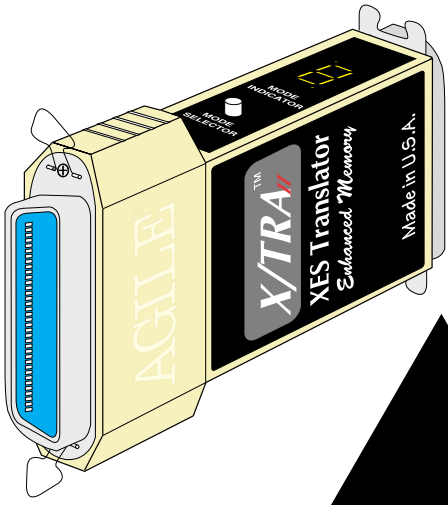
AGILE®

X/TRA II

XES-to-PCL5 Translator



USER'S
MANUAL

Copyright Information

Printed in the United States of America.

Release Notes

This document was printed in December 1997 and describes release 1.26 of the AGILE X/TRA II.

About This Manual

This manual covers the installation and use of the AGILE X/TRA II, the XES-to-PCL5 translator for PCL5 printers. AGILE makes no warranties, expressed or implied, as to its completeness or accuracy. The information in this manual is current as of the date of its publication, but it is subject to change by AGILE at any time without notice. This manual is not intended to be used for manufacturing or engineering specifications, and it is assumed that the user understands the interrelationship between any affected systems, machines, programs and media.

AGILE periodically updates this manual for clarity, to correct inaccuracies and typographical errors, or to document added or changed product features. AGILE will be pleased to improve the manual by implementing suggestions from our customers. Please put suggestions in writing and mail to AGILE at the addresses below:

AGILE
Technical Publications
875 Alfred Nobel Drive
Hercules, CA 94547-1899

e-mail: TechPubs@agileinc.com

TABLE OF CONTENTS

INTRODUCTION Section 1

INSTALLATION Section 2

XES COMMANDS Section 3

XTRAEDIT CONFIGURATION Section 4

SERVICE AND REFERENCE Section 5

INTRODUCTION

General Information

The AGILE X/TRA II is a high-speed translator that accepts data streams designed for Xerox Escape Sequence (XES/UDK) printers and converts them for printing to PCL printers. Users with XES-dependent documents and applications now can use them with virtually any PCL5 printer.

The emulated printer is a Xerox 4213 Model II, firmware revision 2.14, although some XES commands are supported that are not used by this printer. Supported XES commands are described in *Section 3 — XES Commands*. XES emulation switching commands (=MCK=) are used to ensure that PostScript, PCL and other non-XES data is passed through without translation.

The X/TRA II attaches directly to the Centronics port on your printer. It connects to the host via a standard Centronics printer cable. Throughput for documents of above average complexity and no graphics is rated at up to 33 pages per minute at 100% print density, depending upon the page conversion method used.

Xerox Data Monitor mode is emulated by the X/TRA II. It is selected either by a command in the data stream or by a user-configurable switch setting. Upon power up, the X/TRA II outputs a Configuration/Status Page. A configuration option is provided to disable this feature. Other diagnostics are also available.

Configuration of the X/TRA II is performed with a menu driven PC/MS DOS program (XTRAEDIT). Nonvolatile storage preserves configuration options and downloadable objects even when the power is disconnected from the unit.

X/TRA II Features and Specifications

Key Benefits

- ▲ Allows XES users to print documents to virtually any PCL printer
- ▲ Users can still print PostScript and PCL data without device reconfiguration
- ▲ Easily installed on the printer's Centronics parallel port
- ▲ Supports any host capable of sending ASCII XES data streams through parallel interfacing, for example, a mainframe/midrange system connected to a protocol converter
- ▲ Supports forms, vector and raster graphics
- ▲ Font support for Titan10iso, Titan12iso XCP12.5iso and XCP14iso in both portrait and landscape orientations; XES fonts can be downloaded to the printer or stored in the X/TRA II and are automatically converted to PCL5
- ▲ Supports international character sets and user-specified translation tables
- ▲ Shrink mode allows printing of documents that print edge-to-edge on XES printers

Printers Supported

- ▲ Desktop or network laser printers running PCL5

Printer Emulation

- ▲ Xerox 4213 Model II, firmware revision 2.14, with some limitations and some additions
- ▲ PostScript, PCL and other non-XES data is passed through without translation

Interface

- ▲ Attaches directly to the Centronics port on the printer
- ▲ Connects to the host via a standard parallel printer cable

Host Systems Supported

- ▲ Any system that delivers ASCII XES data streams via a standard Centronics port, including PCs and coax or twinax systems connected to a protocol converter.

Throughput

- ▲ Up to 33 pages per minute at 100% print density (132 columns by 66 lines, for a total of 8712 characters per page). Using the *Shrink* page conversion method will significantly reduce throughput.

Forms and Graphics Support

- ▲ Forms downloading
- ▲ Vector graphics
- ▲ Raster graphics

Font Support

- ▲ Titan10iso
- ▲ Titan12iso
- ▲ XCP14iso
- ▲ Supports both portrait and landscape orientations for fonts stored or downloaded in only one orientation
- ▲ Automatic XES-to-PCL5 font conversion
- ▲ XES fonts can be downloaded to the printer or stored permanently in the X/TRA II
- ▲ Supports international character sets and user-specified translation tables

Font Storage

- ▲ 448KB storage
- ▲ Fonts are desixilized and compressed, yielding a 2:1 storage space advantage

Page Conversion Methods

- ▲ Offset method compensates for 1/4-inch upper and left margins imposed by PCL; useful for printing on forms
- ▲ Shrink method compensates by reducing the page up to 93.75%; signature, logo and barcode fonts can be configured not to shrink

Configuration

- ▲ PC/MS DOS menu-driven configuration program (XTRAEDIT)

User Interface

- ▲ Operator function switch
- ▲ LED mode indicator

Diagnostics

- ▲ Xerox Data Monitor Mode emulation
- ▲ Configuration/Status page
- ▲ Other diagnostics

Power

- ▲ 5 VDC at 300 milliamps provided by a +5V/1000mA adapter that accepts 100-240 VAC input at 50-60Hz, 0.2A. Use of the AC adapter requires a Universal Power Supply cord.

Size

- ▲ 4.39" x 2.73" x 0.70"

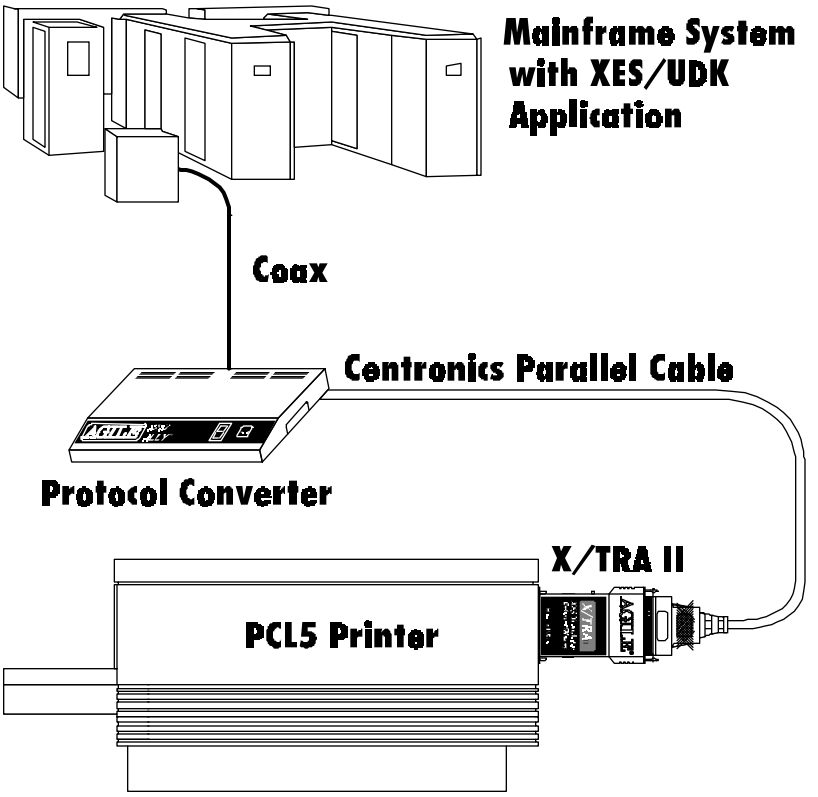
Weight

- ▲ Less than 1 lb.

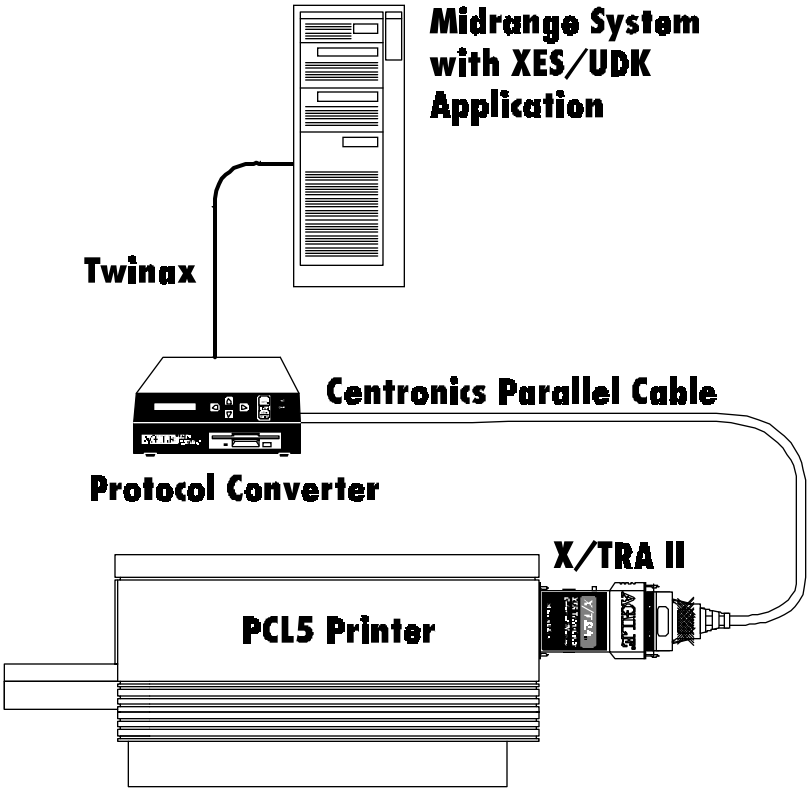
Setup Options

The following illustrations demonstrate some of the ways the X/TRA II may be used to interface various systems:

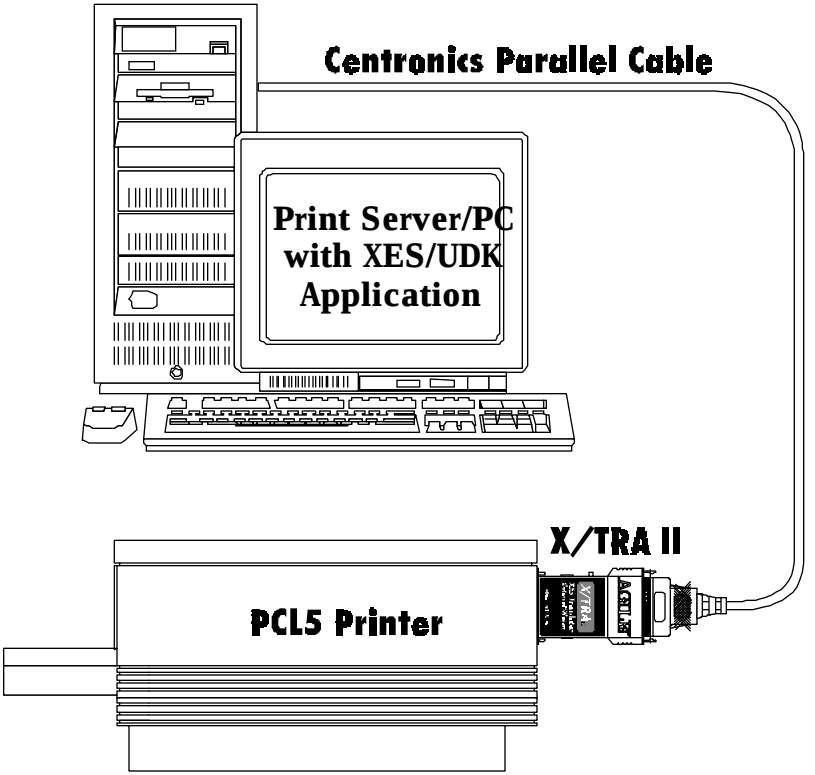
Connection to Mainframe System



Connection to Midrange System



Connection to Print Server/PC



INSTALLATION

General Information

This section provides information on physically attaching the AGILE X/TRA to the computer environment, and it describes the user interface (LED and Mode Selector button).

Before Beginning

The following are needed before installing the X/TRA:

- A system that delivers ASCII XES data streams via a standard Centronics port.
- A parallel-attached PCL5 printer.
- A Centronics parallel printer cable.
- Additionally, the user or someone in the user's organization should be knowledgeable about the system and the printer.

Electrical Requirements

The X/TRA requires 5 VDC at 300 milliamps provided by a 117 VAC adapter or an optional 250 VAC adapter.

Users with any questions regarding the electrical service available at their site should contact a qualified electrician.

For the user's convenience, it is recommended that the AC adapter and the printer are plugged into the same power strip. Use the switch on the power strip to turn the printer and the X/TRA ON or OFF at the same time.

Operating Environment

The X/TRA operates best in an environment with a temperature between 50 and 90 degrees Fahrenheit and 15% to 65% relative humidity.

Space Requirements

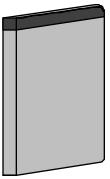
An optional cable is available for users who cannot access the back panel of their printer to read the X/TRA LED display and operate the Mode Selector button.

Unpacking

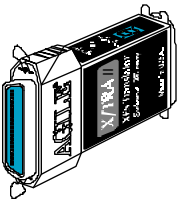
After removing the X/TRA from the shipping container, inspect the unit for any damage. Immediately report any damage to the freight carrier. Save the packing container.

Package Contents

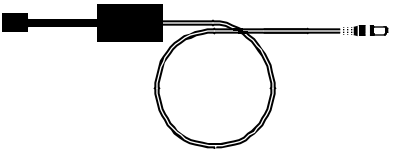
Except when ordered otherwise, the X/TRA includes a 117 or 250 VAC power adapter and this user's manual. Should any of these items be missing, contact an AGILE sales representative. Optionally, the X/TRA will be packaged with a Centronics printer cable.



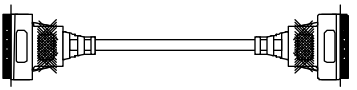
User's Manual



X/TRA II



AC Power Adapter

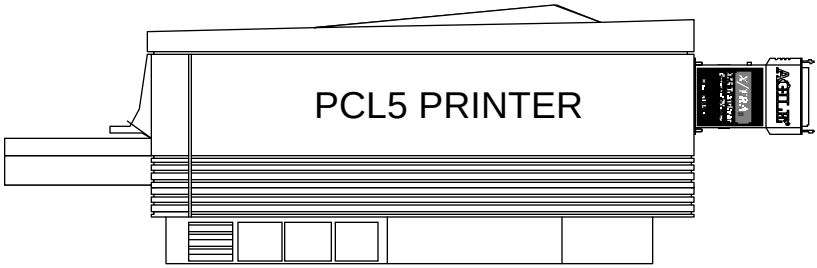


Centronics Cable
(Optional)

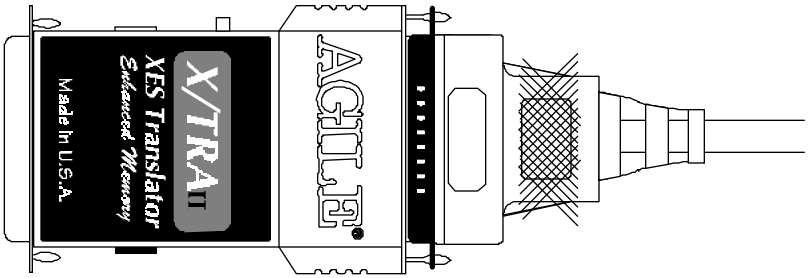
Connections

The following section describes and illustrates how to make the physical connections between the X/TRA and the other components of the system.

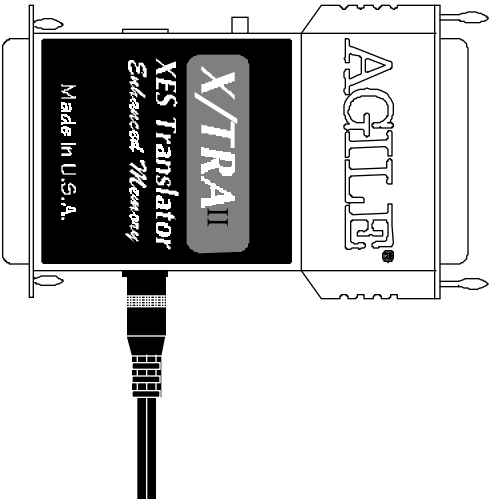
If present, remove the cable attached to the printer's parallel port. Gently slide the X/TRA onto the printer's parallel port, and secure it with the clips provided.



Attach the Centronics end of a parallel printer cable to the other end of the X/TRA, and secure it with the clips provided. Secure the other end of the printer cable to the host computer or protocol converter.



Plug the device end of the AC adapter into the connection provided on the X/TRA. Plug the AC end of the AC adapter into a wall receptacle (or preferably into a power strip to which the printer is also connected). The X/TRA will cycle through its internal diagnostics (reflected by the numbers changing on the LED).



Power on the printer. After the printer completes its power on initialization sequence, verify that it is on line and ready to receive and print data. If necessary, refer to the printer user's manual for detailed information.

Power on the host computer and/or protocol converter.

Note: If the printer is either powered down or reset, the X/TRA must also be powered down before printing can resume. Otherwise, the X/TRA will not be aware that the fonts, forms and other resources that were downloaded to the printer through the X/TRA are no longer available to the printer.

Mode Selector Button

The X/TRA is equipped with a Mode Selector button used for selecting various modes. The LED indicates the current mode of the X/TRA. The modes available are as follows:

O — Normal Operating Mode

System data may be accepted at any time during Normal Operating Mode. Normal Operating Mode is the mode that allows XES data streams to be printed to the user's printer.

H — Hex Dump (Data Monitor Mode)

Mode H is used to emulate Xerox Data Monitor Mode. When in Data Monitor Mode, all data sent to the X/TRA is printed as hexadecimal values of the incoming character codes. This diagnostic tool can be used to check for correct printer command syntax, to check the integrity of data files and to verify the integrity of font and graphics data. A sample Hex Dump can be found in *Section 5 — Service and Reference*.

C — Configuration/Status Page

The X/TRA will return to Normal Operating Mode after a Configuration/ Status Page is sent to the printer. A sample Configuration/Status Page can be found in *Section 5 — Service and Reference*.

P — Passthrough Mode

When this mode is selected, all data will be sent through the X/TRA without translation. This mode is used for printing PCL, PostScript or another non-XES data stream.

F — Configuration Mode

This mode enables the user to change configuration options using XTRAEDIT and is entered automatically upon starting XTRAEDIT. Refer to *Section 4 — XTRAEDIT Configuration* for detailed information.

Note: If the LED is lit, the printer and the X/TRA are ready to receive data. If the LED is not lit, they are not ready to receive data, probably because the printer is off line. A flashing LED means the X/TRA is receiving and processing data.

XES COMMANDS

General Information

XES commands are used to control the functions of Xerox printers running in XES mode (also known as UDK, XDPM or 2700 mode). The X/TRA interprets each supported command and converts it into the PCL5 printer language. This section lists each XES command supported by the X/TRA and describes how each is implemented by the X/TRA for use with PCL5 printers.

XES is an acronym for Xerox Escape Sequence. It is called an escape sequence because each command in the set is preceded by an escape character. The escape character is a trigger that indicates that the data that follows it is not data to be printed but a command to be executed by the printer.

The escape character is an ASCII 1Bh (27 decimal). Some systems are unable to transmit this character directly to the printer, so the user-defined key (UDK) is provided as a substitute.

User-Defined Keys

The user may define a substitute character for the escape character if the escape character on the host does not transmit properly. The substitute escape character is known as the user-defined key, or UDK. To define a UDK, enter the following at the start of a job:

=UDK=*character*

Thereafter, until the end of the job, or until the user specifies otherwise, the printer recognizes the selected character as the escape character.

For example, to define the asterisk (*) as the UDK:

=UDK=*

Thereafter, instead of using Esc+B↵, enter *+B↵. Instead of using Esc d, enter *d.

Selecting a UDK

When selecting a UDK, the trigger =UDK= must be entered in uppercase, exactly as shown. Any printable character may be used as the UDK, except:

- ▲ uppercase U
- ▲ uppercase D
- ▲ uppercase K
- ▲ comma (,)
- ▲ null (0)
- ▲ space (20h)
- ▲ equal sign (=)

The UDK selected should also be one that is not required for printing, since the UDK cannot be printed. As such, the user should not select *any* alphanumeric character. No control characters are allowed to be assigned as the UDK.

Emulation Change

The X/TRA will ordinarily receive XES data and convert it to PCL5 data, so that the data stream can be sent to the printer. However, the user may also need to send PCL, PostScript or another non-XES data stream to the printer without translation. To do so, the user must first use the XES command for changing printer emulation modes. To change emulation modes, XES uses the "Mode Change Keyword" command, which takes the following format to change to PCL and PostScript emulations, respectively:

=MCK= EMULATE/PCL/END ↵

=MCK= EMULATE/POSTSCRIPT/END ↵

Actually, it makes no difference to the X/TRA which emulation name follows "EMULATE." Any emulation except for the three below will cause the X/TRA to enter passthrough mode. When the X/TRA receives one of the following commands, it will change back to XES-to-PCL5 translation:

=MCK= EMULATE/2700/END ↵

=MCK= EMULATE/XDCS/END ↵

=MCK= EMULATE/XES/END ↵

A space is required immediately after the command sequence =MCK=.

An emulation change is always temporary, and will revert back to the default mode after a power off/on.

Note: Changing emulation modes may cause the printer to erase all downloaded fonts from memory. In such cases, the user will need to download the fonts to the printer after executing an emulation change. Alternatively, the printer can be configured with context saving enabled.

The X/TRA also supports the =MCK= commands "SAVE" and "RESTORE." The =MCK= command "NVRAM" results in no operation.

=MCK= SAVE/END ↵

will save the current emulation (either PCL or passthrough) to the X/TRA's flash memory until the unit is powered off.

=MCK= RESTORE/END ↵

will change the emulation to the emulation stored using the "SAVE" command above.

=MCK= RESET/END ↵

will change the emulation to the default power-on emulation.

XES Command Format

XES commands take the following format:

- ▲ The escape character Esc (1Bh or a user-defined key)
- ▲ The instruction, sometimes preceded by a plus sign (+)
- ▲ User-entered variables, if required for the command
- ▲ An optional comma (,) is used to print a Configuration/Status Page (Job Status Sheet) after the print job
- ▲ An optional comment to be printed on the Configuration/Status Page
- ▲ A line end ↵ (either CR, LF, NL or CR/LF) is sometimes required

Two Types of Escape Sequences

There are two types of escape sequences:

- ▲ Job Control Commands
- ▲ Non-Job Control Commands

Job Control Commands

A job control command either sets job boundaries or formats the printed output in some way. Job control commands are used to reset the printer, start a print job, or load fonts, graphics or forms. An optional comment of up to 132 characters, if preceded by a comma, will be printed on a Configuration/Status Page upon the receipt of the next job control command. All jobs should begin and end with one or more job control commands.

A job control command always includes a plus (+) symbol following the escape character, and it always includes an instruction. It may include an optional comma inserted when the user wants a Configuration/Status Page, an optional comment printed on the status sheet and a line end. Occasionally it includes a user-entered variable.

For example, the command to start printing a document:

Esc+P,*comment*↵

Non-Job Control Commands

Simple commands consist of the escape character and one or two other characters.

For example, the command for centering a line of text:

Esc q

Commands with user-entered variables are used to set parameters such as line spacing or margin width. They may include punctuation marks that serve as delimiters and alphanumeric characters such as comments or file names. Some require a line end.

For example, the command for setting margins:

Esc m*H*,*T*,*B*,*L*,*R*↵

where *H*,*T*,*B*,*L*,*R* represent the variables for height, top, bottom, left and right, respectively.

Line Endings

The symbol ↵ is used in these instructions to indicate a line end if the command requires a line end. However, the user must use either a carriage return, line feed, new line or carriage return/line feed as the actual line ending. The line ending must be defined as an X/TRA configuration parameter. Refer to *Section 4 — XTRAEDIT Configuration* for information on defining the line ending to be used.

Configuration/Status Page

Some XES commands provide for an optional Configuration/Status Page (Job Status Page) to be printed after the print job in which the command occurs. The Configuration/Status Page is printed if the command is followed immediately by a comma (,) or if an error is detected either during the print job or during powerup.

The X/TRA enables the user to determine the conditions in which a Configuration/Status Page will be printed. Refer to *Section 4 — XTRAEDIT Configuration* for information on specifying the conditions in which a Configuration/Status Page will be printed.

The Configuration/Status Page includes the following information:

- ▲ The error number and error type, if any errors were detected
- ▲ The names of any simulated, resident or downloaded fonts
- ▲ The names of any downloaded forms
- ▲ An optional comment, if one was entered
- ▲ The current configuration

A sample Configuration/Status Page can be found in *Section 5 — Service and Reference*.

Optional Comment

An optional comment will be printed on the Configuration/Status Page if a comment was entered directly after the comma in the XES command line that triggered the Configuration/Status Page. The comma is a request for printing a Configuration/Status Page. Whether or not this request is honored can be determined by setting a parameter using XTRAEDIT. The comment can be up to 132 characters in length.

The comment will always be printed by the X/TRA if a Configuration/ Status Page is printed.

Job Boundary Commands

A job boundary is a command function that tells the printer where the job begins and ends, and it tells the printer what type of data the job contains. The command to start printing a document is the "Print Job" command. The command to end a document is the "Reset" command.

Print Job

Esc+P,*optional comment*↵

The "Print Job" command marks a job boundary, purges the last page buffer and begins printing. Printing is allowed using only one font orientation; an orientation change causes a new job, because it is an implied job boundary.

This command will cause a Configuration/Status Page to print if: 1) an error occurs and the Configuration/Status Page switch is enabled, or 2) the previous command included a comma. An optional comment of up to 132 characters, if entered, will be printed on the Configuration/Status Page.

Print Job (Mixed Orientation)

Esc+Q,*optional comment*↵

Printing is allowed using multiple font orientations; an orientation change causes a new job because it is an implied job boundry.

This command is interpreted as if it were a "Print Job" command.

Reset

Esc+X↵

The "Reset" command ends all types of jobs, marks a job boundary, tells the printer that any data that follows it is part of a new job, and returns the printer to its start-up state. All format parameters are reset to their default settings, and all font and form assignments are erased. If several documents are to be printed with the same parameters, the "Print Job" command should be used at the beginning of each document, but the "Reset" command should not be used.

If "Reset" is used to exit Data Monitor mode, and if Data Monitor mode was introduced with a UDK, the same UDK must be used to introduce a Reset. For example, if Data Monitor mode was introduced as follows:

=UDK=**+D

then Reset must be introduced as follows:

*+X ↵

Miscellaneous Commands

Print Multiple Copies (Collated)

Esc+C#,*optional comment*↵

This command currently is interpreted by the X/TRA as “Print Job.”

Print Multiple Copies (Non-Collated)

Esc+E#,*optional comment*↵

This command causes multiple copies of the document to be printed, where # is the number of copies. The number of copies may not exceed 999; if a numeral greater than 999 is entered, only one copy will be printed.

This command will cause a Configuration/Status Page to print if: 1) an error occurs and the Configuration/Status Page switch is enabled, or 2) the previous command included a comma. An optional comment of up to 132 characters, if entered, will be printed on the Configuration/Status Page.

This command currently is interpreted by the X/TRA as “Print Job.”

Paper Tray

Esc c#

This command selects the paper source drawer, where # is the number of the drawer (1 thru A). The X/TRA does not support automatic tray switching.

Bypass Slot Paper Size

Esc zyb#

This command is not supported by the X/TRA.

Output Tray

Esc zr#

This command selects an output tray, where # is a value of 0 (top output tray) or 1-9 (high capacity stacker).

Offset

Esc o

This command tells the printer, if it has offset stacking capability, to offset the stacking of each document. Offset can be changed on a page-by-page basis, and is controlled by the last command preceding the form feed.

Duplex Start

Esc z y d # ↵

This command enables duplex printing for documents that will be bound on the side of the page. If a value is entered for #, the left and right margins on the second side of the page will be shifted to the left by the amount specified in 1/300" units.

The command must be entered before any printable data on the first page to be printed duplex. Duplexing is ended with the Duplex Stop command.

The X/TRA supports this command in both portrait and landscape orientations. The "Shift" parameter is not supported, and its use results in no operation.

Duplex Invert Start

Esc z y f # ↵

This command enables duplex printing for documents that will be bound on the top of the page. If a value is entered for #, the top and bottom margins on the second side of the page will be shifted up by the amount specified in 1/300" units.

The command must be entered before any printable data on the first page to be printed duplex. Duplexing is ended with the Duplex Stop command.

The X/TRA supports this command in both portrait and landscape orientations. The "Shift" parameter is not supported, and its use results in no operation.

Duplex Stop

Esc z y e ↵

This command ends duplexing for subsequent pages.

Duplex Side Select

Esc zyi#

This command selects the side of the page where the next image will be placed on a duplex page, in effect causing a form feed that allows the user to skip a page at any point in a duplex document.

Special Paper Enable

Esc + R # ↵

This command is not supported by the X/TRA.

Page Format Select

Esc +K#,*optional comment*↵

This command is not supported by the X/TRA

Job Prioritize

Esc +J# ↵

This command is not supported by the X/TRA.

Time Stamp

Esc zyc

This command is not supported by the X/TRA.

Comment

Esc zya *comment*↵

This command enables comments to be entered into a coded document. The comments do not appear in printed output or on the status sheet.

Operator Text Message

Esc +H,*message*↵

This command is used on the Xerox 4235 printer to display a message on the user interface screen and to hold printing until the “Continue” button is pressed on the console. The X/TRA will neither display the message nor hold printing, but it will ensure that the message is not printed.

Font Commands

This section describes commands that affect fonts.

Font Load

Esc+F,*optional comment*↵

The "Font Load" command is a job boundary command that erases all previously downloaded fonts and starts downloading a new set of fonts. In standard XES, if font size and available memory permit, up to 121 fonts may be downloaded. The X/TRA+ limits the number of fonts to less than 255, memory permitting. This command will also delete the current merge page from memory.

Font Unload

Esc+U,*optional comment*↵

The "Font Unload" command is a job boundary command that deletes all previously downloaded fonts.

Font Add

Esc+A,*optional comment*↵

The "Font Add" command is a job boundary command that adds fonts to those already downloaded without erasing any previously downloaded fonts. In standard XES, if font size and available memory permit, up to 121 fonts may be downloaded. The X/TRA limits the number of fonts to less than 255, memory permitting.

Font Delete

Esc+B,*optional comment*↵ *fontname,fontname,fontname*↵

The "Font Delete" command is a job boundary command that deletes specified fonts from those already downloaded, where *fontname* is the name of the font entered exactly as it appears on the Configuration/Status Page, and where each *fontname* is separated by a comma. This command also deletes the current merge page from memory.

Font ID Assignment

Esc +# *fontname* ↵

This command assigns an ID number to a font, where # is a numeral between 0 and 9, and where *fontname* is the name of the font entered exactly as it appears on the Configuration/Status Page. Once assigned, the ID number is used to call up a font in storage. This is not a job boundary.

When the user implements this command, the assigned font (resident in the X/TRA's flash memory) is downloaded to the printer.

Font Change

Esc #

The "Change Font" command causes all subsequent data to be printed in the new font until a "Reset" or another "Change Font" command is received, where # is the ID of the font as assigned by the job command "Font ID Assignment."

Page Formatting Commands

This section describes the commands that control page formatting, including margins, tabs, line spacing and measurement units. Margins, tabs and page size settings are dependent upon the unit of measurement selected by the "Units" commands directly below.

Units — 1/60"

Esc z g

This command sets the unit of measurement for the purpose of setting page size, margins and tabs to 1/60". This is the default value, but the default value can be changed using XTRAEDIT.

Units — 1/300"

Esc z f

This command sets the unit of measurement for the purpose of setting page size, margins and tabs to 1/300". The default value is 1/60", but it can be changed using XTRAEDIT.

Margins

Esc m*H,T,B,L,R*↵

The "Margins" command is used to set page height and all margins, where:

H is the vertical size of the paper, measured from the top edge to the bottom edge of the physical page. In 1/60" units, 11.0" paper is 660. 8.5" paper is 510.

T is the top margin, measured from the top edge of the page to the baseline of the first line of text. In 1/60" units, a 2.0" margin is 120.

B is the bottom margin, measured from the bottom edge of the page to the baseline of the last line of text on the page. In 1/60" units, 1.5" bottom margin is 90.

L is the left margin, measured from the left edge of the page to the left edge of the first character in each line on the page. In 1/60" units, a 1.75" left margin is 105.

R is the right margin, measured from the left edge of the page to the right edge of the last character in each line on the page. In 1/60" units, a 1.0" right margin is 450 on a 8.5" portrait page.

Once margins have been set using this command, margin settings can be changed using the Margin Top, Bottom, Left and Right commands below.

Margins Double Page

Esc mH,T_1,B_1,L_1,R_1mT_2,B_2,L_2,R_2↵

This command is not supported by the X/TRA.

Plane Prioritize

Esc zz#

This command is not supported by the X/TRA.

Margin Top

Esc zn# ↵

This command changes the setting of the top margin, measured from the top of the page, where # is the margin value expressed either in 1/60" or 1/300" units.

Margin Bottom

Esc zq# ↵

This command changes the setting of the bottom margin, measured from the bottom of the page, where # is the margin value expressed either in 1/60" or 1/300" units.

Margin Left

Esc zk# ↵

This command changes the setting of the left margin, measured from the left edge of the page, where # is the margin value expressed either in 1/60" or 1/300" units.

Margin Right

Esc zm# ↵

This command changes the setting of the right margin, measured from the left edge of the page, where # is the margin value expressed either in 1/60" or 1/300" units.

Tabs Horizontal

Esc t$\#_1$,$\#_2$,...$\#_{64}$ ↵

This command sets the horizontal tabs, where $\#_n$ is the value of the tab expressed in 1/60" or 1/300" units. As many as 160 horizontal tab values may be entered.

For example, using a 1/60" unit of measure, to set tab stops at 0.75", 3.0" and 4.5", enter:

Esc t5,180,270 ↵

The following list outlines the rules for setting horizontal tab stops:

- ▲ Default tab stops begin at 1.1" from the left side of the page and are at every 0.44" thereafter.
- ▲ Tabs may be entered in any order.
- ▲ If more than 160 tab values are entered, the excess tabs will be deleted, starting with the rightmost tab value.
- ▲ The maximum tab position is 815 (13.58").
- ▲ Tabs cannot be set beyond margins.
- ▲ If the page orientation is changed, the tab settings must also be changed.
- ▲ Tab settings remain valid until the “Reset” or “Clear Horizontal

Tabs" commands are sent.

Tabs Clear Horizontal

Esc d

This command clears all horizontal tab settings.

Tabs Vertical

Esc v#$_1$,#$_2$,...#$_{64}$ ↵

This command sets the vertical tabs where #$_n$ is the value of the tab expressed either in 1/60" or 1/300" units. As many as 125veritcal tab values may be entered.

For example, using a 1/60" unit of measure, to set tab stops at 1.0", 1.5", 2.3" and 7.0", enter:

Esc v60,90,138,420 ↵

The following list outlines the rules for setting vertical tab stops:

- ▲ Default tab stops in portrait orientation are every inch from the top of the page.
- ▲ Default tab stops in landscape orientation are every six lines.
- ▲ Tabs may be entered in any order.
- ▲ If more than 160 tab values are entered, the excess tabs will be deleted, starting with the bottommost tab value.
- ▲ The maximum tab position is 840 (14.0").
- ▲ If the page orientation is changed, the tab settings must also be changed.
- ▲ Tab settings remain valid until the "Reset" or "Clear Horizontal Tabs" commands are sent.

Tabs Clear Vertical

Esc e

This command clears all vertical tab settings.

Justification Start

Esc j

The "Start Justification" command will cause the space between words to be expanded or compressed so that each line of text will fit exactly between the left and right margins. Spaces can be expanded to 300 percent or compressed to 60 percent of their normal width. If the command is in the middle of a line, that is where justification will start, i.e., spaces before the command are not adjusted.

The user must provide line ending and hyphenation decisions when justifying text. In other words, the appearance of a line of text, when justified, may be unsatisfactory if too many or too few words occur on a line. It is the user's responsibility to insert line endings where appropriate to ensure that the appearance of the line of text is satisfactory.

Justification Stop

Esc k

This command will end text justification. The line of text in which this command is found will be the last line justified.

Justification Unlimited

Esc z j

The "Justification Unlimited" command (forced justification) will cause the space between words to be expanded or compressed so that each line of text will fit exactly between the left and right margins, regardless of how few characters are on the line. Spaces can be compressed to 60 percent of their normal width. Unlike the "Start Justification" command, there is no maximum distance between words. If the command is in the middle of a line, that is where justification will start, i.e., spaces before the command are not adjusted.

The user must provide line ending and hyphenation decisions when justifying text. In other words, the appearance of a line of text, when justified, may be unsatisfactory if too many or too few words occur on a line. It is the user's responsibility to insert line endings where appropriate to ensure that the appearance of the line of text is satisfactory.

Center

Esc q

Receipt of this command anywhere within a line of text will center that line between the left and right margins. If the line is too long to be printed within the margins, it will extend equally into the left and right margins.

Line Spacing

Esc i#

This command sets the line spacing, where # is a numeral between 0 and 4.

- 0 = single spacing

- 1 = 1.5 line spacing
- 2 = double spacing
- 3 = triple spacing
- 4 = 0.5 line spacing

Line spacing rules:

- If a line spacing command is found in the middle of the line, the new spacing begins with the next line.
- The largest font on the line determines spacing (to avoid overstriking the previous line).
- When 0.5 line spacing is used, the previous line is overstruck.

Line Spacing Absolute

Esc ip# ↵

This command adjusts the amount of space between lines of text, where # is a numeral expressed in 1/300". Unlike "Line Spacing," in which the amount of space between lines is based upon the font size, "Line Spacing Absolute" sets line spacing pixel by pixel. The command takes effect on the line after which it occurs.

Note: The printer will always print at least one line of text per page regardless of the value of this parameter.

Character Spacing Absolute

Esc zs# *C* ↵

This command adjusts the amount of space between characters of text, where # is a numeral expressed in 1/300", and where *C* is the character to be spaced. Normally, the amount of space between characters is based upon the font. "Character Spacing Absolute" sets character kerning pixel by pixel.

For example, to space the characters A, B and C 0.75" apart from one another on a line, enter:

Esc zs225ABC ↵

This command will remain in effect until another Esc zs#*C*↵ command is entered. To return to font-based spacing, enter any negative number for the # parameter, or use Esc +X↵ (Reset).

Forms Creation Commands

This section describes the commands used in the creation of forms. The unit of measure in forms creation commands is always 1/300", regardless of the setting determined by the "Units" commands Esc zf and Esc zg.

Some of the commands in this section are dependent upon the orientation of the page and its point of origin. The following illustrations show the differences between portrait and landscape orientations. Note that the x coordinate is always the shorter page dimension, and the y coordinate is always the longer page dimension. In portrait orientation, the origin is at the lower left corner of the page. In landscape orientation, the origin is at the top left corner of the page.

Note: Unlike XES printers, page orientation must first be set correctly for the X/TRA+ to use these commands.

Baseline Placement Absolute

Esc za#$_1$,#$_2$ ↵ *text*↵

This command places the baseline of any character of text in any specified location on the page relative to the page origin, where #$_1$ is the x (short edge) coordinate and #$_2$ is the y (long edge) coordinate. If using a portrait font, this command is identical to "Text Placement Absolute." If using a landscape font, this command uses the bottom left corner of the character cell as the origin.

Text Placement Absolute

Esc a#$_1$,#$_2$ ↵ *text*↵

This command will place text anywhere on the page relative to the page origin, where #$_1$ is the x (short edge) coordinate and #$_2$ is the y (long edge) coordinate. If using a landscape font, this command uses the top left corner of the character cell as the origin.

For example, to place text on a landscape orientation page 1.0" to the right of the origin and 2.5" down from the origin, use the following command:

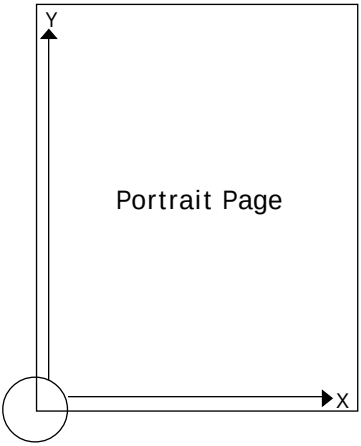
Esc a300,750 ↵ *text*↵

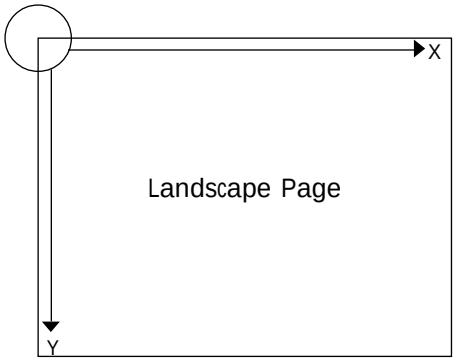
Text Placement Relative

Esc r C_1 # C_2

This command will place text anywhere on the page relative to the current print position, where # is the distance in 1/300" that the text is to be moved, where C_2 is any printable, non-numeric character or a space (this acts as a command terminator and is not printed), and where C_1 is one of the following alphabetic characters:

- ▲ u for up
- ▲ d for down
- ▲ l for left
- ▲ r for right





Line Draw (X or Y)

Esc x(or y)X,Y,L,W,S ↵

To draw a line parallel to the x (short edge) axis, enter:

Esc xX,Y,L,W,S ↵

To draw a line parallel to the y (long edge) axis, enter:

Esc y*X,Y,L,W,S*↵

where *X* and *Y* specify the starting point of the line, where *L* is the length of the line expressed in dots, where *W* is the width of the line expressed in dots (with a minimum value of 2), and where *S* is the line shading (any value between 0 and 15 is accepted, where 15 is solid black).

For example, if the user would like to draw a line on a portrait orientation page, parallel to the y axis, that starts 1.75" over from the x origin and 0.25" up from the y origin, and that is 6.0" long and 1/50" wide:

Esc y525,75,1800,6 ↵

The page orientation is determined by the first font on the page, so be certain to specify a font before using this command.

To draw a line on a landscape orientation page, parallel to the x axis, that starts 5.0" down from the x origin and 1.5" over from the y origin, and that is 4.0" long and 1/100" wide:

Esc x1500,150,1200,3 ↵

Vector Draw

Esc zuX_1, Y_1,X_n, Y_n,*T*,*E*,*S*↵

This command is not supported by the X/TRA.

Shading

Esc zi*SCtext*↵

This command is not supported by the X/TRA.

Ink Color

Esc f

This command is not supported by the X/TRA.

Text Highlight

Esc zyh#

This command is not supported by the X/TRA.

Document Enhancement Commands

This section describes the commands for bolding, underlining, overstriking, subscripting and superscripting text.

Bold Start

Esc b

This command begins bolding for every character printed subsequently. A bold effect is produced by printing every character twice, with the second character moved slightly to the right. This command requires extra page composition formatting and should be used with moderation; bold fonts are preferred when a lot of bold text is needed.

Bold Stop

Esc p

This command ends bolding.

Overstrike Start

Esc zo *C*

The “Start Overstriking” command will cause one character to be printed over another character, where *C* is the character to be used for overstriking. Overstriking continues until the command to cancel it is received. This command requires extra page composition and should be used with moderation.

Overstrike Stop

Esc z p

This command or a “Font Change” command will stop overstriking.

Subscript Start

Esc l

The “Start Subscripting” command lowers the baseline of subsequent characters. When using a smaller font for the subscripted text, the user must call the font after the subscript command, because the distance that the baseline is lowered is determined by the font in use. This command cannot be used to further lower text that is already subscripted. If underlining and subscript are to be used together, refer to the “Start Underlining” command for information on how the two commands interact.

Superscript Start

Esc h

The “Start Superscripting” command raises the baseline of subsequent characters. When using a smaller font for the superscripted text, the user must call the font after the superscript command, because the distance that the baseline is raised is determined by the font in use. This command cannot be used to further raise text that is already superscripted. If underlining and superscript are to be used together, refer to the “Start Underlining” command for information on how the two commands interact.

Sub/Superscript Stop

Esc s

This command will stop either superscripting or subscripting. Superscripting and subscripting will also be stopped upon receipt of carriage control characters CR, LF or FF.

Underline Start

Esc u

The "Start Underlining" command causes all subsequent characters, including tabs and spaces, to be underlined until a "Stop Underlining" command is received. The thickness of the underline is determined by the size of the last font in use at the end of the line.

The underline position is not changed by a "Start Subscripting" or "Start Superscripting" command. If the user would like the underline to follow a subscript down or follow a superscript up, the original underline command must be stopped, and a new "Start Underline" command must be entered after the subscript or superscript command. This procedure will establish a new baseline position for the underline.

Underline Stop

Esc w

This command will stop underlining.

Merge Page Load

Esc + M ↵

The "Merge Page Load" command is a job boundary command that erases any previously stored page and stores a new page to be merged with other pages. A separate command enables the merging of this page with another to produce a composite page. This command must be used after using either the "Font Load" command or the "Font Delete" command, because either of those commands will delete the current merge page from memory.

Merge Page Unload

Esc + V ↵

The “Merge Page Unload” command is a job boundary command that erases any previously stored merge page.

Form ID Assignment

Esc+*#formname*.FRM ↵

This command assigns a number to one of up to ten forms which can then be recalled for merging into a variable document, where *#* is the number (0-9) to be assigned and *formname*.FRM is the name of the form to which the number is being assigned. This command is placed anywhere on the variable page after the Print Job command and before the first Form Merge Start command.

Form Merge Start

Esc zb *#*

This command invokes a form with an assigned identification number for merging with a text document, where *#* is the form ID number.

Cycleforms

Esc zx $form_1$,$form_2$,$form_n$ ↵

This command enables repeated merging of a set of forms at specified intervals in a job consisting of multiple variable pages, where $form_1$, $form_2$ and $form_n$ are the names of the forms as they are stored on disk. The commas are used not only to separate form names, but can also be used to indicate any variable pages in which merging is not to occur. This command is placed after the Print Job command in the first series of variable pages to be merged.

Form Merge Stop

Esc zh *#*

This command stops the merging of a form with a variable page, where *#* is the number (0-9) of the form to be stopped.

Page Merge Start

Esc ze

This command will cause the page in which it occurs and all subsequent pages to merge with a page stored in memory. Merging continues until either a "Page Merge Stop" or a Reset" command is received.

Page Merge Stop

Esc z d

This command will allow the page in which it occurs to merge, but all subsequent pages will not be merged with a page stored in memory.

Graphic Window

Esc gw*M(or M_x/M_y),I,R,,name/F;X,Y,S_x,S_y* ↵

This command defines an area on the page for graphics, where:

M is the degree of magnification. If only one value for M is entered, the magnification is proportional. If two values are entered, the magnification will be different for the x and y directions. 0 or 1 will result in no magnification, 2 will double the magnification, 3 will triple the magnification and 4 will quadruple the magnification.

I indicates the type of graphics the window will contain, and whether the graphics will be printed reversed. 0 indicates raster data, 1 indicates reversed raster data, 2 indicates vector or macro data, and 3 indicates reversed raster or macro data.

R indicates the degree of rotation, if any, of the graphic window. 0 specifies no rotation, 1 specifies 90º counterclockwise rotation, 2 specifies 180º counterclockwise rotation, and 3 specifies 270º counterclockwise rotation.

name is the name of the window (up to seven characters).

/F is replaced with /s for storage only, or with /p for storage and printing.

X, Y are the coordinates for the origin of the graphic window.

S_x, S_y indicate the size of the graphic window, measured in pixels from the origin of the graphic window.

Fields prior to the semicolon are optional, although blank fields must still be separated by a comma. Fields after the semicolon are required.

This command may be placed anywhere in a document where graphics are desired.

Graphic Delete

Esc+B,*optional comment*↵ *graphicname*$_1$.GRA,*graphicname*$_n$.GRA↵

This command will delete graphic files from the hard disk.

Graphic Window Repeat

Esc gr*M(or* M_x/M_y*),I,R,,name/F;X, Y,* X_n, Y_n↵

This command copies a graphic window and places it on the page, where:

M is the degree of magnification. If only one value for M is entered, the magnification is proportional. If two values are entered, the magnification will be different for the x and y directions. 0 or 1 will result in no magnification, 2 will double the magnification, and 4 will quadruple the magnification.

I indicates the type of graphics the window will contain, and whether the graphics will be printed reversed. 0 indicates raster data, 1 indicates reversed raster data, 2 indicates vector or macro data, and 3 indicates reversed raster or macro data.

R indicates the degree of rotation, if any, of the graphic window. 0 specifies no rotation, 1 specifies 90º counterclockwise rotation, 2 specifies 180º counterclockwise rotation, and 3 specifies 270º counterclockwise rotation.

name is the name of the window (up to seven characters).

/F is replaced with /s for storage only, or with /p for storage and printing.

X, Y are the coordinates for the origin of the duplicate window.

X_n, Y_n are the coordinates of other duplicate windows if more than one is to be made on the page.

Fields prior to the semicolon are optional, although blank fields must still be separated by a comma. Fields after the semicolon are required.

This command may be placed anywhere in a document where graphics are desired.

Graphic Line

Esc gl *T;*X_1, Y_1,X_2, Y_2,X_n, Y_n↵

This command draws lines between any two points within a graphic window, where:

T is the thickness of the line.

X_1, Y_1 are the coordinates of the first point in the line.

X_2, Y_2 are the coordinates of the second segment endpoint.

X_n, Y_n are the coordinates of the next segment endpoint.

Graphic Arc

Esc ga *T;X,Y,r,*S_2,E_2,S_n,E_n ↵

This command draws arcs and circles within a graphic window, where:

T is the thickness of the line in pixels.

X, Y are the coordinates of the center of the arc.

r is the radius of the arc.

S_2 is the starting point of the arc expressed in degrees.

E_2, is the endpoint of the arc expressed in degrees.

S_n, E_n are additional pairs of starting and ending points, as required.

Where degrees are expressed, 0 degrees is at 3 o'clock, and rotation occurs in a counterclockwise direction.

Graphic Box

Esc gb *T;*X_1,Y_1,X_2,Y_2 ↵

This command draws a rectangle by defining two sets of right angles that form diagonal corners of the rectangle within a graphic window, where:

T is the thickness of the line in pixels.

X_1, Y_1 are the coordinates of the origin of the graphic box as measured from the top left corner of the graphic window.

X_2, Y_2 are the coordinates of the opposite diagonal corner of the graphic box.

Graphic Fill

Esc gf*P;X,Y,*X_n*,*Y_n ↵

This command fills a closed graphic figure with a pattern, where:

P is the pattern to be used.

X, Y are the coordinates of the seed point of the fill pattern as measured in pixels from the origin of the graphic window.

X_n, Y_n are the coordinates of the next seed point.

Graphic Pie Chart

Esc gp *T;X,Y,r,*$\%_1$*/*F_1*/*O_1*,*$\%_n$*/*F_n*/*O_n ↵

This command creates a complete pie chart, including fill patterns. It can also offset single slices from the rest of the pie chart.

T is the thickness of the line.

X, Y are the coordinates of the center of the pie chart as measured in pixels from the origin of the graphic window.

r is the radius of the pie chart.

$\%_1$ is the percentage of the pie to be taken up by the first pie slice.

/F_1 is the number of the fill pattern selection for the first pie slice.

/O_1 is the offset of the first pie slice measured in pixels from the center of the pie, if the slice is to be offset.

$\%_n$*,/*F_n*/*O_n are the parameters of all other slices in the pie.

Character Reassignment

Esc+T ↵ *datarecord* ↵

This command transmits new character assignments from the host to storage on the hard disk of the printer. The table can then be accessed with the Language command.

Load Translation Table

Esc z t

This command is identical to Character Reassignment except that it is not a job boundary command.

Language

Esc z l #

This command switches the printer from the current character table to another character table, where # is the number of the table selected.

0 U.S. English

1 U.K. English

2 French

3 Dutch

4 Spanish

5 Italian

6 Danish

7 Norwegian

8 Finnish

9 German

A Swedish

B Belgian

C French Canadian

D Portuguese

E Latin American

F The Default Language

G The Special Table (3274)

H User-defined Table

Belgian and Portuguese are EBCDIC tables and are not supported by the X/TRA. The X/TRA will use The Default Table instead. The X/TRA+ supports language tables only for ISO character set fonts. Fonts that do not support the ISO character set will not be remapped based upon language and will always use their built-in character set.

The fonts built in to Xerox printers that are simulated by the X/TRA do not support the ISO character set and therefore do not support language selection. If the user needs language support for these fonts, the user must either download or install in the X/TRA's flash memory the real versions of these fonts using XTRAEDIT. Language is supported only if Character Set is set to ASCII.

Complex Print Mode

Esc zc

This command is not supported by the X/TRA and results in no operation.

VFU Stops Set

Esc zv $\#_1$,$\#_2$,...$\#_n$ ↵

This command is not supported by the X/TRA and results in no operation.

VFU Stops Clear

Esc z w

This command is not supported by the X/TRA and results in no operation.

VFU Channel Select

Esc C

This command is not supported by the X/TRA and results in no operation.

VFU Tabs Horizontal

Esc HT C_1,C_2,... C_{155} ↵

This command is not supported by the X/TRA and results in no operation.

Data Monitor

Esc + D

This command prints the hexadecimal codes representing all characters received by the printer. This allows the user to analyze data being sent from the host. Data Monitor Mode must be exited with the Reset command.

Code Print

Esc +G

This command is not supported by the X/TRA.

Control Codes

In the ASCII coding scheme, all bytes with values less than 20h represent control functions. The following table describes the control codes recognized by the X/TRA.

Code Name	ASCII Value	Control Code Description
BEL	07	Bell. The X/TRA will send a BELL character to the printer.
BS	08	Backspace. Causes the printer to move the print position one space to the left, only if it is the first code in the print line.
HT	09	Horizontal tab. Causes the print position to be moved horizontally to a predetermined location on the page. If there is no tab stop set to the right of the current position, a space is performed.
LF	0A	Line feed. Causes the print position to be moved down one line-height. This code may be used as a valid line-ending code, performing both the carriage return and line feed functions, and as a command terminator.
VT	0B	Vertical tab. Causes the print position to be moved vertically to a predetermined location on the page.
FF	0C	Form feed. Causes the printer to eject the current page and begin a new page. This occurs only if a printable character has been placed on the page.
CR	0D	Carriage return. Causes the printer to return to the first print position of the current line. It may also be used as a valid line ending, performing both the carriage return and line feed functions.
ESC	1B	Escape. This character gives subsequent codes different meanings.

XES Command Set

XES	Name	Printers	Status
=UDK=[Esc]	The User-Defined Key	All	SUPPORTED
=MCK= EMULATE/*emulation*/END[↵]	Emulation Change	4045-160, 4030 II, 4213, 4235 1.5, CLPS	SUPPORTED
[Esc]+P[↵]	Print Job	All	SUPPORTED
[Esc]+Q[↵]	Print Job (Mixed Orientation)	3700, 4213, 4235, CLPS	SUPPORTED
[Esc]+X[↵]	Reset	All	SUPPORTED
[Esc]+C#[↵]	Print Multiple Copies (Collated)	3700, 4213, 4235, CLPS	NOT SUPPORTED
[Esc]+E#[↵]	Print Multiple Copies (Non-Collated)	All	NOT SUPPORTED
[Esc]c#	Paper Tray	All	SUPPORTED
[Esc]zyb#	Bypass Slot Paper Size	4213	NOT SUPPORTED
[Esc]zr#	Output Tray	4235	SUPPORTED
[Esc]o	Offset	All	SUPPORTED
[Esc]zyd#[↵]	Duplex Start	4213, 4235	SUPPORTED
[Esc]zyf#[↵]	Duplex Invert Start	4213, 4235	SUPPORTED
[Esc]zye[↵]	Duplex Stop	4213, 4235	SUPPORTED
[Esc]zyi#	Duplex Side Select	4213, 4235	SUPPORTED
[Esc]+R#[↵]	Special Paper Enable	4235, CLPS	NOT SUPPORTED
[Esc]+K#[↵]	Page Format Select	4235	NOT SUPPORTED
[Esc]+J#[↵]	Job Prioritize	4235, CLPS	NOT SUPPORTED
[Esc]zyc	Time Stamp	4235, CLPS	NOT SUPPORTED
[Esc]zya *comment*[↵]	Comment	4235, CLPS	SUPPORTED
[Esc]+H,*message*[↵]	Operator Text Message	3700, 4235	NOT SUPPORTED
[Esc]+F[↵]	Font Load	All	SUPPORTED
[Esc]+U[↵]	Font Unload	4045, 4030 II, 4213	SUPPORTED
[Esc]+A[↵]	Font Add	All	SUPPORTED
[Esc]+B[↵] *fontname*[↵]	Font Delete	All	SUPPORTED
[Esc]+#*fontname*[↵]	Font ID Assignment	All	SUPPORTED
[Esc]#	Font Change	All	SUPPORTED
[Esc]zg	Units—1/60	All	SUPPORTED
[Esc]zf	Units—1/300	All	SUPPORTED
[Esc]m*H,T,B,L,R*[↵]	Margins	All	SUPPORTED
[Esc]mH_1,T_1,B_1,L_1,R_1mT_2,B_2,L_2,R_2[↵]	Margins Double Page	3700, 4235	3
[Esc]zz#	Plane Prioritize	3700, 4235	4
[Esc]zn#[↵]	Margin Top	All	SUPPORTED
[Esc]zq#[↵]	Margin Bottom	All	SUPPORTED

Esc zk#↵	Margin Left	All	SUPPORTED
Esc zm#↵	Margin Right	All	SUPPORTED
Esc t$\#_1$,$\#_2$,...$\#_{64}$ ↵	Tabs Horizontal	All	SUPPORTED
Esc d	Tabs Clear Horizontal	All	SUPPORTED
Esc v$\#_1$,$\#_2$,...$\#_{64}$ ↵	Tabs Vertical	All	SUPPORTED
Esc e	Tabs Clear Vertical	All	SUPPORTED
Esc j	Justification Start	All	SUPPORTED
Esc k	Justification Stop	All	SUPPORTED
Esc zj	Justification Unlimited	3700, 4045-160, 4235, CLPS	SUPPORTED
Esc q	Center	All	SUPPORTED
Esc i#	Line Spacing	All	SUPPORTED
Esc ip#↵	Line Spacing Absolute	All but 4045-150, 4043 II	SUPPORTED
Esc zs#*C*↵	Character Spacing Absolute	4235, CLPS	SUPPORTED
Esc za$\#_1$,$\#_2$ ↵ *text*↵	Baseline Placement Absolute	4235, CLPS	SUPPORTED
Esc a$\#_1$,$\#_2$ ↵ *text*↵	Text Placement Absolute	All	SUPPORTED
Esc r$C_1\#C_2$	Text Placement Relative	All	SUPPORTED
Esc x*X,Y,L,W,S*↵	Line Draw X	All	SUPPORTED
Esc y*X,Y,L,W,S*↵	Line Draw Y	All	SUPPORTED
Esc zuX_1,Y_1,X_n,Y_n*T,E,S*↵	Vector Draw	4235, CLPS	NOT SUPPORTED
Esc zi*SCtext*↵	Shading	3700, 4235, CLPS	NOT SUPPORTED
Esc f	Ink Color	CLPS	NOT SUPPORTED
Esc zyh#	Text Highlight	CLPS	NOT SUPPORTED
Esc b	Bold Start	All	SUPPORTED
Esc p	Bold Stop	All	SUPPORTED
Esc u	Underline Start	All	SUPPORTED
Esc w	Underline Stop	All	SUPPORTED
Esc zo*C*	Overstrike Start	All	SUPPORTED
Esc zp	Overstrike Stop	All	SUPPORTED
Esc l	Subscript Start	All	SUPPORTED
Esc h	Superscript Start	All	SUPPORTED
Esc s	Sub/Superscript Stop	All	SUPPORTED
Esc +N*formname*↵	Form Load	3700, 4235	SUPPORTED
Esc +B↵ *formname*↵	Form Delete	3700, 4235	SUPPORTED
Esc +M↵	Merge Page Load	All	SUPPORTED
Esc +V↵	Merge Page Unload	All	SUPPORTED
Esc +#*formname*.FRM↵	Form ID Assignment	3700, 4235, CLPS	SUPPORTED
Esc zb#	Form Merge Start	3700, 4235, CLPS, 4045-150 (w/cartridge)	SUPPORTED
Esc zx$form_1,form_2,form_n$↵	Cycleforms	3700, 4235, CLPS, 4045-150 (w/cartridge)	SUPPORTED

Esc zh#	Form Merge Stop	3700, 4235, CLPS, 4045-150 (w/cartridge)	SUPPORTED
Esc ze	Merge Start	All	SUPPORTED
Esc zd	Merge Stop	All	SUPPORTED
Esc gw*M,I,R,,name/F;X,Y,S_x,S_y* ↵	Graphic Window	All	SUPPORTED
Esc +B ↵ *graphicname*.GRA ↵	Graphic Delete	All	SUPPORTED
Esc gr*M,I,R,,name/F;X,Y,S_x,S_y* ↵	Graphic Window Repeat	All	SUPPORTED
Esc gl*T;X_1,Y_1,X_2,Y_2,X_n,Y_n* ↵	Graphic Line	All (4045-150, 4030 II w/ XGRAPH cartridge)	SUPPORTED
Esc ga *T;X,Y,r,S_1,E_1,S_n,E_n* ↵	Graphic Arc	All (4045-150, 4030 II w/ XGRAPH cartridge)	SUPPORTED
Esc gb*T;X_1,Y_1,X_2,Y_2* ↵	Graphic Box	All (4045-150, 4030 II w/ XGRAPH cartridge)	SUPPORTED
Esc gf*P;X,Y,X_n,Y_n* ↵	Graphic Fill	All (4045-150, 4030 II w/ XGRAPH cartridge)	LIMITED SUPPORT
Esc gpT;X,Y,r,%$_1$/F_1/O_1,%$_n$/F_n/O_n ↵	Graphic Pie Chart	All (4045-150, 4030 II w/ XGRAPH cartridge)	SUPPORTED
Esc +T ↵ *datarecord* ↵	Character Reassignment	All	SUPPORTED
Esc zt	Load Translation Table	All	SUPPORTED
Esc zl#	Language	All but 4045-160	SUPPORTED
Esc zc	Complex Print Mode	3700 2.6	NOT SUPPORTED
Esc zv#$_1$,#$_2$...#$_n$ ↵	VFU Stops Set	Connection-dependent	NOT SUPPORTED
Esc zw	VFU Stops Clear	Connection-dependent	NOT SUPPORTED
Esc *C*	VFU Channel Select	Connection-dependent	NOT SUPPORTED
Esc HT*C_1,C_2...C_{155}* ↵	VFU Tabs Horizontal	Connection-dependent	NOT SUPPORTED
Esc +D	Data Monitor	All	SUPPORTED
Esc +G	Code Print	4213, 4235 1.5	NOT SUPPORTED
BEL (07)	Bell	All	NOT SUPPORTED
BS (08)	Backspace	All	SUPPORTED
HT (09)	Horizontal Tab	All	SUPPORTED
LF (25)	Line Feed	All	SUPPORTED
VT (0B)	Vertical Tab	All	SUPPORTED
FF (0C)	Form Feed	All	SUPPORTED
CR (0D)	Carriage Return	All	SUPPORTED
Esc	Escape	All	SUPPORTED

Note: Unsupported items are not possible in or not applicable to PCL

XTRAEDIT CONFIGURATION

General Information

XTRAEDIT is a menu-driven, MS/PC DOS-based utility that enables users to change the default configuration of the X/TRA. Configuration changes made with this software will be saved in the X/TRA's permanent, nonvolatile storage, even when power has been disconnected from the unit.

Getting Started

Loading XTRAEDIT

Start by connecting the X/TRA to the host system and to the printer as described in *Section 2 — Installation*. Then load and run XTRAEDIT, the X/TRA configuration software. If the user's 3.5" high-density disk drive has a letter designation other than B, or if the user is running the software after installing it on a hard drive, substitute the appropriate letter and subdirectory name for B in these instructions.

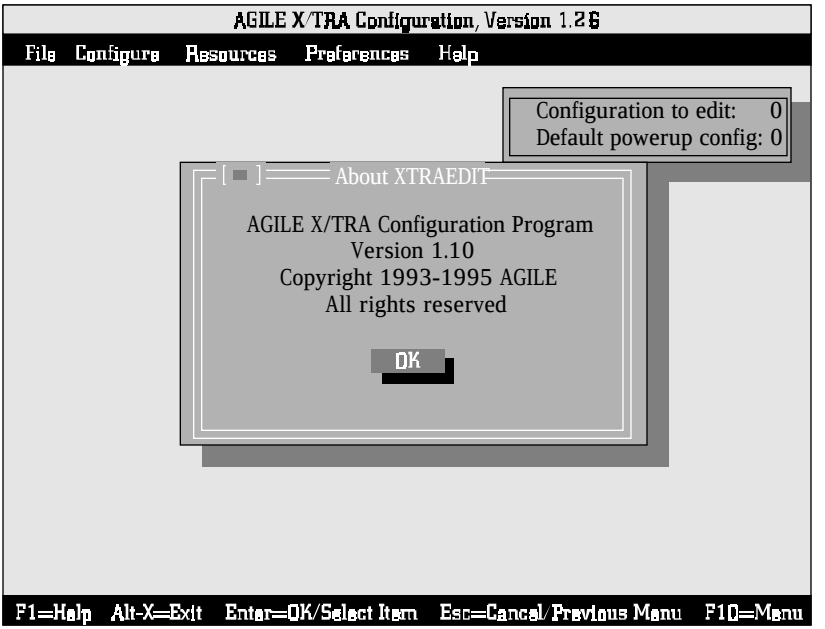
At the B:> prompt, type: `XTRAEDITd`.

About XTRAEDIT

After a few seconds, the XTRAEDIT program will load, and the "About XTRAEDIT" screen will appear.

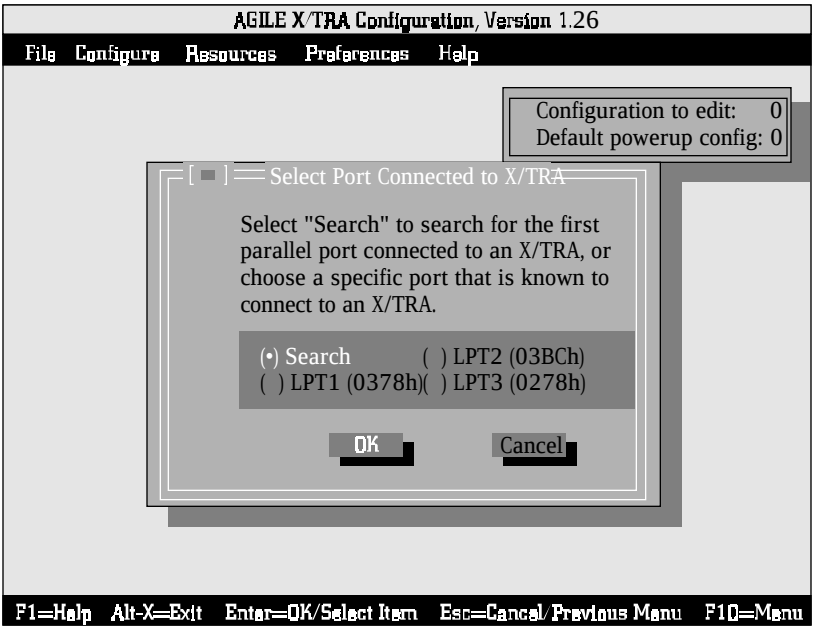
After reading the information presented, mouse users can clear this dialog box by pressing the left mouse button after moving the mouse pointer either to *OK* or to the *Close* button in the upper left corner of the dialog box. Keyboard users can close this dialog box either by pressing s to close or d to accept *OK* (the highlighted choice).

This screen also can be displayed by the user at any time during configuration by selecting *About*, found under the *Help* menu. When selected from the *Help* menu, this dialog box will also provide users with information about the amount of remaining memory available in the user's computer.



Select Port

Next, the user will see the following screen:



This dialog box enables the user to indicate to which parallel port the X/TRA to be configured is connected, either *LPT1, LPT2* or *LPT3*. If the user is uncertain as to which port the X/TRA is connected, the user can select Search, and the program will find the port. If there is more than one X/TRA connected to the computer, the user must indicate which one is to be configured. The *Search* choice will find the X/TRA connected to the lowest numbered port.

Mouse users can simply move the mouse pointer to the appropriate choice and press the left mouse button, then move the mouse pointer to *OK* and press the left mouse button. Select *Cancel* or click on the *Close* button to exit without making any changes.

Keyboard users can use the arrow keys unhk to move among the choices, and t will enable the user to highlight either *OK* or Cancel and to select one or the other by pressing d .

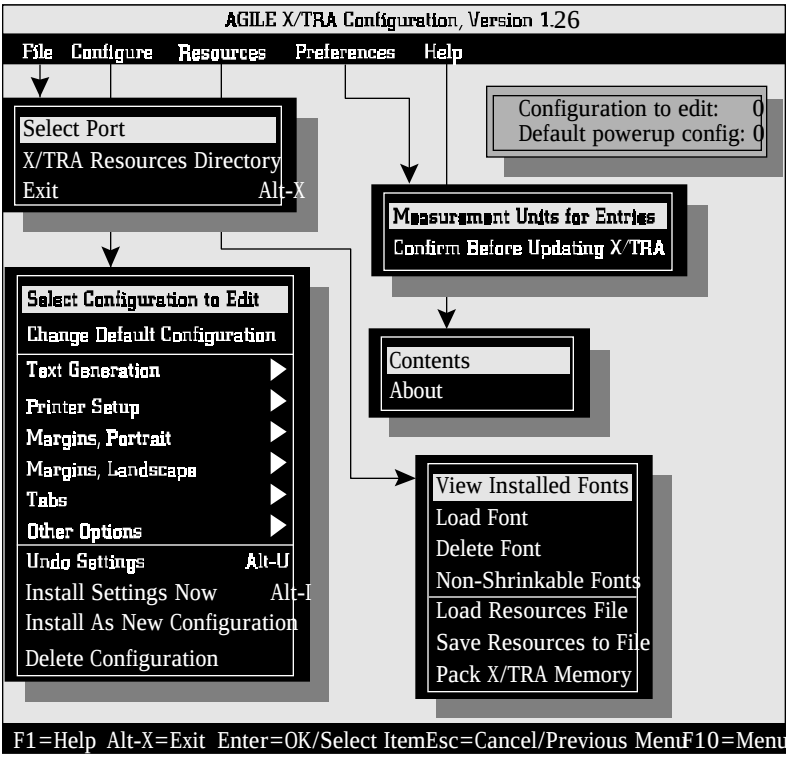
An error message will be displayed if the X/TRA is either powered down or disconnected from the designated port. The error must be corrected before configuration can continue.

After the port has been selected, XTRAEDIT will automatically put the X/TRA into Mode F — Configuration Mode. After exiting XTRAEDIT, the X/TRA will automatically perform a power-on Reset and return to Mode 0 — Normal Operating Mode.

XTRAEDIT Main Screen

After selecting the appropriate port, the program will display the main screen of XTRAEDIT. Users can navigate through the menus and other choices in XTRAEDIT either with a mouse or with keyboard commands. Using a mouse, standard graphical user interface elements, such as pull-down menus, can be activated by moving the mouse pointer to the choice and pressing the left mouse button to select it.

The following diagram shows the choices available from the main menu bar of XTRAEDIT:



Keyboard Commands

F10=Menu

With the keyboard, the user can access the menu bar by pressing the 0 function key. The specific menu can then be chosen by using the arrow keys hk to highlight its name. Then, the *Enter* key d or the down arrow key n can be used to accept the highlighted choice and to display its submenu names.

Alternatively, menus can be accessed by holding down the *Alternate* key l and pressing the letter highlighted in the menu bar (e.g., l-*F* for the *File* menu):

File Menu	Alt	F
Configure Menu	Alt	C
Resources Menu	Alt	R
Preferences Menu	Alt	P
Help Menu	Alt	H

To move from the highlighted menu name to a specific submenu, use the arrow keys [↑] [↓] to highlight the submenu name, then press the *Enter* key [↵] to accept the highlighted choice. Alternatively, the user can type the highlighted letter of the submenu name to access the submenu.

Esc=Cancel/Previous Menu

The *Escape* key [Esc] can be used at any time to cancel the current selection or to exit a menu or dialog box.

Enter=OK/Select Item

The *Enter* key [↵] is used to select the item that is currently highlighted on the screen, whether it is a menu name or an option in a dialog box.

Alt-X=Exit

The XTRAEDIT configuration program can be exited from the main screen by holding down the *Alternate* key [Alt] and pressing X.

F1=Help

Context sensitive help is available at any time by pressing the [F1] function key.

Arrow and Tab Keys

The arrow keys [↑] [↓] [←] [→] and [Tab] can be used to move among various choices in the dialog boxes.

Other Keyboard Commands

The following keyboard commands are also available from the XTRAEDIT main screen:

Current X/TRA Resources Directory ..... [Alt] D

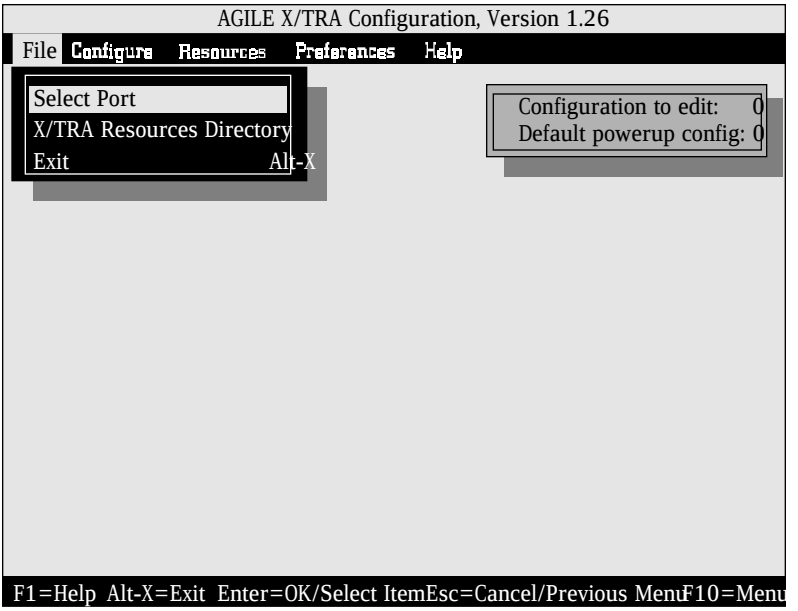
Install Settings Now ..... [Alt] I

Computer Memory Available ..... [Alt] M

Undo Settings..... [Alt] U

File Menu

This menu contains the options *Select Port, X/TRA Resources Directory* and *Exit*.



Select Port

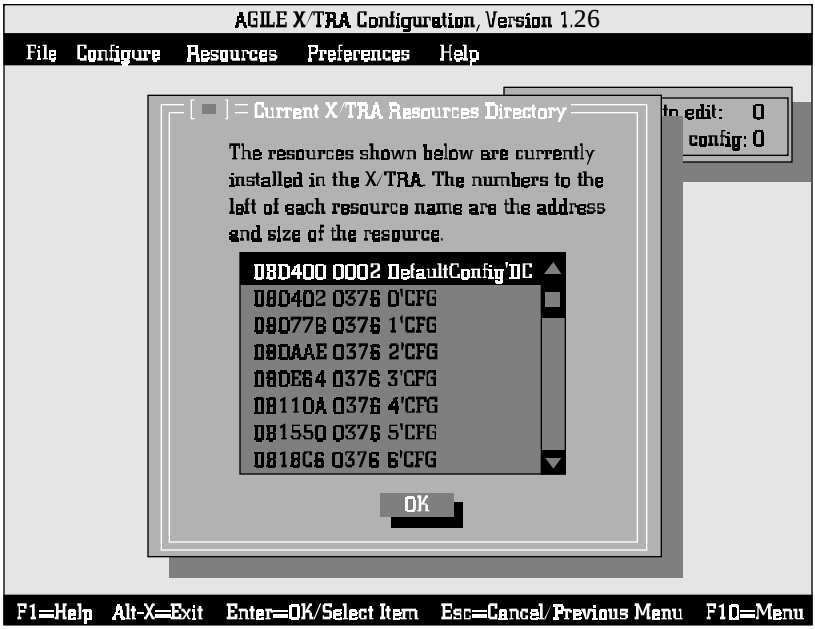
This option performs the same function as the port selection screen that was displayed when the user first loaded the program. It enables the user to choose the parallel port to which the X/TRA to be configured is attached, either *LPT1, LPT2* or *LPT3*. The default is *LPT1*.

X/TRA Resources Directory

The *X/TRA Resources Directory* will list resources currently installed in the X/TRA, including the X/TRA operational software (the X/TRA code), up to ten configurations and as many fonts as the available memory will store. It will also display in hexadecimal notation the X/TRA memory in bytes that each resource consumes, and the location in memory where each resource resides.

This option is normally used only when the user has been asked by the Xerox Product Support Centre to report the contents of the directory.

The following illustration shows the default resources directory screen:

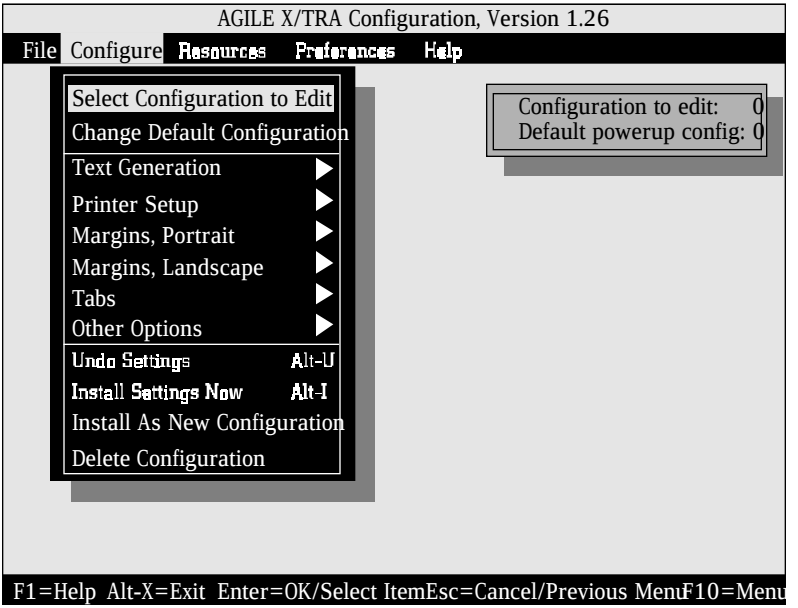


Exit — Alt-X

The user can select this option to exit the XTRAEDIT software program. XTRAEDIT also can be exited from the XTRAEDIT main screen simply by holding down the *Alternate* key Alt and pressing *X*.

Configure Menu

This menu contains the options *Select Configuration to Edit, Change Default Configuration, Text Generation, Printer Setup, Margins Portrait, Margins Landscape, Tabs* and *Other Options*, and it includes the commands *Undo Settings, Install Settings Now, Install As New Configuration*, and *Delete Configuration.*



Select Configuration to Edit

To perform the configuration procedure, the user must first select the configuration to be modified. *Select Configuration* enables this selection by displaying a dialog box wherein the user can choose the number of the configuration to be edited. The number selected is constantly displayed in the box in the upper right corner of the screen next to *Configuration to edit:.*

The X/TRA can store up to ten configurations. Each configuration can be defined and later invoked (using the XES Page Format Select command) for a specific type of print job.

The X/TRA is shipped with eight configurations. Each consists of the options listed as defaults in this section. The difference between each of them consists primarily of each of the possible combinations of the following three variables, as indicated in the chart that follows:

1. Size Correction (*Shrink or Offset*)
2. Page Orientation (*Portrait or Landscape*)
3. Emulation Mode (*XES or Passthrough*)

Configuration	Size Correction	Orientation	Emulation
0	Shrink	Portrait	XES Mode
1	Shrink	Landscape	XES Mode
2	Offset	Portrait	XES Mode
3	Offset	Landscape	XES Mode
4	Shrink	Portrait	Passthrough
5	Shrink	Landscape	Passthrough
6	Offset	Portrait	Passthrough
7	Offset	Landscape	Passthrough

Page orientation implies the following set of parameters in the default configuration (discussed later in this section):

Orientation	Portrait	Landscape
Font Selection	Titan10iso-P	XCP14iso-L
Page Length	3300	2550
Top Margin	200	120
Bottom Margin	200	120
Left Margin	120	200
Right Margin	2430	3100
Top Margin, 2nd Page	200	120
Bottom Margin, 2nd Page	200	120
Left Margin, 2nd Page	120	200
Right Margin, 2nd Page	2430	3100
Horizontal Tabs	17 set	23 set
Vertical Tabs	15 set	11 set

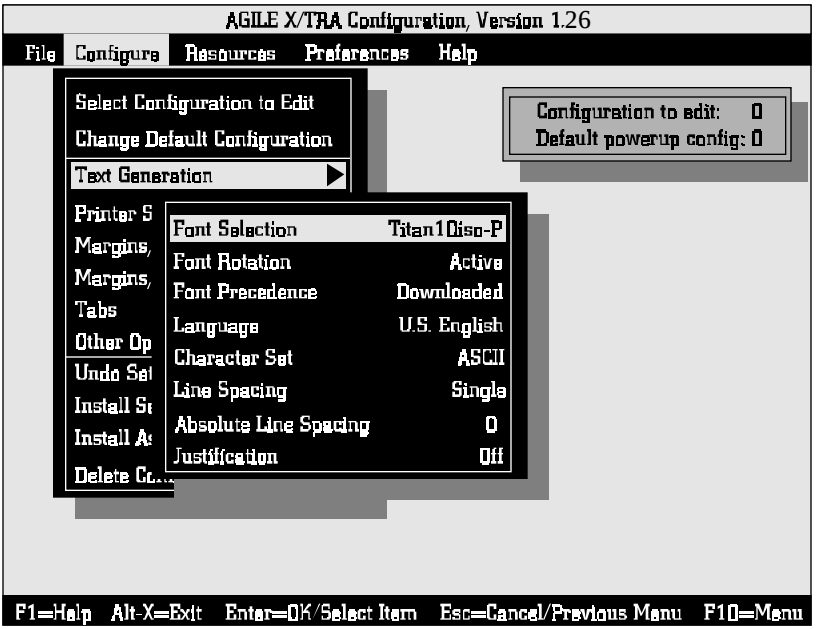
In addition, all configurations have *Top Offset* and *Left Offset* settings of -75. Finally, all configurations have *Job Sheet* settings of *Power/Error*, with the error level set to *Parse*.

Change Default Configuration

From among the ten possible configurations, the user can select one to use as the default, or powerup, configuration. The default is Configuration 0, but the user can choose any configuration from *0-9*. The number selected is constantly displayed in the box in the upper right corner of the screen next to *Default powerup config.:.*

Text Generation

Text Generation options include *Font Selection, Font Rotation, Language, Character Set, Line Spacing, Absolute Line Spacing* and *Justification,* as indicated in the following illustration:



Font Selection

Font Selection is used to select the default font from among those installed in or native to the X/TRA. The default font for configurations with a portrait orientation is *Titan10iso-P.* The default font for configurations with a landscape orientation is *XCP14iso-L.*

The font selected here will be the font used by the printer until an XES Font Change command is received by the X/TRA.

Font Rotation

Font Rotation gives users the option of activating a feature that allows a font installed in one orientation (portrait or landscape) to be available for printing in both orientations. This option is *Active* by default.

Language

Language is used to select the language used by the printer (*U.S. English* is the default). The user also can choose *U.K. English, French, Dutch, Spanish, Italian, Danish, Norwegian, Finnish, German, Swedish, French Canadian* and *Latin American*. Theses ASCII character sets, and the ISO character set, can be found listed in *Section 5 — Service and Reference*.

These choices are equivalent to those available on the Xerox 4213 Model II printer, with the exception of *Belgian* and *Portuguese*, which are EBCDIC fonts. EBCDIC is not supported by the X/TRA.

Character Set

Character Set options include *ASCII, ISO* and *PC.* The default is *ASCII.*

These choices are equivalent to those available by setting dip switches on the Xerox 4045-160 printer.

Line Spacing

Line Spacing provides the choices of *Absolute, Half, Single, 1 1/2, Double, 2 1/2* or *Triple. Single* spacing is the default.

This option is equivalent to the XES Line Spacing command.

Absolute Line Spacing

Absolute Line Spacing is used to specify a value for spacing when *Absolute* has been selected under *Line Spacing*. The value can be entered in inches, 1/300 inches or 1/60 inches, depending upon the setting of *Measurement Setting for Entries* under the *Preferences* menu. If inches, the user can enter a value between *0.000* and *14.000.* In 1/300 inches, the user can enter an integer value between *0* and *4200*. In 1/60 inches, the user can enter an integer value between *0* and *840.* The default is *0*.

This option is equivalent to the XES Line Spacing Absolute command.

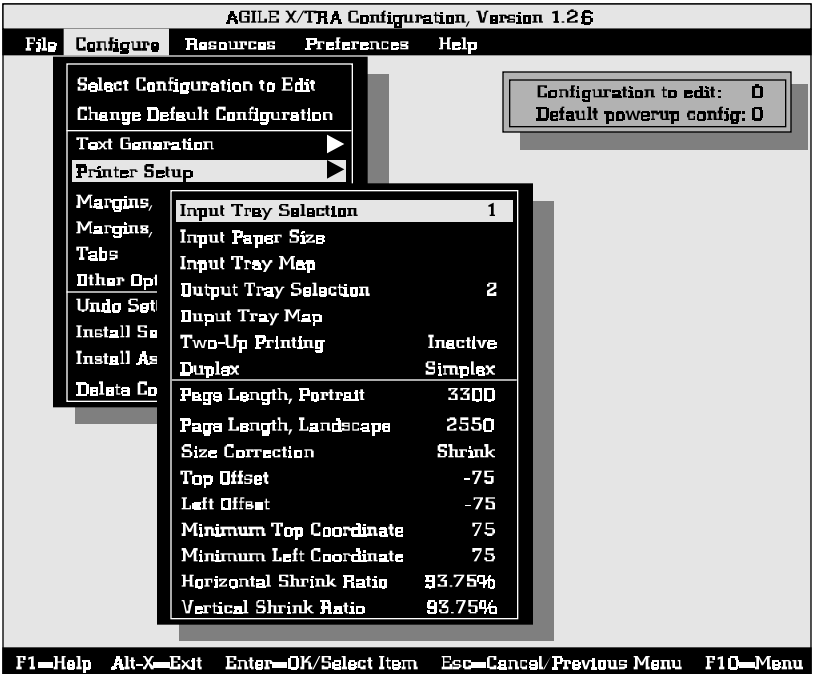
Justification

Justification choices are *Off, Normal* and *Forced*. The default is *Off*.

The Forced option is equivalent to the XES Justification Unlimited command, *Normal* is equivalent to the Justification Start command, and *Off* is equivalent to the Justification Stop command.

Printer Setup

This menu enables the user to specify choices about the printer, including *Input Tray Selection, Input Paper Size, Input Tray Map, Output Tray Selection, Output Tray Map, Two-Up Printing, Duplex, Page Length Portrait, Page Length Landscape, Size Correction, Top Offset, Left Offset, Minimum Top Coordinate* and *Minimum Left Coordinate*. This illustration displays these choices:



Input Tray Selection

The *Input Tray Selection* is used to select the default input tray (*0-A*). The default is *1.*

This option is equivalent to the XES Paper Tray command.

Input Paper Size

The *Input Tray Selection* is used to choose a paper size for each input tray (*0-A*). The default is *Letter* for each tray. To change the paper size selection, first choose the tray number for which the paper size is to be changed. A dialog box will then be displayed with the choices *Letter,*

tive, Folio, Legal, Ledger, A6, A5, A4, A3 and envelope sizes *Monarch, Com10, Intl DL, Intl C5* and *Intl B5*. Choose the paper size appropriate for each tray. Each paper size designation is displayed with its measurement.

Input Tray Map

The *Input Tray Selection* is used to match the XES input tray number (*0-A*) to the PCL5 input tray number. For example:

The XES command for tray selection is Esc c#, where # is the input tray number (0-A). The PCL5 command for tray selection is s&1#H, where # is the input tray number. The following chart illustrates how tray mapping could function if the user has replaced a Xerox 4213 printer (running in XES mode) with a Xerox 4500 printer (running in PCL5 mode). The PCL5# is the value sent to the 4500 in the PCL5 source paper drawer select command.

XES #	4213 Tray(s)	PCL5 #
0	HCF, 1, 2	5
1	1 (upper)	1
2	2 (lower)	3
3	HCF	5
4	1	1
5	1, 2	1
6	HCF, 2	5
7	HCF, 1	5
8	n/a	4
9	Bypass	2
A	n/a	4

Output Tray Selection

The *Output Tray Selection* chooses the default output tray (*1 or 2*). The default value is *1*.

This option is equivalent to the XES Output Tray command.

Output Tray Map

The *Output Tray Selection* is used to match the XES output tray number (*1-2*) to the PCL5 output tray number.

Two-up Printing

The X/TRA does not support the XES Margins Double Page command used for printing two logical pages on one physical page. The XES command referred to is: Esc m<H,T_1,B_1,L_1,R_1>,m<T_2,B_2,L_2,R_2> ↵.

Two logical pages on one physical page may be accomplished with the X/TRA by following the procedure below:

1) Set the margins for the size of the first logical page.

2) Print the text for the first page. DO NOT EXCEED the margins or physical size of the paper.

3) Set the margins for the second logical page.

4) Absolute text placement to the print position of the first character of the second two-up page.

5) Print the text for the second page.

6) Form Feed to the next physical page or side.

NOTE: The margin settings for a second page in Xtraedit are not supported and have no effect.

To test the procedure, enter the following source code.

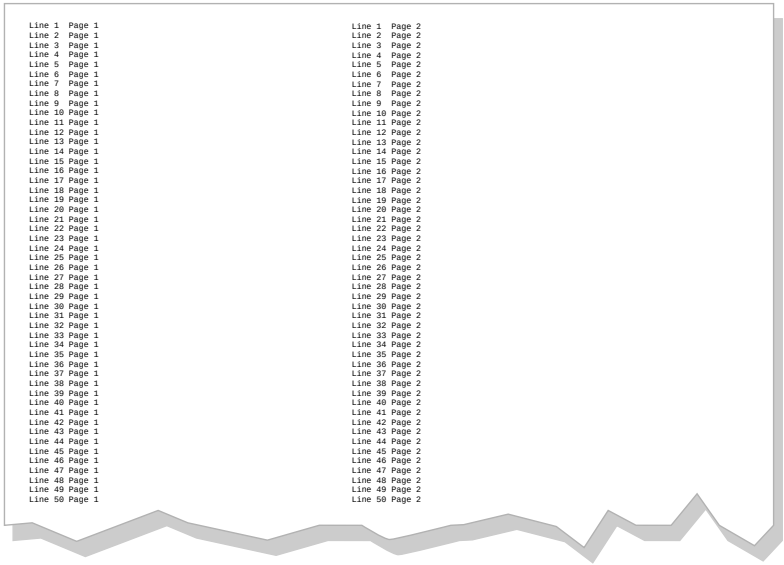
Source Code

```
   =UDK=~
~X
=UDK=~
~m480,10,10,10,335
Line 1  Page 1
Line 2  Page 1
Line 3  Page 1
Line 4  Page 1
Line 5  Page 1
Line 6  Page 1
 ▼      ▼
Line 47 Page 1
Line 48 Page 1
Line 49 Page 1
Line 50 Page 1

~m480,10,10,355,690
~a50,1775
Line 1  Page 2
Line 2  Page 2
Line 3  Page 2
▼       ▼
Line 47 Page 2
Line 48 Page 2
Line 49 Page 2
Line 50 Page 2


~X
```

The resulting output should look like this:



Duplex

Duplex gives the user the options of *Simplex* printing, *Side-to-Side* duplex printing or *Head-to-Toe* duplex printing. The default value is Simplex.

Simplex is equivalent to the XES Duplex Stop command, *Side-to-Side* is equivalent to the Duplex Start command, and *Head-to-Toe* is equivalent to the Duplex Invert Start command.

Page Length (Portrait, Landscape)

Page Length enables the user to specify a page length between 0 and 14 inches. The value can be entered in inches, 1/300 inches or 1/60 inches, depending upon the setting of *Measurement Setting for Entries* under the *Preferences* menu. If inches, the user can enter a value between *1.000* and *14.000.* In 1/300 inches, the user can enter an integer value between *300* and *4200*. In 1/60 inches, the user can enter an integer value between *60* and *840*. The default value for portrait is *3300* (300ths inch). The default for landscape is *2550.*

The *Page Length* option is equivalent to the *H* parameter of the XES Margins and Margins Double Page commands.

Size Correction

Size Correction accounts for the difference in printable area between XES and PCL5 printers. XES printers can print to the edge of the page, while PCL5 printers can print only to within about 1/4 inch of the page edge. Further, the page origin on a PCL5 printer is 1/4 inch down and to the right from the top left corner, whereas an XES printer page origin is at the top left corner. To correct for these differences between the two printer types, the user can choose between *None, Offset, Auto Offset* and *Shrink*. The default configurations have values of *Shrink* or *Offset*.

None will print the XES document to the PCL5 printer without compensating for the differences in origin or printable area. Because of the difference in page origins, the output will start 1/4 inch down and to the right from where it would print on an XES printer. This selection ensures that no text is lost or clipped at the upper and left edges of the page, but text may be lost or clipped at the bottom and right edges. Further, because of the difference in positioning on the page, this choice is inappropriate for printing on preprinted forms. It is useful, however, for those PCL5 printers that can print to the edge of the page.

Offset corrects for the differences in page origins. If selected by the user, negative values entered under *Top Offset* and *Left Offset* (below) will shift the printed output on the page up and to the left by the amount specified. If set to -1/4 inch, the user can ensure that the effective page origin is the same as that of an XES printer. However, if the document sends text to the edges of the page, this text will be lost or clipped. This choice is appropriate for printing on preprinted forms if the XES document does not use the outside 1/4 inch of the page.

Shrink will reduce the vertical and horizontal distance between the origins of all text characters on the page to 93.75%. This is the amount necessary to fit all output on the page, even if the document prints edge-to-edge on an XES printer. This choice will ensure that no characters are lost or clipped, but it is unsuitable for printing on preprinted forms. The effective page origin is 1/4 inch down and to the right of the upper left corner of the page.

Top Offset

Top Offset specifies the amount of shift if *Offset* is selected (or active because of the *Auto Offset* algorithm) under *Size Correction*. Negative values move printed output up; positive values move printed output down. The value can be entered in inches, 1/300 inches or 1/60 inches, depending upon the setting of *Measurement Setting for Entries* under the

Preferences menu. If inches, the user can enter a value between *-1.000* and *1.000*. In 1/300 inches, the user can enter an integer value between *-300* and *300.* In 1/60 inches, the user can enter an integer value between *-60* and *60*. The default value is *-75* (300ths inch).

Left Offset

Left Offset specifies the amount of shift if *Offset* is selected (or active because of the *Auto Offset* algorithm) under *Size Correction*. Negative values move printed output left; positive values move printed output right. The value can be entered in inches, 1/300 inches or 1/60 inches, depending upon the setting of *Measurement Setting for Entries* under the *Preferences* menu. If inches, the user can enter a value between *-1.000* and *1.000*. In 1/300 inches, the user can enter an integer value between *-300* and *300*. In 1/60 inches, the user can enter an integer value between *-60* and *60*. The default value is *-75* (300ths inch).

Minimum Top Coordinate

The *Minimum Top Coordinate* setting is used if *Auto Offset* has been selected under *Size Correction* in the *Printer Setup* menu. The X/TRA uses this value to determine if the origin of the first character is in the printable area of the page. The value entered by the user should normally be 1/4 inch, since this is the area at the top of the page that cannot be addressed by PCL5 printers. The default is *75* (300th inch). This value may need to be increased if the origin of the character is within the printable area, but the height of the character is such that the character is clipped when printed.

The value can be entered in inches, 1/300 inches or 1/60 inches, depending upon the setting of *Measurement Setting for Entries* under the *Preferences* menu. If inches, the user can enter a value between *0.000* and *14.000*. In 1/300 inches, the user can enter an integer value between *0* and *4200.* In 1/60 inches, the user can enter an integer value between *0* and *840.*

Minimum Left Coordinate

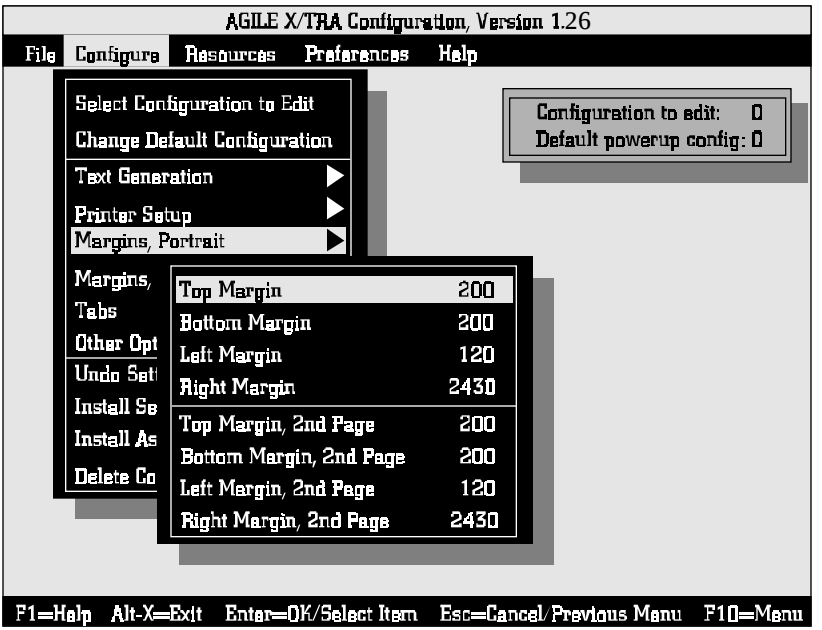
The *Minimum Left Coordinate* setting is used if *Auto Offset* has been selected under *Size Correction* in the *Printer Setup* menu. The X/TRA uses this value to determine if the origin of the first character is in the printable area of the page. The value entered by the user should normally be 1/4 inch, since this is the area on the left edge of the page that cannot be addressed by PCL5 printers.

Margins (Portrait, Landscape)

These settings determine the area of the page in which characters can be printed. The menu choices are indicated in the following illustration:

Top Margin

The *Top Margin* setting determines the number of inches from the top edge of the page to the baseline (origin) of the first line of text. The value can be entered in inches, 1/300 inches or 1/60 inches, depending upon the setting of *Measurement Setting for Entries* under the *Preferences* menu. If inches, the user can enter a value between *0.000* and *14.000*. In 1/300 inches, the user can enter an integer value between *0* and *4200*. In 1/60 inches, the user can enter an integer value between *0* and *840*. The default value for portrait pages is *200* (300ths inch); the default value for landscape pages is *120* (300ths inch).



Bottom Margin

The *Bottom Margin* setting determines the number of inches from the bottom edge of the page to the baseline (origin) of the last line of text. The value can be entered in inches, 1/300 inches or 1/60 inches, depending upon the setting of *Measurement Setting for Entries* under the *Preferences* menu. If inches, the user can enter a value between *0.000* and *14.000*. In 1/300 inches, the user can enter an integer value between *0* and *4200*. In 1/60 inches, the user can enter an integer value between *0* and *840*. The default value for portrait pages is *200* (300ths inch); the default value for landscape pages is *120* (300ths inch).

Left Margin

The *Left Margin* setting determines the number of inches from the left edge of the page to the left edge (origin) of the first character in each line on the page. The value can be entered in inches, 1/300 inches or 1/60 inches, depending upon the setting of *Measurement Setting for Entries* under the *Preferences* menu. If inches, the user can enter a value between *0.000* and *14.000.* In 1/300 inches, the user can enter an integer value between *0* and *4200*. In 1/60 inches, the user can enter an integer value between *0* and *840*. The default value for portrait pages is *120* (300ths inch); the default value for landscape pages is *200* (300ths inch).

Right Margin

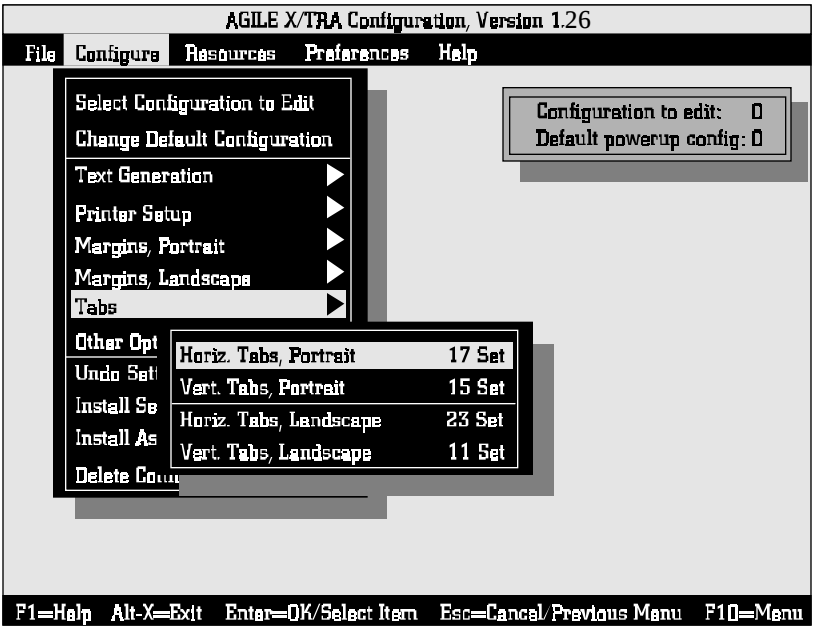
The *Right Margin* setting determines the number of inches from the left edge of the page to the right edge of the last character in each line on the page. The value can be entered in inches, 1/300 inches or 1/60 inches, depending upon the setting of *Measurement Setting for Entries* under the *Preferences* menu. If inches, the user can enter a value between *0.000* and *14.000*. In 1/300 inches, the user can enter an integer value between *0* and *4200*. In 1/60 inches, the user can enter an integer value between *0* and *840*. The default value for portrait pages is *2430* (300ths inch); the default value for landscape pages is *3100* (300ths inch).

Tabs (Portrait, Landscape)

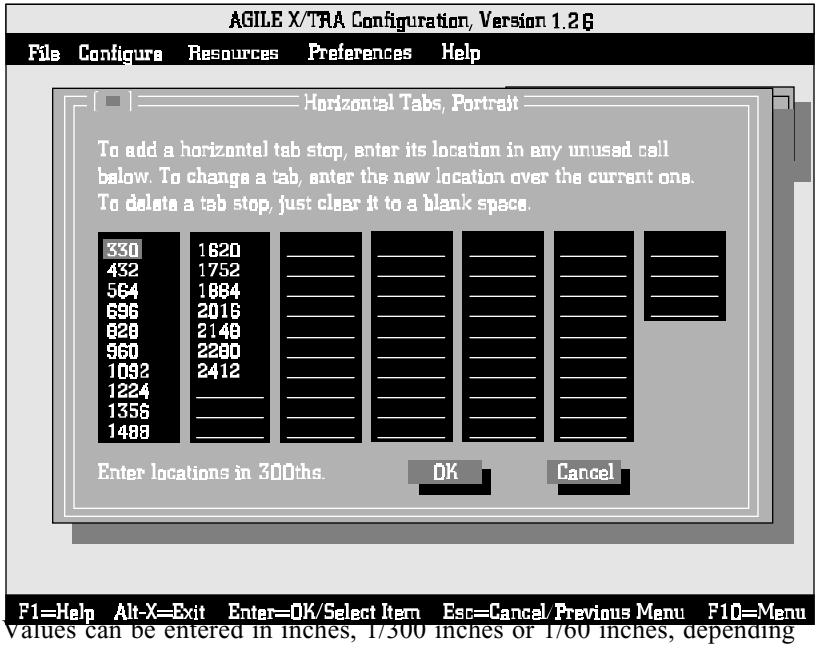
The Tabs menu enables the user to set *Horizontal Tabs* and *Vertical Tabs* for both portrait and landscape pages, as indicated by the illustration below. These options are equivalent to the XES Tabs Horizontal and Tabs Vertical commands, respectively.

Selecting any of the four tab setting choices will cause XTRAEDIT to display the following dialog box (the *Horizontal Tabs, Portrait* dialog box is illustrated):

To enter a new tab value, mouse users can move the mouse pointer to any of the fields indicated by underscore characters, press the left mouse button, and then type the value of the tab location. Keyboard users can use t, u or n to move to any of these fields, then type the value of the tab location.



Up to 64 values can be entered, in any order. Duplicate entries are automatically reconciled, and XTRAEDIT will automatically place the entries in their correct order.



Values can be entered in inches, 1/300 inches or 1/60 inches, depending upon the setting of *Measurement Setting for Entries* under the *Preferences* menu. If inches, the user can enter a value between *0.000* and *14.000*. In 1/300 inches, the user can enter an integer value between *0* and *4200*. In 1/60 inches, the user can enter an integer value between *0* and *840*.

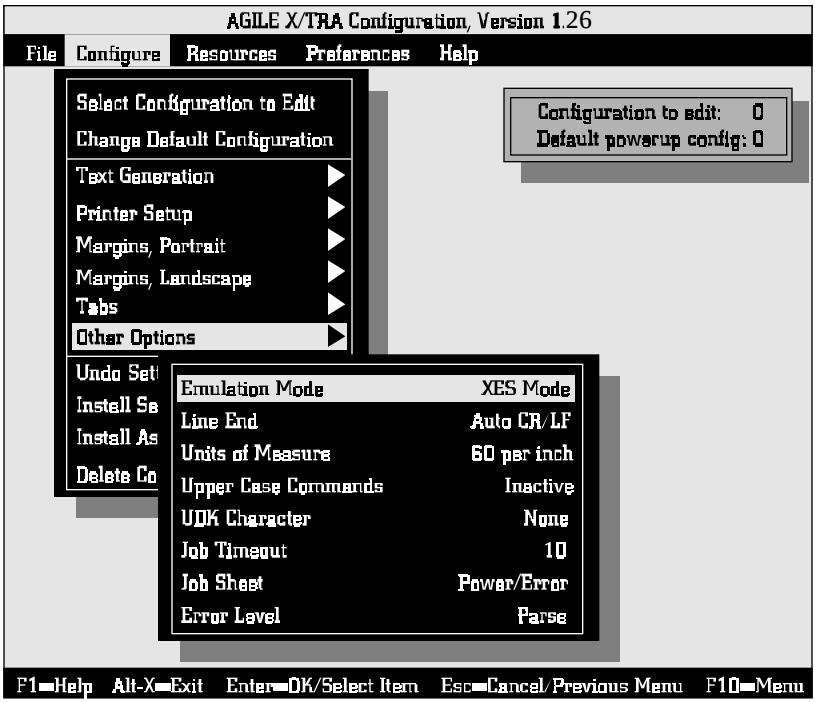
Delete tab settings by highlighting the value to be deleted, then press v or x. After entering and/or deleting values, use the mouse or t to select *OK*, or press d to accept the choices.

The following chart show the default portrait and landscape tabs stops:

Portrait		Landscape	
Horizontal	**Vertical**	**Horizontal**	**Vertical**
330	330	330	330
432	540	432	540
564	750	564	750
696	960	696	960
828	1170	828	1170
960	1380	960	1380
1092	1590	1092	1590
1224	1800	1224	1800
1356	2010	1356	2010
1488	2220	1588	2220
1620	2430	1620	2430
1752	2640	1752	
1884	2850	1884	
2016	3060	2016	
2148	3270	2148	
2280		2280	
2412		2412	
		2544	
		2676	
		2808	
		2840	
		3072	
		3204	

Other Options

This submenu enables the user to change the settings for the following options: *Emulation Mode, Line End, Units of Measure, Uppercase Commands, UDK Character, Job Timeout, Job Sheet* and *Error Level*. These options are shown in the following illustration:



Emulation Mode

This option enables the user to set the configuration either to *XES Mode* or to *Passthrough Mode. XES Mode* is the normal operating mode of the X/TRA, enabling XES documents to be printed to the user's PCL5 printer. *Passthrough Mode* enables the user to print other document types, including PCL5 documents, and PostScript documents if the user's printer supports PostScript.

The emulation mode being used will be indicated by the X/TRA LED, either *0* for *XES Mode* (normal operating mode), or *P* for *Passthrough Mode*. The default is XES Mode for Configurations 0, 1, 2 and 3. The default for Configurations 4, 5, 6 and 7 is *Passthrough Mode*.

Line End

XES protocol requires that certain printer commands are terminated with a line ending, either a carriage return only (CR), a line feed only (LF) or both (CR/LF). The type of line ending is defined by the user. This option enables the user to indicate to the X/TRA which type of line ending is being used in the user's XES documents to terminate XES commands.

The user can select CR/LF, *CR only*, *LF only* or *Auto CR/LF. Auto CR/LF* is the default, and it tells the X/TRA to accept any line ending as an XES command terminator.

Units of Measure

This option is equivalent to the Units—1/60 or Units—1/300 XES commands. It is used to indicate whether measurements within XES commands in the user's documents are stated in 1/60-inch units or 1/300-inch units. The user can choose *60 per inch* or *300 per inch*. The default is *300 per inch*.

Note: This setting is not related to the setting in *Measurement Units for Entries* under the *Preferences* menu. *Measurement Units for Entries* is used only for measurement units entered within XTRAEDIT.

Uppercase Commands

Normally, XES commands are case sensitive, i.e., they must be entered in upper case or lower case, depending upon the command format. This option, when set to *Active*, enables the user to enter all XES commands in upper case letters. This is the default. When set to *Inactive*, XES commands must be entered according to normal XES protocol.

UDK Character

XES commands may begin with the s character, or the user can define a substitute character with which to begin XES commands. This is useful if the system is not capable of transmitting the s character. In this dialog box, enter the character that initiates XES commands in the user's documents.

To define the substitute s character, simply type in a printable, non-alphanumeric character. If the entered character is unacceptable, an error message will be displayed. The default value is *None*, which means that only the s character can be used to begin XES commands.

Job Timeout

The timeout period defined by the user will determine how long the X/TRA will wait for data before it assumes a job boundary and ejects the current page from the printer. The user may enter a value between 2 and 600 seconds.

Note: X/TRA must have a smaller timeout setting than the timeout setting for the printer (about two seconds shorter). If the printer times out before the X/TRA, in some cases the last page will not be printed correctly.

Job Sheet

The *Job Sheet* option determines under which conditions the X/TRA will print a Configuration/Status Page. The choices are *None, Always* and all of the possible combinations of *Error, Request* and *Power Up*. The default for all configurations is *Power/Error*.

If the user selects None, the Configuration/Status Page will not be printed under any conditions, except when the user selects *Mode C* using the *Mode Selector* button on the top panel of the X/TRA. If the user selects *Always*, the Configuration/Status Page will be printed upon power up, when requested within a document, when an error condition occurs, and when the user selects *Mode C*. The other choices restrict the printing of the Configuration/Status Page to a smaller set of conditions.

Error Level

This option is used in conjunction with the *Job Sheet* option. It is used to determine which level of error qualifies as an error for the purpose of printing a Configuration/Status Page. It also determines, when a Configuration/Status Page is printed, which errors are reported on the page. The default choice is *Parse*. The user can also choose among *Critical, Fatal, Implementation* and *Superficial*.

If the user chooses *Fatal*, the only errors reported will be those that prevent the document from being printed. *Critical* errors are those will cause the document to print incorrectly, such as missing fonts or forms. *Parse* errors are those caused by incorrect or incomplete XES commands. *Implementation* errors are due to the X/TRA implementation of XES commands. *Superficial* errors are those that will not affect printed output. Each choice is inclusive of the choice(s) above it.

Undo Settings — Alt-U

Changes to the configuration of the X/TRA are not installed (saved in the X/TRA's flash memory) until the user either quits XTRAEDIT, or uses the *Install Settings Now* or *Install As New Configuration* commands. *Undo Settings* is a command that will cancel all changes to the configuration of the X/TRA that were made since the previous installation of X/TRA configuration settings.

This command will not undo *Font* menu commands such as *Load Font, Delete Font, Pack X/TRA Memory* and *Non-Shrinkable Fonts*, nor will it undo the *Delete Configuration* command. These commands write information to the X/TRA memory immediately.

Install Settings Now — Alt-I

Changes to the configuration of the X/TRA are not installed (saved in the X/TRA's flash memory) until the user either quits XTRAEDIT, or uses the *Install Settings Now* or *Install As New Configuration* commands. Use this command to save any changes to the current configuration.

This command will not affect the *Delete Configuration* command or *Font* menu commands such as *Load Font, Delete Font, Pack X/TRA Memory* and *Non-Shrinkable Fonts*. These commands write information to the X/TRA memory immediately.

Install As New Configuration

Changes to the configuration of the X/TRA are not installed (saved in the X/TRA's flash memory) until the user either quits XTRAEDIT, or uses the *Install Settings Now* or *Install As New Configuration* commands.

Use this command to save changes to the current configuration as a different configuration. When this option is selected, a dialog box is displayed that enables the user to install configuration changes to a different configuration number. Enter any digit between *0* and *9*.

This command is useful for creating two configurations with only minor differences. The user can use the *Select Configuration* option to select a configuration, make a few changes and then use this command to save the edited configuration under a different number.

This command will not affect the *Delete Configuration* command or *Font* menu commands such as *Load Font, Delete Font, Pack X/TRA Memory* and *Non-Shrinkable Fonts*. These commands write information to the X/TRA memory immediately.

Delete Configuration

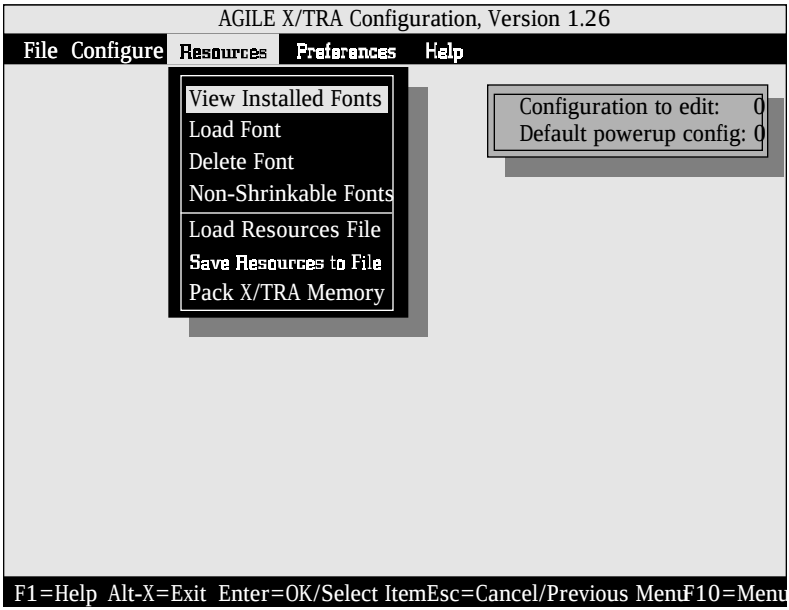
The user can free up space in the X/TRA's flash memory be removing from memory any configurations that are not being used. The user can choose any configuration from *0-9*. When the confirmation dialog box is displayed, select *Yes* to continue.

Resources Menu

This menu contains the options *View Installed Fonts, Load Font, Delete Font, Non-Shrinkable Fonts, Load Resources File, Save Resources to File* and *Pack X/TRA Memory*.

The X/TRA has approximately 448K of font storage space in its nonvolatile flash memory, depending upon the size of other X/TRA resources, such as configurations.

Fonts can be used by selecting them with an XES Font Change command. Fonts can be selected from among simulated fonts, fonts that have been downloaded to the printer, or fonts that have been stored in the X/TRA's flash memory.



View Installed Fonts

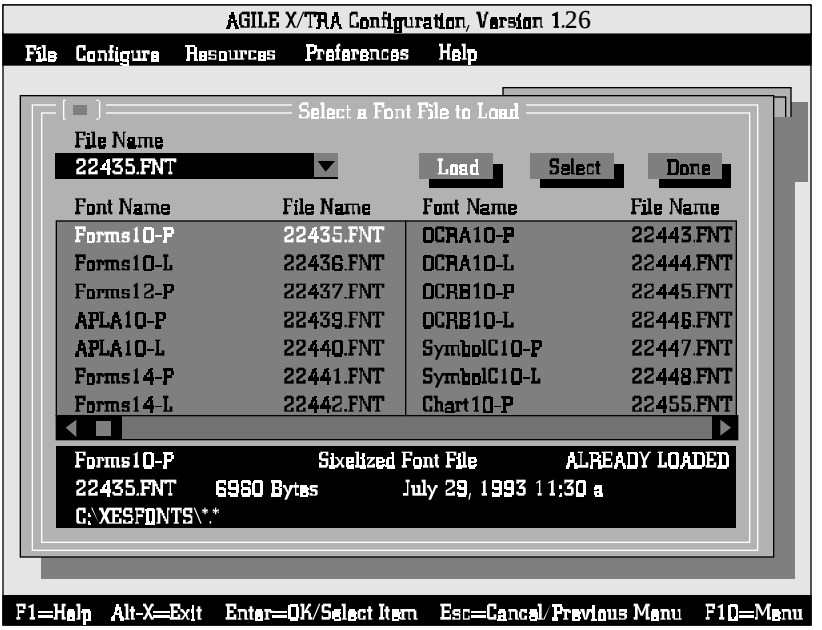
View Installed Fonts will display a list of all fonts that the user has installed in the X/TRA's flash memory. Users can display font names for which there is insufficient room on the screen by using the arrow keys un.

Load Font

Load Font will display a dialog box that will allow the user to load fonts from a diskette to the X/TRA's flash memory. Loading a font is equivalent to having a font on a cartridge installed in a Xerox 4045-160 printer, with the advantage that the user can choose which fonts are present. Fonts installed in the X/TRA's flash memory, unlike fonts downloaded to the printer, are stored permanently, even when power has been disconnected from the unit. To conserve space, all installed fonts are desixelized and compressed.

Note: *To obtain XES fonts on a diskette, contact the Xerox Font Centre at (800) 445-FONT.*

The *Load Font* dialog box is represented with the following illustration:



This dialog box has two areas in which users can enter data, in addition to the *Load* and *Done* buttons. Mouse users can navigate between these four items by moving the mouse pointer to the appropriate item and pressing the left mouse button. Keyboard users can use t to select the appropriate item.

The first step in loading a font is to select the *File Name* box in the upper left corner of the dialog box. Here, the user can enter the letter of the disk drive in which the user's fonts reside by typing the letter of the drive followed by a colon, e.g., `C:`. The default drive is `B:`. The user can also type the entire path, including subdirectory names and the file name, in this box, but the following method may be more convenient:

Once the user has selected the appropriate disk drive in the *File Name* box, the subdirectory and file name can be selected in the *Font Name/ File Name* box in the center of the screen. Mouse users can do this by pointing and clicking, and keyboard users can do this using the arrow keys unhk. When the desired font name is highlighted, press d, or select Load, and the file will be loaded to the X/TRA.

After loading all fonts to be stored in the X/TRA, select the *Done* button to return to the main screen. If the user selects a font for which there is insufficient flash memory, an error message will be displayed.

The lowest box on the screen displays information about the currently highlighted font. This information includes the directory/subdirectory in which the font resides, the name of the font, the name of the file, the size of the file in bytes and its creation/modification date. This box will also indicate the format of the file, i.e., whether the file is binary, sixelized or in another format, and whether or not the font has already been loaded in the X/TRA memory.

Delete Font

Delete Font will display a dialog box that will enable the user to remove from the X/TRA's flash memory any fonts that the user has installed. Simply highlight the name of the font to be deleted, using the mouse or the arrow keys un, then select *Delete* or press d. When the confirmation dialog box is displayed, select Yes to continue.

Non-Shrinkable Fonts

This dialog box enables the user to list all of the installed, downloaded or printer-resident fonts that will print incorrectly due to space compression caused by using the *Shrink* algorithm. Listing the fonts here will prevent these fonts from having space removed between characters when *Shrink* has been selected *for Size Correction* under *Printer Setup* in the *Configuration* menu. Fonts that may be distorted by shrinking include bar codes, logos and signatures.

Use the mouse or t to highlight the field in which to enter the font name. Enter the name of the font exactly, including upper and lower case letters, as appropriate. If using both portrait and landscape orientations of a font, both names must be entered separately, even if only one has been installed in the X/TRA (because the user has set *Font Rotation* to *Active* under *Text Generation* in the *Configure* menu).

To delete a font entry, simply highlight its name and press v or x. Exit the dialog box by using the mouse or t to select *OK*, or press d to accept the choice.

Load Resources File

Firmware upgrades are provided in the form of resource files. In order to install a firmware upgrade in an X/TRA, the user will need to load a resource file, provided either on diskette or downloaded from the AGILE BBS.

A resource file may contain the X/TRA code, the X/TRA boot kernel (used by XTRAEDIT to configure the unit), fonts, configurations, default configuration and the non-shrink fonts list. The software distributed with the X/TRA contains all of the above except the non-shrink fonts list. Firmware upgrades will contain all resources necessary.

Command Line Interface

The user may display the contents and the description of each resource file by using the DOS command TYPE.

A resource file can be loaded outside of XTRAEDIT by using the command line interface. XTRAEDIT /R=*filename* will load a resource file. All resources with the same name will be overwritten. If no filename is specified, a resource file named RESOURCE.AGL will be loaded.

LPT[1|2|3] may also be entered on the command line in order to avoid being asked the port number to which the X/TRA is attached.

The parameter /Z will throw away all resources in the X/TRA and then load in the new set. Make sure the resource file has all necessary components before using the /Z parameter.

Save Resources to File

If the user has several X/TRAs that are to be configured identically, it may be far easier to configure one X/TRA, save the configuration to a resource file on the XTRAEDIT diskette, and then load the resource file from that diskette to the other X/TRAs, rather than to configure each X/TRA individually.

The user may select which resources are saved in the resources file. This enables the user to save only those resources that will be shared by other users, or whatever other reason the user may have for saving only some of the X/TRA resources.

The user may enter a description for each resource file saved. When loading the resources, the comment entered will be displayed (only the first twenty-characters) in case the user has saved different configurations.

Pack X/TRA Memory

When resources (fonts or configurations) have been deleted from the X/TRA, gaps are left in the X/TRA's flash memory. These gaps can be filled only by resources that are smaller than the space left by the deleted resource. To create a unified, contiguous free space for the installation of more resources, the user should select this option after deleting any resource. After the dialog box is displayed, use the mouse to select OK, or press d to pack the X/TRA memory. When the confirmation dialog box is displayed, select Yes to continue.

Preferences Menu

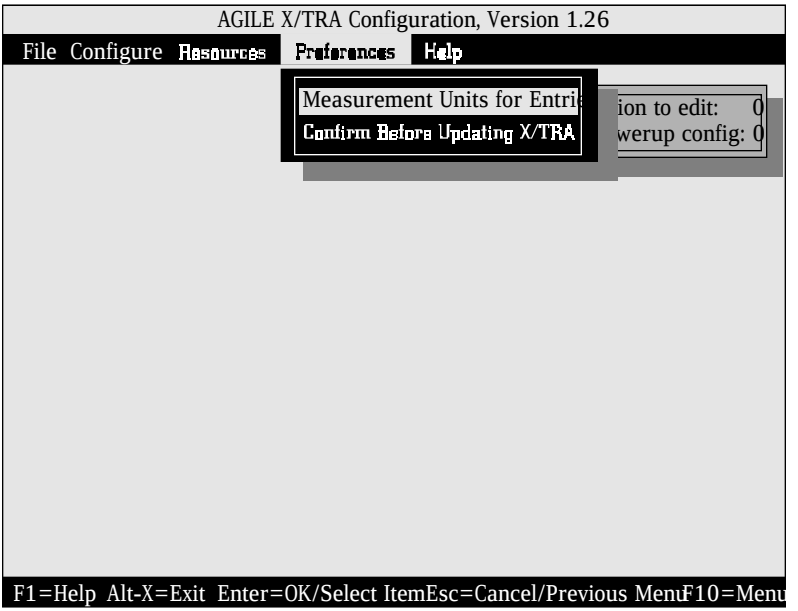
This menu contains the options *Measurement Units for Entries* and *Confirm Before Updating X/TRA*.

Measurement Units for Entries

XTRAEDIT asks the user to enter measurements in several dialog boxes during the configuration process. For instance, the user may enter measurements for page size, margins, offsets, absolute line spacing, coordinates and tabs. This option determines whether the user's entries are entered and displayed in inches, 1/60-inch units or 1/300-inch units. The default value is *300ths*.

Regardless of the format in which they are entered and displayed, all measurements are stored by the X/TRA in 1/300-inch units. As such, all values entered as tenths, hundredths or thousandths of inches will be rounded down to the nearest 1/300-inch equivalent.

Note that the numerical entries displayed will change after the user changes the unit of measurement. For instance, a margin of 1.000 in inch units will be displayed as a margin of 300 in 1/300-inch units. The actual margin measurement itself will not be changed simply by changing the



unit of measure.

Note: *This setting is not related to the setting in* Units of Measure *under* Other Options *in the* Configure *menu*. Measurement Units for Entries *is used only for measurement units entered within XTRAEDIT*.

Confirm Before Updating X/TRA

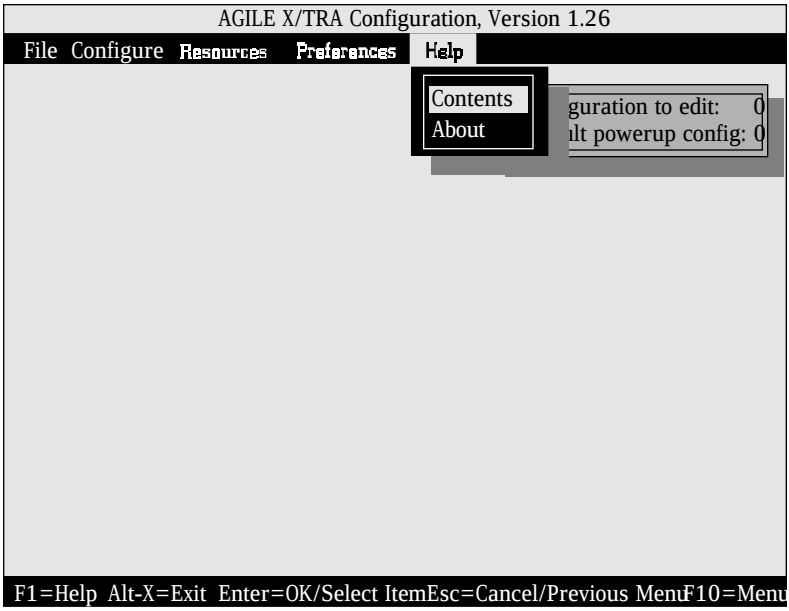
After configuration changes have been made, the changes have to be written to the X/TRA's memory. This option enables the user to determine whether or not XTRAEDIT will display a warning message immediately prior to the changes being written. If the user chooses *Yes*, the warning message will be displayed, allowing the user to cancel the changes. If the user chooses *No*, the X/TRA configuration memory will change without any warning and without any opportunity for the user to cancel the change. The default value is *Yes*.

Changes to the configuration of the X/TRA are not installed (saved in the X/TRA's flash memory) until the user either quits XTRAEDIT, or uses the *Install Settings Now* or *Install As New Configuration* commands.

This command will not affect the *Delete Configuration* command or *Font* menu commands such as *Load Font, Delete Font, Pack X/TRA Memory* and *Non-Shrinkable Fonts*. These commands write information to the X/TRA memory immediately, and regardless of the setting of this option, confirmation messages will be displayed before deleting fonts or configurations.

Help Menu

The *Help* menu enables the user to look up information on an XTRAEDIT topic out of context. (Context-sensitive help is available at any time by pressing the 1 function key.) The *Help* menu contains the options *Content*s and *About.*



Contents

Contents is a directory of topics available in the on-line help file. Selecting an item in this list will automatically display information about the topic.

After reading the information displayed on the screen, users can either return to the *Contents* menu or get information on other topics, the names of which may be displayed on the screen. Mouse users can simply move the mouse pointer to the topic name and press the left mouse button to select it. Keyboard users can use t to highlight their selection, and d to accept the choice.

About

Selecting *About* will display a dialog box with information about XTRAEDIT, including the software version number, its copyright date and the amount of memory available in the user's computer.

SERVICE AND REFERENCE

Technical Tips

The following tips for using X/TRA were compiled in response to frequently asked questions from our customers:

- ▲ X/TRA is functionally equivalent to a Xerox 4213 Model II laser printer as far as any print applications are concerned.
- ▲ Depending upon the host computer, the user may need an external protocol converter capable of standard Centronics parallel output. If downloading Xerox EBCDIC fonts, the protocol converter must also be capable of translating these fonts into ASCII format. AGILE's family of protocol converters will handle both of these requirements.
- ▲ X/TRA can receive for translation only Centronics parallel ASCII data.
- ▲ X/TRA can translate only 2700/4045 ASCII-formatted Xerox fonts.
- ▲ Call the Xerox Font Center or contact the Xerox/Rank Xerox Customer Support Center to get fonts converted to the 2700/4045 ASCII format.
- ▲ All Xerox fonts used in XES print jobs must be downloaded to or stored in X/TRA's flash memory.
- ▲ Remember that downloaded fonts are "soft stored" and are lost if power to X/TRA or to the printer is turned off.
- ▲ The X/TRA must be configured to be the equivalent of the XES printer it is replacing.
- ▲ To help accurately configure X/TRA to replace an XES printer, obtain and keep a printer configuration report from the printer being replaced.
- ▲ Create a file with print examples, from the Xerox printer being replaced, of all XES jobs to be migrated to a PCL5 environment.
- ▲ The necessary software is already loaded on X/TRA. The floppy disk received with your X/TRA contains the XTRAEDIT configuration program and the operational software, in case there is a need to reload the code.

- X/TRA's "Shrink" mode reduces the print job to 93.75%. This takes into account the printer's logical page when compared to the XES page.
- X/TRA's "Shrink" size correction setting should be used only if migrating an edge-to-edge XES document to the printer.
- If the job(s) print with unexpected results, obtain configuration reports from all devices in use.
- If using an AGILE 6287 PLUS, 6287 IC or 6287 ULTRA Printer Interface Controller to output parallel data to X/TRA, the user cannot use the parallel printer cable to configure or load X/TRA software from a PC.

Using Xerox Fonts with the X/TRA

X/TRA users may use Xerox fonts with the X/TRA and select among them using the XES Font Change command. You may choose between XES fonts simulated by the X/TRA, fonts that have been stored in the X/TRA or fonts that have been downloaded to the printer.

Simulated fonts are PCL5 versions of fonts that are standard on the Xerox 4213 Model II printer, including both portrait and landscape versions of Titan10iso, Titan12iso XCP12.5iso and XCP14iso. When the X/TRA receives a command to use one of these fonts, it substitutes the command with one that will invoke an equivalent font resident in the printer to which it is attached.

Using XTRAEDIT, the X/TRA's configuration software, XES fonts can be stored permanently in the X/TRA's nonvolatile flash memory. Loading a font in the X/TRA is equivalent to having a font cartridge installed in a Xerox printer, with the advantage that the user may choose which fonts are present. To conserve memory space, all stored fonts are desixelized and compressed, yielding a 2:1 storage space advantage.

You also may download XES fonts to the printer. The X/TRA will automatically convert to PCL5 format all fonts downloaded to the printer or stored in the X/TRA's flash memory.

Contact the Xerox Font Center to obtain the fonts resident in your Xerox printer in a format that can either be stored in the X/TRA or downloaded through the X/TRA to the printer. Be certain to specify 2700-format fonts on a PC/MS-DOS diskette. It is unnecessary to obtain fonts that are downloaded from your host system, but you may want to have these fonts in a format that can be stored in the X/TRA.

The X/TRA has an option that enables a font installed in the X/TRA or downloaded to the printer in one orientation (portrait or landscape) to be available for printing in either orientation. This saves additional storage space, and it reduces the number of fonts you will need to order from the Xerox Font Center.

Connection Tests

The following tests will verify that proper connections have been made between the X/TRA, the host and the printer.

Printer Verification

In order to verify the printer connection, print a Configuration/Status Page by pressing the Mode Selector button until the LED displays a "C." A sample Configuration/Status Page can be found later in this section.

If the Configuration/Status Page does not print:

- ▲ Check that the X/TRA and the printer are connected to a power source, powered on and on line.
- ▲ Verify that the printer is securely connected directly to the X/TRA or connected with a Centronics cable provided with the unit by Xerox.
- ▲ Confirm that the printer is functioning properly by having it perform a self test. Refer to the printer user's manual for instructions.
- ▲ If using a multiple mode printer, verify that the printer is operating in PCL5 mode.

Host Verification

After successfully printing a Configuration/Status Page, verify the host connection to the X/TRA by sending a Print Screen or a typical host-generated print transaction to the printer. Refer to the system documentation for instructions. Verify that the transaction is properly formatted and output by the printer.

If it does not print:

- ▲ Check that the X/TRA and the host are securely connected with a Centronics parallel interface cable, and that the X/TRA LED is displaying a "0," indicating a proper connection.

If the print output is not formatted correctly:

- ▲ Refer to the printer user's manual for the commands necessary to format the printer's output to suit the needs of the application.
- ▲ Refer to *Section 4 — XTRAEDIT Configuration*, and change the settings as needed.

Firmware Upgrades

Firmware upgrades may be provided from time to time by Xerox, either to provide more functionality or to correct problems with earlier firmware versions. These firmware upgrades are available from the Xerox/Rank Xerox Customer Support Center during the warranty period. New code will be distributed by the Xerox/Rank Xerox Customer Support Center on a diskette.

To install a firmware upgrade, refer to "Load Resources File" in *Section 4 — XTRAEDIT Configuration*.

Contacting Xerox

To talk to Xerox, contact your local Xerox dealer or distributor. Before contacting the Xerox/Rank Xerox Customer Support Center, perform the connection tests described on the previous page. If applicable, perform a Hex Dump of the data stream, using Mode H on the top panel of the X/TRA. Then place the unit in Mode F and load XTRAEDIT as described in *Section 4 — XTRAEDIT Configuration*.

Configuration/Status Page

The following is a sample Configuration/Status Page:

```
AGILE X/TRA V1.10 July 12, 1995 12:00:00 Copyright (c) 1993-1995 by AGILE.
                    Configuration / Status Page

                              This is a comment.

Printer: Xerox 4520                        Fonts:
   Max Memory: 4000000                          Titan10iso-L       (S)
 Avail Memory: 2000000                          Titan10iso-P       (S)
                                                Titan12iso-L       (S)
X/TRA:                                          Titan12iso-P       (S)
  RAM Size: 128K                                XCP14iso-L         (S)
FLASH Size: 512K                                XCP14iso-P         (S)
                                                XCP12.5iso-L       (S)
Current:                                        XCP12.5iso-P       (S)
                  Font : Titan10iso-P           Titan10iso-L       (F)
          Status Sheet : Error                  Titan10iso-P       (F)
         Power-Up Sheet : On                    Titan12iso-L       (F)
           Error Level : Parse Error            Titan12iso-P       (F)
              Language : U.S. English           XCP14iso-L         (F)
              PDL Mode : XES                    XCP14iso-P         (F)
          Line Ending : Auto CR,LF,CR/LF        XCP12.5iso-L       (F)
         Font Rotation : On                     XCP12.5iso-P       (F)
            Input Tray : 1
           Output Tray : 1
           Page Length : 660
            Top Margin : 40
         Bottom Margin : 40
           Left Margin : 24
          Right Margin : 486
           Print Sides : Simplex
                 Units : 60ths
         Justification : Off
          Line Spacing : One
     Uppercase Commands : Invalid
        Size Correction : Shrink

                                           Forms:

Job Errors:
Page:   Location:   Context:                    Error:   Description:
   1          0                                   33    Form not found.
```

The user may print the Configuration/Status Page at any time by setting the X/TRA to Mode C using the Mode Selector button on the X/TRA top panel. It also will be printed at other times, depending upon the setting of the *Job Sheet* option under *Other Options* in the XTRAEDIT *Configuration* menu.

The Configuration/Status Page is divided into five sections: *Comment*, *Current*, *Fonts*, *Forms* and *Job Errors*.

A *Comment* will be printed, centered underneath the header at the top of the page, if the Configuration/Status Page was printed as the result of a comma and a comment entered as part of an XES command. This will occur only if the user has enabled the *Request* option for *Job Sheet* under *Other Options* in the XTRAEDIT *Configure* Menu.

The settings for the configuration that the user is currently using, whether or not it is the default configuration, will be listed under the *Current* heading.

The following is a complete list of all of the possible configuration options that may appear on the Configuration/Status Page:

```
                  Font : Titan10iso-P|etc.
          Status sheet : Error|None|Always|Request|Power Up|Power/Error|
                         Request/Error|Power/Request|Power/Req/Error
       Power-Up sheet : On|Off
          Error Level : Fatal|Critical|Parse|Implementation|Superficial
             Language : U.S. English|U.K. English|French|Dutch|Spanish|Italian|
                         Danish|Norwegian|Finnish|German|Swedish|Belgian|
                         French Canadian|DSC|User
             PDL Mode : XES Mode|Passthrough Mode
         Line Ending : Auto CR/LF|CR/LF|CR|LF
        Font Rotation : On|Off
           Input Tray : 0|1|2|3|4|5|6|7|8|9|A
          Output Tray : 0|1
          Page Length : 3300|etc.
           Top margin : 200|etc.
        Bottom margin : 200|etc.
          Left margin : 120|etc.
         Right margin : 2430|etc.
          Print sides : Simplex|Side-to-Side|Head-to-Toe
                Units : 300 per inch|60 per inch
        Justification : Off|Normal|Forced
         Line Spacing : Single|Absolute|Half|1 1/2|Double|2 1/2|Triple
      UpperCase Cmnds : Active|Inactive
      Size Correction : Shrink|None|Offset|Auto Offset
        Character Set : ASCII|ISO|PC
Absolute Line Spacing : 0|etc.
      Two-Up Printing : Inactive|Active
           Top Offset : -75|etc.
          Left Offset : -75|etc.
Minimum Top Coordinate : 75|etc.
Minimum Left Coordinate : 75|etc.
   Top Margin, 2nd Page : 3300|etc.
Bottom Margin, 2nd Page : 200|etc.
  Left Margin, 2nd Page : 120|etc.
 Right Margin, 2nd Page : 2430|etc.
         UDK Character : None|etc.
```

Note that only the parameters that apply to the current configuration will be listed. For instance, if *UDK Character* is set to *None*, the UDK character listing will not appear. Unless *Size Correction* has been set to *Auto Offset*, the values for *Minimum Top Coordinate* and *Minimum Left Coordinate* will not be listed. If *Two-Up Printing* is set to *Inactive*, the second page margins will not appear, etc.

The *Fonts* section will list all fonts that are simulated by the X/TRA, have been installed in the X/TRA or that have been downloaded to the printer. An (S) to the right of a font name indicates a simulated font; an (R) indicates a font resident in the printer (copied to the printer from flash, but still resident in flash memory); an (F) indicates a flash-resident font; and a (D) indicates a font that has been downloaded to the printer. Note that downloaded fonts take precedence over flash versions, which take precedence over resident versions, which take precedence over simulated fonts, assuming the user has multiple versions of the same font.

The *Forms* section will list all forms downloaded to the printer.

The *Job Errors* section will indicate errors that have occurred in a print job, depending upon the setting of the *Error Level* option under *Other Options* in the XTRAEDIT *Configuration* menu. *Page* indicates the page on which the error occurred. *Location* is the number of bytes into the job stream where the error occurred. *Context* will print in hexadecimal notation the sixteen bytes prior to the byte where the error occurred. The *Error* number and *Description* messages are listed below:

Error Messages

The following error messages may appear on the Configuration/Status Page, depending upon the setting of the *Error Level* option under *Other Options* in the XTRAEDIT *Configuration* menu. They are organized by error type, and they are shown with their respective error numbers, as reported on the Configuration/Status Page:

Critical errors will cause the document to print incorrectly:

33. Form not found.
36. Duplicate form name.
37. Font not found.
46. Orientation changed within job.
47. Line too short to justify.
48. Line too long to justify.
50. Not enough memory to create rotated font.
53. Too many fonts (limit is 255).
54. Font not found for assignment.

Parse errors indicate incorrect or incomplete XES commands:

1. Need digit or comma.
2. Need digit or line end.
3. Need digit or 'A'.
4. Value out of range.
5. Need digit, comma or line end.
6. Need 'M'.
7. Need 'u', 'd', 'l', or 'r'.
8. Need digit or character.
31. Bad comment field in command.
39. Need '0', '1', or '2'.
40. Need char, line end, or comma.
41. Need comma.
42. Need '1', '2', '3', or 'h'.
43. Need '0' - '9'.
44. Need char or line end.
45. Bad form name.
49. Need '0' - '4'.

Implementation errors result from X/TRA use of XES commands:

0. Too many errors occurred.
26. Command is unsupported.
28. Too many horizontal tabs.
29. Too many vertical tabs.
38. Parameter not supported.
51. Font name must end in 'P' or 'L' to rotate.
52. Rotated font already exists.

PDL mode stack full, can not SAVE.
PDL mode stack empty, can not RESTORE.

Superficial errors will not affect printed output:

9. Scripting already inactive.
10. Bolding already active.
11. Bolding already inactive.
12. Underscoring already active.
13. Underscoring already inactive.
14. Subscripting already active.
15. Subscripting when superscripting.
16. Superscripting when subscripting.
17. Superscripting already active.
18. Centering already active.
19. Centering when justifying.
20. Justifying when centering.
21. Justifying already inactive.
22. Justifying already active.
23. Justifying when force justifying.
24. Force justifying when justifying.
25. Force justifying already active.
29. Overstriking already inactive.
34. Form already active.
35. Form already inactive.

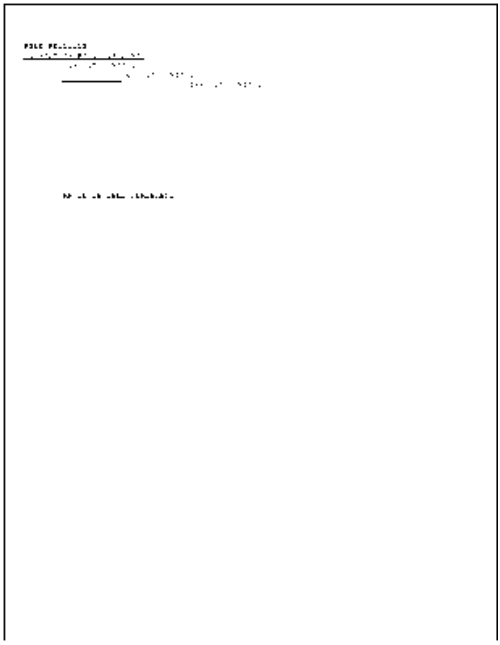
Hex Dump (Data Monitor Mode)

The user may print in Hex Dump mode at any time by setting the X/TRA to Mode H using the Mode Selector button on the X/TRA top panel. Then send the job to be printed in Hex Dump mode. This is useful for diagnosing problems with jobs that do not print properly.

The following is a test page that will be used as a sample print job to illustrate the function of Hex Dump mode. The comments are included only to describe the print job; they are not part of the job itself:

=UDK=!	User-Defined Key is an exclamation point (!)
!1Titaniso-P	Font ID Assignment of 1 to Titan10iso-P
!1	Font Change to Font ID Assignment 1 (Titan10iso-P)
!zf	Units — 1/300
!zk100	Margin Left to 100/300
!bBOLD PRINTING!p	Bold Start; Print “BOLD PRINTING”; Bold Stop
!uUNDERSCORE PRINTING START!w	Underscore Start; Print “UNDERSCORE PRINTING START”; Underscore Stop
!zk300	Margin Left to 300/300
ONE INCH MARGIN	Print “ONE INCH MARGIN”
!zk600	Margin Left to 600/300
TWO INCH MARGIN	Print “TWO INCH MARGIN”
!zk900	Margin Left to 900/300
THREE INCH MARGIN	Print “THREE INCH MARGIN”
!a300,1000	Text Placement Absolute to 300/300 x 1000/300
ABSOLUTE TEXT PLACEMENT	Print “ABSOLUTE TEXT PLACEMENT”
!x300,400,300,5,15	Line Draw X from 300/300 x 400/300, length 300/300, width 5/300, solid black
!a300,200	Text Placement Absolute to 300/300 x 200/300

If printed, this would result in a page as follows:



A Hex Dump of the data stream would print the following. Note that Hex Dumps always print in landscape mode:

```
    0  3D 55 44 4B 3D 21 0D 0A 21 2B  31 54 69 74 61 6E 31 30 69 73  = U D K = ! CR LF ! + 1 T i t a n 1 0 i s
       6F 2D 50 0D 0A 21 31 0D 0A 21  7A 66 0D 0A 21 7A 6B 31 30 30   o - P CR LF ! 1 CR LF ! z f CR LF ! z k 1 0 0
       0D 0A 21 62 42 4F 4C 44 20 50  52 49 4E 54 49 4E 47 21 70 0D  CR LF ! b B O L D   P R I N T I N G ! p CR
       0A 21 75 55 4E 44 45 52 53 43  4F 52 45 20 52 49 4E 54 49     LF ! u U N D E R S C O R E   P R I N T I
       4E 47 20 53 54 41 52 54 21 77  0D 0A 21 7A 6B 33 30 30 0D 0A  N G   S T A R T ! w CR LF ! z k 3 0 0 CR LF

  100  4F 4E 45 20 49 4E 43 48 20 4D  41 52 47 49 4E 0D 0A 21 7A 6B     O N E   I N C H   M A R G I N CR LF ! z k
       36 30 30 0D 0A 54 57 4F 20 49  4E 43 48 20 4D 41 52 47 49 4E   6 0 0 CR LF T W O   I N C H   M A R G I N
       0D 0A 21 7A 6B 39 30 30 0D 0A  54 48 52 45 45 20 49 4E 43 48  CR LF ! z k 9 0 0 CR LF T H R E E   I N C H
       20 4D 41 52 47 49 4E 0D 0A 21  61 33 30 30 2C 31 30 30 30 0D    M A R G I N CR LF ! a 3 0 0 , 1 0 0 0 CR
       0A 41 42 53 4F 4C 55 54 45 20  54 45 58 54 20 50 4C 41 43 45  LF A B S O L U T E   T E X T   P L A C E

  200  4D 45 4E 54 0D 0A 21 78 33 30  30 2C 34 30 30 2C 33 30 30 2C  M E N T CR LF ! x 3 0 0 , 4 0 0 , 3 0 0 ,
       35 2C 31 35 0D 0A 21 61 33 30  30 2C 32 30 30 0D 0A 0D 0A 0D  5 , 1 5 CR LF ! a 3 0 0 , 2 0 0 CR LF CR LF CR
       0A                                                            LF
                                                                                                        P-001
```

Font Selection

The following fonts are simulated by the X/TRA, shown with the PCL5 font most likely to be substituted:

- ▲ Titan10iso-(P or L) Courier — 10 pitch, 12 point
- ▲ Titan12iso-(P or L) Courier — 12 pitch, 10 point
- ▲ XCP14iso-(P or L) Lineprinter — 16.67 pitch, 8.5 point

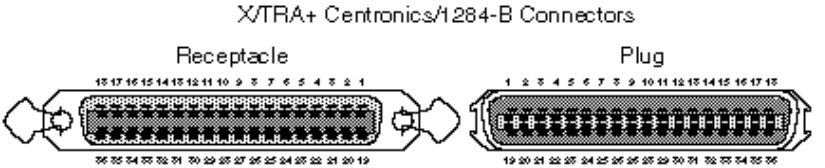
The actual font selected may differ. Fonts are determined by PCL5 printers based upon a description of the font characteristics, each of which is given a priority. The following chart lists those characteristics in order of priority, and it displays the value that the X/TRA requests in response to the selection of each of the Xerox native fonts:

	Titan10iso-[P|L]	Titan12iso-[P|L]	XCP14iso-[P|L]
Symbol Set	Roman-8	Roman-8	Roman-8
Spacing	Fixed	Fixed	Fixed
Pitch	10	12	16.67
Height	12 points	10 points	8.5 points
Style	Upright	Upright	Upright
Stroke	Medium	Medium	Medium
Typeface	Courier	Courier	Lineprinter

Note: If XCP14iso-[P|L] *is selected by the user, the font selected at the PCL5 printer (16.67 pitch at 8.5 points) will be scaled to 14 pitch at 8.5 points. The result will be a font with the same characteristics as* XCP14iso-[P|L].

X/TRA Pin-Outs

The following chart shows the pin-outs of the X/TRA's Centronics/1284-B connectors:



Pin #	Signal
1	- Strobe
2	Data 1 (Least Significant Bit)
3	Data 2
4	Data 3
5	Data 4
6	Data 5
7	Data 6
8	Data 7
9	Data 8 (Most Significant Bit)
10	- Acknowledge
11	Busy
12	Printer Error
13	Select
14	- Auto Feed
15	Not Connected
16	Logic Ground
17	Chassis Ground
18	Peripheral Logic High
19	Signal Ground (-Strobe)
20	Signal Ground (Data 1)
21	Signal Ground (Data 2)
22	Signal Ground (Data 3)
23	Signal Ground (Data 4)
24	Signal Ground (Data 5)
25	Signal Ground (Data 6)
26	Signal Ground (Data 7)
27	Signal Ground (Data 8)
28	Signal Ground (Printer Error, Select, - Acknowledge)
29	Signal Ground (Busy, -Fault)
30	Signal Ground (- Auto Feed, - Select In, - Init)
31	- Init
32	- Fault
33	Not Connected
34	Not Connected
35	Not Connected
36	- Select In

Character Set Tables

The first table is the ISO character set table. If the user selects the ISO character set instead of ASCII, and if an ISO font is either stored in the printer or downloaded to the X/TRA, this is the character set that will be printed.

The remainder of the tables are the national variations of the ASCII character set.

ISO

LS		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
MS		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
00	0	NUL	SOH	STX	ETX	EOT	ENQ	ACK	BEL	BS	HT	LF	VT	FF	CR	SO	SI
16	1	DLE	DC1	DC2	DC3	DC4	NAK	SYN	ETB	CAN	EM	SUB	ESC	FS	GS	RS	US
32	2	SP	!	"	#	¤	%	&	'	(	)	*	+	,	-	.	/
48	3	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
64	4	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
80	5	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
96	6	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
112	7	p	q	r	s	t	u	v	w	x	y	z	{	|	}	~	◘
128	8	◘	`	´	^	~	-	ˇ	˙	¨	◘	°	¸	‗	″	˛	ˇ
144	9	◘	◘	◘	◘	◘	¥	`	◘	¬	¦	◘	◘	◘	◘	◘	◘
160	A	◘	¡	¢	£	$	¥	#	§	¤	'	"	«	←	↑	→	↓
176	B	°	±	2	3	×	µ	¶	·	÷	'	"	»	1/4	1/2	3/4	¿
192	C	◘	`	´	^	~	-	ˇ	˙	¨	◘	°	¸	‗	″	˛	ˇ
208	D	-	1	®	©	™	♪	◘	◘	◘	◘	◘	◘	1/8	3/8	5/8	7/8
224	E	Ω	Æ	Đ	ª	Ħ	◘	IJ	Ŀ	Ł	Ø	Œ	º	Þ	Ŧ	ŋ	ŉ
240	F	ĸ	æ	đ	ð	ħ	1	ij	ŀ	ł	ø	œ	ß	þ	ŧ	ŋ	◘

U.S. English

LS		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
MS		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
00	0	NUL	SOH	STX	ETX	EOT	ENQ	ACK	BEL	BS	HT	LF	VT	FF	CR	SO	SI
16	1	DLE	DC1	DC2	DC3	DC4	NAK	SYN	ETB	CAN	EM	SUB	ESC	FS	GS	RS	US
32	2	SP	!	"	#	$	%	&	'	(	)	*	+	,	-	.	/
48	3	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
64	4	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
80	5	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
96	6	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
112	7	p	q	r	s	t	u	v	w	x	y	z	{	|	}	~	◘
128	8	◘	`	´	^	~	-	ˇ	'	¨	◘	°	¸	_	˝	˛	ˇ
144	9	◘	◘	◘	◘	◘	¥	`	◘	¬	¦	◘	◘	◘	◘	◘	◘
160	A	◘	¡	¢	£	$	¥	#	§	¤	'	"	«	←	↑	→	↓
176	B	°	±	2	3	×	µ	¶	·	÷	'	"	»	1/4	1/2	3/4	¿
192	C	◘	`	´	^	~	-	ˇ	'	¨	◘	°	¸	_	˝	˛	ˇ
208	D	-	1	®	©	™	♪	◘	◘	◘	◘	◘	◘	1/8	3/8	5/8	7/8
224	E	Ω	Æ	Đ	ª	Ħ	◘	IJ	Ŀ	Ł	Ø	Œ	º	Þ	Ŧ	ŋ	ŉ
240	F	ĸ	æ	đ	ð	ħ	1	ij	ŀ	ł	ø	œ	ß	þ	ŧ	ŋ	◘

U.K. English

LS		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
MS		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
00	0	**NUL**	**SOH**	**STX**	**ETX**	**EOT**	**ENQ**	**ACK**	**BEL**	**BS**	**HT**	**LF**	**VT**	**FF**	**CR**	SO	SI
16	1	**DLE**	**DC1**	DC2	**DC3**	DC4	**NAK**	**SYN**	**ETB**	CAN	EM	SUB	**ESC**	**FS**	**GS**	**RS**	**US**
32	2	SP	!	"	£	$	%	&	'	(	)	*	+	,	-	.	/
48	3	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
64	4	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
80	5	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
96	6	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
112	7	p	q	r	s	t	u	v	w	x	y	z	{	|	}	~	
128	8	◘	`	´	^	~	-	ˇ	˙	¨	◘	°	¸	_	˝	˛	ˇ
144	9	◘	◘	◘	◘	◘	¥	`	◘	¬	¦	◘	◘	◘	◘	◘	◘
160	A	◘	¡	¢	£	$	¥	#	§	¤	'	"	«	←	↑	→	↓
176	B	°	±	2	3	×	µ	¶	·	÷	'	"	»	¼	½	¾	¿
192	C	◘	`	´	^	~	-	ˇ	˙	¨	◘	°	¸	_	˝	˛	ˇ
208	D	-	1	®	©	™	♪	◘	◘	◘	◘	◘	◘	⅛	⅜	⅝	⅞
224	E	Ω	Æ	Đ	ª	Ħ	◘	IJ	Ŀ	Ł	Ø	Œ	º	Þ	Ŧ	ŋ	ŉ
240	F	ĸ	æ	đ	ð	ħ	1	ij	ŀ	ł	ø	œ	ß	þ	ŧ	ŋ	◘

French

LS		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
MS		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
00	0	**NUL**	**SOH**	**STX**	**ETX**	**EOT**	**ENQ**	**ACK**	**BEL**	**BS**	**HT**	**LF**	**VT**	**FF**	**CR**	SO	SI
16	1	**DLE**	**DC1**	DC2	**DC3**	DC4	**NAK**	**SYN**	**ETB**	CAN	EM	SUB	**ESC**	**FS**	**GS**	**RS**	**US**
32	2	SP	!	"	£	$	%	&	'	(	)	*	+	,	-	.	/
48	3	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
64	4	à	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
80	5	P	Q	R	S	T	U	V	W	X	Y	Z	°	ç	§	^	_
96	6	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
112	7	p	q	r	s	t	u	v	w	x	y	z	é	ù	è	~	
128	8	◘	`	´	^	~	-	ˇ	'	¨	◘	°	¸	‗	″	˛	ˇ
144	9	◘	◘	◘	◘	◘	¥	`	◘	¬	¦	◘	◘	◘	◘	◘	◘
160	A	◘	¡	¢	£	$	¥	#	§	¤	'	"	«	←	↑	→	↓
176	B	°	±	2	3	×	µ	¶	·	÷	'	"	»	1/4	1/2	3/4	¿
192	C	◘	`	´	^	~	-	ˇ	'	¨	◘	°	¸	‗	″	˛	ˇ
208	D	-	1	®	©	™	♪	◘	◘	◘	◘	◘	◘	1/8	3/8	5/8	7/8
224	E	Ω	Æ	Đ	ª	Ħ	◘	Ĳ	Ŀ	Ł	Ø	Œ	º	Þ	Ŧ	ŋ	ŉ
240	F	ĸ	æ	đ	ð	ħ	¹	ĳ	ŀ	ł	ø	œ	ß	þ	ŧ	ŋ	◘

Dutch

LS		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
MS		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
00	0	**NUL**	**SOH**	**STX**	**ETX**	**EOT**	**ENQ**	**ACK**	**BEL**	**BS**	**HT**	**LF**	**VT**	**FF**	**CR**	SO	SI
16	1	**DLE**	**DC1**	DC2	**DC3**	DC4	**NAK**	**SYN**	**ETB**	CAN	EM	SUB	**ESC**	**FS**	**GS**	**RS**	**US**
32	2	SP	!	"	£	$	%	&	'	(	)	*	+	,	-	.	/
48	3	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
64	4	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
80	5	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
96	6	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
112	7	p	q	r	s	t	u	v	w	x	y	z	{	|	}	~	
128	8	◘	`	´	^	~	-	ˇ	˙	¨	◘	°	¸	_	˝	˛	ˇ
144	9	◘	◘	◘	◘	◘	¥	`	◘	¬	¦	◘	◘	◘	◘	◘	◘
160	A	◘	¡	¢	£	$	¥	#	§	¤	'	"	«	←	↑	→	↓
176	B	°	±	2	3	×	µ	¶	·	÷	'	"	»	1/4	1/2	3/4	¿
192	C	◘	`	´	^	~	-	ˇ	˙	¨	◘	°	¸	_	˝	˛	ˇ
208	D	-	1	®	©	™	♪	◘	◘	◘	◘	◘	◘	1/8	3/8	5/8	7/8
224	E	Ω	Æ	Đ	a	Ħ	◘	IJ	L·	Ł	Ø	Œ	º	Þ	Ŧ	ŋ	ŉ
240	F	ĸ	æ	đ	ð	ħ	1	ij	l·	ł	ø	œ	ß	þ	ŧ	ŋ	◘

Spanish

LS		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
MS		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
00	0	NUL	SOH	STX	ETX	EOT	ENQ	ACK	BEL	BS	HT	LF	VT	FF	CR	SO	SI
16	1	DLE	DC1	DC2	DC3	DC4	NAK	SYN	ETB	CAN	EM	SUB	ESC	FS	GS	RS	US
32	2	SP	!	"	#	$	%	&	'	(	)	*	+	,	-	.	/
48	3	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
64	4	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
80	5	P	Q	R	S	T	U	V	W	X	Y	Z	Ã	Ñ	Õ	Ç	_
96	6	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
112	7	p	q	r	s	t	u	v	w	x	y	z	ã	ñ	õ	ç	
128	8	◘	`	´	^	~	-	ˇ	'	¨	◘	°	¸	_	″	˛	ˇ
144	9	◘	◘	◘	◘	◘	¥	`	◘	¬	¦	◘	◘	◘	◘	◘	◘
160	A	◘	¡	¢	£	$	¥	#	§	¤	'	"	«	←	↑	→	↓
176	B	°	±	2	3	×	µ	¶	·	÷	'	"	»	1/4	1/2	3/4	¿
192	C	◘	`	´	^	~	-	ˇ	'	¨	◘	°	¸	_	″	˛	ˇ
208	D	-	1	®	©	™	♪	◘	◘	◘	◘	◘	◘	1/8	3/8	5/8	7/8
224	E	Ω	Æ	Đ	ª	Ħ	◘	IJ	Ŀ	Ł	Ø	Œ	º	Þ	Ŧ	ŋ	ŉ
240	F	ĸ	æ	đ	ð	ħ	1	ij	ŀ	ł	ø	œ	ß	þ	ŧ	ŋ	◘

Italian

LS		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
MS		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
00	0	**NUL**	**SOH**	**STX**	**ETX**	**EOT**	**ENQ**	**ACK**	**BEL**	**BS**	**HT**	**LF**	**VT**	**FF**	**CR**	SO	SI
16	1	**DLE**	**DC1**	DC2	**DC3**	DC4	**NAK**	**SYN**	**ETB**	CAN	EM	SUB	**ESC**	**FS**	**GS**	**RS**	**US**
32	2	SP	!	"	£	$	%	&	'	(	)	*	+	,	-	.	/
48	3	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
64	4	§	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
80	5	P	Q	R	S	T	U	V	W	X	Y	Z	°	é	|	^	_
96	6	ù	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
112	7	p	q	r	s	t	u	v	w	x	y	z	à	ò	è	ì	
128	8	◘	`	´	^	~	-	ˇ	˙	¨	◘	°	¸	_	˝	˛	ˇ
144	9	◘	◘	◘	◘	◘	¥	ù	◘	¬	¦	◘	◘	◘	◘	◘	◘
160	A	◘	¡	¢	£	$	¥	#	§	¤	'	"	«	←	↑	→	↓
176	B	°	±	2	3	×	µ	¶	·	÷	'	"	»	1/4	1/2	3/4	¿
192	C	◘	`	´	^	~	-	ˇ	˙	¨	◘	°	¸	_	˝	˛	ˇ
208	D	-	1	®	©	™	♪	◘	◘	◘	◘	◘	◘	1/8	3/8	5/8	7/8
224	E	Ω	Æ	Đ	ª	Ħ	◘	IJ	Ŀ	Ł	Ø	Œ	º	Þ	Ŧ	ŋ	ŉ
240	F	ĸ	æ	đ	ð	ħ	1	ij	ŀ	ł	ø	œ	ß	þ	ŧ	ŋ	◘

Danish

LS		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
MS		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
00	0	**NUL**	**SOH**	**STX**	**ETX**	**EOT**	**ENQ**	**ACK**	**BEL**	**BS**	**HT**	**LF**	**VT**	**FF**	**CR**	SO	SI
16	1	**DLE**	**DC1**	DC2	**DC3**	DC4	**NAK**	**SYN**	**ETB**	CAN	EM	SUB	**ESC**	**FS**	**GS**	**RS**	**US**
32	2	SP	!	"	#	¤	%	&	'	(	)	*	+	,	-	.	/
48	3	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
64	4	É	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
80	5	P	Q	R	S	T	U	V	W	X	Y	Z	Æ	Ø	Å	Ü	_
96	6	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
112	7	p	q	r	s	t	u	v	w	x	y	z	æ	ø	å	ü	é
128	8	◘	`	´	^	~	-	ˇ	˙	¨	◘	°	¸	‗	″	˛	ˇ
144	9	◘	◘	◘	◘	◘	¥	`	◘	¬	¦	◘	◘	◘	◘	◘	◘
160	A	◘	¡	¢	£	$	¥	#	§	¤	'	"	«	←	↑	→	↓
176	B	°	±	2	3	×	µ	¶	·	÷	'	"	»	1/4	1/2	3/4	¿
192	C	◘	`	´	^	~	-	ˇ	˙	¨	◘	°	¸	‗	″	˛	ˇ
208	D	-	1	®	©	™	♪	◘	◘	◘	◘	◘	◘	1/8	3/8	5/8	7/8
224	E	Ω	Æ	Đ	ª	Ħ	◘	IJ	Ŀ	Ł	Ø	Œ	º	Þ	Ŧ	ŋ	ŉ
240	F	ĸ	æ	đ	ð	ħ	¹	ij	ŀ	ł	ø	œ	ß	þ	ŧ	ŋ	◘

Norwegian

LS		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
MS		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
00	0	**NUL**	**SOH**	**STX**	**ETX**	**EOT**	**ENQ**	**ACK**	**BEL**	**BS**	**HT**	**LF**	**VT**	**FF**	**CR**	SO	SI
16	1	**DLE**	**DC1**	DC2	**DC3**	DC4	**NAK**	**SYN**	**ETB**	CAN	EM	SUB	**ESC**	**FS**	**GS**	**RS**	**US**
32	2	SP	!	"	#	¤	%	&	'	(	)	*	+	,	-	.	/
48	3	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
64	4	É	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
80	5	P	Q	R	S	T	U	V	W	X	Y	Z	Æ	Ø	Å	Ü	_
96	6	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
112	7	p	q	r	s	t	u	v	w	x	y	z	æ	ø	å	ü	é
128	8	◘	`	´	^	~	-	ˇ	˙	¨	◘	°	¸	_	˝	˛	ˇ
144	9	◘	◘	◘	◘	◘	¥	`	◘	¬	¦	◘	◘	◘	◘	◘	◘
160	A	◘	¡	¢	£	$	¥	#	§	¤	'	"	«	←	↑	→	↓
176	B	°	±	2	3	×	µ	¶	·	÷	'	"	»	¼	½	¾	¿
192	C	◘	`	´	^	~	-	ˇ	˙	¨	◘	°	¸	_	˝	˛	ˇ
208	D	-	1	®	©	™	♪	◘	◘	◘	◘	◘	◘	⅛	⅜	⅝	⅞
224	E	Ω	Æ	Đ	ª	Ħ	◘	Ĳ	Ŀ	Ł	Ø	Œ	º	Þ	Ŧ	ŋ	ŉ
240	F	ĸ	æ	đ	ð	ħ	¹	ij	ŀ	ł	ø	œ	ß	þ	ŧ	ŋ	◘

Finnish

LS		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
MS		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
00	0	**NUL**	**SOH**	**STX**	**ETX**	**EOT**	**ENQ**	**ACK**	**BEL**	**BS**	**HT**	**LF**	**VT**	**FF**	**CR**	SO	SI
16	1	**DLE**	**DC1**	DC2	**DC3**	DC4	**NAK**	**SYN**	**ETB**	CAN	EM	SUB	**ESC**	**FS**	**GS**	**RS**	**US**
32	2	SP	!	"	#	¤	%	&	'	(	)	*	+	,	-	.	/
48	3	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
64	4	É	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
80	5	P	Q	R	S	T	U	V	W	X	Y	Z	Ä	Ö	Å	Ü	_
96	6	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
112	7	p	q	r	s	t	u	v	w	x	y	z	ä	ö	å	ü	é
128	8	◘	`	´	^	~	-	ˇ	'	¨	◘	°	¸	_	″	˛	ˇ
144	9	◘	◘	◘	◘	◘	¥	`	◘	¬	¦	◘	◘	◘	◘	◘	◘
160	A	◘	¡	¢	£	$	¥	#	§	¤	'	"	«	←	↑	→	↓
176	B	°	±	2	3	×	µ	¶	·	÷	'	"	»	1/4	1/2	3/4	¿
192	C	◘	`	´	^	~	-	ˇ	'	¨	◘	°	¸	_	″	˛	ˇ
208	D	-	1	®	©	™	♪	◘	◘	◘	◘	◘	◘	1/8	3/8	5/8	7/8
224	E	Ω	Æ	Đ	ª	Ħ	◘	IJ	Ŀ	Ł	Ø	Œ	º	Þ	Ŧ	ŋ	ŉ
240	F	ĸ	æ	đ	ð	ħ	¹	ij	ŀ	ł	ø	œ	ß	þ	ŧ	ŋ	◘

German

LS		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
MS		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
00	0	**NUL**	**SOH**	**STX**	**ETX**	**EOT**	**ENQ**	**ACK**	**BEL**	**BS**	**HT**	**LF**	**VT**	**FF**	**CR**	SO	SI
16	1	**DLE**	**DC1**	DC2	**DC3**	DC4	**NAK**	**SYN**	**ETB**	CAN	EM	SUB	**ESC**	**FS**	**GS**	**RS**	**US**
32	2	SP	!	"	#	$	%	&	'	(	)	*	+	,	-	.	/
48	3	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
64	4	§	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
80	5	P	Q	R	S	T	U	V	W	X	Y	Z	Ä	Ö	Ü	^	_
96	6	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
112	7	p	q	r	s	t	u	v	w	x	y	z	ä	ö	ü	ß	
128	8	◘	`	´	^	~	-	ˇ	˙	¨	◘	°	¸	_	˝	˛	ˇ
144	9	◘	◘	◘	◘	◘	¥	`	◘	¬	¦	◘	◘	◘	◘	◘	◘
160	A	◘	¡	¢	£	$	¥	#	§	¤	'	"	«	←	↑	→	↓
176	B	°	±	2	3	×	µ	¶	·	÷	'	"	»	1/4	1/2	3/4	¿
192	C	◘	`	´	^	~	-	ˇ	˙	¨	◘	°	¸	_	˝	˛	ˇ
208	D	-	1	®	©	™	♪	◘	◘	◘	◘	◘	◘	1/8	3/8	5/8	7/8
224	E	Ω	Æ	Đ	ª	Ħ	◘	IJ	Ŀ	Ł	Ø	Œ	º	Þ	Ŧ	ŋ	ŉ
240	F	ĸ	æ	đ	ð	ħ	1	ij	ŀ	ł	ø	œ	ß	þ	ŧ	ŋ	◘

Swedish

LS		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
MS		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
00	0	NUL	SOH	STX	ETX	EOT	ENQ	ACK	BEL	BS	HT	LF	VT	FF	CR	SO	SI
16	1	DLE	DC1	DC2	DC3	DC4	NAK	SYN	ETB	CAN	EM	SUB	ESC	FS	GS	RS	US
32	2	SP	!	"	#	¤	%	&	'	(	)	*	+	,	-	.	/
48	3	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
64	4	É	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
80	5	P	Q	R	S	T	U	V	W	X	Y	Z	Ä	Ö	Å	Ü	_
96	6	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
112	7	p	q	r	s	t	u	v	w	x	y	z	ä	ö	å	ü	é
128	8	◘	`	´	^	~	-	ˇ	'	¨	◘	°	¸	_	″	˛	ˇ
144	9	◘	◘	◘	◘	◘	¥	`	◘	¬	¦	◘	◘	◘	◘	◘	◘
160	A	◘	¡	¢	£	$	¥	#	§	¤	'	"	«	←	↑	→	↓
176	B	°	±	2	3	×	µ	¶	·	÷	'	"	»	1/4	1/2	3/4	¿
192	C	◘	`	´	^	~	-	ˇ	'	¨	◘	°	¸	_	″	˛	ˇ
208	D	-	1	®	©	™	♪	◘	◘	◘	◘	◘	◘	1/8	3/8	5/8	7/8
224	E	Ω	Æ	Đ	ª	Ħ	◘	IJ	Ŀ	Ł	Ø	Œ	º	Þ	Ŧ	ŋ	ŉ
240	F	ĸ	æ	đ	ð	ħ	1	ij	ŀ	ł	ø	œ	ß	þ	ŧ	ŋ	◘

French Canadian

LS		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
MS		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
00	0	**NUL**	**SOH**	**STX**	**ETX**	**EOT**	**ENQ**	**ACK**	**BEL**	**BS**	**HT**	**LF**	**VT**	**FF**	**CR**	SO	SI
16	1	**DLE**	**DC1**	DC2	**DC3**	DC4	**NAK**	**SYN**	**ETB**	CAN	EM	SUB	**ESC**	**FS**	**GS**	**RS**	**US**
32	2	SP	!	"	#	$	%	&	'	(	)	*	+	,	-	.	/
48	3	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
64	4	à	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
80	5	P	Q	R	S	T	U	V	W	X	Y	Z	â	ç	ê	î	_
96	6	ô	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
112	7	p	q	r	s	t	u	v	w	x	y	z	é	ù	è	û	◘
128	8	◘	`	´	^	~	-	ˇ	˙	¨	◘	°	¸	_	˝	˛	ˇ
144	9	[	\	]	^	{	¥	ô	^	¬	¦	É	È	Ê	Ë	◘	◘
160	A	◘	¡	¢	£	$	¥	#	§	¤	'	À	«	Â	↑	→	↓
176	B	°	±	2	3	Î	µ	ï	·	÷	'	"	»	1/4	1/2	3/4	Ç
192	C	◘	`	´	^	~	-	ˇ	˙	¨	◘	°	¸	_	˝	˛	ˇ
208	D	-	1	®	©	™	♪	◘	◘	◘	◘	◘	◘	1/8	3/8	5/8	7/8
224	E	Ω	Æ	Đ	a	Ħ	◘	IJ	L·	Ł	Ø	Œ	º	ë	Ô	ŋ	Ù
240	F	ĸ	æ	đ	ð	ħ	1	ij	l·	ł	ø	Û	Ü	ï	ŧ	ü	◘

Latin American

LS		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
MS		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
00	0	**NUL**	**SOH**	**STX**	**ETX**	**EOT**	**ENQ**	**ACK**	**BEL**	**BS**	**HT**	**LF**	**VT**	**FF**	**CR**	SO	SI
16	1	**DLE**	**DC1**	DC2	**DC3**	DC4	**NAK**	**SYN**	**ETB**	CAN	EM	SUB	**ESC**	**FS**	**GS**	**RS**	**US**
32	2	SP	!	"	#	$	%	&	'	(	)	*	+	,	-	.	/
48	3	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
64	4	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
80	5	P	Q	R	S	T	U	V	W	X	Y	Z	¡	Ñ	¿	^	_
96	6	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
112	7	p	q	r	s	t	u	v	w	x	y	z	º	ñ	Ç	~	◘
128	8	◘	`	´	^	~	-	ˇ	˙	¨	◘	°	¸	‗	″	˛	ˇ
144	9	◘	◘	◘	◘	◘	¥	`	◘	¬	¦	◘	◘	◘	◘	◘	◘
160	A	◘	¡	¢	£	$	¥	#	§	¤	'	"	«	←	↑	→	↓
176	B	º	±	2	3	×	µ	¶	·	÷	'	"	»	1/4	1/2	3/4	¿
192	C	◘	`	´	^	~	-	ˇ	˙	¨	◘	°	¸	‗	″	˛	ˇ
208	D	-	1	®	©	™	♪	◘	◘	◘	◘	◘	◘	1/8	3/8	5/8	7/8
224	E	Ω	Æ	Đ	ª	Ħ	◘	IJ	L·	Ł	Ø	Œ	º	Þ	Ŧ	ŋ	ŉ
240	F	ĸ	æ	đ	ð	ħ	1	ij	l·	ł	ø	œ	ß	þ	ŧ	ŋ	◘

XES Command Set

XES	Name	Printers	Status*
=UDK=Esc	The User-Defined Key	All	1
=MCK= EMULATE/*emulation*/END↵	Emulation Change	4045-160, 4030 II, 4213, 4235 1.5, CLPS	1
Esc+P↵	Print Job	All	1
Esc+Q↵	Print Job (Mixed Orientation)	3700, 4213, 4235, CLPS	3
Esc+X↵	Reset	All	1
Esc+C#↵	Print Multiple Copies (Collated)	3700, 4213, 4235, CLPS	4
Esc+E#↵	Print Multiple Copies (Non-Collated)	All	3
Esc c#	Paper Tray	All	1
Esc zyb#	Bypass Slot Paper Size	4213	4
Esc zr#	Output Tray	4235	1
Esc o	Offset	All	1
Esc zyd#↵	Duplex Start	4213, 4235	1
Esc zyf#↵	Duplex Invert Start	4213, 4235	1
Esc zye↵	Duplex Stop	4213, 4235	1
Esc zyi#	Duplex Side Select	4213, 4235	1
Esc+R#↵	Special Paper Enable	4235, CLPS	4
Esc+K#↵	Page Format Select	4235	3
Esc+J#↵	Job Prioritize	4235, CLPS	4
Esc zyc	Time Stamp	4235, CLPS	4
Esc zya *comment*↵	Comment	4235, CLPS	1
Esc+H,*message*↵	Operator Text Message	3700, 4235	4
Esc+F↵	Font Load	All	1
Esc+U↵	Font Unload	4045, 4030 II, 4213	1
Esc+A↵	Font Add	All	1
Esc+B↵ *fontname*↵	Font Delete	All	1
Esc+#*fontname*↵	Font ID Assignment	All	1
Esc#	Font Change	All	1
Esc zg	Units—1/60	All	1
Esc zf	Units—1/300	All	1
Esc m*H,T,B,L,R*↵	Margins	All	1
Esc mH_1,T_1,B_1,L_1,R_1mT_2,B_2,L_2,R_2↵	Margins Double Page	3700, 4235	3
Esc zz#	Plane Prioritize	3700, 4235	4
Esc zn#↵	Margin Top	All	1
Esc zq#↵	Margin Bottom	All	1

Esc zk#↵	Margin Left	All	1
Esc zm#↵	Margin Right	All	1
Esc t#$_1$,#$_2$,...#$_{64}$↵	Tabs Horizontal	All	1
Esc d	Tabs Clear Horizontal	All	1
Esc v#$_1$,#$_2$,...#$_{64}$ ↵	Tabs Vertical	All	1
Esc e	Tabs Clear Vertical	All	1
Esc j	Justification Start	All	1
Esc k	Justification Stop	All	1
Esc zj	Justification Unlimited	3700, 4045-160, 4235, CLPS	1
Esc q	Center	All	1
Esc i#	Line Spacing	All	1
Esc ip#↵	Line Spacing Absolute	All but 4045-150, 4043 II	1
Esc zs#*C*↵	Character Spacing Absolute	4235, CLPS	1
Esc za#$_1$,#$_2$↵ *text*↵	Baseline Placement Absolute	4235, CLPS	4
Esc a#$_1$,#$_2$↵ *text*↵	Text Placement Absolute	All	1
Esc rC_1#C_2	Text Placement Relative	All	1
Esc x*X,Y,L,W,S*↵	Line Draw X	All	1
Esc y*X,Y,L,W,S*↵	Line Draw Y	All	1
Esc zuX_p,Y_1,X_n,Y_n,*T,E,S*↵	Vector Draw	4235, CLPS	3
Esc zi*SCtext*↵	Shading	3700, 4235, CLPS	4
Esc f	Ink Color	CLPS	4
Esc zyh#	Text Highlight	CLPS	4
Esc b	Bold Start	All	1
Esc p	Bold Stop	All	1
Esc u	Underline Start	All	1
Esc w	Underline Stop	All	1
Esc zo*C*	Overstrike Start	All	1
Esc zp	Overstrike Stop	All	1
Esc l	Subscript Start	All	1
Esc h	Superscript Start	All	1
Esc s	Sub/Superscript Stop	All	1
Esc +N*formname*↵	Form Load	3700, 4235	1
Esc +B↵ *formname*↵	Form Delete	3700, 4235	1
Esc +M↵	Merge Page Load	All	1
Esc +V↵	Merge Page Unload	All	1
Esc +#*formname*.FRM↵	Form ID Assignment	3700, 4235, CLPS	1
Esc zb#	Form Merge Start	3700, 4235, CLPS, 4045-150 (w/cartridge)	1
Esc zx*form$_1$,form$_2$,form$_n$*↵	Cycleforms	3700, 4235, CLPS, 4045-150 (w/cartridge)	3

Esc zh#	Form Merge Stop	3700, 4235, CLPS, 4045-150 (w/cartridge)	1
Esc ze	Merge Start	All	1
Esc zd	Merge Stop	All	1
Esc gw*M,I,R,,name/F;X,Y,S_x,S_y* ↵	Graphic Window	All	1
Esc +B ↵ *graphicname*.GRA ↵	Graphic Delete	All	1
Esc gr*M,I,R,,name/F;X,Y,S_x,S_y* ↵	Graphic Window Repeat	All	1
Esc gl*T;X_1,Y_1,X_2,Y_2,X_n,Y_n* ↵	Graphic Line	All (4045-150, 4030 II w/ XGRAPH cartridge)	1
Esc ga*T;X,Y,r,S_1,E_1,S_n,E_n* ↵	Graphic Arc	All (4045-150, 4030 II w/ XGRAPH cartridge)	1
Esc gb*T;X_1,Y_1,X_2,Y_2* ↵	Graphic Box	All (4045-150, 4030 II w/ XGRAPH cartridge)	1
Esc gf*P;X,Y,X_n,Y_n* ↵	Graphic Fill	All (4045-150, 4030 II w/ XGRAPH cartridge)	4
Esc gpT;X,Y,r,%$_1$/F$_1$/O$_1$,%$_n$/F$_n$/O$_n$ ↵	Graphic Pie Chart	All (4045-150, 4030 II w/ XGRAPH cartridge)	1
Esc +T ↵ *datarecord* ↵	Character Reassignment	All	1
Esc zt	Load Translation Table	All	1
Esc zl#	Language	All but 4045-160	1
Esc zc	Complex Print Mode	3700 2.6	4
Esc zv#$_1$,#$_2$,...#$_n$ ↵	VFU Stops Set	Connection-dependent	4
Esc zw	VFU Stops Clear	Connection-dependent	4
Esc *C*	VFU Channel Select	Connection-dependent	4
Esc HT*C_1,C_2...C_{155}* ↵	VFU Tabs Horizontal	Connection-dependent	4
Esc +D	Data Monitor	All	1
Esc +G	Code Print	4213, 4235 1.5	4
BEL (07)	Bell	All	4
BS (08)	Backspace	All	1
HT (09)	Horizontal Tab	All	1
LF (25)	Line Feed	All	1
VT (0B)	Vertical Tab	All	1
FF (0C)	Form Feed	All	1
CR (0D)	Carriage Return	All	1
Esc	Escape	All	1

*Legend

1 = Implemented and testing complete.

2 = In testing phase.

3 = To be done.

4 = Not possible or not applicable in PCL.

Revision 3-8-96