Tighten locking knob on Adjustable Side Guide.

3. Press the **Print** button momentarily and the Printer aligns and pulls the labels into the Printer.
Holding the **Print** button down feeds about 30" (75 cm) of media through Printer to provide enough leader to attach it to the Winder.



4. **[A]** Load an empty 3" core on Winder Spindle. Slide Spindle Lock on shaft until 4 pins fit into roll core.

[B] Take leader end and pull it under Label Tension Arm on Winder.

[C] Tape or glue roll end (*label side up*) to top side of empty core.
NOTE: Make sure edge is secured straight on core for proper winding.

[D] Slide Adjustable Media Ring Guide on Label Tension Arm to edge of media.

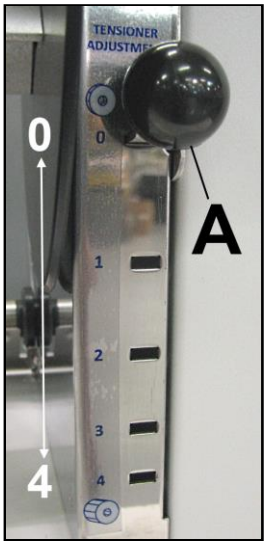
Adjusting Speed on UW-1C Unwinder and RW-1C Winder

For proper media feeding and printing, adjust speed on Unwinder and Winder depending on type of media and job you are running.
To speed up Unwinder and Winder, turn Speed Controls clockwise.
To slow the speed, turn Control counterclockwise.

CAUTION

SETTING UNWINDER SPEED TOO HIGH CAN CAUSE MEDIA TO HESITATE AS IT UNWINDS AND AFFECT PRINT REGISTRATION.

Adjusting Winder Tension



Use **"Tension Control Selector" [A]** to adjust spring tension on "Label Tension Arm" for different label stock widths.
Use **"0"** setting (*least tension*) for narrow label stock and **"4"** setting (*highest tension*) for widest label stock.
NOTE: Setting tension improperly can cause print to misregister due to label stock being pulled with too much force. If this occurs, try decreasing tension (*set at a lower number*). If tension is set too low, roll may not be rewound properly.

Roll-to-Cut Labels

IMPORTANT!

Winder must be turned OFF or disconnected from Printer and moved out of the way. This ensures that automatic cut function is enabled.

Load Label Roll on Unwinder and Printer using **Steps 1-2** in **"Roll-to-Roll Printing"** above. Then press **Print** button momentarily so Printer will align and pull in labels.

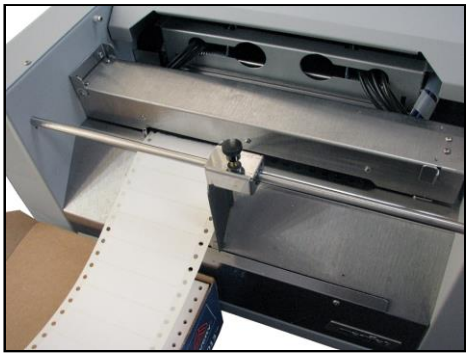
Printing Fanfold Labels

IMPORTANT!

Make sure both Unwinder and Winder are turned OFF or disconnected from Printer and moved out of the way. This ensures that automatic cut function is enabled.

Loading Fanfold Labels:

1. Place Fanfold Labels label-side up next to feed end of Printer.
2. Feed Labels under Brush and into Printer, aligning left-side edge with alignment pins on Printer. Feed Label end into Print Engine.
3. Slide Adjustable Side Guide so it just touches right-side edge of labels.
4. Press the **Print** button momentarily and the Printer will align and pull in labels. Hold the **Print** Button down to feed about 30" (75 cm) of media through the Printer.



Bleeds

Bleeds – See **"Appendix C – Borderless Printing: Overspray vs. Oversize"**.

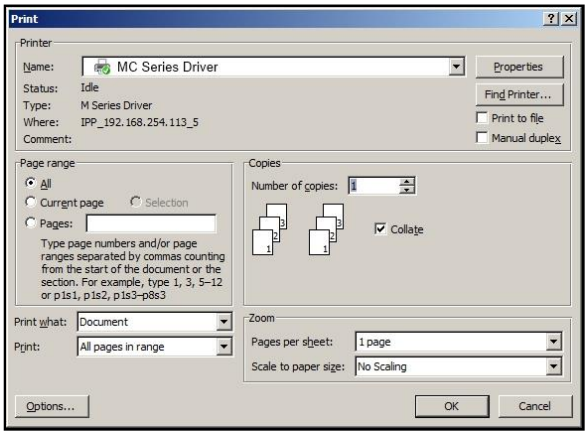
SECTION 3 – *Operating Printer*

Once Printer Driver is installed and Printhead is primed, you are ready to start printing.
Set up your job and send it to Printer. Printer will start up and print. The Printer Driver installed in **Section 2** should be set as default driver. It is then accessible through your applications (*such as Microsoft Word*). Other types of applications and database management software will work in a similar manner when using this Driver. This Section further assumes that feed is set up and Printer is connected to your computer.

Printer Driver Properties

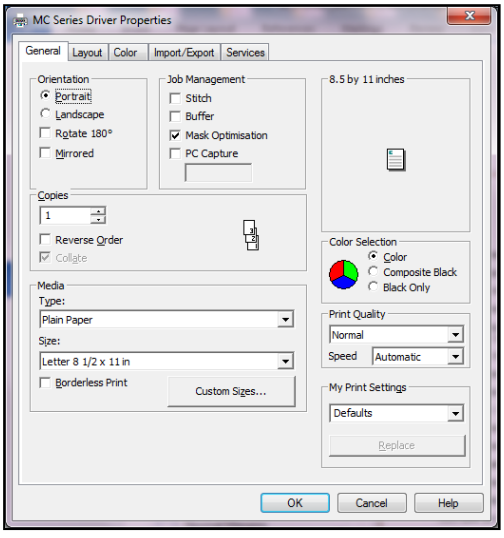
Printer Driver works the same as any other Printer Driver for Windows. It has enhancements to help maximize Printer's ability to print variable addressed pieces quickly and efficiently.

Once job is set up, click **Print**. Window at right opens. Make sure **MC Series Driver** is selected Printer. Clicking on **Properties** opens **"Properties"** window.



General Tab

General tab lets you select:

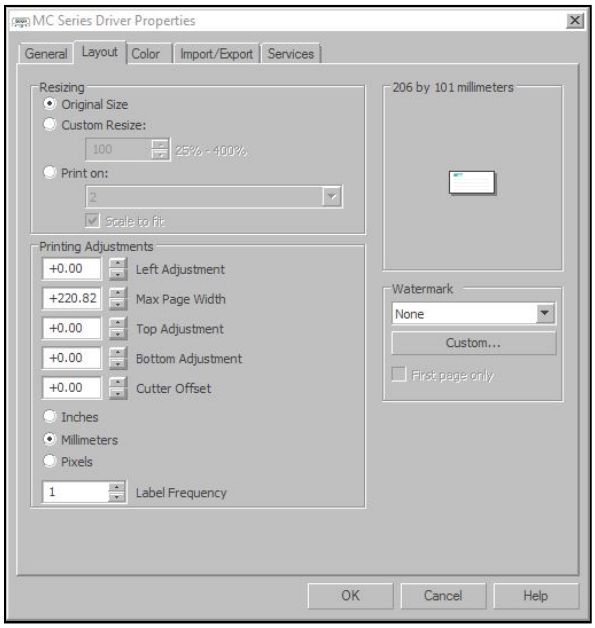


- **Orientation** – Portrait (*default*), Landscape, Rotate 180° and Mirrored.
- **Page Management:**
  Stitch is for printing on continuous media (*no gaps*).
  Buffer loads the entire print job before printing starts.
  Mask Optimization (*checked is default*) optimizes images for printing in most applications. **NOTE:** Some applications (*like FlexMail*) may display image boundaries when printed, unchecking **Mask Optimization** box eliminates these lines. (*Remember to check box when changing applications*.)
  PC Capture – When checked, saves a Print File (*.prn) on the PC (C:\Windows\Temp) for later use. (*Unchecked is default*.)
  NOTE: Use the box below the selection to name the file, otherwise the Printer assigns the current date and a numerical name.
- **Copies** – Enter number of copies to be printed.

- **Media** – Adjusts Printer for media being used for a job.
  Type: Choose type of media to be used.
  Size: Set a different size media than document was originally designed for. Document is automatically resized to fit new media.
  Overspray: Checking this box allows printing to edge of media (*borderless*). See **"Appendix C – Borderless Printing: Overspray vs. Oversize"**.
- Create and save a **Custom Size** to suit your needs.
- **Color Selection –** Set Printing for Color, Composite Black (*uses all colors to print Black*), or Black Only (*uses only Black ink*).
- **Print Quality** – Select **Normal** or **Best**. **Normal** is 1600 x 800 dpi. **Best** setting is 1600 x 1600 dpi, for use when high quality images are required. **"Speed"** allows you to adjust the Printer speed for the media being used (*i.e., slow the printing speed for higher quality on glossy stock*).
- **My Print Settings** – Access saved custom print settings for various jobs.

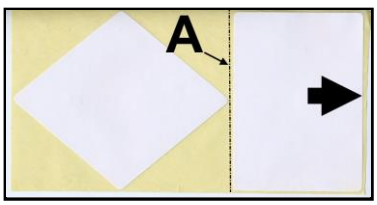
Layout Tab

Layout allows you change how document prints without changing original document.



- **Resizing** – Specify **Original Size** or **Custom Resize:** Resizes original as a % of normal size. Printer prints document in size you selected regardless of paper size selected.
  Print on: Specify particular size of paper that you want to print on regardless of size of original document. Checking **"Scale to Fit"** automatically resizes document to fit on new page size.
- **Printing Adjustments** – Make minor positioning changes to print area in relation to media if needed. Also set measurements to be in Inches, Millimeters or Pixels.
  NOTE: Printing Adjustments only works when Print Area is less than full print width (*less than 8.5"/ 215.9mm wide*).
  See "Using Layout Tab Printing Adjustments" on next page.
- **Label Frequency –** Allows Printer to ignore a set number of gaps between labels. This is particularly useful when the labels are different shapes and the Printer sensor may not sense the edge of second label correctly. (*For example, printing both front and back bottle labels in one pass*.) A label frequency of "1" reads the gap between every label. A setting of "2" will ignore the gap between the two labels **[A]**. (*In effect, the Printer* "*sees*" *the two labels as one label*). The **Label Frequency** can be set from **1-8**. **NOTE: Using this feature requires that the job be set up as one label in the layout software, so dimensions (*including gap*) must be accurate.**

Example of a Label Frequency of "2"



Using Layout Tab Printing Adjustments

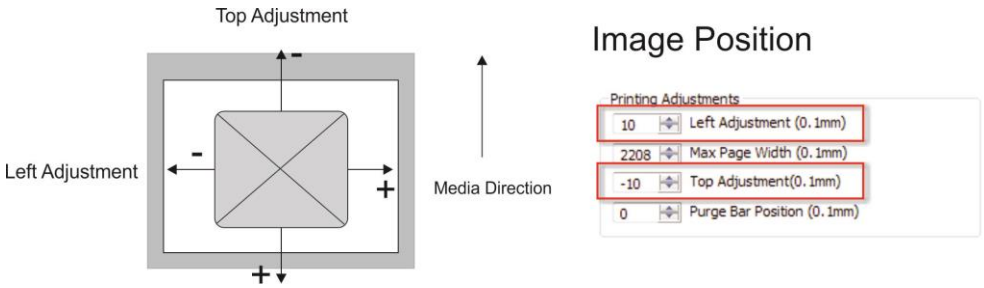
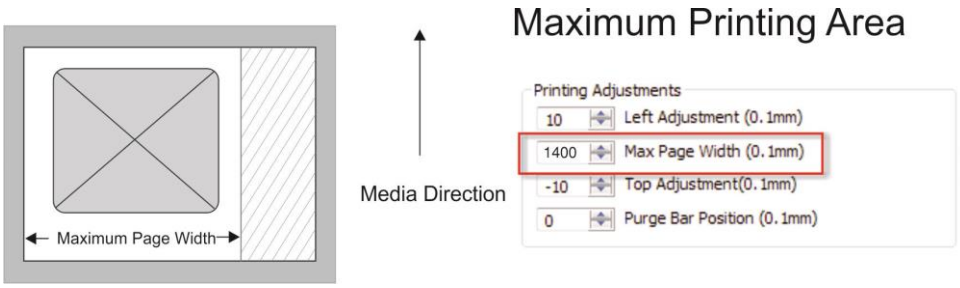
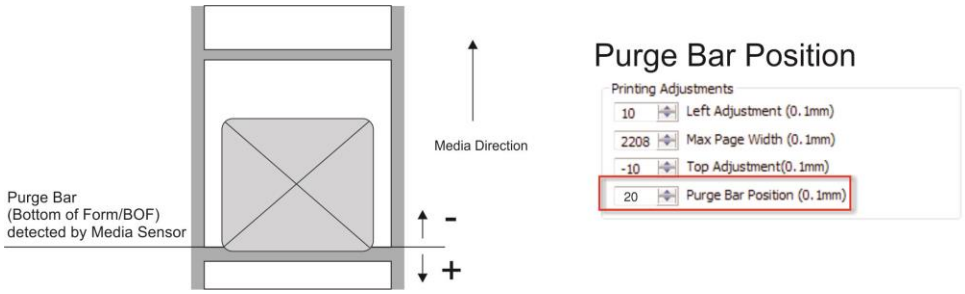


Image Position – **Left Adjustment** moves image area away (*-3mm left to +200mm right*) from left edge of media.

Top Adjustment moves image up or down (*-5mm up to +200mm down*) from top left corner of media used. (*0.1mm increments*)



Max Page Width – Sets width of actual print area. (*0.1mm increments*) This shuts off nozzles in non-printing area (*not used for printing*) and saves ink. **NOTE: Can be no larger than maximum print width for Printer (8.5"/215.9mm).**



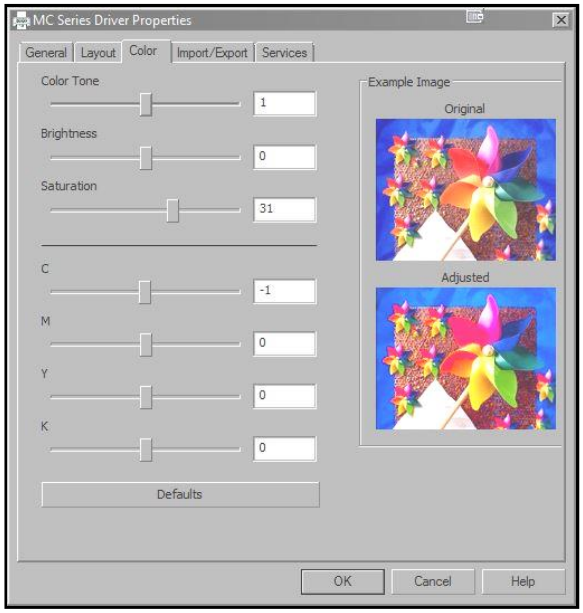
Purge Bar Position/Bottom of Form (BOF) – Extends BOF (in *0.1mm increments*) to allow printing over edge of a label (*full bleed label printing*).

Cutter Offset – Fine tune cut line position after making image positioning adjustments.

- **Watermark** – Prints a light background watermark in paper while printing original document. When selected, **"First page only"** option prints watermark on first page, but not subsequent pages, unchecking prints watermark on all pages. **Custom** button lets you create a new watermark or edit an existing watermark, including font selection, color, size and printing angle.

Color Tab

Color is used to adjust the color output of the Printer. Use the sliders to adjust **Color Tone, Brightness** and **Saturation.** The **C, M, Y, K** sliders adjust individual colors. Use **Defaults** to reset to **0** settings.

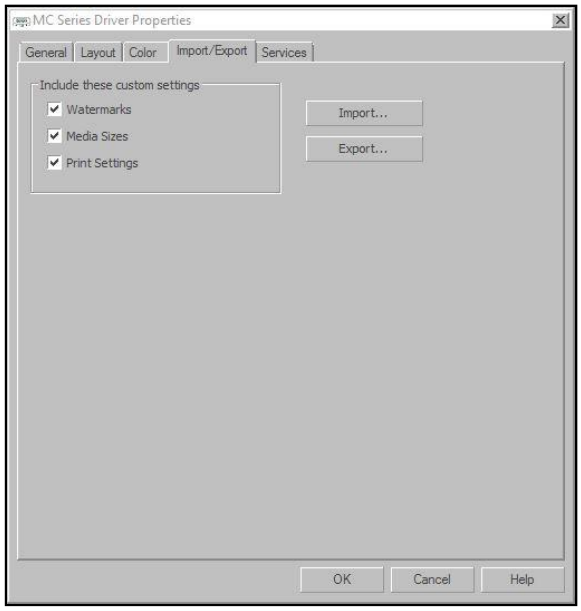


Import/Export Tab

Import/Export is used to preserve any custom Media Sizes, Watermarks and/or Print Settings you may have developed and saved for various jobs when you update the Printer firmware.

- **Export –** Send custom settings to a holding file before downloading new firmware.
- **Import –** Return custom settings after firmware installation is complete.

Import/Export tab is also used to import custom media size packages or watermarks from your dealer (*if available*).

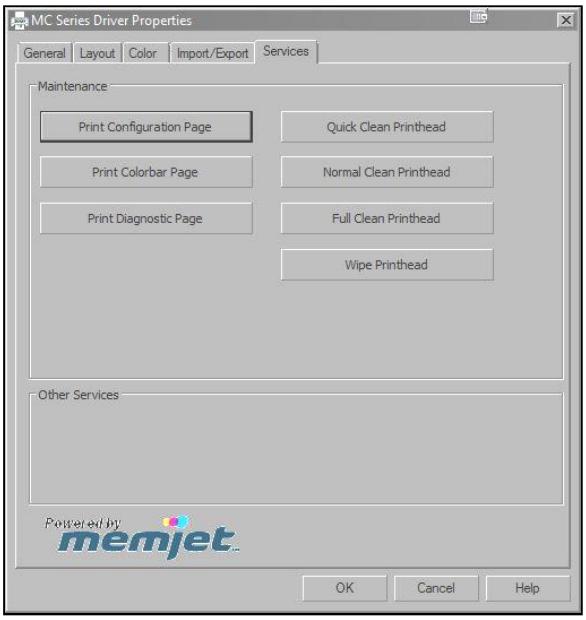


IMPORTANT!

BEFORE UPDATING ANY PRINTER FIRMWARE, REMEMBER TO FIRST EXPORT ANY CUSTOM MEDIA SIZES, WATERMARKS OR PRINT SETTINGS YOU HAVE ADDED TO AN OUTSIDE HOLDING FILE. THIS PREVENTS LOSS OF YOUR CUSTOM SETTINGS.

Services Tab

Services allows you to:



- **Print Configuration Page** – Prints out current configuration of Printer including current Firmware Version, Network Connection, printer Serial Number and more.
- **Print Colorbar Page** – Prints type and color bands to check print quality.
- **Print Diagnostic Page** – Displays basic Printer information, memory, Network Settings, Event Log and RAM partitions.
- **Clean Printhead Buttons:** Provide 3 levels of cleaning for Printhead Cartridge.

  Quick Clean Printhead – Circulates ink; wipes and cleans Printhead Cartridge.

  Normal Clean Printhead – Runs cleaning and wiping routine twice for better flushing and cleaning.

  Full Clean Printhead – Runs cleaning routine multiple times for the most thorough flushing and cleaning of Printhead.

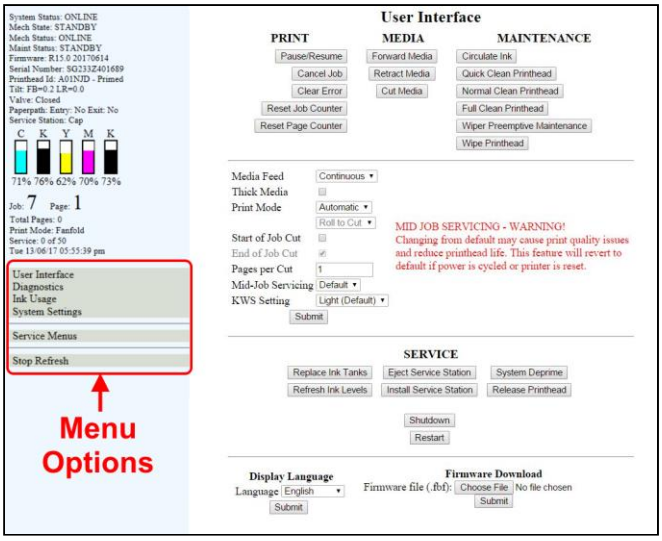
  NOTE: If Printer is connected to a network and Driver buttons fail to activate cleaning process, perform same functions from Toolbox User Interface.
- **Wipe Printhead** – Wipes and cleans excess ink from Printhead Cartridge.

Using Printer Toolbox

Once Printer Driver is installed, you can access Printer Toolbox.
Toolbox lets you check printer status, monitor ink usage, perform diagnostic checks, print reports and run maintenance tasks on Printer from your computer.

To open Toolbox:

Open **Start Menu**, then click on **Toolbox**. When **User Interface** window opens you will find a series of **Menu Options** you can click on at lower left of screen. Check Printer Status in upper left part of screen.



User Interface

[A] Screen Buttons:
Perform maintenance and operating tasks.

PRINT buttons:

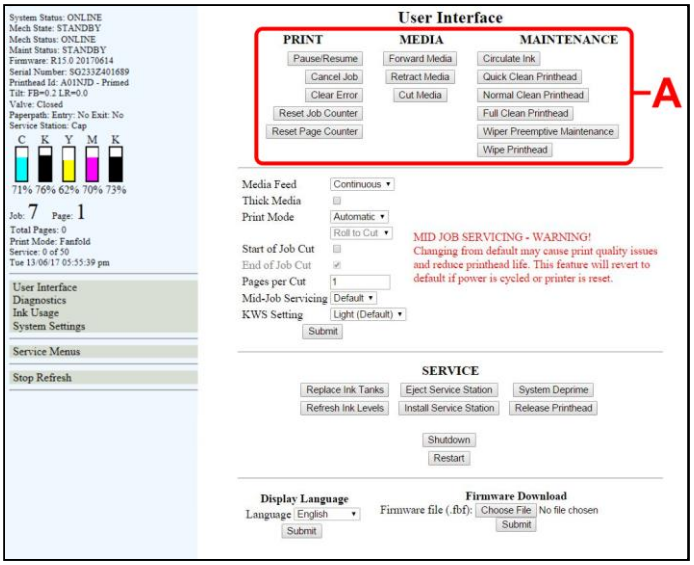
Pause/Resume, Cancel a Job, Clear Errors, Reset Job Counter, and Reset Page Counter.

MEDIA buttons:

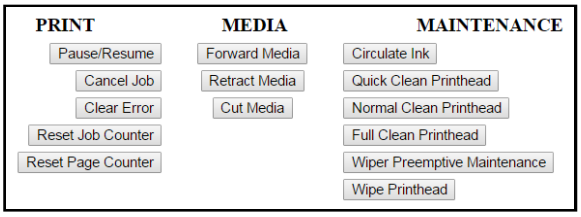
Forward Media – Moves media forward into Printer when loading media.

Retract Media – Retracts media from Printer.

Cut Media – Cuts media any time button is pressed without retracting or resetting media.



MAINTENANCE buttons:



Circulate Ink – Purges air from lines and primes system after replacing Ink Tanks or Printhead Cartridge.

Quick Clean Printhead – Circulates ink, wipes and cleans Printhead Cartridge.

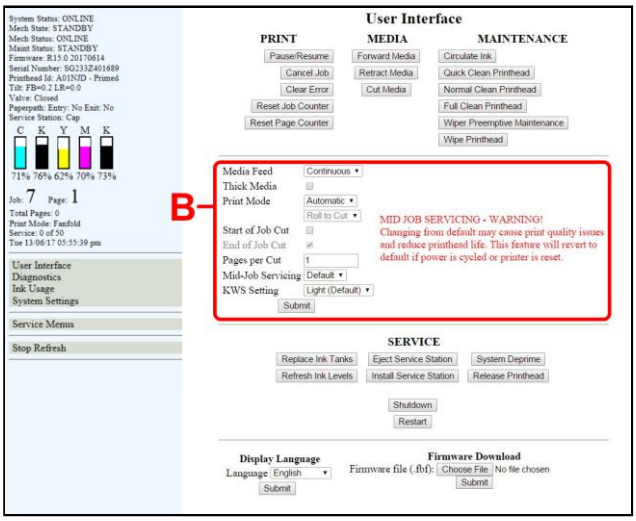
Normal Clean Printhead – Runs cleaning and wiping routine twice for better flushing and cleaning.

Full Clean Printhead – Runs cleaning routine multiple times for the most thorough flushing and cleaning of Printhead.

Wiper Preemptive Maintenance – Resaturates Wiper with ink to remove dried residue if Printer is inactive for long periods of time.

Wipe Printhead – Activates Service Station to wipe Printhead.

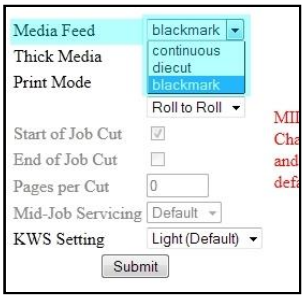
[B] Basic Printer Settings – Adjust Printer for different types of media, automated service and cleaning intervals, and feeder speed for a job.

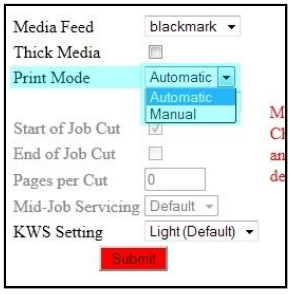


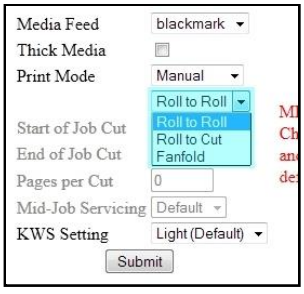
Media Feed – Sets Printer Sensors to read type of media and/or gaps between media: continuous, diecut or blackmark.

Thick Media – Check this box to allow sensors to read gaps in heavier media (*for example, when normal setting may not be able to differentiate between media and backing/gap*).

Print Mode – Two selections to make.
1. Set to **Automatic** (*when used with UW-1C Unwinder and/or RW-1C Winder*). Set to **Manual** when using Printer with another brand Unwinder and/or Winder or for manual control of certain Printer functions.
2. Set Printer to run media Roll-to-Roll, Roll-to-Cut or Fanfold.
NOTE: Depending on selection, certain other settings may be disabled (*Start of Job Cut, End of Job Cut, Pages per Cut, Mid-Job Servicing*).







Start of Job Cut – Cuts leading edge of media at start of job to provide a clean edge. (*This occurs at exit end of Printer.*)

End of Job Cut – Cuts end of media after job finishes printing.

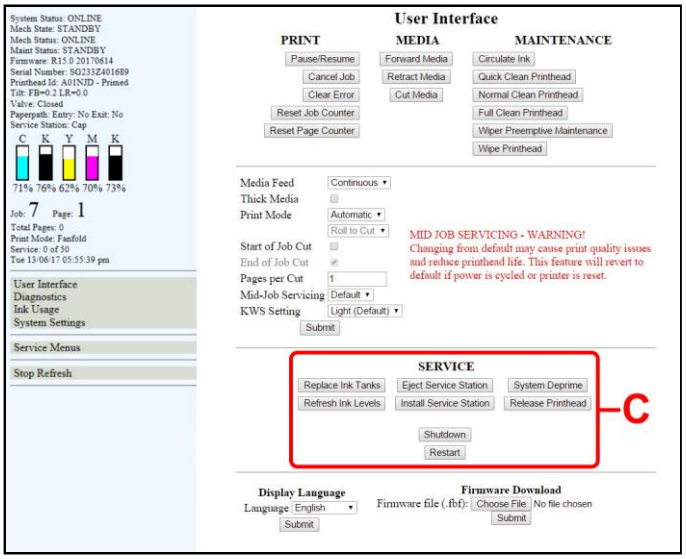
Pages per Cut – Set number of labels (*pages*) between cuts. **Example:** 1 = cut after every label. 5 = cut after every fifth label. **NOTE:** Since **End of Job Cut** will also be active, last cut may have fewer labels than set **Pages per Cut** number depending on total number of labels you are printing (*i.e. you print a total of 23 labels set to cut after every fifth label, you will have 4 sets of 5 labels, 1 set of 3.*)

Mid Job Servicing – Sets frequency of automatic maintenance cycles run during a job after a set amount of media is run. **Settings are: Default** (14m), **Level 4** (100m), **Level 3** (250m), **Level 2** (375m), **Level 1** (500m) and **Off** (∞). **NOTE: Changing setting from "Default" may cause print quality issues and reduce Printhead life.**

KWS Setting – (*Keep Wet Spitting*) Keeps Printhead hydrated while running a job. **Select from 3 settings: None**, **Light** (*default*), **Heavy**, to determine how much ink will "spit" from Printhead Nozzles. Set in conjunction with **"Mid Job Servicing"** which determines frequency of Printer stopping for self-servicing during a job.

Click **"Submit"** to apply settings.

[C] SERVICE buttons control functions that require machine to be out of service for extended periods of time while they are being performed.



Replace Ink Tanks – Disconnects Printer communication with Ink Tank Sensor. Allows safe removal of Ink Tanks for replacement.

Refresh Ink Levels – Updates or confirms ink levels (*indicators shown at left of screen*).

Eject Service Station – Releases Service Station for removal for cleaning, repair or replacement.

Install Service Station – Pulls Service Station back into place after cleaning, repair or replacement.

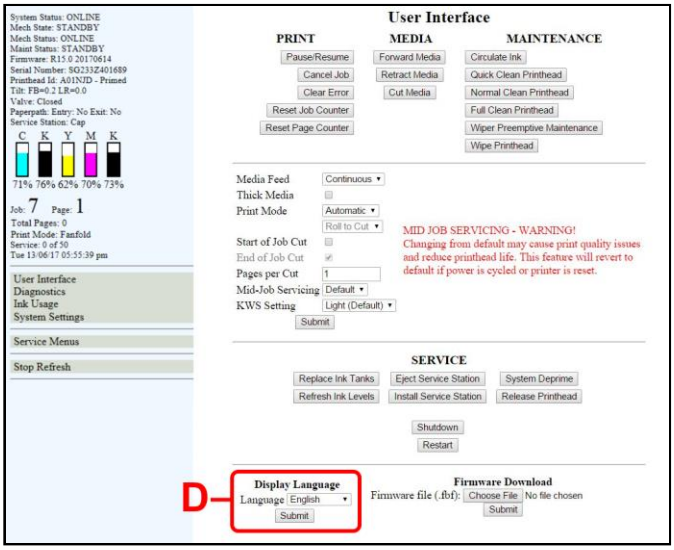
System Deprime – Pumps ink back into Ink Tanks prior to replacing Printhead Cartridge or transporting Printer.

Release Printhead – Pumps ink back into Ink Tanks and opens Printhead Latch to remove or install Printhead Cartridge.

Shutdown – Turns Printer OFF. For best system performance, it is recommended to keep Print Engine powered-up (*ON/OFF light illuminated*) at all times. If you do turn Printer off, first power-down Print Engine using **"Shutdown"** button in Toolbox or ON/OFF button on Control Panel. Wait until all Control Panel buttons go out before turning off Main Power Switch.

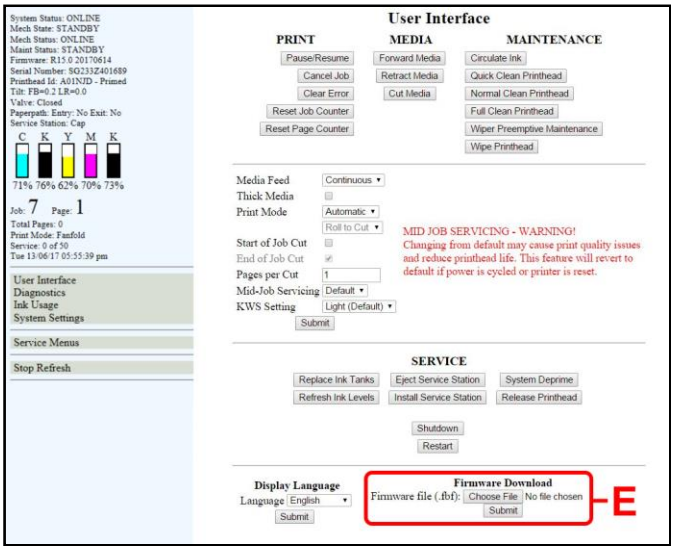
Restart – Restart Printer without having to perform the startup routine (*purging ink tanks, priming, etc.*)

[D] Display Language – Selects language EWS (*Toolbox*) will display. Click **"Submit"** after selecting language.



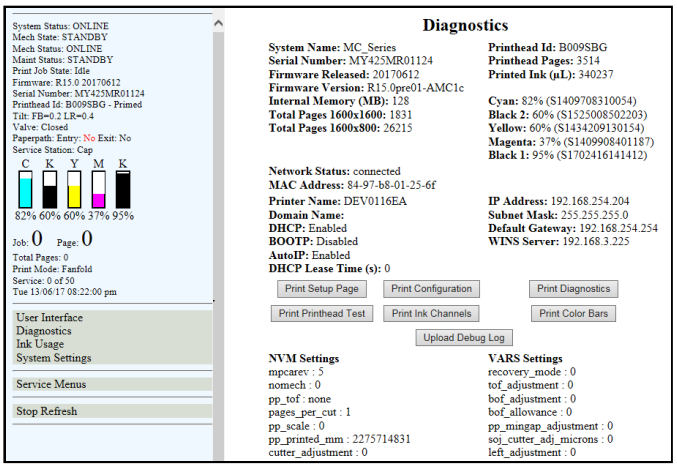
[E] Firmware Download – Get latest version of firmware for your Printer.
NOTE: This is an alternative method for downloading firmware.
See "Updating Firmware" for recommended procedure.

WARNING: This procedure should only be performed by qualified service personnel. In some cases firmware must be loaded using the "Firmware Migration Tool". If this process is not performed properly, Printer is rendered inoperative.



Diagnostics

From this screen you can see current status of your Printer. **You can also:**



Print Setup Page – Prints a printing pattern used for positioning an image on the page.

Print Printhead Test – Prints color bands, text and patterns to check condition of Printhead's ink nozzles.
NOTE: Uses less ink than Print Ink Channels or Print Color Bars.

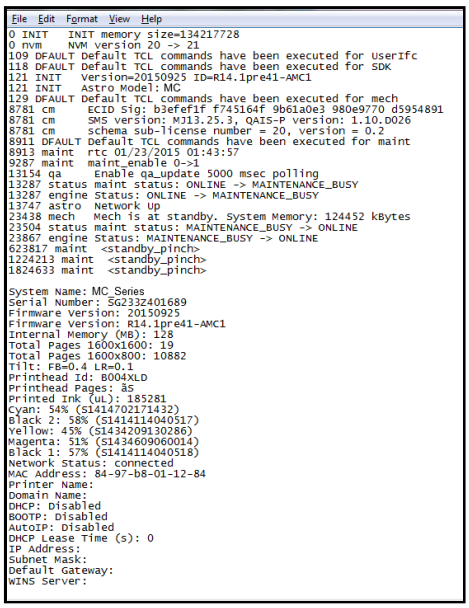
Print Configuration Page – Prints current Printer configuration including Firmware Version, Network Connection, Printer Serial Number and more.

Print Ink Channels – Prints 5 bars (*1 bar from each ink tank*) to indicate how well Printhead Nozzles are working.

Print Diagnostics Page – Prints basic printer information, memory, Network Settings, Event Log and RAM partitions.

Print Color Bars Page – Prints a series of 7 color bars to indicate how well Printhead is mixing colors and printing.

Upload Debug Log – Download and save a log of the Printer status to send to a technician to help diagnose a problem. Clicking this button creates a snapshot log showing everything going on with the Printer during the undiagnosed problem. (*See Sample Log at right*).



Other Information on Diagnostics window:

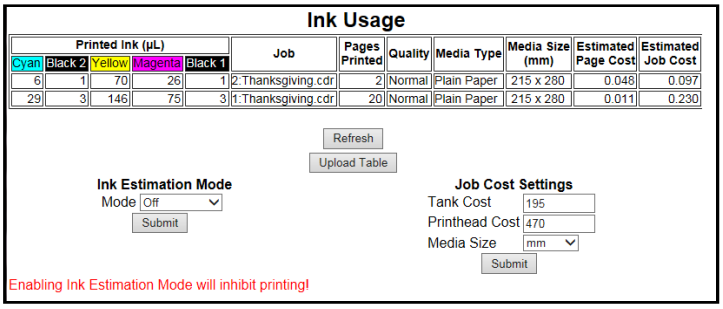
Event Log – Displays significant events occurring on the Printer (*such as firmware updates, errors, power off, etc.*) Useful in troubleshooting Printer problems.

NVM Settings – Displays Printer's current NVM (*Non-Volatile Memory*) settings. (*Once settings are saved, they remain even when Printer is turned off, until they are manually changed.*)

VARS Settings – Displays Printer's current VARs (*Variable*) settings. (*Settings that are set for a particular job that automatically revert to default settings when Printer is turned off or rebooted.*)

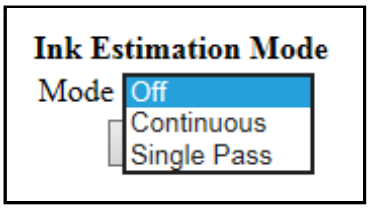
Ink Usage

Displays the amount of ink used and other information for each job sent to the Printer. Also tracks estimated **Page** and **Job Costs** if information is entered in **Job Cost Settings**.



Upload Table – Creates and opens a linkable tabular data file using programs such as Microsoft Excel (*default is Excel*).

Ink Estimation Mode – Lets you predetermine how much ink a given job may use prior to printing a job. This is useful for determining per piece costs. Job is sent to Printer and loads, but does not print. Once job is loaded, click **"Refresh"** to show amount of ink (*by color*) that job will use.

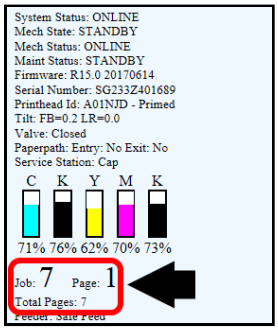


Mode selection:

Off – Feature is disabled.

Continuous – Ink Estimation Mode continues running (*Printer will not print*), until feature is turned **"OFF"**.

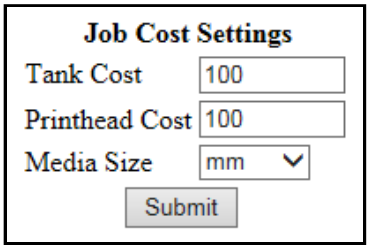
Single Pass – Ink Estimation Mode runs once, then turns off. Printer will then be ready to print.



Click **"Submit"** to activate **Mode** setting selected.

NOTE: Estimating process takes as long as job would take to print (*i.e., if job would take 1 hour to print, estimate will take 1 hour to display. Track progress on the Counter located under the Ink boxes*).

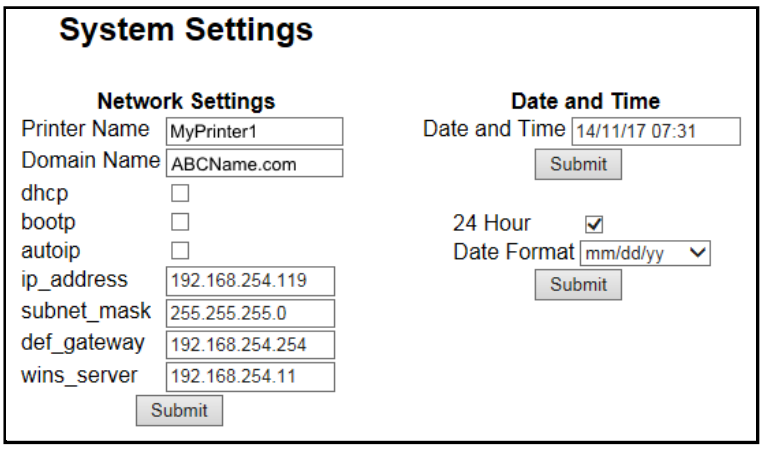
Job Cost Settings – Enter your ink cost and printhead cost and media size preference (*inches or mm*). Set a minimum of at least 100 pcs. to ensure a large enough sample size. Click **"Submit"**. In **Ink Estimation Mode**, this feature estimates per page cost and job cost without printing the job. With **Ink Estimation Mode** disabled, Printer still tracks estimated per page cost and estimated job cost as job is being printed. Once costs are entered, they will remain until changed again, even if Printer is turned OFF.



NOTE: This is only an estimate, and does not include other factors such as Printer maintenance routines, (*printhead wiping and cleaning, power up/down, etc*.) that may affect overall result.

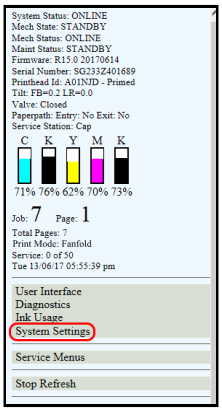
System Settings

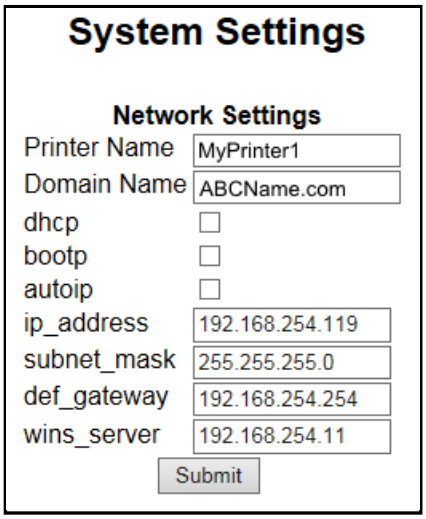
Set up a network connection for the Printer. Also set and configure Printer Date and Time.



Network Settings – Permits you to view, enter or change settings to connect Printer to your network.

Network Connection Set Up:



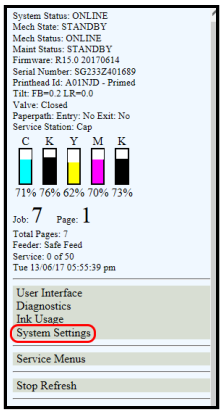


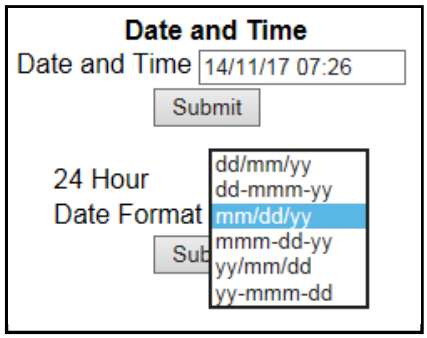
1. Printer is still connected to computer via USB cable.
   To connect Printer to a network, open **Toolbox**.
   On **User Interface** screen, click **"System Settings"**.
2. **"System Settings"** screen opens. Use **Network Settings** to enter correct settings for your network.
   NOTE: If manually changing the **ip_address**, make sure the **"dhcp" and "autoip" boxes are unchecked**. (*Default is checked*.)
   Enter changes in the appropriate boxes.
3. Click **"Submit"**.
4. Connect Ethernet cable to Network Port on Rear Panel of Printer.

Date and Time – Enter or change the way the date and time will appear in the Printer Status section of the **Toolbox** screens.

Enter or change Date and Time:

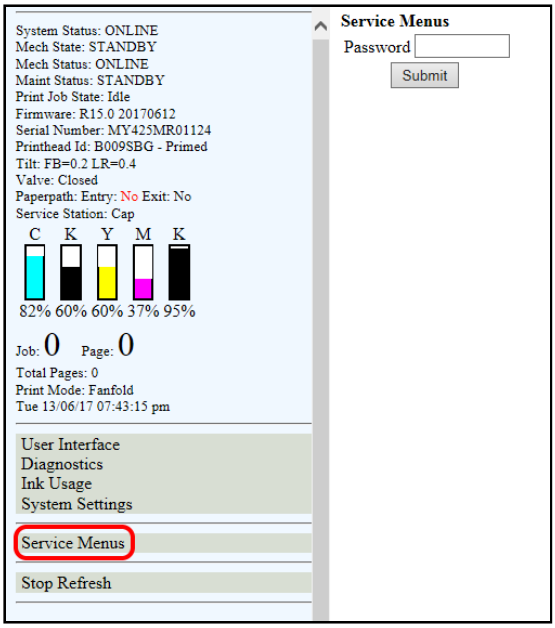
1. Open the **User Interface** screen, click **"System Settings."**
2. **"System Settings"** screen opens. Use **Date and Time options** to enter, edit and configure the Date and Time for the Printer.
3. Click **"Submit"**.





Service Menus

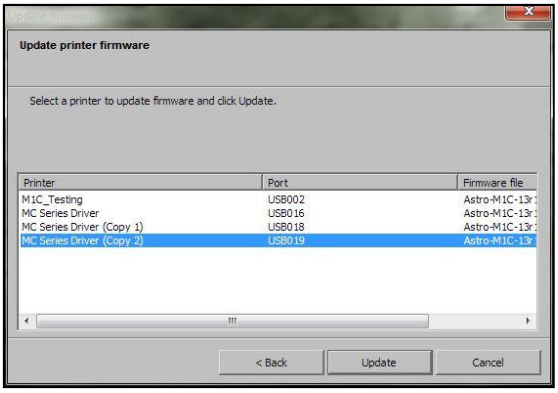
For authorized personnel only.
Provides access to more advanced Printer control and maintenance menus.



Updating Firmware

Get latest version of firmware for your Printer.
NOTE: Use this procedure to update firmware AFTER you have updated Printer Driver. *Printer Driver update procedure is included with an "Update Package" which includes both updated Printer Drivers and firmware updates*).

How to download new firmware:



1. When you are notified that new firmware is available for your Printer, download **"*.bin"** file and save it to your desktop.
2. From **Start Menu**, open **All Programs**. Open **"Memjet"** folder, then **"MC Series Driver"**. Click **"Update Firmware"**.
3. Click **"Browse"** button. Find and select file you just saved to your desktop. Click **"Open"**.
4. When **"Update printer firmware"** window opens, select MC Series printer you want to update. **NOTE: You can only update one printer at a time.**
5. Click **"Update"**. **DO NOT touch Printer until firmware is loaded!** A message appears on screen warning you not to unplug or shut off Printer.
6. Once firmware finishes loading (*about 5-10 minutes*), Control Panel lights and Printer shuts OFF, then restarts automatically to complete installation.

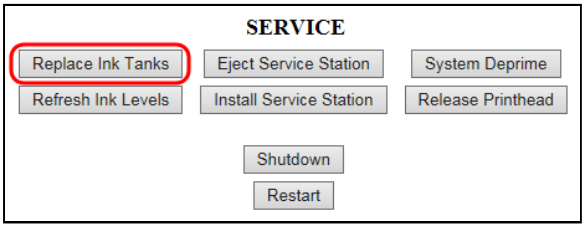
SECTION 4 – *Maintenance*

This section covers how to care for Ink Tanks, Printhead Cartridge, and Service Station, how to clear paper jams and replace Sheet Separators.

Replacing Ink Tanks

Replace Ink Tanks when ink runs out.

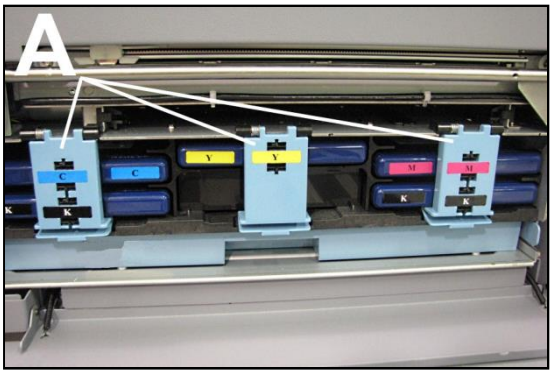
1. **Open Printer Toolbox.** Go to **Start Menu** and open **"Toolbox"**. System Status information appears in upper left corner of **User Interface** window. Note that some or all **"CKMYK"** boxes may be low or empty.



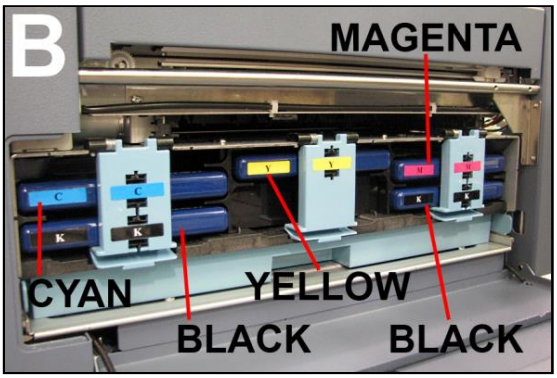
2. **Click "Replace Ink Tanks".** (*Disconnects Printer communication with Ink Tanks and allows safe installation and replacement.*) Once **"Confirm"** screen displays, it is safe to remove Ink Tanks. **IMPORTANT: DO NOT press "Continue" until after you have removed and replaced Ink Tank(s) and closed Ink Tank Latches.**

3. Open Front Cover (*hinged at bottom*). Open three Latches **[A]** and pull Ink Tank(s) out of Printer.

4. Remove new Ink Tank(s) from packaging.

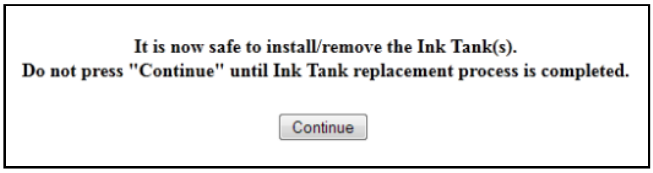


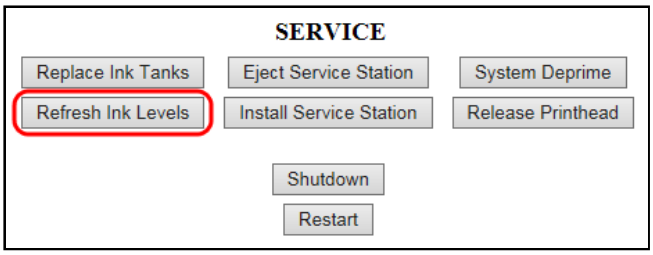
5. Insert new Ink Tanks (*labels up*) into appropriate color slots **[B]**. Close three Ink Tank Latches.
INSTALLATION TIP: Make sure Ink Tanks seat properly. Insert Ink Tank into appropriate Ink Station, then pull Ink Tank back about an inch and push forward firmly to insure that Ink Nozzles penetrate seals on Ink Tanks.



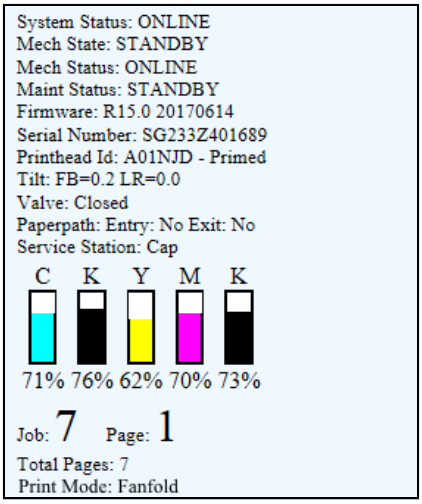
6. Click **"Continue"** on **Confirm** screen, then **"Refresh Ink Levels"** on **User Interface** screen. Ink colors fill in as Ink Tanks are installed. If ink colors do not fill in after a few seconds, click **"Replace Ink Tanks"** again and reinstall Ink Tank(s).

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





7. When Printer stops processing and all fields in System Status are ***black***, Printer is ready for use.



8. Close Front Cover.

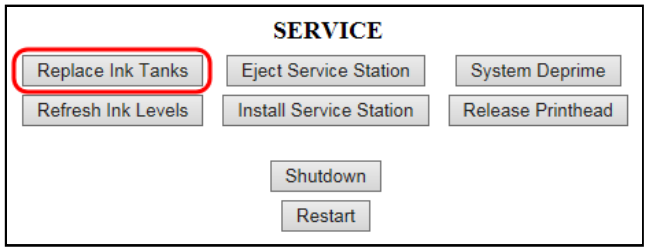
WARNING!

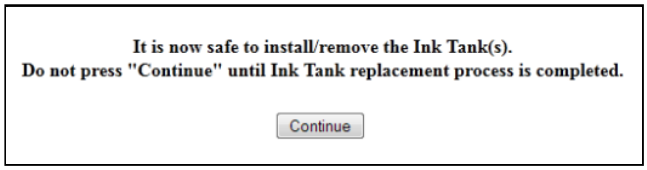
Ink in Ink Tanks may be harmful if swallowed. Keep new and used Ink Tanks out of reach of children. Discard empty Ink Tanks immediately.

Cleaning Ink Tank Contacts

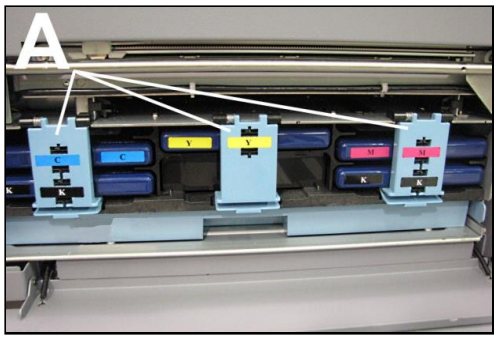
When reinstalling or replacing Ink Tanks, Ink Level indicator in Toolbox may not refresh. This may be due to a dirty Ink Tank Level Prism and/or QA Chip contacts on that Ink Tank(s).
Clean contacts as follows:

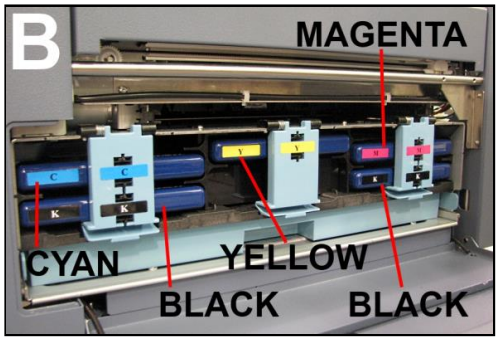
1. **Remove Ink Tank(s).** Open Toolbox. Click **"Replace Ink Tanks"**. Once **"Confirm"** window opens, it is safe to remove Ink Tanks. **IMPORTANT: DO NOT press "Continue" until after you have removed and replaced Ink Tank(s) and closed Ink Tank Latches.**



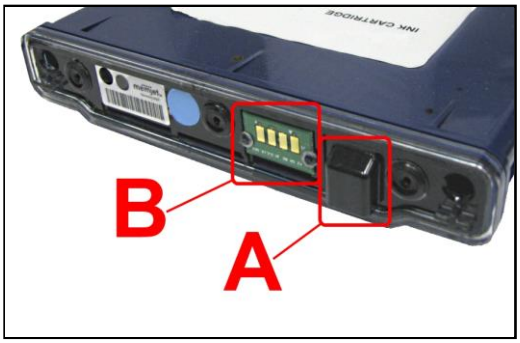


2. Open Front Cover, release Ink Tank Latch(es) **[A]** required and remove Ink Tank(s) **[B]** with levels that did not refresh.



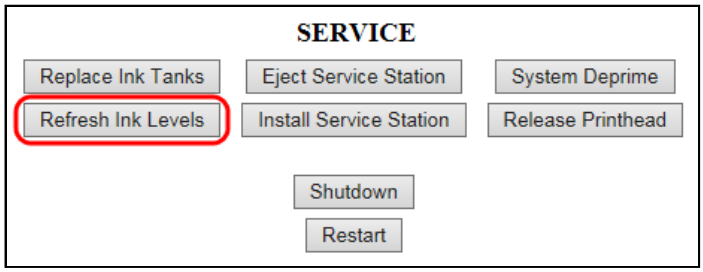


3. Clean Ink Level Prism **[A]** and QA Chip contacts **[B]** with a clean, dry, lint-free cloth. **NOTE: Dampen cloth with distilled water to wipe Prism, but DO NOT get QA Chip contacts wet.**



4. Reinstall Ink Tank(s) (*labels up*), close Ink Tank Latch(es). Click **"Continue"** on **Confirm** screen, then click **"Refresh Ink Levels"** on the **User Interface** screen.

5. Close Front Cover.



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.

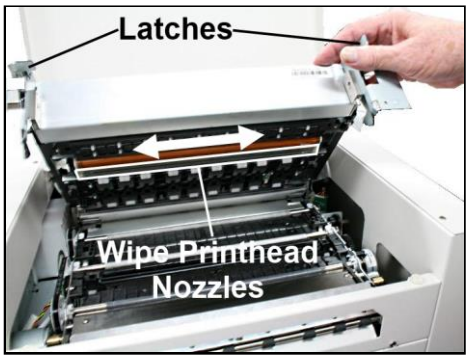
Cleaning/Replacing Printhead Cartridge

Cleaning

Printhead is cleaned automatically each time Printer is turned on or when **"Quick Clean Printheads"** routine is performed. (*Found under **Service Tab**, **"Clean Printheads"** button in **Printer Driver** or **Toolbox***.) **"Normal Clean Printhead"** and **"Full Clean Printhead"** can be used to more thoroughly clean or clear Printhead.

NOTE: If running **"Clean Printheads"** doesn't help improve print quality, Printhead Cartridge can be cleaned manually.

1. Open Top Cover.
2. Release and lift two latches **at same time** to raise Print Engine Clamshell.
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. **Close and relatch Print Engine Clamshell.**



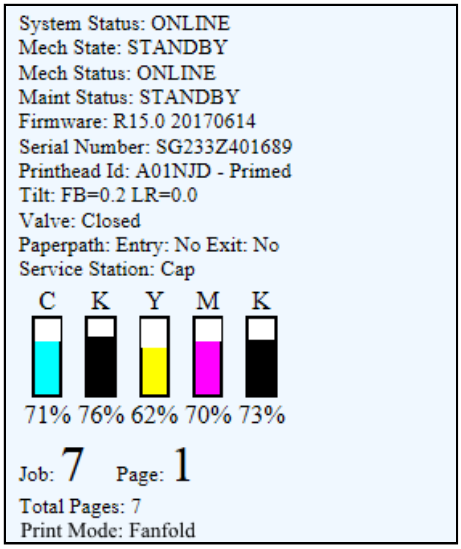
Generally, when ink supply is adequate and print quality remains poor, or when automated cleaning processes or manually cleaning Printhead has not helped image quality, replace Printhead.

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.**

Replacing Printhead Cartridge

1. **Open Printer Toolbox.** System Status information is in upper left corner of **User Interface** screen.

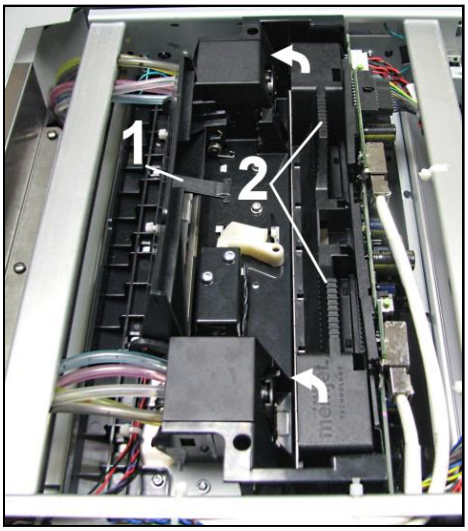


2. **Open Top Cover.** Open Printhead Latch **[1]** using **Printhead Release** button in Printer Toolbox. Printer pumps any ink in system back into Ink Tanks. Then Printhead Latch pops open.

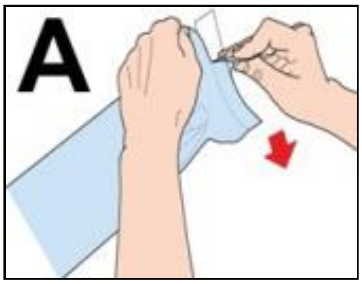
CAUTION

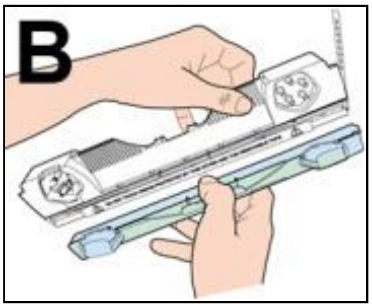
DO NOT PRY OR MANUALLY LIFT PRINTHEAD LATCH OR LATCH MAY BREAK. ONLY OPEN LATCH USING PRINTHEAD RELEASE COMMAND IN PRINTER TOOLBOX.

3. Open Printhead Latch fully to retract ink lines. Remove used Printhead Cartridge by tilting it toward ink lines **[2]**, then carefully lifting it out of Printhead Compartment.

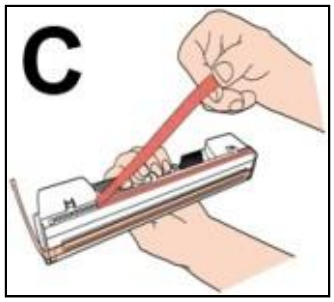


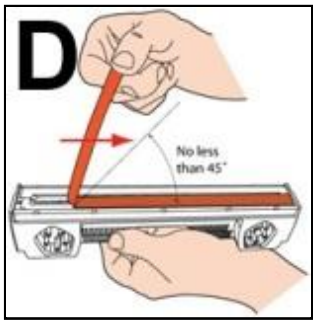
4. **[A] Carefully remove Printhead Cartridge from foil packaging**. Tear foil at notch or cut the end with scissors.





[B] Remove protective plastic cover. Hold Printhead by handle and unclip cover from Printhead.

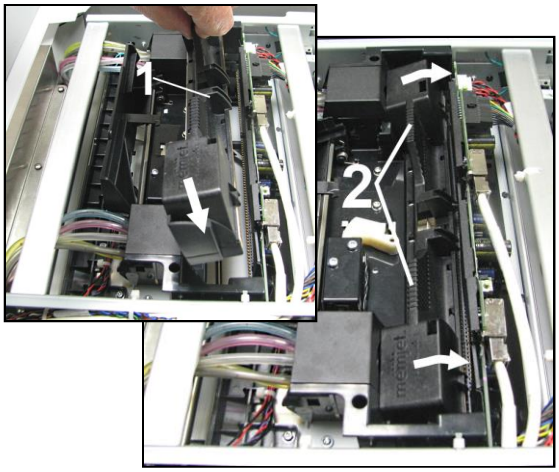




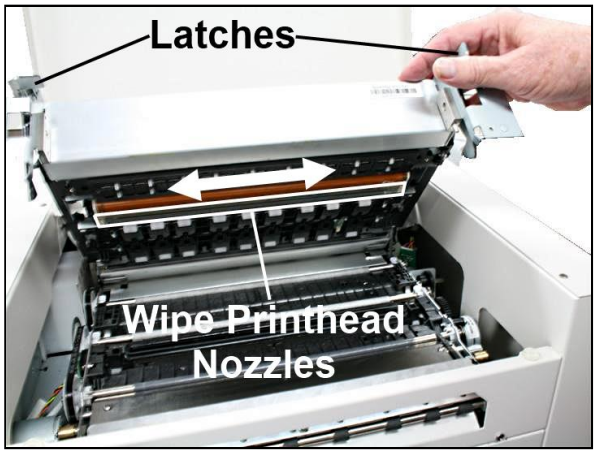
[C] Remove protective strip from Printhead electrical contacts. **Once removed, DO NOT allow strip to touch electrical contacts.**

[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.

5. Carefully insert Cartridge into compartment at an angle **[1]**, with Printhead surface facing down and Ink Nozzles facing Ink Hoses. Once seated, gently tilt Cartridge back until it snaps into an upright position **[2]**.
DO NOT FORCE Cartridge into position.



6. **Wet Printhead Surface. (*Ensures that Printhead will prime correctly*.)**
   Open Top Cover. Release and lift two latches **at same time** to raise Print Engine Clamshell.
   Moisten Printhead nozzles using distilled water and a damp, lint-free cloth, wiping end to end. (*Gray strip located below orange strip*.) Close and latch Print Engine Clamshell.

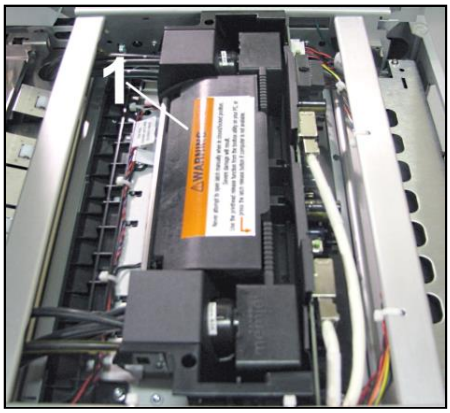


CAUTION

HOLD ONTO BOTH LATCHES WHEN OPENING AND CLOSING PRINT ENGINE CLAMSHELL TO PREVENT DAMAGE.

DO NOT ALLOW CLAMSHELL TO DROP OR SLAM CLOSED.

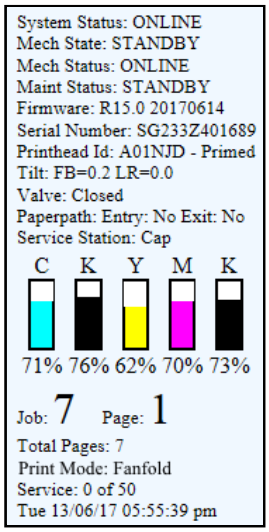
TO PREVENT DAMAGE TO INK LINES, A STOP LIMITS RAISING CLAMSHELL MORE THAN 60°.



7. **Close Printhead Latch [1]**. Printer starts up and primes ink into Printhead. (*May take a few minutes*.) Make sure that ink is flowing through hoses. If air bubbles appear, you may have to tap lines or click **"Circulate Ink"** in Printer Toolbox to clear them.

8. Watch Toolbox screen. Notice that some information is in *red*. As Printer circulates ink and primes system, these fields should all turn *black*.

9. When Printer stops processing and all fields in System Status are *black*, Printer is ready for use. Close Top Cover.

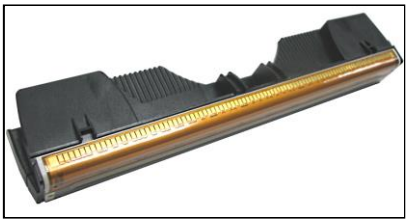


IMPORTANT!

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

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

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 entire length of Printhead, some nozzles do not fire as often. The most often used Nozzles will degrade more quickly. Noticing the effects of failing nozzles depends partly on the relative position of those nozzles to each other. In simple terms, the number of images printed and the amount of ink that will pass through the printhead prior to printhead degradation depends on make-up of images printed, operating environment, servicing, media characteristics (*including cleanliness*) and other factors.

M-Series Printhead Return Policy

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

Limited Printhead Replacement Policy: M-Series Printheads are manufactured to be free from defects in materials and workmanship. However, should an M-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 the shipping date from Astro Machine Corp. *and*
- Printhead's **"Total pages printed"** = 40,000 or fewer pages (*at 15% page coverage*), whichever comes first.

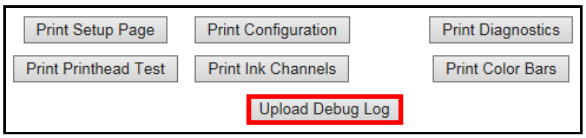
This return policy excludes damage due to mishandling, tampering or misuse, improper storage or transport, or material incompatibility*.

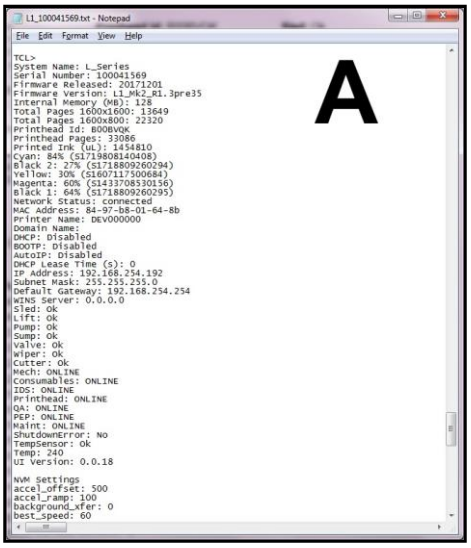
***See "Printhead Installation" and "Replacement" sections of this manual.**

Return Procedure:

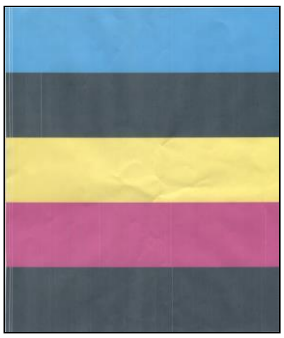
1. Make sure Printer is powered up and connected via USB or network.

   To check Printhead Page count:
   Open **"Diagnostics"** screen in the computer's **Toolbox.** Select **"Upload Debug Log"**. Open and print the file **[A]** to include with your return.

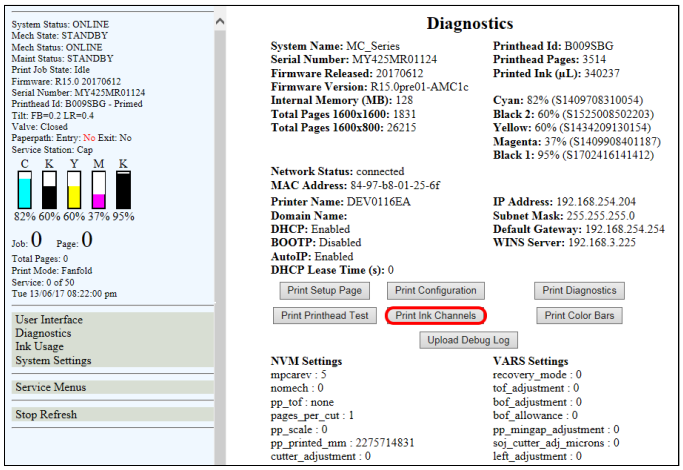




2. **Open Printer Toolbox.** Open **Diagnostics** page and click **Print Ink Channels** button.



Ink Channels 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 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 Ink Channels printout in a shipping box. Remember to include your company name, contact information and return address as well.

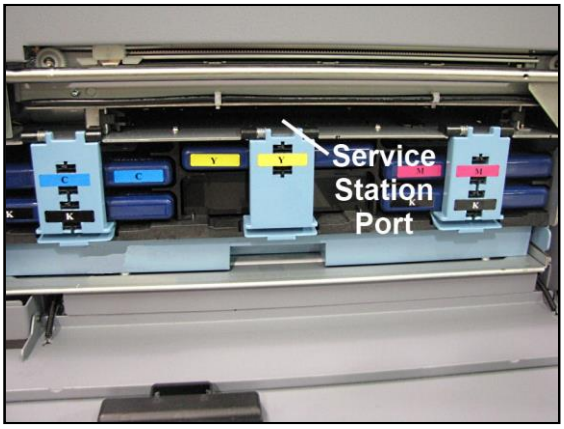
7. Return to your Astro Machine distributor.

Replacing Service Station

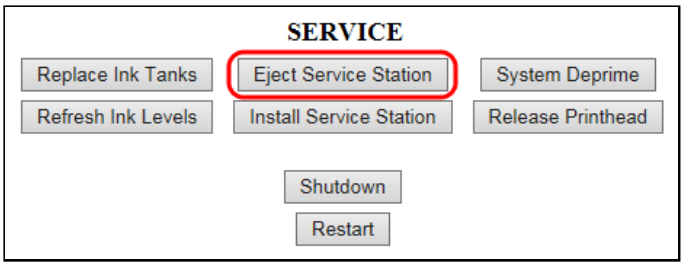
Service Station is designed provide a long service life. However, should it need to be cleaned, repaired or replaced, follow these steps. Service Station is located above Ink Tank Station.

1. **Open Front Cover (*hinged at bottom*).** Open Top Cover.

   Release two latches and open Print Engine Clamshell. Service Station will not fully eject with Clamshell closed.



2. **Open Printer Toolbox.** Click **"Eject Service Station"**. Once Printer pushes Service Station out, turn Printer OFF.



TURN PRINTER POWER OFF.

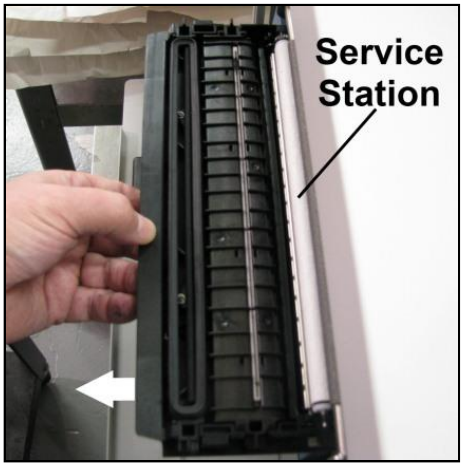
CAUTION

WHENEVER POWERING DOWN UNIT, ALWAYS:

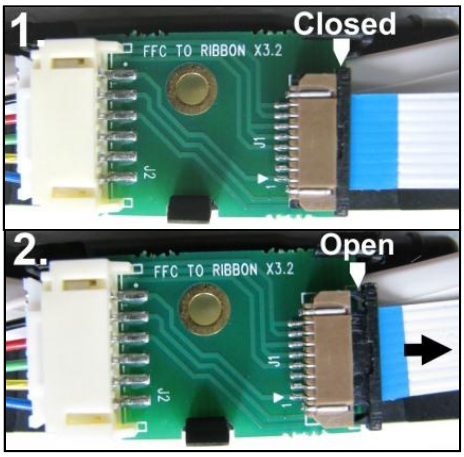
1. **PRESS POWER BUTTON ON CONTROL PANEL.**
2. **WAIT FOR PRINTER TO STOP PROCESSING.**
3. **THEN PRESS MAIN POWER SWITCH ON REAR PANEL.**

3. Slide Service Station out of Service Station Dock**.**
NOTE: DO NOT pull Station all the way out until you disconnect Ribbon Cable.

USEFUL TIP: Place an absorbent towel under Service Station before you remove it to catch any drips or leaks.



4. **Disconnect Ribbon Cable.** Slide Latch open on Service Station Circuit Board to release Ribbon Cable. **Remove Service Station.**

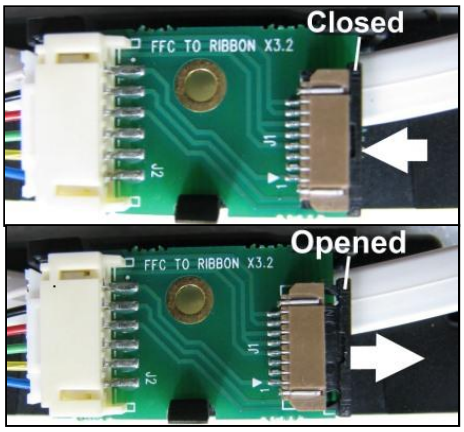


5. Carefully unwrap new Service Station.
NOTE: Loose parts may fall out. Keep roller side facing up when removing packaging.

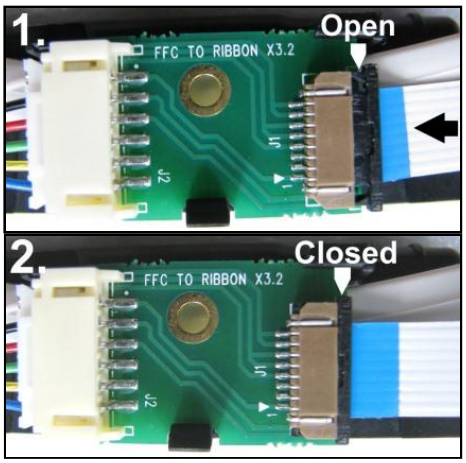
CAUTION

MAKE SURE LATCHES ON WIPER ROLLER ARE FULLY CLOSED BEFORE INSTALLING SERVICE STATION.

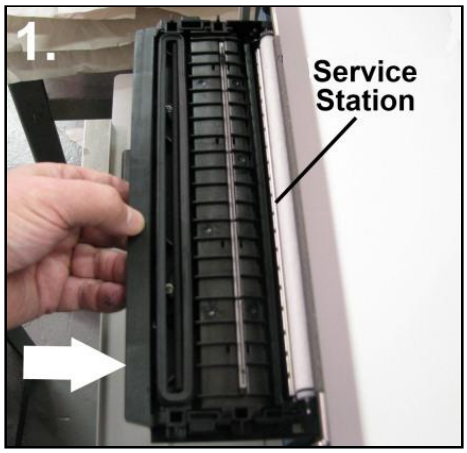
6. Slide Latch open on Service Station Circuit Board.

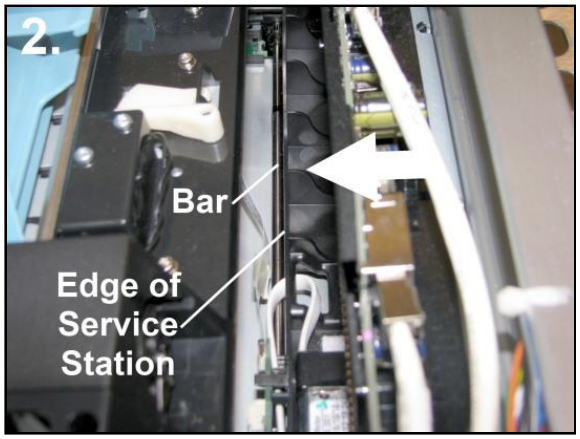


7. **[1]** Plug Ribbon Connector (*blue side up*) into space under Latch.
[2] Close Latch.

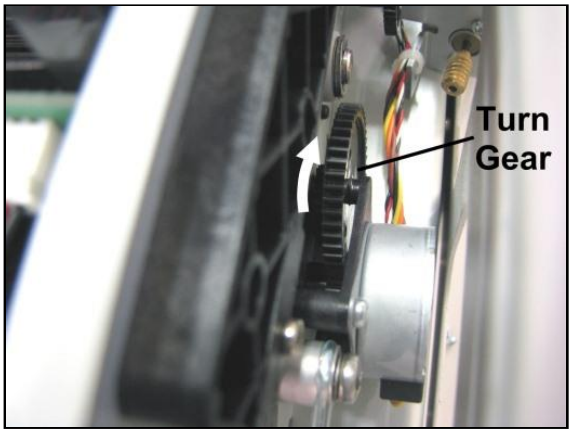


8. **[1**] Slide Service Station into Service Station Dock until it touches bar. Align with tracks along sides and Guide on Service Station dock floor.
[2] Look down through Top Cover to make sure Service Station is aligned with bar.
IMPORTANT! Service Station must be perfectly aligned with bar to prevent misalignment and operating problems.





9. **GENTLY** push Service Station while turning large Gear on right side of Print Engine clockwise. Gear should engage gear on Service Station Roller and pull it in. Once Service Station starts moving, stop turning gear.



10. Power up unit, then press **"Install Service Station"** in Printer Toolbox to pull Service Station in.

NOTE: Make sure wick (*hangs below Service Station*) dropped inside plastic trough within Ink Tank Station to prevent ink seepage.

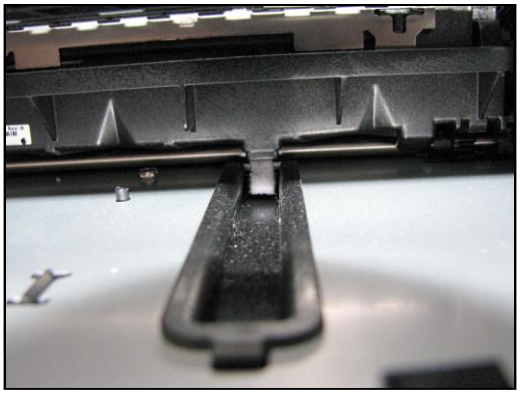
NOTE: Service Station should operate smoothly. If it binds, chatters or grinds, reinstall Service Station. Lubricate Side Tracks and Guide if necessary.

11. **Close Clamshell Cover. Close Front Cover.**

CAUTION

HOLD ONTO BOTH LATCHES WHEN OPENING AND CLOSING PRINT ENGINE CLAMSHELL TO PREVENT DAMAGE.

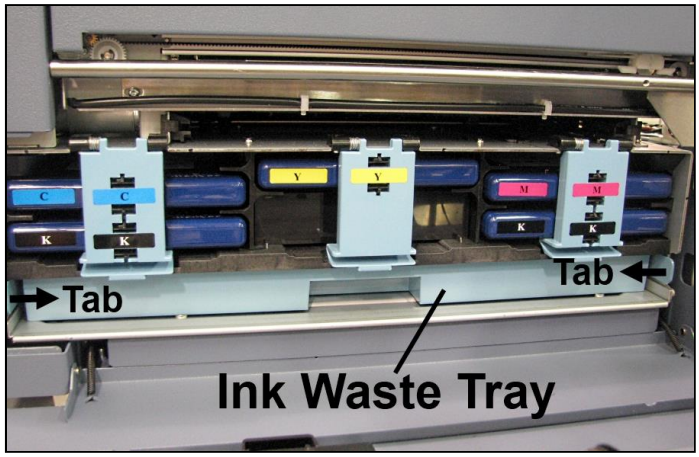
DO NOT ALLOW CLAMSHELL TO DROP OR SLAM CLOSED.



Replacing 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.

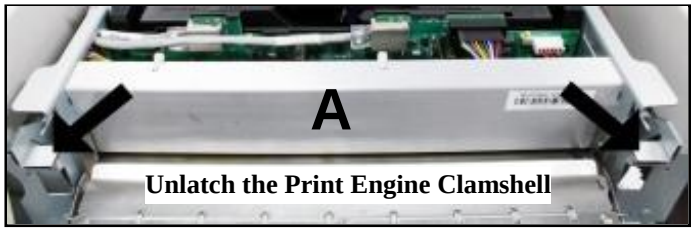
1. Open Ink Tank Door.
2. Push in on Tabs to release Ink Waste Tray.
   Remove it from unit.
3. Replace with a new Ink Waste Tray.



Removing Jams in Printer

Clearing a jam depends on where jam occurred.

Print Engine Area: Open Top Cover. Release and lift up two latches **[A]** (*one on each side of Printhead Clamshell*) **at same time** to raise Printhead Clamshell **[B]**. Clear jam, then carefully lower and relatch Printhead Clamshell.
Close Top Cover.



CAUTION

HOLD ONTO BOTH LATCHES WHEN OPENING AND CLOSING PRINTHEAD CLAMSHELL TO PREVENT DAMAGE.

DO NOT ALLOW CLAMSHELL TO DROP OR SLAM CLOSED.

TO PREVENT DAMAGE TO INK LINES, A STOP LIMITS RAISING CLAMSHELL MORE THAN 60°.

Misfeeds

To correct misfeeds:

Roll Feed – Unwinder/Winder may be moving too fast or slow for job being printed.

Readjust Speed Controls on Unwinder and Winder.

Fanfold – Straighten stack.

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.

Print Engine

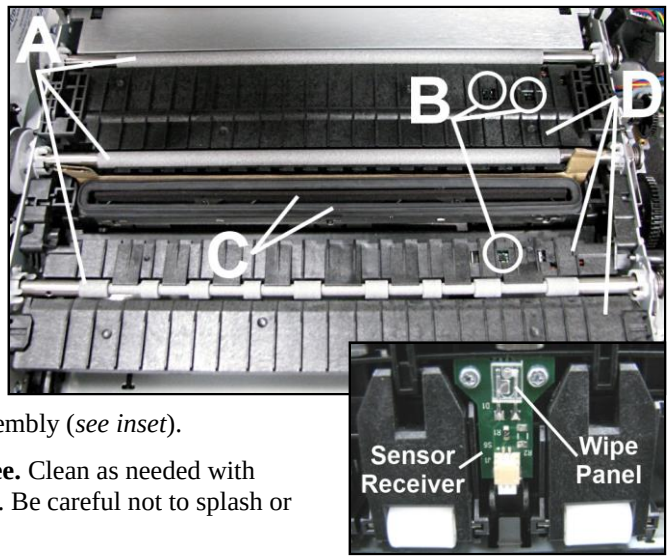
Areas in Print Engine can become glazed with a buildup of dust, paper lint and accumulated ink and have to be cleaned regularly. Open Top Cover. Open Clamshell Assembly by releasing two latches. Use a vacuum to pick up any loose debris.

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] Grit Rollers: Clean as needed by moistening a small hard-bristled brush or toothbrush with distilled water. **DO NOT** use anything other than distilled water to clean Rollers.



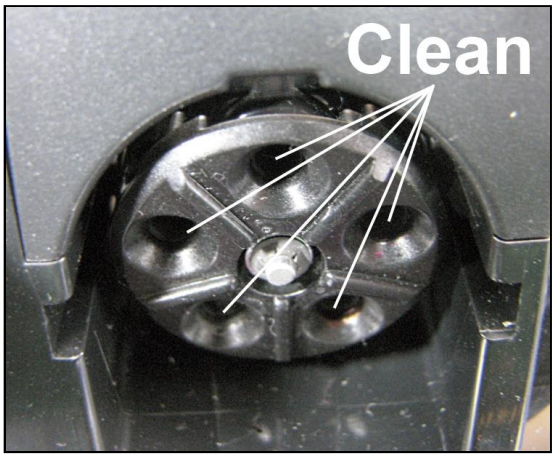
[B] Media Sensors: Paper lint and dust may build up on Media Sensors. Use a can of compressed air or a damp (*not wet*) foam or lint-free cotton swab to gently swab Sensors. Take care not to drip water into Circuit Boards. Use a clean, dry swab to dab surfaces dry. Remember to wipe clear panel over Sensor Receiver in upper Printhead Assembly (*see inset*).

[C] Capping Station Seal and Squeegee. Clean as needed with distilled water on a damp, lint-free cloth. Be careful not to splash or drip ink on other parts of Printer.

[D] Printing Platen. Wipe with distilled water on a damp, lint-free cloth. Pat dry with a 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 swab into an ink channel and rotate swab to clean chamber.
4. Use a new swab for each remaining ink channel until all 10 openings are clean. (*5 on each side.*)

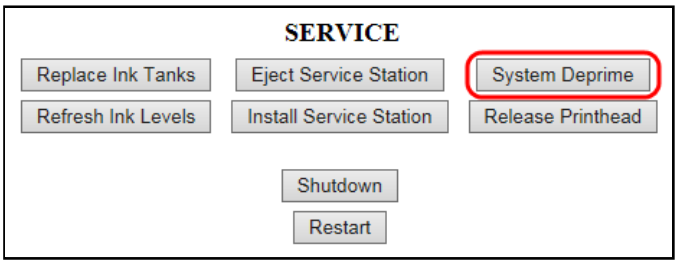


Shipping or Transporting M1C Printer

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.

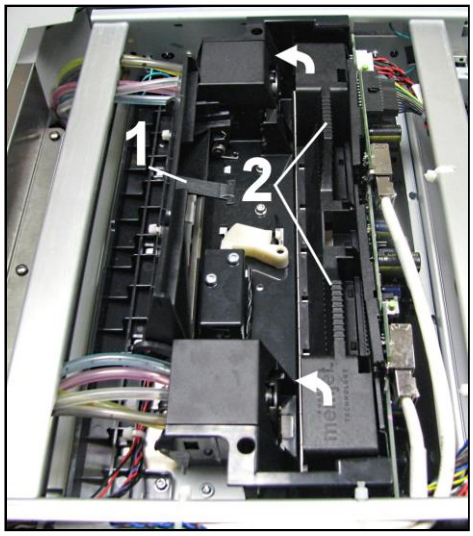
Deprime System

1. Depriming forces all ink to return to Ink Tanks. Do this by accessing Toolbox **User Interface** screen and pressing **"System Deprime"**.



Remove Printhead Cartridge

1. **Open Top Cover.** Open Printhead Latch **[1]** using **Printhead Release** button in Printer Toolbox. Printer pumps any ink in system back into Ink Tanks. Then Printhead Latch pops open.



CAUTION

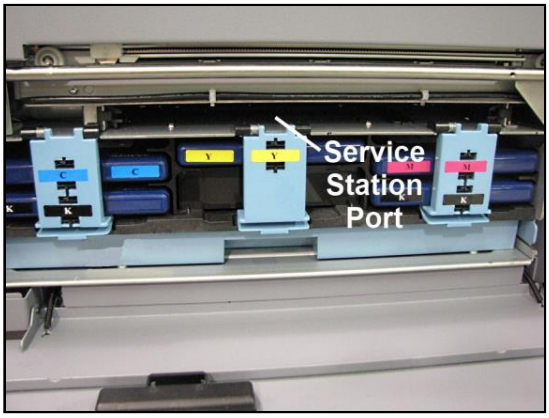
DO NOT PRY OR MANUALLY LIFT PRINTHEAD LATCH OR LATCH MAY BREAK. ONLY OPEN LATCH USING PRINTHEAD RELEASE COMMAND IN PRINTER TOOLBOX.

2. Make sure Printhead Latch is fully opened to retract ink lines. Remove Printhead Cartridge by tilting it toward ink lines **[2]**, then carefully lift it out of Printhead compartment.
3. Pack Printhead Cartridge area with absorbent towels to catch any ink drips or spills. Carefully pack Printhead Cartridge using original packaging.

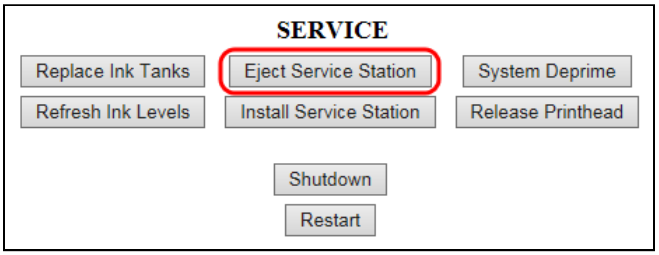
Remove Service Station

1. **Open Ink Tank Cover (*hinged at bottom*).** Open Top Cover.

   Release two latches and open Print Engine Clamshell. Service Station will not fully eject with Clamshell closed.



2. **Open Printer Toolbox.** Click **"Eject Service Station"**. Once Printer pushes Service Station out, turn Printer OFF.



TURN PRINTER POWER OFF.

CAUTION

WHENEVER POWERING DOWN UNIT, ALWAYS:

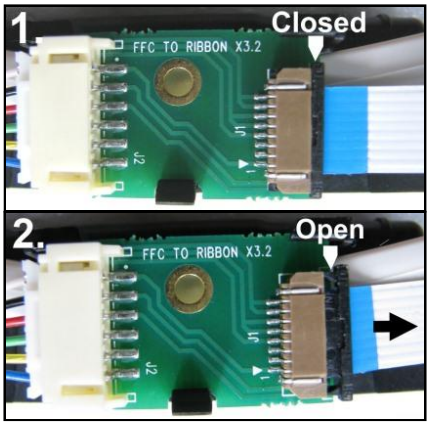
1. **PRESS POWER BUTTON ON CONTROL PANEL.**
2. **WAIT FOR PRINTER TO STOP PROCESSING.**
3. **THEN PRESS MAIN POWER SWITCH ON REAR PANEL.**

3. Slide Service Station out of Service Station port**. NOTE: DO NOT pull Service Station all the way out until you disconnect Ribbon Cable.**

   USEFUL TIP: Place an absorbent towel under Service Station before you remove it to catch any drips or leaks.

4. **Disconnect Ribbon Cable.** Slide Latch open on Service Station Circuit Board to release Ribbon Cable. **Remove Service Station.**

5. Pack Service Station Area with absorbent towels to catch any excess ink.

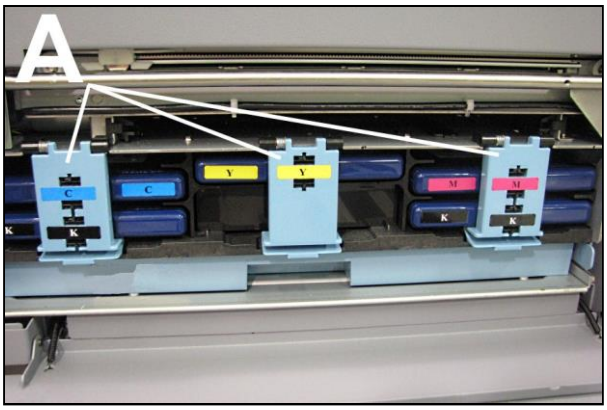


Remove Ink Tanks

1. **Open Front Cover** (*hinged at bottom*). Unlatch three Latches **[A]**. Pull Ink Tank(s) out of Printer.

2. Carefully package Ink Tanks in original packaging. **IMPORTANT:** Make sure ink seals on Ink Tanks are facing up and covered with absorbent wipes to prevent leaks and spills.

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



SECTION 5 – *Troubleshooting Guide*

Troubleshooting Guides are provided to assist you in solving any problems that might occur with the M1C Label Printer. We have tried to make them as complete as possible. The best advice we can offer is to make sure that system is set up properly, plugged in, and has an adequate supply of ink before attempting to troubleshoot any problem.

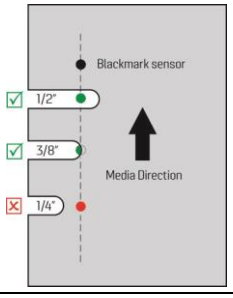
Memjet Printhead

CONDITION	PROBLEM	SOLUTION
Missing parts of letters or text.	Air and bubbles blocking Nozzles.	Clean Printhead using recirculation, priming or cycles of depriming and priming found in **Driver** or **Toolbox.** Rehydrate Printhead using distilled water and a wet, clean, lint-free cloth. Bubbles often disappear with Printer use.
Print shows regularly missing or misdirected nozzles or ink color mixing.	Debris on Printhead.	Perform startup routine. Clean Printhead using **Cleaning Levels** in **Driver** or **Toolbox**. Wipe Printhead manually with distilled water and a wet, clean, lint-free cloth. Replace Printhead.
Ink mixing – Mixed or muddy colors.	**Causes:** Ink flooding, air in the Printhead or a dirty Printhead.	Clean Printhead using o **Cleaning Levels** in **Driver** or **Toolbox**. Wipe Printhead manually with distilled water and a wet, clean, lint-free cloth.
No print or crisp blocks of missing drops.	Electrical failure or poor electrical connection.	Reseat Printhead. Replace Printhead.
System will not reprime ink after replacing Printhead Cartridge	Printhead nozzles dry. Ink Tanks may be 1/3 full or less.	Wipe Printhead manually with distilled water and a wet, clean, lint-free cloth. Replace Ink Tanks.

WARNING!

DO NOT REMOVE PRINTER'S SIDE COVERS!
HIGH VOLTAGES PRESENT!

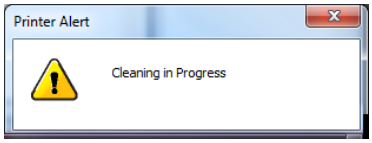
Printer

CONDITION	PROBLEM	SOLUTION
Ink Tank installed, no Ink Level indication in Toolbox	Ink Tank contacts dirty, preventing Printer/Ink Tank communication.	Remove Ink Tank(s). Clean prism and QA Chip contacts, see *Maintenance, Cleaning Ink Tank Contacts*.
Extra lines; losing data	Database problem.	Check data in database program.
Improper output (address information out of order, misfeeding, etc.)	Wrong Interface settings. Static electricity. Dirty Media Sensor.	Check software or database on PC. Close software, then turn Printer OFF and ON. Clean Media Sensor.
No communication	Improper cabling / connector. Unit not receiving power.	Use proper USB cable (*see Operator Manual*.) Check plug connections, ON/OFF button and fuse on side panel.
Print too light or missing character dots	Clogged or dirty Printhead. Running out of ink.	Check Printhead. Check Ink Tanks.
Blurry address 	Image is not sharp.	Clean Printhead using **Cleaning Levels** in **Driver** or **Toolbox**. Clean Printhead manually using distilled water and a wet, clean, lint-free cloth.
Feeding problems	Misfeeds.	Adjust Speed on Unwinder and Winder.
Job is sent to print but does not print.	Printer not turned ON. Printer not connected to computer. Media Sensor is covered in Print Engine.	Check that Printer is ON. Connect printer cable to computer and resend job. Open Print Engine and remove media.
At start of job, media runs and stops without printing.	Printer not set for type of media being used. Blackmark sensor not reading blackmark on media (*too light*) or notches on media not deep enough (*less than 3/8" deep*).	Reset Printer for type of media used. **Blackmark:** Set Printer for Thicker Media in **Toolbox**. **Notched Media:** Check notch depth. 

Errors and Warnings

Printer Alert Window Messages

Messages sent from the driver and displayed on PC screen in a small popup window.



MESSAGE	SOLUTION
Cleaning in Progress	Wait until the message disappears. The Printer will start printing your job once the cleaning process is complete.
Incompatible Printhead	Remove and reinstall your Printhead Cartridge. Replace Printhead. Printhead Cartridges must be purchased from authorized supplier for this printer model.
Incorrect … Ink Tank	Replace Ink Tank. Ink Tanks must be purchased from authorized supplier for this printer model.
…. Ink Low Example: Black Ink Low	Reorder Ink
…. Out of Ink Example: Cyan Ink Out	Replace empty Ink Tank
Load Paper	Out of Paper. Load paper into Printer and press the PRINT/PAUSE button.
Mechanical Jam	Check for and remove obstruction, then press PRINT/PAUSE button. Check/Clean sensors. If problem persists contact technical support.
Missing Printhead	Remove Printhead Partridge. Check/clean electrical contacts. Reinstall Printhead. Replace Printhead. If problem persists contact technical support.
Multiple Inks Low	Reorder Ink
Multiple Ink Tanks Out	Replace empty Ink Tanks
Multiple Ink Tanks are missing	Insert missing Ink Tanks. Clean electrical contacts and reseat Ink Tanks.
Multiple Unauthorized Ink Tanks	Remove and reinsert Ink Tank. Replace Ink Tank. Ink Tanks must be purchased from authorized supplier for this printer model.
Paper Jam	Remove jammed media. Check for proper feed setup, then press PRINT/PAUSE button. Check/Clean sensors. If problem persists contact technical support.
Printhead Latch Open	Ensure Printhead Cartridge has been inserted properly then close and lock the Printhead Latch.
Print Zone Assembly (Clamshell) Open	Check to be sure the Clamshell is completely closed and latched. Make sure Print Engine Latches are secure.
The … Ink Tank is missing	Insert missing Ink Tank. Clean electrical contacts and reseat Ink Tank.
Unauthorized … Ink Tank Installed	Ink Tanks must be purchased from an authorized supplier for this printer model.
Unauthorized Printhead	Printhead Cartridges must be purchased from an authorized supplier for this printer model.

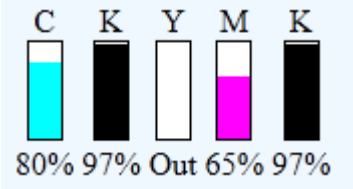
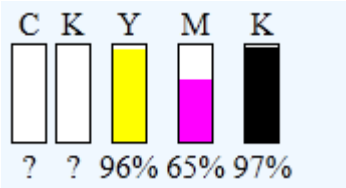
Toolbox System Status Messages

Displayed, in red, in the MC Series Toolbox utility.

SYSTEM STATUS	PROBLEM	SOLUTION
PAPERPATH_END_OF_ROLL	Out of media. Unwinder Label Tension Arm has hit its upper or lower limit. End of media did not release from roll core. Tape too strong.	Add new roll of media to Unwinder. Load media into Printer and press PRINT/PAUSE button to continue. Verify that Unwinder is threaded correctly and speed is set correctly. Try to use stock that has soft-release tape holding the media to the cardboard core.
PAPERPATH_PAPERJAM **Paperpath: Entry:** Yes **Exit:** Yes or **Paperpath: Entry:** No **Exit:** Yes or **Paperpath: Entry:** Yes **Exit:** No **No** = not blocked **Yes** = blocked (interrupted) **NOTE:** Depending on where the media stops/jams; it is also possible for the Printer to display: **PAPERPATH_FEED_TIMEOUT**	Media jam detected. Printer has detected that one of the Media Sensors is blocked (*interrupted)*. Dusty/dirty Sensors	Carefully open the Clamshell, remove jammed Media from printer and close the Clamshell. **System Status** message in red should disappear. The Toolbox **"Paperpath"** line should change to: **Paperpath: Entry:** No **Exit:** No After you clear the jam you can; Press PRINT/PAUSE button to continue printing. Press the CANCEL/CUT button to cancel the job, and then manually clear the job from the computer's print queue. Clean the Paperpath sensors.
DOOROPEN_FRONT	Printer detects that the "Clamshell" is open.	Verify that the Clamshell is closed and securely latched on both sides. If closed; contact Service to check latch and switch.
DATA_PATH_UNDERRUN	Media is not getting from the Entry Sensor to the Exit Sensor in the allotted time. Slow data transmission. Dirty Encoder Wheel or problem with transport. If error occurs before system tries to feed; possible issue with format, orientation or complexity of job being sent.	Check/clean tTansport Rollers. Check/clean Sensors. Select **"Buffer"** from **MC Series Driver**. Contact technical support Try changing the orientation setting in the software/driver or setting a different media size. Test a job that is less complex. If software has a "data compression" feature, set it for higher compression.

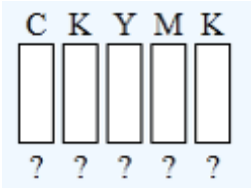
Toolbox System Status Messages (continued)

Displayed, in red, in the MC Series Toolbox utility.

SYSTEM STATUS	PROBLEM	SOLUTION
X_INK_LOW Example: CYAN_ INK_LOW	X = Color. One or more Ink Tanks are low on ink.	Ink Tank replacement will be necessary soon. Reorder Ink.
INK_OUT_X Example: INK_OUT_YELLOW 	X = Color or MULTI One or more Ink Tanks are out of ink	Replace empty Ink Tank(s). **WARNING!** Use proper procedure to replace Ink Tank(s) to avoid damage. See **"Replacing Ink Tanks"**. Press the **"Replace Ink Tanks"** button, then verify that Ink Tanks are seated firmly and latches are fully closed. Verify that the printer is on a stable, level surface. Try to clear the error by pressing the **"Refresh Ink Levels"** button, located in the **Toolbox**.
MAINTENANCE_BUSY	Printer is performing maintenance.	No action is required. Wait for Printer to finish maintenance.
	Printer is waiting to perform maintenance; if message is shown in combination with "Reason: Uncapped printhead or clamshell open" and there is no maintenance activity (*sound*) coming from Printer.	Remove media from Print Engine. See **"Paperpath_Paperjam"** solutions. If problem continues clean Paperpath Entry and Exit Sensors. If problem persists, contact Service.
CARTRIDGE_MISSING_X 	X = Color or MULTI Missing Ink Tank, or Ink Tank is not recognized	Replace Ink Tank(s) using proper procedure. Insert missing Ink Tank. Clean Ink Tank contacts as outlined in **"Operator Maintenance"**. Clear error by pressing **"Refresh Ink Levels"** button in the **Toolbox**.
MECH_FAIL_PERMANENT **Reason: Sled lift failed** **Reason: Ink valve failed** **Reason: Sled home failed**	Mechanical failure or sensor failure. One of the Printer's mechanical components was not properly registered at the expected position.	If the Service Station was just installed; check to be sure it was installed properly. Call for Service Support.

Toolbox System Status Messages (continued)

Displayed, in red, in the MC Series Toolbox utility.

SYSTEM STATUS	PROBLEM	SOLUTION
[Crit 63 03-phead offline cancelpage restart]	Dirty Printhead contacts. Printhead or Pen Board fault.	Eject Printhead and inspect/clean contacts. Replace Printhead. Call for Service Support.
System Status: ONLINE **Reason: Uncapped printhead or clamshell open**	Service Station was just ejected (using **Eject Service Station** button).	Re-install the Service Station (*as outlined in this manual*) **WARNING!** Be sure to open the Clamshell before ejecting the Service Station.
PRINTHEAD_MISSING	Printer is still initializing or some other issue is keeping it from fully initializing.	If Printer was just powered on, or Printhead was just installed; wait a few minutes, error should clear by itself.
PRINTHEAD_MISSINGQA	No Printhead installed or Printhead not making proper connections or not being recognized.	Install Printhead Cartridge. Remove Printhead and check/clean contacts; then reinstall Printhead. Replace Printhead. Refer the appropriate sections in this manual for removing and installing the Printhead Cartridge. Call for Service Support.
PRINTHEAD_MISSINGQA 	Printhead missing and one or more of the Ink Tanks are also missing.	Install Ink Tanks and then install Printhead Cartridge (*as outlined in this manual*).
PRINTHEAD_UNPRIMED	Printhead priming process has failed. Ink delivery issue.	If just powered on, or Tanks/Printhead just installed, wait a few minutes; error may clear by itself. Replace missing/empty Ink Tanks or Tanks that are reading less than 30%. Check for kinked or pinched ink tubes . Release Printhead and reinstall; using proper techniques.
MECH_CANCELPAGE	Job was canceled by user pressing the CANCEL/CUT button. Job was interrupted by Clamshell being momentarily opened.	Wait until print job has cleared from Printer. Then manually clear job from computer's print queue. Then send new print job. Check to be sure Clamshell is securely latched, and then press **"Clear Error"** button to continue. If problem continues contact service support.

Toolbox System Status Messages (continued)

Displayed, in red, in the MC Series Toolbox utility.

SYSTEM STATUS	PROBLEM	SOLUTION
Tilt values displayed in purple Tilt: FB=1.1 LR=-1.3 **WARNING!** If values are above +2 degrees or below -2 degrees; stop printing and correct.	Tilt Sensors have detected that the Printer's level is **"out of normal operating range"**.	Verify that the table surface, that the Printer is placed upon, is level. If not, please level. If table surface is level, but Tilt values are still shown in purple; please contact your service representative. Tilt Sensors may need to be recalibrated.
WIPER OVERTEMP System Status: ONLINE Mech State: PRINTING Mech Status: ONLINE Maint Status: READY Firmware: R14.3 20160819 Serial Number: MY275MR01388 Printhead Id: A01NS3 - Primed Tilt: FB=-1.1 LR=0.4 Valve: OpenInk Paperpath: Entry: No Exit: No Service Station: Cap C K Y M K 35% 52% 66% 64% 50% Job: 2 Page: 316 Total Pages: 1319 Extreme Digital - Career Transition for Dancers - A10.pdf Feeder: Safe Feed Service: 0 of 50 Wiper Xfer: 1 Wiper Overtemp PAUSED	Wiper Motor is overheated due to performing a Wiper Transfer (*removing excess ink off Service Station Wiper*) too often or for multiple or extended periods. Printer will continue maintenance after Wiper Motor cools down. Message will disappear once the temperature returns to operating range.	**Wait for Wiper Motor to cool down,** Printer will automatically resume operation. **NOTE:** If running a number of short jobs or jobs on smaller media, reset the **Mid-Job Servicing** interval to a higher number of pages.
WIPER ERROR C K Y M K 70% 75% 61% 69% 71% Job: 2 Page: 1 Total Pages: 73 Feeder: Safe Feed Service: 0 of 50 - 18/06/17 03:57:08 pm Wiper Error	**Wiper Roller is not turning. This can be due to:** 1. White flex cable is dirty, broken or not connected. 2. Wiper Module (motor) failure. 3. DPCA failed at J17 terminal.	1. Check white flex cable and connections. 2. Replace Wiper Module. 3. Check and/or replace DPCA board.

Appendix A – M1C Specifications

PRINT RESOLUTION	**Best:** 1600 x 1600 DPI **Normal:** 1600 x 800 DPI
PRINT SPEED	**High Quality Mode:** 6" (15 cm)/second **Normal Quality Mode:** 12" (30 cm)/second
UNWINDER/WINDER SPEED	0-125 RPM
MAX. PRINT SIZE	8.5" (215.9 mm) W x Continuous Length
MEDIA TYPES	Roll or Fanfold (Label, Tag, Paper, Envelope)
MEDIA SIZE	**Minimum:** 2" W x 2.25" L (50.8 mm x 57 mm) **Maximum:** 9" (228.6 mm) W x Continuous Length
MEDIA THICKNESS	**Minimum:** 3 points (0.1 mm) **Maximum:** 12 points (0.3 mm)
MIN. LABEL GAP (Space between Labels)	**No Bleed:** 3 mm **Full Bleed:** 5 mm
ROLL SIZE (3" CORE) (Opt. Unwinder/Winder)	**Minimum:** 2" W x 10" Dia. (50.8 mm x 254 mm) **Maximum:** 9" W x 10" Dia. (228.6 mm x 254 mm)
ROLL CORE SIZES	**UNWINDER Reversible Hub:** 1.5" & 3" Dia. (38 mm x 76.2 mm) **WINDER Hub:** 3" Dia. (76.2 mm)
MEDIA SENSING	Label gap, notch, tick mark
INK	Water-based ink. 5 individual 250 ml ink tanks (CMYKK)
PRINT CARTRIDGE	One Memjet® Replaceable Printhead
INTERFACE	USB 2.0 and Ethernet
ELECTRICAL	115-240 VAC, 50/60 Hz
DIMENSIONS	**PRINTER:** 21" W x 21" L x 11" H (53 cm x 53 cm x 27 cm) **UNWINDER/WINDER:** 17" L x 9" W x 11" H (43 cm x 22 cm x 27 cm)
PRINTER WEIGHT	70 lbs. (31.8 kg)

All Specifications Subject To Change Without Notice

Appendix B – Supplies and Optional Hardware

Available from your Astro Machine Corp. Distributor:

SUPPLIES	
Black Ink Tank	123-2412
Cyan Ink Tank	123-2413
Magenta Ink Tank	123-2414
Yellow Ink Tank	123-2415
OPTIONAL HARDWARE	
UW-1C Unwinder	
RW-1C Winder	

Appendix C – Borderless Printing: Borderless Print vs. Oversize

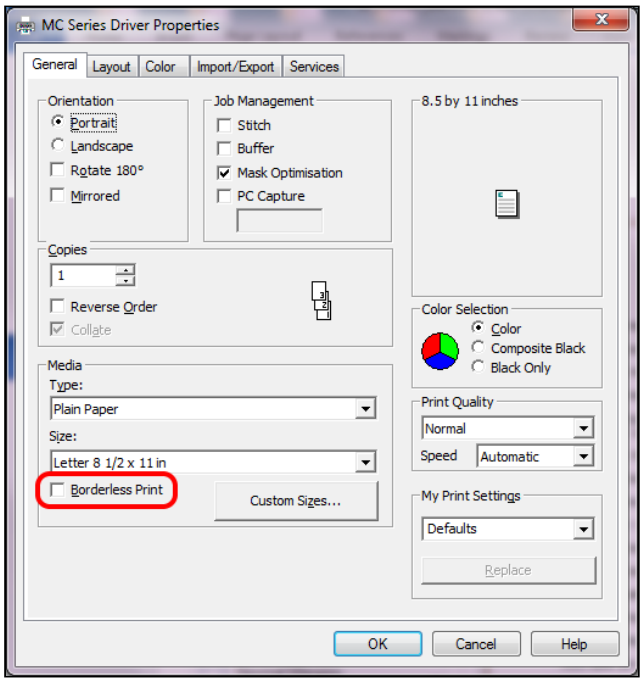
MC-Series Print Driver (*under Printing Preferences*) offers two ways for printing to edge of media, sometimes called **"borderless"** or **"full-bleed"** printing. Each option adjusts relationship between target image, selected media size and actual media on which is it printed, but in different ways. Each option has advantages and disadvantages, especially for certain types of images.

- **Borderless Print checkbox:** In **General Tab**, under **Media** section.
- **Oversize checkbox:** In **Custom Sizes** dialog box, under **Size** section in **General Tab** of **Print Preferences**.

Details about each option: when to use each, prerequisite setup and other tips for getting the best result.

BORDERLESS PRINT CHECKBOX

Borderless Print Checkbox is located in **Printers Printing Preferences**, in the **Media** section under the **General Tab**.



Borderless Print Checkbox on General Tab in Printing Preferences

Impact of Using Borderless Print

Selecting **Borderless Print checkbox** scales target image beyond the size of selected media, by adding **Borderless** default resolution value set in Driver. Image is stretched to print larger than actual size.

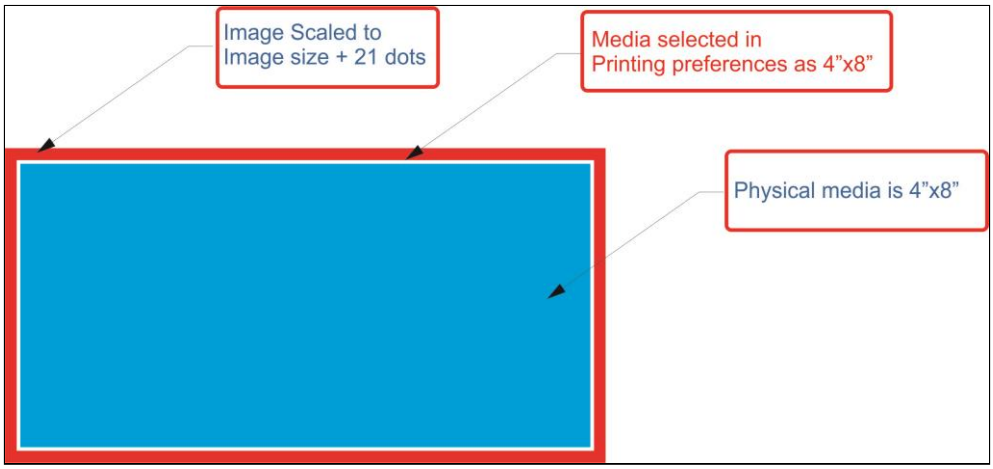
For example, if **Borderless** default setting is *21 (dots)*, then the resultant **Borderless Print** selection will have a resolution of *821 dpi*, (*when printing with normal resolution of 800*). Although this might stretch image beyond edges of media, (*and is quick and easy to select*), it may be too distorted to use.

Prerequisites for Borderless Print

Since scaling can distort the image, do not use **Borderless Print** for targets that have barcodes or text because this setting could render them unreadable. If the target image is a photograph or other graphical image, scaling may not be noticeable or objectionable. Make test runs and check the effect of choosing **Borderless Print**.

For example, Borderless Print for a 4" x 8" label would actually be:

4" (800 dpi) + 21 dots = 3221 dots x 8" (800 dpi) + 21 dots = 6421 dots

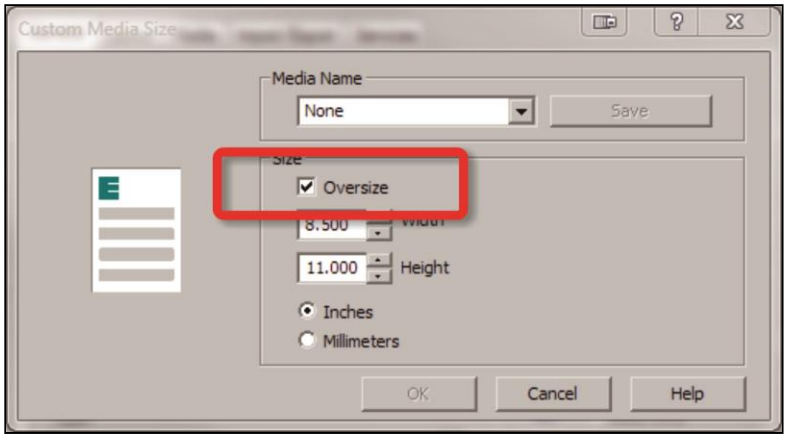


Borderless Print Example: Measurements and Relationships

For barcodes and text, use **Oversize** instead **Borderless Print**.
Required preparation for **Oversize** is explained below.

OVERSIZE SETTINGS

Oversize checkbox is in **Custom Sizes** dialog box, located in **Printing Preferences** under **General Tab**.

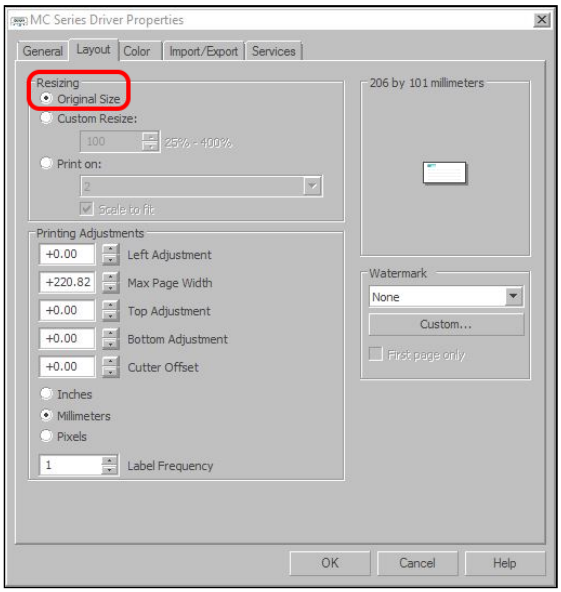


Oversize Checkbox on Custom Media Size Dialog Box

- Select **Oversize checkbox**.
- Enter measurements of physical media in Width and Height fields, selecting units (*inches or millimeters*).

Page Setup for Oversize

When using **Oversize** option, **Resizing** (*located in **Layout Tab** of Driver*) needs to be set to **"Original Size"**.



Page Setup for Oversize Option

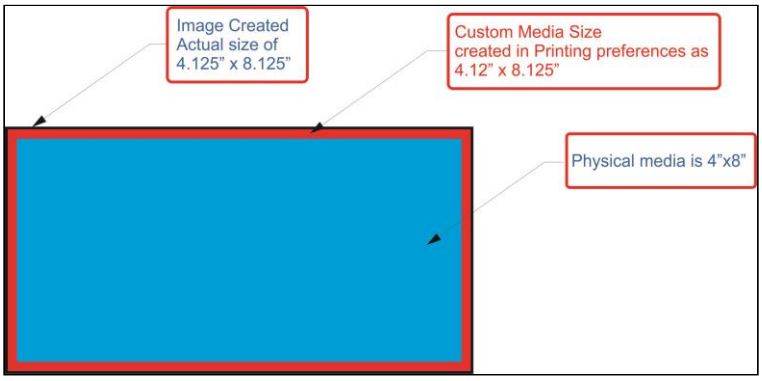
Impact of Using Oversize

Selecting **Oversize** extends **Custom Sizes** dimensions beyond that of actual media being printed on. Since this size extension is equal in both X- and Y- axes, there is no distortion of target image. Instead, choosing **Oversize** opens up more of target image for printing, so that it can print beyond size of physical media. However, target image also needs to be created as oversized, not size of physical media; otherwise, there is likely to be a white border between image and media.

Prerequisites for Oversize

To make **Oversize** an applicable option:

- Target image needs to be greater in size than size of actual media. Image needs to be same size as custom media size selected in **Custom Sizes** window, corresponding to additional amount set as default in Driver.



Oversize Example: Measurements and Relationships

ADDITIONAL CONSIDERATIONS AND TIPS

Some additional considerations apply to both **Borderless Print** and **Oversize** in certain circumstances.

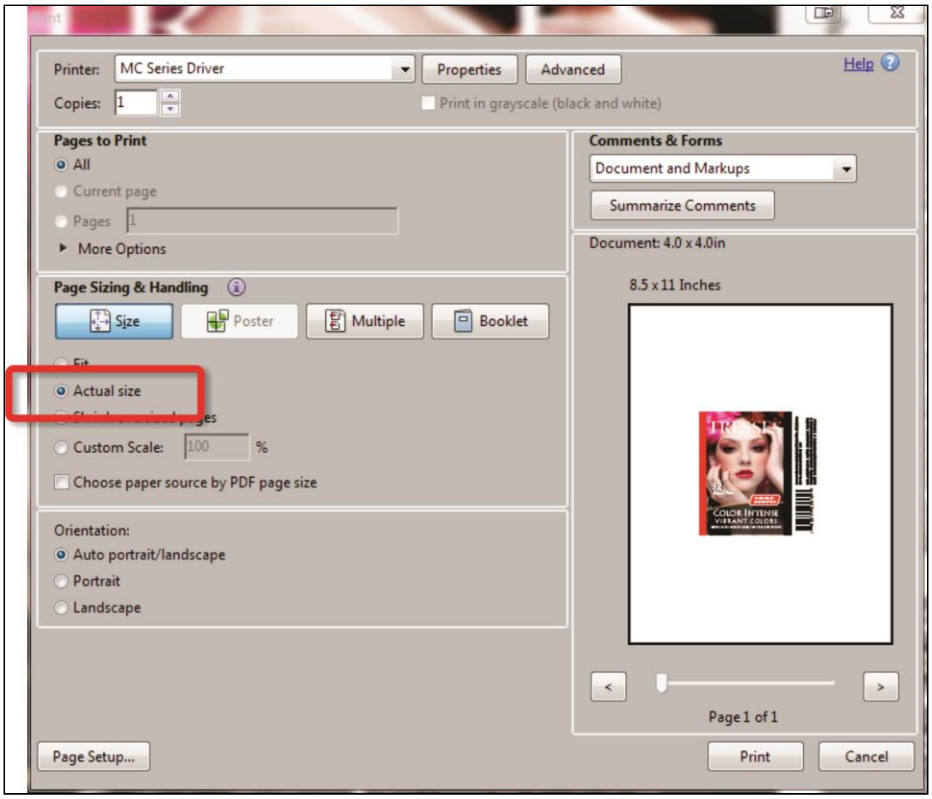
Minimum Label Gap and Maximum Width

For both **Borderless Print** and **Oversize**, additional consideration and testing are required when approaching limitations for minimum label gap and maximum label width.

- **Minimum label gap is 3mm.** If media used has only a 3mm gap between labels, borderless printing (*either **Borderless Print** or **Oversize***) may not work without skipping a label between printed labels. An image that goes beyond physical media size effectively reduces label gap, possibly below 3mm minimum. This may also be beyond **top of form (TOF)** and **bottom of form (BOF)**. If gap is less than minimum label gap, labels are skipped since **TOF** and **BOF** are undetectable for next label.
- **Maximum print width is 8.69",** including physical media width + **Borderless Print/Oversize** additional width. If borderless printing is required, physical media needs to be narrow enough to include additional width for **Borderless Print** or **Oversize** expansion.

Page Sizing and Handling with Adobe Acrobat

Many target images are in PDF format. When printing from Adobe Acrobat, be sure to select only **Actual Size** under **Page Sizing & Handling**. Other options will affect settings already made for **Borderless Print** and **Oversize**, producing undesirable results.



Printing Borderless Print/Oversize from Adobe Acrobat: Select "Actual Size"

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PRINTER MAINTENANCE SCHEDULE

General, periodic maintenance is needed to keep the 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, Super Lube 21030 synthetic grease (*or equivalent*), Loctite 38650 copper anti-seize (*or equivalent*), 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**	
Grit Rollers (Media Path)			**INSPECT**	**CLEAN**	
Ink Tank Latches/Ink Bay				**INSPECT**	
Ink Tubing, Couplings, Components			**INSPECT**	**INSPECT**	
Ink Waste Tray			**INSPECT**	**INSPECT**	**REPLACE**
Lift Motor Gear			**INSPECT**	**INSPECT**	
PERFORMED BY SERVICE TECHNICIAN					
Cutter: Inspection/Cleaning				**INSPECT/ CLEAN**	
Lubrication				**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.**

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