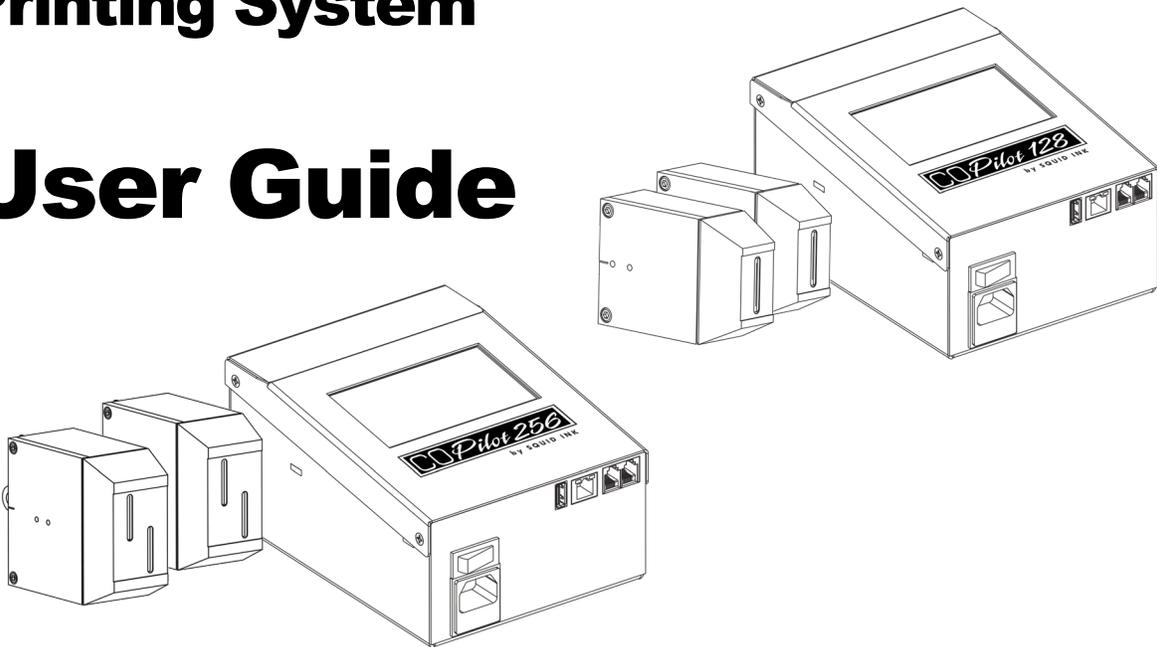# CoPilot 128/256

Industrial Inkjet
Printing System

User Guide

SQUID INK MANUFACTURING®

CoPilot 128 and 256

Industrial Inkjet Printing System

User Guide

Revised 12/4/2018

P/N 2003978 Rev Q

1a. Cda. Jacarandas #14 Col. El Vergel, Iztapalapa. Ciudad
de México C.P. 09880

(55) 5426-4137   **800 253-2627**

info@alfamaq.mx   **www.alfamaq.mx**

Contents:

Safety

The Squid Ink CoPilot 128/256 printing system is easy to install, operate and maintain. Follow these simple safety steps to insure a smooth and safe operation.

- The CoPilot 128/256 components are reasonably compact and lightweight. However, while unpacking and setting up the printer, always take care and use proper lifting techniques. Try to avoid over reaching and twisting while handling the printer and accessories. If necessary, use two people to lift and move the printing system.

- While installing, maintaining and operating the printing system, always wear safety glasses, gloves and protective clothing.

- Make sure the electrical power source is properly wired and grounded. The power source should comply with all safety regulations and codes applicable to the installation location.

- Turn off and unplug the printing system while servicing and performing maintenance.

    Note: **Some service and maintenance procedures require the power be left on. During such procedures, carefully follow the safety instructions.**

- Use only Squid Ink Manufacturing ink or other Squid Ink manufacturing approved fluids.

- The Squid Ink CoPilot 128/256 printer can use an ink cartridge or an ink bag system. Do not open or puncture the ink supply cartridge or bag in any way other than normal installation.

- Keep all fluids away from open flame and excessive heat.

- Avoid prolonged contact with skin. Fluids can be washed with soap and water.

- **Never** look directly into the printhead. If any fluid should make eye contact, flush immediately with water and receive appropriate medical attention.

- Never pour fluids into sink, sewer or drain. Dispose of fluids in accordance with all ordinances and regulations pertaining to fluid disposal.

Introduction

General System Description

The CoPilot 128/256 printing system consists of a controller with an integrated user interface, and up to two 128 or two 256 printheads with cartridge or bag ink systems. The CoPilot printing system is designed to print superior quality high-resolution characters on a variety of porous and non-porous surfaces.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense.

Attention!   Messages for the CoPilot 128/256 Printing Systems are created and edited using PC based Orion™ software. Messages are then loaded onto the CoPilot controller via Ethernet connection or from a USB device. Use the Orion User Guide that came with your printer for information on how to connect, create and print messages.

System Components

- Controller

- Printhead(s)

- Printhead Data Cable(s) 256 only

- Sensor (photocell)

- Encoder (Optional)

- Ink System (Bag or Cartridge)

- Mounting Hardware

If you have purchased an optional level of Orion™ that allows a you to connect to multiple printers, you will find upon opening the CoPilot 128/256 shipping carton a "DOWNLOAD INSTRUCTIONS" card. **Do not throw this card away!** It contains a serial number that will be needed for downloading the Orion™ message creation software and connecting the CoPilot printing system. If your card becomes lost, you can still download the Orion™ message creation software and connect to a single printer. Please call our tech support department at 1-800-877-5658 if you have any issues or questions.

System Specifications

Print Technology	Piezo impulse printhead technology.
Print Speed	Up to 135 fpm (41 m/min) @ 205 dpi.
Vertical Print Resolution	185 dpi.
Horizontal Print Resolution	205 dpi.
Maximum Print Height	1.4 in (3.6 cm) per 256 printhead. .7 in (1.8 cm) Per 128 printhead
Time & Date	Internal Realtime clock with battery back-up.
Product Sensor	External photocell and/or optional encoder.
Communication Interface	One USB host and one Ethernet input.
Electrical Requirements	100 – 240 VAC, 50/60 Hz. 65W Max.
Operating Environment	34°F (1°C) to 122°F (50°C).
Storage Environment	0°F (-18°C) to 140°F (60°C).
Substrate Capabilities	Porous or non-porous applications.
Ink Capabilities	Solvent or oil-based inks.
Ink System	Ink system utilizes Squid Ink Manufacturing 500ml cartridge or pigmented bag ink systems.
Low Ink Indicator	message alert on touchscreen.
Agency Certifications	TUV and CE certified (Pending).

Software Specifications

Time & Date   Multiple formats including: 1,2,4, digit year, 1,2-digit month, 3 Letter months, custom month string, 1 letter day of month (Korean), 2-digit day of month, 1-digit day of week, 1,3 letter days of week, 2-digit week of year, 3-digit Julian year, 1 letter hour, (a-x), 2-digit hour 12 or 24, 2-digit minute, 2-digit second, 1,2 letter meridian (A/P, AM/PM), custom week string.

Counters   Supports 16 Counters, one of which can be designated as a daily counter.

Shift Codes   Four programmable shift codes with automated rollover.

Bar Codes   Code 39, Interleaved 2 of 5, UPC-A, EAN-8, EAN-13, Code 128, UCC-128, SCC-14 ITF, SCC-14 28, SSCC-18, MSI, DataMatrix, QR, MicroQR and PDF417 bar codes standard.

Fonts   Arial, Courier, Tahoma and Lucida resident fonts for use in variable data elements. Static elements in any Windows® font.

Printing Features   Reverse, Rotate, Repeat, Invert.

Message Storage Capacity   1024 Messages, but there is capacity to store much more than 1024 messages based on the message complexity.

Message Length   Limited by substrate length up to 120".

Logos and Graphics   The Orion Graphical Interface Software will support virtually any type of image file.

Languages   English.

Options

Encoder   For operation with variable speed conveyors.

Bar Code Laser Scanner   Allows scan and print message retrieval.

Starter Kit   Includes ink, cleaner and flush, printhead wipes, hand
                               cleaner, and latex gloves.

Installation and Setup

General Recommendations

Material Handling
The most critical item in consistently achieving good quality printing is material handling. This is an area controlled by the customer and the installer. It is imperative that adequate product guides be provided and that they are installed and maintained properly. Incorrect or inconsistent product handling will cause print quality problems, maintenance problems and could lead to printhead damage. The customer is responsible for maintaining proper material handling equipment.

AC Power
Our experience has shown that the AC power in many locations where the printing system is installed can be subject to line noise, brownouts, and blackouts due to motors and material handling equipment failure. If you experience line noise, brownouts or blackouts on a regular basis, a good-quality line conditioner or Uninterruptible Power Supply (UPS) should be installed to ensure data integrity. In many cases, these devices may not be necessary and it is acceptable to start an installation without them. However, if system lock-ups or occasional distorted print occurs, the first corrective measure should be to isolate and clean up the AC power.

Work Area
The CoPilot 128 and CoPilot 256 may require priming from time-to-time due to environmental contaminants collecting on the nozzle plate. The priming process requires the use of clean, lint-free wipes that become soiled with ink during use. Because of this, we recommend that a small storage cabinet or box be located near the printer in which to keep the wipes and to keep them clean. Also, a small waste can is recommended for soiled wipe disposal.
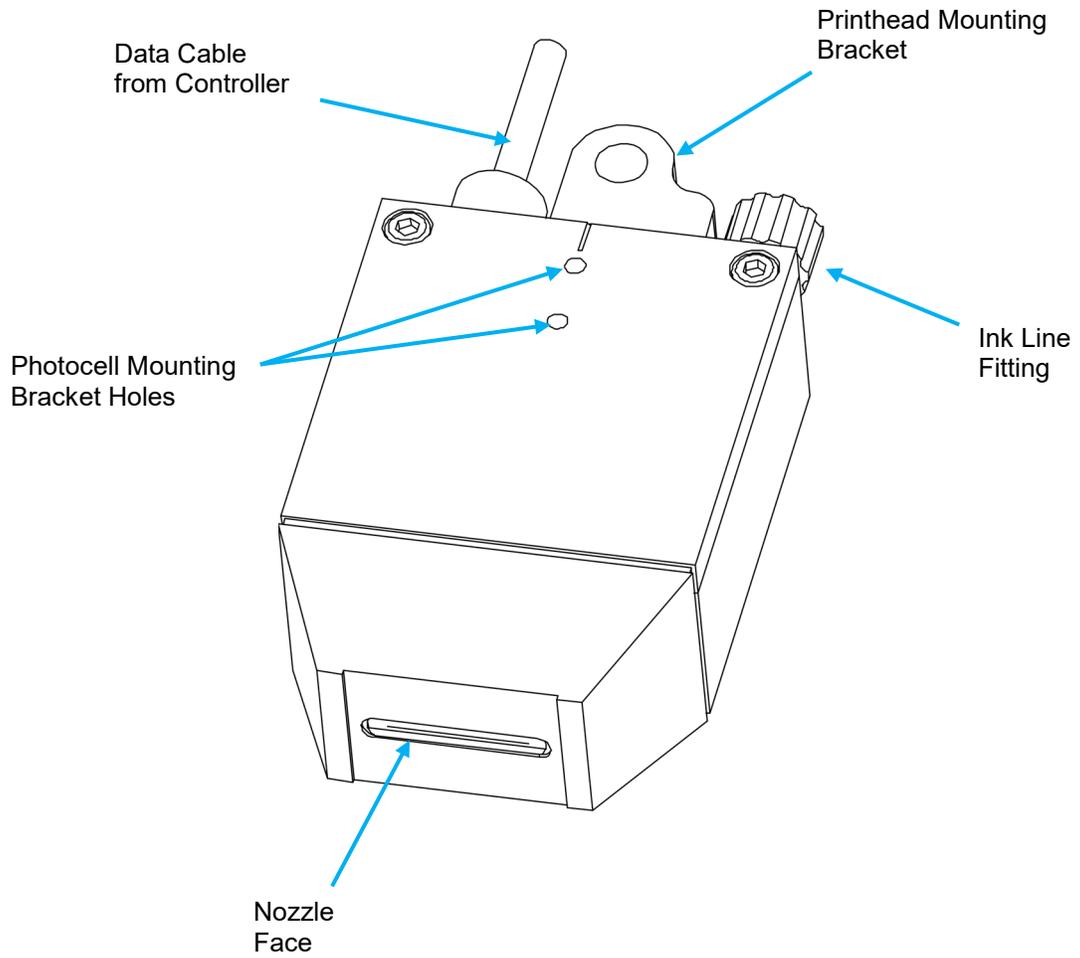
Vibration
The CoPilot 128 and 256 print engines do not de-prime easily. They are remarkably tolerant to bumps by passing products and to normal conveyor vibrations. However, sustained, long-term vibration may lead to erratic performance. In cases where the conveyor is especially vibration-prone, the entire printing system can be mounted on a stand. Optional stands are available from Squid Ink for these applications.

Maintenance Access
When planning the installation, allow for easy access to the printheads so that priming and cleanup can be done conveniently.

128 Printhead Overview

Data Cable
from Controller

Printhead Mounting
Bracket

Photocell Mounting
Bracket Holes

Ink Line
Fitting

Nozzle
Face

Note: The data cable for the 128 printhead is permanently attached
to the back of the printhead. It does not unplug.

256 Printhead Overview

Data Cable
Connection

Ink Line
Fitting

Mounting
Bracket

Nozzle
Faces

Photocell
Mounting
Bracket Holes

Controller Overview

Photocell/Encoder Out to
Second CoPilot System

Photocell/Encoder In

Power
Switch

USB
Port

Network
Connection

Fuse

Power Cord
Receptacle

Low Ink 1
Connect

LOW INK 1   PRINTHEAD 1

PRINTHEAD 2   LOW INK 2

Data Cable
Connection for
Printhead 1

Data Cable
Connection for
Printhead 2

Low Ink 2
Connect

Mounting

Each installation is unique and Squid Ink Manufacturing cannot anticipate customer requirements for attaching mounting brackets to the production line. Several mounting systems are available for the Copilot 128/256 printing system. Follow the instructions for the specific mounting system ordered with your printer.

Attention!   Use only the supplied mounting hardware to attach the printhead(s) and controller to the mounting brackets. Using mounting hardware other than that supplied by Squid Ink Manufacturing can result in damage to the printhead and/or the controller assembly.
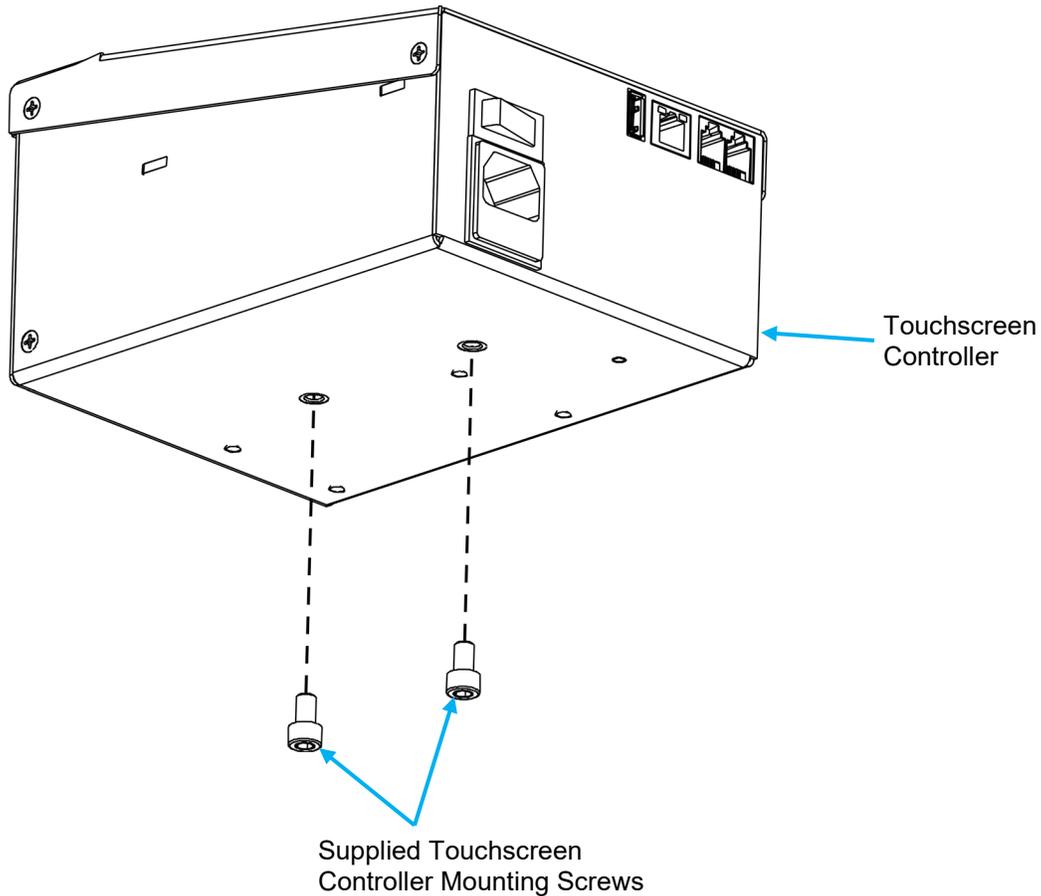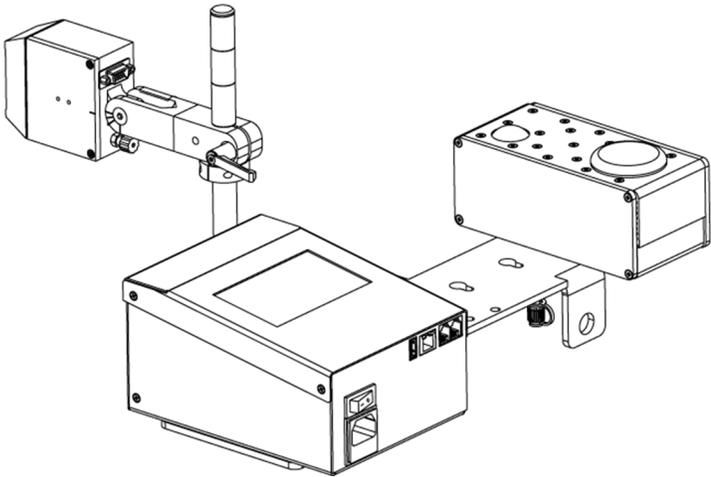
Printhead(s)
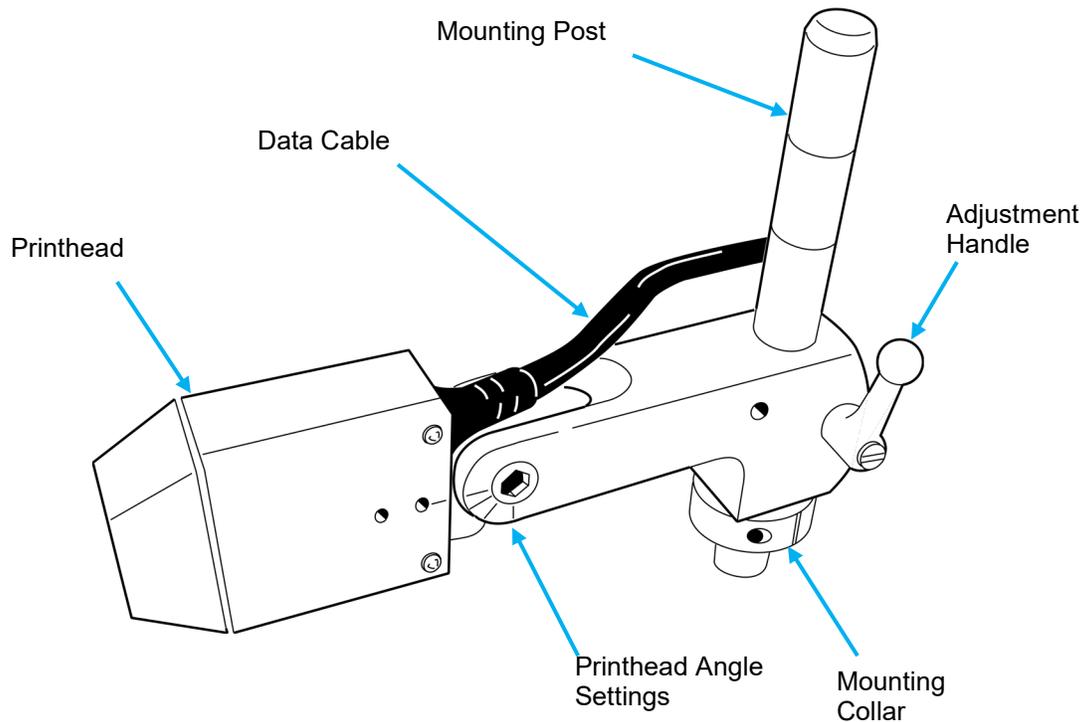
Example of Typical Printhead Mounting (128 shown)

Controller

There are two (2) mounting holes for supplied mounting screws located on the bottom of the CoPilot controller. Use these holes and the supplied mounting screws to attach the controller to the mounting bracket.

Touchscreen
Controller

Supplied Touchscreen
Controller Mounting Screws

Attention!   Use only the supplied mounting screws to attach the touchscreen controller to the mounting brackets. Using mounting screws other than that supplied by Squid Ink Manufacturing can result in damage to the controller assembly.
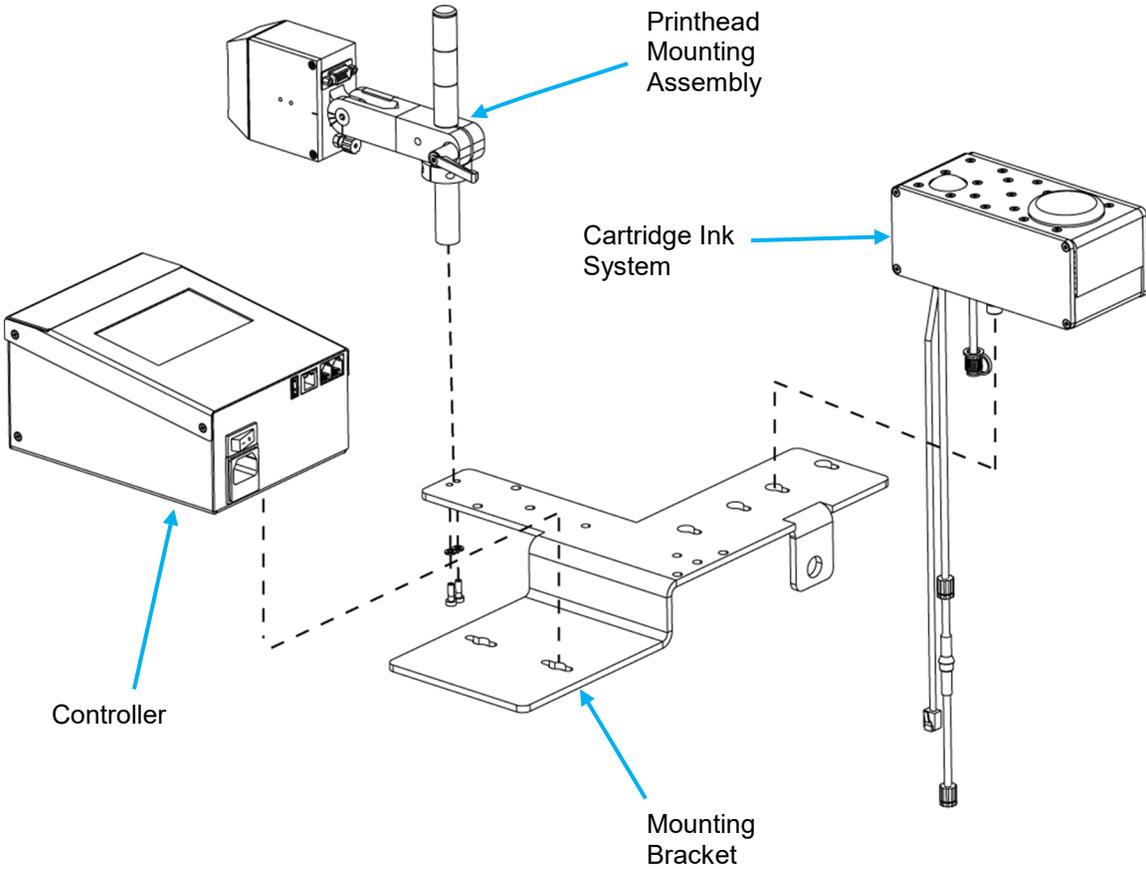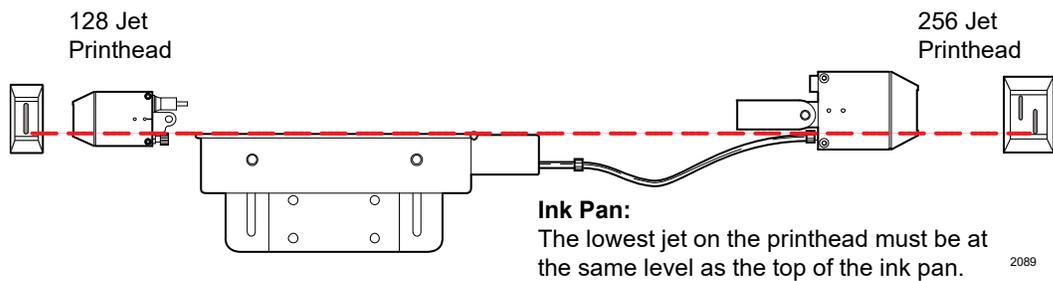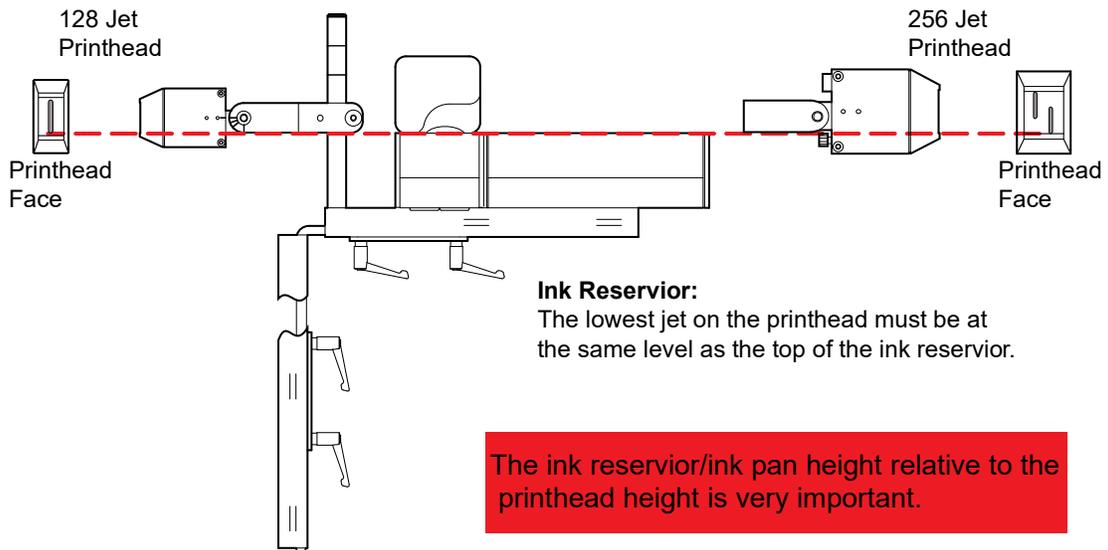
Printhead Mounting Assembly

Cartridge Ink System

Controller

Mounting Bracket

CoPilot 128/256 Main Components on Mounting Bracket

Printhead Height

The height of the printhead relative to the height of the ink reservoir is very important. Ensure that the lowest nozzle on the printhead face is at the same level as the top of the ink reservoir or ink bag system.

Printhead Height Relative to
Ink Reservior or Ink Pan

128 Jet
Printhead

256 Jet
Printhead

Printhead
Face

Printhead
Face

Ink Reservior:
The lowest jet on the printhead must be at
the same level as the top of the ink reservior.

The ink reservior/ink pan height relative to the
 printhead height is very important.

128 Jet
Printhead

256 Jet
Printhead

Ink Pan:
The lowest jet on the printhead must be at
the same level as the top of the ink pan.

2089

Printhead Height Relative to
Ink Reservior or Ink Pan
Sideshooter Mode

128 Jet
Printhead

256 Jet
Printhead

Printhead
Face

Printhead
Face

Ink Reservior:
The middle of the jet on the printhead must be at
the same level as the top of the ink reservior.

The ink reservior/ink pan height relative to the
printhead height is very important.

128 Jet
Printhead

256 Jet
Printhead

2277

Ink Pan:
The middle of the jet on the printhead must be at
the same level as the top of the ink pan.
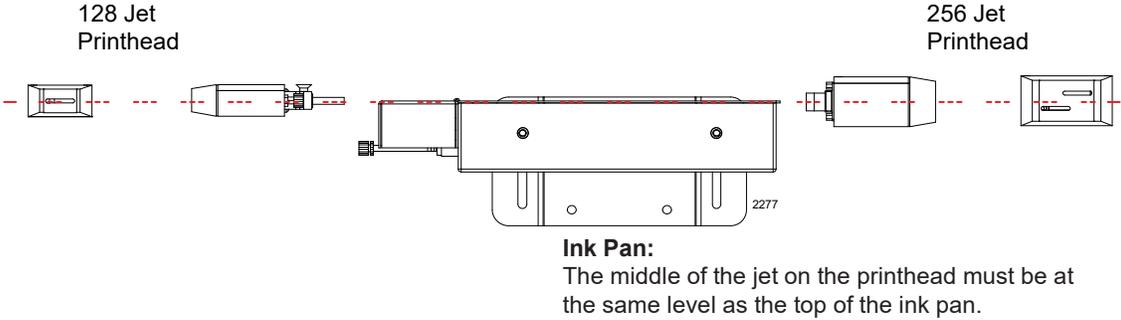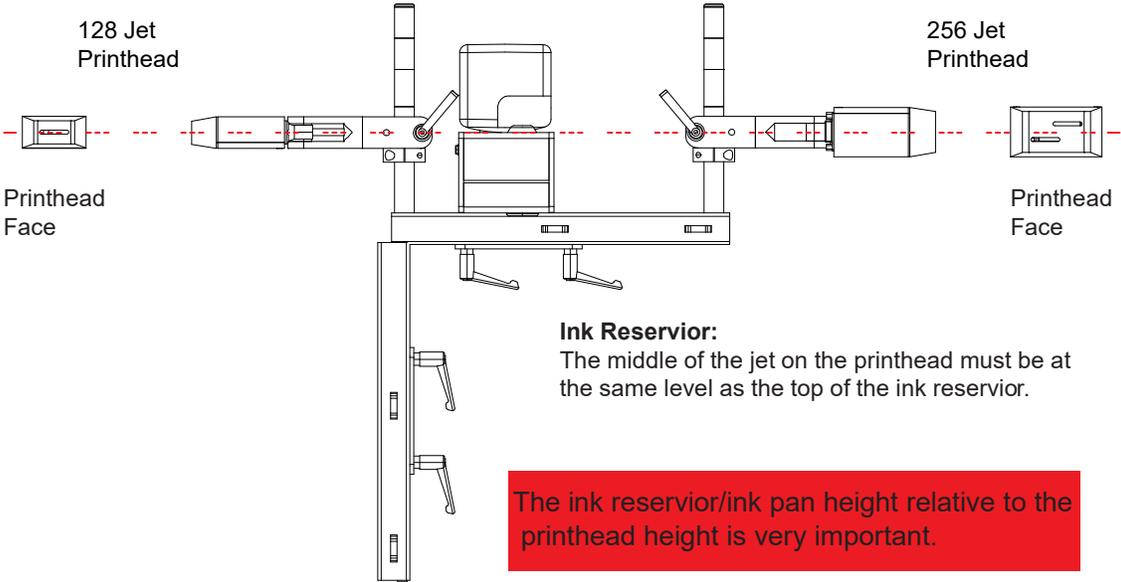
Printhead Height Relative to
Ink Reservior or Ink Pan
Downshooter Mode

In the downshooter mode, all the jets
are horizontal, so they are all at the same level.

The ink reservior/ink pan height relative to the
printhead height is very important.

128 Jet
Printhead

256 Jet
Printhead

Ink Pan:
The jets on the printhead must be at
the same level as the top of the ink pan.
2090
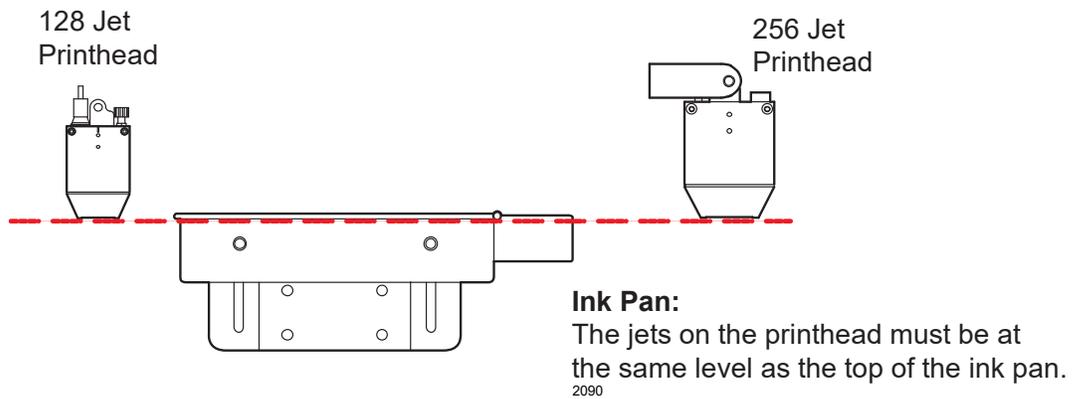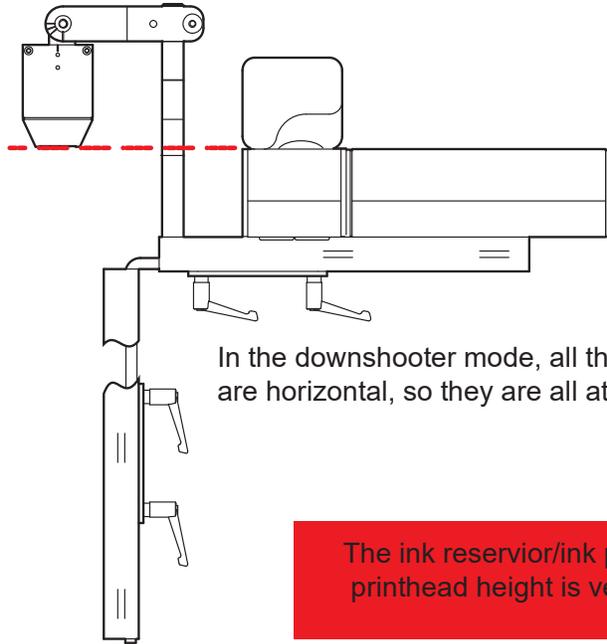
Photocell

A photocell can be mounted directly to the CoPilot 128 and 256 printheads using the supplied mounting bracket and mounting screws. The photocell should be mounted on the downstream side of the printhead so it will see the product first.

Printhead

Photocell

Photocell
Mounting
Bracket
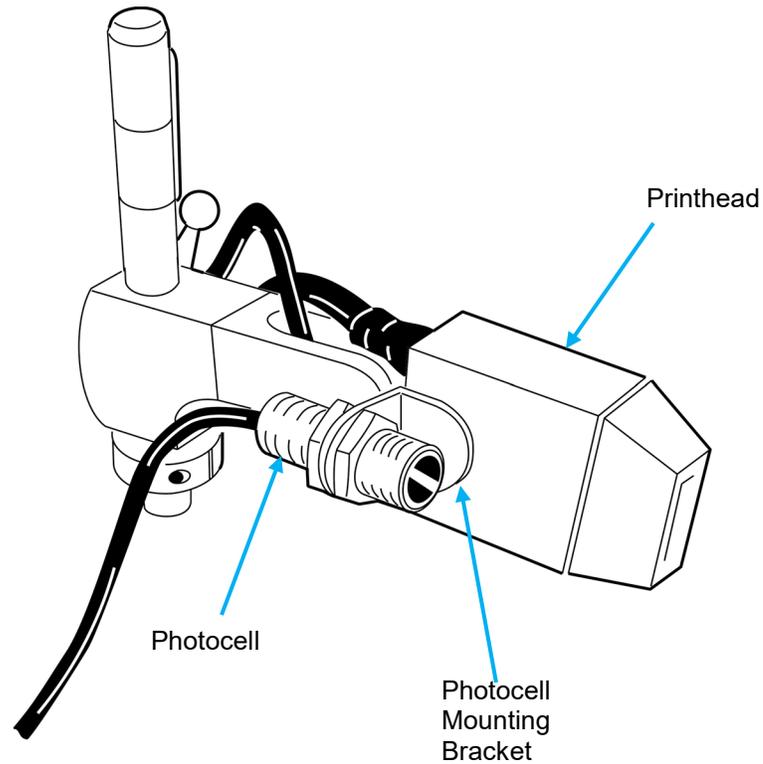
Distance from Substrate

As a general rule the closer the printhead is to the surface to be printed (substrate), the better the print quality. We recommend keeping the printed surface within 1/8" (3.2mm) from the nozzle plate. While throw distances greater than 1/8" are possible, print quality may be affected.

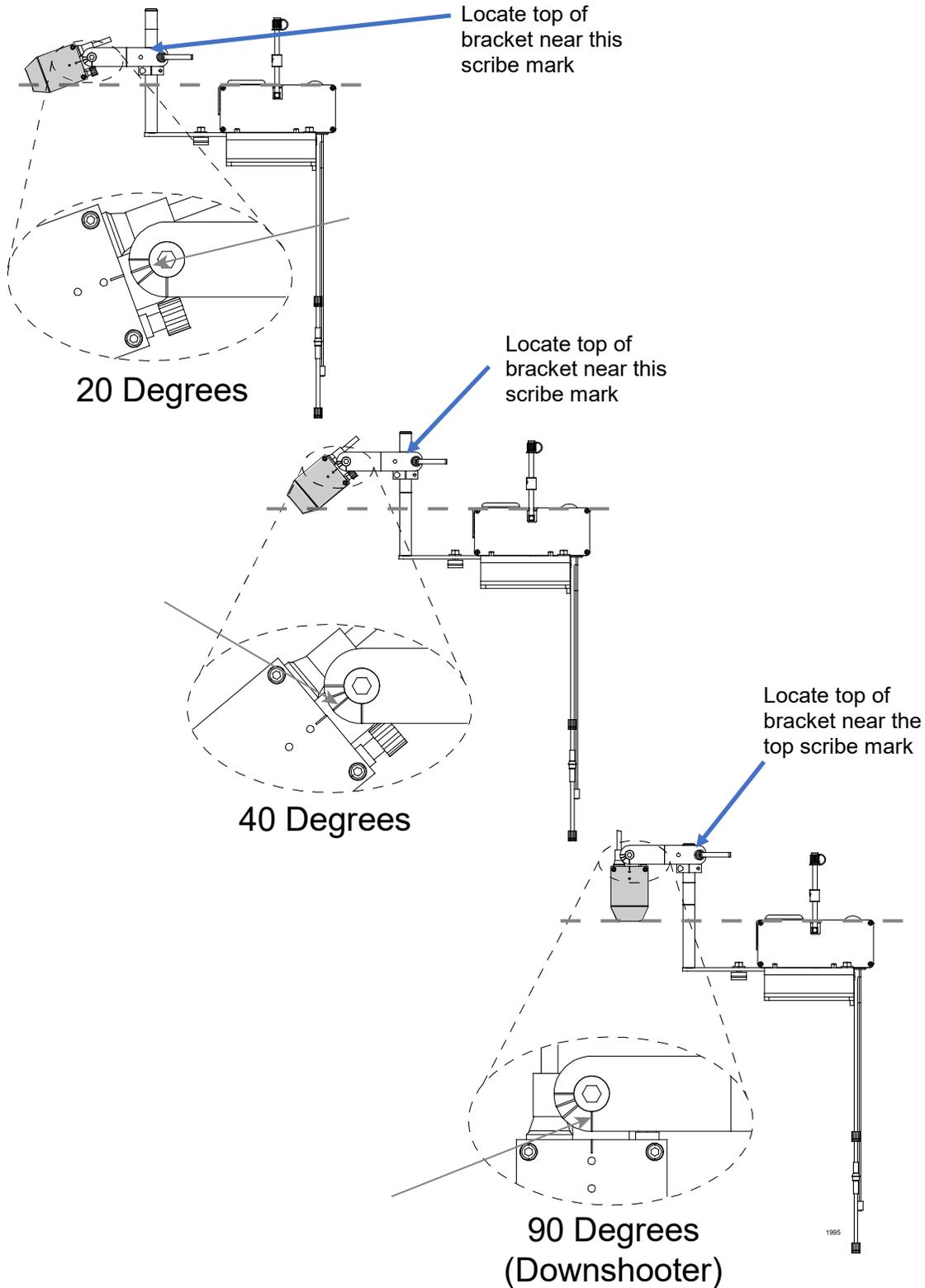1/8" (3.2mm) Max.

Printhead

Substrate
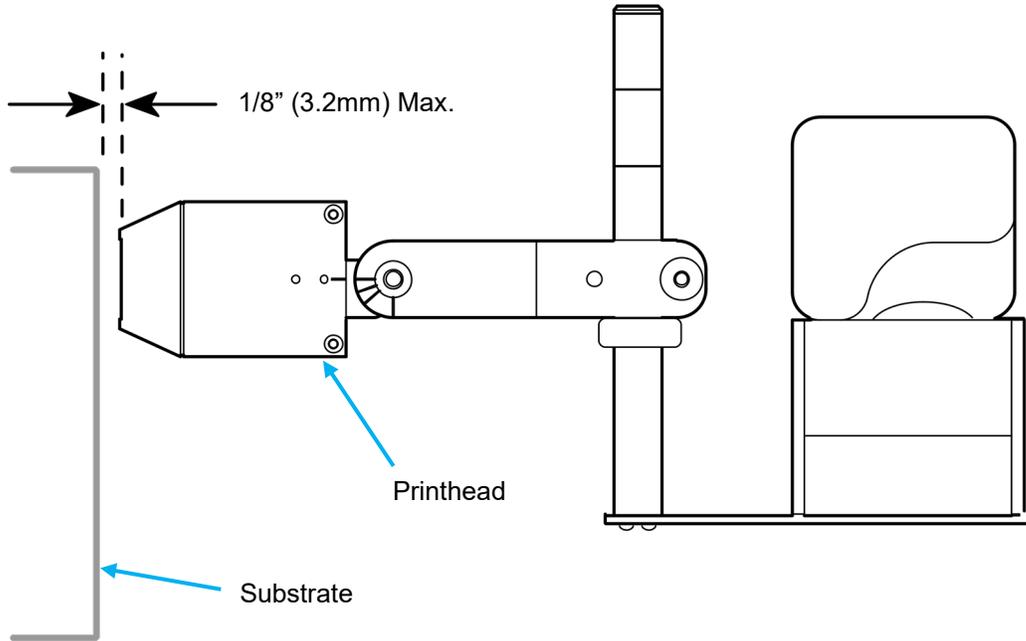
Rotating and Tilting the Printhead

If a downshooter configuration is desired, the head angle and height must be adjusted. To print straight down, align the printhead with the red indicator mark in the 6 o'clock position. The printhead arm assembly should be raised to the corresponding red mark at the very top of the vertical post. Be sure to raise and tighten the collar for additional support.

Indicator Marks
on Mounting
Bracket

Mounting Collar

Printhead
Pointing
Down

Mounting
Post
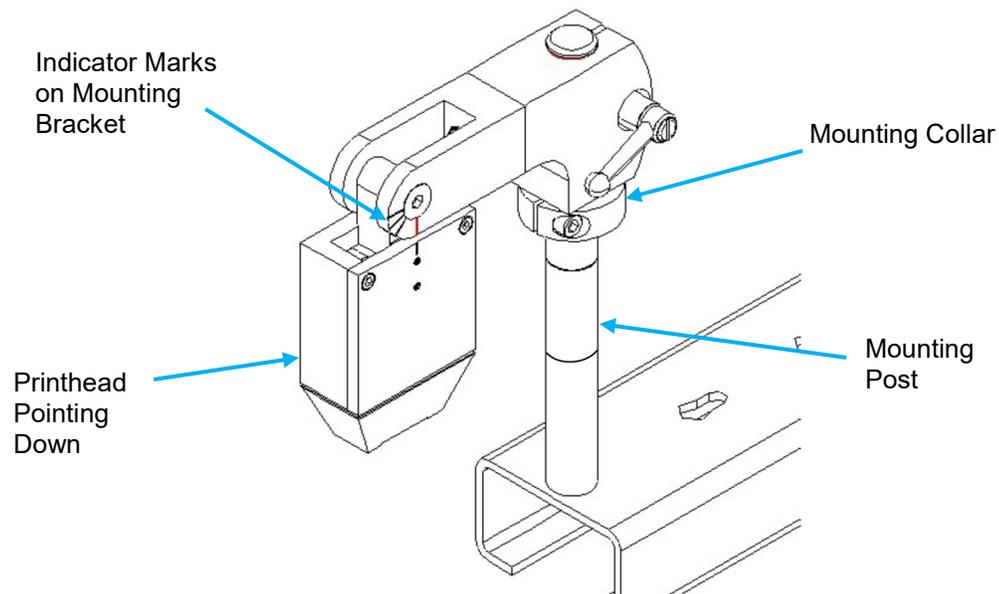
The CoPilot 128 or 256 printheads can also be rotated to print at an angle. Orientation marks are provided for applications requiring print at 20 and 40 degrees. Using the orientation marks as a starting point, align the printhead and printhead arm assembly to the corresponding indicator mark.

The printhead/bracket assembly needs to be moved to other locations on the mounting post, along with the collar, so that the ink height relative to the printhead orifice remains printing properly.

Locate top of bracket near this scribe mark

20 Degrees

Locate top of bracket near this scribe mark

40 Degrees

Locate top of bracket near the top scribe mark

90 Degrees (Downshooter)

1995

Data Cable Connections

Connecting Photocell Trigger to Controller

Connect the photocell signal cable to the "IN" connection on the back of the controller touch panel.
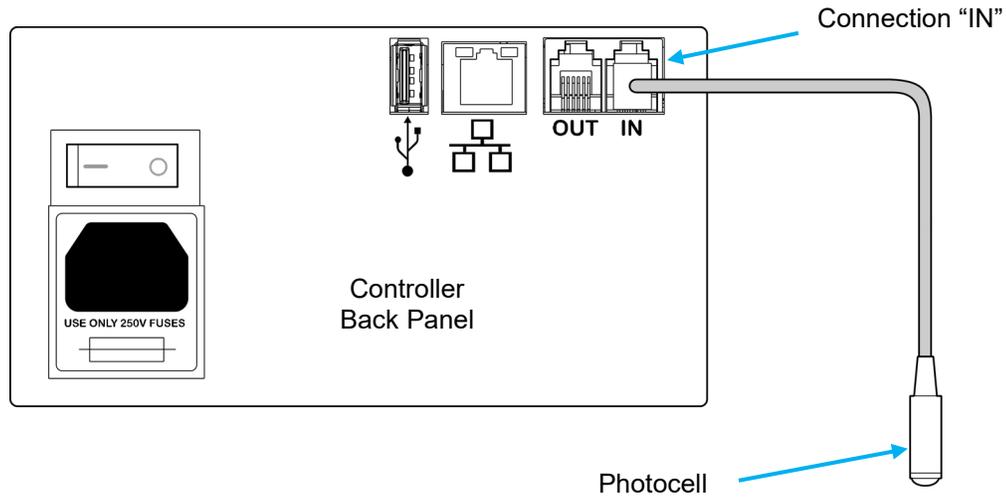
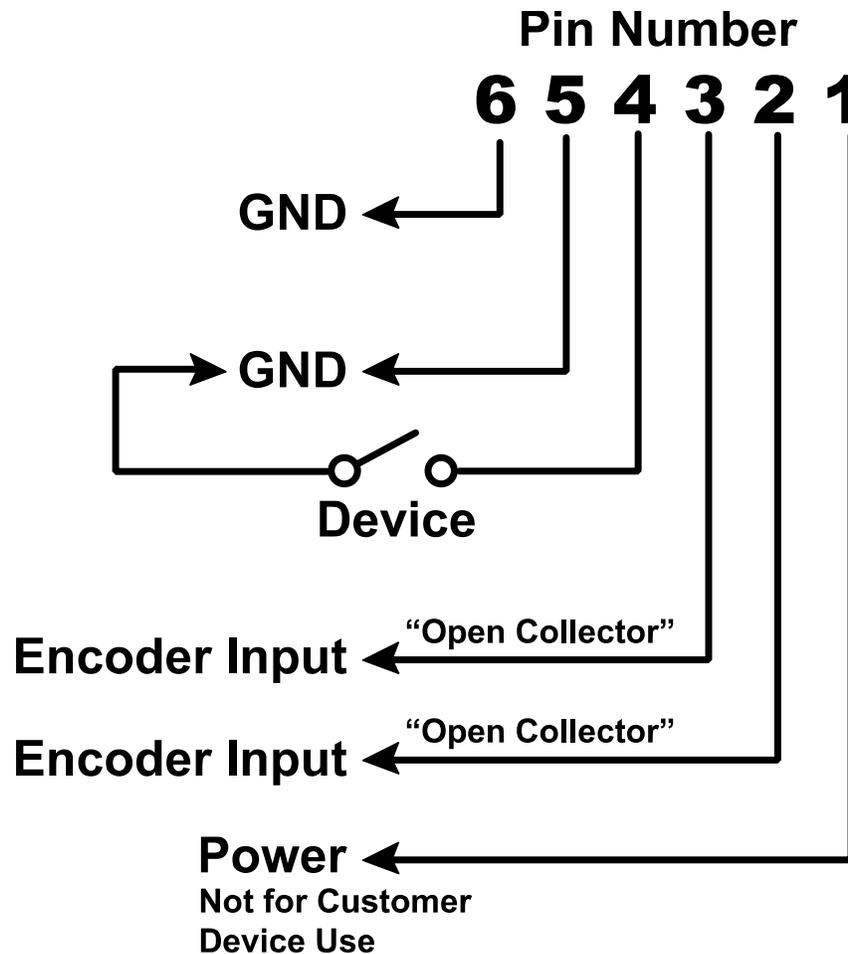## Connecting an Optional Encoder to the Controller

Connect the optional encoder and photocell trigger to the RJ12 adapter cable. Connect the adapter cable to the "IN" connection on the back of the controller.
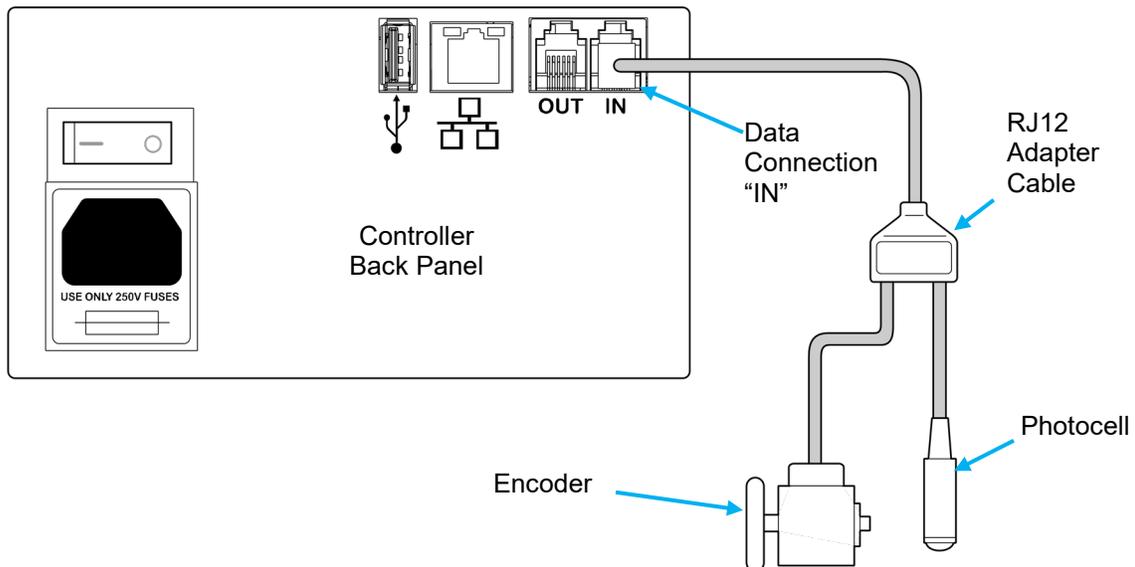
Custom Triggering Device

Some applications may require the use of a site-specific triggering device. Use the following Pin Assignments on the RJ12 CoPilot connector to install a custom triggering device.

Attention!   Site-specific or unusual devices should only be connected by trained and qualified personnel.

Pin Number

6 5 4 3 2 1

GND ←

GND ←

Device

Encoder Input ← **"Open Collector"**

Encoder Input ← **"Open Collector"**

Power ←
Not for Customer Device Use

On the RJ12 Input Connector, connect pin 4 to a NPN sinking open-collector source with pin 5 acting as ground. When using a relay, the relay should be connected across pins 4 and 5. The relay should normally be open and should close when activated.

Attention!   Do not apply external voltage to any pin on the RJ12 Connector.
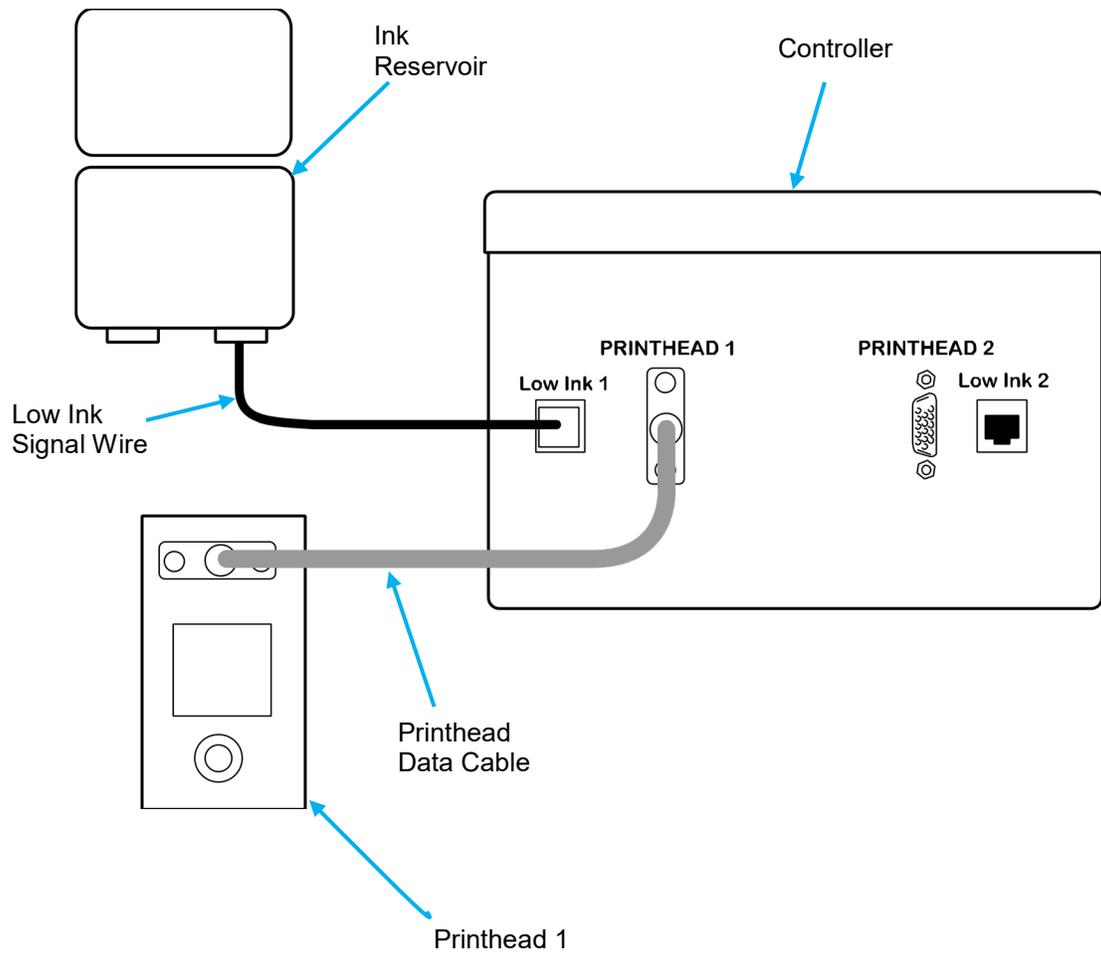
Printhead Data Cable

Attention!   Ensure that the controller power switch is turned **OFF** and the controller is disconnected from the power source when connecting a printhead. **Do not** "Hot Plug" the printheads.

On the front of the Touch Screen controller box there are data connections for two (2) printheads. They are labeled "PRINTHEAD 1" and PRINTHEAD 2". There are also connections for the Low Ink signal wire from the ink cartridge.
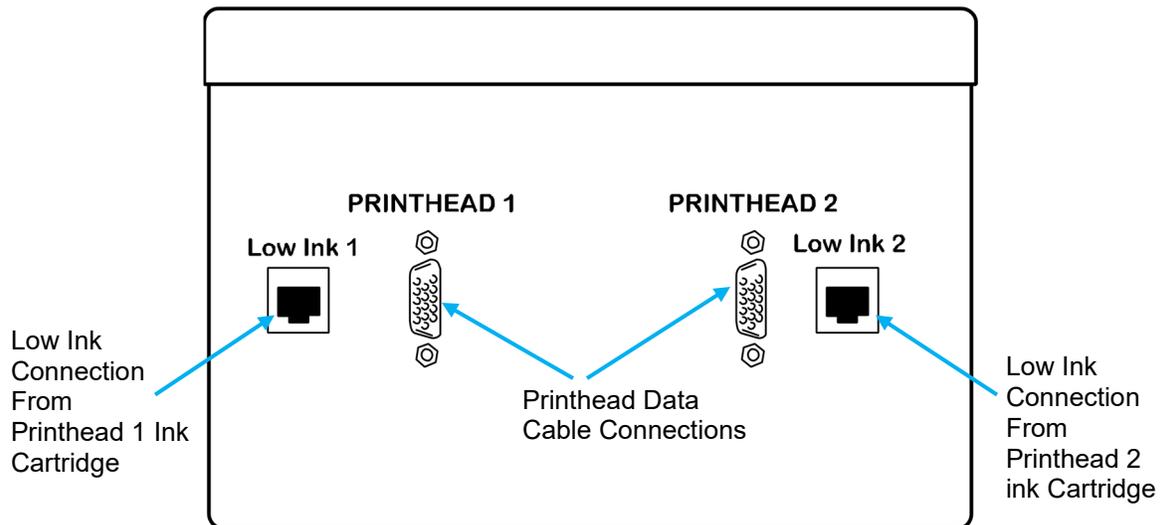
Connect a printhead data cable and Low Ink signal wire to "PRINTHEAD 1". For 256 printheads, connect the other end of the data cable to the printhead that will be designated printhead 1. The 128 printhead data cable will already be attached to the printhead.

The data cable also carries power from the controller to the printhead. There is no power switch on the printhead. The printhead will power up when the controller is turned on. **Do not** "Hot Plug" the printhead.

**Printhead and Low Ink Connections**

Connecting a Second Printhead

Attention!   Ensure that the controller power switch is turned **OFF** and the controller is disconnected from the power source when connecting a second printhead. **Do not** "Hot Plug" the printheads.

To connect a second printhead connect the printhead data cable to "PRINTHEAD 2" and connect the other end to the designated printhead.

Note: The data cable on the 128 printhead is permanently attached to the printhead.

Connect the Low Ink signal wire from the printhead 2 Ink reservoir.
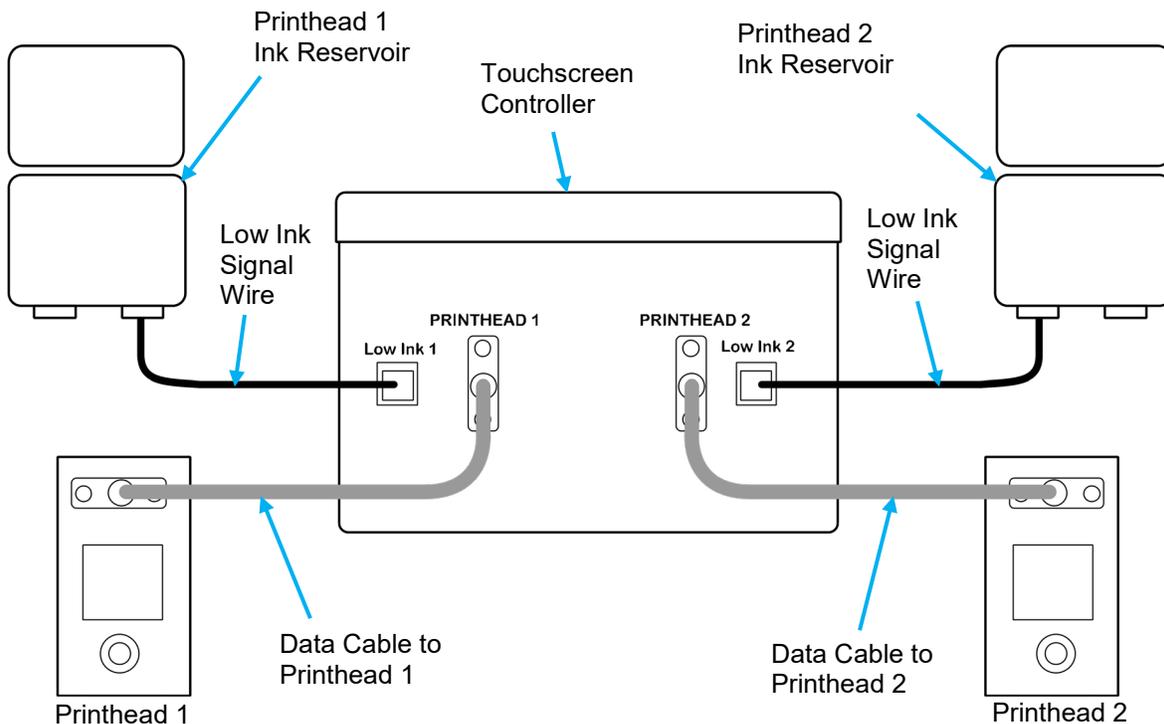
The data cable also carries power from the controller to the printhead. There is no power switch on the printhead. The second printhead will power up when the controller is turned on. **Do not** "Hot Plug" the second printhead.

Connecting a Second CoPilot Printing System

If you are using a second CoPilot Printing System connect the data cable between the first and second CoPilot controllers. Connect the data cable from the data "OUT" connection on the first controller to the data "IN" connection on the second controller.

Attention! Do not attempt to connect a second printer to the local area network data port located on the first controller. A second printer must be connected to the "OUT" port on the first CoPilot controller.
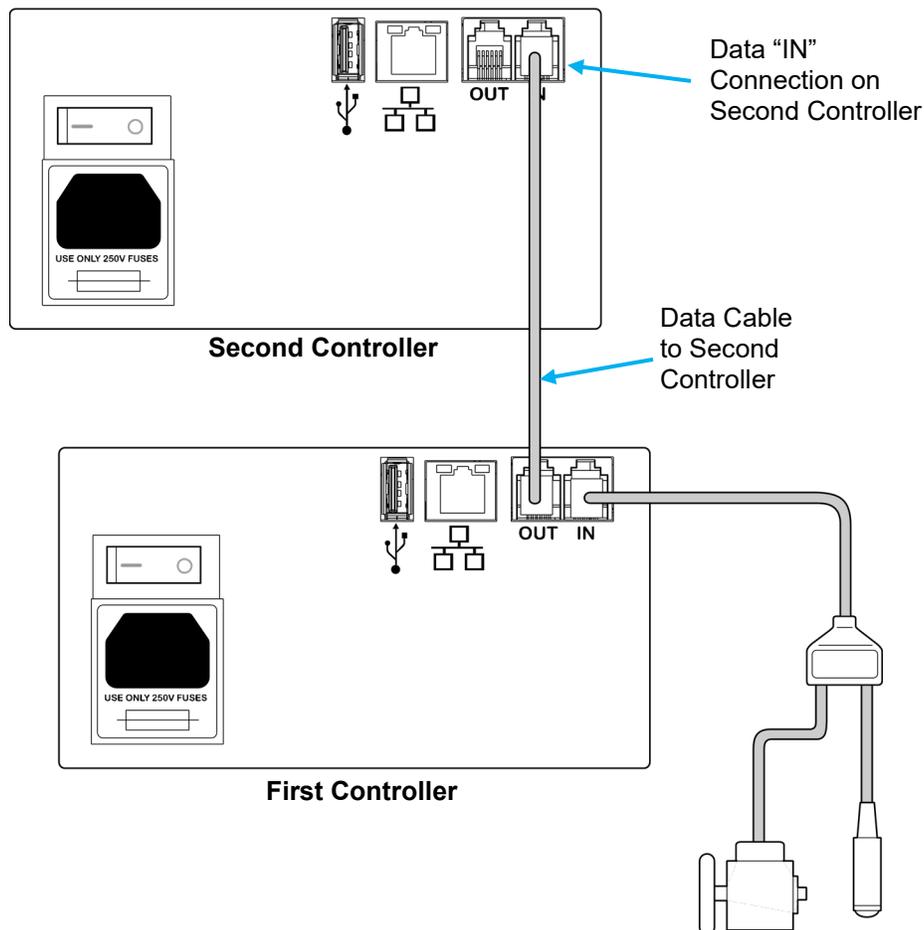
Note: Theoretically, an infinite number of printing systems can be attached via the "IN" and "OUT" data connections. In reality the number of printers chained through a single triggering device would be limited by their particular installation and use. Other Squid Ink printing systems can also be connected downstream from the controller. For example, there could be a CoPilot, AutoPilot, and a Streamline printing system all slaved off the single triggering device.

Connecting an Optional Low Ink Warning Light

An optional low ink warning light (part number 2003927) can be connected to the CoPilot controller. The low ink warning light is useful for alerting operators that ink is running low before missed prints begin to occur when the printer starts running out of ink.
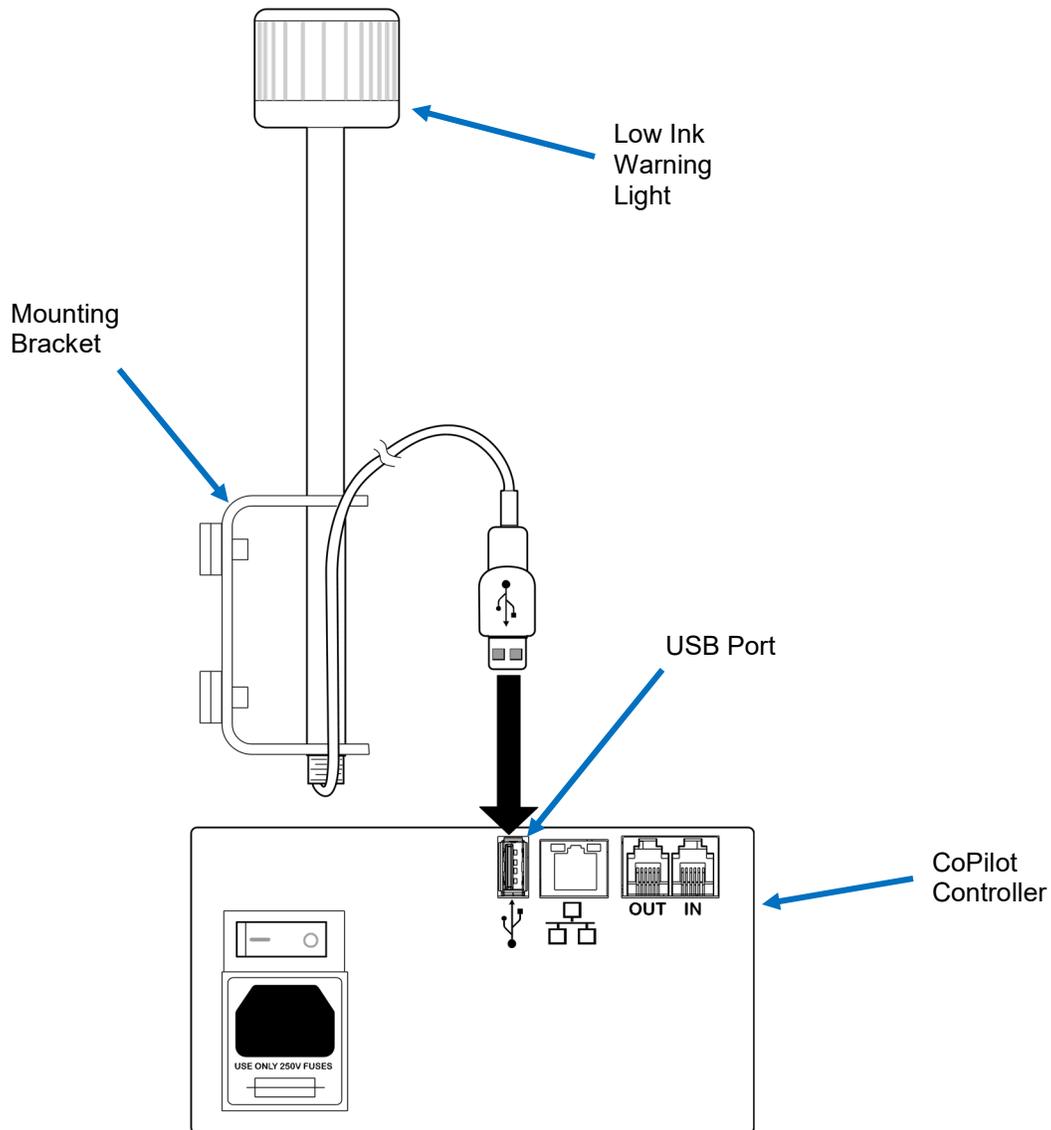
Each installation is unique. The manufacturer cannot anticipate the ideal location for the low ink warning light. There is a generic mounting bracket attached to the low ink warning light stick. Mount the warning light within 5 feet (1.5 meters) from the controller.

Connecting to a desktop PC

Desktop PC
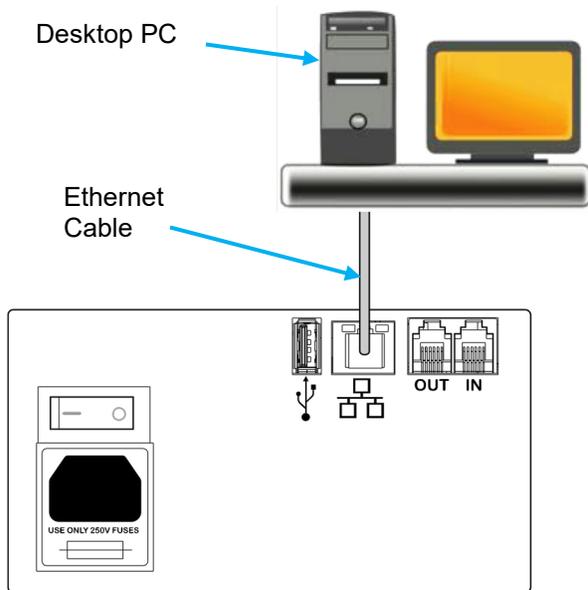
Ethernet
Cable

To connect to a desktop PC, connect an Ethernet cable to the Ethernet port on the Copilot controller and to the Ethernet port on the PC.

USE ONLY 250V FUSES

Connecting to a Local Area Network

The network connection is located on the controller. To connect to a local area network, plug the network cable into the network connection on the CoPilot controller.

Local Area Network

Ethernet
Connection

USE ONLY 250V FUSES
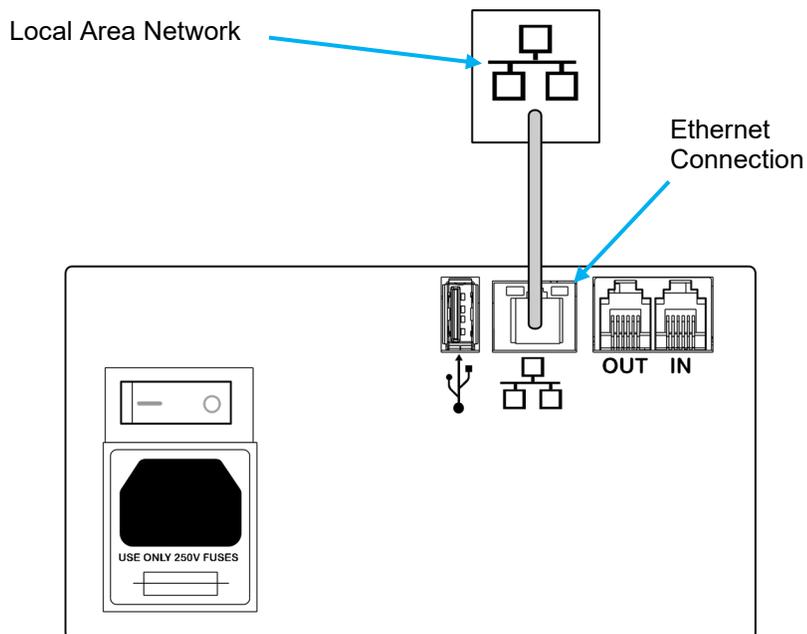
USB Port

There is a USB port located at the back of the Copilot controller. The USB port can be used for a variety of USB supported devices such as a WIFI adapter antenna, low ink alarm light, scanner, removable USB storage device, etc.

USB Port
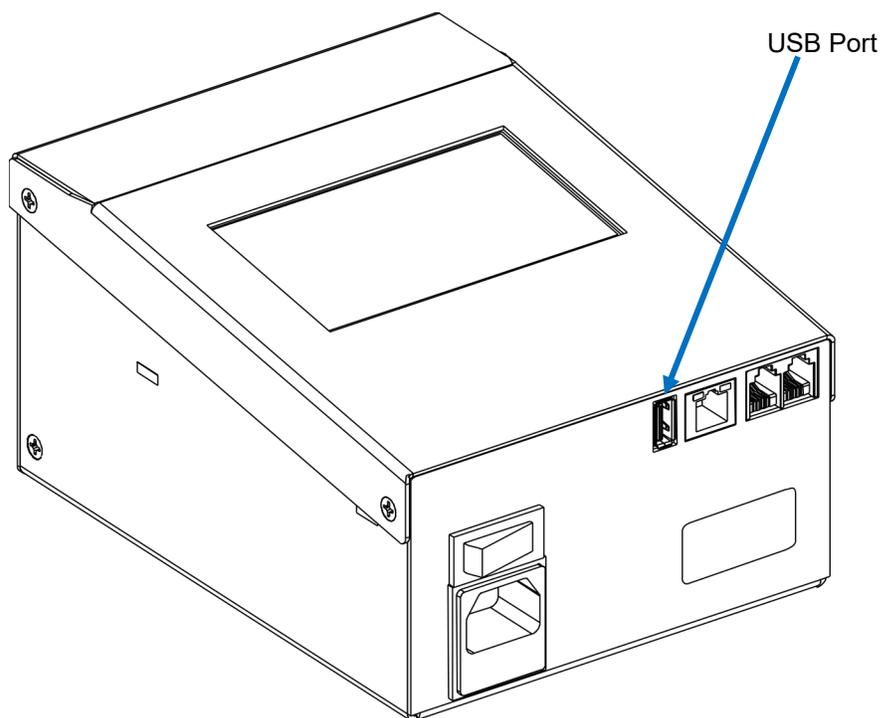
A removable USB storage device can be used to load messages from the Orion™ message creation software package and to install printer firmware and software updates.

The USB button in the Settings Screen will be disabled if there is no USB present. The USB Load screen will automatically open if a removable USB storage device is plugged in during power up.

Note: USB format must be FAT32.

Optional Four Port USB Hub

There is only a single USB port located on the CoPilot controller however the CoPilot is not limited to a single USB device. The optional four port USB hub (Part Number 2004242) can provide three points of entry for USB supported devices.
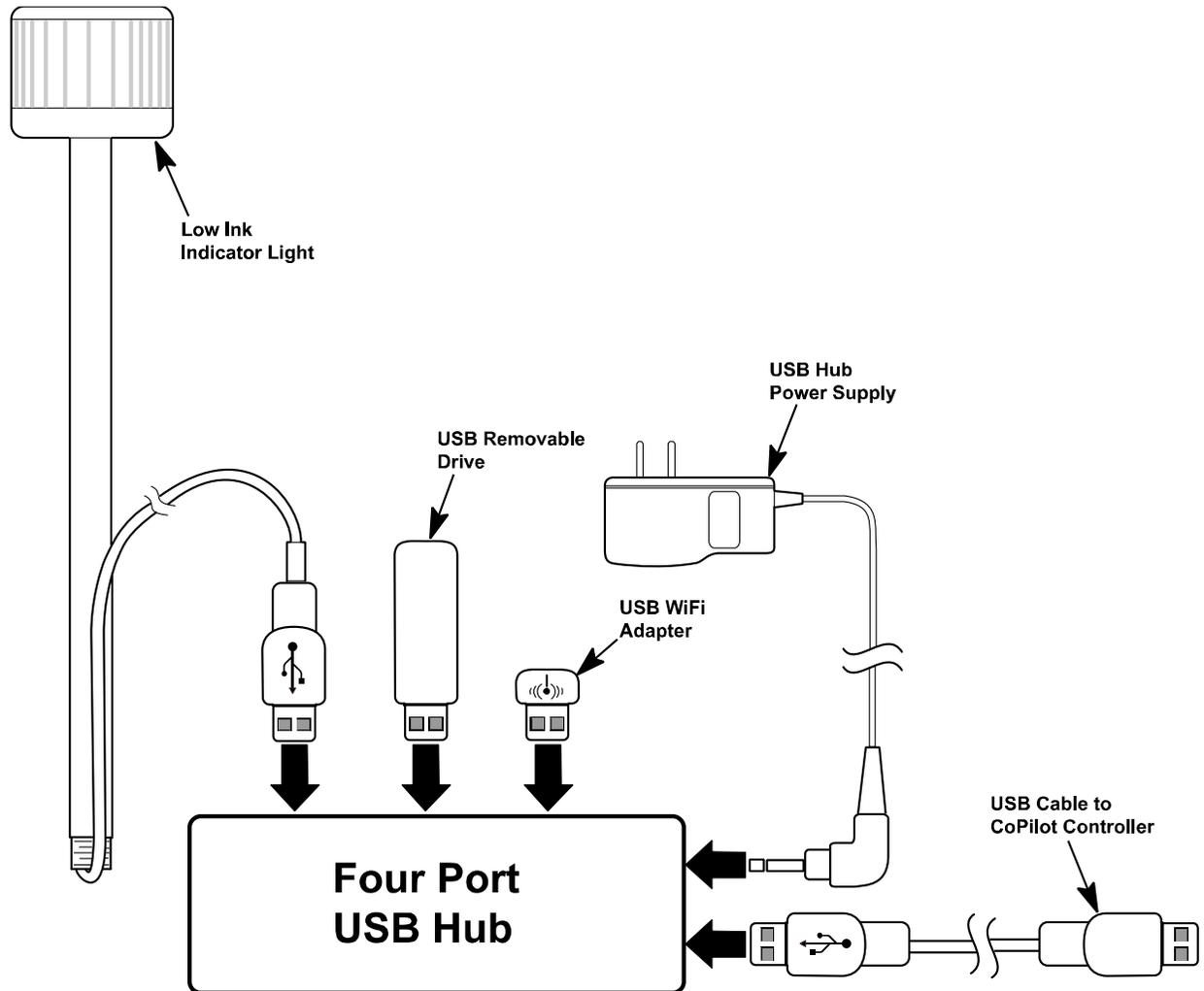
Optional Four Port USB Hub (Part Number 2004242)

Power Supply

There is a power cord receptacle located on the back of the controller touch panel. Attach the supplied power cord into the power cord receptacle. Make sure the power switch is in the off position and plug the power cord into a properly wired and grounded electrical outlet.
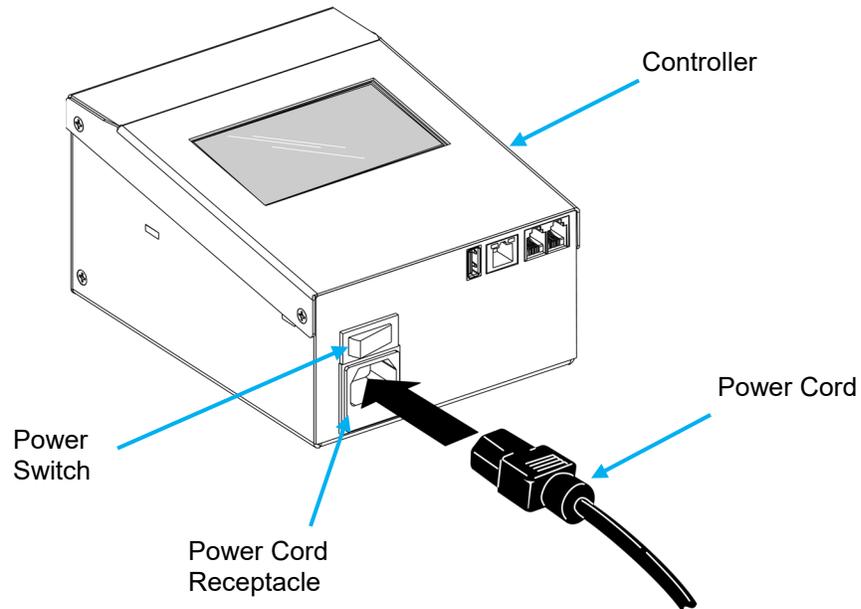
Ink Supply

Ink and fluids are supplied to the CoPilot 128/256 printhead in a cartridge or bag ink system.

Normally you will need an ink system (cartridge or bag) for each installed printhead.
One ink system (cartridge or bag) can supply two printheads if they are mounted in the down shooter configuration.

> ⚠ **Caution!** Use only authorized ink and fluid cartridges from Squid Ink Manufacturing. Use of unauthorized fluids may damage the equipment and cause a safety hazard.

Cartridge Ink System

Remove the shipping cover from the ink reservoir by unscrewing the cover counter-clockwise. Save the shipping cover for future use.

Shipping Cover
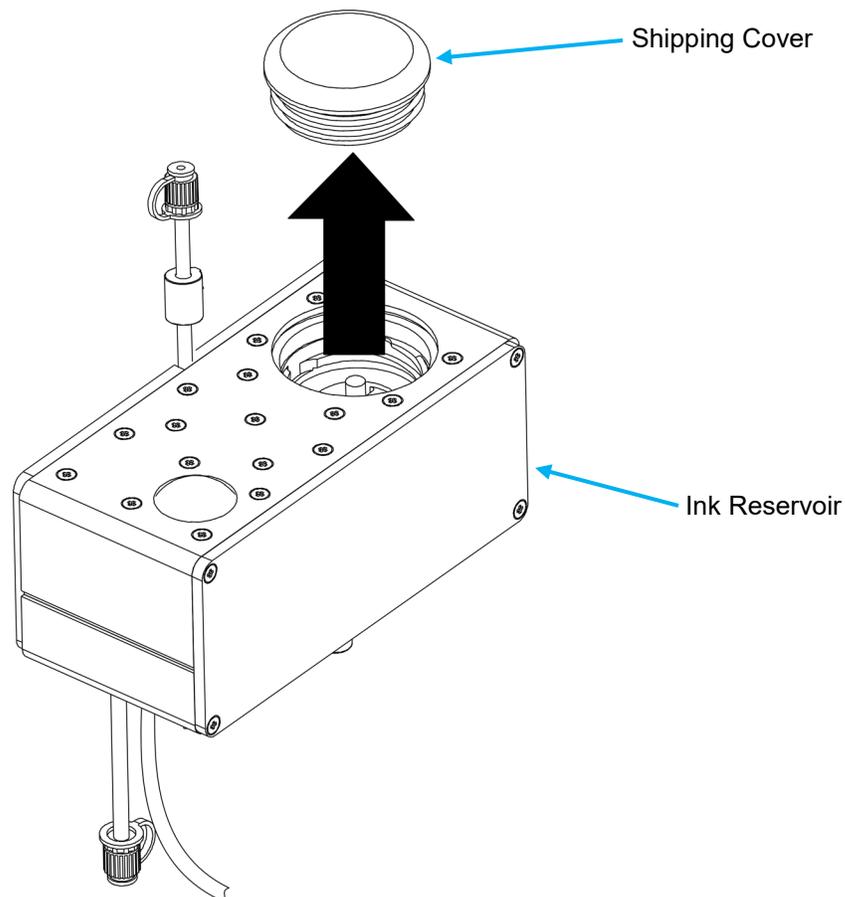
Ink Reservoir

The ink cartridge will install onto the opening on top of the ink reservoir.

Remove the foil seal from a new cartridge of ink. Install the ink by placing the cartridge in the ink system at a right angle and rotating clockwise. The cartridge will thread down into the receptacle and seat into the ink reservoir. Ink will then fill the reservoir.

Ink Cartridge

Priming
Bulb Cutout

Ink
Reservoir

Ink Cartridge in the
Operating Position

Priming Bulb
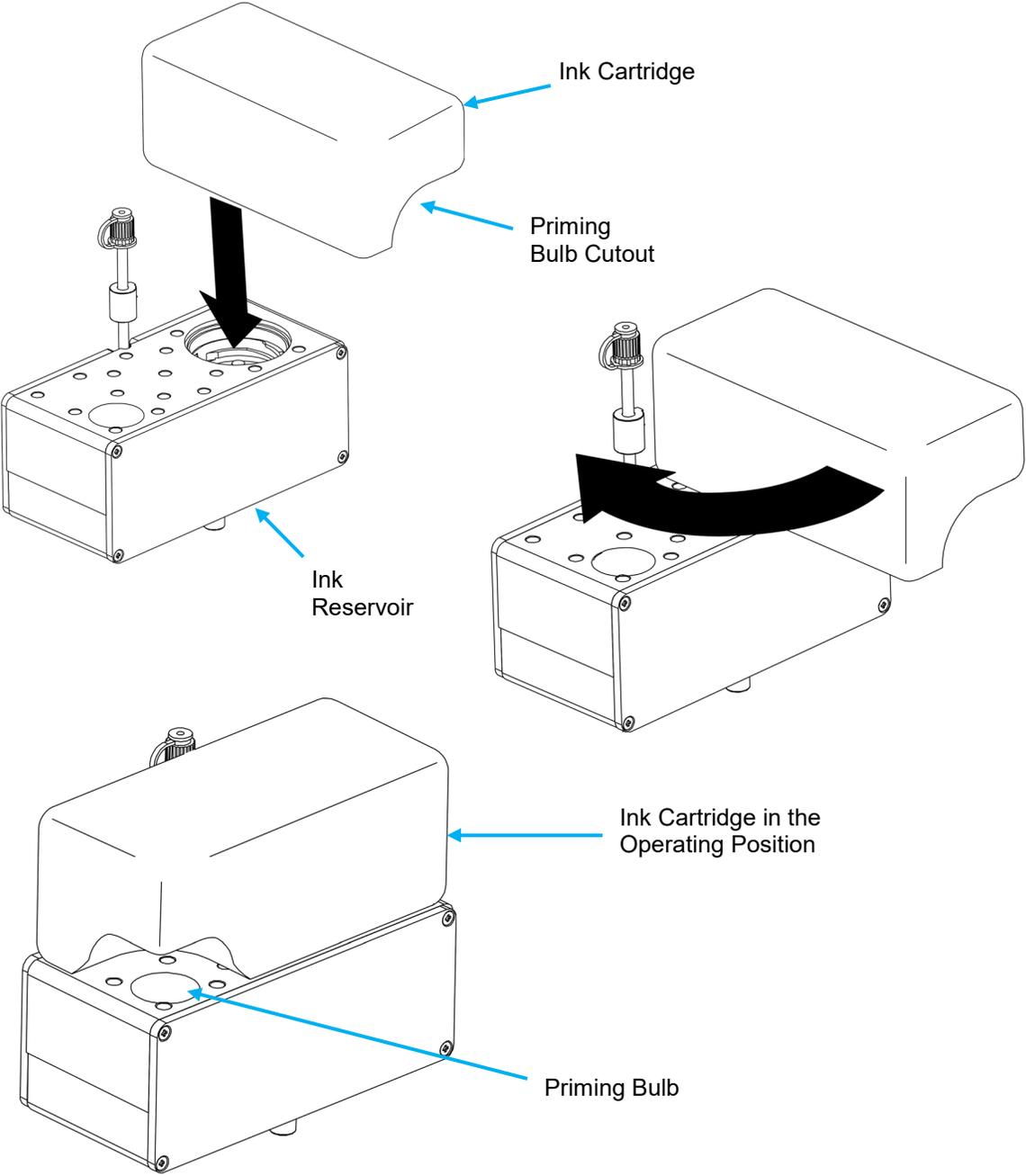
The Ink Reservoir contains a short tube that allows air to flow into the ink reservoir during normal use. This tube is capped for shipping purposes, but the cap should be removed for normal operation. If the system is moved to a new location, be sure to cap the vent tube to prevent ink from escaping.

Vent Tube Capped

Vent Tube Uncapped for Operation
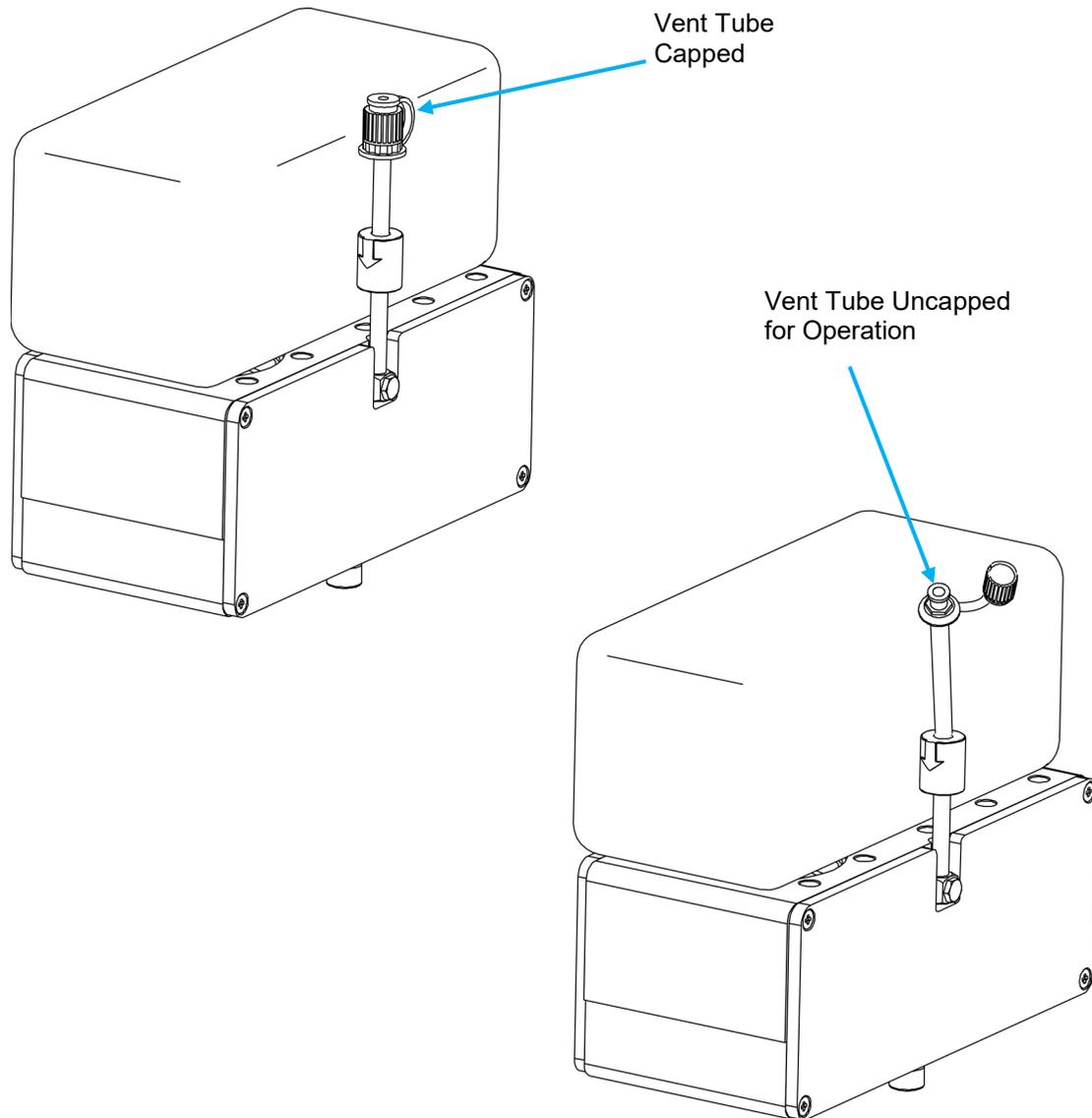
Attention!   For operation the vent tube must be uncapped

Reservoir Vent Tube (Must Be
Uncapped for Operation)

**Ink
Cartridge**

Printhead

In-Line Check
Valve

Ink Line from
Reservoir

**Ink
Reservoir**

Ink Line
Fitting In

Low Ink Signal Wire to
Low Ink Connection on
CoPilot Controller
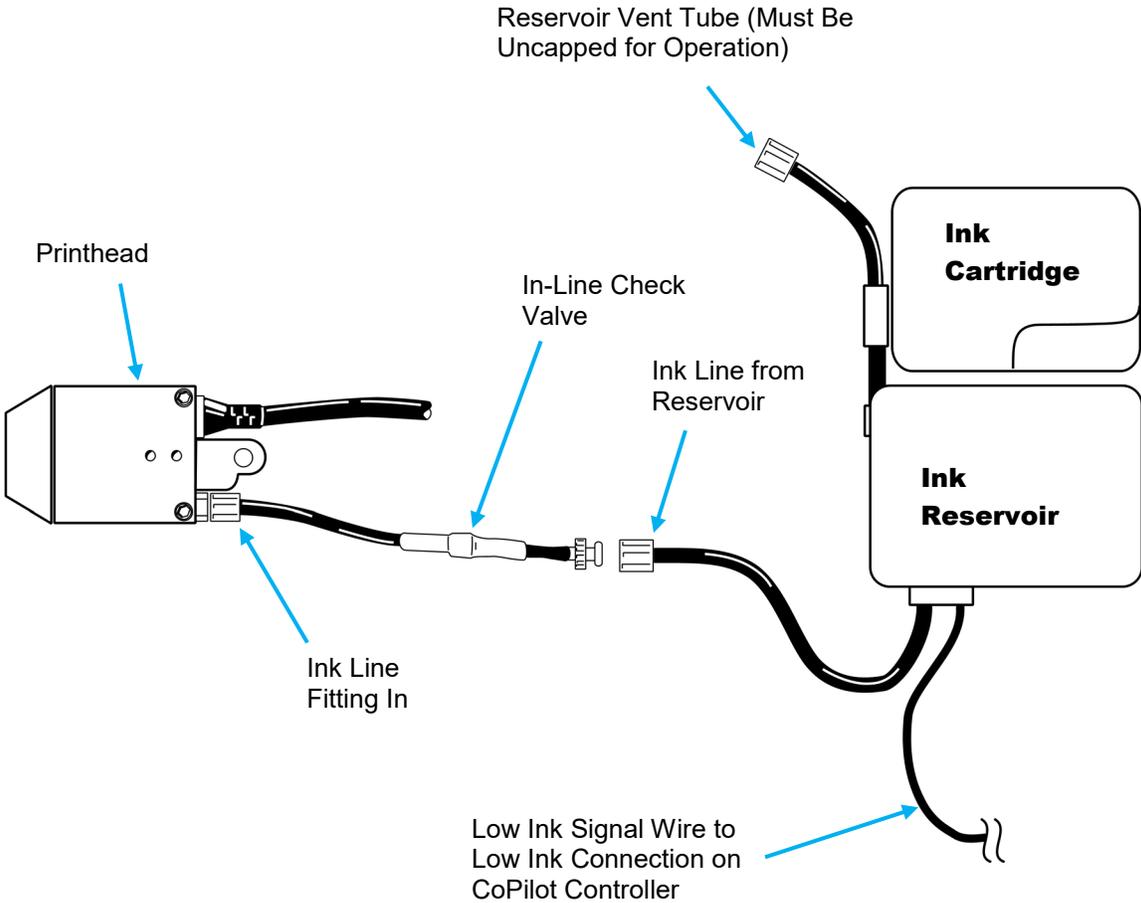
Connecting Ink System to the Printhead

## Bag Ink System

To install a bag ink system, you will first have to attach the ink tray to the printer stand. The following illustration shows an assembled bag ink system mounted on a typical print stand.

Note: There are several mounting systems available. The mounting and installation may vary depending on the mounting system used.

Print Stand

Ink Tray
Mounting
Bracket
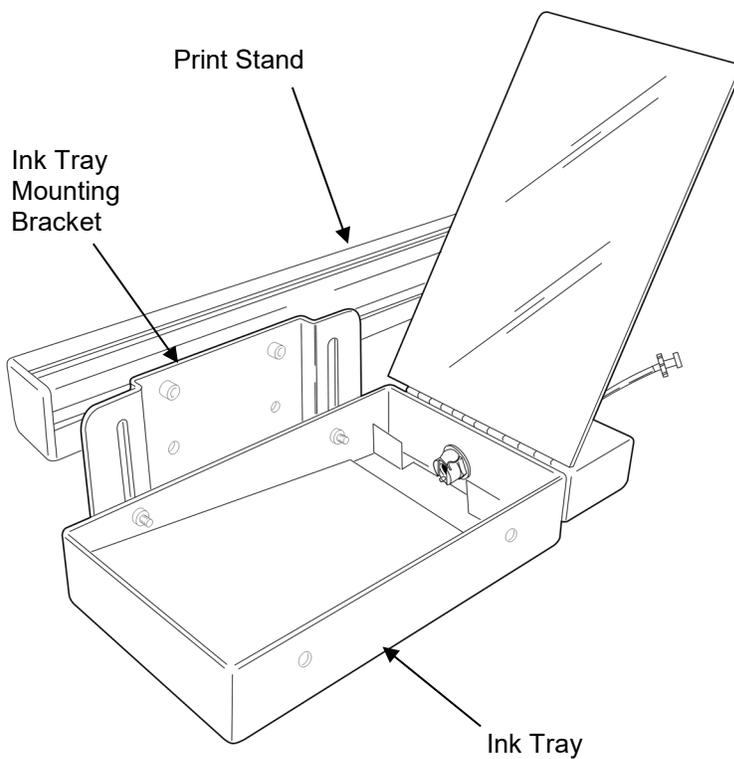
Ink Tray

You will have to make an ink line with female fittings on each end to run from the ink tray to the back of the printhead.
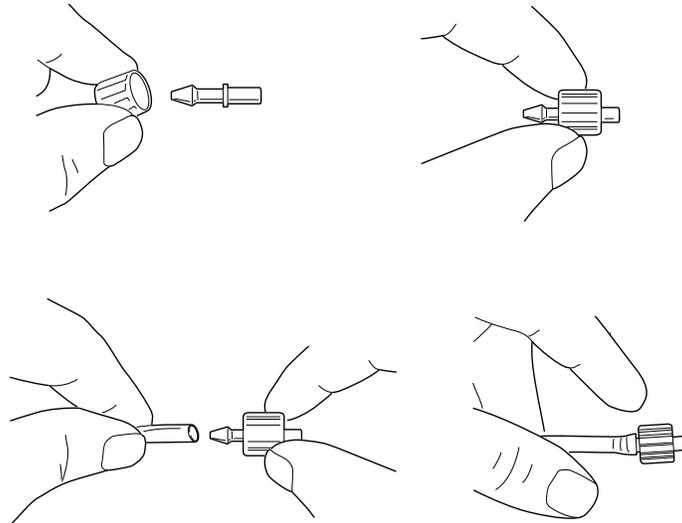
When the ink bag tray has been mounted at the correct height and the ink supply line has been connected to the printhead, connect the ink bag to the fitting in the ink tray.

Ink Bag

Ink Line to Printhead

Ink Bag Connect Fitting

Pressure Plate

Ink Bag Tray   Ink Line   Printhead

Ink Line Fitting

Ink Line Fitting
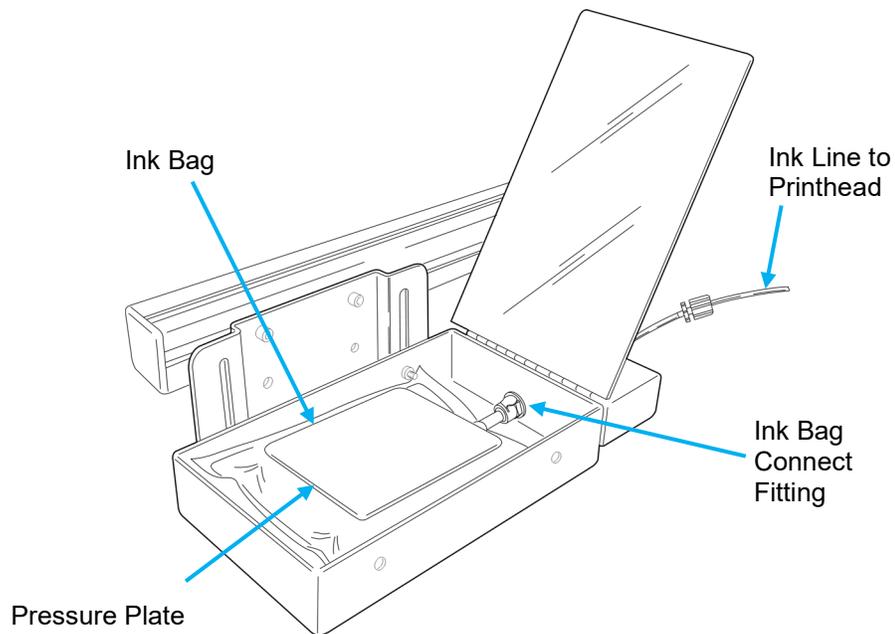
Bag Ink Tray Connected to the Printhead

IMPORTANT! Handling of Ink Bags:

1. When using pigmented inks, Initial agitation, if required (each morning after down time for an evening), should be done with the bag disconnected. Gently massage bag in both hands, on both sides of bag. Pressure plate can be removed as long as 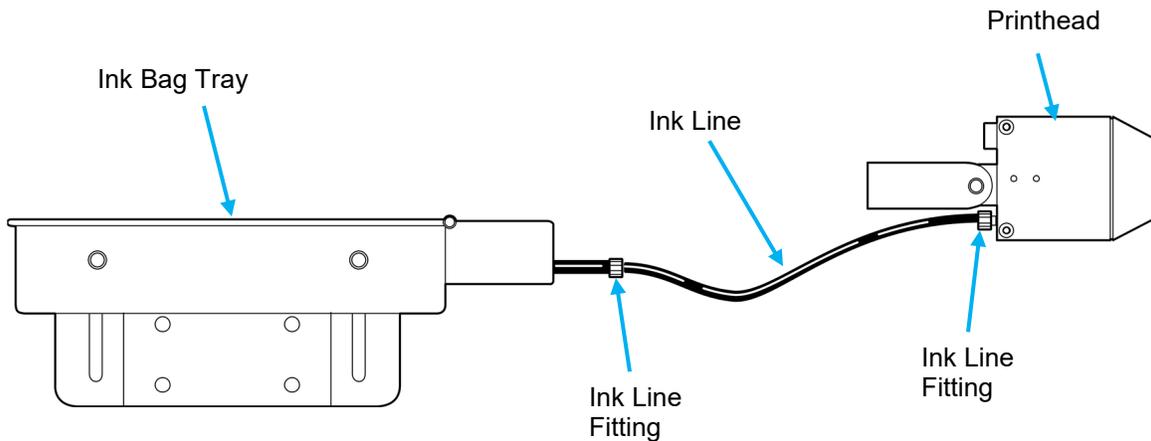the bag is disconnected but must be re-applied when re-connecting. **The pressure plate should not be removed while bag is connected**.

2. If using an Automatic Agitation System, no massaging or removal is required. Just allow ink to agitate for 3-5 minutes prior to purging. This is a good time to moisten the face of the print head with the proper solvent and allow the ink to dissolve. You are now ready to purge and print.

3. **Do not squeeze the bag like a sponge**.
   Warning!   This practice is very hazardous and can potentially lead to personal injury. It will most likely damage the print engine.

   Twisting, pulling, or bending the bag material can cause small cracks at the sealed joints leading to leaks. As the bag becomes nearly empty (<25% full), the pressure plate may need to be removed to generate an effective purge, but be very careful not to apply much pressure, twist, or strain the bag connection. <u>A slow drip out of the printhead faceplate is all that is necessary for an effective purge</u>.

Operation

Priming

If the printing system is new or has been idle for an extended period, the printhead will have to be primed. Priming will start ink flowing to the printhead through capillary action.

Priming the Cartridge Ink System

The next step is to prime the ink system, which removes air from the ink line and printhead.

Note: It is imperative that the printhead wipes used during this step are non-abrasive and lint-free. The CoPilot 128/256 print engine has a plastic orifice plate that can be scratched or clogged if improper wipes are used. Scratches will result in diminished print quality. The printhead is **NOT** warranted against scratches on the orifice plate. Squid Ink's non-abrasive wipes are included in the CoPilot Start-Up Kit or they can be ordered as a separate item (P/N:2007021).

Priming
Bulb

Non-Abrasive
Lint-Free
Printhead Wipe
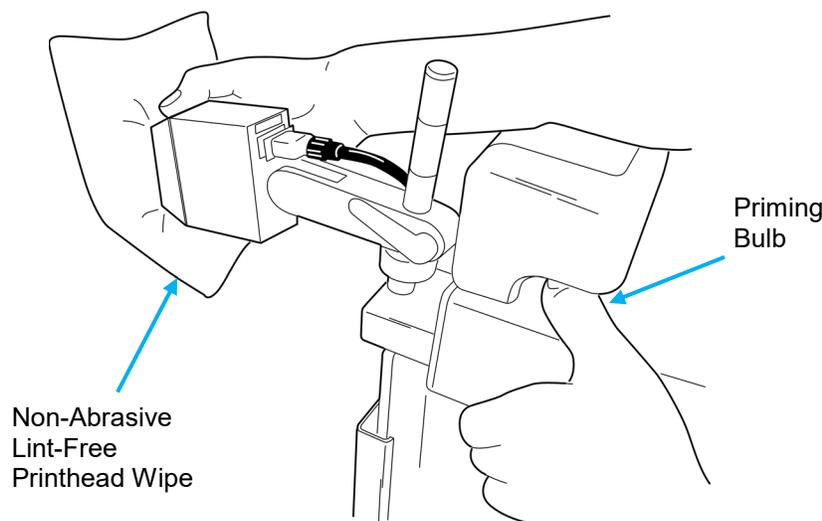
The priming bulb is located on top of the ink system, under the indentation in the corner of the ink cartridge. While holding a lint-free wipe firmly against the faceplate of the print engine, apply pressure to the priming bulb. As you do so, observe ink as it travels through the ink tube to the printhead. Repeat as necessary until the ink reaches the print engine. After ink reaches the print engine, ink will begin to stain the wipe. At this point, release the pressure on the bulb and then gently wipe upward to clear excess ink off the front of the print engine and printhead.

Priming the Bag Ink System

After the ink bag is attached, you will have to prime the ink system to get the ink flowing into the printhead. Prime the printer by gently but firmly pushing down on the ink bag while holding a non-abrasive lint-free printhead wipe in front of the printhead face.

Non-Abrasive
Lint-Free
Printhead Wipe

Ink Bag
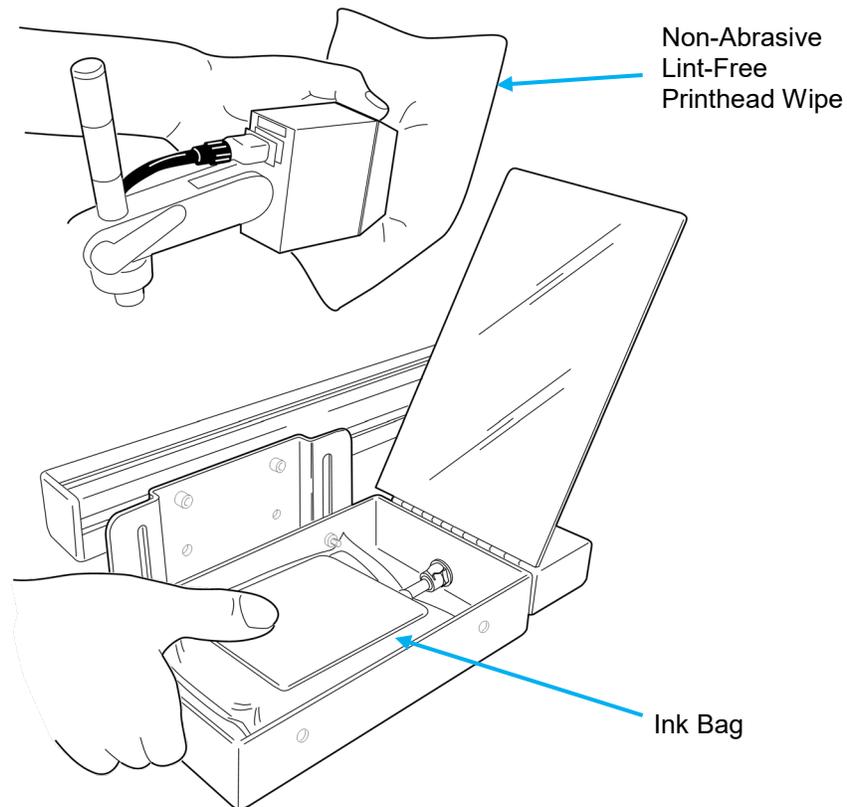
The printer is now primed and ready to print.

Power up

When all the components have been properly mounted and connected, you are ready to power up the CoPilot and begin printing.

Tip!   It is a good time to double check your installation at this time. Make a quick inspection to ensure all the components have been securely mounted, and all data and power cables are properly seated and connected. Make sure the ink lines are connected and the printhead is receiving ink.

To power up the CoPilot 128/256 Printing System, press the power switch located on the back of the controller to the on position.

Power Switch
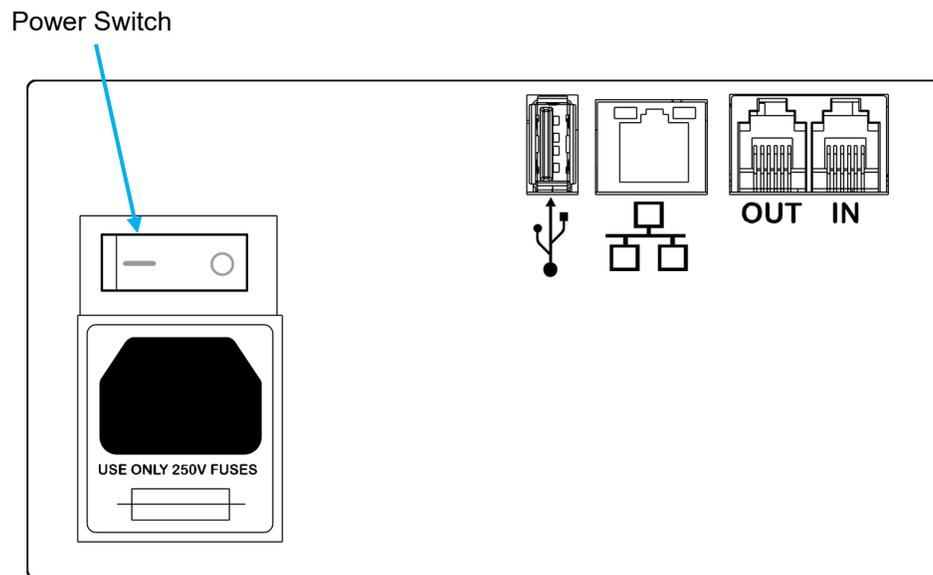
After the power is turned on the CoPilot Printing System will go through a brief startup sequence, which takes about 1 minute to complete.

When startup is complete, the Home screen will display on the touchpanel.
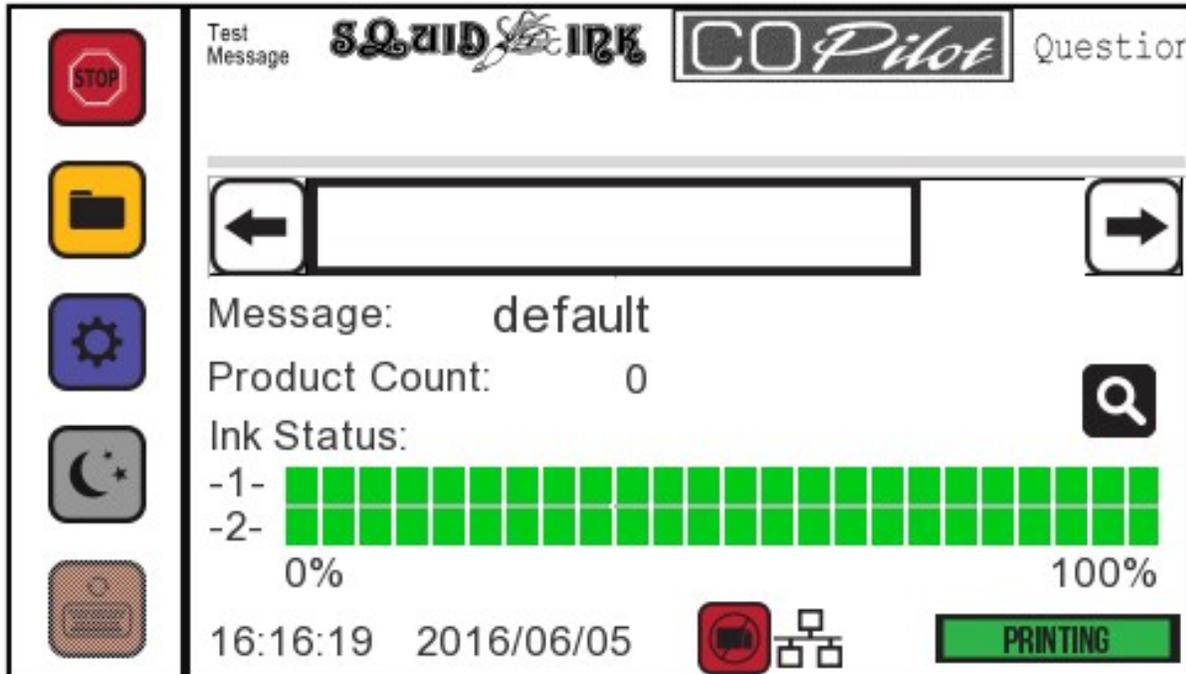
Home Screen

The Home Screen is displayed when power up is complete. The Home Screen will show:

- A preview of the current message

- The name of the current message

- The product count

- The ink status

- Current date and time

- Type of network connection (intranet or WIFI)

- Printing status

   Note: If there is a USB device plugged into the USB port at start up, the printer will automatically display the "USB Load" screen.

   To go the Home Screen, select the "Back" button located at the top left of the "USB Load" screen.
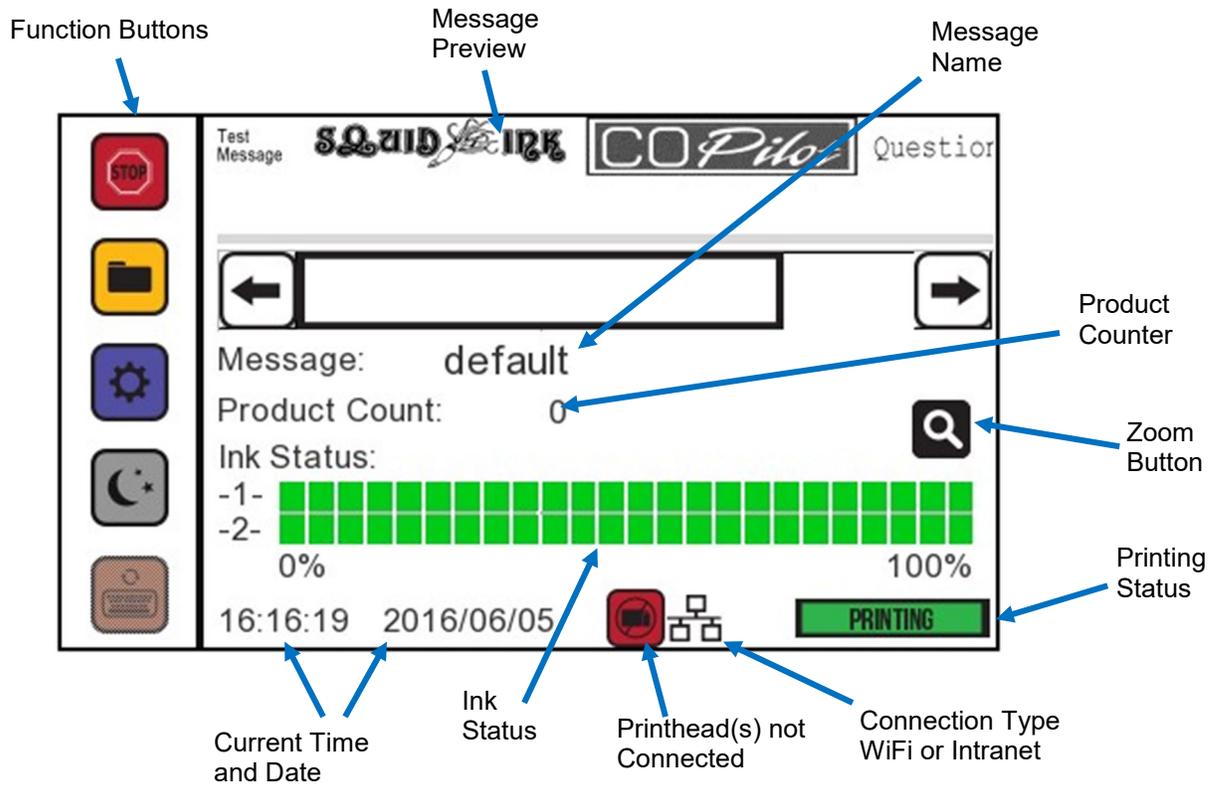
There are five function buttons located along the left edge of the Home Screen.

Stop/Start Printing:

Press the "Stop" button to stop printing. Press the "Start" button to resume printing.

Message Files:

Press the "Message Files" button to open the "Message Screen" and display a list of available messages. Used to change messages.

Tools:

Press the "Tools" button to open the "Tools Screen" to configure the printer settings.

Sleep:

 Press the "Sleep" button to enter the printer into a sleep mode. Sleep is useful for long periods of idle time. This is a "Soft Shutdown". Touch the screen to restart.

> **Attention!**   If the Spit Function is turned on the printer will continue to spit ink while in the "Sleep" mode.

User Data:

 If the current message contains user data the "User Data" button will activate. Press the "User Data" button to open the User Data Prompt Screen.

Zoom Function

    Selecting the Zoom button in the home screen will display the Zoom Screen.
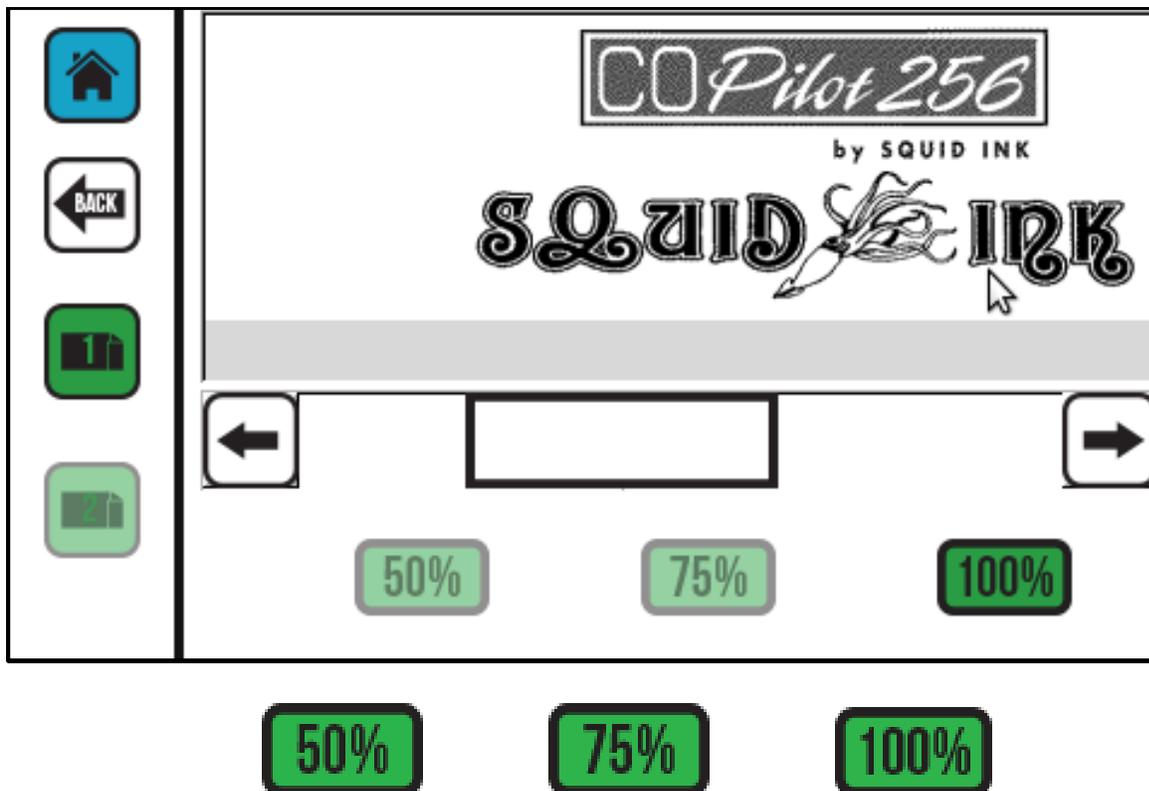
There are three options in the Zoom screen. 50%, 75% and 100%. Select these buttons to zoom in and out of the message. The current zoom setting button will be highlighted.

Message Screen

The "Message Screen" will display a list of available messages. To select a message for printing, touch and highlight the desired message and press the "**Apply**" button. Use the Up and Down arrows to scroll through the message list.
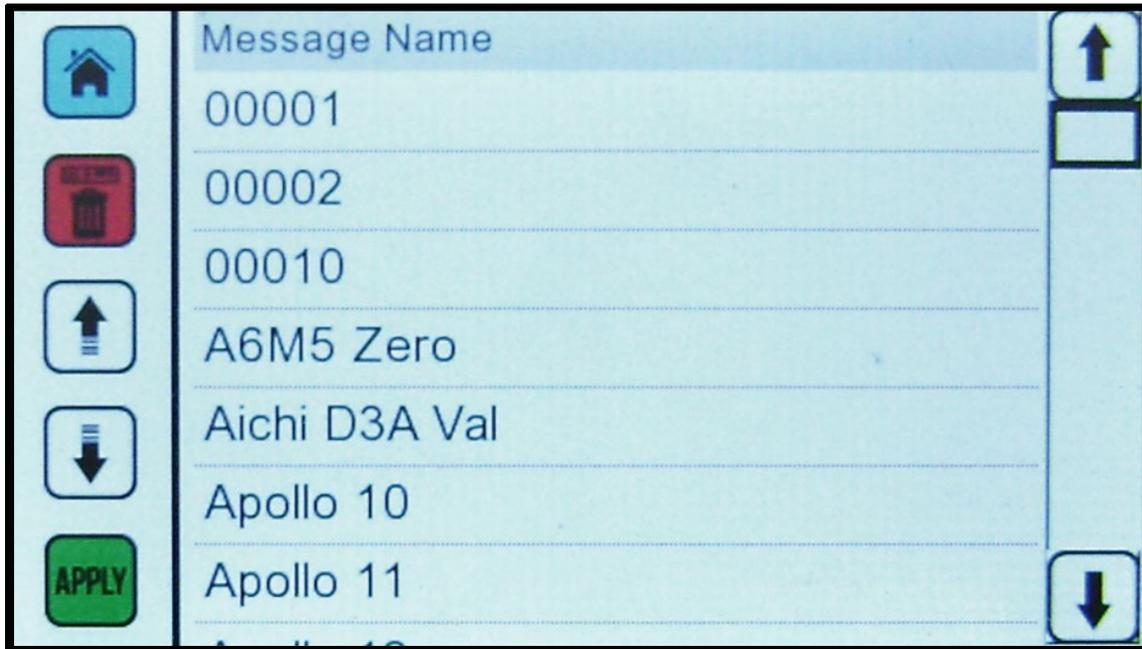

Reminder! Messages are created using the Orion™ message creation software. The messages displayed on the CoPilot touch screen are messages that have been created and downloaded to the printer. See the Orion User Guide for information on creating and downloading messages.

Delete

Select the "**Delete**" Icon to remove a highlighted message from the CoPilot Controller.

Note: Deleting the message only deletes the message residing in the CoPilot. It does not delete the message from the Orion™ platform where it was created.

Message Screen Remote Server

If the printer is using a Remote Server Database to load messages for printing, the message ID must be entered. After entering the Message ID, select the "Apply" icon to load the desired message for printing. When the message is loaded, a green checkmark will briefly appear in the lower right corner of the screen. If the connection fails, an error message will briefly appear and the printer will return to the Home Screen.

Message ID

Apply Icon
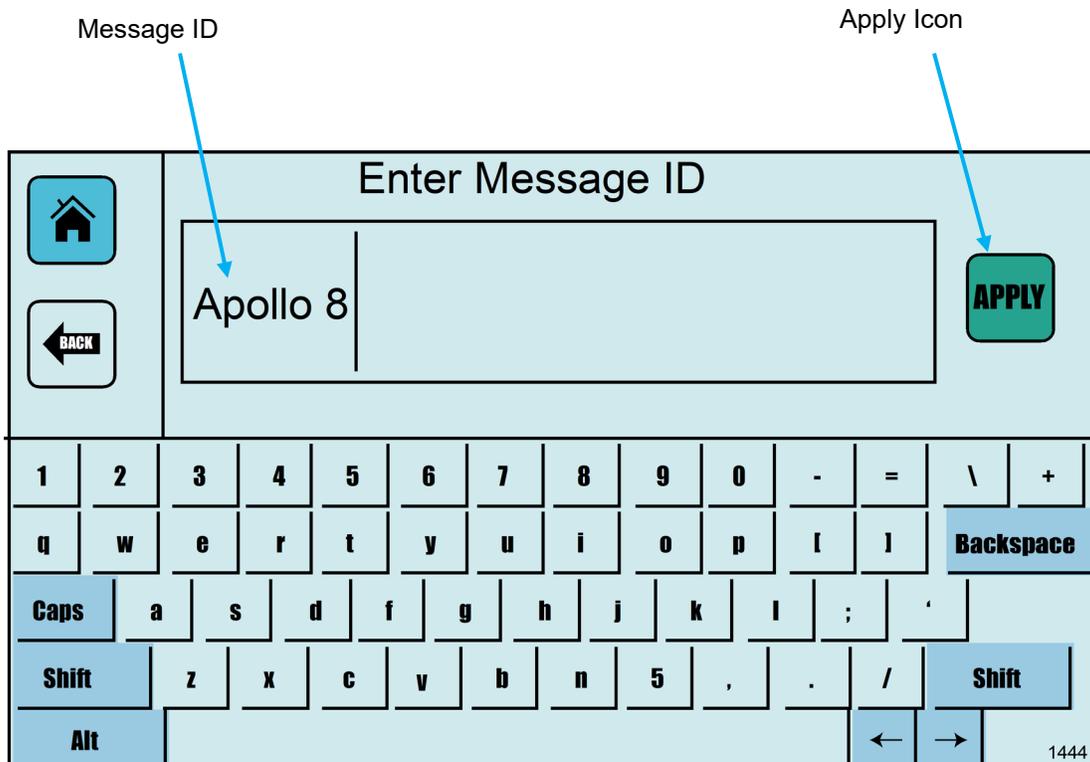
Message Screen with Remote DB Server

Settings Screen

The "Settings" screen contains buttons for configuring the printer.

There are two pages of Settings Screens. Use this button to toggle between page one and page two.
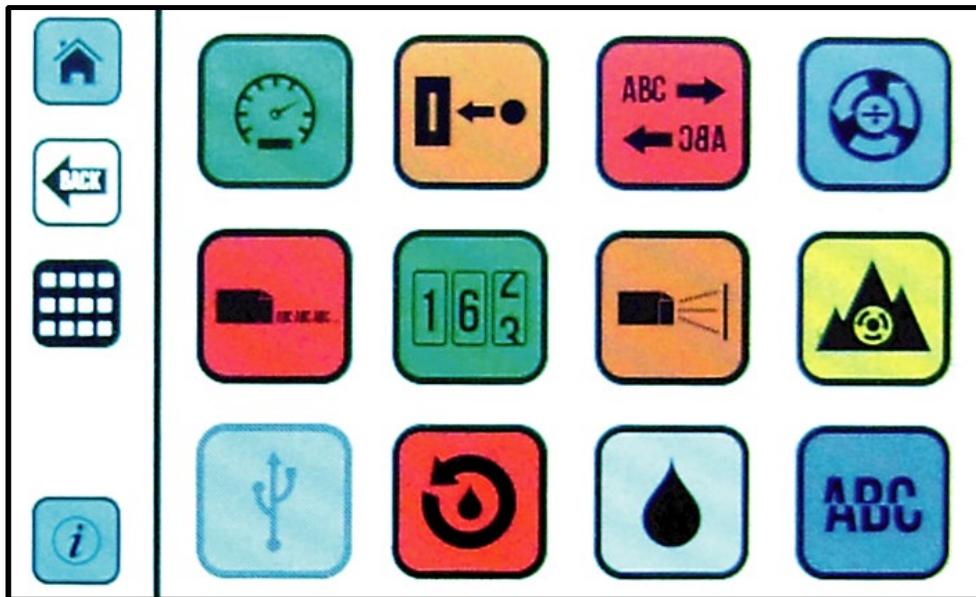
Settings Screen Page One (No USB Present)
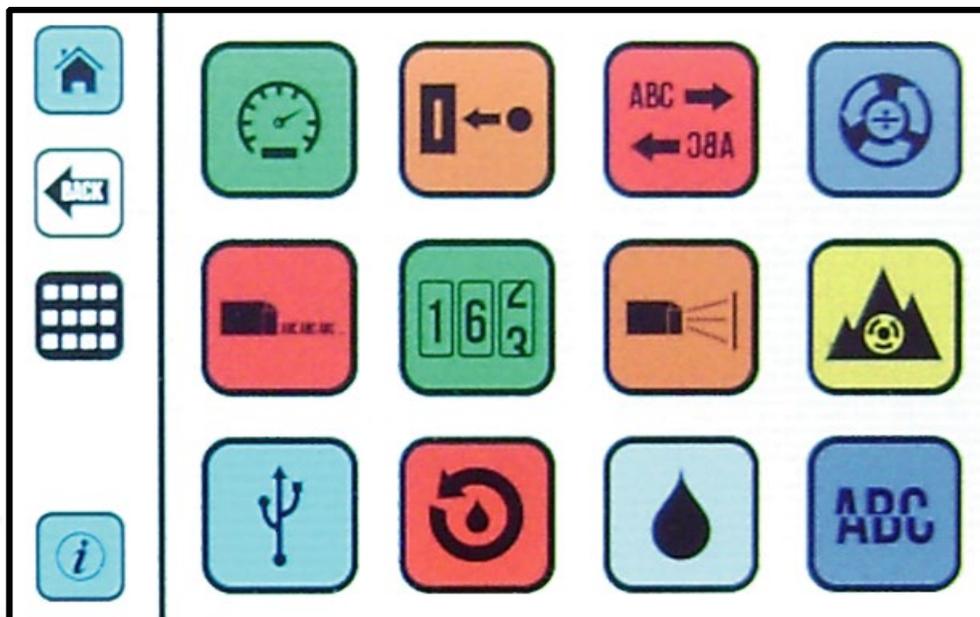
Settings Screen Page One (With USB Present)

Settings Screen Page Two

Line Speed:

Use the "Line Speed" screen to set a static line speed for the printer. Line speed units are in Feet per Minute. When using an encoder, the line speed is ignored while the encoder is switched on, and therefore doesn't have to be set.
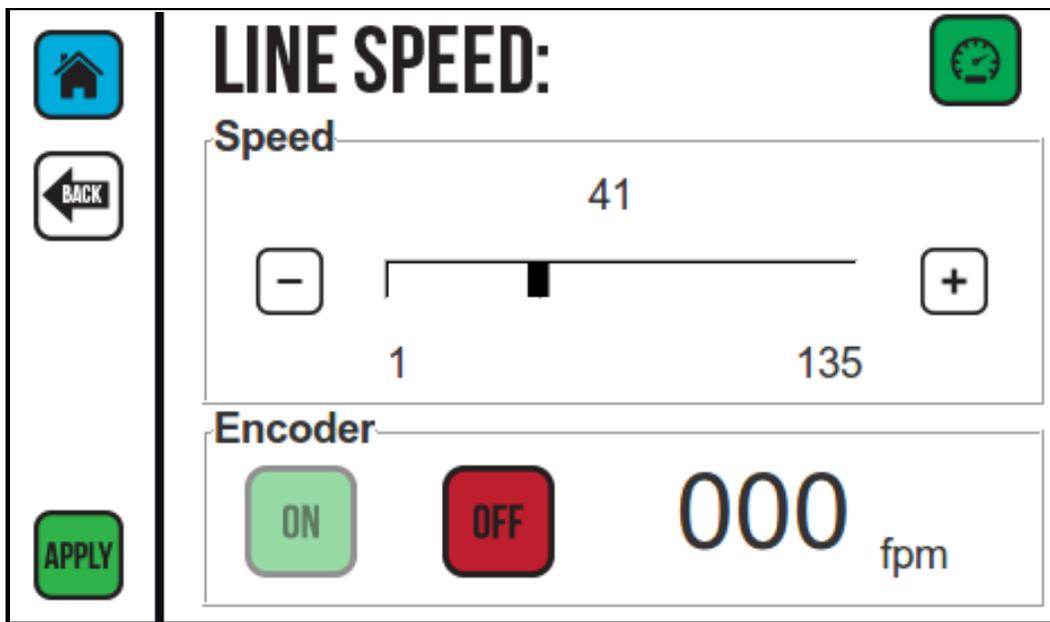
To set the line speed simply touch the Plus ✚ or Minus ▬ button to increase or decrease the line speed, or move the scroll bar in the plus or minus direction and select "Apply". Line speed is shown in Feet per Minute.

Line Speed Using an Encoder:

If you are going to use an encoder to dictate line speed select the Encoder "**ON**" button and select the "**Apply**" button.
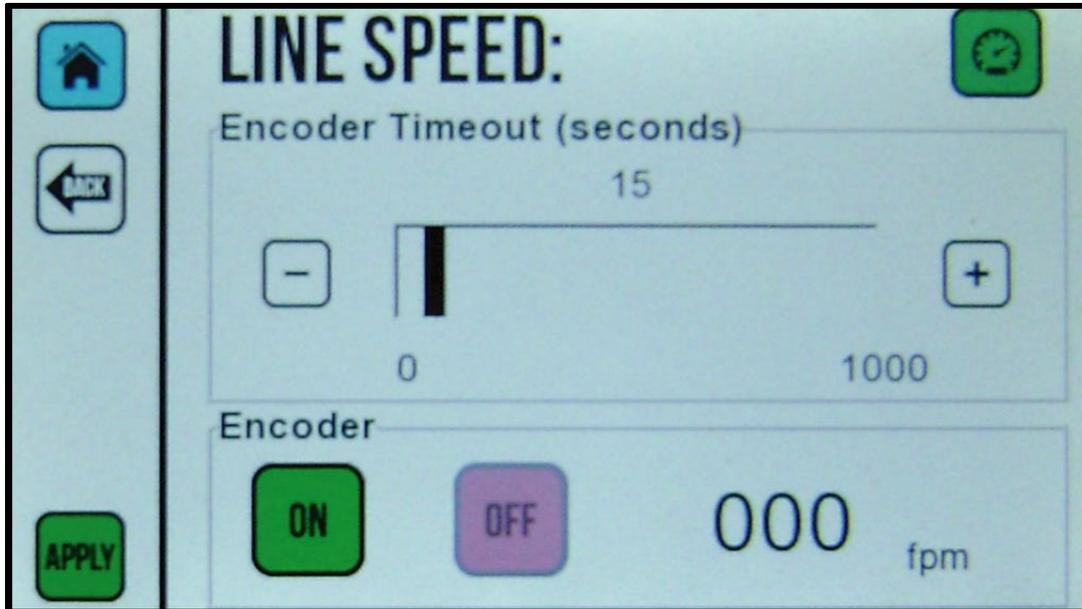
Encoder Timeout (seconds)
The Encoder timeout is the amount of time the CoPilot Printer will wait for a signal after the encoder wheel stops spinning. Meaning that while the CoPilot is either printing a message, or is in-between messages, should the conveyor stop for any reason, the printer will stop "looking" for an encoder signal after the entered time, and the message will have to be restarted. Use the slider bar or the Plus "**+**" and Minus "**-**" buttons to enter the desired amount of time for encoder timeout. Select the "**Apply**" button to apply the changes. The default setting is fifteen (15) seconds.

Distance to Trigger:

Distance to Trigger is the amount of distance between the trigger (photocell) and the jets on a printhead.
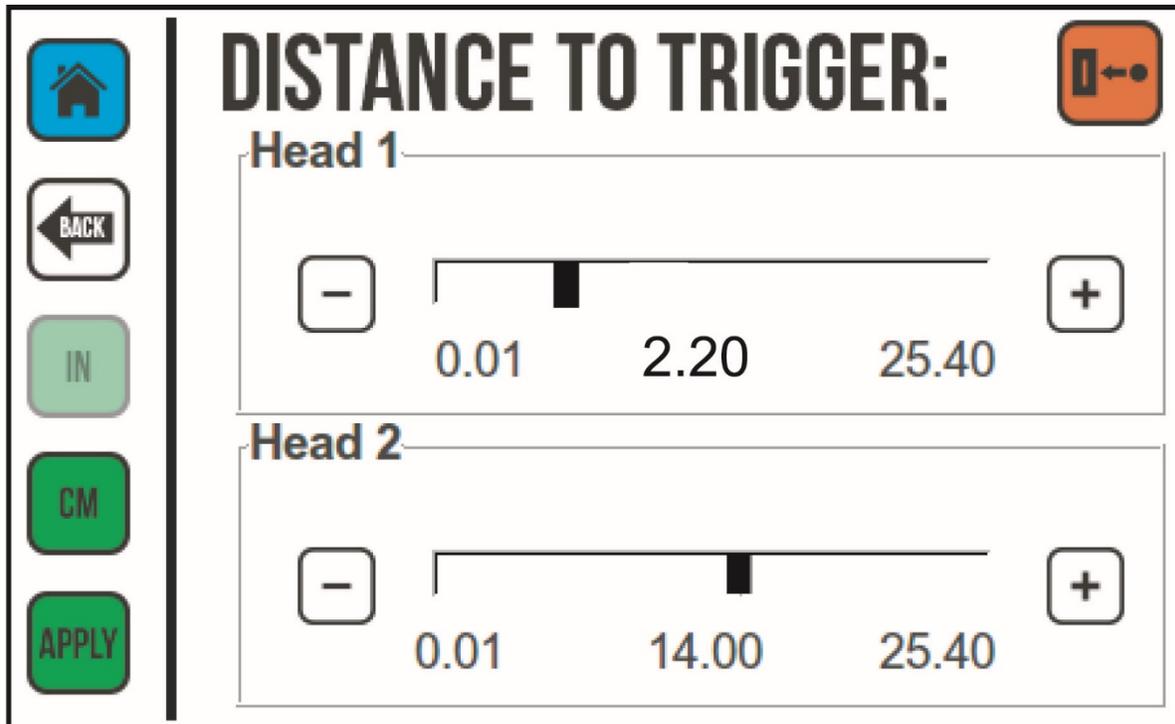
To change the print delay either, click the Plus ✚ or Minus ▬ button for the selected printhead to increase or decrease the print delay, or move the slider bar in the plus or minus direction and select the "Apply" button. Print delay can be set in Inches or centimeters.

The default setting for Left to Right (L-R) is 2.2 inches (5.6 Centimeters). The default setting for Right to Left (R-L) is 1.5 inches (3.8 Centimeters).

> **Note:**   You must select the "Apply" button before leaving the screen for any changes to take effect.

Print Direction:

 Print Direction is the direction of the production line relative to the position of the printer when viewed from behind the printhead.
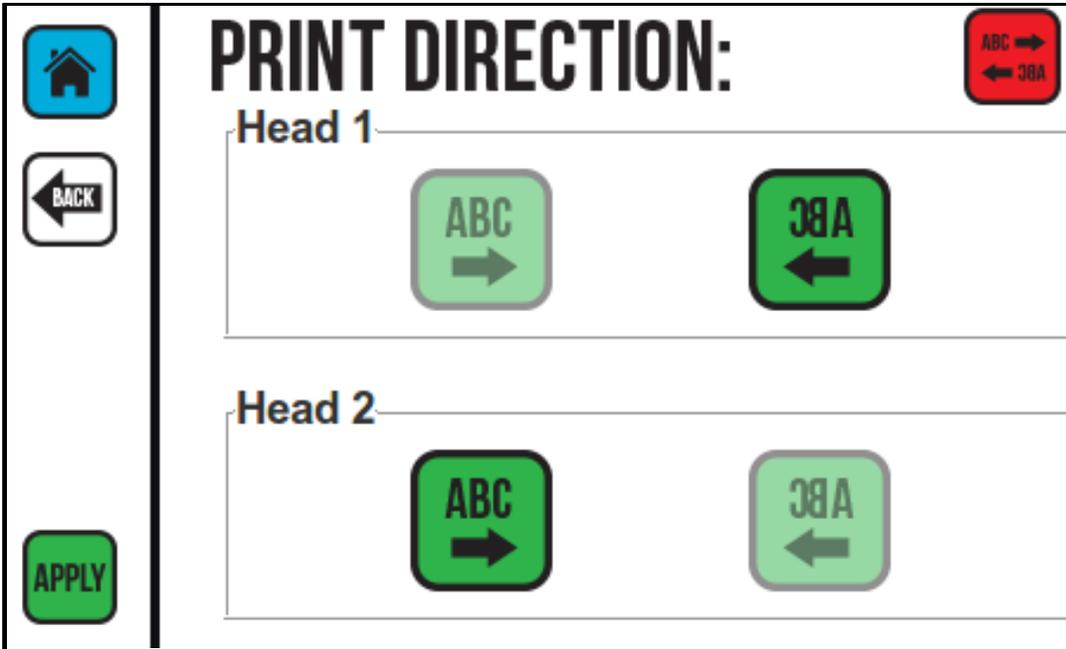
To set the Print Direction for the selected printhead (one or two), select the button that corresponds to the direction you want to print. Pay attention to the direction arrows in the print direction buttons. The selected direction will appear highlighted on the screen. Select "Apply" to set the print direction.

Encoder Divider:

Use the "Encoder Divider" screen to set the divider value for an optional encoder if installed.

ENCODER DIVIDER:

Encoder Divider

205 DPI

3   13   60
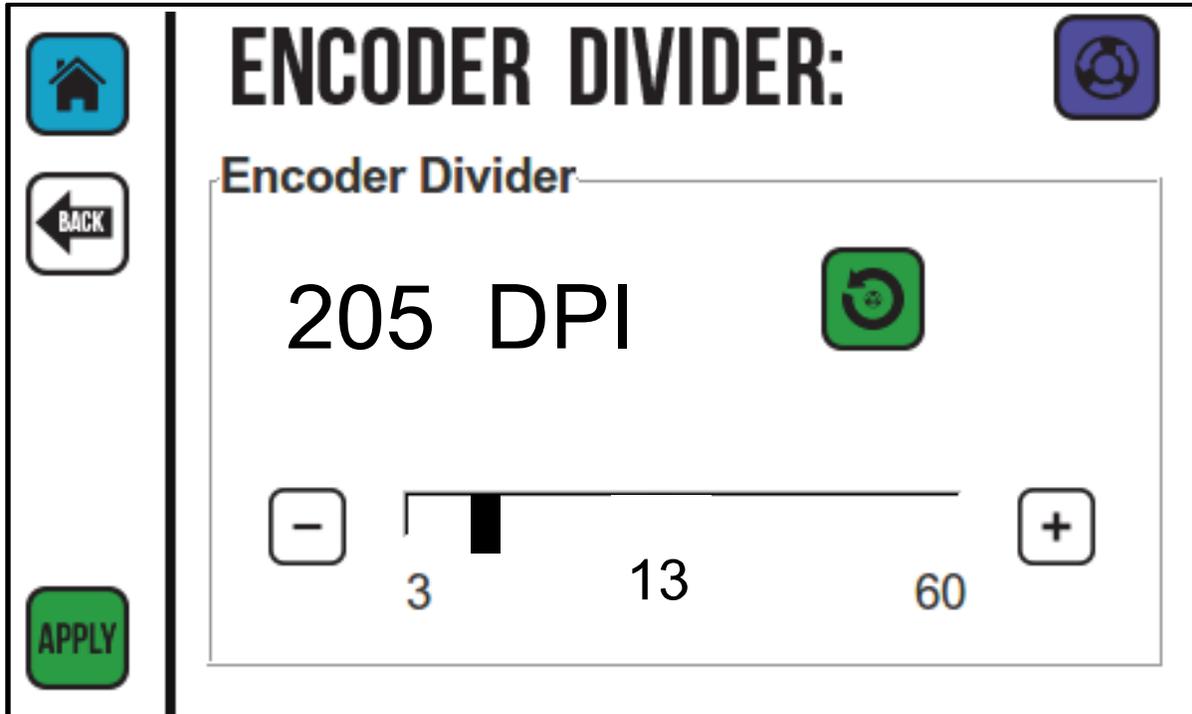
Use the plus (+) or minus (-) buttons or the slider bar to increase or decrease the encoder divider value.

Encoder Reset Button:
Selecting this button will reset the encoder divider to the default value of 13 (205 dpi).

Select the "Apply" button for changes made to the encoder values to take effect. If you leave the Encoder Divider screen without selecting "Apply", no changes to the settings will occur.

Repeat Print:

Use the repeat button to select if the repeat print command will be hard-triggered from the photocell, or soft-triggered from the home screen.
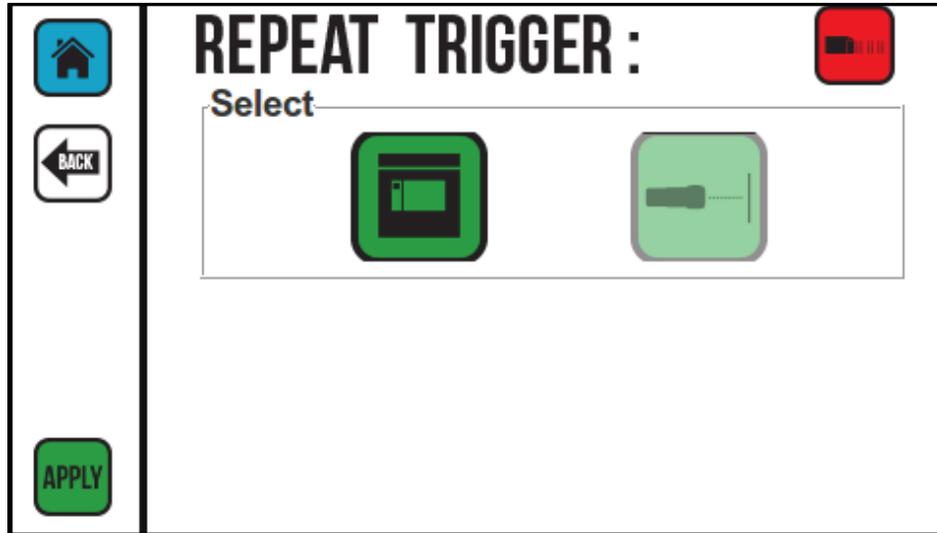
Repeat Trigger with Soft Trigger Selected
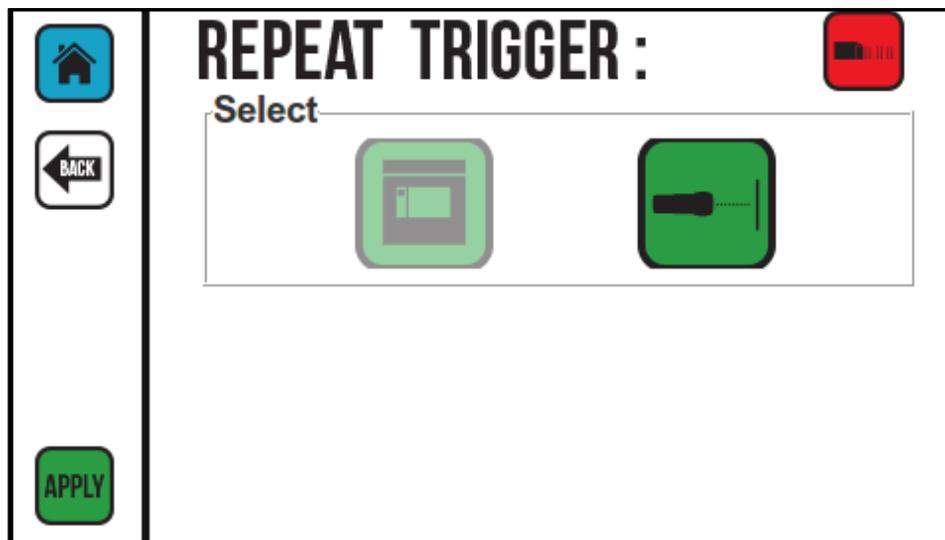
Repeat Trigger with Photocell Selected

Counters:

Use the "Counters" screen to set the current value of each printed counter in the current message.

COUNTERS:

Head 1

No Counter Selected
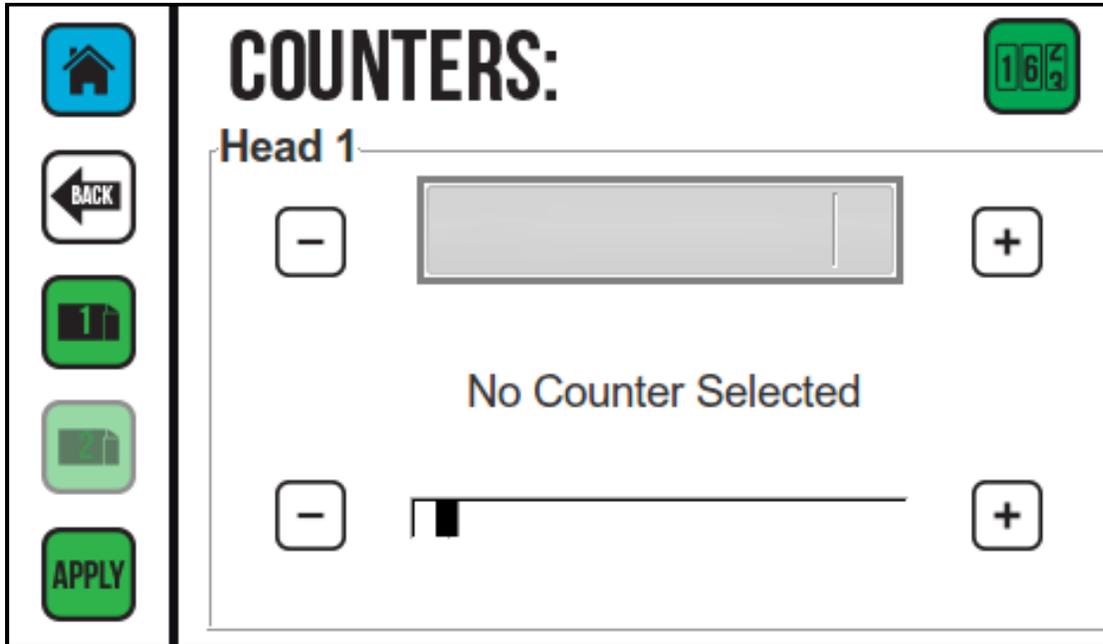
To change the counter value, select the Plus "➕" or Minus "➖" button to increase or decrease the counter. Select "Apply" to set the current counter value.

Spit Function:

When turned on, the printhead will spit a small quantity of ink at pre-determined intervals. The spit function is useful when printing with fast-drying solvent based inks to keep the ink from drying and clogging in the ink nozzles. Use the "Spit Settings" function to configure settings for spit mode.

SPIT SETTINGS:

Spit Mode
COLUMN

Spit Quantity (Columns)
3

Spit Period (Seconds)
3
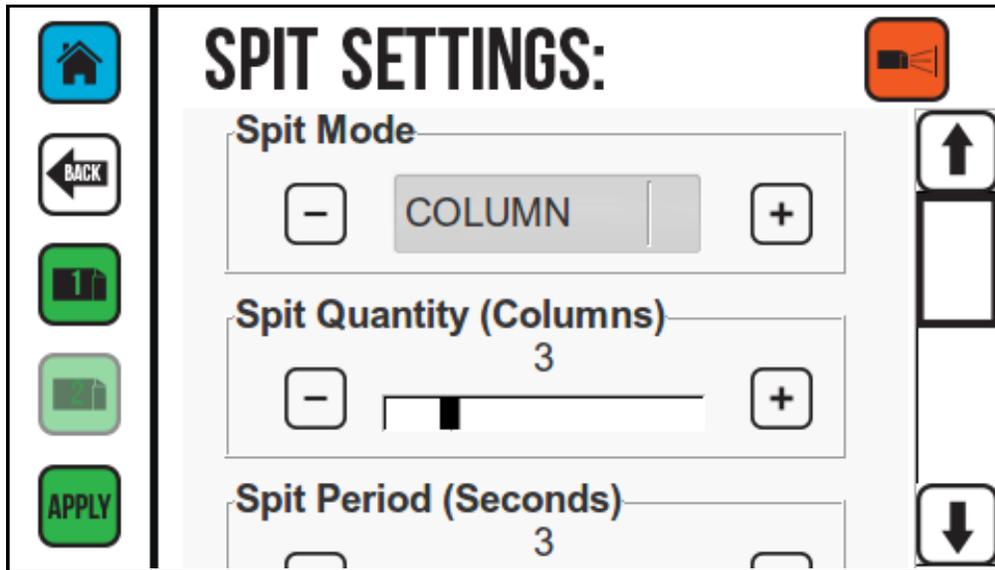
Spit Mode
There are four spit modes. OFF, COLUMN, GHOST ALL and GHOST.

OFF   Turns the spit mode off. The printer will not spit when "OFF" is selected. When printing with oil based ink the spit should always be set to "OFF".

COLUMN   Will spit a column of ink the entire height of the printhead at selected time periods.

GHOST ALL Will spit a small amount of ink through all the printhead nozzles all the time even during printing. GHOST ALL is useful when printing with very fast-drying inks.

GHOST   Will spit a small amount of ink through the nozzles that are not being used during printing. GHOST is useful if a long message only uses some of the nozzles in the printer.

Attention!   When the Spit Function is turned on the printer will continue to spit ink even if the controller is in the "Sleep" mode.

Spit Quantity (Columns)

Define the quantity of the spit mode by selecting the number of columns the printhead will spit each time.

Spit Period (Seconds)

The "Spit Period" in Seconds is the time between spits.

Spit Delay (Milliseconds)
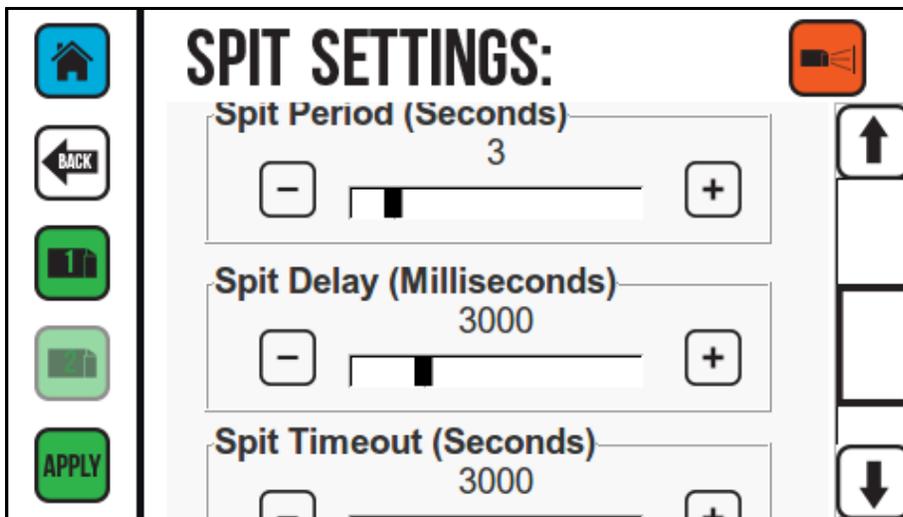
The "Spit Delay" is the time between when the message stops printing and the spit will begin.

Spit Timeout (Seconds)

The "Spit Timeout" is when the printer will quit spitting. This is important if the printer is going to be unused for a period of time such as overnight, or during a long break.

Peak Encoder Speed:

Select the peak Encoder button to open a window that will display the top speed that the encoder has recorded. To set a lower top speed, the Peak Encoder Speed will have to be reset using the Reset button.

PEAK ENCODER SPEED:

Peak Encoder Speed

82 fpm

Top Speed

Reset Button
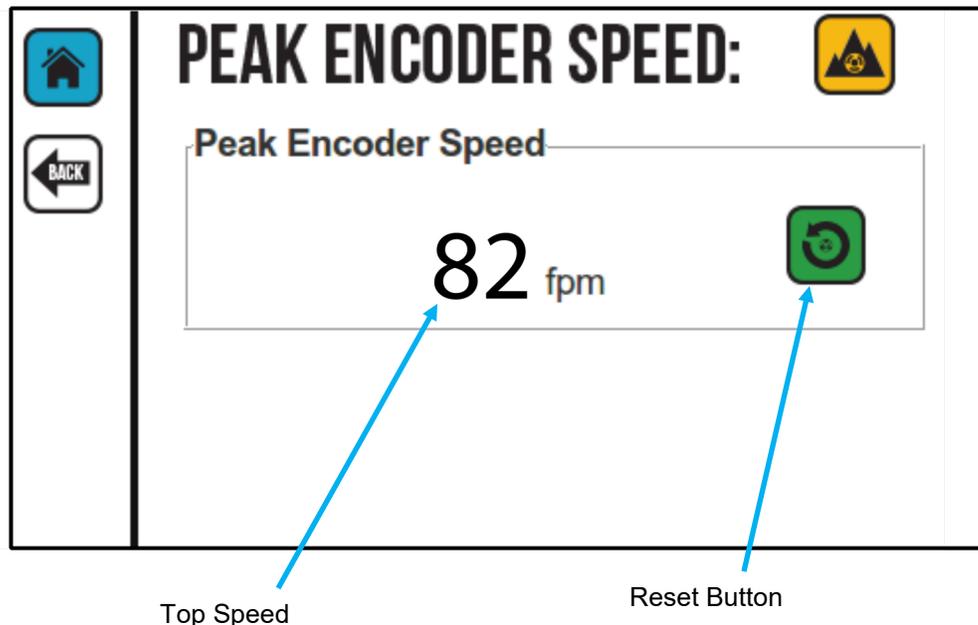
Example: an operator wants to slow the product line speed, and inadvertently turns the speed control in the wrong direction speeding up the production line. The operator immediately realizes the mistake, and quickly turns the speed back down. The higher speed will be displayed until the "Peak Encoder Speed" is reset.

Why is this important?
If a production line has a built-in pause, or jog sequence such as a box or crate that stops to be filled and then proceeds down the product line, the signal from the encoder would move between stopped and the line speed. The average being the speed between stopped and the speed the line is actually moving at. Printing will occur while the product is moving down the line. If the CoPilot prints at the average speed, the print will be much too wide, and distorted. Knowing the Peak Encoder Speed allows the message to be printed at the actual speed the product is moving at in such cases.

USB Load:

The "USB Load" screen provides functions for data management and printer updates. The USB button in the Settings Screen will be disabled if there is no USB present. The USB Load screen will automatically open if a USB device is plugged in.

Note: USB format must be FAT32.
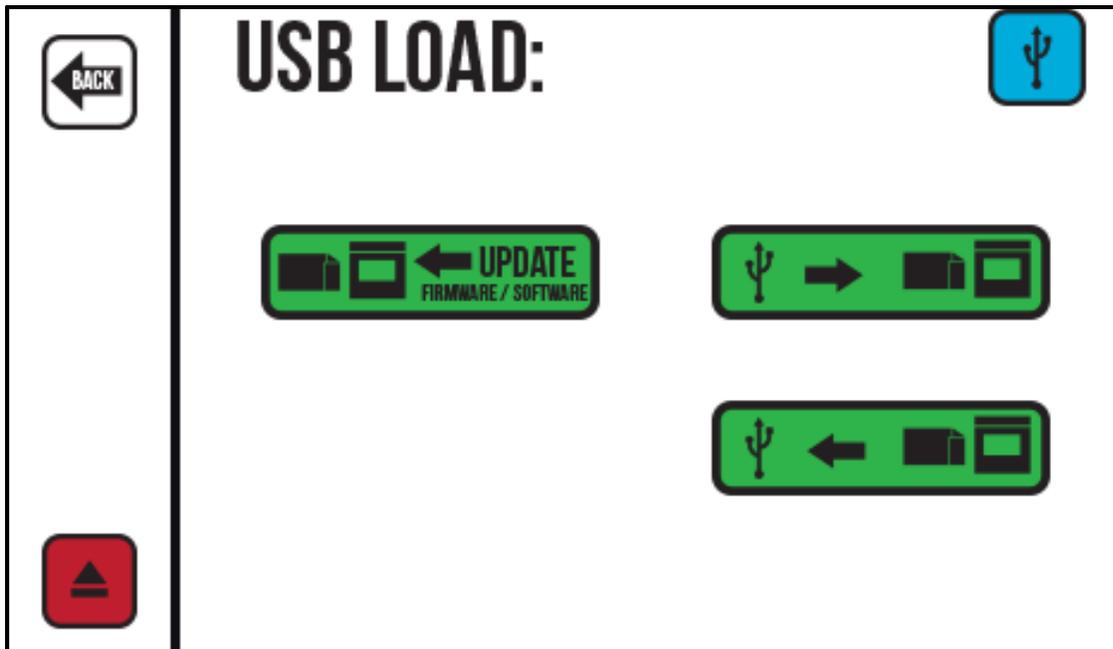
If there are system updates available on an installed USB drive this button will become active. Select this button to install the updates.

Select this button to copy from the printer to an installed USB drive.

Select this button to copy from an installed USB drive to the printer.

Select this button to eject an installed USB drive.

Reset:

Use the "Reset" screen to reset the production counter to Zero and the ink Level to full.
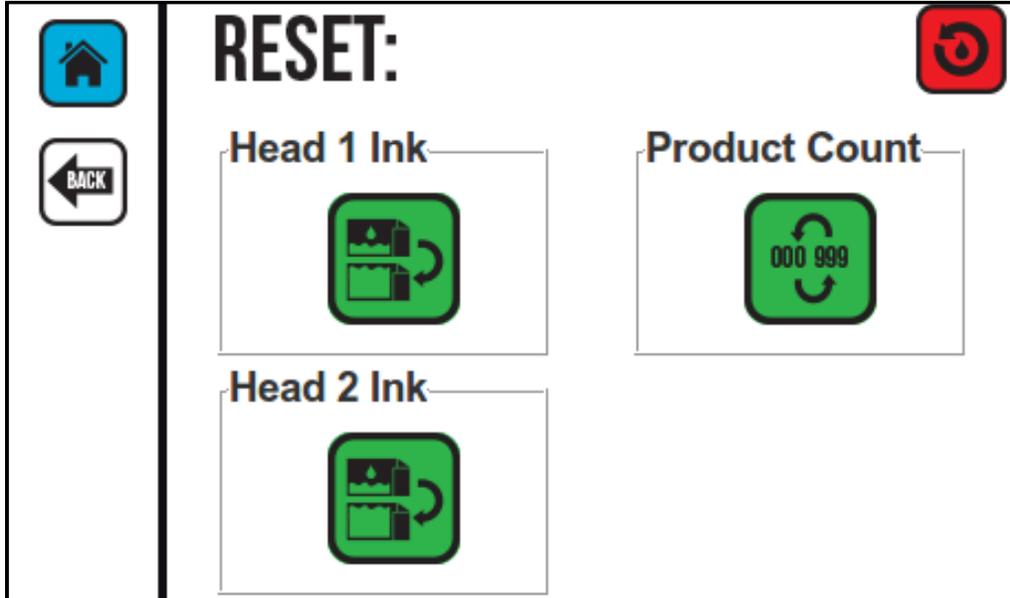
Select the Reset Ink printhead to reset the ink supply to full. In the "Reset Screen" select Head 1 or Head 2.

Select the Counter reset button to reset the production counter to zero.

Note: The counter reset will only reset the onscreen production counter to zero and will not affect the printed counters.

Ink Status

The Ink Status button is used to select the type of ink system.

The Bag ink system will monitor ink usage by the number of ink drops used.

The cartridge ink system will monitor ink usage via a float located in the ink reservoir.

Note: Generally, one ink system is used to supply one printhead. A single ink supply system can supply two printheads in the downshooter configuration only.

INK STATUS:

Select Bag or Cartridge

Combine Ink Bags
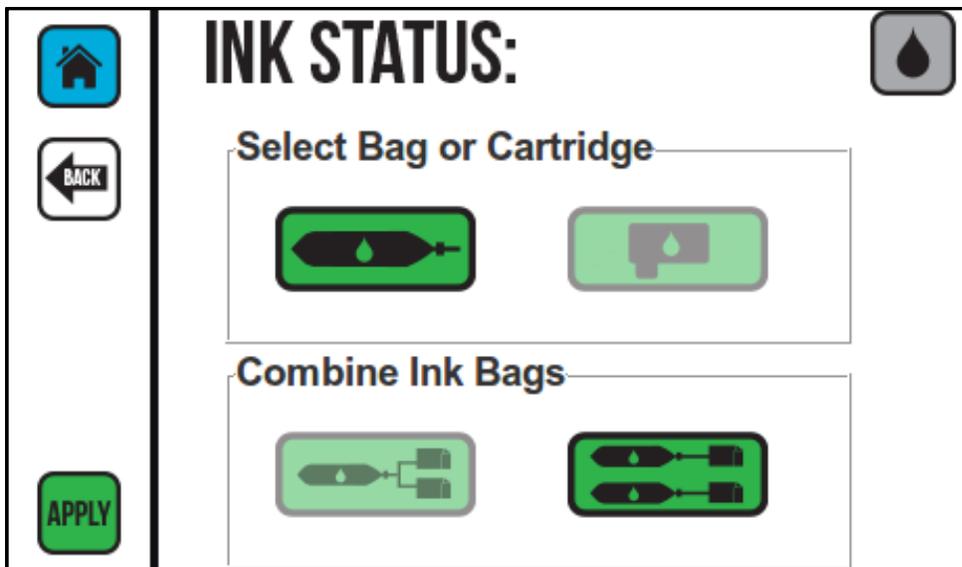
Select this icon when using a bag ink system.

Select this icon when using cartridge ink system.

Select this icon when one ink system is supplying one printhead.

Select this icon when a single ink system is supplying two printheads (only used in the downshooter configuration).

Print Engine Alignment:

This feature works with Copilot 256 printhead. The alignment value is used to fine tune the horizontal alignment of the two print engines in a 256 head. The unit is measured in print columns. Typically, there are 200 columns per inch. The value essentially corresponds to the physical distance between the jet lines of each print engine

Notice how the characters in the following illustration appear to be split horizontally and the top and bottom half of the words don't line up. This is an indication that the two print engines in the 256 printhead are not aligned.

Press the Plus (+) or Minus (-) button to change the alignment. Select "Apply" to accept the changes.
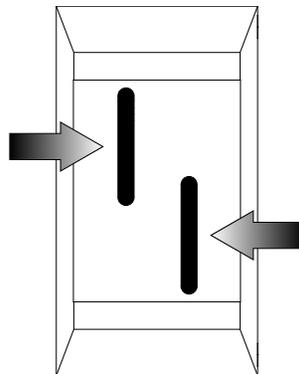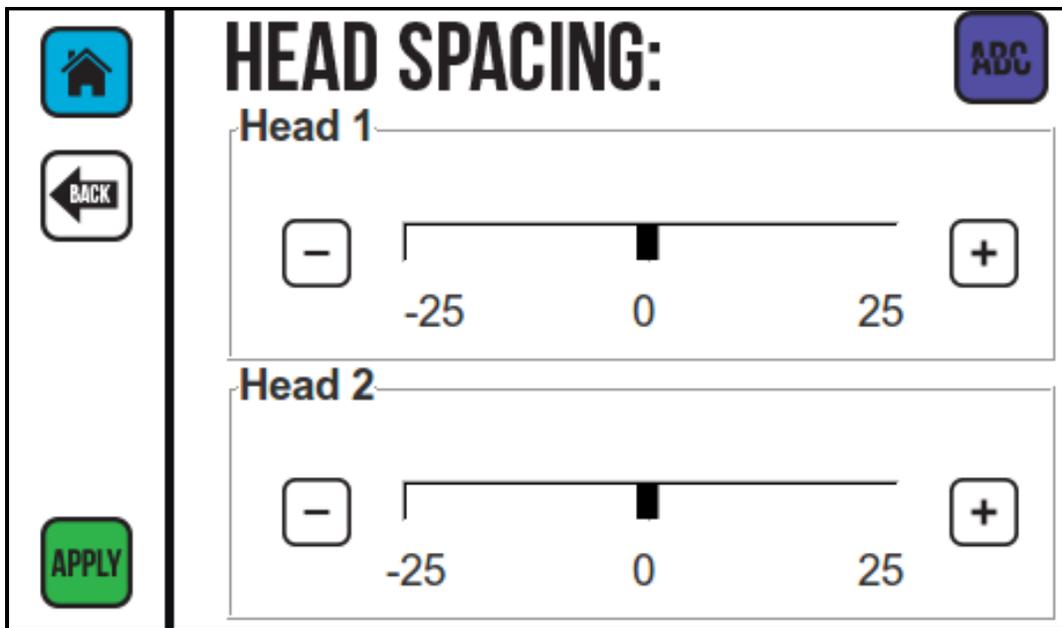
Calibrate Touchscreen

This button is used to calibrate the touchscreen. Normally the graphics on the touchscreen won't be out of sync with the corresponding functions. However, if there are problems selecting icons, recalibrating the touch screen may help.

To Recalibrate the Touchscreen:

Select the Calibrate Screen Icon from the Settings screen.

Select the "Calibrate" Icon in the Calibrate Screen to open the Calibrate Utility.
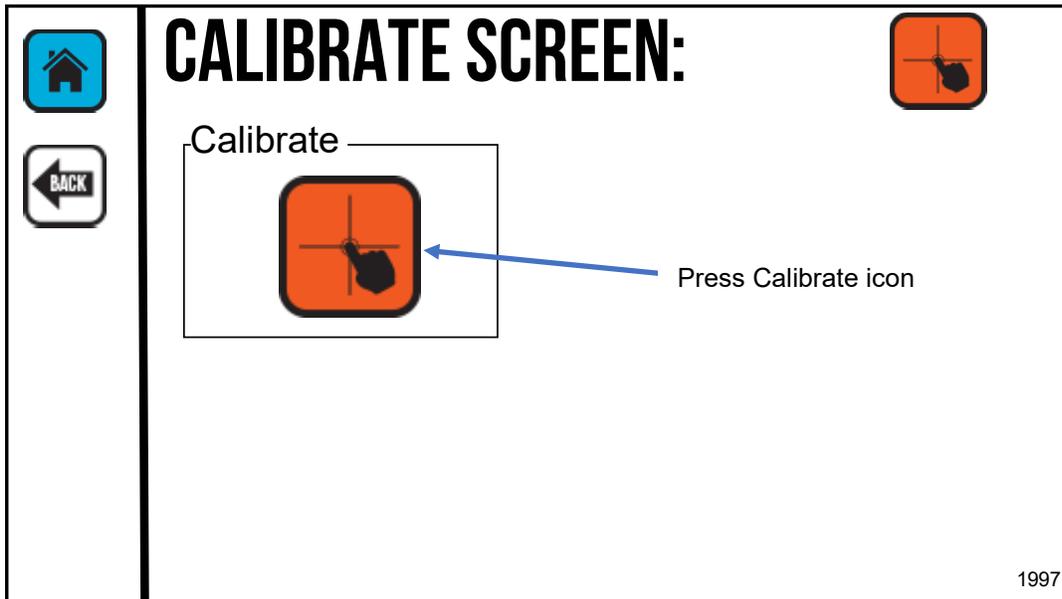
The Calibrate Utility will ask you to touch the center of the small square boxes to calibrate the touch screen.
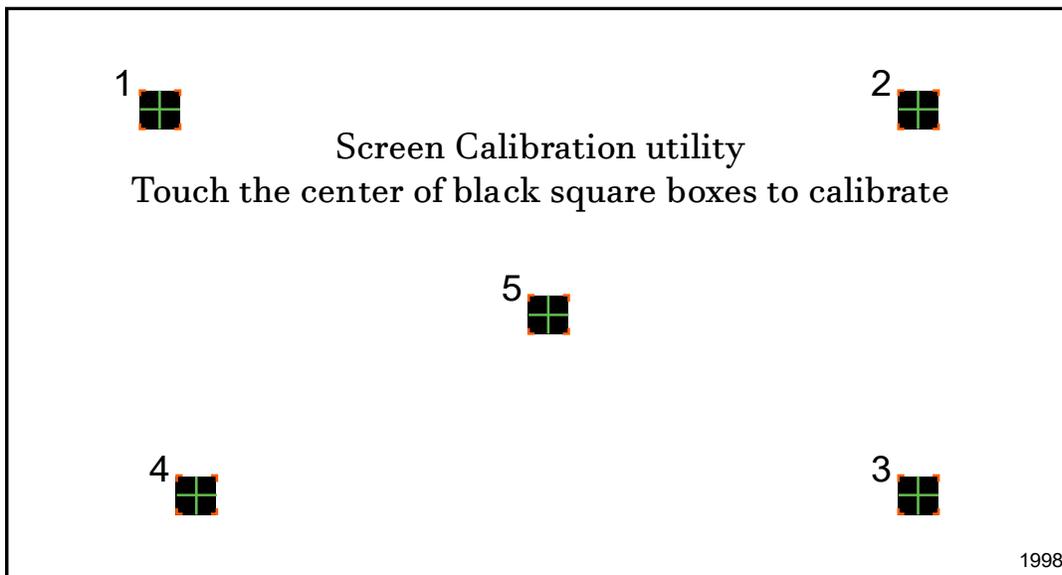
Click each of the small boxes in turn as they appear.

After the center box has been clicked, a brief screen calibration completed message will display and the controller will return to the "Settings" screen.

Screen Calibration utility
Touch the center of black square boxes to calibrate

Screen Calibration completed, returning to previous menu

1999
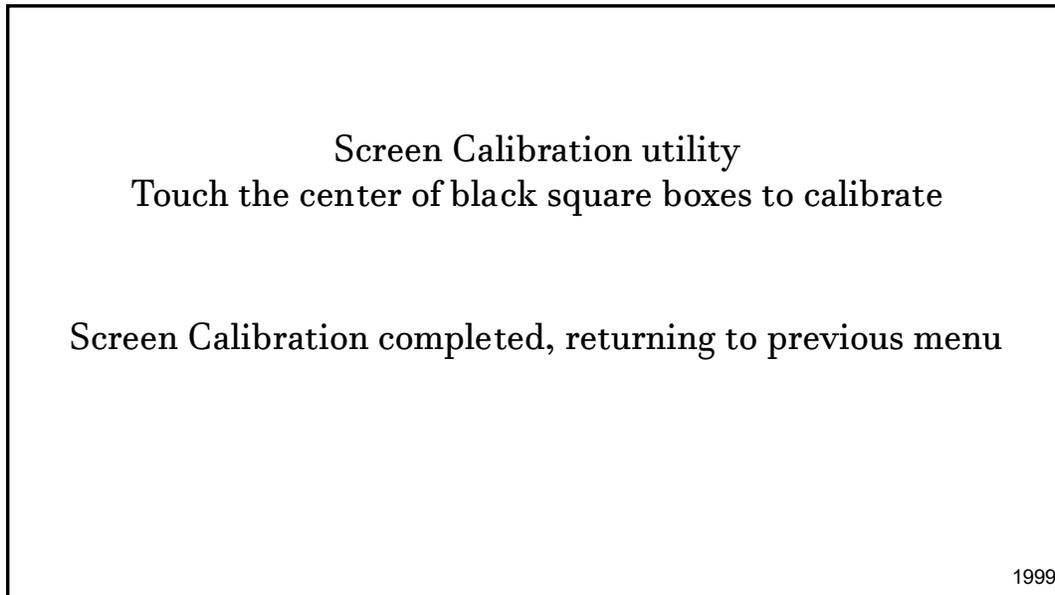
Power-cycle the CoPilot controller.

Attention!   You must power-cycle the CoPilot controller for calibration to take effect.

Remote Database Server

The remote database function allows the printer to be connected to a remote database message that has been created in Orion™. Select the Database icon to open the Remote Database screen.
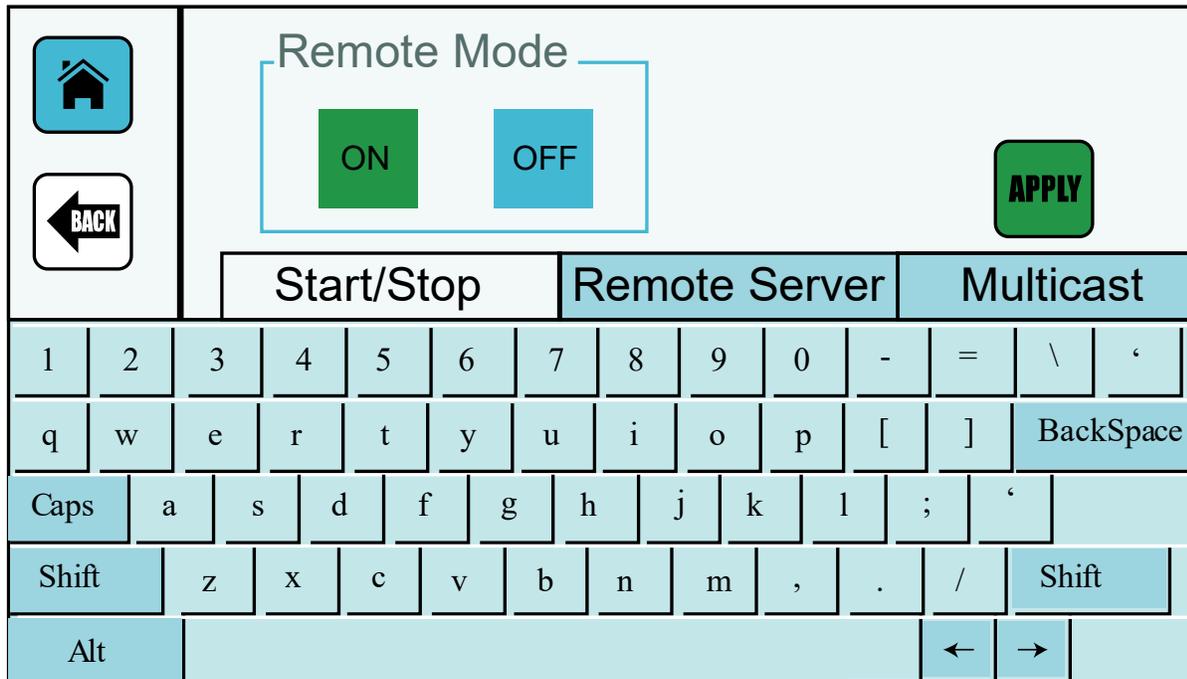
Start/Stop Tab
The "Start/Stop tab will display the "Remote Mode" ON and OFF buttons. If the remote mode is turned on, the "ON" button will be green. If the remote mode is turned off, the "OFF" button will be red. After turning the remote mode on or off select the "Apply' icon.

Remote Server Tab

In the Remote Server screen, use the search icon to locate the database server for the message(s) you wish to print. After selecting the Search icon, a drop-down list of connected servers will appear. Select the desired server and select the "Apply" icon. A green checkmark will briefly appear when the server connects.
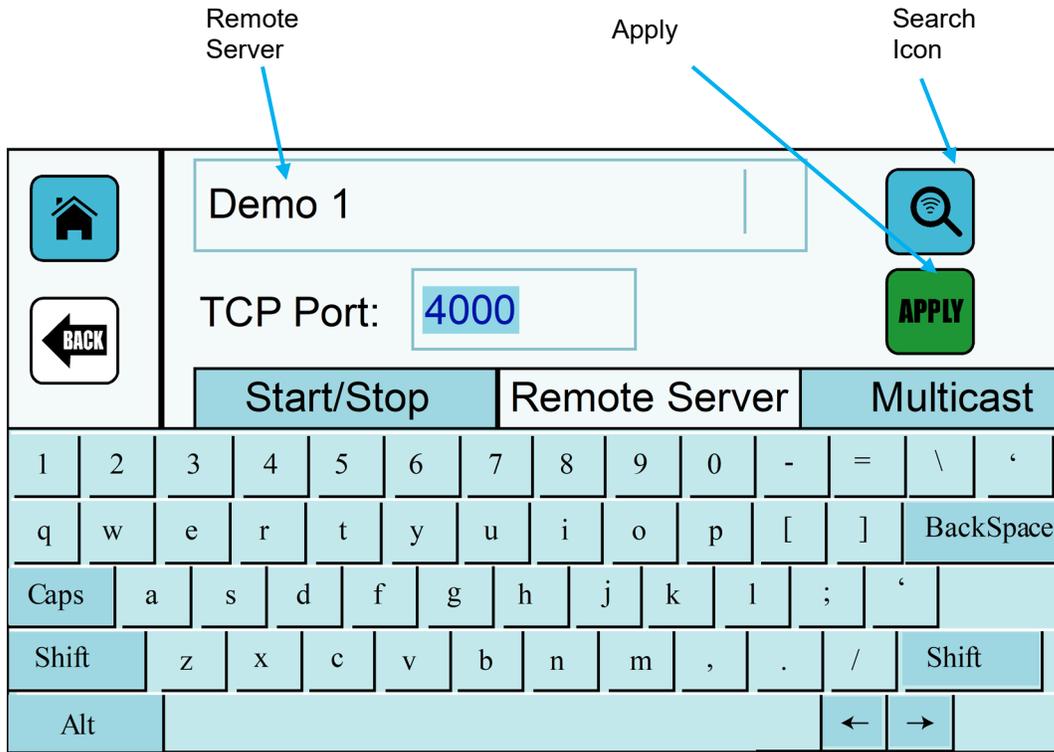
Multicast Tab

The Multicast Address IP setting and UDP Port will match the communication settings for the DB server created using the Orion™ message creation software. Normally the settings will be automatically populated with the default value and shouldn't have to be changed. If the address is changed in the Orion™ message creation software, it will also have to be changed at the printer. If the address is to be changed, work with your local IT Administrator to ensure the new values don't conflict with existing devices.

Multicast Tab

Communication Setting from Orion

Set Date:

Use the "Set Date" function to set the current date residing in the printer.

SET DATE:

+	+	+
2015	01	12
−	−	−

The date is displayed in the Year, Month, and Day. To change the date, select the Plus "➕" or Minus "➖" button to increase or decrease the date. Select apply to set the date.

Set Time:

Use the "Set Time" function to set the current time residing in the printer.

SET TIME:

Current Time: 05:52:37

+	+	+
05	52	34
−	−	−

The time is displayed in Hours, Minutes, and Seconds. To change the time value, select the Plus "➕" or Minus "➖" button to increase or decrease the time. Select "Apply" to set the current time value.

Custom Keyboard:

Select to Open the Custom Keyboard Screen. If a custom keyboard has been created in Orion™ for use with User Data, use this screen to select the keyboard.

CUSTOM KEYBOARD:

Keyboard Type
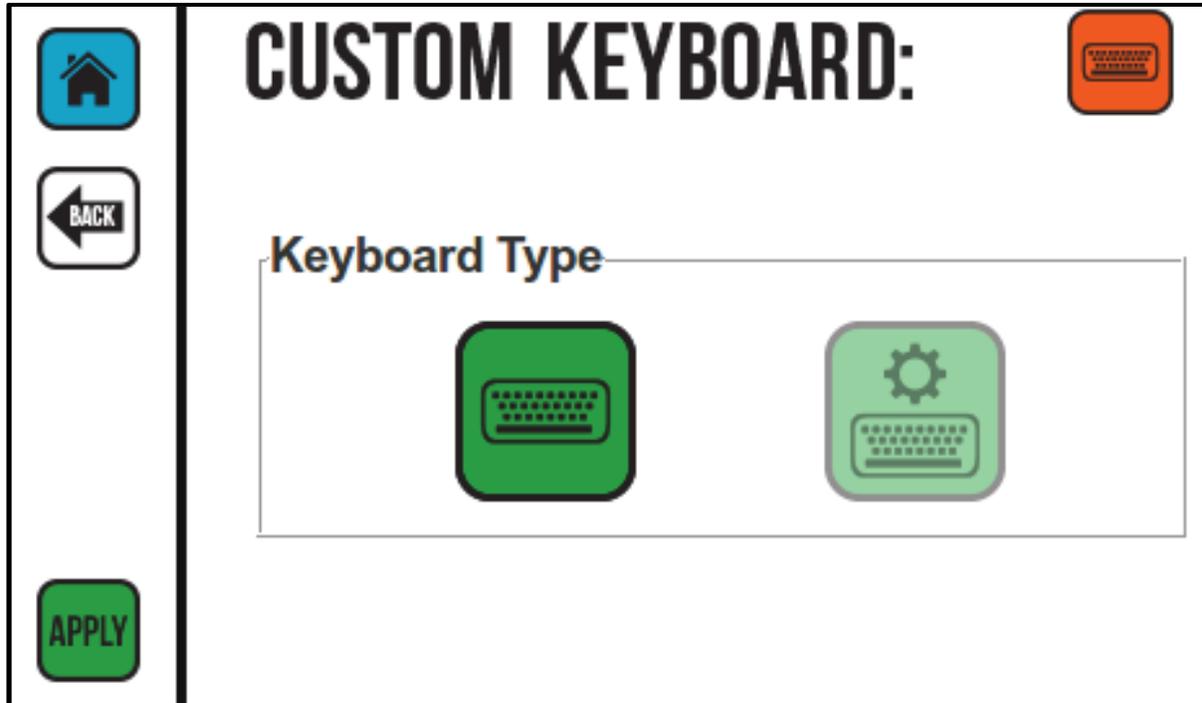
Standard Keyboard Selected. When this icon is highlighted the CoPilot will use the standard CoPilot keyboard.

Custom Keyboard Unselected. When the Standard Keyboard icon is highlighted, the Custom Keyboard Icon will appear as unselected.

Custom Keyboard Selected. When this icon is heighted a custom keyboard associated with the user data for the specific message can be opened. Custom Keyboards are created in the Orion™ Message Creation software.

Text 1 Prompt

squid ink

APPLY

| s | q | u | i | d | | i | n | k | | | <--- |

| | | | | | | u | i | o | p | = | [|] |

| Alt | a | s | d | f | g | h | j | k | l | ; | ' |

| Shift | z | x | c | _____ | v | b | n | m | / |

1669

Example of Custom Keyboard Created in Orion™

Tip! If the keys on a custom keyboard are all blank, the newly created keyboard probably wasn't sent to the printer from Orion™. Go back to the Orion™ message creation software and make sure the associated keyboard has been sent to the printer.

Language:

The Copilot Printing System supports seven languages. The "Language" Icon can be found on "Settings Screen Two".

- U.S. English

- German

- Mandarin Chinese

- Spanish

- Korean

- Japanese

- Russian

Select the Language Icon from the Settings Screen Two to open the Language window.

Select the desired language then select "**APPLY**".

The CoPilot controller will then change to the selected language. The CoPilot may initiate a reboot for the language change to take effect.

Static IP Address:

A static IP address can be assigned to the CoPilot Controller. The IP Address Icon can be found on "Settings Screen Two".

Select the IP Address Icon from Settings Screen Two to open the IP Address window.

In the IP Address window select the "Static IP" button.

Use the onscreen keyboard to enter a new IP Address and Subnet Mask.

Select "**APPLY**" to assign the new IP address to the printer.

Attention!   When assigning a new IP Address to the printer, always work with the local IT Administrator to ensure the new address does not conflict with existing devices.

User Data:

If User Data is contained in the current message, the "User Data" button on the CoPilot touchscreen will be activated. The User Data function allows messages that contain User data to be edited directly from the CoPilot Onscreen Touch Pad, USB Keyboard or Scan and Print.

 If the message contains user data select the User Data button on the CoPilot home screen. The User Data Prompt Screen will open.

The On-Screen Key Pad can be used to enter additional data into the text or barcode string.

Select "Apply" to apply the new data to the current message.

Wireless Interface:

The CoPilot controller can be connected to a wireless network or Bluetooth Keyboard.

To connect to a wireless network, insert the appropriate wireless USB adapter The CoPilot may either be powered off or on when this is done.

Wireless   For WIFI, you must use the NETGEAR Wireless-G USB 2.0 adapter (WGIII).

Bluetooth   For Bluetooth, you must use the Insignia USB Bluetooth adapter.

You do not need to install the software that comes with these devices. These drives are already built into the CoPilot Printing System. You may purchase these devices from your favorite computer outlet or directly from Squid Ink manufacturing.

After the Wireless Adapter has been installed power up the CoPilot Controller in the normal fashion.

The Wireless settings are found on screen two of the settings menu.

Select this button from the settings menu to open settings screen page two.

Note: Your wireless router must support WPA Encryption. Older standards are not supported.

WiFi:

Attention!   A tablet or desktop computer cannot connect via WIFI directly to the CoPilot printer. A WIFI router that supports multicast must be used. Squid Ink sells and recommends using a Linksys Model EA4500. Other routers are currently not supported.

Select this button to open the WIFI settings screen.

Select the WIFI scan button and the printer will find all the available wireless networks.

Select SSID box and a drop-down list of available wireless networks will display. Select the desired network from the list.
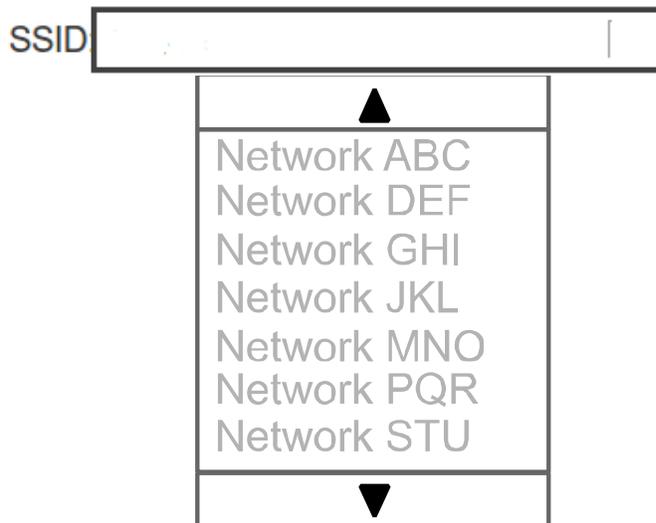
If there is a security code for the desired network, use the onscreen keyboard to enter the password.

Use to Open the
On Screen Keyboard

Password: | Enter Password Here |

After entering the correct password select the Onscreen Keyboard button to close the Keyboard.

APPLY Select "Apply" to connect to the network.

When successfully connected the "CONNECTED" Icon and the IP address for the CoPilot Controller will display. The password will not be displayed after the controller has been successfully connected.

WIFI:
SSID | SSID 1 |
Password: | ********** |
IP Address: 192.168.0.17
CONNECTED
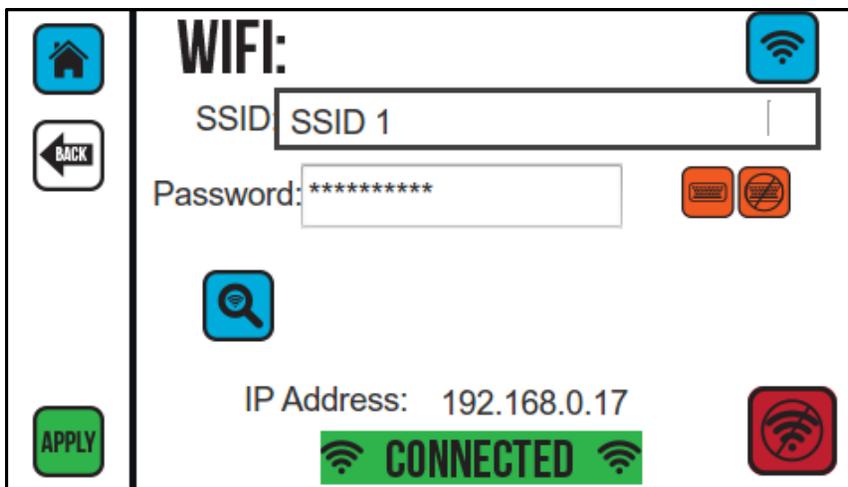
If you wish to use the CoPilot USB port for another purpose, press the disconnect Icon located in the lower right corner of the screen before removing the WIFI USB Adapter.

When you wish to resume WIFI, just insert the USB WIFI adapter and press "Apply". The SSID and password from the previous session will be used once you have established a WIFI connection.

Note: The CoPilot will no longer respond to commands coming through the ethernet port. To restore LAN operation via the ethernet, press the WIFI Disconnect Icon, and then plug in an ethernet cable and power-cycle the printer.

Attention! When changing from WIFI to Ethernet or Ethernet to WIFI, the printer must be power-cycled.

Bluetooth:

Select this button to open the Bluetooth settings screen.
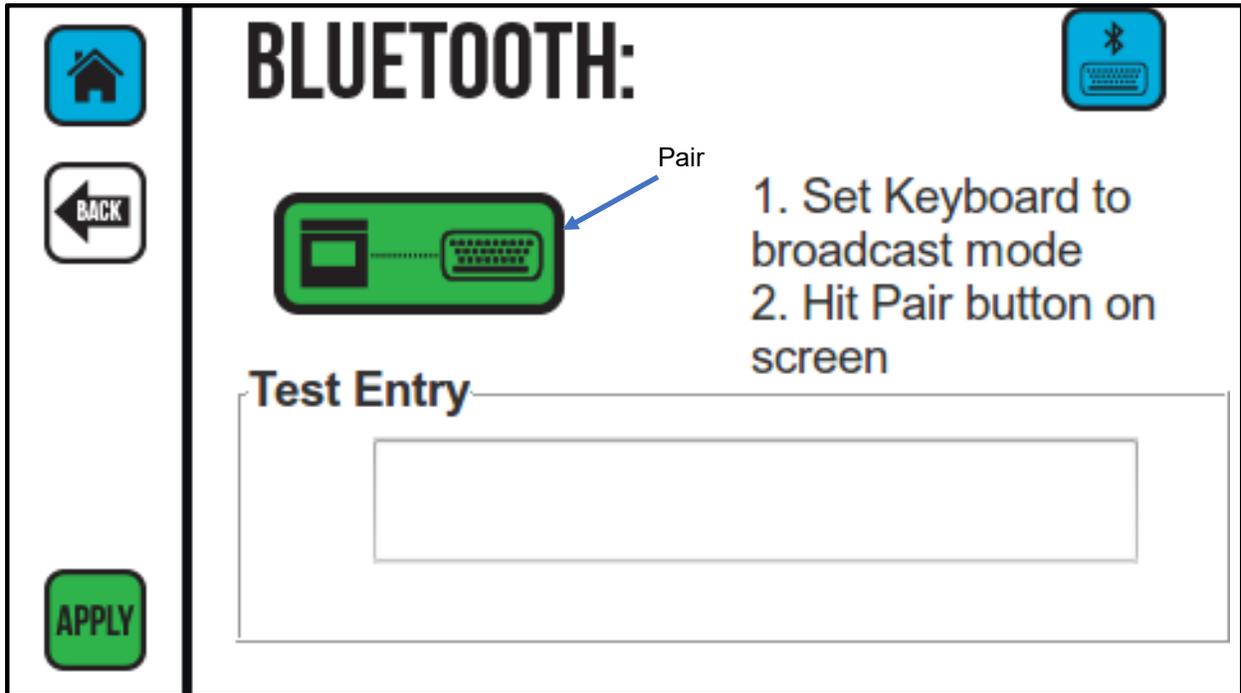
Follow the onscreen steps one and two.

After you have pressed the "Pair" button, type some test characters on your keyboard. They should appear in the "Test Entry" box. Once they do, the keyboard is connected.

Description of CoPilot 128/256 Touchscreen Buttons

Button	Function
	Return to the Home Screen
	Stop Printing
	Start Printing
	Open the Message Files Screen
	Open the Settings Screen
	Places the CoPilot Printer in Sleep Mode
	Apply Current Settings and Values
	Return To Previous Screen
	Set Print Delay in the Tools Screen
	Select Print Direction in the Tools Screen
	Print Direction: Left to Right (Not Selected)
	Print Direction: Left to Right (Selected)
	Print Direction: Right to Left (Not Selected)
	Print Direction: Right to Left (Selected)
	Open WIFI Connect Screen

Button	Function
	Open Bluetooth Connect Screen
	Recalibrate the Touchscreen
	Remote Database Server
	Show/Change Current Time
	Show Change Current Date
	Encoder: Open the Encoder Dialogue Box
	Spit Settings
	Open the Counters Dialogue Box
	Set Line Speed
	Connect to USB: Only Enabled if USB Present
	Copy Messages from Printer to USB
	Copy Messages from USB to Printer
	Reset: Select to Reset Production Counter to Zero and Ink Supply to Full
	Reset Production Counter to Zero

Button	Function
	Reset Ink Supply to Full
	User Data: Active if Current Message Contains User Data
	Open the "Ink Status" Settings Screen
	Ink Status: Count Drops Float Only Selected
	Ink Status: Count Drops Float Only Not Selected
	Ink Status: Count Drops Selected
	Ink Status: Count Drops Not Selected
	Ink Status: Combine Ink Bags Selected
	Ink Status: Combine Ink Bags Not Selected
	Ink Status: One Ink Bag One Printhead Selected
	Ink Status: One Ink Bag One Printhead Not Selected
	Peak Encoder Speed: Select to Open Peak Encoder Speed Screen
	Keyboard Settings: Select to Open the Custom Keyboard Screen
	Custom Keyboard Selected
	Custom Keyboard Unselected
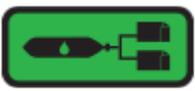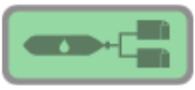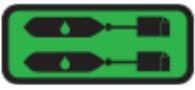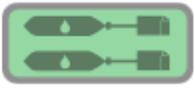
Button	Function
	Select to open the Language Screen
	Select to open the IP Address Screen
	Toggle between Settings Page One and Page Two
	Printhead not Connected. This icon will display on the home screen if no printheads are detected

Powering Off

There is no special sequence for powering down the Copilot 128/256 Printing System. Simply press the power switch to the OFF position to turn off the printer.

Power Switch
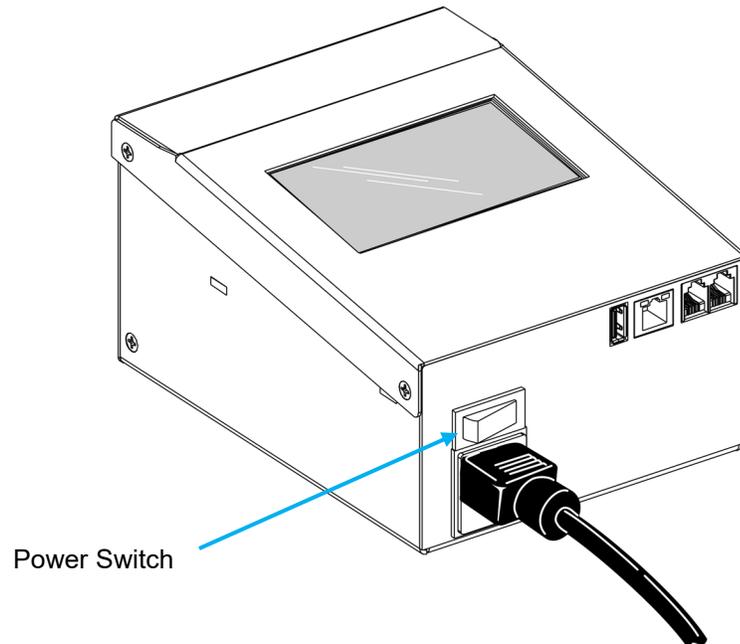
For a soft shutdown select the "Sleep" mode.

Mounting Options

Floor Stand

Printing System
Mounted with Cartridge
Ink System

Printing System
Mounted with Bag Ink
System
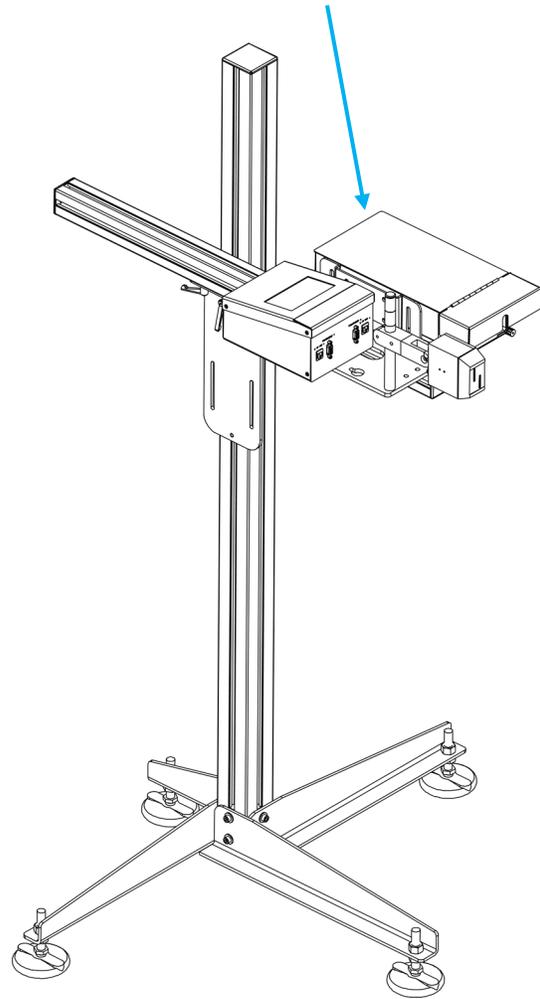
Typical Floor Stand Mounting

Conveyor Mounting Bracket

2004920

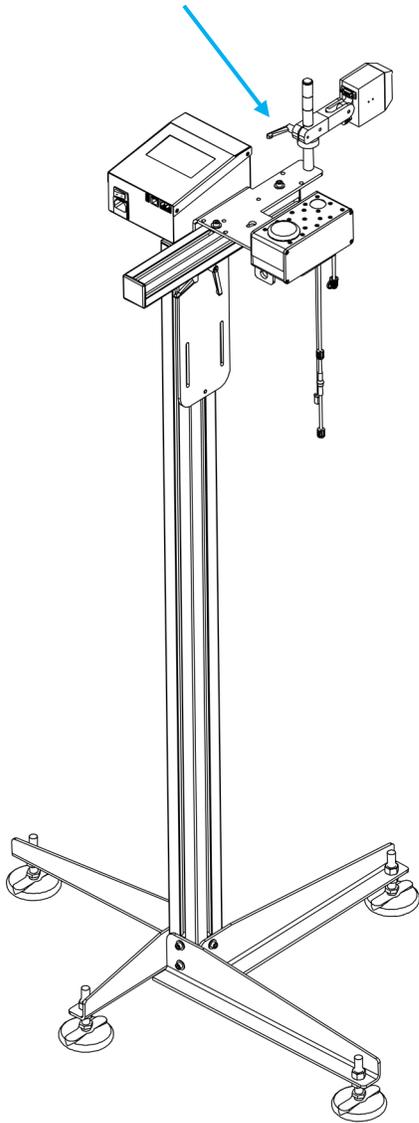2002059 (KIT)

2001148

1147
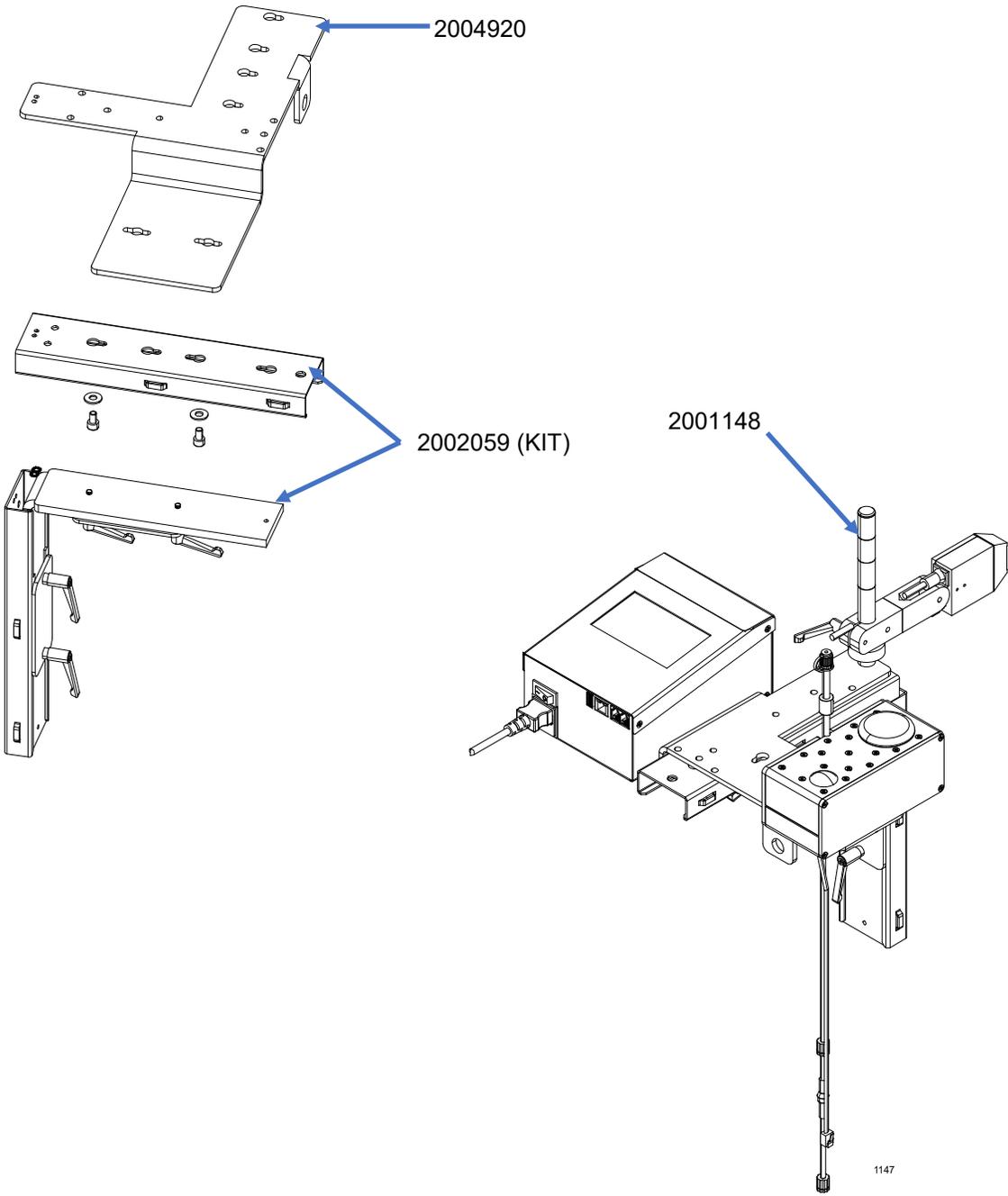
Typical Conveyor Mounting Kit number 2005940

Maintenance

The Squid Ink Manufacturing CoPilot 128/256 printing system requires very little maintenance during normal operation.

Mounting Hardware and Connections

Occasionally check the mounting hardware and retighten any mounting brackets or screws that may have vibrated loose during operation.

Occasionally check the data cable connections between components to insure they are secure and properly seated.

Nozzle Face Plate

Should the nozzle face plate become contaminated or clogged gently wipe the front of the printhead face with a non-abrasive lint free towel and a compatible fluid. Be aware that the orifice strip is very fragile. **Try not to make direct contact with the nozzle plate**. A spray bottle should be used to remove debris from the orifice strip and the orifice cavity on the printhead face.

> **Attention!**   Use only Squid Ink approved fluids for cleaning or flushing the nozzle face. Use only non-abrasive lint free wipes.

Cleaning External

Externally the CoPilot 128/256 printing system can be wiped clean with a Squid Ink approved cleaning fluid or flush and a clean cloth. Gently wipe the components clean. Never immerse the components in water or cleaning fluids.

> **Attention!**   Use only Squid Ink approved fluids for cleaning the nozzle face. Use only non-abrasive lint free towels for cleaning the printhead face. Do not let water, detergent or any generic cleaning fluids come in contact with the nozzle face.

Flushing the Printhead

Caution!   If you fail to use the prescribed fluid for flushing, it may clog and ruin the print engine.

If priming the print engine does not bring all jets back to the printing state, it may be necessary to flush the print engine. The tools called for in this procedure are included in the Startup Kit.

1]   Pour some of the flush fluid that is compatible with your ink into a clean cup or other clean container that can be accessed by the syringe tip.

2]   Load the syringe with the flush fluid as shown below.
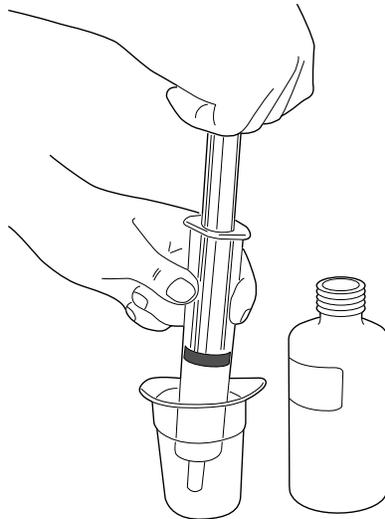
3]   Attach the filter with tube protruding from it to the syringe before discharging any fluid (see below). **Failure to use the filter when discharging fluid into the print engine may result in clogged orifices.**

Syringe

Filter

Ink Tube with Fitting
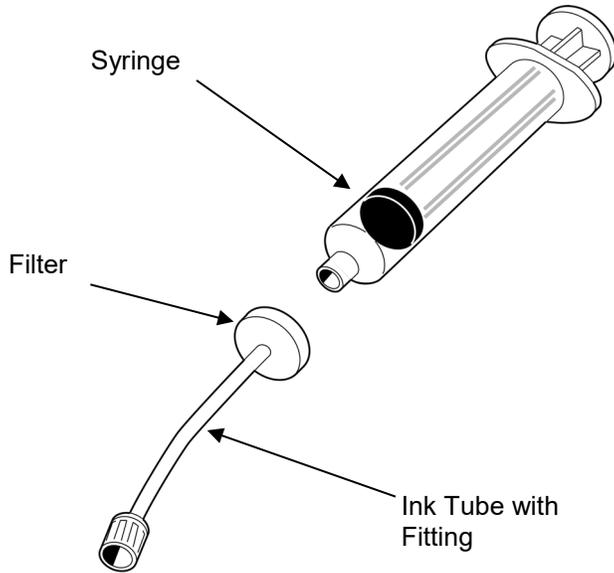
Twist the end of the filter onto the syringe. This joint should be snug, but not too tight. Over-tightening the filter will block the syringe so no fluid will come out. If you notice difficulty purging, loosen the filter slightly.

4]   Locate the joint with the lock ring fitting in the ink line coming from the back of the printhead.
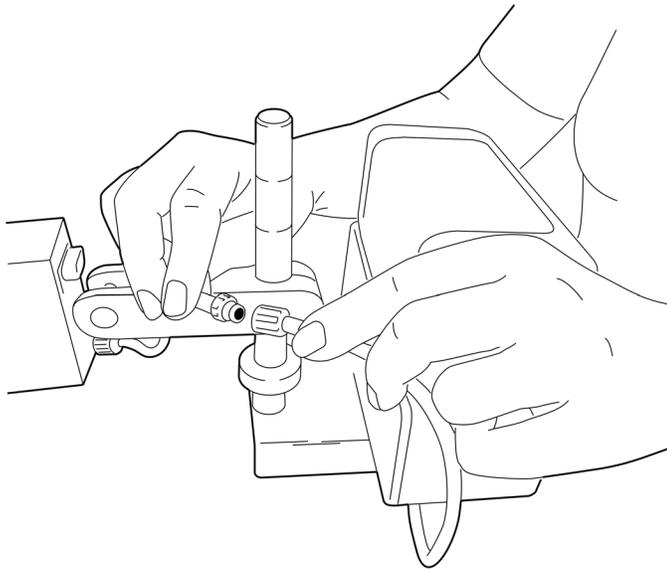
5]   Being cautious not to splatter ink, twist apart the ink line at the lock ring and cap the tube that leads back to the ink system.

6]   Insert the fitting protruding from the syringe and filter into the input fitting in the tube leading to the print engine (see below).
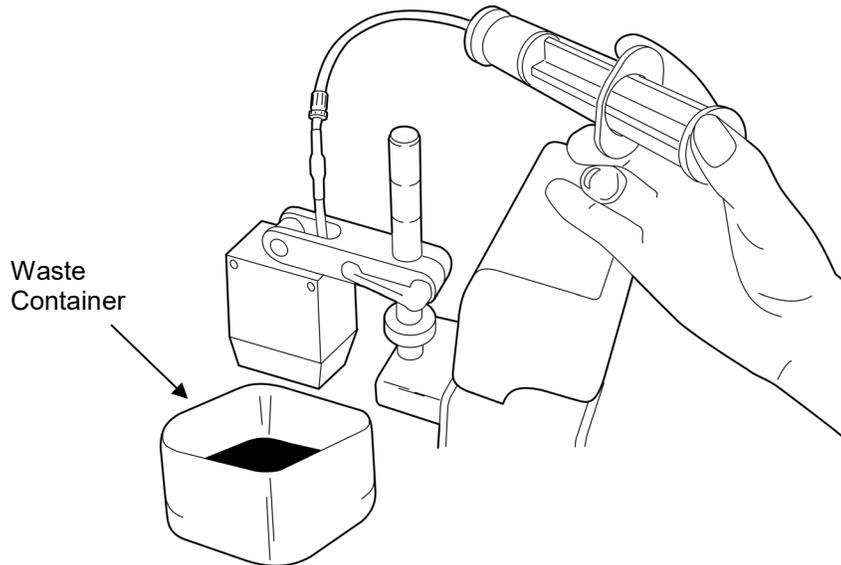
Waste Container

7]   With firm pressure, flush the fluid in the syringe through the ink line and out through the print engine. Aim the discharge into a waste container and observe the stream. Continue to flush until at least 60 ml of flush fluid has passed through the print engine.

8]   Disconnect the fitting from the ink line.

9]   Extend the syringe's plunger thereby filling the syringe with air.

10]   Once again, attach the syringe tube to the input fitting in the ink line leading to the print engine.

11]   Force out the fluid that is in the ink line and print engine by expelling the air from the syringe. Aim the discharge into a waste receptacle.

12]   Disconnect the syringe and twist off the filter from the syringe.

13]   Carefully unscrew the cap from the ink tube that leads to the ink system and reconnect the ink line by twisting the lock ring back onto its fitting.

14]   Replace the syringe cap that came on the new syringe. You may reuse the syringe and filter for future flushing.

Parts List

CoPilot 128/256 Replaceable Parts Main Components

Part Number	Description
2001067	Printhead 128
2001135	Printhead 256
2003955	CoPilot 128 Touchpanel Controller
2003956	CoPilot 256 Touchpanel Controller
2001065	Cartridge Ink System Porous
2001066	Cartridge Ink System Non-Porous
2001159	Bag Ink System Porous
2001160	Bag Ink System Non-Porous
2004187	Power Supply Cord for Controller
2001079	CoPilot 128/256 Starter Kit, Oil Based, Cartridge
2001080	CoPilot 128/256 Starter Kit, Solvent Based, Cartridge
2002023	CoPilot 128/256 Starter Kit, Oil Based, Bag
2002024	CoPilot 128/256 Starter Kit, Solvent, Bag
1602018	Photocell Assembly
164177	Encoder Assembly Kit
2003585	Low Ink Alarm Beacon Assembly Kit USB Connect
2004920	Mounting Bracket Assembly
2001132	Floor Stand Assembly
2002059	Conveyor Mounting Assembly
2003921	256 Printhead Data Cable
2003588	Controller to Controller Data Cable 10ft.
2003864	RJ12 "Y" Splitter Cable
2001148	Printhead Mounting Assembly

Attention!   There are no field replaceable parts in the CoPilot 128/256 Controller Box. Do not open the controller on site.

Mounting Hardware
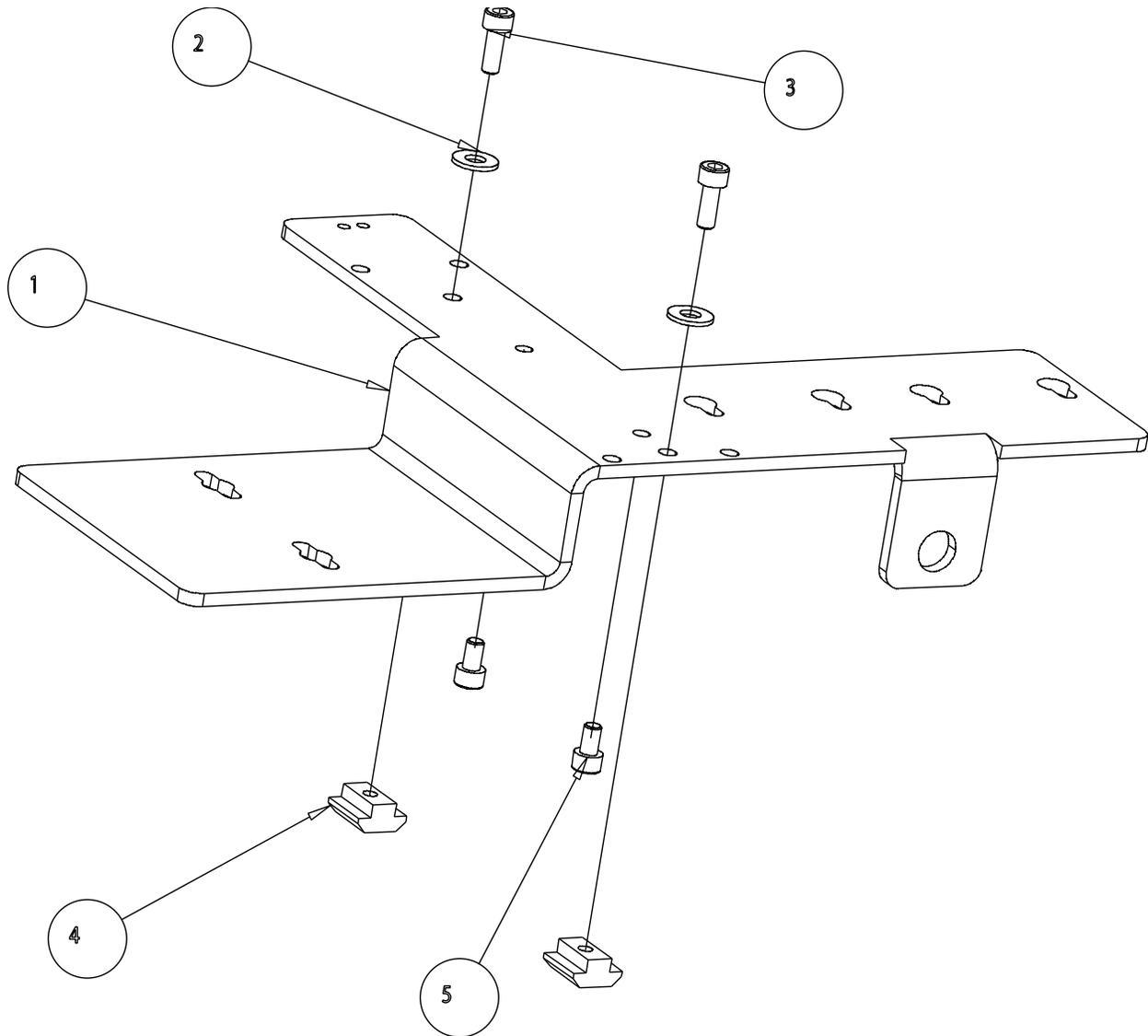
COMPONENT NO.	QTY	ITEM	DESCRIPTION
2003143	1	1	BRACKET-FLAT, DUAL INK+ CONTRL
2006017	2	2	WASHER - 1/4", FLAT, SS
2006035	2	3	SCREW - SHC, M6 X 16, SS
2006063	2	4	T-NUT SLIDER 10mm M6
2006083	2	5	SCREW - SHC, M6 X 10, SS

Mounting Bracket Assembly 2004920
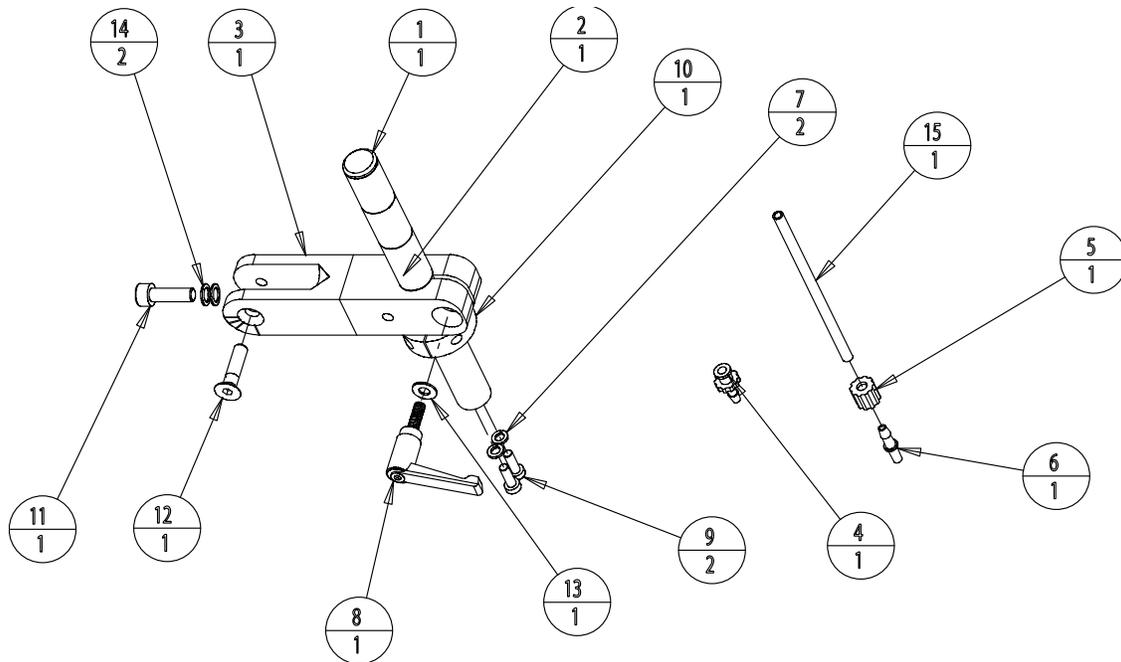
COMPONENT NO.	QTY	ITEM	DESCRIPTION
2003079	1	1	PRINTHEAD MOUNTING POST
2003080	1	2	PZP ARM CLAMP
2003081	1	3	PZP ARM YOKE
2006022	1	4	FITTING-FEM LUER TO 1/8" BARB
2006026	1	5	LUER LOCK RING
2006027	1	6	FITTING MALE LUER
2006079	2	7	WASHER-SPLIT M5 ZINC
2006100	1	8	LEVER ADJUSTABLE,10-32
2006101	2	9	SCREW M4x12 18-8 SHC
2006102	1	10	Aluminum Shaft Collar 5/8"
2006103	1	11	SCRW-SH,CAP,M6X20,DIN 912
2006105	1	12	SCRW-FH,M6X20,DIN 7991,SKT-BLK
2006128	1	13	WASHER-FLAT #10 DELRIN
2006157	2	14	WASHER-WAVE,.262IDx385ODx.010
2007009_4FT	1	15	TUBING LDPE 1/8" ID

Printhead Mounting Assembly 2001148
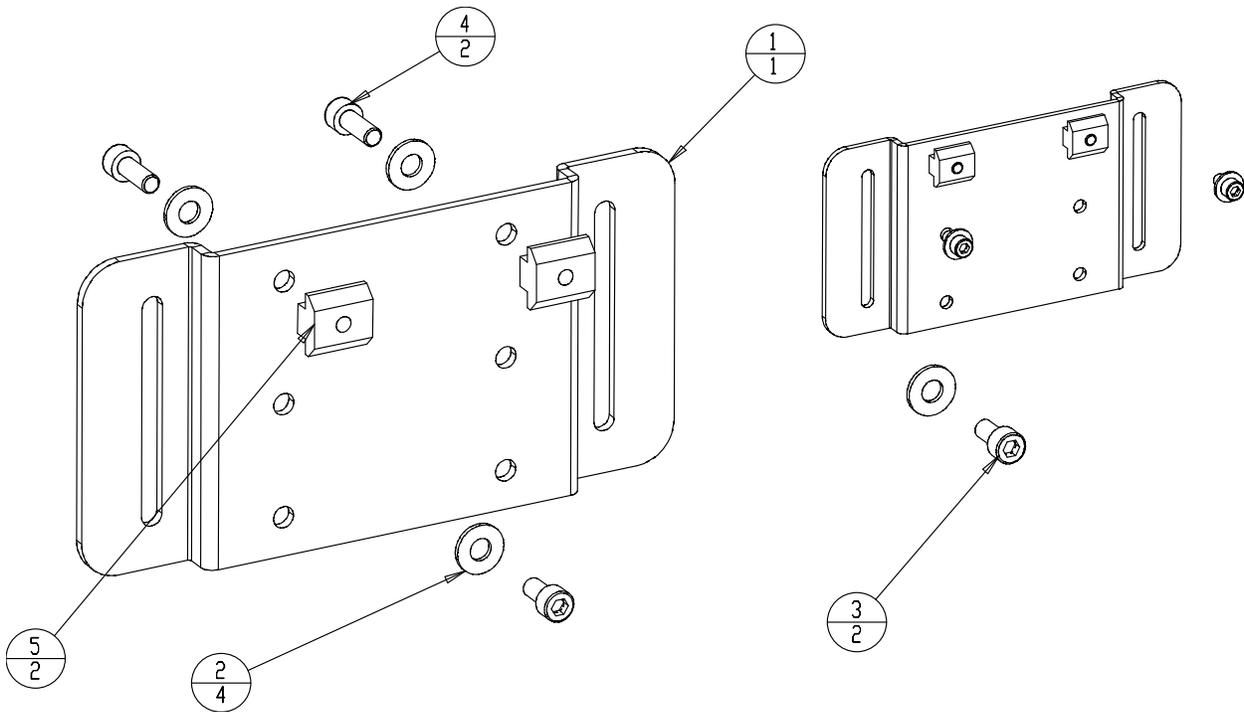
COMPONENT NO.	QTY	ITEM	DESCRIPTION
2003016	1	1	BRACKET MOUNTING INK
2006017	4	2	WASHER 1/4" FLAT SST
2006018	2	3	SCREW M6 X 12MM SHC SS
2006035	2	4	SCREW M6 X 16MM SHC SS
2006063	2	5	NUT SLIDER 10mm M6

Bag Ink System Mounting Bracket Assembly 2001161

Discard Mounting Plate Part Number 2003102
and Use the Mounting Bracket That was Shipped with the
CoPilot 128/256 Printing Sysytem
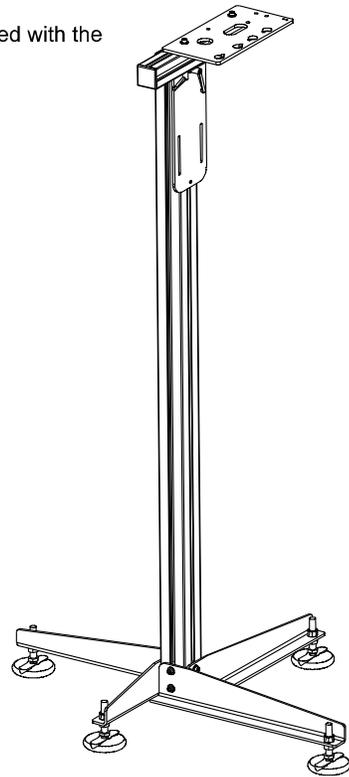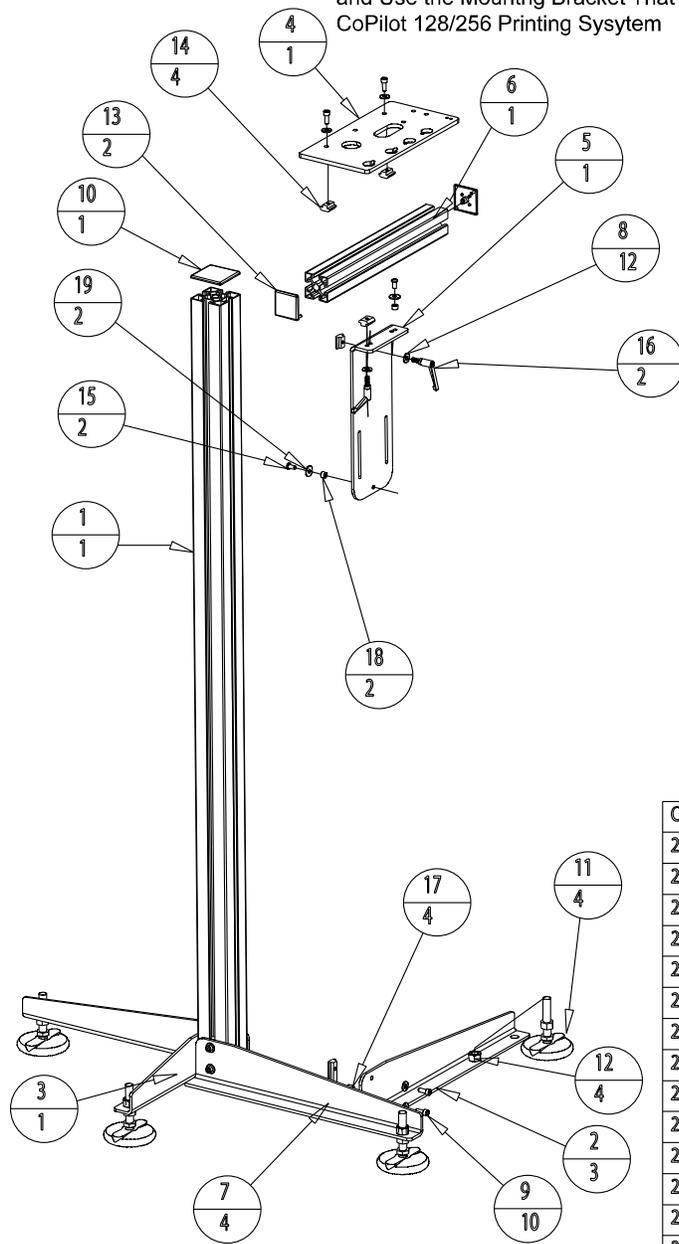
COMPONENT NO.	QTY	ITEM	DESCRIPTION
2003030	1	1	POST FLOOR STAND 60 X 60mm X 31"
2003034	3	2	FLOOR STAND LEG LONG
2003035	1	3	FLOOR STAND SHORT LEG
2003102	1	4	FAB - PZP STAND BRACKET
2003107	1	5	FAB-BRKT, PZP STAND
2003108	1	6	ARM,45X45mm X 14",STAND
2003110	4	7	MACH-T BAR,3" LONG
2006017	12	8	WASHER - 1/4", FLAT, SS
2006035	10	9	SCREW - SHC, M6 X 16, SS
2006037	1	10	END CAP 60 X 60mm
2006040	4	11	FOOT LEVELING
2006041	4	12	NUT HEX 1/2-13 SS
2006044	2	13	END CAP 45 X 45mm
2006063	4	14	T-NUT SLIDER 10mm M6
2006121	2	15	SCREW M6 X 12 BH
2006123	2	16	LEVER ADJUSTABLE,M6
2006124	4	17	SCREW M6 X 10 SET
2006125	2	18	SPACER 10MM D X 6MM LG
2006126	2	19	WASHER,FLAT,M6 X 18MM OD

Floor Stand Mounting Assembly One Arm 2001132 (Two Arm 2004921)
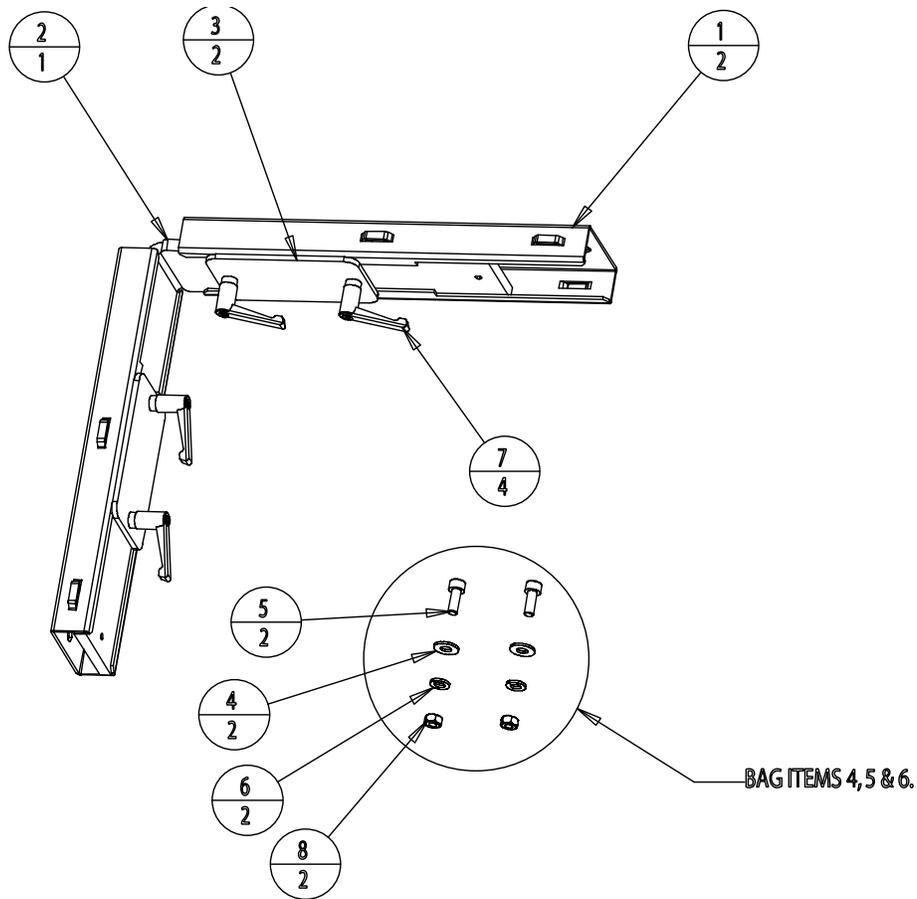
COMPONENT NO.	QTY	ITEM	DESCRIPTION
2003076	2	1	PZP U BRACKET
2003077	1	2	PZP L BRACKET
2003078	2	3	PZP CLAMP PLATE
2006017	2	4	WASHER 1/4" FLAT SST
2006035	2	5	SCREW M6 X 16MM SHC SS
2006060	2	6	WASHER-SPLIT 1/4 LOCK SS
2006100	4	7	LEVER ADJUSTABLE,10-32
2006106	2	8	NUT M6 18-8 SS

Conveyor Bracket Mounting Assembly 2002059

Ink Systems
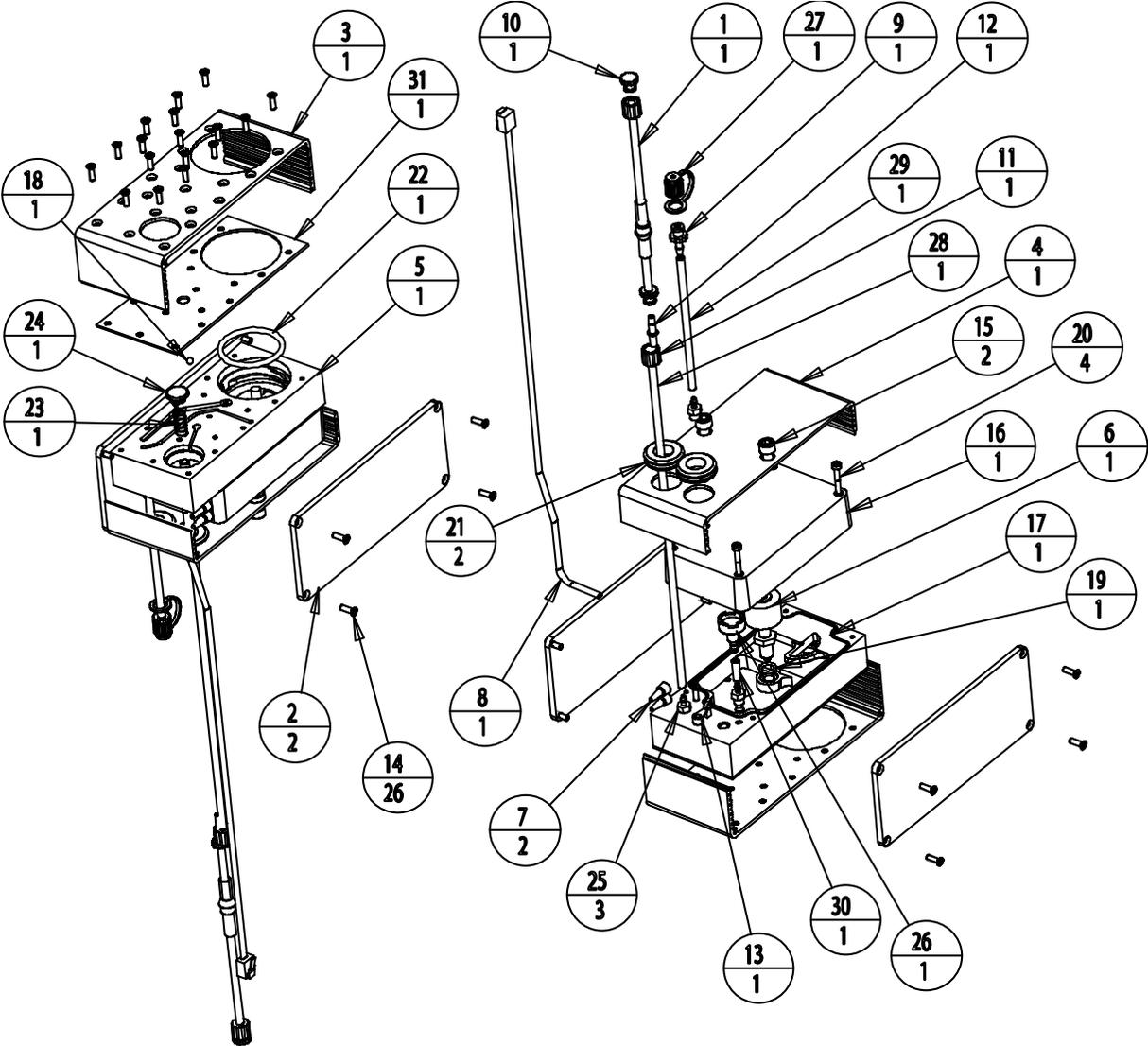
2001065 Cartridge Ink System Assembly, Porous

COMPONENT NO.	QTY	ITEM	DESCRIPTION
2002058	1	1	CHECK VALVE ASSY-PO
2003069	2	2	PZP LED END PLATE
2003072	1	3	PZP CONTROLLER COVER
2003073	1	4	PZP INK SYSTEM BASE
2003074	1	5	PZP TANK COVER
2004129_INKSYS	1	6	FLOAT SWITCH,NC
2004131	2	7	CRIMP WIRE SPLICE,22-14 GA
2004156	1	8	MOD-LOW INK CABLE, 6X4
2006022	1	9	FITTING-FEM LUER TO 1/8" BARB
2006025	1	10	FITTING FEM LUER CAP
2006026	1	11	LUER LOCK RING
2006027	1	12	FITTING MALE LUER
2006070	1	13	TIE WRAP 4" WITH #4 MT
2006082	26	14	SCRW-FH 6-32X1/4 SST PH (100)
2006083	2	15	SCREW M6 X 10MM SHC SS
2006084	1	16	PZP TANK
2006085_FORMED	1	17	TANK O-RING, 70 DUROMETER
2006087	1	18	TEFLON BALL 5/32"
2006089	1	19	SWITCH O-RING, 70 DUROMETER
2006091	4	20	SCREW M3x5 18-8 SHC SS
2006092	2	21	GROMMET RUBBER SBR 1/2 X 3/4
2006094	1	22	BOTTLE O-RING #221 40 DUR,EPDM
2006131	1	23	SPRING-COMP,3"ODx.69"Lx.022"
2006132	1	24	PLUG-FINISH,.625 HOLE,BLK
2006133	3	25	FTG-BARBED,1/4-28,1/8 ID TUBE
2006134	1	26	FILTER-TUBE,74 MICRON
2006136	1	27	CAP-LUER WITH TETHER
1701002	1	28	TUBING LDPE 1/8" ID 10"L
2007009_400	1	29	TUBING LDPE 1/8" ID 4"L
2007009_72	1	30	TUBING LDPE 1/8" ID .75"L
2007133	1	31	PZP COVER GASKET-EPDM
PURGE_BULB	1	32	COSMETIC (NOT USED)

2165

2001065 Cartridge Ink System Porous

2001066 Cartridge Ink System Non-Porous

COMPONENT NO.	QTY	ITEM	DESCRIPTION
2002058	1	1	CHECK VALVE ASSY-PO
2003069	2	2	PZP LED END PLATE
2003072	1	3	PZP CONTROLLER COVER
2003073	1	4	PZP INK SYSTEM BASE
2003074	1	5	PZP TANK COVER
2004129_INKSYS	1	6	FLOAT SWITCH,NC
2004131	2	7	CRIMP WIRE SPLICE,22-14 GA
2004156	1	8	MOD-LOW INK CABLE, 6X4
2006022	1	9	FITTING-FEM LUER TO 1/8" BARB
2006025	1	10	FITTING FEM LUER CAP
2006026	1	11	LUER LOCK RING
2006027	1	12	FITTING MALE LUER
2006070	1	13	TIE WRAP 4" WITH #4 MT
2006082	26	14	SCRW-FH 6-32X1/4 SST PH (100)
2006083	2	15	SCREW M6 X 10MM SHC SS
2006084	1	16	PZP TANK
2006085_FORMED	1	17	TANK O-RING, 70 DUROMETER
2006087	1	18	TEFLON BALL 5/32"
2006089	1	19	SWITCH O-RING, 70 DUROMETER
2006091	4	20	SCREW M3x5 18-8 SHC SS
2006092	2	21	GROMMET RUBBER SBR 1/2 X 3/4
2006094	1	22	BOTTLE O-RING #221 40 DUR,EPDM
2006131	1	23	SPRING-COMP,.3"ODx.69"Lx.022"
2006132	1	24	PLUG-FINISH,.625 HOLE,BLK
2006133	3	25	FTG-BARBED,1/4-28,1/8 ID TUBE
2006134	1	26	FILTER-TUBE,74 MICRON
2006136	1	27	CAP-LUER WITH TETHER
1701002	1	28	TUBING LDPE 1/8" ID 10"L
2007009_400	1	29	TUBING LDPE 1/8" ID 4"L
2007009_72	1	30	TUBING LDPE 1/8" ID .75"L
2007133	1	31	PZP COVER GASKET-EPDM
PURGE_BULB	1	32	COSMETIC (NOT USED) 2166

2001066 Cartridge Ink System Non-Porous
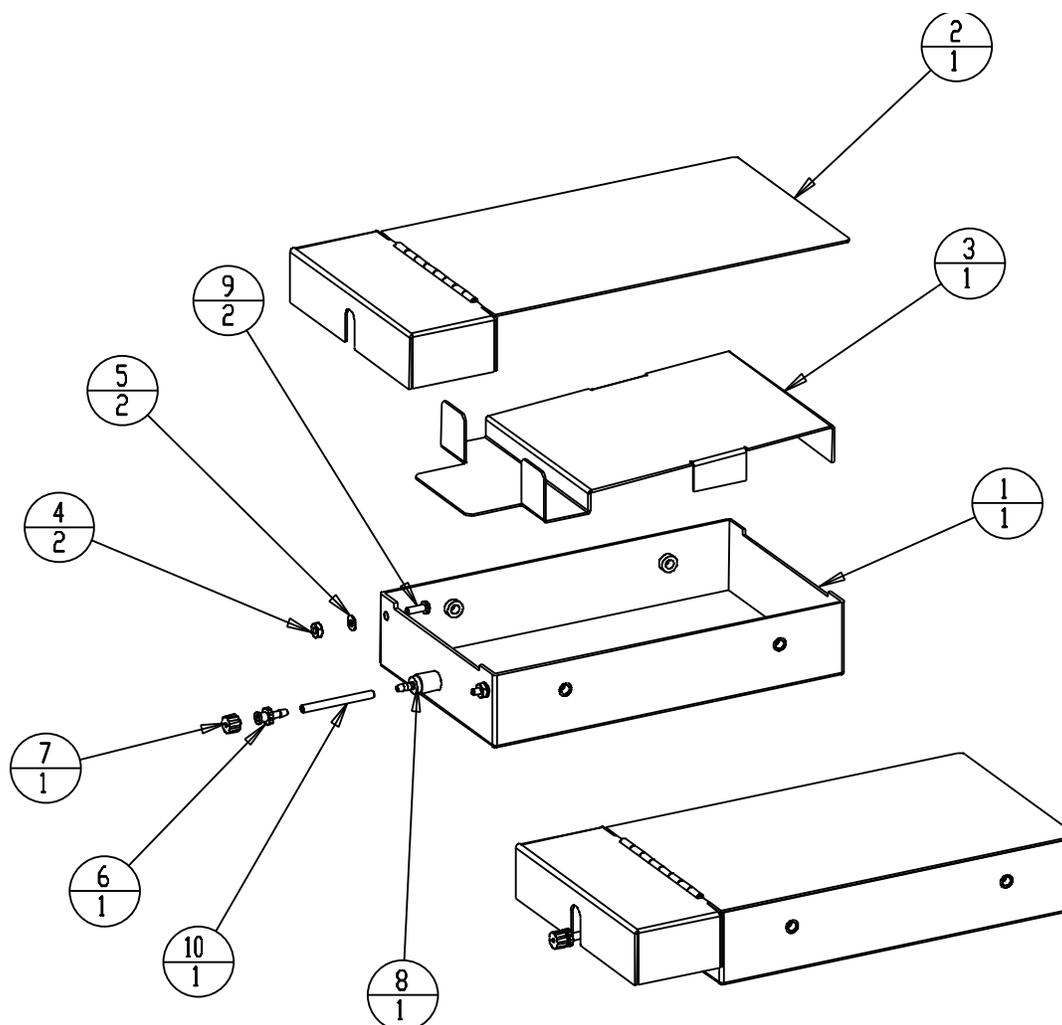
COMPONENT NO.	QTY	ITEM	DESCRIPTION
2003014	1	1	PAN INK SYSTEM
2003015	1	2	COVER INK SYSTEM
2003017	1	3	TRAY INK SYSTEM
2006007	2	4	NUT HEX 8-32 KEPS SS
2006020	2	5	WASHER-FLAT #8 SST
2006022	1	6	FITTING-FEM LUER TO 1/8" BARB
2006023	1	7	LUER LOCK RING
2006024	1	8	FITTING QCONN FEM BLK
2006056	2	9	SCRW-PH 8-32X5/16 SST PH
2007009_200	1	10	TUBING LDPE 1/8" ID 4"L

2001159 Bag Ink System Porous
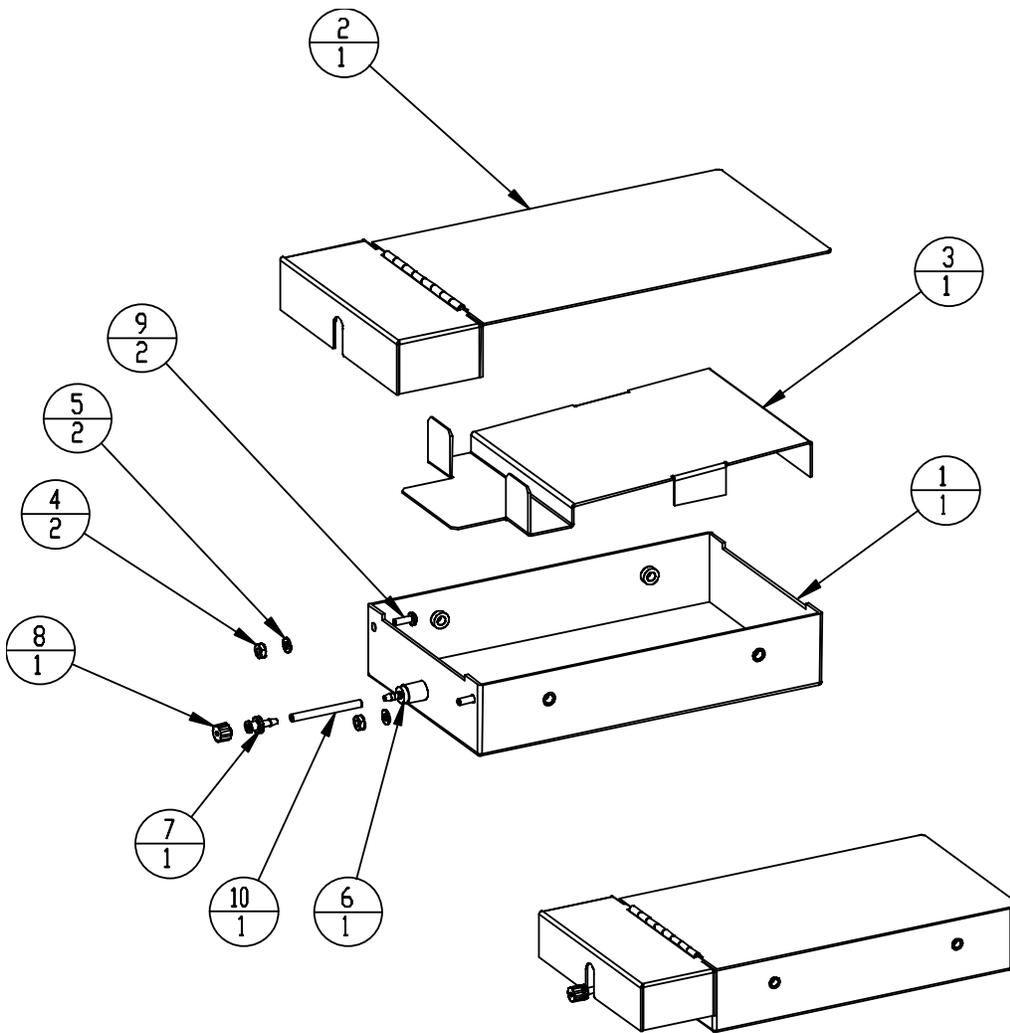
COMPONENT NO.	QTY	ITEM	DESCRIPTION
2003014	1	1	PAN INK SYSTEM
2003015	1	2	COVER INK SYSTEM
2003017	1	3	TRAY INK SYSTEM
2006007	2	4	NUT HEX 8-32 KEPS SS
2006020	2	5	WASHER-FLAT #8 SST
2006021	1	6	FITTING QCONN FEM W/E
2006022	1	7	FITTING-FEM LUER TO 1/8" BARB
2006023	1	8	LUER LOCK RING
2006056	2	9	SCRW-PH 8-32X5/16 SST PH
2007009_200	1	10	TUBING LDPE 1/8" ID 4'L

2001160 Bag Ink System Non-Porous

Printheads
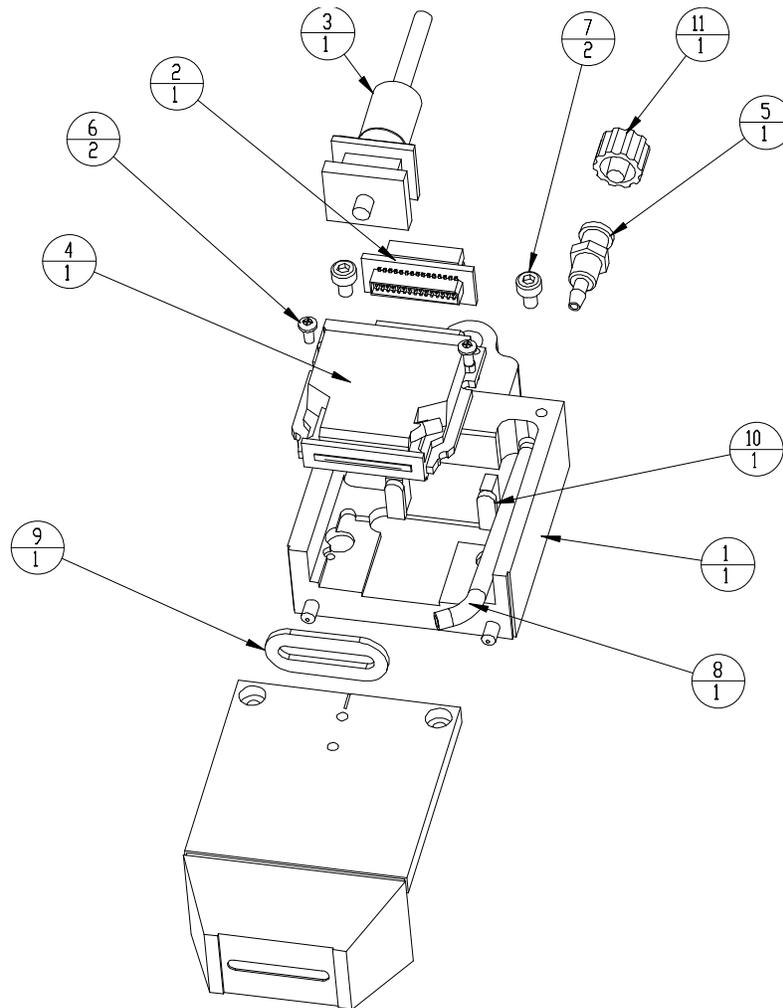
COMPONENT NO.	QTY	ITEM	DESCRIPTION
2003075	1	1	PZP PRINTHEAD FRAME
2004093	1	2	PCB ASSY PRINTHEAD I/F
2004171	1	3	CABLE-128 PRINTHEAD, 6 FT
2005000	1	4	PRINT ENGINE 128 CH 20
2006033	1	5	FITTING FEM LUER TO 3/16 B
2006052	2	6	SCREW-PHP 2-56X3/16 SST PH
2006098	2	7	M3 X 5 18-8 SS SH CAP SCREWS
2007011_PZP	1	8	TUBING LDPE 3/32" ID
2007052	1	9	GASKET,PZP PRINTHEAD
2007052_CENTER	1	10	GASKET CENTER-PZP PRINTHEAD
2006023	1	11	LUER LOCK RING

2001067 Printhead Assembly 128
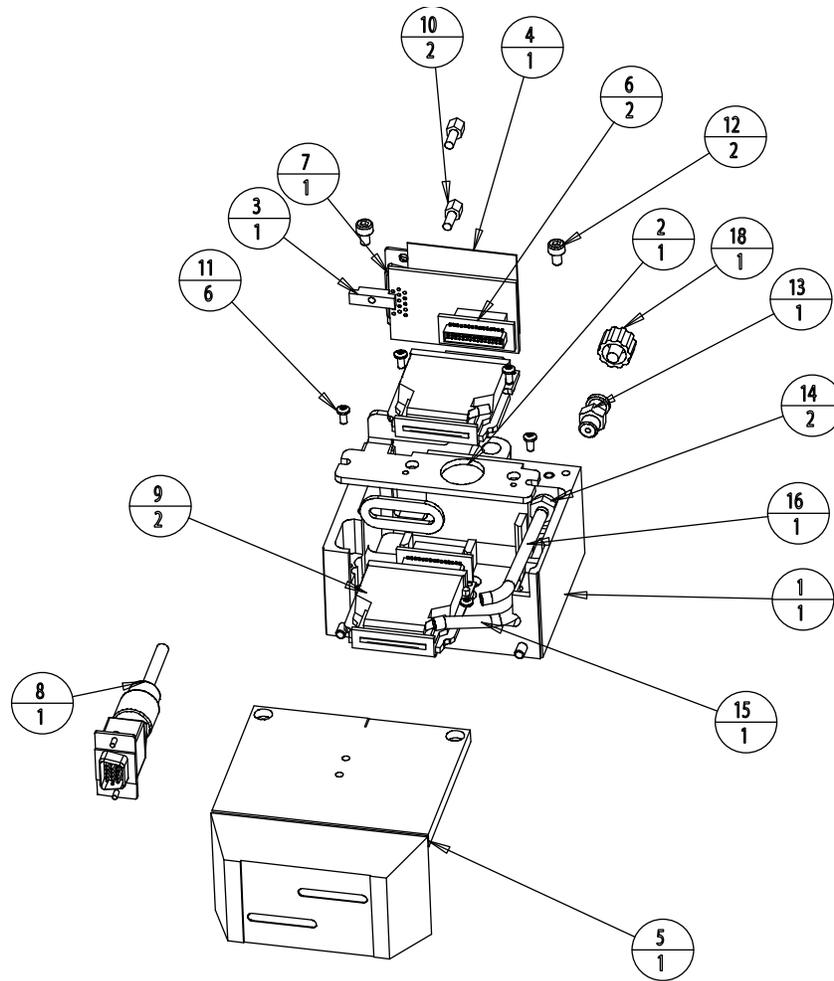
COMPONENT NO.	QTY	ITEM	DESCRIPTION
2003115	1	1	MACH-256 PRINTHEAD FRAME
2003116	1	2	FAB-BRKT,P/E MTG,256 FR
2003117	1	3	FAB-NUT PLATE,256 P/H
2003129	1	4	FAB-INSULATOR, 256 PRINTHEAD
2003158	1	5	MACH-COVER,256 PRINTHEAD FRAME
2004093	2	6	PCB ASSY PRINTHEAD I/F
2004157	1	7	PCB-CONNECTOR,256 P'HEAD
2003921	1	8	CABLE-256 PRINTHEAD, 3 FT
2005000	2	9	PRINT ENGINE 128 CH 20
2006001	2	10	STANDOFF 3/16" HET ST
2006052	6	11	SCRW-PH 2-56X3/16 SST PH
2006098	2	12	M3 X 5 18-8 SS SH CAP SCREWS
2006129	1	13	FTG-LUER,FEM,1/4-28
2006130	2	14	FTG-BARBED,3/32 TO 10-32
2007011_BOT	1	15	TUBING LDPE 3/32" ID
2007011_TOP	1	16	TUBING LDPE 3/32" ID
2007052	1	17	GASKET,PZP PRINTHEAD
2006023	1	18	LUER LOCK RING

2001135 Printhead Assembly 256

Component Dimensions

All dimensions are shown in inches.
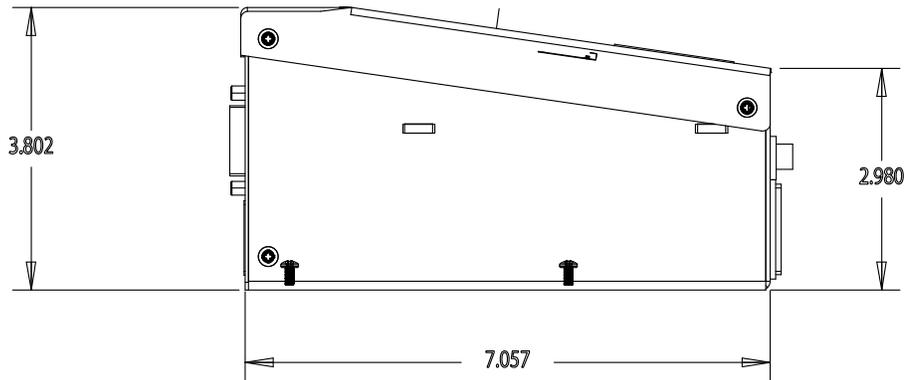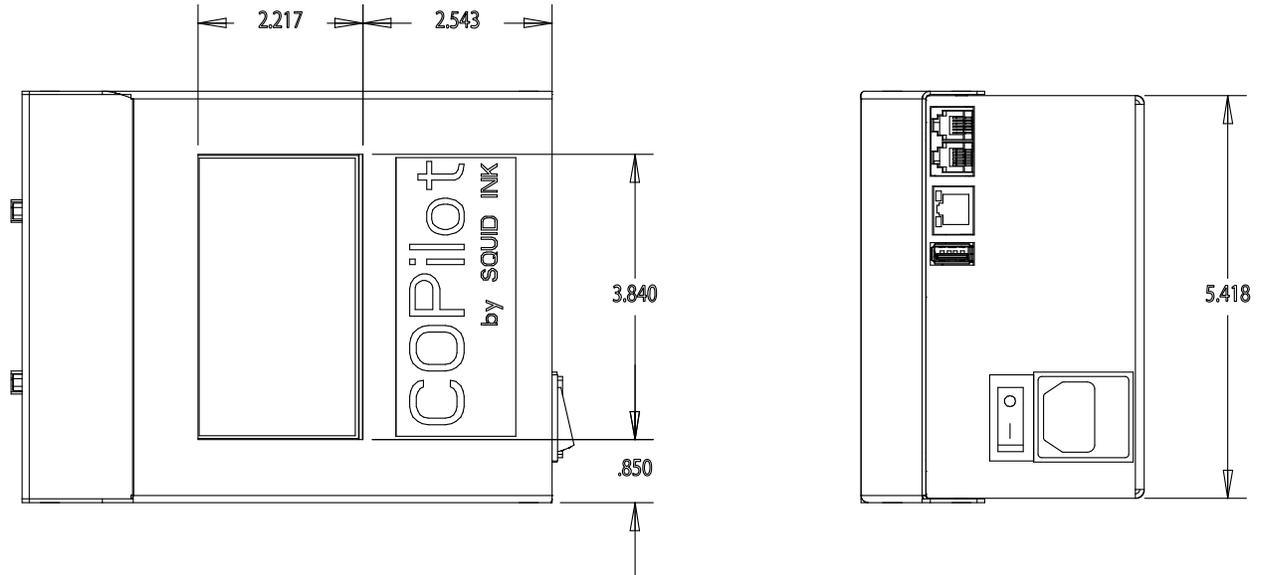
Controller

128P/256 PN 2003902

Controller, Exploded View

2003271 (4)

2003909

1603532

2006065 (4)

1603530

2001430 (4)

1603529

2003920

2003972

1603576

2003923

2003974

2003907

2003916 (4)

2003271 (2)

1912
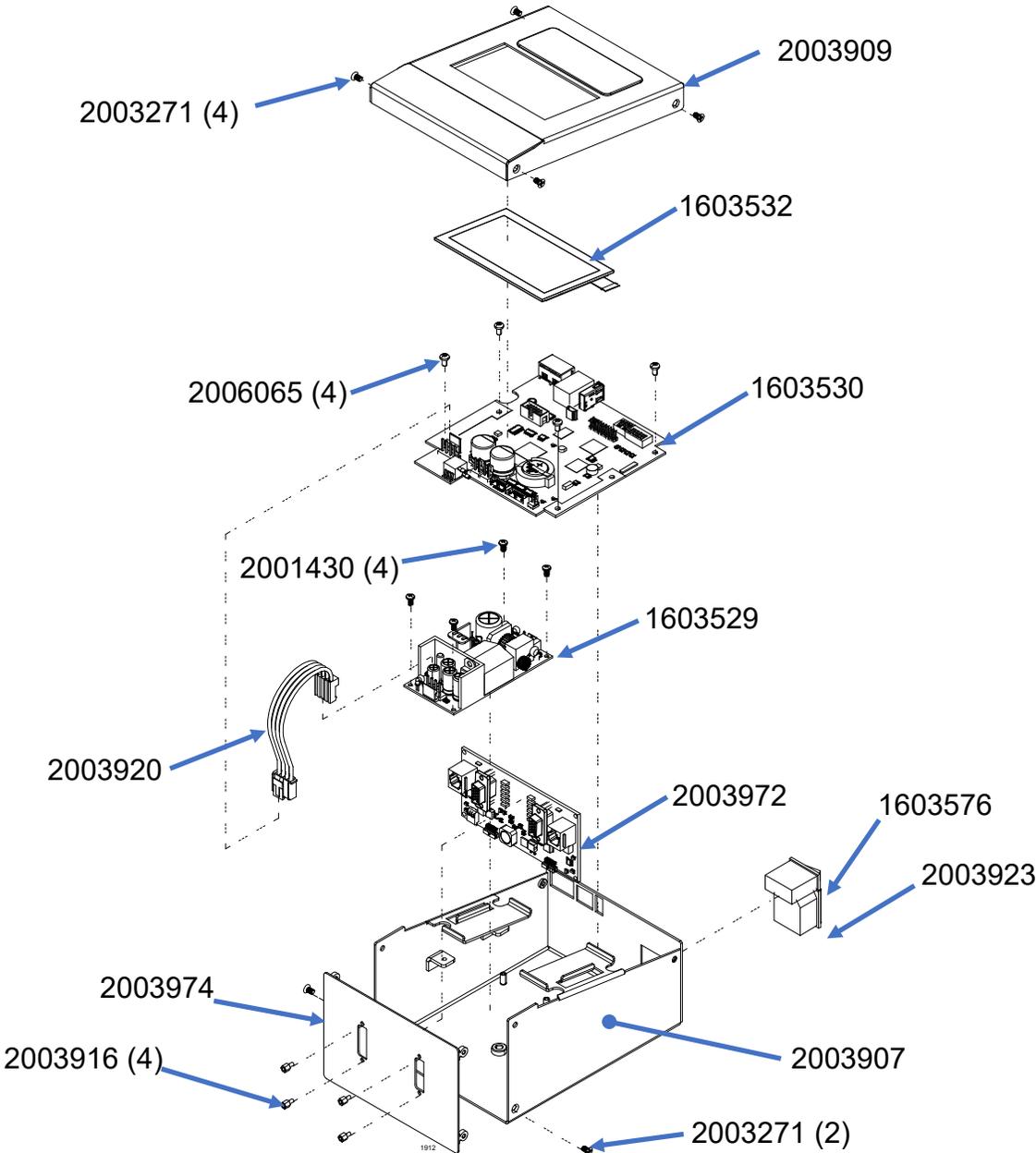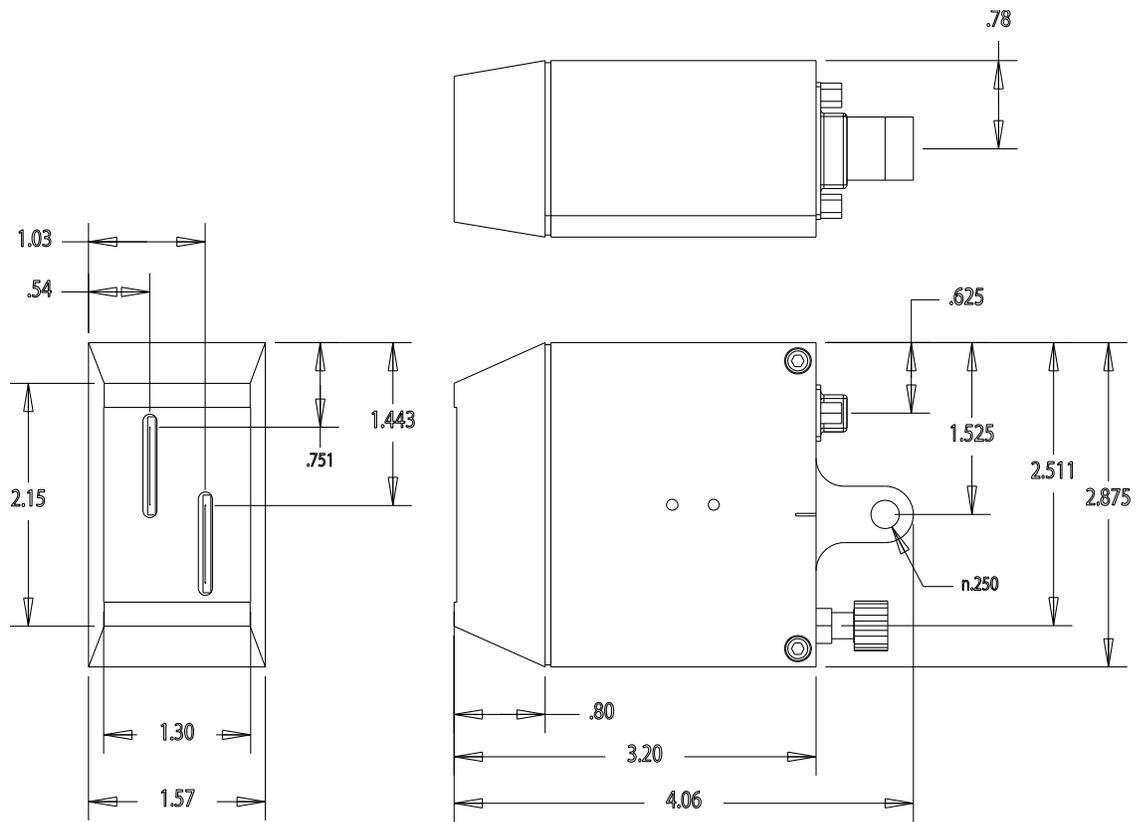
Dimensions are shown in inches.
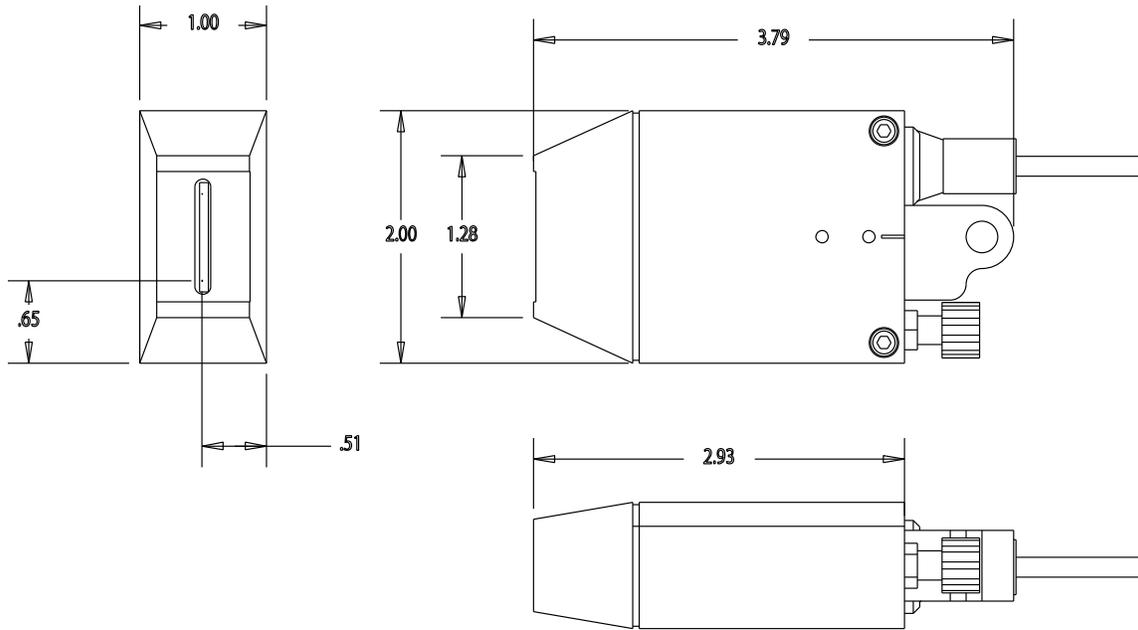
128 Printhead

256 Printhead

CoPilot 128/256 System Updates

Occasionally software and/or firmware updates will become available from Squid Ink Manufacturing. Software and Printer System Firmware can be updated from the desktop via Orion™. Periodically check to see if updates are available.

> **Attention!**   All updates are downloaded via the Orion™ Message Creation Software Package. For detailed instructions on receiving software and firmware updates for the CoPilot 128/256 Printing System please refer to the Orion™ User Guide.

Applying Updates from USB

Update Firmware/Software

To install software and/or firmware updates to the printer, install the USB containing the updates in the USB port and select the Update Firmware/Software button in the "USB Load" screen.

> **Note:**   USB format must be FAT32.

While the system is updating a progress screen will display.

>>>> Updating Software...

Updating Firmware...

Running Software Update
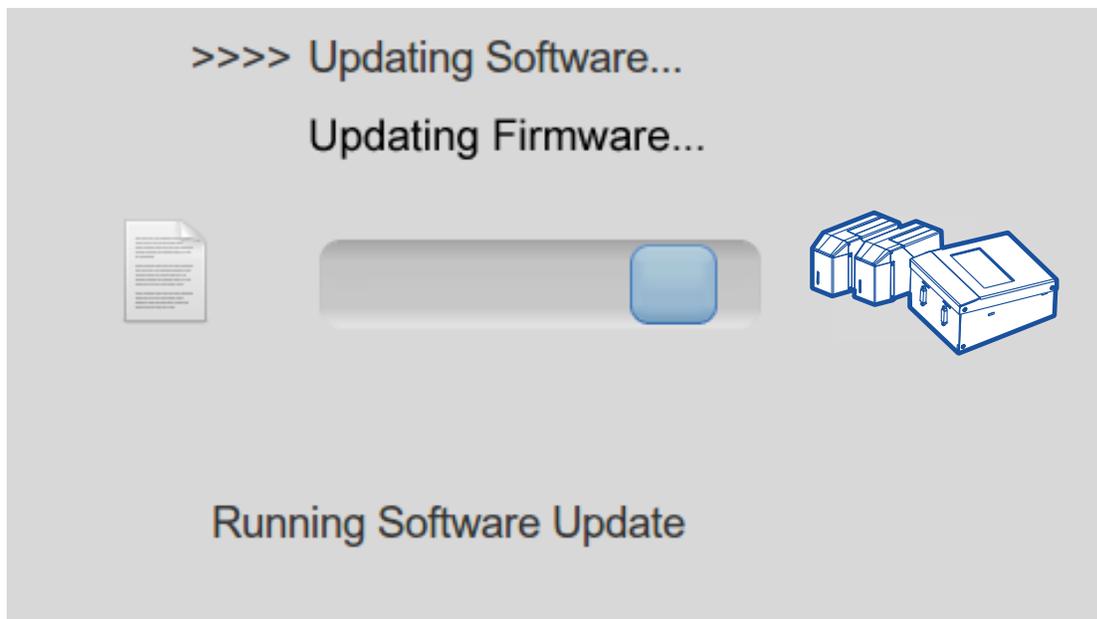
When the update is complete, an "Update Complete" screen will display with a green check next to the update indicating the update has been successful.
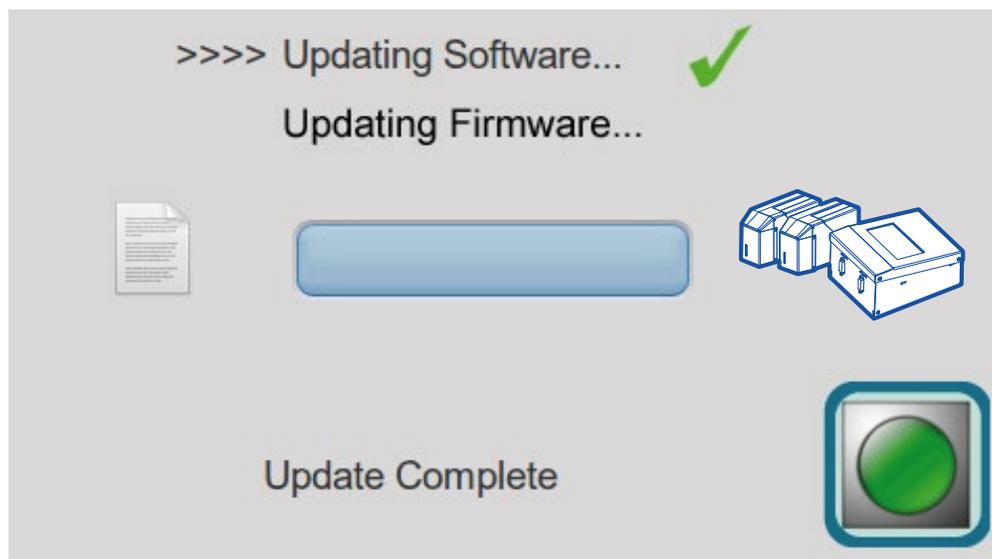
If there is a problem with the update the "ERROR Unable to complete update" screen will display with a read X mark next to the problem update.
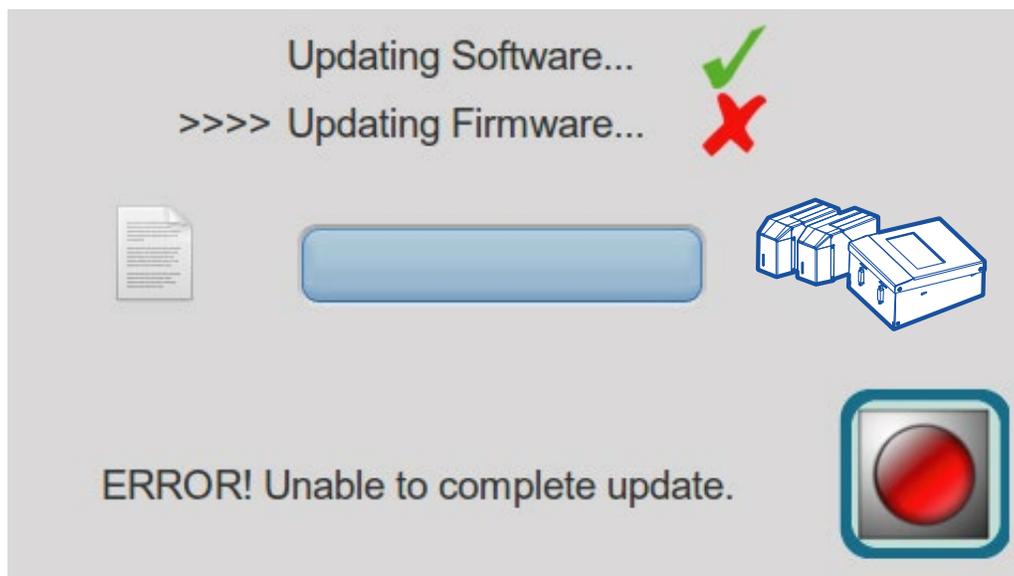
In the unlikely event there is a problem remove the USB device containing the update and power the printer off and on (reboot) and retry installing the update. If the problem persists, call Squid Ink Manufacturing Technical Support.

Piezo Printing System
Product Warranty

Warranty Statement
Squid Ink Manufacturing, Inc. warrants that all of the piezo printing systems it ships will be in good working order and free from defects in material and workmanship and will conform to the published specifications for that product.

Warranty Period
For hardware and software products, the warranty period is 12 months from the date of shipment from Squid Ink.

Printheads
Use of inks, flush fluids, and cleaning fluids that are not obtained from Squid Ink, or which do not meet Squid Ink's manufacturing specifications *and* have written approval of Squid Ink void the warranty on printheads. Use of a printhead wipe material not approved by Squid Ink voids the warranty on printheads. Printheads are specifically <u>not</u> warranted against clogged jets, crooked jets, or scratched orifice plates.

Piezo print engines sold separately as replacement engines and installed by Squid Ink are warranted for 90 days from the date of shipment from Squid Ink. Replacement print engines sold separately and installed by the customer are not warranted.

Repairs
All repairs are rigorously tested for optimum operation and print performance and warranted to be, under normal and proper use, free from defects in material and workmanship for a period of 90 days from the date of service.

Print Quality
Print quality achieved in a given application is dependent on the installation, the material handling, and the maintenance provided. Squid Ink makes no warranty that the print quality achieved in an application will be the same as that achieved during a printer demonstration or on a test piece in our print laboratory.

Shipping Policy
Customer pays all incoming shipping charges. If the item is defective and under warranty, Squid Ink will pay all return shipping charges via the least costly method. If expedited shipping is desired, the customer must furnish their shipping account number and shipping fees will be charged to that account.

Exclusions
Damage due to tampering, abuse, improper adjustment, electrical interference, hot-plugging printheads, or the use of non-approved components will void any and all warranties by Squid Ink and its distributors. Use of inks, flush fluids, and cleaning fluids that are not obtained from Squid Ink, or which do not meet Squid Ink's manufacturing

specifications *and* have written approval of Squid Ink void the warranty on printheads. Use of a printhead wipe material not approved by Squid Ink voids the warranty on printheads. Printheads are specifically <u>not</u> warranted against clogged jets, crooked jets, or scratched orifice plates.

Warranty Procedures

If you believe that a product may be defective and may be covered by warranty, please call Squid Ink Technical Service at 1-800-877-5658. If defective, you will receive a Return Material Authorization number and may return the defective item to Squid Ink. Squid Ink will analyze the product and, if indeed found to be defective, we will, at our option, replace or repair the item. If the item is found not to be eligible for warranty, you will be notified and may decide on disposition. Defective products will be replaced or repaired as promptly as possible.

Warranty within 60 days of invoice

For warranty questions that take place within 60 days of the original invoice, Squid Ink will allow cross-shipment of a replacement component to an end-user customer or Squid Ink distributor. The customer will be invoiced for the replacement component. Upon receipt of the returned component, Squid Ink will evaluate it and issue credit where necessary.

For components that have been misused or externally damaged, Squid Ink will not issue credit, and will contact the customer to determine whether or not they want the component repaired and/or returned.

Warranty 60 days to 1 year from invoice

For warranty questions that take place more than 60 days from the original invoice, Squid Ink requires the end-user or Squid Ink distributor to return the component to Squid Ink for repair. Upon receipt of the returned component, Squid Ink will evaluate it and repair as necessary.

Components that fall within our warranty policy will be repaired normally within 5 business days of receipt and returned to the customer via standard ground shipping at Squid Ink's expense. If expedited shipping is required, the customer must furnish their shipping account number and shipping fees will be charged to that account.

For components that have been misused or externally damaged, Squid Ink will contact the customer to determine whether or not they want the component repaired and/or returned.

Warranty Eligibility

The warranty provided by Squid Ink Manufacturing, Inc. is only to the original buyer.

Limited Warranty

THE ABOVE WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESSED OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT.

Disclaimer of Damages
REGARDLESS OF WHETHER ANY REMEDY SET FORTH HEREIN FAILS OF ITS
ESSENTIAL PURPOSE, IN NO EVENT WILL SQUID INK MANUFACTURING, INC. BE
LIABLE FOR ANY SPECIAL, CONSEQUENTIAL, INDIRECT OR SIMILAR DAMAGES,
INCLUDING LOST PROFIT OR LOST OPPORTUNITIES OF ANY TYPE ARISING
OUT OF THE USE OR INABILITY TO USE THESE PRODUCTS EVEN IF SQUID INK
MANUFACTURING, INC. HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH
DAMAGES.

Customer Support

Squid Ink Technical Service
For help installing or operating the CoPilot ink jet printing system, please contact your authorized Squid Ink reseller or Squid Ink Technical Service at one of the numbers listed below.

Toll-Free   800-253-2627
Phone Phone   (55) 5426-4137

E-mail   info@alfamaq.mx
Web   www.alfamaq.mx

Thanks again for your purchase of Squid Ink products. We are pleased to be a part of your marking and coding needs.

SQUID INK

MANUFACTURING