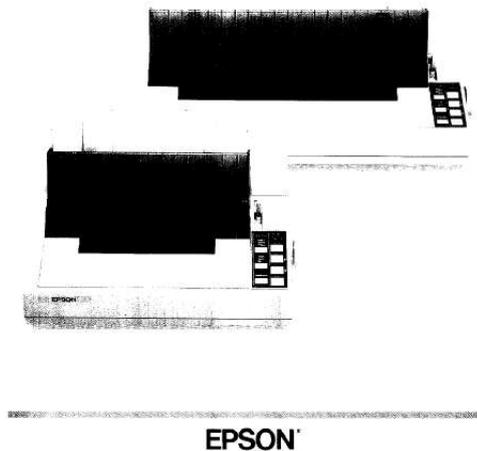# Your PDF Guides

You can read the recommendations in the user guide, the technical guide or the installation guide for EPSON FX-1050. You'll find the answers to all your questions on the EPSON FX-1050 in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

User's Manual

EPSON

Manual abstract:

The user may find the following booklet prepared by the Federal Communications Commission helpful: Television Interference Handbook." This booklet is available from the U.S. Government Printing Office, Washington, DC 20402. Stock No. 004-000-00450-7. WARNING The connection of a nonshielded printer interface cable to this printer will invalidate the FCC Certification of this device and may cause interference levels which exceed the limits established by the FCC for this equipment. If this equipment has more than one interface connector, do not leave cables connected to unused interfaces. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, mechanical, photocopying, recording or otherwise, without the prior written permission of Seiko Epson Corporation.
No patent liability is assumed with respect to the use of the information contained herein. While every precaution has been taken in the preparation of this book, Seiko Epson Corporation assumes no responsibility for errors or omissions. Neither is any liability assumed for damages resulting from the use of the information contained herein. Seiko Epson Corporation shall not be held liable for any damages or problems arising from the use of any options other than those designated as Original Epson Products by Seiko Epson Corporation. Centronics is a registered trademark of Centronics Data Computer Corporation. Epson is a registered trademark of Seiko Epson Corporation. IBM is a registered trademark of International Business Machines Corporation. Copyright © 1988 by Seiko Epson Corporation Nagano, Japan ii Table of Contents Introduction . . .

Introduction The FX-850 and FX-1050 printers combine all the well-known features of previous Epson® 9-pin printers with many features normally exclusive to costly 24-pin printers. Features In addition to the high-quality printing and ease of operation you've come to expect from Epson printers, the FX-850 and FX-1050 offer the following: An advanced paper handling system that lets you use single sheets of paper without removing the continuous paper.

This system allows you to use continuous paper even while the optional cut sheet feeder is attached. A new short tear-off feature that saves paper. After you tear off the last sheet printed on continuous paper, the printer reverses the paper so that you can use all of the next sheet. A micro-adjustment feature that allows you to feed the paper forward or backward to finely adjust the loading and short tear-off positions. An improved control panel design that allows direct selection of character fonts and pitch, as well as a choice of draft or near letter quality (NLQ) printing.

Draft mode with fast printing of up to 264 characters per second at 12 cpi. The ability to handle a wide range of paper types, including envelopes. Double-high and double-wide printing for headings and special emphasis. Introduction 1 options A variety of printer options are available for use with FX printers. For detailed information on the installation and use of these options, see Chapter 7. Single-bin cut sheet feeder The cut sheet feeder gives you easier and more efficient handling of single sheet paper. Up to 150 sheets of standard bond paper can be fed automatically into the printer without reloading. This unit also can automatically feed envelopes. Pull tractor unit This option improves the performance of continuous paper handling. It is especially useful with continuous multi-part forms.

Optional interface boards A number of optional interfaces can be used to supplement the FX's builtin parallel interface. Guidelines for choosing the right interface and instructions on installing the boards are given in the section on interface boards in Chapter 7.

About This Guide This User's Guide provides fully illustrated, step-by-step instructions for setting up and operating the FX-850 and FX-1050 printers. The FX-850 and FX-1050 are basically the same printer except that the FX-1050 can accept wider paper. The illustrations in this manual usually show the FX-1050 printer. Finding your way around Chapter 1 contains information on unpacking, setting up, testing, and connecting the printer. Be sure to read and follow the instructions in this chapter first. Chapters 2 and 3 include important information on paper handling and general printer operation. This information is necessary for the day-today operation of your printer. 2 Introduction Chapter 4 contains information designed to help you get the most from your printer.

This section includes advice on the use of software, printer commands, graphics, and user-defined characters. Also, see Chapter 8 for a summary of printer commands. If the printer does not operate properly or the printed results are not what you expect, see Chapter 6 for a list of possible problems and recommended solutions. Other chapters contain information on general maintenance, use of the printer options, and specifications. There is also a glossary of printer terms and an index.

At the back of this guide is a Quick Reference card that contains information about commands and settings for your printer. Conventions used in this guide WARNINGS: must be followed carefully to avoid damage to your printer and computer. Cautions: should be followed carefully to ensure that your printer operates correctly. Notes: contain important information and useful tips on the operation of your printer. Introduction 3 Chapter 1 Setting Up the Printer

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. . . *Running the self test* . . . .
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. 1-12 1-13 1-13 1-16 Coit easier to install. 4. Hold the ribbon cartridge by its handles and push it firmly down into position, making sure the plastic hooks fit into the printer. (The FX-850 has only one handle in the center of the ribbon cartridge.

) Press lightly on both sides of the cartridge to be sure the hooks are properly inserted. Setting Up the Printer 1-9 5. Use a pointed object, such as the tip of a pencil, to guide the ribbon between the print head and ribbon guide while you turn the ribbontightening knob to help feed the ribbon into place. 6. Slide the print head from side to side to make sure it moves smoothly.

Also make sure the ribbon is not twisted or creased. 1-10 Setting: Up the Printer Attaching the paper guide The paper guide functions to feed the paper smoothly and efficiently. Follow these steps to install the paper guide: 1. Place the paper guide on the printer. 2. Raise the paper guide until it locks into place. Setting Up the Printer 1-11 3. Now reinstall the printer cover by fitting the legs of the cover into the notches at the front of the printer. 4. Close the printer cover.

Testing the Printer Now that your printer is fully assembled, you can use the built-in self test function to see that the printer is working correctly even though it is not connected to a computer. Be sure to perform this test to check that your printer is operating properly Before running the self test, you need to connect your printer to an electrical outlet and load a sheet of paper. 1-12 Setting Up the Printer Plugging in the printer Follow these steps to plug in the printer: 1. Be sure the printer is turned off. 2. Plug the power cable into a properly grounded electrical outlet. WARNING: Whenever you turn off the power, wait at least five seconds before turning it back on. Rapid switching on and off can damage the printer. Loading a sheet of paper Next, you need to load a sheet of paper that is letter size (if you have an FX-850) or 14 inches wide (if you have an FX-1050). WARNING: Before turning on the printer, be absolutely sure you have removed all protective materials.

Turning on the printer while the print head cannot move may seriously damage the print mechanism. 1. Turn on the printer. The green POWER and red PAPER OUT lights come on. Setting Up the Printer 1-13 2.

be sure that the paper release lever is pushed back to the single sheet position. 3. Move the left edge guide so it locks in place next to the arrow on the paper guide. 1-14 setting Up the Printer 4. Adjust the right edge guide to match the width of your paper.

Next, slide a sheet down between the edge guides until it meets resistance. 5. Press the LOAD/EJECT button once to automatically load the paper. If the platen turns without loading the paper, remove the paper completely and re-insert it more firmly; then press the LOAD/EJECT button again. Setting Up the Printer 1-15 Running the self test The self test can be run in draft mode or near letter quality (NLQ) mode. Follow the steps below. 1. Load a sheet of paper as described above. WARNING: Never run the self test using paper that is narrower than 8¼ inches if you have an FX-850, or 14 inches if you have an FX-1050, because you may seriously damage the print head. 2.

Turn off the printer. 3. While holding down the LINE FEED button, turn on the printer. After printing starts, release the LINE FEED button. 1-16 Setting Up the Printer A list of your printer's settings is printed first, followed by a series of characters. Here is part of a typical draft self test: % ̀)*+,-. /t312345(5'7#9:
; ,:::=:.~?@APCDEI= ́GH I J KLMNC)POI - ̀s.?&APCDEF~GH I J KI..
..MNUF'GlK ' t I*+,- , ./(.,.
j.;:345,5789: a ..,'..
-... - ,i t I*+,--. / (:) J 2 3 4 5 6 7 $3 9 : .; c, ̀-". ̀;:@!ABC;DEFGH 1 J &MNU/=QFtS 4. The self test continues until the paper runs out or until you press the ON LINE button. To stop the test temporarily, press the ON LINE button to take the printer off line. 5.

To end the self test, be sure the printer is off line. Press the LOAD/ EJECT button to eject any paper that is still loaded, and then turn off the printer. Note: When the cut sheet feeder is installed, the self test printout is slightly different. For details, see the section on the cut sheet feeder in Chapter 7. To run the self test in NLQ mode, follow these steps: 1. Load another sheet of paper as described above. 2. Turn off the printer, then turn it on again while holding down the FORM FEED button.

After printing starts, release the FORM FEED button. Setting Up the Printer 1-17 Part of a typical self test in NLQ mode is shown below: a-()+,-./0123456789:;<=>?B@ABCDEFGHIJKLMNOPQ ⁊(I*+,-./0123456'789:;~=~?t@ABCDEFGHIJKLMNOPQR*

(I+,-./0123456789:;~=~?@ABCDEFGHIJKLMNOPQRS' 3. To end the self test, press the ON LINE button to take the printer off line. Then press the LOAD/EJECT button to eject the paper, and turn off the printer.*

Connecting the Printer to Your Computer If the self test printed correctly and your printouts looked like the ones shown, you are now ready to connect your printer to the computer. Your FX printer has a Centronics®-compatible parallel interface. If you have a suitable shielded cable, you should be able to connect your printer immediately. If your computer requires the use of another type of interface, you need to install an optional interface board. If you are unsure whether your computer has a parallel interface, see your computer's operating manual.

If the computer cannot use a parallel interface, see the section on interface boards in Chapter 7. Connecting the parallel interface cable Connect the parallel interface cable as described below: 1. Turn off both the printer and your computer. 1-18 Setting Up the Printer 2. Plug the cable connector securely into the printer. 3. Squeeze the wire clips together until they lock in place on either side of the connector. Note: For your printer to work properly, this connection must be secure. 4. If your cable has a ground wire, connect it to the ground connector beneath the interface connector.

5. Plug the other end of the cable into the computer. (If there is a ground wire at the computer end of the cable, attach it to the ground connector at the back of the computer.) 1-20 Setting Up the Printer Chapter 2 Paper Handling Using Single Sheets . . . .

Paper Handling 2-1 Using Single Sheets Your printer can handle a wide range of paper sizes up to a maximum width of 10.1 inches on the FX-850 or 14.4 inches on the FX-1050. Always make sure that your printing is confined to the size of paper you are using.

Never print on the platen (black roller). If you do most of your printing on single sheets, you may find it more convenient to install the optional cut sheet feeder. This option automatically inserts a new sheet whenever required and can hold up to 150 pages or 25 envelopes. For more details, see Chapter 7. To load a single sheet of paper follow these steps: Note: If you already have continuous paper loaded, follow the instructions on page 2-10 for switching between continuous paper and single sheets.

1. Turn on the printer. 2. Push the paper release lever back to the single sheet position. 2-2 Paper Handling 3. Stand the paper guide in an upright position and align the left edge guide with the arrow on the paper guide. (You may want to change this position later, depending on the margin settings of your application program.) 4. Adjust the right edge guide to fit the size of the paper. 5.

Slide the paper down between the edge guides until it meets resistance. At this point, the PAPER OUT light turns off. 6. Press the LOAD/EJECT button to automatically feed the paper to the loading position. WARNING: Never advance the paper using the platen knob while the printer is turned on. 7. Press the ON LINE button so that the ON LINE indicator lights up. Paper Handling 2-3 If the platen (black roller) turns but the sheet does not load, remove the sheet completely from the printer. Then make sure the paper release lever is pushed back. Press the paper a bit more firmly into place and try again.

To eject the paper, press the ON LINE button to take the printer off line, and press the LOAD/EJECT button. Reloading during printing When you print a document more than one page long using single sheet paper, the printer stops printing when it reaches the bottom of the paper and ejects the page. When this happens, either the ON LINE light goes off automatically or it may remain on, depending on your application software. If the ON LINE light remains on, the first thing you should do is press the ON LINE button to take the printer off line. Once the ON LINE light is off, remove the sheet that has just been printed and load a new sheet as before.

Press ON LINE to start printing the next page. Using Continuous Paper The tractor built into the FX is remarkably easy to load and operate. Its low-profile design takes up little space and can handle a wide variety of paper widths. To load continuous paper, follow these steps: 1. Turn off the printer.

2. Pull the paper release lever forward to the continuous paper position. 2-4 Paper Handling 3. Release the sprocket lock levers by pulling each lever forward. 4. Slide the left sprocket unit all the way to the left and lock it in place. Paper Handling 2-5 5. Next, slide the right sprocket unit to match roughly the width of your paper. (Do not lock it.) 6.

Slide the paper support to a point midway between the sprocket units. 7. Open both sprocket covers. 2-6 Paper Handling 8. Fit the first four holes in the paper over the pins of the sprocket units as shown below. Then close the sprocket covers. 9. Slide the right sprocket unit to a position where the paper is straight and has no wrinkles, and then lock it in place. 10. Reattach the paper guide as shown below.

Paper Handling 2-7 Caution: When using continuous paper, always make sure that the edge guides are pushed together. 11. Close the printer cover and turn on the printer. 12. Press the LOAD/EJECT button to feed the paper to the loading position.

The printer remembers this position and advances each page to the same position. 13. Press the ON LINE button to put the printer on line so that it can accept data. If you find that your word processing or other application program prints too high or too low on the page or is printing on the perforations, check the loading position. If you need to adjust this position, you can use the micro-adjustment feature.

This feature gives you precise control over the position of your paper by allowing you to feed the paper forward or backward in 2/216-inch increments.

For more information, see the section on micro-adjustment later in this chapter. When using continuous paper, you can also choose the short tear-off feature to give you added paper handling capabilities. This feature automatically feeds the paper forward so that you can tear it off at its perforation. The printer then reverses the paper feed so you can resume printing at the loading position. Short tear-off makes it easier to detach printed pages and saves the blank pages that are usually lost between printing jobs. See the section on short tear-off later in this chapter for details. WARNING: If you need to adjust the loading position, always use the micro-adjustment feature. Never advance the paper using the platen knob while the printer is turned on. 2-8 Paper Handling Positioning your continuous paper supply Three common ways of positioning your printer and continuous paper supply are shown below.

It's important to keep your paper supply aligned with the tractor so that the paper feeds smoothly into the printer. Paper Handling 2-9 Switching Between Continuous and Single Sheets Even with continuous paper loaded in the printer, you can easily switch to single sheet printing without removing the continuous paper from the tractor. To switch from continuous paper to single sheets, follow the steps below. 1. Open the printer cover and press the ON LINE button to take the printer off line. 2. Remove your printed document. If you are not using the short tearoff function, press the FORM FEED button to advance your document to a point where it can be removed. Note: To avoid feeding your continuous paper backward more than is necessary, always make sure that you tear off the printed document before removing paper with the LOAD/EJECT button. 2-10 Paper Handling 3.

Press the LOAD/EJECT button to feed the continuous paper backward out of the printer and into a standby position. The paper is still attached to the tractor, but is no longer in the paper path. The PAPER OUT light comes on when the paper is completely out of the paper path. Note: Pressing the LOAD/EJECT button once may not feed the paper back enough to reach a standby position. If the PAPER OUT light does not come on, press the LDAD/EJECT button again.

With normal continuous paper, you can press the LOAD/EJECT button up to three times. (With continuous paper narrower than six inches, you can press the LOAD/EJECT button only once.) 4. Push the paper release lever back to the single sheet position. Paper Handling 2-11 5.

Stand the paper guide upright, and adjust the edge guides to roughly match the width of your paper. 6. Close the printer cover. Next, slide the paper between the edge guides until it meets resistance. At this point, the PAPER OUT light turns off. 7. Press the LOAD/EJECT button to automatically feed the page to the loading position. 2-12 Paper Handling 8. Press the ON LINE button to put the printer on line. Switching back to continuous paper To switch back to printing with continuous paper, first eject the single sheet of paper and take the printer off line.

1. Open the printer cover. Lower the paper guide onto the back of the printer. 2. Pull the paper release lever forward to the continuous paper position. 3. Press the LOAD/EJECT button to feed the paper to the loading position. 4. Press the ON LINE button to put the printer on line. Paper Handling 2-13 Adjusting the Loading Position The loading position is the position of the paper when it has been automatically loaded by the printer.

This position is important because it determines where the printing begins on the page. If the printing is too high or too low on the page, you need to change the loading position using the micro-adjustment feature described in the next section. Until the loading position is reset, the printer remembers the position and uses it as a reference point for feeding the paper. WARNING: If you need to adjust the loading position, always use the micro-adjustment feature. Never use the platen knob for paper feeding except in case of a paper feeding problem.

Once you have used micro-adjustment to change the loading position of continuous paper, the printer remembers that position even after it is turned off. However, when you use micro-adjustment to change the loading position of single sheet paper, the printer does not remember this position after the power is turned off. When the power is turned back on, the loading position returns to its factory setting. Using Micro-Adjustment The micro-adjustment feature moves the paper 2/216th of an inch at a time to make fine adjustments to the loading or short tear-off positions. Micro-adjustment only works immediately after you load paper or use the short tear-off function.

You can use micro-adjustment only when the printer is on line and the ON LINE indicator light is flashing. After you adjust the tear-off position or after you adjust the loading position for continuous paper, the printer remembers that position even after it is turned off, reset, or initialized. However, when you adjust the loading position for single-sheet paper, the printer does not remember the new position after the power is tuned off. 2-14 Paper Handling This section describes using micro-adjustment to change the loading position, but you can adjust the short tear-off position the same way. See the next section on using short tear-off for more information. To perform micro-adjustment of the loading position, first load your paper, and then press the ON LINE button to put the printer on line. The ON LINE indicator light starts to flash. While this light is flashing, you can use the FORM FEED and LINE FEED buttons for micro-adjustment. Press the FORM FEED button to feed the paper forward or the LINE FEED button to feed the paper backward. Each time you press the button, the paper moves 2/216 of an inch.

If you hold the button down, the paper moves continuously in 2/216-inch increments. When the paper reaches the factory-set loading position, the printer beeps and micro-adjustment feeding pauses for a moment before continuing. You can use this factory setting as a reference point when adjusting the printer's loading position. When the paper reaches either the minimum or maximum top margin, the printer beeps and the paper stops moving. Using Short Tear-Off When you are finished printing, the short tear-off feature automatically feeds the perforation of the continuous paper to the tear-off edge of the printer cover so that you can tear off the last sheet. When you resume printing, the printer reverses the paper back to the loading position so that you can use all of the next sheet. WARNING: Never use short tear-off with labels. To use short tear-off, first turn off the printer and turn DIP switch 1-5 off. (See the section on setting DIP switches in Chapter 3.) Then load continuous paper as usual, but leave the rear section of the printer cover open so that you can use the cover as a tear-off edge.

Paper Handling 2-15 The short tear-off function operates as follows: 1. The perforation at the end of the last printed page feeds to the tear-off edge of the printer cover. 2. Tear off the page using the printer cover's tear-off edge. 3.

If you need to adjust the position of the perforation to meet the tearoff edge, use micro-adjustment. This feature adjusts your tear-off position only when you use it immediately after short tear-off. First, make sure that the printer is on line and the ON LINE indicator light is flashing. Then, adjust the position in 2/216th-of-an-inch increments by pressing the FORM FEED button to feed the paper forward or the LINE FEED button to feed it backward. After micro-adjustment, the new tear-off position is reset and remains valid even after the printer is turned off, reset, or initialized.

4. When you resume printing after tearing off the sheet, the paper automatically feeds backward to the loading position before printing begins. 2-16 Paper Handling You can leave the short tear-off feature turned on (DIP switch 1-5 off) even when you are using single sheets. When you move the paper release lever to the single sheet position, short tear-off is disabled. Printing on Special Paper In addition to using single sheets and continuous paper, your printer can also print on a wide variety of paper types, including multi-part forms and labels. You can even feed envelopes, either manually or with the optional cut sheet feeder. Before printing on these special types of paper, however, you need to adjust the paper thickness setting. The paper thickness lever To accommodate various thicknesses of paper, the FX printer is equipped with a paper thickness lever that can be set to eight positions. These positions are identified by a scale on the printer frame next to the lever. Before changing the paper thickness setting, first make sure the power is off and then remove the printer cover.

WARNING: If you've been using the printer just before opening the printer cover, be careful not to touch the print head because it may be hot. Select the paper thickness you want according to the figure below. For normal use, the lever should always be set to position 2 on the scale. Paper Handling 2-17 For printing on special types of paper, see the table below. It gives you general guidelines for selecting the right paper thickness lever position to match your paper. Paper Type Paper (single sheets or continuous) Thin paper Multi-part paper 3-sheet 4-sheet Labels Envelopes Air mail Plain Bond (20 lb.) 1 Bond (24 lb.) Lever Position 2 2 i 4 3 3 or 4 z 6 Always return the lever to position 2 when you go back to printing on ordinary paper. Continuous printing with the lever set at a position higher than 2 can shorten the life of the print head. When you print on anything thicker than normal paper, such as envelopes or multi-part forms, be absolutely sure that your printing stays within the printable area of the paper.

See page 2-20 and Appendix A for more about the printable area of the paper. 1 77 . WARNING: Printing past the edge of envelopes, multi-part forms, labels, or thick paper can damage the print head. Multi-part forms Your printer can also use continuous multi-part forms. These multiple forms should have no more than four parts including the original.

Note: Multi-part forms should not be used with the single sheet feeding system or the optional cut sheet feeder. 2-18 Paper Handling You load continuous multi-part paper the same way that you load continuous paper. See the section on loading continuous paper in this chapter for details. The only difference is that you need to adjust the paper thickness lever to suit the thickness of your paper before loading. See the table above for the correct paper thickness setting. Labels If you need to print labels, always choose the type mounted on a continuous base sheet provided with sprocket holes for use with the tractor. If you attempt to print labels using the single-sheet feeding system, labels on a shiny base sheet almost always slip a little. You load labels the same way that you load continuous paper. See the section on loading continuous paper in this chapter for details. The only difference is that you need to adjust the paper thickness lever to match the thickness of your labels. See the table above for the correct paper thickness setting. To remove labels, tear off at a perforation behind the push tractor. Then take the printer off line and use the FORM FEED button to eject the labels. WARNING: Never feed the labels backward through the printer. Labels can easily come off the backing and jam the printer.

Therefore, never use the LOAD/EJECT button to eject labels or to feed labels backward to the standby position. Also, never use the short tear-off feature with labels. If a label does become stuck in the printer mechanism, take the printer to a qualified service person. Since labels are especially sensitive to temperature and humidity, always use them under normal operating conditions. Envelopes You can print on a variety of envelopes, including air mail, plain, or bond. To feed envelopes individually, use the single sheet loading feature. First, set the paper thickness lever as indicated in the table above. Then, follow the single sheet loading instructions at the beginning of this chapter. Paper Handling 2-19 You can also feed envelopes with the optional cut sheet feeder. See the section on the cut sheet feeder in Chapter 7.

Before loading envelopes into the cut sheet feeder, you need to adjust the paper thickness lever. See the table showing envelope types and recommended lever positions on page 2-18. WARNING: When printing on envelopes, be sure that your application program settings keep the printing entirely within the printable area of the envelopes as shown below. 4 10.33 a or more -4 0.

12" or more I 9 f I 0.87" or mom t' To make sure that the printing fits within this area, always print a test on a single sheet of paper before printing on envelopes. 2-20 Paper Handling Chapter 3 Using the Printer Operating the Control Panel . . .

3-15 Using the Printer 3-1 Operating the Control Panel The buttons on the control panel let you control many of the printer settings. The control panel also has indicator lights so you can check the current status of the printer's various settings. Lights POWER On when the power switch is on and power is supplied. READY On when the printer is ready to accept input data. Flickers when receiving data. PAPER OUT On when the printer is out of paper or when continuous paper is in the standby position. ON LINE On when the printer is on line and ready to accept data. This light flashes immediately after you load paper or use short tear-off to indicate that micro-adjustment can be used. 3-2 Using the Printer Buttons ON LINE This button controls the printer's on line/off line status. When the printer is on line, the printer can receive and print data from the computer.

FORM FEED When the printer is off line, press this button to eject a single sheet of paper or advance continuous paper to the, top of the next page. When the printer is on line, you can use the micro-adjustment feature by pressing this button to advance the paper. LINE FEED When the printer is off line, press this button to feed the paper one line, or hold it down to f&d the paper continuously. When the printer is on line, you can use the microadjustment feature by pressing this button to reverse the paper. LOAD/EJECT When the printer is off line, press this button to load paper if paper is not loaded, or to eject it if paper is loaded.

(Single sheet paper is ejected forward and continuous paper is ejected backward.) Using the Printer 3-3 you turn off, reset, or initialize the printer. SelecType The settings you select using the SelecType panel remain valid even after FONT Press this button to select draft, near letter quality Roman, or near letter quality Sans Serif. The indicator light shows which font has been selected. CHARACTERS PER INCH Press this button to select the characters per inch (cpi). You can choose 10 CPI, 12 CPI, or PS (proportional spacing). The indicator light shows the selected character spacing. CONDENSED Press this button to select either condensed or normal printing. The light is on when the printer is in condensed mode. In this mode, all characters are approximately 60% of their normal width. Note: Proportional spacing and condensed mode cannot be combined. If you select both, only proportional spacing works. 3-4 Using the Printer Other control panel features The control panel of the FX also gives you access to several special functions. Self test By holding down the FORM FEED or LINE FEED button while you turn on the printer, you can start the printer's self test. This prints out the DIP switch settings and the characters in the printer's ROM (Read Only Memory).

See the section on the self test in Chapter 1 for more information. By pressing the FORM FEED and LINE FEED buttons immediately after loading paper or using short tearoff, you can make fine adjustments to the loading and short tear-off positions. See the section on microadjustment in Chapter 2 for more information. By holding down both the FORM FEED and LINE FEED buttons while you turn on the printer, you can turn on the data dump mode. This feature allows advanced users to diagnose many problems. See the section on the data dump mode in Chapter 6 for more information. Microadjustment Data

dump Setting the DIP Switches By changing the settings of the two sets of DIP switches behind and below the platen knob, you can control various printer features, such as the character set and page length. These new settings become valid whenever the printer is turned on, reset, or initialized. Before you set the DIP switches, turn off the printer. Then use a pointed instrument, such as the tip of a pen or pencil, to move the switch to either the on or off position. The new settings become valid when you turn on the printer. Using the Printer 3-5 DIP switch functions The tables below describe the DIP switch functions. The page numbers refer you to the page on which each printer feature is described. The shaded settings are the preset factory settings. DIP Switch 1 international character set See table below DIP Switch 2 SW Description 2-1 Page length 2-2 Cut sheet feeder mode 2-3 1 -inch skip over perforation 2-4 Automatic line feed ON 12 inch On On On OFF 11 inch Off Off Off Page 3-9 3-10 3-10 3-10 3-6 Using the Printer International character sets Default character set When DIP switch 1-1 is on, the user-defined character set is the default.

User-defined characters are maintained in printer memory even when the power is turned off, so the user-defined character set can be selected simply by setting this switch to on. However, when this switch is on, new user-defined characters cannot be defined. See Chapter 4 for more information on user-defined characters. This switch is effective only in the Epson ESC/P mode. Zero character When DIP switch 1-2 is on, the printer prints slashed zeroes (0). When the DIP switch is off, the printer prints open zeroes (0). This is useful for clearly distinguishing between uppercase 0 and zero when printing such items as program lists. Character table When DIP switch 1-3 is on, the Epson Extended Graphics character table is selected. When it is off, the italics character table is selected. The Epson Extended Graphics character table contains international accented characters, Greek characters, and character graphics for printing lines, comers, and shaded areas. If you have an IBM® computer or an IBM compatible, select the Epson Extended Graphics table when you wish to print the character graphics as they are displayed on the screen. Since the character table setting affects only half of the character table, you can Using the Printer 3-7 still print text if you have selected the Extended Graphics set. Also, you can still print italics if you use the proper software command. If your printer is in IBM emulation mode (DIP switch 1-4 on), the graphics characters are available no matter which character table you select. The printouts below show which characters are printed in each table.

Italics '"#g%~'(()t+,-./012345~789:;(=>?@C)BCIUEFGH IJKLMNOPQffSTUVWXYZC\ll'abcdefghijklmnopq qrstuvwxyz(;) Epson Extended Graphics Note: You may need to use the ESC 6 command to print some of the Extended Graphics characters. See Appendix B. Printer mode When DIP switch 1-4 is on, the printer operates in the IBM emulation mode.

When it is off, the printer operates in the Epson ESC/P mode. In the IBM emulation mode, DIP switch 1-3 controls the automatic carriage return. When switch 1-3 is off, a carriage return is added to each line feed. The functions of DIP switches 1-6, 1-7, and 1-8 are also different when using the printer in the IBM emulation mode. For details, see the section on international character sets on the next page. Short tear-off mode When DIP switch 1-5 is off, the short tear-off mode is on.

This feature advances the paper so you can tear off the paper, and then reverses the paper so you can use all of the next sheet. See the section on using short tear-off in Chapter 2. 3-8 Using the Printer International character set Selecting an international character set provides you with the characters used in other languages. To obtain the desired international character set, set switches 1-6, 1-7, and 1-8 according to the DIP switch table on page 3-7. The following table shows the characters that differ in each international character set.

International character sets 35 36 64 91 92 93 94 96 123 124 125 126 0 USA 1 France 2 Germany 3 UK 4 Denmark I 5 Sweden 6 Italy 7 Spain I 8 Japan 9 Norway 10 Denmark II 11 Spain II 12 Latin America #s@c\/- `cI~# $ h o c § ^ i! III e! . #$~Auu...g6iiB r;$@c\/- `cII#$@fiOA- à?0A#nBXuAufski6ati #$@-\e-clab~i It $ @ i fi i * * ~ ii 3 - #$@[Yl-"iI#neiE0Auc5a?a~ii #$l2fE0AU~908t.

i iRii: ˘ifiiti #$5 #$AiR~itiii66 The countries numbered 8 through 12 are available only through the ESC R software command. See the Command Summary in Chapter 8. Also, in IBM emulation mode (DIP switch 1-4 on), a character set containing international characters (CG character table 2) is selected whenever any one of DIP switches 1-6, 1-7, or 1-8 is set to off. If all three switches are on, CG character table 1 is selected. See Appendix B. Page length When DIP switch 2-1 is on, the page length is set to 12 inches. When it is off, the page length is 11 inches. Other page lengths can be set with the ESC C and ESC CO commands. See the Command Summary in Chapter 8. Using the Printer 3-9 Cut sheet feeder mode When DIP switch 2-2 is on, you can use your printer's optional cut sheet feeder.

See Chapter 7 for more information on using a cut sheet feeder with your printer. Skip over perforation When DIP switch 2-3 is on, a one-inch margin is provided between the last line printed on one page and the first line printed on the next page. When using continuous paper, this feature causes the printer to stop printing, skip over the perforation, and then resume printing. If you adjust your loading position correctly, you can get half of the margin at the bottom of one page and half at the top of the next page. See the section on adjusting the loading position later in this chapter. Note: Most application programs take care of the top and bottom margins. Only use skip over perforation if your program does not provide these margins. Automatic line feed When DIP switch 2-4 is on, a carriage return code (CR) causes an automatic line feed. When it is off, line feeds occur only when the printer receives line feed codes (LF). Since some computers and application programs automatically add line feeds to carriage returns, the setting you use depends on your computer and application program.

Selecting Typestyles Your printer can produce a wide range of typestyles by combining different character fonts, pitches, widths, and other enhancements. These features can be selected by using the SelecType feature on your control panel or by using software commands. This section describes only the features controlled by SelecType. To use software commands, see the section on computer-printer communication in Chapter 4 and the Command Summary in Chapter 8. 3-10 Using the Printer Using SelecType You can use the SelecType control panel to choose fonts, pitches, and condensed printing.

The settings you select using the SelecType panel remain valid even after the printer is turned off, reset, or initialized. However, commands from your software application program temporarily override the SelecType settings. Character fonts The FX-850 and FX-1050 have three built-in character fonts: ROMAN !"##$%&-( )*+,- ./0123456789:;<=>?6'ABCDEFGHIJK LMNCPQRSTUWXYZ[\]^- `abcdefghijklmnopqrstuv WxYZC t 1" We've just seen your excellent ad for miniature zebras in a recent back issue of Trader's Times. What is the price of these items for quantities of more than one gross? SANS SERIF "##9X&*()*+,-.

/0123456789:;<=>?@fiE?CDEFGHIJK LMNoP~R~T~~WXY~C\~~_~ abcdefghijklmnopqrstuv wxyzc:l" We've just seen your excellent ad for miniature zebras in a recent back issue of Trader's Times. What is the price of these items for quantities of more than one gross? Using the Printer 3-11 The draft mode uses fewer dots per character for high-speed printing. This makes draft ideal for rough drafts and editing work. Roman and Sans Serif are near letter quality (NLQ) fonts. Near letter quality takes a little longer to print but produces nicely formed characters suitable for most documentation requirements. Characters per inch For each of the three built-in fonts, you can choose a character size of 10 or 12 characters per inch (cpi), or proportional spacing. The following printout compares the different types of spacing. This is Roman printing in 10 cpi. This is Roman printing in 12 cpi. This is Roman printing in proportional.

In the 10 and 12 cpi modes, each character is given the same amount of space. However, in the proportional mode, spacing varies from character to character. Therefore, a narrow letter like the lowercase i receives less space than a wide letter like the uppercase W. Condensed mode In addition to the two pitches and proportional spacing, you can use the condensed mode to change the character size. In the condensed mode, characters are approximately 60% of the width of normal characters. Condensed printing is very useful for spreadsheets and other applications where you need to print the maximum amount of information on a page. Both 10 and 12 cpi can be condensed, but proportional spacing cannot. The printout below compares normal 10 cpi with condensed 10 cpi. This is condensed 10 cpi Roman printing. This is 10 cpi Roman printing.

3-12 Using the Printer Note: Proportional spacing and condensed mode cannot be combined. If you select both, only proportional spacing works. If SelecType does not work Some application programs are designed to control all typestyle functions. These programs cancel all previous typestyle settings by sending certain software commands before printing. Because these commands cancel SelecType settings, you should use the program's print options function instead of SelecType to select your typestyles.

Therefore, if SelecType does not work with a particular application program, consult the software manual for information on selecting typestyles.

Also, see the section on using the FX with application software in Chapter 4. Enhancing Your Printing SelecType controls the printing style of a whole document. Software commands, on the other hand, can change anything from a single character to the entire document. By using software commands, you can obtain many different printing effects with the FX printer, from arranging the text on the page to giving extra emphasis to particular words and phrases. This section shows you the features you may want to select with your software. Once you have read about the features, you can find their commands in the Command Summary in Chapter 8. Also, see the section on computer-printer communication in Chapter 4 for more information on sending commands to the printer. Character size Besides 10 and 12 cpi, condensed printing, and proportional spacing, software commands also offer two other options: double-wide and double-high printing. Using the Printer 3-13 The double-wide mode doubles the width of any size characters. This mode is useful for such purposes as emphasizing headings in reports and making displays, but is usually not suitable for large amounts of text. This is double-wide- Another mode for headings and other special uses is double-high: This is double-high. Because of its height, you must leave a blank line above a line of doublehigh printing. Otherwise, the double-high letters will overlap the letters on the previous line. Double-wide and double-high can be combined to obtain even more impressive printing results: Double-high double-wide Widening or narrowing the characters also widens or narrows the spaces between words and letters.

Because word processors usually create a left margin by printing spaces, you may need to change the number of characters on a line to keep the margins correct if you change widths. For example, a left margin of 10 characters at 10 cpi is the same as a fivespace margin using double-wide characters. Emphasized and double-strike printing Emphasized and double-strike printing give your documents added emphasis. In emphasized mode, the FX prints each character twice as the print head moves across the paper, with the second printed slightly to the right of the first. This process produces darker, more fully formed characters. 3-14 Using the Printer In double-strike mode, the printer prints each character twice, the second time slightly below the first, making the text bolder. For even greater boldness, you can combine emphasized and double-strike. (Double-strike cannot be combined with NLQ mode, however.) Italic printing You can use italic characters for special emphasis or as an alternative typeface. ESC 4 turns on the italic mode even if the current DIP switch setting is set to the Epson Extended Graphics character table.

This sentence is in italics. Underlining The underline mode automatically underlines any piece of text. It underlines spaces, subscripts, and superscripts. (The printer does not, however, underline horizontal tabs.) Superscripts and subscripts Superscripts and subscripts can be used for printing footnote numbers and mathematical formulas.

The example below combines underlining, superscripts, and subscripts in a mathematical formula. average = (a1+....

....

..+ an) n Selecting typestyles with Master Select Your printer has a special command called Master Select that allows you to choose many possible combinations of nine different modes. To send Master Select codes to the printer, you must first choose the mode combination you want. The modes you can choose from are 10 cpi, 12 cpi, proportional, condensed, emphasized, double-strike, double-wide, italics, and underline. Using the Printer 3-15 The format of the Master Select code is shown below: ASCII: Decimal: Hexadecimal: ESC 27 1B ! 33 21 n n n To send the Master Select codes to your printer in a decimal format, for example, you send the codes 27, 33, and then whatever value you choose for the variable n. The variable n is a number that identifies the typestyle or combination of typestyles. To find the value of n, look at the Master Select table below and add up either the decimal or hexadecimal numbers for the features you want. Master Select Table For example, if you want to print a title using double-wide 12 cpi characters in double-strike mode, you would add these three decimal numbers together to calculate the value of n: 12 cpi Double-strike Double-wide 1 16 32 n = 49 3-16 Using the Printer After calculating the value of n, you use the Master Select command to send the value to the printer. To send the Master Select command for double-wide, 12 cpi, and double-strike, you would use the decimal codes 27, 33, and 49.

ASCII: Decimal: Hexadecimal: ESC 27 ! 33 21 1 49 31 1B Consider these things when you use the Master Select command: l Master Select cancels any of the listed features that you do not set. For example, if you have already set 12 cpi, and you try to use Master Select to set emphasized double-strike only, the character width is reset to 10 cpi. Proportional overrides 10 cpi, 12 cpi, and condensed. Double-strike cannot be combined with NLQ mode. l l Print quality and font are not part of Master Select and must be set separately, using either SelecType or the ESC x and ESC k commands.

The method you use to send the Master Select codes to the printer is determined by your application software. For more information on sending commands to your printer, see the Computer-Printer Communications section in Chapter 4 and the Command Summary in Chapter 8. Using the Printer 3-17 Chapter 4 Using Software and Graphics Using the FX with Application Programs . . .

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Now that you've set up and tested the printer, you need to start using it with your application programs.

Most application programs let you specify the type of printer you're using so that the program can take full advantage of the printer's features. Many programs provide an installation or setup procedure that presents a list of printers to choose from. If your application program has a printer selection menu, use the instructions below. Using printer selection menus If your software has a printer selection menu, simply choose FX-850 or FX-1050. If the menu does not list either of these printers, choose one of the following. They are listed in order of preference. FX-86e EX-800 FX-85 FX-80 + FX-80 FX LX MX Epson printer Draft printer FX-850 Fx-1050 FX-286e EX-1000 FX-286 FX-185 FX-100 + FX-100 FX LX MX Epson printer Draft printer If you plan to use the IBM emulation mode, choose IBM Proprinter (if you have an FX-850), IBM Proprinter XL (if you have an FX-1050), IBM Graphics printer, or IBM printer, in that order of preference. Note: If your application program does not list the FX-850 or FX-1050, you may want to contact the software manufacturer to see if an update is available. 4-2 Using Software and Graphics A quick test After setting up your application program, print a sample document to make sure the program and the FX are communicating properly. If the document doesn't print correctly, recheck the program's printer selection and installation procedure. If you're still having trouble printing, consult the troubleshooting section in Chapter 6.

Using word processors Word processors usually let you use a fixed set of printer features by placing markers around the text to be altered. When the document is printed, the markers are recognized and translated into suitable commands for your printer. On your screen some programs show the markers; others display the text as it will appear-for example, in bold or italics. This method is normally restricted to features that can be found on almost all printers, such as bold and underlining. Some word processing programs also let you insert printer commands in your text. These commands may or may not be visible on your screen. This method has the advantage of allowing you to use any printer command, not just a limited set. To make use of it, however, you need to understand how to use your printer's commands. Check the manual for your word processor to see if you can place printer commands in your text, and then see the section in this chapter on computer-printer communications. Using spreadsheets Although spreadsheets seldom use as many printing styles as word processors, they do have some very specific requirements.

If your spreadsheet program provides a list of printers, use the list on page 4-2 to find the proper selection. If your spreadsheet doesn't have a printer setup routine, read the program's manual carefully for information on printing. A major concern for printing spreadsheets is the width of the printer. The FX-850 is an 80-column printer, and the FX-1050 is a 136-column printer. You can, however, increase the number of characters on a line by selecting 12 cpi, condensed mode, or both from the SelecType control Using Software and Graphics 4-3 panel.

The table below shows you many characters you can fit on a line using these options. If your spreadsheet asks the number of columns your printer can print, decide which mode you will use and supply the appropriate number from this table. Unlike word processors, spreadsheet programs usually don't let you change printer commands within a spreadsheet. Instead, one style or mode of printing is used for the whole spreadsheet. With the FX, there are two main ways of sending commands to control the printing of a spreadsheet.

The first method is to choose condensed from the SelecType control panel. For the second method, look in the manual for your spreadsheet to find out how to send printer commands. Then look in the Command Summary in Chapter 8 to find the proper codes to send. For example, your spreadsheet might use a "setup string" to send printer commands. To prepare a setup string for 12 cpi condensed, you would look up the proper command in the Command Summary. The command for 12 cpi is ESC M, and the command for condensed is SI. Because most spreadsheets use the decimal equivalent for the commands, (also given in the Command Summary), a setup string for 12 cpi condensed might look like this: /027/077/015 The number 027 is for the escape code, 077 is for M, and 015 is for SI (condensed). 4-4 Using Software and Graphics Using graphics software The FX is capable of producing finely detailed graphic images. Although the section on graphics later in this chapter gives specific information on the graphics commands, the easiest way to take advantage of the FX's capabilities is with one of the many graphics programs available. When buying graphics software, always make sure the program has an option to print on an FX printer.

Any program with an option for an FX printer should give excellent results, using different dot densities to produce a realistic scale of grays. Most graphics programs have a printer selection procedure, in which case you should check the lists on page 4-2 to find the proper selection. Computer-Printer Communication Your computer communicates with your printer using a standardized set of numbered codes called ASCII codes (American Standard Code for Information Interchange). When you press the letter A on the keyboard, it is translated into the ASCII code for A, transmitted to a peripheral device such as your computer screen or your printer, and then converted back into the letter A. There are ASCII codes for all the letters in the alphabet, both uppercase and lowercase letters, and for the numbers 0 through 9. The ASCII set of codes also includes most punctuation marks and some codes that control printer functions. In the Command Summary in Chapter 8, each code is expressed three different ways: as an ASCII character, as a decimal number, and as a hexadecimal (base 16) number. For example, the uppercase letter A is represented as the ASCII character A, the decimal number 65, and the hexadecimal number 41. The numbering system you use depends on your software and your preferences. All letters, numbers, and punctuation marks are assigned decimal numbers from 32 through 255.

ASCII codes with decimal values of less than 32 are called control codes, because they control the operation of Using Software and Graphics 4-5 your printer and other peripherals. These ASCII characters do not usually have corresponding keys on the keyboard and cannot be printed as characters by your printer. Escape sequences Although there are more than 30 control codes available to control the operation of your printer, many more codes are required to run today's sophisticated printers. Therefore, ASCII codes are grouped in sequences to represent certain functions. These code sequences use the ASCII codes with decimal values of 32 through 255, normally reserved for characters and punctuation, to control printer functions.