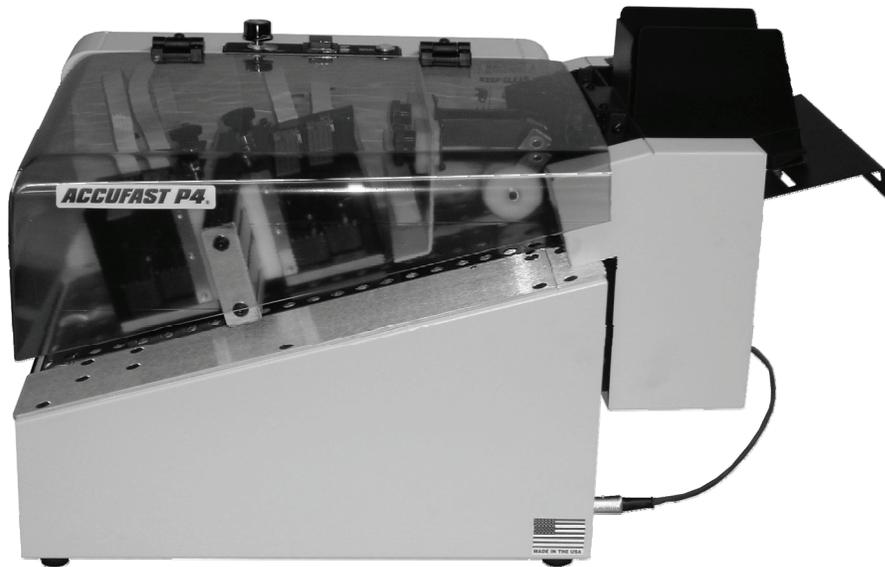


ACCUFAST[®]

PACKAGE PRINTING SYSTEMS



ACCUFAST P4

Small Envelope and Card Printer

User's Guide and Operating Manual

Table of Contents

1.0 Introduction	3
1.1 Items Included	3
1.2 Operating Manual Safety Terms	4
1.3 Safety Precautions	4
1.4 Power Connection and Fusing	5
2.0 Specifications and Requirements	6
2.1 Specifications	6
2.2 Requirements	6
3.0 Unpack and Setup	7
4.0 Mechanical Operation	10
4.1 Loading and Feeding Pieces	10
4.2 Feeder Set Up	11
4.3 Lining up the Print on the Piece	12
4.4 Controls, Adjustments and Indicators	13
4.5 Loading Ink	14
4.6 Feeding Pieces	15
4.7 Feed Adjustments	16
4.8 Connecting the Printer	16
5.0 Software and Printing	17
5.1 Installation	17
5.2 Control Panel	17
5.3 Piece Design and Layout	18
5.4 Print a Document	19
5.5 Printer Controls	20
5.6 Advanced Set Up	22
5.7 Stop Printing	24
6.0 Maintenance	25
6.1 Ink and Pen Cleaning	25
6.2 Pen Capping and Storage	26
6.3 Belt Tracking	26
6.4 Cleaning	27
7.0 Trouble Shooting	28

1.0 Introduction:

The ACCUFAST P4 Small Envelope and Tag Printer is a simple, productive specialty printer designed to offer its owner years of trouble free operation. The P4 is equipped to print on a wide variety of media sizes and types. A variety of feeding units are used to match the diversity of media that the P4 prints.

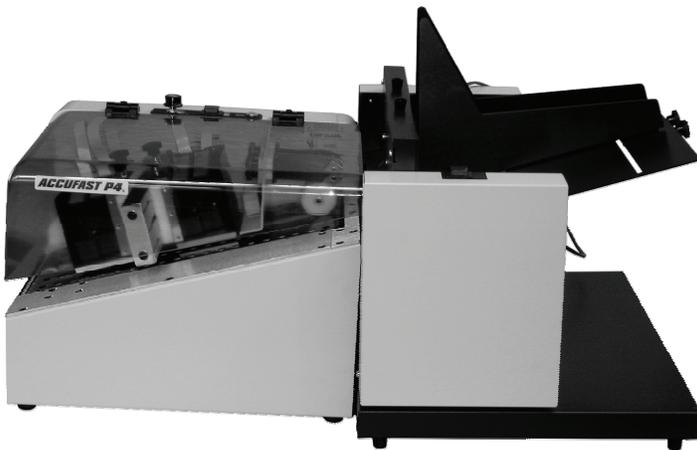
Take a moment to familiarize yourself with the manual and with the machinery. Locate controls and adjustments and get a feel for the set up of the machinery. If larger pieces are to be processed, make sure that you leave room for the FX wide material feeder and its stand. Get an idea for work flow and set the location of the control computer with an eye toward an uncluttered area. Use the picture below as a guide.

1.1 Items Included

The P4 comes in a single carton as does each feeder, stand, stacker and conveyor in a System. Check your requirements to determine the number of cartons to expect..

The P4 carton contains an accessory box which in turn contains:

- Operating manual
- Software
- Cleaning Materials
- USB Cable
- Power Cord



ACCUFAST P4
Small Envelope Printer with
FX wide media feeder and
stand.

1.2 Operating Manual Safety Terms

The following Blocks are used to draw the operator's attention to important information. These blocks are set up in order of importance based on operator safety.

WARNING

USED TO ALERT THE OPERATOR TO CONDITIONS OR ACTIONS WHICH MAY PRESENT HAZARDS OR CAUSE PERSONAL INJURY

Caution

Alerts you to actions which may cause damage to the equipment or create workflow interruptions.

Note

Draws attention to an Important Statement or Action

1.3 Safety Precautions

Observe the following safety precautions and warnings when operating, cleaning, adjusting or repairing the equipment. Failure to do so may result in physical injury or damage to the equipment. The manufacturer assumes no liability for failure of an operator to comply with safety requirements or posted warning labels.

WARNING

NEVER CLEAN, CLEAR OF DISASSEMBLE THE PRINTER WITHOUT FIRST DISCONNECTING THE POWER CORD.

WARNING

KEEP LOOSE CLOTHING, TIES, SCARVES AWAY FROM ALL MOVING PARTS AT ALL TIMES.

WARNING

DO NOT PLACE FINGERS OR TOOLS BETWEEN OR NEAR MOVING PARTS.

The Printer's top cover protects all moving parts of the printer and its feeder when the feeder is connected to the printer. Raising the cover stops all moving parts. Make sure that the cover is fully lowered in order to operate the machinery. Raising the cover during operation should only be done in case of an emergency.

Caution

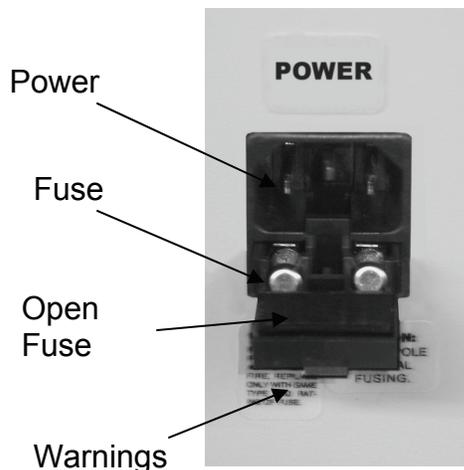
Always turn the speed control knob fully counterclockwise after the cover has been opened and before the machine is re-started. Close the cover, then resume feeding and transporting media from a slow speed.

1.4 Power Connection and Fusing

The P4 is fused in both legs of the main power entry line. Accordingly, it can accept power from most services at all common voltages and amperages. The correct voltage is set at the factory.

WARNING

A BLOWN FUSE IN THE NEUTRAL COULD MEAN THAT INTERIOR PARTS OF THE PRINTER REMAIN AT A HAZARDOUS VOLTAGE. ALWAYS UNPLUG THE POWER CORD BEFORE REMOVING COVERS..



The Fuse Drawer is found on the rear of the machine as a part of the Power Entry Module. It may be opened by prying loose the small clip in the center of the drawer. As the drawer opens, fuses are exposed. Fuses should be 2 amps.

The Power Cord has a neutral leg. Always use a grounded outlet for the P4 Printer.

2. Specifications and Requirements

2.1 Specifications

Size and Weight:

P4: 16.0" long x 12" high x 16.5" wide
With card feeder: 22" long x 16" high x 16" wide
With Wide Feeder: 26" long x 20" high x 23" wide

P4: 35 Lb.
With Card feeder: 40 lb.

Fx Feeder: 20 lb.

Electrical Requirements: 240, 230, 220, 120, 100 VAC at 50 or 60 Hz.
3 amps at 120 VAC. Grounded Outlet.

Production Speed: 20 inches per second fixed, variable feed speed.

Cartridges; HP 51645A style ink jets with 300 x 600 native resolution.

2.2 Requirements

Document Size:

With small feeder 1.5 - 6 wide x 6 long
With large feeder 3 - 14 wide x 10 long

Thickness: 2 sheets - .250 in

System:

Windows XP (Vista Compatible)
600 mhz processor
64 Mb RAM
40 Mb free hard drive space.

3. Unpack and Set Up

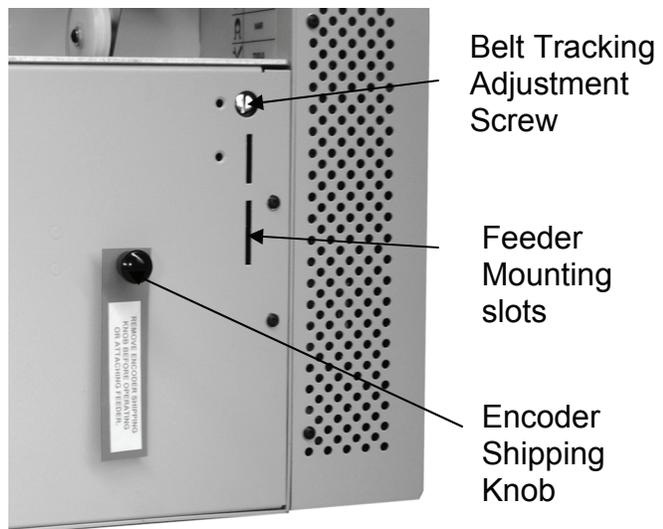
Clear a work space on a flat table and inspect all cartons for obvious shipping damage.

Note

Report any signs of shipping damage to the carrier immediately.

Open the Printer carton and remove the printer and accessory box.

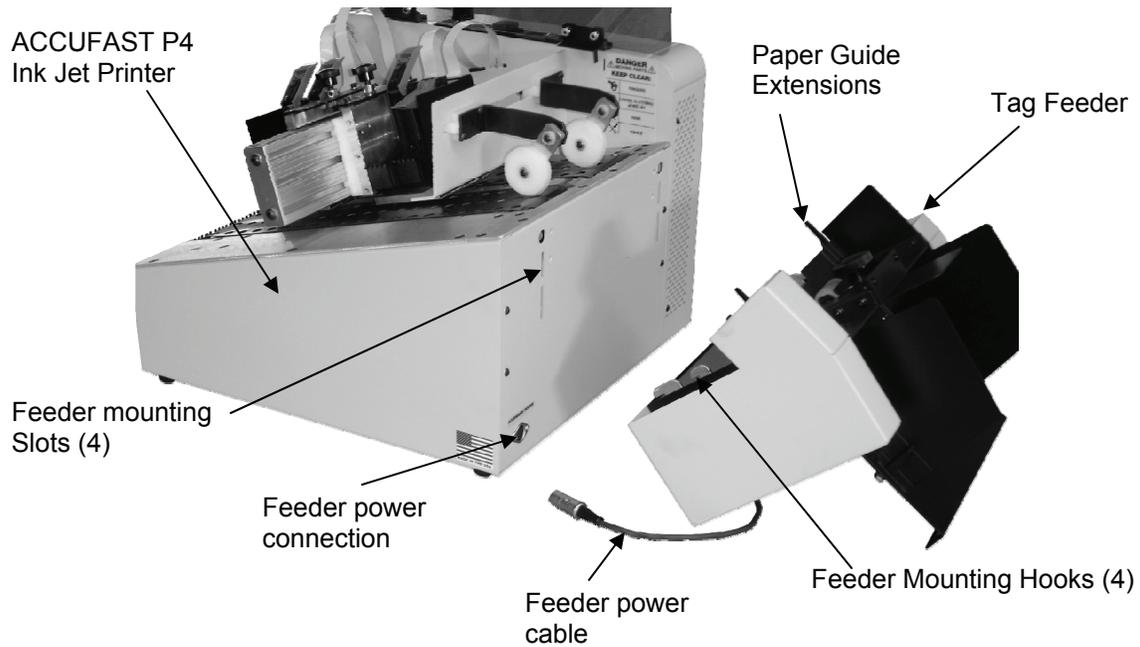
The input end of the P4 is pictured at right. Remove the Encoder Shipping Knob first. This knob holds the spring loaded encoder wheel away from the transport belt in shipping. The machine will not print with this knob in place.



Remove shipping materials from the printer. In addition to the knob, there are several bits of foam and packing material under the cover, between the cover and the belt and ink jet pen stalls.

Re-inspect for shipping damage that may have been hidden from outside the carton.

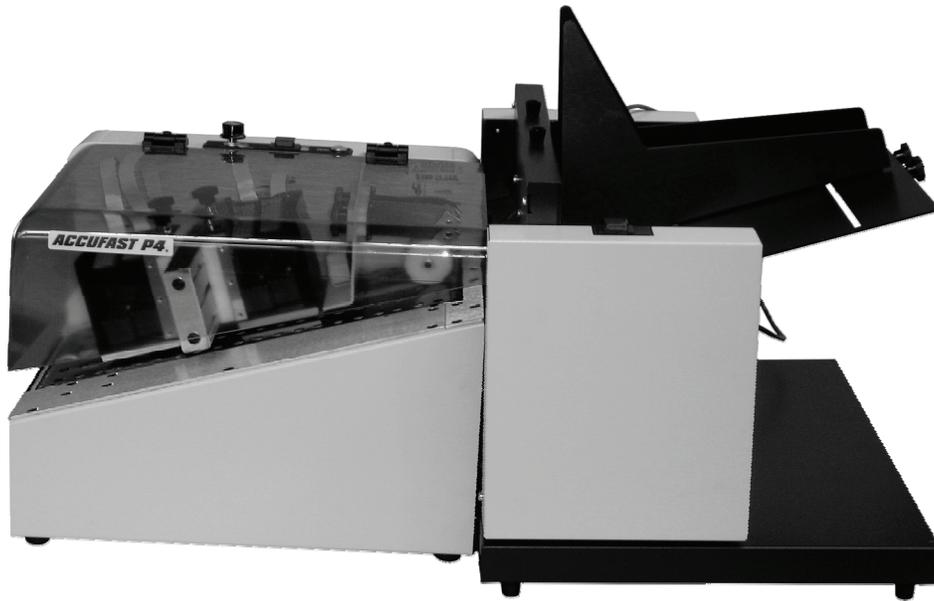
Open and remove the feeder. Typically, the small card feeder is the most used and should be installed first. Both small and large (Fx) feeders will be covered in this manual. If other feeders are used, their operation will be covered in a separate annual and they will derive power from a different source.



To mount the Small Envelope and Tag Feeder:

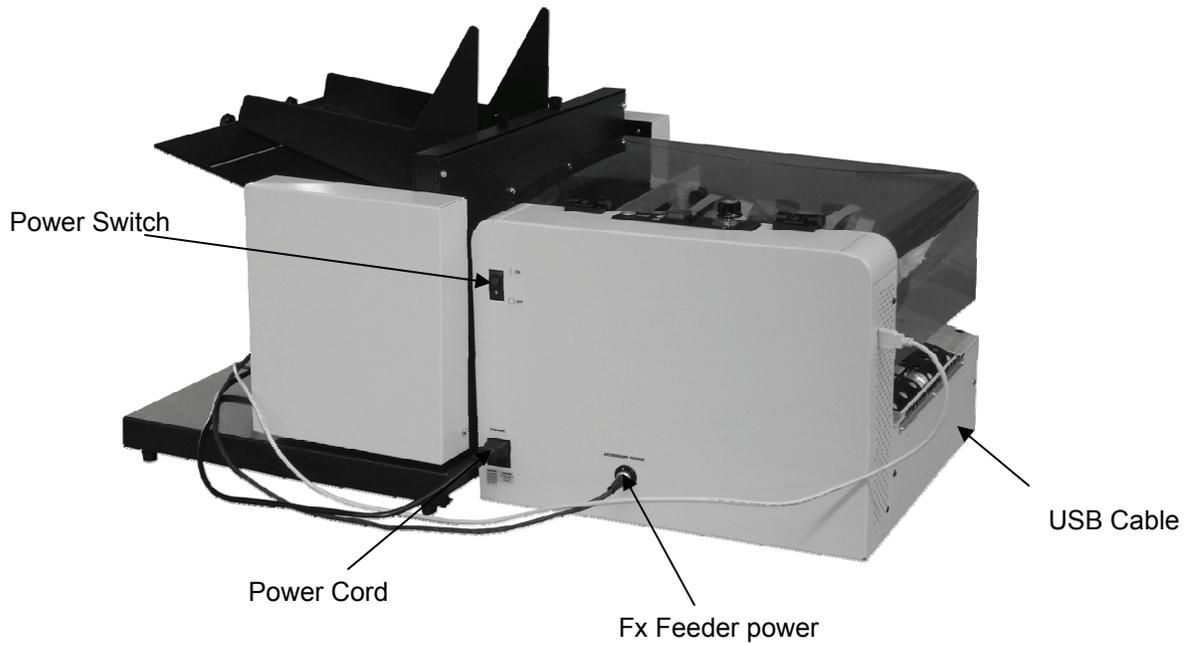
1. Open the Printer Top Cover
2. Lift the Tag feeder up so that the Paper Guide Extensions are over the printer transport tray.
3. Set the bottom hooks in their slots and rock the feeder toward the printer, lining up the top hooks.
4. Lower the Feeder onto its hooks, pressing it down as far as it will go.





The Wide Format Feeder (ACCUFAST FX) merely sits on a stand at the input end of the P4. To set it up:

1. Unpack the Feeder and the Stand
2. Place the Stand against the Printer's input end
3. Set the Feeder on the stand and slide it up to the printer.
4. Plug the Feeder into the outlet on the rear of the Printer.



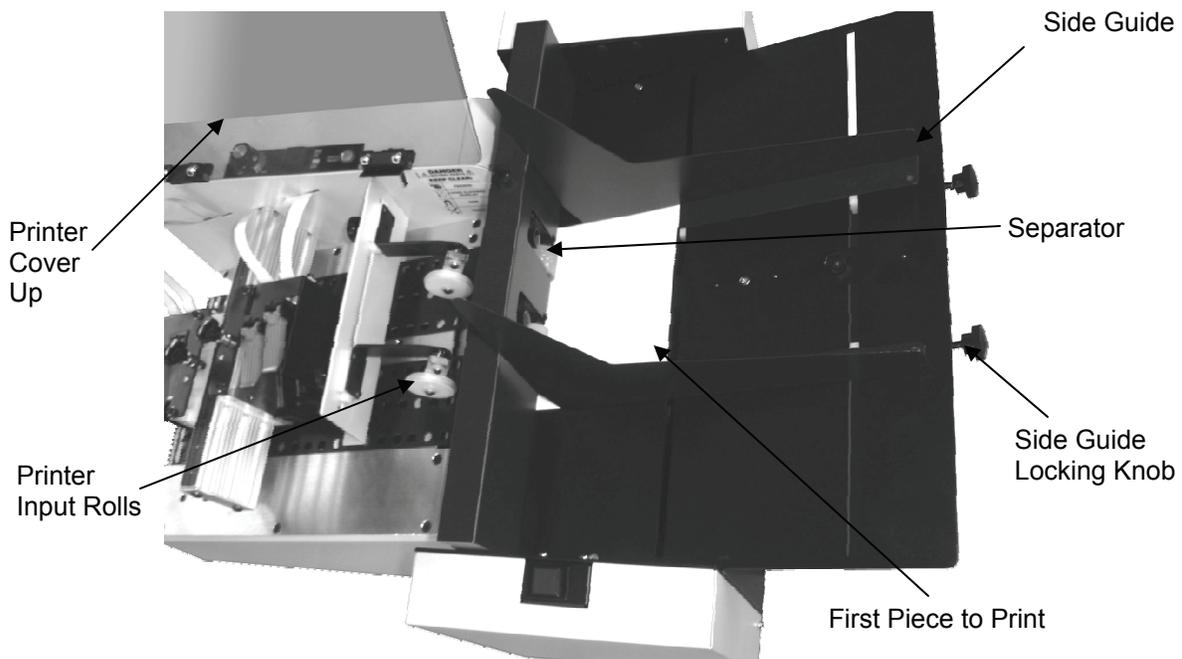
4. Mechanical Operation

4.1 Loading and Feeding Pieces

Both ACCUFAST Feeders covered in this publication work the same way. They have an adjustable separator and paper guides that control the thickness and location of the pieces being fed. They take power from the printer and run at variable speed controlled from the printer's speed control knob.

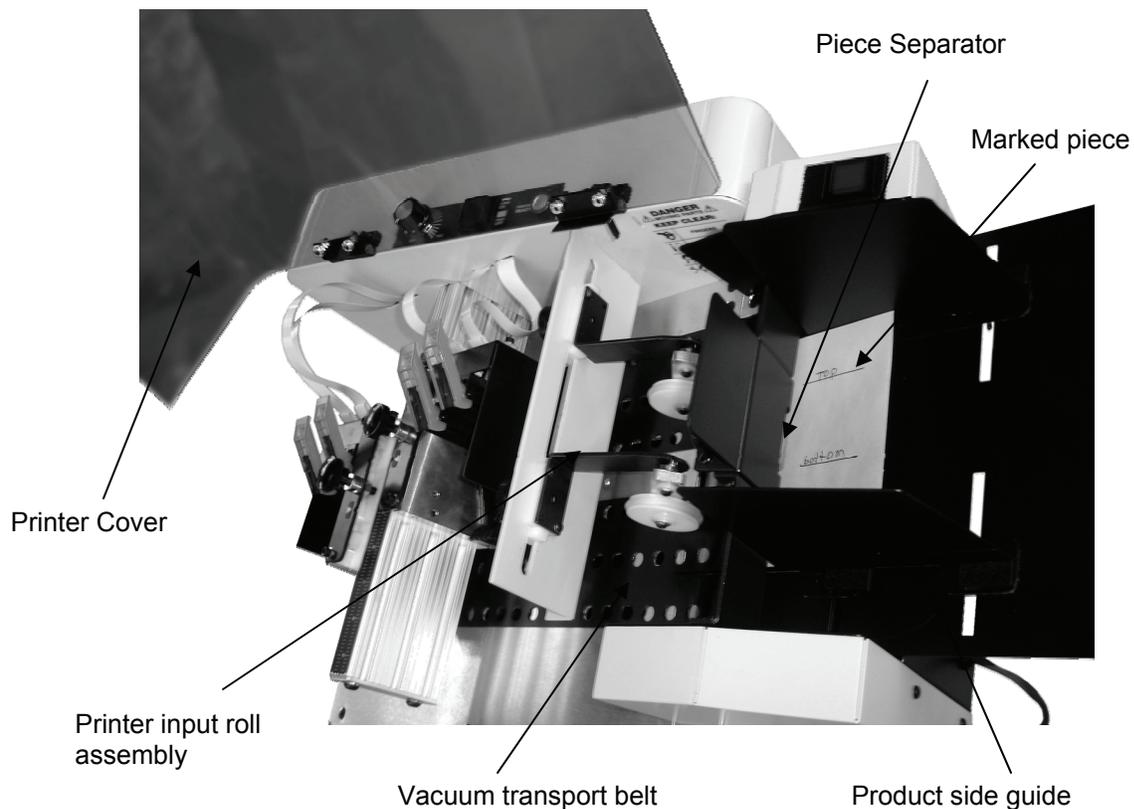
Successful printing starts with successful feeding. There are several things to consider in setting the feeder.

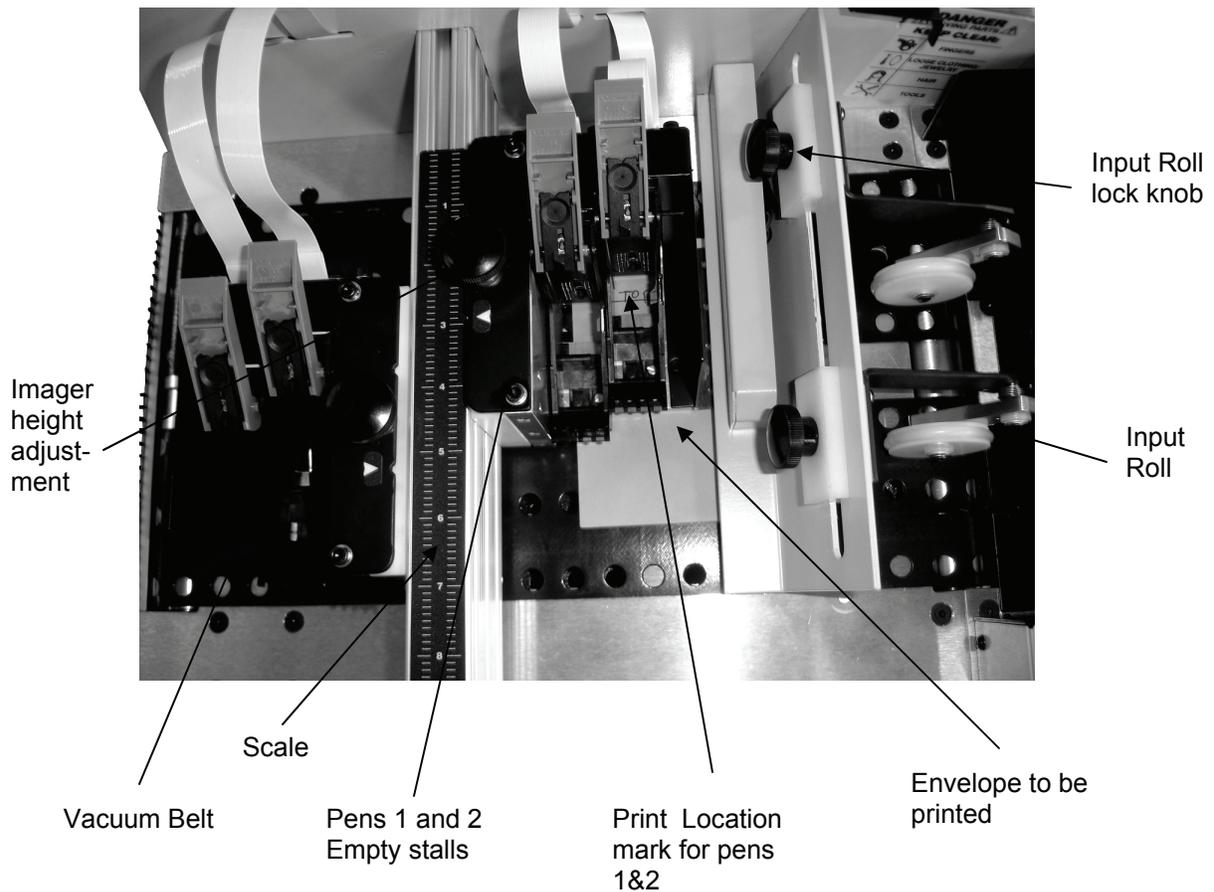
1. Size and centering of the piece.
2. Location of Printer input rolls to facilitate passing the piece to the printer.
3. Thickness of the piece
4. Location of the print on the piece.



4.2 Set Up the Feeder

1. Turn the printer transport OFF—Lift Printer Cover
2. Loosen the Feeder Piece Separator
3. Loosen the media side guides in the feeder.
4. Mark the first piece to be fed with the general area of desired print location.
5. Center the piece and place in against the feeder paper stop under the separator.
6. Tighten the separator to create drag on the piece.
7. Slide the side guides to the sides of the piece, squaring it up and locating it accurately in the feed hoper. Do not trap the piece in the hopper by making the guides too tight.
8. Loosen the Printer input rollers and slide the assembly to catch the piece from the feeder evenly.
9. Tighten knobs, latches.
10. Place a stack of pieces on top of the first one.
11. As you close the Printer cover, be sure that the speed control is full slow (CCW).

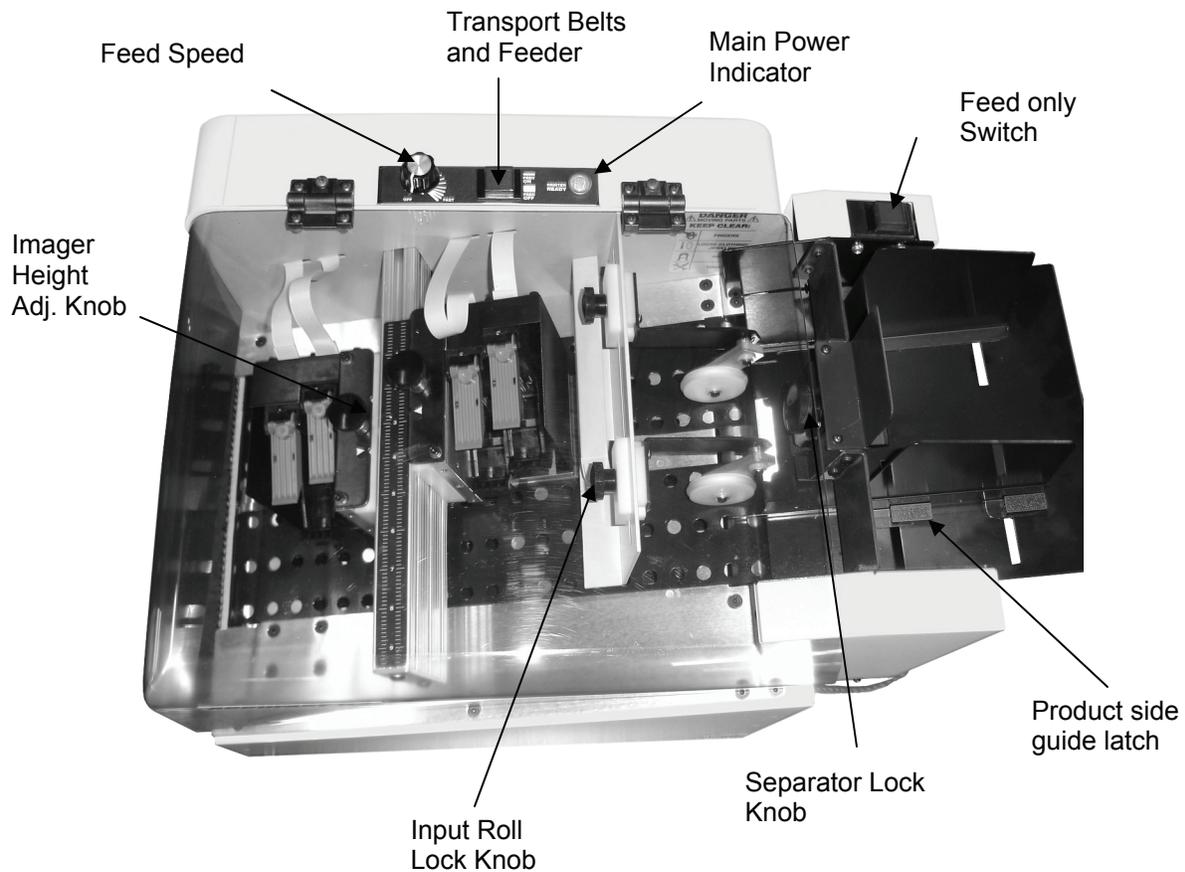




4.3 Lining Up the Print on the Piece

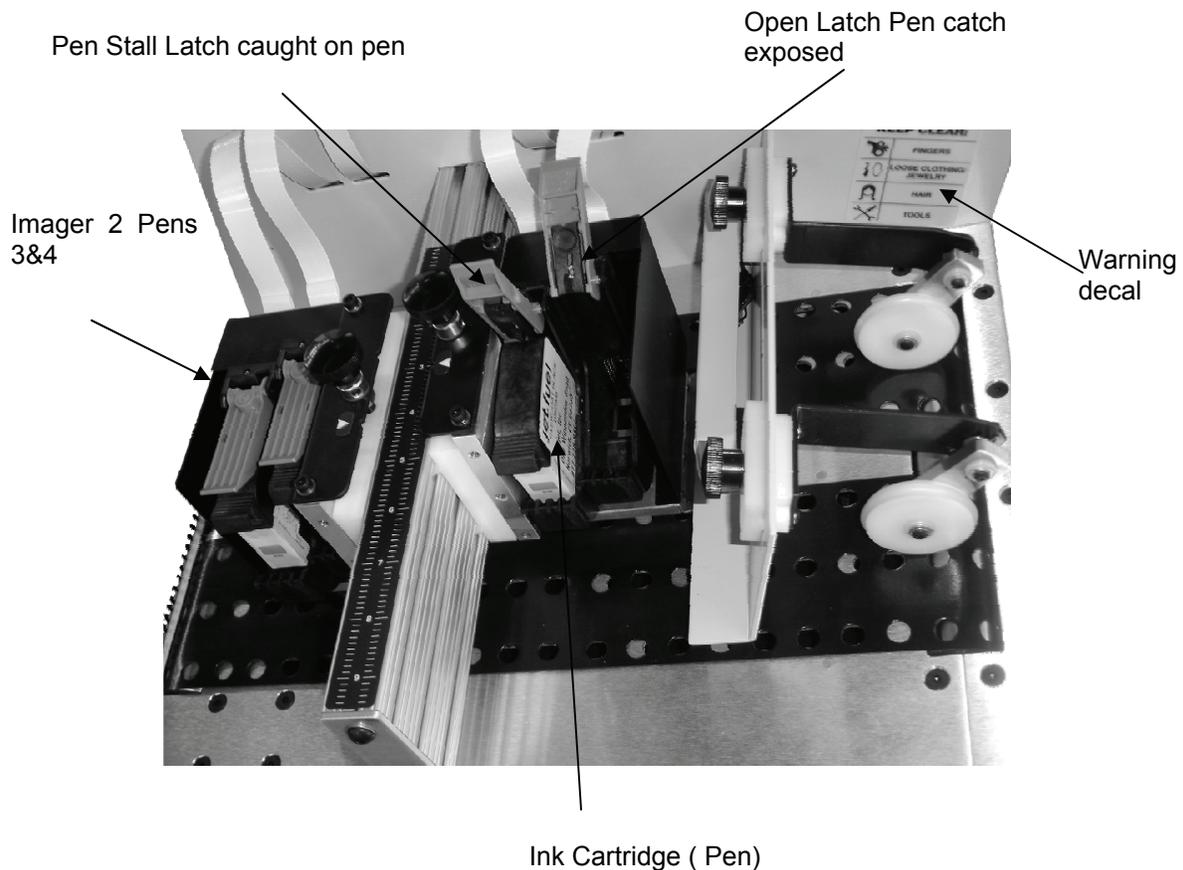
1. Once the Feed and Transport components have been set and locked in place, slide the first, marked piece under the separator (this might require loosening the separator again,)
2. By hand, introduce the piece under the printer input rolls and while turning the vacuum rolls by hand, move the piece to the first imager.
3. Raise the imager by turning the Imager height knob CCW.
4. Roll the piece under the imager and slide the imager on its mounting bar until the handwritten print location text shows up in the window under the first pen. Make a note of the imager's location relative to the scale.
5. Roll the piece further on and repeat the process with imager 2
6. With the piece under the imagers, lower each imager until it is very close to the piece. The piece should just pass under the imager without resistance

4.4 Controls, Adjustments and Indicators



1. Main Power Switch: Black single pole switch on rear of machine shown on page 9. Controls main power to the machines.
2. Transport Switch: Red Push button. Illuminates when on Controls Vacuum belts and Feeder rolls—all moving parts may be used as an e-stop.
3. Feed Speed: Black fluted knob that controls the speed of the feeder. Clockwise for faster. Turn off before starting feed rolls.
4. Power Indicator: Orange light on when Power Switch is ON.
5. Feed Only: Red illuminated push button controls feeder without stopping transport. Should be OFF at start of feed.

4.5 Loading Ink



To insert a cartridge (pen) without moving the imager on its slide follow this procedure. Use only the type and brand of ink specified with your printer. Other inks will fit the machine (all HP 45A's), but print quality and de-cap performance will vary greatly from ink to ink.

1. Turn Transport off, Set feed speed to OFF
2. Open cover.
3. Note where the imagers in case you move one of them.
4. Lift the pen latch and pull the pen straight up and out of the pen stall.
5. Slide the new pen partially into the stall and rock it away from the operator.
6. Allow the Catch on the pen latch to strike the boss on the pen and by closing the latch, seat the pen accurately and securely. Seating the pen fully before closing the latch is not recommended, let the latch do the work.

4.6 Feeding Pieces

Once the Feeder and Printer have been set up and pieces loaded in the feeder, it is time to begin to test and refine the set ups to obtain the best print quality possible.

The feeder should have a small stack of material in the hopper, ready to feed, and the power to the machines should be OFF.

To test and adjust the feed and transport:

1. Close the Cover fully.
2. Turn the Power On
3. Set Feed Speed to OFF (fully CCW)
4. Turn Transport ON (Push red button on Printer)
5. Turn Feeder ON (push red button on Feeder)
6. Rotate Feed Speed Knob clockwise, feeding commences.

To stop feeding temporarily, rotate the feed speed knob fully CCW.

To stop the feeder in an emergency of case f a Jam, push the Feed Power button.

To stop transport in an emergency, push the Red Transport Switch, or lift the cover.

To resume feeding in case of any emergency or abrupt shut down, start at step 3 above.

Caution

To avoid jams or temporary current limit shut downs, never start the feeder without first turning down the Feed Speed.

Caution

To avoid dangerous conditions, the printer is equipped with a Current Limiter that will shut down the transport when the motor begins to work too hard. The Current Limiter protects the equipment and the operator from damage or harm.

4.7 Feed Adjustments

It is common to make adjustments to the feed and transport of pieces prior to printing. It is useful to do so.

Skew: First, identify where the skew enters the piece by watching it move through the machine. If an imager is too low, it will drag a piece and cause a jam or skew. If the piece hits one of the input rolls off center, or if the roll is not turning freely, it will cause skew at the input roller. Finally, check the piece as it comes from the feeder. If a side guide is too loose or crooked, the piece will feed skewed. If the piece is offset under the separator, skew can occur. If there are two separators on a piece, both need to have the same resistance or skew will result.

Double Feed: Double feeds are a result of the separator not doing its job. If you have doubles, tighten the separator by setting it up with a thinner material than the samples for printing. If that doesn't work consult trouble shooting under the "rotate the separator" discussion as wear has surpassed the ability to adjust.

Erratic Feed: This situation is characterized by widely varying gaps between the pieces. It is typically cured by adjusting the feed speed and by cleaning and re-adjusting the feed separator.

4.8 Connecting the Printer

The connection address has been set during initial installation and set up of the software. The printer communicates with its host computer through a high speed USB to Ethernet adapter. The connection status will be shown at the bottom of the Control Panel screen.

1. Connect the USB cable from a high speed USB port on the computer to the printer.
2. Turn on the printer
3. Turn on the computer.

5.0 Software and Printing

The software that controls the ACCUFAST P4 comes in two sections, a print driver and a printer controller. The driver interprets output from any program and sends it to the printer controller. The printer controller is on screen, the windows driver is in the background.

5.1 Installation

Software Installation is covered in a separate document included in the document package. Typically, installation of the software is done from a remote location by ACCUFAST personnel over the InterNet.

5.2 Control Panel

Clicking on the Traffic Light Icon on the lower right of the screen opens the control panel. As the driver is converting files, the traffic light switches from red to green. Once that happens click on the icon and the control panel screen opens.



Note

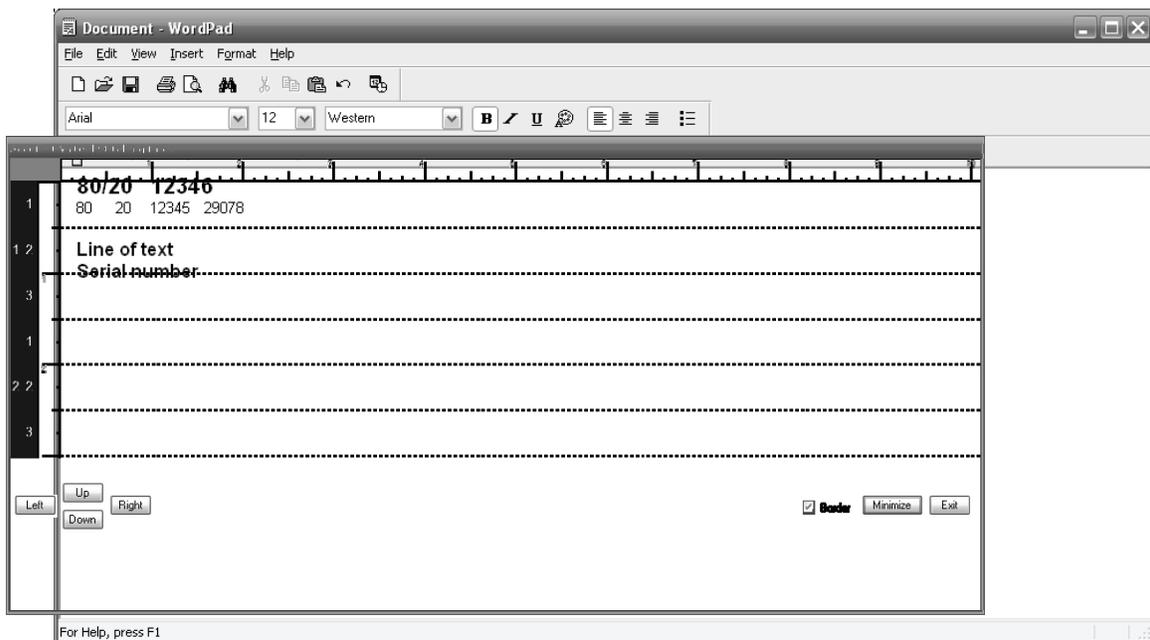
Automatic feed and print controls are not available with this machine configuration

5.3 Piece design and Layout

In order to print a document, you first must tell the printer what you wish to print and where you wish to print it. This is done in the host application. In the example below, Wordpad was used.

1. Select a form size and layout that is similar to the document size that you are printing.
2. Set both the top and left margins to 0
3. Enter the text, graphics, bar codes etc. that you wish to print.
4. Start the ACCUFAST Stitch line application
5. Place the stitch line overlay in the top left corner of the text.
6. Adjust line spacing, object location etc.

The purpose of the Stitch Line Overlay is to show where the pen boundaries are (stitch lines) relative to the text being printed. For highest quality, it is recommended that a stitch line not run through a printed object or line of text.

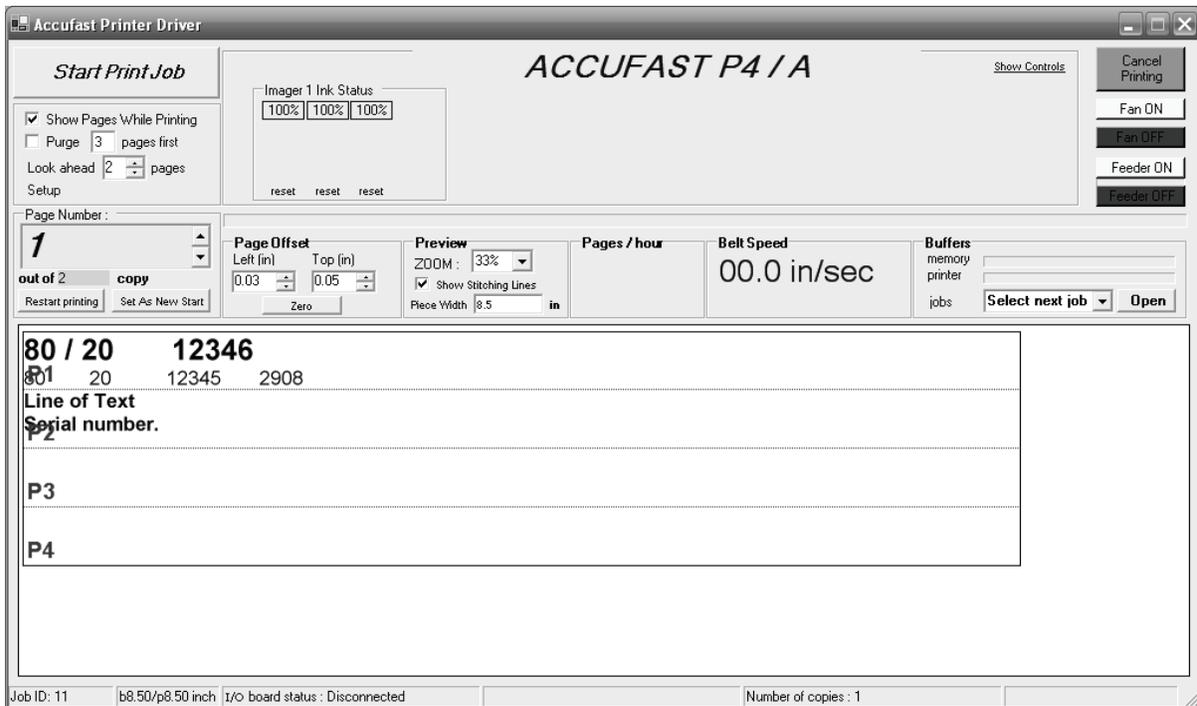


In the example above, text has been formatted, fonts selected and laid out to avoid the stitch lines that are shown in the overlay. To print this document, follow windows practice and select print in the file menu, then select the ACCUFAST P4 printer.

5.4 Printing a Document

When you print to the ACCUFAST P4, you format and send the items on the screen to the printer. This may take bit of time, depending on the complexity of the file being printed. A traffic light icon will appear along the bottom of the windows screen as one of the minimized program icons. When the light turns green, you can start the printer and print your documents. For small packets, this process is virtually immediate.

The **ACCUFAST P4/A** Print Control screen opens. Showing the information to be printed laid out as it was received from the application in which it was created.. Check to be sure that the stitch lines are not running through text.

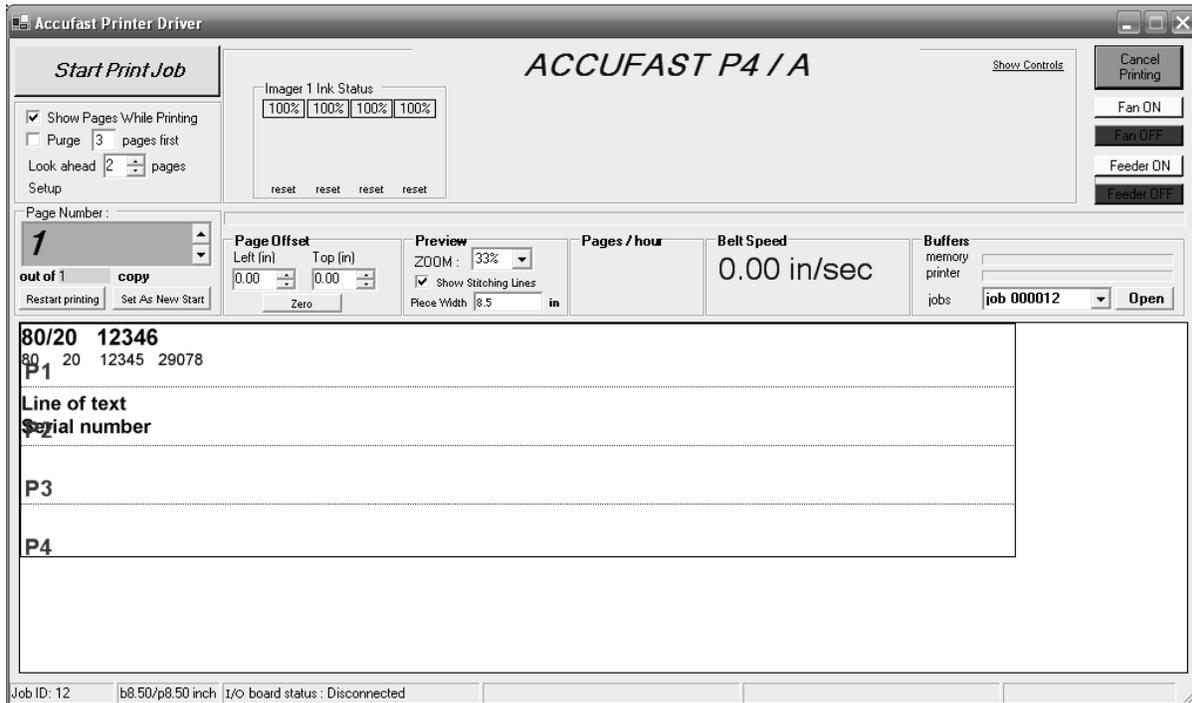


Assuming that the printer has been set up mechanically and that the pieces are loaded and that the printer is connected to the host computer. All you need do is click on the Start Print Job button in the top left and feed pieces. As the printer gets ready to print, the green changes to orange and read indicating that printing can begin.

A count and a production rate will be displayed along with the printer's belt speed.

When you finish, hit the same button which has changed color and now says Stop Print job.

5.5 Printer Controls



Start with the “Start Print Job” (Green) button in the upper left corner of the control panel screen. The box just under the start/stop button contains 2 check boxes.

Show pages while printing when checked the control panel scrolls through the pages of a variable data list. Not useful with fixed data.

Purge X pages first. Checking this box and entering a number will cause all of the pens to fire a solid black purge pattern to un-clog jets and to warm up cold pens. This is used with old cartridges and with those left un attended for long periods of time. Experience dictates that a safe policy is to purge at least 1 piece before every start up of longer than a couple of hours depending on the ink being used. Individual experience will vary.

Look Ahead is used when the printer is used to control a feeder of programmable conveyor and the job is made up of consecutive batches separated by a control character in the data base. Not use with small tags and envelopes.

Setup is clicked to expose a series of menus used to configure the printer. This warrants a section of its own later in the manual.

To the right of the set up box is the ink status box. The ACCUFAST P4 holds four HP45A style cartridges arranged electrically into one imager. This master imager is then split into two sections usually called imagers as well. The Control panel monitors the usage of ink in each cartridge. When a cartridge gets low, it should be replaced and the value of that cartridge's ink level reset to 100%.

The Page Number Box is used in variable data printing for specific re-prints and re-starts. In fixed data printing, it tracks the number of copies of the fixed page that are printed.

The Page Offset Box holds controls to enter and slightly move the entire imager right and left and down and up on the screen. If stitch lines are crossing text, use this control to shift the entire image a bit. In some cases, the screen and the printed image are off a bit. Move the image to clear pen boundaries (stitch lines) and save the job. The default is the top left corner (0,0).

Preview controls the zoom amount on the screen, hides stitch lines and requires a setting for the width of the form. Make sure that the form width is correct to the piece being printed. It should be set just a bit smaller. If the packet is 3.5 inches wide, use 3.3, for instance.

The next three boxes report production data. Pages per Hour, Belt Speed, and Buffers show the printer's status relative to basic print parameters. Belt Speed is fixed at around 20 inches per second. Anything different from this indicates a serious mechanical problem. Pages per hour relates to the width of the piece plus the space between pieces divided into the belt speed and multiplied out to get to an hour rather than a minute. Pages per hour should remain stable. If this is going from a large to a small number, there are feed problems and a separator and/or speed adjustment needs to be made to get regular feed. Buffers are more useful with variable data, but can be monitored to show the filling and emptying of the print buffer and flow of data.

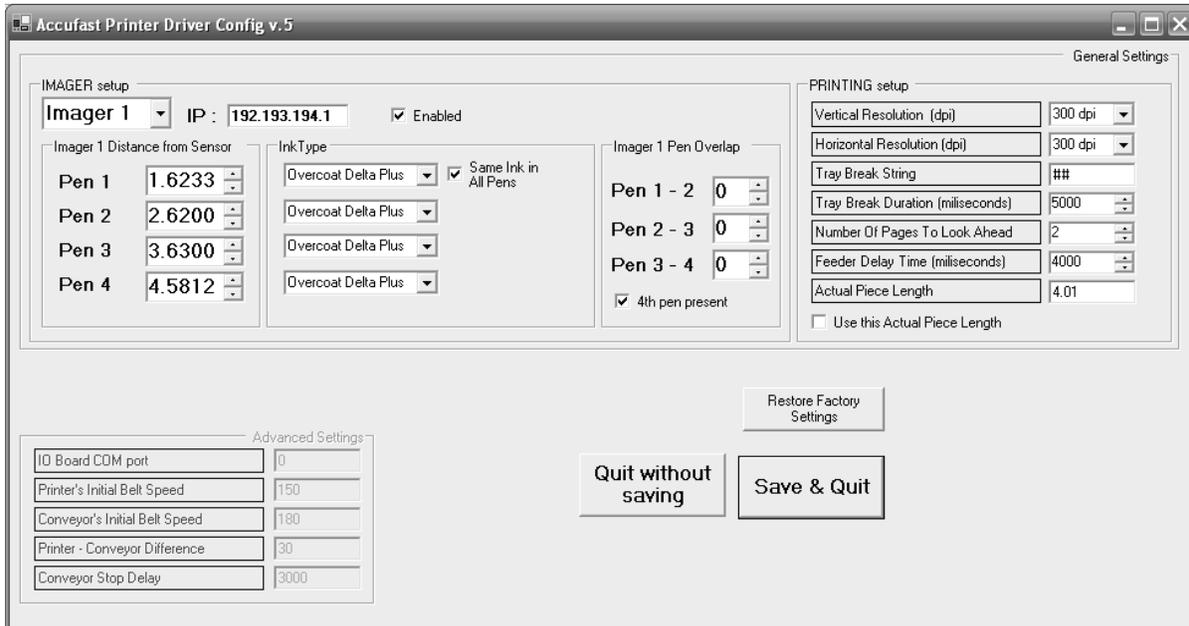
The small jobs window is important. Jobs may be named and stored for repeated printing. Set up data is stored as a part of the job along with the information on the design screen. To repeat, just click on the jobs window and the list of jobs will be displayed. Click on the one that you want and open it. If you make any changes store the job at the end of the print session.

Directly above the Jobs window are 4 inoperative control buttons.

Above that is Cancel Printing which takes the printer off line.

5.6 Advanced Set Up

In the upper right corner of the Control Panel screen, click the blue Setup. The screen below opens.



The IMAGER Setup box contains Imager details and adjustments that effect communication and printer performance.

The ACCUFAST P4 only has one imager, The Control Panel can be set up to handle up to 4 imagers, but leave it set at 1 as there is no other. The IP address refers to the specific address of the imager's control board. It is set at the factory and should not be changed. Unchecking the enabled box disrupts communication between the imager and the host computer. Leave it checked.

The stitching box can be used to set individual pen parameters. First, each pen is located a specific distance from the piece sensor. By changing that distance, you make the pen print a bit before or after the others. Using stitching, you can line up the pens so that they print a solid, straight unbroken vertical line with an accuracy of +/- a pixel. This distance can be detected by the human eye. If it becomes necessary to print across the pen lines, use this tool to more accurately line up the pens, but do not expect perfection. To stitch, use a purge pattern and line up the solid edges of the purge block.

There are 4 basic categories of ink. ACCUFAST uses print applications as a guide, assuming that for specialty printing, specialty inks have been purchased. For plain paper printing, use the Versatile or Overcoat settings. (Overcoat is the factory default.) For IR drying, use General. For UV Cure applications, select UV Ink. Each of these inks require slightly different electronic settings to get the best from the system. By selection an ink to match the application, you modify these settings.

If all of the ink in the pens is identical, check the box and make the ink selection once. If not, make sure that the ink is matched to the pen as pens are controlled individually.

The next box to the right is Pen Overlap. Pen position may vary a bit through manufacturing and assembly tolerance. The number in the overlap boxes may be increased. When that happens ink jets at the boundaries between the pens are turned off. If enough jets are turned off, a permanent white line will exist at the pen boundary. If no jets are turned off, there is a 4 pixel overlap built in between the pens, generating a double printed black line at the pen boundary. If you are carefully stitching a half tone graphic, this control becomes useful. It is not typically used in text printing as the lines of text are set to avoid pen boundaries.

Note

Always use new or fully operational pens for stitching and overlap adjustments.

The next box to the right is the Printing Setup Box. The two items of interest to fixed small package printers are the resolution boxes at the top of the list. All of the other boxes are used for advanced stream sorting routines.

Vertical Resolution is set at either 300 or 600 dpi depending on the amount of ink being used. Typically, this setting is left at the pen's native 600 dpi resolution.

Horizontal Resolution can be set at a number of different amounts. Typically, text printing on a porous, plain paper material is 300 H x 600V. If the print is too light at that level, increase the horizontal to 600. If the print at 300 is too dark, reduce the settings to 300 x 300 or 200 x 600. This is a trial and error situation.

The other buttons are self explanatory. The unavailable buttons apply to different printers.

5.7 Stop Printing

When the job is finished, shut the system down mechanically first.

1. Stop Feeding
2. Turn Feed Speed Off
3. Lift the Cover and/or turn Transport Off
4. Click on Stop Print
5. Name and store the job as needed
6. Either Quit the Control Panel or start another Job.
7. Right click on the traffic Light Icon and select exit to disconnect the computer from the printer.
8. Turn the Power to the printer off.

Lifting the Cover or Pressing the Transport Switch will stop all moving parts and act as an Emergency Stop in case of a problem or jam.

When re-starting, always turn the feed Speed down and the Feeder off before starting the P4 transport.

6.0 Maintenance

The single most important maintenance factor is correct operation. Make sure that all correct procedures are followed. If so, maintenance will be routine and limited to cleaning and simple adjustments.

6.1 Ink and Pen Cleaning

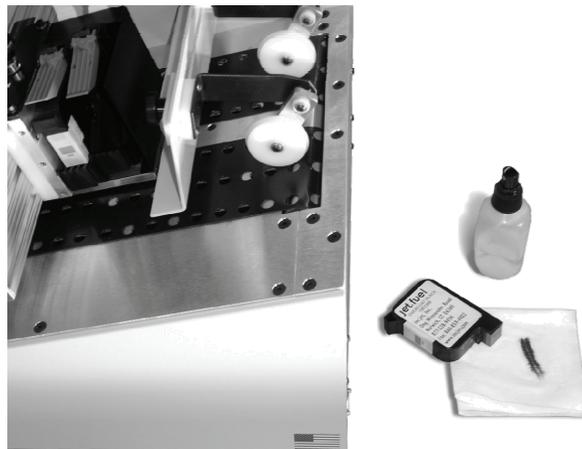
When the ink level indicator drops to about 10%, pay close attention to the print quality from that pen. As the ink runs out, jets stop firing and the resultant print is degraded.

Note

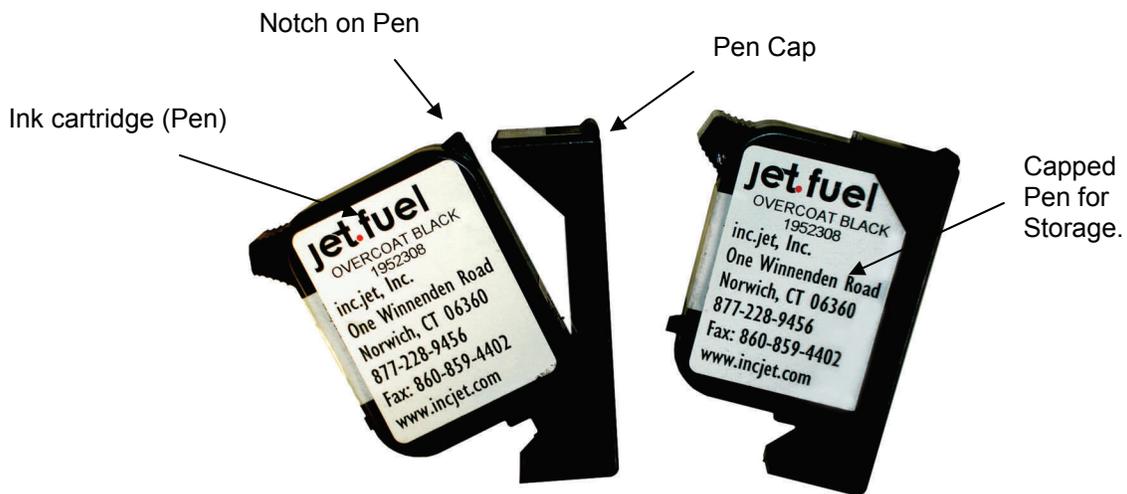
Number each pen when you remove it from the printer for overnight storage and capping. By marking the pens and re-inserting them in the correct pen stalls, you will preserve the correct ink level monitoring.

To clean a pen nose.

1. Turn the Feeder Off and the Feed Speed down to Stop.
2. Lift the cover.
3. Check out the print screen to determine which pen needs cleaning.
4. Moisten a lint free wipe with de-ionized water.
5. Remove the dirty pen, being careful to lift it straight up so as not to move the imager.
6. Wipe the pen on the moist wipe as shown below.
7. Replace when wiped clean.



6.2 Pen Capping and Storage



1. Remove and clean the pen.
2. Rock the Pen into its capping clip locking the clip over the notch.
3. Store at room temperature.
4. Wipe and wick ink into the lint free cloth at un-cap to get the ink flowing.

Capping frequency depends on the type of ink being used. Typical jet Fuel brand ink needs to be capped at the end of each day. Other, more volatile inks should be capped with each stoppage of print that lasts longer than a few minutes.

6.3 Belt Tracking

Transport belts may wander and begin to rub against the transport tray. If this happens, stop printing and re-adjust the belt tracking screws.

1. Use a short, wide blade type screwdriver.
2. Locate the belt tracking screws on the entry end of the printer.
3. As the belt turns, slowly twist one screw or the other. Clockwise to move the belts away from the operator, counterclockwise to move them toward the operator. Make very slight adjustments and allow the belt to run into the correct position.
4. Let the Belt run a bit to be sure that it stays.

Caution

Do not Overtighten the belts. Observe the belt speed in in/sec before and after tracking, they should be the same.



6.4 Cleaning

Keep the machine clean. Use a damp cloth (not the lint free pen cleaning cloth) to wipe down all exterior surfaces.

After prolonged usage, the belts may have ink build up on them. With the cover up and the machine unplugged, rotate the belts and wipe down each new area with a wet cloth until excess ink has been removed.

7.0 Trouble Shooting

Problem	Cause	Solution
Belts Don't turn, Power indicator On, Switches ON	Cover not down	Press the Cover fully down to engage the safety switch. Cover will not close with a pen lever up.
No print. Belts turn. Software indicates that printing should begin.	No belt speed in Status bar	Encoder failure. Service Needed.
	No piece Count Indicated	Sensor failure. Probably needs cleaning.
Print Interrupted	Communication with printer lost	Stop printing, turn printer off and on again to reset.
	Electronic failure	Service
Fuzzy Print	Dirty and/or Drying cartridge.	Clean or exchange Pen.
	Pen Nose too far from Piece	Lower Imager to just clear the piece.
Skipped Pieces	Inconsistent Feed with Doubles.	Readjust the feed separator.
	Piece length setting does not agree with actual piece length.	Set the piece length to just a bit smaller than the actual piece.
Machine doesn't re-start after opening the cover.	Feeder on Full triggers Current Limit	Turn machine off for a bit and turn it back on again after slowing feed speed to Zero.

