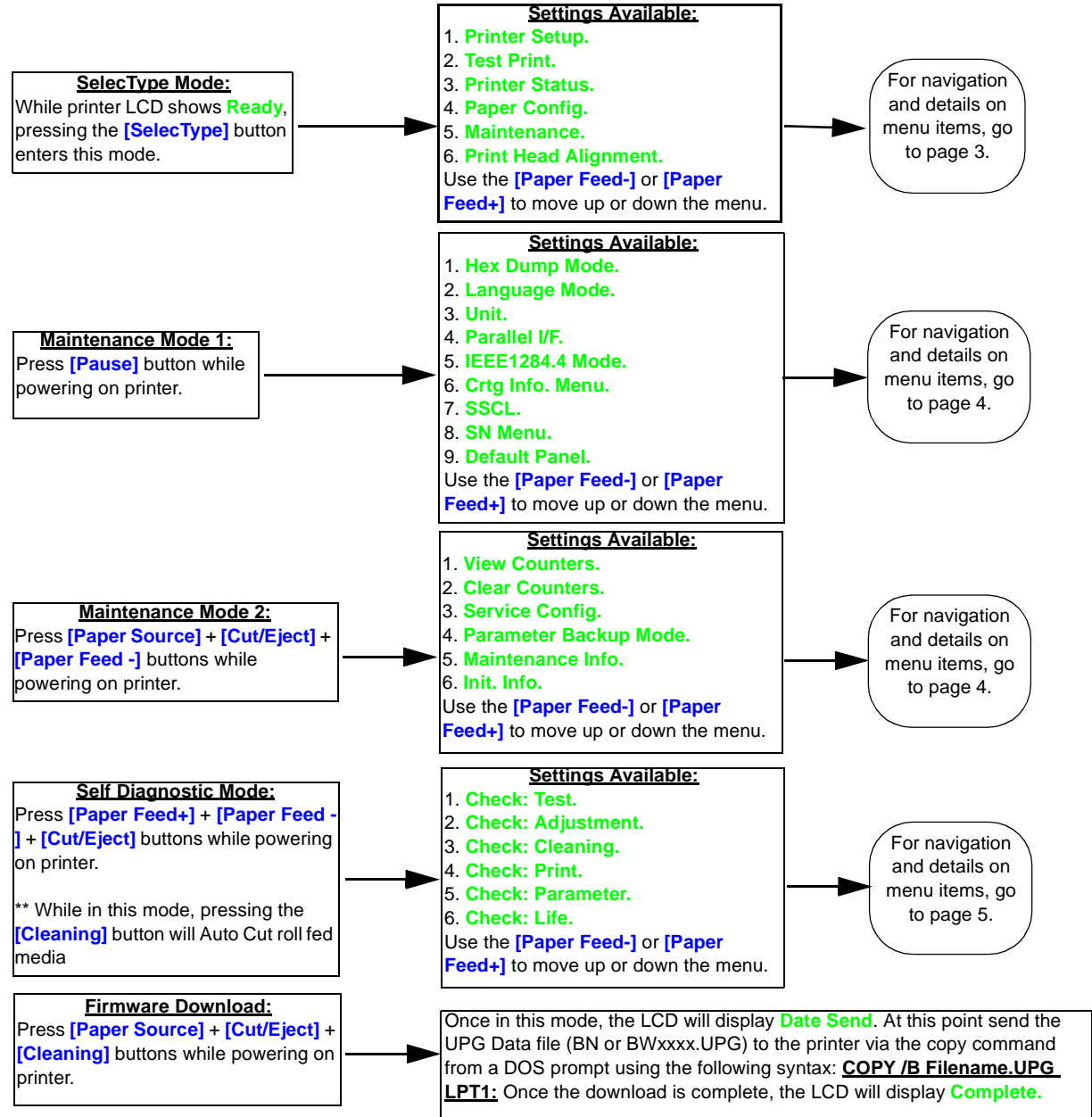
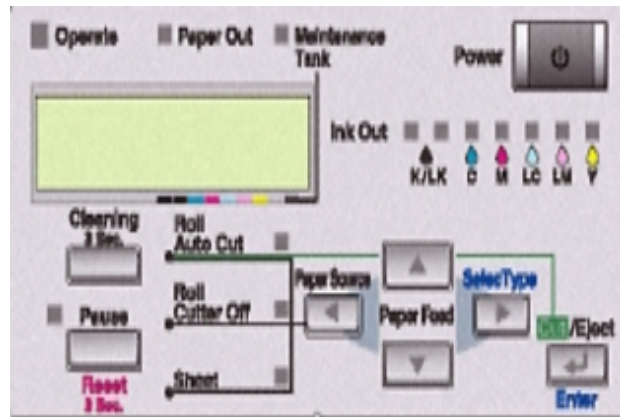


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Control Panel Map

NOTE: Although this is a guideline to navigate through the Service and User Menus, the Service Manual, Technical Bulletins or Users Guide may still be needed to reference detailed information on a setting or adjustment listed.



SelecType Menu Options

1. Use the [Paper Feed-] or [Paper Feed+] to move up or down the menu.
2. Pressing the [SelecType] button will move you into the sub menu.
3. Pressing the [Paper Source] button will move you back one menu item.

1. Printer Setup.

1. [Platen Gap] - *Std, Wide, Wider, Narrow
2. [Page Line] - *Off, On
3. [Interface] - *Auto, Parallel, USB, Option
4. [Code Page] - *PC437, PC850
5. [Paper Margin] - *T/B 15mm, 15mm, 3mm
6. [Ppr Size Chk] - *On, Off
7. [Ppr Align Chk] - *On, Off
8. [Timeout] - *Off, 30 sec., 60 sec., 180 sec., 300 sec.
9. [No Margin] - *L/R Only, 1 Cut, 2 Cut
10. [Cutter Adj.] - Exec. (this will print an adjustment pattern for the built in cutter and cut down the middle)
11. [Refresh Margin] - *On, Off
12. [Init. Settings] - Exec. (This will reset the Printer Setup options to default values)

**** DENOTES Default Values**
 Use [Paper Feed +] or [Paper Feed -] to change a value. Use [Cut/Eject] to confirm, save or execute the item.

2. Test Print Menu.

1. [Nozzle Check] - Print, press [Cut/Eject] to execute.
2. [Status Check] - Print, press [Cut/Eject] to execute.
3. [Job Info] - Print, press [Cut/Eject] to execute.

Use [Paper Feed +] or [Paper Feed -] to change a value. Use [Cut/Eject] to confirm, save or execute the item.

3. Printer Status Menu.

This menu allows you to view all the Status Check items on the LCD display without printing the Status Check page from the Test Print menu.

Use [Paper Feed +] or [Paper Feed -] to move up or down the menu.

4. Paper Config. Menu.

1. [Paper Number] - *Standard (range is 1-10)
2. [Cut Pressure] - *100% (range is 0% - 150%)
3. [Cut Method] - *3 Step, 4 Step
4. [Ppr Feed Adj.] - *0.00% (range is -1.00% - +1.00%)
5. [Drying Time] - *0.0sec. (range is 0.0sec. - 10.0sec.)
6. [Suction] - *Normal, Low
7. [Print Adj.] - *5 (range is 1-9)

**** DENOTES Default Values**
 Use [Paper Feed +] or [Paper Feed -] to change a value. Use [Cut/Eject] to confirm, save or execute the item.

5. Maintenance Menu.

1. [Pwr Cleaning] - Executes a power head cleaning cycle.
2. [Bk Ink Change] - Executes the Bk Ink Change process. This allows the user to change from PhotoK/Light K to Matte K/Light K or Dual Matte K inks.
3. [Cutter Repl.] - Executes the cutter replacement process.

When in these menus, you want to follow the LCD Display for instructions

6. Head Alignment Menu.

1. [Ppr Thkns] - Std, On, 3N, x.xmm (where x= 0.0mm - 1.6mm)
 - 1a. Once the thickness has been set, you can choose the head alignment pattern you want to perform. The options are:
 - a) Bi-D Black
 - b) Bi-D All
 - c) Uni-D All

Use [Paper Feed +] or [Paper Feed -] to change a value. Use [Cut/Eject] to confirm, save or execute the item.

Maintenance Mode 1 Options

1. [PRINT] - Prints data in Hexadecimal format for troubleshooting control codes.
 2. [*English, Portuguese, Spanish, German, Italian, French] - Determines the language used for the LCD Display.
 3. [*Meter, Feet/Inch] - This allows measurements to be displayed/printed in format selected.
 4. [*ECP, Compat]
 5. [*Off, On]
 6. [Crtg Info Menu] - Gives details about ink cartridges (type and usage).
 7. [SSCL] - Super Strong Cleaning cycles. Perform when normal cleanings do not work. This should be last option as a lot of ink of consumed during the process.
 8. [SN Menu] - **For Factory Use only.**
 9. [Default Panel] - This will reset all Maintenance Mode 1 settings to factory defaults.
- [Paper Feed] + or [Paper Feed -] to change value. Use [Cut/Eject] to Confirm, Save or Execute the item/value.

Maintenance Mode 2 Options

1. Use the [Paper Feed-] or [Paper Feed+] to move up or down the menu.
2. Pressing the [SelectType] button will move you into the sub menu.
3. Pressing the [Paper Source] button will move you back one menu item.

1. **View Counters**

While in this menu option, you are capable of viewing all the counter information for the following components:
Cutter, Cutter Total, Total Pages, Maint. Tank, CR Motor, CR Motor Total, PF Motor, Head K1, Head K2, Head C, Head M, Head LC, Head LM, Head Y, Flushing Box, Head Cleaner and Sponge.

2. **Clear Counters**

While in this menu option, you are capable of initializing the following items:
Init All, NVRAM, RTC, Cutter, CR Motor, CR Total, PF Motor, Head, Head Cleaner, Total Pages, Maint. Tank and Sponge

3. **Service Config.**

1. [XXD] - Reserved for future use. Not used for Stylus Pro 7600/9600
2. [XXP] - Reserved for future use. Not used for Stylus Pro 7600/9600
3. [XXS] - Reserved for future use. Not used for Stylus Pro 7600/9600
4. [Change Device ID] - * Sty Pro 9600, Sty Pro 9600D, PX-9000
5. [NPD] - *1 (UltraChrome), 2 (Dye), 0 (Neutral)
6. [ED Mode] - *X (all CSIC info is read), O (all CSIC info is read except market), N (no CSIC info is read)

4. **Parameter Back Mode**

[Exec] - Pressing the [Cut/Eject] button will execute the command.

5. **Maint. Info.**

Options in this menu are for **Factory Use ONLY.**

6. **Init. Info**

Options in this menu are for **Factory Use ONLY.**

Self Diagnostic Mode Options

1. Use the [Paper Feed-] or [Paper Feed+] to move up or down the menu.
 2. Pressing the [SelecType] button will move you into the sub menu.
 3. Pressing the [Paper Source] button will move you back one menu item.

1. Check: Test

1. [Version] - (Checks firmware version, dip sw. settings and control panel & main board versions).
 2. [Panel] - (Checks control panel buttons, LCD display and LED indicators).
 3. [Sensor] - (Checks all optical and physical switches - On/Off, Open/Close)
 4. [Encoder] - (Checks CR and PF motor encoders)
 5. [Fan] - (Checks fans - On/Off)
 6. [Elec.] - (Checks maintenance record and fatal error history)
 7. [D/A Revision.] - (Factory Use Only - head voltage correction)
 8. [Head Signal] - (Factory Use Only - head pulse check)
 9. [CSIC] - Checks the CSIC information for the ink cartridges and maintenance tank
 10. [Actuator] - Checks the cutter actuator
 11. [Actuator 2] - Checks the cutter solenoid and pump motor
- When in the sub menu of each item, pressing the [Pause] button will back up one menu.

2. Check: Adjustment

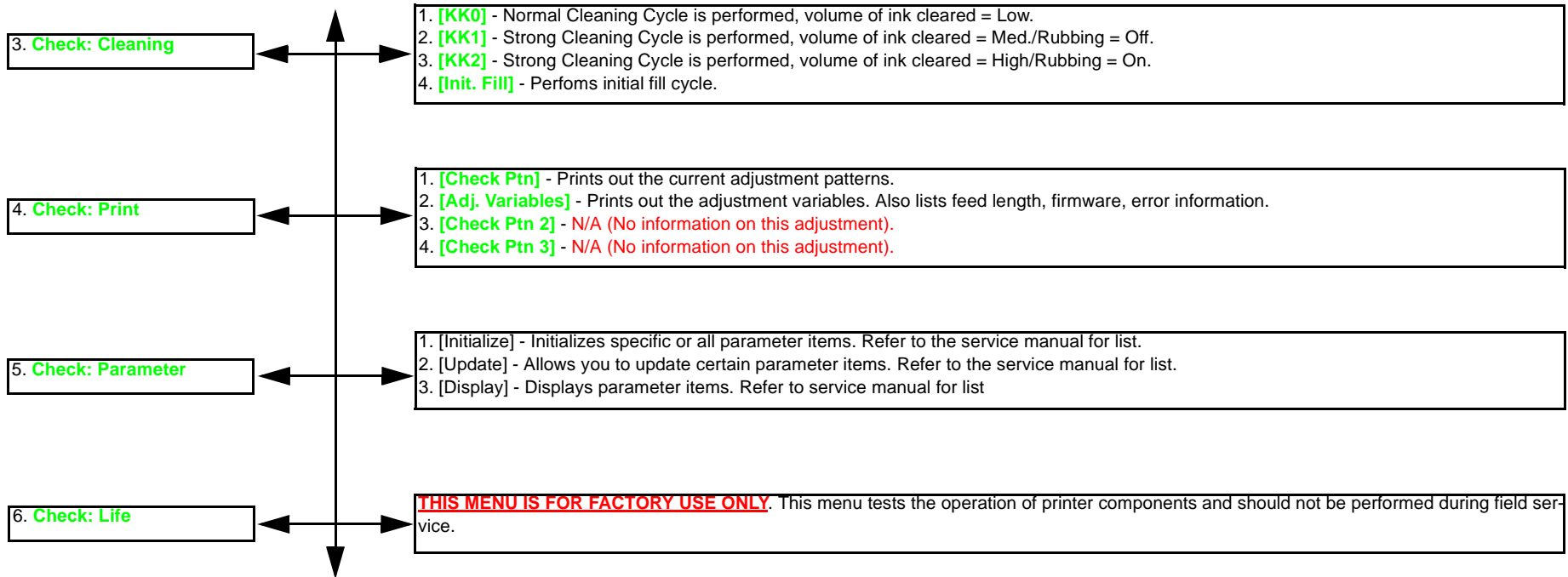
1. [Rear AD] - Allows for adjustment of the Rear AD Sensor.
 2. [Edge AD] - Allows for adjustment of the Edge AD.
 3. [Front AD] - N/A, No Front AD to adjust on the SP7600/9600.
 4. [Input Rank] - Allows you to input the Head Rank.
 5. [Edge Sns. Lvl] - **Factory use only.**
 6. [Check Nozzle] - Prints a detailed nozzle check, horizontal and vertical pattern.
 7. [Check Skew] - Checks for paper skew.
 8. [Feed Adj. T&B] - Prints a pattern and allows adjustment for 1000mm feed length, top, bottom and left margin.
 9. [Top & Bottom] - Prints a pattern to allow adjustment for top and bottom margin.
 10. [AT Mecha Adj.] - **Factory use only.**
 11. [Rear Sen. Pos.] - Allows for adjustment of rear sensor (adj. in mm).
 12. [Platen Pos.] - Centers print head on foam pads (for edge to edge printing).
 13. [Platen Pos. Chk] - Verifies adjustment 12 (Platen Position Adjustment).
 14. [Cut Adj.] - Allows adjustment of cutter pressure.
 15. [Head Slant] - Prints a pattern to allow slant adjustment of the entire head.
 16. [Bi-D] - Prints a pattern to allow for adjustment for Bi-D (Double Weight Matte, VSD1).
 17. [Copy Param.] - Copies parameters to backup area of NVRAM.
 18. [Bi-D2] - Prints a pattern to allow for adjustment for Bi-D2 (Photo Glossy Paper, VSD2).
 19. [Bi-D3] - Prints a pattern to allow for adjustment for Bi-D (Double Weight Matte, VSD4).
 20. [Bi-D Chk] - Prints a pattern of all Bi-D adjustment patterns.
 21. [Head LR Adj.] - Prints a pattern to allow for adjustment of the Head Gap (Head LR).
 22. [Test Print] - Prints pattern of all adjustment variables.
 23. [Clean Head] - Performs ink drain function. This process should only be done during refurbishment of product.
 24. [Counter Clear] - Clears ink flag counter to 0.
- When in the sub menu of each item, pressing the [Pause] button will back up one menu.

3. Check: Cleaning
 4. Check: Print
 5. Check: Parameter
 6. Check: Life

Go to Page 6

Self Diagnostic Mode Options, cont.

1. Use the [Paper Feed-] or [Paper Feed+] to move up or down the menu.
2. Pressing the [SelecType] button will move you into the sub menu.
3. Pressing the [Paper Source] button will move you back one menu item.



What Is New About the 7600/9600

CSIC Ink Cartridges

CSIC (Customer Satisfaction Ink Cartridge) chips on the **Ink Cartridges**, inform the **Printer** about:

- The type of ink (dye or pigment).
- The color of the ink.
- The quantity of the ink.
- The vendor, date manufactured, etc.

7 Nozzle Sets, Pigment or Dye

The **7600/9600** are equipped to handle either pigment or dye ink from the factory. The User has three ink combinations to choose from (all combinations include cyan, light cyan, magenta, light magenta, and yellow).

- 7 color pigment (black and light black)
- 7 color pigment (matte black and light black)
- 6 color pigment (two matte blacks)
- 6 color dye (2 photo blacks)

If the User installs either of the pigment ink sets, the **Printer** recognizes the ink and becomes a pigment **Printer**. The customer can switch from one pigment set to the other, but never to dye. If the User installs dye inks first, the **Printer** will not accept pigment inks (and vice versa).

4 Platen gaps

The **Printer** has a **Paper Thickness Sensor** like the other **Epson Large Format Printers**. This sensor recognizes two thickness of paper, and sets the platen gap accordingly (**Standard** or **Wide**). There are two additional gaps (**Narrow** and **Wider**). These gaps must be set through the **Driver**, or **SelecType**.

User Waste Ink Tank Replacement

The **Waste Ink Cartridge** is designed for the User to remove. It has a **CSIC** like chip attached to it, and is easily slid out of the right side of the printer. The quantity of ink contained by the **Waste Ink Cartridge** is stored on the **CSIC**

chip. Consequently, a new cartridge will also reset the **Cartridge Counter**.

Easy Removal of the Cap and Pump

After the **Right Side Cover** has been removed, only 4 more screws must be removed to remove the **Cap and Pump Assembly**. All 4 screws are removed from the back side of the **Printer**.

One Print Head

7 nozzle sets, on a one piece **Print Head**. One **Print Head** mechanical adjustment (head rotation).

Back Light on LCD

The back lit **LCD** is easy to read.

Auto Open Valves in the Ink Bays

Inserting an **Ink Cartridge** opens a spring loaded **Valve** located on the inside of each **Ink Bay**.

No Front Paper Sensor

The **Front Paper Sensor** has been eliminated. The **Paper Edge Sensor** is used for Leading Edge detection.

Electronic Paper Sensor Adjustments

The **Rear Paper Sensor** and the **Edge Sensor** adjustments are performed from the **Self Diagnostic/Check:Adjust** menu. The **Printer** senses the paper and writes the appropriate level to the **Main Board**. On earlier Epson **Large Format Printers**, a potentiometer was used to set the level.

Edge to Edge Printing

The **7600/9600 Printers** can print with no top, bottom, or side margins. All margin adjustments are critical for this type of printing. The printer also has many foam screened openings in the **Platen** area to catch over spray.

Automatic Cap Adjustment

There is no Cap Position Adjustment. It is performed automatically when the **Printer** is turned on.

Parameter Back-up Utility

The main board parameters can be backed-up with a PC, and stored as a file. Read the Parameter Back-up Utility (**NVRAM.exe**) section of the 7600/9600 Field Repair Guide for details.

Adjustment Wizard Utility

The Adjustment Wizard Utility is designed to assist with component replacement. After replacing a component, boot the utility, and highlight the component replaced. The utility will prompt you to perform the necessary adjustments, in the proper order. Most adjustments can be performed from the PC. Read the Adjustment Wizard (**Adj_wiz.exe**) section of the 7600/9600 Field Repair Guide for details.

Selectype Control Over Paper Advancement

The 7600/9600 printers feature an expanded Paper Config options found in the **SelecType** Menu. One of the new additions to this feature allows the User to adjust paper feed steps, to minimize horizontal banding. It is effective with Non-Epson RIPS/Drivers. This paper feed adjustment is global, and will affect every job sent to the **Printer**.

Epson User Print Quality Solutions

The **Epson Printer Service Utility**, is a utility that allows the User to adjust:

- Paper Feed Step
- Ink Saturation
- Suction Fan
- Platen Gap
- Ink Dry Time
- Cut Method

It can also be used to update firmware, and perform electronic adjustments. For details see the Epson User Print Quality Solutions document in the 7600/9600 Field Repair Guide.

Sensors, Motors, Solenoids, and Fans

| | |
|-----------------------------------|---|
| Home Position Sensors: | Carriage HP Sensor Gap HP Sensor (HD-Slide Origin) |
| Maintenance/Waste Ink Tank Sensor | Waste Ink ID (CSIC) |
| Ink Cartridge Sensors: | Cartridge CSIC's (Customer Satisfaction Ink Cartridge (7)) Ink Cartridge Lock Lever Sensor |
| Encoders: | Carriage Encoder Paper Feed Encoder |
| Paper Sensors: | Rear Sensor Edge Sensor (for width and leading edge) Paper Thickness Sensor (also registers paper release) |
| Cover Sensors: | Cover Sensor |
| Temperature Sensors: | Head Temperature Sensors |

| | |
|-----------|---|
| Motors | Carriage Motor (5.8 ohm) Paper Feed Motor (5.8ohm) Pump Motor (Head Slide / Platen Gap Motor) (9.2ohm) |
| Solenoids | Cutter Blade Solenoid (29 ohm) |
| Fans | Head Drive Cooling Fan 7600 Paper Suction Fans (2) 9600 Paper Suction Fans (3) |

Initialization Sequence

| <i>Technician Action</i> | <i>What You Should Observe</i> |
|--|--|
| <p>NOTE: These steps are performed prior to observable initialization activities.</p> | <p>Control Panel (if button sequence is pressed). Maintenance Tank status (CSIC). Ink Cartridge status (CSIC). Ink Cartridge Lock Lever status. Paper Release Lever status. Front Cover Sensor status</p> |
| <p>1. Turn on power with the Paper Release Lever in the “Released” position.</p> | <p>Control Panel displays Set Paper Lever. The Operate LED (green) is ON. Paper Out LED (red) is ON. Pause LED (green) is ON. One of the three Paper Options LED’s is ON. No Vacuum Fans are running.</p> |
| <p>2. Load paper using the Paper Alignment Guides for reference.</p> | <p>When paper is first inserted, the Vacuum Fans turn ON. Note: If the Fans do not turn on, Perform “Rear AD” sensor adjustment.</p> |

3. Move the **Paper Release Lever** to the “Secured” position.

Control Panel LCD displays **Wait**.

Paper Out LED (red) is OFF.

Pause LED (green) is ON.

Operate LED (green) is ON.

Pause LED will flash for a short period of time, then return to solid.

1. The **Paper Cutter Solenoid** is energized, releasing the **Carriage Assembly**.

2. The **Carriage Assembly** moves to the **Home Position Sensor** to establish the carriage home position.

If fails: Check the Carriage Encoder Strip, the Carriage Encoder, and the Home Position sensor.

3. The **Carriage Assembly** moves to the right side frame, engaging the **Pump Motor**, to set the platen gap.

If fails: Check the Gap Home Position Sensor, related gears, and outside light on the Gap Home Position Sensor (light from an outside source – i.e.- sunlight from a window).

4. The **Paper Cutter Solenoid** energizes twice.

5. The **Carriage Assembly** moves to the right side of the media to detect the right edge, then returns and parks on the **Cap Assembly**.

*The Control Panel displays **Press Pause Button**. If not pressed within 5 seconds, the initialization process continues.*

- | | |
|--|---|
| <p>6. Press the Pause button.</p> | <ol style="list-style-type: none">1. The Paper Cutter Solenoid energizes, releasing the Carriage Assembly.2. The Carriage Assembly moves to verify the right edge of the paper.3. The Carriage Assembly moves to the right side frame, engaging the Pump Motor, to set the platen gap.4. The Carriage Assembly moves from right to left across the paper, using the Paper Edge Sensor to measure the paper width. <i>If fails: Perform the “Edge AD” sensor adjustment.</i>5. The Carriage Assembly moves back to the right edge of the paper.6. The paper is backed up until the leading edge of paper reaches the Paper Width Sensor, establishing the “TOP of Form” reference.7. The Carriage Assembly moves from right to left across the leading edge of the paper checking for any evidence of paper skewing. <i>If fails: Control Panel displays “Reload Paper”. Reload the paper verifying the paper is aligned with the paper guide holes.</i> <i>If fails again: Check to see if the paper edge is uneven, or there is ink on the paper. Also check the Carriage Timing Strip and Carriage Encoder.</i> |
|--|---|

| | |
|--|---|
| <p>Press the Pause button (continued)</p> | <ol style="list-style-type: none">8. The Carriage Assembly moves to the right side frame, engaging the Pump Motor, which resets the platen gap.9. The Carriage Assembly moves back to the carriage lock position, and is locked in place.10. The paper is advanced to the “Top of Form” position.11. The Vacuum Fans turn off until printing, or paper movement, is initiated.12. The Control Panel displays Ready. The Operate LED (green) and one of three Paper Option LED’s (green) are on. |
|--|---|

Technician Tech Tips:

The initialization process described above is defined by the firmware version installed on the printer. Slight variations can be observed depending on the firmware version installed.

To observe the final steps again, release the “Paper Lever”, then lock it into the “Secured” position. The Vacuum Fans will come back on, the carriage home and head gap will be reset. Up and down paper movement will occur as the printer verifies all it’s settings again.

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 **Cap Assembly** 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 **Wiper Blade Cleaner**.
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 nozzles.
 - 3.2 Repeat.
4. Replace the **Print Head** and **Dampers**.

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 two preceding steps reveal no problems, 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.
 - 2.3.1.1.2 Check the **Air Valve** on the **Cap Assembly** for proper operation.
3. Check **Printhead Fuses** on **Main Board (F6 and F7)**.
 - 3.1 If the **Fuses** are blown, replace the **Main Board**.
 - 3.2 If the **Fuses** are good, replace the **Printhead**.

Image Quality Diagnosis and Repair

Horizontal Banding:

1. Perform a **Nozzle Check** from the **Adjustment** menu within Self-Diagnostic Mode.
 - 1.1 Inspect printed pattern for missing, deflected or sympathetic nozzle(s).
 - 1.1.1 Perform 2 Cleaning Cycles then reprint **Nozzle Check**.
 - 1.1.1.1 Missing or deflected nozzle(s)
 - 1.1.1.1.1 Clean the **Cap, Wiper, and Wiper Cleaner** and repeat cleaning cycles.
 - 1.1.1.1.2 Inspect the **Cap Assembly** and replace if it is damaged.
 - 1.1.1.1.3 Replace the **Print Head**.
 - 1.1.1.2 Sympathetic nozzle(s)
 - 1.1.1.2.1 Replace the **Print Head**.
2. Verify that paper is not binding:
 - 2.1 While loading.
 - 2.2 While ejecting.
 - 2.3 On the spindle.
3. Verify the Head Slant alignment is correct (Head Angular)
 - 3.1 Print and inspect the pattern.
 - 3.2 Perform adjustment if required.
4. Verify Platen Gap, with the **Printer Settings** section, of the SelecType Menu.
 - 4.1 Four settings are available: **Standard, Narrow, Wide, Wider**.
 - 4.2 Set to the appropriate setting to match the media (default is **Standard**)

4.3 Verify that the platen gap is being set to the proper position by observing the **Platen Gap HP Flag**.

4.3.1 Inspect **Thickness Sensor Actuator** for proper position.

4.3.2 Adjust if required.

5. Verify Printer Driver settings.

Note: Non-Epson drivers may need to have a custom profile created to ensure optimum print quality. Non-Epson drivers may not support MicroWeave

5.1 Set Resolution (**1440 High Speed- OFF** for best quality)

5.1.1 Slight banding may occur at lower resolutions. That is within the printer's specifications.

5.2 Verify that **MicroWeave** is enabled.

5.3 Verify Screening Method (**Error Diffusion** is the best choice).

5.4 Verify Paper settings.

5.4.1 Type (**Plain, Semi-Gloss, Luster, etc.**)

5.4.2 Configuration (**Paper Thickness, Suction, etc.**)

6. Inspect **Paper Feed Encoder Disc** for cleanliness.

7. Perform **Paper Feed Belt** Tension Adjustment.

8. Perform Feed Length Adjustment.

9. Perform Banding Adjustment for Fine-tuning.

NOTE: (This adjustment is the responsibility of the User. Adjustment must be performed from the customer's computer. The compensation value is attached to the driver.)

10. Verify correct Head ID (**Print Head** calibration value)

10.1 Compare the label on the **Print Head** and "Head ID" value located in the **Adjustment** section of the Self-Diagnostic Mode.

11. Verify that the printer doesn't pause during printing (caused by a slow computer).
 - 11.1 If the printer pauses, it can create a horizontal band (especially on pigment ink printers). To minimize the problem:
 - 11.1.1 Set **Spool Settings** within the **Driver Properties**
 - 11.1.1.1 Select **Start printing after last page is spooled**
 - 11.1.2 Set **High Speed OFF** within the printer driver.
12. Replace the **Paper Feed Motor** (very rare)

Vertical Banding, Linear

1. Print with High Speed turned off (Uni-directional).
 - 1.1 If the quality improves perform a Bi-directional adjustment.
2. Verify the Printer Driver settings.

Note: Non-Epson drivers may need to have a custom profile created to ensure optimum print quality. Non-Epson drivers may not support MicroWeave. Use the Epson driver, supplied media, and image to eliminate customer media, driver and application issues.

 - 2.1 Set Resolution (**1440 High Speed- OFF** for best quality)
 - 2.1.1 Slight banding may occur at lower resolutions. That is within the printer's specifications.
 - 2.2 Verify that **MicroWeave** is enabled.
 - 2.3 Verify Screening Method (**Error Diffusion** is the best choice).
 - 2.4 Verify Paper settings.
 - 2.4.1 Type (**Plain, Semi-Gloss, Luster, etc.**)
 - 2.4.2 Configuration (**Paper Thickness, Suction, etc.**)
3. Perform the Uni-directional Adjustment

4. Verify Platen Gap, with the **Printer Settings** section, of the SelecType Menu.
 - 4.1 Four settings are available: **Standard, Narrow, Wide, Wider.**
 - 4.2 Set to the appropriate setting to match the media (default is **Standard**)
 - 4.3 Verify that the platen gap is being set to the proper position by observing the **Platen Gap HP Flag.**
 - 4.3.1 Inspect **Thickness Sensor Actuator** for proper position.
 - 4.3.2 Adjust if required.

Vertical Banding, Irregular: (Paper Rippling)

1. Verify Printer Driver settings.

Note: Non-Epson drivers may need to have a custom profile created to ensure optimum print quality. Non-Epson drivers may not support MicroWeave

- 1.1 Set Resolution (**1440 High Speed- OFF** for best quality)
 - 1.1.1 Slight banding may occur at lower resolutions. That is within the printer's specifications.
- 1.2 Verify that **MicroWeave** is enabled.
- 1.3 Verify Screening Method (**Error Diffusion** is the best choice).
- 1.4 Verify Paper settings.
 - 1.4.1 Type (**Plain, Semi-Gloss, Luster, etc.**)
 - 1.4.2 Configuration (**Paper Thickness, Suction, etc.**)

Note: Very High humidity may contribute to the issue (wet paper). Use the Epson driver, supplied media, and image to eliminate customer media, driver and application issues.

2. Verify correct Head ID (**Print Head** calibration value)
 - 2.4.1 Compare Label on print head with Value indicated by Adjustment program.

Over or Under Saturation: (See Vertical Banding Irregular

Grainy:

3. Verify Platen Gap, with the **Printer Settings** section, of the SelecType Menu.
 - 3.1 Four settings are available: **Standard, Narrow, Wide, Wider.**
 - 3.2 Set to the appropriate setting to match the media (default is **Standard**)
 - 3.3 Verify that the platen gap is being set to the proper position by observing the **Platen Gap HP Flag.**
 - 3.3.1 Inspect **Thickness Sensor Actuator** for proper position.
 - 3.3.2 Adjust if required.
4. Perform the Head Angular Adjustment.
5. Perform the Bi-directional Adjustment.
6. Perform the Uni-directional Adjustment.

Un-sharp: Caused by too much dot gain: (See Vertical Banding Irregular)

Smear: typically caused by one or more of the following reasons.

1. Slow dry time caused by 3rd party media.
 - 1.1 Try with the Epson supplied media, image and driver.
2. Slow dry time caused by 3rd party ink.
3. Slow dry time caused by over saturated media.
 - 3.1 Try with the Epson supplied media, image and driver.

Debris:

1. Clean the edges (metal) of the **Print Head** (**DO NOT touch Print Head nozzle area**).
2. Clean the **Cap, Wiper Blade, and Wiper Cleaner**.

Note: Look for fibers from cotton or rag based media, attracted to the Print Head and saturated with ink. It collects and drops onto the media.

Smudge:

1. Clean the **Paper Feed Rollers**.
 - 1.1 (Ink or dirt accumulation)
2. Ensure **Print Head** is in the cap position while loading paper.
 - 2.1 (Paper contact with the **Print Head** during loading)
3. Increase **Suction to Normal** or feed paper an extra 3 inches.
 - 3.1 (Too much curl on the leading edge of the media for the **Suction Fan** to overcome, results in contact between the media and the **Print Head**)

Drop of Ink:

1. Inspect the **Ink Supply Tubes** for damage (Leakage).
2. Inspect **Dampers** for correct installation or damage (Leakage).
 - 2.1 Inspect the **O-ring** inside the **Joint Screw** (fitting that joins the **Ink Supply Tube** to the **Damper**).
 - 2.1.1 Look for a deformed **O-ring** caused by over tightening the **Joint Screw**

Paint Brush Effect: Ink saturated fibers on the Printhead being dragged across the media.

3. Clean the edges (metal) of the **Print Head** (**DO NOT touch the Print Head nozzle area**)

3.1 Clean **Cap, Wiper Blade, and Wiper Cleaner Assembly**

Note: Look for fibers from cotton or rag based media, attracted to the Print Head and saturated with ink. It collects and drops onto the media.

Pixilated:

1. Use the Epson supplied image to eliminate the following:
 - 1.1 Application
 - 1.2 Low quality (resolution) image
2. Perform a Bi-Directional Adjustment
3. Perform a Uni-directional Adjustment

Ink Color Contamination:

Note: It is caused by a restriction in the ink supply. The restriction causes the Damper for the contaminated color to collapse. Eventually the collapsed Damper will expand, drawing ink from the Cap through the Print Head into the Damper, contaminating the color.

1. Inspect or replace the following components.
 - 1.1 The related **Damper** for a clog (replace if required).
 - 1.2 **Supply Tubes** for crimps or clogs (replace if required).
 - 1.3 A 3rd party, or damaged ink cartridge.
2. Clean the **Cap, Wiper Blade, and Wiper Cleaner Assembly**.

Ink Impurities: Poor quality control in the manufacture of 3rd party ink

Ghosting:.

1. Perform the Bi-D Adjustment
2. Perform the Uni-Directional Adjustment

White Specks:

Note: Caused by particles that flaked off Epson Premium Luster Paper during cutting. The particles attach themselves to the leading edge of the remaining paper, and absorb some of the ink from the next image. Latter, the particles drop off, leaving white specks where there is no ink.

Margin Shift:

Note: Caused by incorrect horizontal positioning information from the Carriage Encoder device.

1. Clean or replace the **Timing Fence** (most likely).
2. Clean and adjust the **Carriage Encoder**.
3. Clean the **Carriage Rail**.
4. Perform the **CR Belt** Tension adjustment.

Bi-Directional Adjustment Instructions

The 7600/9600 Printers have multiple ways to perform Bi-Directional adjustments. The Service Technician has access to the primary Bi-Directional adjustment. All other methods depend on the accuracy of the primary adjustment. The following explains the primary method of adjustment.

1. Enter **Self Diagnostic Mode**
 - 1.1 Turn on the **Printer** while holding the **Paper Feed +**, **Paper Feed -**, and the **Cut/Eject** buttons.
2. Enter the **Check: Adjustment** menu.
3. Load Double Weight Matte paper.
4. Execute **Bi-D** adjustment
 - 4.1 Print the black pattern (the printer will print the colored patterns also)
 - 4.1.1 Adjust the black pattern
 - 4.1.2 Reprint the black pattern
 - 4.1.3 Repeat steps 4.1.1 and 4.1.2 if necessary
 - 4.2 Print the 6 corresponding colored patterns
 - 4.2.1 Identify the correct value for each color, and enter the value.
 - 4.3 Repeat 4.1 through 4.2 for the next two groups of seven colors.

There are 21 adjustment patterns. The patterns are divided into 3 groups of 7. It is necessary to align the black pattern (the first pattern for every group of 7) before aligning the 6 colored patterns that correspond. The six corresponding colored patterns are relational to the black pattern. Changing the black pattern, changes the colored patterns.

5. After completing all 21 patterns:

5.1 Execute **Copy Param** (the next menu item following Bi-D)

Copy Param (Copy Parameters) initializes Bi-D2 and Bi-D3. Failure to do so will result in very poor print quality with some media and resolutions.

Print Head Replacement Procedure

1. Place a sheet of paper (drop cloth) under **Printer** work area.
2. Remove the **Ink Cartridges** to close the **Ink Valves**
3. Removal of the **Damper Assembly**.
 - 3.1 Turn off the **Printer** and **UNPLUG from AC**.
 - 3.2 Remove the **Control Panel, Waste Ink Tank**, and the **Right Side Cover**.
 - 3.3 Re-connect the **Control Panel** to the cable.
 - 3.4 Gently press on the **Cutter Assembly** to release the **Carriage Mechanism** from the capped position.
 - 3.5 Loosen the screw securing the middle of the **Damper Holder**.
 - 3.6 Separate the **Damper Assembly** from the **Printhead**.
 - 3.7 Disengage the three hooks to separate the **Damper Assembly** into two pieces.
 - 3.8 Note the order that the **Ink Tubes** are connected to the **Dampers (K,LK,DC,LC,DM,LM,Y)**.
 - 3.9 Disconnect the **Joint Screws**, and separate the **Dampers** from the **Tubing**.
4. Removal of the **Print Head**
 - 4.1 Loosen the left screw of the **Head Holder**.
 - 4.2 Remove the right screw and release the **Head Holder** downward.
 - 4.3 Gently remove the **Print Head** by lifting on the inner side.
 - 4.4 Disconnect the two **Foil Cables** from the **Print Head**.
5. Installation of the **Print Head**.
 - 5.1 Write Down the Head Rank (**Print Head** Calibration Value)
 - 5.2 Insert the **Print Head Cables**.

- 5.3 Ensure the **Print Head Cables** are fully inserted, **to avoid damaging the Main Board**.
 - 5.4 Install the **Print Head** onto the **Carriage Assembly**.
 - 5.5 Place your fingers on the base of the **Print Head** and slide the **Print Head**, ensuring that it is seated properly.
 - 5.6 Secure the **Head Holder** with both screws.
 - 5.7 Back off each screw a 1/4 turn and ensure the **Print Head** still slides, using the **Adjustment Lever**.
 - 5.8 Set the **Adjustment Lever** 1/4 of an inch from the top/back position.
6. Installation of the new **Dampers**.
- 6.1 Before installation, inspect the **Dampers** closely (Look for cuts in the flexible membrane).
 - 6.2 Inspect the **O-rings** for damage and replace if necessary.
 - 6.3 Place a **Joint Screw**, then an **O-ring** onto an **Ink Tube**.
 - 6.4 Insert the **Tube** fully into a **Damper**.
 - 6.5 Maintain insertion pressure on the **Ink Tube**, and finger tighten the **Joint Screw**.
 - 6.6 Repeat steps 6.1 through 6.5 for each **Damper**.
 - 6.7 Install the **Dampers** into the **Damper Holder** and reassemble.
 - 6.8 Insert the Ink Cartridges
 - 6.9 Manually prime the **Dampers** using a syringe.
 - 6.10 Remove the **Ink Cartridges** (closing the **Valves**)
 - 6.11 Install the **Damper Assembly** onto the **Print Head**.
 - 6.12 Park the **Print Head** on the **Cap Assembly**.
7. Install the **Ink Cartridges** and the **Waste Ink Tank**.
- Note: During the next procedures look for leaks from the dampers.**
If the damper leaks from the outlet, check for proper installation.
If the damper leaks from the fitting, remove fitting and inspect the O-ring. Re-fasten with less pressure.

8. Perform the required adjustments.

- 8.1 Plug in the **Printer** and connect to your **PC** via Parallel or USB.
- 8.2 Turn on the **Printer (the Printer must be in "Ready" mode)**.
- 8.3 Execute the **Adjustment Wizard (adj_wiz.exe) (the Printer must be in "Ready" mode)**.
 - 8.3.1 Select **Printer Name** from the drop down menu.
 - 8.3.2 Select **Printhead** from the **Parts Replaced During Service** list.
 - 8.3.3 Click on the **Right Arrow** button to select **Print Head** and click Next.
 - 8.3.4 A list of adjustments will appear.
 - 8.3.5 Click **Next** and complete the adjustments using the instructions provided.
 - 8.3.5.1 Head Rank
 - 8.3.5.2 Clear Print Head Counter.
 - 8.3.5.3 Input Rank.
 - 8.3.5.4 Ink Charge (**Do Not perform, proceed to Nozzle Check**)
 - 8.3.5.5 Nozzle Check
 - 8.3.5.5.1 Cleaning cycles and then nozzle check (until all nozzles are working).
 - 8.3.5.6 Head Slant
 - 8.3.5.7 Top/Bottom/Side Margin
 - 8.3.5.8 Platen Position Adjustment
 - 8.3.5.9 Bi-D Adjustment
 - 8.3.5.10 Uni-d Adjustment (Head Gap)
 - 8.3.5.11 Leak Check
 - 8.3.5.12 Test Print
 - 8.3.5.12.1 Confirmation patterns for all the adjustments.
 - 8.3.5.12.2 Inspect and repeat any necessary adjustments by clicking the back button.
 - 8.3.5.13 Click **Finish** if patterns are acceptable.

9. Print a test image.
10. Re-assemble the **Printer**.
 - 10.1 Turn off the **Printer** and **unplug from AC**.
 - 10.2 Remove the **Waste Ink Tank**.
 - 10.3 Install the **Side Cover**.
 - 10.4 Install the **Waste Ink Tank**.
 - 10.5 Install the **Control Panel**.
11. Plug in the **Printer** and turn it on.
12. Perform a **Nozzle Check** from the **Self Diagnostic / Adjustment menu**.

Main Board Replacement

Note: The 7600 and 9600 use different Main Boards.

The 7600 Main Board has no optional take up reel connector (CN 30)

The 9600 Main Board has the optional take up reel connector (CN 30)

1. Parameter Backup
 - 1.1 Connect PC to printer (Parallel or USB).
 - 1.2 Turn the **Printer** ON
 - 1.3 Execute the NVRAM.EXE program (Parameter Backup Utility).
 - 1.4 Select **Printer**
 - 1.5 Select **Read** (it takes approximately 20 minutes)
 - 1.6 Select **Save**
 - 1.6.1 Create name for file and save to your hard drive. (I.E. **9600_00058.bin**) 00058 = Last 5 digits of Serial Number.
2. Remove the **Main Board Housing**.
3. Turn off the **Printer** and **UNPLUG from AC**.
4. Remove the **Main Board**.
5. Set the **Dip Switch** settings on **New Board** to match the **Old Board**.
6. Install the **New Board**.
7. Ensure that the **Foil Cables** are inserted correctly, or **the new board will be damaged**.
8. Update the **Firmware** on **New Board**.

- 8.1 Plug in the **Printer** and connect to your **PC** via **Parallel or USB**.
 - 8.2 Turn on the **Printer (the Printer must be in “Ready” mode)**.
 - 8.3 Send the Firmware file using the DOS or Windows Firmware Update Method.
9. Re install the parameters.
- 9.4 Execute the NVRAM.EXE program (Parameter Backup Utility).
 - 9.5 Select **Printer**.
 - 9.6 Select **Open**.
 - 9.6.1 Open the file that your previously created and named (I.E. **9600_00058.bin**).
 - 9.7 Select **Write**

Caution: Do not turn off Printer until the control panel lights stop flashing (they flash very subtly). The utility indicates that the data has transferred, but the printer requires twenty more minutes to process the data.

- 9.8 Click **Quit** to close the application.
- 9.9 Turn the **Printer** off, and then on.

Note: If Parameters can not be reloaded proceed to Step 10 for the adjustment procedures.

Adjustments procedure if the **Parameter Backup** was successful.

- 9.10 Execute the **Adjustment Wizard (adj_wiz.exe) (the Printer must be in “Ready” mode)**
 - 9.10.1 Select **Printer Name** from the drop down menu.
 - 9.10.2 Select select **Main Board, (Backup OK)** from the **Parts Replaced During Service** list.
 - 9.10.3 Click on the **Right Arrow** button to select **Main Board, (Backup OK)** and click **Next**.
 - 9.10.4 A list of adjustments will appear.
 - 9.10.5 Click **Next** and complete each adjustment as directed.
 - 9.10.5.1 Edge AD
 - 9.10.5.2 Rear AD

9.10.5.3 Write RTC

10. Adjustments if the **Parameter Backup** failed.

10.1 Execute the **Adjustment Wizard (adj_wiz.exe)** (*the Printer must be in "Ready" mode*).

10.1.1 Select **Printer Name** from the drop down menu.

10.1.2 Select **Main Board, (Backup NG)** from the **Parts Replaced During Service** list.

10.1.3 Click on the **Right Arrow** button to select **Main Board, (Backup NG)** and click **Next**.

10.1.4 A list of adjustments will appear.

10.1.5 Click **Next** and complete each adjustment as directed.

10.1.5.1 Edge AD

10.1.5.2 Rear AD

10.1.5.3 Clear Initial Ink Charge (Cancels Initial Charge)

10.1.5.4 Write RTC

10.1.5.5 Confirm Rank (Write down value from print head.)

10.1.5.6 Input Rank

10.1.5.7 Ink Charge (**Do Not perform, proceed to Nozzle Check**)

10.1.5.8 Nozzle Check

10.1.5.9 Clean as necessary.

10.1.5.10 Head Slant

10.1.5.11 1000mm Feed Length Adjustment

10.1.5.12 Top/Bottom/Side Margin Adjustment

10.1.5.13 Platen Position Adjustment

10.1.5.14 Bi-d Adjustment

10.1.5.15 Uni-d Adjustment (Head Gap)

10.1.5.16 Rear Sensor Position

10.1.5.17 Write USB ID.

10.1.6 Click on the **Print** button to print all the adjustment patterns.

10.1.7 Inspect and repeat any adjustments by clicking the **Back** button.

10.1.8 Click **Finish** if the patterns are acceptable.

11. Turn off the **Printer** and **UNPLUG from AC**.

12. Re-install the **Main Board Housing**.

13. Plug in the **Printer** and turn it on.

14. Perform a **Nozzle Check** from the **Self Diagnostic Check:Adjustment** menu.

Paper Feed Belt Tension Adjustment

Note: The following instructions are for the purpose of performing the belt tension adjustment when the 4000g Tension Gauge is not available. Recommended tension is 2200g

1. Remove the **Left Side Cover** (4 Screws).
2. Loosen the **4 screws** on the **Fixing Bracket** indicated in FIG. 1.
3. Slide the **Fixing Bracket** in the direction indicated in FIG. 1.
4. While holding the **Bracket** in place, tighten the **bottom left and top right screws** to secure **Bracket** evenly.
5. Secure remaining 2 **screws**.
6. Inspect the **Belt** tension by pressing with your finger as shown in FIG. 2.
7. The **Belt** will flex approximately a 1/8". Refer to red circle in FIG. 2.

Fig.1

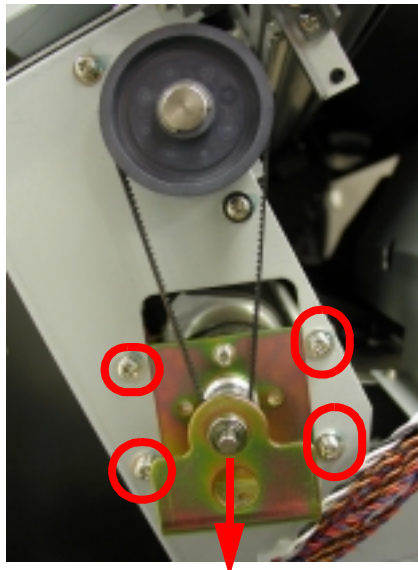
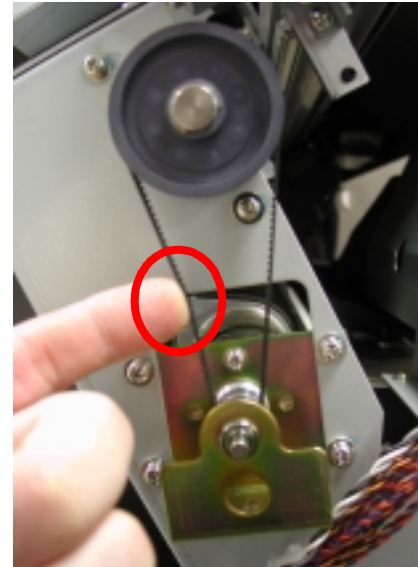


Fig. 2

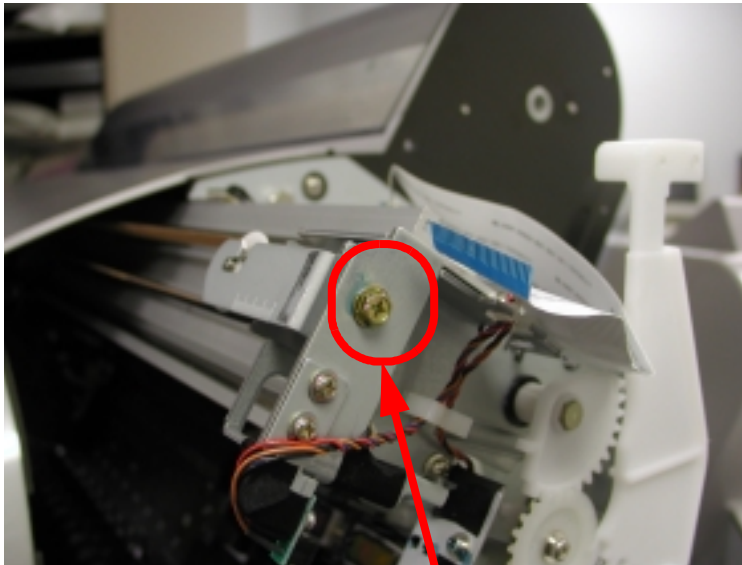


NOTE: If the Paper Feed Timing belt tension is too loose, Horizontal Banding will appear. Refer to the Image Quality Diagnosis Document for more details on Horizontal Banding.

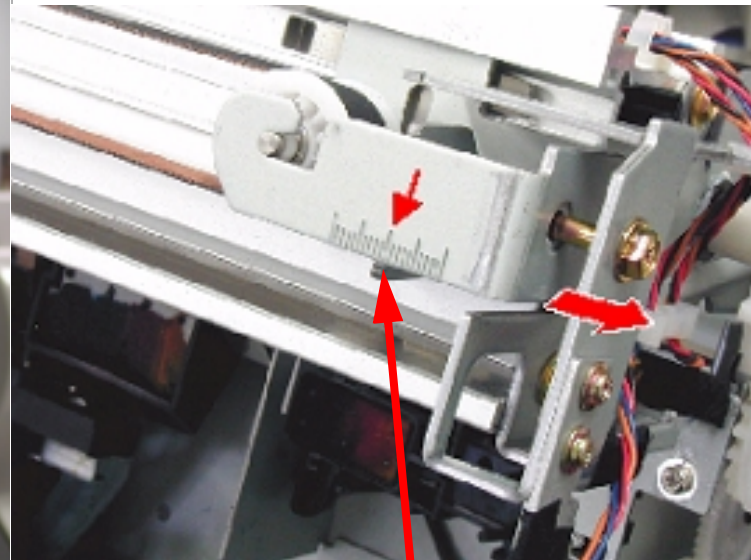
Carriage Belt Tension Adjustment

The following instructions explain how to perform the belt tension adjustment when the 10000g Tension Gauge is not available. Recommended tension is 8000g.

1. Remove the **Right Side** cover. (4 Screws)
2. Turn the adjustment screw so that the **Tension Gauge** is set to the middle position of the **Scale**.



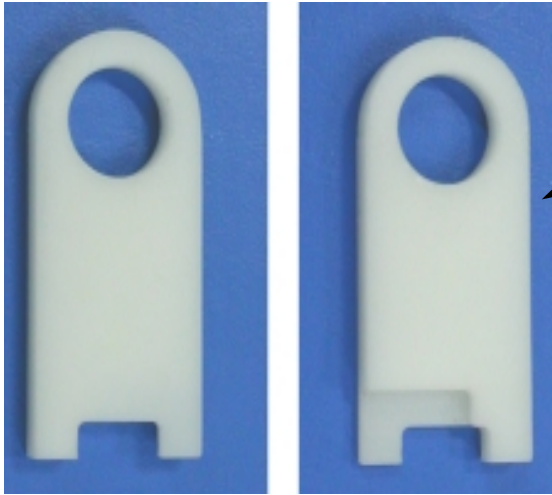
Adjustment Screw



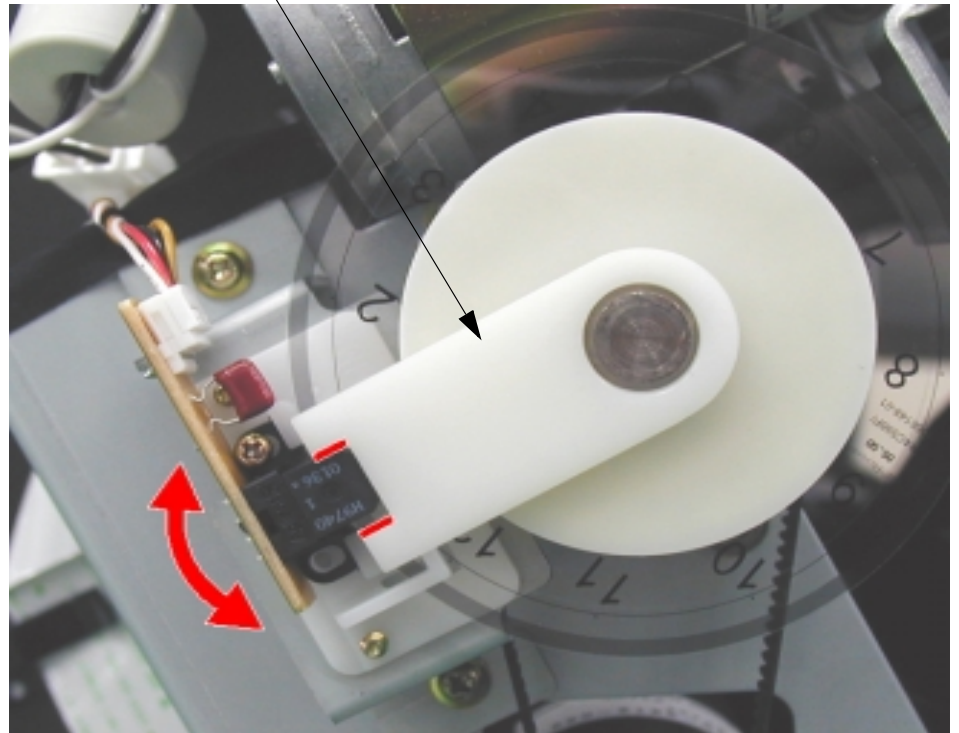
Middle Position

NOTE: If the CR Timing Belt tension is loose, you may encounter carriage errors. Also a slight vibration may occur when printing, resulting in vertical banding.

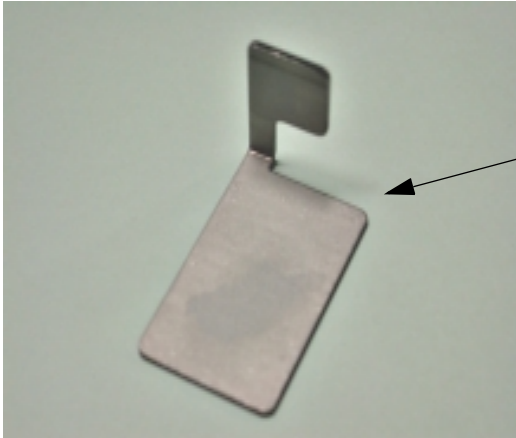
Paper Feed Encoder Alignment



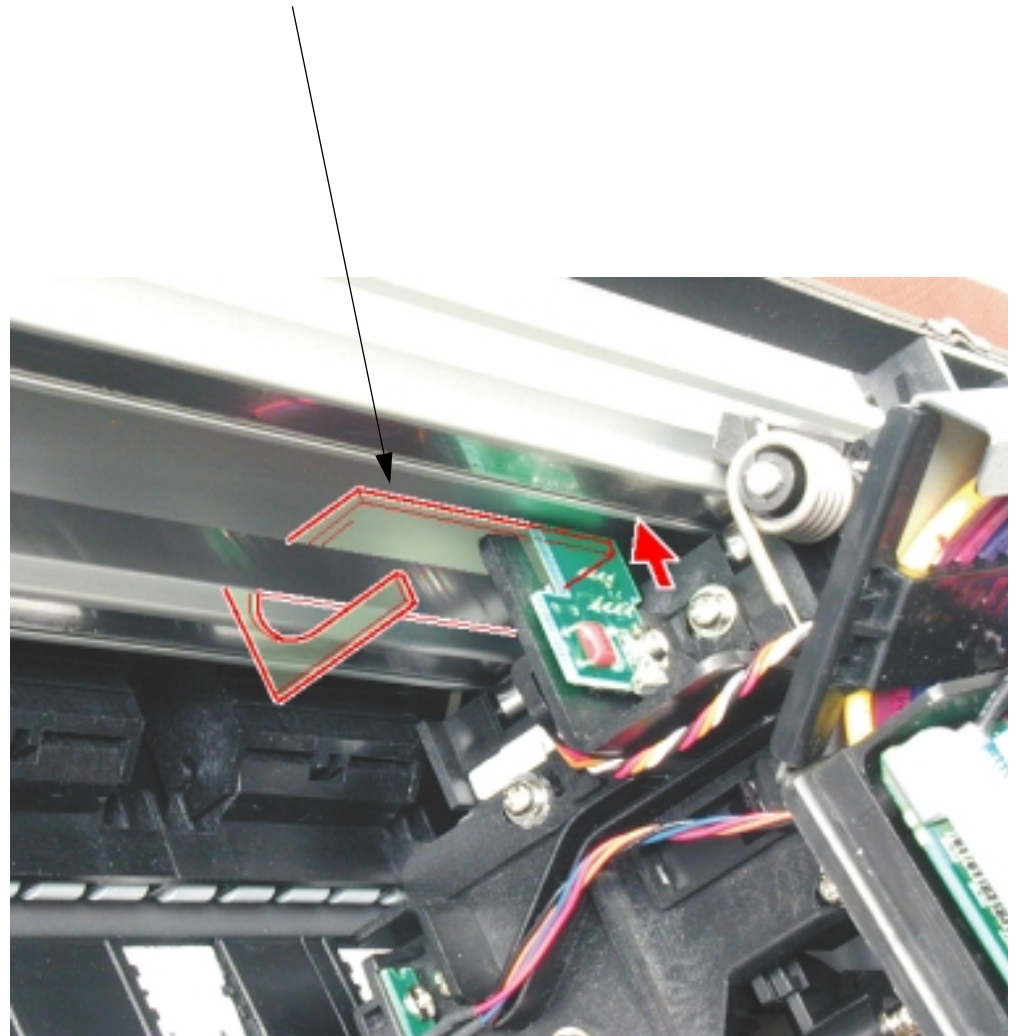
Special Tool:
Will be provided by Epson, when necessary,
on a case by case basis.



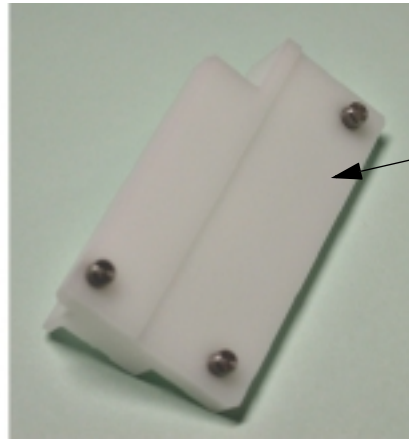
Carriage Encoder Alignment



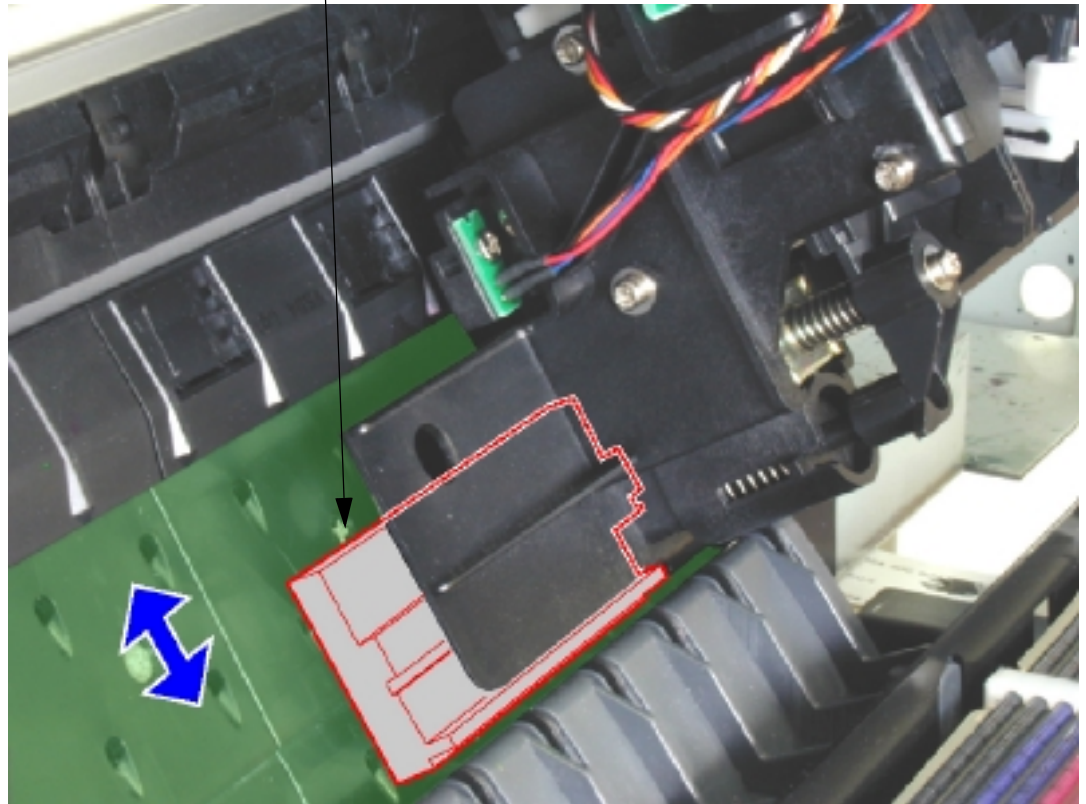
Special Tool:
Will be provided by Epson, when necessary,
on a case by case basis.



Cutter Guide Alignment



Special Tool:
Will be provided by Epson, when necessary,
on a case by case basis.



Parameter Back-Up Utility (NVRAM.exe)

Purpose:

Back up and restore all parameters for the Printer.

Location:

(Epson Resource CD): **Adjustment Software\76_9600\Backup Utility\ (SP7600 or SP9600)**

File Name: **NVRAM.exe**

Note: The Printer Driver for the Printer must be loaded on the PC.

To Back up:

1. Turn on the **Printer** and load paper (Printer must be “Ready”)
2. Open **NVRAM.exe**.
3. Select the name of the **Printer** being serviced.
4. Select **Read** (Wait approximately 20 minutes for printer to complete).
5. Select **Save** Give the file a unique name (I. E. **9600_00058. bin**)(**Model_Serial #**).

To Restore:

1. Turn on the **Printer** and load paper (Printer must be “Ready”)
2. Open **NVRAM.exe**.
3. Select the name of the **Printer** being serviced.
4. Select **Open**

5. Select the **File** that was previously created (I. E. **9600_00058.bin**).
6. Select **Write** (Wait approximately 20 minutes for printer to complete).

Caution: Do not turn off Printer until the control panel lights stop flashing (they flash very subtly). The utility indicates that the data has transferred, but the printer requires twenty more minutes to process the data.

To Restore: (Printer in Error State)

1. Open **NVRAM.exe**.
2. Select the name of the **Printer** being serviced.
3. Select **Open**
4. Select the **File** that was previously created (I. E. **9600_00058.bin**).
5. Turn on the Printer while holding **Power On + Paper Source + Paper Down + Cut/Eject** (Maintenance Mode 2).
6. Scroll and select **Parameter Backup mode**, and execute.
7. Select **Write** (**Display will indicate nothing, Wait 30 minutes for printer to complete. Turn Printer OFF**)

If Parameter Back Up fails, and the Printer will not Store Parameter Settings

1. Open **NVRAM.exe**.
2. Select the name of the **Printer** being serviced.

3. Select **Open**
4. Select the appropriate recover **File** for the printer (**I.E. 9600recovery.bin**).
5. Turn on the Printer while holding **Power On + Paper Source + Paper Down + Cut/Eject** (Maintenance Mode 2).
6. Scroll and select **Parameter Backup mode**, and execute.
7. Select **Write** (**Display will indicate nothing, Wait 30 minutes for printer to complete. Turn Printer OFF**)
8. Load **ADJ_WIZ.EXE**
9. Select **Main Board (Back up NG)**.
10. Follow the instructions to perform all necessary adjustments.

Adjustment Wizard (Adj_wiz.exe)

Purpose:

To assist in performing all the necessary adjustments after replacing a part (or parts).

Location:

(Epson Resource CD): **Adjustment Software\76_9600\Adjustment Wizard\{SP7600 or SP9600}**\

File Name: **Adj_wiz.exe**

Note: The Printer Driver for the Printer must be loaded on the PC.

To Use:

1. Replace the part(s) on the **Printer**.
2. Turn on the **Printer** and load paper (Printer must be “Ready”)
3. Open **Adj_wiz.exe**.
4. Select the name of the **Printer** being serviced.
5. Select the appropriate **part(s)** from the **Change Parts** menu
6. Select **OK** and follow the prompts.

Updating Firmware From Windows (WinPRN Utility)

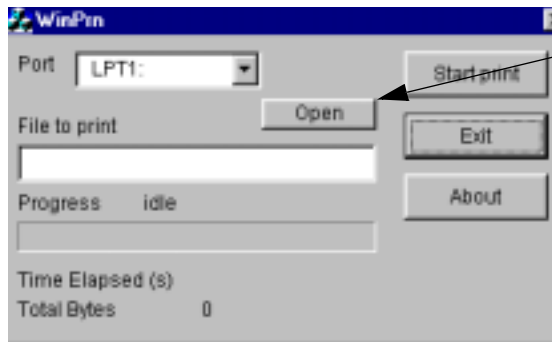
Caution: 7600 and 9600 firmware files are not compatible.

BW3024.upg (9600) and BN3024.upg (7600) is the correct file format for this method.

BW3024_q.upg (9600) and BN3024_q.upg (7600) is the correct file format for the Epson Printer Service Utility.

1. Execute WINPRN.EXE Located in the Utilities folder on your Epson Resource CD.
2. Click **Open**.

OPEN

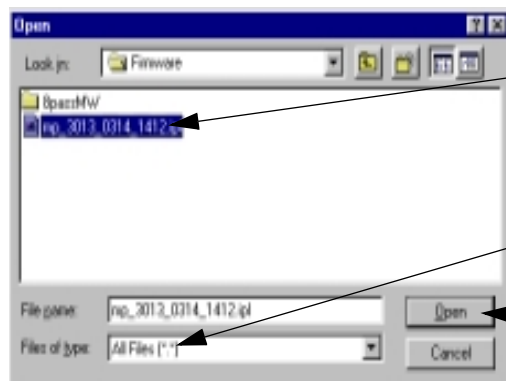


3. Locate Firmware File

Firmware File (BW3024.upg)

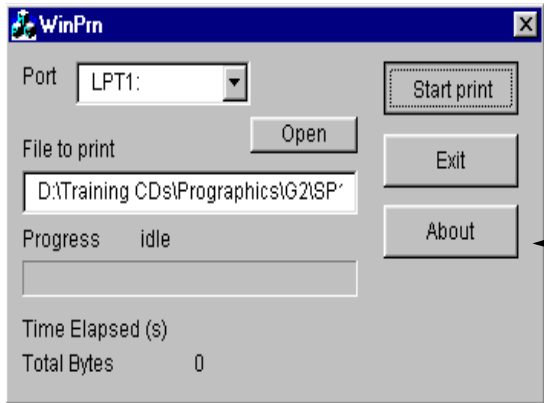
File Type *.*

Open



- 3.1 Change File Type to *.*

- 3.2 Highlight **Firmware file (BW3024.upg)**
- 3.3 Click on **Open**
4. Turn on the **Printer** while holding down the **Cleaning + Paper Source + Cut/Eject** buttons.
 - 4.1 The display will read **F/W Download.**
5. Click **START PRINT** to copy file to printer.



Start Print

- 5.1 Once completed, the display will read **Update Complete** and all **Control Panel** LED's will be ON.
6. Turn off the **Printer**.

Updating Firmware From DOS

Caution: 7600 and 9600 firmware files are not compatible.

BW3024.upg (9600) and BN3024.upg (7600) is the correct file format for this method.

BW3024_q.upg (9600) and BN3024_q.upg (7600) is the correct file format for the Epson Printer Service Utility.

1. Connect the **Printer** to the **PC** via a **Parallel Printer Cable**.
2. Copy the firmware file to the ROOT directory of you **Hard Drive**.
3. Boot your **Computer** in DOS mode.
4. Ensure that you are logged to C:\
5. Type: **copy (name of firmware file.extension) lpt1:/b** (**do not press the Enter key**)
 - 5.1 Example: **copy BW3024.upg lpt1:/b**

Note: Step 4 prepares the computer to send the firmware. It is important to send the file quickly after preparing the printer to receive it. At this point, when the Enter key is pressed, the file will be sent.
6. Turn on the **Printer** while holding down the **Cleaning + Paper Source + Cut/Eject** buttons.
 - 6.1 The display will read **F/W Download**
7. Press the **Enter** key on the PC key to start the firmware update.
 - 7.1 Once completed, the display will read **Update Complete** and all **Control Panel** LED's will be ON.
8. Turn off the **Printer**.

Epson User Print Quality Solutions

The Stylus Pro 7600/9600 provide the Printer User with three methods for tuning their Printer to their job specifications, media, and ink.

The print quality solutions discussed in this document are the responsibility of the User and the Epson User Phone Support Group to implement. The purpose of this document is to inform the Service Technician of the User solutions, only.

The three methods for tuning the User's Printer fall into two groups.

- Methods that work with the Epson Printer Driver.
- Methods that work with Non-Epson Printer Drivers and RIPs.

Epson Printer Driver Support

Epson Printer Service Utility

This utility allows the User to control:

- Ink drying time between passes (to reduce smearing).
- Paper feed pitch (to reduce horizontal banding).
- Suction Fan power (to reduce vertical rippling on thin media).
- Cut Method (to reduce cutting errors on thin media).
- Ink density (to increase or reduce saturation).
- Turn off MicroWeave (***to increase speed, but cause horizontal banding***).
- Update Firmware.
- Perform Bi-Directional and Head Gap Adjustments.
- Perform a strong Print Head Cleaning

The Epson Printer Service Utility consists of menu choices and test prints that allow the User to adjust the custom settings. The adjusted custom settings are named and saved. They can be loaded from the Custom menu on the Printer Driver at the User's discretion.

A Technician should use his media, image, and driver (computer) to bypass all User settings. If the

Printer is aligned properly, and works with the Technician's media, image, and Printer Driver, the issue should be referred back to Epson Phone Support.

Epson Printer Driver (Paper Config Section)

This Section of the Printer Driver does essentially what the Epson Printer Service Utility does. It can be used to adjust and save custom settings. They can be loaded from the Custom menu on the Printer Driver at the User's discretion. This method has no test print support, and requires more experimentation and User knowledge.

Non-Epson Drivers/RIPs Support

The Stylus Pro 7600/9600 Printers utilize numerous media and ink control features that are accessed by commands built into the Epson Printer Driver. The purpose of the control features is to improve print quality and minimize banding, and saturation issues. Non-Epson Drivers and RIPS do not support those control features.

The SelecType / Paper Config menu allows the User to configure the Printer to use a group of custom settings on every job that is received that does not contain Epson Printer control feature commands. The following is a list of custom settings supported.

- Paper Number (to assign a number to the custom settings).
- Cut Pressure (to control cutter blade pressure).
- Cut Method (to reduce cutting errors on thin media).
- Paper feed pitch (to reduce horizontal banding).
- Drying time (to increase Ink drying time between passes to reduce smearing).
- **Suction Fan** power (to reduce vertical rippling on thin media).

Firmware History

EPSON Stylus Pro 9600 (Current version: BW0526)

| Firmware Version | Release Date | Description of Changes | Backward Compatibility Issues |
|------------------|--------------|--|-------------------------------|
| BW3024 | 4/30/02 | Initial release for mass production units. | N/A |
| BW0526 | 6/05/02 | <p>1) Corrected the issue of ink out when the initial ink charge is performed and the user interrupts the process by doing the following:</p> <ol style="list-style-type: none"> 1. Opening the front cover. 2. Releasing the paper release lever. 3. Releasing the ink holder lever. 4. Turning the printer off. <p>The printer will not stop the initial ink charge when any of the above acts are performed and the unit will continue to prime the ink delivery system. However, if the waste ink tank or ink cartridges are removed during the initial fill, the ink flag will stop and generate an ink out condition.</p> <p>2) Corrected "Svc. Req. 1000C" error when the front cover is open and closed again during printing.</p> <p>3) Corrected Bi-d shift when printing at 1440dpi Super Microweave mode.</p> <p>4) Corrected paper jam issue when printing on A4 or Letter size media when paper is back fed prior to printing.</p> <p>5) Corrected issue where printing hangs up if the cover is opened during printing.</p> <p>6) Corrected rare issue where "Svc. Req. 10009" error occurs when turning on printer.</p> <p>7) Corrected issue where Bi-d adjustment for VSD4 is changed when performing VSD2 using the EPSON Printer Service Utility (User Utility).</p> | None |

EPSON Stylus Pro 7600 (Current version: BN0526)

| Firmware Version | Release Date | Description of Changes | Backward Compatibility Issues |
|------------------|--------------|--|-------------------------------|
| BN3024 | 4/30/02 | Initial release for mass production units. | N/A |
| BN0526 | 6/05/02 | <p>1) Corrected the issue of ink out when the initial ink charge is performed and the user interrupts the process by doing the following:</p> <ol style="list-style-type: none"> 1. Opening the front cover. 2. Releasing the paper release lever. 3. Releasing the ink holder lever. 4. Turning the printer off. <p>The printer will not stop the initial ink charge when any of the above acts are performed and the unit will continue to prime the ink delivery system. However, if the waste ink tank or ink cartridges are removed during the initial fill, the ink flag will stop and generate an ink out condition.</p> <p>2) Corrected "Svc. Req. 1000C" error when the front cover is open and closed again during printing.</p> <p>3) Corrected Bi-d shift when printing at 1440dpi Super Microweave mode.</p> <p>4) Corrected paper jam issue when printing on A4 or Letter size media when paper is back fed prior to printing.</p> <p>5) Corrected issue where printing hangs up if the cover is opened during printing.</p> <p>6) Corrected rare issue where "Svc. Req. 10009" error occurs when turning on printer.</p> <p>7) Corrected issue where Bi-d adjustment for VSD4 is changed when performing VSD2 using the EPSON Printer Service Utility (User Utility).</p> | None |

Ink Cartridge Errors

APS FYI Bulletin 07/18/02

1. Question:

I just purchased an UltraChrome Stylus Pro 7600/9600 printer and intend to use it with Matte Black ink only. Could I initialize and perform initial ink charge of the printer with Matte Black ink?

1. Answer:

No, you will **not** be able to initialize the printer and perform initial ink charge with Matte Black inks. You must first initialize the printer with the UltraChrome Black/LBlack ink that was shipped with the printer. Once the printer has been initialized, then perform the ink switch as described in the SP 7600/9600 User's Guide under **Switching Between Black Ink Modes** section. This switching process will take about 10 minutes and it will take of up to 180 - 215 ml of ink total across all 7 ink cartridges.

2. Question:

I have already installed the Matte Black inks into my Stylus Pro 7600/9600 printer as part of the initial charge cycle and now I am getting "**Wrong Cartridge**" error and the printer will not initialize even after placing the UltraChrom Black/LBlack inks into the printer. What is wrong and how should I recover from this?

2. Answer:

You must remove the Matte Black ink and initialize the printer using the UltraChrome Black/LBlack ink that shipped with the printer. If this does not work contact technical support for assistance. If the ink initialization flag data is corrupted the printer may not be able to recognize the UltraChrom Black/LBlack ink cartridges and it may be required to change the **NPD** value under **Maintenance Mode 2*** to "0" to get the printer to initialize. Make sure the customer has the UltraChrom inks installed then switch the **NPD** value to "0".

1. Power Off the printer. Press **Paper Source + Paper Feed - (down) + Cut/Eject** buttons then power On the printer.
2. Navigate to **Service Config** mode then change the **NPD** value to "0".

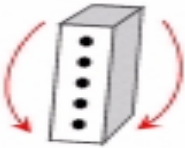
Error Codes

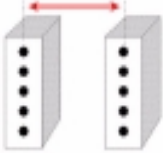
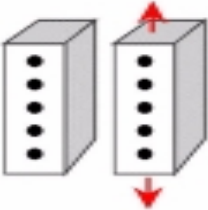
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| 00000101 | CR motor life |
| 00010000 | PF motor encoder check error |
| 00010001 | PF motor out of step |
| 00010002 | PF motor overcurrent |
| 00010003 | PF motor in-position time-out |
| 00010004 | CR motor encoder check error |
| 00010005 | CR motor out of step |
| 00010006 | CR motor overcurrent |
| 00010007 | CR motor in-position time-out |
| 00010008 | Servo interrupt watchdog time-out |
| 00010009 | System interrupt watchdog time-out |
| 0001000A | CR home position sensor error |
| 0001000B | PF home position sensor error |
| 0001000C | Head slide (PG) home position sensor error |
| 0001000F | CR motor PWM output faulty |
| 00010010 | PF motor PWM output faulty |
| 0001001B | Head driver (TG) temperature error |
| 0001001D | CR servo parameter error |
| 0001001E | PF servo parameter error |
| 00010020 | CSIC reed/right error |

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| 00010022 | Ink type error (setting on printer body side) |
| 00010023 | RTC analysis error |
| 00010025 | CSIC ROM communication error |
| 00010026 | RTC communication error |
| 00010028 | Head error |
| 00010029 | Unidentified NMI |
| 0001002A | CR ASIC ECU error |
| 0001002B | PF ASIC ECU 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 |
| 10000E0 | 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 |
| 100005C0 | CPU DMA address error |
| 10000xxx | CPU error |

Glossary

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| 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. |

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| 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: | <p>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.</p>  |

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| <p>Head Gap Adjustment:</p> | <p>An electronic print head adjustment that ensures that the printer knows the exact distance between nozzle sets on separate heads.</p>  <p>The diagram shows two vertical rectangular print heads, one on the left and one on the right. A red double-headed horizontal arrow is positioned above the space between the two heads, indicating the distance between them.</p> |
| <p>Head ID:</p> | <p>The calibration value written on the print head that allows the printers electronics to compensate for the print heads “personality” (inaccuracies).</p> |
| <p>Head Linear Adjustment:</p> | <p>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.</p>  <p>The diagram shows two vertical rectangular print heads. The right head is positioned higher than the left head. A red arrow points upwards from the top of the right head, and another red arrow points downwards from the bottom of the right head, indicating its vertical movement relative to the left head.</p> |
| <p>Home Position:</p> | <p>The print head’s horizontal reference position, as determined by the Home Position Sensor</p> |
| <p>Horizontal Banding:</p> | <p>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.).</p> |
| <p>Horizontal Over-lap:</p> | <p>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.</p> |

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| 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). |

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| 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 an 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. |

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| 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. |