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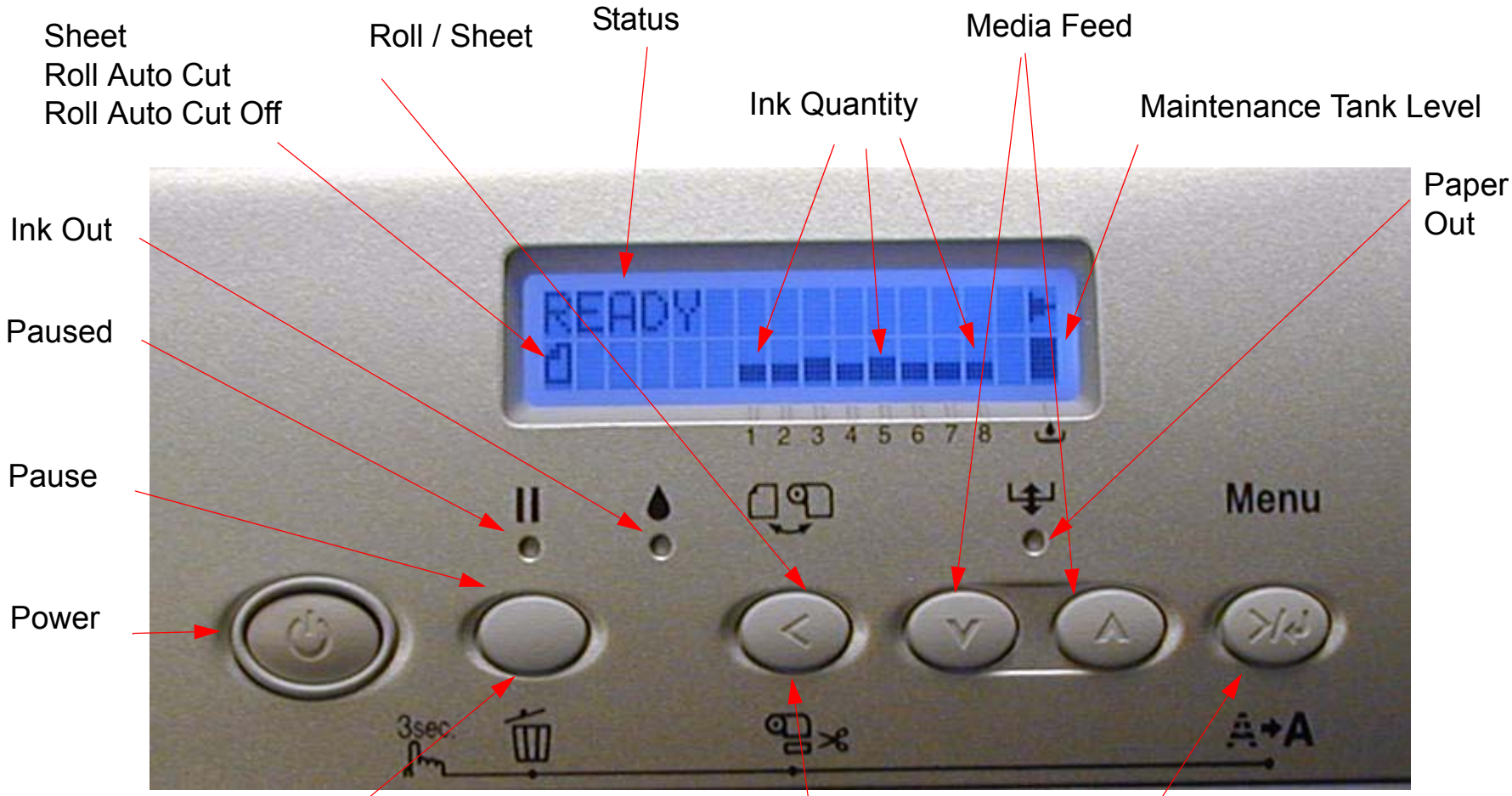
Control Panel Map



Hold the **4 Arrow Buttons** and Power on for **F/W Down-load Mode**.

User Menu: Press the **Menu** button when the printer displays **Ready**

1. PRINTER SETUP.

PLATEN GAP: *STANDARD, NARROW, WIDER, WIDE
PAGE LINE: *ON, OFF
INTERFACE: *AUTO, USB, IEEE1394, OPTION
CODE PAGE: *PC437, PC850,
PAPER MARGIN: *T/B 15MM, 15MM, 3MM
PPR SIZE CHK: *ON, OFF
PPR ALIGN CHK: *ON, OFF
TIME OUT: *OFF, 30SEC, 60SEC, 180SEC, 300SEC
CUTTER ADJ: EXEC
REFRESH MRGN: *ON, OFF
SHEET SIZE CHK: *ON, OFF
AUTO NZL CK: *ON, OFF
AUTO CLEANING: *ON, OFF
QUIET CUT: *OFF, ON
INIT SETTINGS: EXEC

2. TEST PRINT.

NOZZLE CHECK: PRINT
STATUS CHECK: PRINT
JOB INFO: PRINT
CUSTOM PAPER: PRINT

3. PRINTER STATUS.

VERSION: (CURRENT FIRMWARE)
PRINTABLE PG: (FOR EACH COLOR)MK (nnnnnn)PG
INK LEFT: (FOR EACH COLOR)MK E*****F
MAINT TANK: E*****F
USAGE COUNT: INK (nnnn.n)ML, PPR (nnnn.n)CM
USE COUNT CLR: EXEC
JOB HISTORY: N0.(N) I:(nnn)ML, P:(nnn)CM
JOB HISTORY CLR: EXEC
TOTAL PRINTS: (nnnn)

4. CUSTOM PAPER.

PAPER NUMBER: *STANDARD, NO. (1-10)
Platen Gap: Standard, Narrow, Wide, Wider
Thickness Pat: Print
Cut Method: *Standard, Thick (Fast, Slow), Thin Paper
PPR Feed Adj: (n.nn)%
Eject Roller: *Auto, Sheet, Roll Curled, Roll Normal
Drying Time: (n.n)sec
Suction: *Standard, -4, -3, -2, -1
M/W ADJ: *Standard,1 , 2

5. MAINTENANCE

CUTTER REPL: EXEC
CHNG INK SET: EXEC (For Changing between 8 and 4 color)
PWR CLEANING: N CLEANING Y
CLOCK SETTING: (mm/dd/yy hh:mm)

6. Head Alignment.

PAPER THKNS: *STD, (n.n)MM
ALIGNMENT: AUTO, MANUAL

Maintenance Mode 1: Press and hold the **Pause** button and turn on the Printers

HEX DUMP: PRINT EXEC (In this mode, the printer prints hexadecimal values received)
LANGUAGE: *ENGLISH, PORTUGUE, SPANISH, GERMAN, ITALIAN, FRENCH (Sets the control panel language)
UNIT: *METER, FEET/INCH (Set's the unit of measure that the printer displays)
4CMW72: *OFF, ON (?)
CUT PRESSURE: *100% (0%-150%) (Adjusts the Paper Cutter pressure)
SSCL: EXEC (Super Strong Cleaning)
DEFAULT PANEL: EXEC (Returns Maintenance Mode 1 settings to Factory Default)
CRTG INFO MENU: MANUFACTURER,COLOR, INK TYPE, INK CAPACITY, INK LEFT, PRODUCTION DATE, EXPIRATION DATE, INK LIFE, INK AGE (CSIC information, for each ink cartridge)

Maintenance Mode 2: Press and hold the **Left**, **Down**, and **Up** buttons and turn on the ***Printer***
SELF TESTING:

Test:
Version: (Displays the current firmware version)
Panel: (Button tests for the control panel)
Sensor: (Sensor tests for all sensors)
Encoder: (Encoder tests for both encoders)
Fan: (Fan tests for all fans)

Elec.: Record: Maintenance: (Usage Counters for the following devices) WasteInk, Wiper, Rubbing, Lever, Cover, Ink Lever, Cr Motor, PF Motor, PrintNumber, Cleaning, Fire A, Fire B, Fire C, Fire D, Fire E, Fire F, Fire G, Fire H, Cut, Cute Sole, LockSolen
Record: Error: Error (0 - 6) (Displays the last 7 errors)
D/A Revision: Measure Va: (nn.nnn)v **(?)**
CSIC: Slot (1 - 8), Maintenance Tank (?)
Actuator: Cutter: [Enter], Start (Tests the cutter assembly)
Actuator2: Cutter Sol, Pump Motor (Tests the following devices)

Adjustment:
Cut Adj.: Pressure: *73% (Adjusts voltage used for the cutter solenoid)
PG ADJ: [Enter], Start: PG Offset *(nn) (Used for adjusting the platen gap)
Rear AD: [Enter], Start: Exc.: RearAD: (nnn nnn nnn) (For adjusting the rear paper sensor)
Edge Sns Lvl: [Enter], Start: (For adjusting the sensitivity of the edge sensor)
Check Nozzle: [Enter] Print: (Service level nozzle check)
Check Skew: Check Skew: (n.n)mm (Default 1.0) (Used for setting the amount of allowable skew)
Clean Head: (Used for draining the ink system)
Counter Clear: Reset Counter? (Resets all counters, **DO NOT USE**)
Ink Drain: (Used for draining the ink system)
Cleaning:
Std. KK0 (Weakest cleaning cycle (uses less ink))
Std. KK1 (Medium strength cleaning cycle)
Std. KK2 (Strongest cleaning cycle)
Init. Fill (Forces a initial fill (prime))
Print:
Check Ptn.: [Enter] Print (Prints all alignment patterns)
Adj. Variable: [Enter] Print (Prints the numeric adjustment variables currently set)
Parameter:
Initialize:
All: Initialize OK? (Resets all of the following counters at once)

PF Resolution: Initialize OK? (Resets this counter only)
Head Record: Initialize OK? (Resets this counter only)
Wiping Record: Initialize OK? (Resets this counter only)
Rab. Record: Initialize OK? (Resets this counter only)
Waste Record: Initialize OK? (Resets this counter only)
CRmot Record: Initialize OK? (Resets this counter only)
PFmot Record: Initialize OK? (Resets this counter only)
Lever Record: Initialize OK? (Resets this counter only)
Cover Record: Initialize OK? (Resets this counter only)
Ink Lever Record: Initialize OK? (Resets this counter only)

Update: InkParameter: Init. Fill: (Set, Reset) (Reset, turns off the initial fill)
MntTank: (On, Off) (Turn on or off the Maintenance Tank CSIC)
Mask Type: Dispersion, Regular (?)
PF BiD Adjust: (+/- n) (?)
Uni-D Trap: (On, Off) (?)

Display: Address: (Used for displaying data at specific RAM addresses)

Life: CR Motor, PF Motor, CR+PF Motor, Roller, Roller Rel, D/E Chg, Hopper, ASFLoad, Cutter, Head U/D, Head Lock, Cleaning, Print, Total Life, CR+PF+Fire, TotalLife2, TotalLife3, Check (Used for design testing of these devices and assemblies)

Service Config

Chg DEVICE-ID: *Sty Pro 4000, PX-6000 (Used for choosing the Plug and Play printer name)
NPD: *1, 0, 2 (Defines the ink type (1= pigment, 0 = new/undefined, 2 = dye))
EDMODE: *X, O,N (X=CSIC used fully, N=Non-USA Cartridges are OK, O=CSIC is disabled)
MD TBL: ID = (1-7D Hex) (“Modifying parameter of media table is available”)

View Counters (Displays the usage/life counter information for the following devices/operations)

Cutter, Cutter Total, Total Pages, Maint Tank, CR Motor, CR Total, PF Motor, Nozzle A, Nozzle B, Nozzle C, Nozzle D, Nozzle E, Nozzle F, Nozzle G, FL Box, Cleaner, Sponge, ASF, Feed Roller, PG

Clear Counters (Clears the usage/life counter information for the following devices/operations)

Init All: (Initializes all the following counters at once)
NVRAM, RTC: (YY/MM/DD/HH), **Cutter, CR Motor, CR Total, PF Motor, Head, Cleaner, Total Pages, MAINT TANK, SPONGE, ASF,FEED ROLLER, PG, CR UNIT MAINT, CL UNIT MAINT, HEAD MAINT, CUT UNIT MAINT** (Sponge = Boarderless Pads)

MAINT INFO: (Page 88 - 98 in the Service Manual)

Menu E: (E1 - E17), **Menu R:** (R1 - R9), **Menu S:** (S1 - S25), **Menu A:** (A1 - A32), **Menu B:** (B1 - B48), **Menu P:** (P1 - P42), **Menu M:** (M1 - M26), **Menu O:** (O1 - O28), **Menu F:** (F1 - F28), **Menu N:** (N1 - N22)

INIT INFO (Resets MAINT INFO menu data)

INIT. MENU E:, **INIT. MENU R:**, **INIT. MENU S:**, **INIT. MENU A:**, **INIT. MENU B:**, **INIT. MENU P:**, **INIT. MENU M:**, **INIT. MENU O:**, **INIT. MENU F:**, **INIT. MENU N:**

Maintenance Mode 3: Press and hold the **Pause**, **Down**, and **Right** buttons and turn on the ***Printer***

Shipment:

ADJ.Variable: Exec (Prints out the current adjustment settings)
Clean Head: Exec (Evacuates the ink in the Ink Tubes)
Clean Counter: Exec (Resets counters?)
Default Panel: Exec (Resets the Control Panel Settings to factory default)

Parameter Backup Mode: (Allows Parameter backup without the Printer being online)

1. Enter **Maintenance Mode 2:** Press and hold the **Left**, **Down**, and **Up** buttons and turn on the ***Printer***
2. Lift both ***(2)*** **Ink Levers**
3. Remove the **Maintenance Tank**
4. Move the **Paper Release Lever** to the released position.

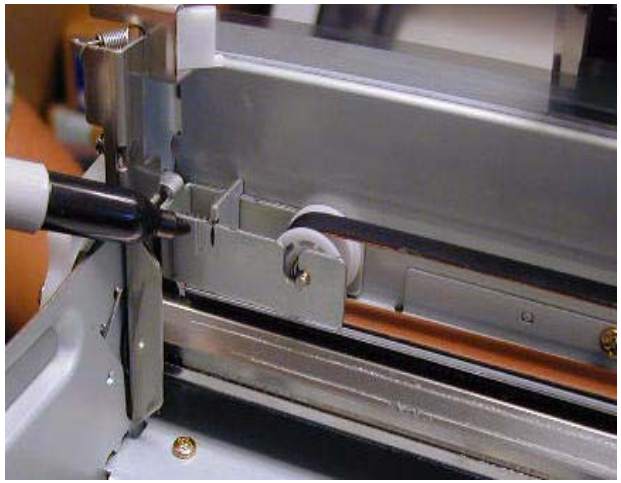
Firmware Download Mode:

Hold the **4 Arrow Buttons** and Power on for **F/W Download Mode**

Component Replacement

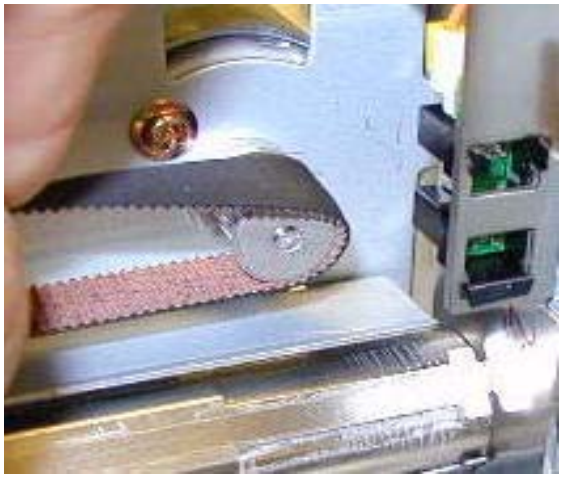
Carriage Removal Procedure

1. ***Unplug the Printer***.
2. Raise both ***Ink Levers***, closing the ***Ink Valves***.
3. Remove the ***Left Side Cover***.
4. Release the ***Carriage Lock***, and move the ***Carriage Mechanism*** away from the capped position.
5. Mark the ***Carriage Belt Tension Gauge***, loosen, and remove the ***Belt***.



Mark ***Belt Tension Gauge***

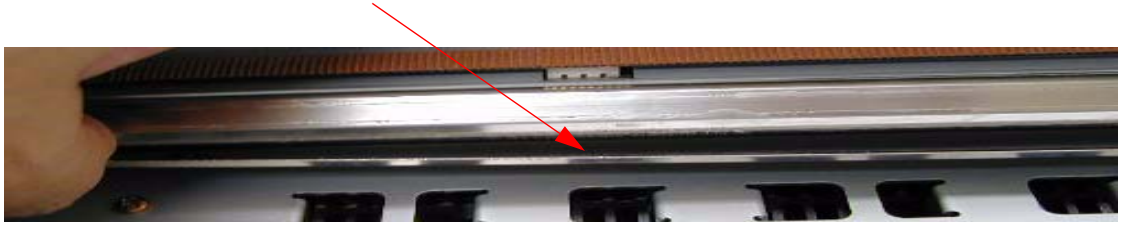
Loosen ***Belt*** tension



Remove ***Belt*** from the ***Carriage Motor***

6. ***Carriage Rail Cover*** (***Wheel Track***) protection steps.

The Carriage Rail Covers will separate and bend when removing the Print Head if not protected.



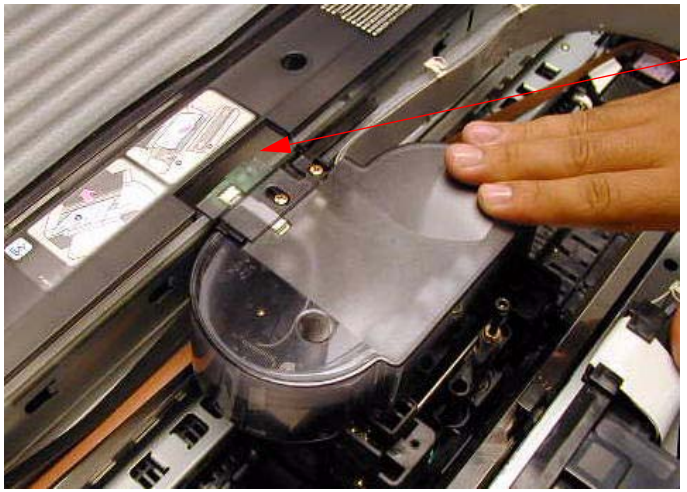
1. Make a double wall cardboard jig as shown.

.5” wide, and1/4” deep V slot

2. Place the jig so that the V slots support the ***Carriage Rail Covers***

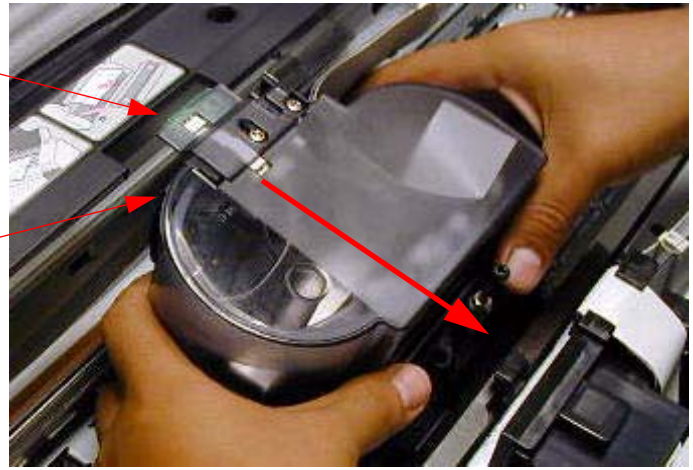
Note:The jig should be placed so that it supports the ***Carriage Rail Covers*** beside to the ***Print Head***, when it is in the removal position (see step 8).

7. Move the ***Carriage Mechanism*** at the removal slot as shown. Compress the ***Tension Springs*** against the ***Front Carriage Rail***, and lift out the ***Carriage.***



Removal Slot

Be careful to free the ***Carriage Timing Strip***

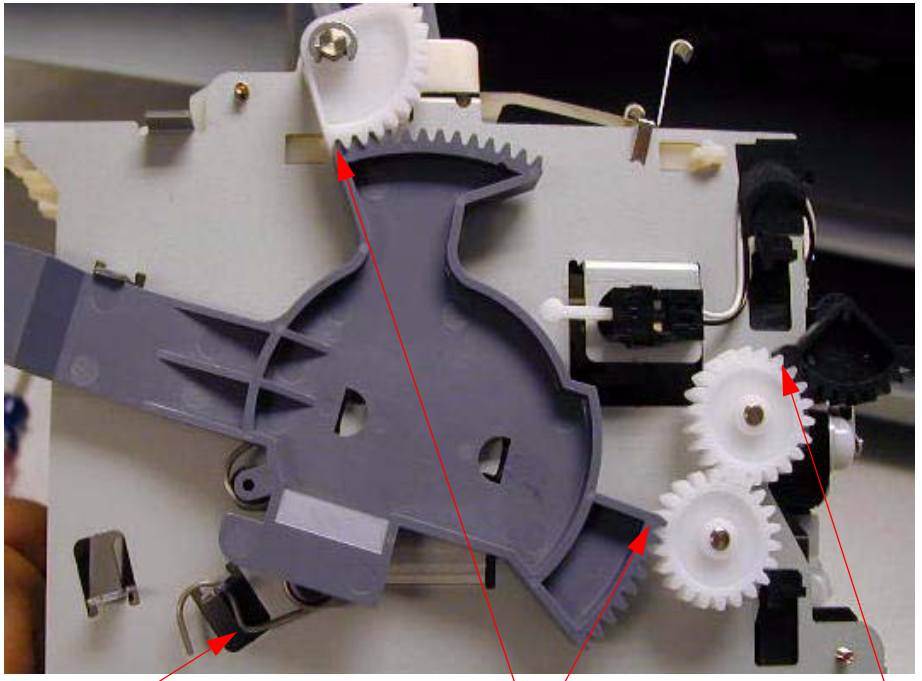


Cartridge Release Lever Repair

1. Remove the ***Ink Bay***.

2. Ensure that the ***Gears*** and ***Spring*** are in the positions shown. (This is the ***Cartridge*** released, and the ***Valves*** closed position)

Ensure that the ***Valve Open/Close Cam*** is fully seated in the Interlocks.

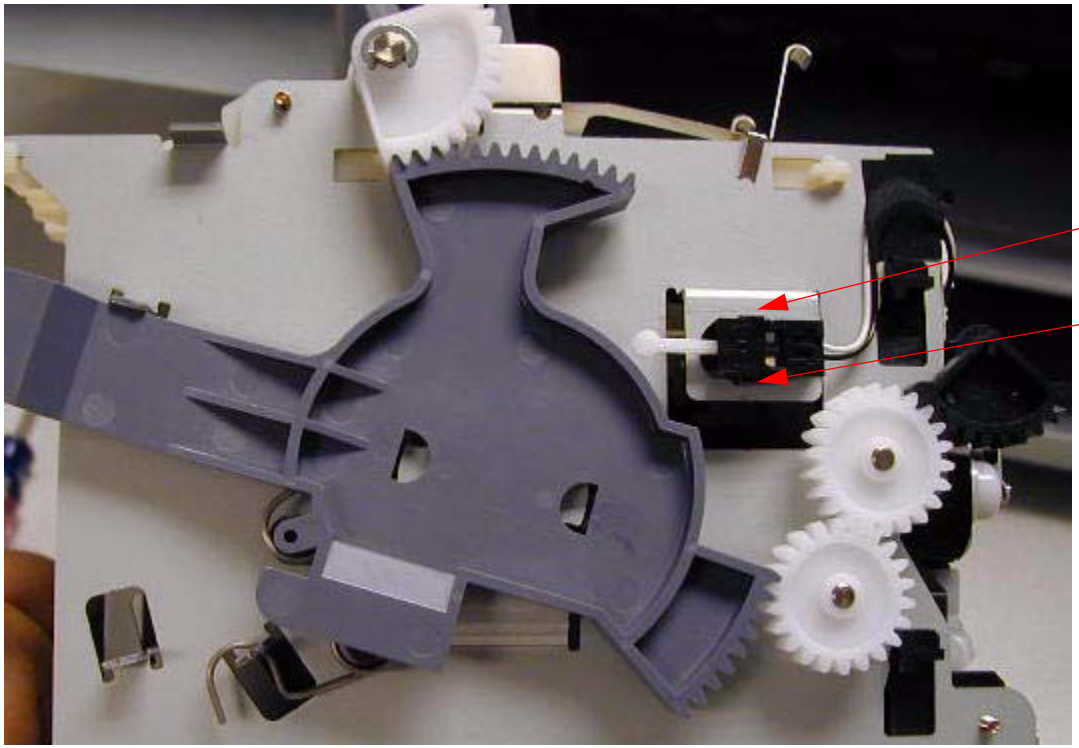


Spring position

3 Gear positions to check.

Cartridge Release Sensor Repair

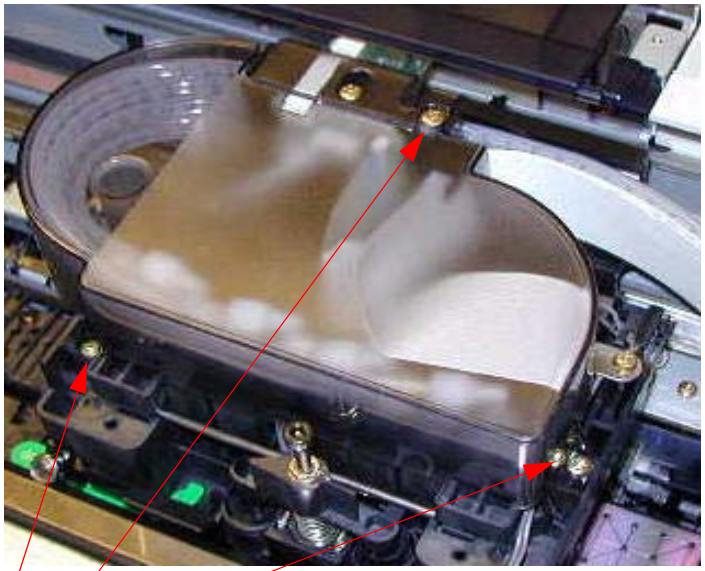
1. Remove the ***Ink Bay Assembly***.
2. Remove the ***Cartridge Release Sensor***, and replace.

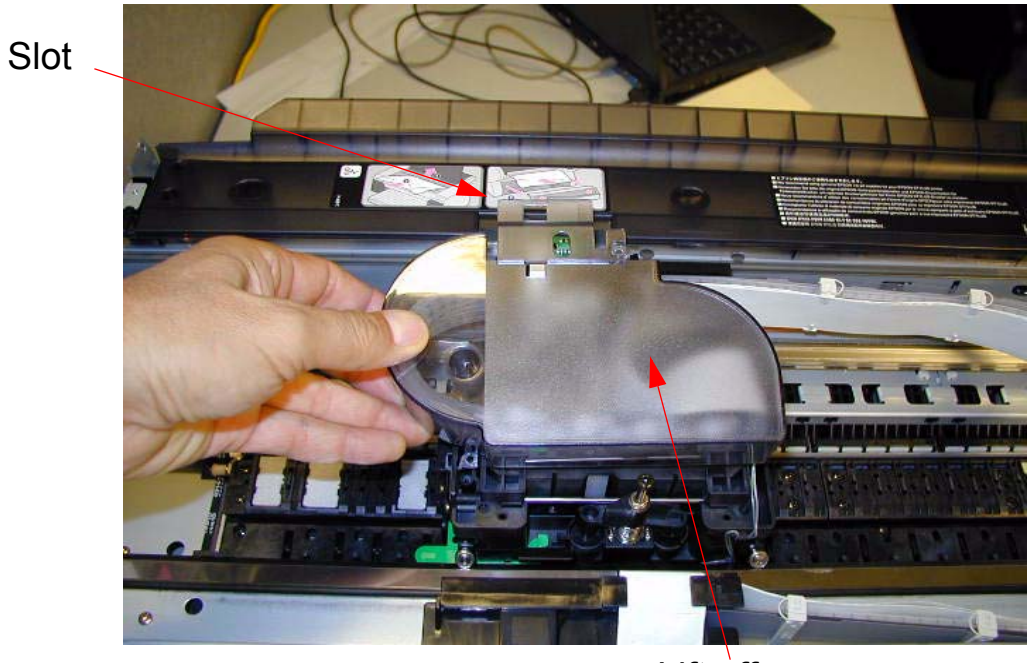


The ***Sensor*** is fastened by ***2 Interlocks***.

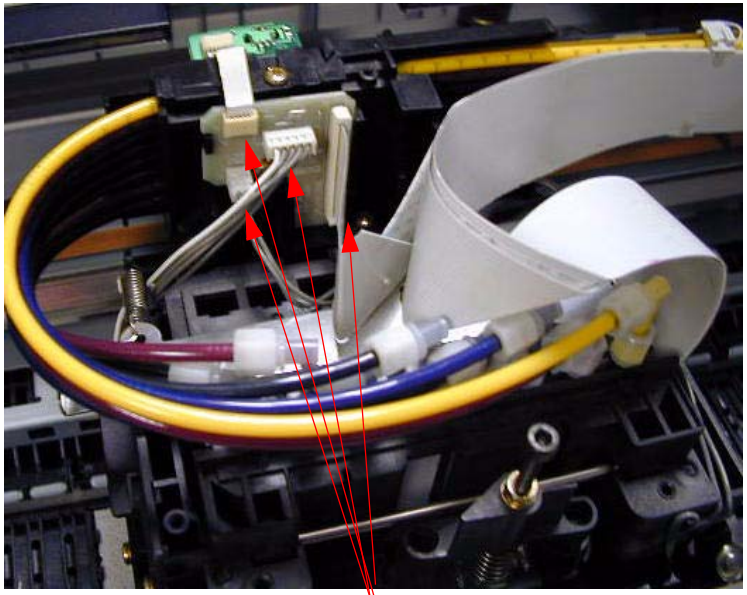
Damper Removal

1. Raise both ***Ink Levers***, closing the ***Ink Valves***.
2. Remove the ***Left Side Cover***.
3. Move the ***Carriage Mechanism*** to the left as shown, remove ***3 Screws***, and remove the ***Carriage Cover***.

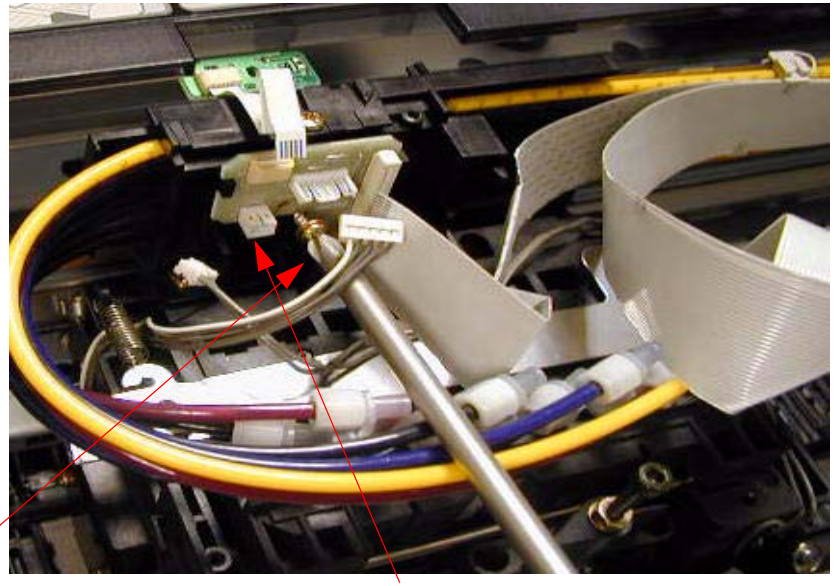




4. Disconnect ***4 Cables***, remove ***1 Screw***, and remove the Junction Board



1. Disconnect ***4 Cables.***



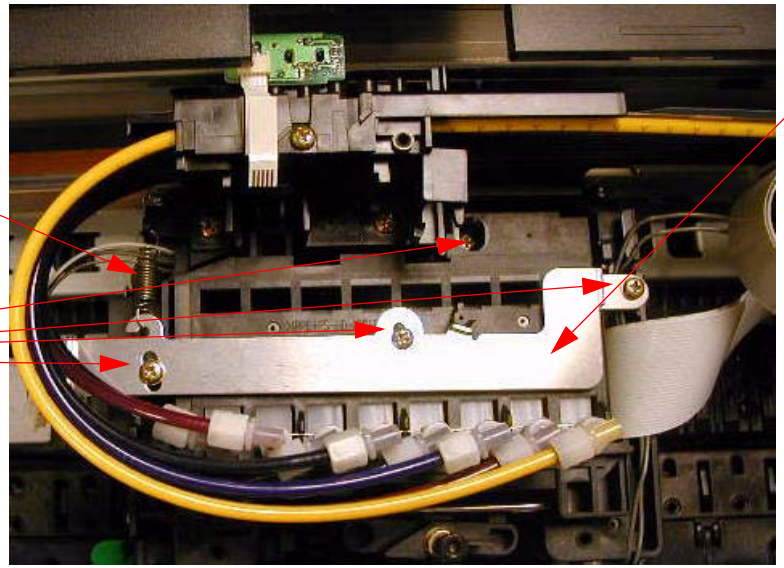
2. Remove ***1 Screw.***

3. Remove the ***Junction Board***.

5. Remove ***4 Screws***, ***1 Stay Bar***, and ***1 Spring***.

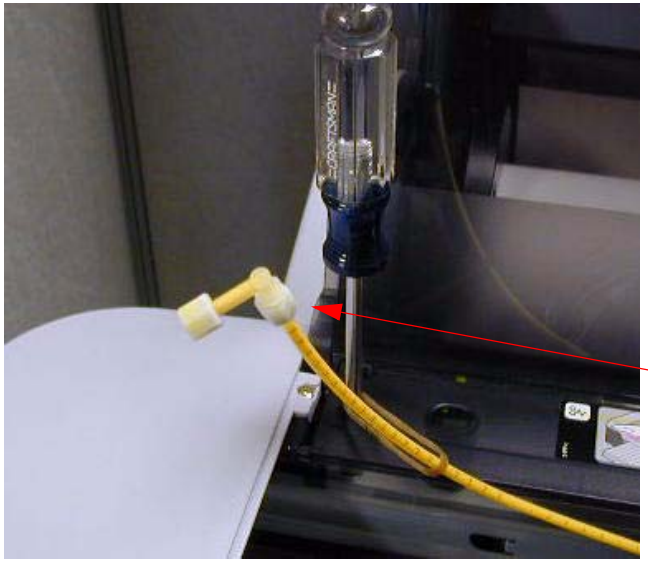
1 Spring

4 Screws



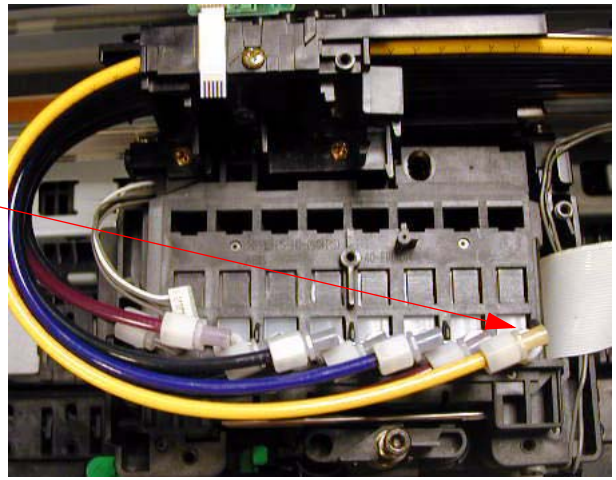
1 Stay Bar

6. Disconnect the ***Ink Lines,*** from the ***Dampers*** to be replaced.



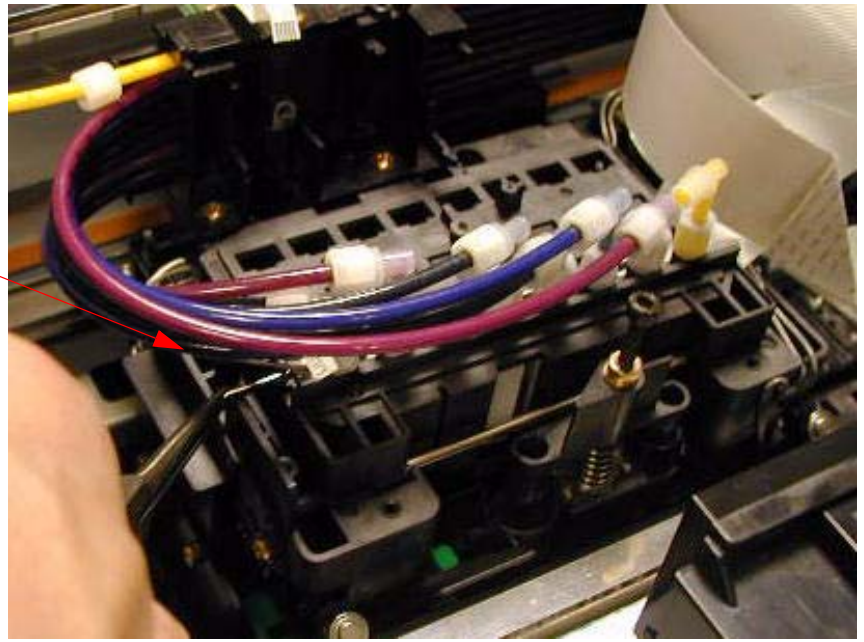
Disconnect the ***Lines*** at the ***Damper*** (bottom of the ***Elbow Joint***).

Move the ***Lines*** to the side, and fasten out of the way.

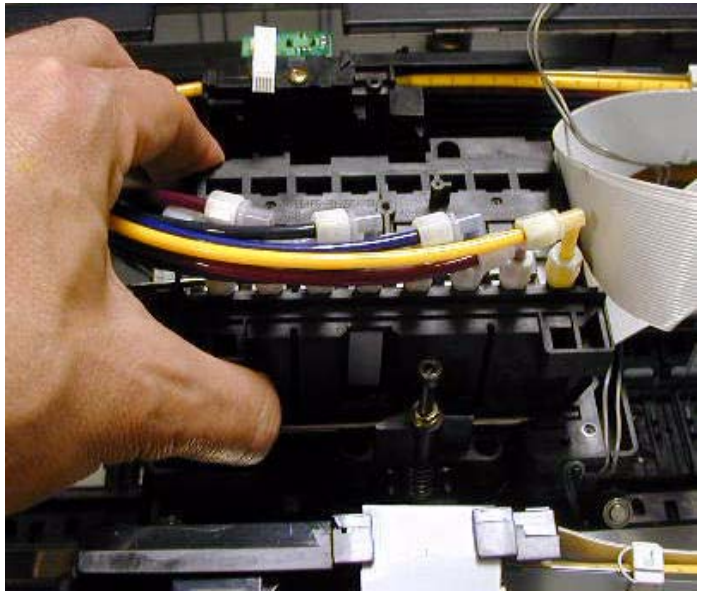


7. Remove the ***Stay Bar*** that fastens the ***Dampers*** to the ***Assembly***.

Remove the ***Stay Bar***.

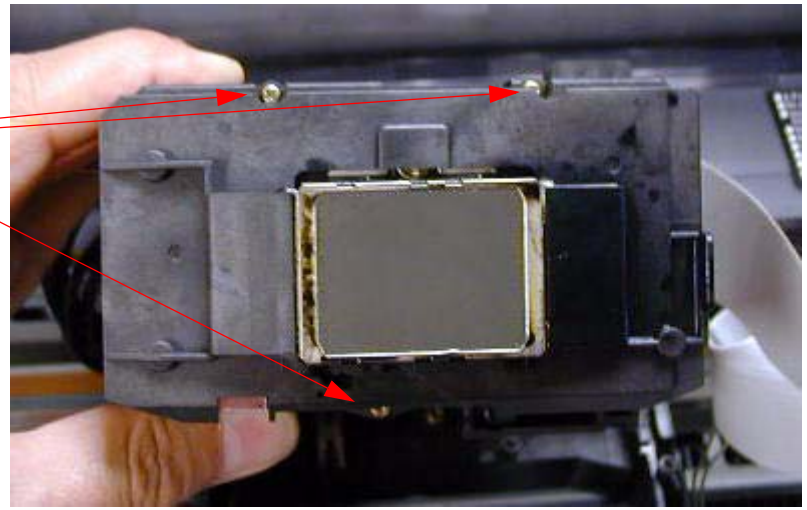


8. Lift out the ***Print Head / Damper Assembly***.

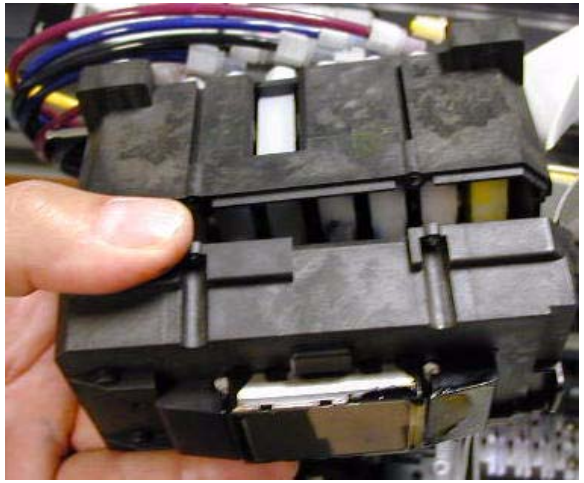


9. .Turn over the ***Print Head / Damper Assembly*** and remove ***3 Screws***.

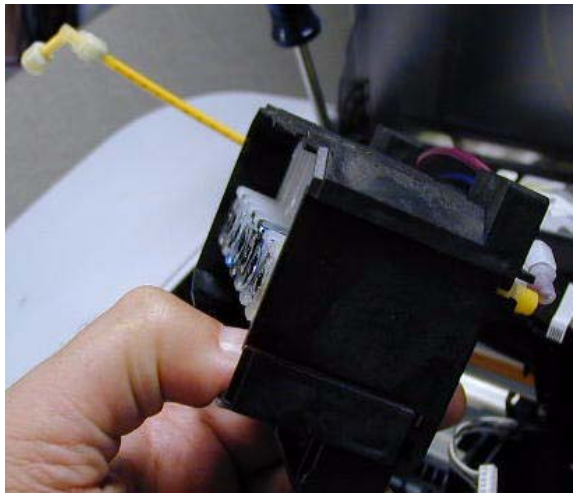
Remove 3 Screws.



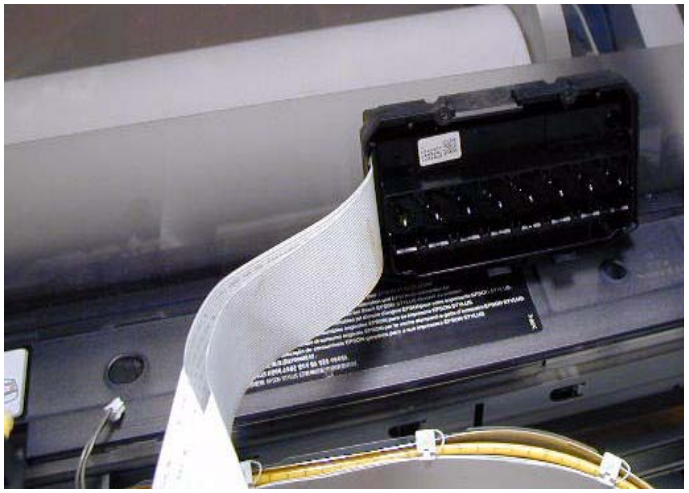
10. Disconnect the ***Print Head*** from the ***Damper Assembly***.



1. Disconnect the ***Print Head*** from the ***Damper Assembly***.



2. Hold the ***Damper Assembly*** like this so that ink does not leak.



3. Place the ***Print Head*** off to the side as shown.

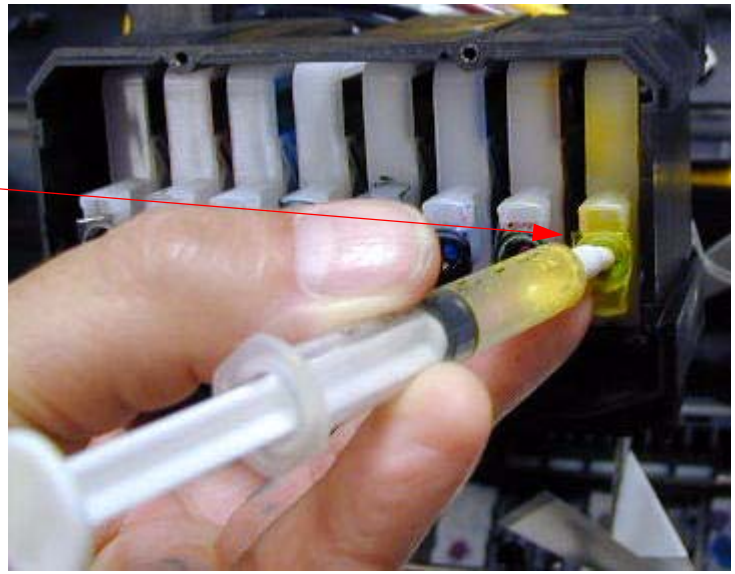
11. Release the ***Interlock*** that corresponds to the ***Damper(s)*** to be replaced, and lift out the Damper(s***)***

Damper Interlock

12. Install the new ***Damper(s)***.

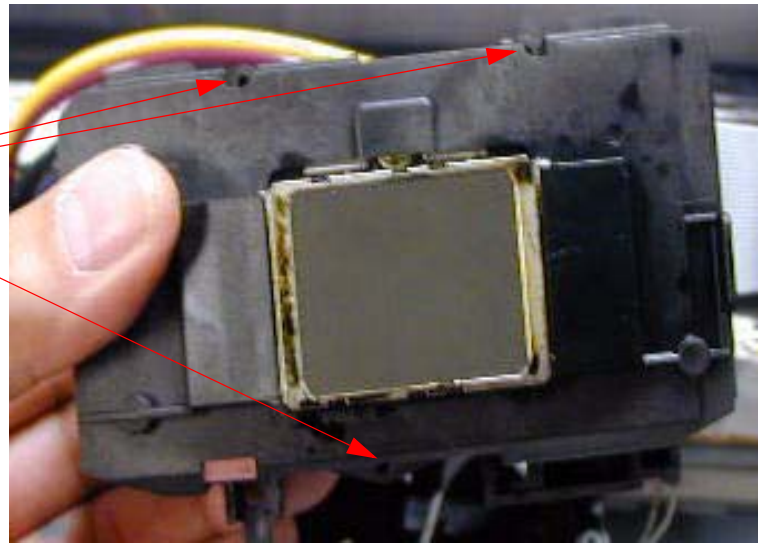
13. Re-connect the ***Ink Tubes*** to the new ***Dampers***, and manually prime all the ***Dampers***.

With the ***Damper*** openings facing up, draw the air out of the each ***Damper***.

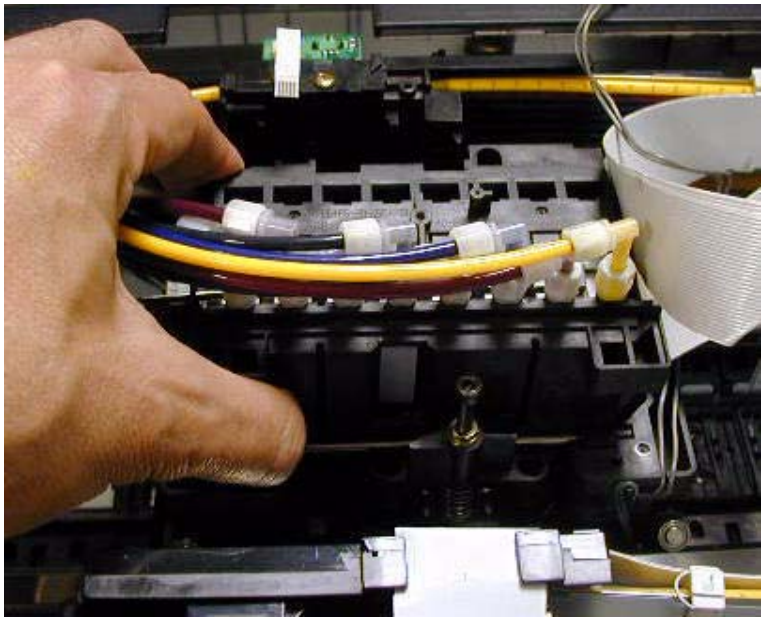


14. Reconnect the Print Head to the ***Damper Assembly***.

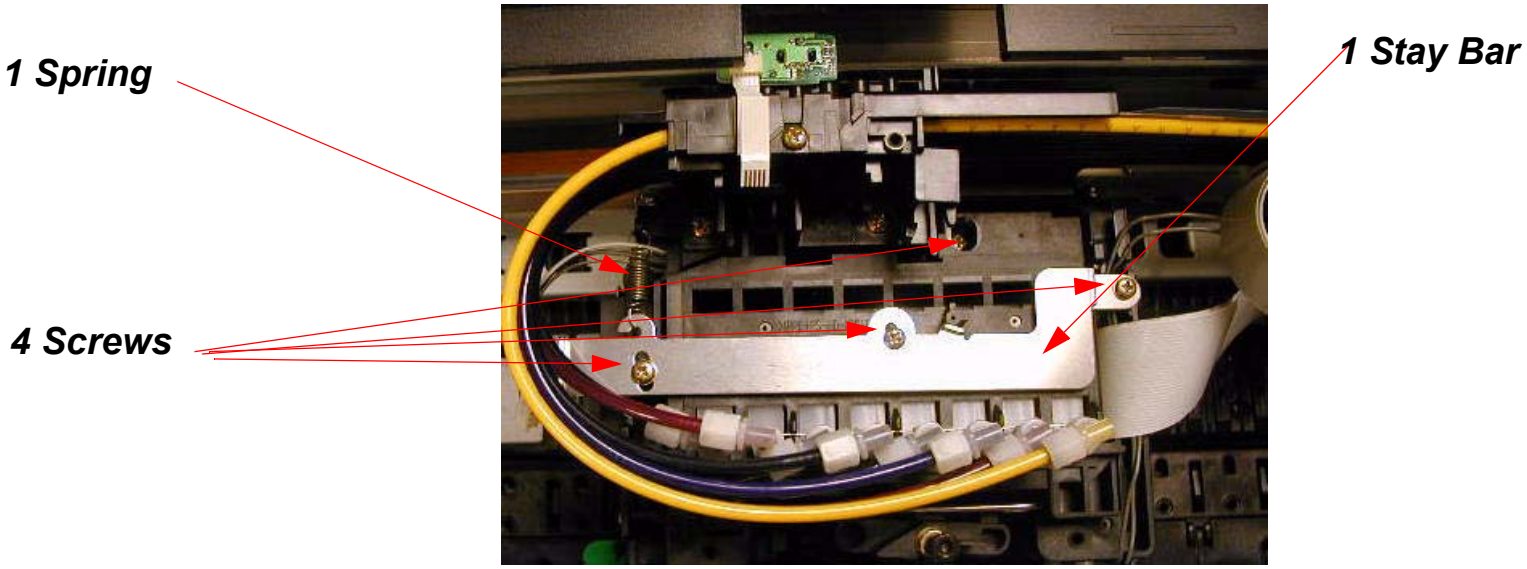
Connect the ***Print Head*** and fasten with ***3 Screws***.



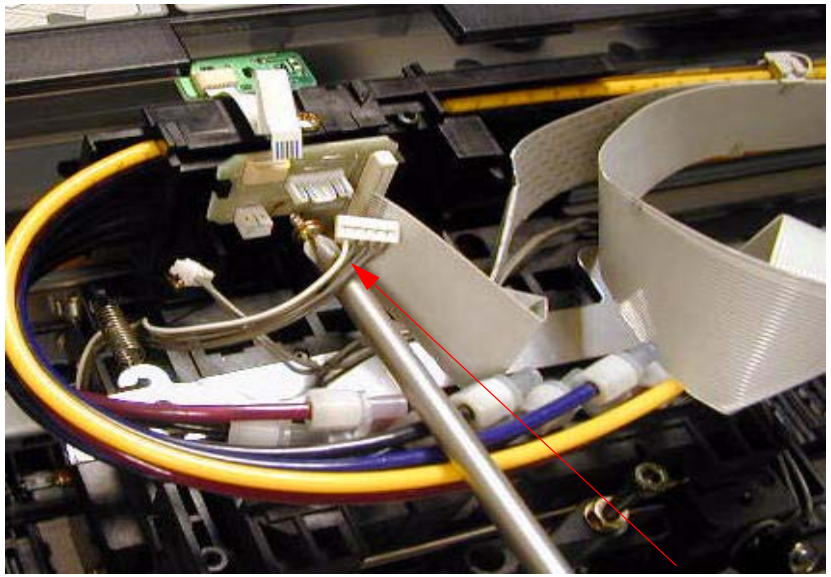
15. Place the ***Print Head / Damper Assembly*** back into the ***Carriage Mechanism***.



16. Replace ***4 Screws***, ***1 Stay Bar***, and ***1 Spring***.

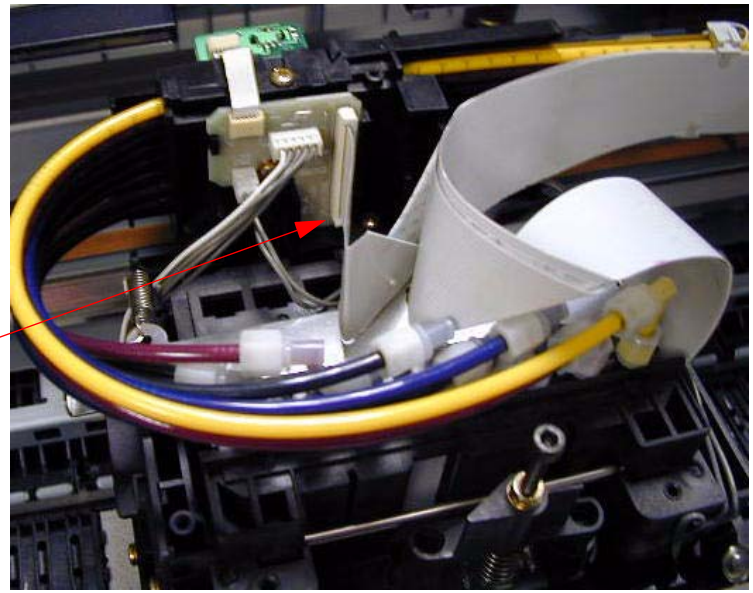


17. Re-install the ***Junction Board***, fasten with ***1 Screw***, and reconnect ***4 Cables***.



Install the ***Junction Board*** and fasten with ***1 Screw***.

This ***Connector*** has a latch.



Reconnect ***4 Cables.***

18. Perform cleaning cycles and nozzle checks until the nozzles are working.

19. Perform the ***Print Head*** mechanical adjustments.

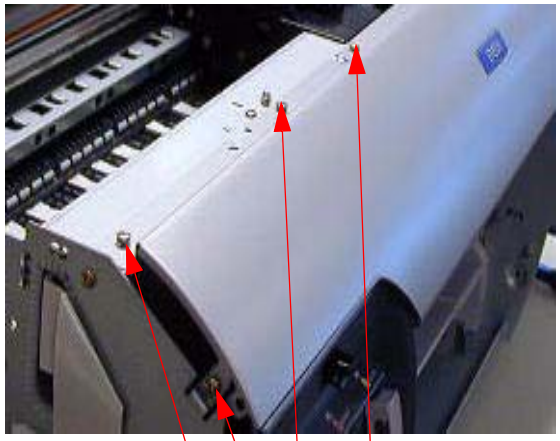
    19.1 Perform the **Print Head Slant Adjustment (CR)**

    19.2 Perform the **Print Head Slant Adjustment (PF)**

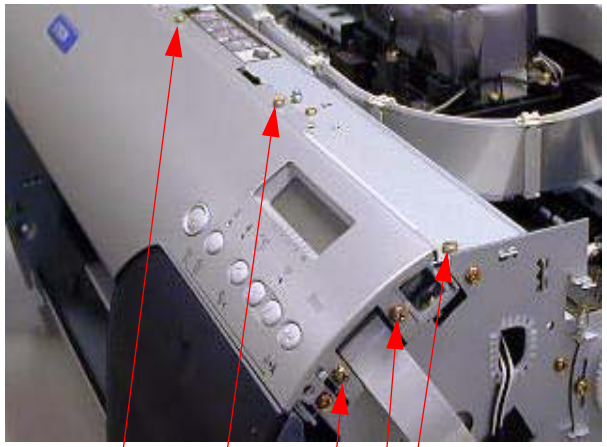
Ink Bay Removal (Left)

1. Remove the ***Left and Right Side Covers***.

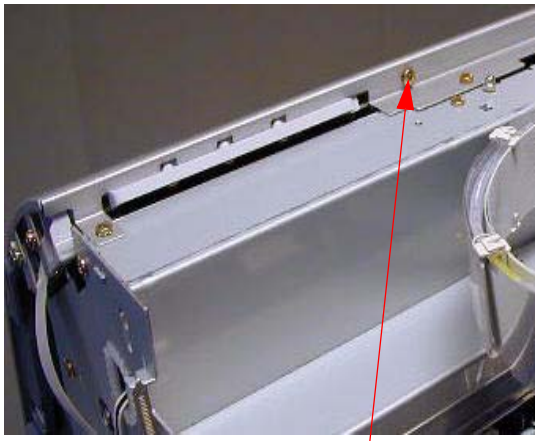
2. Remove the ***10 Screws*** fastening the ***Front Panel.***



Remove ***4 Screws***



Remove ***5 Screws***



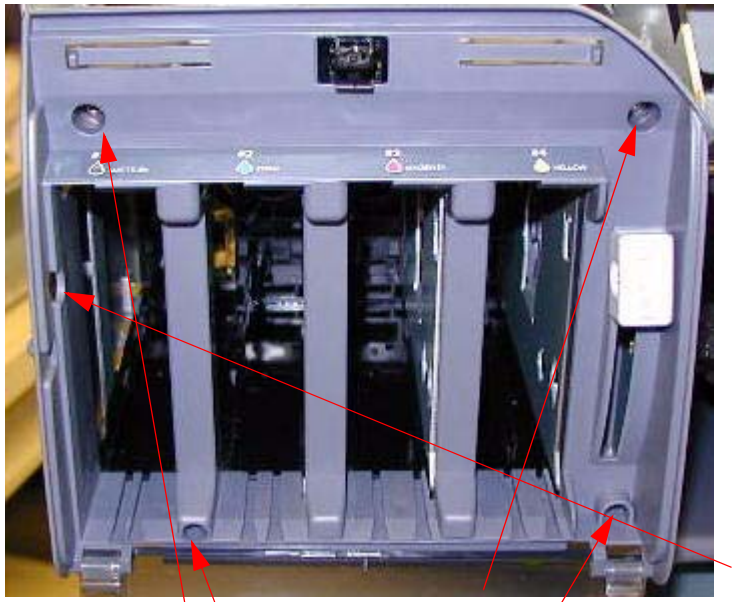
(View from the back)
Remove ***1 Screw***

3. Remove ***2 Screws*** fastening the ***Front Panel***.

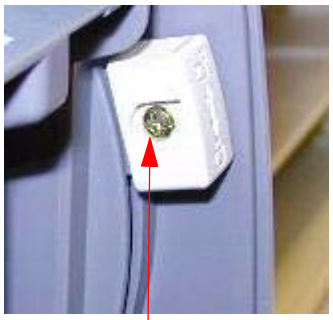
Remove ***2 Screws***

4. Remove the ***Front Panel***.

5. Remove ***4 Screws*** that fasten the ***Ink Bay Cover,*** and ***1 Screw*** that fastens the ***Cartridge Release Handle,*** and lift off the ***Cover.***

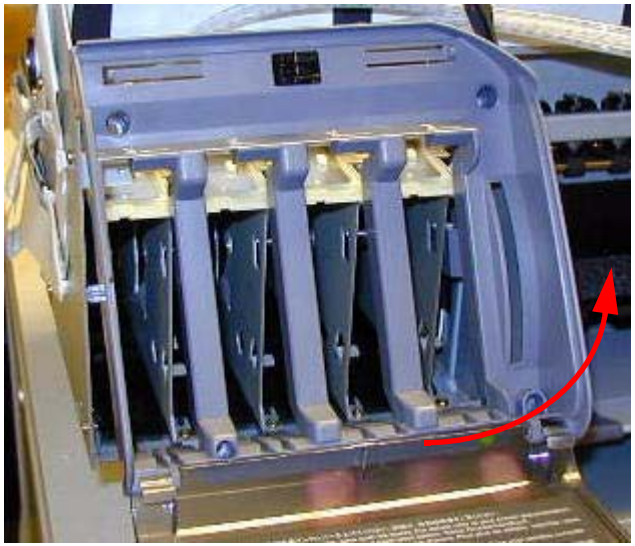


Remove ***4 Screws***



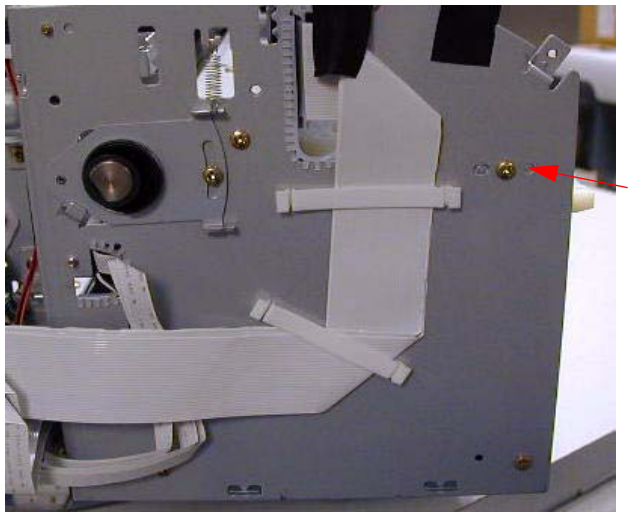
Remove ***1 Screw***

This hole in the ***Cover*** allows easy access to the ***Cartridge Release Handle Screw***



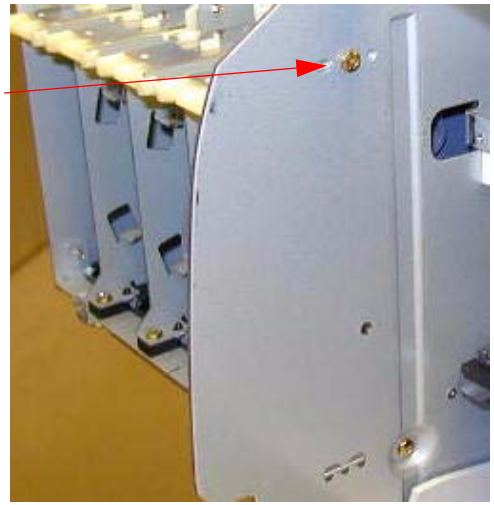
Lift off the ***Cover***.

6. Remove ***2 Screws*** and ***2 Brackets***

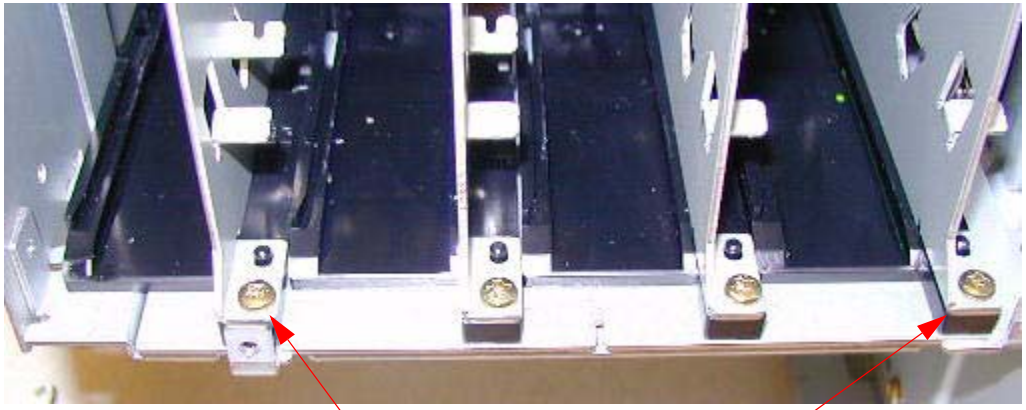


1 Screw and ***Bracket*** on the Right Side

1 Screw and ***Bracket*** on the Left Side

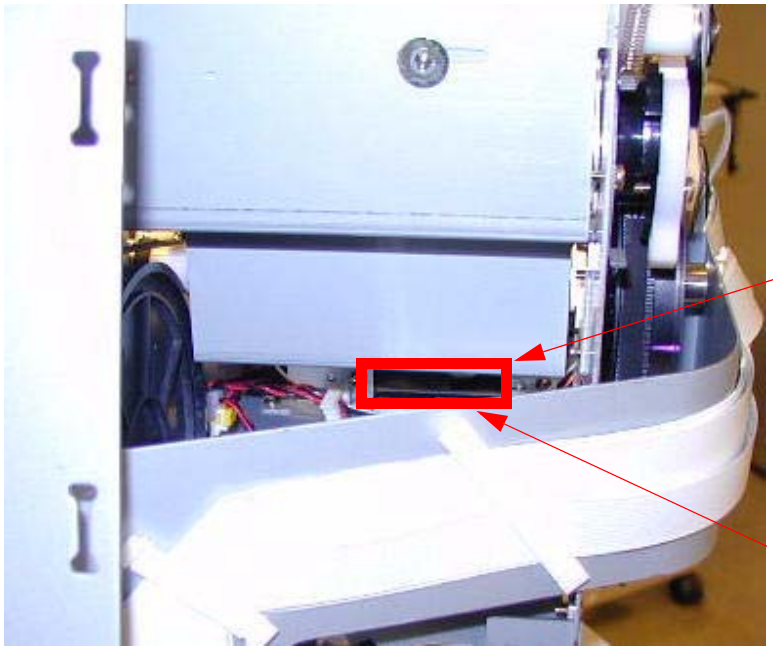


7. Remove ***2 Screws*** from the front.



2 Screws from the front

8. Remove ***2 Screws*** from the back of the ***Ink Bay Assembly***.

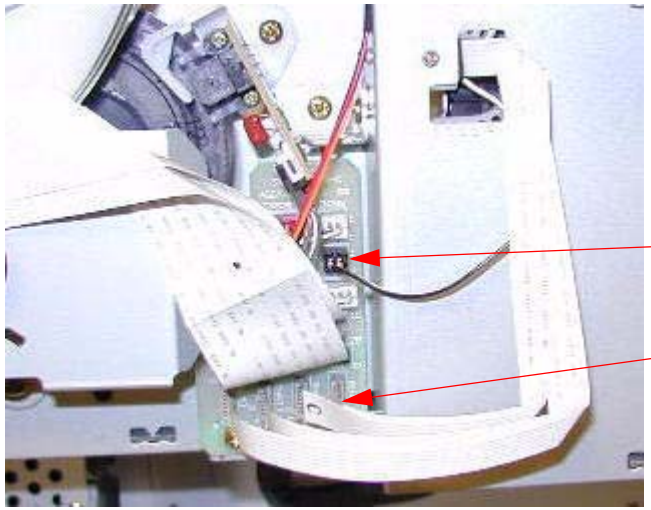


Blow up of this area

Remove ***2 Screws***

Look through this area, on the back of the ***Printer***, to find ***2 Screws***

9. Disconnect the ***4 Foil CSIC Cables*** and the ***Cartridge Release Sensor Cable.***

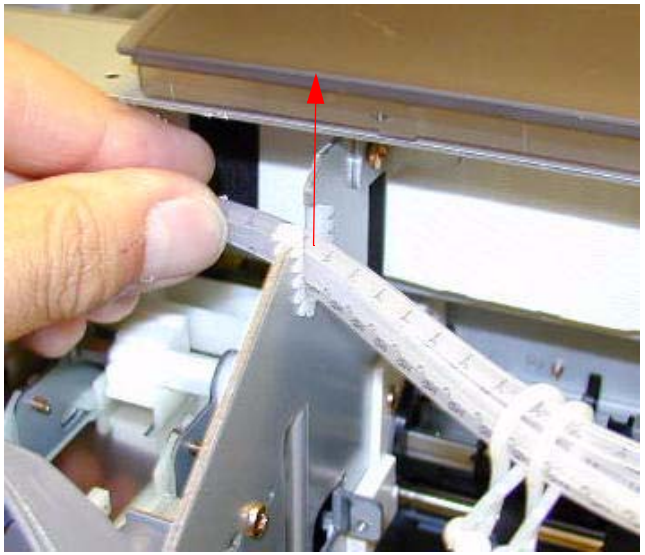


Cartridge Release Sensor Cable

4 CSIC Cables

Re-assembly Note: Cable Order
Yellow-Magenta-Cyan-Matte Black

10. Maneuver the ***Ink Tubes*** from the Slot.

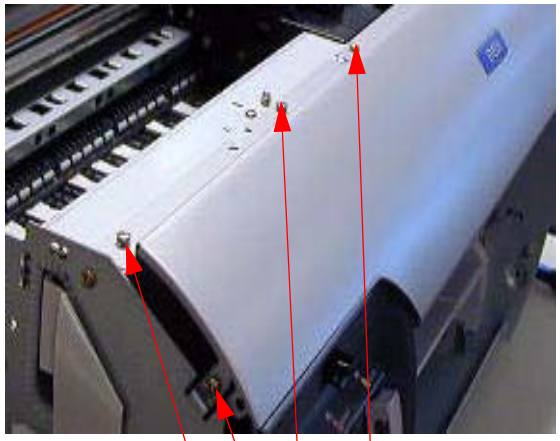


11. Slide out the ***Ink Bay Assembly,*** while assisting the ***Cables*** through the ***Frame***.

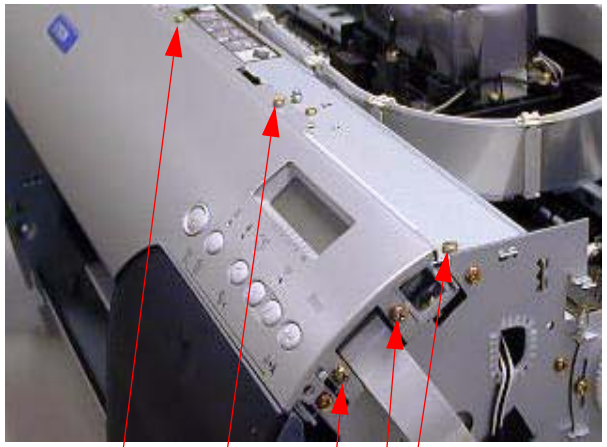
Ink Bay Removal (Right)

1. Remove the ***Left and Right Side Covers***.

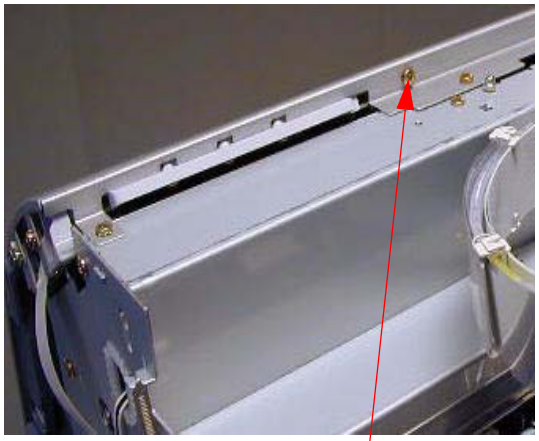
2. Remove the ***10 Screws*** fastening the ***Front Panel.***



Remove 4 ***Screws***



Remove ***5 Screws***



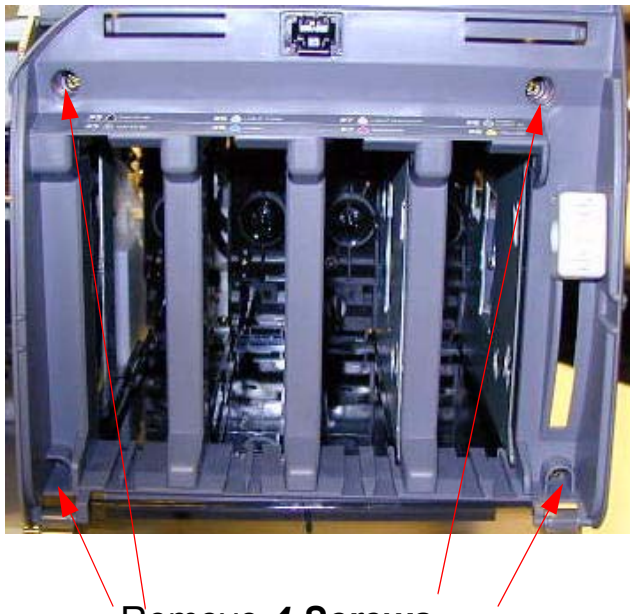
(View from the back)
Remove ***1 Screw***

3. Remove 2 ***Screws*** fastening the ***Front Panel***.

Remove 2 ***Screws***

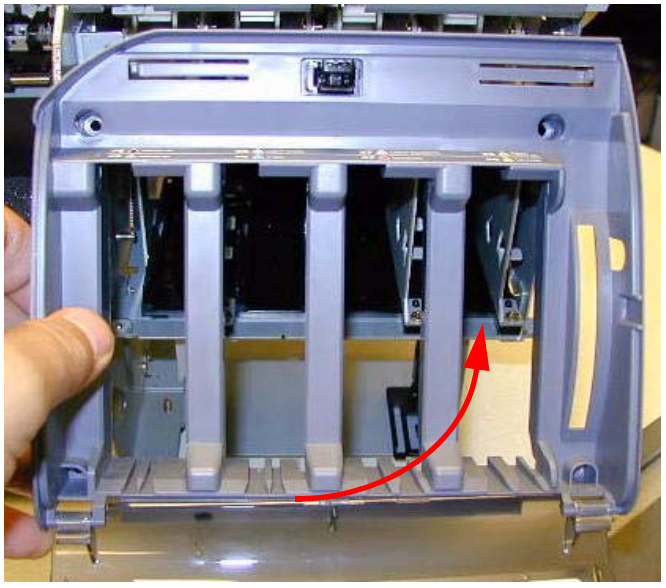
4. Remove the ***Front Panel***.

5. Remove 4 ***Screws*** that fasten the ***Ink Bay Cover,*** and 1 ***Screw*** that fastens the ***Cartridge Release Handle,*** and lift off the ***Cover.***



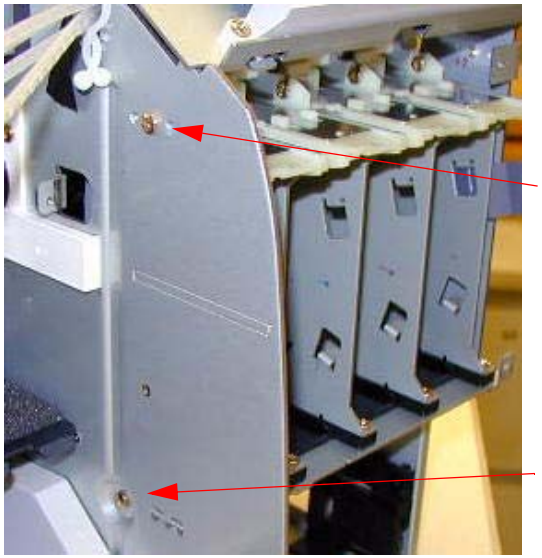
Remove ***4 Screws***

Remove ***1 Screw***



Lift off the ***Cover***.

6. Remove ***4 Screws*** and ***2 Brackets***



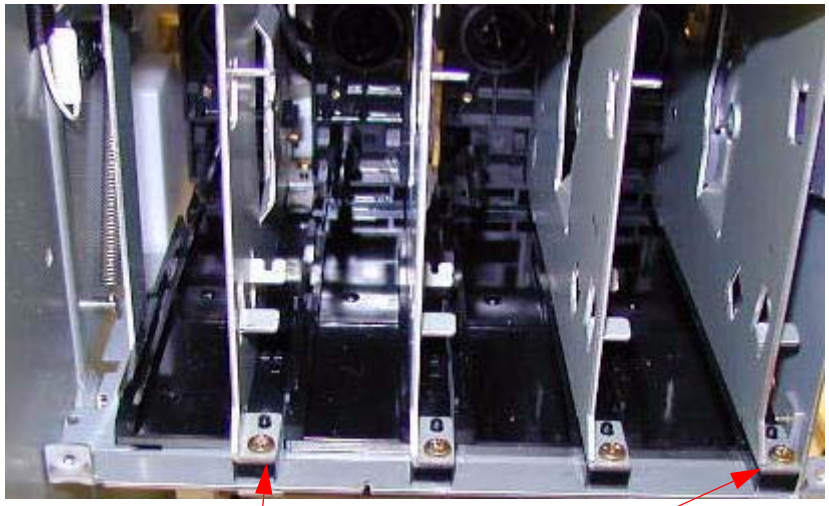
1 Screw and ***Bracket*** on the left side

1 Screw on the left Side

1 Screw and ***Bracket*** on the right side

1 Screw on the right Side.

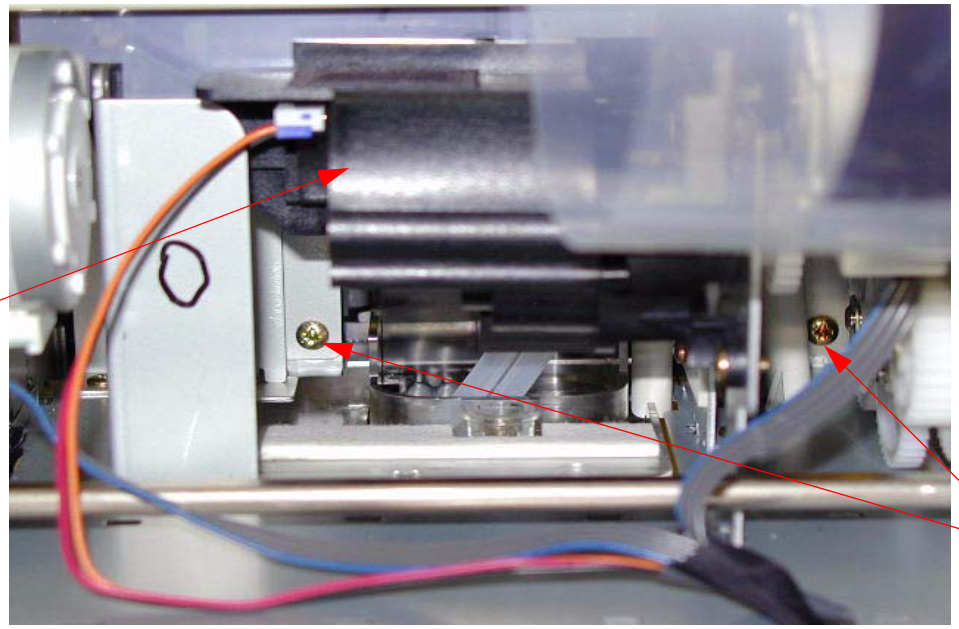
7. Remove ***2 Screws*** from the front.



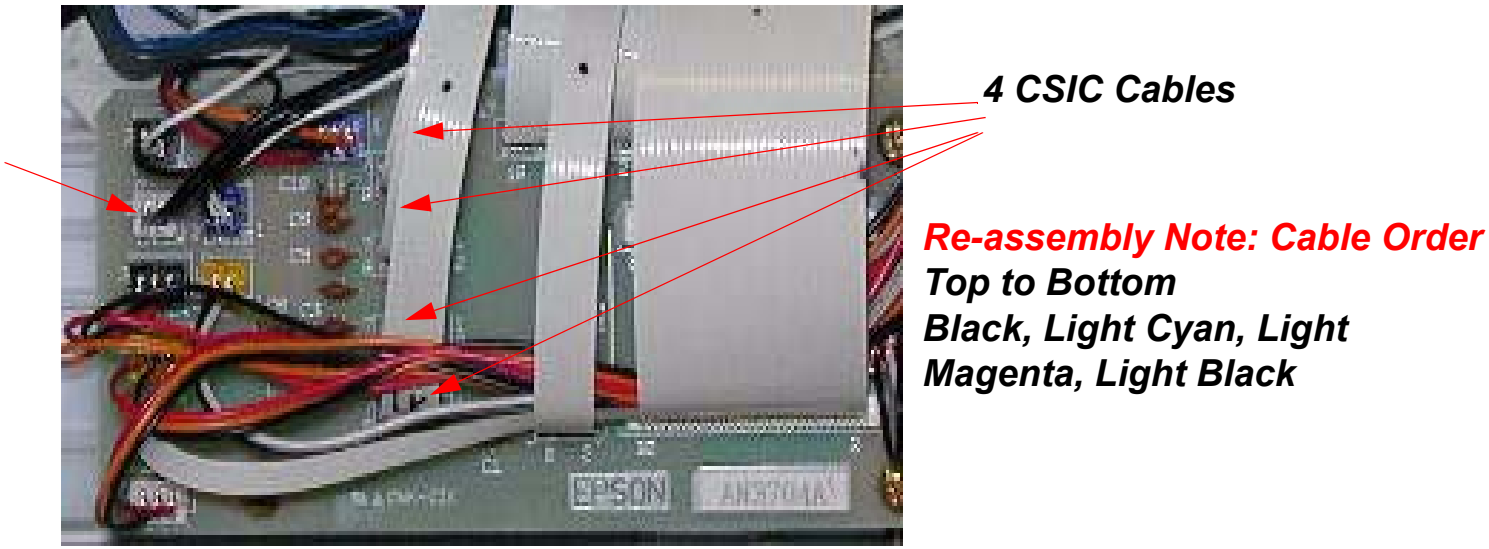
2 Screws from the front

8. Remove ***2 Screws*** from the back of the ***Ink Bay Assembly***.

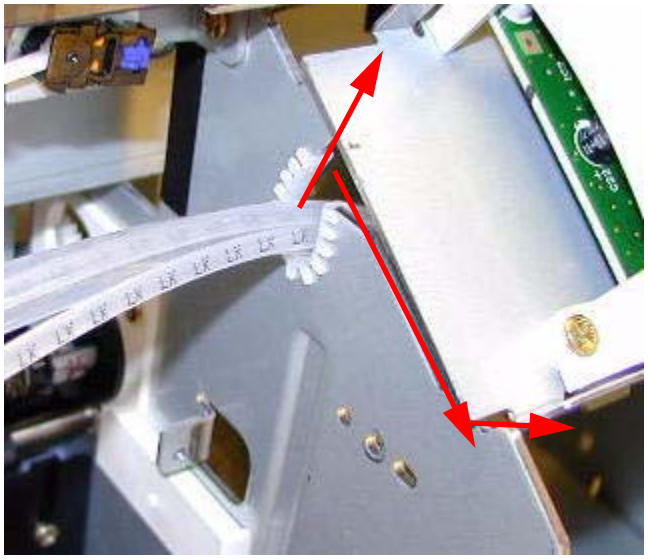
View is from the back of the ***Printer***



9. Disconnect the ***4 Foil CSIC Cables*** and the ***Cartridge Release Sensor Cable.***

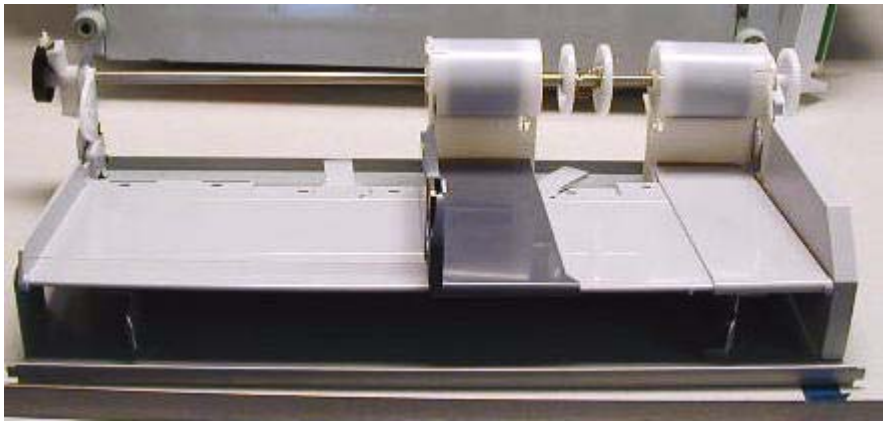


10. Maneuver the ***Ink Tubes*** from the slot.

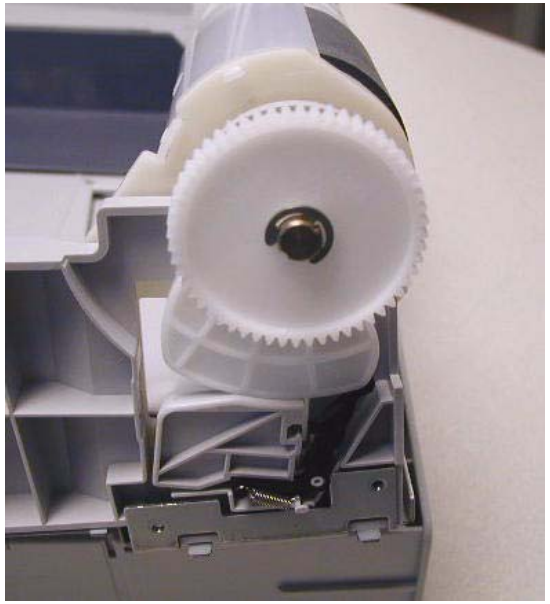


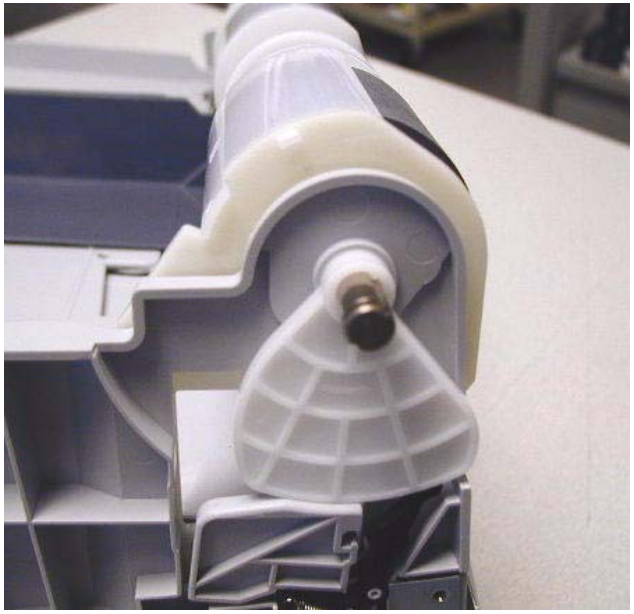
11. Slide out the ***Ink Bay Assembly,*** while assisting the ***Cables*** through the ***Frame***.

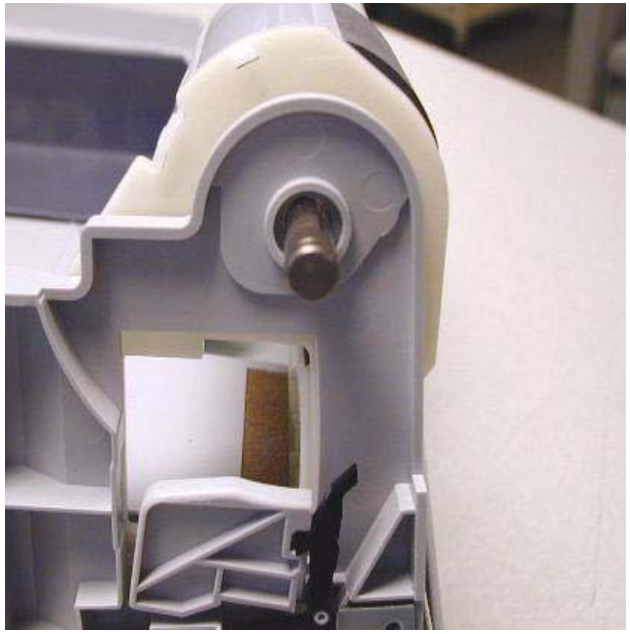
Input Roller Assembly, Disassembly



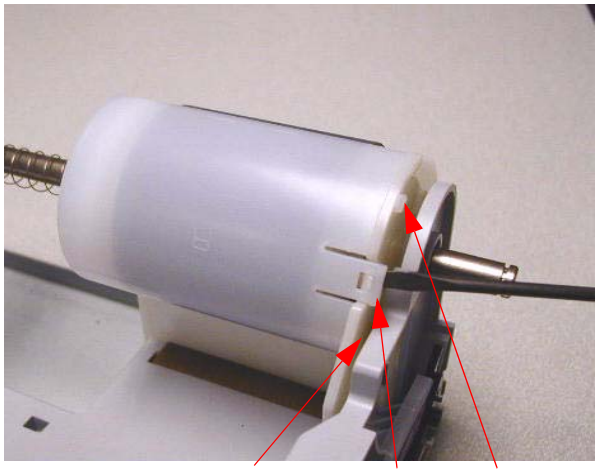
1. Remove the ***E-Ring***, ***Gear***, and ***Paddle*** shown below.



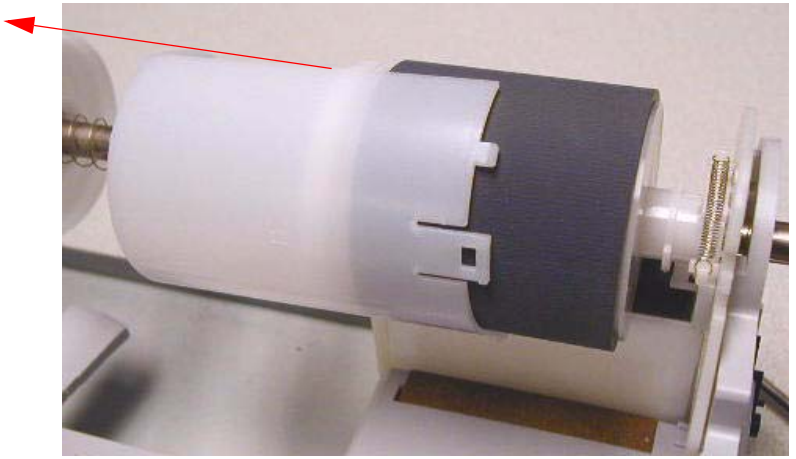




2. Detach the ***3 Interlocks*** that fasten the ***Input Roller Cover***, and slide the ***Cover*** off the ***Roller.***

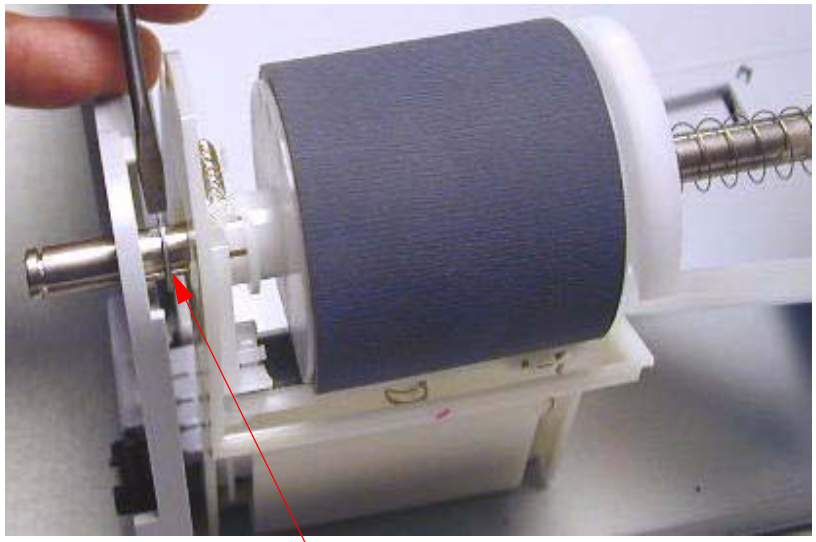


Detach 3 ***Interlocks***

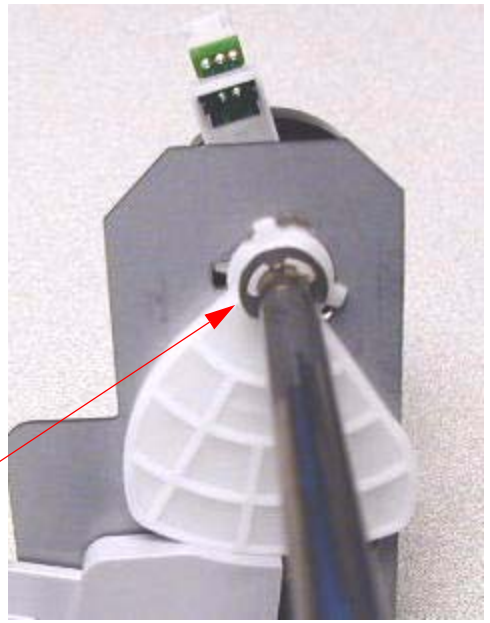


Slide off the ***Cover***

3. Remove the ***2 E-Rings*** shown below

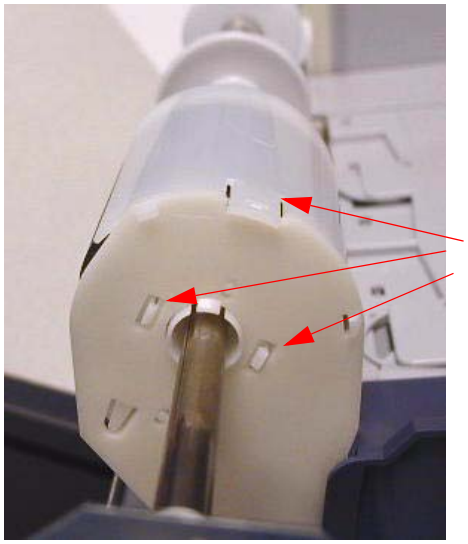


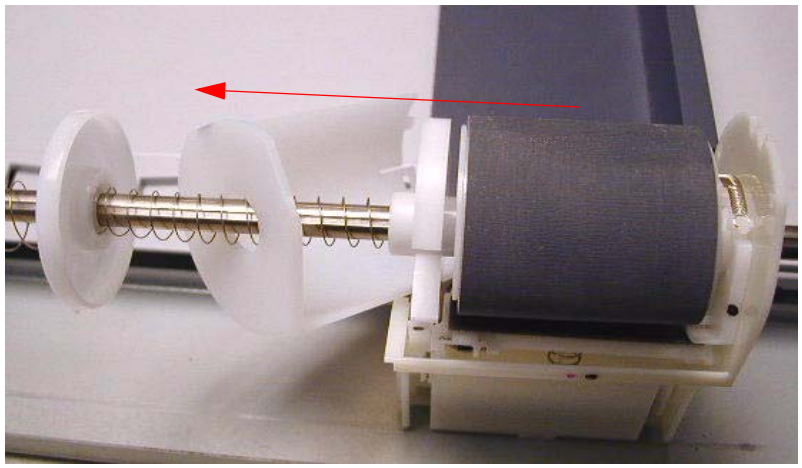
Remove the ***E-Ring***



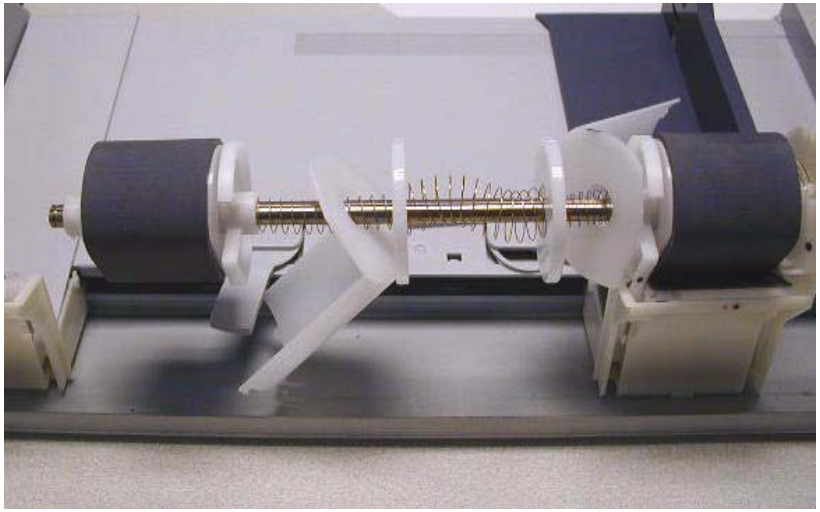
Remove the ***E-Ring***

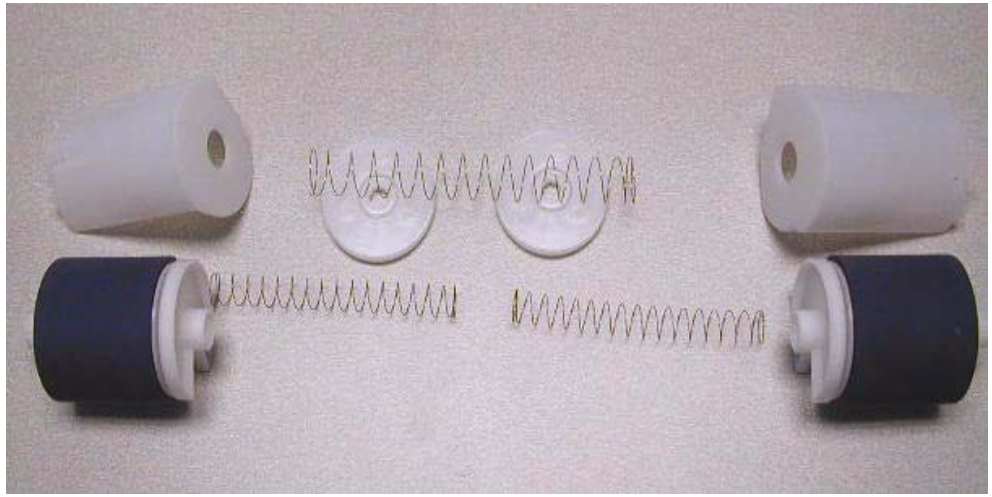
4. Detach the ***3 Interlocks*** holding the remaining ***Roller Cover***, and slide it off.





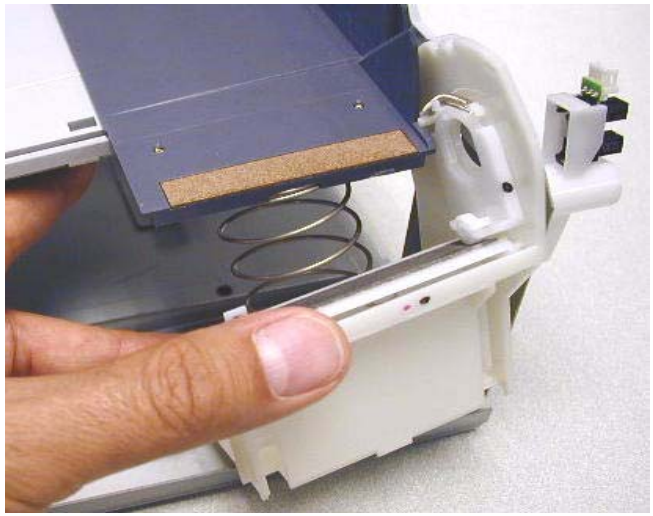
5. Slide the remaining components off the ***Shaft.***

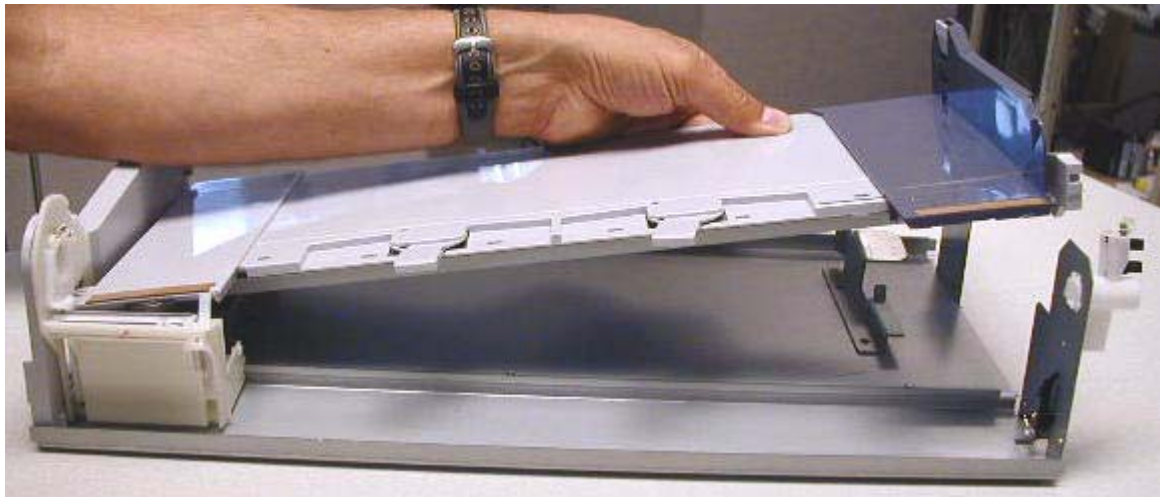




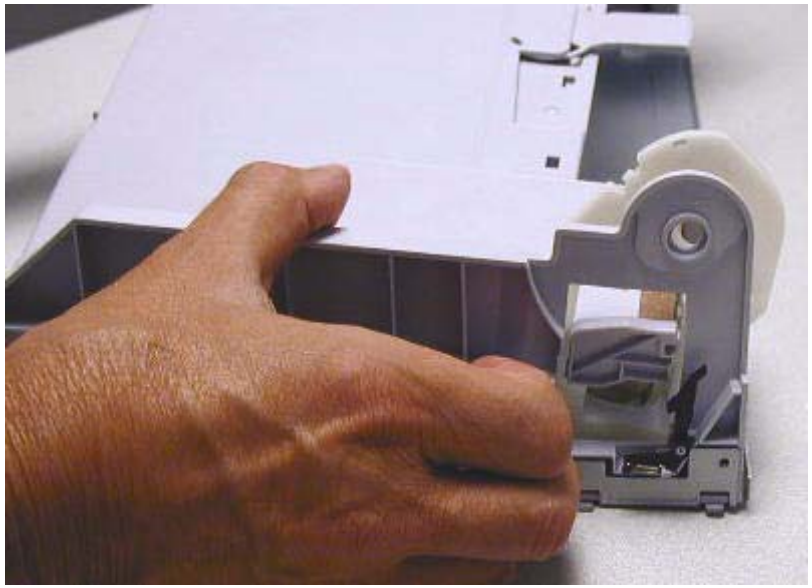
6. Release the ***Interlocks***, as shown below.

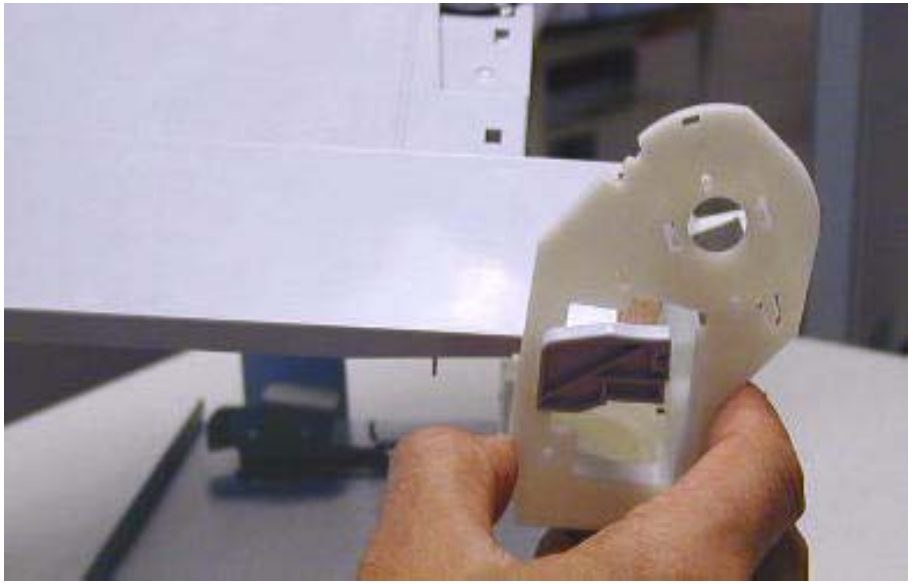
7. Lift up the ***Paper Tray Base,*** and remove the ***Separation Pad Assembly*** as shown below.

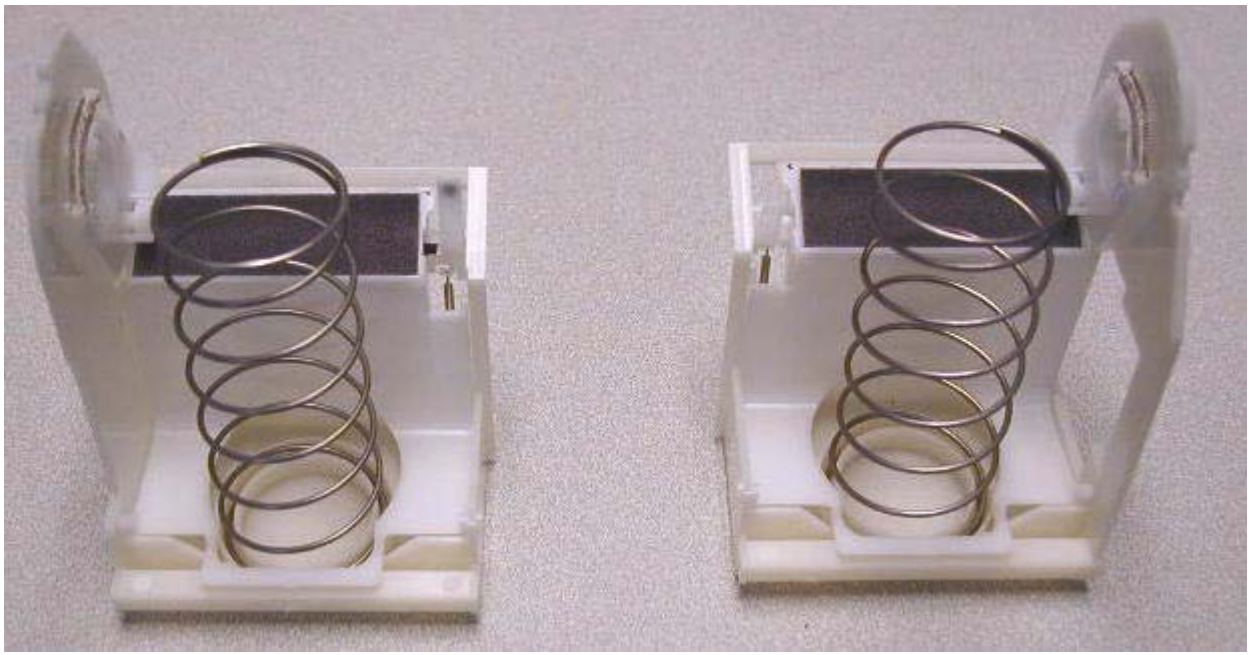




8. Maneuver the remaining side of the ***Paper Tray Base*** as shown below to free the last ***Separation Pad Assembly***.



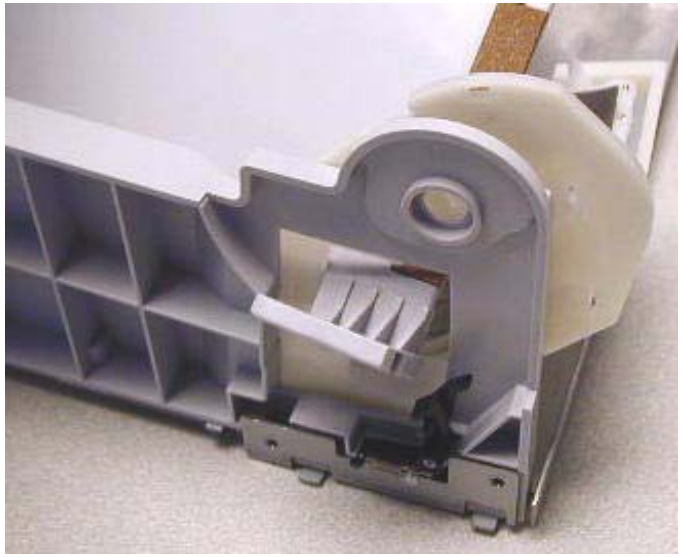




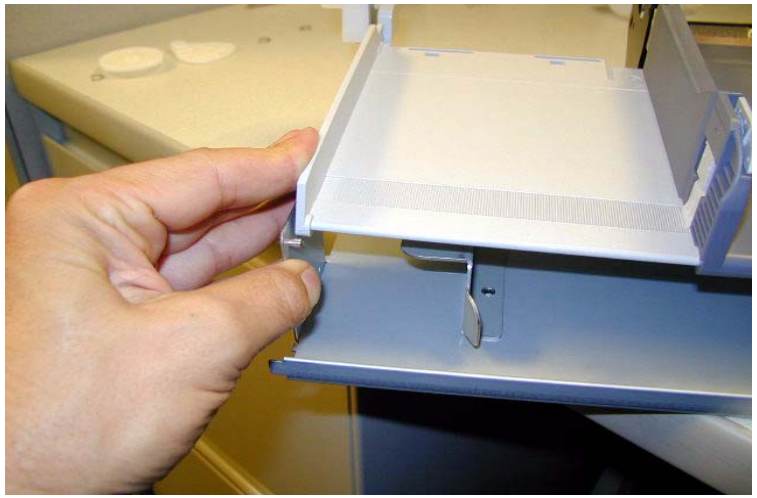
Input Roller Assembly, Re-assembly

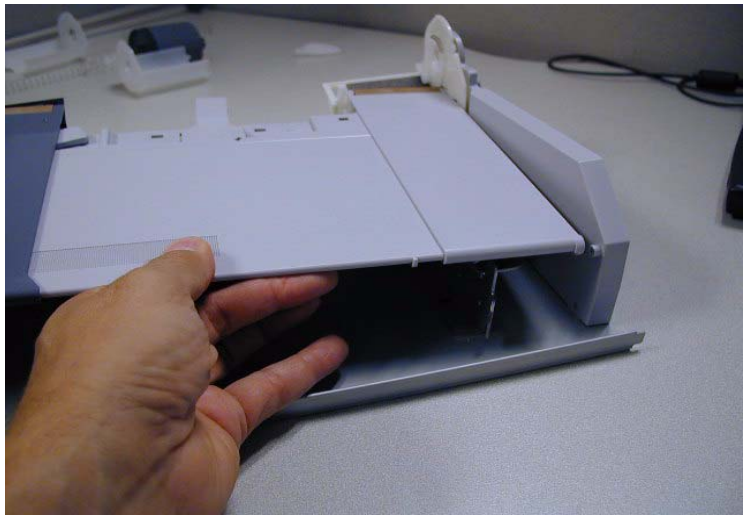
1. Assemble the ***Base Unit*** until it looks this.

2. Maneuver the ***Separation Pad Assembly*** into the slot as shown.

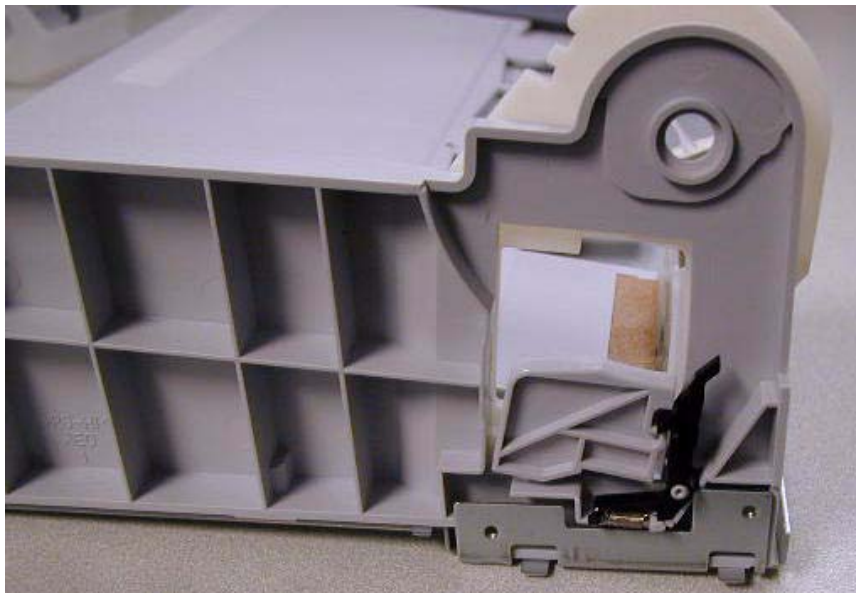


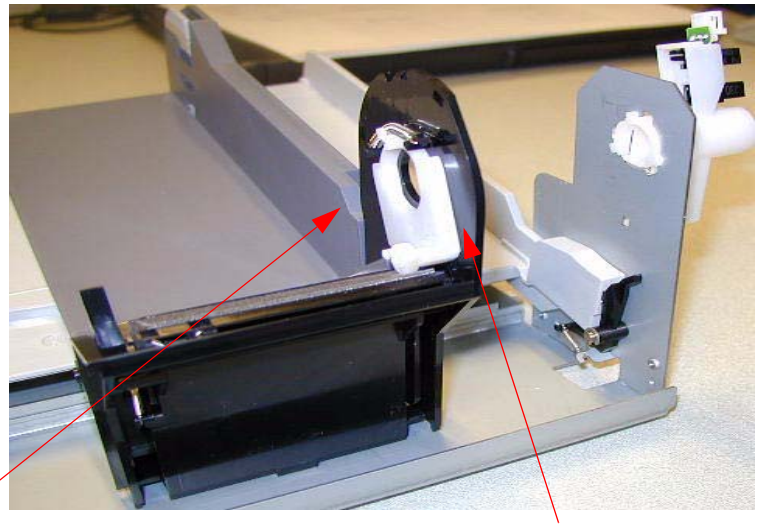
3. Re-hook the ***Interlock / Pivot Points*** that connect the ***Separation Pad Assembly*** to the ***Base***.





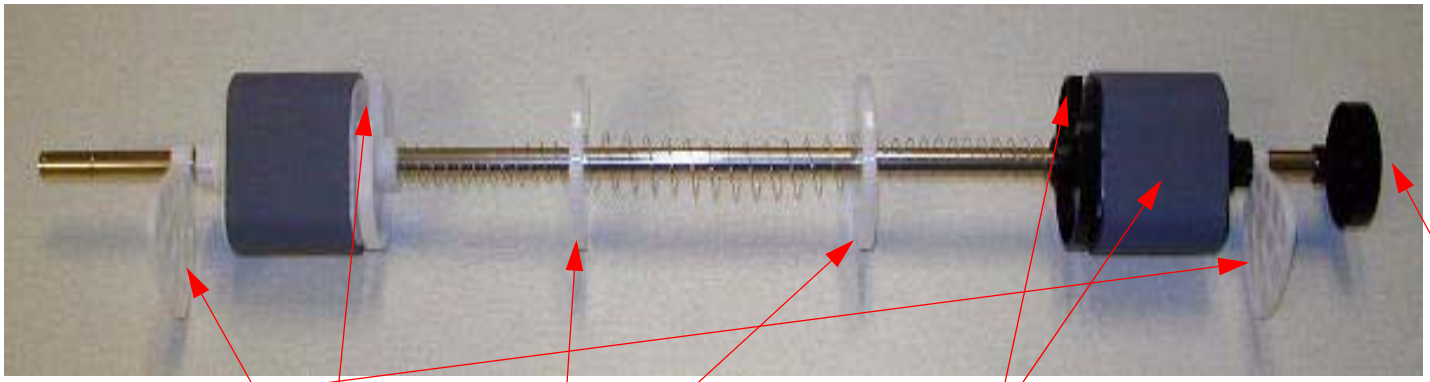
4. Press down on the ***Separation Pad Assembly*** until the ***Black Levers*** lock it in the down position.





These two pieces must be pressed tightly together to allow the ***Paper Separation Assembly*** too fully compress the ***Springs***.

5. Study the polarity, and order of the parts below.



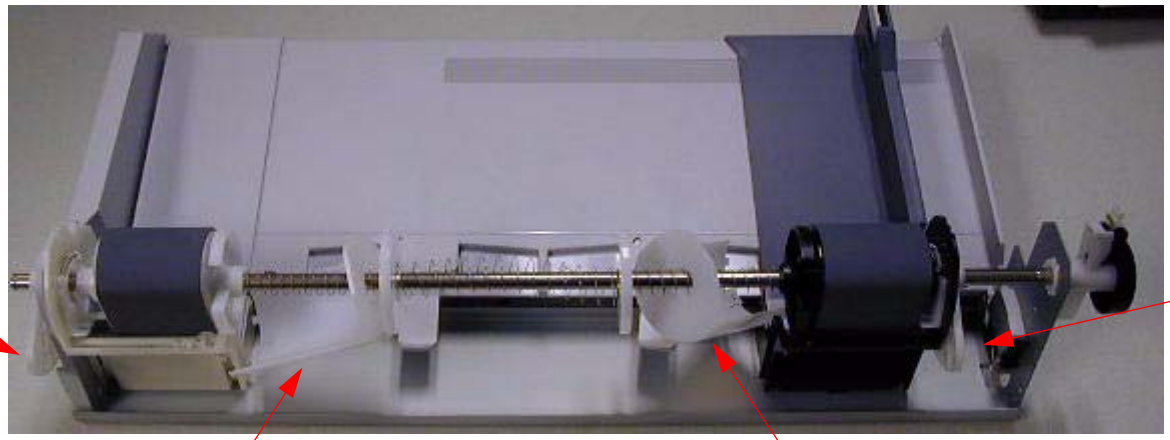
Paddles positioned, so that the arrow on the side faces up

The ***Disks*** have depressions, that fit the ***Springs***.

Home Position Window faces the opposite direction from the flat side of the ***Roller***.

The ***Right and Left Rollers*** are different. Pay attention to the position of the ***Slots***.

6. Install the ***Roller Assembly*** components into the ***Base Assembly***, following the directions above.



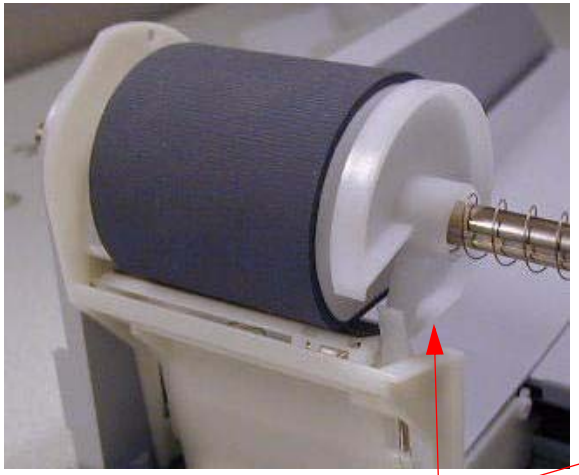
Paddle on the outside of the ***Frame***.

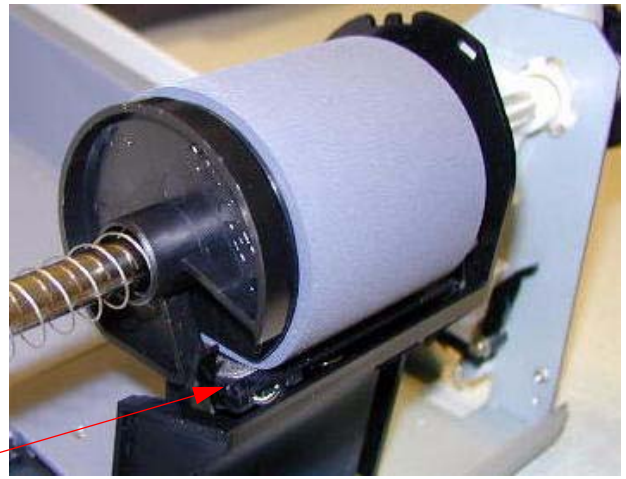
Paddle on the inside of the ***Frame***.

Cover marked with ***R***

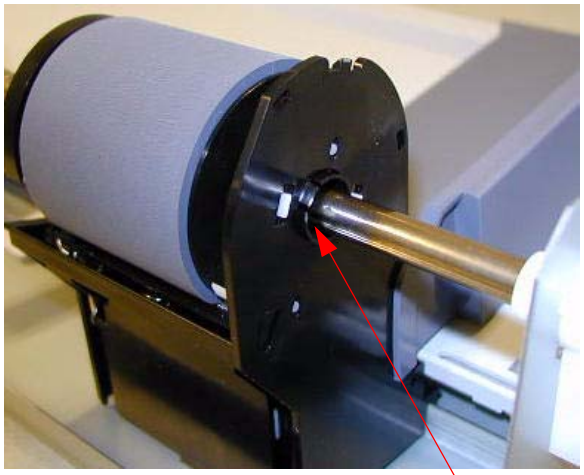
Cover marked with ***L***

7. Rotate the ***Input Rollers*** so that the flat side is down to allow the ***Roller*** to interlock with the ***Roller Frame***.





Flat side down

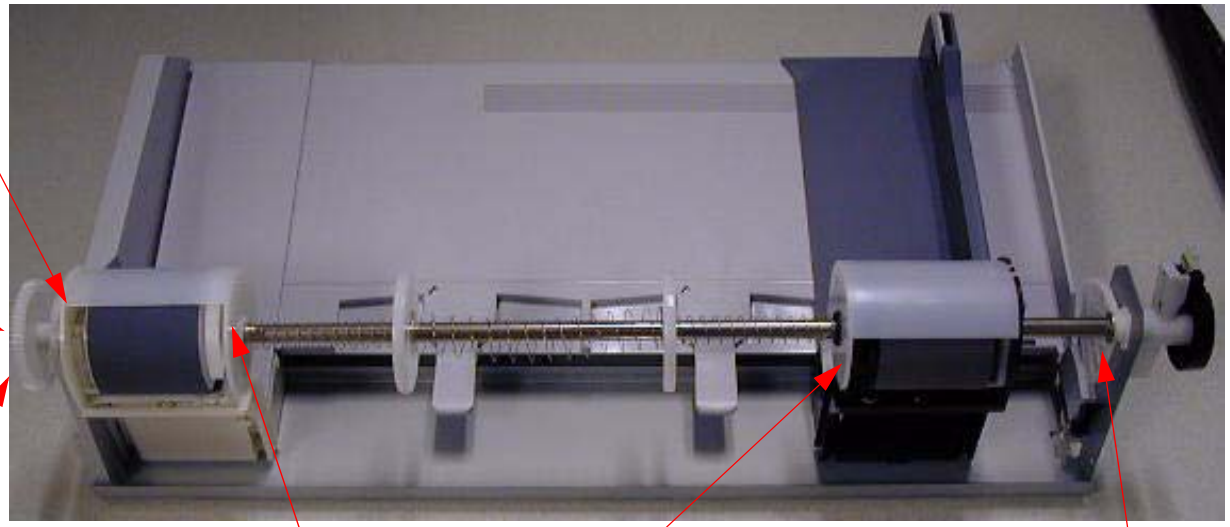


This part of both ***Rollers*** must fit through the ***Roller Side Frame***.

8. Re-attach the ***Roller Covers***, ***3 E-rings***, and ***Gear***.

1 E-Ring between the ***Roller Assembly*** and the ***Frame***.

1 E-Ring fastening this ***Gear***.

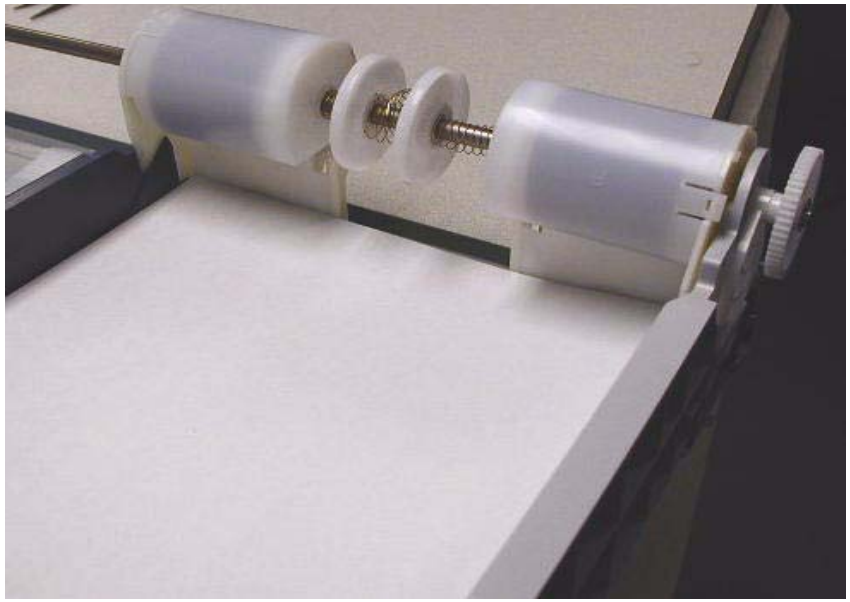


Gear

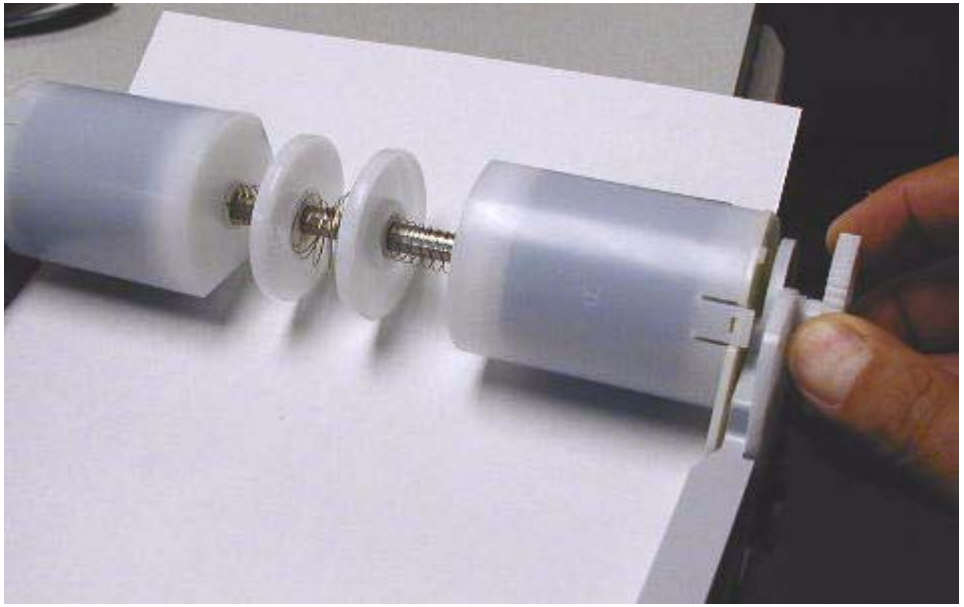
2 Roller Covers

E-Ring

9. Test the ***Roller Assembly*** before installation



Place a piece of paper in the ***Tray***.



Rotate the ***Gear*** and check for proper operation

Input Roller Assembly Removal

1. Remove the ***Left Side Cover.***
2. Remove the ***Right Side Cover.***
3. Remove the ***Ink Cartridges***, and leave the ***Levers*** up (closing the ***Valves***).

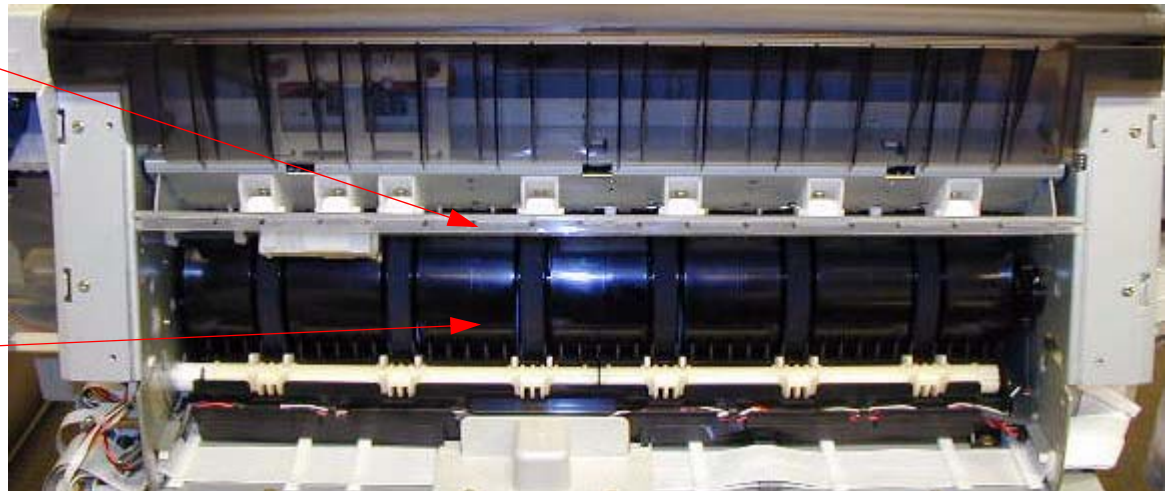
Lever up, closing the ***Valves***

Lever up, closing the ***Valves***

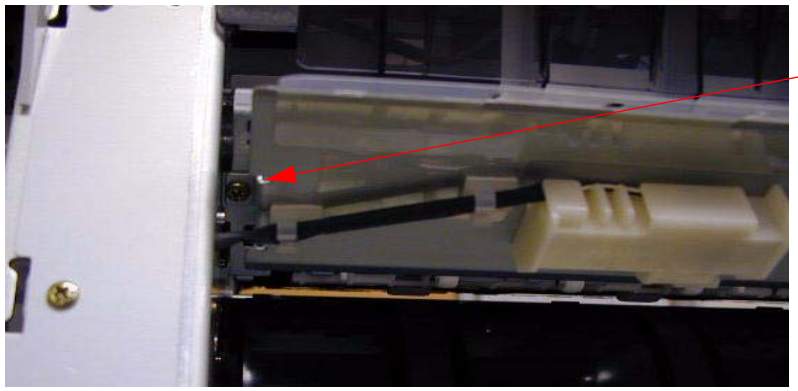
4. Remove the ***Rear Paper Guide Support*** and the ***Paper Jam Cover***.

Rear Paper Guide Support (directions at step 5)

Remove the ***Paper Jam Cover*** (shown removed)

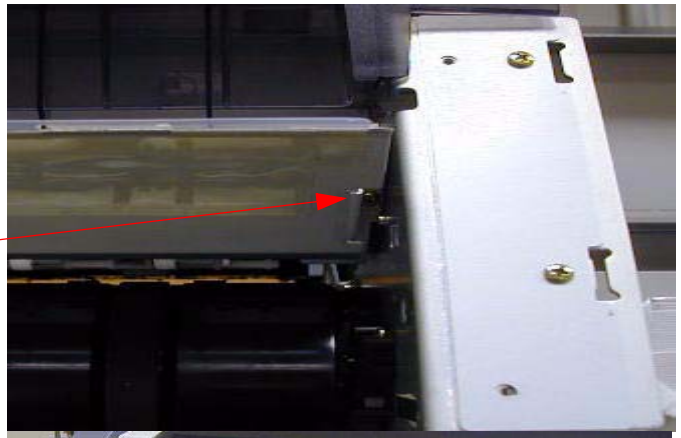


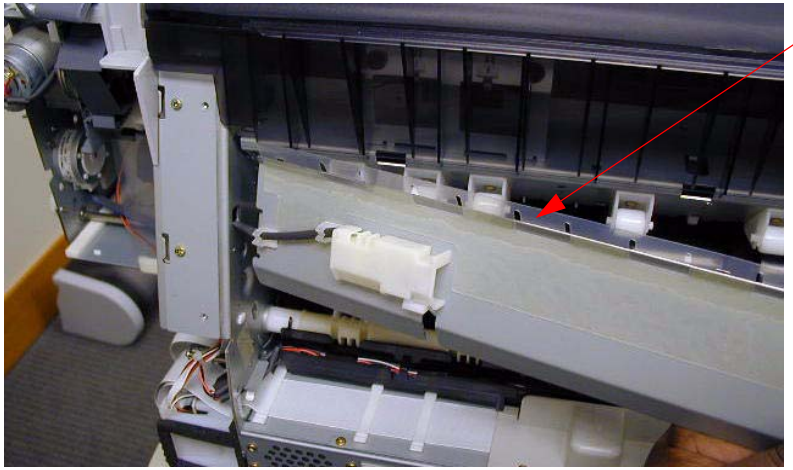
5.



1. Remove this ***Screw*** on the left.

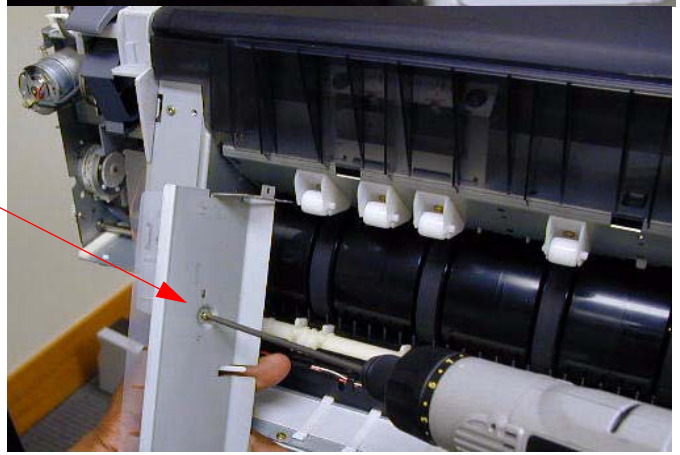
2. Remove this ***Screw*** on the right.



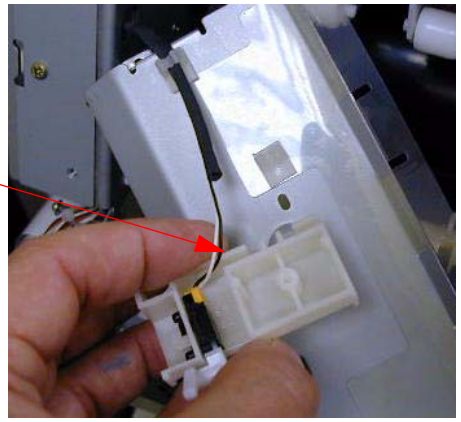


3. Free the ***Rear Paper Guide Support*** from the ***Printer***.

4. Remove the ***Screw*** that holds the ***Manual Feed Sensor*** to the ***Support***.

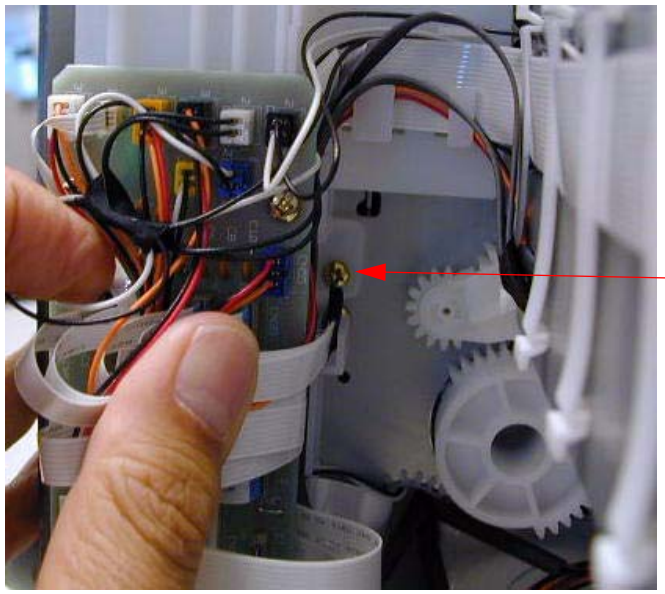


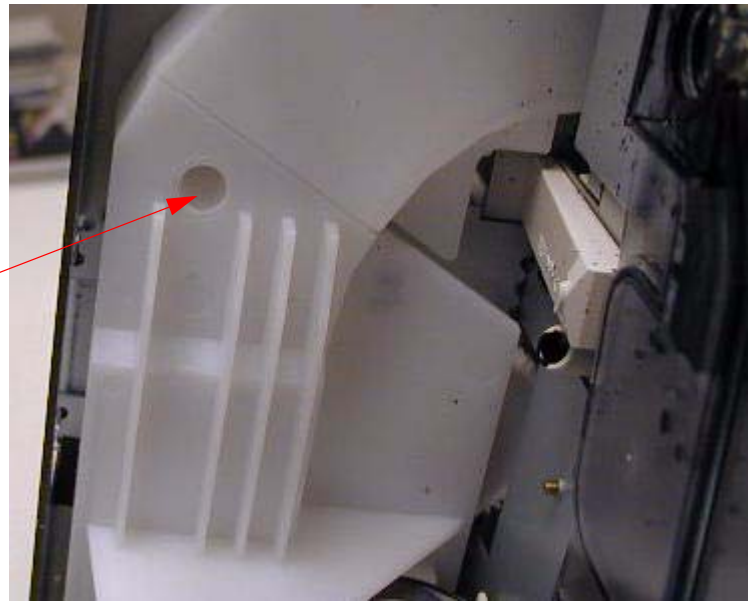
5. Remove the ***Sensor*** from the ***Rear Paper Guide Support***



6. Rotate the ***Printer*** onto it's back.

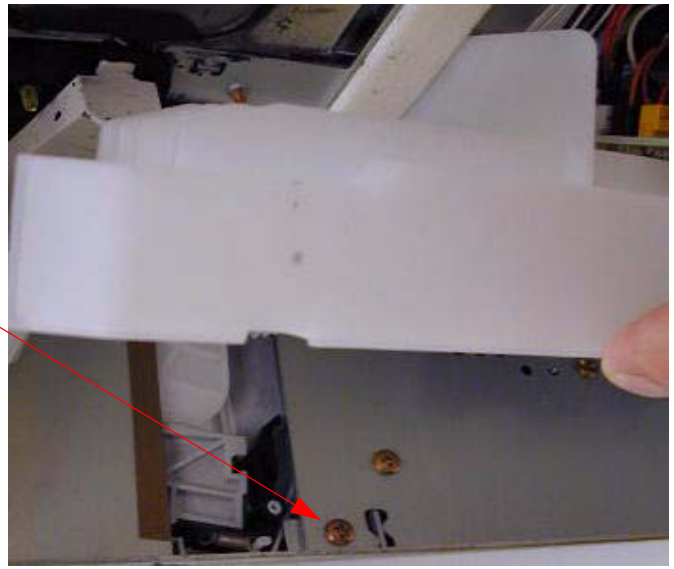
7. Remove the ***2 screws*** fastening the ***Right Side Air Duct*** to the ***Frame.***



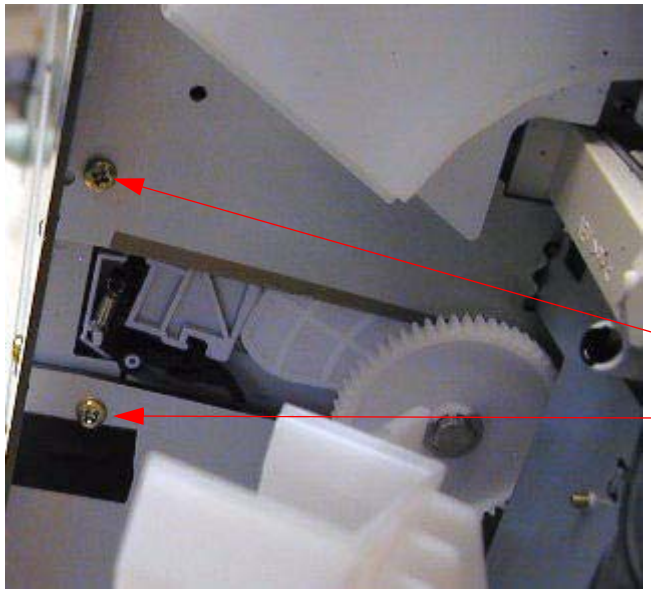


8. Lift the ***Right Side Air Duct*** exposing the ***2 Screws*** noted in step 9.

This is ***1*** of the ***2 Screws*** shown is the picture on the left in step 9.



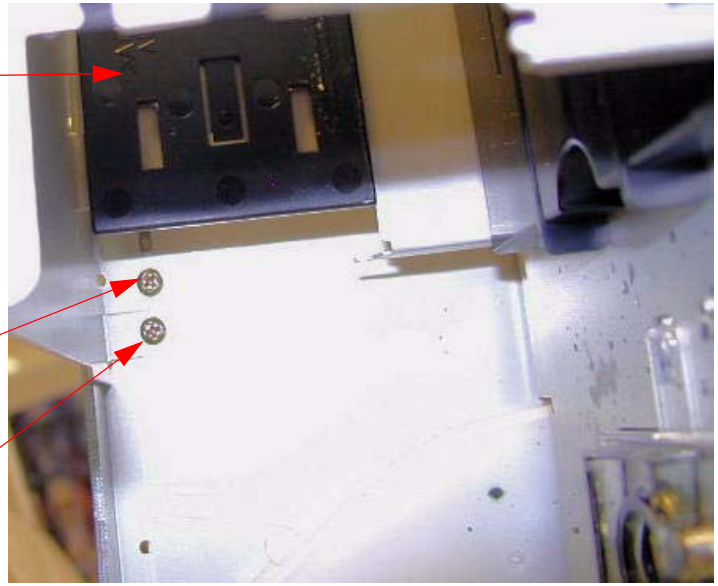
9. Remove the ***3 Screws*** that fasten the ***Input Roller Assembly*** to the ***Right Side Frame***.



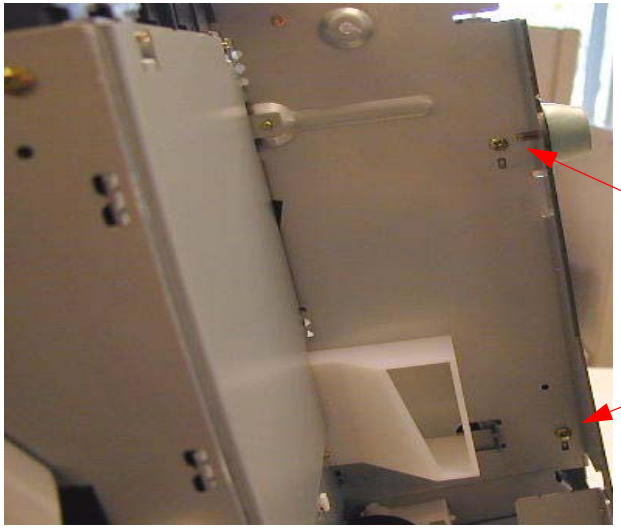
3 Screws

Loosen this ***Screw***.

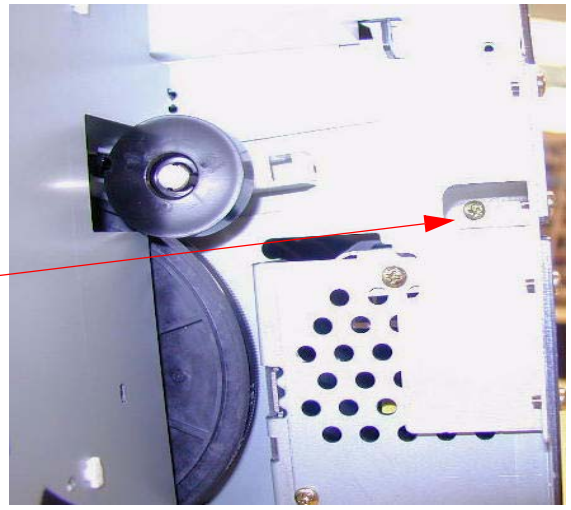
Back side of the ***Waste Ink Tank Slot***



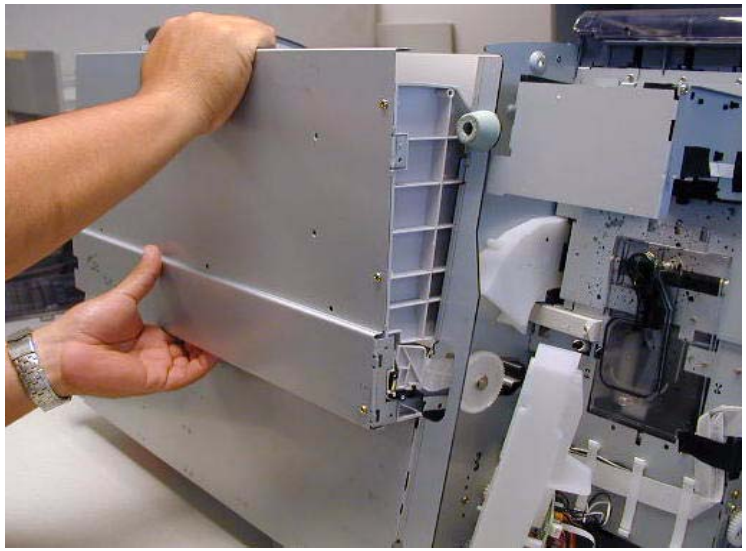
10. Remove the ***3 Screws*** that fasten the ***Input Roller Assembly*** to the ***Left Side Frame.***



3 Screws

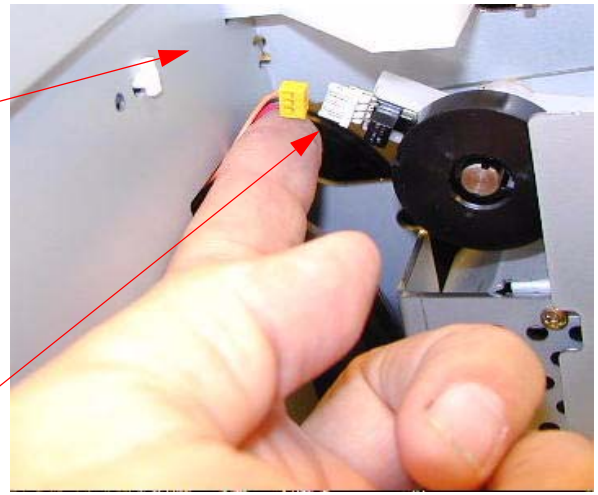


11. Slide the ***Input Roller Assembly*** out about 2 inches, disconnect the ***Input Roller HP Sensor***, and fully remove the ***Assembly.***



Left side of the ***Printer***

Input Roller Home Position Sensor



Main Board Replacement

1. Back up the ***Printer's*** parameters using the Parameter Backup / Restore Utility (**Nvram.exe**)
2. Turn off the ***Printer*** and ***UNPLUG from AC.***
3. Remove the ***Rear Paper Guide Assembly***.

   Push the ***2 Grey Tabs*** and pull out the ***Cover***

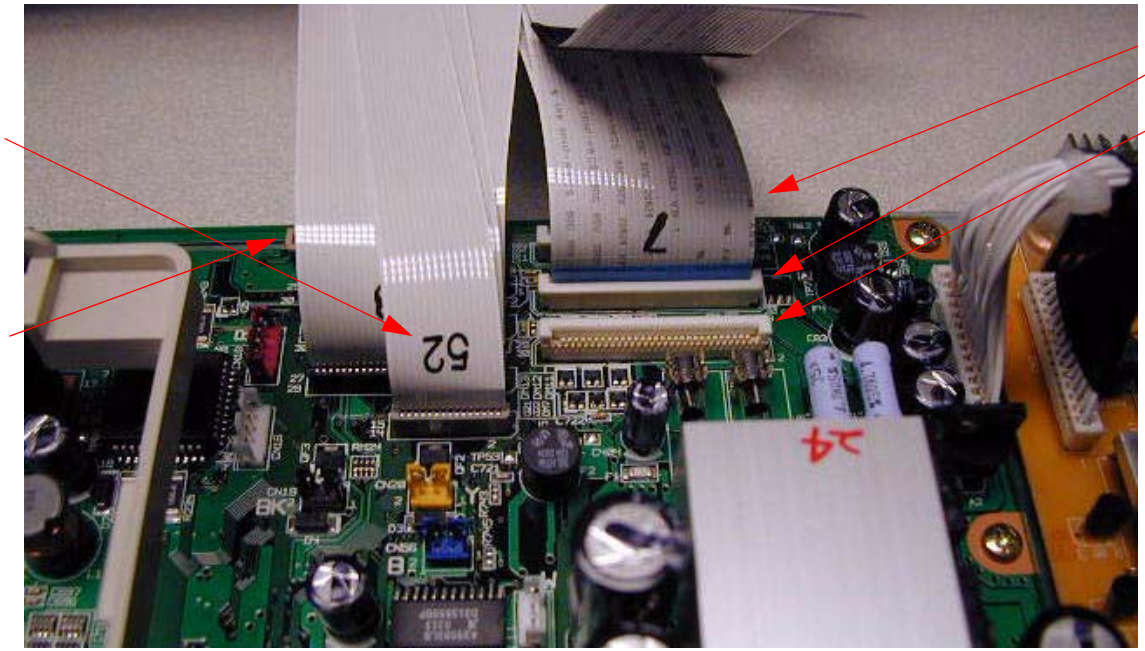
4. Remove the ***6 Screws*** fastening the ***Main Board Housing.***

5. Slide out the ***Main Board Housing*** until the ***Cable Connectors*** are visable.

6. Un-fasten the ***Cables***

The number on the ***Foil Cable*** corresponds to the ***Connector*** number

Pull up on the ***Connector Release***, to release this ***Cable***

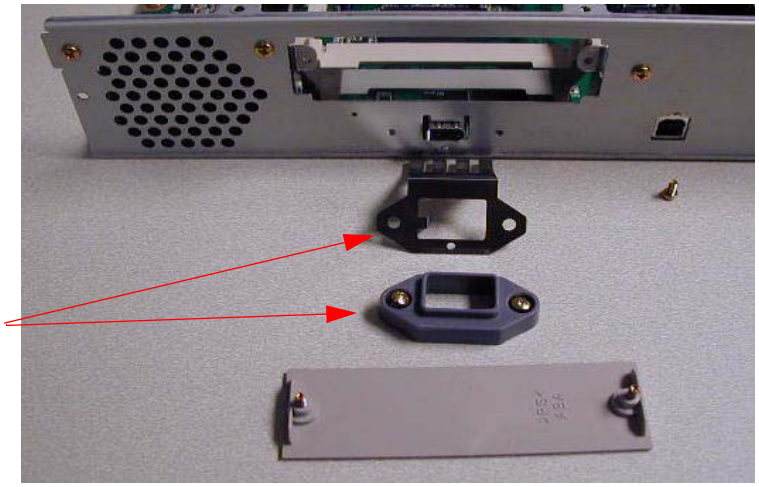


Pull up on the ***Connector Releases***, to release these ***3 Cables***

7. Remove the ***5 Screws*** and ***Hardware*** fastening the ***Ports*** to the ***Main Board Housing***.

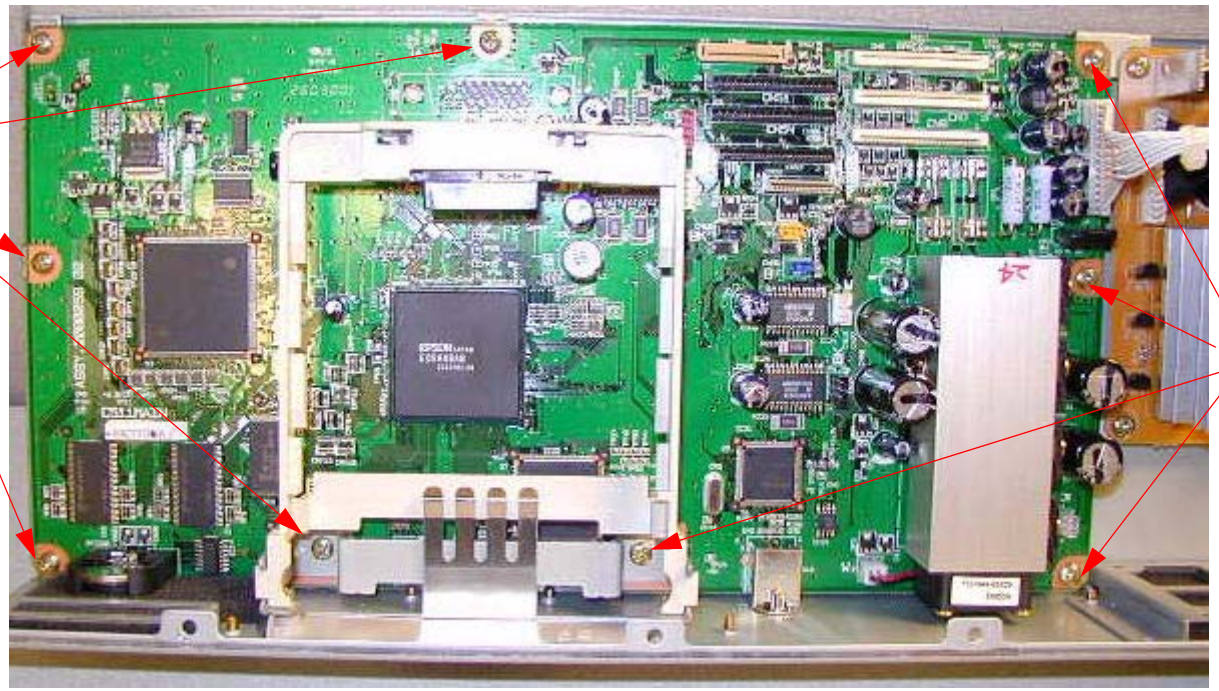
5 Screws

Removing the ***Firewire Hardware*** is necessary for re-assembly.



8. Remove the ***9 Screws*** fastening the ***Board*** to the ***Housing***.

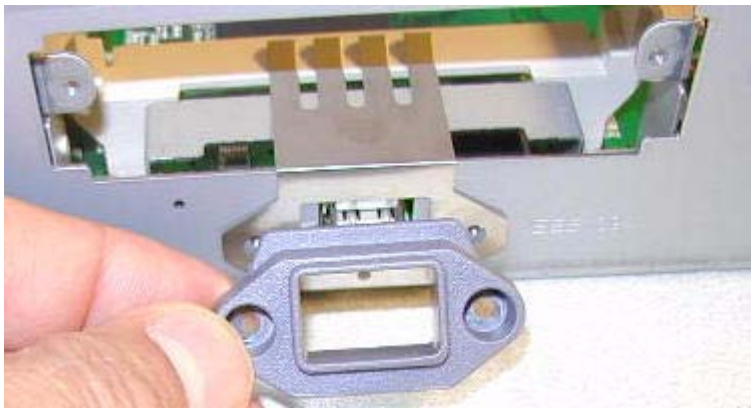
5 Screws

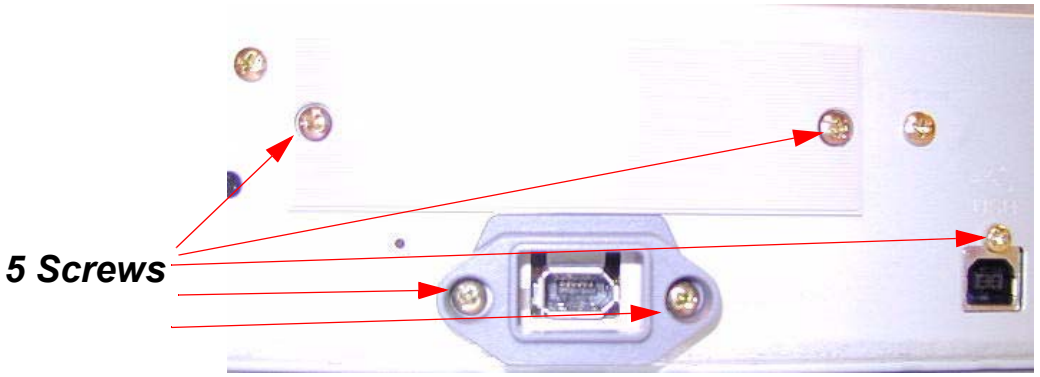


4 Screws

9. Fasten the new ***Board*** to the ***Housing*** with ***9 Screws*** (see above) ***Do not fully tighten***.

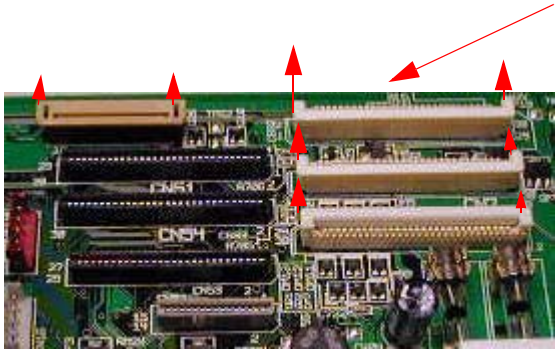
10. Install the ***Port Covers*** and ***5 Screws***





11. Full tighten the ***9 Main Board Screws***.

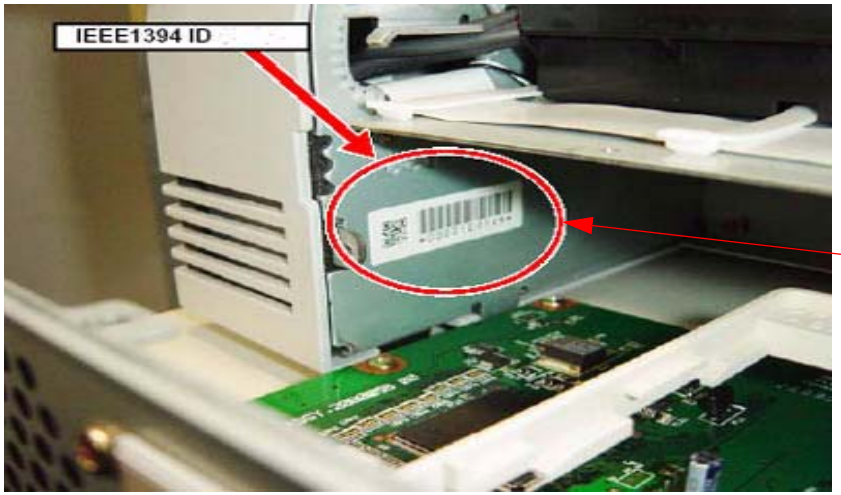
12. Connect the ***Cables*** to the ***Board***. ***Ensure that the Cables are fully seated (straight)***.



Lift the ***Release Mechanisms*** on these ***4 Connectors***

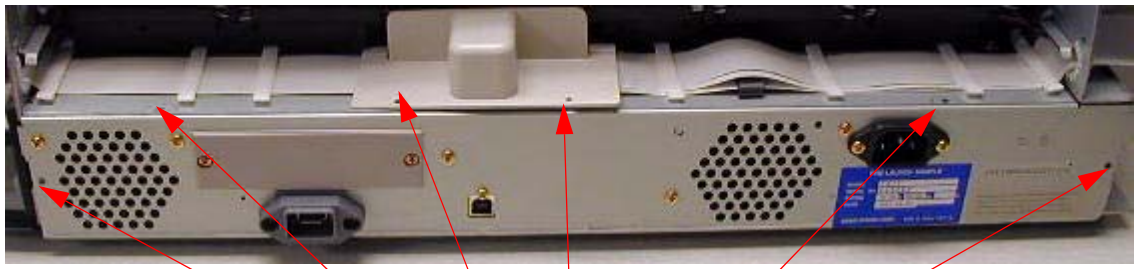
Hold the ***Cable*** firmly in place, while locking the ***Release Mechanism***.

13. Write down the IEEE (Firewire) ID, ***if the Printer's Parameters are not available***.



The IEEE ID is located in the ***Main Board Cavity***

14. Attach the ***Board Housing*** to the ***Printer*** and fasten with ***6 Screws***.



Tilt the ***Board Assembly,*** while inserting, so that the leading edge drops on to the ***Printer Mechanism's Board Support Ledge***.

Fasten with ***6 Screws***

15. Down load the current firmware version.
    - 15.1 Open the PRNPRINT application, and prepare to send the current firmware version to the ***Printer***.
    - 15.2 Turn on the ***Printer*** while depressing the **Left**, **Up**, **Down,** and **Right** arrow buttons, The ***Printer*** will display **UPDATE F/W**.
    - 15.3 Send the current firmware to the ***Printer.***

16. Re-Install the ***Printer's*** parameters using the Parameter Backup / Restore Utility (**Nvram.exe**)
    - 16.1 Perform the **RTC&USBID&IEEE1394ID Adjustment**.

If the Printer's Parameters are not available skip step 16, and follow step 17.

17. Perform the following operations in the order listed.
    - 17.1 Stop the ***Printer*** from priming (See The Prime ON / Off chapter).
      - 17.1.1 ***Note: Init.Fill: Reset*** = The ***Printer 's*** prime function is turned off.
    - 17.2 Perform the ***Rear Sensor*** **AD Adjustment**.
    - 17.3 Perform the ***Cutter*** Pressure adjustment.
    - 17.4 Perform the ***Platen*** Gap adjustment.
    - 17.5 Enter the **Head Rank ID** (***Print Head*** calibration values).
    - 17.6 Perform the ***Multi Sensor*** **Level Adjustment**.
    - 17.7 Perform the ***Print Head*** **Slant (CR) Adjustment**.
    - 17.8 Perform the ***Print Head*** **Slant (PF) Adjustment**.
    - 17.9 Perform the ***Multi Sensor*** **Adjustment for Auto *Nozzle* Check**.
    - 17.10 Perform the ***Nozzle*** **Bi-D Adjustment**.
    - 17.11 Perform the **Auto Bi-D Adjustment**.
      - 17.11.1 Copy **Bi-D variables**
    - 17.12 Perform the **Auto Uni-D Adjustment**.

17.12.1Copy **Uni-D variables**.

17.13Perform the ***Platen* Position Adjustment**

17.14Perform the **Clear Micro Feed PF Adjustment (Bi-D)**

17.15Perform the **1000 mm Feed Adjustment**, or **Multi Sensor Auto PF Adjustment**.

17.16Perform the **T&B&S (Roll Paper) Adjustment**.

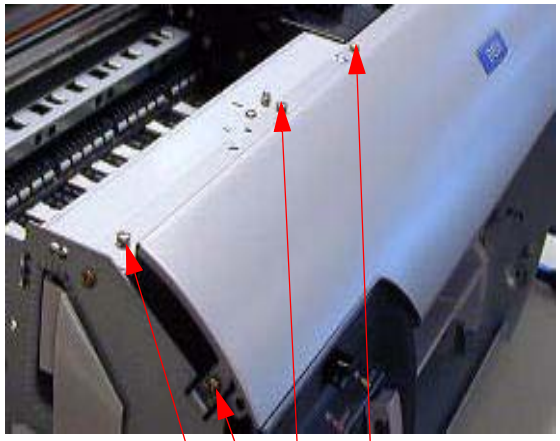
17.17Perform the **T&B&S (Cut Sheet) Adjustment**.

17.18Perform the **RTC&USBID&IEEE1394ID Adjustment**.

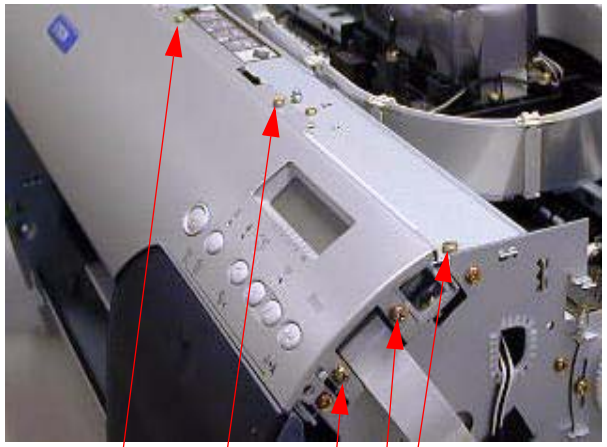
Paper Exit Roller Removal

1. Remove the ***Left and Right Side Covers.***

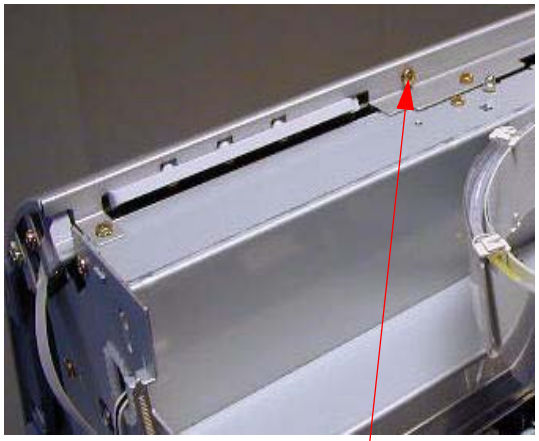
2. Remove the ***10 Screws*** fastening the ***Front Panel.***



Remove ***4 Screws***



Remove ***5 Screws***



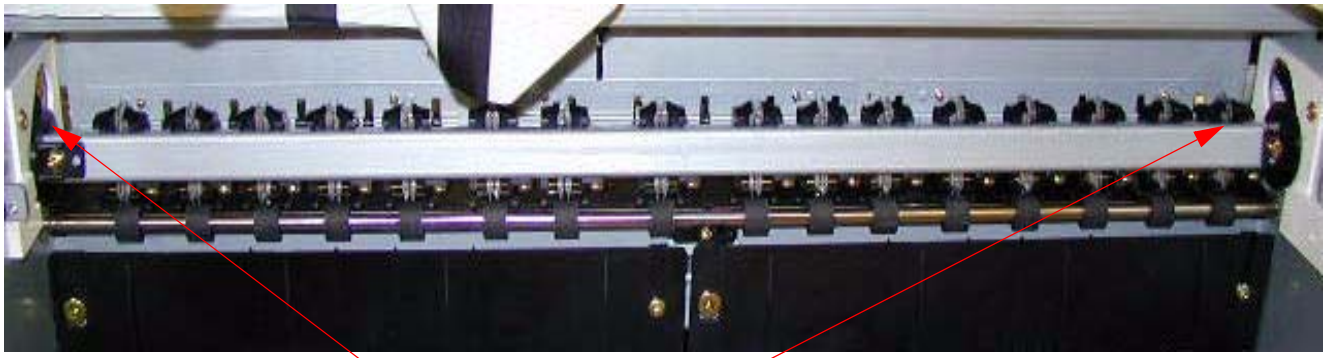
(View from the back)
Remove ***1 Screw***

3. Remove ***2 Screws*** fastening the ***Front Panel***.

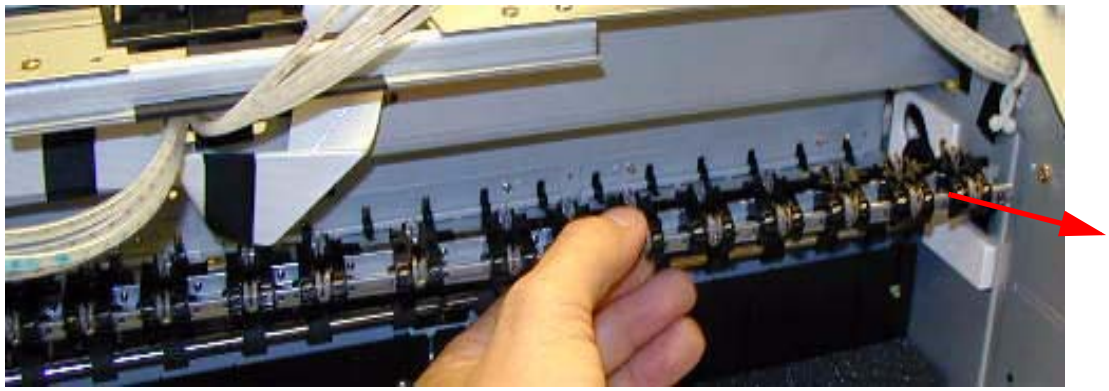
Remove ***2 Screws***

4. Remove the ***Front Panel***.

5. Remove the***2 Screws*** that fasten the ***Exit Roller***.



6. Remove the ***Exit Roller***.



7. The ***Exit Roller*** must be re-installed using the correct polarity.j

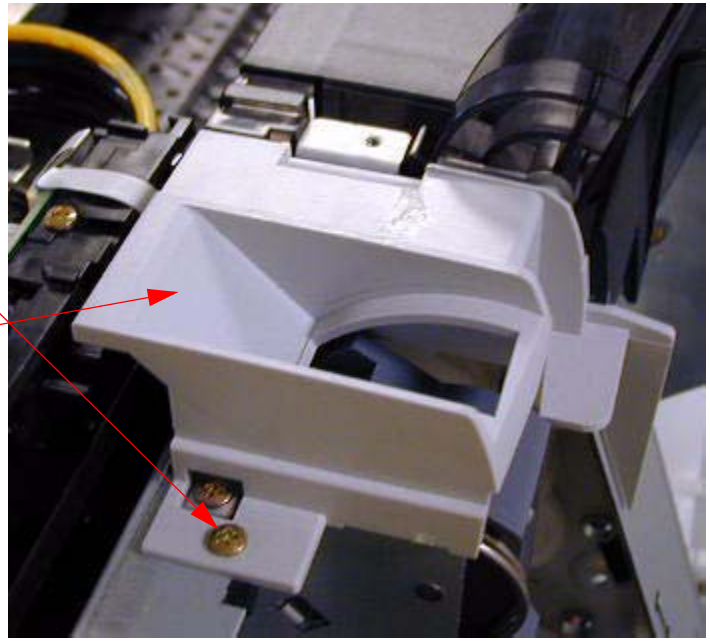
Plastic Roller Upgrade

Note: This procedure documents the replacement of 9 Plastic Rollers with 9 Rubber Coated Plastic Rollers. These Rollers make contact with the printable side of the media. The old Roller design could scuff the surface of Fine Art Media.

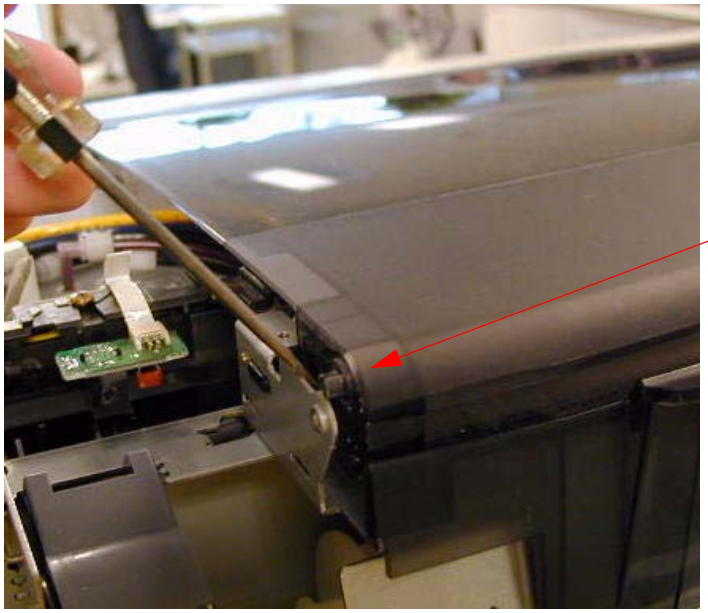
1. Remove the ***Left Side Cover.***
2. Remove the ***Right Side Cover.***
3. Remove the ***Paper Release Lever Assembly Cover***.

1. Remove ***1 Screw.***

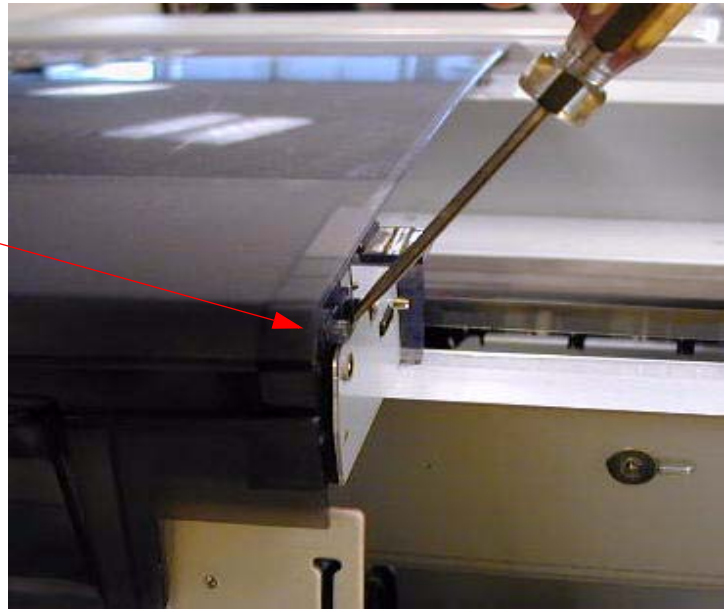
2. Remove the ***Cover***.



4. Remove the ***Top Cover*** as shown.

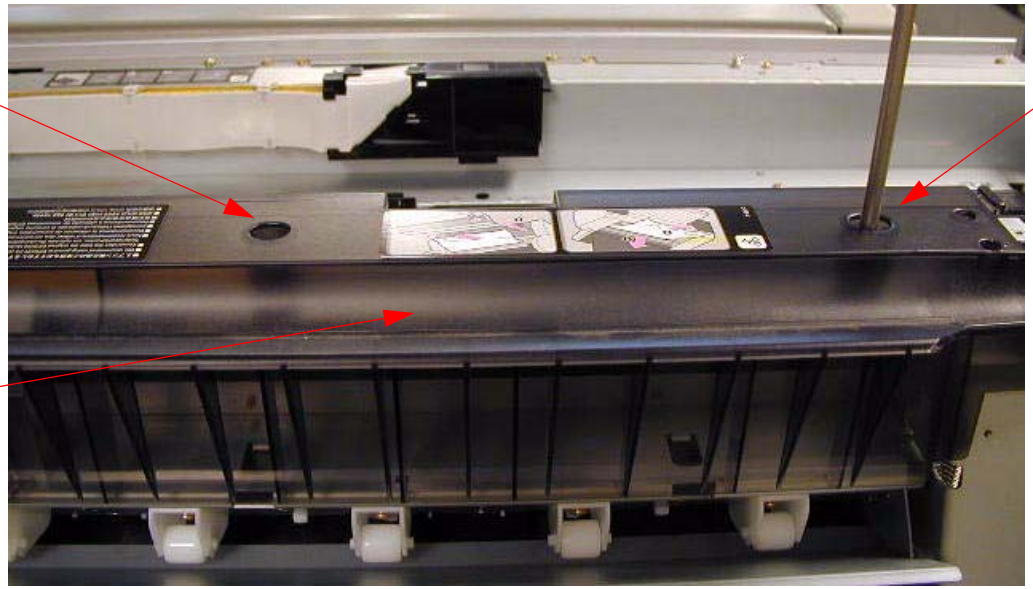


Lever up both sides of the ***Top Cover*** at the ***Hinges***.



5. Remove the ***Top Cover Component*** shown below.

Remove ***1 Screw***

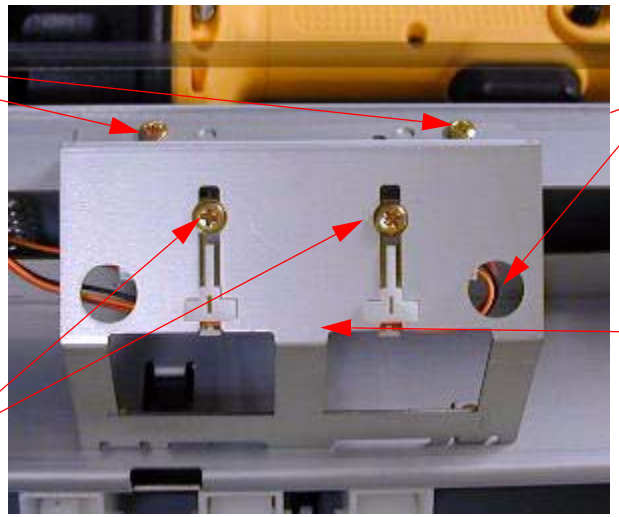


Remove ***1 Screw***

Lift of the ***Top Cover Component***.

6. Remove the ***Paper Thickness Sensor Assembly***.

Remove these ***2 Screws***.



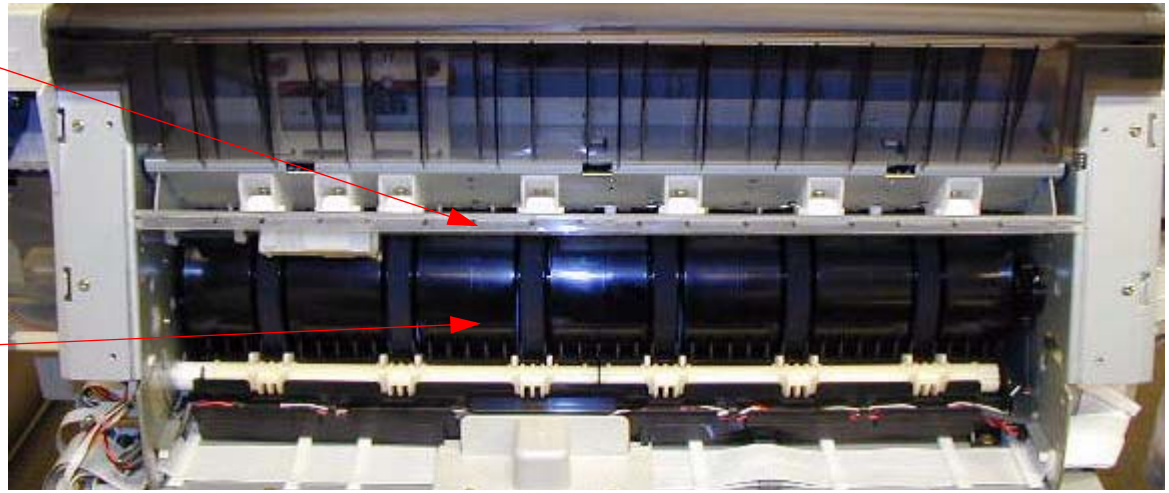
Remove the ***2 Screws*** accessed through these holes.

Lift off the ***Paper Thickness Sensor Assembly.***

Do not loosen these 2 Screws.

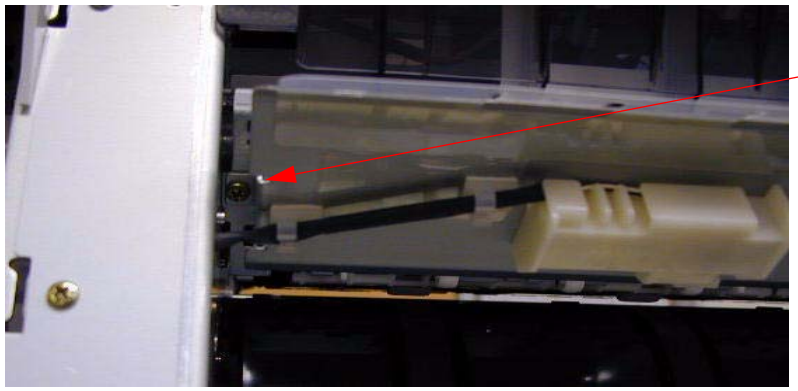
7. Remove the ***Rear Paper Guide Support*** and the ***Paper Jam Cover***.

Rear Paper Guide Support (directions at step 8)



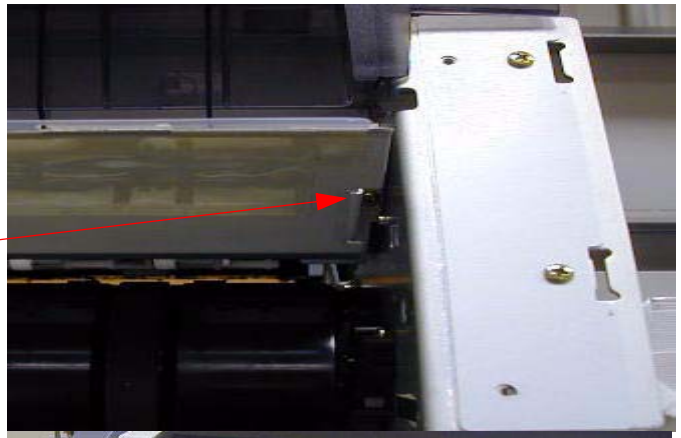
Remove the ***Paper Jam Cover*** (shown removed)

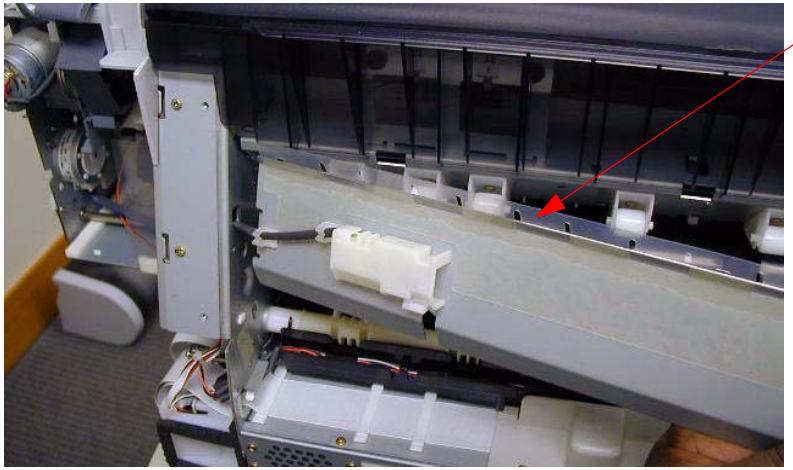
8. ***Paper Guide Support*** removal



1. Remove this ***Screw*** on the left.

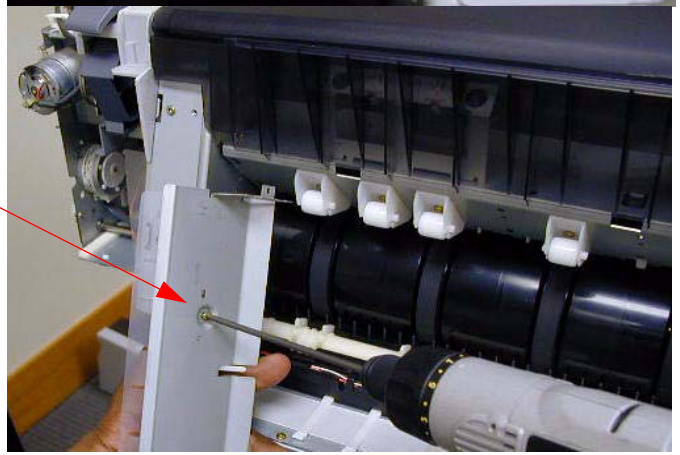
2. Remove this ***Screw*** on the right.



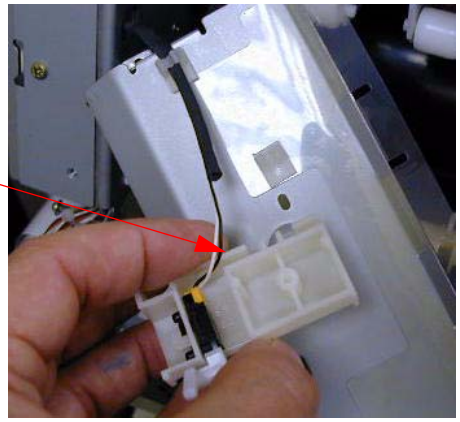


3. Free the ***Rear Paper Guide Support*** from the ***Printer***.

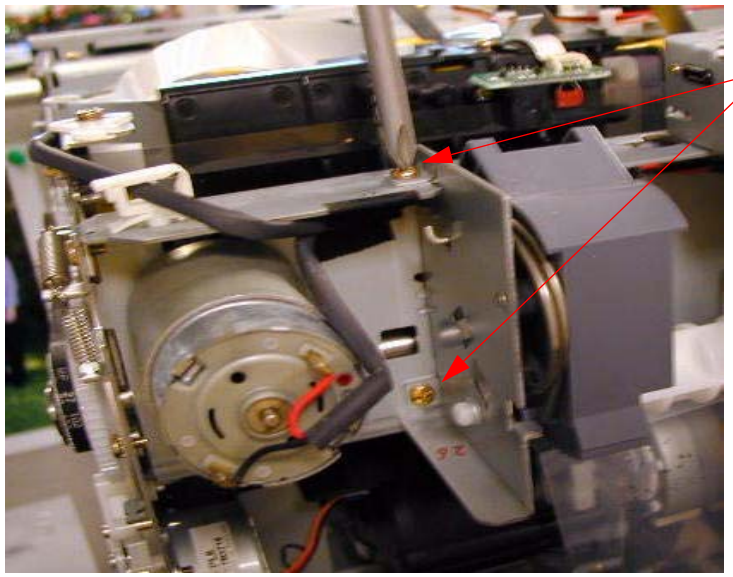
4. Remove the ***Screw*** that holds the ***Manual Feed Sensor*** to the ***Support***.



5. Remove the ***Sensor*** from the ***Rear Paper Guide Support***

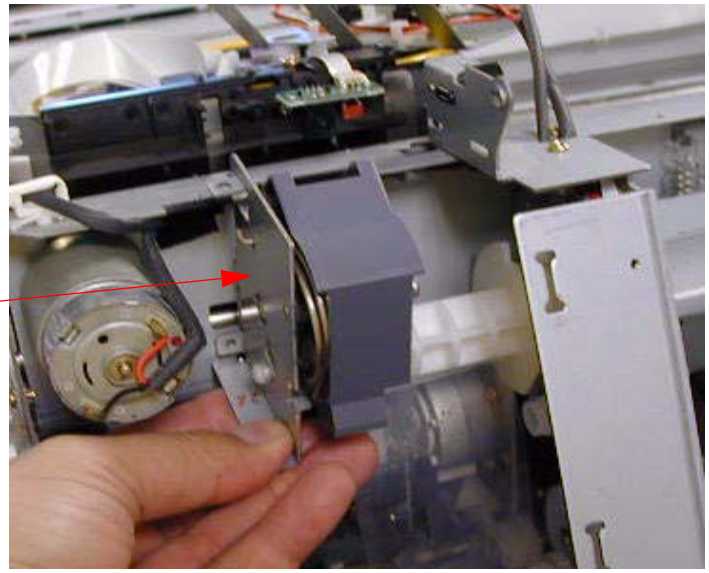


9. Remove the ***Paper Release Lever Assembly***.

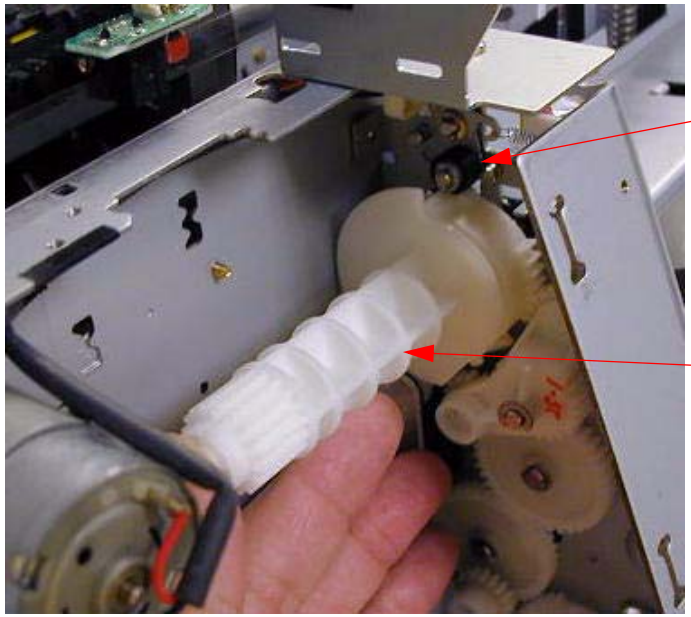


Remove ***2 Screws***.

Remove the ***Assembly***.



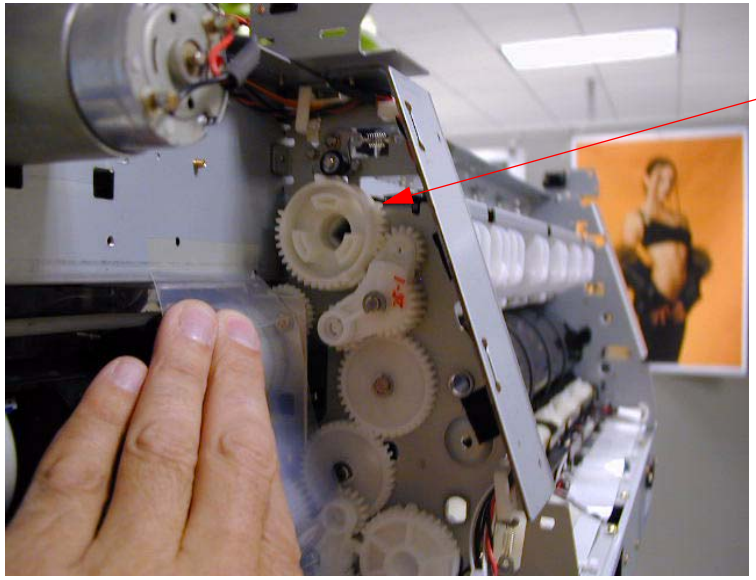
10. Remove the ***Paper Release Transmission Gear***.



1. Note the position of the ***Gear*** in relation to this ***Rubber Stopper***.

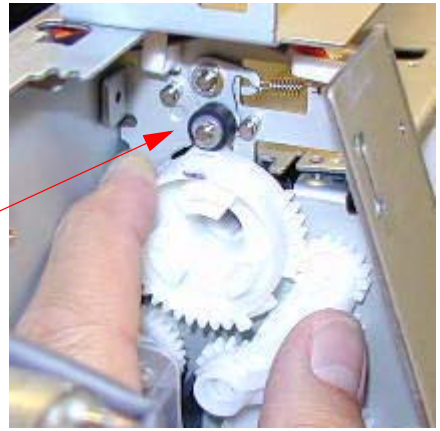
2. Remove the ***Gear***.

11. Remove the ***Gear*** shown below.



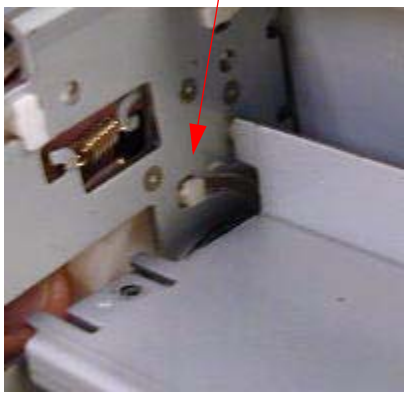
To remove this ***Gear***, follow the 4 steps listed below.

1. Note the ***Gears'*** orientation to this ***Rubber Stopper***.

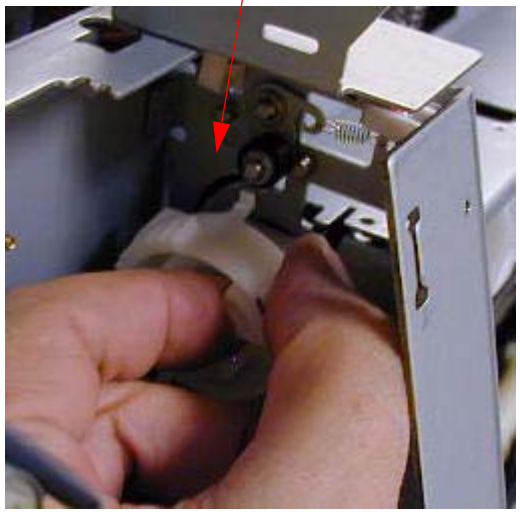


2. Note the ***Interlock*** on the back side of the ***Gear***.

3. Rotate the ***Gear*** so that the ***Interlock*** is in this position.

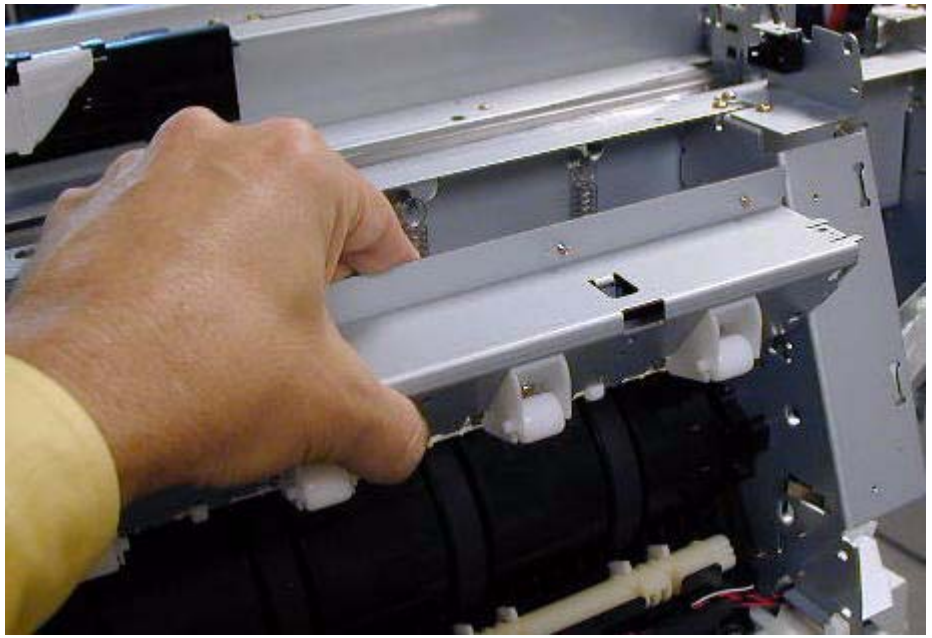


4. Remove the ***Gear***.



12. Remove the ***Roller Assembly***.

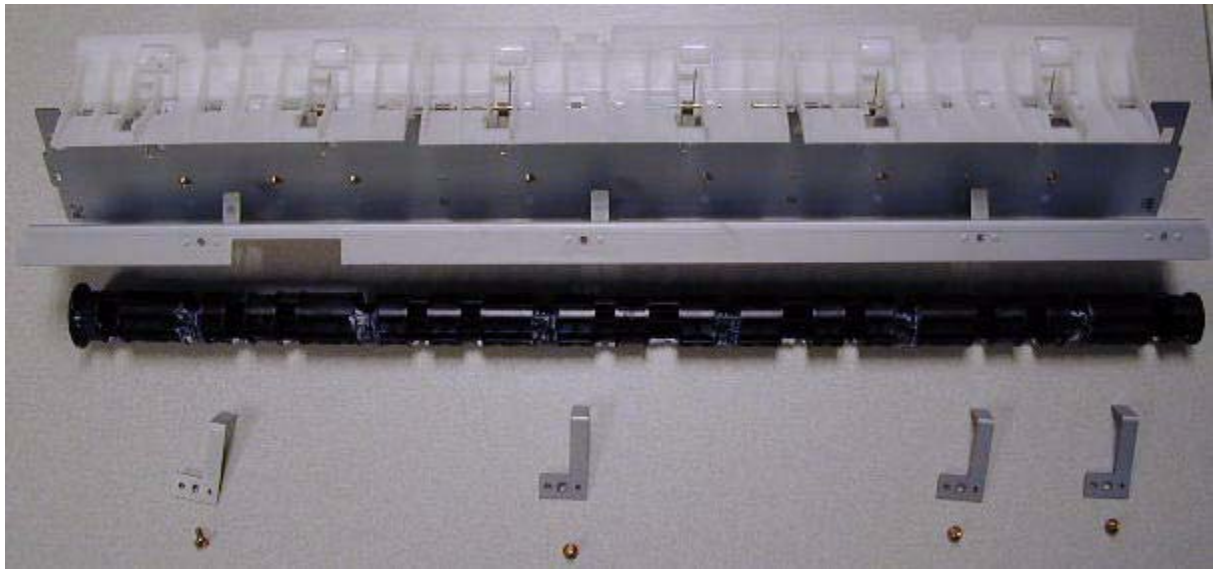
Remove the ***Roller Assembly*** by finessing the right side of the ***Assembly*** out, followed by the left.



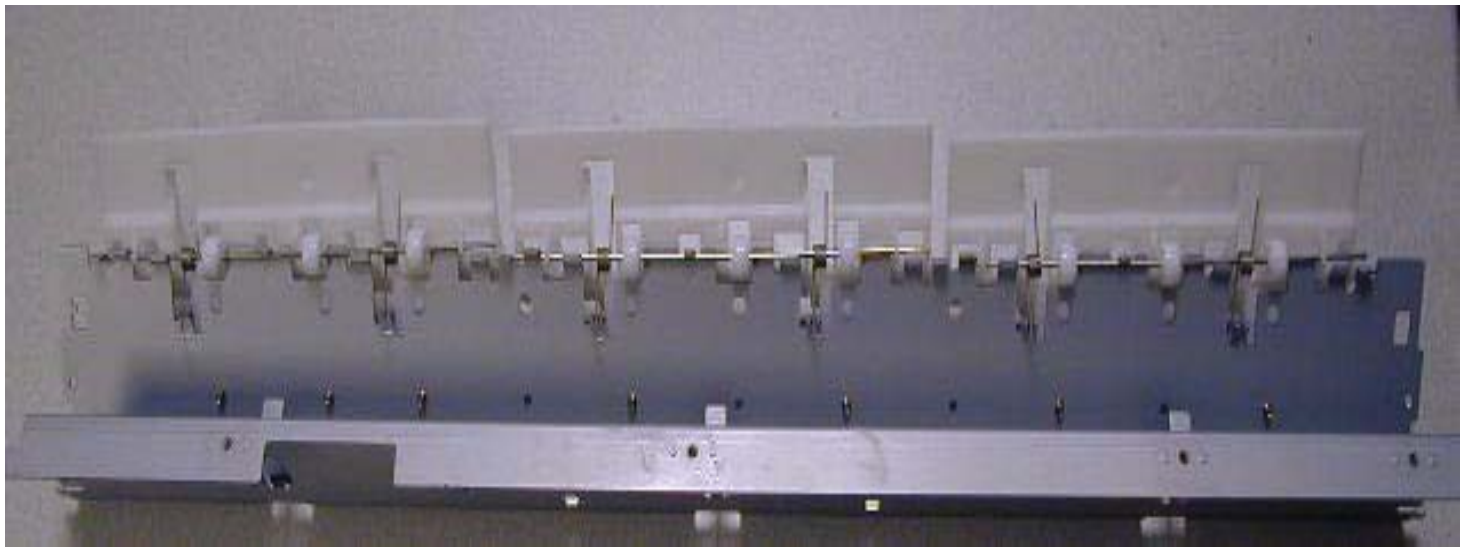
13. Place the ***Roller Assembly*** on a flat surface.

Ensure that the ***Assembly*** is in this position

14. Remove ***4 Screws*** that fasten the ***Release Roller*** to the ***Assembly,*** and remove the ***Roller.***

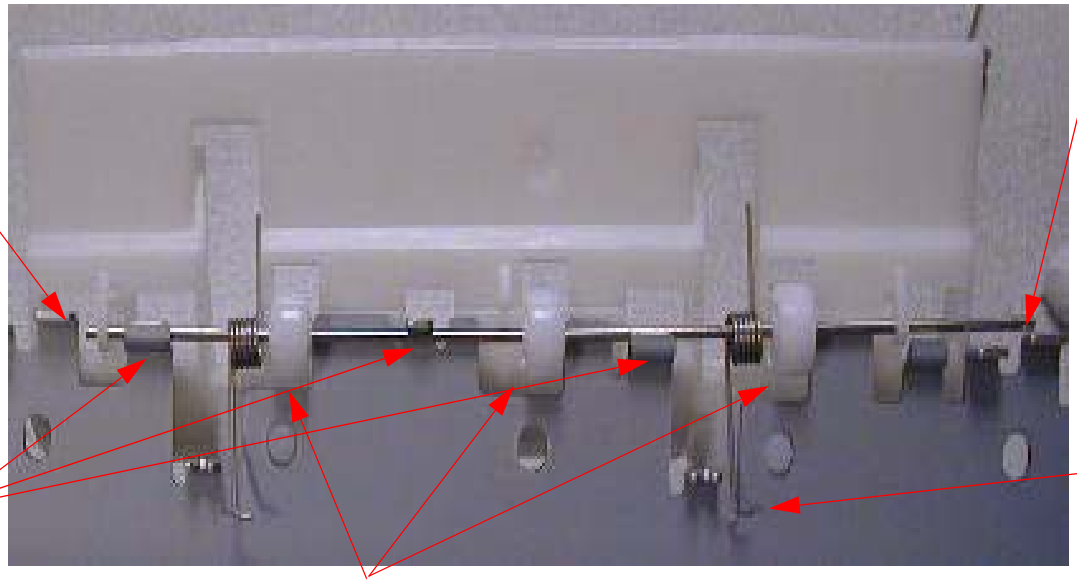


15. Flip up the white ***Paper Guides*** so that the ***Assembly*** is in this position.l



16. Inspect 1 of the 3 ***Paper Guides*** and note the items listed below.

The ***Shaft*** ends here, and goes next to this ***Support***.



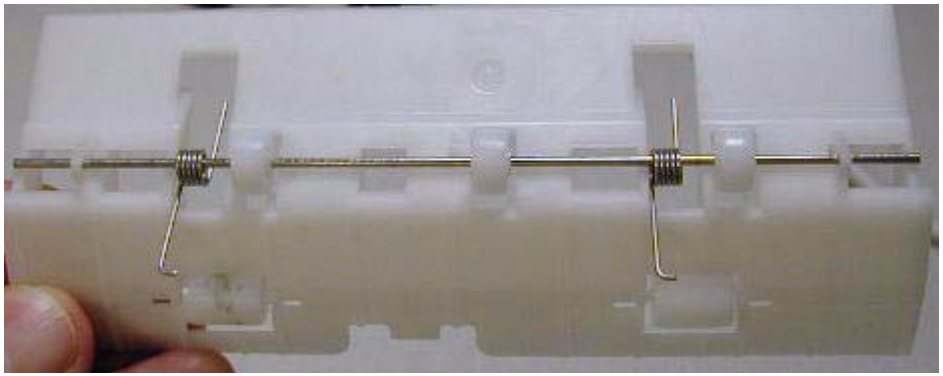
The ***Shaft*** ends here, and goes next to this ***Support***.

Note the way that the ***Shaft*** is behind some ***Supports***, and under others.

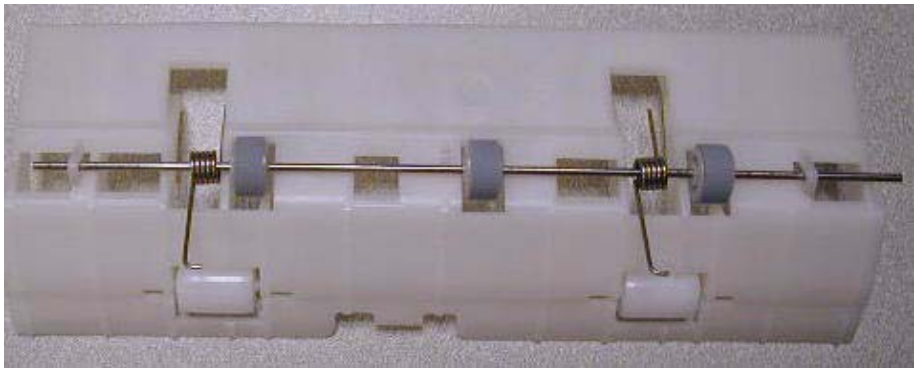
The ***Hook*** on the ***Springs*** goes to the right.

These are the ***Rollers*** to be replaced.

17. Remove the ***3 Paper Guide Assemblies***, and install the new ***Rollers.***

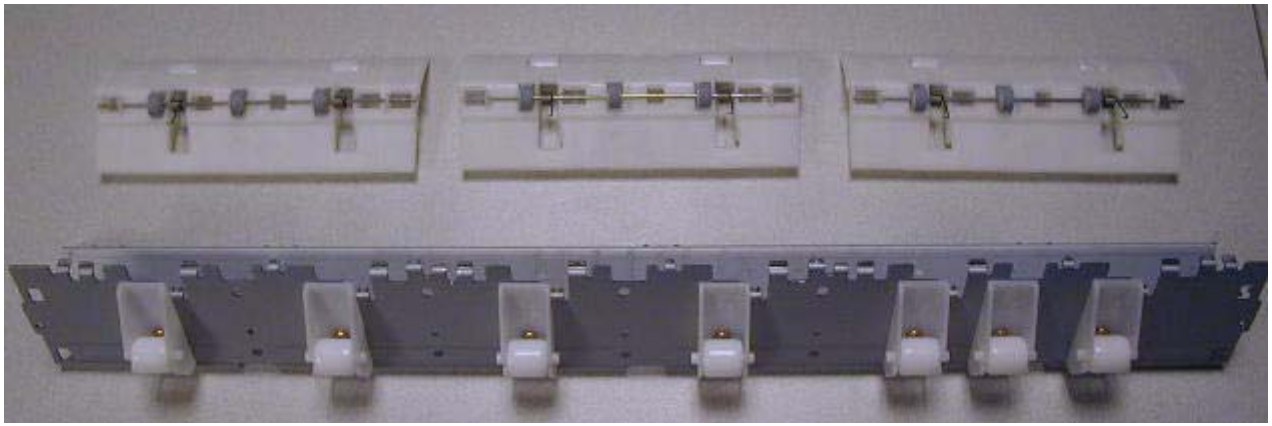


Old ***Rollers***

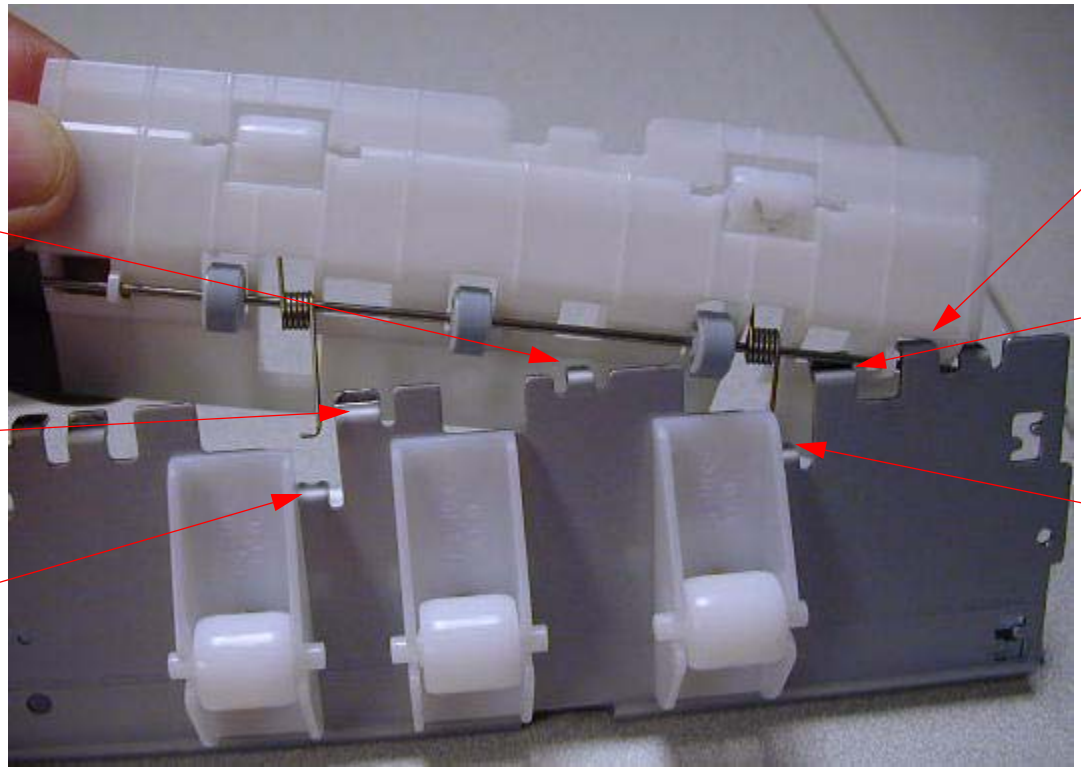


New ***Rollers***.

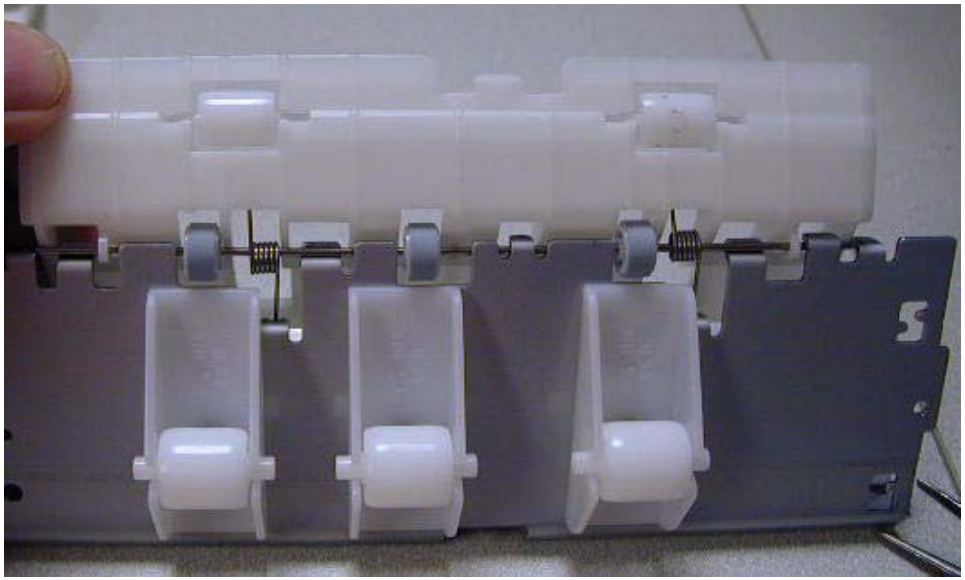
18. Lay out the ***Assembly Components*** like this.



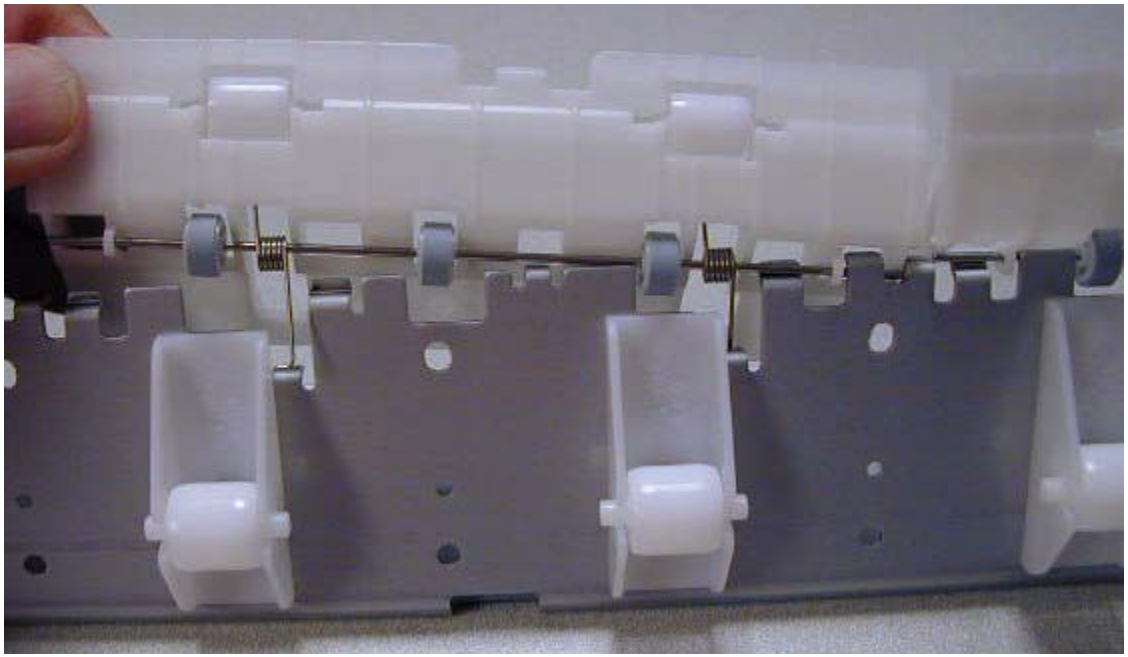
19. Attach the ***Guides*** to the ***Frame*** starting on the right.



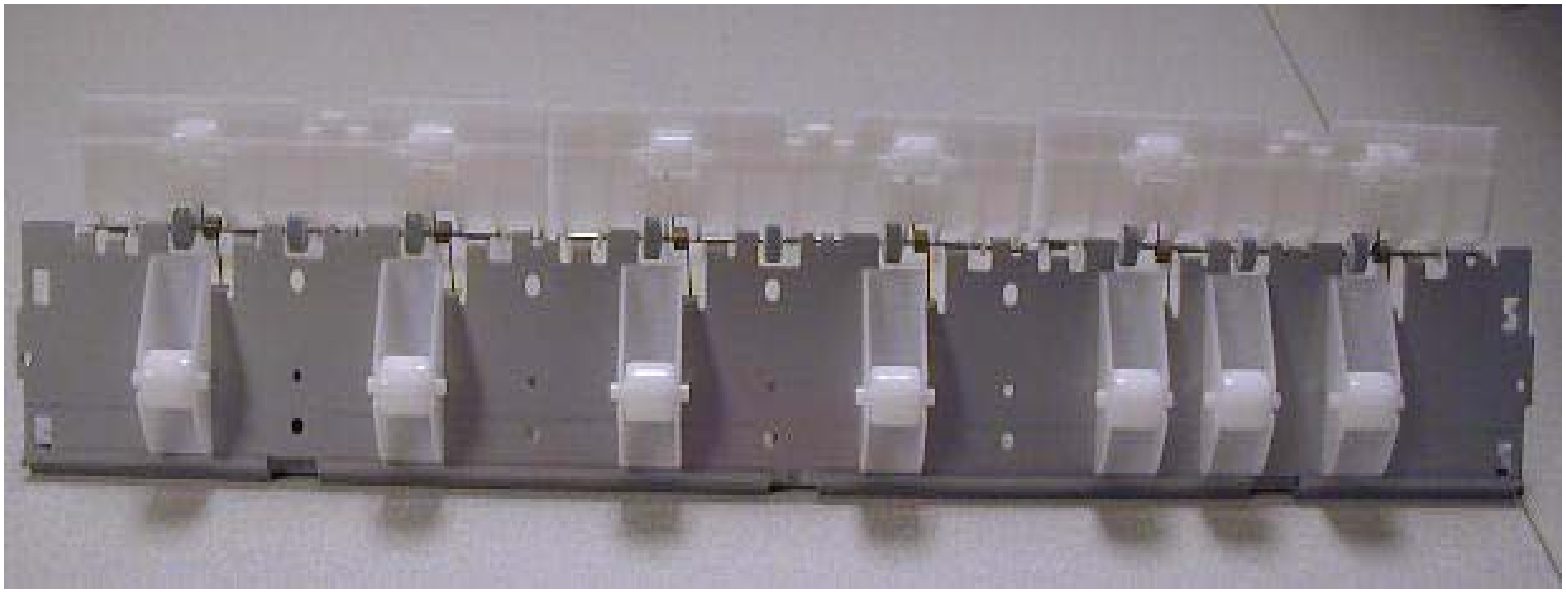
20. It should look like this when installed correctly.



21. Use the same method to replace the second and third ***Guide Assemblies***.

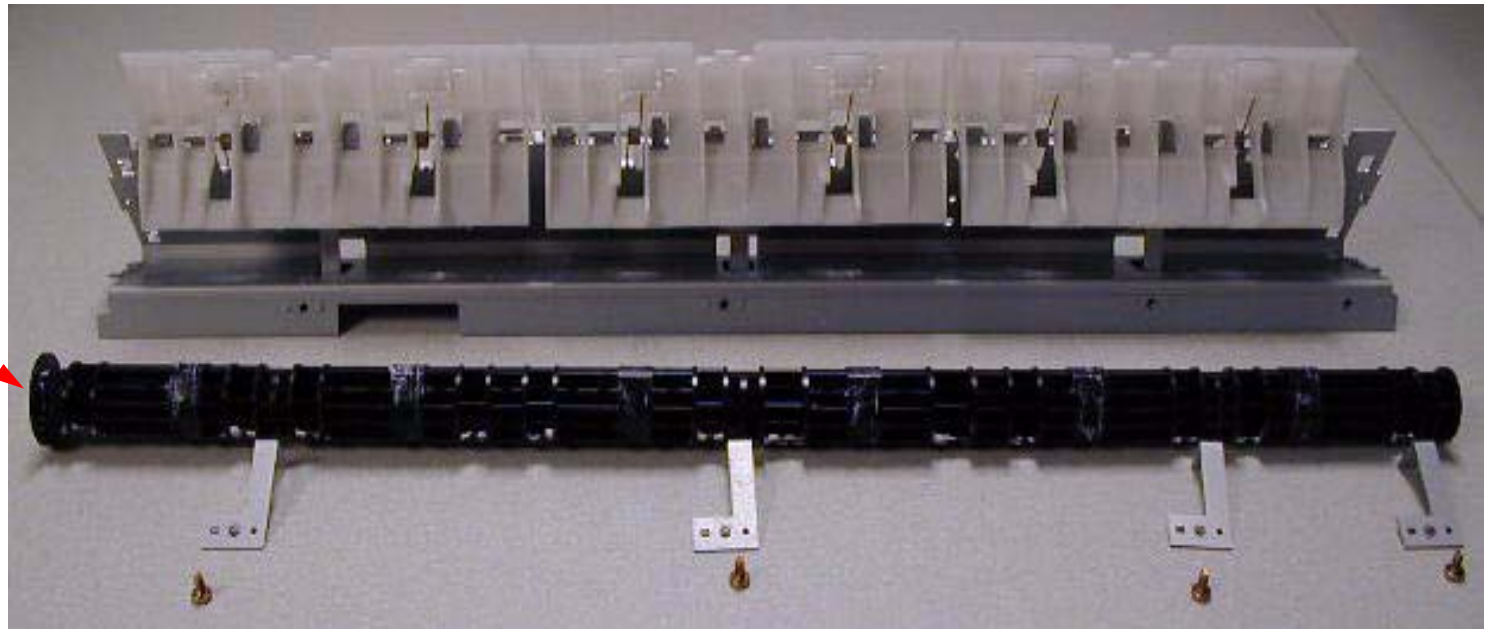


22. The ***Assembly*** should look like this when the ***3 Guides*** are installed.



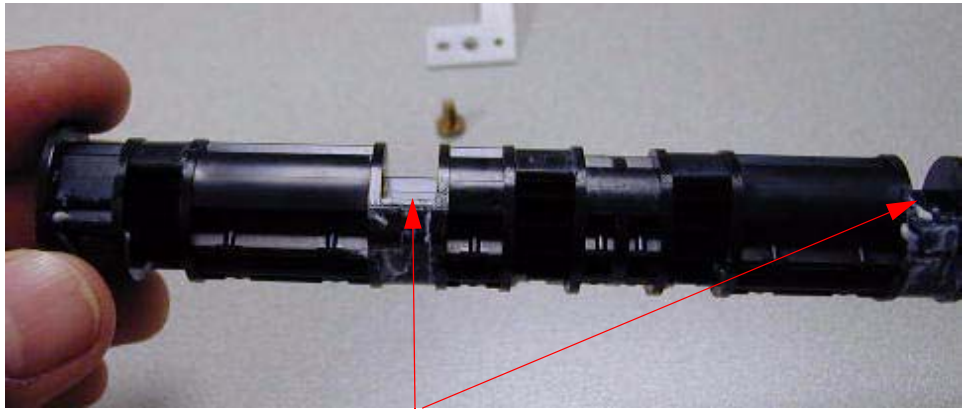
23. Lay out the remaining ***Components*** like this.

Square opening on this end.



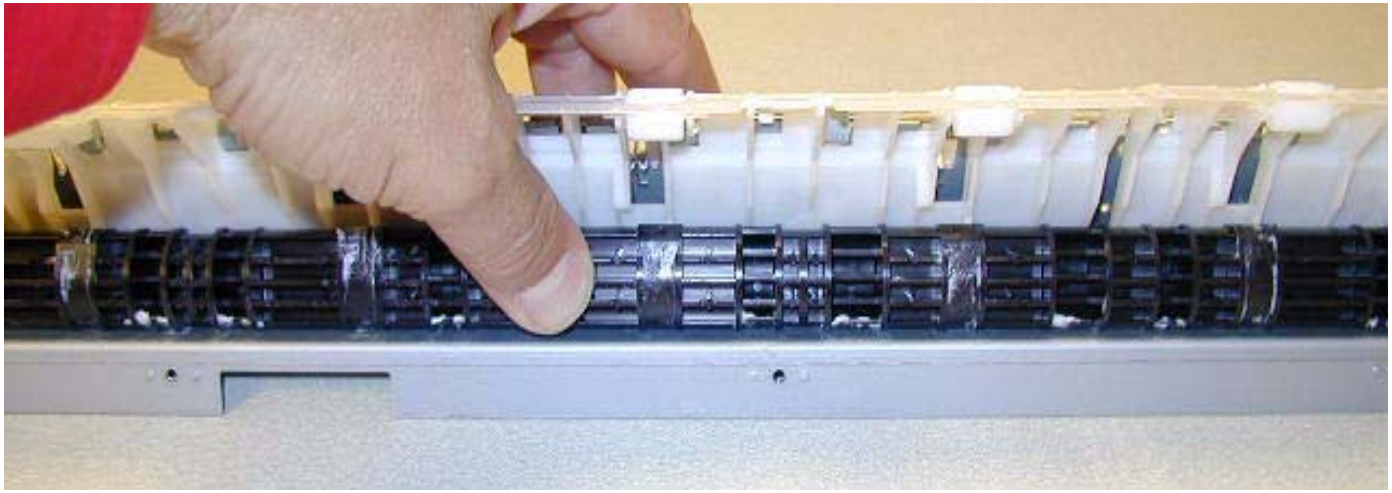
24. Note these aspects of the ***Release Roller***.

Square Hole on the left side.



These ***Notches*** make contact with the ***White Guides***.

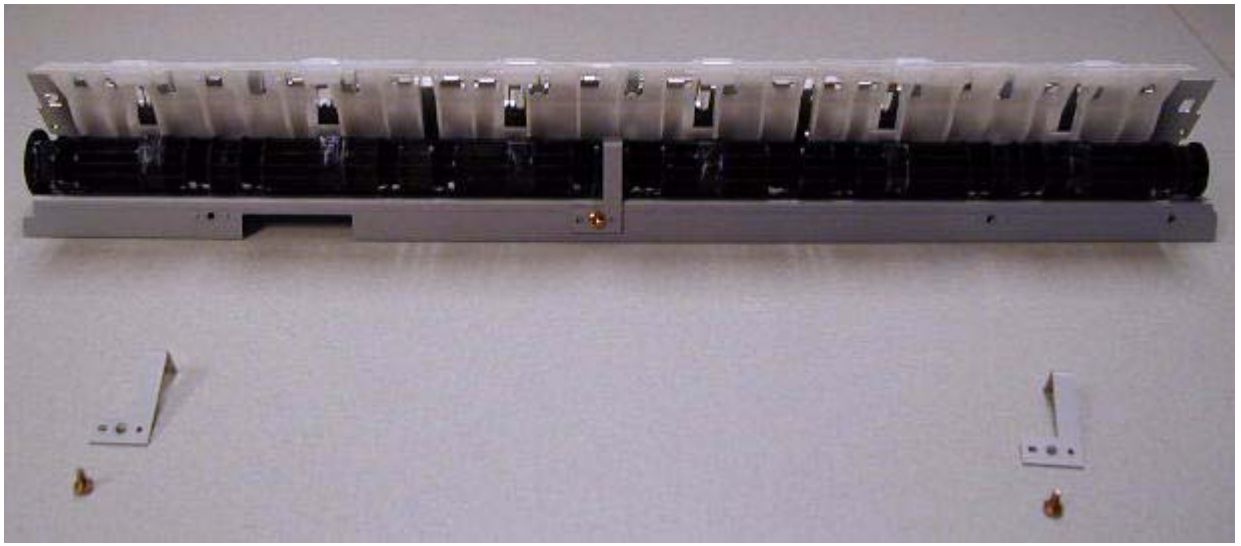
25. Place the ***Release Roller*** against the ***White Guides***.j



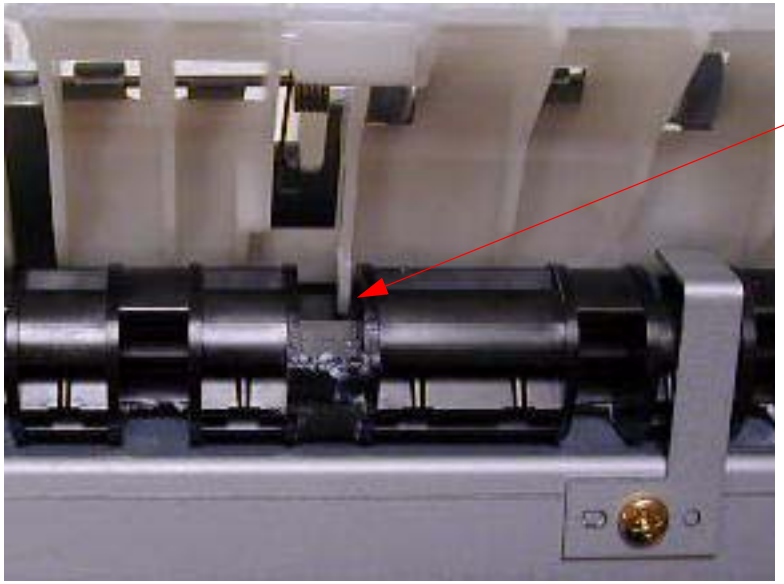
Square Hole on this side.

Notches against the ***White Guides***.

26. Fasten the ***Release Roller*** with ***1 Bracket*** in the middle, and then install the remaining ***Brackets***.

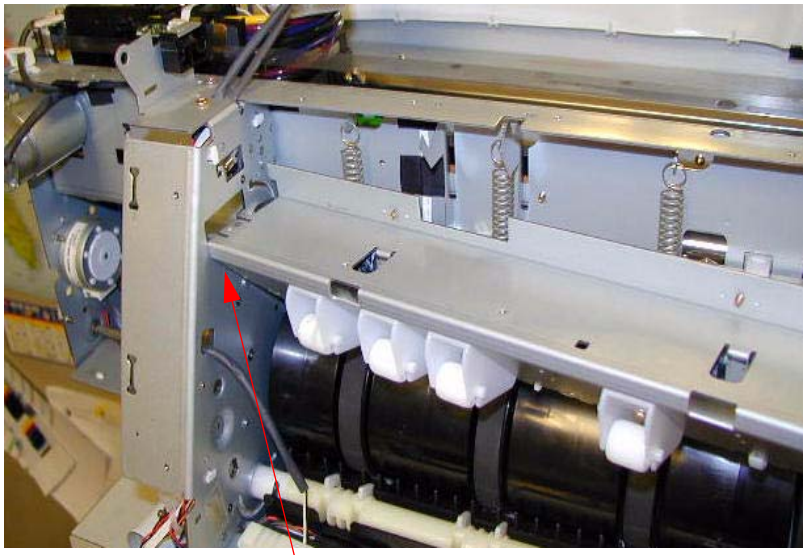


27. Spin the ***Release Roller*** and verify that the ***Guides*** and ***Notches*** line up properly.

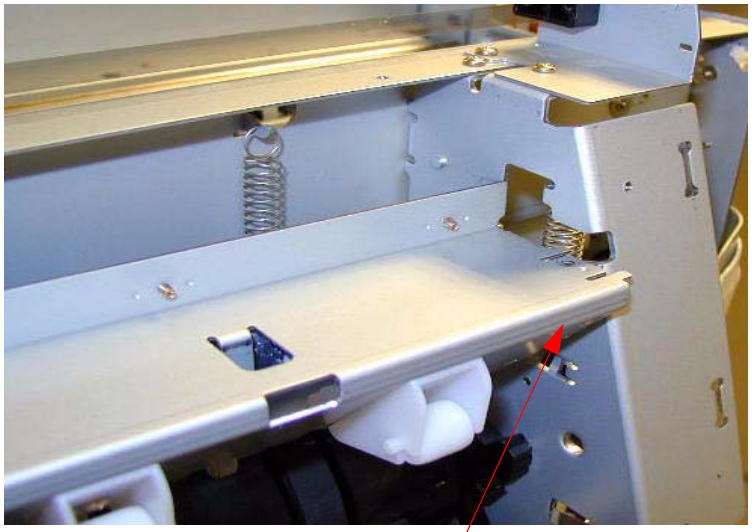


Guides and ***Notches*** should look like this.

28. Install the ***Roller Assembly***.

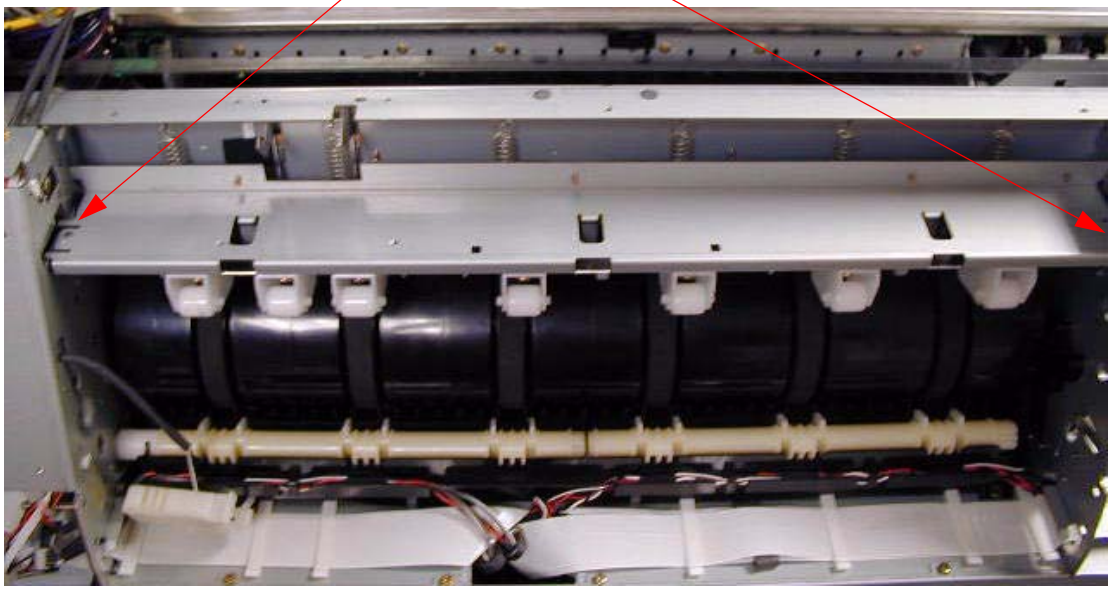


1. Insert the ***Left Side*** first.

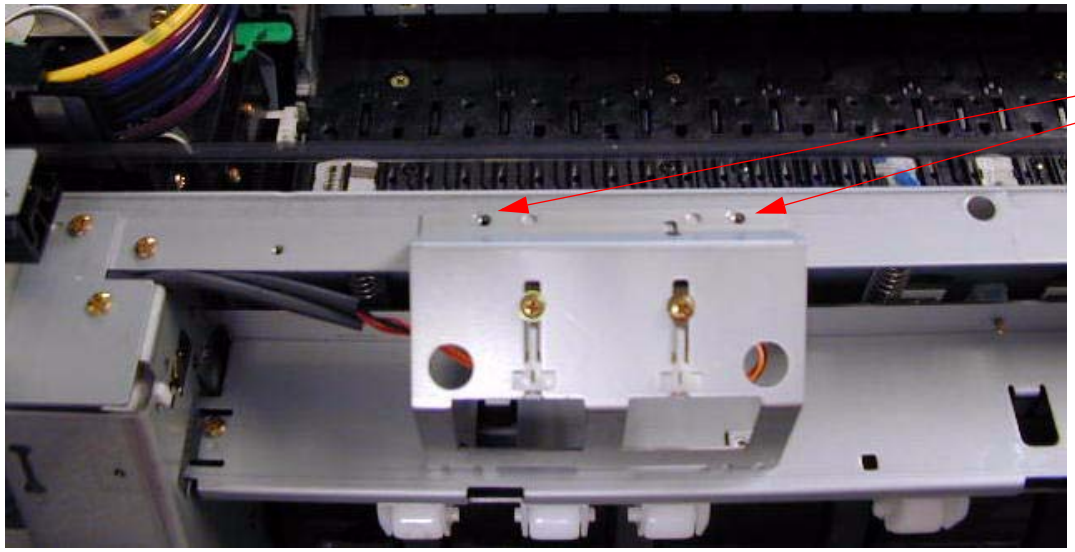


2. Insert the ***Right Side*** second.

3. Install ***2 Screws***.



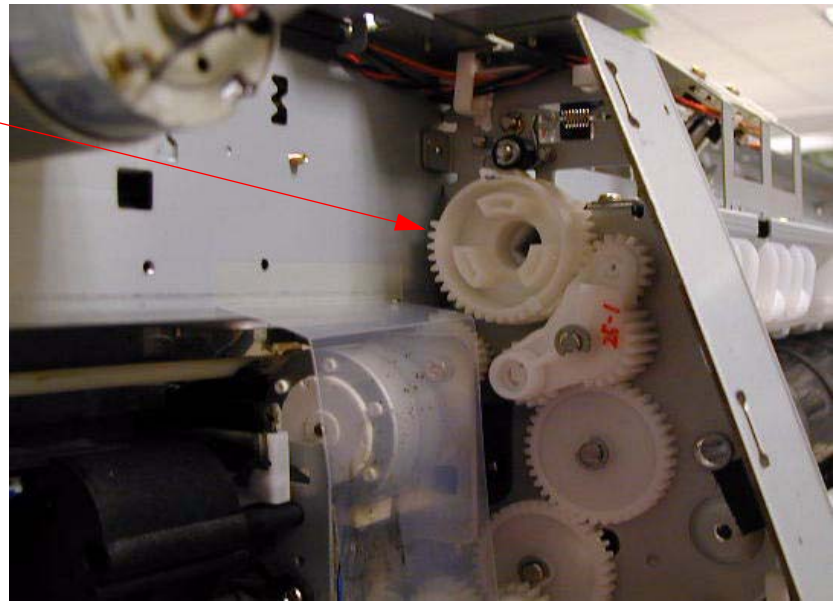
29. Install the ***Paper Thickness Sensor Assembly***.



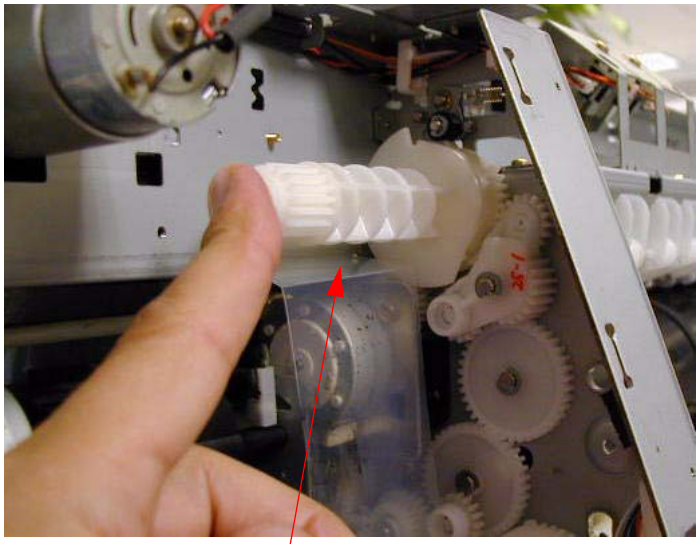
Fasten with ***2 Screws***.

30. Install the ***Gear*** pictured below.

Insert this ***Gear***. It is “keyed’ and will only insert 1 way.



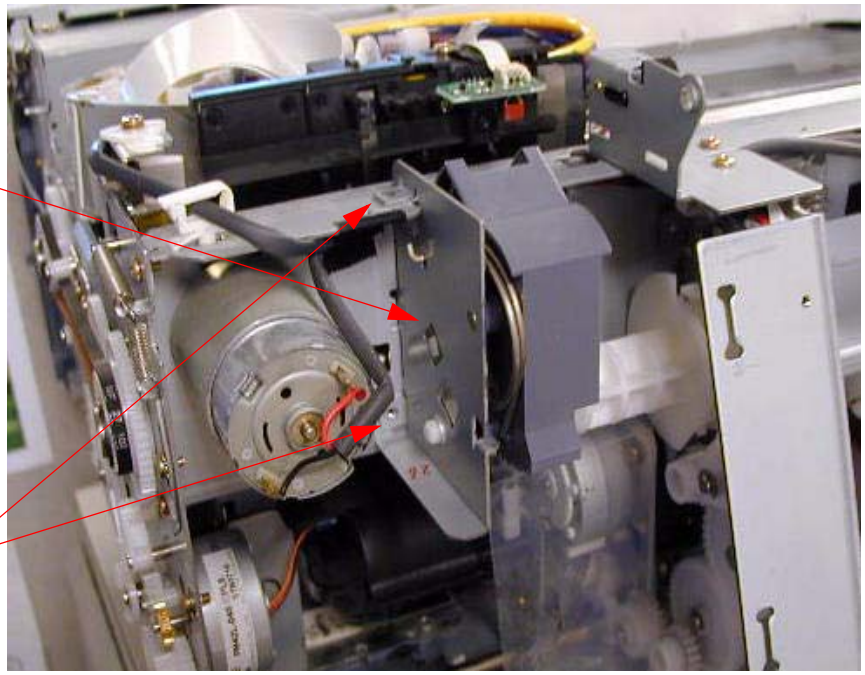
31. Attach the ***Release Transmission Gear*** and the ***Release Lever Assembly***.



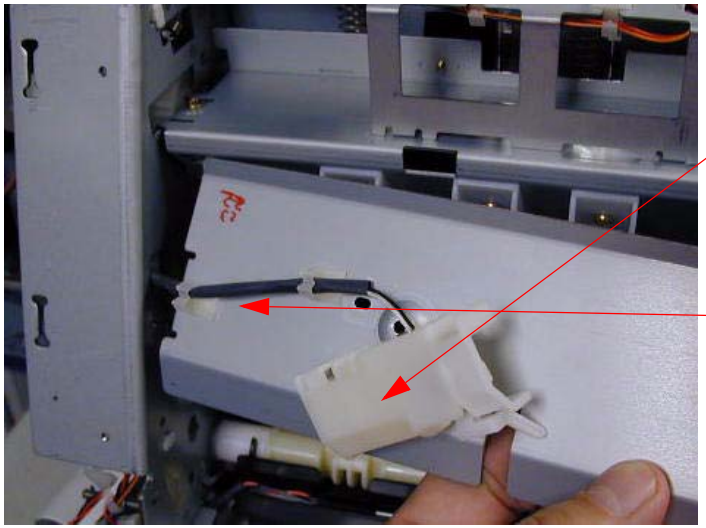
1. Insert this ***Gear***.

2. Install this ***Assembly*** so that the ***Gear*** is held in place.

3. Fasten with ***2 Screws***.



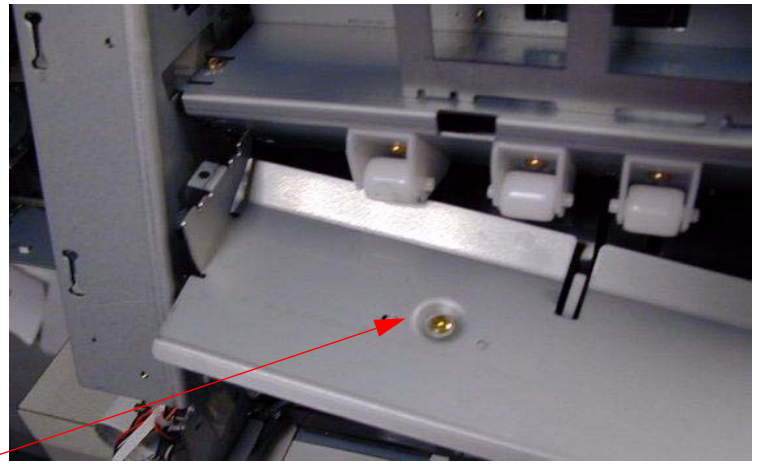
32. Attach the ***Manual Feed Sensor*** to the ***Paper Guide***.



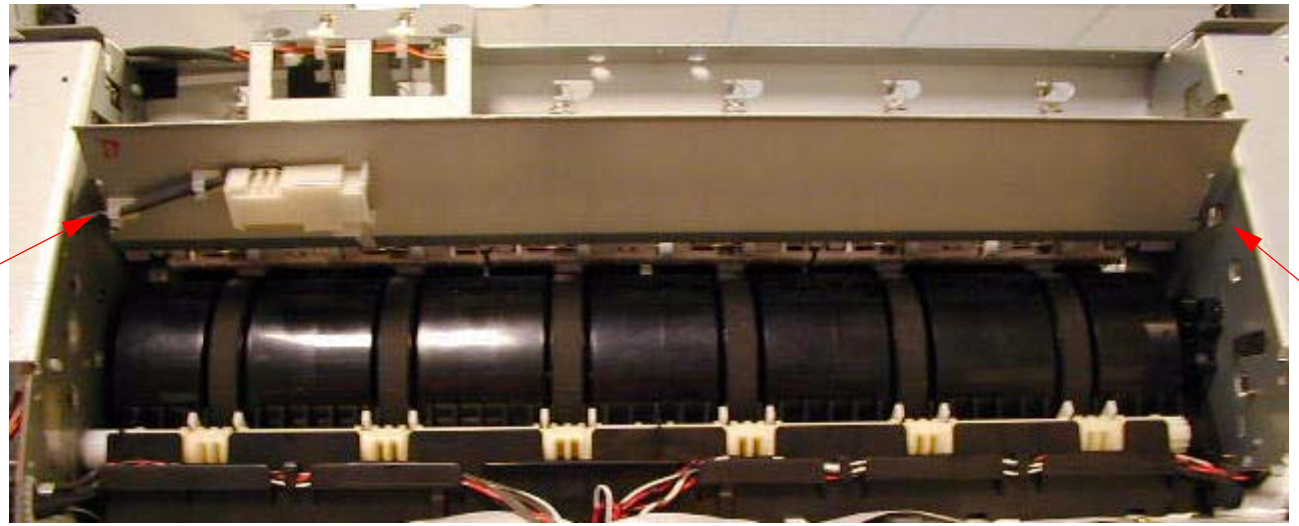
1. Hold in place on the back side of the ***Guide***.

2. Route the ***Wire*** through the ***Fasteners***.

3. Fasten with ***1 Screw***.

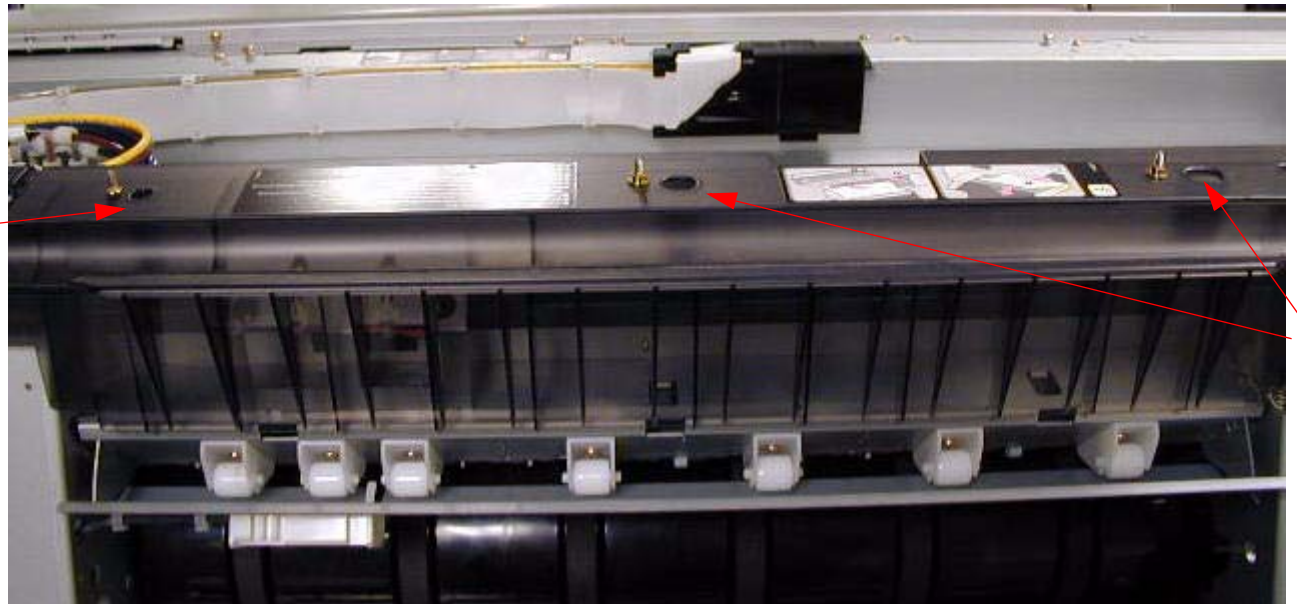


33. Install the ***Paper Guide Assembly and fasten with 2 Screws.***

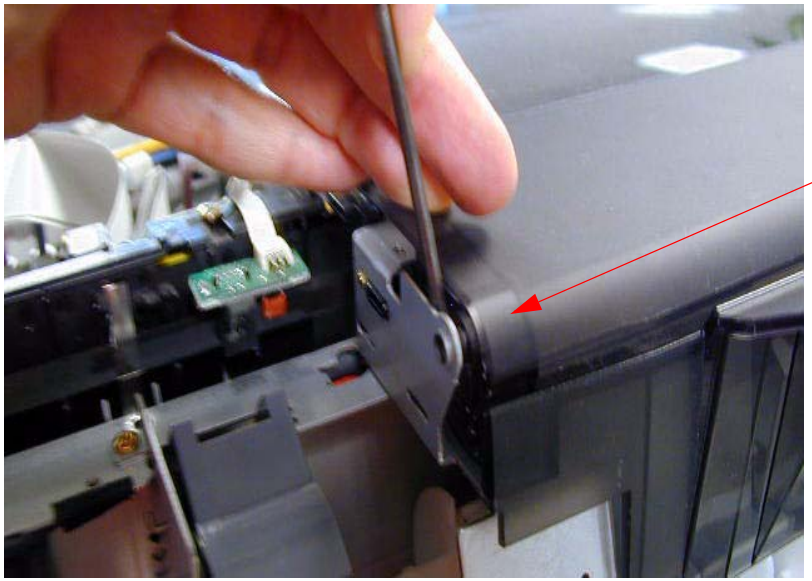


34. Perform the Paper Thickness Sensor Adjustment.

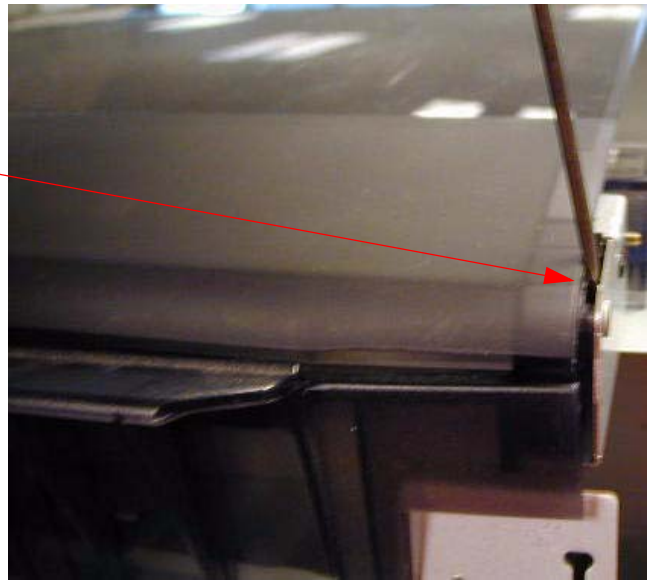
35. Install the ***Plastic Cover*** pictured below, and fasten with ***3 Screws***.



36. Install the ***Top Cover***.

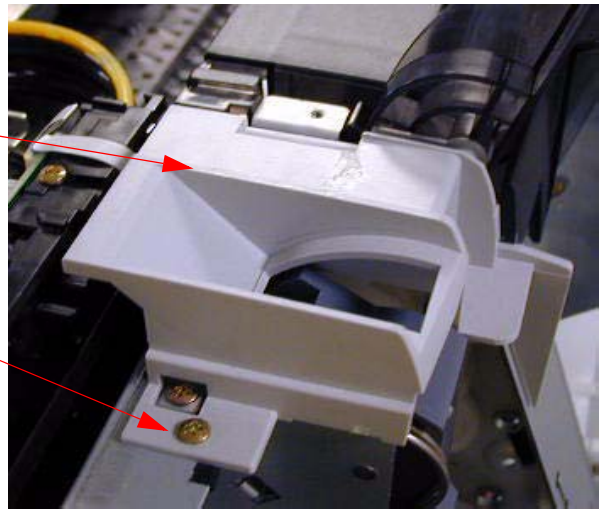


Lever the ***Pivot*** into the ***Hinges***.



37. Install the ***Paper Release Lever Assembly Cover***.

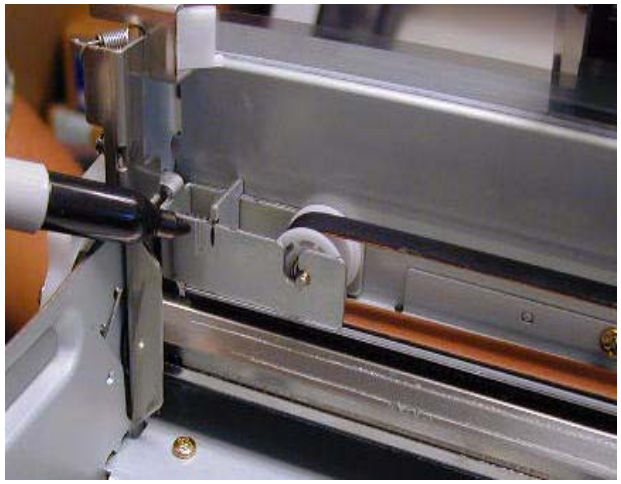
1. Install the ***Cover***.
2. Fasten with ***1 Screw.***



38. Replace the ***Left and Right Side Covers***.

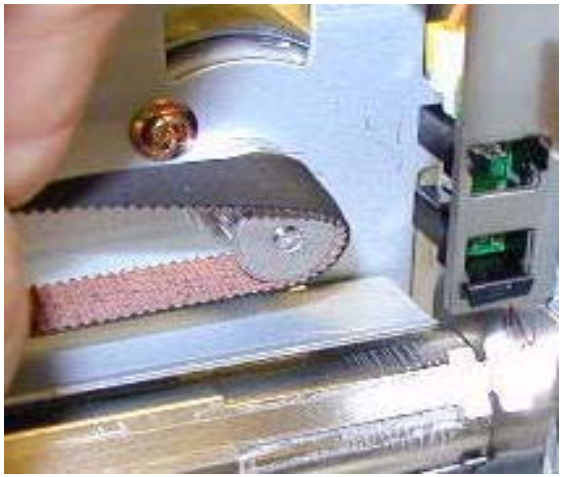
Print Head Replacement Procedure

1. Run the **Adjustment Wizard** and input the new ***Print Head's*** calibration value.
2. ***Unplug the Printer***.
3. Raise both ***Ink Levers***, closing the ***Ink Valves***.
4. Remove the ***Left Side Cover***.
5. Release the ***Carriage Lock***, and move the ***Carriage Mechanism*** away from the capped position.
6. Mark the ***Carriage Belt Tension Gauge***, loosen, and remove the ***Belt***.



Mark ***Belt Tension Gauge***

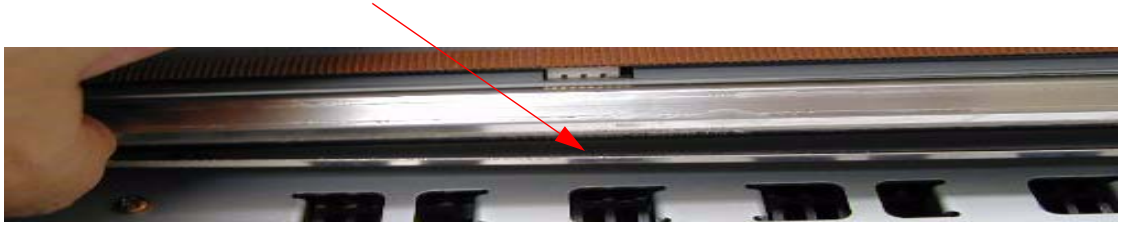
Loosen Belt Tension



Remove ***Belt*** from the ***Carriage Motor***

7. ***Carriage Rail Cover*** (***Wheel Track***) protection steps.

The Carriage Rail Covers will separate and bend when removing the Print Head if not protected.



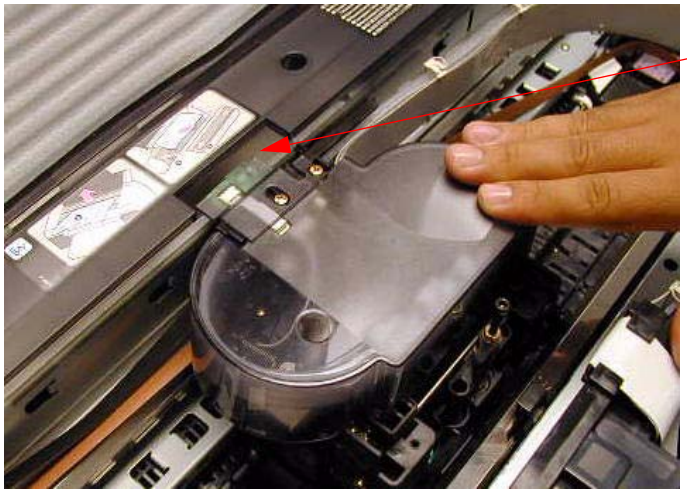
1. Make a double wall cardboard jig as shown.

.5” wide, and1/4” deep V slot

2. Place the jig so that the V slots support the ***Carriage Rail Covers***

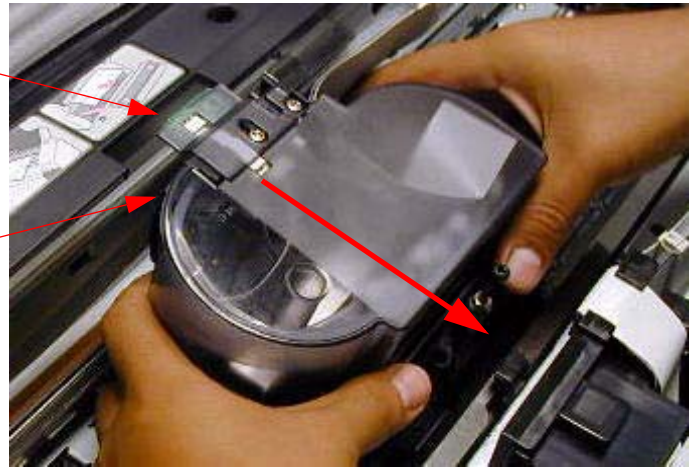
Note:The jig should be placed so that it supports the ***Carriage Rail Covers*** beside to the ***Print Head***, when it is in the removal position (see step 8).

8. Move the ***Carriage Mechanism*** at the removal slot as shown. Compress the ***Tension Springs*** against the ***Front Carriage Rail***, and lift out the ***Carriage.***

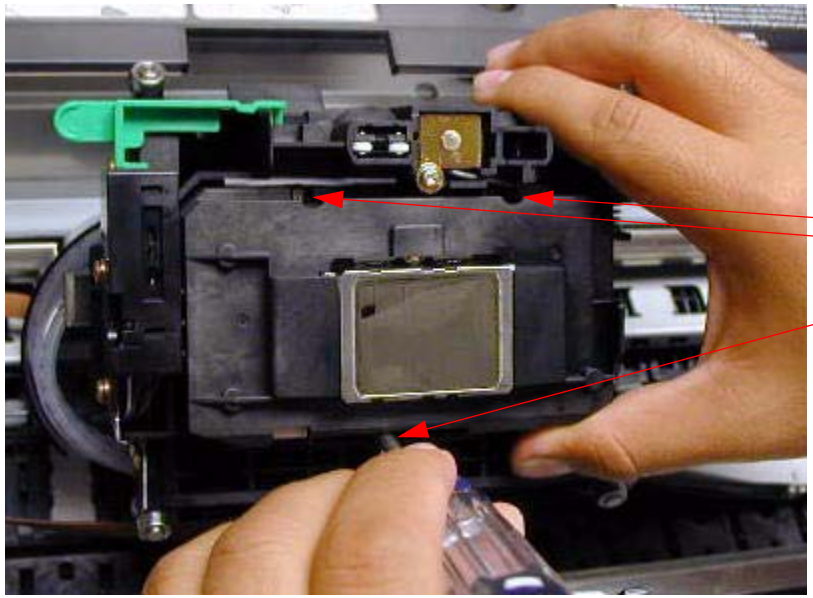


Removal ***Slot***

Be careful to free the ***Carriage Timing Strip***

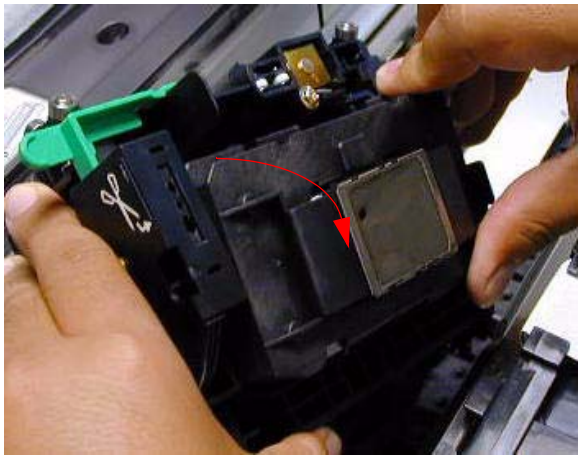
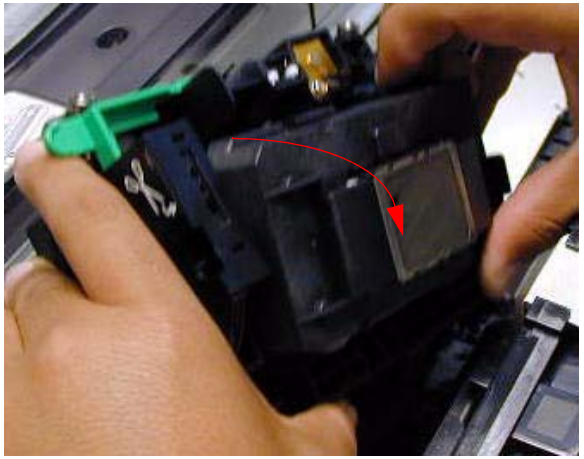
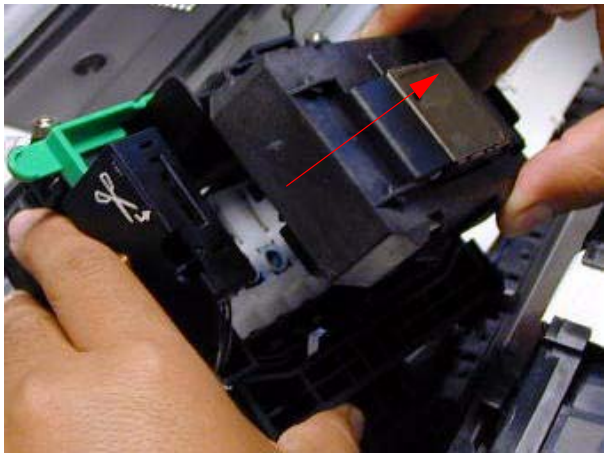


9. Turn over the ***Carriage Mechanism***, and support it with one hand (ensure that the ***Nozzles*** and the ***Carriage Encoder*** are not damaged).



Remove ***3 Screws***

10. Remove the ***Print Head*** by rotating the top of the ***Head*** away from the ***Carriage***.

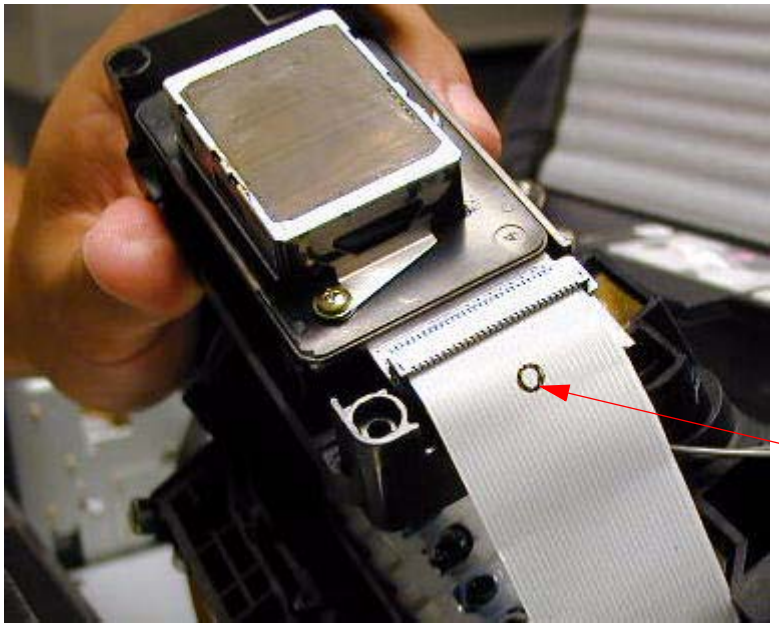




11. Remove ***3 Screws*** fastening the ***Head*** to the ***Head Case***.

Remove ***3 Screws***

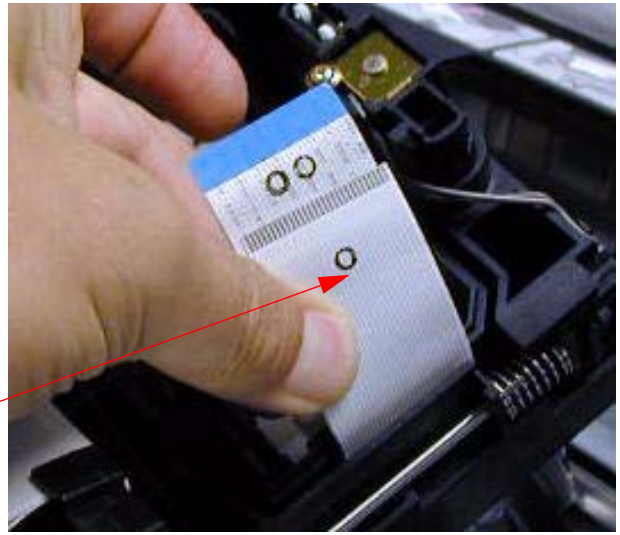
Separate the ***Print Head*** from the ***Print Head Case***.

12. Disconnect the ***Print Head Cables***



Gently remove the ***Cables***.

The ***Top Cable*** is the ***0 Cable***.



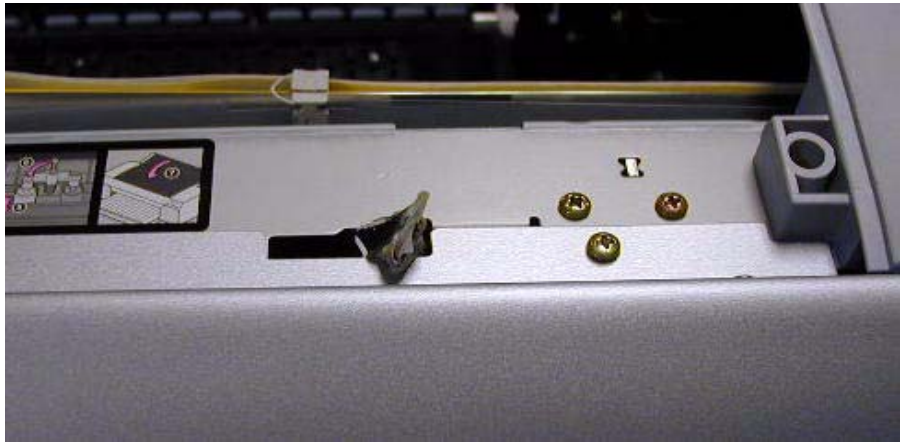
13. Connect the new ***Print Head*** to the ***Cables***. Ensure that the ***0 Cable*** is on top (***Nozzle Plate*** side).
14. Attach the ***Print Head*** to the ***Head Case***.
15. Attach the ***Head Case*** to the ***Carriage Mechanism.***
16. Re-install the ***Carriage Mechanism***.
    - 16.1 Ensure that the ***Timing Strip*** is routed through the ***Sensor***.
    - 16.2 Use the ***Carriage Rail Cover*** protection jig.
17. Place the ***Carriage Belt*** on the ***Carriage Motor Pulley***.
18. Tighten the ***Carriage Belt*** until the ***Gauge*** reaches the mark that represents the proper tension.

19. Verify that the ***Carriage Rail Covers***, ***Carriage Bearings***, ***Carriage Belt*** and ***Timing Strip*** are properly in place.

20. Move the ***Carriage Mechanism*** to the capped position.

21. Plug in the ***Printer***, and lower both ***Ink Cartridge Levers*** to open the ***Ink Valves***.

22. Defeat the ***Cover Sensor***, and turn on the ***Printer***.



23. Turn on the ***Printer***, and let it come **Ready**.

24. Press the Menu button and navigate to **Maintenance**.

25. Press the ***Menu*** button and navigate **PWR CLEANING**.

26. Press the **Menu** button to execute.

27. Print a Nozzle Check Pattern (Perform standard cleanings if necessary).

28. Perform the following adjustments in sequence.

28.1 Perform **Reset When Print Head Change**

28.2 Perform the **Print Head Slant Adjustment (CR)**

28.3 Perform the **Print Head Slant Adjustment (PF)**

28.4 Reset (initialize) the user settings using the **Epson Paper Feed Adjuster** utility.

28.5 Perform the **Nozzle Bi-D Adjustment**

28.6 Perform the **Auto Bi-D Adjustment**

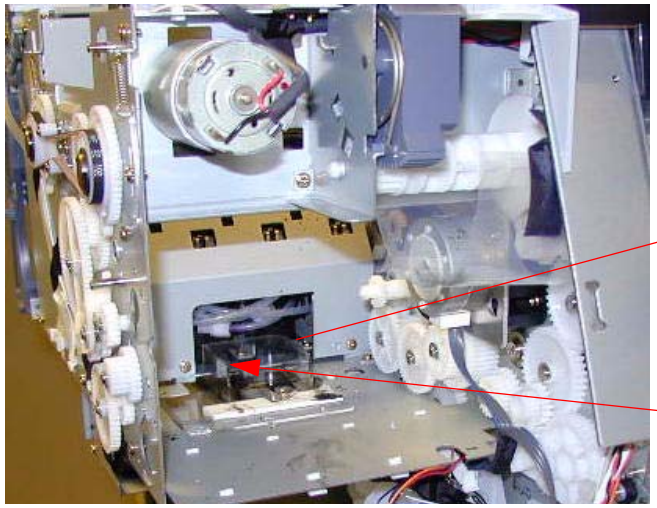
28.7 Perform **Copy Bi-D variables**

28.8 Perform the **Auto Uni-D Adjustment**

28.9 Perform **Copy Uni-D variables**

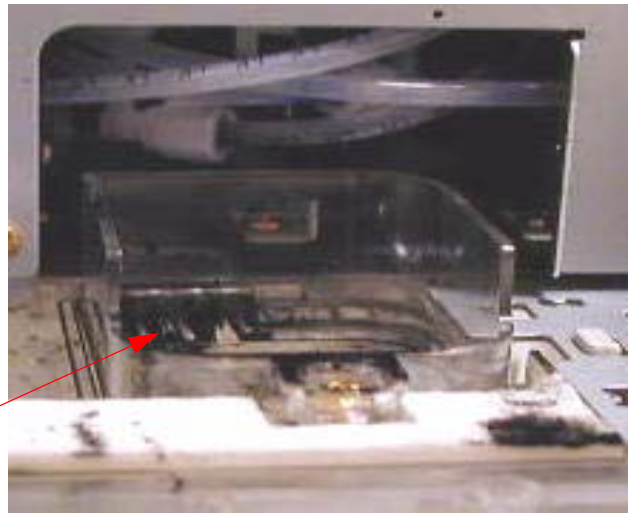
Pump and Cap Installation

1. Before installing the ***Pump and Cap Assembly*** identify the ***Tube Receptacles*** where the ***Pump Tubes*** must be inserted.

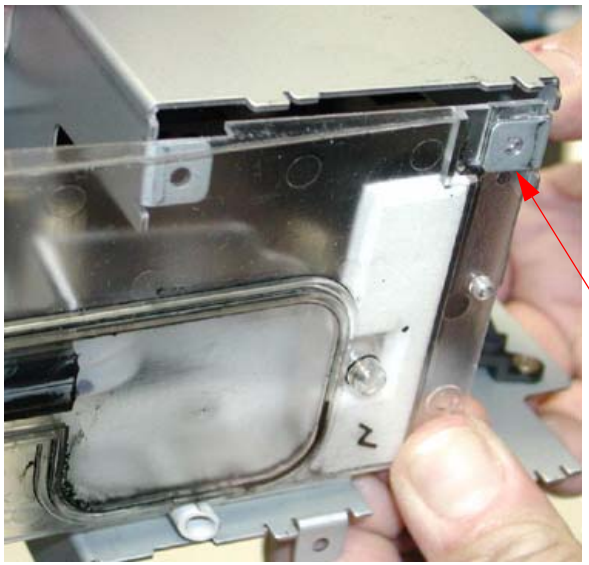


Blow up view

Tubes go here



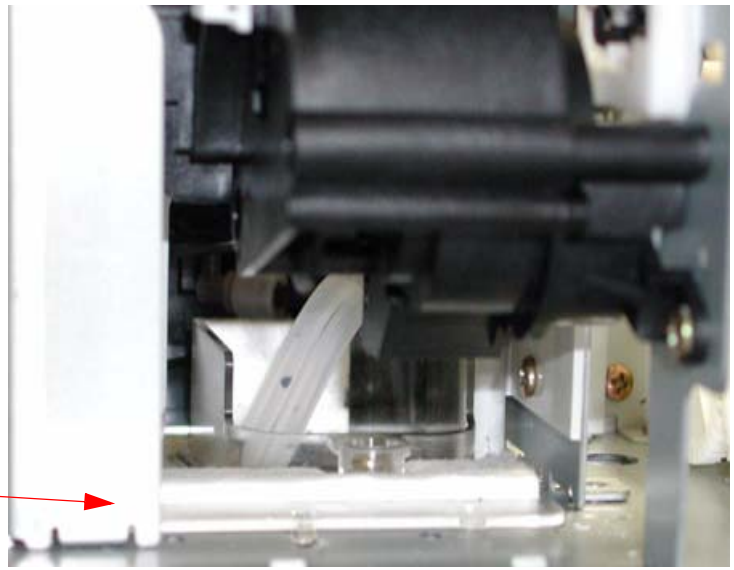
2. Before installing the ***Pump and Cap Assembly***, note this detail.



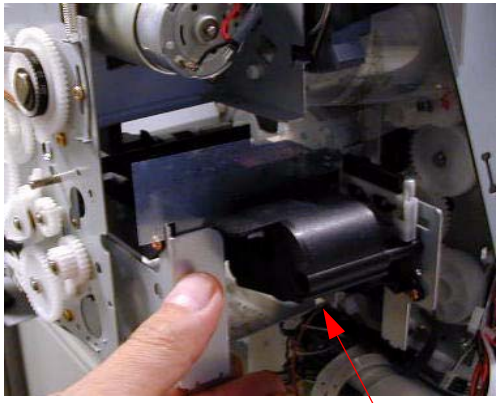
The ***Plastic Tray*** that sits under the ***Pump***, and that the ***Tubes*** are inserted into, has one corner that sits on top of the ***Pump / Cap Assembly Frame***.

View from the bottom. Note the ***Plastic Tray*** is on top of the ***Frame Mount***.

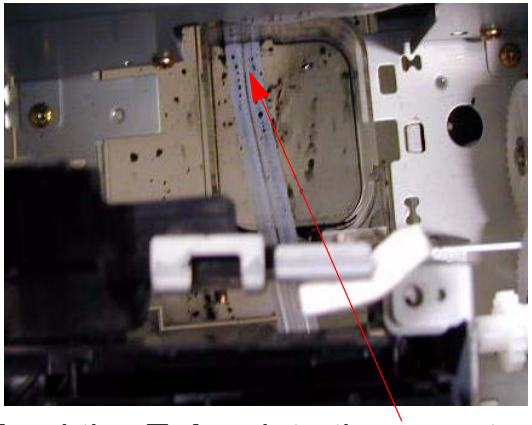
View from the back of the ***Printer***. The ***Plastic*** is on top of the ***Frame***.



3. Insert the ***Cap Assembly*** part of the way, through the back of the ***Printer***.

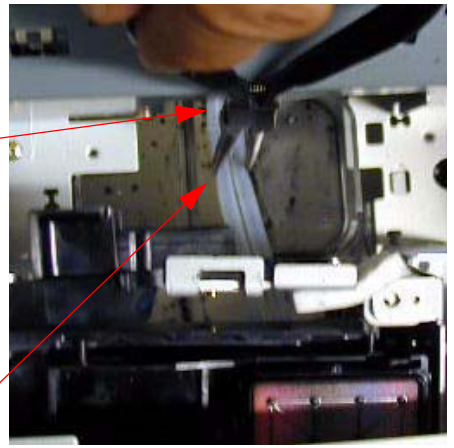


Slide the ***Cap and Pump Assembly,*** part of the way in



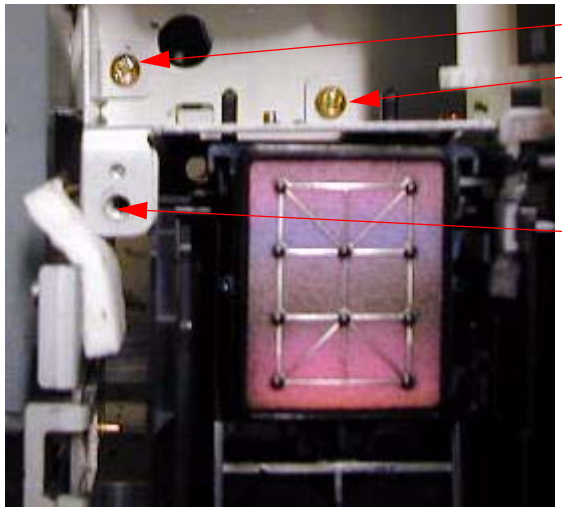
Feed the ***Tubes*** into the receptacle

If the Ink Tubes are not fully inserted, the Ink may bubble back through the cap.



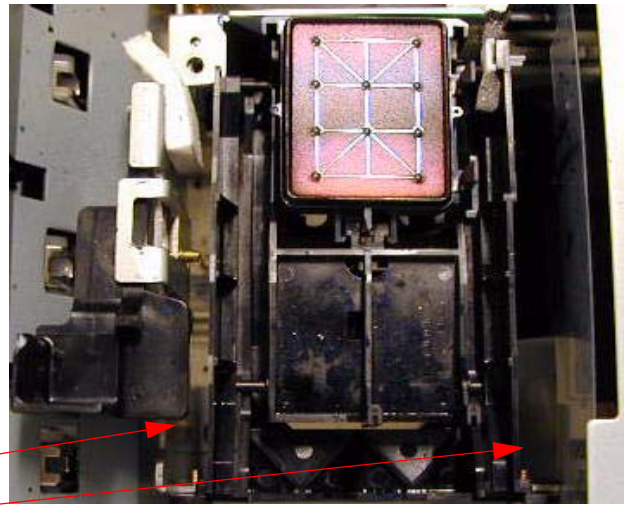
Assist the Tubes ***fully*** into the receptacle, while sliding in the ***Assembly***.

4. Install the ***4 Screws*** securing the ***Cap and Pump Assembly***. ***Ensure that the Assembly is correctly seated to avoid carriage errors***.



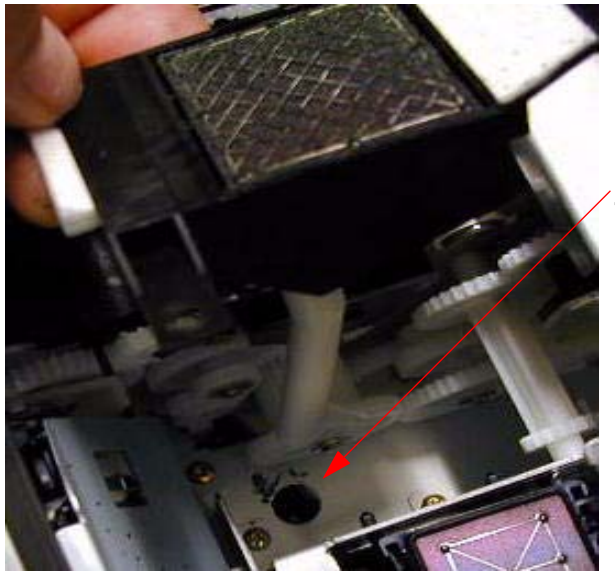
2 Screws

Ensure that the ***Flushing Box Screw Hole*** is correctly aligned before tightening the ***Assembly*** screws.



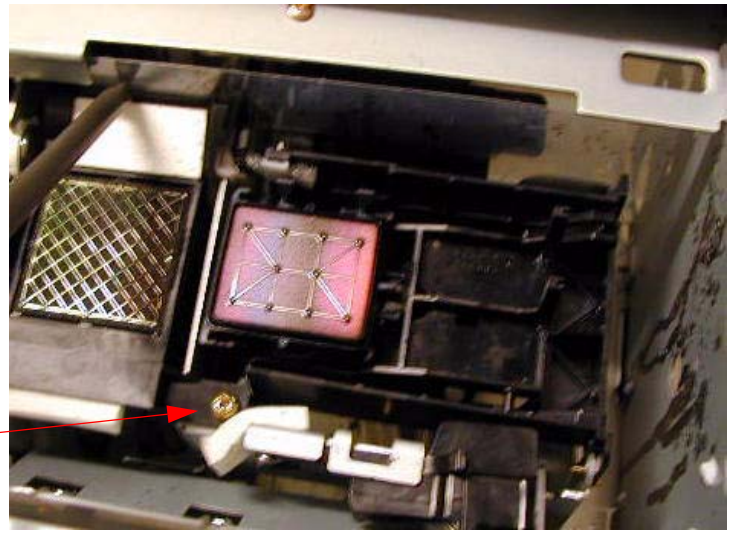
2 Screws

5. Install the ***Flushing Box*** and fasten with 1 ***Screw***



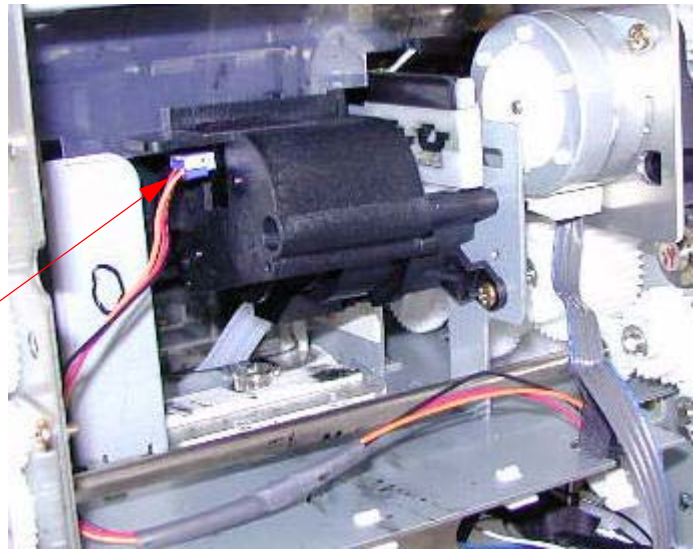
Tube into the hole leading to the ***Waste InkTank***

1 Screw

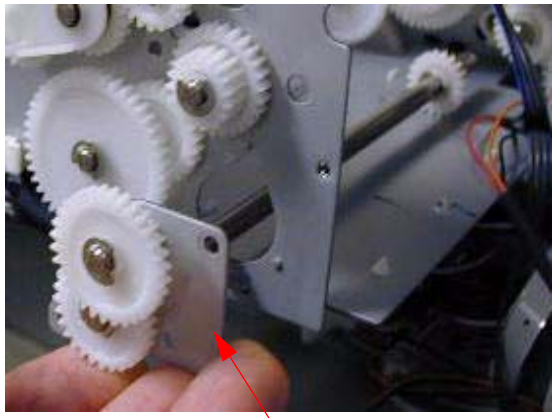


6. Plug in the ***Pump Home Position Sensor***.

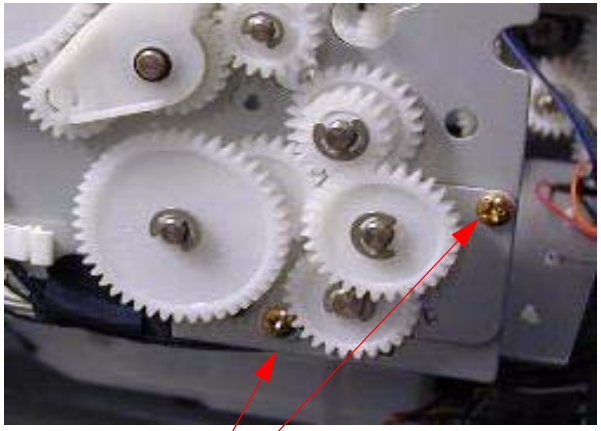
Plug in



7. Install the ***Gear and Shaft Assembly***, and fasten it with ***2 Screws***.

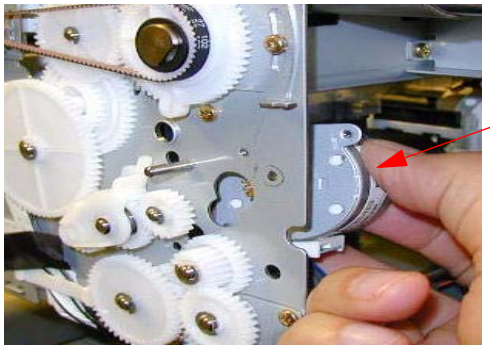


Install ***Gear and Shaft Assembly***.



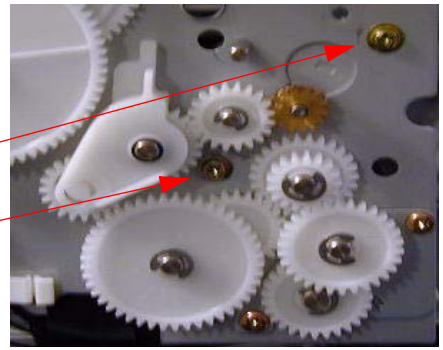
2 Screws

8. Install the ***Platen Gap Motor***, and fasten with ***2 Screws***.

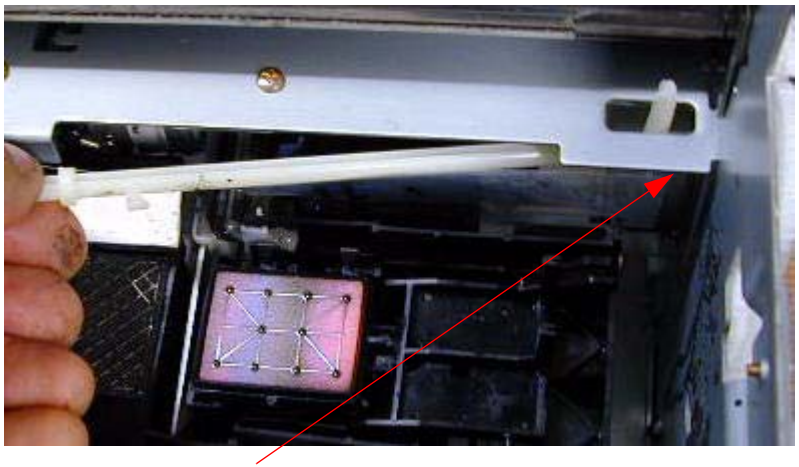


Install the ***Motor***

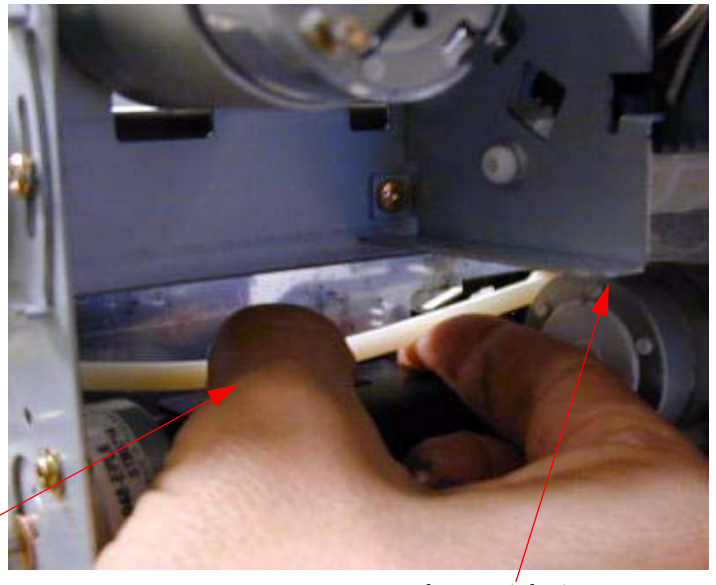
2 Screws



9. Install the ***Trigger Shaft***.



Insert ***Trigger Shaft*** into the ***Right Side Frame***

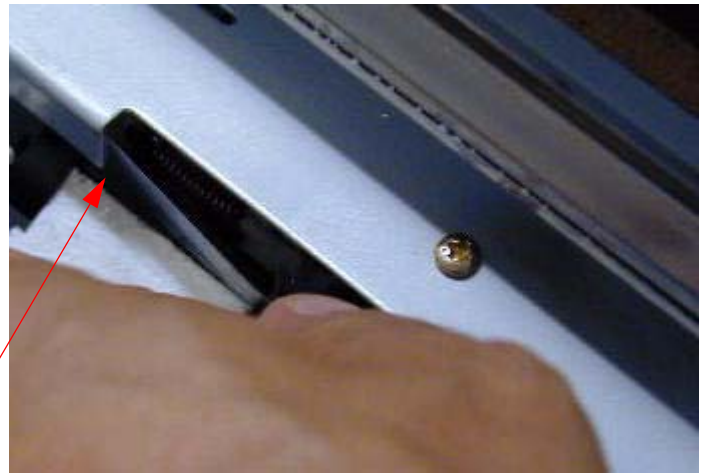


Flex the ***Trigger Shaft*** from the back side of the Printer, until the end of the ***Shaft*** can be inserted into the ***Socket***

Insert Into ***Socket*** here

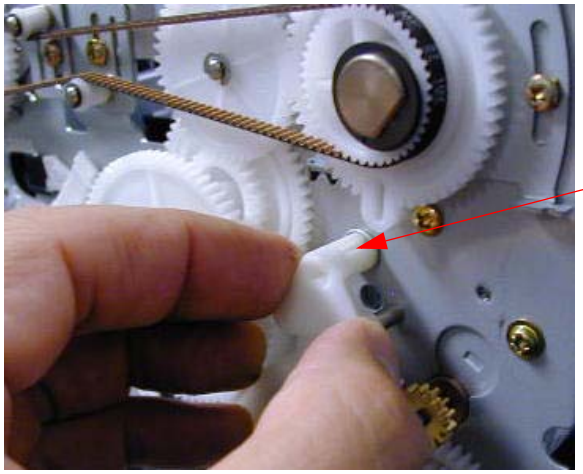
10. Replace the ***Trigger Spring***.

Spring goes here.



Ensure that the ***Splash Guard*** is routed as shown.

11. Replace the ***Trigger Assembly End Piece***.



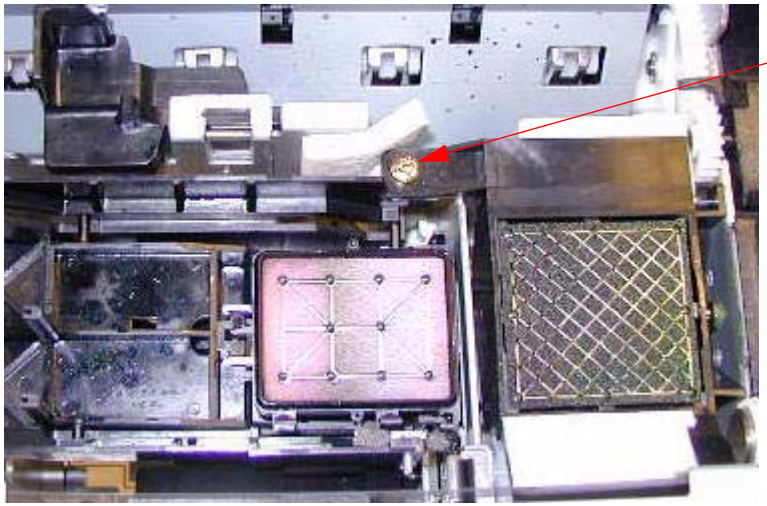
Trigger Assembly End Piece here

12. Perform **Reset When Cleaning Unit Change** (if the ***Cap/Pump Assembly*** was changed).

Pump and Cap Removal

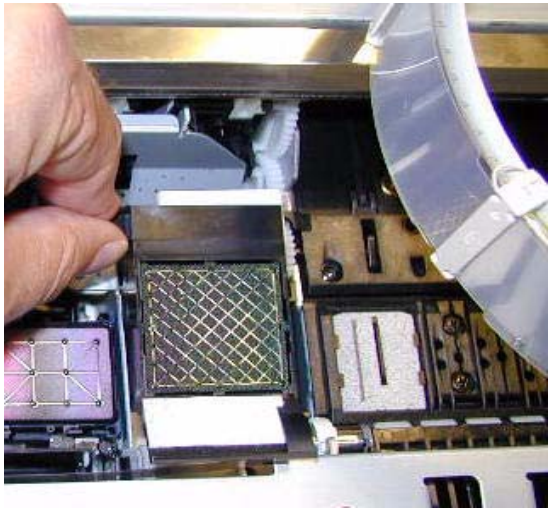
1. Remove the ***Right Side Cover.***

2. Remove the ***Flushing Box.***

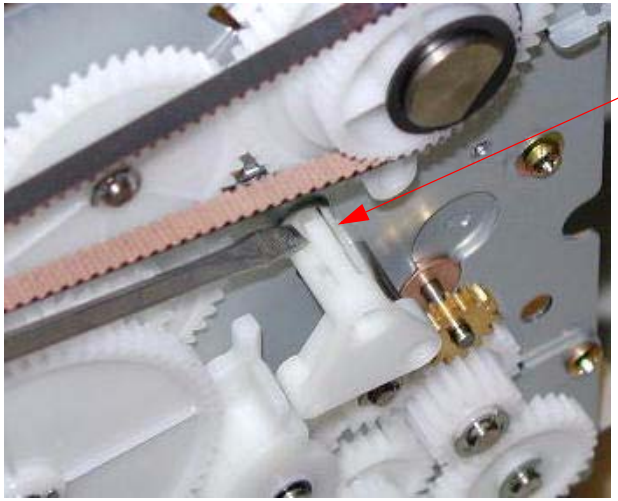


Remove ***Screw.***

Lift out the ***Flushing Box.***

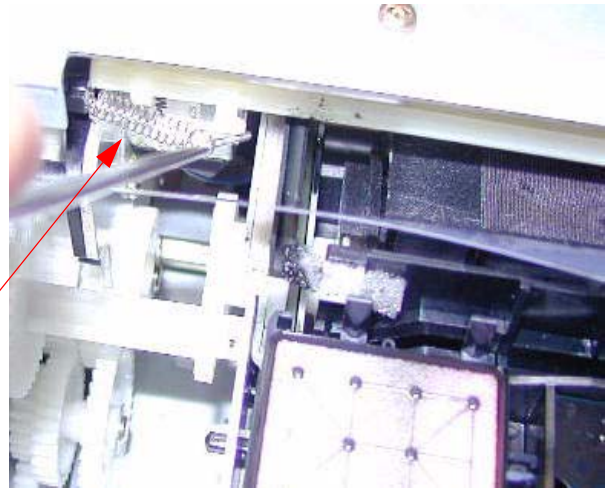


3. Remove the ***Trigger Assembly End Piece*** and ***Spring.***

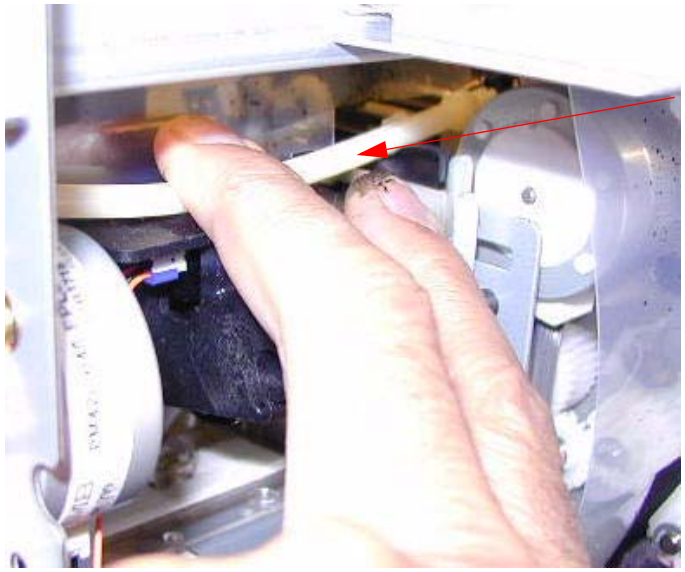


Trigger Assembly End Piece

Trigger Spring



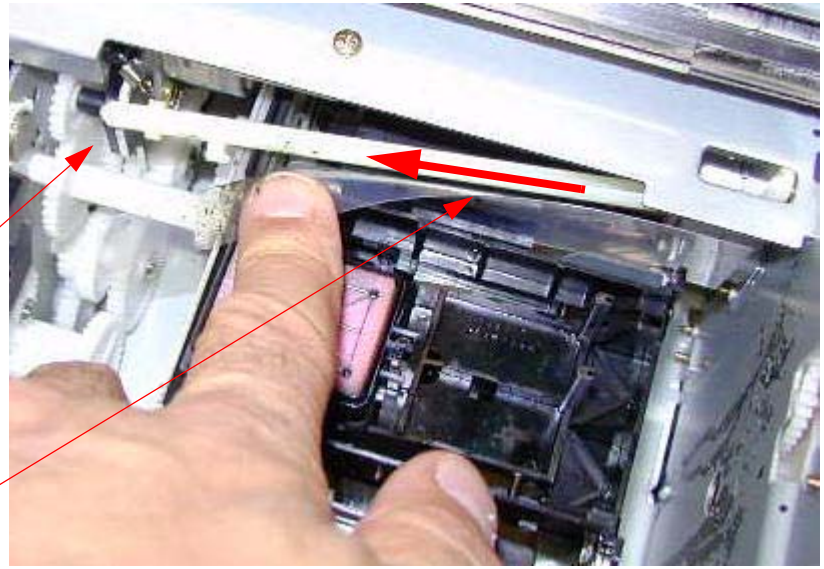
4. Flex the ***Trigger Shaft*** until the end farthest from the ***Side Frame*** clears it's ***Socket***, then remove the ***Shaft***.



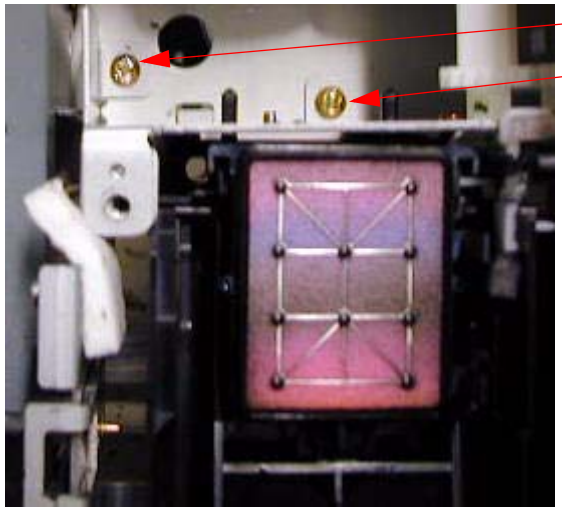
Flex the ***Shaft*** from behind

Free the end of the ***Shaft*** from it's ***Socket***

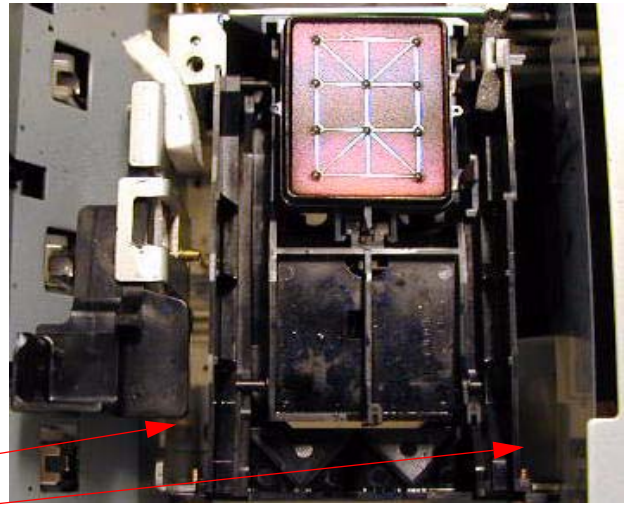
Slide out the ***Trigger Shaft***



5. Remove ***4 Screws*** securing the ***Cap and Pump Assembly***.

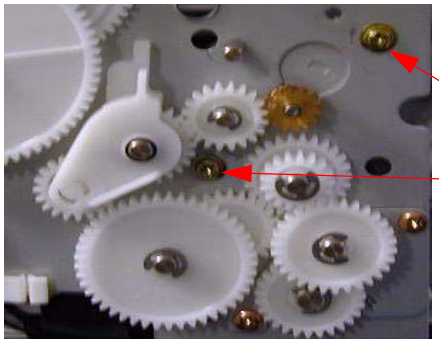


2 Screws



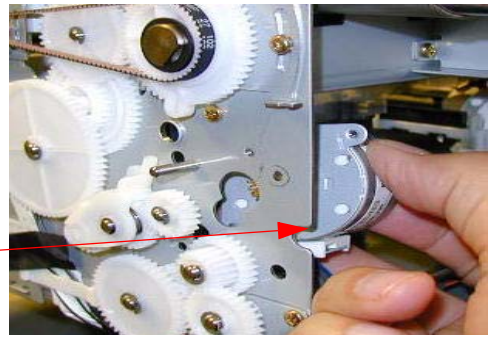
2 Screws

6. Remove ***2 Screws*** fastening the ***Platen Gap Motor***, and remove.

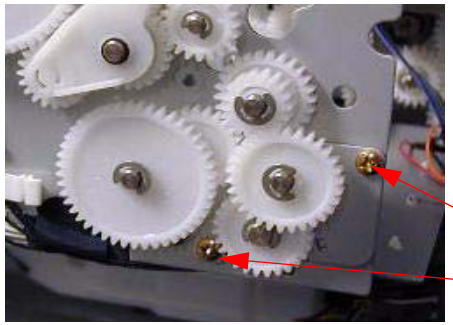


2 ***Screws***

Remove the ***Motor***

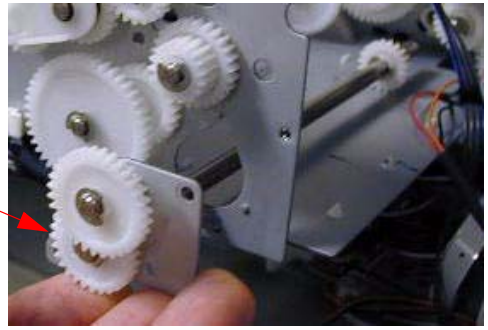


7. Remove ***2 Screws*** fastening the ***Gear and Shaft Assembly***, and remove.



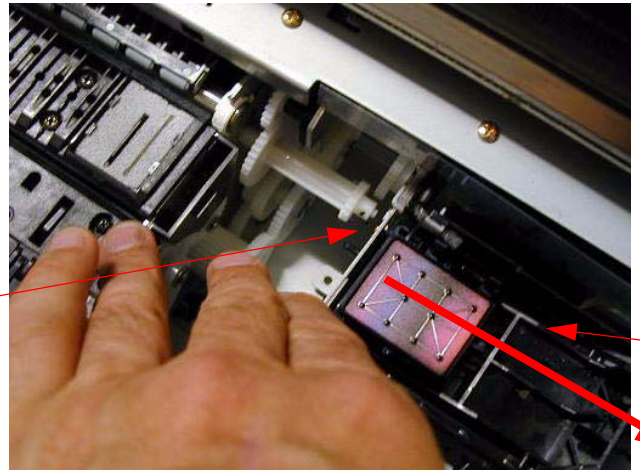
2 ***Screws***

Remove ***Gear*** and ***Shaft Assembly.***



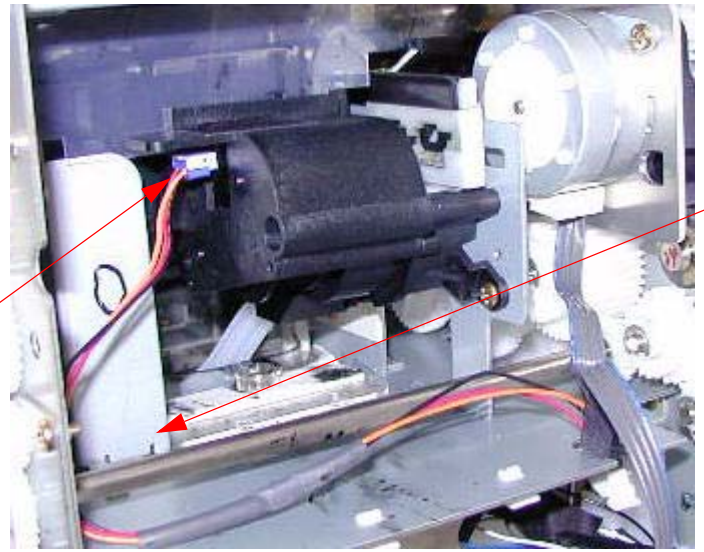
8. Slide the ***Cap and Pump Assembly*** to the right, to separate the ***Assembly*** from the ***Gear.***

Separate the ***Assembly*** from the ***Gear***



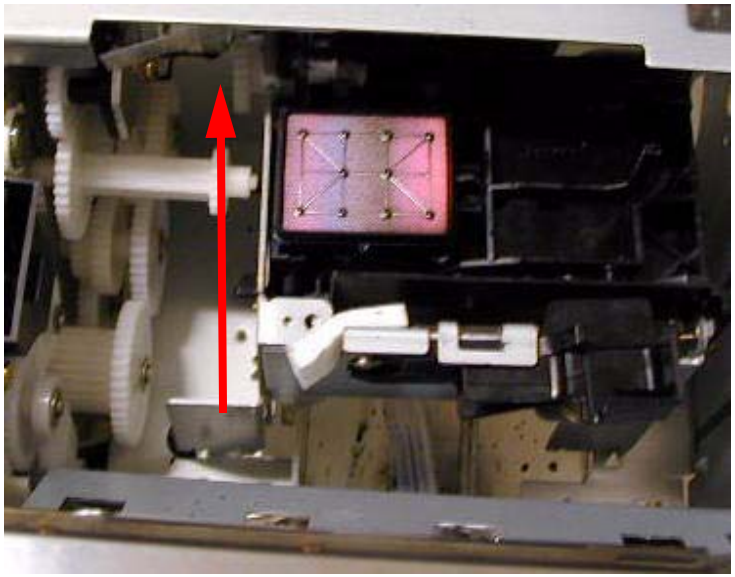
Slide the ***Cap*** and ***Pump Assembly*** this way.

9. Unplug the ***Pump Home Position Sensor***.

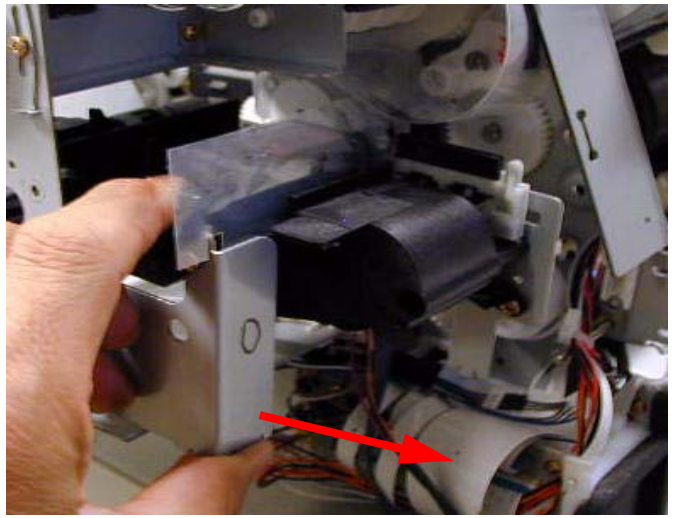


Re-assembly note:
The ***Plastic Tray*** that the ***Pump / Cap Assembly*** covers, sits on top of the ***Pump / Cap Assembly Frame*** at this corner.

10. Slide the ***Cap and Pump Assembly*** out the back of the ***Printer***.

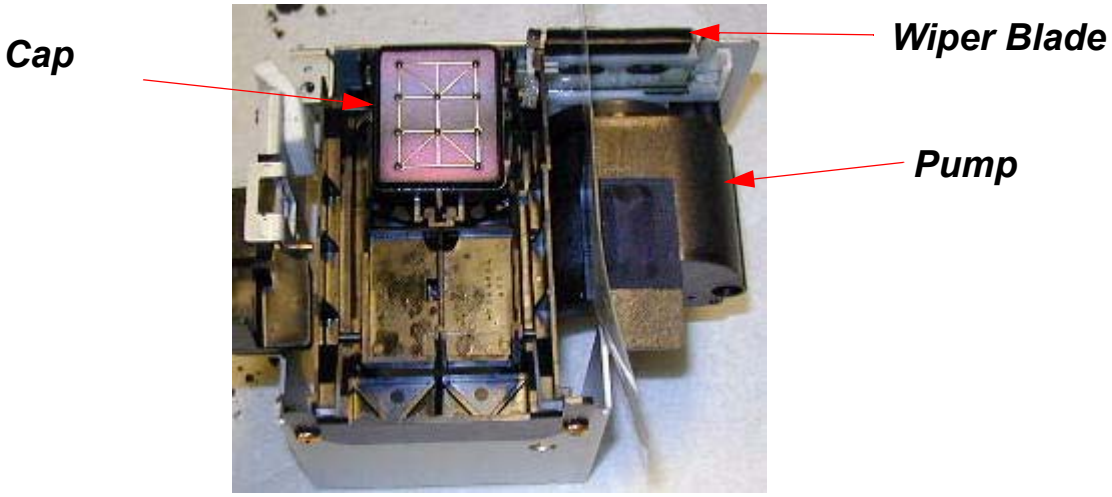


Slide the ***Assembly*** to the back



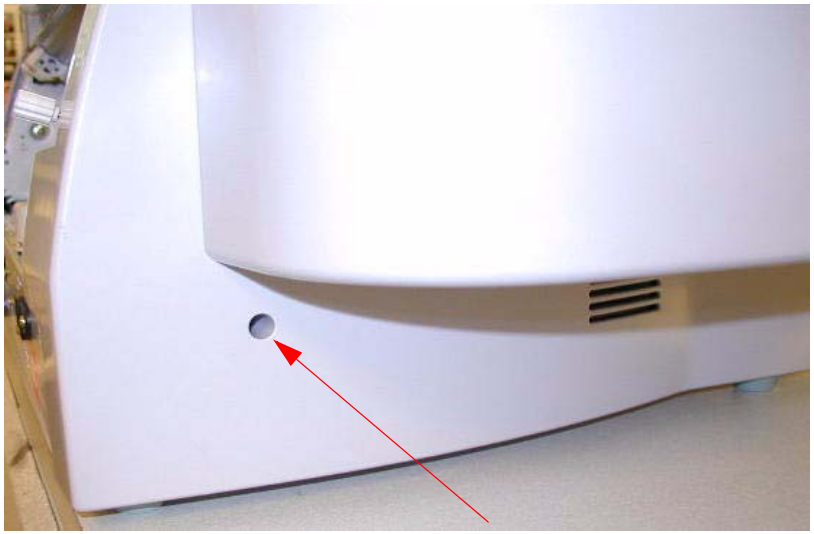
Remove from the back of the ***Printer***

Cap and Pump Assembly Components.

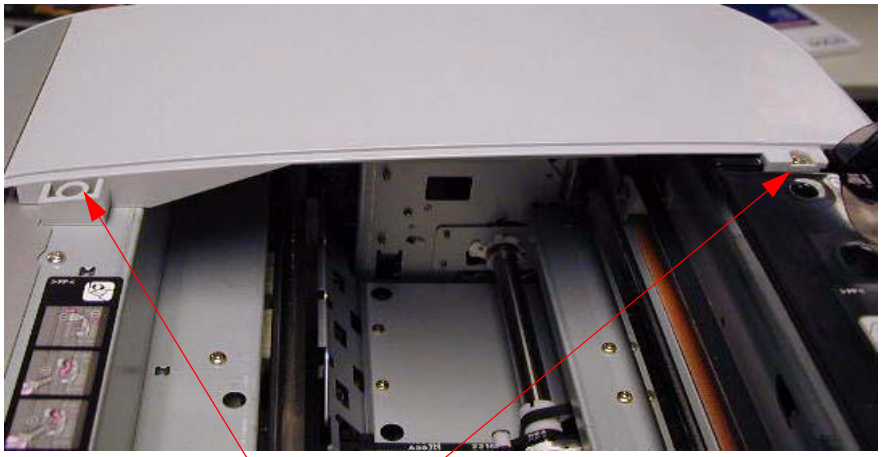


Side Cover Removal (Left)

Remove ***Screw***



Remove ***Screw***

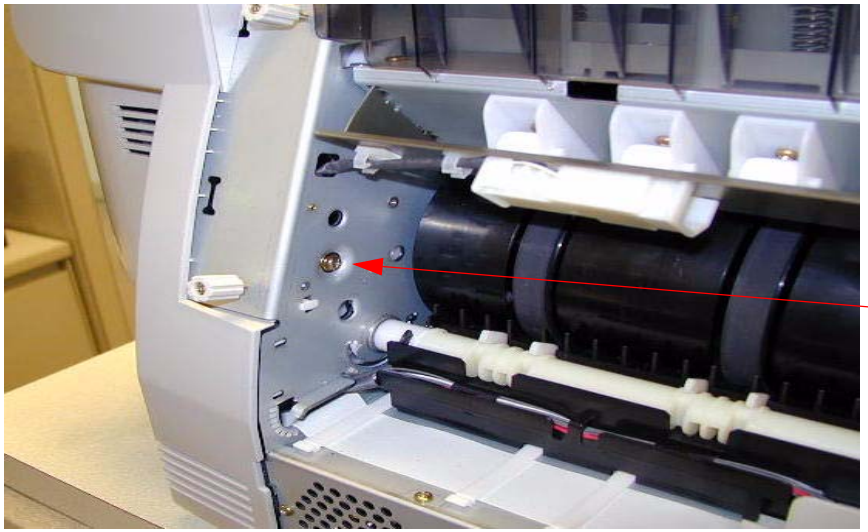


Remove ***2 Screws***

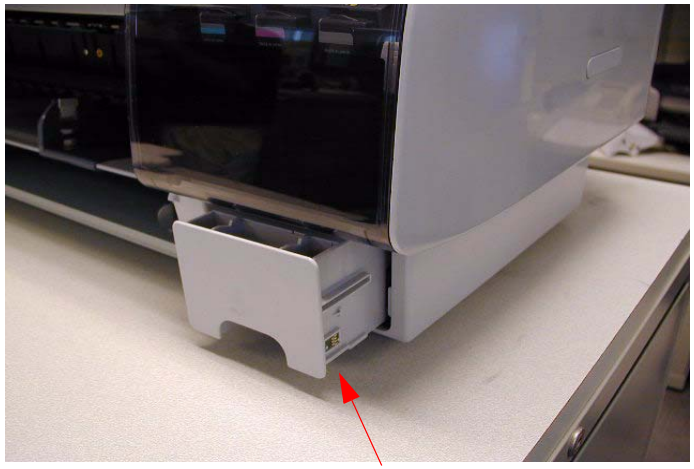
The Left Side Cover will slide off

Side Cover Removal (Right)

Remove the ***Rear Paper Guide Assembly***



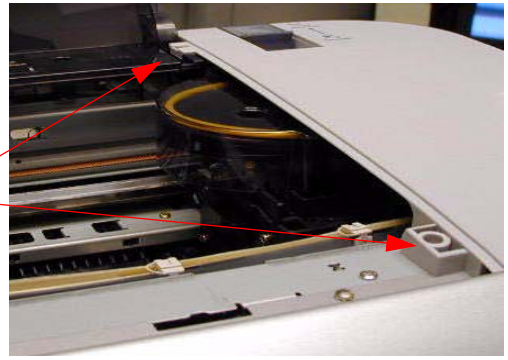
Remove ***Screw***

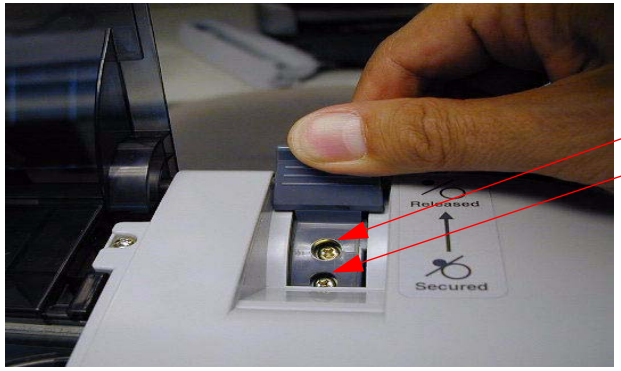


Remove ***Waste Ink Tank***

Remove ***Screw***

Remove ***2 Screws***



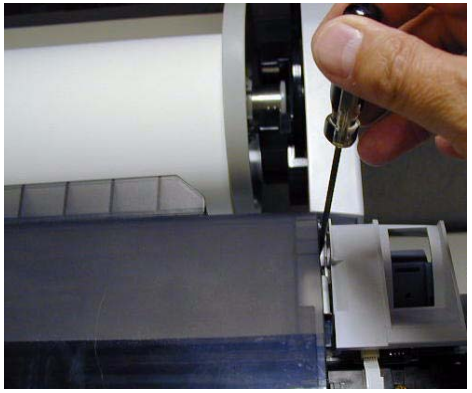


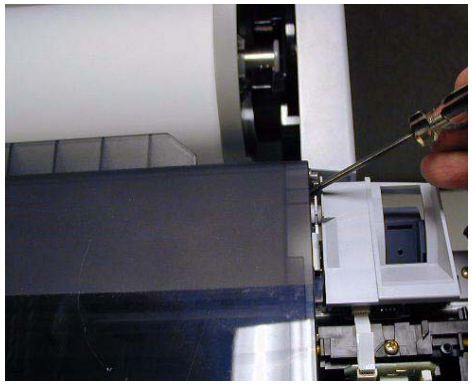
Remove ***2 Screws*** and slide off ***Lever***

The Right Side Cover will slide off.

Top Cover Removal

1. Using a small flat head screw driver, lever the right ***Top Cover Hinge*** pivot point out of the ***Hinge Frame***.





2. Using a small flat head screw driver, lever the left ***Top Cover Hinge*** pivot point out of the ***Hinge Frame***.

3. Lift off the ***Top Cover***.

Troubleshooting

Error Codes (Maintenance)

0002	Carriage Motor / Ink Tube end of life (Clear Carriage Motor Counter)
0004	Nozzle check error
0008	RTC error (Real Time Clock) (Check the Battery and reset the Date and Time)
0010	Multi Sensor Error
0020	Print Head life counter (Reset the Head counter)
0040	Cleaner Unit end of life (Clear the Cleaner counter)
0080	Date is not set (Set the date and time (RTC))
0100	RTC Battery low (Replace the battery, and reset the RTC)
0200	Paper feed roller life (over 75,000 sheets) (Reset the ASF counter)

Error Codes (Service)

00000088	RTC (Real Time Clock) data is corrupted
00000101	Carriage Motor life (Reset Carriage Motor Counter, check for leaky ink tubes)
00000103	RTC (Real Time Clock) battery is defective
00000105	Print Head end of life (Inspect print head and reset head counter)
00010000	Paper Feed Motor encoder check error (Check Sensor and Timing Disk)
00010001	Paper Feed Motor out of step
00010002	Paper Feed Motor overcurrent (Check for mechanical binding of the feed rollers / motor)
00010003	Paper Feed Motor in-position time-out
00010004	Carriage Motor encoder check error (Check sensor and Timing Disk)
00010005	Carriage Motor out of step
00010006	Carriage Motor overcurrent (Check for mechanical binding, If not replace motor)
00010007	Carriage Motor in-position time-out
00010008	Servo interrupt watchdog time-out
00010009	System interrupt watchdog time-out
0001000A	Carriage home position error (Check Sensor and mechanical components)
0001000C	Platen Gap home position error (Check Sensor and mechanical components)
0001000F	Carriage Motor PWM output faulty
00010010	Paper Feed Motor PWM output faulty
0001001B	Head driver (TG) temperature error
0001001D	Carriage servo parameter error

0001001E	Paper feed servo parameter error
00010020	CSIC read / write error
00010022	Ink type error
00010023	RTC (Real TIme Clock) (Reset RTC)
00010025	CSIC ROM communication error
00010026	RTC (Real TIme Clock) communication error
00010028	Head error
00010029	Unidentified NMI
0001002A	Carriage ASIC ECU error
0001002B	Paper feed ASIC ECU error
0001002D	Cleaning Unit end of life
0001002F	360 DPI writing time out error
00010030	Multi Sensor failure (1. Check sensor, 2. calibrate sensor, 3. replace sensor)
00010031	ASF (Auto Sheet Feeder) home position error (Check Sensor and mechanical components)
00010032	ASF (Auto Sheet Feeder) Drive Switch error (Check Sensor and mechanical components)
00010033	Exit Roller home position error (Check Sensor and mechanical components)
00010034	Eject Roller lifted (Customer Safety Sensor on the eject roller)
00010035	Pump Home Position Error (Check Sensor and mechanical components)
00010036	Type B 1394 (Firewire) board installation (Remove Firewire Card / not allowed)
00010037	Print Head thermistor error
00010038	Head Driver thermistor error

00010039	PG adjustment value NVRAM error
0001003A	PG adjustment value NVRAM error
0001003B	Carriage Lock / Cutter Error
0001003C	Carriage Lock / Cutter Error
0001003D	Carriage Lock / Cutter Error
00020000	NVRAM error
00020002	SDRAM error
00020003	BOOT program SUM error
00020009	Flash memory SUM error
0002000A	Program load error
0002000B	Internal memory shortage error
0002000C	Review error
100000E0	CPU address error (load misalignment)
10000100	CPU address error (storage misalignment)
10000180	CPU reserve command code exception error
100001A0	CPU slot illegal command exception error
100001C0	AC disruption (AC Power) (Unplug and wait 30 sec., then plug back in)
100005C0	CPU DMA address error
0003xxxxx - 0Dxxxxxx	CPU error

00000088

Note: The 00000088 error code indicates that the RTC (Real Time Clock) data is incorrect.

1. Set the RTC by accessing the **Maintenance Mode 2: Clear Counters: RTC** counter.
2. Replace the ***Main Board***, if the RTC data can not be set.

00000101

Note: The 00000101 error code indicates that the Carriage Motor and Ink Tubes have reached their end of life.

1. Inspect the ***Ink Tubes*** for leaks or cracks.
2. Inspect the ***Carriage Motor*** for wear.
   - 2.1 Spin the ***Motor*** manually and feel for friction.
   - 2.2 Replace the ***Motor*** if necessary.
3. Clear the **Maintenance Mode 2: Clear Counters: CR Motor** counter.

00000103

Note: The 00000103 error code indicates that the RTC Battery is defective.

1. Replace the ***RTC Battery*** located on the ***Main Board***.
2. Replace the ***Main Board***.

00000105

Note: The 00000105 error code indicates that the Print Head has reached it's end of life.

1. Inspect the Print Heads operation using the ***Printer's*** **Maintenance Mode 2: Self Testing: Adjustment: Check Nozzle** function.
   1.1 Replace the Print Head if necessary.
2. Clear the **Maintenance Mode 2: Clear Counters: Head** counter.

00010000 - 00010003

Note: The 00010000 - 00010003 range of error codes indicates that the Paper Feed Motor or Encoder is defective.

1. Manually check the operation (spin) of the ***Paper Feed Motor***.

2. Check the operation of the ***Paper Feed Encoder*** using the **Maintenance Mode 2: Self Testing: Test: Encoder:PF Encoder** menu item.

Color Shift

Note: Most color shift issues are not caused by a printer problem, but by the customers "work flow". "work flow" refers to the customers color management. Usually the printer will accurately print the image that it is sent. If the customer is un-aware of the true color of the image, because of a "work flow" issue, the customer will blame the Printer for the perceived color inaccuracy.

Missing ***Nozzles*** can impact color, so they should be checked.

Use your computer, driver, image, and paper to verify the operation of the ***Printer***. If the color appears normal, then the user's "work flow" is the issue.

If the color is incorrect using your materials, and the customers, a new ***Main Board*** may correct the issue.

Command Error

Note: Command Error usually is generated by a Printer/Driver ink type mismatch.

1. Remove hubs and other devices on the USB bus.
2. Test the ***Printer*** using another ***Computer*** and **Driver**.
3. Verify that the **Printer Driver** reflects the correct ink type.
   - 3.1 Access the **Printer Driver** from the Windows: **Start: Settings: Printers and Faxes** menu.
   - 3.2 Access the **Utility: Printer Option and Information** section of the **Driver** and verify that the correct ink type is picked.
4. Reinstall the **Printer Driver** and **Status Monitor 3**.
5. Replace the ***Main Board***.

Communication Errors PC

Description:

Status Monitor 3 reports a **Communication Error**.

Reason:

The ***Printer*** and the **Driver** / ***Computer*** are not communicating.

Troubleshooting process:

1. Check the ***Printer's Control Panel*** and verify.
   - 1.1 The ***Printer*** is turned on.
   - 1.2 The ***Printer*** is **Ready** (If the ***Printer*** displays **Ink Out** or a **Service Required Error**, the ***Printer*** is still ready).
     - 1.2.1 The ***Printer*** is not **Paused**.
     - 1.2.2 No ***Error Lights*** or messages on the ***LCD***.
2. Check the **Printer Driver**.
   - 2.1 Is the ***Printer*** set as the **Default Printer**.
   - 2.1 Is the proper ***Port*** assigned to the ***Printer***.
   - 2.2 Does the ***Port*** see the ***Printer***.
3. Check the ***Printer's*** settings.
   - 3.1 Is the ***Printer's*** proper ***Interface*** enabled.
     - 3.1.3 If the **Interface** is set to **Auto**, try setting the ***Port*** to the connected type.

4. Send a test print from a simple application, such as **Wordpad**.

5. Verify the ***I/F Cable*** is working properly.
   - 5.1 Reseat ***I/F Cable*** on both ends.
   - 5.2 Verify that the ***I/F Cable*** is not excessively long (over 10 -15 feet) (Spec. is 10 feet).
   - 5.3 Remove any ***HUBS*** or ***Switch Boxes*** from the ***Cabling***.
   - 5.4 Verify that the ***I/F Cable*** is not the problem.
     - 5.4.1 Use another ***Cable*** or test the ***Cable*** with another ***Device***.
   - 5.5 If the Interface is Ethernet, verify that the ***Cable*** is:
     - 5.5.1 A “straight through” ***Cable*** for most connections.
     - 5.5.2 A “‘crossover” ***Cable*** for direct ***Computer*** to ***Printer*** connections.

6. Delete the **Driver** and reinstall.

7. Verify that the ***Port*** on the ***Computer*** is not the problem.
   - 7.1 Use another device to test the ***Port*** on the ***Computer***, or use another ***Computer***.

Other Considerations

- Custom Dongles attached to RIP Servers could cause a problem.
- Epson ***Printers*** use USB 2.0. ***Computer Ports*** that use USB 1.0, may cause a problem.
- Status Monitor 3 can report an error on a Windows 2000 system, that does not exist. Turn off the **Error Monitoring** (**Printer Driver: Utility: Speed & Progress: Monitoring Preferences** Un-checked the **Error** box).

Cover Open

Note: The Cover Open error indicates that the Printer's Front Cover is open, or the Cover Sensor is defective.

1. The ***Cover Sensor*** can be tested in the **Maintenance Mode 2: Self Testing: Test: Sensor** menu.

Drop of Ink

Note: A Drop of Ink refers to ink dripping onto the media.

Ink drips on the media come from two separate causes. The most common reason is a build up of ink on the nose of the ***Print Head***. The second reason is a leak in the ink delivery system, in the ***Print Head*** area.

Excessive ink build up on the ***Print Head Nozzle Plate*** is caused by problems with the ***Cap***, ***Pump***, ***Wiper Blades***, and ***Wiper Blade Cleaner***.

Leaks in the ink delivery system (in the ***Print Head*** area), usually are caused by a bad connection between the ***Ink Supply Tube*** and the ***Damper***. Sometimes a leaking ***Damper*** will cause the issue.

Grainy or Ghosting

Note: Grainey refers to an image that does not have smooth tonal transitions, or sharp resolution.

Note: Ghosting refers to components of an image that are intended to be on top of each other (or adjacent) but are offset.

Note: A low resolution image can me mis-diagnosed as Grainy.

Grainey or ghosted images are usually caused by electronic or mechanical adjustments. The following is a list of adjustments that should be checked.

- **Print Head Slant Adjustment (CR)**
- **Print Head Slant Adjustment (PF)**
- **Auto Bi-D Adjustment [PG 1.2]**
- **Auto Uni-D Adjustment**

Additionally the proper ***Print Head*** to media gap should be verified (Standard, Narrow, Wide, and Wider). The gap can be adjusted by performing the **Platen Gap Adjustment**.

Intermittent or missing Nozzles may also be a factor.

Non-Epson media or improper media settings in the driver can cause grainy images.
Use another ***Computer*** with the Epson Driver and Epson Media to eliminate the users equipment.

The following components occasionally cause the issue.

- ***Carriage Encoder***
- ***Carriage Encoder Strip***
- ***Carriage Motor***
- ***Carriage Belt Tension***

Horizontal Banding

Note: Horizontal Banding is either paper feed related, or Print Head related.

Horizontal Banding is caused by vertical dot placement errors.

Feed Related

Feed related horizontal banding is always spaced at the same interval as the **MicroWeave** step. Observe the area of the image that is currently being printed (the image directly under the ***Print Head***). That area exhibits the **MicroWeave** step. Compare the interval of the **MicroWeave** step with the interval of the horizontal banding. If the two have the same interval, the banding is probably feed related.

Increase or decrease (increase or decrease to the extreme limit) the feed step and observe the impact on the banding. Use the **Paper Config** section of the driver, or **Paper Config** section of the ***Printer's*** user menu, and increase or decrease the feed step all the way. If the banding is affected, it is feed related. If the banding is not changed, or a new banding is added, it is not feed related.

Use another ***Computer*** with the Epson **Driver** and Epson Media to eliminate the users equipment.

Verify that the proper ***Spindle*** is being used (***High Tension*** or ***Low Tension Spindle***)

Verify that the media does not bind coming off the roll.

Print Head Related

If the horizontal banding is ***Print Head*** related, it is usually due to missing, deflected or sympathetic ***Nozzles***. the service level **Nozzle Check**, is the best way to inspect the ***Print Head's*** accuracy. A slightly deflected ***Nozzle*** can cause horizontal banding, depending on the ***Nozzle's*** location in the ***Nozzle*** array.

Missing or deflected ***Nozzles*** may be caused by problems with the ***Cleaning Station***. Before attempting to clear ***Nozzle*** issues, the ***Cap***, ***Wiper Blade***, ***Wiper Blade Cleaner***, and the ***Print Head Nozzle Plate*** should be cleaned.

Additionally the ***Borderless Pads*** and ***Flushing Box*** should be checked to verify that they are not out of position or dirty. If a build up of contaminants makes contact with the ***Nozzle Plate***, it will cause reoccurring ***Nozzle*** drop out.

A ***Nozzle*** with a slight inaccuracy can cause horizontal banding. The **M/W ADJ:** feature located in the User **Paper Config** menu, is designed to change the ***Nozzle*** use pattern. Changing the ***Nozzle*** use pattern can minimize the frequency that a problem ***Nozzle*** is used, impacting the horizontal banding. Try all 3 settings (**Standard, 1, and 2**) and pick the best.

Missing Nozzle Diagnosis and Repair

Note: Inspect the printer and media for dust or fiber accumulation. Excessive "dirt" will cause missing nozzles.

Some Missing Nozzles, one or more colors

1. Check the ***Printer's*** components for mechanical problems and "dirt".
   - 1.1 Clean ***Cap.***
   - 1.2 Check ***Wiper Blade*** for correct installation and flaws.
   - 1.3 Clean ***Wiper Blade.***
   - 1.4 Clean the ***Nose of the Print Head***.
   - 1.5 Check the Borderless pads for proper installation and dirt.
   - 1.6 Check the Flushing Box for dirt.
2. Puddle the ***Cap*** and park the ***Print Head*** for 30 minutes.
   - 2.1 Fill the ***Cap*** with as much water as possible.
   - 2.2 Park the ***Printhead*** on the ***Cap.***
3. Perform 2 cleaning cycles.
   - 3.1 Re-test the ***Nozzles***.
   - 3.2 Repeat step 3 if there is progress.
4. Replace the ***Print Head*.**

All Nozzles Missing, One Color Only (The color comes back after a cleaning cycle, but drops out again)

1. Check the following components of the ink supply for a minor restriction, causing partial starvation.

   Note: Partial Starvation refers to a slight blockage of the ink supply system that slowly starves the Print Head for ink.

   1.1 Remove corresponding ***Damper*** and attempt to draw ink with a syringe. The ink should draw easily.

      1.1.1 If ink can not be drawn easily, remove ***Damper*** and attempt to draw ink through the ***Tube***. If ink can be drawn easily, replace the ***Damper***.

      1.1.2 If Ink can not be drawn easily through the ***Tube***, check the ***Ink Valve*** on the ***Cartridge Bay*** for correct operation.

      1.1.3 If the ***Ink Valve*** is working properly, replace the ***Tube***.

All Nozzles Missing, One Color Only (The color does not comes back after a cleaning cycle)

1. Check the following components of the ink system for full starvation

   1.1 Remove corresponding ***Damper*** and attempt to draw ink with a syringe.

      1.1.1 If the ***Damper*** is empty, check for air leaks in the ***Tubes, Joints (O-rings and Fittings), or Dampers.***

      1.1.2 If ink can not be drawn, remove ***Damper*** and attempt to draw ink through the ***Tube***. If ink can be drawn, replace the ***Damper***.

      1.1.3 If Ink can not be drawn through the ***Tube***, check the ***Ink Valve*** on the ***Cartridge Bay*** for correct operation

      1.1.4 If the ***Ink Valve*** is working properly, replace the ***Tube***.

All Nozzles Missing

Note: Steps 1 and 2 must be run in sequence.

1. Check the ***Pump's*** operation.

   1.1 Run a cleaning cycle.

1.1.1 When the ***Printhead*** moves off of the ***Cap***, and the ***Pump*** is running, inject water into the ***Cap*** with a syringe.

1.1.1.1 If the water is drawn through the ***Cap***, the ***Pump*** is good.

1.1.1.2 If water is not drawn through the ***Cap***, check the ***Pump Tube*** connections to the ***Cap***.

1.1.1.3 If the ***Pump Tube*** connection is good, replace the ***Pump.***

2. Check the ***Cap's*** seal with the ***Printhead***

2.1 Check the amount of ink in the ***Cap*** (it should be clean because of step 1).

2.2 Run a cleaning cycle

2.3 Check the amount of ink in the ***Cap*** (there should be clear signs of ink compared to step 2.1).

2.3.1 If there is no ink:

2.3.1.1 The ***Cap*** is not sealing with the ***Printhead***.

2.3.1.1.1 Check the ***Cap Assembly*** for mechanical problems.

3. Check ***Printhead Fuses*** on ***Main Board.***

3.1 If the ***Fuses*** are blown, replace the ***Main Board***.

3.2 If the ***Fuses*** are good, replace the ***Printhead.***

Paper Jam Errors

The Paper Jam Error indicates that one of the paper sensors does not detect paper properly.

Roll Paper

Test the following sensors using the **Maintenance Mode 2: Self Testing: Test: Sensor** menu

- **Rear Det** (First ***Sensor*** in the roll paper path)
- **RearAD** (Second ***Sensor*** in the roll paper path)

Cut Sheet Paper from the Paper Cassette.

Test the following sensors using the **Maintenance Mode 2: Self Testing: Test: Sensor** menu

- **P Det** (First ***Sensor*** in the cut sheet path, located behind the ***Right Input Roller***)(switch))
- **RearAD** (Second ***Sensor*** in the cut sheet path)(optical))

The ***RearAD Sensor*** can be calibrated using the **Maintenance Mode 2: Self Testing: Adjustment: RearAD** function.

Paper Not Cut

Note: The Paper Not Cut error indicates that the Printer detected that the paper did not separate, after cutting.

Paper cutting errors occur:

- When the ***Cutter Blade*** is defective.
- When the ***Cutter Blade*** does not have white nylon wheels.
- When the ***Cutter Guide*** is damaged or out of position.
- When the **Cut Pressure** is turned down too low.
- When the paper is too thick (out of specification).

Reload Paper

Note: The Reload Paper error indicates that the Printer recognizes paper in the Printer, but can not sense it's size or location properly.

The reload paper error can be generated if the paper is loaded beyond the alignment marks (paper loading alignment marks).

The reload paper error can be generated if the paper width is a non-standard size. Always measure the paper and verify that it is the correct size. A 1/4" variance can generate the error.

The reload paper error can be generated if the paper is skewed.

A reload paper error can be generated if the user is trying to print borderless on an unsupported media size (width). Supported sizes: (8 , 8.3, 10, 12, 13, 14, 16, 17)

1. Verify that the ***Multi Sensor*** is working, and adjust it.

   The Multi Sensor measures the width, detects the leading edge, and measures the skew of the media.

   1.1 Test the ***Multi Sensor*** using the **Maintenance Mode 2: Self Testing: Test: Sensor** menu

      1.1.1 Test the **EdgeAD**

      1.1.2 Test the **Edge2AD**

   1.2 Adjust the ***Multi Sensor*** by performing the **Multi Sensor Level** adjustment.

2. Perform the **T&B&S [Roll Paper]** and/or **T&B&S [Cut Sheet]** adjustment.

3. Test the ***Carriage Encoder*** and ***Encoder Strip***.

   The Carriage Encoder is used in conjunction with the Multi Sensor to measure the width of the media.

   3.1 Test the ***Carriage Encoder*** and ***Encoder Strip*** using the **Maintenance Mode 2: Self Testing: Test:**

Encoder menu.

Random Nozzles

Note: Random Nozzles refers to Nozzles that fire when they are not commanded to.

Random ***Nozzle*** firing is caused by 1 of 4 components

- ***Head Cables***
- ***Print Head***
- ***Main Board***
- ***Power Supply***

Head Cable

Inspect the ***Head Cables*** for worn insulation. Place tape over the worn area or replace the ***Cable***.

Print Head or Main Board

If the random ***Nozzle*** firing is caused by serial communication problems between the ***Main Board*** and the ***Print Head***, the frequency of the random ***Nozzle*** firing changes when the printing resolution is changed. If changing the printing resolution affects the random ***Nozzle*** firing, change the ***Main Board*** and the ***Print Head***. Change them one at a time in any order. Test between each change.

Power Supply

Sometimes (very rare) a noisy ***Power Supply*** causes random ***Nozzle*** firing.

Scratch

Note: A scratch is damage to the media surface caused by contact with a roller or other Printer components. Sometimes scratches occur before the media is inserted into the Printer.

Some media is very sensitive to surface abrasions. Contact between the ***Pinch Rollers***, the ***Paper Feed Roller***, and the media is necessary to support and move it. If the media's coating is too fragile, the ***Pinch Rollers*** (the ***Rollers*** that contact the media's coating) can scratch the coating.

Inserting the scratched media back into the paper path, and compare the location of the scratch on the media to adjacent rollers. Check the adjacent rollers for issues.

Upgrade the ***9 Plastic Rollers*** that scratch Smooth Fine Art Media loaded from the ***Paper Cassette***. Follow the directions in the Plastic Roller Upgrade in the Field Guide.

Set Ink Cartridges

Note: The Set Ink Cartridge error indicates that the Printer does not detected one or more Ink Cartridges.

The error is usually generated when:

- The ***Ink Cartridge Release Sensor*** is defective.
- The ***Ink Bay CSIC Contacts*** are defective.
- The ***Ink Cartridge CSIC Chip*** is defective.
- The ***Cables*** to, or the ***Main Board*** is defective (least likely).

Set Ink Lever

Note: The Set Ink Lever message indicates that the Ink Lever is in the up position, or that the Ink Lever Sensor is Defective.

1. Check the position of the ***Ink Cartridge Release Lever***.

2. Check the operation of the ***Ink Cartridge Release Lever Sensor*** using the **Maintenance Mode 2: Self Testing: Test: Sensor: InkLvr** menu.

Smudge

Note: A smudge is a mark left on the media by contact. It can be caused by contact with the Print Head, or contact with a dirty Roller.

Dirty Roller

A dirty ***Roller*** usually leaves a mark that repeats at an interval that is equal to the circumference of the ***Roller***. Placing the image with the smudge back into the paper path, and aligning the smudge with the ***Printer's Rollers*** will indicate which ***Roller*** is dirty.

Print Head

Most ***Print Head*** contact with the media is the result of the media curling up to meet the ***Print Head***. It can also be caused by a build up of contaminants on the ***Print Head***, that decrease the distance between the ***Print Head*** and the media.

Sometimes the platen gap (the distance between the ***Print Head*** and the media) is set improperly. It can be incorrect because of user settings or because of incorrect measurement of the media thickness. Most media uses the **Standard** platen gap. The **Standard** platen gap is always one step back from the closest platen gap. If the platen gap is incorrect, the Paper Thickness Sensor should be checked, as well as the user platen gap settings found in the user menu.

The Platen Gap can be calibrated using the **Platen Gap** Adjustment procedure.

Smear

Note: A smear is caused by something "smearing" the intended image, after the image is printed.

Many times smearing is a result of non-Epson media or ink. Non-Epson ink or media may dry to slowly, resulting in a smear after the image leaves the ***Printer***. Adjusting the **User Menu: Custom Paper: Drying Time:** setting can slow down the ***Printer,*** allowing the image to dry properly.

Inspect the image while it is being printed. Look for any component or object that is making contact with the image while the image is still in the ***Printer***.

Use another ***Computer*** with the Epson **Driver** and Epson Media to eliminate the users equipment over saturating the media.

Vertical Banding

Note: Vertical Banding is caused by horizontal dot placement errors.

Saturation Related Vertical Banding

If the vertical banding is caused by paper over saturation, the banding will correspond to rippling of the media. The rippling will be visible on the back of the media. This kind of vertical banding is usually about an inch wide.

Under saturated images causes a type of vertical banding that is usually about 1/3 of an inch wide. Use another ***Computer*** with the Epson Driver and Epson Media to eliminate the users equipment. Non-Epson drivers effect vertical banding if the amount of ink that is applied to the media is too low. Using the Epson driver should look better, if that is the case. Non-Epson media can impact vertical banding if the amount of ink that is required to correctly saturate the media is not applied by the Epson driver or a non-Epson driver.

Alignment Related Vertical Banding

Print an image in bi-directional mode, and in uni-directional mode (**High Speed** checked = bi-directional mode).
If the vertical banding is more evident in bi-directional mode, the most likely cause is an improper **Bi-D** alignment.

The **Uni-D** adjustment effects vertical banding in both bi-directional mode, and in uni-directional mode.

Carriage Motor Related Vertical Banding

If the vertical banding is more evident in uni-directional mode, the most likely cause is ***Carriage Motor*** vibration.
Replacing the ***Carriage Motor*** may improve the banding.

Wrong Ink Cartridge

Note: The Wrong Ink Cartridge error indicates that the Printer detects an Ink Cartridge that does not match the Ink type expected.

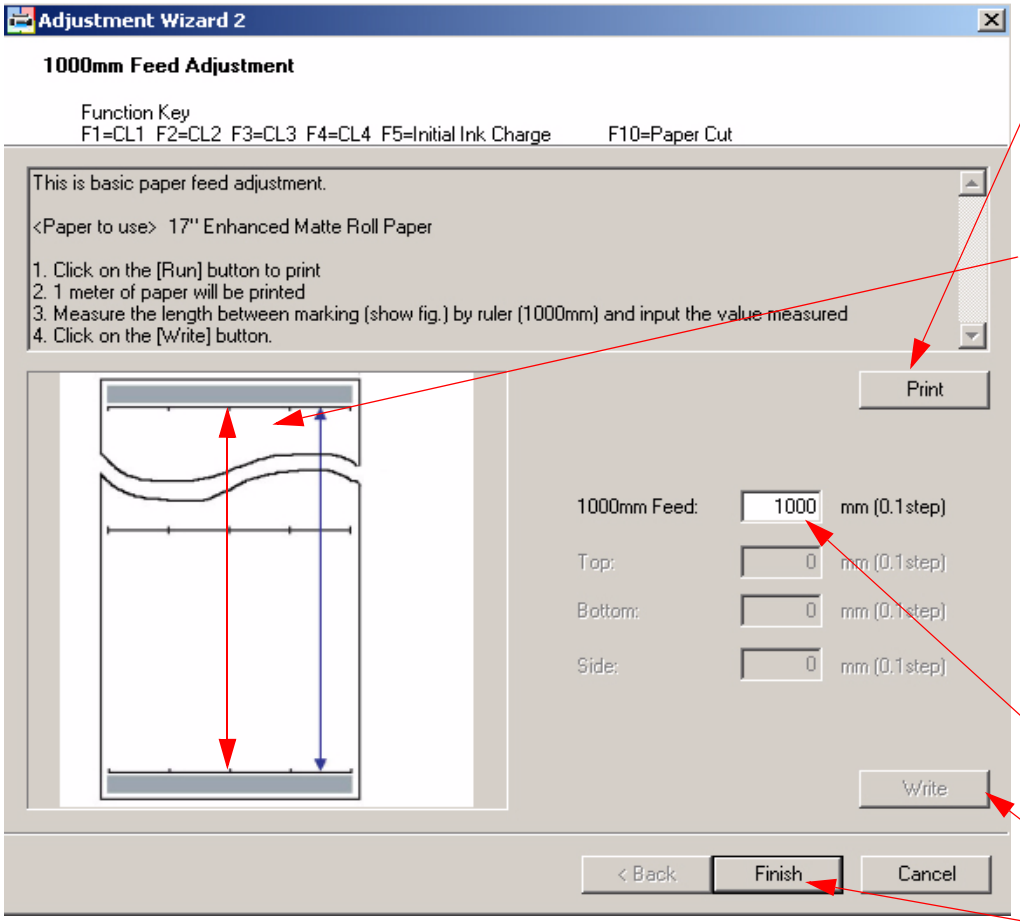
1. Verify that the **Maintenance Mode 2: Service Config: NPD** value is set to the correct ink type.
2. Reset the **Maintenance Mode 2: Service Config: NPD** value.
   - 2.1 Release the ***Ink Cartridges*** by raising the ***Ink Cartridge Release Lever***.
   - 2.2 Set the ***NPD*** value to **0**.
   - 2.3 Turn the ***Printer*** on, and lower the ***Ink Cartridge Release Lever.***
   - 2.4 The ***Printer*** will look at the ***Cartridge's*** ink type and reset the ***Printer's*** ink type to match.
3. The ***CSIC Contacts*** in the ***Ink Bay*** may cause this error.
4. A defective ***CSIC Chip*** or incorrect ***Ink Cartridge*** can cause the error***.***
   - 4.5 Use the **Maintenance Mode 1: CRTG INFO MENU:** to look at the data on the ***CSIC Chip*****.**

Adjustments

1000mm Feed Adjustment

1. Load 17” Enhanced Matte roll paper.

2. From the **Adjustment Wizard** for the Pro 4000, select the **1000mm Feed Adjustment.**



1. Click on the **Print** button.

2. The ***Printer*** will print the 1000mm alignment patterr

3. Align a 1000mm ruler with the center vertical hash marks, and the leading edge horizontal line (see the Red Line on the example graphic). The “0” end of the 1000mm ruler should be touching, but not covering the leading edge horizontal line.

4. Use a lens to align the 1000mm ruler exactly with the horizontal and vertical lines.

5. Using a lens, measure the exact distance between the 2 horizontal lines. Be as accurate as possible

6. Enter the value that was measured.

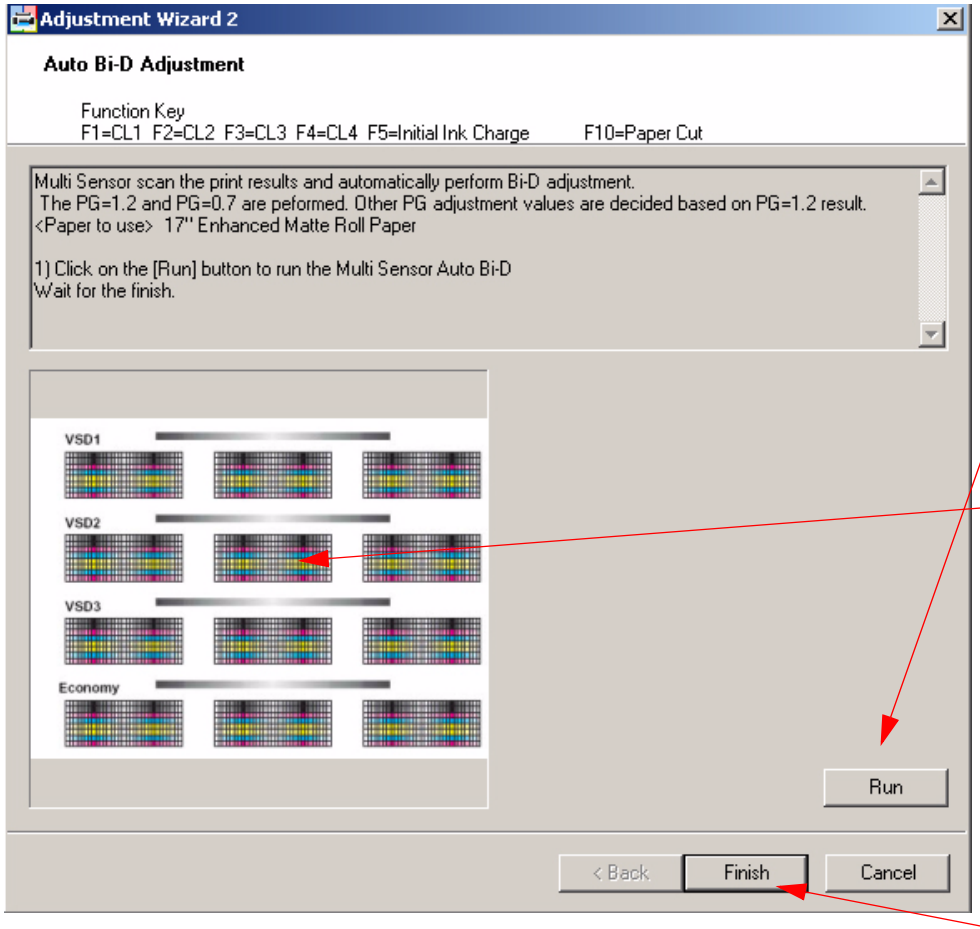
5. Click on the **Write** button.

6. Click the **Finish** button.

Auto Bi-D Adjustment [PG 1.2]

1. Load 17” Enhanced Matte roll paper.

2. From the **Adjustment Wizard** for the Pro 4000, select the **Auto Bi-D Adjustment.**



1. Click on the **Run** button.

2. The ***Printer*** will print out these patterns. It will take approximately 15 minutes

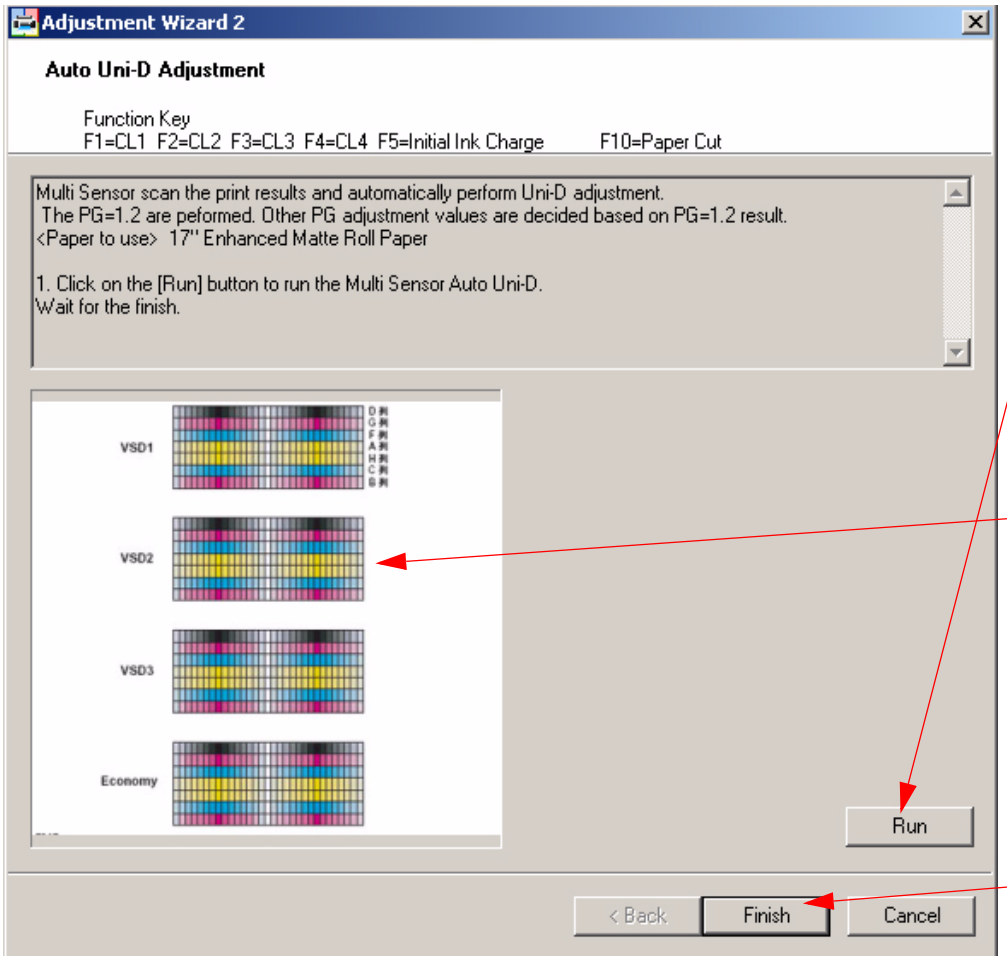
3. The ***Printer*** will read the alignment patterns automatically (using the ***Multi Sensor***), and write the appropriate values to the board.

4. Click the **Finish** button.

Auto Uni-D Adjustment

1. Load 17” Enhanced Matte roll paper.

2. From the **Adjustment Wizard** for the Pro 4000, select the **Auto Uni-D Adjustment.**



1. Click on the **Run** button.

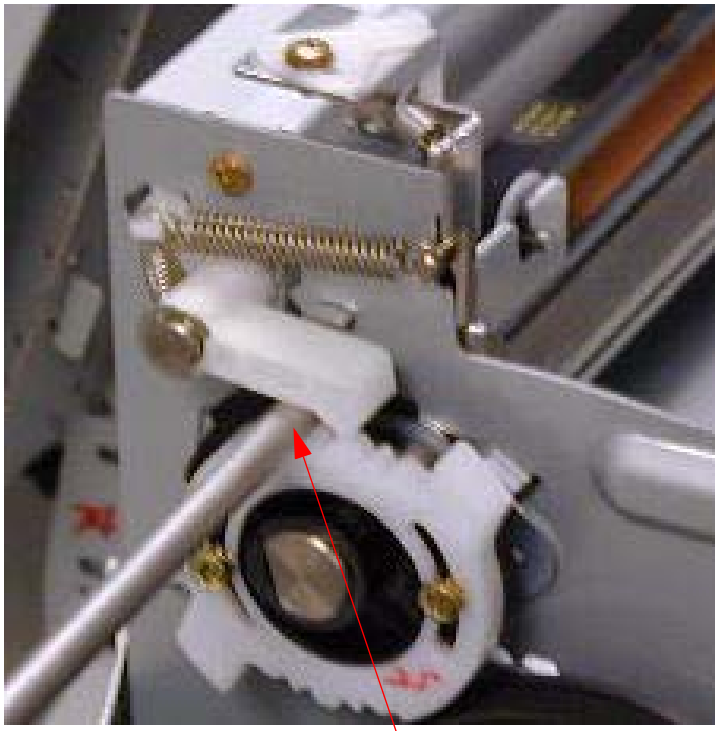
2. The ***Printer*** will print out these patterns. It will take approximately 15 minutes

3. The ***Printer*** will read the alignment patterns automatically (using the ***Multi Sensor***), and write the appropriate values to the board.

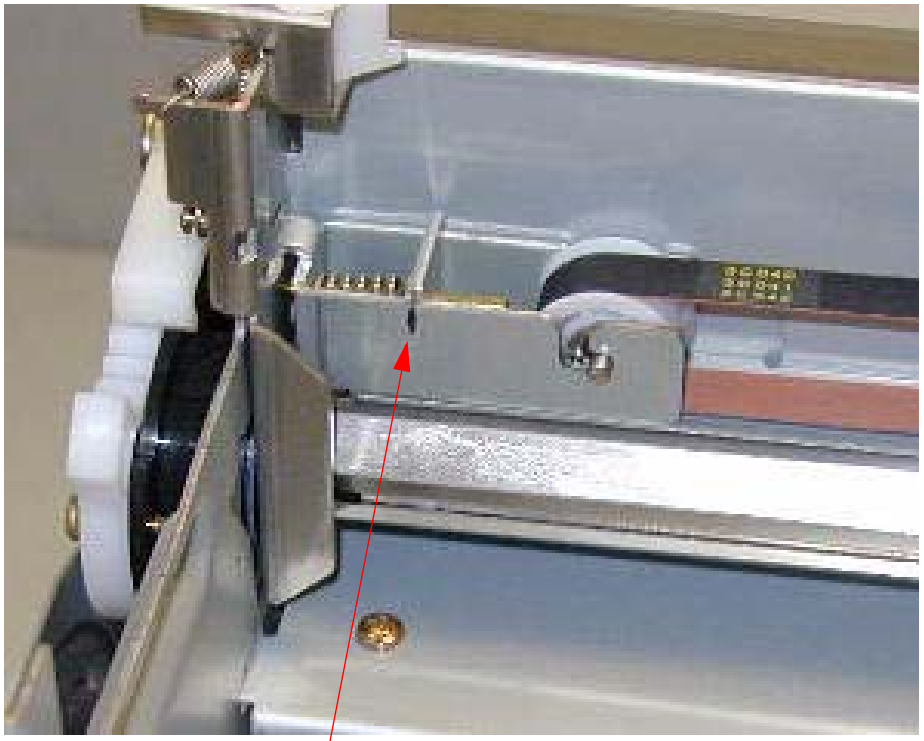
4. Click the **Finish** button.

Carriage Timing Belt Tension Adjustment

1. Remove the ***Left Side Cover***.
2. Turn the ***Adjustment Screw*** until the ***Belt Bracket*** is positioned by the ***3rd Mark*** from the right.



Turn the Adjustment Screw.

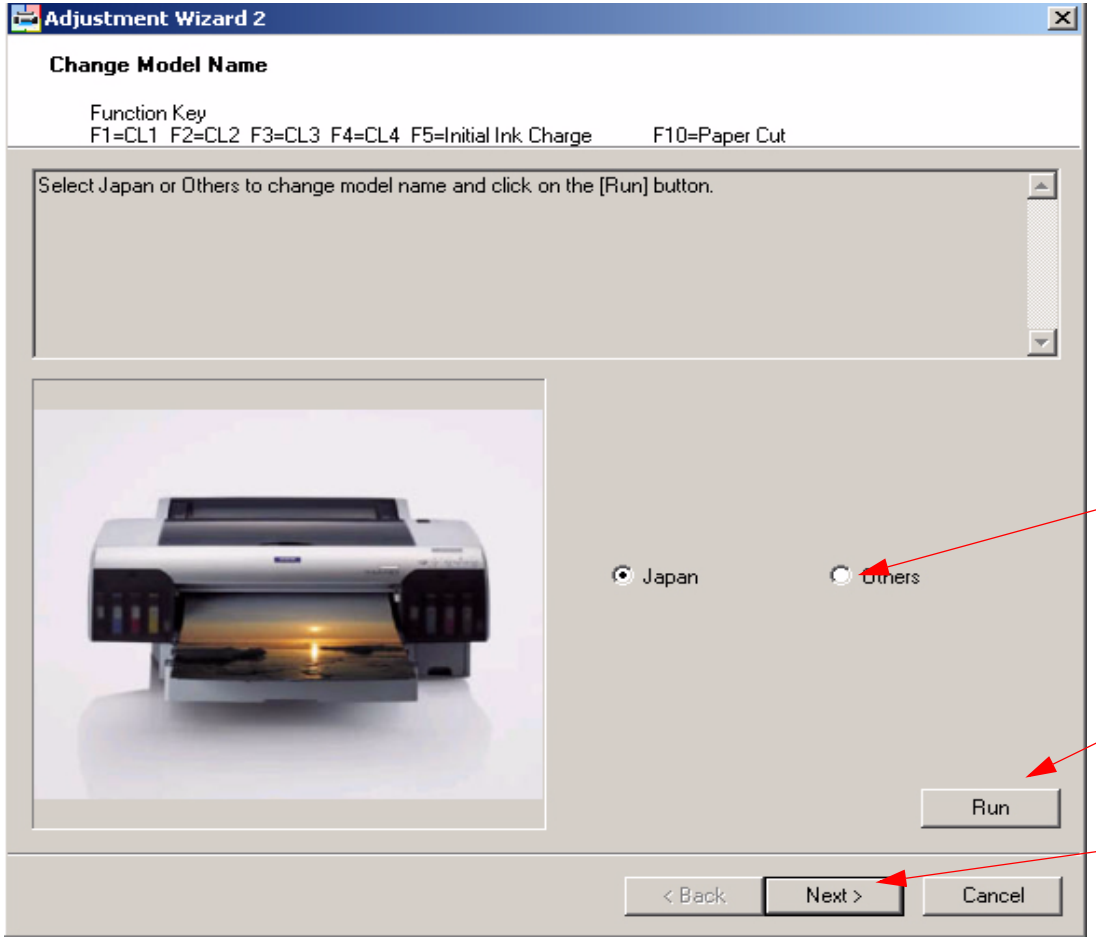


3rd mark from the right.

Change Model Name

Note: Change Model Name will write Stylus Pro 4000 to the Main Board (Plug and Play name)

1. From the **Adjustment Wizard** for the Pro 4000, select **Change Model Name.**

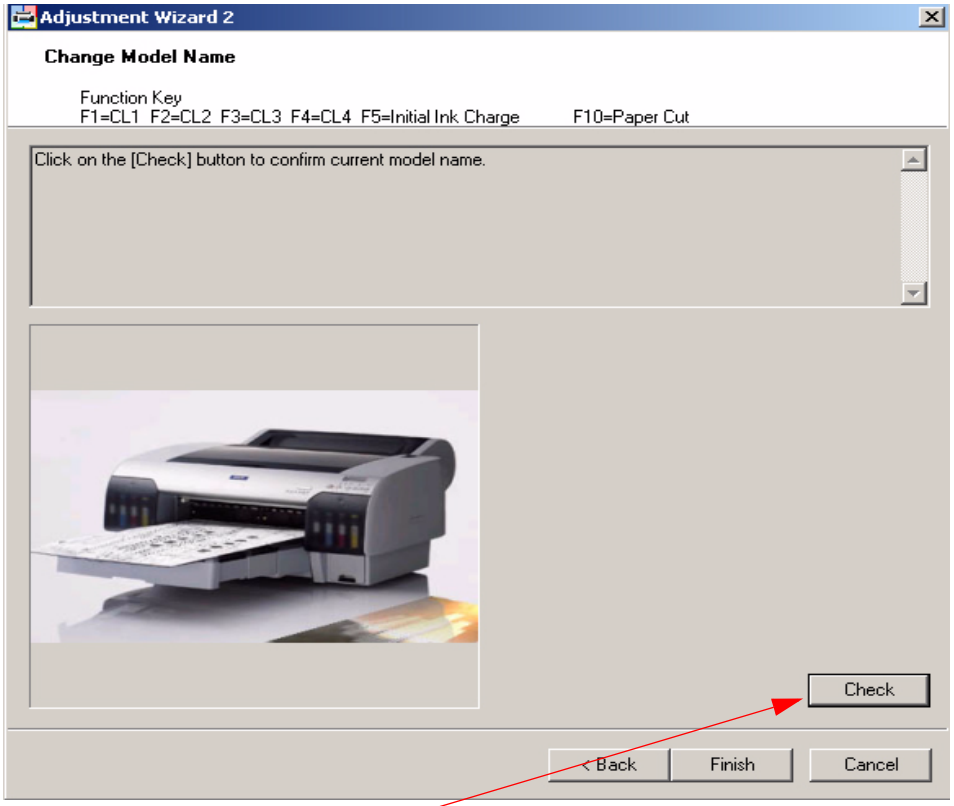


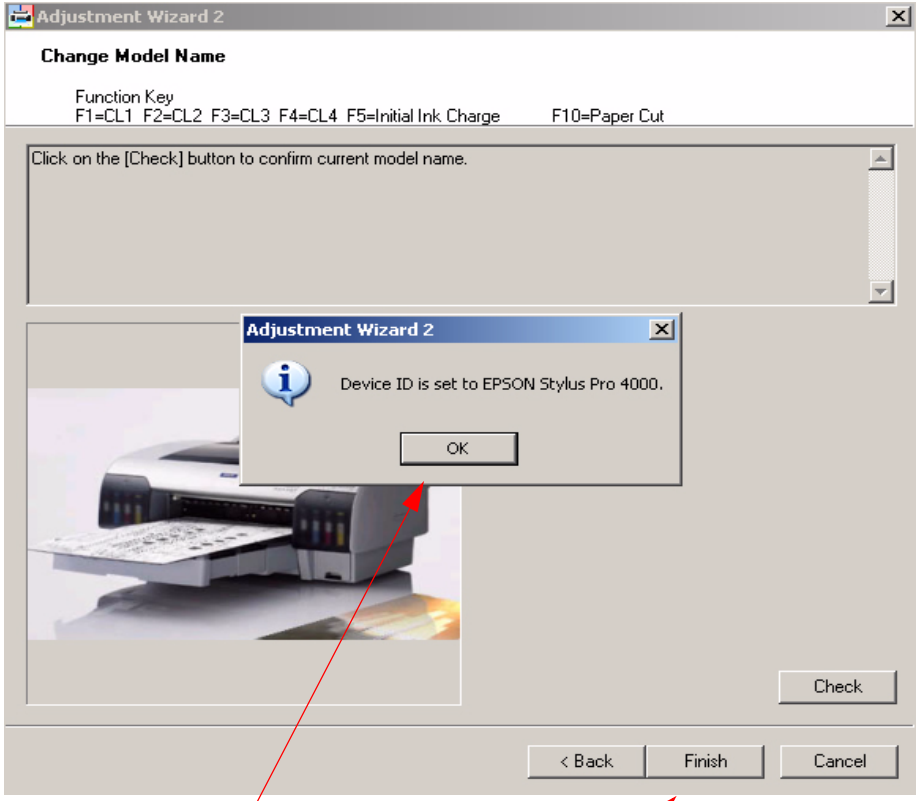
1. Click on **Other**.

2. Click on **Run**.

3. Click on **Next**

2. Click on **Check** to verify the current name.





1. Click on **Check**.

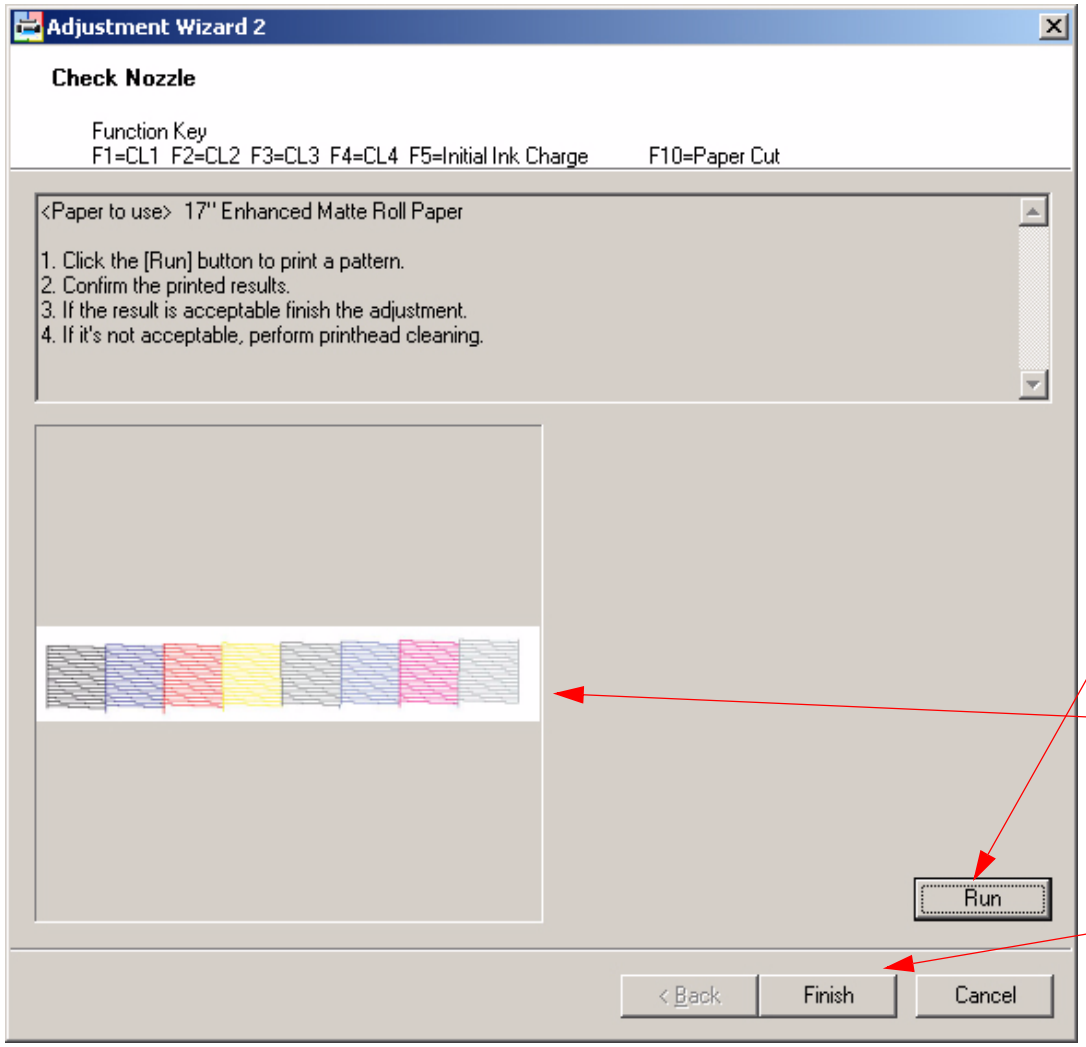
2. Verify the Printer is named **Epson Stylus Pro 4000**

3. Click on **Finished**

Check Nozzle

Note: Check Nozzle performs a user Nozzle Check.

1. From the **Adjustment Wizard** for the Pro 4000, select **Check Nozzle.**



1. Load paper.

2. Click on **Run** to print the pattern.

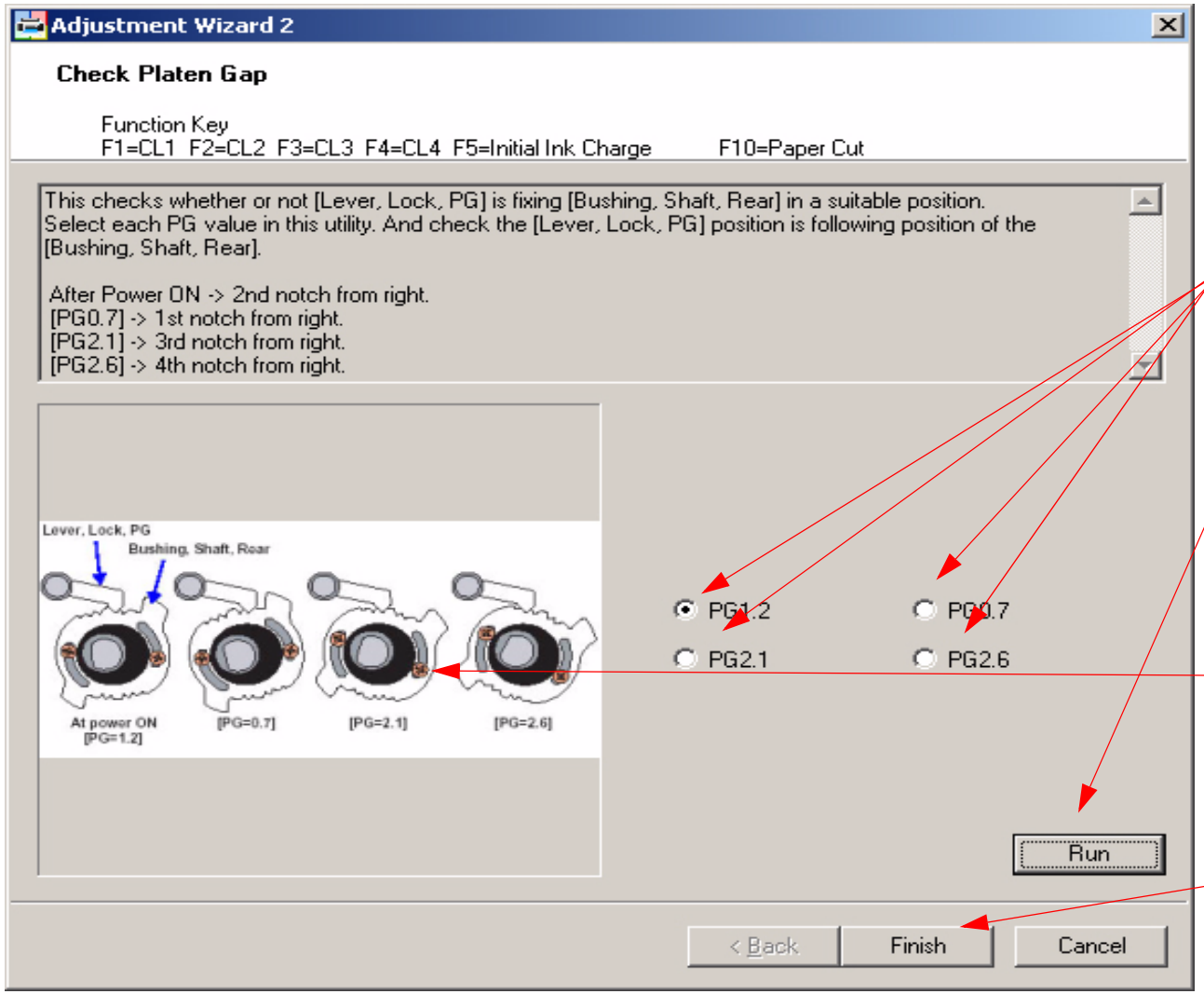
The nozzle check pattern should look like this.

3. Click on **Finish** when done.

Check Platen Gap

Note: Check Platen Gap allows physical verification of the proper operation (setting) of the Platen Gap Detent Cam.

1. From the **Adjustment Wizard** for the Pro 4000, select **Check Platen Gap.**



1. Click on one of the 4 platen gap choices.

2. Click on **Run**.

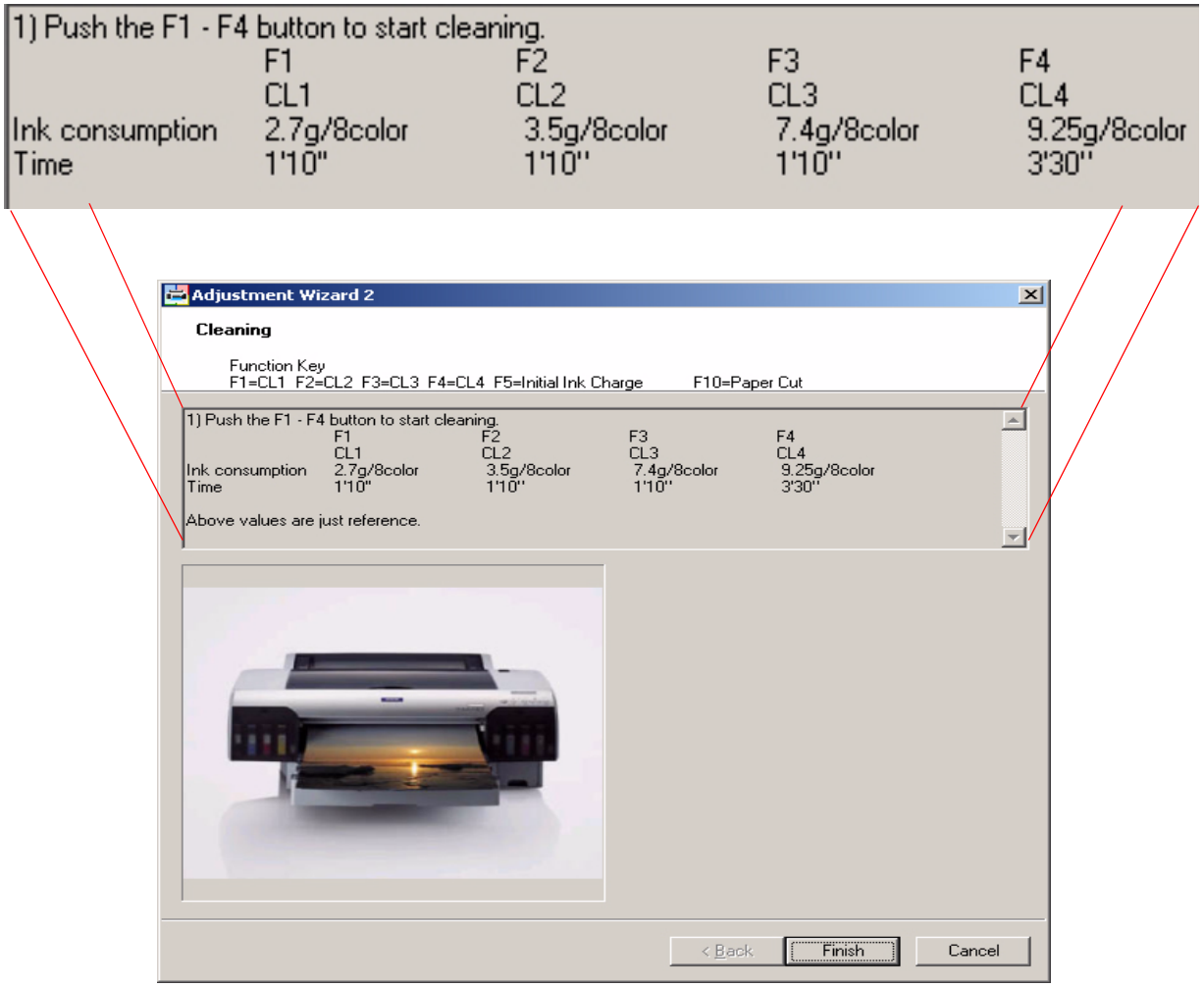
3. Compare the position of the ***Platen Gap Detent Cam*** on the Printer against the corresponding graphic.

4. Click **Finish** when done.

Cleaning / Charging (Priming)

Note: Cleaning explains the function of the various cleaning cycles accessed with the function keys.

1. From the **Adjustment Wizard** for the Pro 4000, select **Cleaning.**

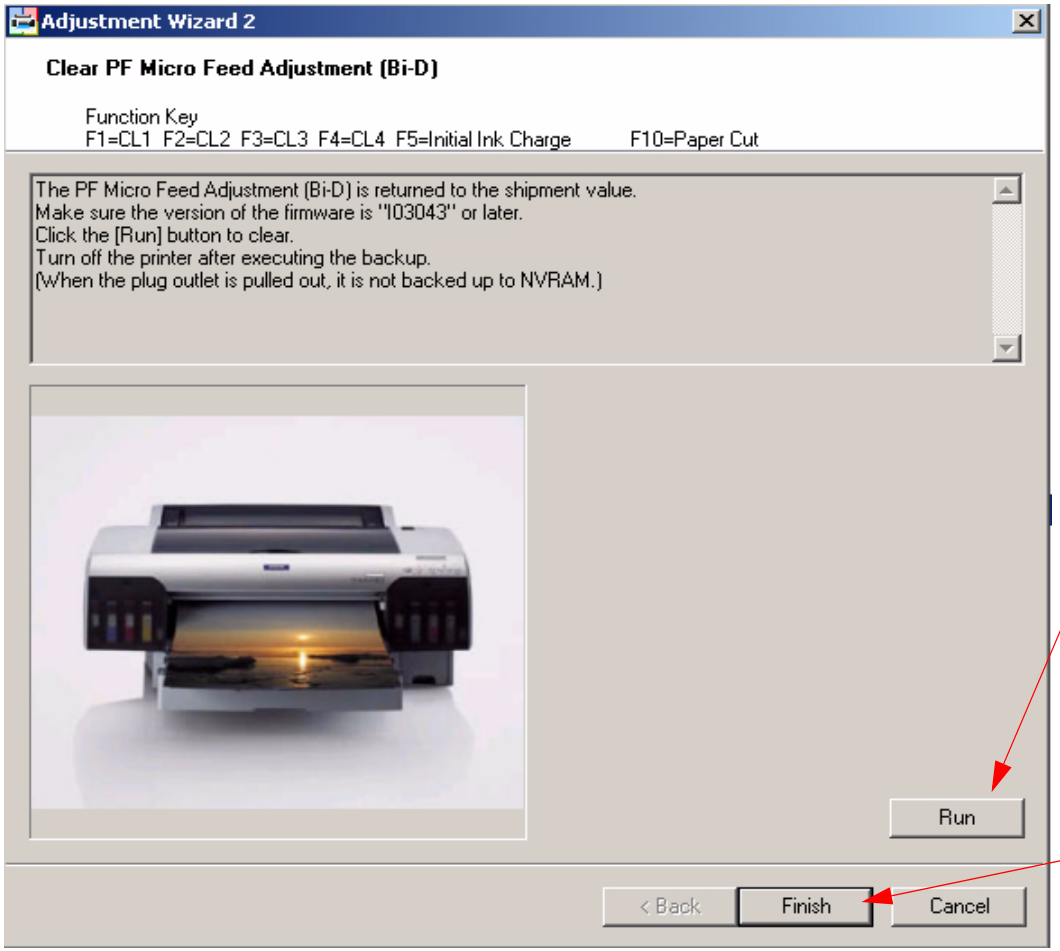


F5 forces a Prime.

Clear PF Micro Feed Adjustment [Bi-D]

Note: The Clear PF Micro Feed Adjustment [Bi-D] resets the user paper feed adjustments that modifies the paper feed tables. It should be reset every time the Feed Length Adjustment is performed.

1. From the **Adjustment Wizard** for the Pro 4000, select the ***Clear PF Micro Feed Adjustment [Bi-D]***



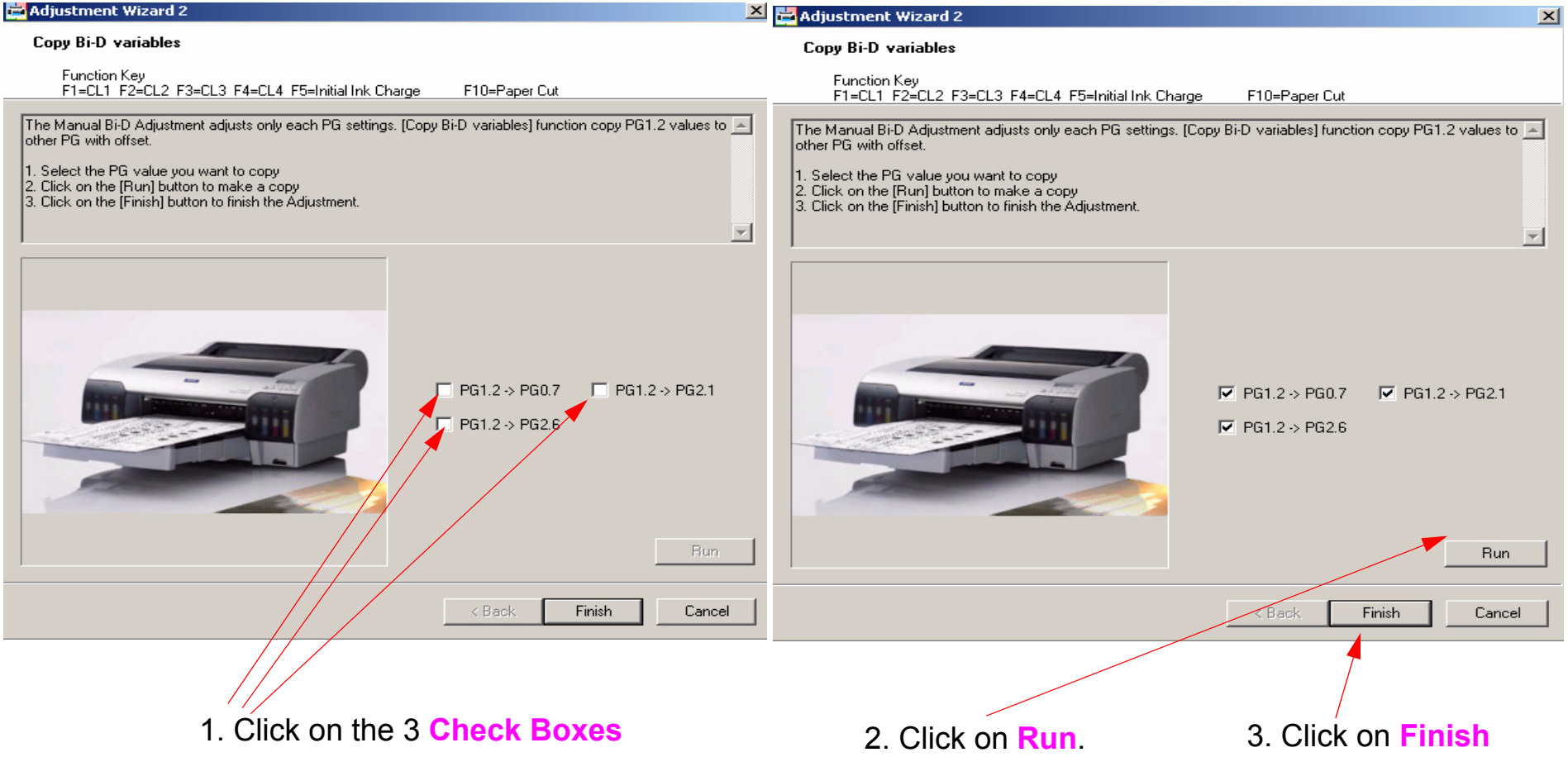
1. Click on **Run**.

2. Click on Finished.

Copy Bi-D Variables

Note: Copy Bi-D Variables transfers the data from the Manual Bi-D Adjustment at standard platen gap, to the memory locations that correspond to the other 3 platen gaps. The ink must travel different distances for each platen gap, and the timing must be adjusted to compensate for the different "flight times".

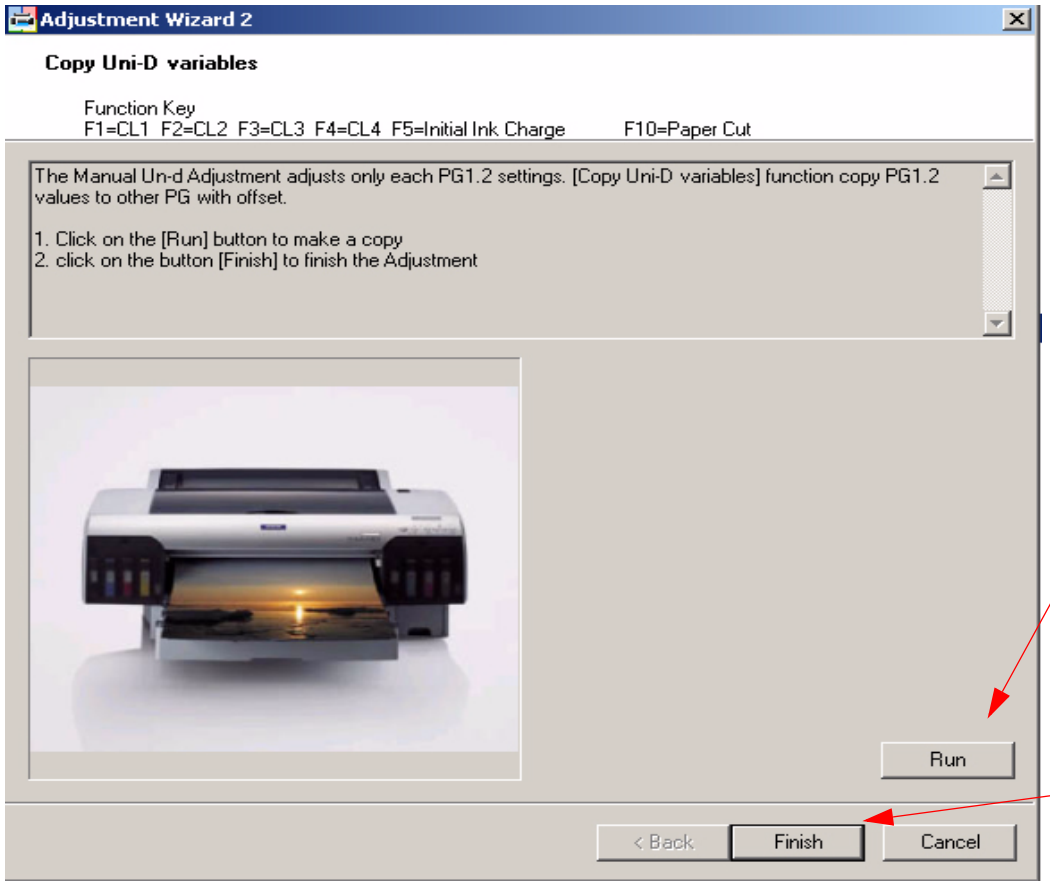
1. From the **Adjustment Wizard** for the Pro 4000, select **Copy Bi-D Variables.**



Copy Uni-D Variables

Note: Copy Uni-D Variables transfers the data from the Manual Uni-D Adjustment at standard platen gap, to the memory locations that correspond to the other 3 platen gaps. The ink must travel different distances for each platen gap, and the timing must be adjusted to compensate for the different "flight times".

1. From the **Adjustment Wizard** for the Pro 4000, select **Copy Uni-D Variables.**



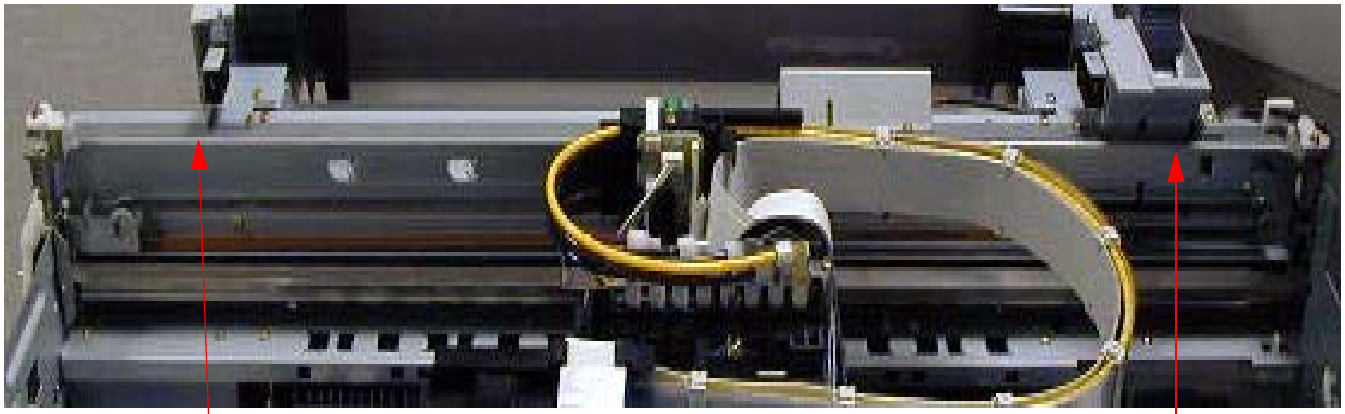
1. Click on **Run**.

2. Click on **Finish**

CR Encoder Sensor Position Adjustment

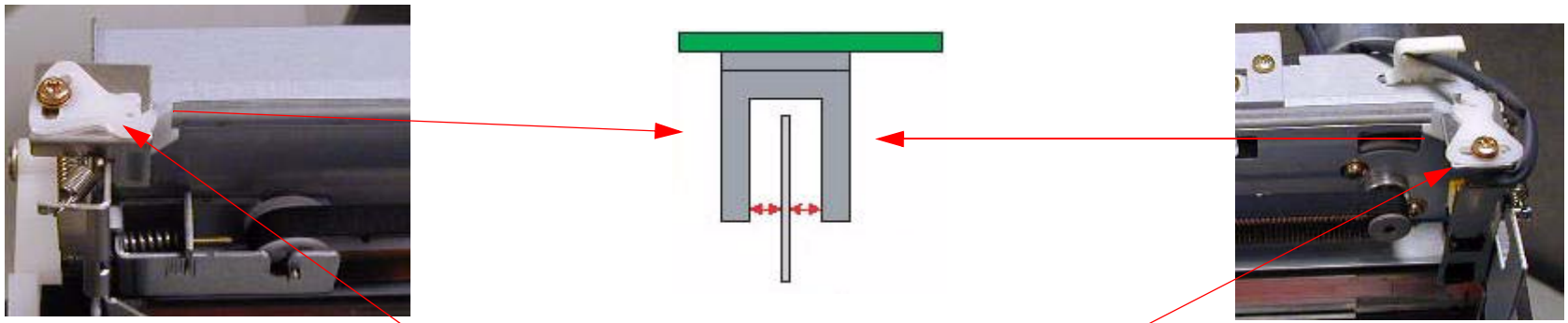
Purpose: The ***Carriage Encoder Sensor Position*** Adjustment is used to ensure that the ***Carriage Encoder Timing Strip*** is centered in the ***Carriage Encoder Sensor*** across the entire length of the ***Printer Mechanism***.

1. Sight down the ***Carriage Encoder Strip***, and ensure that the ***Timing Strip*** is centered in the ***Carriage Encoder Sensor,*** at the 2 positions marked below.



Check that the ***Strip*** is centered with the ***Carriage Encoder*** in this position (left position)

Check that the ***Strip*** is centered with the ***Carriage Encoder*** in this position (right position)



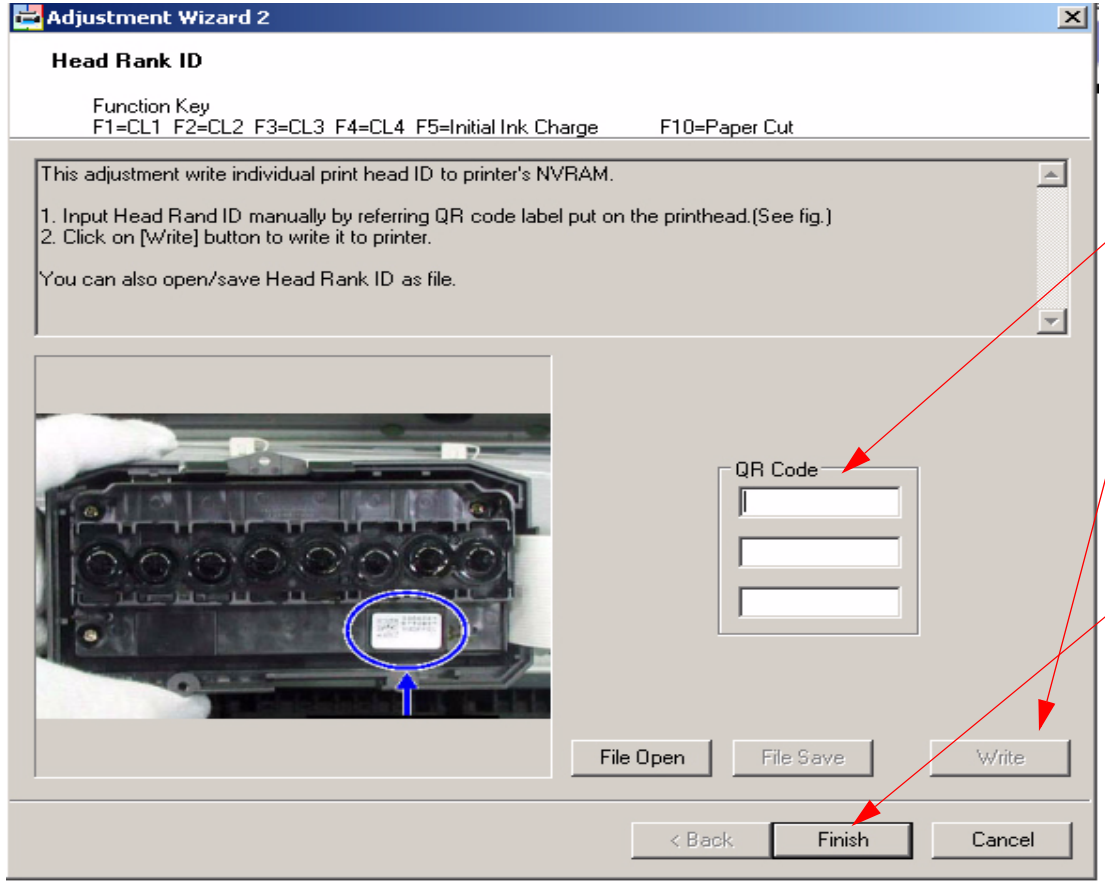
Move the ***Left Side Encoder Strip Positioning Lever*** until the ***Strip*** is centered at the left position.

Move the ***Right Side Encoder Strip Positioning Lever*** until the ***Strip*** is centered at the right position.

Head Rank ID

Note: Enter the Head Rank ID before installing the Print Head. This way it is possible to enter the data directly off the Print Head. Otherwise, it is necessary to write down the data before installing the Print Head.

1. From the **Adjustment Wizard** for the Pro 4000, select the **Head Rank ID.**



1. Enter the Head Rank data located on the Print Head.

2. Click on the **Write** button.

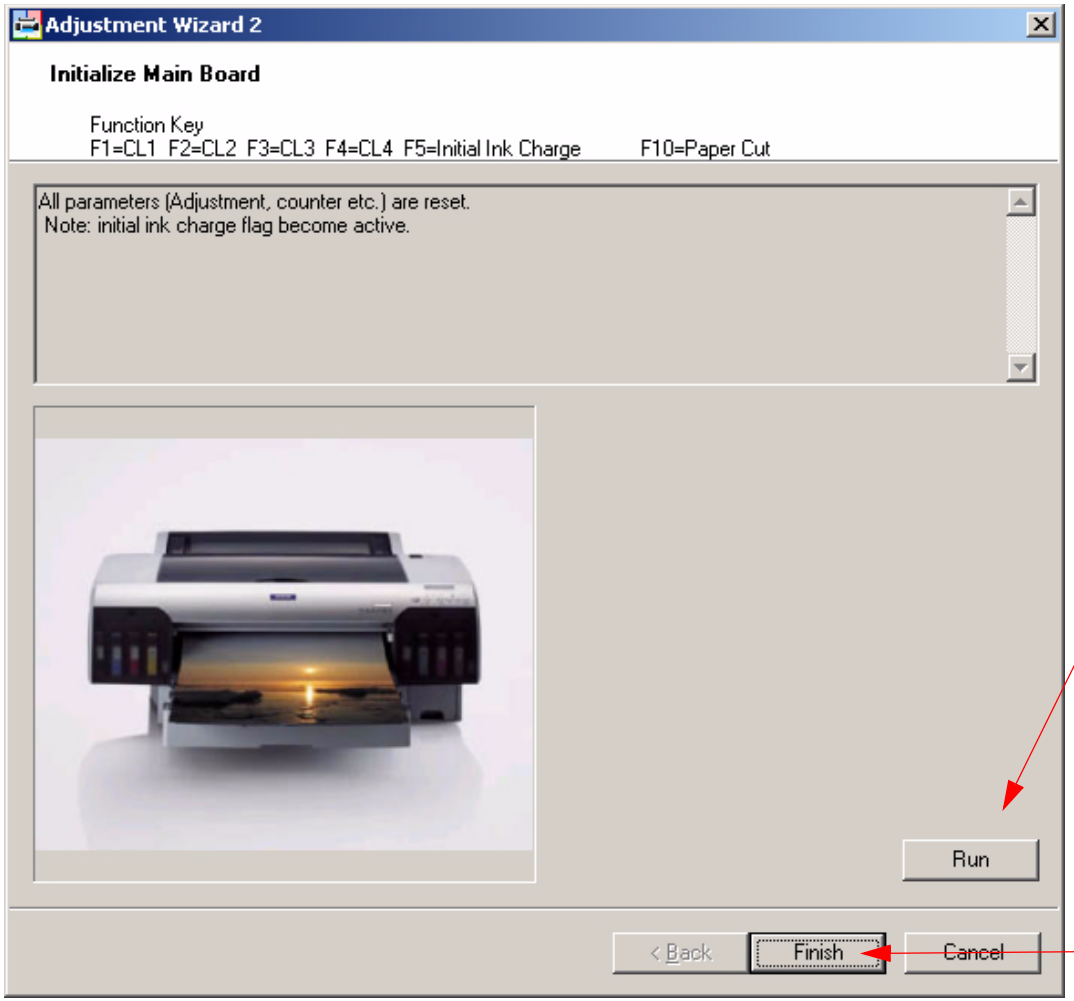
3. Click on the **Finish** Button.

Note: If the utility displays: **"Incorrect Head Rank ID [QR Code] Input"**, one or more of the digits entered is incorrect. Check that an O was not entered as a zero, etc.

Initialize Main Board

Note: Initialize Main Board will reset all settings. Do not use.

1. From the **Adjustment Wizard** for the Pro 4000, select **Initialize Main Board.**



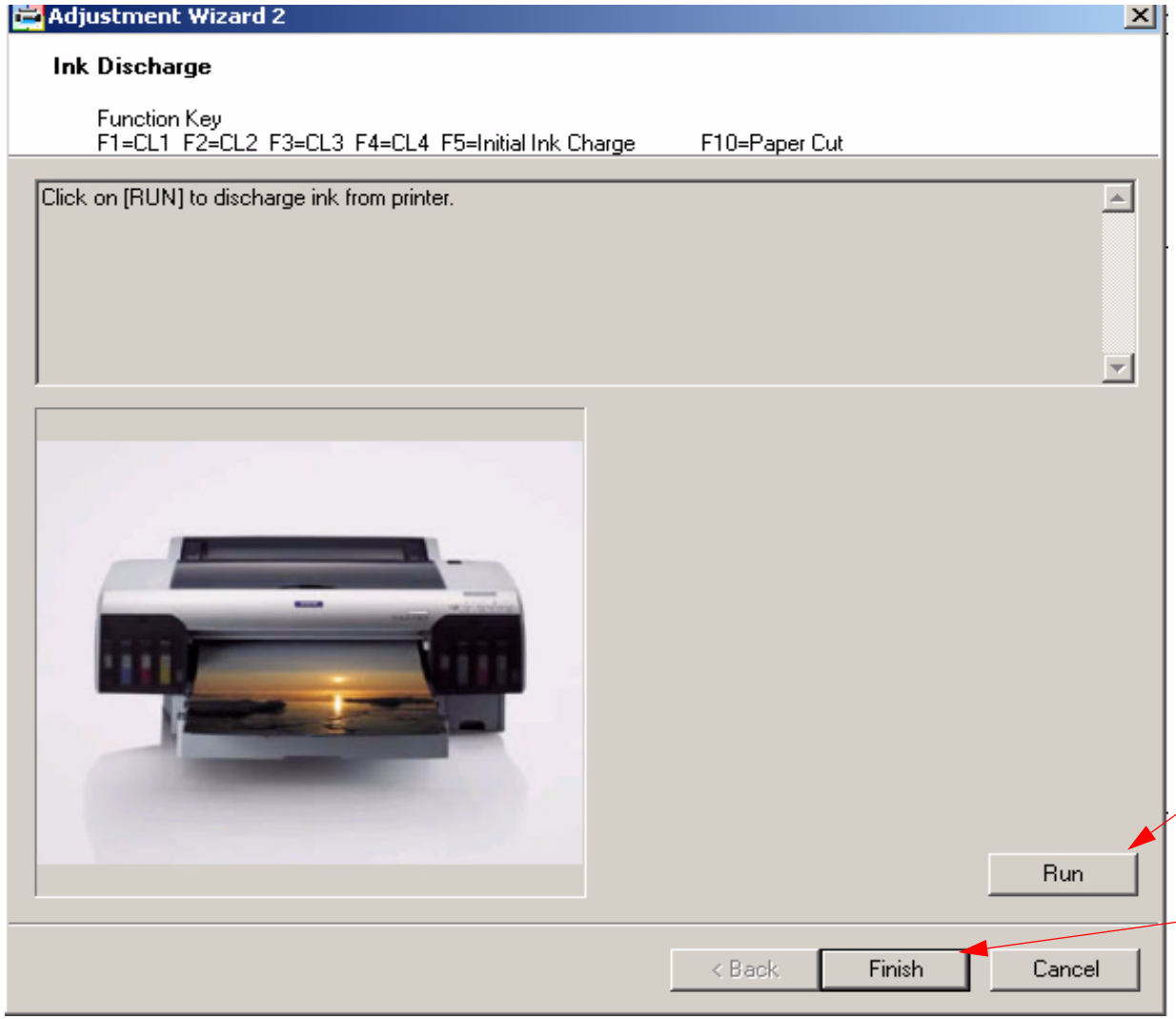
1. Click on **Run** to reset all the settings on the ***Main Board***.

2. Click on **Finish** when completed.

Ink Discharge.

Note: Ink Discharge allows the evacuation of the ink in the Tubes.

1. From the **Adjustment Wizard** for the Pro 4000, select **Ink Discharge.**



1. Remove the ***Ink Cartridges***

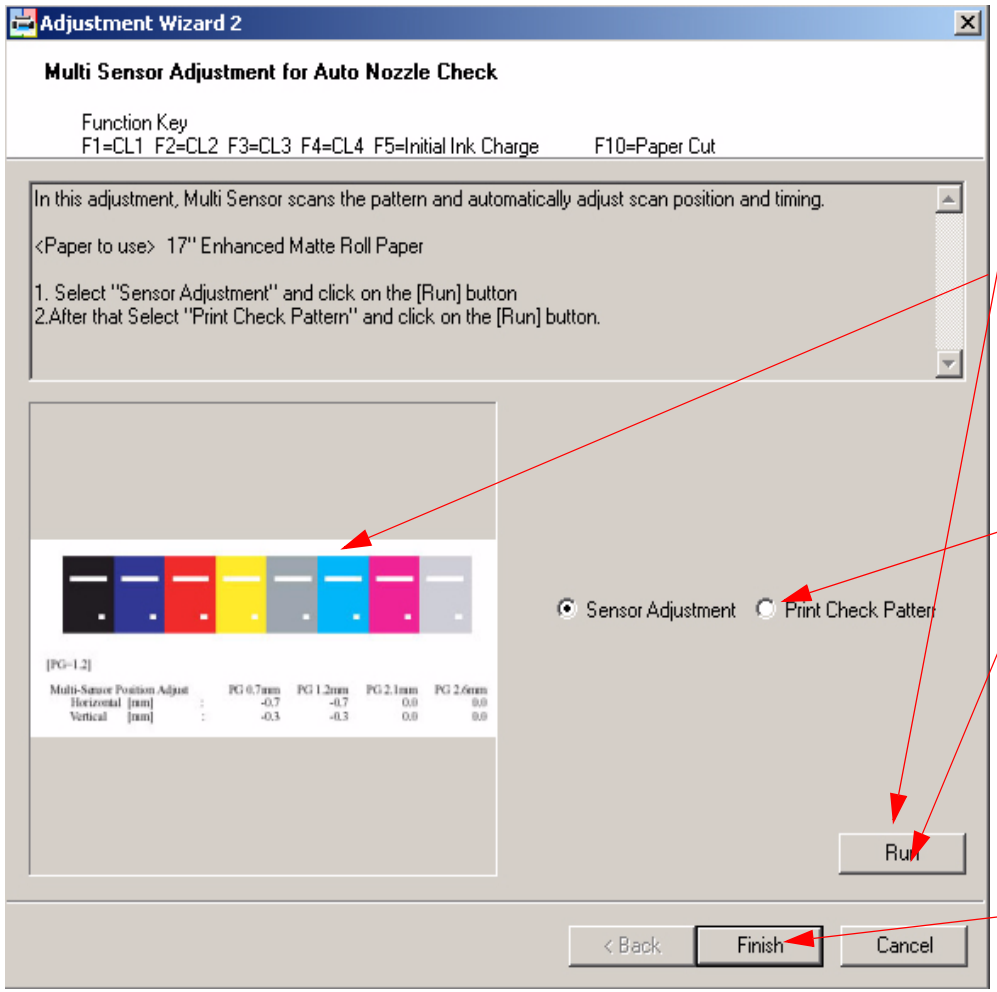
2. Click on **Run**.

3. Click on **Finish** when completed.

Multi Sensor Adjustment for Auto Nozzle Check

1. Load 17” Enhanced Matte roll paper.

2. From the **Adjustment Wizard** for the Pro 4000, select the **Mulit Sensor Adjustment for Auto Nozzle Check.**



1. Click on the **Run** button.

2. The ***Printer*** will print out these patterns.

3. The ***Printer*** will read the alignment patterns automatically (using the ***Multi Sensor***), and write the appropriate values to the board.

4. Click on the **Print Check Pattern** button.

5. Click on the **Run** button.

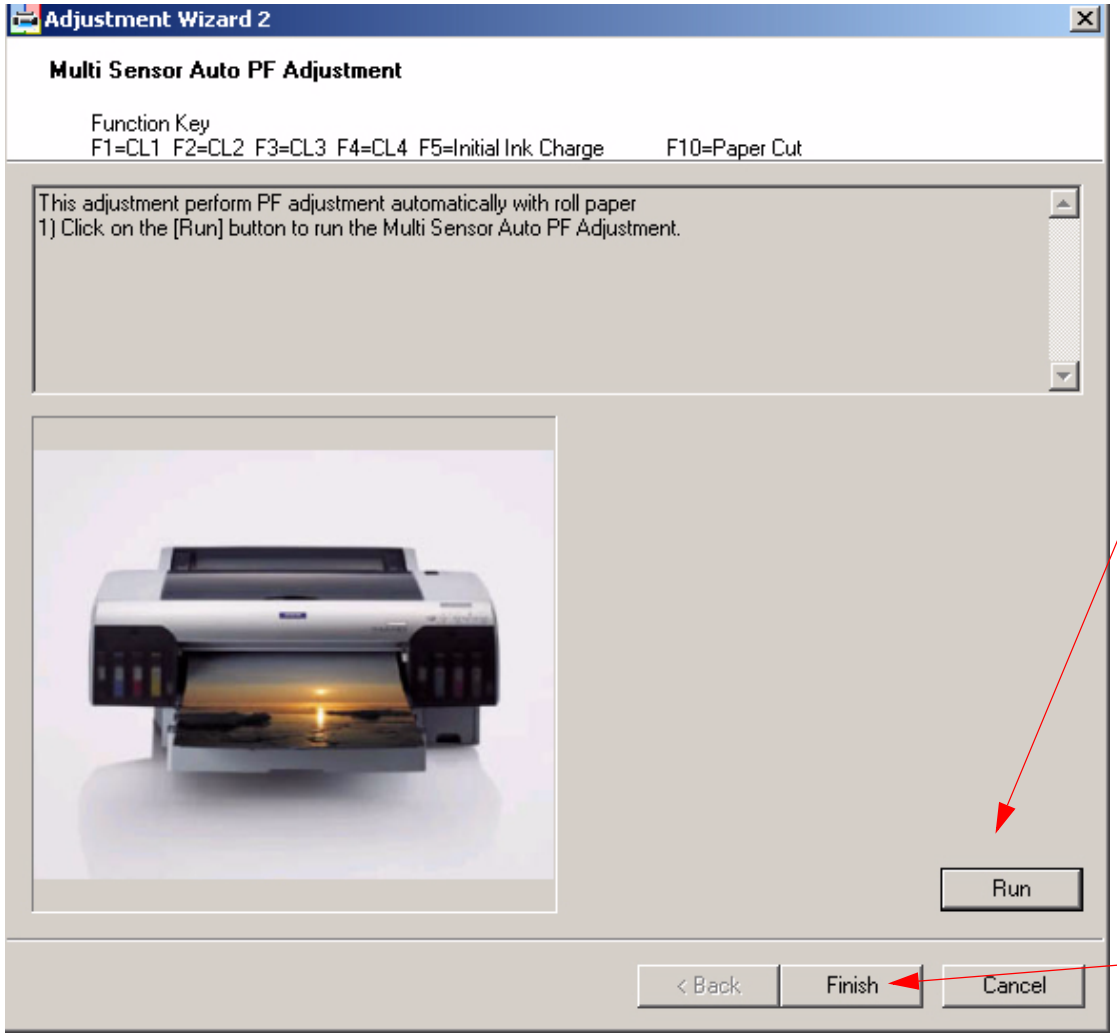
6. The Printer will Print a check pattern, followed by a nozzle check pattern.

7. Click the **Finish** button.

Multi Sensor Auto PF Adjustment

1. Load 17” Enhanced Matte roll paper.

2. From the **Adjustment Wizard** for the Pro 4000, select the **Multi Sensor Auto PF Adjustment.**



1. Click on **Run**.

2. The ***Printer*** will print a test pattern. (It takes about 15 minutes). While it is printing, it is reading the test pattern with the Multi Sensor and correctly setting the Feed Length Adjustment.

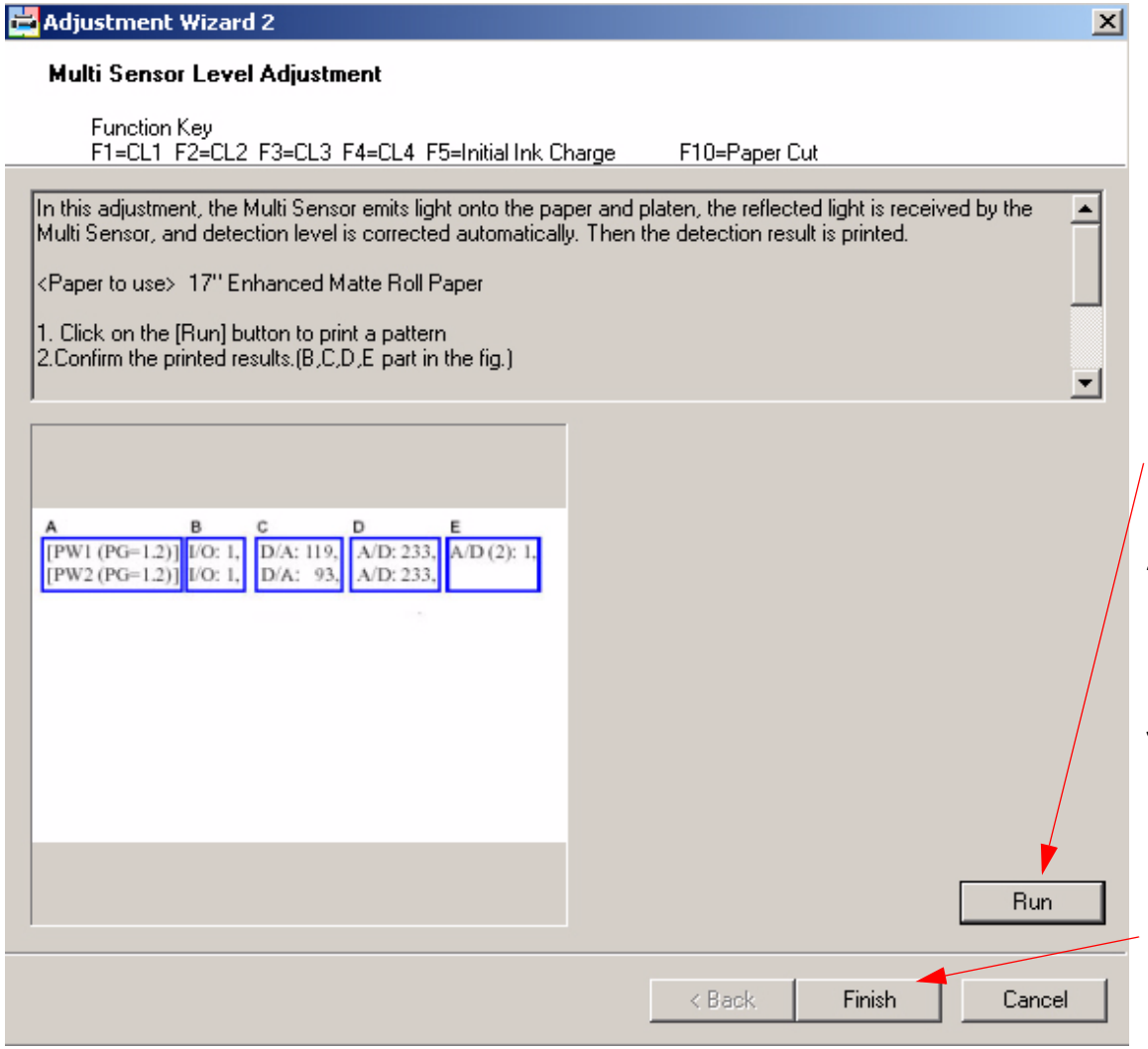
3. Click on **Finish** when completed.

Multi Sensor Level Adjustment

Note: This adjustment sets the "White Level" for the Multi Sensor (sensitivity calibration).

1. Load 17" Enhanced Matte roll paper.

2. From the **Adjustment Wizard** for the Pro 4000, select the **Multi Sensor Level Adjustment**



1. Click on the **Run** button.

2. The ***Printer*** will sample the paper with the ***Multi Sensor*** to set a reference level.

3. The Printer will print out the data that was written to the board. It will look like this.

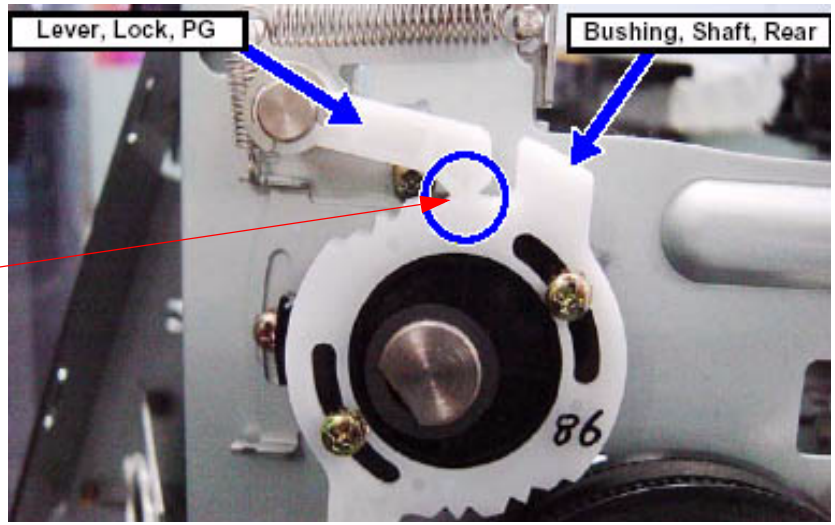
4. Click the **Finish** button.

Multi Sensor Position Adjustment

Note: This mechanical adjustment fixes the physical position of the Multi Sensor.

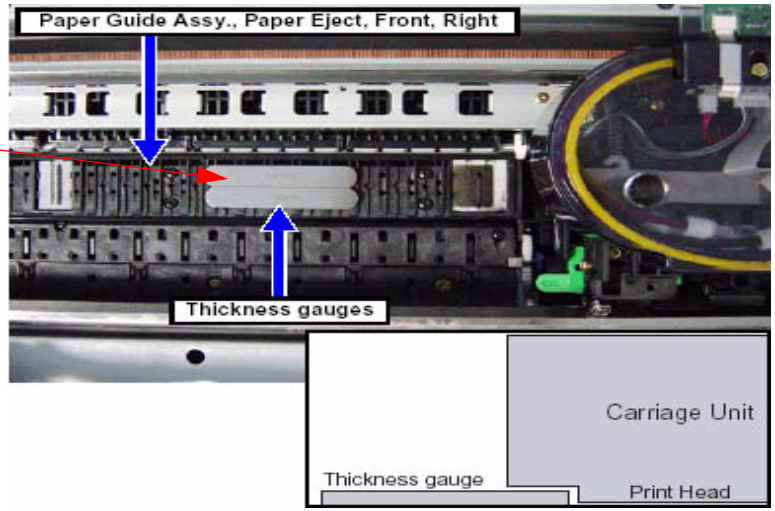
1. Rotate the ***Rear Carriage Rail*** until the ***Platen Position Stopper*** is in the first ***Detent***.

First ***Detent***.



2. Place a 3mm feeler gauge on the ***Platen*** as shown.

3 mm feeler gauge.

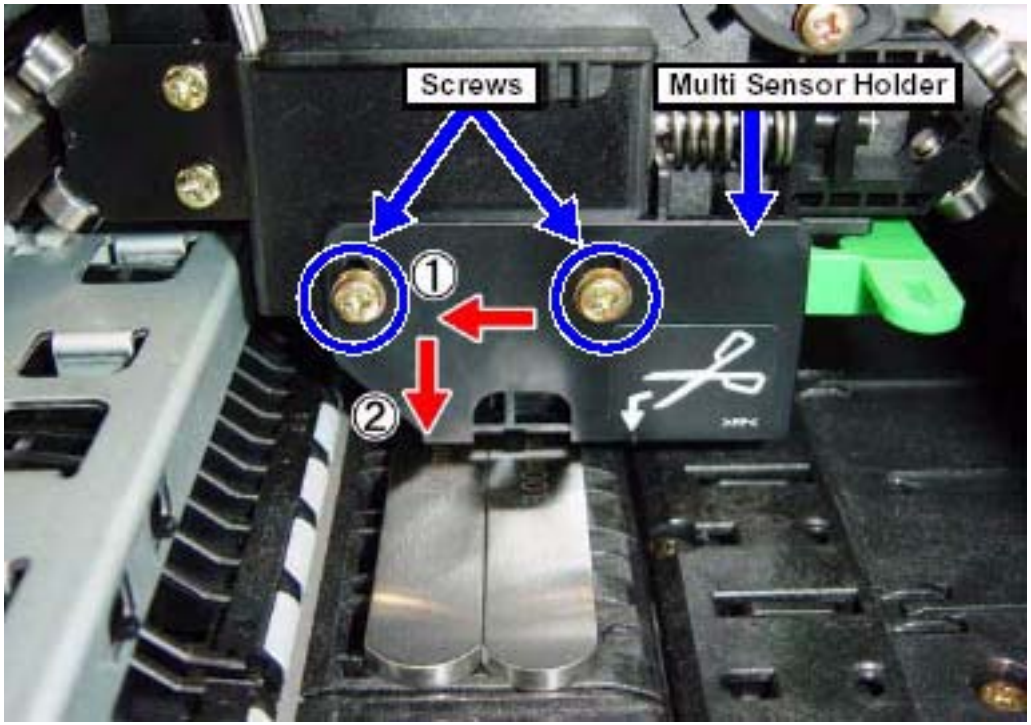


3. Move the ***Multi Sensor*** over the thickness gauge.

1. Move the ***Multi Sensor*** over the thickness gauge.

2. Loosen ***2 Screws*** and move the ***Multi Sensor*** in the direction of the arrows

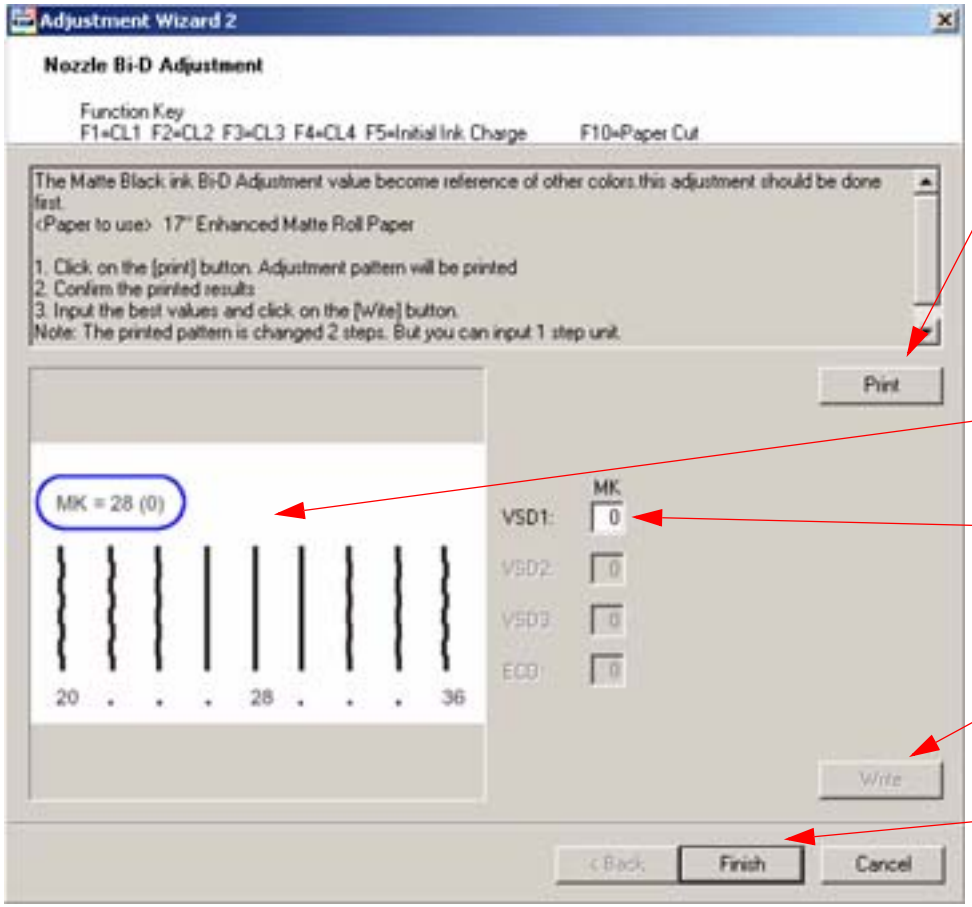
3. Tighten the ***2 Screws*** when the ***Multi Sensor*** gently touches the feeler gauge.



Nozzle Bi-D Adjustment

1. Load 17” Enhanced Matte roll paper.

2. From the **Adjustment Wizard** for the Pro 4000, select the **Nozzle Bi-D Adjustment.**



1. Click on the **Print** button.

2. The ***Printer*** will print out this pattern.

3. Inspect the pattern and identify the value that represents the most vertically straight line. It is possible to choose an odd number that would represent a value between the even printed

4. Enter the value from step 3 here.

5. Click the **Write** button.

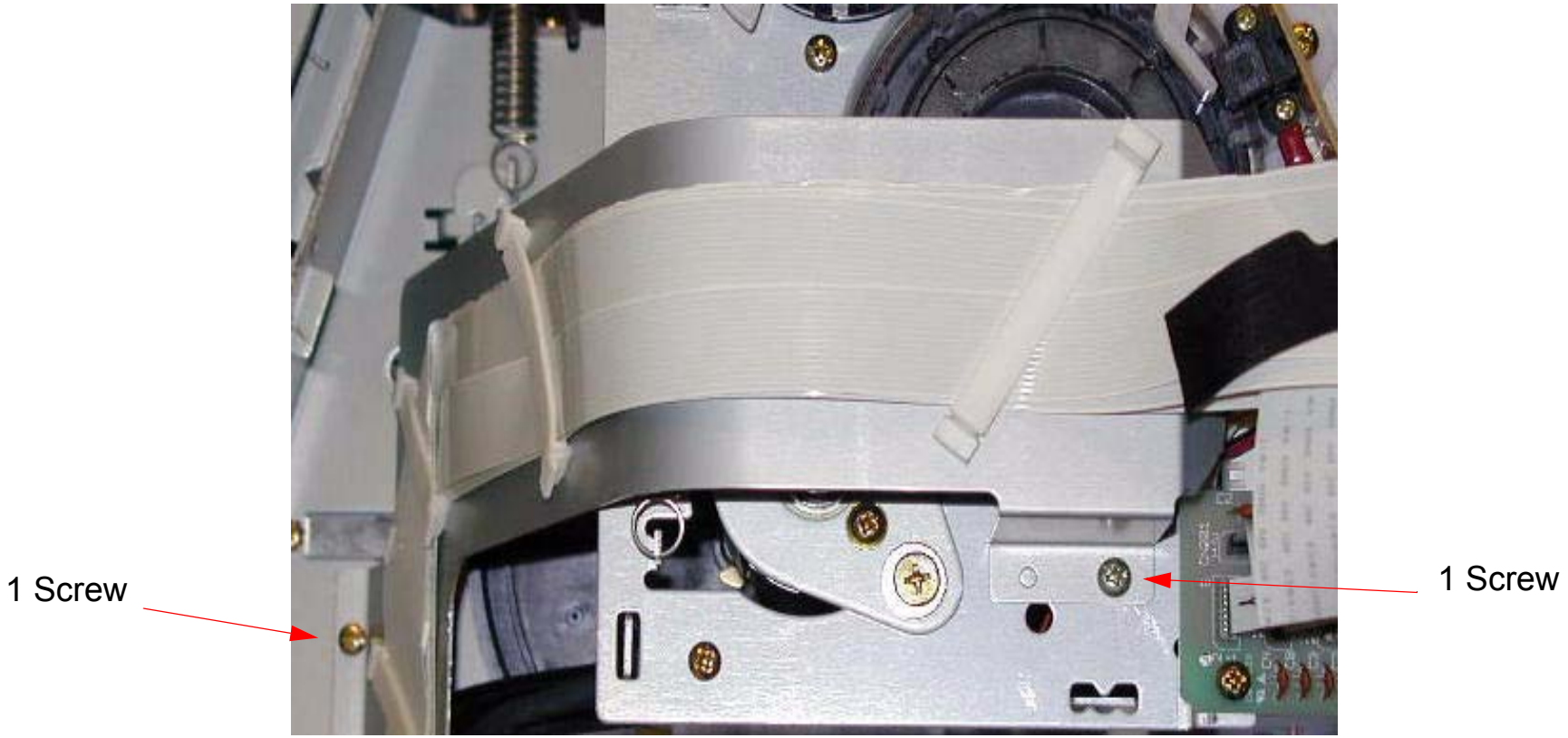
6. Click the **Finish** button.

Note: If none of the lines are straight, pick the line that is closest to straight, and write the value. Then reprint and try again. Each time the patterns should be closer. Repeat again if necessary, until there is a straight line. Pick and write that value.

Paper Feed Timing Belt Adjustment

1. Remove the ***Left Side Cover***.

2. Remove ***2 Screws*** to free the ***Flexible Cable Support***, and move it down, (out of the way).

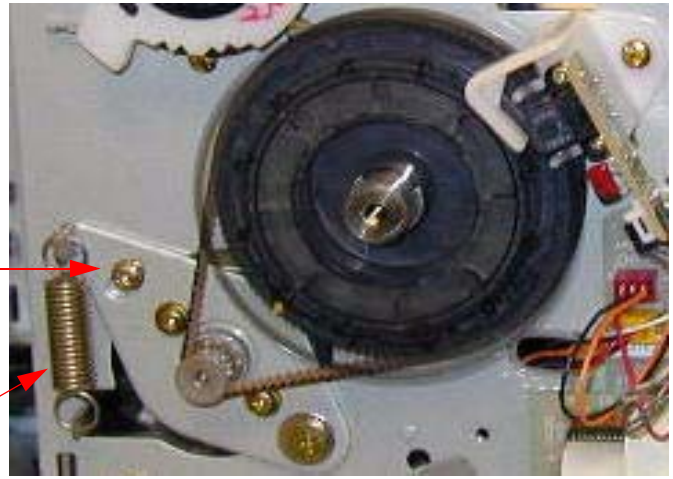


3. Loosen the ***Screw*** that fastens the ***Paper Feed Motor Bracket***, allowing the ***Tension Spring*** to

apply tension to the ***Belt***.

Loosen this screw.

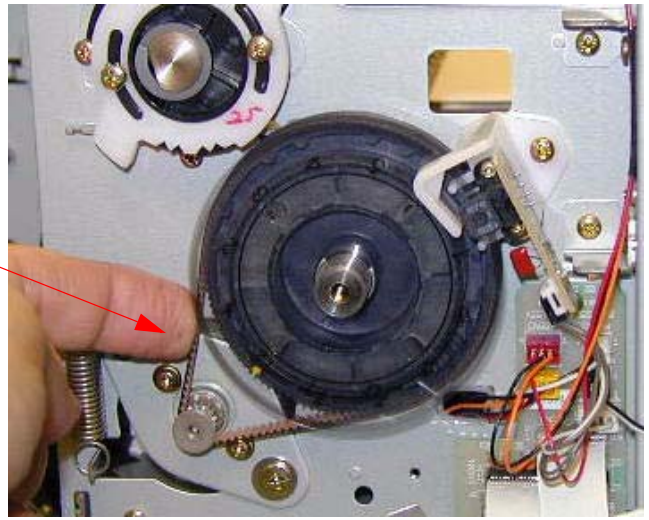
This spring will apply tension to the belt.



4. Tighten the ***Screw***, then check the ***Belt*** tension with your finger. There should be a deflection of approximately 1/8” to 1/16”.

Press here.

Look for 1/8’ to 1/16” deflection

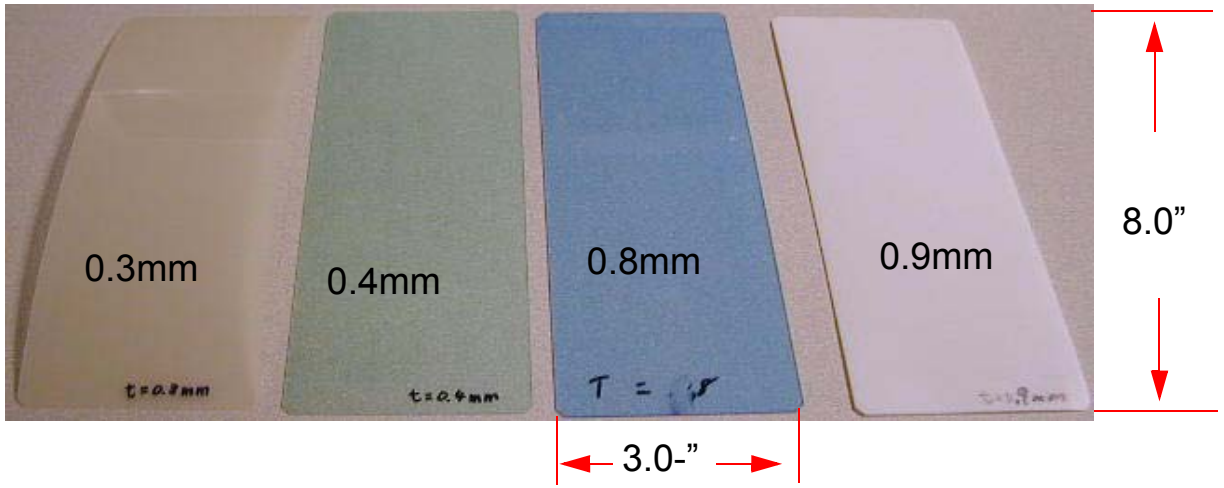


5. If the ***Belt*** has too much deflection, loosen the ***Screw***, and add some finger pressure to the ***Spring*** to increase the tension, and repeat step 4.

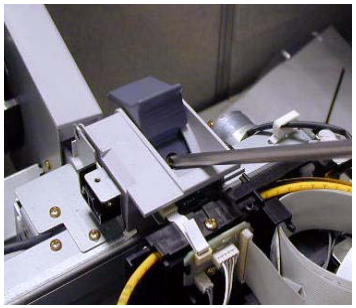
Paper Thickness Sensor Adjustment

Purpose: The ***Paper Thickness Sensor*** Adjustment calibrates the ***Paper Thickness Sensor*** so that it correctly recognizes 3 different thickness ranges of media. The ***Paper Thickness Sensor*** does not measure the thickness of inserted media, it determines the “thickness range” of the media.

Special Tools: The Paper Thickness Sensor Adjustment requires 4 flexible thickness gauges.

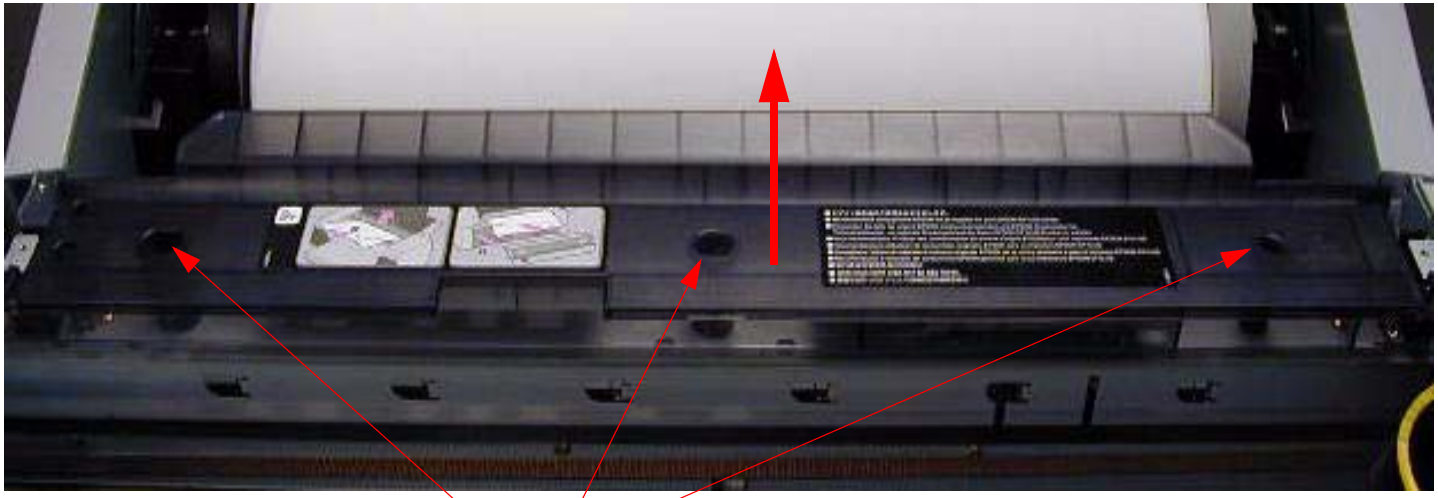


1. Remove the ***Left,*** and ***Right Side Covers***.
2. Re-install the ***Paper Release Lever***



3. Remove the ***Top Cover***.

4. Remove the ***Paper Thickness Sensor Cover***.



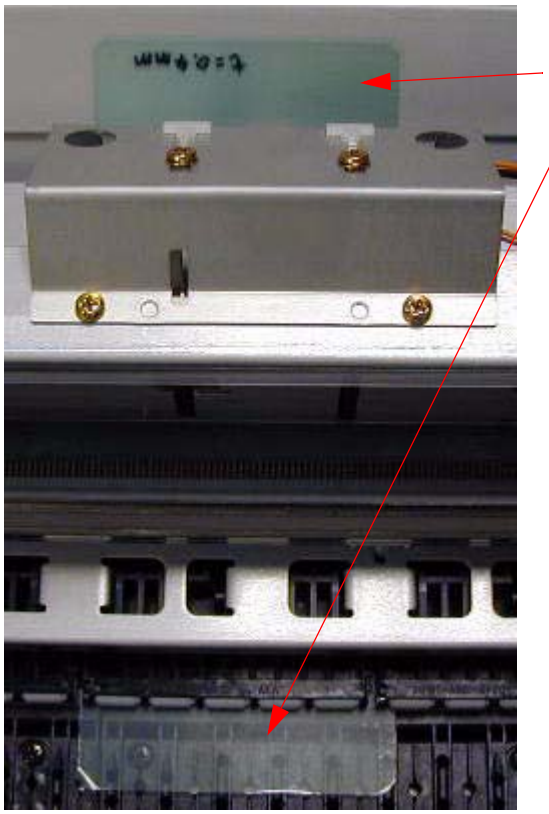
5. Press and hold the **Left**, **Down**, and **Up** buttons, and turn on the ***Printer*** (Maintenance Mode 2).

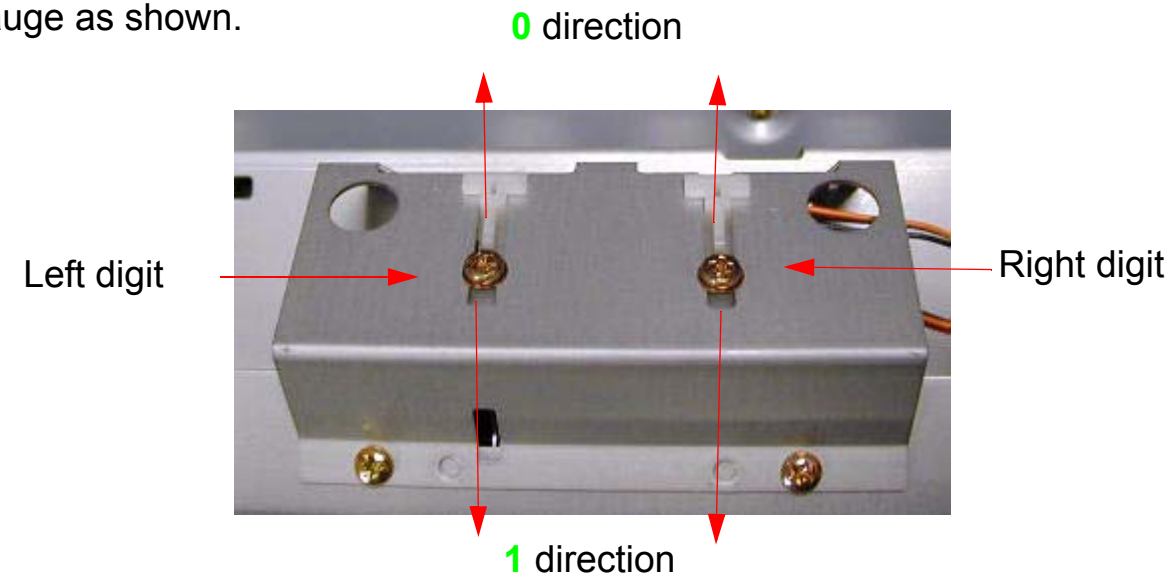
6. Using the **Down** button, navigate to **Self Testing: Test:** and press the **Menu** button.

7. Using the **Down** button, navigate to **Test: Sensor:** and press the **Menu** button.

8. Using the **Down** button, navigate to **Sen: Paper 00** (May read **01**, **10**, or **11**)

9. Insert the thickness gauges into the paper path as shown, and engage the pressure rollers (***Paper Release Lever*** down).





1. Insert the 4 gauges and check that the 3 conditions listed in step 9 are true.

2. If the conditions listed in step 10 are not true, loosen the fastening screws, and move the sensor positions until they are true.

10. The ***Paper Thickness Sensor*** should display the values listed below when the gauges listed below are inserted.

    10.1 **00** = When the 0.3mm thickness gauge is inserted.

    10.1 **01** = When the 0.4mm thickness gauge is inserted.

    10.1 **01** = When the 0.8mm thickness gauge is inserted.

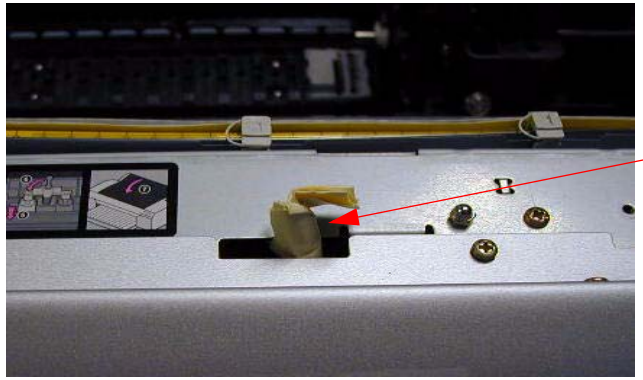
    10.1 **11** = When the 0.9mm thickness gauge is inserted.

Platen Gap Adjustment

Purpose: The Platen Gap Adjustment sets the physical platen gap to the correct distance.

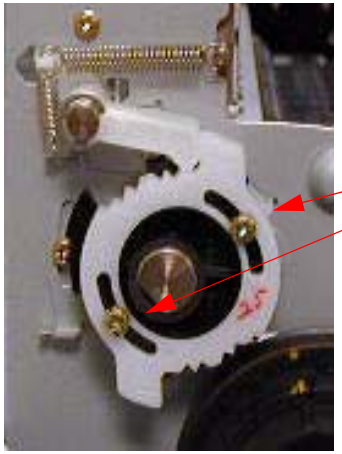
1. Remove the ***Left Side Cover***.

1. Open the ***Top Cover***, and defeat the ***Top Cover Sensor*** by wedging something (paper) against the ***Sensor***.



Wedge something against the ***Top Cover Sensor***, to simulate a closed ***Top Cover***.

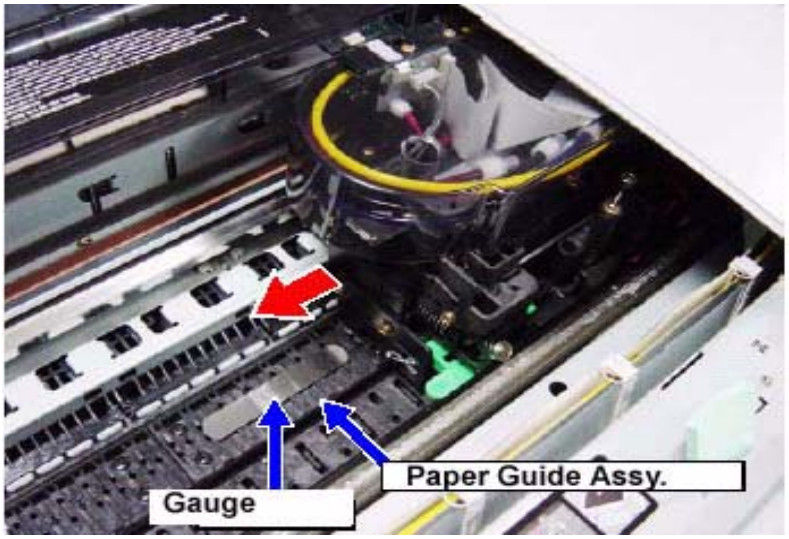
2. Loosen the ***2 Screws*** that fasten the ***Platen Gap Step Locking Mechanism***, located on the left side of the ***Rear Carriage Rail***.



Loosen ***2 Screws***

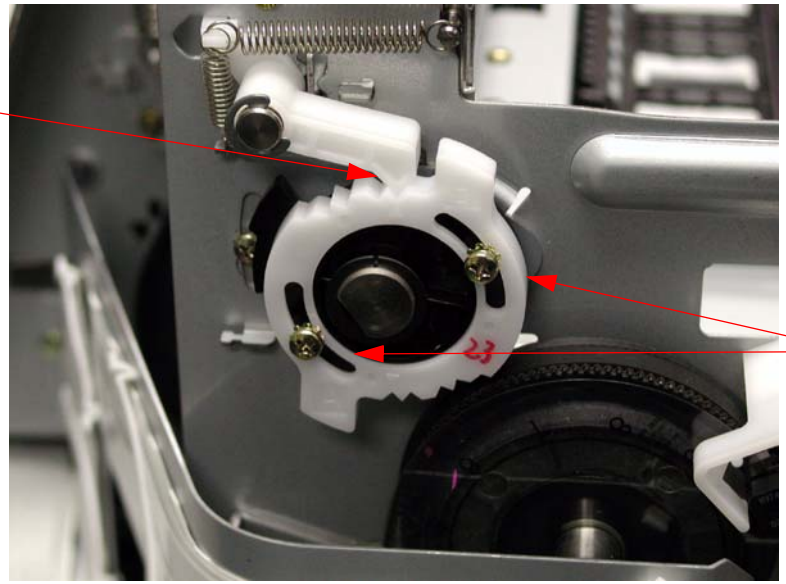
3. Press and hold the **Left**, **Down**, and **Up** buttons, and turn on the ***Printer*** (Maintenance Mode 2).
4. Using the **Down** button, navigate to **Self Testing: Adjustment:** and press the **Menu** button.
5. Using the **Down** button, navigate to **ADJ: PG ADJ:** and press the **Menu** button.
6. The ***Printer's LCD*** will display **[ENTER] Start**.
7. Press the **Menu** button to start the procedure.
   - 7.1 The ***Printer's LCD*** will display **Detecting Origin**.
   - 7.2 The ***Printer's LCD*** will display ***PG Offset *(nn)*** (*nn = the current Platen Gap Offset).
8. Place a.65mm feeler gauge on the ***Platen*** as shown.

1. Slide the ***Carriage Assembly*** towards the feeler gauge.
2. Increase the ***Platen*** / ***Print Head*** gap by depressing the **Up Arrow**
3. Continue to increase the gap until the ***Print Head*** clears the.65mm feeler gauge.
4. Increase the ***Platen Gap Offset Value*** be 3 more steps than determined in step 3.



9. Place the ***Platen Position Detent*** device in the position shown below, and tighten the 2 ***Screws***.

Turn until the ***Stopper*** is resting in the first ***Detent*** (the detent has an arrow pointing at it).



Tighten the 2 ***Screws***.

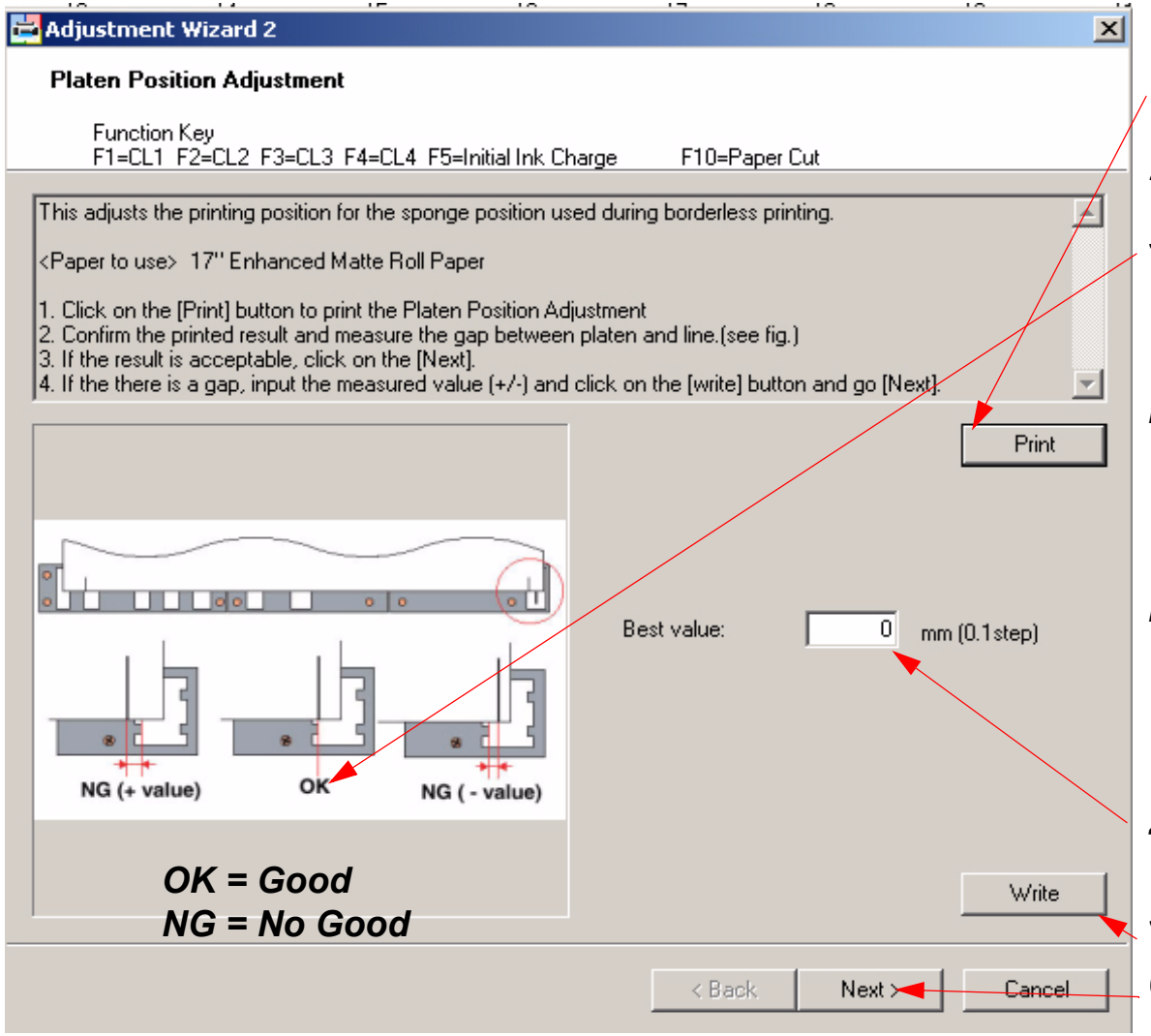
10. Depress the **Menu** button to store the value.

    10.1 The Printer will display **Updating Parameter**.

Platen Position Adjustment

1. Load 17” Enhanced Matte roll paper.

2. From the **Adjustment Wizard** for the Pro 4000, select the **Platen Position Adjustment.**



1. Click on the **Print** button.

2. The ***Printer*** will print the alignment pattern

3. Measure the distance between the printed line, and the tab at the edge of the borderless printing pad as shown.

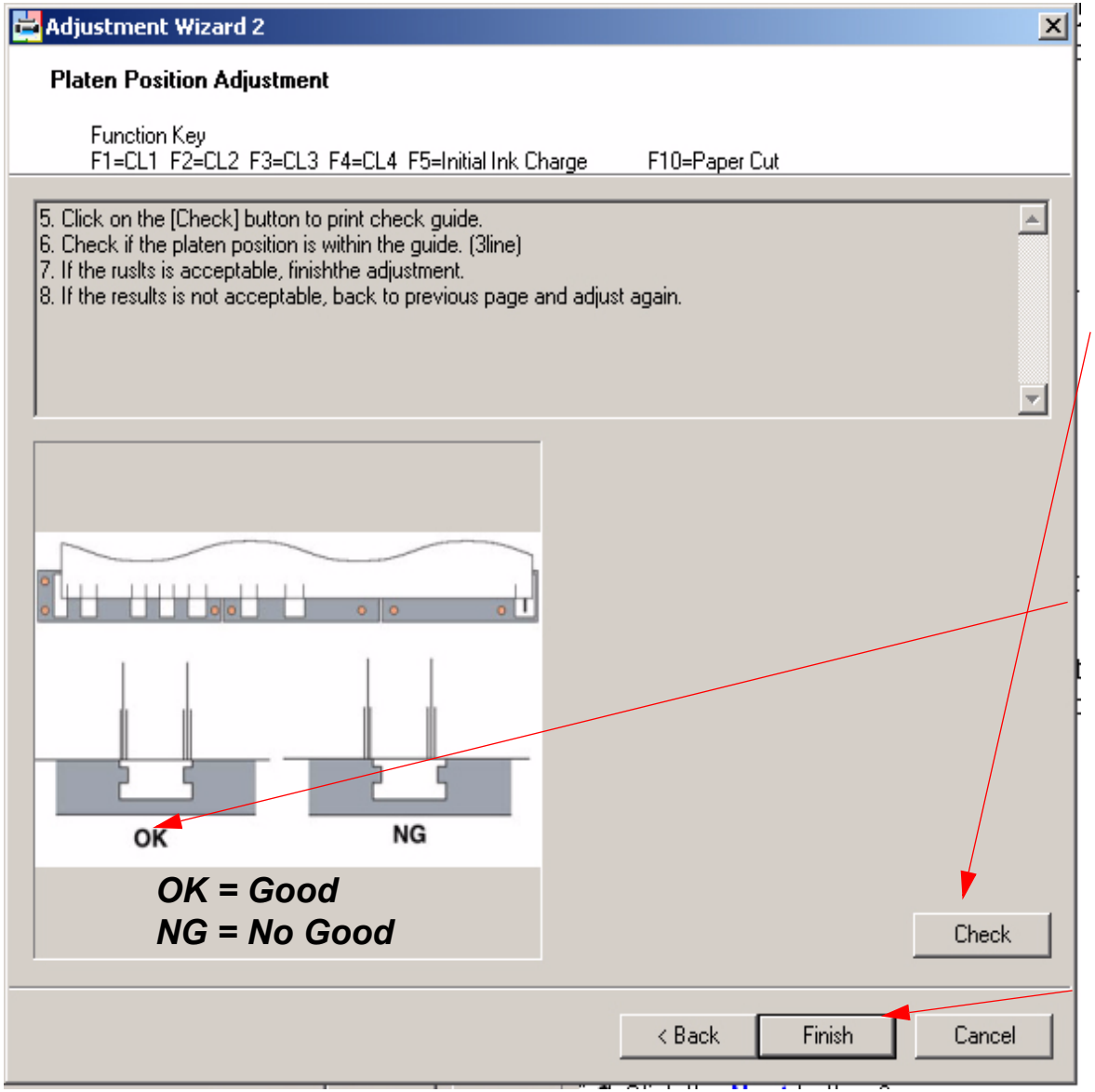
Note: If the alignment mark is ***1mm*** to the ***right*** of the tab at the edge of the borderless pad, the correct offset value would be ***1***.

Note: If the alignment mark is ***1mm*** to the ***left*** of the tab at the edge of the borderless pad, the correct offset value would be ***-1***.

4. Enter the offset value.

5. Click on the **Write** button.

6. Click the **Next** button.



7. Click on the **Check** button.

8. The Printer will print and alignment check sheet.

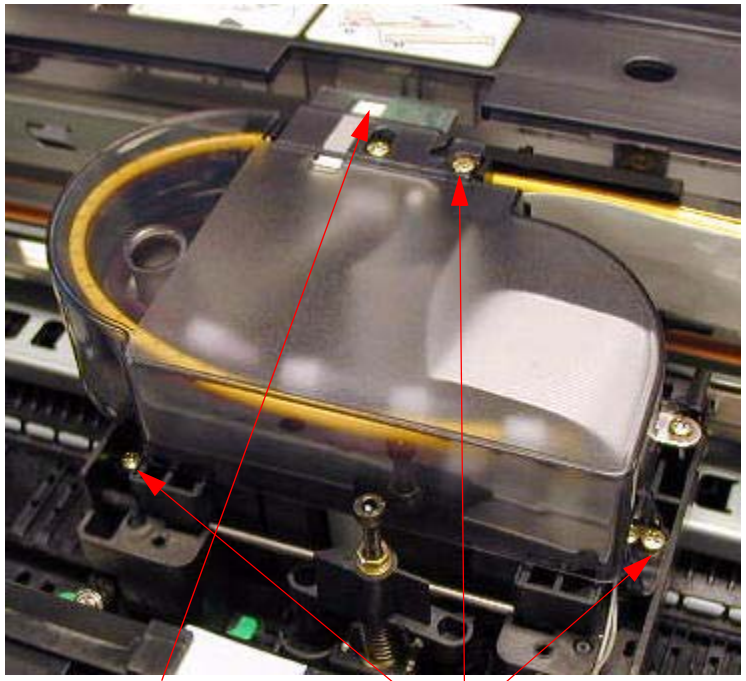
9. Verify that the alignment marks are centered over the Borderless Printing Pads. (If they are not click on the **Back** button and repeat steps 1 - 5.

10. Click on the **Finish** button.

Print Head Slant Adjustment (CR)

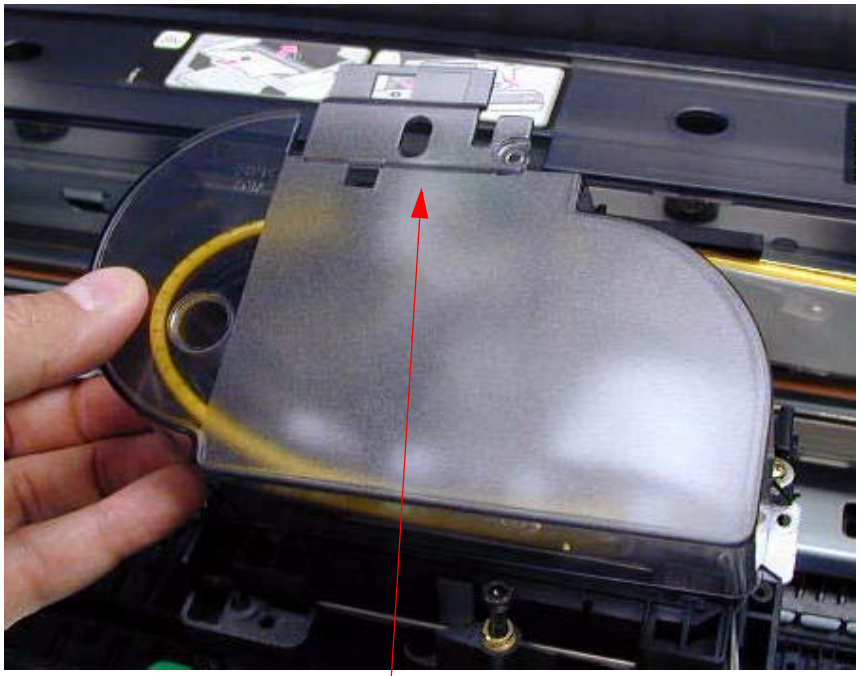
1. From the **Adjustment Wizard** for the Pro 4000, select the **Print Head Slant Adjustment (CR)**.

2. Move the ***Carriage*** to the position shown below, remove ***3 Screws***, and remove the ***Carriage Cover.***



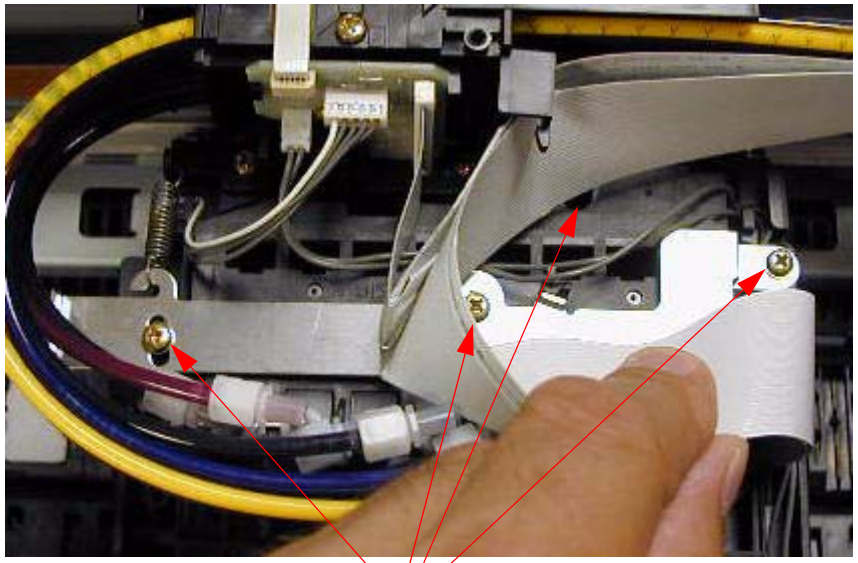
Move the ***Carriage*** to this position (align with the notch)

Remove ***3 Screws***



Remove the ***Carriage Cover***

3. Loosen the ***4*** indicated ***Screws*** 1/4 turn.

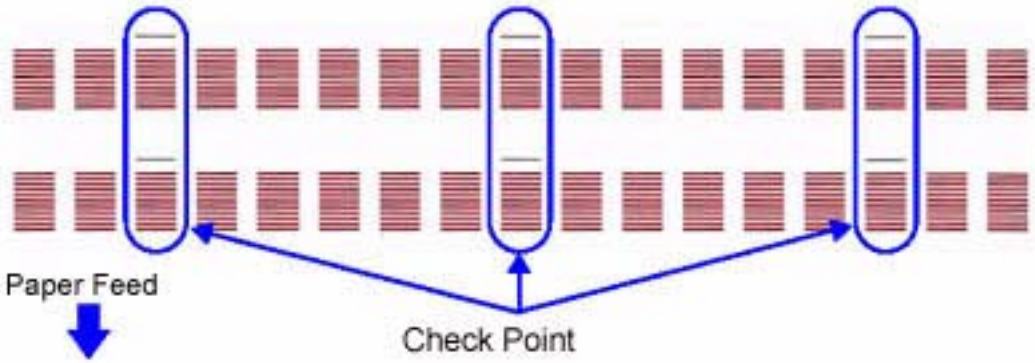


Loosen these ***4 Screws*** 1/4 turn.

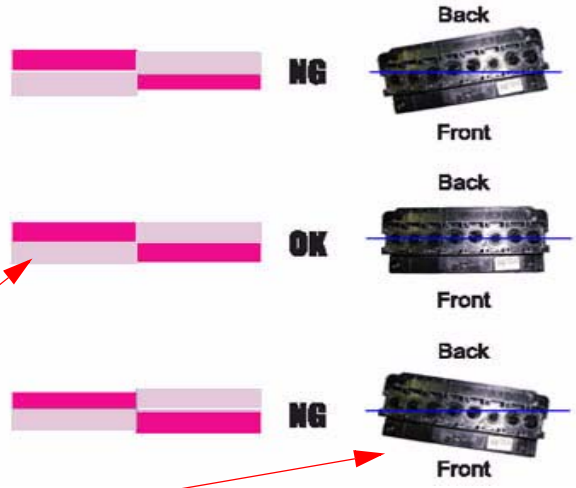
4. Move the ***Carriage*** back to the capped position.

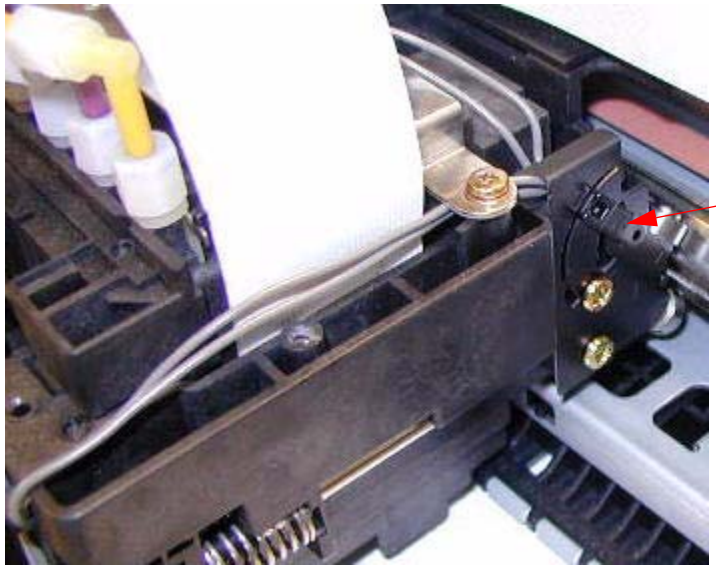
5. Click on the **Print** Button, the alignment pattern will be printed.

6. Using a lens, inspect the printed pattern.



The pattern should look like this





Move this lever down to rotate the ***Print Head*** clockwise.

7. Adjust, and reprint, until the alignment pattern is correct.

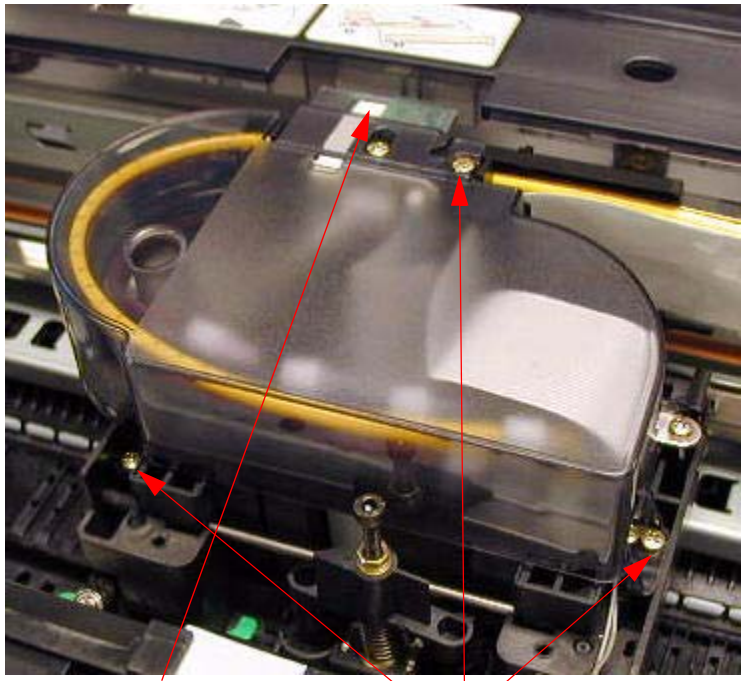
8. Tighten the ***4 Screws***, and reprint the pattern to verify that the pattern is still correct.

9. Re-install the ***Carriage Cover***.

Print Head Slant Adjustment (PF)

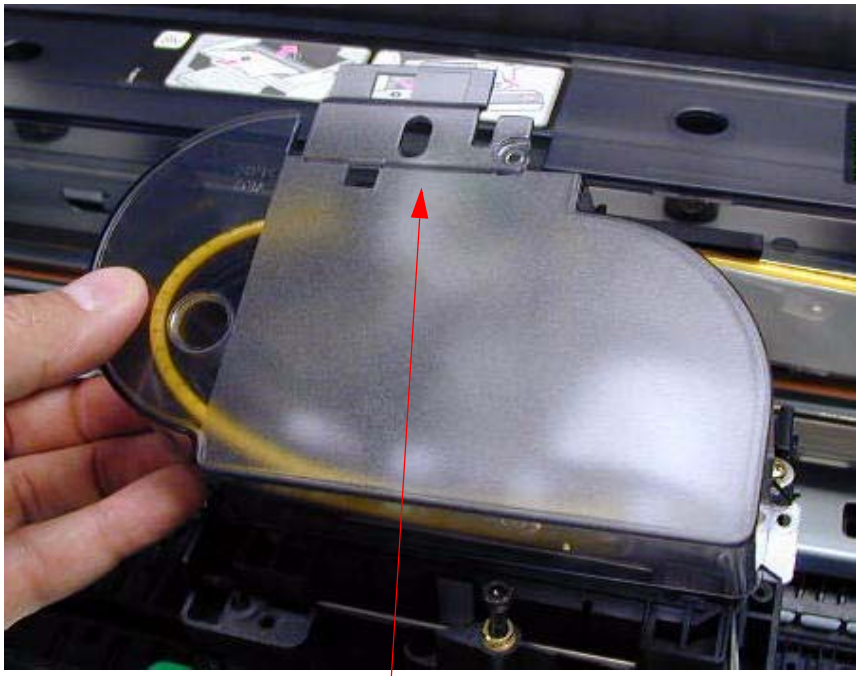
1. From the **Adjustment Wizard** for the Pro 4000, select the **Print Head Slant Adjustment (CR)**.

2. Move the ***Carriage*** to the position shown below, remove ***3 Screws***, and remove the ***Carriage Cover***.



Move the ***Carriage*** to this position (align with the notch)

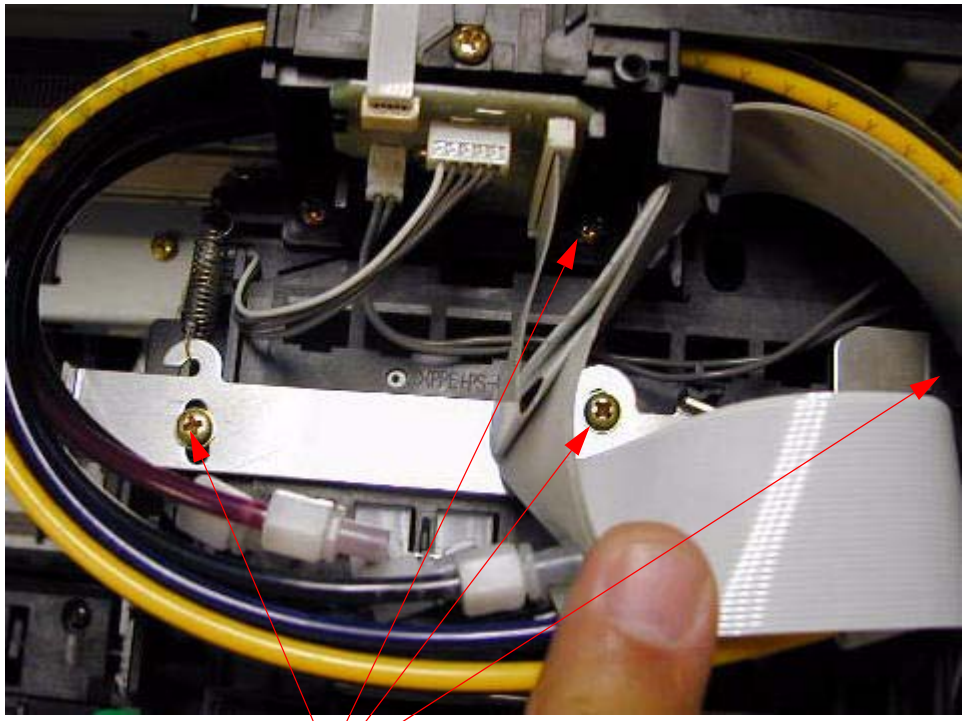
Remove ***3 Screws***



Remove the ***Carriage Cover***

3. Loosen the ***5*** indicated ***Screws*** 1/4 turn.

Loosen ***1 Screw*** that fastens the ***Adjustment Lever***

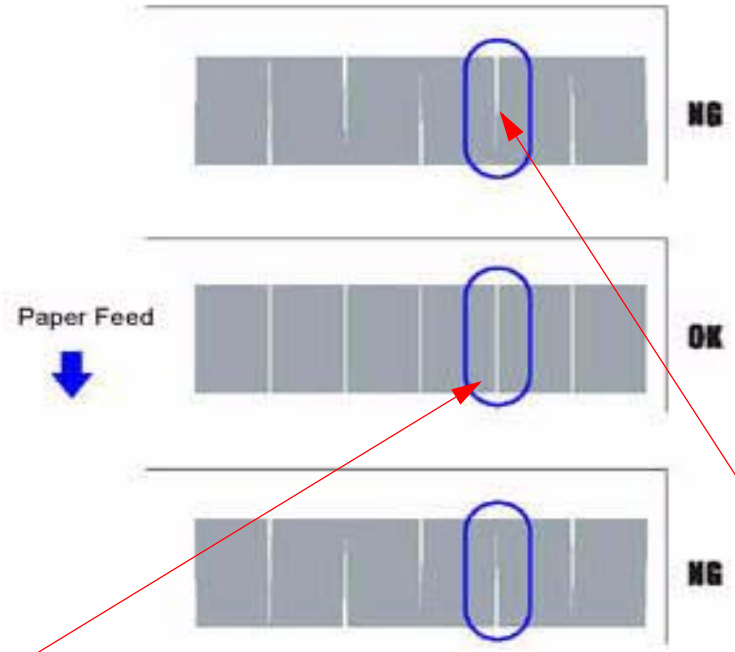


Loosen ***4 Screws*** that fasten the ***Print Head***

4. Move the ***Carriage*** back to the capped position.

5. Click on the **Print** Button, the alignment pattern will be printed

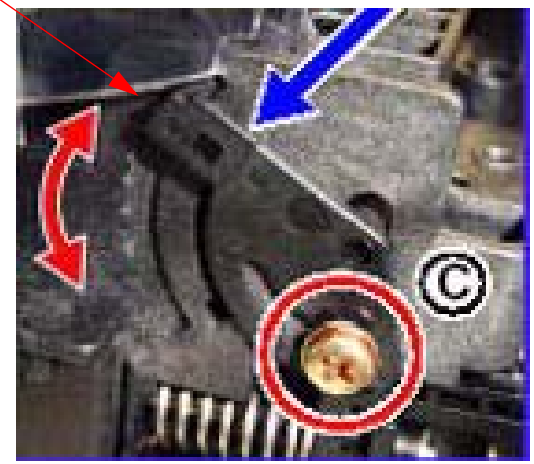
6. Using a lens, inspect the printed pattern.



The pattern should look like this.

If the gap is larger at the top, pull the ***Lever*** down

The ***Lever*** employs detentes to lock it in place. Flex the top portion of the ***Lever*** in the direction of the pivot point to release the detentes.



7. Adjust, and reprint, until the pattern is correct.
8. Tighten the ***5 Screws***, and reprint the pattern to verify that the pattern is still correct.
9. Re-install the ***Carriage Cover***.

RearAD Sensor Calibration

Note: This adjustment sets the "White Level" for the RearAD Sensor (sensitivity calibration).

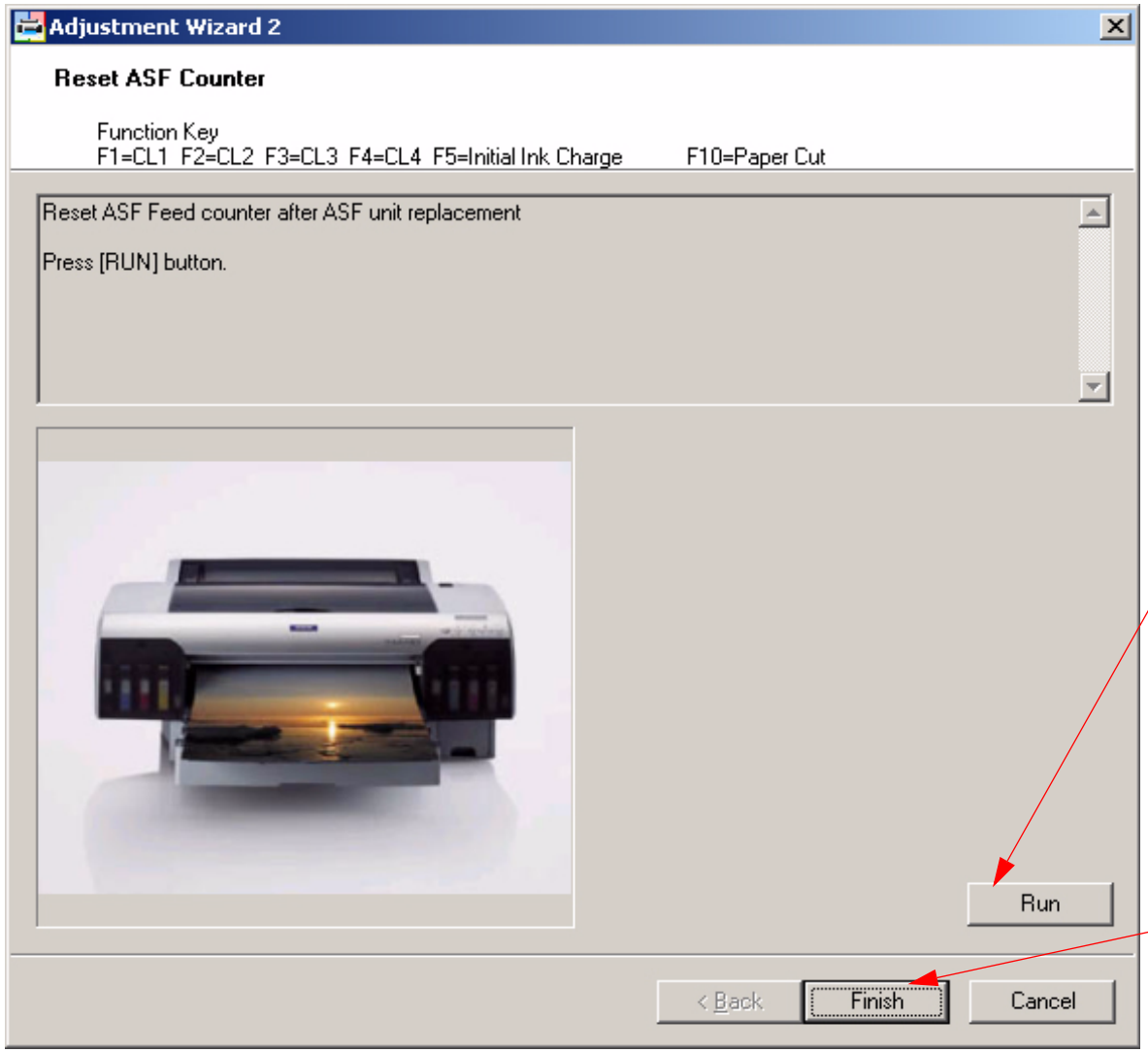
Note: This adjustment can be performed using the customer's media if it is non-standard (transparent, etc.).

1. Place paper in the paper path. Ensure that the paper is inserted past the ***Pinch Rollers*** and the ***Paper Feed Roller***.
2. Press and hold the **Left**, **Down**, and **Up** buttons, and turn on the ***Printer*** (Maintenance Mode 2).
3. Using the **Down** button, navigate to **Self Testing: Adjustment:** and press the **Menu** button.
4. Using the **Down** button, navigate to **RearAD:** and press the **Menu** button.
5. The ***Printer's LCD*** will display **[ENTER] Start**. Press the **Menu** button to start.
6. The ***Printer*** will sample the media setting the white level (sensor sensitivity).

Reset ASF Counter

Note: Reset ASF Counter is used to reset the Automatic Sheet Feeder counter.

1. From the **Adjustment Wizard** for the Pro 4000, select **Reset ASF Counter.**



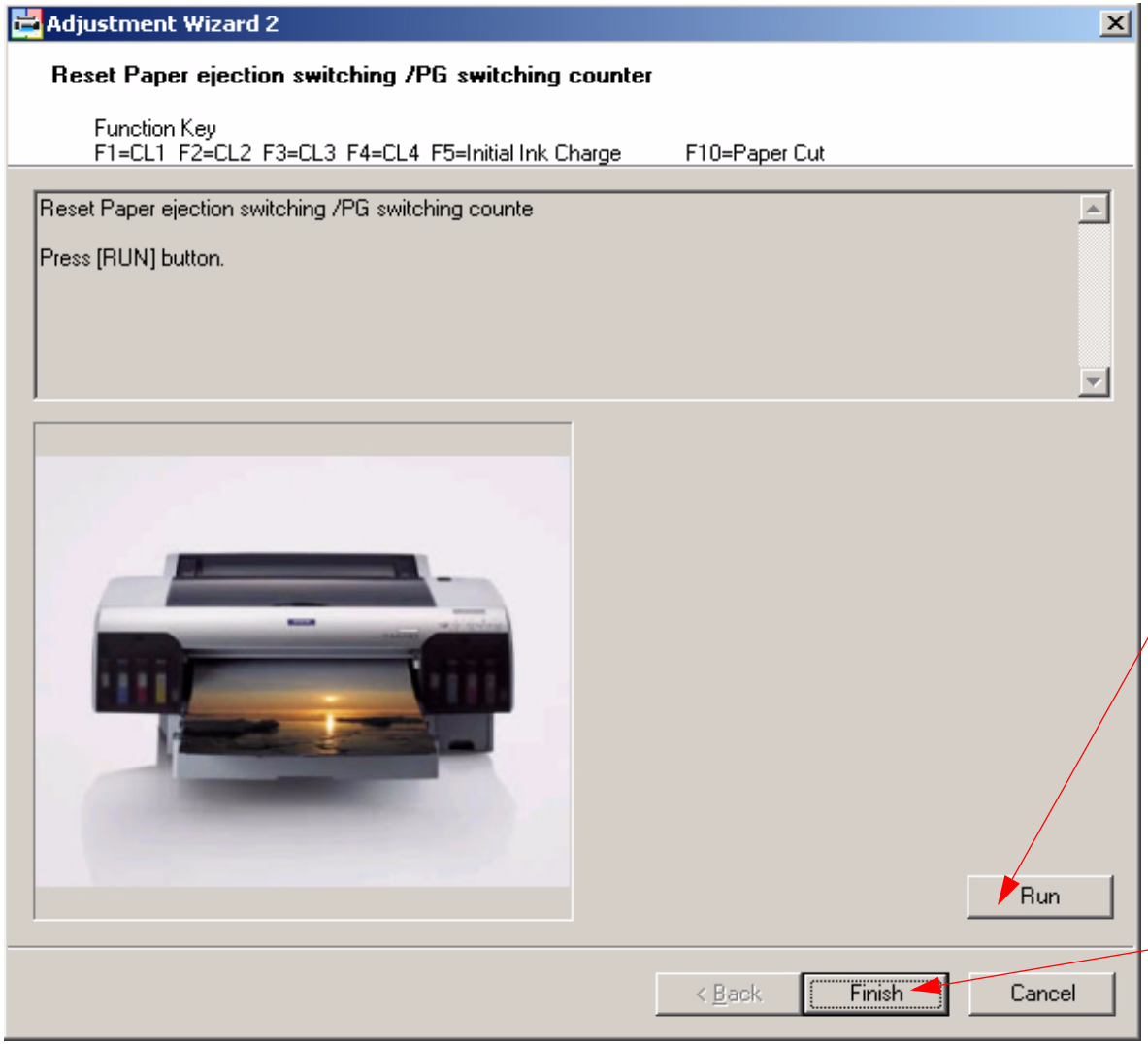
1. Click on **Run** to reset the ASF counter.

2. Click on **Finish** when done.

Reset Paper Ejection Switching

Note: Reset Paper Ejection Switching is used to reset the Paper Exit Roller counter.

1. From the **Adjustment Wizard** for the Pro 4000, select **Reset Paper Ejection Switching**.



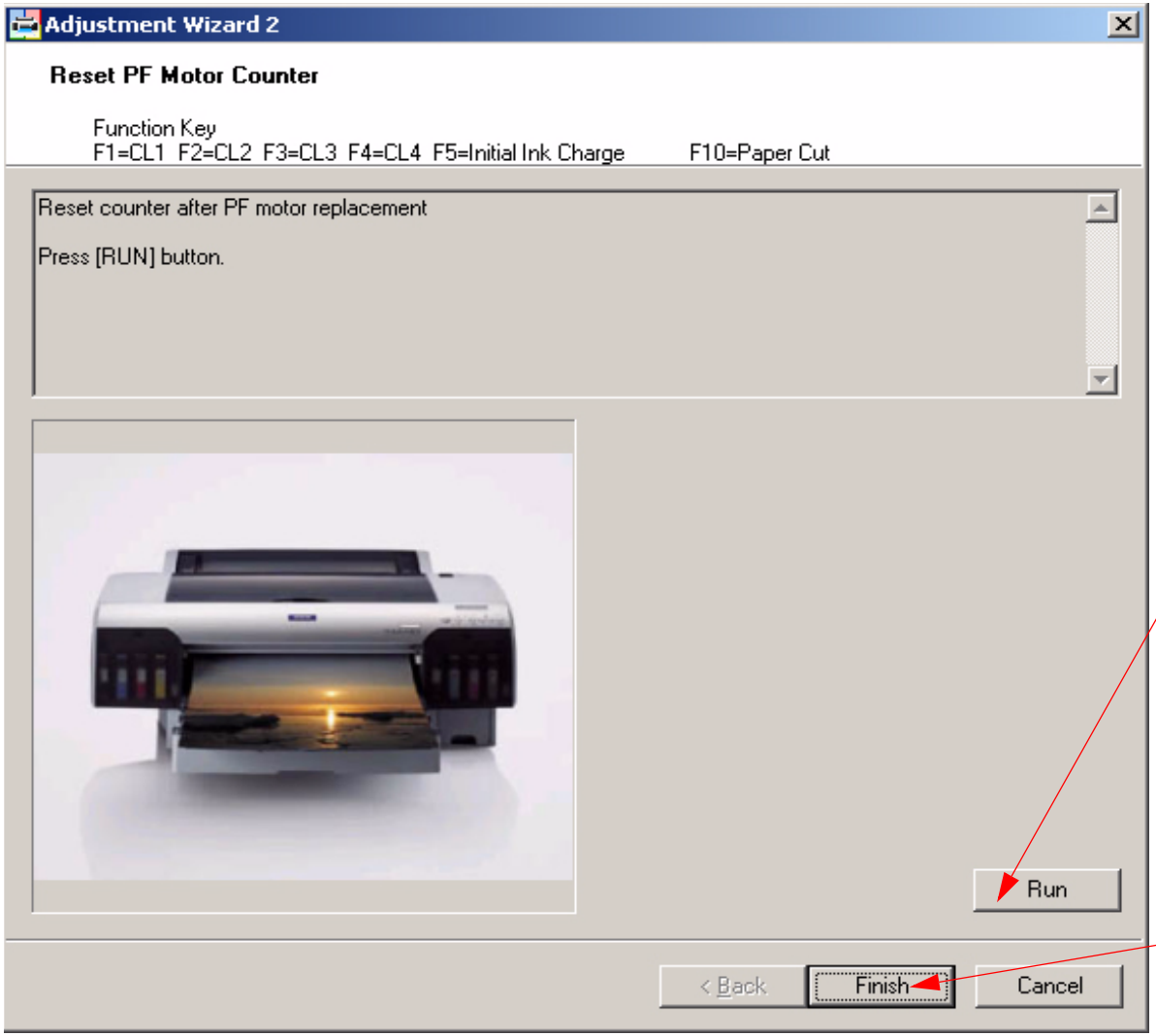
1. Click on **Run** to reset the ***Paper Exit Roller*** counter.

2. Click on **Finish** when done.

Reset PF Motor Counter

Note: Reset PF Motor Counter is used to reset the Paper Feed Motor counter.

1. From the **Adjustment Wizard** for the Pro 4000, select **Reset PF Motor Counter.**



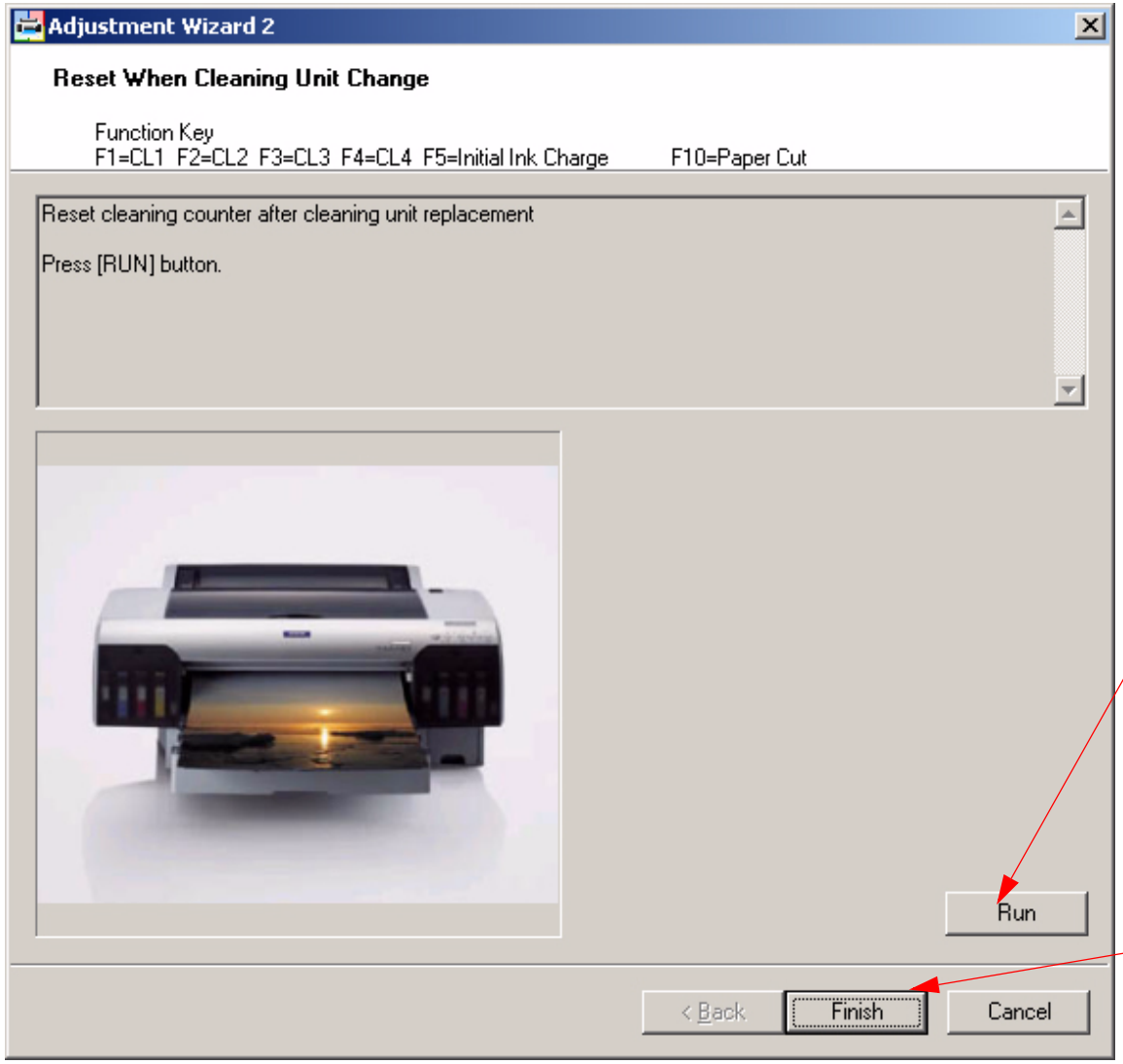
1. Click on **Run** to reset the ***Paper Feed Motor*** counter.

2. Click on **Finish** when done.

Reset When Cleaning Unit Change

Note: Rest When Cleaning Unit Change is used to reset the Cleaning Unit counter.

1. From the **Adjustment Wizard** for the Pro 4000, select **Check Nozzle.**



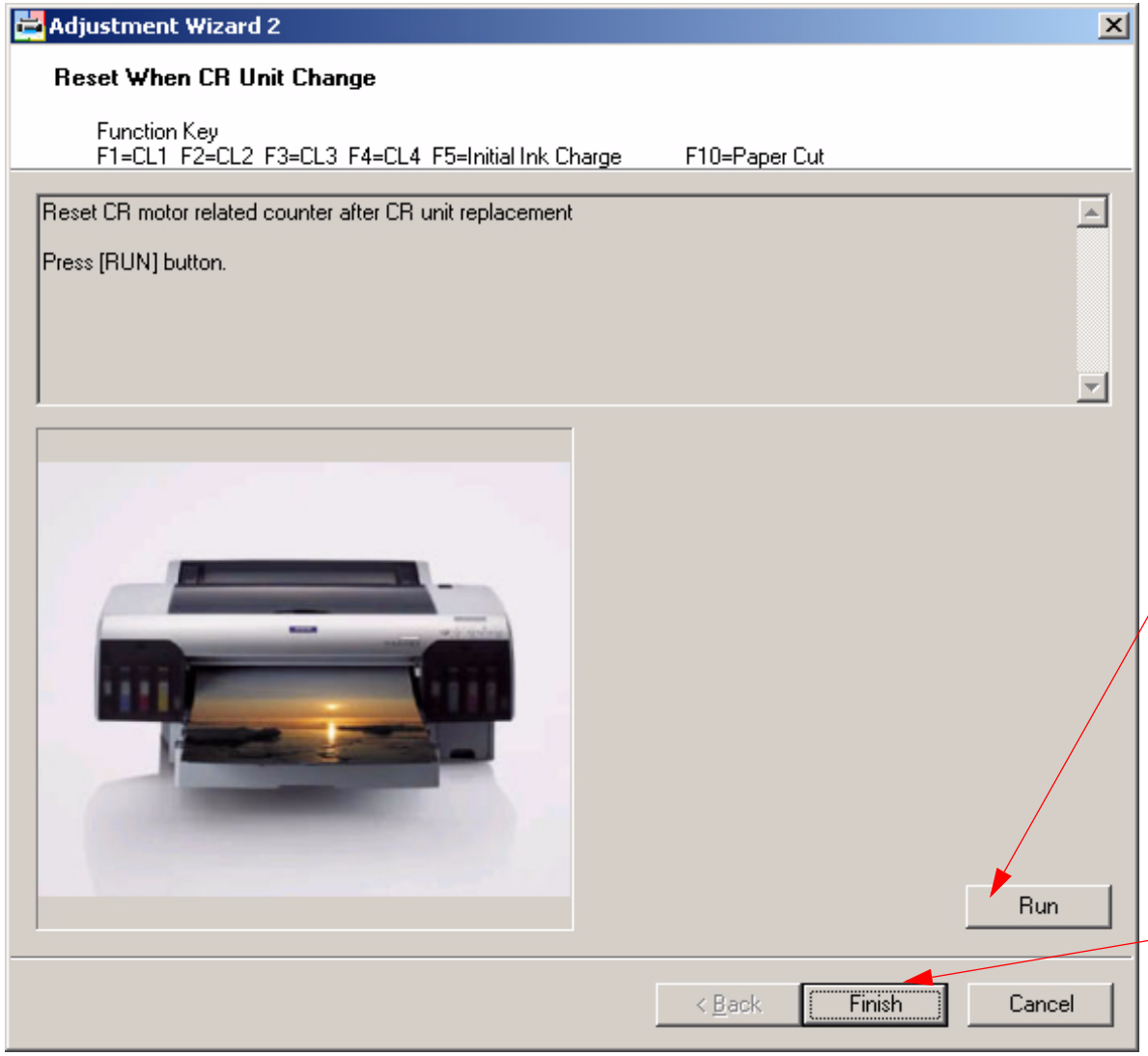
1. Click on **Run** to reset the ***Cleaning Unit*** counter.

2. Click on **Finish** when done.

Reset When CR Unit Change

Note: Reset When CR Unit Change is used to reset the Carriage Unit counter.

1. From the **Adjustment Wizard** for the Pro 4000, select **Reset When CR Unit Change.**



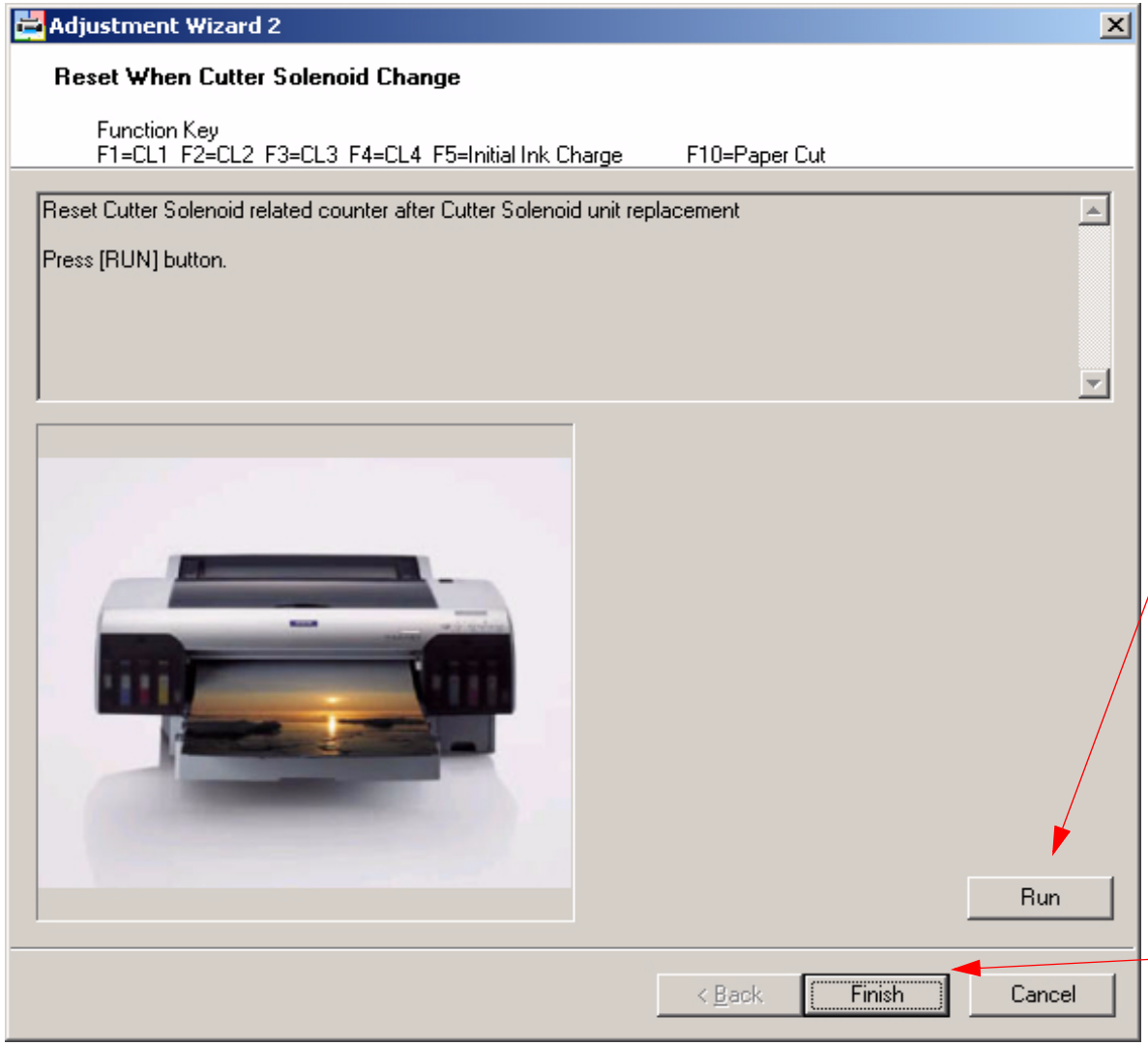
1. Click on **Run** to reset the Carriage Unit counter..

2. Click on **Finish** when done.

Reset When Cutter Change

Note: Reset When Cutter Change is used to reset the Cutter Solenoid life counter.

1. From the **Adjustment Wizard** for the Pro 4000, select **Reset When Cutter Change.**



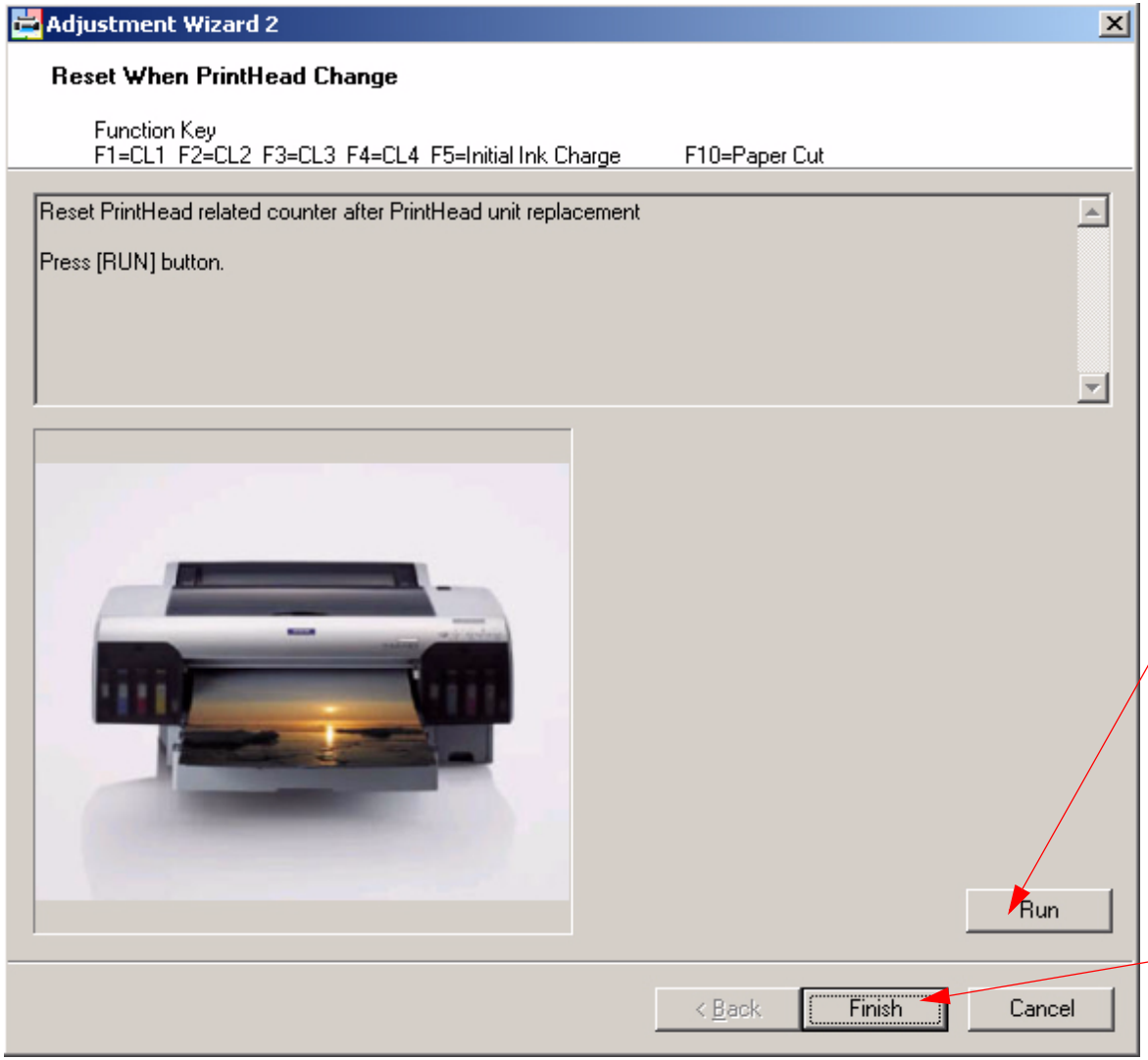
1. Click on **Run** to reset the ***Cutter Solenoid*** life counter.

2. Click on **Finish** when done.

Reset When Print Head Change

Note: Reset When Print Head Change is used to reset the Print Head life counter.

1. From the **Adjustment Wizard** for the Pro 4000, select **Reset When Print Head Change.**

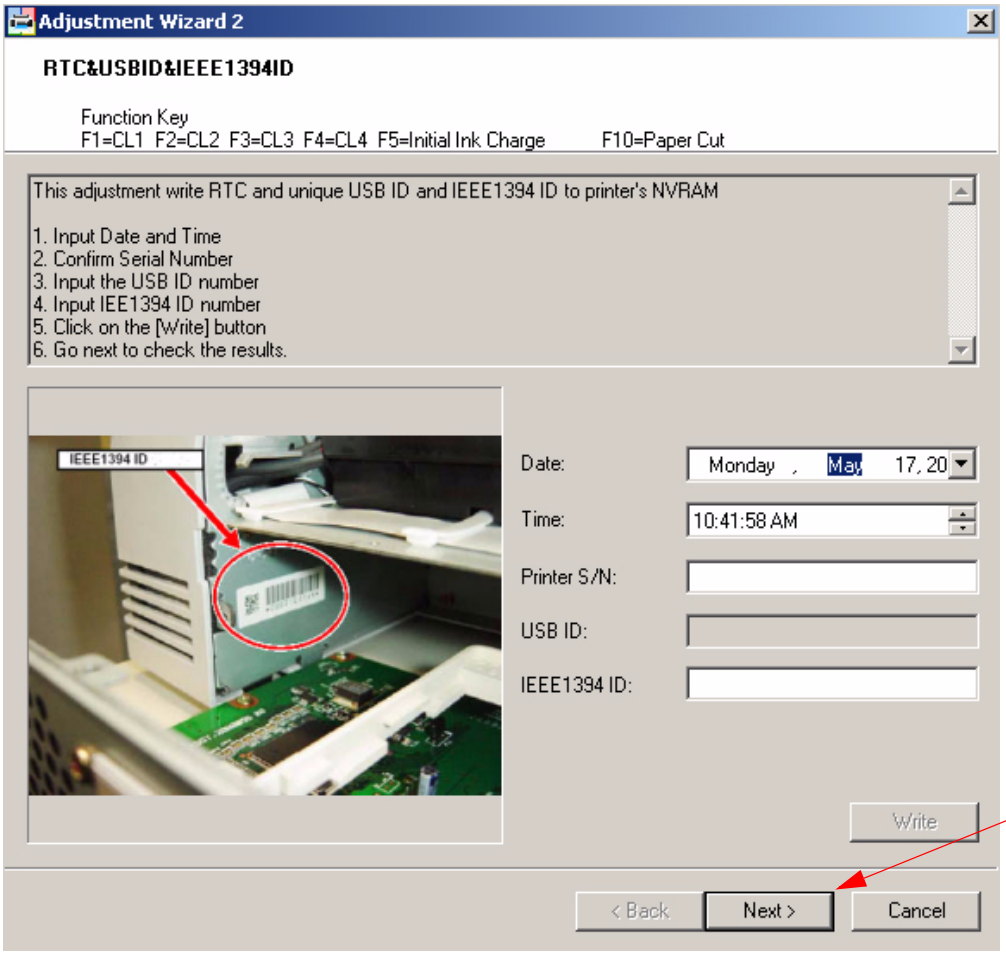


1. Click on **Run** to reset the ***Print Head*** life counter.

2. Click on **Finish** when done.

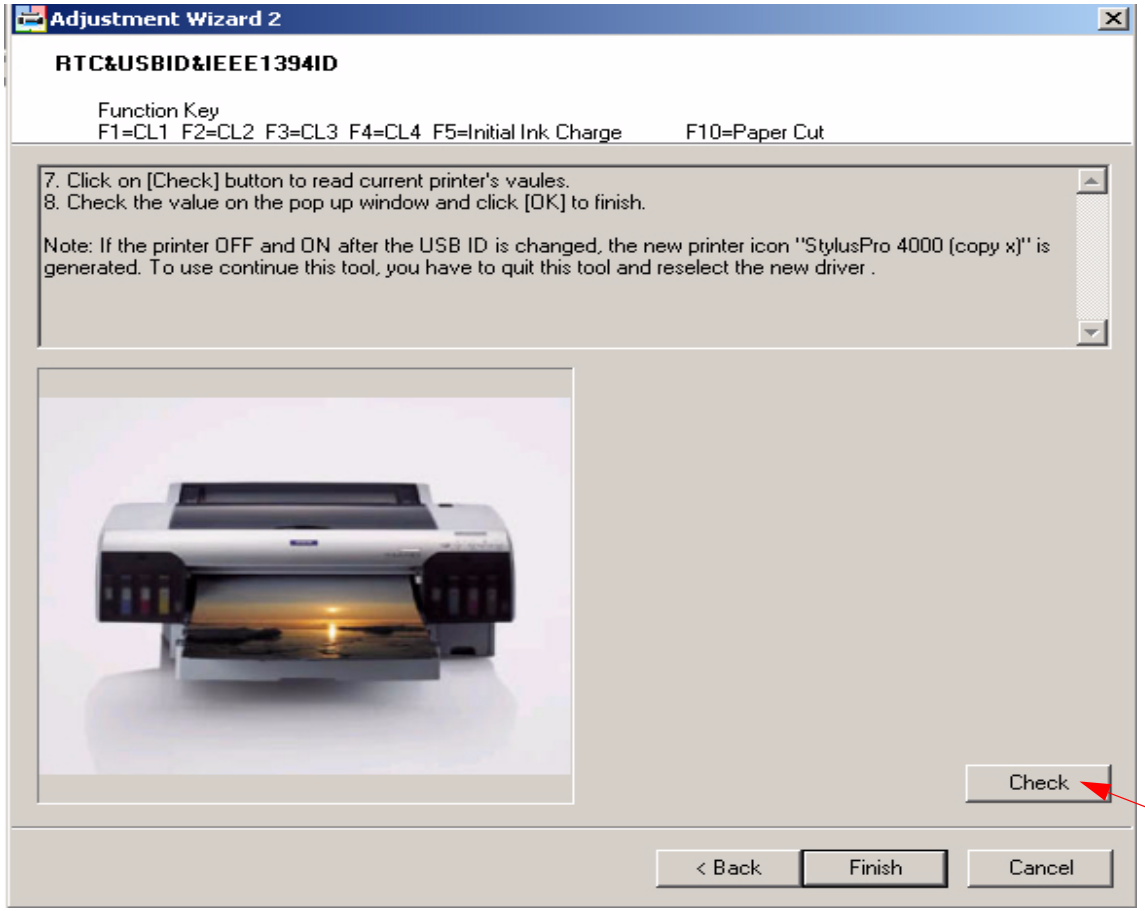
RTC & USB & IEEE1394ID Adjustment

1. From the **Adjustment Wizard** for the Pro 4000, select the **RTC & USB & IEEE1394ID Adjustment**.

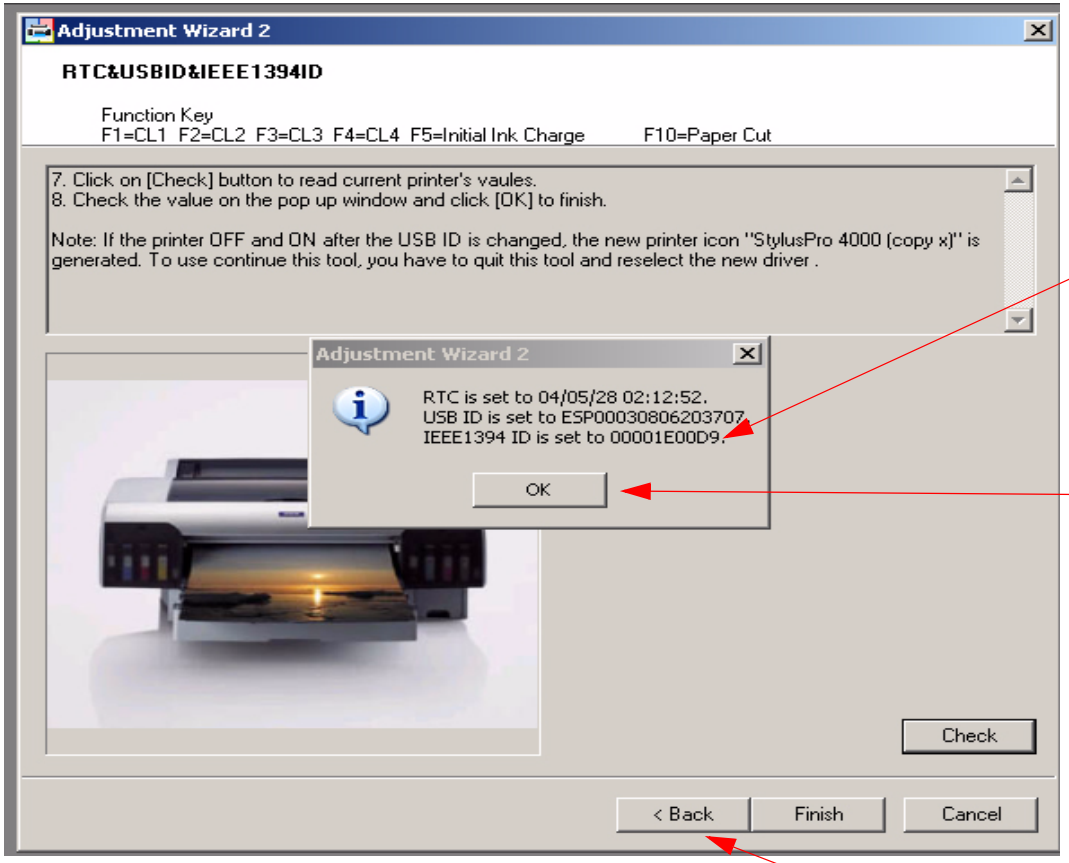


Note: The order that is indicated by the following steps is important. The utility will not activate the **Write** button unless the proper order is observed.

1. Before entering any data, click on the **Next** button.



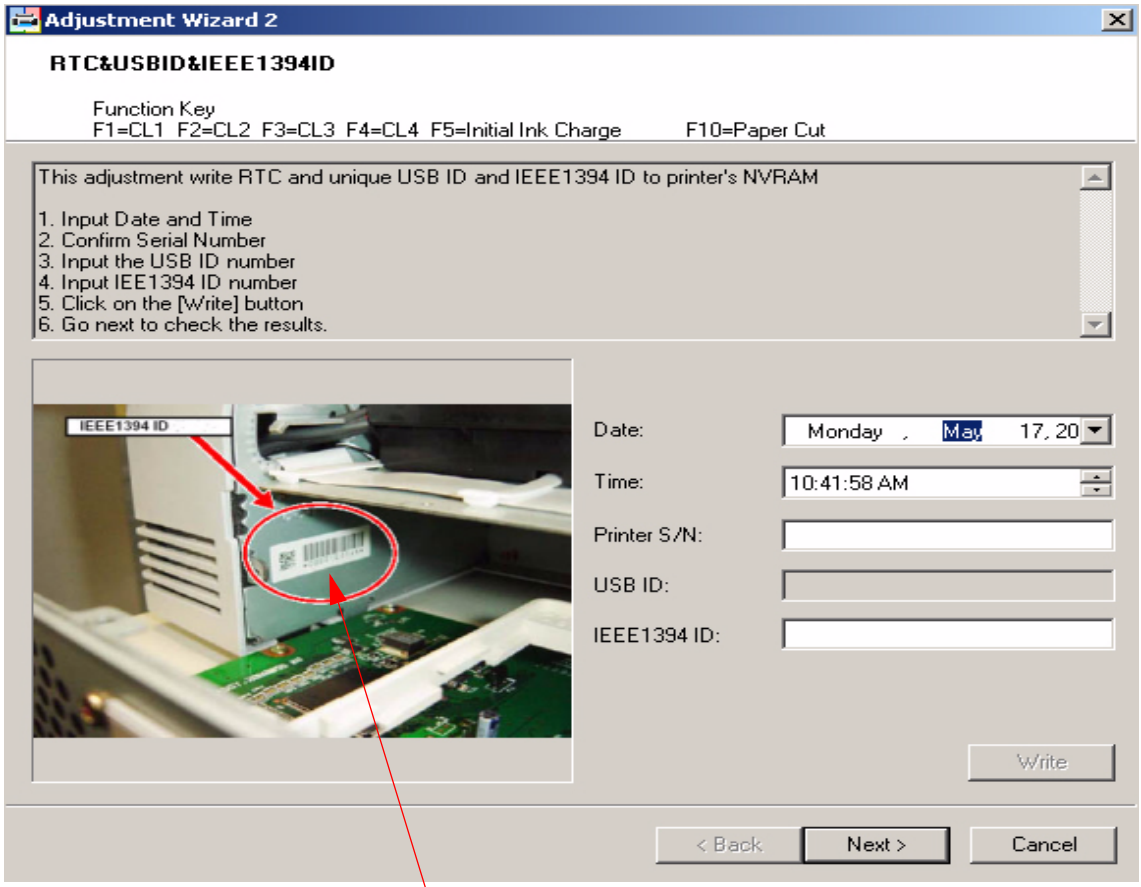
2. Click on the ***Check*** button to display the IEEE1394 I.D.



3. Write down the IEEE1394 I.D.

4. Click on the ***OK*** button.

5. Click on the ***Back*** button.



Note: The IEEE1394 I.D. is written on a label, that is located in the ***Main Board Cavity***.

6. Verify that the Date and Time information is correct. It can be adjusted if necessary.

7. Enter the IEEE1394 I.D.

8. Enter the ***Printer's*** serial number.

9. Click on the ***Write*** button to send the data to the printer.

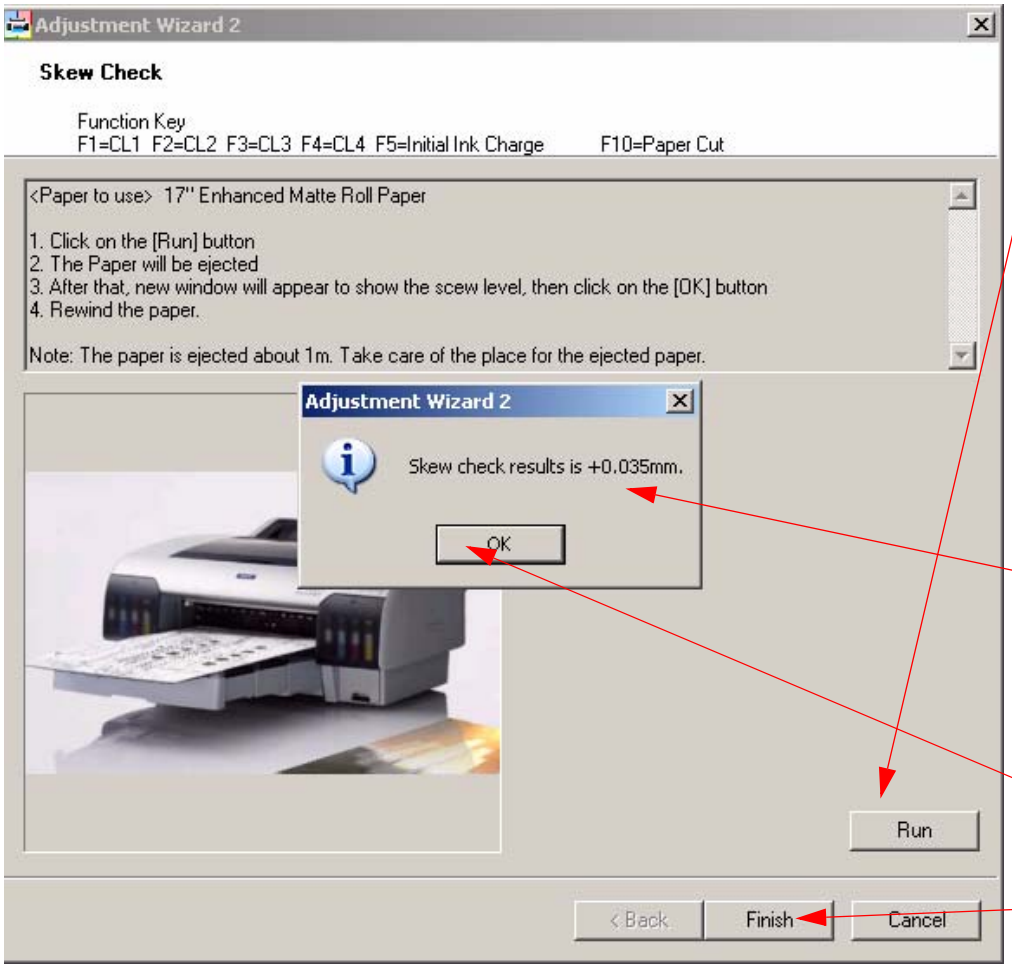
Note: The IEEE1394 I.D. must be entered before the Printer's serial number, for the **Write** button to be activated.

Note: An IEEE1394 I.D. can be generated by using the following syntax: ***0001EXXXX***, where XXXX = the last 4 digits of the ***Printer's*** serial number.

Skew Check

1. Load 17” Enhanced Matte roll paper.

2. From the **Adjustment Wizard** for the Pro 4000, select the **Skew Check.**



1. Click on the **Run** button.

2. The ***Printer*** will feed 1 meter of paper.

3. The ***Printer*** measure the amount of paper skew using the ***Multi Sensor***, and display the results.

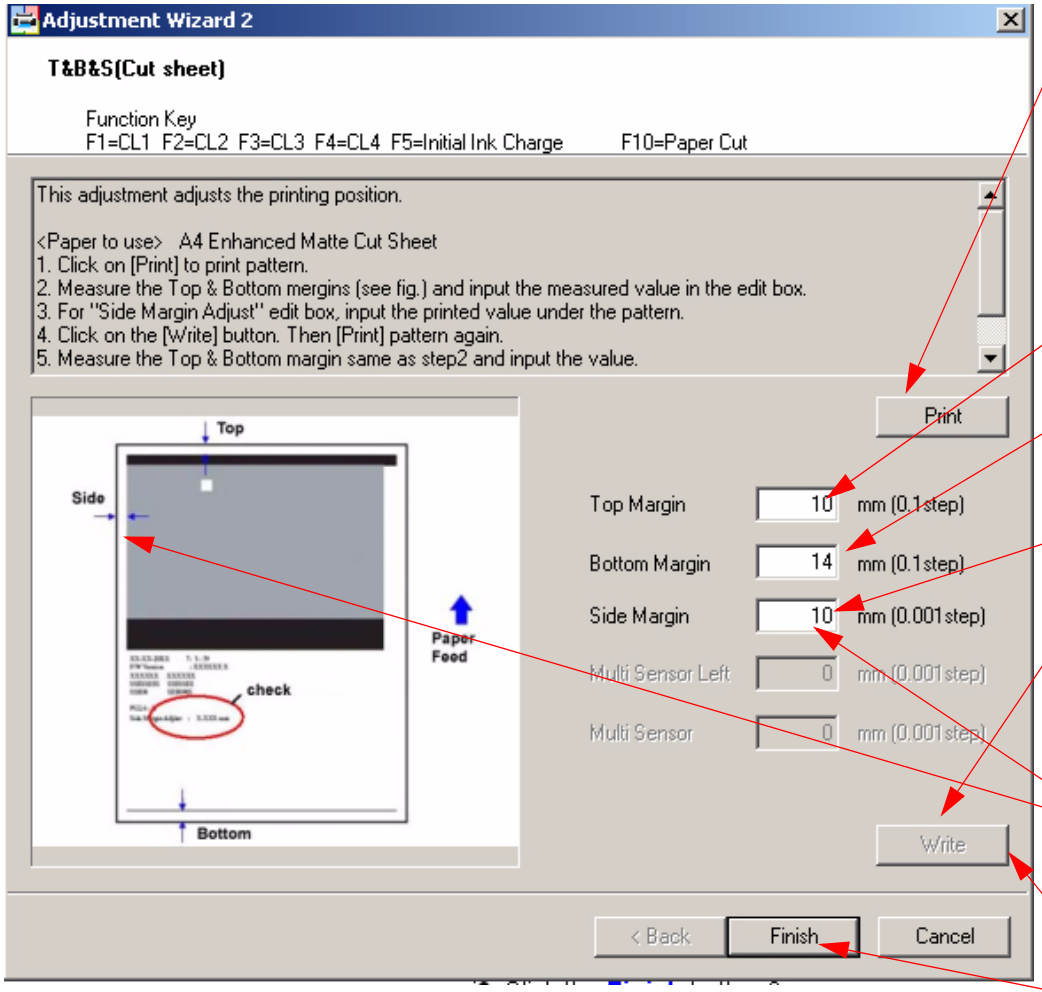
4. Click on the **OK** button.

5. Click the **Finish** button.

T&B&S [Cut Sheet] Adjustment

1. Load A4 Enhanced Matte cut sheet paper.

2. From the **Adjustment Wizard** for the Pro 4000, select the **T&B&S [Cut Sheet].**



1. Click on the **Print** button.

2. The ***Printer*** will print out this pattern, and measure the side margin using the ***Multi Sensor***.

3. Measure the top (leading edge) margin, and enter the value measured.

4. Measure the bottom (trailing edge) margin, and enter the value measured.

5. Enter the side margin value printed on the print out, labeled “Side Margin Adjust”.

6. Click the **Write** button.

7. Repeat Steps 1 - 4.

8. Measure the side margin, and enter the value.

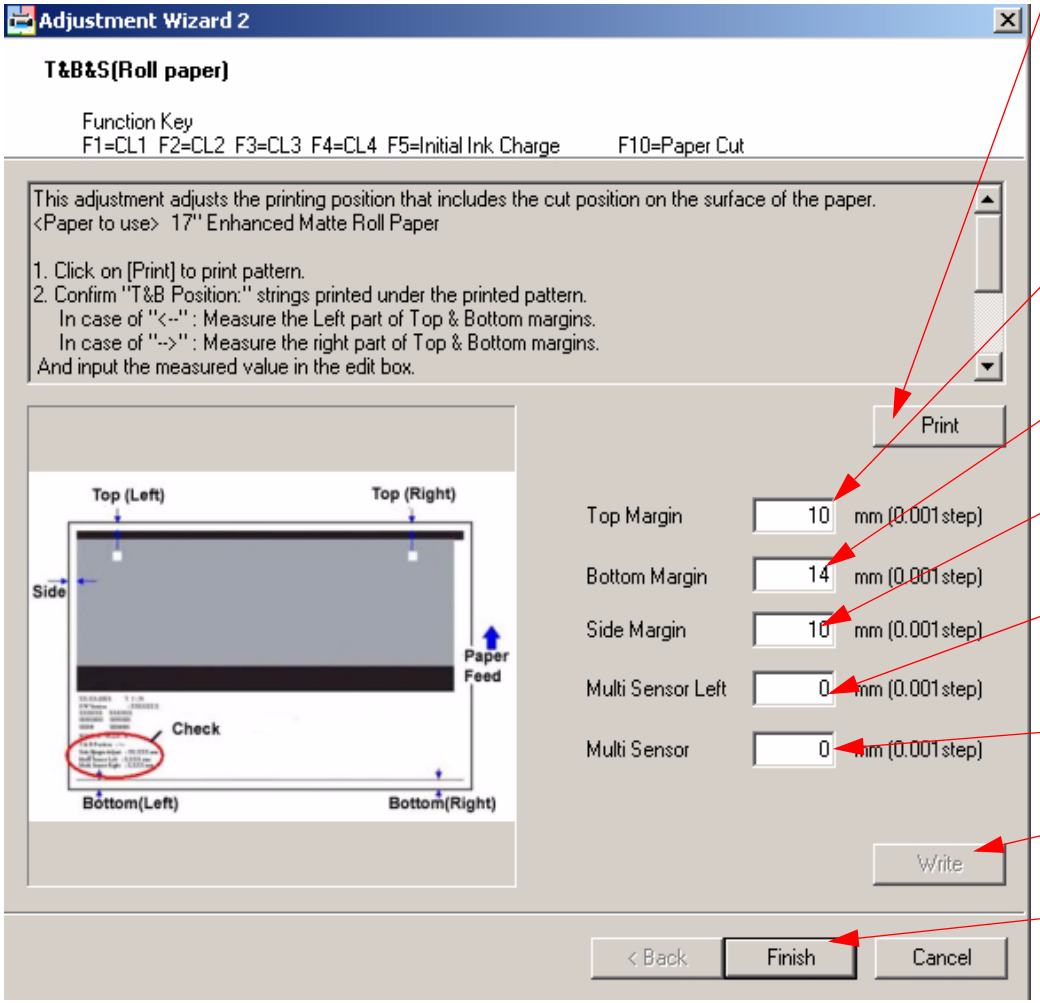
9. Click the **Write** button.

10. Click the **Finish** button.

T&B&S [Roll Paper] Adjustment

1. Load 17” Enhanced Matte roll paper.

2. From the **Adjustment Wizard** for the Pro 4000, select the **T&B&S [Roll Paper].**



1. Click on the **Print** button.

2. The ***Printer*** will print out this pattern, and measure the Side Margin, the Multi Sensor Left, and the Multi Sensor Right values using the ***Multi Sensor***.

3. Measure the top (leading edge) margin, and enter the value measured.

4. Measure the bottom (trailing edge) margin, and enter the value measured.

5. Measure the side margin (home position side), and enter the value measured.

6. Enter the Multi Sensor Left value printed on the print out, labeled “MS Left”.

7. Enter the Multi Sensor value printed on the print out, labeled “MS Right”.

8. Click the **Write** button.

9. Click the **Finish** button.

Reference

Accessories List

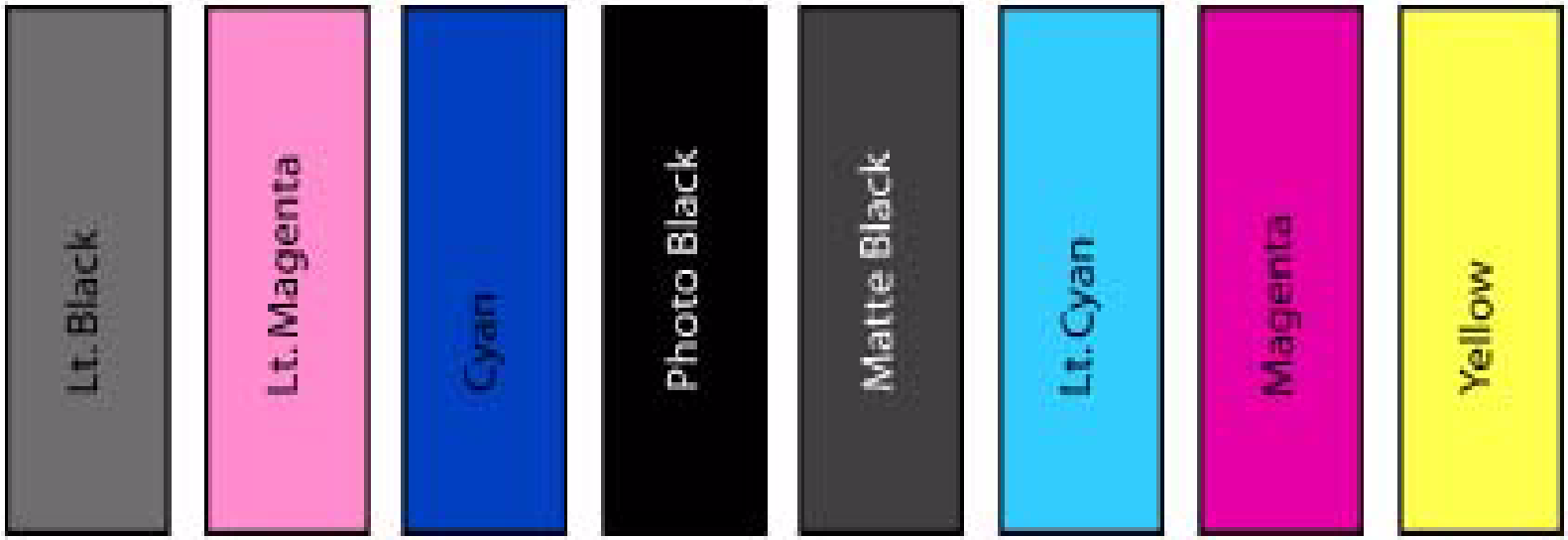
Sales Part Number	Description
C4000STAND	Printer Stand
C12C811171	2”/3”, 17” Normal Tension Media Spindle
C12C811191	2”/3”, 17” High Tension Media Spindle
C12C815291	Cutter Blade
C12C824052	Multi-protocol 10/100 Base-T Type B Ethernet Interface Card
C12C8890071	Maintenance Tank

Cleaning Fluid

Note: Cleaning fluid for the Pro 4000 is unique. It is an improved formula for pigmented ink.

Part #: ***1243924***
Description: ***Cleaning Liquid Cartridge***.

Color Order on the Print Head



User Nozzle Check Color Order (Stair Step) (Listed Left to Right)

1. ***Matte Black***
2. ***Cyan***
3. ***Magenta***
4. ***Yellow***
5. ***Photo Black***
6. ***Light Cyan***
7. ***Light Magenta***
8. ***Light Black***

Consumable/Service Parts List

Ink is intended as a service tool (Warranty Service Only), and is not for sale. Use the Service Part Number, and claim it on a warranty form.

Service Part #	*Sales Part #*	*110 ML (Pro 4000/7600/9600)*	*ECCC Cost after 40% discount*
1103969	T543100	UltraChrome Photo Black	***Warranty use only***
1103970	T543200	UltraChrome Cyan	***Warranty use only***
1103971	T543300	UltraChrome Magenta	***Warranty use only***
1103972	T543400	UltraChrome Yellow	***Warranty use only***
1103973	T543500	UltraChrome Light Cyan	***Warranty use only***
1103974	T543600	UltraChrome Light Magenta	***Warranty use only***
1103975	T543700	UltraChrome Light Black	***Warranty use only***
1103976	T543800	UltraChrome Matte Black	***Warranty use only***

Service Part #	*Sales Part #*	*110 ML (Pro 4000/7600/9600)*	*ECCC Cost after 40% discount*
1103985	T545100	Dye Black (2 required)	***Warranty use only***
1103986	T545200	Dye Cyan	***Warranty use only***
1103987	T543300	Dye Magenta	***Warranty use only***
1103988	T543400	Dye Yellow	***Warranty use only***
1103989	T543500	Dye Light Cyan	***Warranty use only***
1103990	T543600	Dye Light Magenta	***Warranty use only***

Service Part #	*Sales Part #*	*Roll Paper*	*ECCC Cost after 40% discount*
WAS041725	SO41725	Enhanced Matte 17” x 100’ roll	**$35.97**
WAS041387	SO41387	Double Weight Matte 44” x 82’ roll	**$59.40**
WAS041385	SO41385	Double Weight Matte 24” x 82’ roll	**$36.00**
WAS041737	SO41737	Premium Luster Photo (250) 16” x 100’ roll	**$59.97**
WAS041004	SP91004	Photo Semigloss 44” x 100’ roll	**$113.40**
WAS041022	SP91022	Photo Semigloss 24” x 100’ roll	**$64.80**

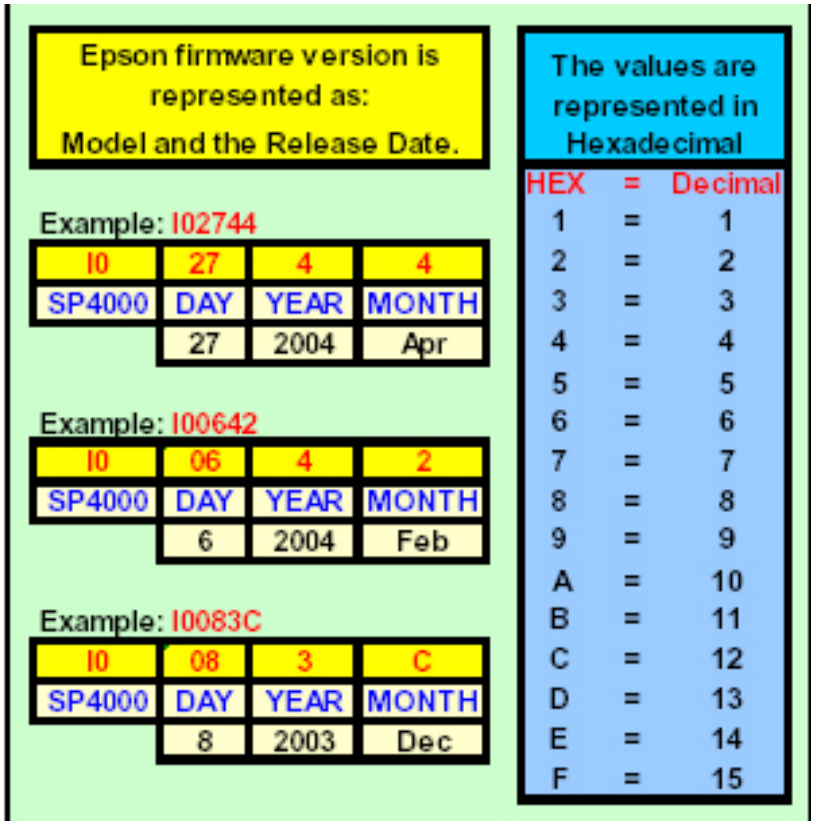
Maintenance Tank And 220 ml Ink Cartridges are available through Sales Channels only.

Sales Part Number	**Description**
C12C8890071	Maintenance Tank

Sales Part Number	***220 ML (Pro 4000/7600/9600)***
T544100	UltraChrome Photo Black
T544200	UltraChrome Cyan
T544300	UltraChrome Magenta
T544400	UltraChrome Yellow
T544500	UltraChrome Light Cyan
T544600	UltraChrome Light Magenta
T544700	UltraChrome Light Black
T544800	UltraChrome Matte Black

Firmware History

This chart explains the meaning of the firmware version characters.



Stylus Pro 4000 Current Firmware Ver. I02552.upg

Release date: 02/25/05

1. The ***Exit Roller*** setting was changed to minimize “Pizza Wheel” marks when printing on cut sheet paper and/or using the front manual feed.

2. The paper loading routine was modified to minimize **Paper Jam** errors with thin media, such as

Tracing Paper, Single Weight Matte Paper, and Plain Paper.

3. The **SSCL** (Super Strong Cleaning Cycle) was modified to increase the ultrasonic portion of the cleaning cycle. The ultrasonic portion (strong piezo vibration) assists in disolving deposits on the nozzle plate. Additonally the **SSCL** was limited to 251 cleanings to protect the ***Print Head***.

Stylus Pro 4000 Firmware Ver. I02851.upg

Release date:01/28/05

1. The firmware was modified to eliminate the clipping of images (top and bottom) when using RIP's including ColorBurst.

Stylus Pro 4000 Firmware Ver. I0154B.upg

Release date:11/15/04

1. With earlier versions of firmware, at power up, a sheet may feed from the paper tray. With this version of firmware, a sheet is no longer fed at power up.

Stylus Pro 4000 Ver. I0204A.upg

Release date:10/20/04

1. This firmware version corrects centering issues at 1440 dpi on Single Weight Matte, Enhanced Matte, Photo Quality Ink Jet Paper, and Archival Matte sheet media.

Stylus Pro 4000 Ver. IO2146.upg

Release date: June 21, 2004

1. “Communication Errors” via a FireWire IEEE1394 connection under Mac OS X and Windows XP are corrected.
2. The message “DRIVER INK SETTING IS WRONG” is displayed if their is a mismatch between the printers panel ink setting and the driver setting. Previously a command error was reported.
3. To reduce noise when the printer is turned on, the fan on the main board is turned off.
4. “UNLOCK PRINT HEAD” is displayed before the initial ink charge if the carriage is locked.
5. Corrects the condition that resulted in a maintenance call “0080” (date and time not set) when the printer is first turned on.
6. Custom paper configuration can be enabled in the Driver or the printers Custom Paper Menu selection not both.
7. A paper size error no longer occurs when switching between manual feed and the paper cassette when the paper feed button is used.
8. The noise associated with loading Roll paper is reduced.
9. Nozzle loss caused by a print head cleaning is improved by a change to the print head cleaning process.
10. When the printer is idle the fan on the main board is turned off making the printer quieter.
11. Tracing paper media support improved.

12. Corrects Service Request 00010007 (carriage motor timing) when the printer is powered on.
13. When loading media eliminates damage to the leading edge of the media.
14. The “Auto Nozzle Check” from the EPSON Service Utility 2 now functions correctly and ejects the media.
15. Ink smudges on the edges of the media are eliminated when performing border less printing.
16. The print head cleaning operation was modified to correct issues related to nozzle loss, air bubbles on the cap assembly, and cross color contamination.
17. Yellow now prints correctly at the right side of an image when the image size is 1.1mm wider then the media.
18. Horizontal banding is corrected for the following medias: Single weight Matte Paper, Photo Quality Ink Jet Paper, Premium Luster Photo Paper (250) Roll, Premium Luster Photo Paper (250) Cut sheet, and Premium Semimatte Photo Paper (250) Cut sheet by improvements made to the paper feed adjustment values for each media.

19. An additional Yellow test pattern was added to the auto nozzle.
20. Erroneous paper eject service request 00010033 error is corrected by reducing chatter in the paper eject system.
21. The Dual CMYK ink set change function is removed. (Dual CMYK is not a supported model in the US)
22. Automatic Sheet Feeder service request message 00010031 is now reported correctly.
23. Auto nozzle check pattern, Auto Uni-d/Bi-d adjustment, Status sheet, and the Job information sheet print correctly on any size media.

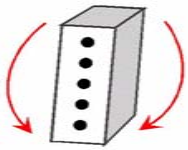
Firmware Update Procedure

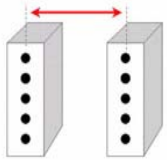
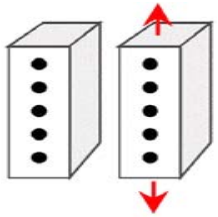
Note: This procedure is used to update or install firmware. It is the service method because it does not require the Printer to be "Online" to work.

1. Turn on the ***Printer*** while depressing the **Up**, **Down**, **Left,** and ***Right*** buttons.
   1.1 The ***Printer*** will display ***UPDATE F/W***
2. Using **PRNPRINT.EXE** transmit the current firmware to the ***Printer***.
   2.1 The Printer will display **F/W Updating.**
   2.2 The Printer will display **Update Complete.**
   2.3 The Printer will display **Please Wait.**
   2.4 The Printer will re-initialize and display **Ready**.

Glossary

Artifact	A defect, that is within an image. It can mean something on the graphic that was not intended, or something missing that was intended. All image quality defects are artifacts.
Bi-Directional Adjustment:	An electronic adjustment, that ensures that a printer can coordinate left to right, with right to left, printing.
Capped Position:	The print head at it's stand by position, with the cap mechanism sealing the nozzles.
Coating:	The top layer of graphics paper (media) that consists of a special substance designed to trap ink and keep it from being absorbed into the paper fibers. Non-paper based ink jet media uses coating to allow the ink to bond with the surface. A coatings purpose is to minimize dot gain, and control saturation.
Color Shift:	An unintended change of a gradient or tone.
Continuous Tone:	The qualities of a photograph that makes an image appear real. The smooth and life-like transition from one color shade to the next, like in a photograph. Epson Ink Jet printers are not continuous tone printers. But when working properly, their printed images fool the human eye into seeing continuous tone transitions.
Debris:	A term that refers to unintended ink on the page deposited by debris dropping from the print head.
Deflected Nozzle:	A nozzle is firing, but the ink drop is not landing where it is intended too. Irregular spacing on the nozzle check pattern indicates this condition.
Dithering:	The dot pattern placed on the printed surface to create and image. Also known as screening.
Dot Gain:	A drop of ink tends to travel out from its point of impact, as the media absorbs it. The purpose of the coating (on the media) is to minimize dot gain.

Drop of Ink:	Ink that appears to have dripped from the print head, or any other component of the ink supply.
Dye Ink:	Ink that colors the printed surface with dye. It is less durable than pigment ink, but has a wider color range (gamut).
Electronic Alignments:	Printer adjustments, which are performed using software routines that, allow the printer to compensate for physical variations in its mechanism.
Error Diffusion:	The type of dithering (screening) proprietary to Epson, that employs a random dot pattern to ensure that the human eye can discern no pattern.
Flight Time:	The time it takes a drop of ink to travel from the print head to the printable surface.
Gamut:	The range of colors that a printer can produce.
Ghosting:	A term that refers to components of an image that are intended to be on top of each other (or adjacent), but are offset.
Gradient:	A smooth transition between one color shade, and the next. A continuous tone image requires a smooth gradient for all its tonal shifts.
Grainy:	A breakdown of the “illusion of continuous tone”. A printed image that does not have smooth tonal transition, and sharp detail.
Head Angular Adjustment:	A term that refers to a mechanical print head alignment that ensures that an ink jet’s print heads nozzles are on the same vertical plane. (Also known as the B head slant or the C head slant.) The head is rotated until it is vertically linear. 

Head Gap Adjustment:	An electronic print head adjustment that ensures that the printer knows the exact distance between nozzle sets on separate heads. Also known as Head L/R and Uni-Di... 
Head ID:	The calibration value written on the print head that allows the printers electronics to compensate for the print heads “personality” (inaccuracies).
Head Linear Adjustment:	A mechanical print head alignment that ensures that on a two-head ink jet printer that all the nozzles are on the same horizontal plane. (Also known as Head Height and BC Head Slant.) The right head is moved in relation to the left head. 
Home Position:	The print head’s horizontal reference position, as determined by the Home Position Sensor
Horizontal Banding:	An image defect that extends from the left, to the right margin (parallel to the direction of print head movement). The defect could be a lighter or darker “band” than is intended. It usually repeats, with the same interval, from the top margin to the bottom.).
Horizontal Over-lap:	A type of horizontal banding, where multiple print head passes overlap while printing. The banding looks darker than the intended image. Multiple passes of the print head should place ink on the paper next to, but not on top of earlier passes.

Horizontal Under-lap:	A type of horizontal banding, where multiple print head passes have a space between them. The banding looks lighter than the intended image. Multiple passes of the print head should place ink on the paper exactly next to earlier passes with no space in between.
Illusion of Continuous Tone.	A term that refers to “fooling” the human eye into perceiving a dot matrix image as a photograph (continuous tone image). Epson ink jet printers are not continuous tone printers. However, when working properly, their printed images fool the human eye into seeing continuous tone transitions
Ink Color Contamination:	The intended color of the ink supply has been altered.
Ink Impurities:	Foreign objects in the ink supply.
Margin Shift:	A term that refers to an image with irregular right and left side margins.
Mechanical Alignments:	Printer adjustments, that requires physically moving parts of the mechanism.
Media:	The surface that is being printed on, usually paper.
Metamerism:	The different appearance of colors caused by different light sources and viewing angles
Micro Weave:	The way an Epson Ink Jet printer interlaces (weaves) bands of and image during printing.
Moiré Pattern:	A repetitive pattern, within an image, which is not intended. I can appear like a paisley or herringbone pattern.
Over Saturation:	Too much ink has been applied to the printable surface for the media to support.
Paint Brush Effect:	Something horizontally across the printed surface, that was not intended. Usually caused by an ink soaked fiber hanging off the print head.
Pigment Ink:	Ink that deposits colored particles (pigment) on the printed surface to create an image. It is more durable than dye based ink, but does not have as wide a color range (gamut).

Pixilated:	An image quality issue that is caused by a low-resolution image printed at high resolution.
Platen Gap:	The distance between the print head, and the printable surface.
Rippling:	A term that refers to a condition caused by over saturated paper warping.
Saturation:	The amount of ink applied to the printed surface.
Screening:	The dot pattern placed on the printed surface to create and image. Also known as dithering.
Skew:	Crooked paper in the printer.
Smear:	An image that has been rubbed by something, causing it to be deformed, or smeared. The direction or any repetition of the smear should be noted.
Smudge:	Something on the printed surface, that was not intended. Usually transferred to the page because of contact with a dirty roller or the print head. Any repetition should be noted and measured.
Sublimation Ink:	Ink that is first printed on thermal transfer media, and then transferred using heat to another surface.
Sympathetic Nozzle:	A nozzle that is not intended to fire, firing in conjunction with an intended nozzle.
Tone:	The specific shade of a color.
Under Saturation:	Not enough ink has been applied to the printable surface to properly saturate the media.
UN-sharp:	“Fuzzy “qualities in an image usually caused by too much dot gain.
Vertical Banding, Irregular:	Vertical bands perpendicular to the direction of print head movement, that are not linear. Usually created by paper “rippling”, caused by over saturation.

Vertical Banding, Linear:	An image defect that extends from the top, to the bottom margin (perpendicular to the direction of print head movement). It usually repeats, with the same interval, from the left margin to the right.
White Specks:	A term that indicates that the intended image has small missing areas where no ink has been deposited.

Ink Draining Procedure

1. Press and hold the **Left**, **Down**, and **Up** buttons, and turn on the ***Printer*** (Maintenance Mode 2).
2. Using the **Down** button, navigate to **Self Testing: Adjustment:** and press the **Menu** button.
3. Using the **Down** button, navigate to **ADJ: Ink Drain:** and press the **Menu** button to start the procedure.
4. Follow the directions displayed by the ***Printer's LCD***.

Ink Tube Order

Note: This chapter documents the order that the Ink Tubes are connected to the Print Head.

The Ink Tube/Print Head color order is listed left to right.

1. ***Light Black***
2. ***Light Magenta***
3. ***Light Cyan***
4. ***Photo Black***
5. ***Matte Black***
6. ***Cyan***
7. ***Magenta***
8. ***Yellow***

User Nozzle Check Color Order (Stair Step) (Listed Left to Right)

1. ***Matte Black***
2. ***Cyan***
3. ***Magenta***
4. ***Yellow***
5. ***Photo Black***
6. ***Light Cyan***
7. ***Light Magenta***
8. ***Light Black***

Prime, On or Off

Prime, Initial Fill, and Charge mean the same thing. They all refer to filling the Ink System with ink. Controlling the Prime function requires Setting, or Resetting the Init.Fill Flag.

Init.Fill: Reset **= The Printer is already primed.**

Init.Fill: Set **= the Printer will prime the next time it is turned on.**

1. Turn on the ***Printer*** while depressing the **Left**, ***Up***, and ***Down*** buttons. The Printer will display **SELF TESTING**.
2. Press the **Right** button once. The ***Printer*** will display **SELF TESTING: Test**.
3. Press the **Down** button until the ***Printer*** displays **SELF TESTING: Parameter**.
4. Press the **Right** button once. The ***Printer*** will display **Parameter: Initialize**.
5. Press the **Down** button once. The ***Printer*** will display **Parameter: Update**.
6. Press the **Right** button once. The ***Printer*** will display **Update: InkParameter**.
7. Press the **Right** button once. The ***Printer*** will display **Init.Fill: Set**.
   7.1 Press the **Down** button to change between **Init.Fill: Set**, and **Init.Fill: Reset**.
8. Press the **Right** button once. The ***Printer*** will display **Update Param.?**.
9. Press the **Right** button once. The Init.Fill flag will be set.

Revision History

April 28, 2005

The Firmware History chapter was updated.

April 1, 2005

1. 24 troubleshooting chapters were added.
2. A chapter listing service tool part numbers was added.
3. A chapter listing accessory part numbers was added.

March 17, 2005

1. Parameter Backup mode directions were added to the Control Panel Map chapter.
2. A chapter titled Consumable/Service Parts List was added to provide service part #'s for ink and media.

January 7, 2005

1. Initial release.

Sensors, Motors, Solenoids, and Fans

Home Position Sensors:	***Carriage HP Sensor (CR Origin)*** ***Gap HP Sensor (Head Slide)*** ***Pump HP Sensor(Pump)*** ***Exit Roller HP Sensor (POUT)*** ***ASF Roller HP Sensor***
Maintenance/Waste Ink Tank Sensor	***Waste Ink ID (CSIC) (MainteTank)***
Ink Cartridge Sensors:	***Cartridge CSIC's*** (Customer Satisfaction Ink Cartridge (8) ***Ink Cartridge Lock Lever Sensor (2)(Ink Lever)***
Encoders:	***Carriage Encoder*** ***Paper Feed Encode***r
Paper Sensors:	***Manual Feed Sensor (Rear Det)*** ***Paper Empty Sensor (RearAD)*** ***Multi Sensor*** (EdgeAD) (Edge2AD)(Width, Leading Edge, Nozzles, Alignments) ***Paper Thickness Sensor (Paper)(Lever)***(also registers paper release)(2 Sensors) ***ASF Input Sensor (P Det)***
Safety Sensors:	***Top Cover Sensor(Cover)*** ***Rear Cover Sensor(Rear Guide)*** ***Exit Roller Customer Safety Sensor***
Temperature Sensors:	***Head Temperature Sensor*** (Head Temp) ***Head Driver Temperature Sensor*** (Drv Temp)

Motors	***Carriage Motor*** ***Paper Feed Motor:*** turns the ***Paper Feed Roller, Sub Roller*** and the ***Eject Roller*** ***Pump Motor***: also turns the ***Input Roller*** ***Platen Gap Motor:*** also sets the ***Eject Roller*** position, the ***Sub Platen Rib*** position, releases and engages the ***Pressure Rollers*** for the ***Sub Roller***.
Solenoids	***Cutter Blade Solenoid***
Fans	***Head Drive Cooling Fan*** ***Paper Suction Fans*** (2)

Service Procedure

1. Observe the customer's service issue.
2. Update the firmware to the current version if necessary.
3. Repair the customer's service issue.
4. Clean the ***Carriage Rails*** with a dry cloth or paper towel
5. Clean the ***Cap***, ***Wiper Blade***, and ***Wiper Blade Cleaner***.
   - 5.1 Clean the ***Print Head Nozzle Plate*** if necessary.
     - 5.1.1 Loosen the ***Carriage Belt***
     - 5.1.2 Remove the ***Carriage Mechanism*** and clean.
6. Clean and check the ***Borderless Pads***.
7. Blow off the ***Multi Sensor***
8. Check the ***Print Head's*** mechanical alignments
   - 8.1 Perform the **Print Head Slant Adjustment (CR)**
   - 8.2 Perform the **Print Head Slant Adjustment (PF)**
9. Perform the ***Multi Sensor*** **Level Adjustment**.
10. Perform the ***Multi Sensor*** **Adjustment for Auto *Nozzle* Check**.
11. Perform the **Clear Micro Feed PF Adjustment (Bi-D)**

12. Perform the **1000 mm Feed Adjustment**, or **Multi Sensor Auto PF Adjustment**.
13. Perform the **Nozzle Bi-D Adjustment**
14. Perform the **Auto Bi-D Adjustment**
    14.1 Perform **Copy Bi-D variables**
15. Perform the **Auto Uni-D Adjustment**
    15.1 Perform **Copy Uni-D variables**
16. Perform **T&B&S [Roll Paper]** and/or **T&B&S [Cut Sheet]** adjustment.
17. Perform **Reset When CR Unit Change**.
18. Perform **Reset When Cleaning Unit Change**.

Service Tools

Service Part Number	Description
1243924	Cleaning Liquid Cartridge (Requires 8 Cartridges)
1047746	1000 mm Scale (meter stick)
1282354	Multi Sensor Position Tool
1282355	Paper Thickness Sensor calibration tools
1080614	G-26 Grease
1039172	G-46 Grease

Stress Test (Test Image)

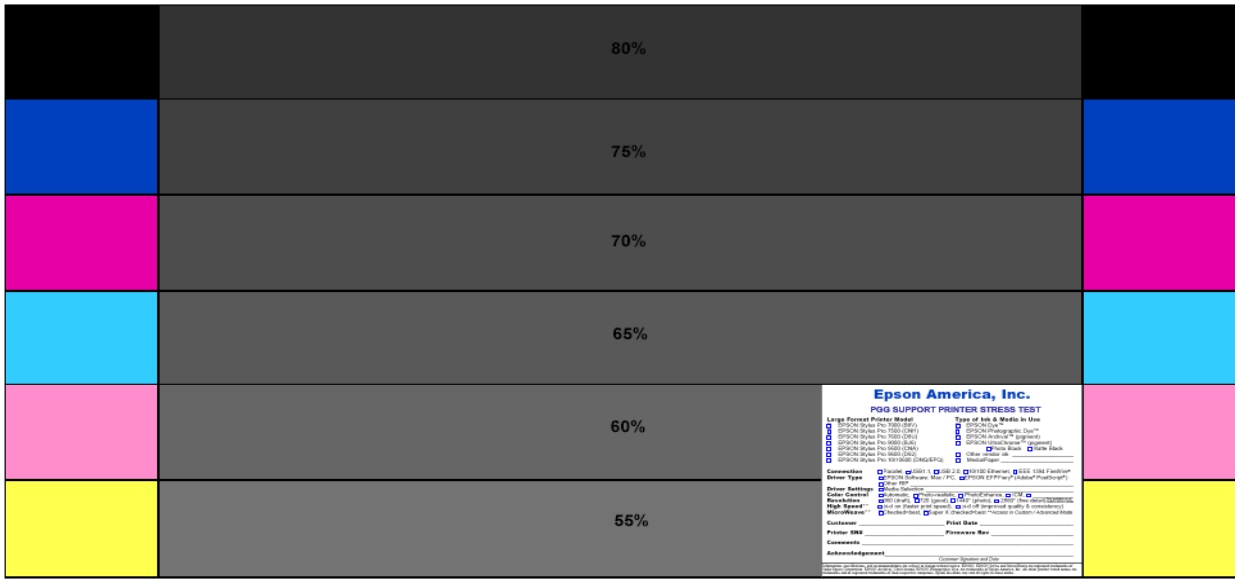
Purpose:

The Printer Stress Test was designed to amplify any print quality issues. It is for diagnosis purposes only. It never looks perfect. There is always some horizontal and vertical banding.

Use:

1. Use it to compare Non-Epson Drivers against the Epson Driver.

2. Use it to look for image quality variances across the entire printable area of the printer.



Is the vertical banding consistent across the entire image?
Is the horizontal banding consistent across the entire image?
Is the density consistent across the entire image?
If the answer to any of the above questions is no, ***Contact Epson***. It may be a parallelism issue.

User Nozzle Check Order

User Nozzle Check Color Order (Stair Step) (Listed Left to Right)

1. ***Matte Black***
2. ***Cyan***
3. ***Magenta***
4. ***Yellow***
5. ***Photo Black***
6. ***Light Cyan***
7. ***Light Magenta***
8. ***Light Black***

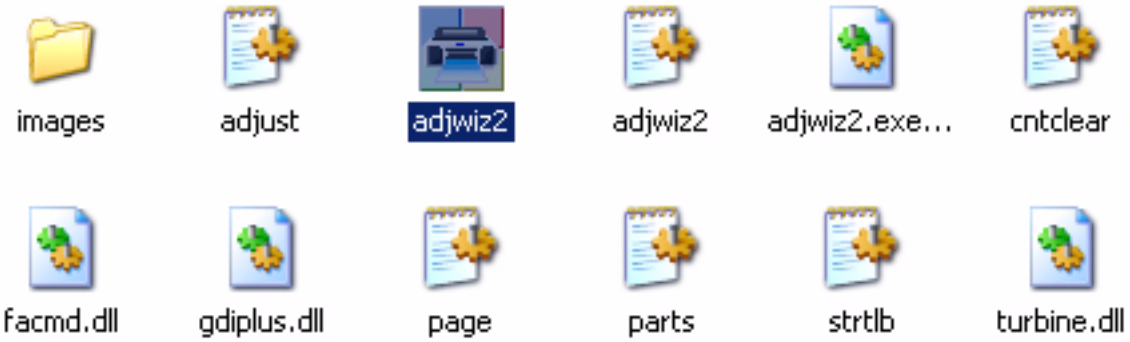
Utilities

Adjustment Wizard2

Note: The Adjustment Wizard is the utility that enables electronic and mechanical alignments of the Pro 4000.

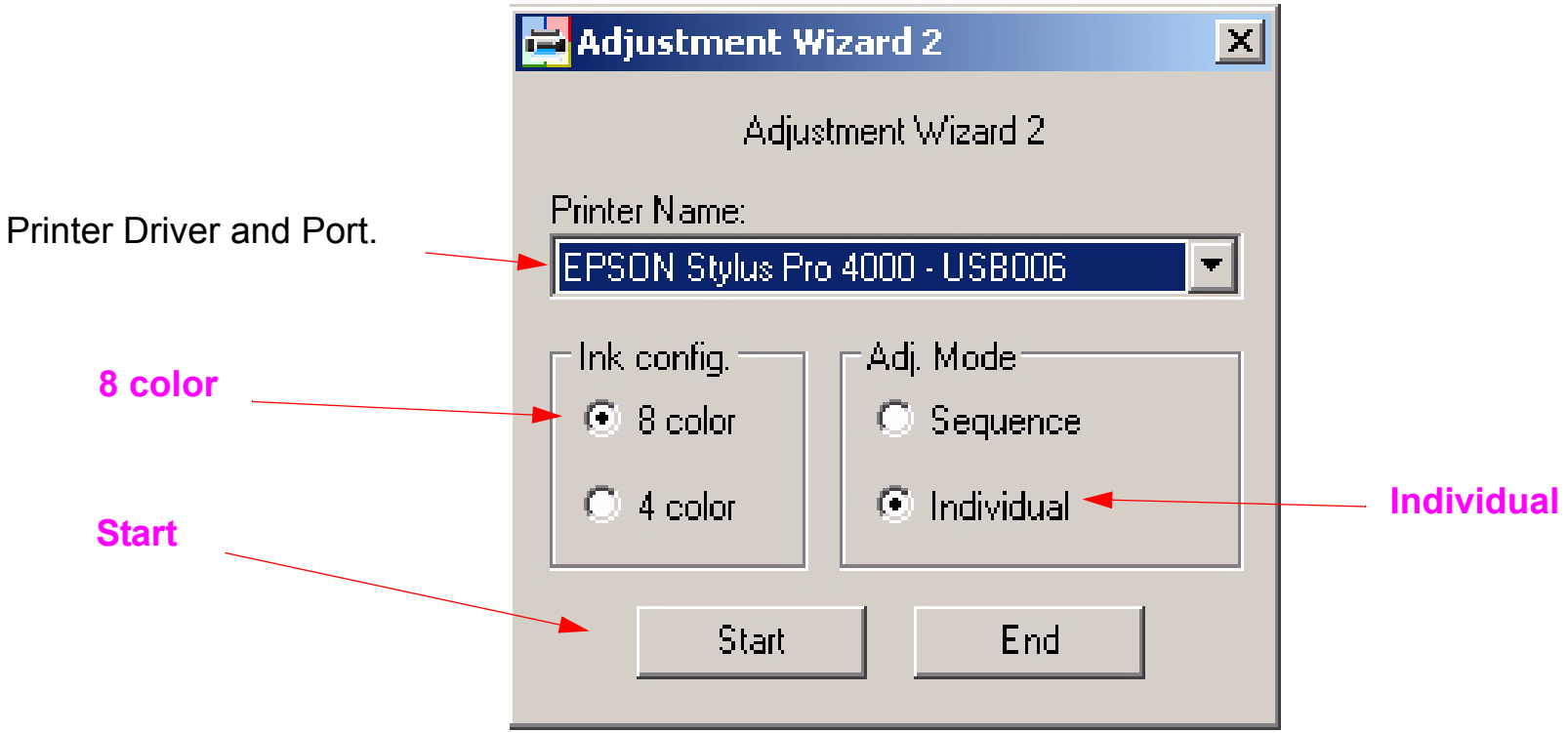
1. Ensure that the **Pro 4000 Printer Driver** and **Status Monitor 3** is installed on the system that will be running the **Adjustment Wizard2**.

2. Create a folder and copy the **Adjustment Wizard 2** files into it.

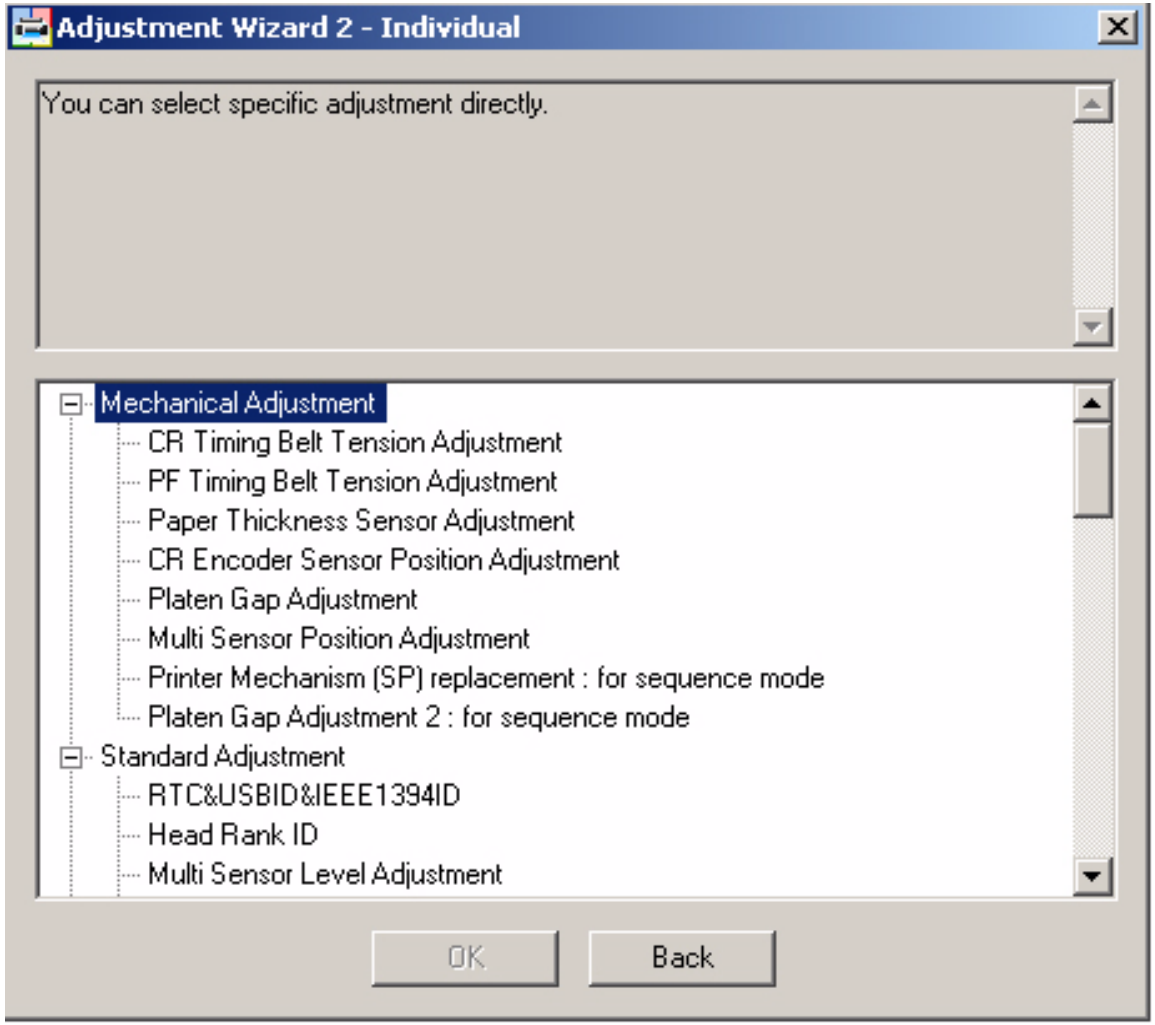


3. Double Click on **Adjwiz2** to start the utility.

4. Pick the correct printer driver/port, **8 Color**, **Individual**, and click **Start**.



5. The utility will look like this.



6. Double click on the individual line items to perform each adjustment.

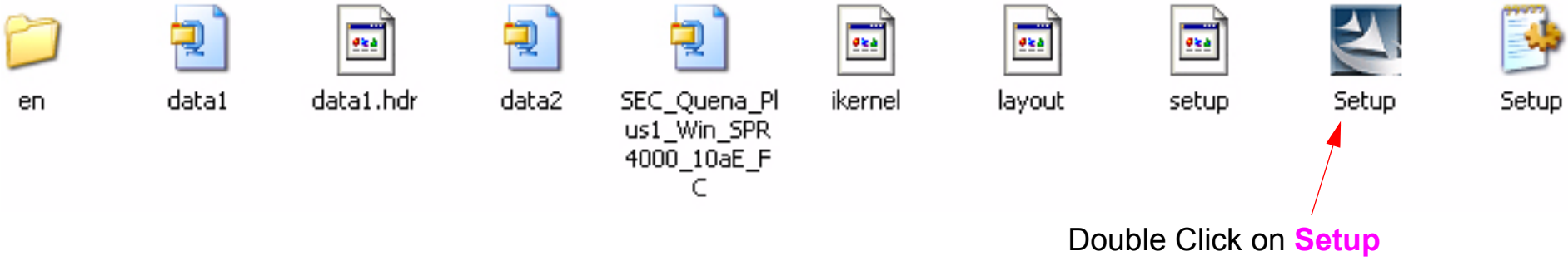
Epson Paper Feed Adjuster

Note: The Epson Paper Feed Utility is a user utility designed to customize the Printer, to increase it's print quality. Technicians can use it to reset user settings.

Ensure that the Pro 4000 Printer Driver and Status Monitor 3 is installed on the system that will be running the Adjustment Wizard2.

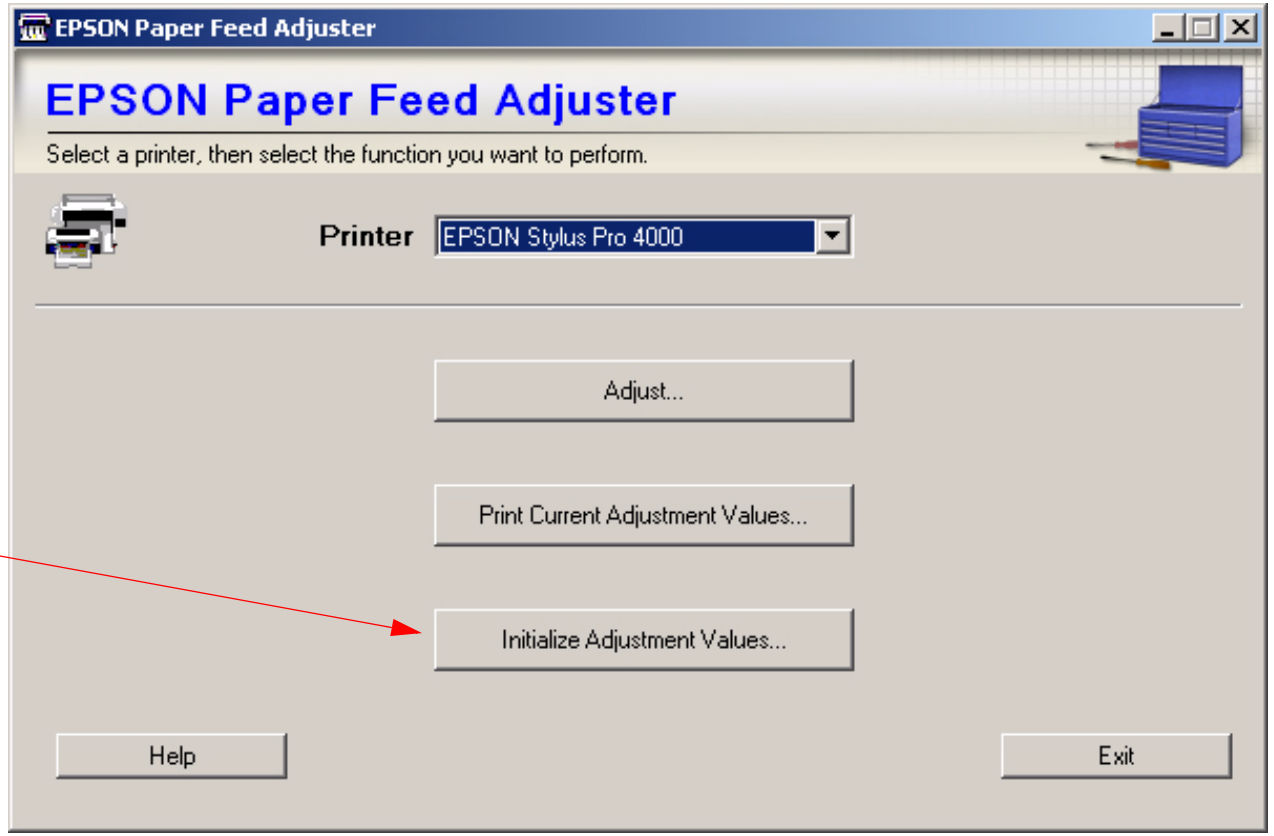
Installation:

1. Double click on **Setup** to launch the installer.

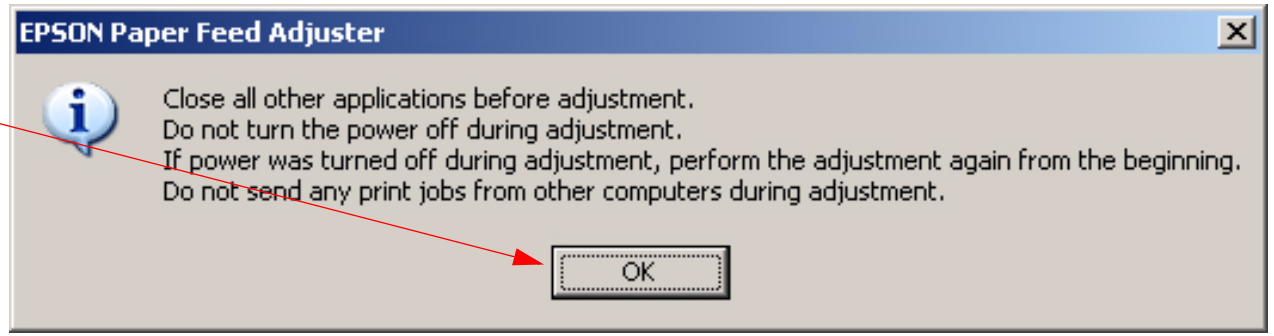


2. Follow the prompts, and install the **Epson Paper Feed Adjuster** on your computer. After it is installed, it will run from the Window's **Start Menu**.

3. Run the **Epson Paper Feed Adjuster** from the Windows **Start Menu**.

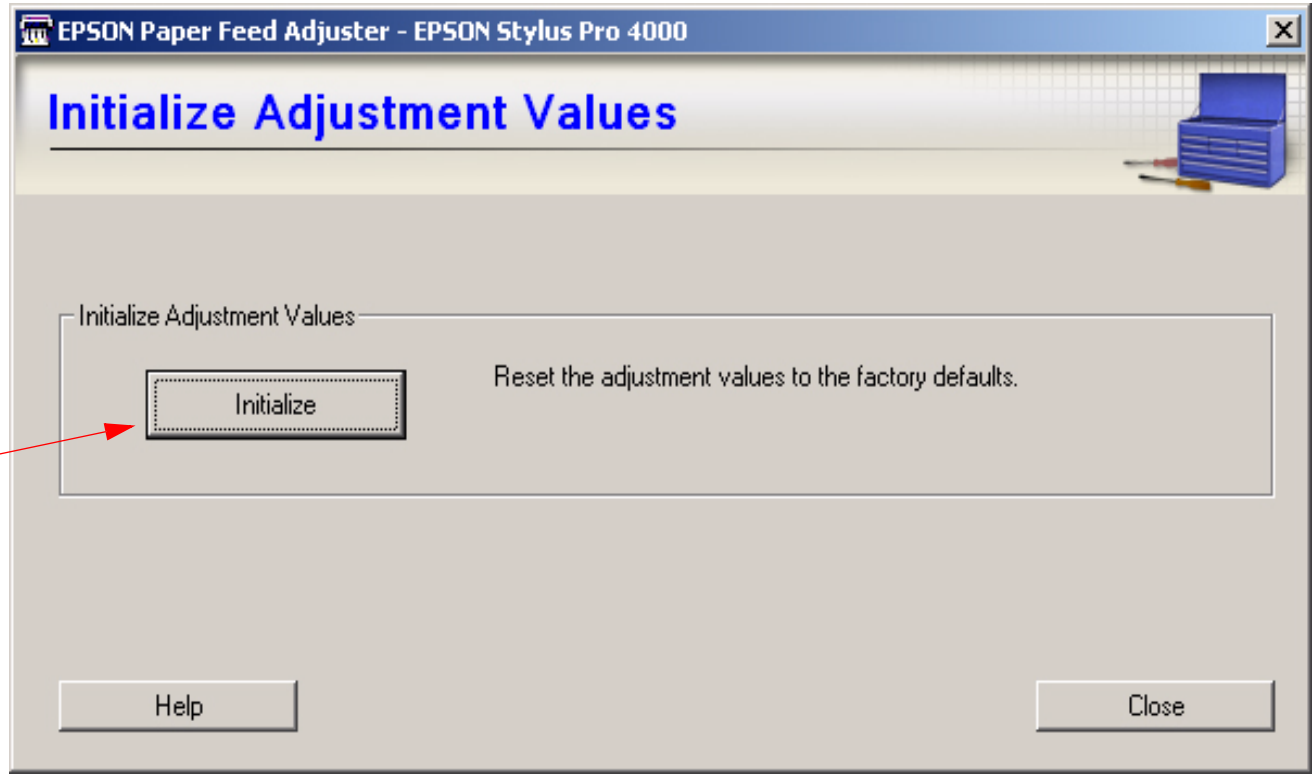


1. Click On **Initialize Adjustment Values**.

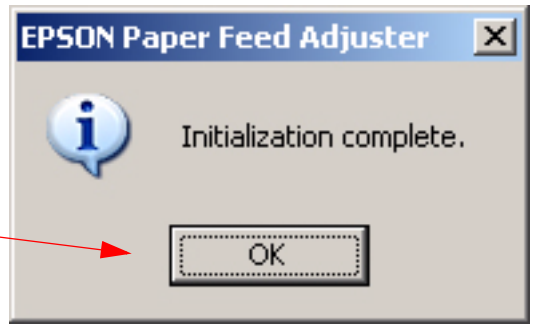


2. Click on **OK**.

3. Click on **Initialize**.



4. Click on **OK**.



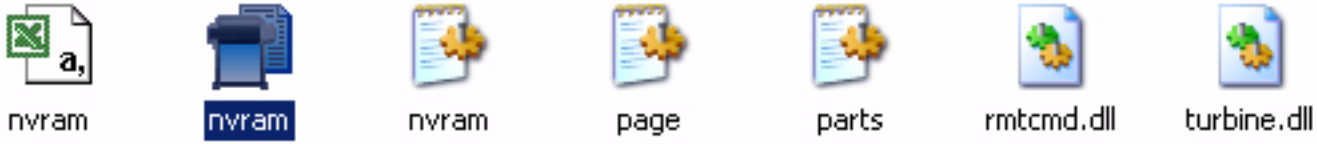
NVRAM.EXE

Note: NVRAM.EXE is the utility that enables the backup and re-installation of parameters (settings), necessary when exchanging the Main Board of a Pro 4000.

Installation:

1. Ensure that the **Pro 4000 Printer Driver** and **Status Monitor 3** is installed on the system that will be running the **NVRAM.EXE**.

2. Create a folder and copy the **NVRAM.EXE** files into it.



3. Double Click on **NVRAM** to start the utility.

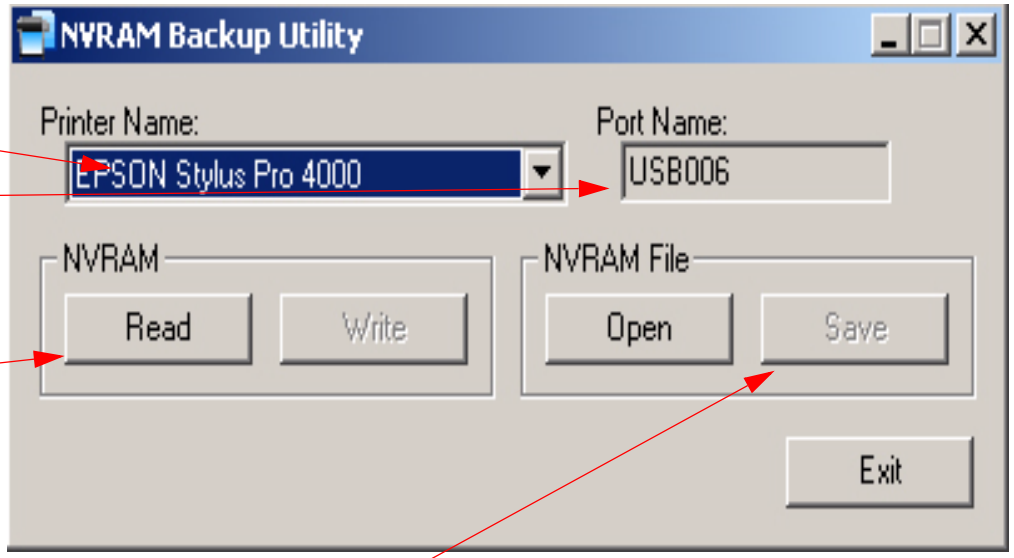
4. Place the ***Printer*** in Parameter Backup Mode

    1. Enter **Maintenance Mode 2:** Press and hold the **Left**, **Down**, and **Up** buttons and turn on the ***Printer***
    2. Lift both ***(2)*** **Ink Levers**
    3. Remove the **Maintenance Tank**
    4. Move the **Paper Release Lever** to the released position.

Parameter Backup:.

1. Pick the Pro 4000 printer driver.

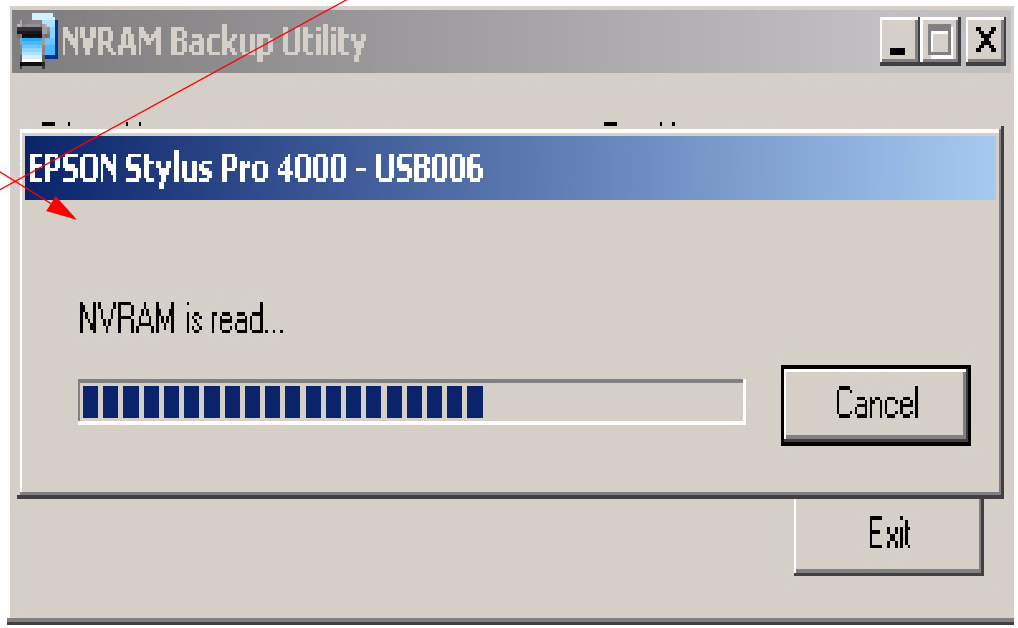
The port that the driver is associated with, will be displayed.



3.Click on **Read**.

The ***Printer LCD*** will toggle between **Ready** and **Printing**.

The utility will display this, until it is finished transferring data.

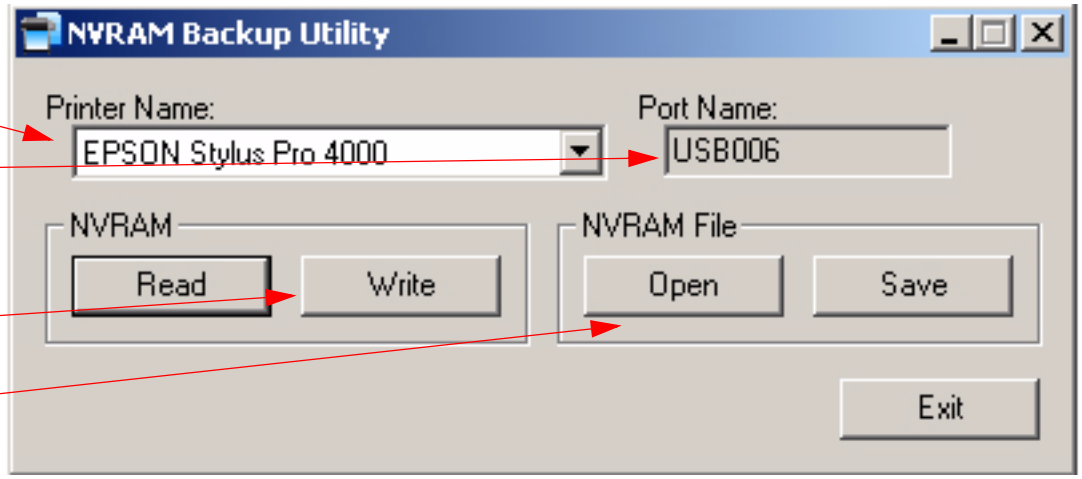


4. Click on **Save** to save the parameters.

Parameter Restore.

1. Pick the Pro 4000 printer driver.

The port that the driver is associated with, will be displayed.



3. Click on **Write** to send previously loaded Parameters to the Printer. (If the Parameters are not loaded, click on **Open** and load saved Parameters, then click on **Write**.

The utility will display this screen while it is transmitting the Parameters to the Printer.

Do not turn the printer off until the utility displays this screen.

PRNprint.exe

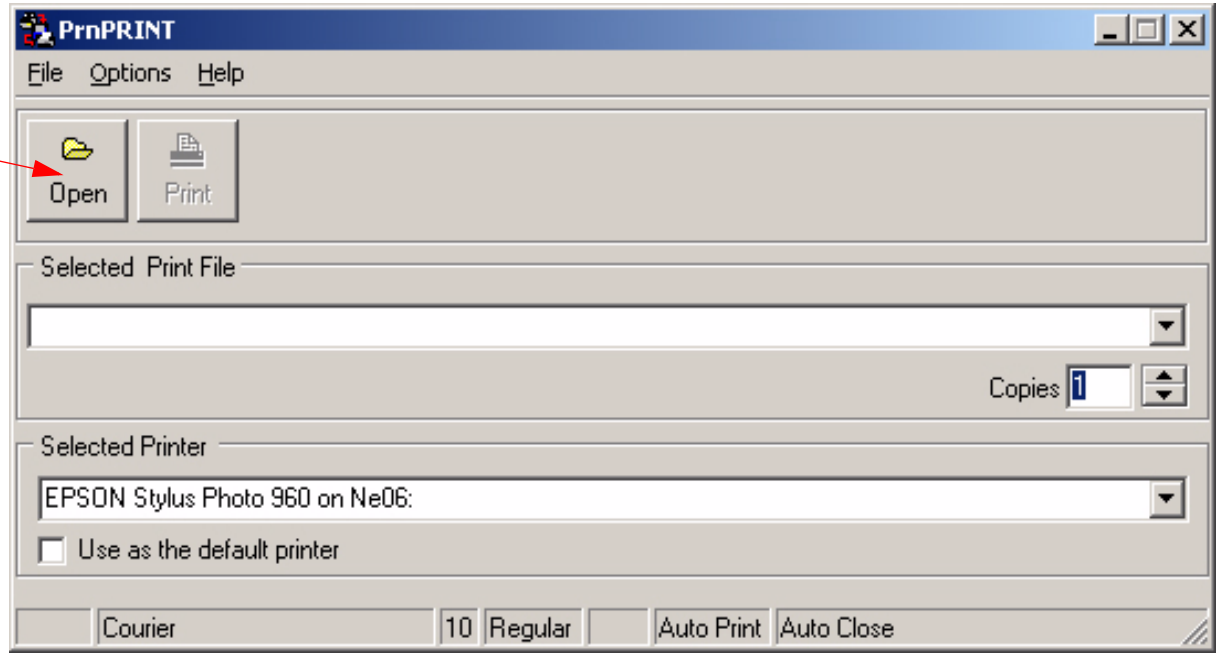
Note: PRNprint.exe is the utility that is used to copy Firmware to the Printer.

1. Ensure that the **Pro 4000 Printer Driver** is installed on the system that will be running the **PRNprint.exe**.

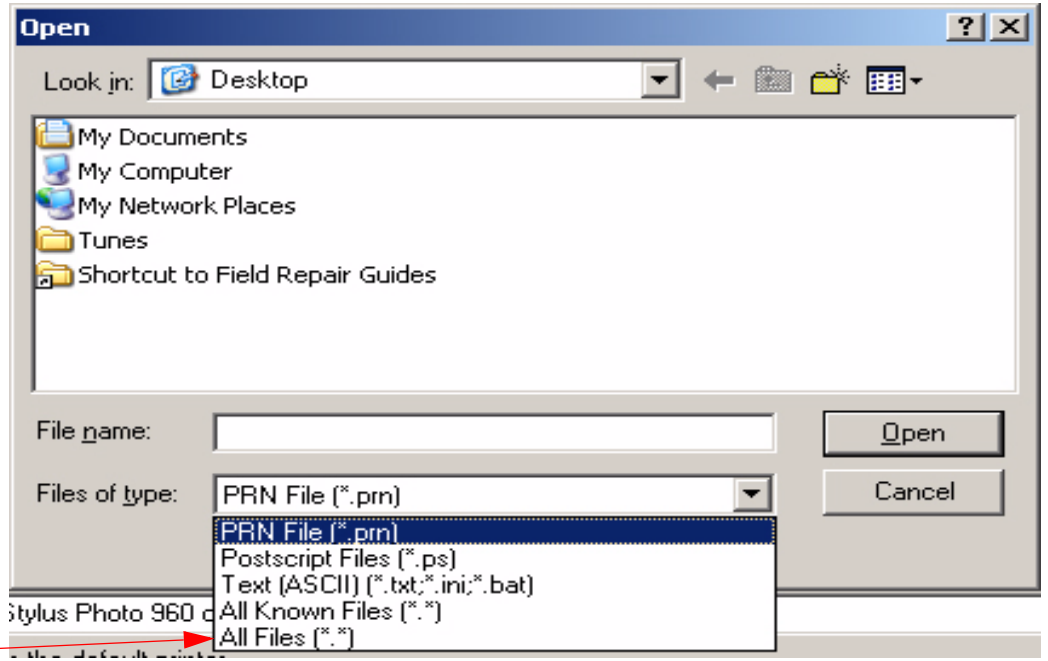
1. Double Click on **PRNprint** to start the utility.

2. Click on **Open**.

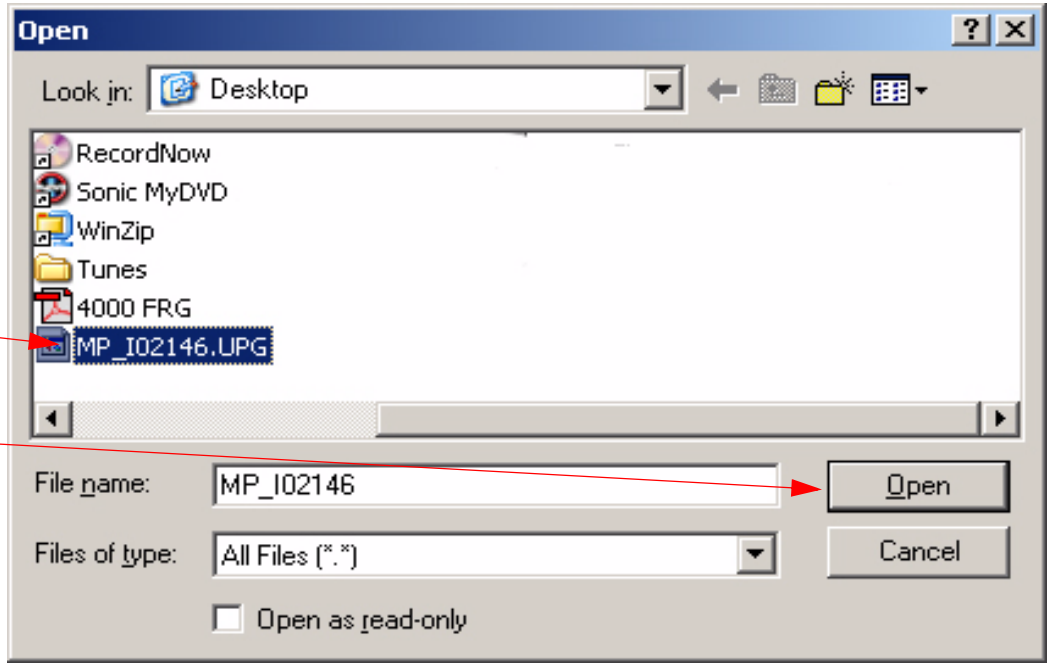
1. Click on **Open**



3. Select the correct firmware and load it into the utility.



1.Change the file type to **All Files**

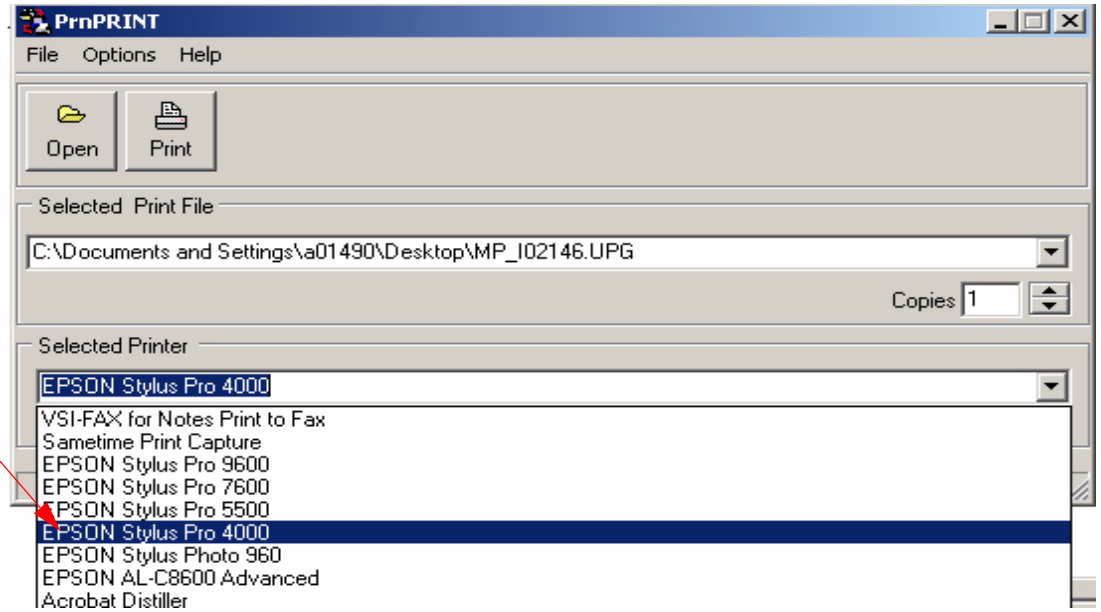
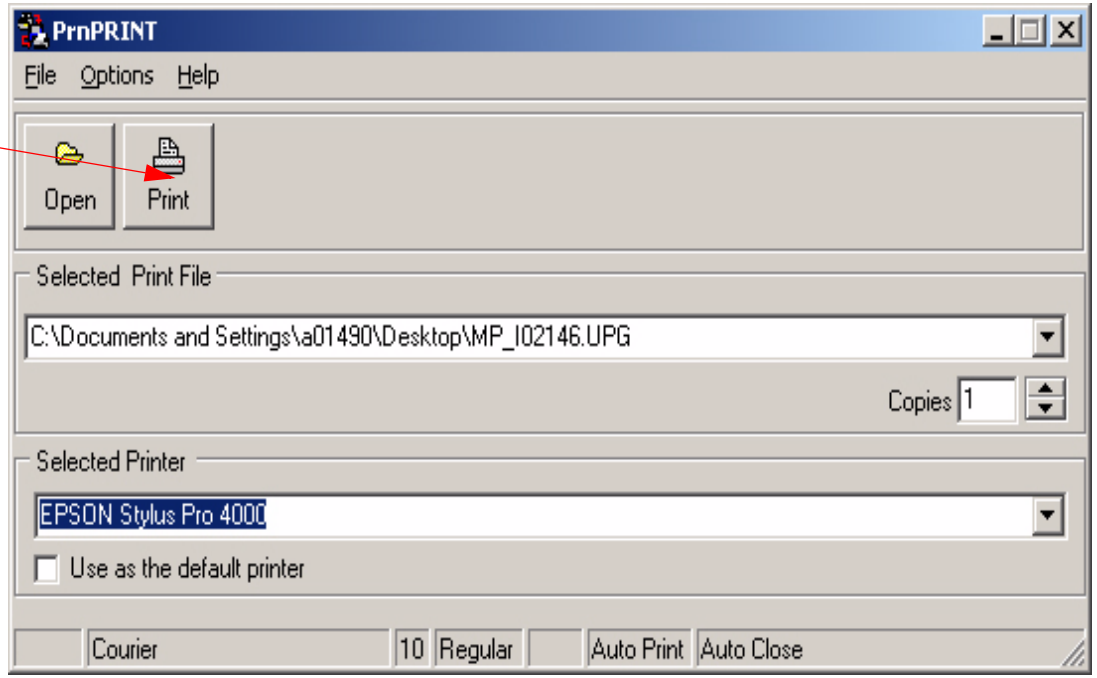


2. Navigate to, and click on the correct firmware file.

3. Click on **Open**

4. Send the firmware to the ***Printer***.

1. Select the correct printer driver.



2. Click on **Print**.