

AnaJet SP-200

SPRINT

Digital Apparel Printer

Service Manual

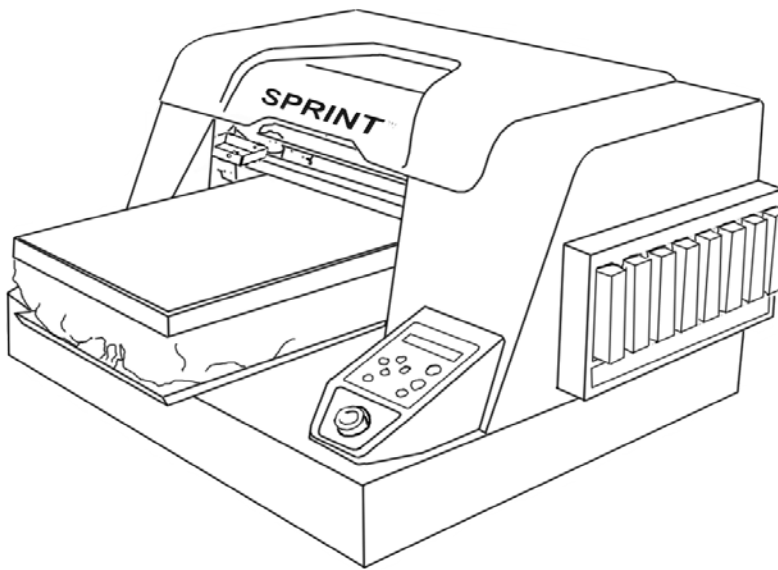
Version [1.02.0](#)

AnaJet Inc.

AnaJet SP-200

SPRINT

Digital Apparel Printer



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Ver ~~12~~.0

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AnaJet Inc.

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REVISION HISTORY:

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TABLE OF CONTENTS

1	INTRODUCTION	1
2	ADJUSTMENTS.....	1
2.1	LCD Character Contrast & Backlight Brightness.....	1
2.2	Table Position Sensor Tab.....	2
2.3	Encoder Sensor Adjustment	5
2.4	Obstruction Sensor	7
2.5	Lubrication	8
2.5.1	Linear Guide Rails	8
2.5.2	Ball Bearing Guide Rails	Error! Bookmark not defined.
2.5.3	Carriage Shaft.....	10
2.5.4	Other Lubrication Points.....	10
3	PARTS REPLACEMENT	11
3.1	Tools	11
3.2	Disassembly & Assembly.....	11
3.2.1	Dampers and Tubes.....	11
3.2.1.1	Damper Disassembly	12
3.2.1.2	Damper Replacement	16
3.2.1.3	Ink Tube Disassembly.....	16
3.2.1.4	Ink Tube Replacement	19
3.2.2	Ink Chip Holder	19
3.2.3	Wiper Blade	20
3.2.4	Print Head	21
3.2.4.1	Removal	21
3.2.4.2	Reassembly	24
3.2.5	Control Panel.....	26
3.2.6	LCD.....	27
3.2.7	Ink Bay Bezel.....	27
3.2.8	Ink LED Panel.....	28
3.2.9	Ink PCBA.....	29
3.2.10	Ink Delivery System.....	29
3.2.11	Control PCBA	31
3.2.12	Print Engine PCBA	34
3.2.13	Main Power Supply.....	35
3.2.14	Encoder Sensor PCBA	36
3.2.15	Power Panel.....	37
3.2.16	Fuse Replacement & Voltage Reconfiguration.....	38
3.2.17	24 VDC Power Supply.....	39

3.2.18	Table Drive Belt Subassembly.....	39
3.2.19	Motor Belt.....	41
3.2.20	Clutch & Encoder Assembly.....	41
3.2.21	Maintenance Station.....	42
4	APPENDIX I - REPLACEMENT PARTS.....	45
5	APPENDIX II – CIRCUIT DIAGRAMS.....	47
5.1	Connector Diagram.....	47
5.2	Wiring Diagram	50
5.3	Power Panel Wiring Diagram.....	51
5.3.1	115 VAC	51
5.3.2	220/240 VAC	52
5.4	Schematics.....	53
5.4.1	Control PCBA.....	53
5.4.2	Ink PCBA.....	58

1 Introduction

This manual is to be used in conjunction with AnaJet SP-200 Sprint Printer User Manual. All operational instructions, normal printer maintenance and troubleshooting guides can be found in the User Manual. This Service Manual is intended to aid AnaJet distributor's technical and service personnel in providing maintenance and basic repair service to their customers. The services provided by distributor's service personnel are intended to be limited to the diagnosis, often with the help of AnaJet's Technical Support personnel, simple adjustments, and replacement of certain components available from AnaJet. They are not expected to repair components and printed circuit boards. Accordingly this Service Manual is limited to meet the objectives indicated above.

The majority of hardware used in the AnaJet SP-200 Sprint Printer is English inch series. There are however a few metric sized fasteners and care must be exercised when reassembling hardware to insure the correct sizes are installed.

2 Adjustments

2.1 LCD Character Contrast & Backlight Brightness

The contrast in the Control Panel LCD display and the backlight brightness can be adjusted. Open the printer cover. To adjust the LCD character contrast use a nonconductive small flat bladed screwdriver inserted thru the Front Access Hole in the electronics enclosure cover and into the trimpot located on the Controller PCBA. Clockwise rotation will increase the contrast. As you adjust the trimpot, watch the LCD display to make sure you get the desired level of contrast. See Photo 2.1-1



Photo 2.1-1

To adjust the backlight brightness, use a nonconductive flat bladed screwdriver inserted thru the Rear Access Hole in the electronics enclosure cover and into the trimpot located on the controller PCBA. Clockwise rotation will increase the brightness.

2.2 Table Position Sensor Tab

If the printing start position varies or there is mis-registration when printing on black fabric the Table Position Sensor Tab may be out of adjustment. To adjust the Table Position Sensor Tab, do the following:

- ~~1. Remove the Print Table Assembly by loosening the knob under the table.~~
- ~~2. Remove the Tray by removing the four 10-32 screws holding it.~~
- ~~3.1. Remove the Rear Enclosure by removing the six-seven 6-32 screws on the back panel and the four 6-32 screws on the bottom, if present. Slide the Rear Enclosure off. See Photo 2.2-1-~~& 2.~~~~



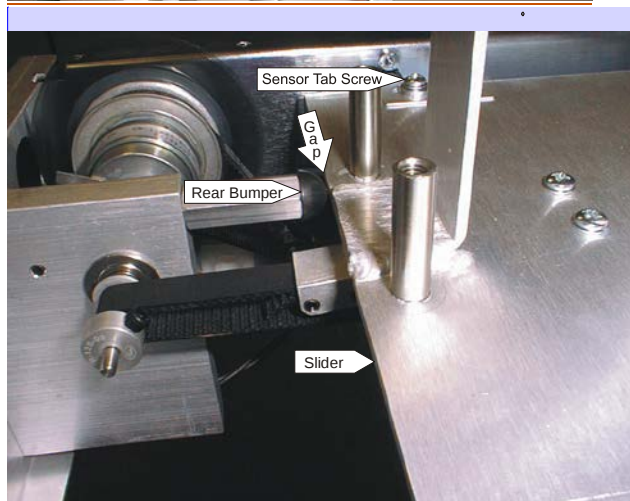
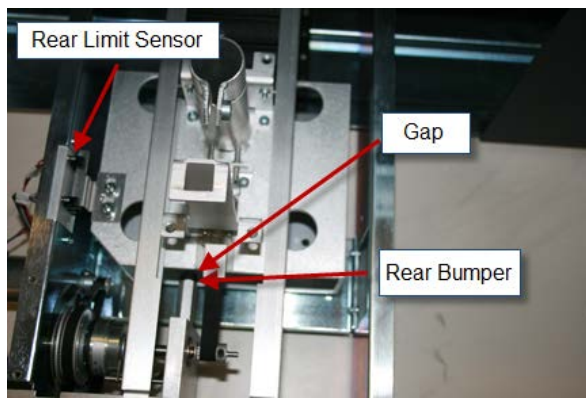
Photos 2.2-1-~~& 2~~

4.2. Turn on the printer main power switch on the rear of the unit.

5.3. Press the TABLE key on the Control Panel. This drives the Table assembly that is supported by the Slider to the rear stop position.

6.4. Observe the location of the Slider relative to the Rear Bumper. The Slider should just touch the Bumper. If there is a gap or the slider is pressed hard against the Rear Bumper, ~~loosen the two 6-32 screws holding the Sensor Tab and adjust it until the Slider just touches the Rear Bumper. Take care to line up the sensor tab so that it interrupts the position sensors but does not rub against the chassis. Loosen the screws holding the sensor plate and adjust until the Slider just touches the Rear Bumper~~ Press the TABLE key to drive the Slider forward and back a number of times to insure that the Slider just touches the Bumper when it stops. See Photo 2.2-3

Comment [MSOffice1]: Need another picture of the sensor plate



Comment [MSOffice2]: This picture does not show the rails for the folded belt cover which partially block the view

Photo 2.2-3

7.5. Reassemble the Tray and Table by reversing the above steps.

2.3 Encoder Sensor Adjustment

If printing becomes erratic or an error condition occurs check the Encoder Sensor adjustment by doing the following:

CAUTION

The Encoder Sensor is very static sensitive, use antistatic protective equipment.

1. Remove the Rear Enclosure cover by removing the seven 6-32 screws on the flanges and four 6-32 screws on the bottom panel, see 2.2. Slide the Rear Enclosure off.
2. Unplug the 5 circuit Encoder Flat Flex Cable (FFC) from the Sensor and plug it into the Adapter Assembly with the contacts aligned with the short 5 circuit FFC. See Photo 2.3-1
3. Attach Oscilloscope Probes to pins 2 and 4 on the Adapter Assembly connectors.
4. Set the oscilloscope to 1 volt vertical on both channels and 500 μ s horizontal, trigger on channel 1 rising, trigger level about 0.5v, continuous acquisition, see figure 2.3-1.
5. Turn on the unit and press the TABLE key. Continue pressing TABLE to observe the waveforms.
6. Turn the oscilloscope run mode on and observe the waveforms. The ideal waveforms are shown in figure 2.3-1. The pattern should be uniform and free of missing pulses or ragged pulses.

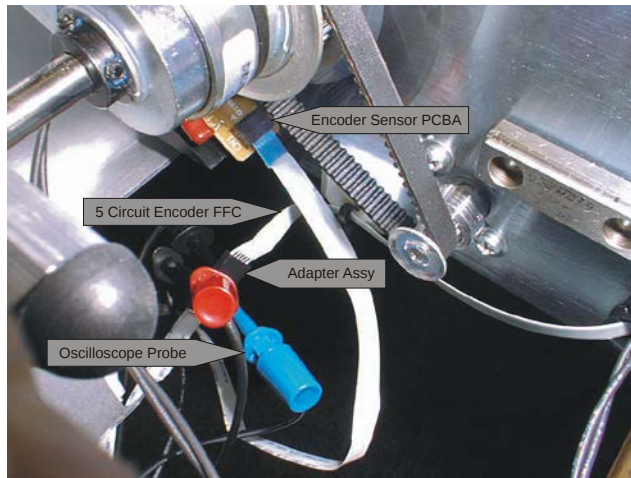


Photo 2.3-1

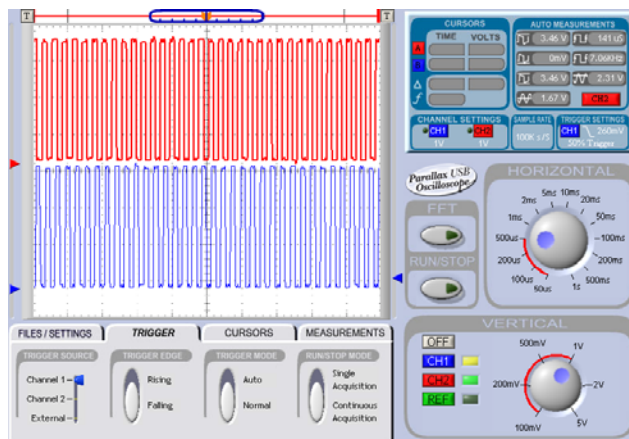


Figure 2.3-1

7. Change the horizontal time to 100us. The ideal waveforms are shown in figure 2.3-2. The pattern should be evenly split between high and low states. The two channels should be shifted $\frac{1}{4}$ cycle.

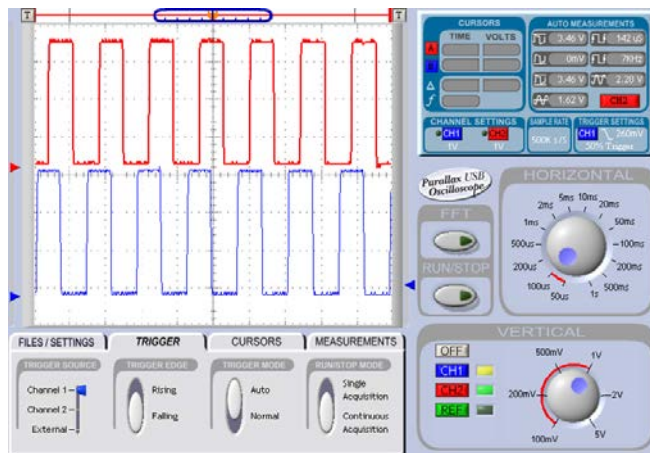


Figure 2.3-2

8. If the patterns are not as shown above, loosen the two 6-32 screws holding the Sensor Mount and adjust the Sensor until the ideal waveforms are attained. Observe the Encoder Disk through the hole in the Chassis Rear Bracket to insure that the Encoder Disk does not rub against the three Sensor Mount Guide Pins.
9. When the proper waveforms are attained, tighten the two mounting screws and reassemble by reversing the above steps.

2.4 Obstruction Sensor

If the Obstruction Sensor becomes misaligned, adjustment is required. To align the Obstruction Sensor do the following:

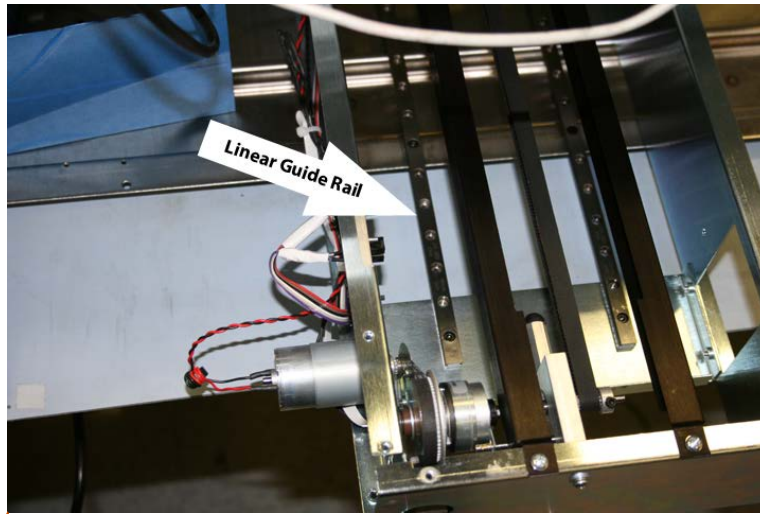
1. Remove the cover from the electronics box, see 3.2.10.
2. Turn on the main power switch on the rear of the printer.
3. Check table adjustments and leave table height at the adjustment height. See User Manual Chapter 4 Sections 6 and 7)
4. Turn on the laser adjustment mode.
5. Place the gage block on the table at the left edge of the table with the alignment line parallel to & closest to the table.
6. Check the laser vertical alignment with the alignment line. If it is not aligned, adjust the laser mounting block to align it.

7. Move the gage block to the right side of the table.
8. Check the laser angular alignment with the alignment line.
9. Recheck the alignment at the left side.
10. Move the gage block out of the laser beam.
11. Measure the voltage on J 2 pin 14 on the Control PCBA. If the Obstruction Sensor is properly aligned the voltage will be 0 to 0.5 VDC.
12. If is not, adjust the sensor block vertically until the voltage is correct.
13. If the laser beam is not aligned horizontally, adjust the 2 set screws in the laser mounting block to align the laser dot in the horizontal plane with the center of the sensor opening. This may require loosening the laser mounting block screws slightly to allow movement.
14. Place the gage block to interrupt the laser beam. The voltage should change to 3.0 to 3.3 VDC. If it does not change, check the connections to the sensor and the J2 connector pins.

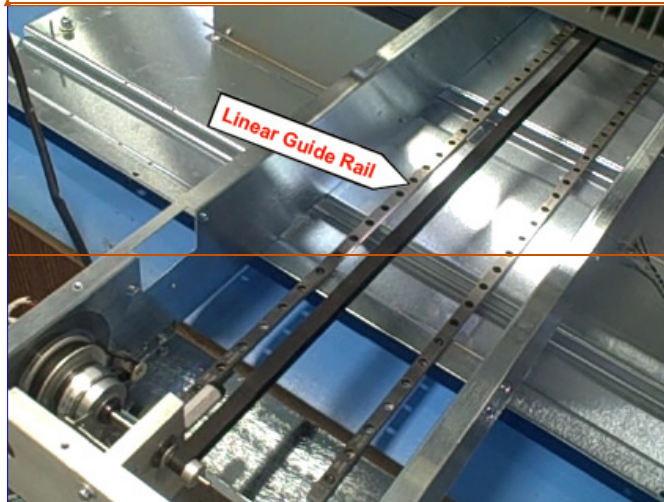
2.5 Lubrication

2.5.1 Linear Guide Rails

1. Lubrication of the Linear Guide Rails is needed for every 100 Kilometers (62 miles) of travel. This is equivalent to about 50,000 print cycles.
2. If the unit experiences this number of print cycles or has been operating in a severe environment, the Linear Guide Rails may be lubricated with [light machine oil such as 3-in-1-synthetic oil](#) applied to the Rail top and bottom surfaces. See Photo 2.5.1-1



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Photo 2.5.1-1

2.5.2 Carriage Shaft

1. Normally the Carriage Shaft does not need lubrication. However if the unit has been operation in a severe environment the Carriage Shaft may need lubrication.
2. To lubricate, move the Carriage to the center of the Carriage Shaft, see User Manual for procedure to release the Carriage. User Manual, Chapter 7, Section 4 Page 50)
3. Apply a very small amount of synthetic grease to the Carriage shaft on both sides of the Carriage. See Photo 2.5.3-1

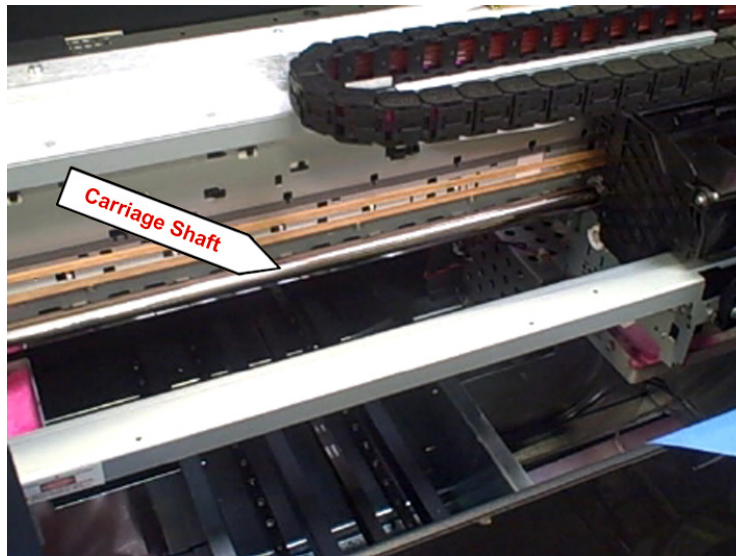


Photo 2.5.3-1

4. Move the Carriage back and forth a few times to distribute the grease evenly along the shaft.
5. Turn on the unit to return the Carriage to the parked position.

2.5.3 Other Lubrication Points

1. No other routine lubrication is required.
2. Some parts require lubrication when being replaced, see individual replacement procedures for details.

3 Parts Replacement

- ◆ Always disconnect the power cable before starting any parts replacement.
- ◆ Use antistatic protective equipment such as wrist straps when handling electronic assemblies.
- ◆ Read the MSDS sheet before handling inks and cleaning solution.
- ◆ Avoid skin contact with cleaning solution and inks.
- ◆ Wear protective goggles to protect eyes from ink and cleaning solution.



3.1 Tools

The following tools are recommended:

1. Phillips screwdrivers, # 1 and # 2.
2. Flat screwdriver, ¼ max (6.35 mm) inch blade, 8 inch (20 cm) long.
3. Flat screwdriver, 1/16 inch (or 2 mm) blade.
4. Nonconductive small flat bladed alignment tool (small plastic screwdriver).
5. Hex wrench set, inch sizes.
6. Antistatic wrist strap.
7. Torpedo level, 9 in (22 cm).
8. External retaining ring pliers, 90° 0.038 dia. tip.

The following tools are optional:

1. Torque gauge, 0 to 20 N cm (0 to 30 in ozf) minimum.
2. Tension meter, Gates model 507 or equivalent.
3. 2 channel oscilloscope, Parallax USB Oscilloscope 28014 or equivalent.

3.2 Disassembly & Assembly

3.2.1 Dampers and Tubes

To minimize pressure surges in the Printhead when the Carriage moves from side to side a device called a Damper is utilized. The Damper also filters the ink before it enters the

Printhead. If there are persistent problems with ink flow the Dampers and Tubes should be inspected and replaced as required. There are eight Dampers and Tubes in the printer, one for each ink channel. See Photo 3.2.1-1

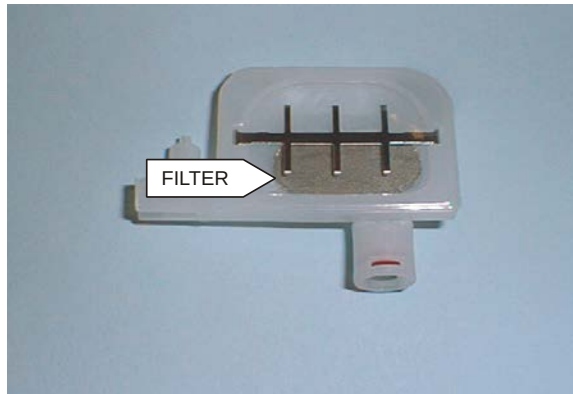


Photo 3.2.1-1

3.2.1.1 Damper Disassembly

1. Remove two 'E' rings from the Damper Retainer Shaft. See Photo 3.2.1.1-1

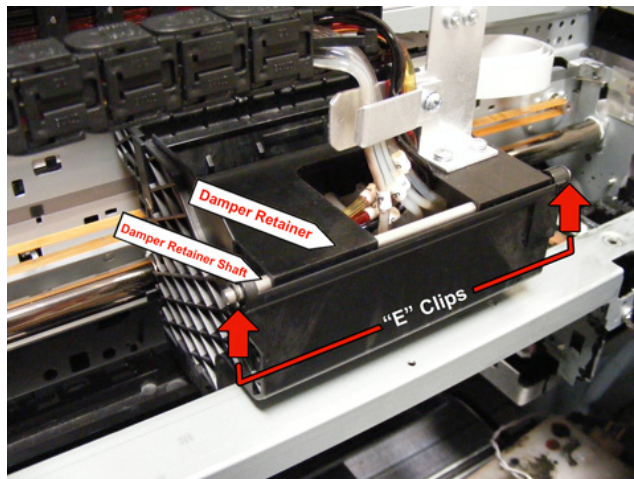


Photo 3.2.1.1-1

2. Slide the Damper Retainer Shaft to the left and out of the Print Head Carriage.
3. ~~If the Printer is equipped with Ink Tubes as shown in Photo 3.2.1.1-1, loosen the ink tube Retaining Clamp Screw on the Damper Retainer and slide the ink tubes out. If the Printer is equipped with Ink Tubes as shown in Photo 3.2.1.1-1.5, remove the two 6-32 Damper Retaining Bracket mounting screws.~~

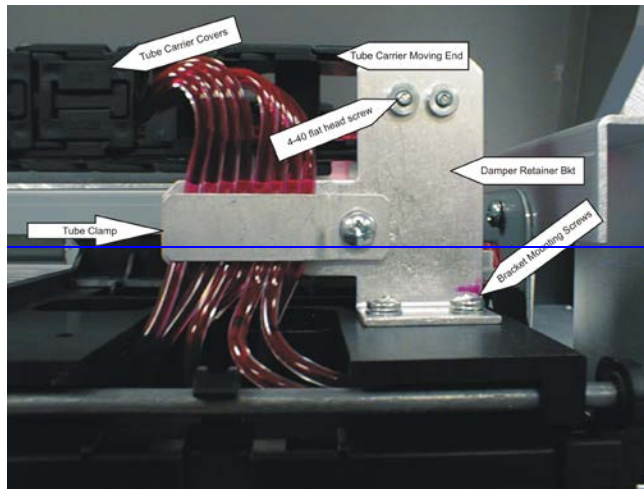
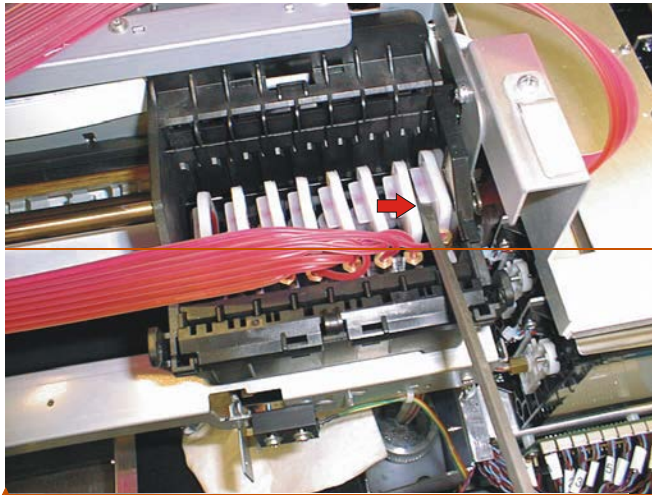


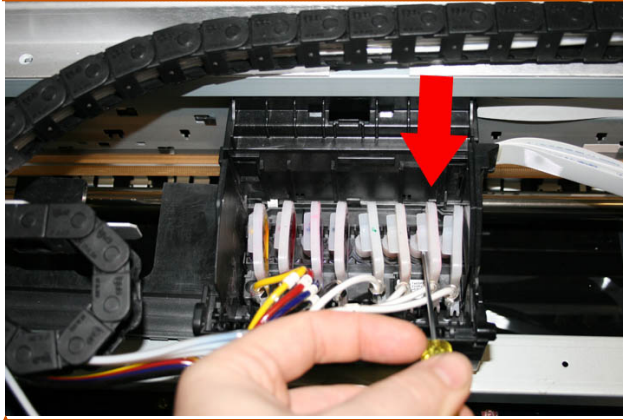
Photo 3.2.1.1-1.5

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4. Remove the Damper Retainer.
5. Lift the Dampers to be replaced one at a time straight up out of the Print Head Carriage using a flat blade screwdriver under the tab above the Print Head Nozzle on the left side of the Damper. See Photo 3.2.1.1-2.



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Photo 3.2.1.1-2

6. Do not press on the diaphragm on the right side of the Damper. Inspect the Damper for dried ink on the o-ring at the bottom that provides a seal on the Print Head Nozzle. See Photo 3.2.1.1-3.

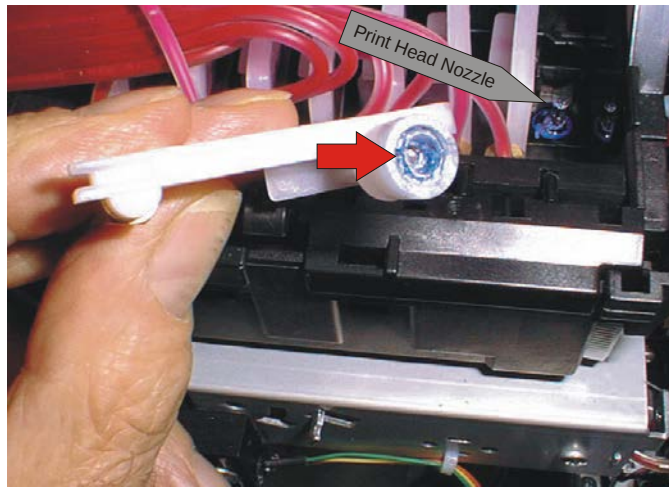


Photo 3.2.1.1-3

7. Also inspect the Damper for evidence of caked pigment in the area behind the Damper Diaphragm.
8. Further inspect the filter for clogging. See Photo 3.2.1.1-4

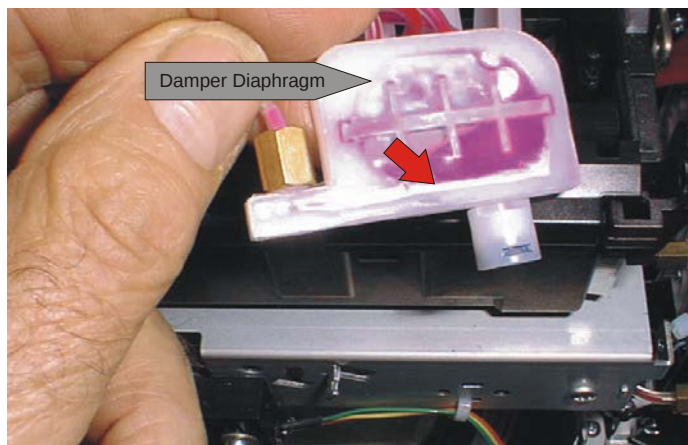


Photo 3.2.1.1-4

9. Replace the Damper if any of these condition exists.

3.2.1.2 Damper Replacement

CAUTION

The O-rings should never be fitted on the ink supply tubes with bare hands. Doing so may cause the O-rings to deteriorate, which will result in ink leaking and air bubbles getting mixed into the ink. Wear latex or nitrile gloves while handling the O-rings.

1. To replace the Damper carefully loosen the hex fitting connecting the damper to the feed tube.
2. Slide the hex fitting and the o-ring seal back on the feed tube and remove the tube from the damper.
3. Inspect the o-ring for damage, replace if damaged. To replace the O-ring, moisten it with cleaning solution and press the end of the tube through the O-ring. Slide the O-ring back about ½ inch onto the tube.
4. To install the new damper first moisten the end of the tube and the o-ring with cleaning solution. Insert the tube into the damper inlet insuring that the tube is pushed fully into the inlet. Slide the o-ring down against the top of the inlet. Moisten the o-ring again with cleaning solution and tighten the nut to 9 to 11 N cm (13 to 16 in ozf).
5. Moisten the Damper outlet o-ring with cleaning solution. Reinstall the Damper on the Print Head Nozzle, being careful to center the outlet on the Nozzle. Press the Damper down until it is seated against the Print Head Nozzle base.
6. Reinstall the Damper Retainer, the Shaft and retaining rings.

3.2.1.3

3.2.1.4 Ink Tube Disassembly

1. Remove the Dampers from the Printhead Carriage. See 3.2.1.
2. Remove the two 4-40 flat head screws from the fixed end of the Tube Carrier, see Photo 3.2.1.3-1.5. Next remove the Tube Carrier snap on Covers, see Photo 3.2.1.1-1.5b.

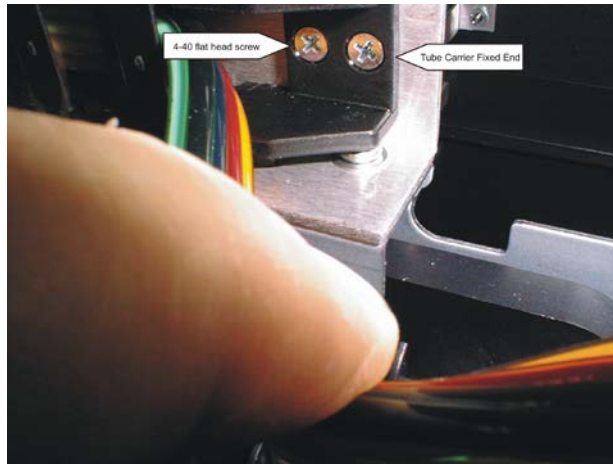


Photo 3.2.1.3-1.5

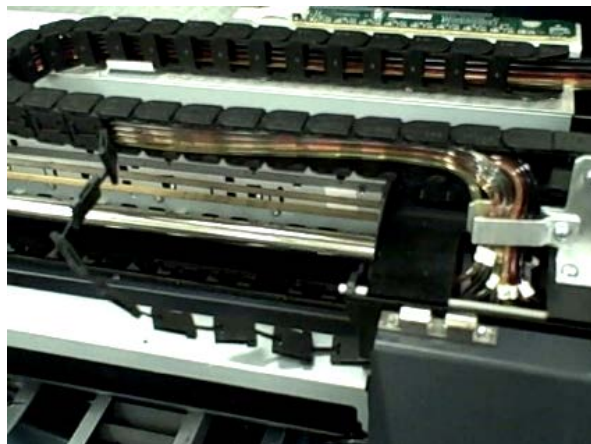


Photo 3.2.1.3-1.5b

3. Remove the eight hex fittings from the backside of the Cartridge Bays. See photo 3.2.1.3-2.

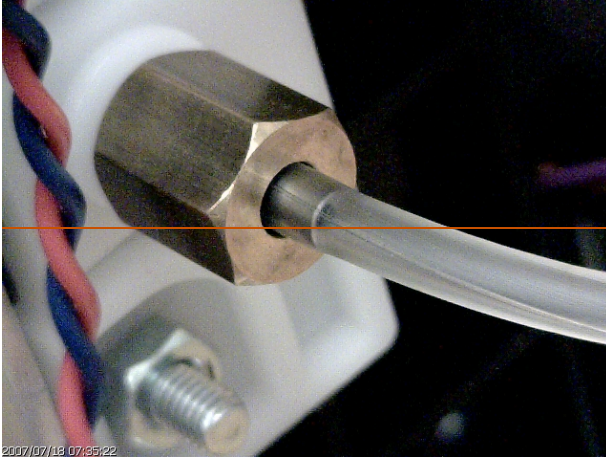


Photo 3.2.1.3-2

4. Slide the hex fitting and the o-ring seal back on the feed tube and remove the tube from the needle plate. On printers with the white needle holder note the small reinforcing sleeve inside the end of the tube. On printers without the white needle plate the reinforcing sleeve has been replaced by a longer needle which extends beyond the thread for the hex fitting. See photos 3.2.1.3-3 and 3.2.1.3-4.

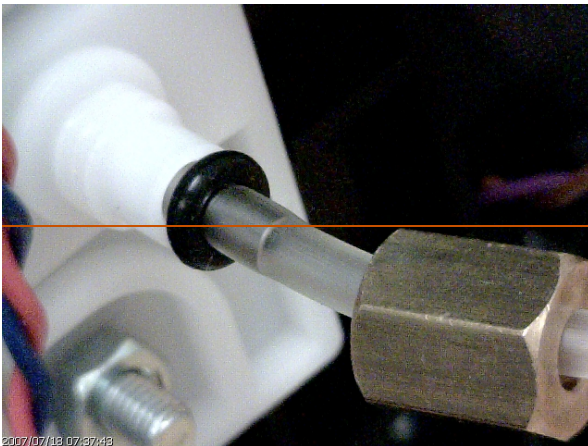


Photo 3.2.1.3-3

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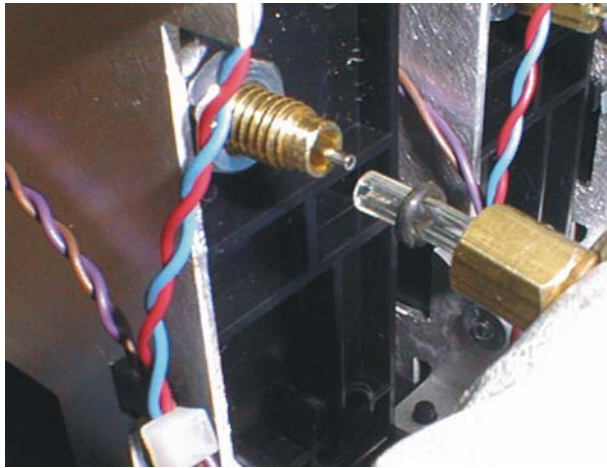


Photo 3.2.1.3-46

3.2.1.5 Ink Tube Replacement

Replacement Ink Tubes may be supplied with or without Dampers attached. If Dampers are not attached, follow the steps in 3.2.1.2 and then do the following:

1. Install an O-ring by moistening it with cleaning solution and press the end of the tube through the O-ring. Slide the O-ring onto the tube approximately $\frac{1}{4}$ inch (6 mm).
2. Observe the order of the Ink Tubes: The left hand Damper (number 1) is attached to the front Yellow Cartridge Bay (number 1) and the Ink Tube is at the front edge of the Tube Support Bracket. To install the new Ink Tube on the Cartridge Bay first moisten the end of the Ink Tube and the O-ring with cleaning solution. Insert the Ink Tube into the needle plate insuring that the Ink Tube is pushed fully into the Needle Plate. Slide the O-ring down against the top of the Needle Plate. Moisten the hex fitting O-ring again with cleaning solution and tighten the hex fitting to 12 to 14 N cm (17 to 20 in ozf).

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3.2.2 ~~Ink Chip Holder~~ICH Module

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CAUTION

The ~~Ink Chips are~~ICH Module is static sensitive, use antistatic protective equipment.

1. ~~Remove the Dampers, see 3.2.1~~Remove the two Phillips ~~surface mount~~ screws securing the ~~ink chip~~ICH bracket to the printer.
2. ~~Remove the Ink Chip Holder. The ink chip holder is located in the front area of the Carriage. See Photo 3.2.4.1~~Remove the two pin twisted cable connected to the ~~ink chip~~ICH module.

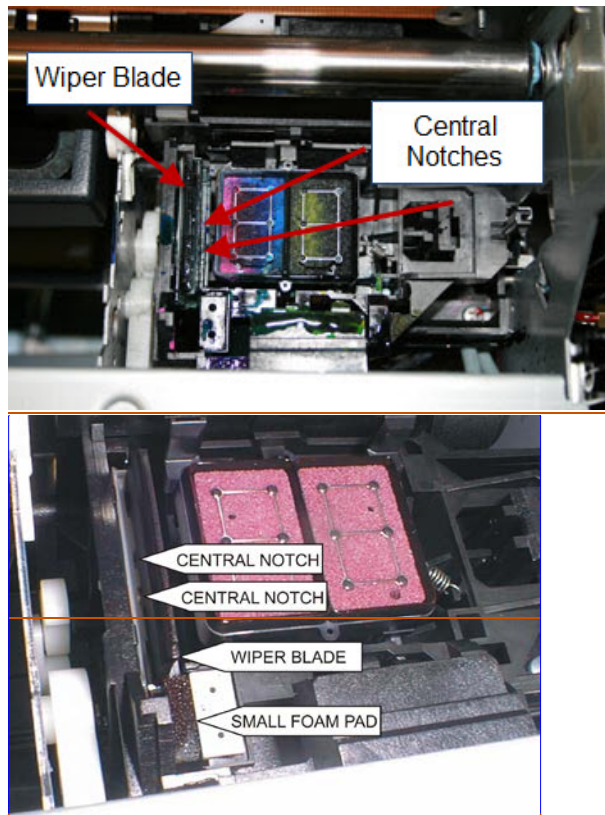
3. Reassemble the new ~~Ink Chip Holder ink chip~~ **ICH module** by reversing the above steps. **Insure that the Ink Chip Holder is seated in front of the ridge at the bottom of the Carriage and against the contacts at the front of the Carriage.**

3.2.3 Wiper Blade

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If the Wiper Blade appears damaged replacement may be required. Also if the Wiper Blade has dried or caked ink residue removal for cleaning may be required. **It is recommended to remove to wiper blade once per month to allow for a thorough cleaning.** To remove the Wiper Blade, do the following:

1. Move the Carriage to the left, away from the Maintenance Station, See User Manual.
2. Carefully slide a very small, 1/16 inch, flat bladed screwdriver into one of the two central notches on the left side of the Wiper Blade. See Photo 3.2.3-1.



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Photo 3.2.3-1

3. Gently lift up on the Wiper Blade on the end nearest the screwdriver. This should release the retaining tab from the retaining tooth in the Wiper Blade housing.

4. Repeat for the other central notch, releasing the other retaining tab. The Wiper Blade should now be free to lift out of the housing. The Wiper Blade housing is very fragile; do not pull on the Wiper Blade with excessive force.
5. If the Wiper Blade is not free, repeat the above.
6. Clean the Wiper Blade with cleaning solution or mild detergent. If the Wiper Blade is damaged or distorted it should be replaced. To install a new Wiper Blade, push it down into the Wiper Blade housing until it slips over both retaining teeth. Be sure that the angled tip on the Wiper Blade is pointing to the right.
7. Clean the Maintenance Station around the Wiper Blade housing.

~~8. Clean the Small Foam Pad in front of the Wiper Blade housing. This foam is very delicate, do not clean aggressively. If the Small Foam Pad is damaged it may be replaced by gently lifting the white retainer straight up with tweezers or a small screwdriver. Place the new Small Foam Pad over the two pins on the bottom of the retainer and then reinstall the retainer in the Maintenance Station.~~

3.2.4 Print Head

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If there are problems with print quality that are not remedied by Printhead cleans, ink charges, or Damper replacement, Printhead replacement may be required. If there is no ink at all flowing from the Printhead, but the printer performs all the actions of a normal print, the Print Engine PCBA may need replacement, not the Printhead. To replace the Printhead, do the following:

3.2.4.1 Removal

CAUTION

The Print Head is very static sensitive, use antistatic protective equipment.

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1. Remove the Dampers, see 3.2.1.



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2. Holder, see 3.2.2. See Photo 3.2.4.1-1.

Remove the Ink Chip

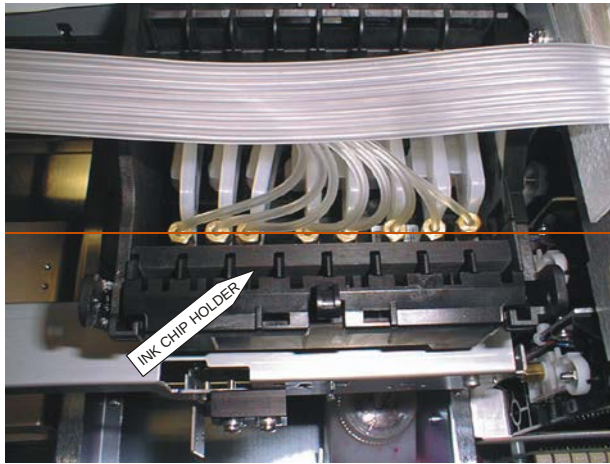


Photo 3.2.4.1-1

3.2. Release the Carriage and move it away from the right side of the chassis, see User Manual.

4.3. Remove the Flat Flex Cable (FFC) Guide from the Carriage by releasing the ~~three~~ tabs on the right side. See Photo 3.2.4.1-2.

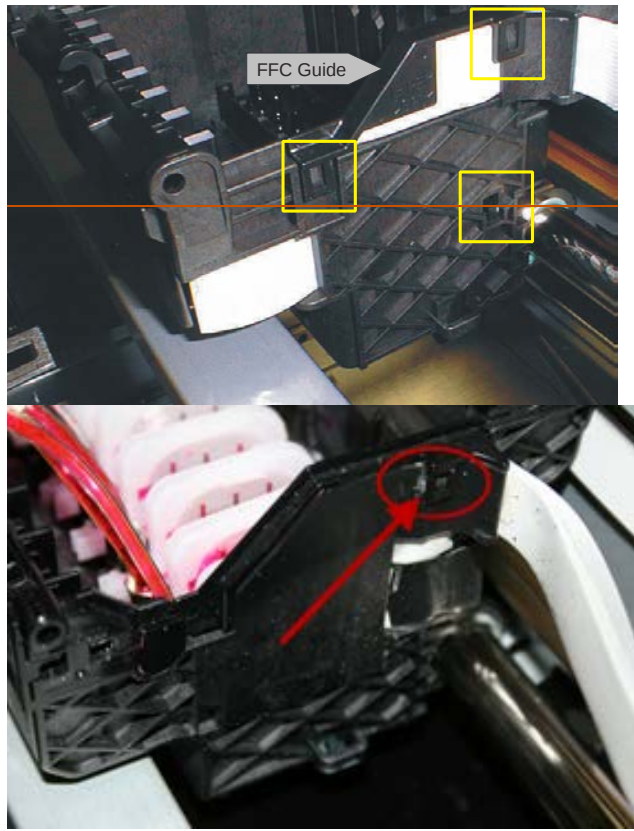


Photo 3.2.4.1-2

- 5.4. Remove the three M2.6 X 8 screws securing the Print Head. Lift the Print Head straight up to remove. See Photo 3.2.4.1-3.

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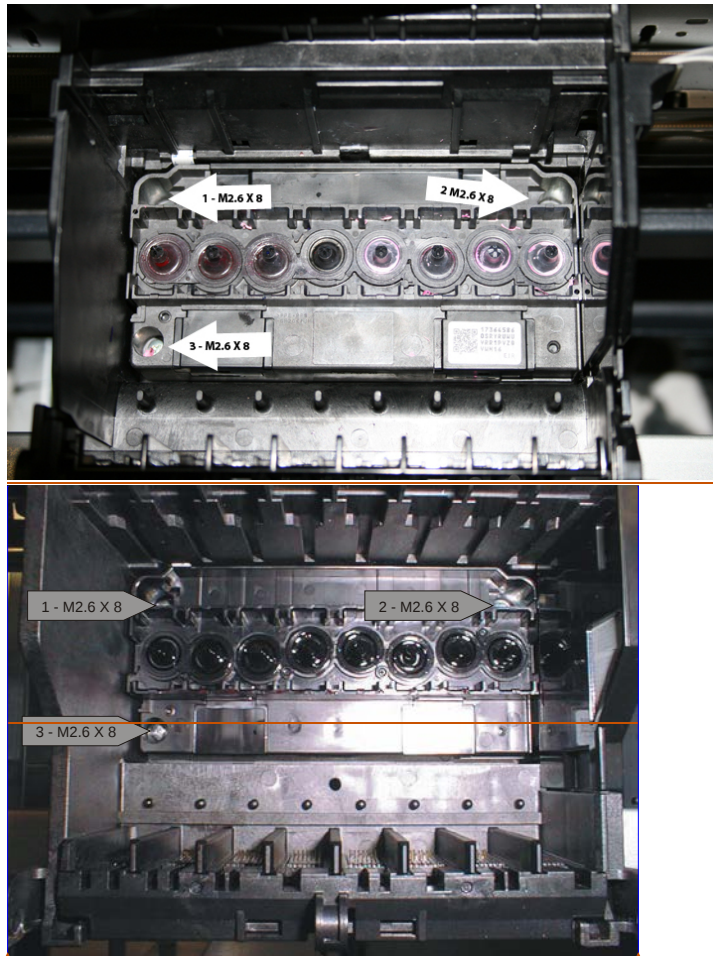


Photo 3.2.4.1-3

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6.5. Disconnect the two FFC from the removed Printhead.

3.2.4.2 Reassembly

1. Check to make sure the Foam Pad is attached to the end of the Print Head. See Photo 3.2.4.2-1.



Photo 3.2.4.2-1

2. Check that the Foam Dam is properly positioned on the right guide pin. See Photo 3.2.4.2-1.

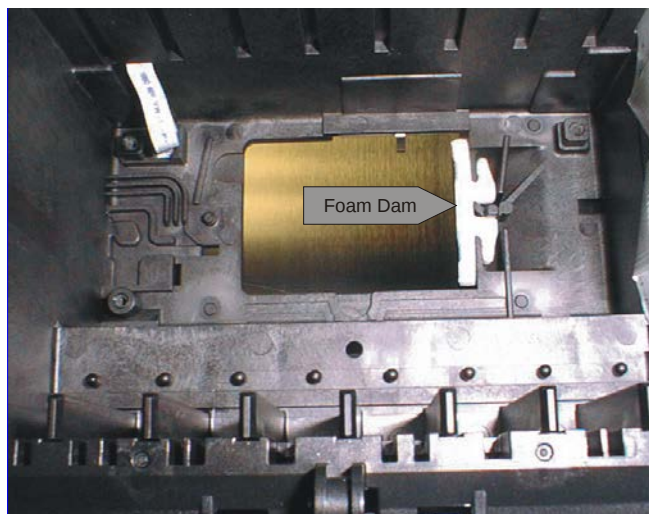


Photo 3.2.4.2-1

3. Reassemble the Print Head by reversing the removal steps. While tightening the screws press the Print Head toward the rear of the unit. Tighten the screws in the order shown in Photo 3.2.4.1-3. Tighten the screws to 10 to 15 N cm (14 to 21 in ozf).
4. Perform an ink charge and nozzle check before attempting to print.

Comment [MSOffice8]: Need Sprint photo

3.2.5 Control Panel

CAUTION

The LCD is very static sensitive, use antistatic protective equipment.

1. Remove the ~~four~~ two Phillips (+) ~~s~~ 6-32 button head cap screws that hold the Control Panel to the printer body Panel using a 5/64 hex Allen wrench. These are accessed from a rectangular hole located beneath the printer. See Photo 3.2.5-1.

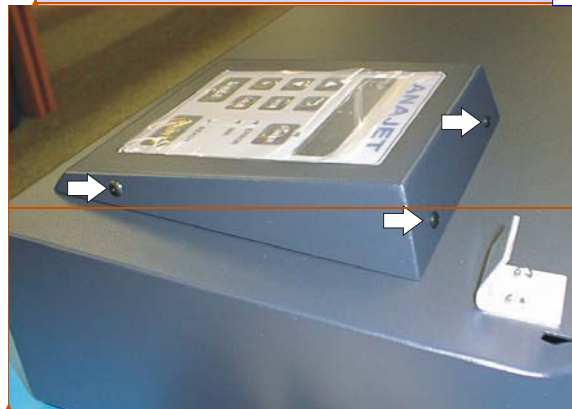
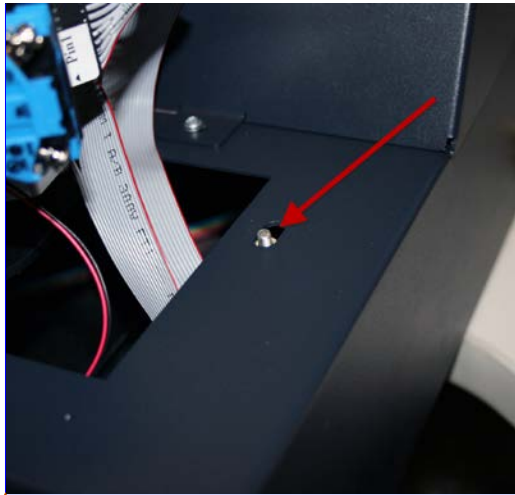


Photo 3.2.5-1

2. Remove the ribbon cable from the LCD.

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3. Remove the 2 pin connector from the LCD backlight cable.

4. Remove the flat flex cable from the Control panel cable.

5. Disconnect the 2-2pin ground cables from the Control Panel

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6. Unscrew the green and white leads from the Print Button Assembly

4.7. Unscrew the two green ground leads from the front body panel screw.

5.8. Reassemble the new Control Panel by reversing the above steps.

6.9. Adjust the backlight and character contrast if required, see 4.7.

3.2.6 LCD

1. Remove the control panel, see 8.2.3.

2. Remove the four 4-40 nuts retaining the LCD.

3. Reassemble the new LCD by reversing the above steps.

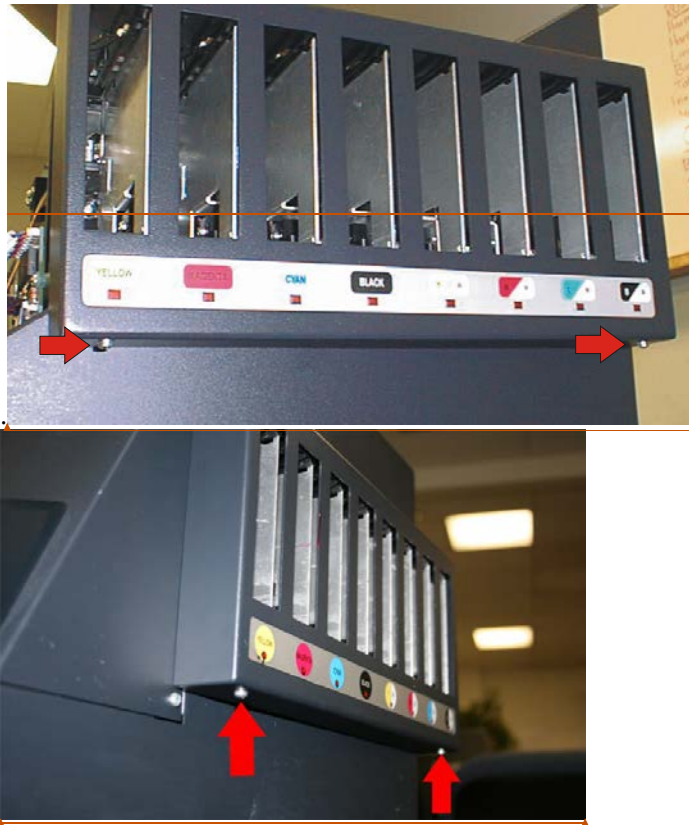
3.2.7 Ink Bay Bezel

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1. Remove the ink cartridges from the Ink Bays.

2. Remove the 10 pin connector from the Ink PCBA.

3. Remove the 2 6-32 screws from the bottom of the Ink Bay Bezel. See Photo 3.2.7-1



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Photo 3.2.7-1

4. Slide the Ink Bay Bezel back about ¼ inch until the top retaining tabs are free.
5. Pull the Ink Bay Bezel to the right and off of the Chassis. Use caution to avoid damaging the Ink LED Panel flex cable.
6. Reassemble the Ink Bay Bezel by reversing the removal steps.

3.2.8 Ink LED Panel

1. Remove the Ink Bay Bezel, see 8.2.4.
2. Carefully lift the Ink LED Panel from the recess in the Bezel using a small flat blade screw driver or knife.
3. Reassemble the new Ink LED Panel by reversing the above steps.

3.2.9 Ink PCBA

CAUTION

The Ink PCBA is static sensitive, use antistatic protective equipment.

1. Remove Front Body Panel by removing the two front retaining screws and two rear screws securing the front body panel. See Photo 3.2.10-1 and 3.2.10-2 One front retaining screw is to the left, behind the Front Body Panel.

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2. Unplug all the connectors from the Ink PCBA.

3. Remove the two 6-32 screws, plastic washers and spacers from the PCBA.

4. Reassemble the new PCBA by reversing the above steps.

3.2.10 Ink Delivery System

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1. Remove the Ink Cartridges.

2. Remove Control Panel, see 3.2.5

3. Remove Front Body Panel by removing the ~~single~~two front retaining screws and two rear screws securing the front body panel. See Photo 3.2.10-1 and 3.2.10-2

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Photo 3.2.10-1



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Photo 3.2.10-2

2.4. Remove the Bezel, see 8.2.5.

3.5. Remove the ink tubes from the 4 upper Ink Tube Clamps if so equipped or
 Remove the fixed end of the Tube Carrier from the Tube Carrier Bracket.

4.6. Remove the Dampers from the Carriage, see 3.2.1. Place the Dampers above the level of the Print Head to minimize leakage from the Dampers.

5.7. Unplug the cables to J 1 and J 2 from the Ink LED PCBA.

6.8. Remove the four 6-32 screws from the lower support of the Ink Delivery System. See Photo 3.2.10-3.

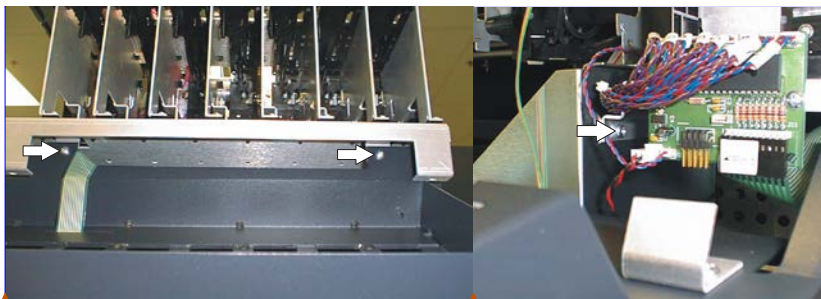


Photo 3.2.10-3

7.9. Remove the 6-32 screw from the upper bracket of the Ink Delivery System. See Photo 3.2.10-4.

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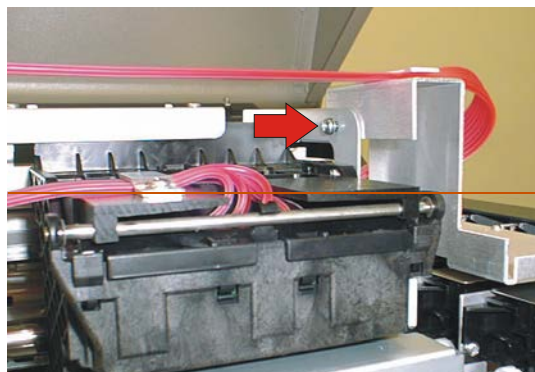
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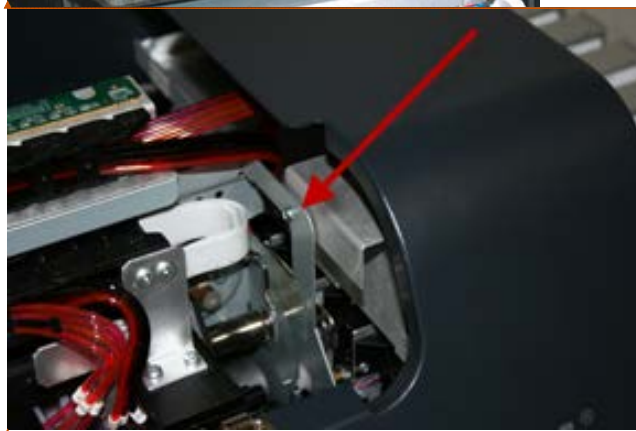
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Photo 3.2.10-~~24~~

~~8~~10. Slide the Ink Delivery System forward and out of the Main Chassis.

~~9~~11. Reassemble the Ink Delivery System by reversing the removal steps.

3.2.11 Control PCBA

CAUTION

The Control PCBA is static sensitive, use antistatic protective equipment.

1. Remove the 8-32 shoulder screw from the upper end of the lid brace.
2. Remove the ~~ten~~-eleven 6-32 screws from the Electronics Cover on the rear of the unit. Note that the 3 center screws above the Rear Enclosure are shorter. Set the Lid Assembly aside. See Photo 3.2.11-1.

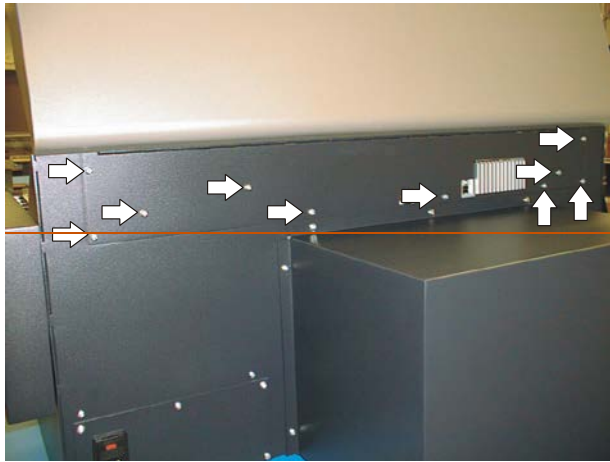


Photo 3.2.11-1

3. Remove the four M3 screws from the back of the Electronics Box. See Photo 3.2.11-2.

3.

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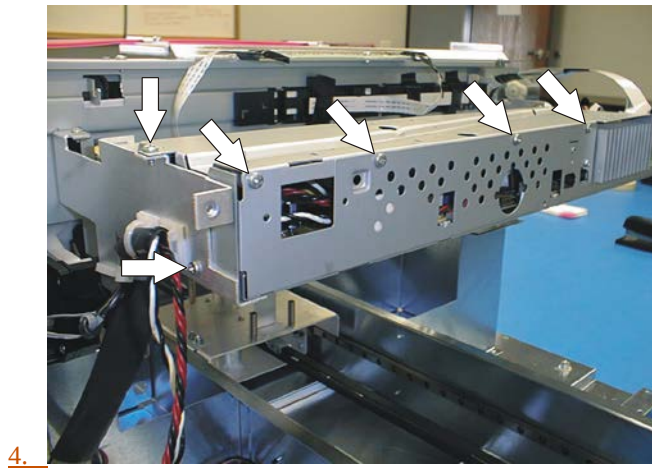
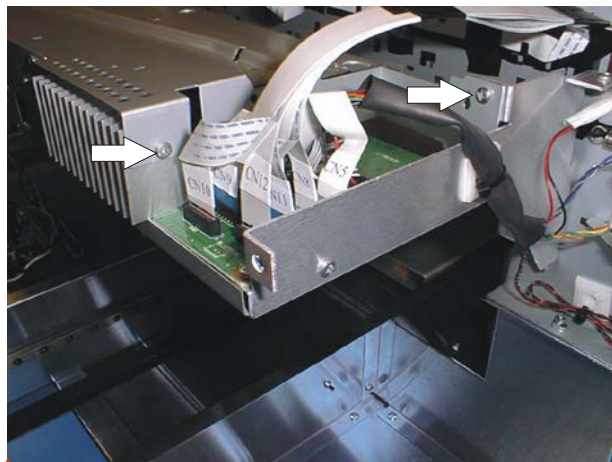


Photo 3.2.11-2

4.5. Remove the M3 screw from the right Electronics Box Bracket.

5.6. Remove the M3 screw from the left side of the Electronics Box. See Photo 3.2.11-3.

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Photo 3.2.11-3

6.7. Remove the two No. 6 sheet metal screws from the top and left front of the Electronic Box Cover.

7.8. Remove the Electronics Box Cover.

8.9. Unplug all the cables from the Control PCBA.

~~9-10.~~ Remove the Control PCBA from the 4 adhesive based mounts.

~~10-11.~~ Reassemble the new Control PCBA by reversing the above steps. See Appendix, Wiring Diagram, for connector designations.

3.2.12 Print Engine PCBA

CAUTION

The Print Engine is static sensitive, use antistatic protective equipment.

1. Remove the Lid Assembly and Electronics Cover, see 3.2.9.
2. Unplug all the cables from the Print Engine PCBA. Use care when unplugging the Main Power Supply cable, J7. This connector has a locking collar and the cable pins are easily bent. See Photo 3.2.12-1.

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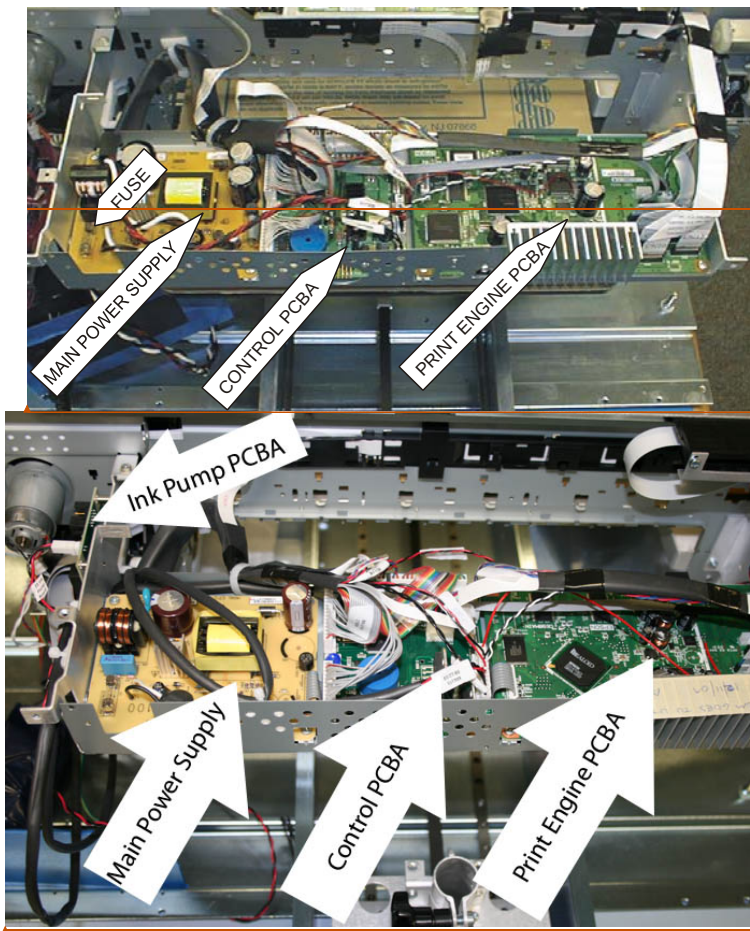


Photo 3.2.12-1

3. Remove the 4 M3 screws from the Print Engine PCBA.
4. Reassemble the new Print Engine PCBA by reversing the above steps. See Appendix, Wiring Diagram, for connector designations.

3.2.13 Main Power Supply

1. Remove the Lid Assembly and Electronics Cover, see 3.2.9.
2. Remove the Control PCB, see 3.2.10.
3. Unplug J7 from the Print Engine PCBA. Use care when unplugging J7. This connector has a locking collar and the cable pins are easily bent.
4. Remove the four M3 screws from the Main Power Supply PCBA.

5. Unsolder the black and white AC power wires, note the polarity for reassembly.
6. Reassemble the new Main Power Supply PCBA by reversing the above steps.

3.2.14 Encoder Sensor PCBA

CAUTION

The Encoder Sensor is very static sensitive, use antistatic protective equipment.

1. Remove the Rear Enclosure cover by removing the seven 6-32 screws on the flanges ~~and four 6-32 screws on the bottom panel~~. Slide the Rear Enclosure off, see 2.2.
2. Remove the two 6-32 screws holding the Sensor Mount to the Chassis Rear Bracket. See Photo 3.2.14-1.

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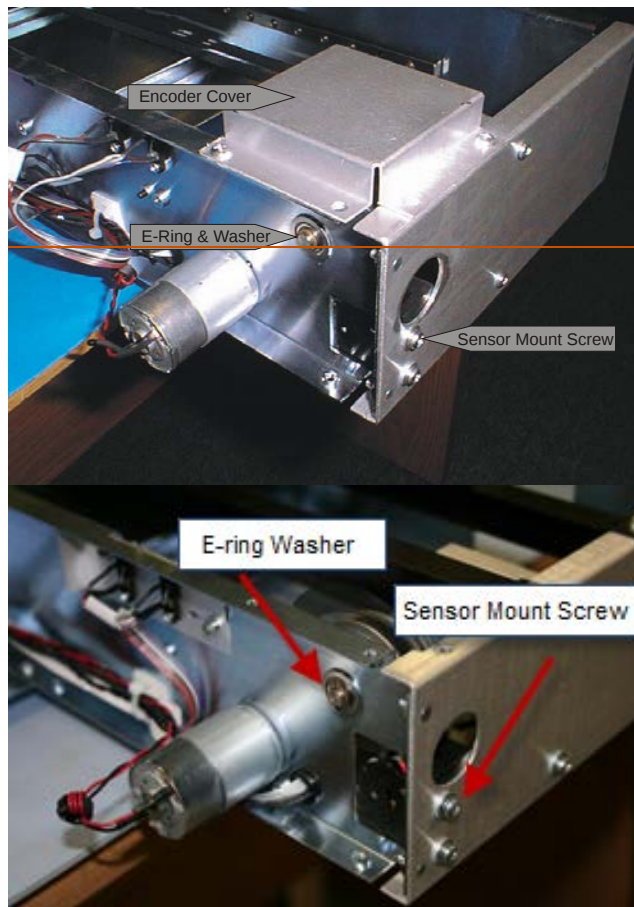


Photo 3.2.14-1

10. Carefully lower the Sensor Mount away from the Encoder Disk and unplug the 5 circuit Sensor FFC.
11. Remove the two No. 2 screws that hold the Encoder Sensor PCBA.
12. Reassemble the new Encoder Sensor PCBA by reversing the above steps. Insure that the 5 circuit Sensor FFC is inserted with the contacts facing down and that the Encoder Sensor Housing is seated against the Sensor Mount.
13. Adjust the Encoder Sensor, see 7.9.

3.2.15 Power Panel

1. Remove the 6 6-32 screws from the Power Panel. See Photo 3.2.15-1.



Photo 3.2.15-1

2. Slide the Power Panel out of the Main Enclosure.
3. 110 volt models (Model **FP-125ASP-200-A**): Disconnect the black, white and green AC power wires from the inlet module. Note the connector positions of the wires.
4. 220/240 volt models (Model **425SP-200-B**): Disconnect the black and white AC power wires from the transformer. Disconnect the green wire from the inlet module. Note the connector positions of the wires.
5. Unplug the 4 pin connector with red and black wires from the 24VDC power supply.
6. Install the new Power Panel by reversing the removal steps.

3.2.16 Fuse Replacement & Voltage Reconfiguration

If the printer does not power up when the Main Power Switch on the back panel is turned on, one or more of the fuses may be blown. To check and replace the fuses, do the following:

1. Turn off the main power switch and unplug the power cord.
2. With a small flat blade screwdriver open the power input module by inserting it into the slot in the cover, above the red voltage indicator module.
3. Using the same screwdriver, insert it into the notch at the top edge of the red voltage indicator module and pry the module out.



 Photo 3.2.16-1

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4. Check the 2 fuses in the module either visually or with an ohmmeter. Replace as required.
5. On 220/240 volt units the red voltage module may be inserted to configure the unit for operation at either 115 volts or 220/240 volts. When the cover is closed the operating voltage configuration will be visible through the opening in the module cover.
6. Close the cover, insert the power cord and turn on the main power switch.
7. If the printer powers up, but the POWER key on the Control Panel does not power up the print engine, check the fuse on the Main Power Supply PCBA, see 3.2.11.

3.2.17 24 VDC Power Supply

1. Remove the Power Panel, see 3.2.13.
2. Unplug the 3 pin and 4pin connectors from the Power Supply.
3. Remove the four 6-32 screws holding the Power Supply.
4. Install the new Power Supply by reversing the removal steps.

3.2.18 Table Drive Belt Subassembly

1. Remove the Table Assembly by loosening the knob under the table
2. Remove the Tray by removing the four 10-32 screws holding it.
3. Remove the Rear Enclosure by removing the six 6-32 screws on the back panel and the four 6-32 screws on the bottom, see 2.2.
4. Remove the table belt from the rear pulley by pulling the upper rear section of the belt until slack enough to slip the belt over the rear 12 tooth pulley. Use care to avoid letting the belt load the end of the drive shaft and damage the bearing.

5. Remove the two screws at the front edge of the slider that attach the belt tooth clamp and spacer.
6. Remove the 2 screws at the center of the slider that retain the rear adjuster.
7. Remove the belt and rear adjuster from the printer.
8. Install the new belt and adjuster by reversing the above steps. See Photo 3.2.18-1.

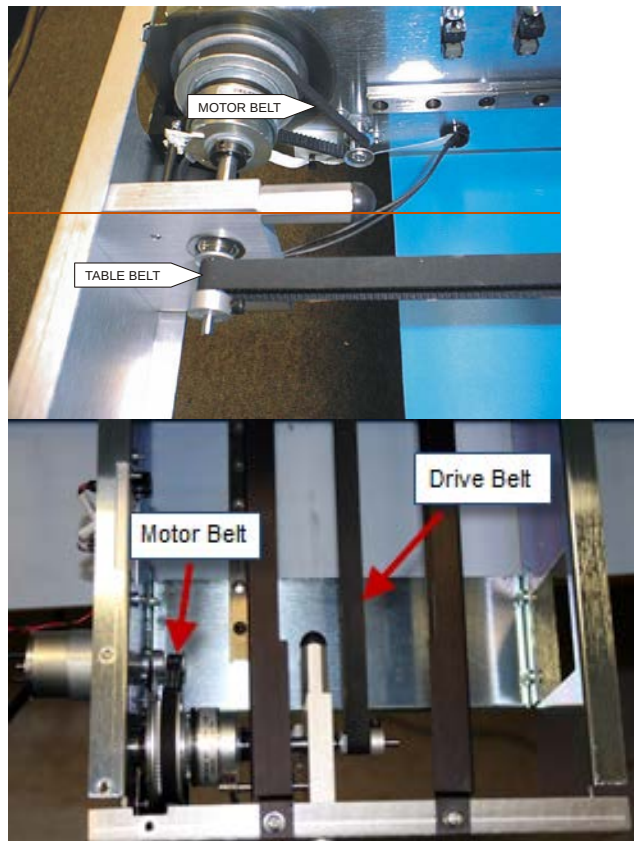


Photo 3.2.18-1

9. Check the belt tension using a Gates belt tension meter or equiv. Belt tension should be set to 15 to 20 N (54 to 72 ozf). Measurement should be made on the lower portion of the belt with the table positioned at either end of the travel.
10. If the belt tension needs adjusting, follow steps 4 and 6 to access the rear adjuster. Adjust the 2 screw eyes in the rear adjuster to attain the proper tension.

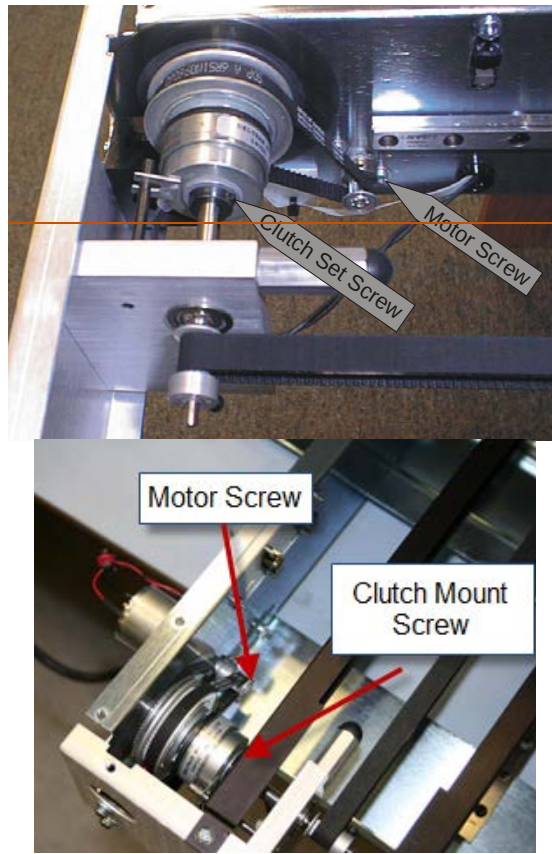
3.2.19 Motor Belt

1. Remove the Rear Enclosure cover by removing the 7 6-32 screws on the flanges ~~and four 6-32 screws on the bottom panel~~. Slide the Rear Enclosure off.
2. Remove the Table Drive Belt from the rear pulley, see 3.2.18.
3. Remove the Encoder Sensor assembly, see 3.2.14.
4. Loosen the two screws holding the motor.
5. Remove the retaining ring and wavy washer from the right end of the Back Pulley Shaft. Slip the Clutch Shaft to the left until the left bearing is free of the Bearing Mount. Note that the Clutch Coil Anti-rotation tab is over the pin in the Bearing Mount
6. Remove the belt and install the new belt by reversing the above steps. Use care to avoid kinking, stretching or sharply bending the belt when installing.
7. The motor belt tension should be checked after replacing the belt. Belt tension should be set to 4 to 7 N (14 to 25 ozf). Rotate the pulleys and measure the tension at several positions to insure there are no tight or loose spots.

3.2.20 Clutch & Encoder Assembly

1. Remove the Table Drive Belt, Encoder Sensor and Clutch and Shaft subassembly, see 3.2.14 and 8.2.18.
2. Remove the two 6-32 Encoder Cover screws and Remove the Encoder Cover. The Encoder Cover is also retained by adhesive film and must be pried off using a thin bladed screwdriver or similar tool.
3. Remove the retaining ring and wavy washer from the right end of the Back Pulley Shaft. Slip the Clutch Shaft to the left until the left bearing is free of the Bearing Mount. Note that the Clutch Coil Anti-rotation tab is over the pin in the Bearing Mount.
4. Loosen the two Clutch 4-40 set screws and slip the clutch off of the Shaft and remove the Clutch and Shaft subassembly. See Photo 3.2.20-1.

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3.2.20-1

5. Unsolder the Clutch and solder the new Clutch to the 2 wires. Polarity of the wires is not important. Apply shrink tubing or electrical tape over the splices.
6. Reinstall the Clutch and Encoder parts by reversing the above steps. Apply a small amount of synthetic grease to the shaft right end under the clutch pulley.
7. Readjust the Motor Belt tension, and adjust the Encoder Sensor.

3.2.21 Maintenance Station

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1. Remove the Ink Delivery System, see 3.2.10.

2. Remove the Waste Ink ~~Bottle~~Tank.

3. Remove the Right Drip Pan.

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4. Move the Carriage to the left, away from the Maintenance Station, See User Manual.

- 4.5. Remove the M3 screws from the front mounting boss and from the small side bracket, see photo 3.2.21-1.

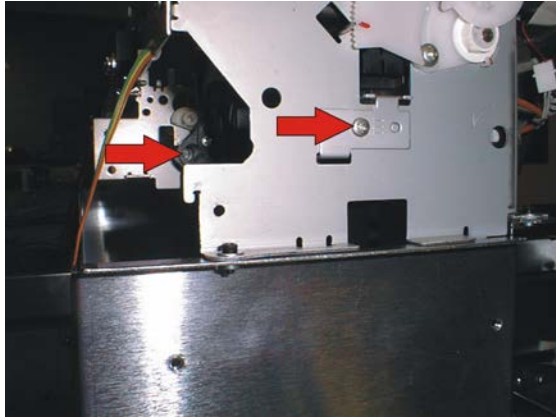


Photo 3.2.21-1

- 5.6. Remove the M3 screws retaining the orange ground wire and from the rear mounting boss, see photo 3.2.21-2. Unplug the four pin connector from the motor cable.

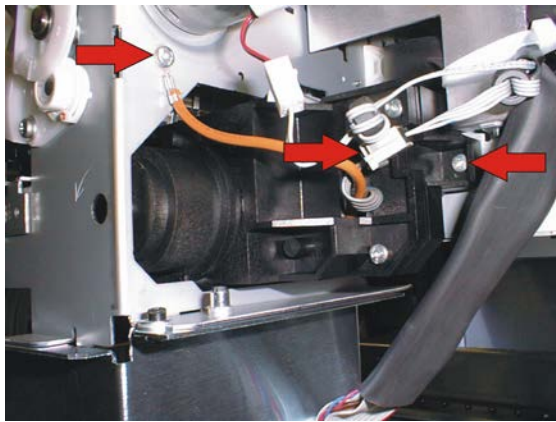


Photo 3.2.21-2

- 6.7. Remove the inside M3 screw from the small side bracket, accessible from the top, at the front right side of the Maintenance Station, see photo 3.2.21-3.

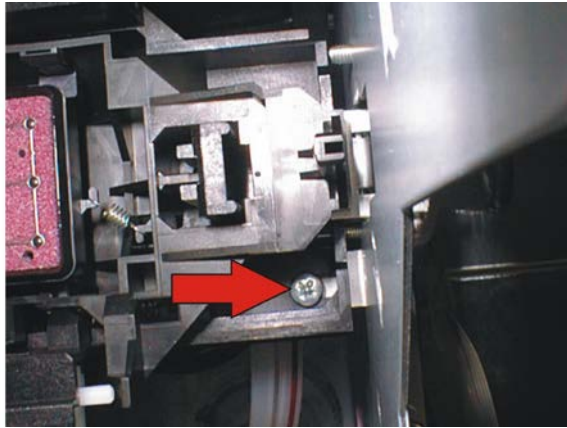


Photo 3.2.21-3

- | 7.8. Rotate the Maintenance Station front end down and then slide it out the front of the unit.
- | 8.9. Install the new Maintenance Station by reversing the above steps.

4 Appendix I - Replacement Parts

The following are recommended replacement parts:

Damper	100540
Tube Nut	100395
O-ring	100541
Wiper Blade	100562-S
Tube Set (set of 8 tubes)	100586
Tube & Damper Sub Assembly	100566
Drip Pan Foam – Left	100298
Drip Pan Foam – Right	101113
Waste Ink Tank Bottle	100554 101145
Wiper Foam	100563
Fuse - Main Power Supply, 2 Amp 5 X 20 mm fast acting, Littlefuse type 217P	
Fuse - Power In Module, 1 2 Amp 3AG fast acting, Littlefuse type 312P	

The following are replacement parts that are available but less frequently required.

Control PCBA	100576 101150
Ink PCBA	100575
Pump Aux Drive PCBA	101198
Printhead	100567 101173
Printhead Cables	100290 101226
24 VDC Power Supply	100535
Control Panel Membrane Switch	100340 Control Panel
Sub-Assembly	101182
LCD Module	100537

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Ink Chip <u>ICH Holder</u> Module	
100561 <u>101097</u>	
Maintenance Station	100600 <u>101184</u>
Ink Bay Assembly with Dampers	100569

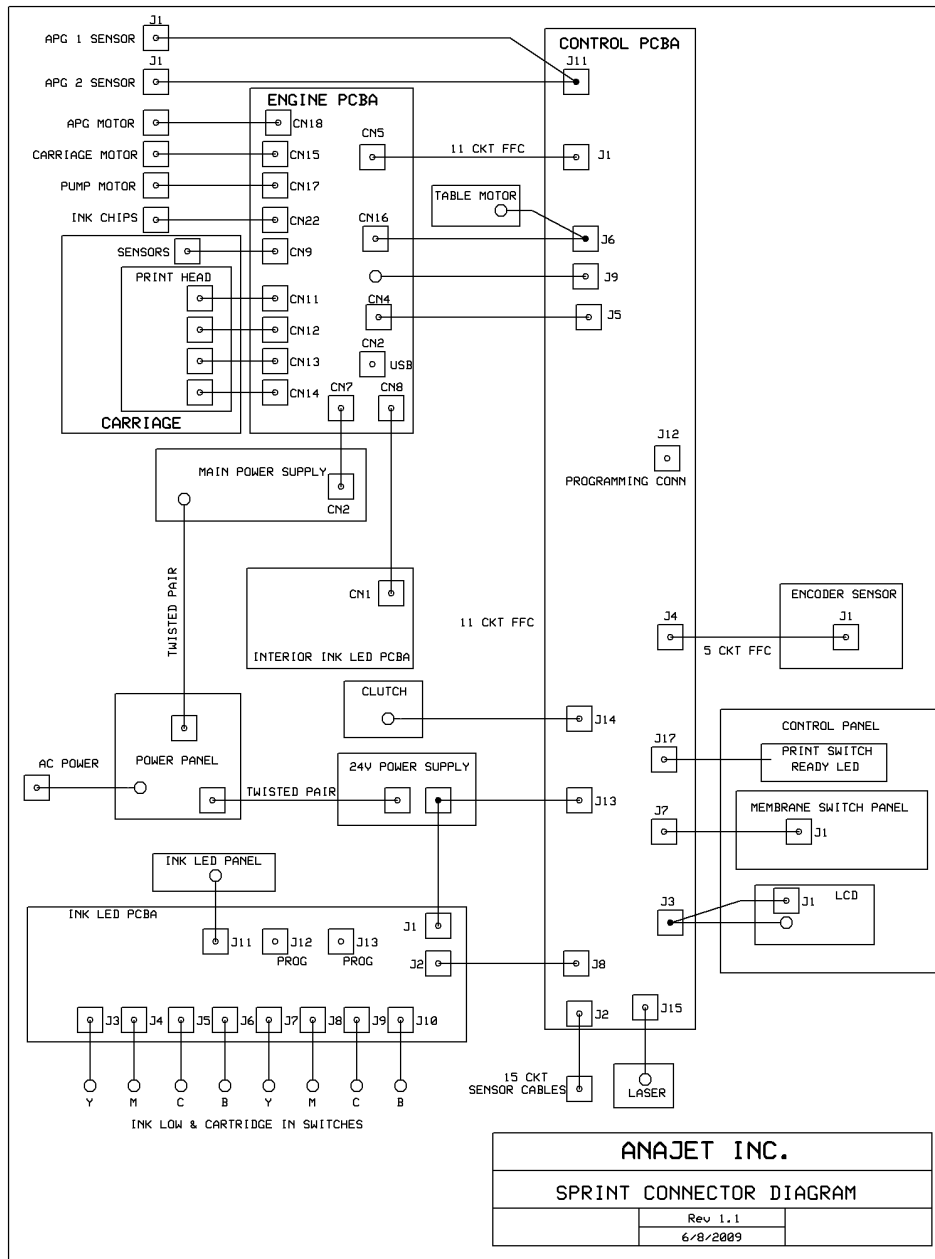
5 Appendix II – Circuit Diagrams

5.1 Connector Diagram

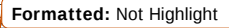
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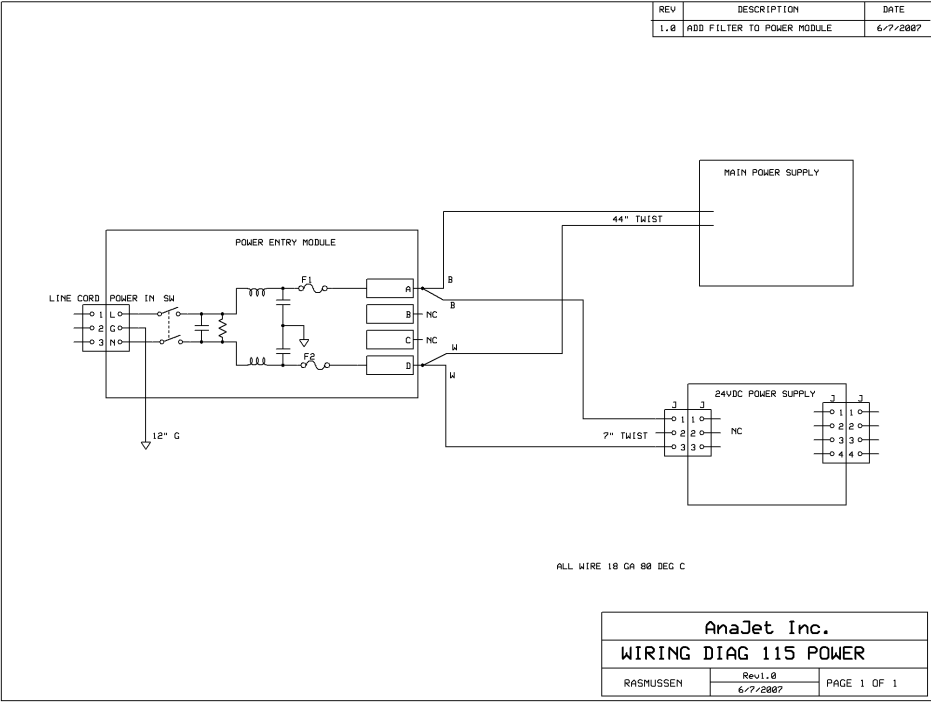
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5.3 Power Panel Wiring Diagram

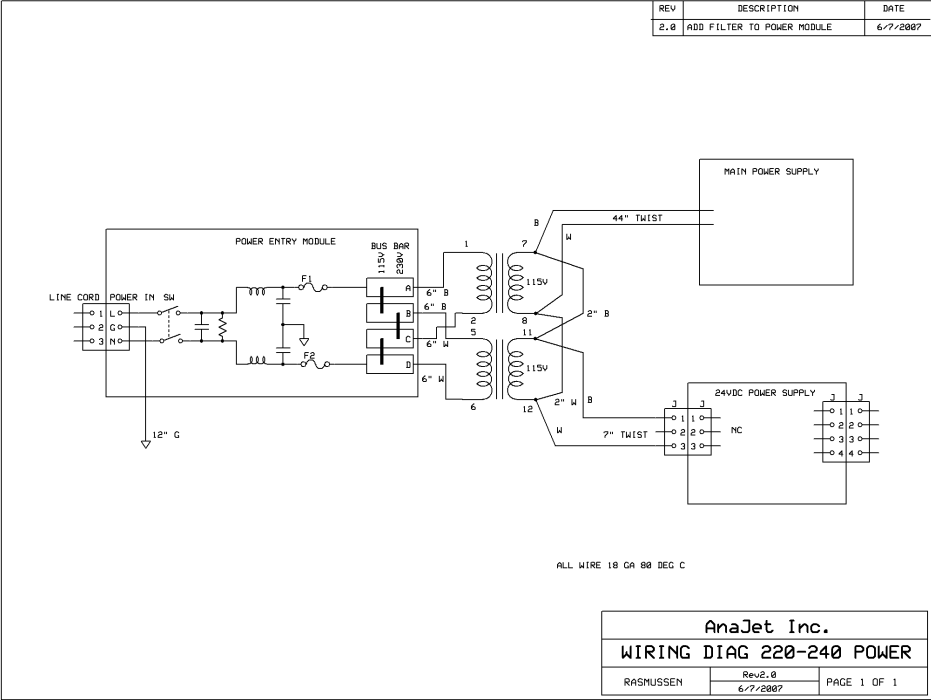
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5.3.1 115 VAC



5.3.2 220/240 VAC

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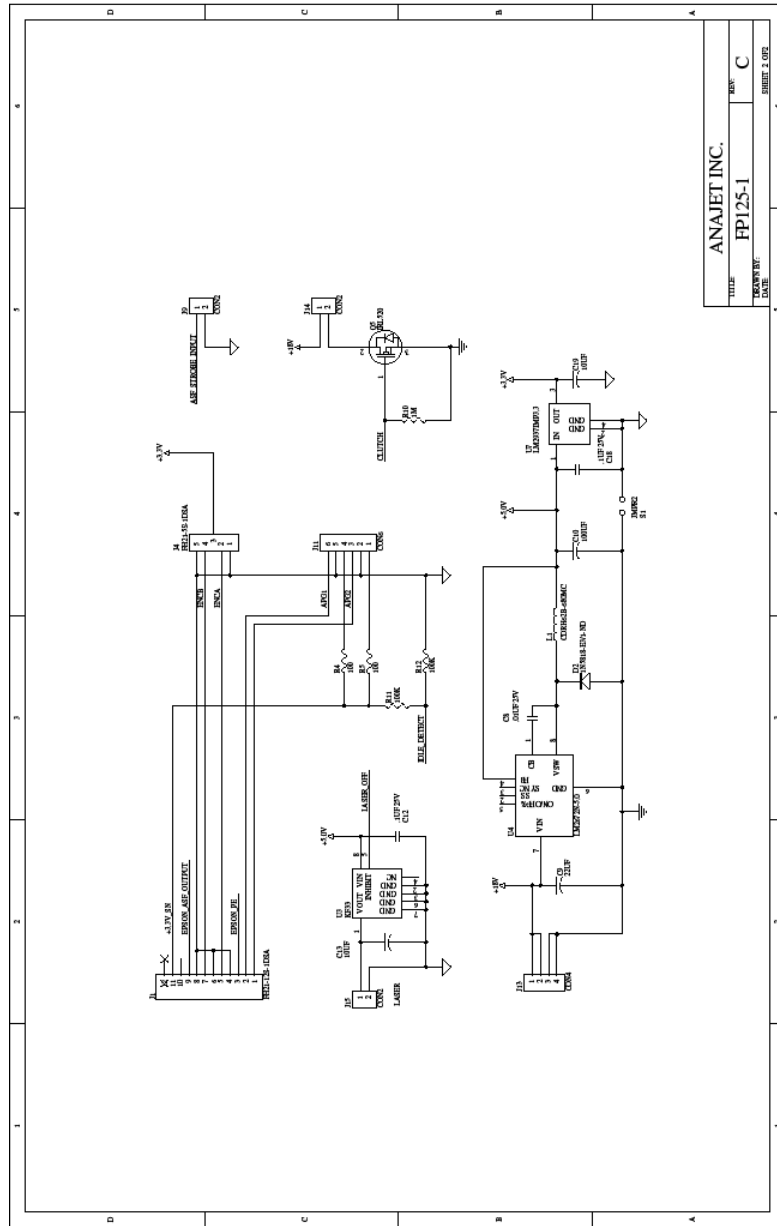
5.4 Schematics

5.4.1 Control PCBA

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5.4.2 Ink PCBA

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