



Security Printing Solutions User's Guide

(TROY MICR / IRD 3015 Security Printing Solutions)

Acknowledgements

Some of the TROY products include cryptographic software written by Eric Young (ey@cryptsoft.com)
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Preface

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Conventions

This User's Guide uses these conventions:

Bold indicates emphasis or a minor heading.

Italic refers to a document title or is used for emphasis.

COURIER type indicates text visible on a computer screen or keys on your computer keyboard.

DISPLAY FONT indicates text visible on the printer control panel display.

The letter λ is used in examples to distinguish the small letter l from the numeral 1 (one).

The character Ø is used in examples to distinguish the letter O from the numeral 0 (zero).

<Esc>, <CR>, <LF>, <FF>, etc. are control characters. Use a text editor to enter the equivalent of the character. For example, to get <Esc> using a DOS text editor, hold down the **Ctrl** key; and press the [(left square bracket) key. Other text editors may vary.

NOTE: **Notes contain important information set off from the text.**

CAUTION: **Caution messages appear before procedures, which, if not observed, could result in loss of data or in damage to equipment.**

WARNING: **Warning messages alert you to a specific procedure or practice, which if not followed correctly, could cause serious personal injury.**

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Introduction

Thank you for purchasing your TROY Security Printing Solution. You have chosen the highest quality MICR (Magnetic Ink Character Recognition) printing solution available today that offers convenience, flexibility, security, and precision for printing high-quality MICR documents.

This User's Guide provides information for setting up and using your TROY Security Printing Solution. The TROY Security Printing Solutions covered in this User's Guide are available in the product configurations described below:

- **TROY MICR Font Memory Card** – designed for use in selected Hewlett-Packard LaserJet printers, the TROY MICR Font Memory Card features an enhanced collection of MICR, OCR (Optical Character Recognition), barcode, and security fonts designed for printing financial documents. None of the operational or security features listed in this guide pertain to this product. This product can be added to a standard Hewlett Packard printer.
- **TROY MICR Secure Memory Card** – designed for use in selected Hewlett-Packard LaserJet printers, the TROY MICR Secure Memory Card features an enhanced collection of MICR, OCR (Optical Character Recognition), security fonts, and barcode fonts. The TROY MICR Secure Memory Card also includes several convenient, easy-to-use operational and security features, including a flash-file system for storage of public printing resources such as company logos, electronic forms, and custom fonts. The TROY MICR Secure Memory Card automatically configures the printer to create the highest quality MICR documents possible and prevents inadvertent printing of duplicate checks.
- **TROY MICR Printer** – a Hewlett-Packard printer pre-configured with the TROY MICR Memory Card, plus TROY's MICR toner sensing system, a TROY MICR toner cartridge, and optional input paper tray locks. This product is designed for printing high-quality MICR documents and utilizes several convenient, easy-to-use operational features, including a flash-file system for storage of printing resources such as company logos, electronic forms, and custom fonts.
- **TROY MICR Secure Printer** – a Hewlett-Packard printer pre-configured with the TROY MICR Secure Memory Card (described above), plus TROY's MICR toner sensing system, a TROY MICR toner cartridge, and optional input paper tray locks. This product is designed for the secure printing of high-quality MICR documents and utilizes several convenient, easy-to-use operational and security features, including a flash-file system for storage of printing resources such as company logos, electronic forms, and custom fonts.

Introduction (cont.)

- **TROY MICR Secure EX Printer** – a Hewlett-Packard printer pre-configured with the TROY MICR Secure Memory Card (described on the previous page), plus TROY’s MICR toner sensing system, a TROY MICR toner cartridge, a printer keylock switch, input paper tray locks, and also includes the TROYmark feature, AutoProtect font, and Secure Seal technology. This top-of-the-line product is designed for the secure printing of high-quality MICR documents and utilizes several convenient, easy-to-use operational and security features, including a flash-file system for storage of printing resources such as company logos, electronic forms, and custom fonts.
- **TROY IRD Printer** – a Hewlett-Packard printer pre-configured with the TROY MICR Memory Card (described on the previous page), plus TROY’s MICR toner sensing system, a TROY MICR toner cartridge, a duplexer, and optional input paper tray locks. This product is designed for printing high-quality IRD MICR documents and utilizes several convenient, easy-to-use operational features, including a flash-file system for storage of printing resources such as company logos, electronic forms, and custom fonts.
- **TROY IRD Secure EX Printer** – a Hewlett-Packard printer pre-configured with the TROY MICR Secure Memory Card (described on the previous page), plus TROY’s MICR toner sensing system, a TROY MICR toner cartridge, a printer keylock switch, input paper tray locks, a duplexer, and also includes the TROYmark feature, AutoProtect font, and Secure Seal technology. This top-of-the-line product is designed for the secure printing of high-quality IRD MICR documents and utilizes several convenient, easy-to-use operational and security features, including a flash-file system for storage of printing resources such as company logos, electronic forms, and custom fonts.

NOTE: This User’s Guide covers all configurations of TROY Security Printing Solutions. Therefore, some of the topics and/or features described in this manual may not be applicable to your specific TROY Security Printing Solution.

How to Use this Manual

Before setting up your new TROY Security Printing Solution, it is recommended that you read the first three sections of this User's Guide to familiarize yourself with the features available of your TROY Security Printing Solution, and to develop an implementation plan for setting up and managing your TROY printing environment.

A RECOMMENDED APPROACH FOR USING THIS MANUAL IS AS FOLLOWS:

- ***Familiarize Yourself with the Features of Your TROY Security Printing Solution:*** Begin by reading the summary of TROY features (listed on the following pages) designated for your TROY Security Printing Solution. These summaries quickly introduce all of the user-selectable features available in each of the TROY Security Printing Solutions. Many of these features can be enabled/disabled or configured to meet the needs of your MICR printing environment. Identify the features specific to your TROY Security Printing Solution and decide which of these features you wish to implement within your MICR printing environment.
- ***Study the Features You Wish to Implement:*** Read Section 2 – *Understanding TROY's Features* for a description of the TROY Security Printing Solutions features you wish to implement.
- ***Develop an Implementation Plan:*** Read Section 3 – *System Planning and Implementation* for suggestions on developing an implementation plan that will allow you to efficiently setup and manage your MICR printing system. Planning your MICR printing system configuration in advance will minimize the setup time and optimize your day-to-day operations.
- ***Roll Out the Implementation Plan:*** Use the procedures in Section 4 – *Using the TROY Printer Utility*, Section 5 – *Using the TROY Port Monitor*, Section 6 – *Using the Printer Control Panel*, and Section 7 – *Using TROY Fonts* to roll out the implementation plan for your TROY Security Printing Solution.

NOTE: If you have any difficulties using your TROY Security Printing Solution, please refer to Section 8 – *Troubleshooting / Error Messages* for more information. If you need additional assistance, please call TROY Technical Support at (800) 332-6427 Monday through Friday, 8:00 AM to 8:00 PM, Eastern Standard Time.

Features Summary

The TROY features listed below allow you to customize the operation of your TROY Security Printing Solution, adding flexibility, convenience, and security. Some of these features may not be available for your specific type of Security Printing Solution. The following table summarizes the TROY product features and availability:

*Product Code

- 1 = TROY MICR / IRD Secure EX Printer
- 2 = TROY MICR Secure Printer / TROY MICR Secure Memory Card Kit
- 3 = TROY MICR / IRD Printer
- 4 = TROY Font Memory Card Kit

Feature	Description	Access	Product
TROY MICR Fonts	Prints the MICR line at the bottom of the check using the ANSI E-13B or the ISO CMC-7 MICR font	(Application)	1, 2, 3, 4
TROY Convenience Fonts	Prints the check amount information in the Legal Amount field of the check for increased readability	(Application)	1, 2, 3, 4
TROY Security Fonts	Prints the legal amount information on the check for security and readability (English and Spanish)	(Application)	1, 2, 3, 4
TROY OCR Fonts	Prints names and address on the check that are to be read by automated optical readers	(Application)	1, 2, 3, 4
TROY Microprint Font	Prints security messages on checks that cannot be reproduced by photocopying	(Application)	1, 2, 3, 4
TROY Barcode and POSTNET Fonts	Prints several types of industry-standard barcodes for a variety of uses, and also includes a POSTNET font for printing the U.S. postal bar code that represents the 9-digit zip code printed below the postal address	(Application)	1, 2, 3, 4
British Pound and Euro Symbols	Used as the British or European currency symbol for the respective country (used in place of U.S. dollar sign). These symbols can be selected to print in the audit reports. The decimal point or comma (default) can be selected.	(Application)	1, 2, 3, 4
TROY AutoProtect™ Font	Provides a visual safeguard to identify checks printed without TROY MICR toner and/or the TROY MICR font	(Application)	1
Secure Seal Technology	Encodes check information (e.g., payee, account #, amount, etc.) into a seal (or logo) printed on the check that can only be read by decoding software	(Application)	1, 2
TROY Invisible Font	Adds text to the check that will not print in the main body of the check or check stub but can be captured for use in the audit report or the TROYmark background image that is printed diagonally on the face of the check	(Application) Printer Utility	1
TROYmark™	Prints a user-defined repeating background diagonally on the check using redundant check information to prevent fraud	Port Monitor	1
User Names and Passwords	Provides user-level security for the secure resources (MICR font, signatures, macros) stored in the printer memory	Port Monitor Printer Utility	1, 2

Features Summary (cont.)

Feature	Description	Access	Product
Control Panel Password	Allows only administrators to access the MICR features from the printer control panel by using a unique password	Control Panel	1, 2, 3
Data Encryption / Decryption	Provides encryption of data sent over a public network to the MICR printer and decryption of the data at the printer	Port Monitor	1, 2
Audit Reports	Records and prints a selectively detailed report of the MICR printing activity by capturing user-selected information from each check during a print job	Printer Utility Control Panel	1, 2
Flash-File System	Uses a non-volatile memory area of the TROY memory card to store signatures/logos, macros, forms, etc.	(Application) Printer Utility	1, 2, 3
Flash Memory Update	Allows administrators to download firmware maintenance or feature updates into to the TROY memory card	Printer Utility	1, 2, 3
Exact Positioning Technology	Allows vertical and horizontal repositioning of the MICR line on the check or repositioning and/or rotation of the entire page	Printer Utility Control Panel	1, 2, 3
Auto-Rotate	Allows 180-degree rotation of your check image so that the MICR line prints on the leading edge of the printed page	Printer Utility Control Panel	1, 2, 3, 4
Paper Tray Re-mapping	Overrides the printer default paper tray assignment with user tray assignment preferences (e.g., paper tray #2 reassigned to be used as paper tray #1)	Printer Utility	1, 2, 3
MICR Toner Cartridge Sensing	Selects either continuous MICR toner cartridge sensing or checks for MICR toner only when a TROY MICR font is used to prevent the printing of MICR documents using non-MICR toner	Printer Utility Control Panel	1, 2, 3 (except Font kit)
3-Position Keylock	Uses a physical key to select the mode of the printer – <i>Printer Locked</i> (no printing), <i>MICR Locked</i> (print non-MICR documents only), <i>Print MICR</i> (MICR fonts/secure resources are available)	Printer	1
Soft-Lock	Allows the administrator to set a 4-digit PIN to prevent users from disabling the <i>Printer Locked</i> mode or the <i>MICR Locked</i> mode	Printer Utility Control Panel	1, 2
Job Lock	Restricts the printing of a specific print job to users having the PIN (personal identification number) associated with the print job	Printer Utility Control Panel	1, 2
Paper Tray Security Cover	Prevents rear access to the check stock stored inside the printer paper trays	Printer	1, (option for #2)
Paper Tray Locks	Allows paper trays to be locked to prevent unauthorized access to check stock stored inside the printer	Printer	1, (option for #2)
Replaceable Escape Character	Allows an alternate ASCII character to be used to represent a particular ASCII escape character used in PCL commands when that escape character cannot be used in Windows	Port Monitor Printer Utility Control Panel	1, 2, 3

Introduction

TROY Security Printing Solutions offer many convenient features for managing and printing high-quality MICR documents in single or multi-user environments. This section provides detailed descriptions of the features built into the TROY Security Printing Solutions. For specific operating procedures and guidelines, refer to the appropriate sections of this guide for using the TROY Printer Utility, TROY Port Monitor, and printer control panel.

TROY *standard* security features ([described on page 2-7](#)) provide the basic functionality built into each TROY Security Printing Solution. These features operate automatically and cannot be defeated or re-configured by the user. TROY *user-selectable* security features ([refer to page 2-12](#)) offer additional configuration flexibility to selected TROY Security Printing Solutions.

NOTE: This section covers all the features of TROY Secure Printing Solutions. Therefore, some of the topics and/or features described may not be applicable to your specific TROY Security Printing Solution. Refer to the features summary in Section 1 of this User's Guide.

Default and Temporary Printer Settings

Each feature of a TROY Security Printing Solution has a default setting within the printer. These default settings determine how each printer feature will function when a print job is sent to the printer. The administrator can change the default settings to meet the needs of a variety of MICR printing environments using the TROY Printer Utility or the printer control panel.

There are also a number of features that can be varied on a print job by print job basis. Using data encryption and default paper tray mappings are examples of job-specific features. After each print job completes, all feature settings return to their default values. Use the TROY Port Monitor to select job-specific features. Refer to Section 5 – [Using the TROY Port Monitor](#) - for more detailed information.

Printer Security States

To help maintain a secure MICR printing environment, TROY Security Printing Solutions have security features that, in combination, create security states. The interdependency of these security states ensures the integrity of the MICR printing security features, which can be enabled and/or configured to meet your specific security requirements. These features can be accessed through the TROY Printer Utility or the printer control panel. It is important that the administrator create a unique administrator password to safeguard the security settings by preventing unauthorized access to the TROY Printer Utility and the printer control panel.

The MICR functions built into the TROY Security Printing Solutions operate under a pre-defined set of security states. When a MICR print job is sent to the printer, the TROY printer firmware monitors up to four security states to determine if the pre-defined set of conditions is correct to allow the MICR job to print.

These four security states, monitored sequentially, are as follows:

- ***MICR mode*** – MICR mode enabled or disabled (software-based feature)
- ***Login status*** – Valid user name and password entered (optional)
- ***Keylock switch position and/or Softlock setting*** – MICR Locked, Printer Locked, or Print MICR modes
- ***MICR toner cartridge sensing*** – TROY MICR toner cartridge installed in printer

NOTE: The printer keylock switch is present on TROY MICR / IRD Secure EX printers only. MICR toner cartridge sensing is present on all TROY printer models. The Softlock feature is present on TROY MICR Secure, MICR / IRD Secure EX printers, and MICR Secure Memory Card Kits only.

MICR Mode

TROY Security Printing Solutions can be set to a default MICR mode of either ENABLED or DISABLED to suit the security requirements of your MICR printing environment. MICR mode must be enabled to allow the printing of MICR checks and documents. The following table describes the operational characteristics of the MICR mode enabled and disabled states. Refer to [page 2-7](#) in this section for detailed information.

MICR Mode	Operational Characteristics
MICR ENABLED	A TROY MICR font call will cause the user login, printer keylock switch, Softlock, and MICR toner cartridge statuses to be checked for MICR printing availability. If the correct conditions exist (authorized user login, keylock switch set to appropriate setting, Softlock PIN validated, and a MICR toner cartridge installed), the MICR print job will proceed normally. Sending a MICR DISABLE command will change the MICR ENABLED mode to MICR DISABLED.
MICR DISABLED	A TROY MICR font call will cause an alternate font to be automatically substituted using the same font data. The current status of the printer keylock switch, Softlock, or presence of a MICR toner cartridge will not affect the MICR printing availability. MICR cannot be printed with MICR mode DISABLED. Sending a MICR ENABLE command will change the MICR DISABLED mode to MICR ENABLED.

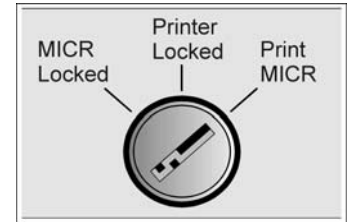
NOTE: The printer keylock switch is present on TROY MICR / IRD Secure EX printers only. MICR toner cartridge sensing is present on all TROY printer models. The Softlock feature is present on TROY MICR Secure, MICR / IRD Secure EX printers, and MICR Secure Memory Card Kits only.

User Login Status

If the administrator has implemented user names and passwords, a valid user name and password must be provided in the TROY Printer Utility or entered at the printer control panel before any of the printer's secure resources can be accessed or a MICR print job can be printed. Refer to [page 2-13](#) in this section for detailed information.

Keylock Switch

The 3-position printer keylock switch allows the printer's secure resources to be locked out (allowing only non-MICR documents to print), or the printer can be completely disabled (no documents can be printed). The printer keylock switch overrides all MICR mode settings selected in either the TROY Printer Utility or the TROY Port Monitor. Refer to [page 2-24](#) in this section for detailed information.



Softlock Settings

The Softlock feature prevents unauthorized printing of documents (selectable to lock out either MICR, non-MICR, or all documents) by requiring that a valid 4-digit PIN (Personal Identification Number) be entered at the printer control panel before a job will print. On TROY MICR Secure *EX* printers, the Softlock feature works in conjunction with the physical 3-position printer keylock switch, adding an additional layer of security and providing an alternate method for controlling access to print jobs. Refer to [page 4-10](#) for detailed information.

MICR Toner Cartridge Sensing

To prevent the printing of MICR documents with standard (non-MICR) toner, all TROY printers are designed to detect the presence of a TROY MICR toner cartridge installed inside the printer. A MICR toner cartridge must be installed in the printer before printing MICR documents. Banks will reject all checks not printed with MICR toner and you may be charged a manual processing fee for each rejected (machine-unreadable) check. Refer to [page 2-9](#) in this section for detailed information.

Pre-defined Security States

The following table describes the general pre-defined security states built into TROY Security Printing Solutions.

Φ TROY MICR / IRD Secure EX Printers Only

Security Printing Solutions Feature	Required Security State (MICR Printers)	Required Security State (MICR Secure Printers)
Print TROY E13-B MICR font Print TROY CMC-7 MICR font	MICR mode enabled MICR toner cartridge installed	MICR mode enabled TROY MICR toner cartridge installed Valid user login Valid PIN entered for Softlock (if enabled) Keylock switch set to <i>Print MICR</i> Φ
Print TROY Convenience Amount fonts	N/A	Valid user login
Access TROY Auxiliary fonts (Data Capture, OCR, AutoProtect™, Messaging, Microprint, Security, etc.)	N/A	Valid user login
Access signatures, fonts, logos, forms, and macros stored in the <u>secure</u> memory area of the printer	N/A	Valid user login
Access signatures, fonts, logos, forms and macros stored in the <u>public</u> memory area of the printer	(No security requirements)	(No security requirements)
Use the TROYmark™ feature for the background image on your checks	N/A	Valid user login Φ
Encrypt MICR print data sent to your MICR printer over a network	N/A	Encryption and decryption passwords must be the same
Add or delete a printer user name and password	N/A	Valid administrator login
Print an audit report	N/A	Valid user login
Use Exact Positioning Technology feature to adjust the MICR line position on your printed checks	Valid administrator login	Valid administrator login

Section 2

Understanding TROY's Features

Pre-defined Security States (cont.)

Use the Auto-Rotate Feature	Valid administrator login	Valid administrator login
Re-map the printer paper trays	Valid administrator login	Valid administrator login
Print a list of the printer's secure resources	Valid administrator login	Valid administrator login
Add or delete secure printer resources in the printer's flash-file system	Valid administrator login	Valid administrator login
Update the printer firmware	Valid administrator login	Valid administrator login
Print the MICR Quality Document	MICR mode enabled MICR toner cartridge installed	MICR mode enabled TROY MICR toner cartridge installed Valid user login Valid PIN entered for Softlock (if enabled) Keylock switch set to Print MICR Φ
Print the Windows Security Font demonstration page	MICR mode enabled MICR toner cartridge installed Valid user login Valid PIN entered for Softlock (if enabled)	MICR mode enabled TROY MICR toner cartridge installed Valid user login Valid PIN entered for Softlock (if enabled) Keylock switch set to Print MICR Φ
Print the PCL MICR demonstration page	MICR mode enabled MICR toner cartridge installed	MICR mode enabled TROY MICR toner cartridge installed Valid user login Keylock switch set to Print MICR Φ
Print the printer configuration page	(No security requirements)	(No security requirements)

Φ TROY MICR / IRD Secure EX Printers Only



Standard Printer Features

In addition to the printing features provided in the Hewlett-Packard LaserJet printers, TROY Security Printing Solutions include additional functionality specifically designed for printing high-quality MICR documents. These standard printer features are included in all TROY Security Printing Solutions and function automatically without user intervention.

MICR Mode Enabled

To print MICR (Magnetic Ink Character Recognition) on financial documents and checks, TROY printers use a special MICR mode. With MICR mode enabled (factory default MICR mode is **MICR Enabled**), specific printer features are automatically set to the required mode for printing MICR documents. In addition, TROY printers will check for the presence of a TROY MICR toner cartridge, the state of the Softlock feature, and the position of the printer keylock switch to determine if the proper security states exist (i.e., TROY MICR toner cartridge installed, valid PIN entered for Softlock feature, printer keylock switch set to **Print MICR**) to allow MICR printing using TROY Security fonts. MICR mode provides the following special features:

- Enables access to the TROY Security fonts.
- Displays **Load MICR TONER** on the printer control panel, and will not print MICR documents if a TROY MICR toner cartridge is not installed when the keylock switch is set to **Print MICR**.
- Disables Jam Recovery feature (does not allow the automatic reprinting of a document after a paper jam).
- Automatically sets the Print Density (lightness/darkness of the printed characters) to the necessary value required for high-quality MICR printing.
- Places the printer off-line after a **LOW MICR TONER** message.
- Maintains full PCL (Printer Control Language) functionality.

NOTE: If MICR mode is not enabled and an attempt is made to use the TROY MICR font, an alternate font will automatically be substituted for the MICR font.

NOTE: The printer keylock switch is present on TROY MICR / IRD Secure EX printers only. The Softlock feature is present on TROY MICR Secure, MICR / IRD Secure EX printers, and MICR Secure Memory Card Kits only.

MICR Mode Disabled

With MICR mode disabled, the printer functions as a normal Hewlett-Packard LaserJet printer in standard PCL (Printer Control Language) mode with all MICR features disabled. In PCL mode, the TROY Security Printing Solutions provide the following features:

- Switches Jam Recovery ON (any page that did not properly exit the printer will be automatically reprinted).
- Enables printing with or without a MICR toner cartridge installed.
- Blocks access to fonts stored in the secure memory area of the TROY flash-file system but continues to allow access to the Convenience Amount fonts.
- The toner low/off-line function will be set to the user default condition.

Jam Recovery Disable

A major security concern is the possibility of printing duplicate MICR documents after a paper jam, without the printer or application software acknowledging the event. With MICR mode disabled, TROY printers will automatically reprint pages being processed by the printer when a paper jam occurs.

With MICR mode enabled, the Jam Recovery function is disabled to prevent the unwanted reprinting of a financial document. When a paper jam occurs, all information being processed will be erased from the printer memory (all image-processed pages that have not reached the output tray will be lost). Up to three pages of data could be lost. When a paper jam occurs, the software application should provide the necessary jam recovery options and reprint any documents lost during the jam.

TROY MICR Toner Cartridge Detection

TROY printers use a MICR toner cartridge detection sensor designed to detect the presence of a TROY MICR toner cartridge installed in the printer. If MICR mode is enabled with the Softlock feature disabled (valid PIN entered) and/or the printer keylock switch set to **Print MICR**, and a TROY MICR toner cartridge is *not* installed when an attempt is made to use a MICR font, the **LOAD MICR TONER** message will display on the printer control panel and the MICR features will be disabled. In order to proceed with MICR printing, you must replace the non-MICR toner cartridge with a TROY MICR toner cartridge, and then press **CONTINUE** to proceed -- or press **CANCEL** to stop the print job.

NOTE: TROY Security Printing Solutions require the use of TROY MICR toner cartridges to print MICR documents. For information on MICR toner, refer to the TROY MICR Basics Handbook, Section 4 - *Selecting Check Paper and MICR Toner*.

NOTE: The printer keylock switch is present on TROY MICR / IRD Secure *EX* printers only. The Softlock feature is present on TROY MICR Secure, MICR / IRD Secure *EX* printers, and MICR Secure Memory Card Kits only.

MICR Toner Low/Off-Line

Printing when toner is low may cause reader/sorter misreading at the bank due to low MICR signal levels. When the printer is switched into MICR mode **ENABLED** and a toner low condition occurs, the printer will go off-line, and a **LOW TONER** message will be displayed on the printer control panel. You should replace the used toner cartridge with a new TROY MICR toner cartridge before you place the printer back on-line.

NOTE: To ensure consistent MICR print quality, always replace the TROY MICR toner cartridge when your TROY printer first displays a **LOW TONER** message.

Automatic Print Density

Each time the printer is switched to MICR mode enabled, the print density is automatically set to a pre-determined value required for MICR printing. If the user changes the density setting to accommodate a non-MICR print job, the density will automatically return to the pre-determined MICR value when the printer is switched back to MICR mode **ENABLED**.

NOTE: You can change the density setting; however, the printer will ignore the setting and use the pre-determined MICR setting when printing MICR documents. TROY does not support any density setting other than the pre-determined MICR density value.

User- Selectable Printer Features

The user-selectable printer features allow you to customize the operation of your TROY Security Printing Solution, adding flexibility, convenience and security. The TROY Printer Utility is designed to assist the administrator with the configuration of the printer's default MICR and security features (refer to Section 4 – *Using the TROY Printer Utility* for detailed information). The TROY Port Monitor is designed to allow authorized users access to the printer's secured resources and to select print job-specific features (refer to Section 5 – *Using the TROY Port Monitor* for detailed information). Before making any changes to the factory default printer settings, the administrator should refer to Section 3 – *System Planning and Implementation* to obtain helpful suggestions for setting up and managing your MICR printing system.

Printer Type and MICR Mode

TROY Security Printing Solutions can be set to one of four pre-defined **Printer Types** to suit the security requirements of your MICR printing environment. MICR mode must be enabled to allow the printing of MICR documents. If a user attempts to print MICR documents with MICR mode disabled, the documents will print; however, an alternate font will be automatically substituted for the MICR font. The **MICR On** setting provides the lowest level of security, while the **MICR Off with Timeout** setting provides the highest level of security for MICR printing.

The **Printer Type** determines the **default MICR mode** (either MICR enabled or MICR disabled) for the MICR printer. The **default MICR mode** is the default state of the TROY Security Printing Solutions printer (either MICR enabled or MICR disabled) when the printer is first powered up and/or when the current MICR print job has finished (depending on the printer type selected). Specific commands written into your check-writing application will automatically enable and disable MICR mode as needed for your MICR printing environment; however, the printer will always automatically reset itself to the pre-defined MICR mode when the printer is first powered up or when the current MICR print job has finished. The table on the next page describes the user-selectable **Printer Types** that can be selected using the TROY Printer Utility.

NOTE: All TROY Security Printing Solutions are shipped from the factory with the default MICR mode set to "MICR Enabled".

Printer Type and MICR Mode (cont.)

Printer Type	Feature Description	Security Level
MICR Off (timeout)	The default MICR mode is DISABLED. At the end of every print job, the MICR mode will automatically be set to disabled.	High
MICR Off	The default MICR mode is DISABLED. When the printer is powered ON, the MICR mode will automatically be set to disabled.	Medium-High
MICR Always	The default MICR mode is ENABLED. When the printer is powered ON, the MICR mode will automatically be set to enabled.	Medium-High
MICR On (factory default)	The default MICR mode is ENABLED. When the printer is powered ON, the MICR mode will automatically be set to enabled.	Medium

NOTE: All TROY Security Printing Solutions are shipped from the factory with the default MICR mode set to "MICR Enabled".

Administrator Name and Password

TROY Security Printing Solutions use an administrator password to secure the printer features and settings. The printer uses a permanent default user name (*ADMIN*) that cannot be deleted or modified; however, the administrator password can be modified using the TROY Printer Utility or the printer control panel. The administrator default password is no password (displayed as zero on the printer control panel and as a blank password field in the TROY Printer Utility); however, administrators are encouraged to setup a unique password to restrict access to the TROY Security Printing Solution's features and settings. After an administrator password is set, all standard Hewlett-Packard printer features normally available through the printer control panel will remain accessible to anyone without entering a password.

NOTE: The administrator's password is stored in the printer's non-volatile flash memory and will remain resident even when the printer power is turned OFF.

NOTE: It is the administrator's responsibility to safeguard all name and password information, including printouts and the electronic name and password lists (UPL files) saved on the administrator's computer.

Although the administrator password can be set via the printer control panel, TROY strongly recommends using the TROY Printer Utility to select or modify the administrator password (see note below). The TROY Printer Utility will automatically update the printer's administrator password whenever the password is changed in the printer utility. However, changing the administrator password at the printer control panel will not update the TROY Printer Utility password (no bi-directional communication). The administrator password stored in the printer and the TROY Printer Utility must be identical in order to access the printer features using the TROY Printer Utility.

NOTE: Initially, the default password for the printer is blank (no password). To maintain printer security, it is strongly recommended that the administrator change the password to prevent unauthorized access to the printer control panel.

NOTE: If you plan to use the TROY Printer Utility exclusively to set or enter the administrator password (recommended), then both letters and numbers may be used for the administrator password.

User Names and Passwords

The user names and passwords feature allows the administrator to set up to 20 user names and passwords (one administrator and 19 users) to prevent unauthorized access of the TROY Security Printing Solution's secure resources and other security features. All names and passwords are stored in the secure memory area of the TROY flash-file system and can be assigned and/or modified by the administrator using the TROY Printer Utility. The administrator can print a list of active user names and passwords using the TROY Printer Utility or printer control panel.

A valid user login is required to access and use the following list of features from the printer control panel. These features are available in selected TROY Security Printing Solutions:

- TROY Security fonts
- TROYmark™
- Resources stored in the secure memory area of the printer's flash-file system
- MICR mode selection
- Paper tray mapping
- Printing and/or deleting audit reports
- Printing sample reports containing MICR characters (Windows Demo and PCL Demo pages)

User names will be automatically recorded in the audit data for each print job initiated by a user. The system default user password is blank (no password) and not entering a user password when assigning a new user will allow that user to access the TROY printer's secure resources without using a password. Attempts to add duplicate users will be ignored. If you choose not to set up any user names and passwords, TROY strongly recommends that administrators set up an administrator password to prevent unauthorized access to the TROY printer features and settings from the TROY Printer Utility, the TROY Port Monitor, or the printer control panel.

Flash-File System

TROY Security Printing Solutions contain a non-volatile flash-file system that can be used to store printing resources (company logos, forms, macros, etc.). TROY MICR Secure printers, MICR Secure *EX* printers, and MICR Secure Memory Card Kits have a flash-file system that is divided into a *secure* and *public* memory area. Digitized signatures, logos, and other proprietary printer resources are typically stored in the *secure* area of the flash-file system to prevent unauthorized access to these resources. If user names and passwords are set up by the administrator, each user must log in to the printer using a valid user name and password to obtain access to these secure resources.

Public resources, such as commonly used company logos, forms, macros, or other non-proprietary printer resources, can be stored in the *public* memory area of the flash-file system for access by all users without requiring valid user login. All TROY Security Printing Solutions (except the Font Memory Card Kit) contain a public flash-file system.

By entering a valid administrator password, the administrator can use the TROY Printer Utility to add or delete these resources from the secure and/or public memory areas of the flash-file system.

NOTE: Resources stored in the printer's flash-file system will remain resident even when the printer power is switched OFF.

NOTE: Only "clean" PCL macros can be saved and executed from the flash-file system. The macro cannot contain any PJL (Printer Job Language) or Esc E (reset) commands. If a macro was created in Windows by printing to a file using a PCL 5e printer driver, then you must open the macro file in a Hex editor and manually remove all PJL and Esc E commands before the macro can be used with the printer. Please refer to the Hewlett-Packard PCL manual for additional information.

TROYmark™

If using OS Win 2008, Vista, Win7 or using App . Net contact Tech support for implementation

To discourage fraudulent alteration of the check, TROY MICR / IRD Secure *EX* printers (available as an option for TROY MICR Secure printers and TROY MICR Secure Memory Card Kits) can produce a background watermark (printed as a diagonally repeating pattern across the face of the check) using user-defined information taken directly from the check data (i.e., convenience amount, payee name, etc.). For example, by capturing the convenience amount or payee name fields of the check, the anti-tampering watermark will be specific to each check, adding to the security of the printed document (see the example on the next page).

The special TROY fonts, used to generate the check information in the background image, must be defined for each available check field in order to capture the desired check data for use in TROYmark™ (refer to Section 4 – *Using the TROY Printer Utility*). Once the TROYmark™ feature is enabled in the TROY Port Monitor (refer to Section 5 – *Using the TROY Port Monitor*), TROYmark™ will remain active for the duration of the print job.

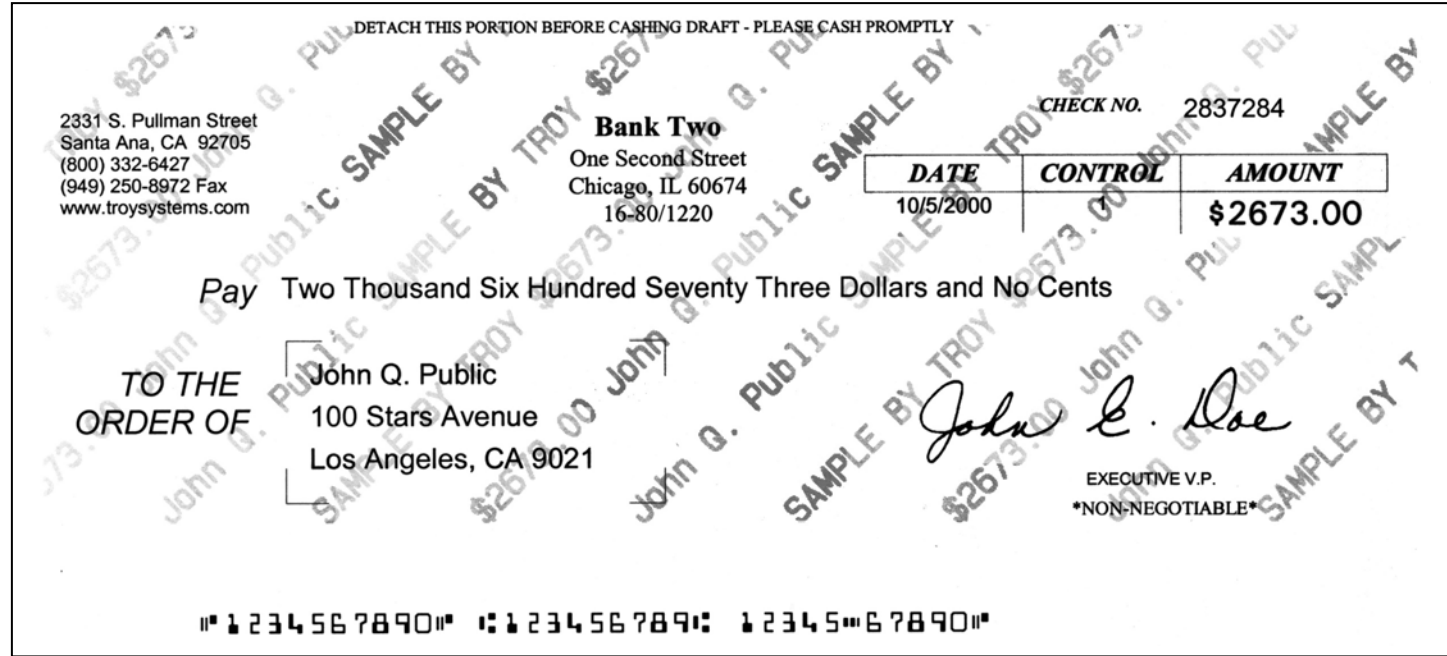
TROYmark™ can be selected to print at one of three pre-set density levels: light (approximately a 7% gray), medium (approximately an 11% gray), and dark (approximately a 15% gray). The administrator can also define three custom gray levels using the TROY Printer Utility. The background density is selected based upon the initial check design to ensure readability of the printed information on the check.

Once the desired check fields are selected for use in the background image, the inclusion and exclusion rectangles must then be defined (see page 5-8 for details). The inclusion rectangle (one area only) will contain the user-defined TROYmark™ image and the exclusion rectangle (up to ten selected exclusion areas) will remain void of any TROYmark™ image to ensure compliance with the ANSI X/9B check specifications. At a minimum, the exclusion rectangle must include an area surrounding the convenience amount. The TROY Messaging font can also be used to define data that can be included in the TROYmark™ image that will not actually appear elsewhere on the check (refer to the Section 7 – *Using TROY Fonts*).

Section 2

Understanding TROY's Features

TROYmark™
(cont.)



(EXAMPLE OF THE TROYMARK™ BACKGROUND IMAGE INCORPORATED INTO A CHECK)

Encryption/ Decryption

TROY MICR Secure printers, MICR / IRD Secure *EX* printers, and the MICR Secure Memory Card Kits provide encryption algorithms to protect MICR documents and other documents containing sensitive or private information. Use this feature to prevent fraudulent interception of your MICR check data being sent over a public network. In particular, electronic data containing MICR fonts or digitized signatures needs to be protected against duplication and fraudulent use.

By selecting one of the three available encryption/decryption algorithms, Triple-DES (DES3), TwoFish, or AES, the user can encrypt the data being sent from the host computer to a TROY printer over a public network. Using the same algorithm used to encrypt the data, the TROY printer will automatically decrypt, format, and then print the incoming electronic data. Anyone attempting to capture the encrypted data being sent to the printer over a public network will be unsuccessful in obtaining any useable information. The encryption feature can be set to one of two modes: *job-by-job* (prints all encrypted and non-encrypted jobs) or *always* (prints only encrypted PCL 5 jobs – non-encrypted PCL 5 jobs will be purged).

Currently, the DES3 168-bit encryption method is widely used by the banking industry; however, the AES 128-bit encryption method was recently approved for use by the American Banking Association. The TwoFish 128-bit encryption method processes data faster than DES3 168-bit encryption method. All three encryption methods offer a similar level of security and use a symmetrical key in which both the sender and receiver of the data use the same key kept secure by the use of internal password phrases (pass-phrases). The same key must be used at the host computer and printer to allow the electronic information to be decrypted by the printer.

The TROY Port Monitor includes these three encryption methods and all three are, likewise, built into all TROY MICR Secure printers, MICR Secure *EX* printers, and MICR Secure Memory Card Kits. No extra software is needed to take advantage of this feature.

NOTE: Do not use encryption when sending data over a direct USB or parallel port connection. Encryption is not necessary for local connections and may slow the printing process.

Audit Reports

Use this feature to record, store, and print a report of the check printing activity sent to your TROY printer. When enabled, the audit report feature automatically records the MICR line information (transit/routing number, bank number and check number) each time the TROY MICR font is accessed (default mode). The print order is also stored for each check. Additionally, the audit report can be programmed to capture the any one or more of the following data from a check:

- Payee name
- Convenience amount
- Check date
- User name (the person logged in while printing the checks)
- Up to three additional custom (user-defined) fields from the check

To capture the user-selected fields from the check for use in the audit report, special PCL commands must be inserted into the PCL 5 data stream (the data sent to the printer) to mark the selected check data for recording in the audit report. These PCL markers are placed in the printer data stream by selecting one of the designated fonts for each desired check field, and then creating a custom PCM file (generated automatically by the PCM file generator included in the TROY Printer Utility), and then installing the PCM file on the host computer (refer to the *TROY Quick-Start Guide*). A maximum of 128 characters can be stored for each audit record in the flash-file system.

Two versions of the audit report can be selected for printing:

- **Recent** – prints only the audit data recorded since the last **Recent** or complete audit report was printed.
- **All** – prints **All** recorded audit data stored in the printer's flash memory.

NOTE: Canceling a **Recent** report before the report finishes printing will cause the audit information marked for this report to be reprinted along with any subsequently recorded data when the next **Recent** audit report is printed.

The Recent or All records of the audit report can be selected to print in one of two formats:

- **Summary Report** – prints only the number of checks printed.
- **Detailed Report** – prints all audit record data and the summary line.

The audit report can be sorted in one of two sort orders using either the MICR line or print order:

- **Ascending** – prints the audit data in ascending order (default).
- **Descending** – prints the audit data in descending order.

Audit Reports (cont.)

The TROY Messaging font can also be used to insert data into the audit record that the user does not want to actually print on the check (refer to Section 7 – *Using TROY Fonts* for detailed information).

NOTE: The printer fonts are resident in the printer's flash-file system. The screen fonts are available on the *TROY Security Printing Solutions CD* supplied with your TROY Security Printing Solution.

The audit report feature can be set to automatically run at the conclusion of each print job containing MICR data using the *Auto-Report* feature. Likewise, the auto-delete feature can be used to automatically delete audit records at the conclusion of printing an automatic or manual report using the *Auto-Delete* feature. Most users do not want audit reports to print on expensive check paper. Therefore, the paper tray-mapping feature can automatically configure audit reports to print using paper from a specified paper tray.

The TROY non-volatile flash-file system can store approximately 10,000 records (one record = one MICR line). The audit data stored in the TROY non-volatile flash-file memory can be deleted via the TROY Printer Utility or the printer control panel. To prevent unauthorized users from changing the audit report format, a valid user name and password is required to access these settings using the TROY Printer Utility or the printer control panel. Audit reports will always print in portrait format.

NOTE: Use the TROY Printer Utility to change the audit report features and settings.

TROY Security Fonts

Your TROY Security Printing Solution includes a collection of high-quality MICR fonts (E13-B, CMC-7) and other security fonts programmed into the TROY firmware (memory card). See Section 7 – *Using TROY Fonts* for more information. The TROY Security font collection includes the following fonts:

TROY Font	Description
E13-B MICR Font	Used to print the MICR line at the bottom of the check (United States and selected other countries)
CMC-7 MICR Font	Used to print the MICR line at the bottom of the check (if your bank of deposit requires this font)
Enhanced Convenience Font	Used to print the convenience amount information on the check (this font is scalable)
Large Convenience Font	Used to print the convenience amount information on the check (this font is non-scalable)
Small Convenience Font	Used to print the convenience amount information on the check (this font is non-scalable)
TROY Reverse Helvetica Font	Used to print names and addresses on the back of transparent envelope windows for use in pressure-seal machines
British Pound and Euro Symbols	Used as the British or European currency symbol for the respective country (replaces the U.S dollar sign). These symbols can be selected to print in the audit reports.
TROY Microprint Font	Used to print security messages on checks that cannot be reproduced by photocopying
TROY Barcode and POSTNET Fonts	Used to print several types of industry-standard barcodes for a variety of uses, and also includes a POSTNET font for printing the U.S. postal bar code that represents the 9-digit zip code printed below the postal address
TROY AutoProtect™ Font	Used to print a user-defined word or phrase (e.g. VOID, NON-NEGOTIABLE) across the face of checks printed on non-TROY MICR printing solutions (this font is scalable)
TROY Security Font	Used to print the amount information on the check (English / Spanish) (this font is scalable)
TROY OCR Font (type A and B)	Used to print any information (names, addresses, amounts) that is to be read by automated readers using optical character recognition (this font is scalable)
TROY Messaging Font	Used to capture the user-defined data for the Enhanced Audit report or the TROYmark™ background image on the check (does not print)
Data Capture Fonts	Used to select specific check data for use in the audit reports or TROYmark™ background image on the check
International Convenience Fonts	Used to print the convenience amount on the check in any one of five languages (available on the TROY Security Printing Solutions CD supplied with your TROY printer)

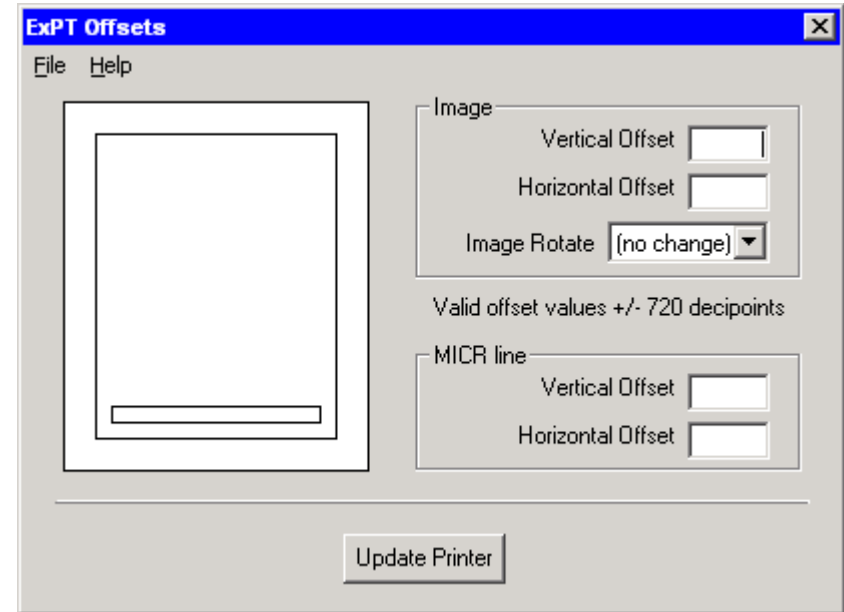
Firmware Update Capability

This feature allows administrators to easily upgrade the TROY Security Printing Solutions firmware (TROY's proprietary program code) as new features become available from TROY. The printer firmware update file is available from the TROY web site or may be supplied by TROY on removable media. After completing a firmware update, your TROY Security Printing Solutions printer must be rebooted (printer power cycled OFF and ON) in order for the update to take effect.

Exact Positioning Technology

The ANSI X/9B specifications for the placement of the MICR line relative to the bottom and right edges of a check document are tightly controlled in order to provide accurate reading by the high-speed banking system check readers. The paper feeding and image placement accuracy between printers (even similar model printers) can vary enough to cause the MICR line to print out of tolerance, according to the ANSI X/9B specification, resulting in rejected checks by the banking system check readers.

If the MICR line on your checks does not meet the ANSI X/9B specification for MICR line placement, use this feature to make small vertical, horizontal, or rotational positioning adjustments to the MICR line and/or page image. Use the TROY MICR document template to verify correct placement of the MICR line on your checks after performing an adjustment (refer to Section 3 – *MICR Quality Control* in the *TROY MICR Basics Handbook* for instructions on using the TROY MICR document template). If adjustments are made simultaneously to the MICR line and the page image positions using positive numbers, then the sum of the two numbers will be used as the offset value for the MICR line.



NOTE: The MICR line adjustments are preset at the factory. TROY recommends that you do not alter these settings unless your bank of deposit notifies you of MICR line positioning errors on your deposited checks.

Auto-Rotate Feature

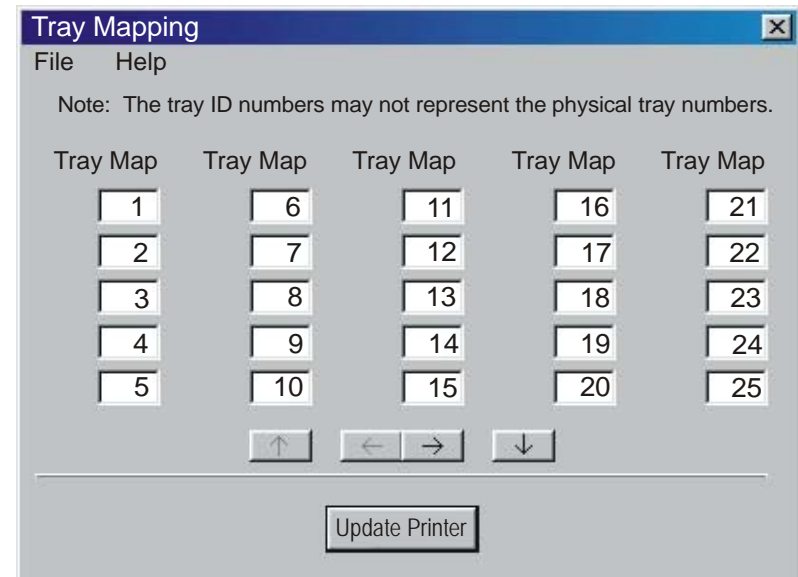
Due to minor variations in registration (the precise alignment of text and images on the printed page) that exists with most printers, it is recommended that the MICR line on your checks be positioned to print on the leading edge of the printed page (the edge of the page that exits the printer first). MICR lines positioned on the trailing edge of the page may be subject to small variations in the vertical placement of the MICR line, which may cause the MICR line position to fall outside of the MICR line specification. If the MICR line is located on the trailing edge of the page, use the Auto-Rotate feature to automatically rotate your check image 180-degrees on the page.

Paper Tray Mapping

Use this feature to enhance MICR printing security by blocking access to printer paper trays containing check paper and divert non-MICR jobs to paper trays containing plain paper. If you have implemented user names and passwords, then only approved users will be able to disable the tray re-mapping and access check paper.

For example, with all of your paper trays re-mapped to pull only from paper tray #1, the check paper stored in paper tray #2 will not be available, regardless of the paper tray selected. You can re-map the printer paper trays using the TROY Printer Utility. The TROY Port Monitor or a PCL command can be used to temporarily ignore (override) the tray re-mapping configuration and use the factory defaults if the user has provided a valid user name and password.

You can also use this feature if you are using an application that has a printer driver designed to communicate with an older laser printer (i.e., HP LaserJet III or earlier). The tray calling sequence for these earlier printers with a dual tray system is reversed from present day standards (i.e., LaserJet III printer tray #1 is called as paper tray #2 on the newer printers). Using tray mapping will enable users to match legacy applications without extensive reprogramming of their software applications.



Replaceable Escape Character

When writing program code in a Windows environment, it is very difficult for an application programmer to insert the ASCII escape character (ASCII character 27) into the PCL data stream. The ASCII escape character is required before each PCL command in the programmer's command string in order to enable the printer features described in this user's guide. Therefore, the replaceable escape character is designed so that the application programmer can choose another ASCII character (any ASCII character from 0 to 255) to represent the ASCII escape character in the PCL data stream. When the PCL data stream is sent to the printer, the MICR printer firmware will automatically replace the alternate ASCII character with the required ASCII character 27 (escape character).

NOTE: This feature is necessary only in rare cases for compatibility with some mainframe systems. Refer to the *TROY Programmer's Reference Guide* for more information on using this feature.

Language Support

TROY Security Printing Solutions can be set to accept all types of print jobs (PCL, PostScript, etc.) or can be limited to PCL 5 print jobs only. If the printer is set to accept PCL 5 print jobs only, then all non-PCL 5 print jobs will be ignored. This feature can be set using the TROY Printer Utility.

Decryption Mode

The decryption feature (TROY MICR Secure printers, MICR Secure *EX* printers, and MICR Secure Memory Card Kits) can be set to one of two modes: *job-by-job* (prints all encrypted and non-encrypted jobs) or *always* (prints only encrypted PCL 5 jobs – non-encrypted PCL 5 jobs will be purged).

Hardware-Based Security Features

Printer Keylock

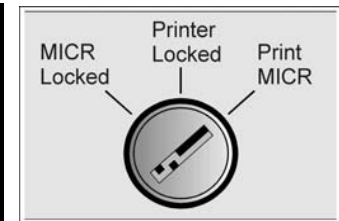
To prevent the fraudulent use of your TROY Security Printing Solutions printer or printer resources, TROY has provided additional hardware-based security features to reduce the risk of unauthorized personnel using your TROY printer or accessing the check stock stored inside the printer paper tray. These features are standard on TROY Secure *EX* printers and are also available as options on TROY Secure printers.

The 3-position printer keylock switch provides controlled access to your TROY MICR Secure *EX* printer. By using the keylock, the printer's secure resources can be locked out (allowing only non-MICR documents to print) or the printer can be completely disabled (no documents can be printed). If a print job is initiated when the keylock is in the **Printer Locked** position, the printer control panel will display the message **PRINTER LOCKED**. The user may unlock the printer (move the keylock to either of the other two positions) after a print job has been sent to the printer and then press the **GO** button to proceed with the print job without any loss of data.

NOTE: The printer keylock switch setting overrides all MICR mode and Softlock settings selected in the TROY Printer Utility or TROY Port Monitor.



Keylock Mode	Functionality
MICR Locked	MICR documents will not print. Non-MICR documents will print normally.
Printer Locked	No documents can be printed. All printer-generated information and test pages are locked out. The printer is completely disabled.
Print MICR	Both MICR and non-MICR documents can be printed. A TROY MICR toner cartridge must be installed to print MICR documents.



NOTE: Your TROY MICR / IRD Secure *EX* printer is shipped with two keys for the printer keylock switch. TROY strongly recommends storing the spare key in a secured location.

Paper Tray Locks

TROY MICR Secure *EX* printers (available as an option on TROY MICR and MICR Secure printers) have a lock installed on each of the paper trays to prevent unauthorized access to the blank check stock stored inside the printer. As a convenience, all the locks are keyed alike on your printer so that one key can be used to unlock any of the paper trays.

NOTE: Your TROY printer is shipped with two keys for each paper tray lock. TROY strongly recommends storing the spare key in a secured location.



Paper Tray Security Cover

TROY MICR Secure *EX* printers (available as an option on TROY MICR and MICR Secure printers) utilize a security cover that is installed onto the rear of the printer to prevent unauthorized access to the blank check stock stored inside the printer paper trays (an example security cover shown in the photo). With the paper trays locked at the front of the printer, the security cover prevents rear access to the paper tray. By unlocking and removing the paper tray from the printer, the paper tray security cover can be easily removed to install the duplexer option.

Introduction

Before setting up and installing your TROY Security Printing Solution, TROY highly recommends that you invest some time to plan the implementation and configuration of your security printing system. Some advance planning will save you time during the setup process and will help to optimize the day-to-day operation of your security printing system. Use the following implementation steps as a guide in developing your specific implementation strategy.

Maintaining MICR Security

In addition to the standard printing features of the Hewlett-Packard LaserJet printers, TROY Security Printing Solutions provide many additional security enhancements. These features prevent unauthorized access to your proprietary printer resources (security fonts, digitized signatures, logos, macros, etc.), settings, passwords, audit data and/or unauthorized printing of your MICR documents. TROY strongly recommends that you take proper precautions to prevent fraud, forgery, and accidental error, both inside and outside your organization. Some basic precautions include the following:

- Controlling access to your printer's security features (keys, network access, PINs, and passwords).
- Reconciling bank statements promptly to detect errors or misuse.
- Employing software-based security measures (user names and passwords).
- Using TROY MICR security paper with a preprinted security background, or using the printer's built-in TROYmark™ feature to automatically print a security background design on your checks, making check duplication or alternation difficult.

NOTE: It is the administrator's responsibility to ensure proper procedures and safeguards are in place to provide the necessary security for your MICR printing environment.

Implementing the TROY Security Printing Solution

Use the following steps to assist you with the planning and implementation of your TROY Security Printing Solution. After you have established an implementation plan, see the *TROY Quick-Start Guide* for information on installing the required TROY MICR printer drivers, security fonts, and software utilities. The MICR printer drivers designed for your printer model are provided on the *TROY Security Printing Solutions* CD supplied in your printer startup package. Use the worksheet provided at the end of this section to record and summarize your implementation plan. Some of these steps may not apply to your TROY Security Printing Solution.

Step 1: Select one person in your organization to be the administrator of the TROY Security Printing Solutions printer(s). The administrator should have the responsibility and authority to manage PINs, passwords, handle secure check paper after printing, and possess some general laser printer experience. The administrator should also be experienced with the Microsoft Windows operating system and be comfortable installing printer drivers and other types of Microsoft Windows software.

Step 2: Identify the signatories for your company checks. Many companies choose to have digital signatures created for each signatory to enhance check-producing efficiency. If you decide to use digitized signatures, it is beneficial to have these proprietary electronic files created before printer installation begins. In addition to digitized signatures, your company logo can also be digitized, adding efficiency and convenience to your MICR printing process. Please contact your TROY printer representative for digitizing information and pricing.

Step 3: Determine how many different check styles will be used (refer to the *TROY MICR Basics Handbook* for information on check design). Your TROY Security Printing Solutions printer does not require pre-printed check paper, saving money by eliminating the costs of ordering and maintaining pre-printed check paper. TROY Security Printing Solutions printers can store digitized signatures, logos, form overlays, fonts and printer macros that can be used to print different types of checks on blank, generic security check paper.

Storing your proprietary check design and signature resources in the printer will also eliminate the need to change the check paper in the printer for different check jobs, help prevent fraudulent use of pre-printed check paper, and increase your overall check-printing efficiency. Please contact your TROY printer representative for more information and pricing on blank security check paper and digitizing services.

NOTE: Information on formatting and printing of image replacement documents (IRDs) is described in the *American National Standard for Financial Services X9.100-140-2004 Specification* and is available on the ANSI (American National Standards Institute) web site (www.ansi.org).

Step 4: Select a high-quality, high-security check paper. Refer to the *TROY MICR Basics Handbook* (provided on the *TROY Security Printing Solutions* CD) for information on check paper specifications before purchasing your check stock, or call your TROY printer representative for more information, suggestions, and pricing.

Implementing the TROY Security Printing Solution (cont.)

Step 5: Determine who in the organization should have access to blank check paper, to printed checks, and to the software that prints checks. To avoid fraud, the number of personnel who have access to these items should be kept to a minimum. The first two individuals on your list should be given the keys to the locking printer trays (if applicable). The latter individuals should be given a key to the printer keylock switch (TROY Secure *EX* series printers only). All key recipients should be advised of their security obligations and responsibilities.

NOTE: If you are installing a TROY MICR printer (not a TROY Security Printing Solution), skip to Step 9.

Step 6: Determine how check data will be sent to the printer, either locally over a direct parallel connection, or over a network connection. If check data is going to be transmitted across public networks (e.g., across the Internet), encryption is strongly recommended (TROY Secure *EX* series printers only) so that print data cannot be “tapped into” and used to commit check fraud. Encryption can also be used on internal networks (intranets) if internal security is a concern. Encryption is not recommended or required for direct (non-networked) connections between a workstation and a TROY Security Printing Solution. If you use encryption, you must select a password (or pass phrase) of up to 128 characters in length for use in the encryption/decryption process.

Step 7: Determine who will have access rights to the TROY printer to print MICR documents. Because selected TROY solutions provide user-level security, your TROY printer can be a shared device for printing both MICR and non-MICR documents. If this level of security is required in a shared environment, the administrator should prepare a list from 1 to 19 user names and passwords (each not to exceed eight characters in length in the range of A-Z and 0-9) and assign PINs for the Softlock and Joblock features (if applicable). All users, with the exception of the administrator, have the same access privileges to secure resources stored in the printer. Therefore, it is advantageous to use multiple user names. User names are also logged automatically in audit data records.

Step 8: Decide if either the TROYmark™ and/or the TROY auditing feature will be used as security measures. If so, the administrator must decide which fonts are to be used to capture the appropriate check data for these features. A special TROY Messaging font can also be used to insert data into TROYmark™ or audit data records using non-check data. Data capture fonts must be printer-resident and unified across all check types. Refer to Section 2 – *Understanding TROY's Features*.

Step 9: Determine the paper tray mapping assignment requirements for your TROY printer. Use this feature to enhance MICR printing security by blocking access to paper trays containing check paper and divert non-MICR jobs to paper trays containing plain paper. If using this feature, determine the paper tray to be mapped for unsecured print requests (the paper tray loaded with standard white paper).

Step 10: Identify the workstation PCs that will be used to print checks. Verify that these PCs are adequately equipped with sufficient memory (RAM) and are running Windows 98SE, NT 4.0, 2000, ME, or XP. Login security should be enabled on each PC.

Planning Worksheet

Print out the following pages, and use this worksheet as a quick reference guide to ensure that you have covered all the available options for implementing your TROY Security Printing Solution.

TROY MICR Secure Implementation Worksheet	
<p>Select a system administrator – manages user names, passwords, and PINs, sets printing system configuration, handles check stock before and after printing, and installs printer drivers and other Windows software as needed.</p> <p>System Administrator _____</p>	
<p>Identify signatories for company checks – consider digitizing the signatures for increased security and printing efficiency. Customer digital images of signatures must be prepared at TROY before your printer installation begins.</p> <p>Signatory _____ Signatory _____</p> <p>Signatory _____ Signatory _____</p>	
<p>Determine the number of check styles needed – if more than two check styles, consider having TROY provide custom digital images of your company logo and check designs to allow use of blank check paper for all check printing jobs.</p> <p>Check Styles Needed: _____</p>	
<p>Select a high-quality security check stock – refer to the TROY MICR Basics Handbook for specifications. Call your TROY representative for more information, suggestions, and pricing on preferred check stock.</p> <p>Check Stock Brand _____ Part Number _____</p>	
<p>Determine who will have access to blank/printed check paper and printing software – distribute printer security keys appropriately in accordance with your internal security guidelines. Store the second set of keys in a secure location.</p> <p>Backup key storage location _____</p> <p>Paper Tray Key Person _____ Printer Keylock Person _____</p>	
<p>Determine how check data will be sent to the TROY printer – if using the Internet or a public intranet, we strongly recommend using encryption (TROY MICR Secure EX printers only) to prevent unauthorized access and/or fraudulent use of the check data sent to the printer.</p> <p>Use Encryption? Yes ___ No ___ Decryption Password _____</p>	

Section 3

System Planning and Implementation

Planning Worksheet (cont.)

Determine who will have access rights to the TROY printer – consider assigning individual user names, and passwords to enhance MICR printing security and to allow audit tracking for each assigned user.

User Name _____	Password _____
User Name _____	Password _____
User Name _____	Password _____
User Name _____	Password _____
User Name _____	Password _____
User Name _____	Password _____
User Name _____	Password _____

Decide if the TROYmark™ and/or the TROY auditing features will be used – if so, the administrator must choose the font styles used for capturing the check data for use in the TROYmark™ background image and/or the audit report.

Check Date Font _____	Payee Name Font _____
Convenience Amount Font _____	Custom1 _____
Custom 2 _____	Custom 3 _____

Determine the paper tray mapping assignment requirements – decide if requests for check paper from any printer paper trays are to be disallowed unless the user provides a valid name and password. If so, determine the paper tray to be mapped for non-compliant print requests (the paper tray containing standard white paper).

Note: The tray ID numbers may not represent the actual physical tray numbers.

Tray	Map	Tray	Map	Tray	Map	Tray	Map	Tray	Map
1	<input type="checkbox"/>	6	<input type="checkbox"/>	11	<input type="checkbox"/>	16	<input type="checkbox"/>	21	<input type="checkbox"/>
2	<input type="checkbox"/>	7	<input type="checkbox"/>	12	<input type="checkbox"/>	17	<input type="checkbox"/>	22	<input type="checkbox"/>
3	<input type="checkbox"/>	8	<input type="checkbox"/>	13	<input type="checkbox"/>	18	<input type="checkbox"/>	23	<input type="checkbox"/>
4	<input type="checkbox"/>	9	<input type="checkbox"/>	14	<input type="checkbox"/>	19	<input type="checkbox"/>	24	<input type="checkbox"/>
5	<input type="checkbox"/>	10	<input type="checkbox"/>	15	<input type="checkbox"/>	20	<input type="checkbox"/>	25	<input type="checkbox"/>



Planning Worksheet (cont.)

NOTE: If you have any questions regarding the implementation or setup of your TROY Security Printing Solution, please call TROY Technical Support at (800) 332-6427, Monday through Friday, 8:00 AM to 8:00 PM, Eastern Standard Time.

Identify the workstation PCs that will be used to print checks – verify that these PCs are running Windows 98SE, NT 4.0, 2000, ME, or XP. Login security should be enabled on each PC.

PC Name _____	Operating System _____	User Name _____
PC Name _____	Operating System _____	User Name _____
PC Name _____	Operating System _____	User Name _____
PC Name _____	Operating System _____	User Name _____
PC Name _____	Operating System _____	User Name _____
PC Name _____	Operating System _____	User Name _____
PC Name _____	Operating System _____	User Name _____

Determine if the Softlock feature will be used – consider assigning PINs to further enhance your printing security. PINs can be up to four digits in length using numbers between 1 and 9999.

Printer PIN _____ (all print jobs will require a valid PIN before the job can be printed)
 MICR PIN _____ (only MICR print jobs will require a valid PIN before the job can be printed)

Use the TROY Printer Utility to assign a PIN and a job name to a specific print job:

Job Name _____	PIN _____
Job Name _____	PIN _____
Job Name _____	PIN _____
Job Name _____	PIN _____

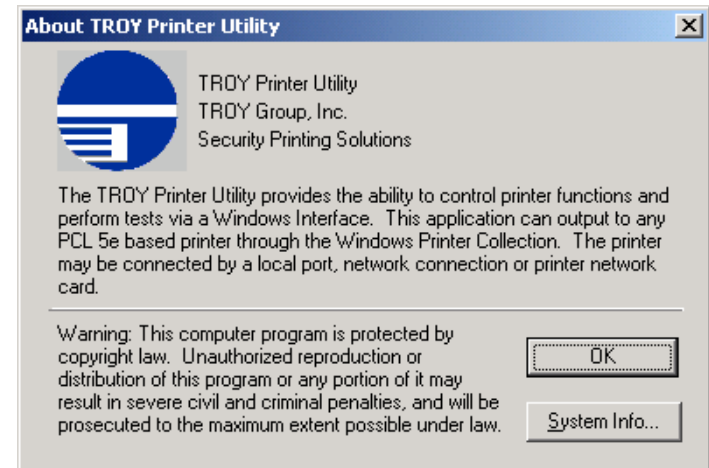
Ensure that all TROY printer installation hardware and software is available – verify that the TROY Security Printing Solutions CD, Hewlett-Packard CDs and manuals, TROY Quick-Start Guide, power/data cables, and this checklist is available for use.

- TROY Security Printing Solutions CD
- TROY Quick-Start Guide
- TROY MICR Toner Cartridge
- TROY MICR Document Template
- Hewlett-Packard CDs
- HP Getting Started Guide
- Printer Power Cable
-

Introduction

The TROY Printer Utility is an easy-to-use Microsoft Windows-based utility designed to assist the administrator with the configuration and management of a TROY Security Printing Solution. The TROY Printer Utility allows the system administrator to perform the following functions:

- Manage audit reports
- Set names, passwords, and PINs
- Set printer security options
- Manage printer resources
- Re-map printer paper trays
- View system information
- Enable/disable printer type
- Check MICR print quality
- Print MICR / PCL demo pages
- Obtain technical assistance
- Access the TROY Web site for printer firmware updates, drivers, and product information.

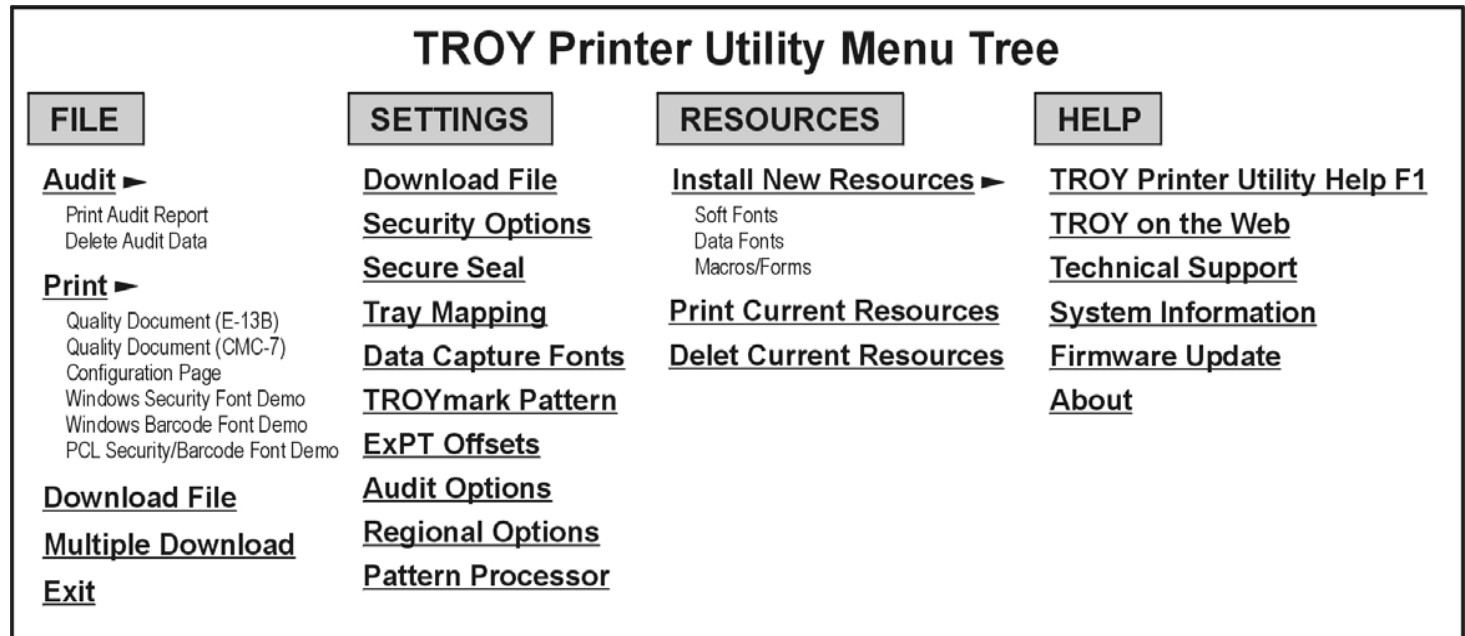


The TROY Printer Utility is intended for use by system administrators and should be installed only on the administrator's computer. All printer settings including names, passwords, and PINs (Personal Identification Numbers) selected with the TROY Printer Utility will remain unchanged until modified by the administrator, even if the printer power is cycled or the printer electronics are reset. For a detailed description of the TROY Security Printing Solutions features, refer to Section 2 – *Understanding TROY's Features*. The TROY Printer Utility is included on the *TROY Security Printing Solutions* CD supplied with your TROY Security Printing Solution. Follow the instructions in the *TROY Quick-Start Guide* to install the TROY Printer Utility.

NOTE: The TROY Printer Utility sets the printer defaults for all users; however, individual users can use the TROY Port Monitor to temporarily override some of the printer default settings on a job-by-job basis.

Menu Structure

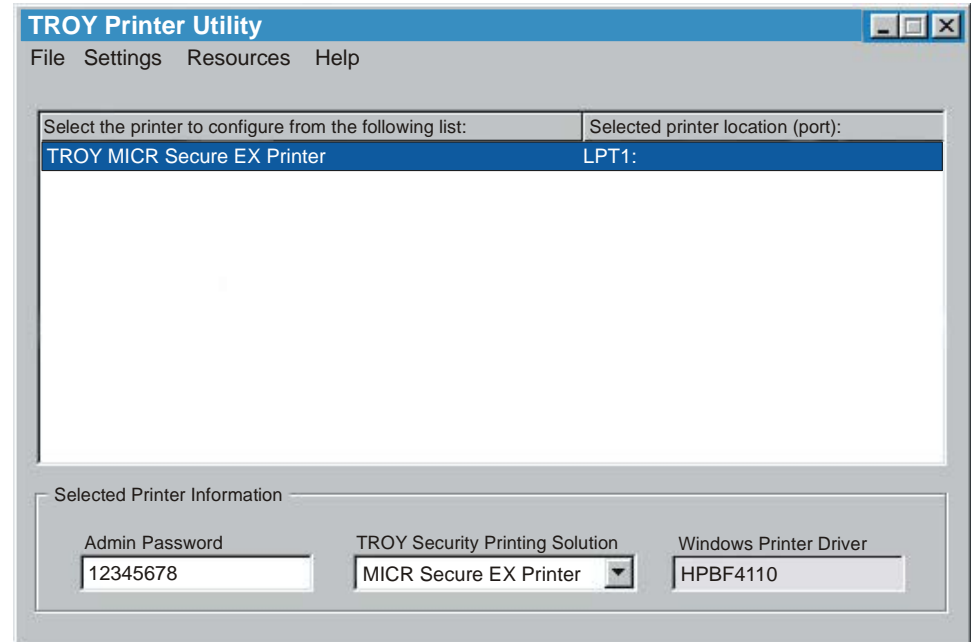
The user-friendly features of the TROY Printer Utility are conveniently grouped under four pull-down menus as shown below. An arrow (>) next to the menu selection indicates that additional selections are available for that menu item. It is suggested that you print out this page for use as a convenient reference when using the TROY Printer Utility.



Basic Printer Utility Operations

TO ACCESS THE TROY PRINTER UTILITY:

1. Click on the Microsoft Windows *Start* button, select *Programs*, *MICR by TROY*, and then click on the *TROY Printer Utility* icon. The Printer Utility main window will appear.
2. Click on the Security Printing Solution you wish to manage.
3. If an administrator password has been previously set up, type in the administrator password in the password box at the bottom of the *Main Window* screen. If an administrator password has not been previously setup, then leave the password box blank.



4. Select the TROY Security Printing Solution. For convenience, this setting is saved when you exit the TROY Printer Utility. This option simplifies the TROY Printer Utility interface by allowing access to features that are only available within your product type.

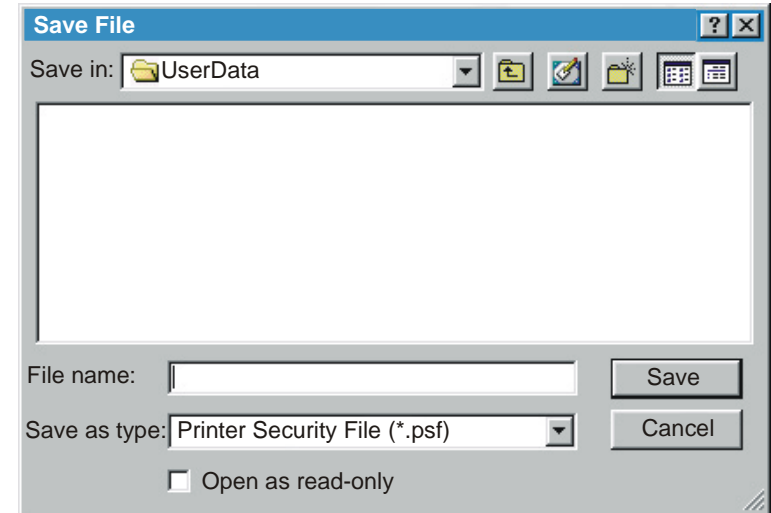
Basic Printer Utility Operations (cont.)

TO SAVE AND RETRIEVE PRINTER UTILITY SETTINGS:

Many of the TROY Printer Utility user-defined settings can be saved in a file for future reference or retrieved from a previously saved file. The features that have the ability to be saved and retrieved will have a pull-down menu within the feature screen of the TROY Printer Utility.

- **Saving Printer Settings** - After configuring a TROY Security Printing Solution feature using the TROY Printer Utility, the program will automatically prompt you to save the configuration file for future use. To save the current feature settings, click on **Yes**, type in a name for the file, and then click on **Save**. The data file will be automatically saved in the default **UserData** folder.
- **Retrieving Printer Settings** – To retrieve a previously saved printer configuration file, access the TROY Printer Utility screen displaying the printer settings you wish to retrieve, click on **File** and **Open** from within that feature screen. Click on the desired configuration file name, and then click on **Open** to automatically retrieve the file for use in the TROY Printer Utility.

NOTE: For increased security, some of the Printer Utility saved files are encrypted; however, it is the administrator's responsibility to safeguard all saved information.



Managing System Security

Your TROY Security Printing Solution provides many convenient features for managing MICR printer security in a single or multi-user environment. The TROY MICR Secure printer, MICR / IRD Secure *EX* printer, and MICR Secure Memory Card Kit offer additional software and hardware-based security features designed to safeguard your proprietary printer resources (digital images of signatures, logos, macros, MICR fonts, etc.), restrict access to check stock stored inside the printer paper trays, and restrict access to the MICR features and settings available from the printer control panel. Refer to Section 1 – *Features Overview* for a list of features applicable to your TROY Security Printing Solution.

The strength and effectiveness of your MICR printing system security will depend largely on the TROY security features you choose to implement. For users of the TROY MICR Secure printer, MICR / IRD Secure *EX* printer, and MICR Secure Memory Card Kit, TROY highly recommends that administrators implement the use of individual user names and passwords, data encryption, PINs (Personal Identification Numbers), paper tray locks, and TROYmark™ (Secure *EX* series printers only) to maximize the security of their MICR printing environment.

Setting the Administrator Password

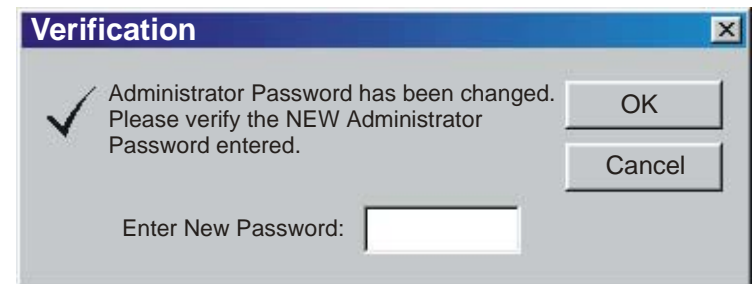
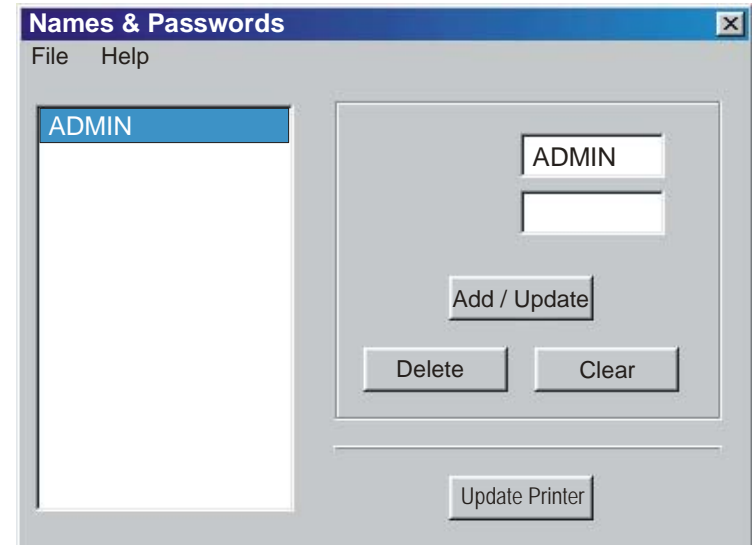
Although the use of an administrator password is not required to operate your TROY Security Printing Solution, TROY highly recommends setting an administrator password to restrict access to the printer settings from either the TROY Printer Utility or the printer control panel. The administrator (*ADMIN*) default password is blank (no password).

Although the administrator password can be set via the printer control panel, TROY strongly recommends using the TROY Printer Utility to set or modify the password. After the password is selected, the TROY Printer Utility will automatically update the password file in the printer's flash-file system.

Setting the Administrator Password (cont.)

TO SET OR MODIFY THE ADMINISTRATOR PASSWORD:

1. From the *Main Window*, click on *Settings*, and then click on *Names and Passwords*.
2. Click on *ADMIN* in the left-hand box and then type in the desired password in the *Password* box. If you are changing an existing administrator password to no password, you must first click inside the *Password* box, but then leave the *Password* box blank. A blank (no password) will be recorded. The *ADMIN* name cannot be modified or deleted.
3. Click on *Add /Update* to add the new administrator password to the list.
4. Click on *Update Printer* to send the new password information to the printer. The system will ask you to verify the new *ADMIN* password by retyping the new password in the *Verification Window*. Type in the new administrator password, and then click on *OK*. A notification screen will appear stating that the password information was sent to the selected printer. Click on *OK* to proceed. *All previous password information in the printer will be overwritten.*



NOTE: TROY Security Printers do not send data back to the Printer Utility. Therefore, if an incorrect administrator password is entered in the main window, none of the password information settings will be accepted by the printer, and the TROY Printer Utility will not provide notification of the error.

Assigning User Names and Passwords

Up to twenty user names and passwords (one administrator and 19 users) can be set up to prevent unauthorized users from accessing the printer's secure resources (digital images of signatures, logos, macros, MICR fonts, etc.) and other MICR features. Although the use of user names and passwords is not required to operate TROY Security Printing Solution, TROY highly recommends using user names and passwords to increase peer-to-peer security, and to maintain a higher level of accountability of the users in your MICR printing network.

The system default password is blank (no password), and not entering a password when assigning a new user will allow that user to access the printer's secure resources without using a password. Attempts to add duplicate users will be ignored. If you choose not to set up user names and passwords, TROY encourages administrators to at least set up an administrator password to prevent unauthorized access to TROY Security Printing Solutions settings from either the TROY Printer Utility or the printer control panel.

After providing a valid user name and password in the TROY Port Monitor, users are allowed to modify the printer configuration settings and access the printer's secure resources for the duration of the print job, regardless of the number of pages being printed. When the print job is finished, the user-defined printer configuration settings will automatically return to the default printer settings, and access to the printer's features and settings will be discontinued for that user. Only one instance of the same user name can have access to the printer features and settings through the TROY Port Monitor. Refer to Section 5 – *Using the TROY Port Monitor* for more information.

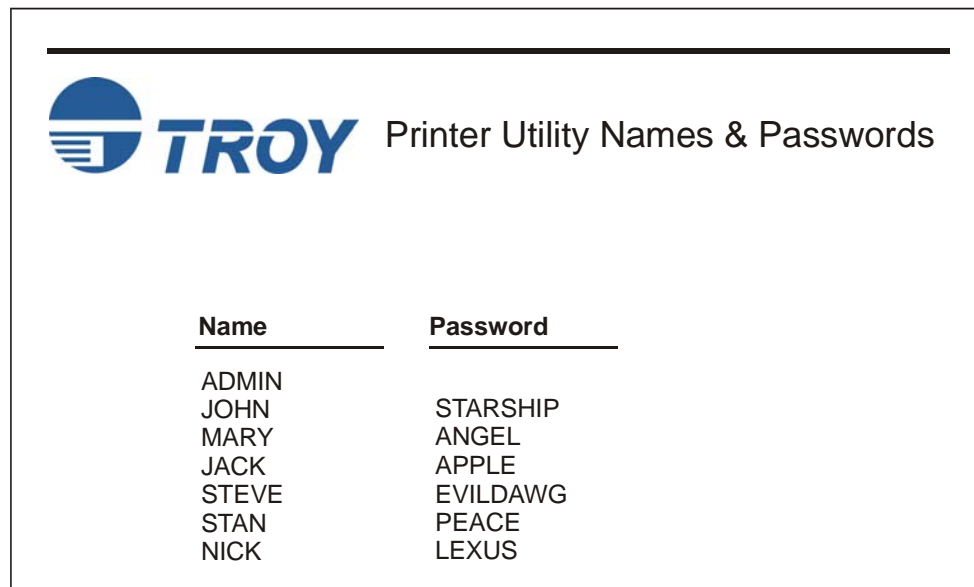
Assigning User Names and Passwords (cont.)

To verify or review all user names and passwords setup by the administrator, the current printer-resident password list can be printed out using the TROY Printer Utility. Print this list to ensure that all users have been entered into the system or to verify that all past users have been deleted from the system. It is the administrator's responsibility to safeguard the information on this list.

TO PRINT THE USER NAME AND PASSWORD LIST:

1. From the *Main Window*, click on *Settings, Names and Passwords*.
2. From the *Names and Passwords* screen, click on *File, Print Names and Passwords – Printer Resident List*. The Printer Resident List will show all user names and passwords entered via the printer control panel and the TROY Printer Utility. Be sure to safely store or destroy the password list after use.

NOTE: Since no bi-directional communication exists between the printer and the Printer Utility, user names and passwords entered via the printer control panel will not show on the Printer Utility List. The Printer Resident List will show all user names and passwords entered via the printer control panel and the Printer Utility. TROY recommends using the TROY Printer Utility for entering user names and passwords.



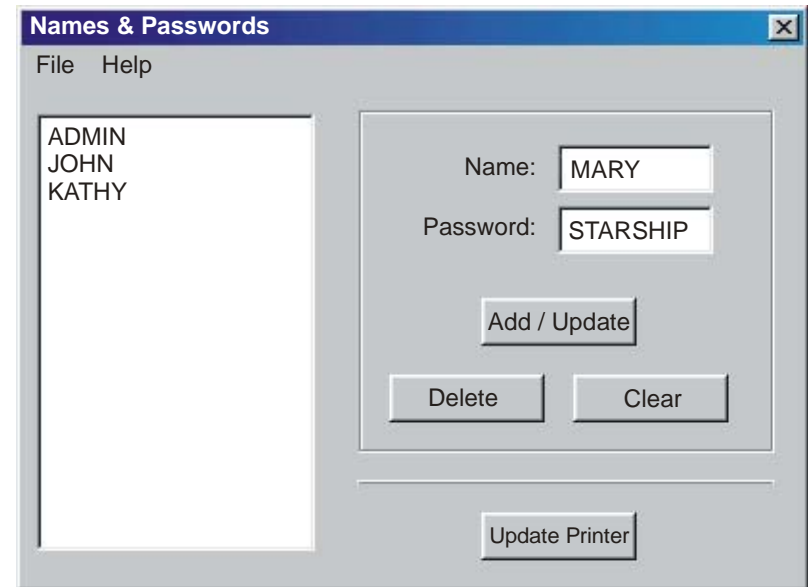
The screenshot shows the TROY Printer Utility interface. At the top left is the TROY logo, followed by the text "Printer Utility Names & Passwords". Below this is a table with two columns: "Name" and "Password". The table contains the following entries:

<u>Name</u>	<u>Password</u>
ADMIN	
JOHN	STARSHIP
MARY	ANGEL
JACK	APPLE
STEVE	EVILDAWG
STAN	PEACE
NICK	LEXUS

Assigning User Names and Passwords (cont.)

TO SET OR MODIFY USER NAMES AND PASSWORDS:

1. From the *Main Window*, click on *Settings*, and then click on *Names and Passwords*. If you have a previous name and password list saved on your computer (*.upl file), click on *File, Open*, click on the password list file name (the default folder is *UserData*), and then click on *Open* to retrieve the file. Print the user name and password list to verify all current users.
2. To add a new user, click inside the *Name* box and type in the desired user name. To assign a password for that user, click inside the *Password* box, and type in the desired password. If a password has not previously been set, you must first click inside the *Password* box, but then leave the *Password* box blank. A blank (no password) will be recorded. To modify or delete a user name or password, click on the user name in the user list box, and then click on *Clear* or *Delete* to remove the user and associated password.
3. Click on *Add /Update* to add the new user and password to the user list box. Repeat this process for each new user you wish to add to the system.
4. Click on *Update Printer* to send the new password information to the printer's flash-file system. A notification screen will appear stating that the password information was sent to the selected printer. Click on *OK* to proceed. *All previous password information in the printer will be overwritten.*



NOTE: TROY Security Printers do not send data back to the Printer Utility. Therefore, if an incorrect administrator password is entered, none of the user password information will be accepted by the printer, and the TROY Printer Utility will not provide notification of the error.

Selecting Security Options

TROY Security Printing Solutions allow convenient enabling or disabling of the built-in security options to suit your MICR printing needs. After entering the current administrator's (*ADMIN*) password in the TROY Printer Utility *Main Window*, the security options specific to your TROY Security Printing Solution can be individually enabled or disabled (refer to the table below for a summary of these features).

In addition, you can also choose an alternate ASCII escape character and enter a decryption password (MICR Secure printers, MICR / IRD Secure *EX* printers, and MICR Secure Memory Card Kits only) using the *Security Options* screen. Do NOT use the alternate escape character unless instructed by your system programmer or TROY Technical Support. The following table summarizes these configurable security options:

OPTION	FUNCTIONALITY
Printer Type	Allows you to select the default MICR mode of the printer (MICR Off, MICR Off with timeout, MICR On, and MICR Always settings). Refer to the table on page 4-12 for a description of each mode.
Tray Mapping	Enabled - uses the tray mapping assignment set in the TROY Printer Utility. Disabled - uses the printer's factory default tray map settings.
Alt. Escape Character	ASCII Number Selected – uses the selected alternate ASCII character as a substitute for the ASCII escape character (ASCII 27). No Change - uses the standard ASCII escape character (ASCII 27) required in all PCL (Page Control Language) commands sent to the printer.
Decryption Mode Φ	Job-by-Job – (default) prints all encrypted and non-encrypted jobs. The decryption feature will be invoked as needed on a job-by-job basis when an encrypted print job is detected. Always – all PCL 5 jobs must be encrypted. Non-encrypted PCL 5 jobs will be purged.
Language Supported	All – (default) printer accepts all types of print jobs (PCL, PostScript, etc.). PCL 5 – printer accepts PCL 5 print jobs only. All non-PCL 5 print jobs will be ignored.
Printer Lock PIN Φ	Enable – Enter a PIN (Personal Identification Number) between 1 – 9999 to restrict all print jobs from printing until the user enters a valid PIN at the printer control panel. Disable – Enter a zero in the PIN field, and then click on Update Printer to save the changes.
MICR Lock PIN Φ	Enable – Enter a PIN (Personal Identification Number) between 1 – 9999 to restrict MICR jobs from printing until the user enters a valid PIN at the printer control panel. Disable – Enter a zero in the PIN field, and then click on Update Printer to save the changes.

Selecting Security Options (cont.)

Toner Sensor Response	<p>Halt – (default) stops all MICR print jobs. The printer control panel will display the message “LOAD MICR TONER or six more continues will cancel job”. No MICR documents will print.</p> <p>Warn – pauses all MICR print jobs. The printer control panel will display the message “Non-MICR Toner, ‘<’ to cancel”. The user must press ‘<’ to cancel or ‘Go’ to continue. If the user cancels the job, a page will print with the message “This MICR job could not be printed because MICR toner was not loaded in the printer – JOB PURGED”.</p> <p>Ignore – allows all MICR jobs to print, regardless if MICR or non-MICR toner is installed in the printer.</p> <p>Flush – purges the MICR print job from the printer memory and prints a page with the message “This MICR job could not be printed because MICR toner was not loaded in the printer – JOB PURGED”.</p>
Alt Command Set	<p>An optional feature that translates the %& command set into standard PCL (Printer Command Language). Do not enable this feature unless instructed to do so by TROY Technical Support.</p>
Decryption Password ☐	<p>To support encryption, a decryption password must be entered that matches the encryption password. If decryption is not going to be used, leave the decryption password field blank.</p>

☐ TROY MICR Secure Printers, MICR / IRD Secure EX Printers, and MICR Secure Memory Card Kits Only

Selecting Security Options (cont.)

TO ENABLE/DISABLE PRINTER SECURITY OPTIONS:

1. From the *Main Window*, click on *Settings*, and then click on *Security Options*.
2. Click on the down-arrow at the right of each selection box to choose the desired security option. If you are planning to use the encryption/decryption feature, you must enter a decryption password (or pass phrase) in order for the printer to decrypt the encrypted data sent from the host computer. The same password must be used in the TROY Port Monitor.

NOTE: To maximize the security of the encrypted data, avoid using common words (i.e., starship, zebra, wallflower, etc.) or common groups of words or phrases (i.e., My dog spot, My favorite printer, The red car was fast, etc.) for the decryption password. TROY recommends using complex or unusual groups of words (i.e., Stars fall never for color blue down out of sky, or Grass greener hillsides bestow graces of charm, etc.) or if using a single password, select a unique set of alternating numbers and letters (i.e., x23y4a2, or 6x2kyzb8a).

3. After security options are set, click on *Update Printer* to send the new settings to the printer. *All previous configuration settings in the printer will be overwritten.* Click on *OK* to proceed.

NOTE: TROY Security Printers do not send data back to the Printer Utility. Therefore, if an incorrect administrator password is entered, none of the security options will be accepted by the printer, and the TROY Printer Utility will not provide notification of the error.

Printer Type	Description
MICR Off	Printer will always default to MICR Off mode, regardless of any previous MICR settings.
MICR Off (timeout)	Printer will switch to MICR Off mode after a set time if no MICR Off command is received.
MICR On	Printer will switch to MICR On mode when a MICR job is received.
MICR Always	Printer will always default to MICR On mode, regardless of any previous MICR settings.

Re-Mapping Printer Paper Trays

Tray mapping can be used to enhance MICR printing security by redirecting software access to printer paper trays containing check stock to a paper tray containing plain paper. If you have implemented user names and passwords, then only approved users will be able to disable the tray re-mapping configuration and access blank check paper.

For example, with all of your paper trays re-mapped to pull only from paper tray #1, the check stock stored in paper tray #2 will not be available for any other software program, regardless of the paper tray selected by the software program. You can also use this feature if you are using an application that has a printer driver designed to communicate with an older laser printer (i.e., HP LaserJet III or earlier). The tray calling sequence for these earlier printers with a dual tray system is reversed from present day standards (i.e., LaserJet III printer tray #1 is called as paper tray #2 on the newer printers). Refer to the next page for common tray map numbers.

TO MODIFY THE PRINTER TRAY MAPPING:

1. From the *Main Window*, click on *Settings*, and then click on *Tray Mapping*.
2. Click in the *Tray Map* box corresponding to each printer paper tray you wish to re-map. After all desired paper tray re-mapping values have been entered, click on *Update Printer* to send the new settings to the printer. Click on *OK* to proceed. *All previous paper tray map settings in the printer will be overwritten.*
3. From the printer control panel, select *Configure Device, Printing*, and then scroll down to the *PCL* option.
4. Under the *PCL* option, scroll down to *Media Source Mapping* and select *Classic*.

Tray Map	Tray Map	Tray Map	Tray Map	Tray Map
1	6	11	16	21
2	7	12	17	22
3	8	13	18	23
4	9	14	19	24
5	10	15	20	25

NOTE: The tray map settings will only take effect if this option is enabled in the *Security Options* screen in the TROY Printer Utility and if the printer's media source option is set to *Classic*. If this option is disabled in the *Security Options* screen, the factory default tray map settings will be active. The tray ID numbers shown in the *Tray Mapping* screen may not represent the actual tray numbers of your printer. Refer to the Hewlett-Packard Printer User's Guide for the default paper tray-mapping configuration.

Re-Mapping Printer Paper Trays (cont.)

The following table contains common tray mapping numbers for TROY printers. Due to the Hewlett-Packard tray assignment scheme, the actual tray number embossed on the paper tray(s) of your TROY printer may not correspond with the factory tray assignment numbers listed in the table below (e.g., physical tray #2 has a factory tray assignment number of 3, etc.). Always use the factory tray assignment numbers (listed in the table below) when re-mapping your printer paper trays using the TROY Printer Utility.

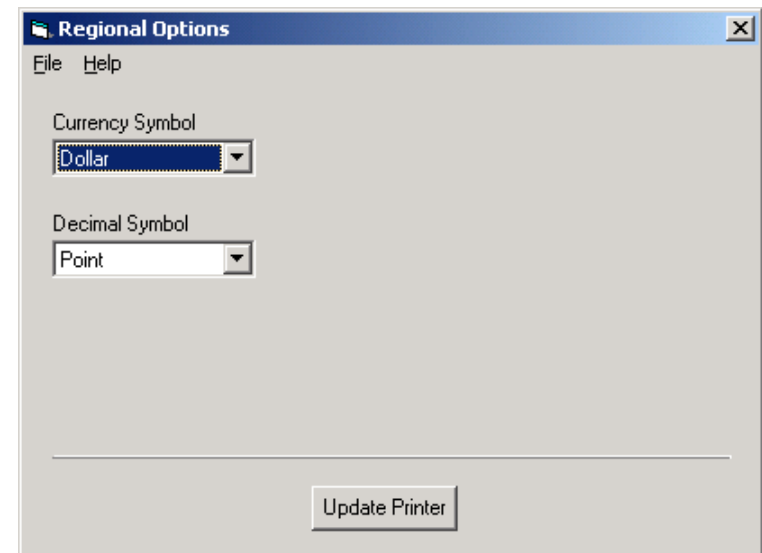
Physical Paper Source (Media)	Factory Tray Assignment Numbers	
	3015 Printers	
Paper Tray 1 (manual feed)	4	
Paper Tray 2	1	
Paper Tray 3 (standard on "T" model printers)	5	
Paper Tray 4 (Optional item for all printers)	8	

NOTE: The printer's media source option must be set to *Classic* to enable the tray-mapping feature. If this option is disabled in the *Security Options* screen of the TROY Printer Utility, the factory default tray map settings will be active. The tray ID numbers shown in the *Tray Mapping* screen may not represent the actual tray numbers of your printer. Refer to the *Hewlett-Packard Printer User's Guide* for the default paper tray-mapping configuration.

Setting Regional Options

TO SET THE REGIONAL OPTIONS:

1. From the *Main Window*, click on *Settings*, and then click on *Regional Options*.
2. Click on the down-arrow of each selection box to view the list of available currency and/or decimal symbol options, and then click on the desired option. The selected currency symbol will be used in the audit report, and the selected decimal symbol will be used for both the audit and secure seal features.
3. Click on *Update Printer* to send these settings to the printer's flash-file memory, and then click on *OK* to continue.



Selecting Data Capture Fonts for Audit Reports and TROYmark™

To discourage fraudulent alteration of your printed checks, a user-defined background image (TROYmark™) can be generated using specified information from the check (i.e., check date, convenience amount, payee name, etc.). By capturing one or more of the check fields for use in the TROYmark™, the resulting background image will be specific to each check, adding to the security of the printed document. Check data can also be captured for use in the TROY audit report, which can include the check date, payee name, convenience amount, and up to three additional user-defined check fields. The Secure Seal feature can use data from all fields except Custom.

The special TROY metrics fonts used to generate the desired check information for the background image, audit report, and/or secure seal must be specified for each desired check field in order to be captured. Once the TROYmark™ and/or audit reporting feature is enabled in the TROY Port Monitor (refer to Section 5 – *Using the TROY Port Monitor*), the selected features will remain in effect for the duration of the print job. When the print job has finished, these features will automatically be disabled.

TO SELECT THE DATA CAPTURE FONTS:

1. From the *Main Window*, click on *Settings*, and then click on *Data Capture Fonts*.
2. Select the desired check fields you wish to capture for use in the TROYmark™, audit report, and/or secure seal.
3. Click on the *Select Font to Print* drop-down list to select the font to be printed for the check field selected in the previous step.
4. Click in the desired checkboxes to use the captured data from the selected check field in the TROYmark™ background image, audit report, and/or the secure seal. Repeat Steps two through four for each desired check field.

NOTE: For printing the selected data fields, the same font may be selected for each defined field.

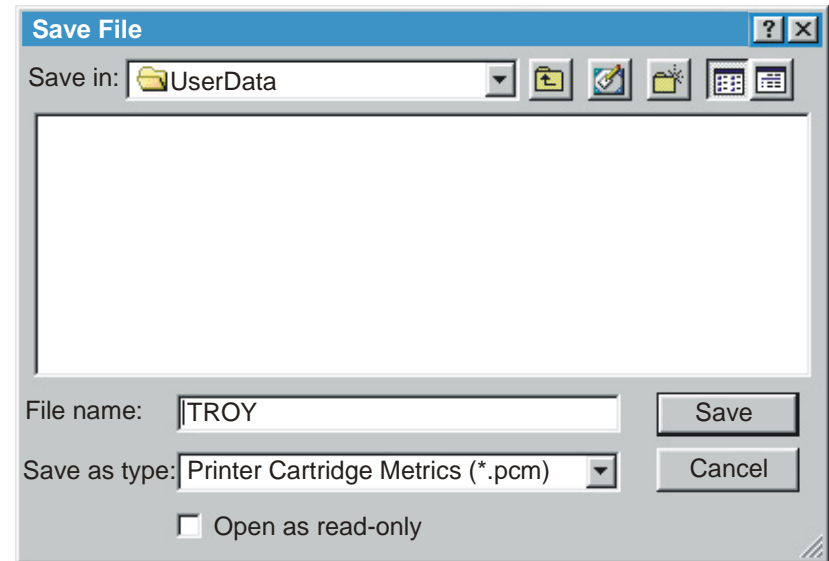
Selecting Data Capture Fonts for Audit Reports and TROYmark™ (cont.)

- If you are using a “legacy” printer driver (typically used for Windows 95, 98SE, and ME operating systems), place a checkmark in the checkbox next to “*Check this box if you are using a legacy printer driver.*”

NOTE: See below for details on identifying the type of printer driver currently installed on your computer.

- After all the desired check fields have been defined, click on **Create Metrics**. Type in the desired file name or use TROY (default) for the data capture metrics file in the **File Name** box, and then click on **Save**. You may create as many data capture font set configurations (metrics files) as needed for your check printing requirements. The system will automatically generate the metrics file required to capture the selected check data for the TROYmark™ background image, TROY audit report, or secure seal.
- After the data capture metrics file is created by the TROY Printer Utility, refer to the *TROY Quick-Start Guide*, and follow the appropriate steps for installing the metrics file on the host computer.

NOTE: If more than one data capture metrics file is installed using the same file name, the previously installed metrics file will automatically be overwritten. TROY recommends using only one data capture metrics file for each computer in your MICR printing network.



Identifying Your Installed Printer Driver Type

In order for the TROY Printer Utility to create the appropriate data capture metrics file that is compatible with your installed printer driver and operating system, you must identify the type of printer driver currently installed on your computer. “Legacy driver” refers to the older style of printer drivers typically used for Windows 95, 98SE, ME, and NT4.0 operating systems. The newer printer drivers, commonly referred to as “unidrivers”, are typically used for Windows 2000, XP, and Server 2003 operating systems.

To identify the type of printer driver currently installed on your computer, click on **Start, Settings, Printers**, and then right-click on your TROY MICR printer. Click on **Properties**, and note if a Configuration tab exists among the displayed group of tabs at the top of the properties window. Legacy printer drivers will have a Configure tab displayed in the properties window, and the newer printer drivers (unidrivers) will not have a Configure tab displayed in the properties window.

Section 4

Using the TROY Printer Utility

Generating the TROYmark™ Background Pattern

To discourage fraudulent alteration of the check, a background watermark (printed as a diagonally repeating pattern across the face of the check) can be generated using user-defined information taken directly from the check data (i.e., convenience amount, payee name, etc.). The special TROY fonts used to generate the desired check information in the background image must be defined for each available check field in order to capture the check data for use in the TROYmark™ feature.

The TROYmark™ background image can be selected to print at one of three pre-set density levels: light (approximately a 7% gray), medium (approximately an 11% gray), and dark (approximately a 15% gray). The administrator can also define up to three custom gray levels to ensure readability of the printed information on custom pre-printed check stock (refer to the example on the next page).

Once the desired check fields are selected for use in the background image, the inclusion and exclusion rectangles must then be defined. The inclusion rectangle (one area only) will contain the user-defined TROYmark™ image and the exclusion rectangle (one or more selected areas, but not to exceed ten) will remain void of any TROYmark™ image to ensure compliance with the ANSI X/9B check specifications. At a minimum, the exclusion rectangle must include an area surrounding the convenience amount.

The TROY Messaging font can also be used to define data that can be included in the TROYmark™ image that will not actually appear elsewhere on the check.

DETACH THIS PORTION BEFORE CASHING DRAFT - PLEASE CASH PROMPTLY

2331 S. Pullman Street
Santa Ana, CA 92705
(800) 332-6427
(949) 250-8972 Fax
www.troysystems.com

Bank Two
One Second Street
Chicago, IL 60674
16-80/1220

CHECK NO. 2837284

DATE	CONTROL	AMOUNT
10/5/2000		\$2673.00

Pay Two Thousand Six Hundred Seventy Three Dollars and No Cents

TO THE ORDER OF John Q. Public
100 Stars Avenue
Los Angeles, CA 9021

John E. Doe
EXECUTIVE V.P.
NON-NEGOTIABLE

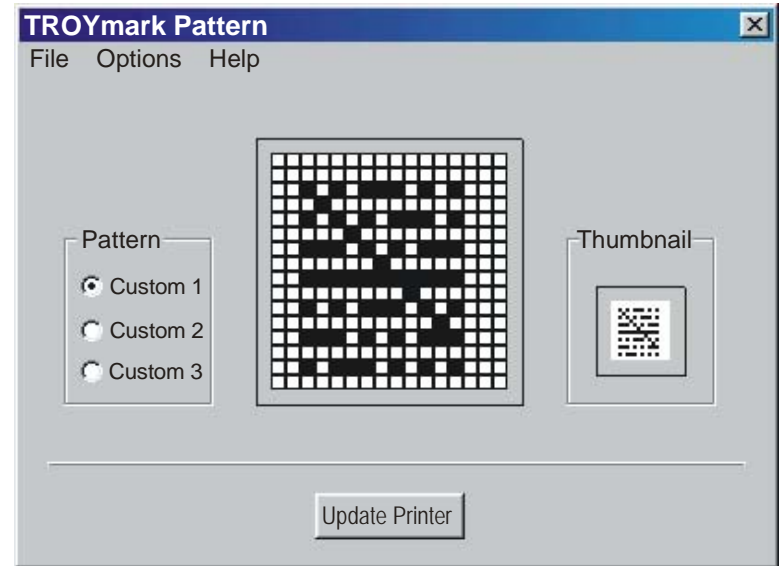
⑈ 1 2 3 4 5 6 7 8 9 0 ⑈ ⑆ 1 2 3 4 5 6 7 8 9 ⑆ ⑆ 1 2 3 4 5 ⑈ 6 7 8 9 0 ⑈



Generating the TROYmark™ Background Pattern (cont.)

TO CUSTOMIZE A TROYMARK BACKGROUND PATTERN:

1. From the *Main Window*, click on *Settings*, and then click on *TROYmark Pattern*.
2. Click on *Options*. Choose a basic density level (light or dark), then select the density percentage. The pixels in the preview screen can be clicked ON (black square) or OFF (white square) to customize the density level of the background pattern. Up to three user-defined density level patterns can be saved using Custom 1 (default), Custom 2, or Custom 3.
3. Click on *Update Printer* to send these settings to the printer's flash-file memory.
4. To verify the correct density level, click on *Yes* to print a test page. Click on *OK* to continue.



Using the Pattern Processor

The pattern processor enables the TROY printer firmware to search the incoming print data stream for a specified string(s) of characters and then substitute the matching data string(s) with an alternate user-defined data string(s), allowing a PCL (Printer Command Language)-based printer to accept an otherwise non-compatible print job (e.g., line feed-based print jobs generated by a mainframe computer) for printing check jobs.

When enabled via the TROY Printer Utility, the pattern processor accumulates data from the incoming print job, temporarily storing the data in a memory buffer in the TROY DIMM/flash memory card for processing. When enabled, the pattern processor incurs processing overhead; therefore, the pattern processor should remain disabled when not in use to avoid unnecessary slowing of the printing process.

Each character string(s) is matched in turn against the input data accumulated in each successive memory buffer. If there is a match, then the user-defined substitution pattern is used to create a new buffer that is integrated into the print data stream. Refer to the *TROY Programmer's Reference Guide* (included as a PDF file on the *TROY Security Printing Solutions* CD) for detailed information and programming examples.

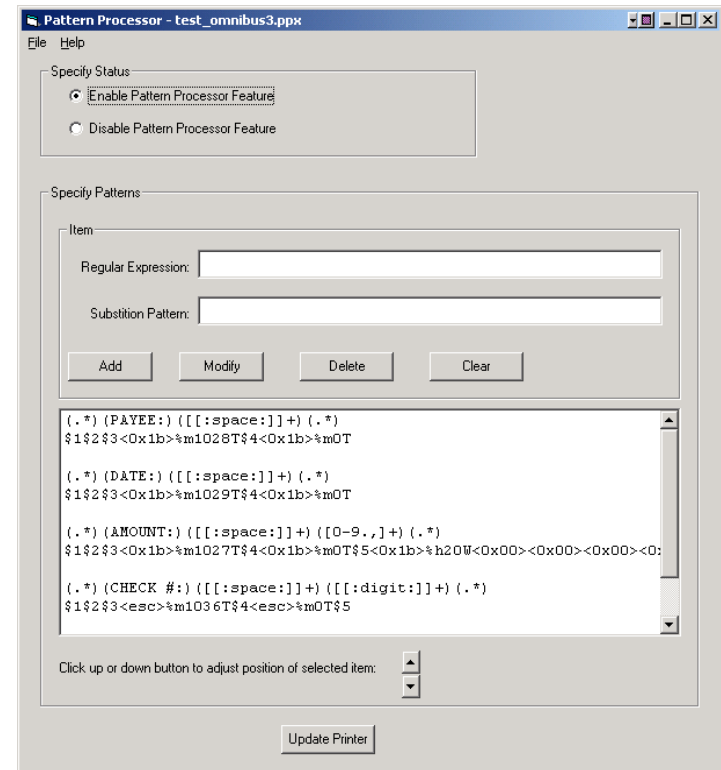
TO SETUP THE PATTERN PROCESSOR:

1. From the *Main Window*, click on *Settings*, and then click on *Pattern Processor*.
2. To use pattern processing for upcoming print jobs, click on *Enable Pattern Processor Feature* in the Specify Status box.
3. Click on *File, Open*, and then select the desired pattern file (*.ppx) from the UserData folder.
4. To Modify a string, click on the desired string set displayed in the window, enter edits in the string fields, and click on *Modify* to accept the changes.

To Delete a string, click on the desired string set displayed in the window, and then click on *Delete*.

To Add a sting, enter the desired data in the string fields, and then click on *Add*.

5. Click on *Update Printer* to send these settings to the printer's flash-file memory, and then click on *OK* to continue.




Printing the Pattern Processor Report

NOTE: To enter a control character (nonprinting character) in a string, use the syntax “<0xhh>”, where “hh” is the hexadecimal value of the desired character (e.g., to enter an escape character, use the syntax “<0x1b>”).

TO PRINT THE PATTERN PROCESSOR REPORT:

1. If the pattern processor window is already open with the desired pattern file (.ppx) displayed, click on **File**, and then click on **Print Pattern Processor Settings – Printer Utility List**. Select the desired printer, and then click on **OK** to print the report.
2. If the pattern processor window is not open, from the **Main Window**, click on **Settings**, and then click on **Pattern Processor**.
3. Click on **File, Open**, and then select the desired pattern file (*.ppx) from the UserData folder.
4. Click on **File**, and then click on **Print Pattern Processor Settings – Printer Utility List**. Select the desired printer, and then click on **OK** to print the report.


Printer Utility Pattern Processor Options

Status: Enabled

ID	Regular Expression and Substitution Pattern
1	(.*) (PAYEE:) ([[:space:]]+) (.*) \$1\$2\$3<0x1b>\$m1028T\$4<0x1b>\$m0T
2	(.*) (DATE:) ([[:space:]]+) (.*) \$1\$2\$3<0x1b>\$m1029T\$4<0x1b>\$m0T
3	(.*) (AMOUNT:) ([[:space:]]+) ([0-9.,]+) (.*) \$1\$2\$3<0x1b>\$m1027T\$4<0x1b>\$m0T\$5<0x1b>\$h20M<0x00><0x00><0x00><0x04><0x00><0x01><0x00><0x00>\$#ABSEAL\$###<0x1b>\$m0R
4	(.*) (CHECK #:) ([[:space:]]+) ([[:digit:]]+) (.*) \$1\$2\$3<esc>\$m1036T\$4<esc>\$m0T\$5
5	(.*) (*p1226X:) (*) ([[:digit:]]+) (.*) (.*) \$1\$2\$3<esc>\$m1034T\$4<esc>\$m0T\$5\$6

Important Information

The Pattern Processor Options printed were generated from the current settings loaded into the TROY Printer Utility, not from within a TROY Printer. To update the Pattern Processor Options within a TROY Printer, click the Update Printer button located on the TROY Pattern Processor window.

Important: The ADMIN password entered on the main window of the TROY Printer Utility MUST match the current ADMIN password set within the TROY Printer. If the password does not match, the options will not be updated.

Managing Audit Reports

Use this feature to record, store, and print a report of the check printing activity sent to your TROY printer. When enabled, the audit report feature automatically records the MICR line information (transit/routing number, bank number and check number) each time the TROY MICR font is accessed (default mode). The print order is also stored for each check. Additionally, the audit report can be set up to use the British Pound or Euro symbol and programmed to capture any one or more of the following items from a check:

- Payee name
- Convenience amount
- Check date
- User name (the person logged in while printing the checks)
- Up to three additional custom (user-defined) fields from the check

To capture the user-selected fields from the check for use in the audit report, special PCL commands must be inserted into the PCL 5 data stream (the data sent from the computer to the printer) to mark the selected check data for recording in the audit report. These PCL markers are placed in the print data stream by selecting one of the designated fonts for each desired check field, creating a custom PCM file (automatically generated by the PCM file generator included in the TROY Printer Utility), and then installing the PCM file on the host computer (refer to the *TROY Quick-Start Guide*). A maximum of 128 characters can be stored for each audit record in the flash-file system.

Two versions of the audit report can be selected for printing:

- *Recent* – prints only the audit data recorded since the last *Recent* or complete audit report was printed.
- *All* – prints *All* recorded audit data stored in the printer's flash memory.

NOTE: Canceling a *Recent* report before the report finishes printing will cause the audit information marked for this report to be reprinted along with any subsequently recorded data when the next *Recent* audit report is printed.

The *Recent* or *All* records of the audit report can be selected to print in one of two formats:

- *Summary Report* – prints only the number of checks printed.
- *Detailed Report* – prints all audit record data and the summary line.

The audit report can be sorted in one of two sort orders using either the MICR line or print order:

- *Ascending* – prints the audit data in ascending order (default).
- *Descending* – prints the audit data in descending order.

Managing Audit Reports (cont.)

The TROY Messaging font can also be used to insert data into the audit record that the user does not want to actually print on the check. Refer to Section 7 – *Using TROY Fonts* for detailed information.

NOTE: The printer fonts are resident in the printer's flash-file system. The screen fonts are available on the TROY Security Printing Solutions CD supplied with your TROY Security Printing Solution.

The audit report feature can be set to automatically run at the conclusion of each print job containing MICR data using the ***Auto-Report*** feature. Likewise, the auto-delete feature can be used to automatically delete audit records at the conclusion of printing an automatic or manual report using the ***Auto-Delete*** feature. Most users do not want audit reports to print on expensive check paper. Therefore, the paper tray-mapping feature can automatically configure audit reports to print using paper from a specified paper tray.

The TROY non-volatile flash-file system can store approximately 10,000 records (one record = one MICR line). The audit data stored in the TROY non-volatile flash-file memory can be deleted via the TROY Printer Utility or the printer control panel. To prevent unauthorized users from changing the audit report format, a valid user name and password is required to access these settings using the TROY Printer Utility or the printer control panel. Audit reports will always print in portrait format.

NOTE: Use the TROY Printer Utility to change the audit report features and settings.

NOTE: Be sure the Regional Options are set appropriately (see page 4-14 for details).

Managing Audit Reports (cont.)

TROY audit reports can be selected to print in one of two sort orders:

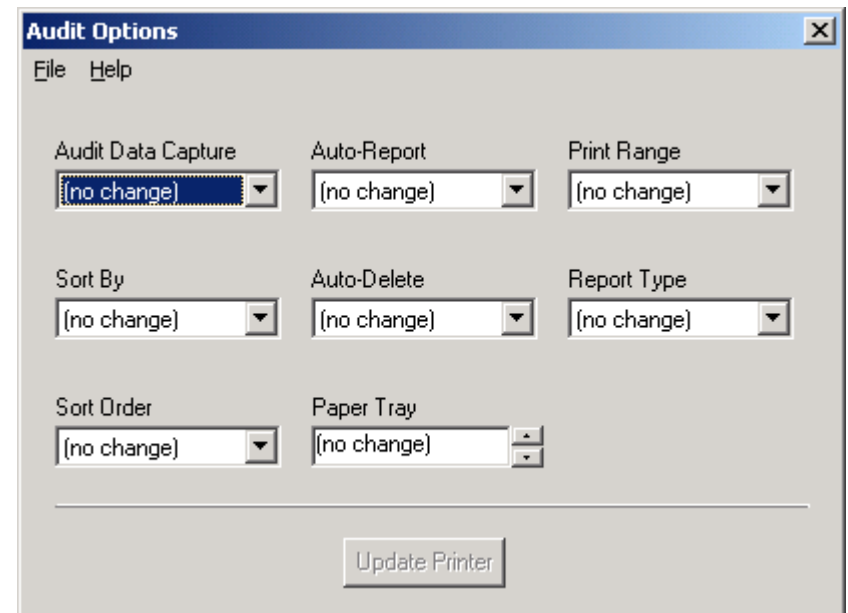
- **TROY Primary Sort Order** – prints the audit data in ascending order (default).
- **TROY Secondary Sort Order** – prints the audit data in descending order.

TROY Detailed Audit Report									
Record	MICR		Amount*	Payee Name	Date	Custom			
00013	C1234567890c	A123456789A	12345D67890C	\$ 2,673.00	John Q. Public	10/05/2000	999-99-9999	QFG382M	
	MICR Line (automatically captured)		TROY Amount	TROY Payee	TROY Date	Custom 1	Custom 2		

TO SELECT AUDIT OPTIONS:

1. From the **Main Window**, click on **Settings**, and then click on **Audit Options**.
2. Click on the down-arrow of each selection box to choose the desired audit option.
3. Click on **Update Printer**. The system will automatically update the printer's flash-file memory.
4. Click on **OK** to continue.

NOTE: The currency symbols are selected in **Settings, Regional Options** (see page 4-14).



Managing Audit Reports (cont.)

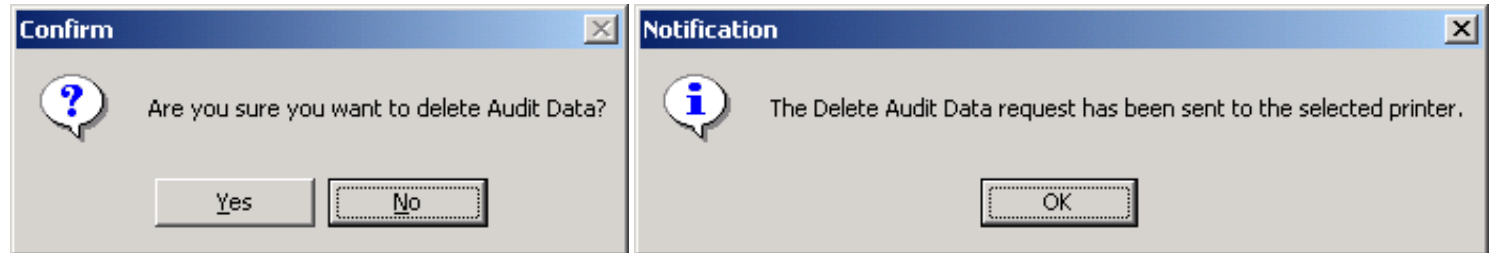
TO PRINT AUDIT REPORTS:

From the *Main Window*, click on *File, Audit*, and then click on *Print Audit Report*. The printer will automatically print the audit report according to the user-defined configuration set in the *Audit Options* window.

NOTE: If the *Auto-Delete* feature is enabled, the audit data will automatically be deleted when the audit report has finished printing.

TO DELETE AUDIT DATA:

1. From the *Main Window*, click on *File, Audit*, and then click on *Delete Audit Data*.
2. The system will prompt you for confirmation. If you wish to continue, click on *OK* to permanently delete all audit data, and then click on *OK* to continue.



Adjusting the MICR Line and/or Page Image Positioning

The ANSI X/9B specifications for the placement of the MICR line relative to the bottom and right edges of a check document are tightly controlled in order to provide accurate reading by the high-speed banking system check readers. If the MICR line on your checks does not meet the ANS X/9B specification for MICR line placement, use this feature to make small vertical and/or horizontal positioning adjustments to the MICR line and/or page image. If necessary, the entire page image placement can be moved. If adjustments are made simultaneously to the MICR line and the page image positions using positive numbers, then the sum of the two numbers will be used as the offset value for the MICR line.

NOTE: If the auto-rotate feature (described on the next page) is used in conjunction with the ExPT Offsets feature, any adjustments made with the ExPT Offsets feature to the left or top offset registration will have the same effect on the page regardless of the page orientation.

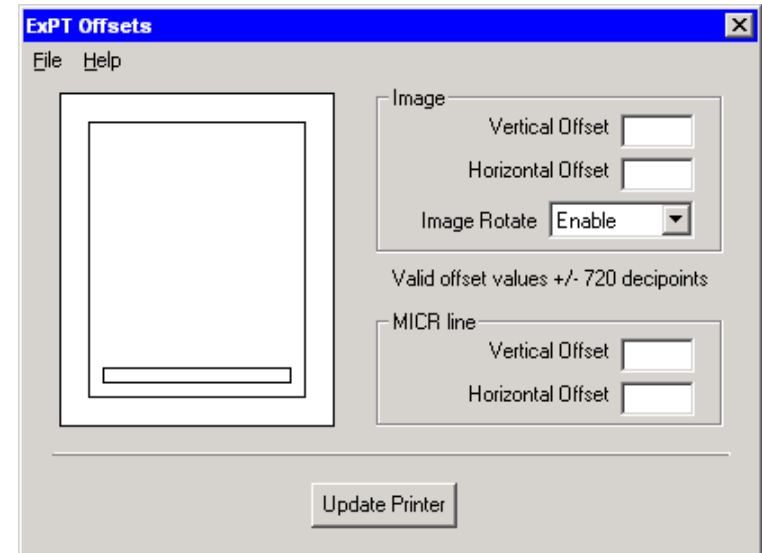
Use the TROY MICR document template to verify correct placement of the MICR line on your checks after performing an adjustment (refer to Section 3 – *MICR Quality Control* in the ***TROY MICR Basics Handbook*** for instructions on using the TROY MICR document template). If adjustments are made simultaneously to the MICR line and page image positions using positive numbers, then the sum of the two numbers will be used as the offset value for the MICR line.

NOTE: The MICR line adjustments are preset at the factory. TROY recommends that you do not alter these settings unless your bank of deposit notifies you of MICR line positioning errors on your checks.

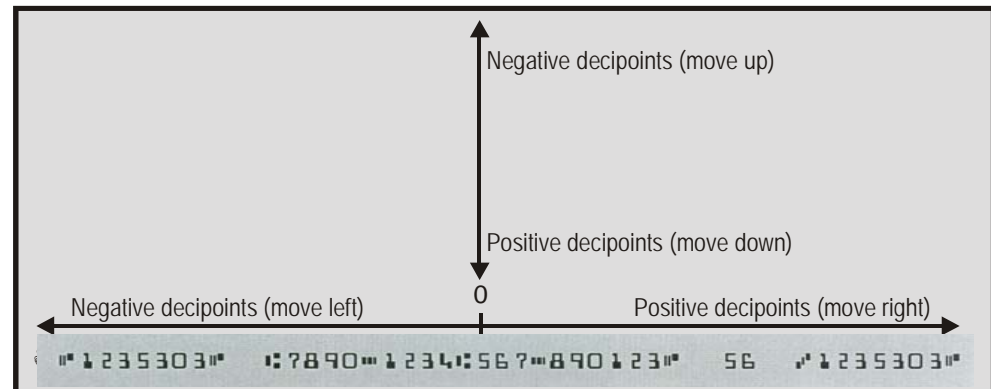
Adjusting the MICR Line and/or Page Image Positioning (cont.)

TO ADJUST THE MICR LINE POSITIONING:

1. From the *Main Window*, click on *Settings*, and then click on *ExPT Offsets*.
2. Enter the vertical and offset values for the MICR line and/or image in the appropriate boxes. These values are represented in decipoints (1/720 of an inch). The valid offset range is -720 to 720 (equals plus/minus one inch). If you are using the automatic page rotation feature in conjunction with the ExPT Offsets feature, then you must adjust the image and MICR offsets accordingly (see note on previous page).
3. After all values have been entered, click on **Update Printer** to send the new settings to the printer. All previous MICR line and image offset values in the printer will be overwritten. The system will prompt you with **“Print Quality Document to verify adjustments?”** Click on **Yes** to print the quality document, or click on **No** to proceed without printing the quality document.
4. When closing the ExPT Offsets window, the system will prompt you with **“Do you want to save changes to ExPT Offset values?”** Click on **Yes** to save the new offset values in a user-named file for future use (e.g., Acme print job offset values.ops), or click on **No** to continue without saving the new offset values.



The “MICR Adjust Y” selection on the printer control panel will move the MICR line up (negative decipoints) and down (positive decipoints).



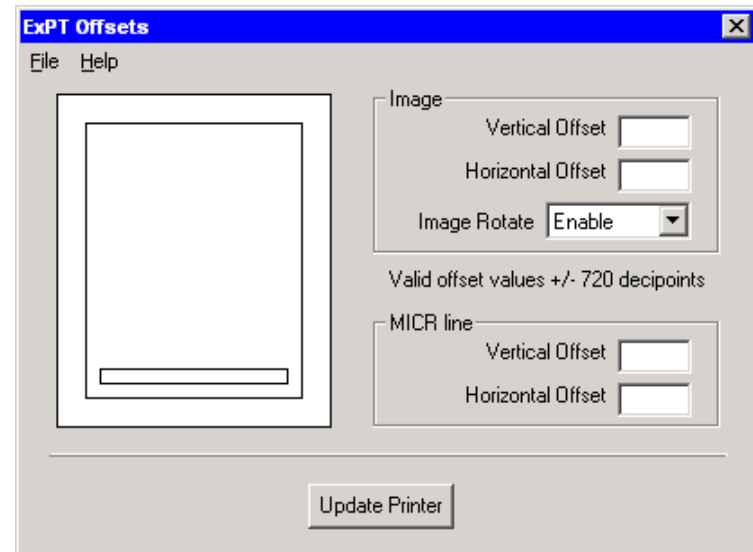
The “MICR Adjust X” selection on the printer control panel will move the MICR line left (negative decipoints) and right (positive decipoints).

Using the Auto-Rotate Feature

Due to minor variations in registration (the precise alignment of text and images on the printed page) that exists with most printers, it is recommended that the MICR line on your checks be positioned to print on the leading edge of the printed page (the edge of the page that exits the printer first). MICR lines positioned on the trailing edge of the page may be subject to small variations in the vertical placement of the MICR line, which may cause the MICR line position to fall outside of the MICR line specifications. If the MICR line is located on the trailing edge of the page, use the Auto-Rotate feature to automatically rotate your check image 180-degrees on the page.

TO ROTATE THE CHECK IMAGE:

1. From the *Main Window*, click on *Settings*, and then click on *ExPT Offsets*.
2. Click on the *Image Rotate* drop-down box and select *Enable*.
3. After all desired values have been entered, click on *Update Printer* to send the new settings to the printer. *All previous MICR line and image offset values in the printer will be overwritten.* The system will prompt you with “*Print Quality Document to verify adjustments?*” Click on *Yes* to print the quality document, or click on *No* to proceed without printing the quality document.
4. When closing the ExPT Offsets window, the system will prompt you with “*Do you want to save changes to ExPT Offset values?*” Click on *Yes* to save the new offset values in a user-named file for future use (e.g., Acme print job offset values.ops), or click on *No* to continue without saving the new offset values.



Managing Printer Resources

Printing a List of Printer Resources

The TROY Memory Card installed inside your TROY printer contains a re-writeable flash-file system, allowing the administrator to conveniently install, print, or delete printer resources. The flash-file system's download area supports the storage of three types of resources: soft fonts, macros/forms, and data files. The most common type of data file stored in the TROY Memory Card is the Secure Seal template file (template.dat). It is important to safeguard the proprietary resources (signatures, company logos, macros, etc.) stored in your printer's flash-file system by implementing the security features provided with your TROY Security Printing Solution.

The administrator can add and/or delete any portion of the public and/or secure printer resources contained in the TROY printer's flash-file system using the TROY Printer Utility. Typically, the *secure* memory area contains proprietary printer resources (MICR fonts, digitized signatures, etc.). The *public* memory area usually contains non-proprietary resources (company logos, macros, forms, etc.) that are available to anyone using the printer. Individual printer resource files can be deleted by printing a list of the printer's resources to view the currently loaded resources and then selecting the desired printer resource file using the file ID number (displayed to the left of each resource file). The amount of resources (file size) that can be downloaded to the printer memory depends on the amount of free memory space available in the TROY Memory Card. Printing a list of the printer resources will display the currently available free memory space in the TROY Memory Card (designated as bytes).

TO PRINT A LIST OF PRINTER RESOURCES:

1. From the *Main Window*, click on *Resources*, and then click on *Print Current Resources*. The selected printer will automatically print a list of the currently installed printer resources contained in the flash-file system (see the example ►). It is recommended that you print out a list of the current printer resources before deleting or adding new resources.
2. Click on *OK* to continue.

TROY EX SERIES - Download Area Summary

Directory List:

```
F14635.fnt : 12674 bytes
F14636.fnt : 11747 bytes
D28538.dat : 69824 bytes
M24675.mac : 136 bytes
```

```
Bytes used by resources : 94381 bytes
Total bytes in use : 3147 Kbytes
Bytes available : 12196 Kbytes
```

Font List (* indicates secure, m indicates MICR, M indicates certified MICR):

```
14635 - <esc>(7Q<esc>(s0p3h24v0s0b0T
14636 - <esc>(6Q<esc>(s0p3h24v0s0b0T
```

Macro List (* indicates secure):

```
24675 - <esc>&f24675Y
```

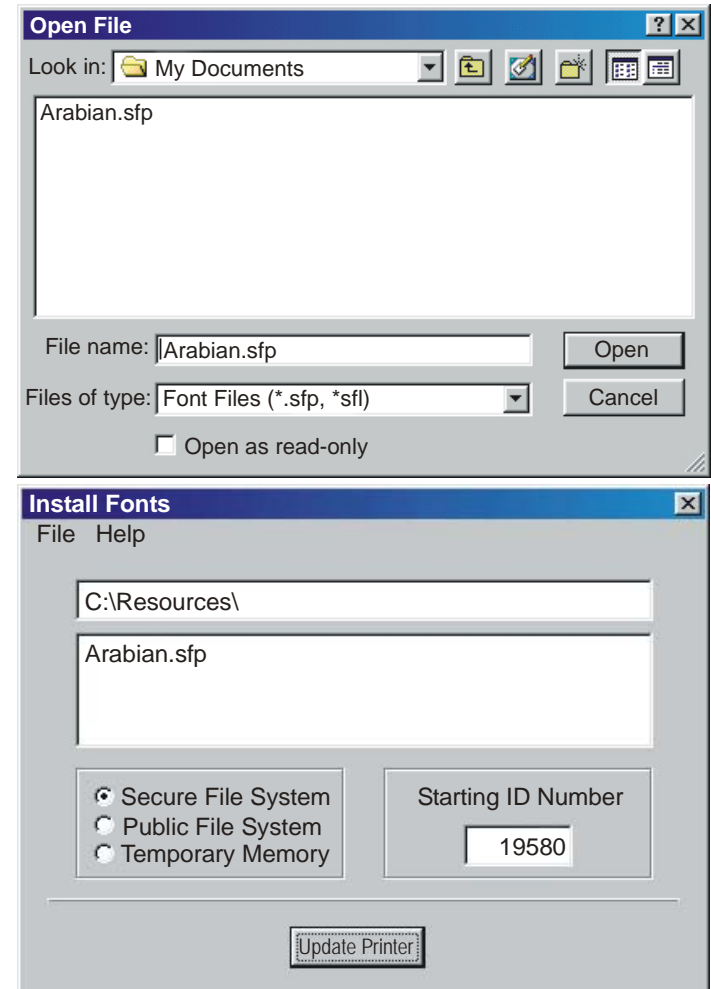
Data List (* indicates secure):

```
28538 - DDSignature.dst
```

Adding Printer Resources

TO ADD PRINTER RESOURCES:

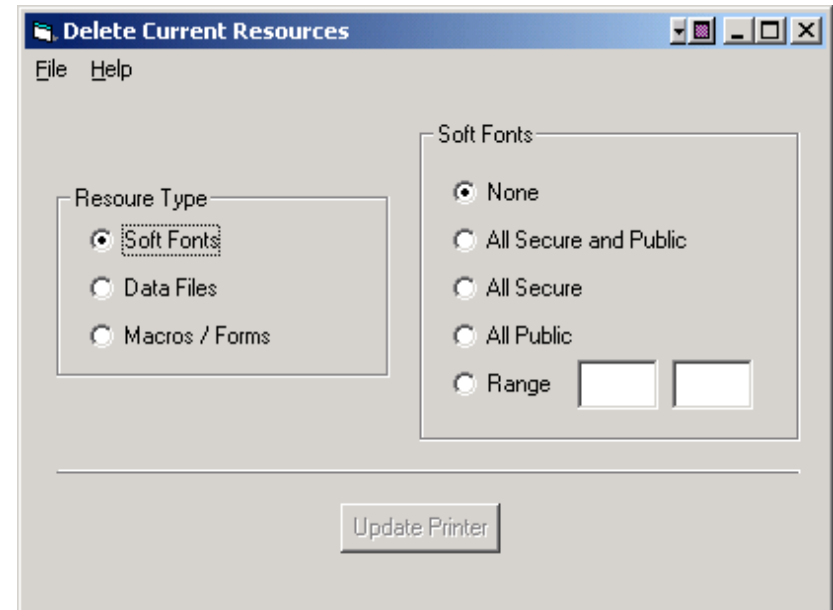
1. From the *Main Window*, click on *Resources*, and then click on *Install New Resources*. Select either *Soft Fonts*, *Data Files*, or *Macros/Forms*.
2. Click on the desired font, macro/form, or data file(s), and then click on *Open*. The selected file(s) will be displayed in the installation screen. Choose either *Secure File System* or *Public File System* to load the selected file(s) in the desired memory area of the flash-file system. A *Starting ID Number* will be automatically generated for each file loaded into the flash-file memory.
3. Click on *Update Printer* to send the printer resource file(s) to the printer. Click on *OK* to finish.



Deleting Printer Resources

TO DELETE PRINTER RESOURCES:

1. Print a list of the currently installed printer resources (see Page 4-31) by clicking on **Resources**, and then clicking on **Print Current Resources**. Use this printout to determine which resources you wish to delete from the flash-file system.
2. From the **Main Window**, click on **Resources**, and then click on **Delete Current Resources**.
3. Select the general group of printer **Soft Fonts**, **Data Files**, or **Macros/Forms** you wish to delete, and then click on **Update Printer**. To delete a specific resource file or group of resources files, enter the starting and ending ID numbers of the resource files you wish to delete (refer to your printed list of currently installed printer resources to obtain the file ID numbers), and then click on **Update Printer**.
4. Click on **Yes** to confirm your file selection marked for deletion. Click on **OK** to finish.

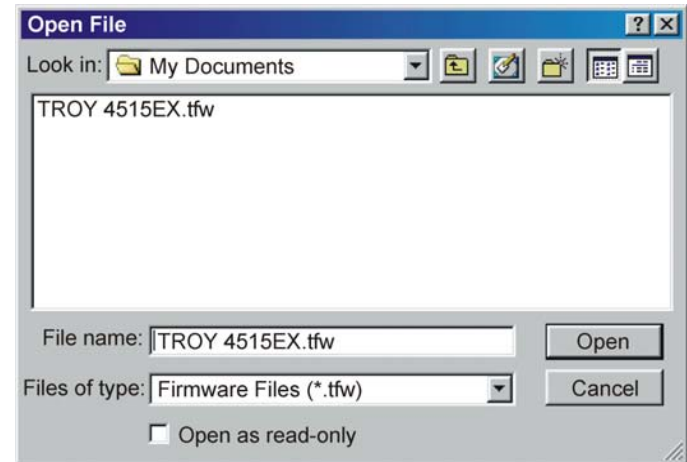


Updating the Printer Firmware

The TROY Memory Card installed inside your TROY printer contains a re-writeable flash-file system that can be conveniently updated by the administrator. The administrator can upgrade the TROY printer firmware (TROY's proprietary MICR program code) as new features become available from TROY Firmware maintenance or feature upgrades developed by TROY Systems can be downloaded and installed using the TROY Printer Utility. Update files are available from the TROY Web site or may be supplied by TROY on removable media. After completing a firmware update, your TROY printer must be rebooted (printer power switched OFF and ON) in order for the update to take effect.

TO UPDATE THE PRINTER FIRMWARE:

1. From the *Main Window*, click on *Help*, and then click on *Firmware Update*.
2. Enter the path and file name of the update file you wish to load in the *File Name* box. If you are not sure of the file name or location, click on the folder icon located at the right of the *File Name* box to search for the update file. After locating the update file, click on the update file name, and then click on *Open*. The *Firmware Update* screen will appear with the update file name in the *File Name* box.
3. Click on *Update Printer* to send the update file to the printer. Click on *OK* to proceed with the firmware update, and then click on *OK* again to finish the update process.
4. After the firmware update is complete, the printer will automatically reboot (re-initialize). After the printer has finished rebooting, the control panel will display the message "READY". If your printer does not reboot automatically or the control panel displays the message "49.4C18 Service Error", cycle the printer power (switch the printer OFF and ON again). The printer power must be cycled in order for the update to take effect.



Printing Test and Demo Pages

The TROY Printer Utility provides the ability to generate a Windows Security Font, Windows Barcode Font, and PCL Security/Barcode Font demonstration page. Use the Windows Security Font demonstration page if you are using a Windows-based printing application, or use the PCL Security/Barcode Font demonstration page if you are using a non-Windows-based printing application. The TROY MICR Quality Document and printer configuration pages are resident in the TROY Memory Card, and can be printed at any time from the printer control panel or through the TROY Printer Utility. Use these test and demonstration pages to verify your printer's configuration, functionality, and MICR print quality.

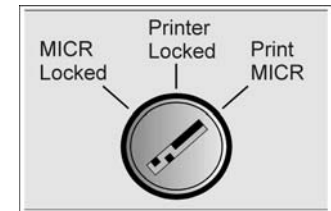
Verifying MICR Print Quality

Maintaining high-quality MICR printing is vital to error-free reader/sorter processing of your checks at the bank. TROY's Security Printing Solutions have been consistently shown to have the lowest bank reject rates in the industry. Poor MICR print quality will cause your checks to be rejected by the bank's automatic MICR readers, and therefore, you may incur significant manual processing fees from your bank for each rejected check. The TROY MICR Quality Document is resident in the firmware of your TROY printer and can be printed out at any time using the TROY Printer Utility or printer control panel. The TROY Quality Document will automatically be formatted to fit the default paper size set in the printer (either letter or A4). Use the TROY MICR Quality Document as a reference to evaluate the general print quality of your TROY Security Printing Solution.

TO PRINT THE TROY MICR QUALITY DOCUMENT:

NOTE: TROY Secure EX series printers must have the printer keylock switch set to "Print MICR" to enable printing of the MICR Quality Document.

1. From the *Main Window*, click on the printer you wish to manage.
2. From the *Main Window*, click on *File, Print*, and then click on *Print*.
3. Click on the *Quality Document*. Choose either the E-13B or CMC-7 version of this document. The printer will automatically print the TROY MICR Quality Document (refer to the E-13B example on the next page).



Section 4

Identifying Print Defects

Continuous streaks and voids that may appear on the TROY MICR Quality Document are usually the result of a low toner condition. A scratch or other contamination on the surface of the optical drum inside the toner cartridge can also cause streaking and other print quality defects.

To ensure optimum MICR print quality, always use a genuine TROY MICR toner cartridge with your TROY Security Printing Solution. Always replace the TROY MICR toner cartridge when the **TONER LOW** message appears on the printer control panel. MICR documents printed after a low toner condition may not meet MICR specifications and cause your printed checks to be rejected, thereby incurring significant manual processing fees to you by your bank.

NOTE: If your TROY Security Printing Solution develops a noticeable print quality defect that cannot be corrected by replacing the MICR toner cartridge, the MICR Quality Document can be sent to TROY for evaluation. *Do not continue to print MICR documents if print defects are present.*

Using the TROY Printer Utility

TROY EX SERIES

MICR Quality Document 1

TROY Security Printing Solutions

- TROY offers a full line of security printing solutions, including software, security printers, MICR printers, MICR and security DIMMs, MICR toner, security paper and digital imaging.
- TROY is a MICR toner manufacturer for Hewlett-Packard LaserJet printers. To ensure consistent MICR quality, always use TROY MICR supplies.
- Visit our website at www.troygroup.com for the latest product information.

Need Assistance?

Locating a Reseller or other sales assistance	Technical Support
Call: 800-332-MICR (6427) Email: INFO@troygroup.com	Call: 800-332-MICR (6427) Email: TechSupport@troygroup.com

TROY MICR Technology Center

- TROY's state-of-the-art paper and print testing laboratory evaluates your checks and other MICR documents to ensure that they conform to ANSI and APACS specifications.
- For more information about how we can assist you with your MICR needs, please contact TROY's MICR Technology Center at 800-332-6427

PRINTER INFORMATION

PRINTER: SN:CN2C489003 FW:93-20340-001-A (20041028) DATE: _____

COMPANY: _____ SIGNAL AVERAGE: _____

CONTACT: _____ SIGNAL RANGE: _____

PHONE: _____ AVERAGE ON-US: _____

THE AREA BELOW IS A 5/8" CLEAR-BAND AND MUST BE FREE OF ALL TONER OTHER THAN MICR CHARACTERS

REVISION H

1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2



Accessing TROY Fonts Using Non-Windows Applications

If you are using a non-Windows application to print MICR documents, the escape sequence for each font must be programmed into the application in order to “call” each of the selected fonts. The <Esc> character is ASCII character number 27 (hexadecimal number 1B). Refer to Section 7 – *Using TROY Fonts* for the specific escape sequence (displayed above each character map) used to call each of the TROY fonts.

Verifying Windows Font Support

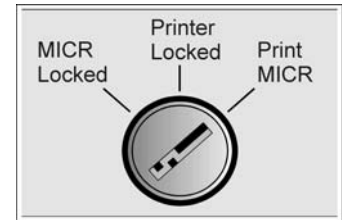
To verify the TROY Windows font support files were properly installed on your system, demonstration documents are provided through the TROY Printer Utility in Windows that can be printed out to visually identify all security and/or barcode fonts downloaded to the TROY Security Printing Solution. Make sure your TROY printer is properly setup, powered ON, and is online before printing the Windows Security Font or Windows Barcode Font Demonstration page(s).

TO PRINT THE WINDOWS SECURITY (MICR) FONT DEMONSTRATION PAGE:

NOTE: TROY Secure EX series printers must have the printer keylock switch set to “Print MICR” to enable printing of the Windows Security Font Demonstration page.

1. From the *Main Window*, click on the printer you wish to manage.
2. Type in the current administrator password in the password box at the bottom of the *Main Window*. If a password is not set, then leave the password box blank.
3. From the *Main Window*, click on *File, Print*, and then click on *Windows Security (MICR) Font Demo*. The printer will automatically print the Windows Security Font Demonstration page (see example on next page).
4. Compare the actual TROY security fonts (the actual fonts generated by your printing system) shown in the right-hand column with the facsimile image of these fonts printed in the center column (a digitized image designed to look exactly like the actual fonts generated by your system – see example on the next page).

If the support files were properly installed, the actual TROY security and/or barcode fonts displayed in the right-hand column should appear identical to the facsimile fonts displayed in the center column. If the actual fonts do not match the facsimile fonts printed on the demonstration document (fonts not printed correctly or fonts missing on the printout), review the installation steps in this document. If further assistance is required, contact TROY Technical Support.



Verifying Windows Font Support (cont.)

TROY Security Font Collection

Microsoft Windows Test Page

=====

This document displays how the TROY Security Font Collection should appear when printed through Microsoft Windows (Facsimile Font Image) and how they actually print through your Microsoft Windows printer driver configuration (Actual Printed Font) to a TROY Security Printing Solution.

Compare the fonts printed in the Facsimile Font Image column of this page to the fonts printed in the Actual Printed Font column. If the Windows support files (PCM) were properly installed into the Hewlett Packard PCL 5e printer driver, the fonts in the two columns should match. If the fonts in both columns do not match (fonts in the Actual Printed Fonts column not printed correctly or missing from this page), review the Windows Support File installation steps in the user documentation. If further assistance is needed, please contact TROY Technical Support 1-800-332-6427, or email techsupport@troygroup.com

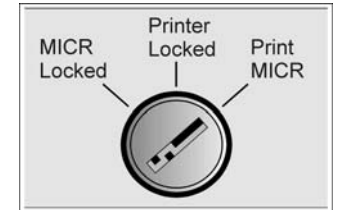
<u>Font Name</u>	<u>Facsimile Font Image</u>	<u>Actual Printed Font</u>
TROY E-13B	1 2 3 4 5 6 7 8 9 0	1 2 3 4 5 6 7 8 9 0
TROY CMC7	1 2 3 4 5 6 7 8 9 0	1 2 3 4 5 6 7 8 9 0
TROY ECF	0 1 2 3 4 5 6 7 8 9 0 <small>ZERO ONE TWO THREE FOUR FIVE SIX SEVEN EIGHT NINE ZERO</small>	0 1 2 3 4 5 6 7 8 9 0 <small>ZERO ONE TWO THREE FOUR FIVE SIX SEVEN EIGHT NINE ZERO</small>
TROY LCF	1 2 3 4 5 6 7 8 9 0 <small>ONE TWO THREE FOUR FIVE SIX SEVEN EIGHT NINE ZERO</small>	1 2 3 4 5 6 7 8 9 0 <small>ONE TWO THREE FOUR FIVE SIX SEVEN EIGHT NINE ZERO</small>
TROY SCF	1 2 3 4 5 6 7 8 9 0 <small>ONE TWO THREE FOUR FIVE SIX SEVEN EIGHT NINE ZERO</small>	1 2 3 4 5 6 7 8 9 0 <small>ONE TWO THREE FOUR FIVE SIX SEVEN EIGHT NINE ZERO</small>
TROY HELV Rev	1 2 3 4 5 6 7 8 9 0	1 2 3 4 5 6 7 8 9 0
TROY MICRO	MP MP MP	MP MP MP
TROY OCRA	1 2 3 4 5 6 7 8 9 0 A B C D	1 2 3 4 5 6 7 8 9 0 A B C D
TROY OCRB	1 2 3 4 5 6 7 8 9 0 A B C D	1 2 3 4 5 6 7 8 9 0 A B C D
TROY Security	1 2 3 4 5 6 7 8 9 0 <small>ONE TWO THREE FOUR FIVE SIX SEVEN EIGHT NINE ZERO</small>	1 2 3 4 5 6 7 8 9 0 <small>ONE TWO THREE FOUR FIVE SIX SEVEN EIGHT NINE ZERO</small>

Verifying PCL 5e Communication

The PCL Security/Barcode Font Demonstration pages can be used to verify PCL 5e communication between the host computer and TROY printer. If the PCL 5e communication between the host computer and TROY printer is successful, then the demonstration page should print out exactly as shown in the example on the next page.

TO PRINT THE PCL SECURITY/BARCODE FONT DEMONSTRATION PAGE:

NOTE: TROY Secure EX series printers must have the printer keylock switch set to "Print MICR" to enable printing of the PCL Security/Barcode Demonstration pages.



1. From the *Main Window*, click on the printer you wish to access.
2. Type in the current administrator password in the password box at the bottom of the *Main Window*. If a password is not set, then leave the password box blank.
3. From the *Main Window*, click on *File, Print*, and then click on *PCL Security/Barcode Font Demo*. The printer will automatically print the PCL 5e Security/Barcode Font Demonstration pages (refer to the example on the next page).

Section 4

Using the TROY Printer Utility

Verifying PCL 5e Communication (cont.)

TROY SECURITY FONTS

PCL 5e Font Demo Page (non-Microsoft Windows)

Font Name	PCL5e Font Call Escape Sequence	Print Example
TROY E-13 *	<esc>(0Q<esc>(s1p12.0v0s0b0T <esc>(0Q<esc>(s0p8.00h8.8v0s0b0T	1 2 3 4 5 6 7 8 9 0 ; : ' " # \$ % & * ! 1 2 3 4 5 6 7 8 9 0 ; : ' " # \$ % & * !
TROY CMC7 *	<esc>(0Q<esc>(s1p12.0v0s0b1T <esc>(0Q<esc>(s0p8.00h8.8v0s0b1T	1 2 3 4 5 6 7 8 9 0 ; : ' " # \$ % & * ! 1 2 3 4 5 6 7 8 9 0 ; : ' " # \$ % & * !
TROY ECF *	<esc>(3Q<esc>(s1p<height>v0s0b0T <esc>(3Q<esc>(s1p18v0s0b0T	1 2 3 4 5 6 7 8 9 0 0 1 2 3 4 5 6 7 8 9 \$ * ! <small>ONE TWO THREE FOUR FIVE SIX SEVEN EIGHT NINE ZERO CTS CTS CTS CTS CTS CTS CTS CTS CTS</small>
TROY LCF	<esc>(1Q<esc>(s0p5.01h16.0v0s0b0T	1 2 3 4 5 6 7 8 9 0 \$ ¢ € * , . <small>ONE TWO THREE FOUR FIVE SIX SEVEN EIGHT NINE ZERO DOLLAR CENT EURO ASX COM PER</small>
TROY SCF	<esc>(2Q<esc>(s0p6.00h22.0v0s0b0T	1 2 3 4 5 6 7 8 9 0 \$ € * , <small>ONE TWO THREE FOUR FIVE SIX SEVEN EIGHT NINE ZERO DOLLAR EURO ASX COM</small>
TROY Micro Font	<esc>(10U<esc>(s0p80h.8v0s33b0T	MP MP MP MP MP MP MP MP MP
TROY Helvetica (Rev)	<esc>(9U<esc>(s1p<height>v0s33b24580T	J534201800 ABCDEF GHIJKL Mno pqr stuv wxyz
TROY OCR-A	<esc>(0O<esc>(s1p<height>v0s0b104T	1234567890 ABCDEF GHIJKL Mno pqr stuv wxyz
TROY OCR-B	<esc>(1O<esc>(s1p<height>v0s0b110T	1234567890 ABCDEF GHIJKL Mno pqr stuv wxyz
TROY Security	<esc>(4Q<esc>(s1p<height>v0s0b0T	1234567890 \$ € & <small>ONE TWO THREE FOUR FIVE SIX SEVEN EIGHT NINE ZERO CTS CTS CTS CTS CTS CTS CTS CTS CTS</small>

Notes

<esc> represents the non-printable escape character (Ascii27/Hex1B).

<height> represents the point-size value of the scalable font. Value is represented in points .1/72 inch increments.

* Multiple PCL5e font calls are shown for some fonts. Refer to the printer documentation to verify which calls your specific model supports.

** These fonts may not be included with your TROY Security Printing Solution. Refer to the printer document for details. If these fonts are not included, alternate printer-resident fonts will be printed in place of them; this is normal. If you would like to add these fonts to your printer-resident font collection, please contact TROY Group, Inc. at 1-800-332-6427.



Verifying PCL 5e Communication (cont.)

(Optional) TROY BARCODE FONTS

PCL 5e Font Demo Page (non-Microsoft Windows)

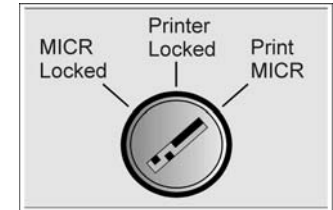
Font Name	PCL 5e Font Call Escape Sequence	Print Example
TROY UPC-A **	<esc>(8Y<esc>(s1p<height>v0s0b24600T	 0 71001 00699 5
TROY UPC-E **	<esc>(8Y<esc>(s1p<height>v0s0b24610T	 0 71455 1 5
TROY EAN-8 **	<esc>(8Y<esc>(s1p<height>v0s0b24620T	 0 421 000 9
TROY EAN-13 **	<esc>(8Y<esc>(s1p<height>v0s0b24630T	 9 781234 56789 7
TROY BC2of5 ** TROY BC25 **	<esc>(4Y<esc>(s1p<height>v0s0b24640T	
TROY BC3of9 ** TROY BC39 **	<esc>(0Y<esc>(s1p<height>v0s0b24670T	
TROY BC128 **	<esc>(0Y<esc>(s1p<height>v0s0b24700T	
TROY POSTNET **	<esc>(15Y<esc>(s1p<height>v0s0b24770T	
TROY POSTNET (Rev) **	<esc>(15Y<esc>(s1p<height>v0s33b24770T	

** These fonts may not be included with your TROY Security Printing Solution. Refer to the printer document for details. If these fonts are not included, alternate printer-resident fonts will be printed in place of them; this is normal. If you would like to add these fonts to your printer-resident font collection, please contact TROY Group, Inc. at 1-800-332-6427.

Verifying Printer Configuration

TO PRINT THE TROY CONFIGURATION PAGE:

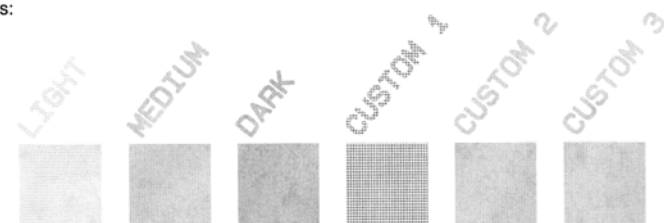
NOTE: TROY Secure EX series printers must have the printer keylock switch set to "Print MICR" to enable printing of the TROY Configuration page.



1. From the *Main Window*, click on the printer you wish to manage.
2. Type in the current administrator password in the password box at the bottom of the *Main Window*. If a password is not set, then leave the password box blank.
3. From the *Main Window*, click on *File, Print*, and then click on *Configuration Page*. The printer will automatically print the TROY configuration page (see example?).

TROY EX SERIES - Configuration Page

Firmware Part Number:	93-20340-001-B	Firmware Date Code:	20050817.170506
Media Part Number:	0200277001A	Media Serial Number:	03041221000000000005
Printer Serial Number:	CN2C489003	Printer Page Count:	17067
Optional Features:	None		
Printer Type:	MICR On (no timeout)	Current MICR Mode:	Enabled
Keylock Installed:	Yes	Keylock Setting:	Print TROY Certified MICR
Toner Sensor Installed:	Yes	Current Toner Type:	MICR
Toner Sensor Response:	Halt		
Printer Lock (PIN):	Disabled	MICR Lock (PIN):	Disabled
Languages Supported:	All		
Decryption Mode:	Job by Job		
Audit Data Capture:	None	Report Type:	Summary
Print Range:	Recent	Sort By:	Print Order
Sort Order:	Ascending	Auto-Delete:	No
Auto-Report:	No		
Paper Tray:	7		
Seal Default Command:	##SEAL#T: ;P: ;V: ;A: ;B: ;D: ;N: ;C: ;X:0;Y:0;R:300##		
Use Metadata:	No	Auto Apply Each Page:	No
Use Location:	No	Display Errors:	Yes
Company Id:	0		
Currency Symbol:	Dollar	Decimal Symbol:	Point
Alternate Escape:	ASCII 27 (Decimal)		
Image Offset X:	+0	Image Offset Y:	+0
MICR Offset X:	+0	MICR Offset Y:	+0
Auto Page Rotation:	Disabled		
TROYmark Patterns:			



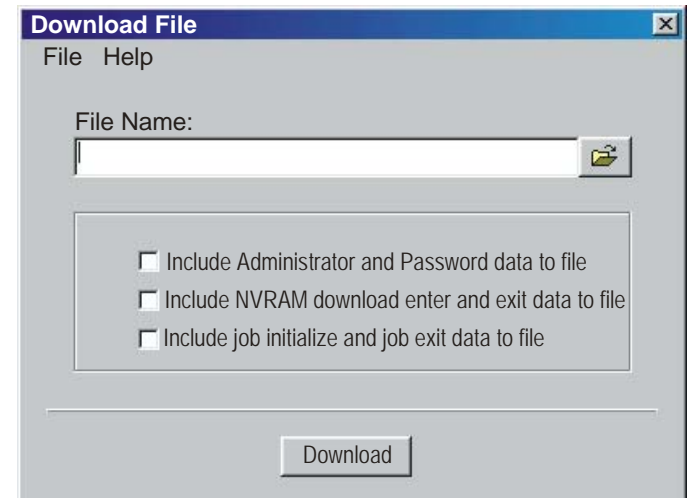
Tray Remapping: Enabled

Downloading Files to the Printer

The TROY Printer Utility provides the ability to download any PCL or text file directly to the printer without embedding additional information. Three download options are provided to enhance the download file (see the *Download File* window for the specific options). To include an advanced option to the download, place a checkmark next to the corresponding option(s) you wish to use. *The advanced download options are provided for advanced users only.*

TO DOWNLOAD A FILE TO THE PRINTER:

1. From the *Main Window*, click on the printer you wish to manage.
2. Type in the current administrator password in the password box at the bottom of the *Main Window*. If a password is not set, then leave the password box blank.
3. From the *Main Window*, click on *File*, and click on *Download File*.
4. Enter the file name or click on *Browse* to locate the desired file.
5. *For advanced users:* Place a checkmark next to the corresponding option(s) your wish to include with the download file. *For normal use, it is recommended that all three checkboxes be left blank.*
6. Click on *Download* to send the file to the printer's flash-file memory. Click on *OK* to finish.
7. Click on *OK* to continue.



Obtaining Technical Assistance

The TROY Printer Utility provides several help screens to guide you through the features and functions of a TROY Security Printing Solution. TROY technical support is available to assist you with any questions concerning the setup, operation and maintenance of your TROY Security Printing Solution. Specific system information about your MICR printer configuration is also available through the TROY Printer Utility. You are also encouraged to visit the TROY website for latest FAQs (Frequently Asked Questions), information on the latest TROY products, and for ordering MICR toner and other printing supplies.

TO VIEW TECHNICAL SUPPORT INFORMATION:

From the *Main Window*, click on *Help*, and then click on *Technical Support* to view the TROY Technical Support HTML page for telephone numbers and hours of business.

TO VIEW INFORMATION ON THE TROY WEBSITE:

From the *Main Window*, click on *Help*, and then click on *TROY on the Web* to access the TROY website. Click on the *Services and Support* button at the top of the web page to view the available topics. You can access the TROY website directly at <http://www.troygroup.com>.

TO VIEW ON-SCREEN HELP FOR THE TROY PRINTER UTILITY:

From the *Main Window*, click on *Help*, and then click on *TROY Printer Utility Help F1* to view the Printer Utility help documents. You can press the *F1* key at any time while using the TROY Printer Utility to access the help screens.

TO VIEW INFORMATION ABOUT THE PRINTER UTILITY:

From the *Main Window*, click on *Help*, and then click on *About* to view the version level and other information about the TROY Printer Utility.

TO VIEW SYSTEM INFORMATION:

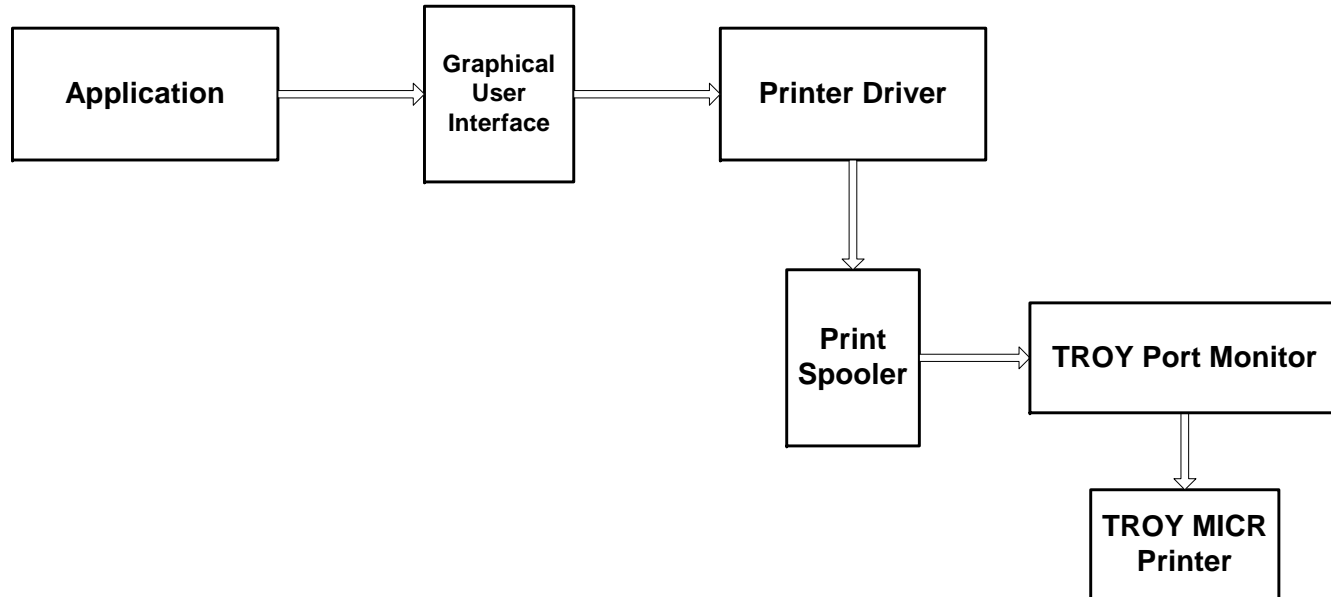
From the *Main Window*, click on *Help*, and then click on *System Information* to view the version level and other information about your computer and printer's hardware and software environment.

Introduction

If using OS Win 2008, Vista, Win7 or using App . Net contact Tech support for implementation

What is a TROY Port Monitor? The TROY Port Monitor is a Windows-based application that manages and configures all print data sent from your Windows application to your TROY Security Printing Solution. Essentially, when you initiate a print job from your Windows application, the raw print data is formatted to fit the printing parameters of the selected TROY printer using the corresponding MICR printer driver installed on the host computer. The formatted print data is then sent to the Windows print spooler, a temporary holding area where all print jobs reside until all previous print jobs have been completed. The TROY Port Monitor receives the formatted print data from the Windows print spooler (before the print job is sent to the printer), manipulates the print data as needed (via preset and/or user-defined commands), and then sends the modified print data on to your TROY printer. In this way, the TROY Port Monitor allows you to embed additional user-defined data and/or print commands (data encryption and TROY security commands) into the print data stream generated by your Windows application before it is sent to your TROY printer. Once the TROY Port Monitor is set up and configured on the host computer, all this functionality takes place in the background without the need for any additional user intervention.

By using the TROY Port Monitor to print to a TROY Security Printing Solution, certain printer feature settings can be temporarily changed during a print job. Features that offer this job-by-job configuration flexibility are known as job-related features. When the print job has finished, the TROY printer will automatically return to the original default feature configuration set by the administrator.



Introduction (cont.)

More than one port monitor can be configured on a Windows-based PC. Multiple port monitors addressed to the same printer can be configured differently, allowing simple point-and-click selection of TROY security features. Multiple port monitors can also be associated with different printers, providing effortless configuration across even the most complex network environments. The only requirement is that each port monitor configured per PC be assigned a unique name.

Configuration settings within the TROY Port Monitor affect only the print job data being sent and do not affect the default configuration of the TROY printer. To change the default configuration of the TROY printer, please see Section 4 – *Using the TROY Printer Utility* for more information. Some of the TROY Port Monitor features may not be available for your TROY Security Printing Solution.

The TROY Port Monitor can be configured to print to a local port (LPT1), a network port (IP address or UNC path), or to a file for archival purposes.

The TROY Port Monitor allows users to perform the following actions within a single print job:

- Encrypt the print data being sent to the printer using a secure encryption algorithm
- Enter a user name and password to enable established privileges
- Enable/Disable the TROY MICR mode
- Enable/Disable and configure the TROYmark™ background image Φ
- Enable factory default mapping for the printer's paper trays
- Assign a PIN (Personal Identification Number) to restrict the printing of a personal print job
- Assign an alternate escape sequence (for legacy application compatibility)
- Rotate the page image 180 degrees when printing (to print MICR line on leading edge of page)

*** TROY Secure EX Series Printers Only**

Installing the TROY Port Monitor

Accessing the TROY Port Monitor

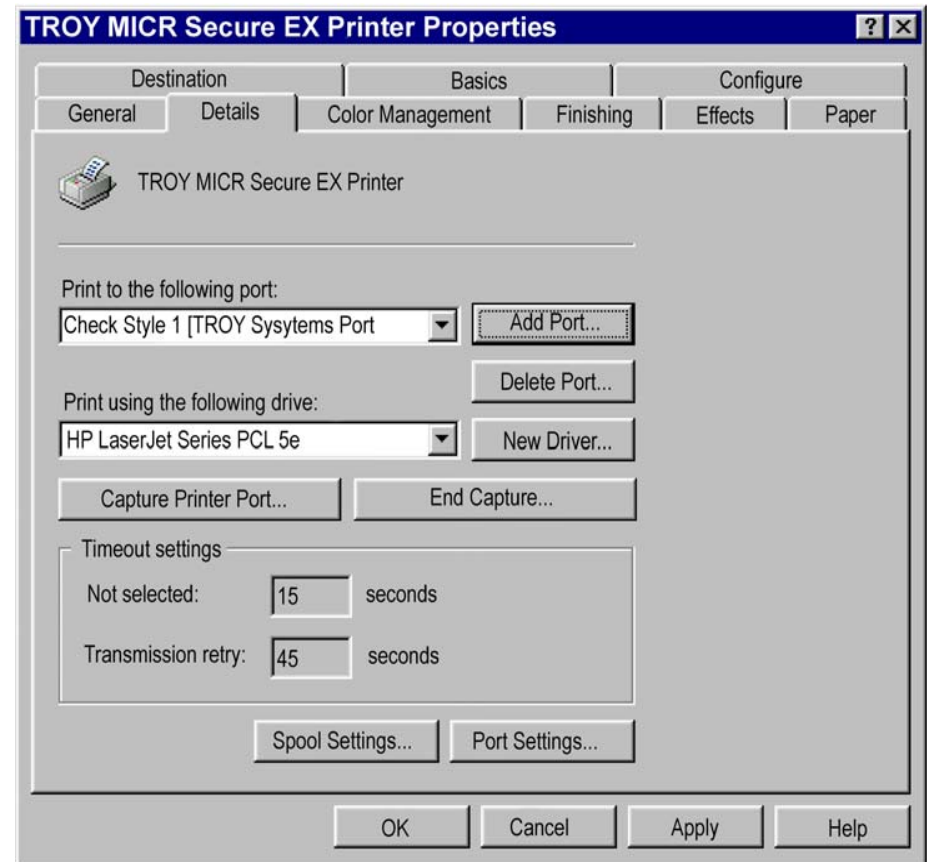
If using OS Win 2008, Vista, Win7 or using App . Net contact Tech support for implementation

To install the TROY Port Monitor, ensure that the appropriate printer drivers are installed first, and then install the port monitor (follow the instructions described in the *TROY Quick-Start Guide*). The TROY Port Monitor software is located on the *TROY Security Printing Solutions* CD supplied with your TROY Security Printing Solution.

The screens required to access the TROY Port Monitor differ slightly between the Windows operating systems supported by the TROY Port Monitor (Microsoft Windows 98SE, ME, 2000/NT4.0, and XP). Once the TROY Port Monitor is accessed, the screens within the TROY Port Monitor will appear identical across all Windows operating systems.

TO ACCESS THE TROY PORT MONITOR IN WINDOWS 98SE OR WINDOWS ME:

1. Click on *Start, Settings*, and then *Printers*.
2. Right-click on the desired TROY printer icon, and then left-click on *Properties*.
3. Click on the *Details* tab. Select the desired printer driver and port that corresponds to the TROY printer being used, and then click on *Port Settings* to access the TROY Port Monitor.

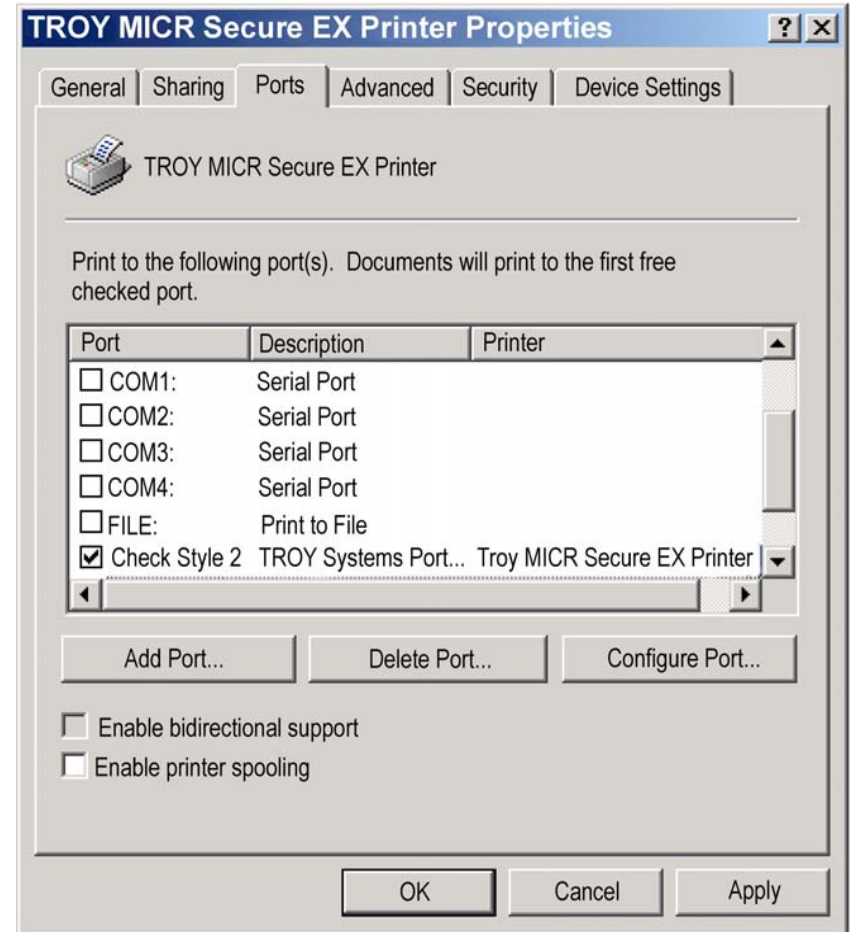


Accessing the TROY Port Monitor (cont.)

If using OS Win 2008, Vista, Win7 or using App . Net contact Tech support for implementation

TO ACCESS THE TROY PORT MONITOR IN WINDOWS 2000/NT4.0 OR XP:

1. Click on *Start*, *Settings*, and then *Printers*.
2. Right-click on the desired TROY printer icon and then left-click on *Properties*.
3. Click on the *Ports* tab. Select the desired port that corresponds to the TROY printer being used, and then click on *Configure Port Settings* to access the TROY Port Monitor.



Using the TROY Port Monitor

Connection Tab

Port monitor settings for the selected TROY Security Printing Solution and associated port will remain in effect until changed by the user. If the administrator has set up user names and passwords, the user must enter a valid user name and password before any port monitor security settings will affect the MICR print job initiated by that user. For non-MICR print jobs, a user name and password is not required, and none of the TROY Port Monitor security settings will affect the print job.

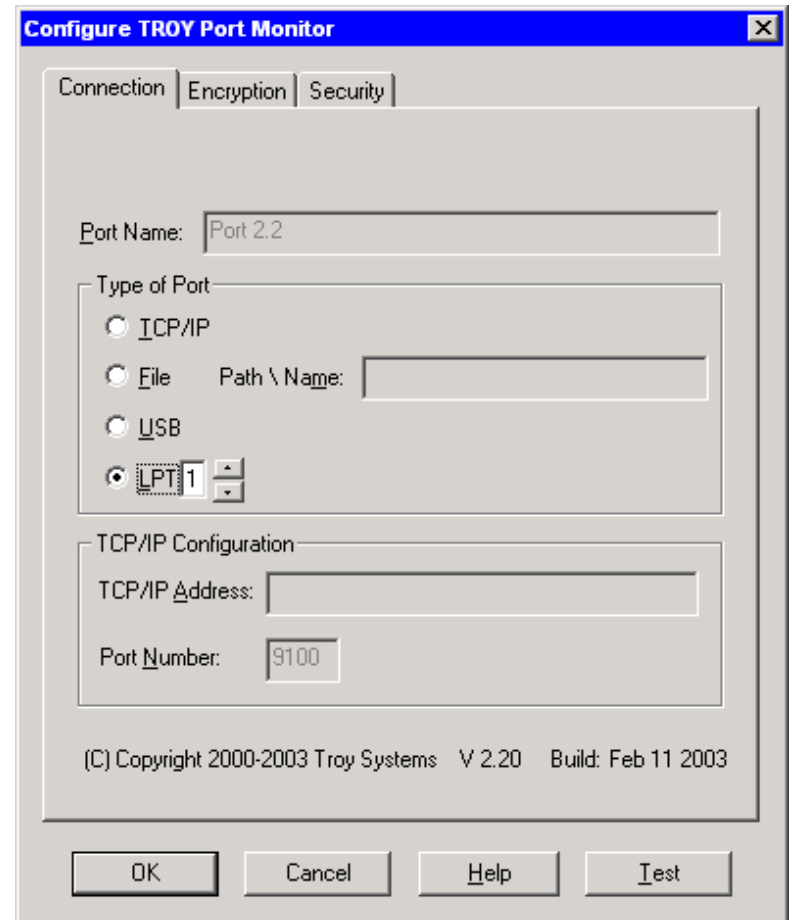
The **Connection** tab is used to select the type of port (local or network) you are using to send print data to the TROY printer.

TCP/IP – select this port if you are sending print data from your computer to a TROY printer over a public (Internet) or private (intranet) network. You must specify a TCP/IP address and port number. The TROY port monitor also supports UNC (universal naming convention) paths.

File – select this port if you want to save your print data in a file for archiving or for printing the job at a later time.

LPT (1-4) – select this port (LPT1 through LPT4) if you are sending print data from your computer to a local printer connected directly to the parallel port of your computer.

USB (Universal Serial Bus) – select this port if you are sending print data from your computer to a TROY printer connected to the USB port of your computer.



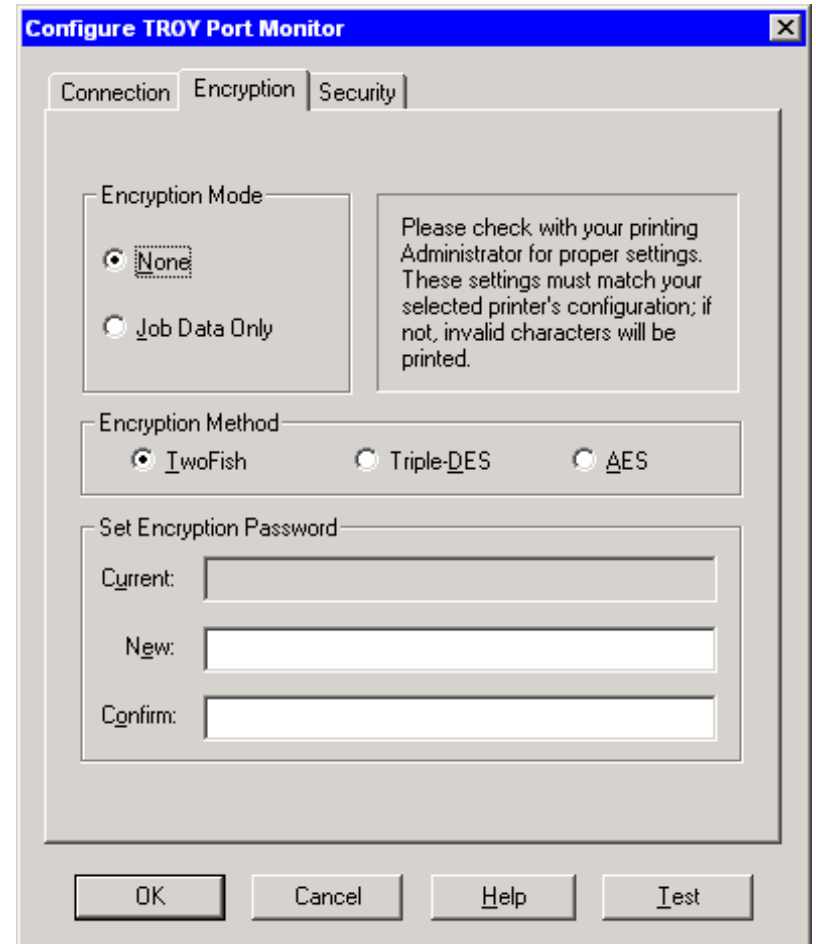
Encryption Tab (MICR Secure EX Printers Only)

The **Encryption** tab is used to enable/disable data encryption. Use this feature to prevent fraudulent interception (eavesdropping) of your proprietary MICR check data being sent over a public network.

Encryption Mode – select *None* for no data encryption, or select *Job Data Only* to encrypt the data being sent from your computer to the TROY printer.

Encryption Method – select the desired encryption method. The Triple-DES (DES3) 168-bit encryption method has been widely used by banking institutions; however, it is now being replaced by the AES (Advanced Encryption Standard) 128-bit encryption method (formerly known as Rijndael). The TwoFish 128-bit encryption method offers fast encryption processing performance. All encryption methods provide similar data encryption security.

Encryption Password – enter the encryption password (up to 128 characters in length) that matches the TROY printer’s current decryption password (pass phrase) set by the system administrator in the Printer Utility.



Security Tab

The *Security* tab is used to enable the port monitor security features for printing MICR documents. If the administrator has implemented PINs or user names and passwords in the TROY printer, matching PINs or a valid user name and password must be entered in the Port Monitor fields under the Security tab in order for MICR jobs to print correctly. Non-MICR print jobs do not require a user name and password, and none of the TROY Port Monitor security settings will affect the print job.

Account User and Password – enter your user name and password as assigned by the system administrator. If the administrator has not assigned you a user name and password, leave the user name and password fields blank.

Personal Identification Number (PIN) – enter a valid 4-digit PIN (0001-9999) to enable printing of the current print job.

Printer PIN: enter a valid 4-digit PIN to enable printing of either a non-MICR or MICR print job. Entering an invalid PIN will cause the print job to be purged, and the software will not provide the user with notification of this action.

MICR PIN: enter a valid 4-digit PIN to enable printing of a MICR print job. Entering an invalid PIN will cause the print job to be purged, and the software will not provide the user with notification of this action. The printer keylock switch must be set to the “*Print MICR*” position.

Job Name/Job PIN: enter the desired job name and 4-digit PIN (0001-9999) to protect your print job. Your print job will only print after the correct job name and PIN is entered at the printer control panel. Entering four zeros (pressing the *Select* button four times) will cancel the print job.

Default Paper Tray Mapping – place a check in this box to use the factory default (standard Hewlett-Packard) paper tray mapping designated for your model of TROY printer. If the administrator has implemented custom tray mapping, then leave this box unchecked to use the custom tray map settings.

Configure TROY Port Monitor

Connection | Encryption | **Security**

Account
 User: Password:

Personal Identification Number (PIN)
 Printer PIN: Job Name:
 MICR PIN: Job PIN:

Default Paper Tray Mapping Alternate Escape String:

Enable MICR Mode HP Job Password:

Auto Page Rotate

TROYmark
 Disabled Each unit is 1/600th of an inch

	X Offset	Y Offset	Width	Height
Include Region:	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Exclude Region:	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>

OK Cancel Help Test

Security Tab (cont.)

Alternate Escape Sequence – (used only for legacy application compatibility) enter the alternate ASCII character number (0-255) to use as a replacement for the ASCII character 27 (escape character) in the PCL 5 data stream sent to the printer. Press the **Alt** key and enter the ASCII character number.

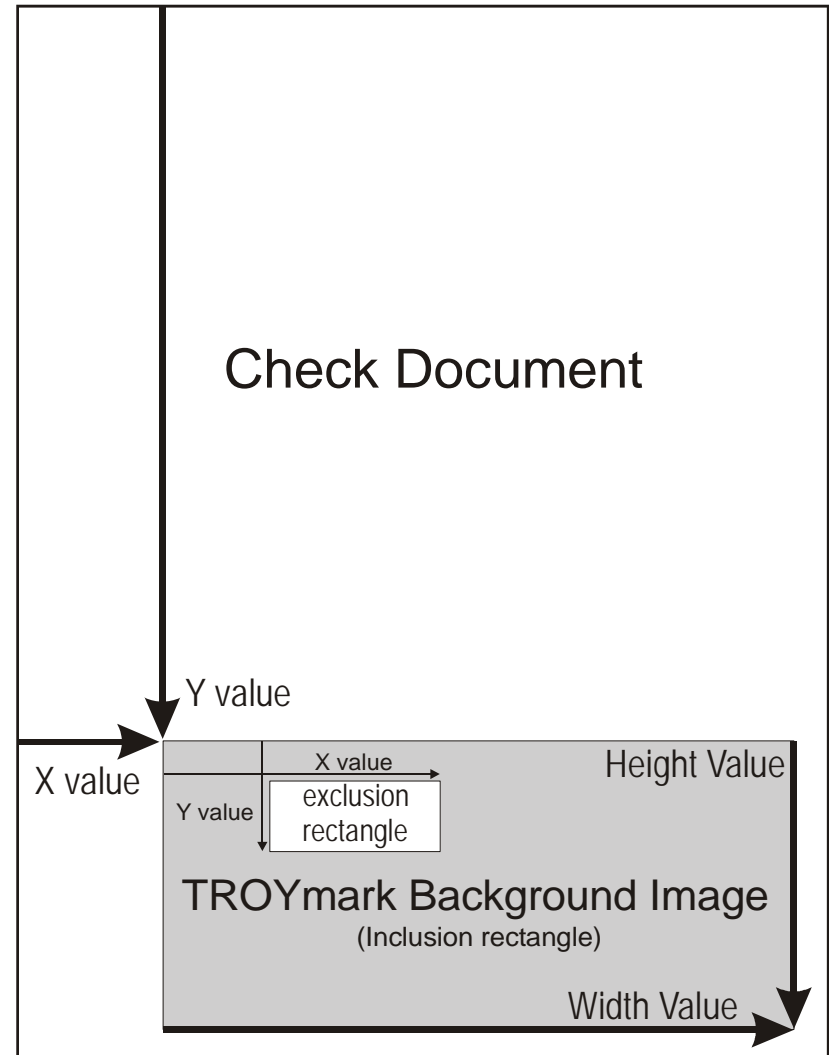
Enable MICR Mode – check this box to enable MICR mode when printing MICR documents.

HP Job Password – (used only for legacy TROY printers) enter the password (0-65535) that matches the job password (PJM command) set in the TROY printer by the administrator.

Automatic Page Rotation – when printing checks with the MICR line at the bottom of the check paper, check this box to rotate the page image 180 degrees to print the MICR line at the top of the page, ensuring accurate MICR line placement.

TROYmark™ – select **Disable** for no background image on the check or select either **Light, Medium, or Dark** to use a pre-defined density level for the background image, or select **Custom** to use a custom density level that best suits the design of your check.

Inclusion and Exclusion Regions – enter the appropriate “X” (horizontal) and “Y” (vertical) offset numerical values to define the top-left starting point of the inclusion region and the exclusion region(s), and then enter the width and height numerical values to define the bottom-right ending point of the inclusion and the exclusion region(s) for placement of the TROYmark™ background image and exclusion areas. Click on **Test** to print a sample page to verify the inclusion/exclusion region placement on the check. Make adjustments to the numerical values as needed. Each increment in the numeric value equals 1/600th of an inch.



Introduction

Many of the TROY printer features provided in the TROY Printer Utility can be configured through the printer control panel as a secondary point of control. For security purposes, an administrator password is required before access to the TROY printer features is allowed. Refer to the menu maps shown on the following pages to select, setup, or configure the TROY features available through the printer control panel.

Security

An administrator password is used within the TROY Security Printing Solutions to secure the TROY printer features and settings. The printer uses a permanent default user name (**ADMIN**) that cannot be deleted or modified; however, the administrator password can be modified using the TROY Printer Utility or the printer control panel. The administrator default password is blank (no password); however, administrators are encouraged to setup a unique password to restrict access to the TROY printer's features and settings. After an administrator password is set, all standard Hewlett-Packard printer features normally available through the printer control panel will remain accessible to anyone without entering a password.

Although the administrator password can be set via the printer control panel, TROY strongly recommends using the TROY Printer Utility to select or modify the administrator password. The TROY Printer Utility will automatically update the printer's administrator password whenever the password is changed in the printer utility. However, changing the administrator password at the printer control panel will not update the TROY Printer Utility password in the host computer (no bi-directional communication). The printer's administrator password and the TROY Printer Utility password in the host computer must be identical in order to access the printer features through the TROY Printer Utility.

NOTE: If you plan to use the TROY Printer Utility exclusively to set or enter the administrator password (recommended), then both letters and/or numbers may be used for the administrator password.

Functionality




The 3015 printer control panel has a numeric keypad for added convenience. To differentiate between a Hewlett-Packard and a TROY printer feature, all TROY printer features will display the word **TROY** at the top of each main menu.



Accessing Printer Features



Entering the Administrator Password

TO ACCESS PRINTER FEATURES:

1. Press the menu  button.
2. Press the down arrow ▼ or the up arrow ▲ to navigate the listings.
3. Press the **OK** button to select the appropriate option.
4. Press the back arrow  to return to the previous level.
5. Press the menu  button to exit the menu.
6. Press the help ? button to see additional information about an item.

A valid administrator password must be entered at the printer control panel before access is allowed to any of the TROY security features and settings. If an administrator password has not been previously set, then the default password is blank (no password).


TO ENTER THE ADMINISTRATOR PASSWORD:

1. Press the menu  button.
2. Press the down arrow ▼ to select **TROY MENUS**, and then press the **OK** button.
3. Press the down arrow ▼ to select **SECURITY MENU**, and then press the **OK** button.
4. Ensure **ACTION** is highlighted, and then press the **OK** button.
5. Ensure **LOG IN** is highlighted, and then press the **OK** button. The printer will display **SETTING SAVED** and then automatically return to the previous submenu.
6. Press the down arrow ▼ to select **USER ID**, and then press the **OK** button.
7. Press the down arrow ▼ to select the letter **A**, and then press the **OK** button. Repeat this process using the up and down arrows until you have entered the word **ADMIN** and then press the **OK** button four times to continue.
8. Press the down arrow ▼ to select **PASSWORD**, and then press the **OK** button.
9. Enter your password, and then press the **OK** button. If a password has not been set, then press the **OK** button repeatedly to exit this field and continue.
10. Press the menu  button to refresh the menu options. The menu options must be refreshed to ensure that all available menu selections are displayed on the printer control panel.


Saving/Restoring Printer Settings

In the event that a cold reset is performed on your TROY printer due to servicing and/or firmware updates, all TROY-managed variable values will be lost, and therefore, will require re-entry by the user. TROY Security Printing Solutions provide the ability to save and restore all TROY-managed variable values.

TO SAVE TROY-MANAGED VARIABLE VALUES:

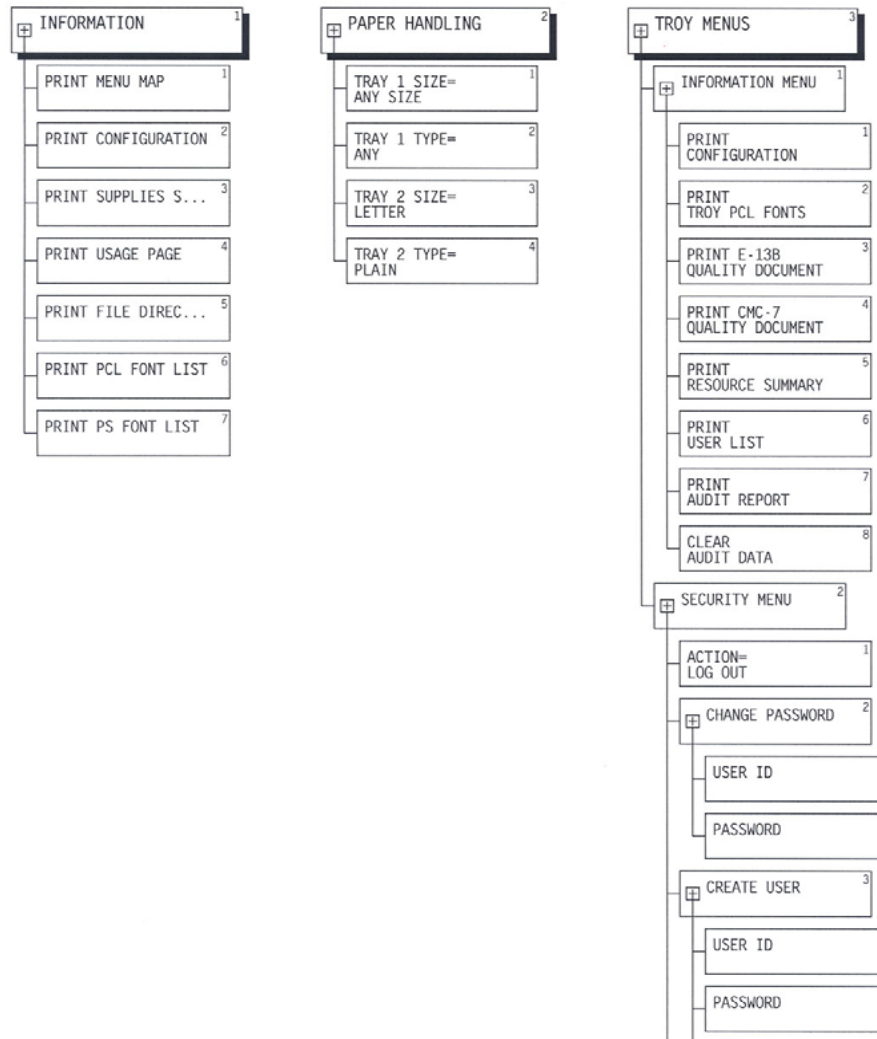
1. Press the menu  button.
2. Press the down arrow ▼ to select **TROY MENUS**, and then press the **OK** button.
3. Press the down arrow ▼ to select **SETTINGS MENU**, and then press the **OK** button.
4. Press the down arrow to select **TROY MANAGED VARIABLES**, and then press the **OK** button.
5. Press the down arrow ▼ to select **SAVE CURRENT VALUES**, and then press the **OK** button. The printer will display **PROCESSING REQUEST** and then automatically exit the menu system.

TO RESTORE TROY-MANAGED VARIABLE VALUES:

1. Press the menu  button.
2. Press the down arrow ▼ to select **TROY MENUS**, and then press the **OK** button.
3. Press the down arrow ▼ to select **SETTINGS MENU**, and then press the **OK** button.
4. Press the down arrow ▼ to select **TROY MANAGED VARIABLES**, and then press the **OK** button.
5. Ensure **RECALL SAVED VALUES** is highlighted, and then press the **OK** button. The printer will display **PROCESSING REQUEST** and then automatically exit the menu system.

TROY Security Printing Solutions Menu Map

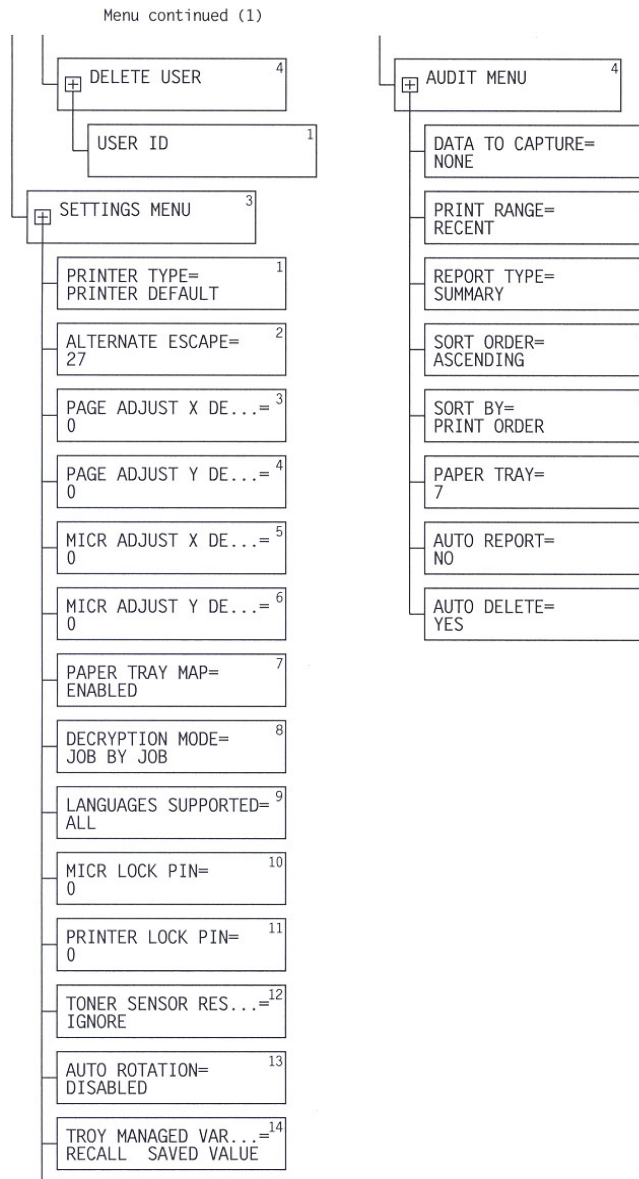
The following sample menu map shows the available TROY features that are built into TROY Security Printing Solutions. Depending on your type of TROY Security Printing Solution, some of these features may not be available on your TROY printer (refer to the menu maps on the following pages).



Section 6

Using the Printer Control Panel

TROY Security Printing Solutions Menu Map (cont.)



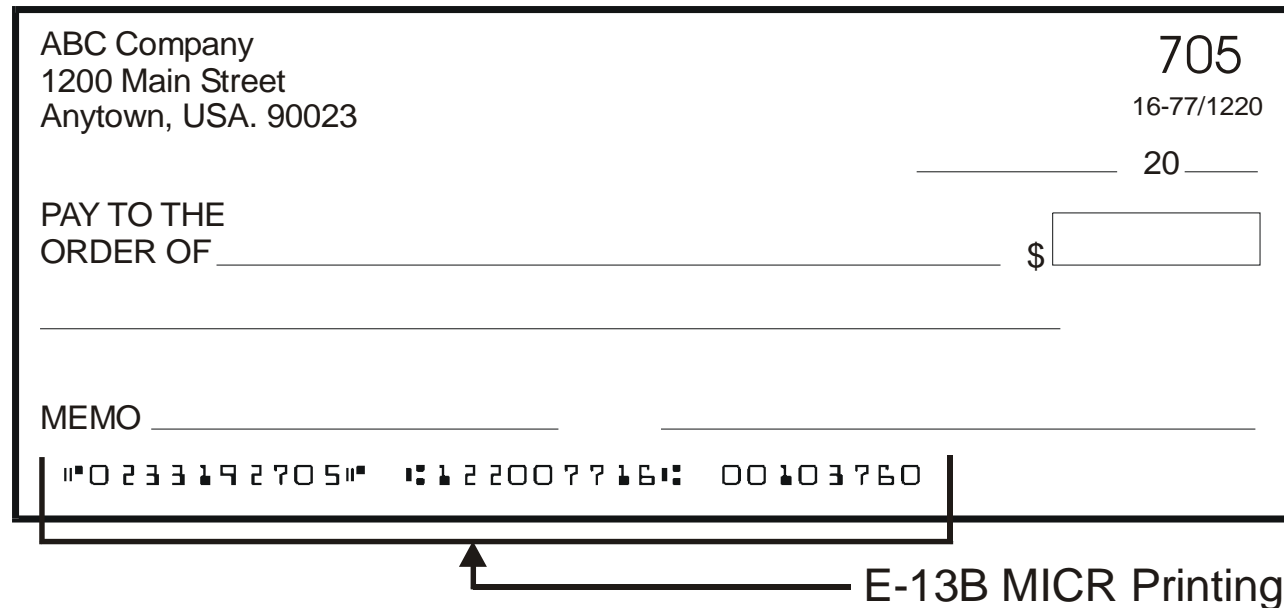
Using the Exact Positioning Technology

If the MICR line on your checks does not meet the ANSI X/9B specification for MICR line placement, use this feature to make small vertical, horizontal, or rotational positioning adjustments to the MICR line and/or page image. Use the TROY MICR Document Template (54-17373-001) to verify the correct placement of the MICR line on your checks after performing an adjustment (refer to *Section 3 – MICR Quality Control* in the **TROY MICR Basics Handbook** for instructions on using the TROY MICR Document Template). If adjustments are made simultaneously to the MICR line and the page image positions using positive numbers, then the sum of the two numbers will be used as the offset value for the MICR line.

NOTE: The MICR line adjustments are preset at the factory. TROY recommends that you do not alter these settings unless your bank of deposit notifies you of MICR line positioning errors on your deposited checks.

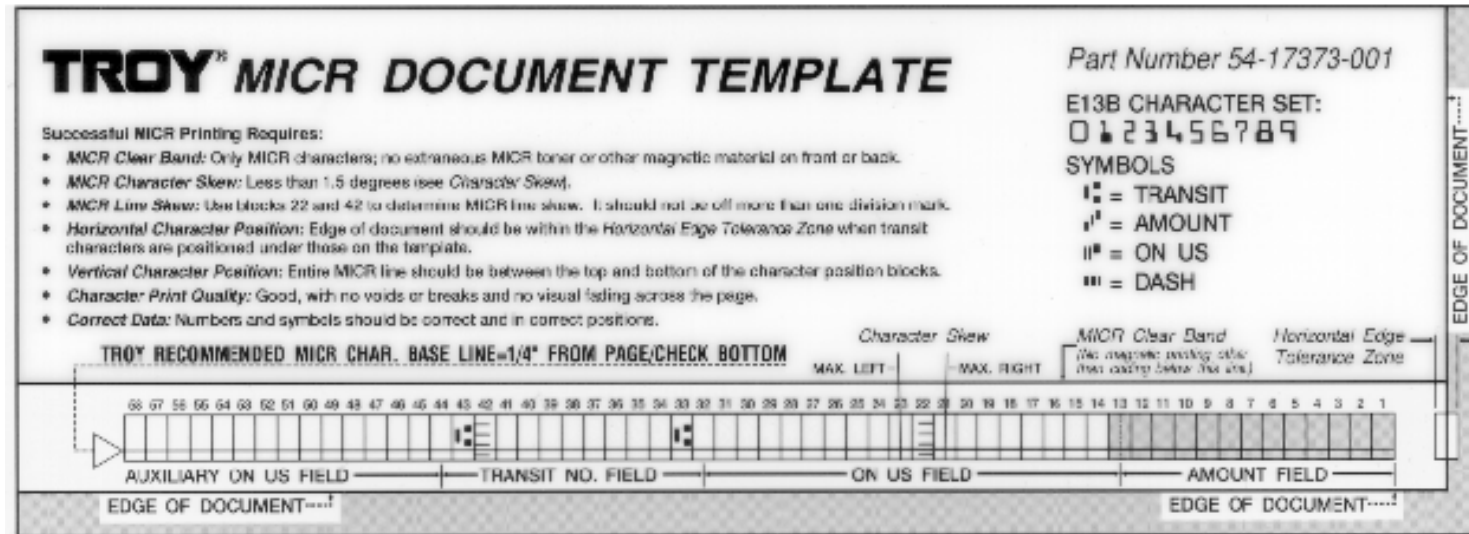
TO EVALUATE THE PLACEMENT OF THE MICR LINE ON YOUR PRINTED CHECKS:

1. Print one page of test checks to use for evaluating the positioning of the E-13B MICR printing at the bottom of each check (see the example below).



Using the Exact Positioning Technology (cont.)

- Use the provided TROY MICR Document Template (see the example below) to evaluate the position of the printed MICR line on the bottom of your checks. Refer to *Section 3 – MICR Quality Control* in the *TROY MICR Basics Handbook* (provided on the *TROY Security Printing Solutions CD*) for instructions on using the TROY MICR Document Template.

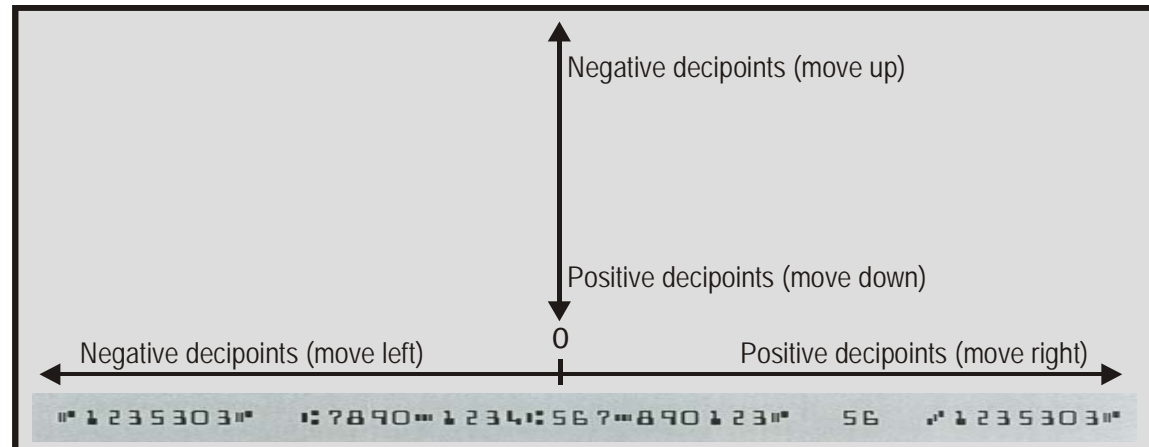


Using the Exact Positioning Technology (cont.)

TO ADJUST THE POSITION OF THE MICR LINE

1. If not already logged into the printer control panel, enter a valid administrator password (see page 6-2).
2. Press the down arrow ▼ to select **TROY MENUS**, and then press the **OK** button.
3. Press the down arrow ▼ to select **SETTINGS MENU**, and then press the **OK** button.
4. Press the down arrow ▼ to select the desired adjustment parameter (**MICR ADJUST X DECIPPOINTS** or **MICR ADJUST Y DECIPPOINTS**), and then press the **OK** button.
5. Enter the desired decipoint offset value (-720 to +720) to reposition the MICR line (**X**=horizontal and **Y**=vertical), and then press the ✓ button to save each decipoint value. Each decipoint is equal to 1/720th of an inch. Repeat this step for each parameter you wish to change.
6. Press the down arrow ▼ to select **AUTO ROTATION**, and then press the **OK** button.
7. Press the down arrow ▼ to select **ENABLE** or **DISABLE**, and then press the **OK** button to save this setting. If enabled, the page will print upside down (180-degree rotation) from the currently defined orientation.
8. Print a test page to evaluate the MICR line position adjustment. Repeat the adjustment as necessary. Use the TROY MICR Document Template to verify all MICR line adjustments.

The "MICR Adjust Y" selection on the printer control panel will move the MICR line up (negative decipoints) and down (positive decipoints).



The "MICR Adjust X" selection on the printer control panel will move the MICR line left (negative decipoints) and right (positive decipoints).

Using the Exact Positioning Technology (cont.)

TO ADJUST THE POSITION OF THE PAGE IMAGE:

1. If not already logged into the printer control panel, enter a valid administrator password (see page 6-2).
2. Press the down arrow ▼ to select **TROY MENUS**, and then press the **OK** button.
3. Press the down arrow ▼ to select **SETTINGS MENU**, and then press the **OK** button.
4. Press the down arrow ▼ to select the desired adjustment parameter (**PAGE ADJUST X DECIPPOINTS** or **PAGE ADJUST Y DECIPPOINTS**), and then press the **OK** button.
5. Enter the desired decipoint offset value (-720 to +720) to reposition the page image (**X**=horizontal and **Y**=vertical), and then press the **OK** button to save each decipoint value. Each decipoint is equal to 1/720th of an inch. Repeat this step for each parameter you wish to change.
6. Print a test page to evaluate the MICR line position adjustment. Repeat the adjustment as necessary. Use the TROY MICR Document Template to verify all MICR line adjustments.

Introduction

The TROY MICR E-13B and CMC-7 MICR fonts have been specifically engineered for your TROY Security Printing Solution to ensure the highest quality MICR printing in the industry. The TROY font collection provides seamless integration and security within your Windows-based check printing application. All TROY fonts are permanently programmed into the TROY memory card to ensure consistent high-quality MICR printing and to prevent unauthorized use of these fonts on another printing system. Your TROY Security Printing Solution includes the following fonts:

- TROY MICR Font (E-13B and CMC-7)
- TROY Security Font (English and Spanish)
- TROY Convenience Fonts (Enhanced, Large and Small)
- TROY Reverse Helvetica Font
- TROY OCR Fonts (type A and B)
- TROY Messaging Fonts
- TROY AutoProtect™ Font
- TROY Data Capture Fonts
- TROY Microprint Font
- British Pound and Euro symbols
- TROY POSTNET and Barcode Fonts

Accessing and Using TROY Fonts

The following paragraphs provide some basic information for accessing and using the TROY fonts. It is important that these fonts are kept secure to prevent unauthorized use and that the fonts remain unaltered to ensure accurate rendering by the TROY printer. All TROY fonts reside in the secure memory area of the TROY Security Printing Solution and cannot be directly accessed through the printer control panel or other external means. Users having the appropriate security rights can access the TROY MICR fonts from any Windows-based application.

Accessing TROY Fonts Using Windows Applications

To access the TROY fonts in a Windows environment, you must first install the Windows printer driver for the specific model of TROY Security Printing Solution being installed. Follow the instructions in the ***TROY Quick-Start Guide*** to install the printer driver and Windows support files, enabling you to select these fonts from any Windows-based application. To print the TROY E13-B and CMC-7 MICR fonts, your TROY printer must be set to MICR enabled mode, and a TROY MICR toner cartridge must be installed in the printer (TROY Secure EX series printers must have the keylock switch set to “***Print MICR***”). Many commercial MICR check-printing applications are pre-programmed to access the TROY MICR fonts. Refer to the ***TROY Programmer’s Reference Guide*** for more details.

Accessing TROY Fonts Using Non-Windows Applications

If you are using a non-Windows application to print MICR documents, the escape sequence for each font must be programmed into your check-printing application in order to “call” each of the selected fonts. The <Esc> character is ASCII character number 27 (hexadecimal number 1B). Refer to the end of this section for each escape sequence (displayed above each character map) used to call each TROY font.

Using the TROY E-13B MICR Font

The E-13B MICR font (TROY E-13B) can be used for printing the MICR line in many countries, including the United States. In some European and Latin American countries, the CMC-7 MICR font is used instead. TROY can provide customer support for your MICR applications only if you use the supplied TROY MICR fonts.

Using the TROY CMC-7 MICR Font

The CMC-7 MICR font (TROY CMC-7) can be used for printing the MICR line in many countries, including some European and Latin American countries. TROY can provide customer support for your MICR applications only if you use the supplied TROY MICR fonts.

Using the Convenience Amount Fonts

Your TROY Security Printing Solution includes a large, small and enhanced convenience amount font (TROY ECF, TROY LCF, TROY SCF). These fonts consist of numbers with their alphabetic spellings placed directly below the numerical character. These fonts are designed for use in the **Legal Amount** field only (located directly below the **Payee** field). You can enter alphanumeric symbols representing the amount of the check into this field.

Using the TROY Security Font

The TROY Security font (TROY SECURITY, TROY SECURITY SPANISH) is designed to prevent fraudulent alteration to the **Amount** field on the check. The font consists of numbers with their alphabetic spellings placed directly below the numerical character with a wavy lined pattern running through each character. These fonts are designed for use in the **Legal Amount** field only (located directly below the **Payee** field on the check). You can enter numeric symbols representing the amount of the check into this field. During document processing, convenience amounts may be visually read and encoded on the check by bank personnel. In this case, a large **Convenience Amount** font may best meet your bank’s requirements.

Using the TROY Messaging Fonts

The TROY Messaging font is designed specifically to capture user-defined non-check data that can be included in the TROY audit reports and/or the TROYmark™ background image on the check. The messaging font is visible on the screen as a generic typeface, but will not print.

Using the TROY OCR Fonts

The TROY OCR fonts (TROY OCR-A AND TROY OCR-B) are used to print any information (names, addresses, amounts) on the check that is to be read by automated readers using optical character recognition.

Using the Reverse Helvetica Font

The TROY Reverse Helvetica font is used to print names and addresses on the back of transparent envelope windows for use in pressure-seal machines.

Using the TROY AutoProtect™ Font

To prevent fraudulent production of checks, TROY Security Printing Solutions can automatically print “VOID”, “DO NOT CASH”, “NON-NEGOTIABLE” or any other user-defined phrase across the face of any check that was printed on any printer other than a TROY Security Printing Solution. The TROY AutoProtect™ font (TROY AUTO-PROTECT) provides a visual safeguard to identify checks printed by printers without TROY MICR toner or the TROY MICR font.

Using the TROY Microprint Font

The TROY Microprint font is used to print security messages on checks that cannot be copied by photocopying.

Using the POSTNET Font

The POSTNET (Postal Numeric Encoding Technique) font (TROY POSTNET) is used to represent the nine-digit postal zip code below the postal address line. Using the POSTNET font on your mailing envelopes and postcards will significantly decrease postal processing time and reduce the chance of errors when manual data entry is required at the post office.

Using the British Pound and Euro Symbols

The British Pound and European currency symbols are used in place of the U.S. dollar sign for the respective European country and can be selected to print in the audit reports. A decimal point or comma can be selected for use with these currency symbols.

Using the Barcode Fonts

TROY barcode fonts provide all the symbolic figures necessary to print correctly formatted and scannable barcodes from your TROY printer. Your TROY Security Printing Solution provides the following barcodes:

- Code 39
- Code 128
- Interleaved 2 of 5
- EAN 13
- EAN 8
- UPC–A
- UPC–E

Similar to the TROY MICR fonts, the TROY barcodes are selected by sending a PCL5 font selection sequence (escape sequence) to the printer in a PCL5 job. However, unlike the TROY MICR fonts, implementing barcodes requires additional programming parameters that must be precisely defined in order for the barcode to print correctly. Therefore, it is recommended that all barcode programming be referred to qualified personnel.

Using the Data Capture Fonts

The data capture fonts are designed to capture default and user-defined data from the check for use in the TROY Secure Seal, enhanced audit reports, or the TROYmark™ background image printed on the check. Several data capture font styles are provided to allow customization of your check; however, the same data capture font can be used for capturing all desired check data. Use the TROY Printer Utility to configure your data capture fonts (see Section 4 – *Using the TROY Printer Utility*. **Refer to the example below and the example on the next page.**

TROY Detailed Audit Report							
Record	MICR	Amount*	Payee Name	Date	Custom		
00013	C1234567890C A123456789A 12345D67890C	\$ 2,673.00	John Q. Public	10/05/2000	999-99-9999	QFG382M	
	②	⑥	③	⑤	⑦	⑧	
	MICR Line (automatically captured)	TROY Amount	TROY Payee	TROY Date	Custom 1	Custom 2	

1	TROY Digital Signature (shown on the next page)
2	MICR Line (automatically captured)
3	TROY Payee
4	Custom 3 (user-defined non-check data using the TROY Messaging font), (shown on the next page)
5	TROY Date
6	TROY Amount
7	Custom 1 (user-defined data contained on the check)
8	Custom 2 (user-defined data contained on the check)

Section 7

Using TROY Fonts

Using the Data Capture Fonts (cont.)

Explanation of Your Insurance Benefits

2331 S. Pullman Street
Santa Ana, CA 92705
(800) 332-6427
(949) 250-8972 Fax
www.troysystems.com

8	POLICY # QFG9382M	DATE 10/5/2000
Client Name John Q. Public		
7	SSN 999-99-9999	Claim I.D. 993-QFGM

NAME OF PROVIDER OR TYPE OF EXPENSE	CODE	DATE OF SERVICE FROM	DATE OF SERVICE TO	CHARGES	BENEFIT AMOUNT
ANGEL MEMORIAL HOSPITAL	27	11/01	11/05	\$2673.00	\$2673.00

A DRAFT PAYMENT WAS ISSUED TO

John Q. Public

- IMPORTANT -

- Please sign and mail the enclosed form (3345) and return within 7 days.
- Please cash check within 30 days.

DETACH THIS PORTION BEFORE CASHING DRAFT - PLEASE CASH PROMPTLY

2331 S. Pullman Street
Santa Ana, CA 92705
(800) 332-6427
(949) 250-8972 Fax
www.troysystems.com

Bank Two
One Second Street
Chicago, IL 60674
1680/1220

CHECK NO. 2837284

DATE	CONTROL	AMOUNT
10/5/2000		\$2673.00

Pay Two Thousand Six Hundred Seventy Three Dollars and No Cents

TO THE ORDER OF John Q. Public
100 Stars Avenue
Los Angeles, CA 9021

John E. Doe
EXECUTIVE V.P.
NON-NEGOTIABLE

2 → ⑆ 1234567890 ⑆ ⑆ 123456789 ⑆ ⑆ 1234567890 ⑆

1	TROY Digital Signature
2	MICR Line (automatically captured)
3	TROY Payee
4	Custom 3 (user-defined non-check data using the TROY Messaging font)
5	TROY Date
6	TROY Amount
7	Custom 1 (user-defined data contained on the check)
8	Custom 2 (user-defined data contained on the check)



Section 7

Using TROY Fonts

Using Printer Fonts and Screen Fonts

In addition to the TROY *printer* fonts that are permanently programmed into the TROY Security Printing Solution, the TROY *screen* fonts have been developed for screen display use only as a visual reference and for making positional adjustments to the MICR line. The TROY *screen* fonts display differently than the actual *printer* fonts in order to prevent unauthorized printing using the MICR *screen* fonts on other Windows-installed printers.

If the E-13B MICR *screen* font is used for printing, the inversely printed (white characters on a black background) MICR *screen* font will not be readable by the bank reader/sorter machines. The uniquely displayed *screen* fonts ensure that the MICR font printed on your MICR documents is generated by the TROY Security Printing Solution and not by the Windows operating system using the resident TrueType™ font. The TROY *screen* fonts are provided on the **TROY Security Printing Solutions** CD supplied with your TROY Security Printing Solution.

TROY E-13B Screen Font:	
TROY CMC-7 Screen Font:	
TROY LCF Screen Font:	
TROY SCF Screen Font:	
TROY ECF Screen Font:	
TROY Security Screen Font:	
TROY Messaging Screen Font:	<i>A Message For You</i>
TROY AutoProtect Screen Font:	VOID VOID VOID
TROY OCR-A Screen Font:	ABCDEFGHIJKLMNOPQRSTUVWXYZ
TROY OCR-B Screen Font:	ABCDEFGHIJKLMNOPQRSTUVWXYZ
TROY Reverse Helvetica Screen Font:	
TROY Microprint Screen Font:	-----
TROY Code 128 Screen Font:	
TROY Code 2 of 5 Screen Font:	
TROY Code 3 of 9 Screen Font:	
TROY EAN-8 Screen Font:	
TROY EAN-13 Screen Font:	
TROY POSTNET Screen Font:	
TROY Reverse POSTNET Screen Font:	
TROY UPC-A Screen Font:	
TROY UPC-E Screen Font:	



MICR Font Guidelines

The TROY E-13B and CMC-7 MICR fonts were developed using strict specifications designed specifically for high-speed magnetic-read processing. To maintain these strict specifications, the TROY MICR fonts were designed as non-scalable fonts (fixed fonts) that are fixed in pitch (spacing) and point size (height). Because Windows TrueType™ technology allows fonts to be scalable by changing the point size, it is imperative to maintain the 12-point size of the MICR fonts installed in Windows. Selecting a point size other than 12-point for the MICR font in Windows will not visibly enlarge or reduce the size of the characters; however, the horizontal spacing will be affected. Any alteration to the spacing of the characters will result in incorrect placement of the MICR characters in the MICR line at the bottom of your checks, causing your financial documents to be rejected by the bank.

The Convenience Amount fonts were also designed as non-scalable fonts, but can be changed (increased or decreased) from the default point size to meet your check printing requirements. Changing the point size of a fixed font in Windows will only affect the horizontal spacing of the characters and not affect the vertical size of the characters. The TROY Enhanced Convenience Amount font and TROY Security font were designed as scalable fonts that can be changed (increased or decreased) from the default point size to meet your check printing requirements.

NOTE: It is highly recommended that you verify the MICR line at the bottom of your printed checks using the TROY MICR Document Template (p/n 54-17373-001) to verify the positioning of each character. Refer to the TROY MICR Basics Handbook for details (provided in PDF format on the TROY Security Printing Solutions CD supplied with your TROY Security Printing Solution).

Priority of Font Locations

If the TROY printer is in MICR mode, and a MICR font in another format is resident in the printer, the font selection will be according to the following priority:

Soft Font (Lowest ID first)	<i>Highest</i>
Programmed Firmware Font	
MICR System Font	<i>Lowest</i>

Font Character Mapping

Each character or symbol in a font set corresponds to a specific ASCII (American Standard Code for Information Interchange) number (e.g., the capital letter “A” = ASCII number 65). Pressing a key on your computer keyboard automatically generates the ASCII number (32 through 127) associated with the character or symbol displayed on the key. Likewise, any character or symbol not represented on your computer keyboard (ASCII numbers above 127) can be accessed by manually entering the associated ASCII number using the numeric keypad.

The fonts provided on the *TROY Security Printing Solutions* CD have each of the characters and symbols in each font set (shown on the following pages) “mapped” (associated) to standard computer keyboard characters using the corresponding ASCII number for each character and symbol on the keyboard.

For example, the transit symbol (one of the industry-standard symbols used in a MICR line at the bottom of a check) contained in the TROY E-13B MICR character table (described on the next page) does not exist on a standard computer keyboard but has been “mapped” to the standard ASCII keyboard capital letter “A”, designated as ASCII number 65.

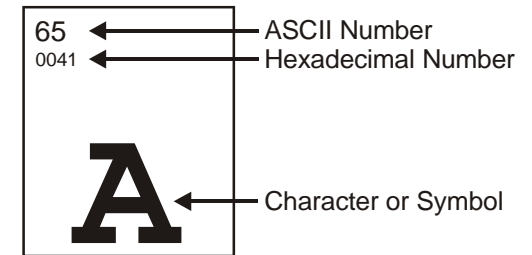
Therefore, after loading and then selecting the TROY E-13B MICR Font, typing the capital letter “A” on your computer keyboard will produce the MICR transit symbol instead of the capital letter “A”. The TROY E-13B character table ([shown on page 7-11](#)) associates the transit symbol with ASCII number 65 (the same ASCII number used for the capital letter “A” if you had selected a standard ASCII font set instead of the TROY E-13B MICR font set).

Determining a Character Mapping

Accessing Unmapped Characters

To determine which key on your computer keyboard that a TROY character or symbol is “mapped” to, simply compare the ASCII number of the selected TROY character or symbol to the same ASCII number listed in the *Standard ASCII Character Map* (shown on the next page) to determine which keyboard key can be used to access the selected TROY character or symbol.

Some of the font sets provided on the *TROY Security Printing Solutions* CD contain more characters or symbols than can be “mapped” to the available keys on a standard computer keyboard. In this case, these characters can be accessed by manually entering the ASCII number (see example at right) designated for each character (refer to the character tables on the following pages). The hexadecimal number shown below the ASCII number is used for programming mainframe computers.



To access a character or symbol that is not “mapped” to one of the keys on your Windows computer keyboard, you can manually enter the ASCII number by holding down the **ALT** key on your keyboard, entering the associated ASCII number for the character you wish to access, and then releasing the **ALT** key.

NOTE: You must use the numerical keypad on your keyboard to enter the ASCII number. The number keys along the top of the keyboard will not work for this application.

Section 7

Using TROY Fonts

Standard ASCII
Character Set
(reference only)

24	25	26	27	28	29	30	31	32 0020	33 0021	34 0022	35 0023
									!	"	#
36 0024	37 0025	38 0026	39 0027	40 0028	41 0029	42 002A	43 002B	44 002C	45 002D	46 002E	47 002F
\$	%	&	'	()	*	+	,	-	.	/
48 0030	49 0031	50 0032	51 0033	52 0034	53 0035	54 0036	55 0037	56 0038	57 0039	58 003A	59 003B
0	1	2	3	4	5	6	7	8	9	:	;
60 003C	61 003D	62 003E	63 003F	64 0040	65 0041	66 0042	67 0043	68 0044	69 0045	70 0046	71 0047
<	=	>	?	@	A	B	C	D	E	F	G
72 0048	73 0049	74 004A	75 004B	76 004C	77 004D	78 004E	79 004F	80 0050	81 0051	82 0052	83 0053
H	I	J	K	L	M	N	O	P	Q	R	S
84 0054	85 0055	86 0056	87 0057	88 0058	89 0059	90 005A	91 005B	92 005C	93 005D	94 005E	95 005F
T	U	V	W	X	Y	Z	[\]	^	_
96 0060	97 0061	98 0062	99 0063	100 0064	101 0065	102 0066	103 0067	104 0068	105 0069	106 006A	107 006B
`	a	b	c	d	e	f	g	h	i	j	k
108 006C	109 006D	110 006E	111 006F	112 0070	113 0071	114 0072	115 0073	116 0074	117 0075	118 0076	119 0077
l	m	n	o	p	q	r	s	t	u	v	w
120 0078	121 0079	122 007A	123 007B	124 007C	125 007D	126 007E	127	128	129	130	131
x	y	z	{		}	~					

Section 7

Using TROY Fonts

TROY MICR E-13B 12-Point Font
(Troy E-13B)

<Esc> (ØQ<Esc> (s1p12vØsØbØT

24	25	26	27	28	29	30	31	32 F020	33	34	35
36 F024	37	38 F026	39	40	41	42	43	44	45 F02D	46	47 F02F
48 F030	49 F031	50 F032	51 F033	52 F034	53 F035	54 F036	55 F037	56 F038	57 F039	58 F03A	59 F03B
60	61 F03D	62	63	64	65 F041	66 F042	67 F043	68 F044	69	70	71
72	73	74	75	76	77	78	79 F04F	80	81	82	83
84 F054	85	86	87	88	89	90	91	92	93	94	95
96	97	98	99	100	101	102	103	104	105	106	107
108	109	110	111 F06F	112	113	114	115	116 F074	117	118	119

Section 7

Using TROY Fonts

TROY MICR CMC-7 12-Point Font (Troy CMC7)

<Esc> (ØQ<Esc> (s1p12vØsØb1T

24	25	26	27	28	29	30	31	32 F020	33	34	35
36	37	38	39	40	41	42	43	44	45	46	47
48 F030	49 F031	50 F032	51 F033	52 F034	53 F035	54 F036	55 F037	56 F038	57 F039	58	59
60	61	62	63	64	65 F041	66 F042	67 F043	68 F044	69 F045	70	71

TROY Enhanced Convenience Amount Font (Troy ECF)

<Esc> (3Q<Esc> (s1p□vØsØb1ØT □ = desired point size

24	25	26	27	28	29	30	31	32 F020	33	34	35
36 F024	37	38	39	40	41	42 F02A	43	44 F02C	45	46 F02E	47
48 F030	49 F031	50 F032	51 F033	52 F034	53 F035	54 F036	55 F037	56 F038	57 F039	58	59
60	61	62	63	64	65 F041	66 F042	67 F043	68 F044	69 F045	70 F046	71 F047
72 F048	73 F049	74 F04A	75	76	77	78	79	80	81	82	83



NOTE: The TROY Enhanced Convenience Amount font can be used in place of the TROY Convenience Amount font in the legal amount field of the check. To write the cents amount on the check, type the capital letter that corresponds to the smaller cent characters shown in the example above (i.e., A=0, B=1, C=2).

TROY Large Convenience Amount 18-Point Font (Troy LCF)

<Esc> (1Q<Esc> (s0p5.0h16.0v0s0b0T

Key	Char	Key	Char	Key	Char	Key	Char
0	0 <small>ZERO</small>	5	5 <small>FIVE</small>	\$	\$ <small>DOLLAR</small>	%	€ <small>EURO</small>
1	1 <small>ONE</small>	6	6 <small>SIX</small>	*	* <small>ASK</small>	&	€
2	2 <small>TWO</small>	7	7 <small>SEVEN</small>	,	, <small>COM</small>	C	¢ <small>CENT</small>
3	3 <small>THREE</small>	8	8 <small>EIGHT</small>	.	. <small>PER</small>		
4	4 <small>FOUR</small>	9	9 <small>NINE</small>				

TROY Small Convenience Amount 24-Point Font (Troy SCF)

<Esc> (2Q<Esc> (s0p6.00h22.0v0s0b0T

Key	Char	Key	Char	Key	Char	Key	Char
0	0 <small>ZERO</small>	5	5 <small>FIVE</small>	\$	\$ <small>DOLLAR</small>	%	€ <small>EURO</small>
1	1 <small>ONE</small>	6	6 <small>SIX</small>	*	* <small>ASK</small>	&	€
2	2 <small>TWO</small>	7	7 <small>SEVEN</small>	,	, <small>COM</small>		
3	3 <small>THREE</small>	8	8 <small>EIGHT</small>	.	. <small>PER</small>		
4	4 <small>FOUR</small>	9	9 <small>NINE</small>				

Section 7

Using TROY Fonts

**TROY
AutoProtect™
Font (Troy Auto-
Protect)**

**TROY Security
Font (Troy
Security)**

**TROY Security
Font (Spanish)
(Troy Security
Spanish)**

<ESC>(19U<esc>(s1p□vøsb166Ø2T<esc>%m1I

□ = desired point size

VOID NON-NEGOTIABLE DO NOT CASH

<Esc>(4Q<Esc>(s1p□vøsbØT

□ = desired point size

24	25	26	27	28	29	30	31	32 F020	33	34	35 F023
											Ø CENT
36 F024	37 F025	38 F026	39	40	41	42 F02A	43	44 F02C	45	46 F02E	47 F02F
\$ DOLLAR	€ EURO	& AMP				* AST		¿ COA		Ø PER	Ø BLANK
48 F030	49 F031	50 F032	51 F033	52 F034	53 F035	54 F036	55 F037	56 F038	57 F039	58	59
0 ZERO	1 ONE	2 TWO	3 THREE	4 FOUR	5 FIVE	6 SIX	7 SEVEN	8 EIGHT	9 NINE		

<Esc>(4Q<Esc>(s1p□vøsbØ4T

□ = desired point size

24	25	26	27	28	29	30	31	32 F020	33	34	35 F023
								.			Ø CENT
36 F024	37 F025	38 F026	39	40	41	42 F02A	43	44 F02C	45	46 F02E	47 F02F
\$ DOLLAR	€ EURO	& AMP				* AST		¿ COMA		Ø PUNTO	Ø LINE
48 F030	49 F031	50 F032	51 F033	52 F034	53 F035	54 F036	55 F037	56 F038	57 F039	58	59
0 CERO	1 UNO	2 DOS	3 TRES	4 CUATRO	5 CINCO	6 SEIS	7 SETE	8 OCHO	9 NUEVE		

NOTE: The TROY Security Spanish Font is included in the International Font Collection provided on the TROY Security Printing Solutions CD.

Section 7

Using TROY Fonts

TROY Reverse
Helvetica Font
(Troy Helvetica
(Rev))

32	20	33	21	34	22	35	23	36	24	37	25	38	26	39	27	40	28	41	29
		i	„	#	¿	‰	ø	„	()									
42	2A	43	2B	44	2C	45	2D	46	2E	47	2F	48	30	49	31	50	32	51	33
*	+	,	-	.		0	↓	∑	3										
52	34	53	35	54	36	55	37	56	38	57	39	58	3A	59	3B	60	3C	61	3D
†	ρ	ϑ	∟	8	∂	:	:	<	=										
62	3E	63	3F	64	40	65	41	66	42	67	43	68	44	69	45	70	46	71	47
>	ı	©	∇	B	C	D	E	F	G										
72	48	73	49	74	4A	75	4B	76	4C	77	4D	78	4E	79	4F	80	50	81	51
H	I	∩	K	Γ	W	И	О	Ь	σ										
82	52	83	53	84	54	85	55	86	56	87	57	88	58	89	59	90	5A	91	5B
B	2	L	∩	Λ	M	X	λ	Σ	Γ										
92	5C	93	5D	94	5E	95	5F	96	60	97	61	98	62	99	63	100	64	101	65
/	l	√	-	,	g	p	c	q	e										
102	66	103	67	104	68	105	69	106	6A	107	6B	108	6C	109	6D	110	6E	111	6F
†	ä	μ	!	!	κ	l	w	u	o										
112	70	113	71	114	72	115	73	116	74	117	75	118	76	119	77	120	78	121	79
b	d	l	2	f	n	Λ	M	x	λ										
122	7A	123	7B	124	7C	125	7D	126	7E	127	7F	128	80	129	81	130	82	131	83
Σ	{		}	~	□	□	□	□	□										

Section 7

Using TROY Fonts

TROY OCR-A (Troy OCR-A)

<Esc>(Ø<Esc>(slp□vøsløblø4T □ = desired point size

24	25	26	27	28	29	30	31	32 0020	33 0021	34 0022	35 0023
									!	▯	#
36 0024	37 0025	38 0026	39 0027	40 0028	41 0029	42 002A	43 002B	44 002C	45 002D	46 002E	47 002F
¢	%	&	'	()	*	+	▯	-	.	/
48 0030	49 0031	50 0032	51 0033	52 0034	53 0035	54 0036	55 0037	56 0038	57 0039	58 003A	59 003B
0	1	2	3	4	5	6	7	8	9	:	;
60 003C	61 003D	62 003E	63 003F	64 0040	65 0041	66 0042	67 0043	68 0044	69 0045	70 0046	71 0047
<	=	>	?	@	A	B	C	D	E	F	G
72 0048	73 0049	74 004A	75 004B	76 004C	77 004D	78 004E	79 004F	80 0050	81 0051	82 0052	83 0053
H	I	J	K	L	M	N	O	P	Q	R	S
84 0054	85 0055	86 0056	87 0057	88 0058	89 0059	90 005A	91 005B	92 005C	93 005D	94 005E	95 005F
T	U	V	W	X	Y	Z	[\]	^	¥
96 0060	97 0061	98 0062	99 0063	100 0064	101 0065	102 0066	103 0067	104 0068	105 0069	106 006A	107 006B
h	a	b	c	d	e	f	g	h	i	j	k
108 006C	109 006D	110 006E	111 006F	112 0070	113 0071	114 0072	115 0073	116 0074	117 0075	118 0076	119 0077
l	m	n	o	p	q	r	s	t	u	v	w
120 0078	121 0079	122 007A	123 007B	124 007C	125 007D	126 007E	127 007F	128 20AC	129	130	131
x	y	z	{		}	⌋	▀	□			
132	133	134	135	136	137	138	139 2039	140	141	142	143
							<				
144	145 2018	146 2019	147 201C	148 201D	149	150 2013	151 2014	152	153	154	155 203A
	v	v	▯	▯		-	—				>



TROY OCR-A (continued)

156	157	158	159	160 00A0	161	162 00A2	163 00A3	164 .	165 00A5	166	167
						€	£		¥		
168	169	170	171	172	173	174	175	176	177	178	179
180	181	182	183 00B7	184 00B8	185	186	187	188	189	190	191 00BF
			▪	┐							?
192	193	194	195	196 00C4	197 00C5	198 00C6	199	200	201	202	203
				À	Ä	Æ					
204	205	206	207	208	209 00D1	210	211	212	213	214 00D6	215
					Ń					ö	
216 00D8	217	218	219	220 00DC	221	222	223	224	225	226	227
ø				ü							

NOTE: This OCR font must be used at the designated point size to ensure optical readability.

- Size I – must use 12-point size (upper and lower case characters can be used)
- Size III – must use 16-point size (only upper case characters can be used)
- Size IV – must use 20-point size (only upper case characters can be used)

Section 7

Using TROY Fonts

TROY OCR-B (Troy OCR-B)

<Esc>(10<Esc>(slp□vøsb11ØT

□ = desired point size

24	25	26	27	28	29	30	31	32 0020	33 0021	34 0022	35 0023
									!	"	#
36 0024	37 0025	38 0026	39 0027	40 0028	41 0029	42 002A	43 002B	44 002C	45 002D	46 002E	47 002F
\$	%	&	'	()	*	+	/	-	.	/
48 0030	49 0031	50 0032	51 0033	52 0034	53 0035	54 0036	55 0037	56 0038	57 0039	58 003A	59 003B
0	1	2	3	4	5	6	7	8	9	:	;
60 003C	61 003D	62 003E	63 003F	64 0040	65 0041	66 0042	67 0043	68 0044	69 0045	70 0046	71 0047
<	=	>	?	@	A	B	C	D	E	F	G
72 0048	73 0049	74 004A	75 004B	76 004C	77 004D	78 004E	79 004F	80 0050	81 0051	82 0052	83 0053
H	I	J	K	L	M	N	O	P	Q	R	S
84 0054	85 0055	86 0056	87 0057	88 0058	89 0059	90 005A	91 005B	92 005C	93 005D	94 005E	95 005F
T	U	V	W	X	Y	Z	[\]	^	
96 0060	97 0061	98 0062	99 0063	100 0064	101 0065	102 0066	103 0067	104 0068	105 0069	106 006A	107 006B
`	a	b	c	d	e	f	g	h	i	j	k
108 006C	109 006D	110 006E	111 006F	112 0070	113 0071	114 0072	115 0073	116 0074	117 0075	118 0076	119 0077
l	m	n	o	p	q	r	s	t	u	v	w
120 0078	121 0079	122 007A	123 007B	124 007C	125 007D	126 007E	127 007F	128	129	130 201A	131
x	y	z	{		}	~	■			/	
132 201E	133 2026	134 2020	135 2021	136 02C6	137 2030	138 0160	139 2039	140 0152	141	142 017D	143
//	...	†	‡	^	%	š	<	€		ž	
144	145 2018	146 2019	147 201C	148 201D	149 2022	150 2013	151 2014	152 02DC	153 2122	154 0161	155 203A
	/	/	//	//	.	-	-	~	m	š	>

Section 7

Using TROY Fonts

TROY OCR-B (continued)

156 0153	157	158 017E	159 0178	160 00A0	161 00A1	162 00A2	163 00A3	164 00A4	165 00A5	166 00A6	167 00A7
æ		ž	ÿ		i	¢	£	¤	¥	¦	§
168 00A8	169	170 00AA	171 00AB	172 00AC	173 00AD	174	175 00AF	176 00B0	177 00B1	178	179
¨		á	«	—	–		–	ıı	±		
180 00B4	181 00B5	182	183 00B7	184 00B8	185	186 00BA	187 00BB	188	189	190	191 00BF
´	µ		•	,		ij	»				¿
192 00C0	193 00C1	194 00C2	195 00C3	196 00C4	197 00C5	198 00C6	199 00C7	200 00C8	201 00C9	202 00CA	203 00CB
À	Á	Â	Ã	Ä	Å	Æ	Ç	È	É	Ê	Ë
204 00CC	205 00CD	206 00CE	207 00CF	208 00D0	209 00D1	210 00D2	211 00D3	212 00D4	213 00D5	214 00D6	215 00D7
Ì	Í	Î	Ï	Ð	Ñ	Ò	Ó	Ô	Õ	Ö	×
216 00D8	217 00D9	218 00DA	219 00DB	220 00DC	221 00DD	222 00DE	223 00DF	224 00E0	225 00E1	226 00E2	227 00E3
Ø	Ù	Ú	Û	Ü	Ý	Þ	ß	à	á	â	ã
228 00E4	229 00E5	230 00E6	231 00E7	232 00E8	233 00E9	234 00EA	235 00EB	236 00EC	237 00ED	238 00EE	239 00EF
ä	å	æ	ç	è	é	ê	ë	ì	í	î	ï
240 00F0	241 00F1	242 00F2	243 00F3	244 00F4	245 00F5	246 00F6	247 00F7	248 00F8	249 00F9	250 00FA	251 00FB
ð	ñ	ò	ó	ô	õ	ö	÷	ø	ù	ú	û
252 00FC	253 00FD	254 00FE	255 00FF	256 E000	257 E001	258 E002					
ü	ý	þ	ÿ								

NOTE: This OCR font must be used at the designated point size to ensure optical readability.

- Size I – must use 10-point size (upper and lower case characters can be used)
- Size III – (not supported)
- Size IV – must use 16-point size (upper and lower case characters can be used)

Section 7

Using TROY Fonts

TROY UPC-A Barcode

<Esc> (8Y<Esc> (s1p□vøsb246øøT □ = desired height

32	20	33	21	34	22	35	23	36	24	37	25	38	26	39	27	40	28	41	29
42	2A	43	2B	44	2C	45	2D	46	2E	47	2F	48	30	49	31	50	32	51	33
52	34	53	35	54	36	55	37	56	38	57	39	58	3A	59	3B	60	3C	61	3D
62	3E	63	3F	64	40	65	41	66	42	67	43	68	44	69	45	70	46	71	47
72	48	73	49	74	4A	75	4B	76	4C	77	4D	78	4E	79	4F	80	50	81	51
82	52	83	53	84	54	85	55	86	56	87	57	88	58	89	59	90	5A	91	5B
92	5C	93	5D	94	5E	95	5F	96	60	97	61	98	62	99	63	100	64	101	65
102	66	103	67	104	68	105	69	106	6A	107	6B	108	6C	109	6D	110	6E	111	6F
112	70	113	71	114	72	115	73	116	74	117	75	118	76	119	77	120	78	121	79
122	7A	123	7B	124	7C	125	7D	126	7E	127	7F	128	80	129	81	130	82	131	83
132	84	133	85	134	86	135	87	136	88	137	89	138	8A	139	8B	140	8C	141	8D
142	8E	143	8F	144	90	145	91	146	92	147	93	148	94	149	95	150	96	151	97
152	98	153	99	154	9A	155	9B	156	9C	157	9D	158	9E	159	9F	160	A0	161	A1
162	A2	163	A3	164	A4	165	A5	166	A6	167	A7	168	A8	169	A9	170	AA	171	AB
172	AC	173	AD	174	AE	175	AF	176	B0	177	B1	178	B2	179	B3	180	B4	181	B5
182	B6	183	B7	184	B8	185	B9	186	BA	187	BB	188	BC	189	BD	190	BE	191	BF

Section 7

Using TROY Fonts

TROY UPC-E Barcode

<Esc>(8Y<Esc>(slp□vøšøb2461øT □ = desired height

32	20	33	21	34	22	35	23	36	24	37	25	38	26	39	27	40	28	41	29
42	2A	43	2B	44	2C	45	2D	46	2E	47	2F	48	30	49	31	50	32	51	33
52	34	53	35	54	36	55	37	56	38	57	39	58	3A	59	3B	60	3C	61	3D
62	3E	63	3F	64	40	65	41	66	42	67	43	68	44	69	45	70	46	71	47
72	48	73	49	74	4A	75	4B	76	4C	77	4D	78	4E	79	4F	80	50	81	51
82	52	83	53	84	54	85	55	86	56	87	57	88	58	89	59	90	5A	91	5B
92	5C	93	5D	94	5E	95	5F	96	60	97	61	98	62	99	63	100	64	101	65
102	66	103	67	104	68	105	69	106	6A	107	6B	108	6C	109	6D	110	6E	111	6F
112	70	113	71	114	72	115	73	116	74	117	75	118	76	119	77	120	78	121	79
122	7A	123	7B	124	7C	125	7D	126	7E	127	7F	128	80	129	81	130	82	131	83
132	84	133	85	134	86	135	87	136	88	137	89	138	8A	139	8B	140	8C	141	8D
142	8E	143	8F	144	90	145	91	146	92	147	93	148	94	149	95	150	96	151	97
152	98	153	99	154	9A	155	9B	156	9C	157	9D	158	9E	159	9F	160	A0	161	A1
162	A2	163	A3	164	A4	165	A5	166	A6	167	A7	168	A8	169	A9	170	AA	171	AB
172	AC	173	AD	174	AE	175	AF	176	B0	177	B1	178	B2	179	B3	180	B4	181	B5
182	B6	183	B7	184	B8	185	B9	186	BA	187	BB	188	BC	189	BD	190	BE	191	BF

Section 7

Using TROY Fonts

TROY EAN-8 Barcode

<Esc> (8Y<Esc> (s1p□vøsoøb2462ØT □ = desired height

32 20	33 21	34 22	35 23	36 24	37 25	38 26	39 27	40 28	41 29
42 2A	43 2B	44 2C	45 2D	46 2E	47 2F	48 30	49 31	50 32	51 33
52 34	53 35	54 36	55 37	56 38	57 39	58 3A	59 3B	60 3C	61 3D
62 3E	63 3F	64 40	65 41	66 42	67 43	68 44	69 45	70 46	71 47
72 48	73 49	74 4A	75 4B	76 4C	77 4D	78 4E	79 4F	80 50	81 51
82 52	83 53	84 54	85 55	86 56	87 57	88 58	89 59	90 5A	91 5B
92 5C	93 5D	94 5E	95 5F	96 60	97 61	98 62	99 63	100 64	101 65
102 66	103 67	104 68	105 69	106 6A	107 6B	108 6C	109 6D	110 6E	111 6F
112 70	113 71	114 72	115 73	116 74	117 75	118 76	119 77	120 78	121 79
122 7A	123 7B	124 7C	125 7D	126 7E	127 7F	128 80	129 81	130 82	131 83
132 84	133 85	134 86	135 87	136 88	137 89	138 8A	139 8B	140 8C	141 8D
142 8E	143 8F	144 90	145 91	146 92	147 93	148 94	149 95	150 96	151 97
152 98	153 99	154 9A	155 9B	156 9C	157 9D	158 9E	159 9F	160 A0	161 A1
162 A2	163 A3	164 A4	165 A5	166 A6	167 A7	168 A8	169 A9	170 AA	171 AB
172 AC	173 AD	174 AE	175 AF	176 B0	177 B1	178 B2	179 B3	180 B4	181 B5
182 B6	183 B7	184 B8	185 B9	186 BA	187 BB	188 BC	189 BD	190 BE	191 BF

Section 7

Using TROY Fonts

TROY EAN-13 Barcode

<Esc> (8Y<Esc> (s1p□vø søb2463øT □ = desired height

32	20	33	21	34	22	35	23	36	24	37	25	38	26	39	27	40	28	41	29
42	2A	43	2B	44	2C	45	2D	46	2E	47	2F	48	30	49	31	50	32	51	33
52	34	53	35	54	36	55	37	56	38	57	39	58	3A	59	3B	60	3C	61	3D
62	3E	63	3F	64	40	65	41	66	42	67	43	68	44	69	45	70	46	71	47
72	48	73	49	74	4A	75	4B	76	4C	77	4D	78	4E	79	4F	80	50	81	51
82	52	83	53	84	54	85	55	86	56	87	57	88	58	89	59	90	5A	91	5B
92	5C	93	5D	94	5E	95	5F	96	60	97	61	98	62	99	63	100	64	101	65
102	66	103	67	104	68	105	69	106	6A	107	6B	108	6C	109	6D	110	6E	111	6F
112	70	113	71	114	72	115	73	116	74	117	75	118	76	119	77	120	78	121	79
122	7A	123	7B	124	7C	125	7D	126	7E	127	7F	128	80	129	81	130	82	131	83
132	84	133	85	134	86	135	87	136	88	137	89	138	8A	139	8B	140	8C	141	8D
142	8E	143	8F	144	90	145	91	146	92	147	93	148	94	149	95	150	96	151	97
152	98	153	99	154	9A	155	9B	156	9C	157	9D	158	9E	159	9F	160	A0	161	A1
162	A2	163	A3	164	A4	165	A5	166	A6	167	A7	168	A8	169	A9	170	AA	171	AB
172	AC	173	AD	174	AE	175	AF	176	B0	177	B1	178	B2	179	B3	180	B4	181	B5
182	B6	183	B7	184	B8	185	B9	186	BA	187	BB	188	BC	189	BD	190	BE	191	BF

Section 7

Using TROY Fonts

TROY BC25 Barcode

<Esc> (4Y<Esc> (s1p□vøšøb2464ØT □ = desired height

32	20	33	21	34	22	35	23	36	24	37	25	38	26	39	27	40	28	41	29
42	2A	43	2B	44	2C	45	2D	46	2E	47	2F	48	30	49	31	50	32	51	33
52	34	53	35	54	36	55	37	56	38	57	39	58	3A	59	3B	60	3C	61	3D
62	3E	63	3F	64	40	65	41	66	42	67	43	68	44	69	45	70	46	71	47
72	48	73	49	74	4A	75	4B	76	4C	77	4D	78	4E	79	4F	80	50	81	51
82	52	83	53	84	54	85	55	86	56	87	57	88	58	89	59	90	5A	91	5B
92	5C	93	5D	94	5E	95	5F	96	60	97	61	98	62	99	63	100	64	101	65
102	66	103	67	104	68	105	69	106	6A	107	6B	108	6C	109	6D	110	6E	111	6F
112	70	113	71	114	72	115	73	116	74	117	75	118	76	119	77	120	78	121	79
122	7A	123	7B	124	7C	125	7D	126	7E	127	7F	128	80	129	81	130	82	131	83
132	84	133	85	134	86	135	87	136	88	137	89	138	8A	139	8B	140	8C	141	8D
142	8E	143	8F	144	90	145	91	146	92	147	93	148	94	149	95	150	96	151	97
152	98	153	99	154	9A	155	9B	156	9C	157	9D	158	9E	159	9F	160	A0	161	A1
162	A2	163	A3	164	A4	165	A5	166	A6	167	A7	168	A8	169	A9	170	AA	171	AB
172	AC	173	AD	174	AE	175	AF	176	B0	177	B1	178	B2	179	B3	180	B4	181	B5
182	B6	183	B7	184	B8	185	B9	186	BA	187	BB	188	BC	189	BD	190	BE	191	BF

Section 7

Using TROY Fonts

TROY BC39 Barcode

<Esc> (ØY<Esc> (s1p□vøšøb2467ØT □ = desired height

32	20	33	21	34	22	35	23	36	24	37	25	38	26	39	27	40	28	41	29
42	2A	43	2B	44	2C	45	2D	46	2E	47	2F	48	30	49	31	50	32	51	33
52	34	53	35	54	36	55	37	56	38	57	39	58	3A	59	3B	60	3C	61	3D
62	3E	63	3F	64	40	65	41	66	42	67	43	68	44	69	45	70	46	71	47
72	48	73	49	74	4A	75	4B	76	4C	77	4D	78	4E	79	4F	80	50	81	51
82	52	83	53	84	54	85	55	86	56	87	57	88	58	89	59	90	5A	91	5B
92	5C	93	5D	94	5E	95	5F	96	60	97	61	98	62	99	63	100	64	101	65
102	66	103	67	104	68	105	69	106	6A	107	6B	108	6C	109	6D	110	6E	111	6F
112	70	113	71	114	72	115	73	116	74	117	75	118	76	119	77	120	78	121	79
122	7A	123	7B	124	7C	125	7D	126	7E	127	7F	128	80	129	81	130	82	131	83
132	84	133	85	134	86	135	87	136	88	137	89	138	8A	139	8B	140	8C	141	8D
142	8E	143	8F	144	90	145	91	146	92	147	93	148	94	149	95	150	96	151	97
152	98	153	99	154	9A	155	9B	156	9C	157	9D	158	9E	159	9F	160	A0	161	A1
162	A2	163	A3	164	A4	165	A5	166	A6	167	A7	168	A8	169	A9	170	AA	171	AB
172	AC	173	AD	174	AE	175	AF	176	B0	177	B1	178	B2	179	B3	180	B4	181	B5
182	B6	183	B7	184	B8	185	B9	186	BA	187	BB	188	BC	189	BD	190	BE	191	BF

Section 7

Using TROY Fonts

TROY BC128 Barcode

<Esc> (ØY<Esc> (slp□vøsb247ØØT □ = desired height

0	00	1	01	2	02	3	03	4	04	5	05	6	06	7	07	8	08	9	09
10	0A	11	0B	12	0C	13	0D	14	0E	15	0F	16	10	17	11	18	12	19	13
20	14	21	15	22	16	23	17	24	18	25	19	26	1A	27	1B	28	1C	29	1D
30	1E	31	1F	32	20	33	21	34	22	35	23	36	24	37	25	38	26	39	27
40	28	41	29	42	2A	43	2B	44	2C	45	2D	46	2E	47	2F	48	30	49	31
50	32	51	33	52	34	53	35	54	36	55	37	56	38	57	39	58	3A	59	3B
60	3C	61	3D	62	3E	63	3F	64	40	65	41	66	42	67	43	68	44	69	45
70	46	71	47	72	48	73	49	74	4A	75	4B	76	4C	77	4D	78	4E	79	4F
80	50	81	51	82	52	83	53	84	54	85	55	86	56	87	57	88	58	89	59
90	5A	91	5B	92	5C	93	5D	94	5E	95	5F	96	60	97	61	98	62	99	63
100	64	101	65	102	66	103	67	104	68	105	69	106	6A	107	6B	108	6C	109	6D
110	6E	111	6F	112	70	113	71	114	72	115	73	116	74	117	75	118	76	119	77
120	78	121	79	122	7A	123	7B	124	7C	125	7D	126	7E	127	7F	128	80	129	81
130	82	131	83	132	84	133	85	134	86	135	87	136	88	137	89	138	8A	139	8B
140	8C	141	8D	142	8E	143	8F	144	90	145	91	146	92	147	93	148	94	149	95
150	96	151	97	152	98	153	99	154	9A	155	9B	156	9C	157	9D	158	9E	159	9F

Section 7

Using TROY Fonts

**TROY
POSTNET**

<Esc>(15Y<Esc>(slp□vøsoøb2477øT □ = desired height

32	20	33	21	34	22	35	23	36	24	37	25	38	26	39	27	40	28	41	29
42	2A	43	2B	44	2C	45	2D	46	2E	47	2F	48	30	49	31	50	32	51	33
52	34	53	35	54	36	55	37	56	38	57	39	58	3A	59	3B	60	3C	61	3D
62	3E	63	3F	64	40	65	41	66	42	67	43	68	44	69	45	70	46	71	47
72	48	73	49	74	4A	75	4B	76	4C	77	4D	78	4E	79	4F	80	50	81	51
82	52	83	53	84	54	85	55	86	56	87	57	88	58	89	59	90	5A	91	5B
92	5C	93	5D	94	5E	95	5F	96	60	97	61	98	62	99	63	100	64	101	65
102	66	103	67	104	68	105	69	106	6A	107	6B	108	6C	109	6D	110	6E	111	6F
112	70	113	71	114	72	115	73	116	74	117	75	118	76	119	77	120	78	121	79
122	7A	123	7B	124	7C	125	7D	126	7E	127	7F	128	80	129	81	130	82	131	83
132	84	133	85	134	86	135	87	136	88	137	89	138	8A	139	8B	140	8C	141	8D
142	8E	143	8F	144	90	145	91	146	92	147	93	148	94	149	95	150	96	151	97
152	98	153	99	154	9A	155	9B	156	9C	157	9D	158	9E	159	9F	160	A0	161	A1
162	A2	163	A3	164	A4	165	A5	166	A6	167	A7	168	A8	169	A9	170	AA	171	AB
172	AC	173	AD	174	AE	175	AF	176	B0	177	B1	178	B2	179	B3	180	B4	181	B5
182	B6	183	B7	184	B8	185	B9	186	BA	187	BB	188	BC	189	BD	190	BE	191	BF

Section 7

Using TROY Fonts

**TROY
POSTNET
Reverse
(optional)**

<Esc>(15Y<Esc>(slp□vø s33b2477øT □ = desired height

32	20	33	21	34	22	35	23	36	24	37	25	38	26	39	27	40	28	41	29
42	2A	43	2B	44	2C	45	2D	46	2E	47	2F	48	30	49	31	50	32	51	33
52	34	53	35	54	36	55	37	56	38	57	39	58	3A	59	3B	60	3C	61	3D
62	3E	63	3F	64	40	65	41	66	42	67	43	68	44	69	45	70	46	71	47
72	48	73	49	74	4A	75	4B	76	4C	77	4D	78	4E	79	4F	80	50	81	51
82	52	83	53	84	54	85	55	86	56	87	57	88	58	89	59	90	5A	91	5B
92	5C	93	5D	94	5E	95	5F	96	60	97	61	98	62	99	63	100	64	101	65
102	66	103	67	104	68	105	69	106	6A	107	6B	108	6C	109	6D	110	6E	111	6F
112	70	113	71	114	72	115	73	116	74	117	75	118	76	119	77	120	78	121	79
122	7A	123	7B	124	7C	125	7D	126	7E	127	7F	128	80	129	81	130	82	131	83
132	84	133	85	134	86	135	87	136	88	137	89	138	8A	139	8B	140	8C	141	8D
142	8E	143	8F	144	90	145	91	146	92	147	93	148	94	149	95	150	96	151	97
152	98	153	99	154	9A	155	9B	156	9C	157	9D	158	9E	159	9F	160	A0	161	A1
162	A2	163	A3	164	A4	165	A5	166	A6	167	A7	168	A8	169	A9	170	AA	171	AB
172	AC	173	AD	174	AE	175	AF	176	B0	177	B1	178	B2	179	B3	180	B4	181	B5
182	B6	183	B7	184	B8	185	B9	186	BA	187	BB	188	BC	189	BD	190	BE	191	BF

International Convenience Amount Fonts

In addition to the CMC-7 font used for International MICR applications, TROY provides the following Convenience Amount font sets in a variety of languages (see examples below). These fonts are provided only on the *TROY Security Printing Solutions* CD. These fonts can be easily downloaded into the printer's flash-file system using the TROY Printer Utility.

The following TROY International fonts are non-scalable (fixed in size) and can be used in the *convenience amount* field of the check. The escape sequence used to call each font set in a non-Windows environment is provided directly above each example. The examples below may not be to scale.

British Large Convenience Amount Font (Troy LCF British)

1 2 3 4 5 6 7 8 9 0 £ € € * , .

ONE TWO THREE FOUR FIVE SIX SEVEN EIGHT NINE ZERO G.B.P EURO AST COM PER

<Esc> (1Q<Esc> (sØp5.14h16.Ø9vØsØb1T

French Large Convenience Amount Font (Troy LCF French)

1 2 3 4 5 6 7 8 9 0 FF € € * , .

UN DEUX TROIS QUATRE CINQ SIX SEPT HUIT NEUF ZERO FRANC EURO AST VIRG PUNT

<Esc> (1Q<Esc> (sØp5.14h16.Ø9vØsØb2T

Italian Large Convenience Amount Font (Troy LCF Italian)

1 2 3 4 5 6 7 8 9 0 £ € € * , .

UNO DUE TRE QUATRO CINQUE SEI SETTE OTTO NOVE ZERO LIRA EURO AST VIRG PUNTO

<Esc> (1Q<Esc> (sØp5.14h16.Ø9vØsØb3T

Spanish Large Convenience Amount Font (Troy LCF Spanish)

1 2 3 4 5 6 7 8 9 0 \$ € € * , .

UNO DOS TRES CUATRO CINCO SEIS SIETE OCHO NUEVE CERO DOLAR EURO AST COMA PUNTO

<Esc> (1Q<Esc> (sØp5.14h16.Ø9vØsØb4T

International Convenience Amount Fonts (cont.)

British Small Convenience Amount Font (Troy SCF British)

1 2 3 4 5 6 7 8 9 0 £ € € * , .
 ONE TWO THREE FOUR FIVE SIX SEVEN EIGHT NINE ZERO G.B.P. EURO AST COM PER

1 2 3 4 5 6 7 8 9 0 FF € € * , .
 UN DEUX TROIS QUATRE CINQ SIX SEPT HUIT NEUF ZERO FRANC EURO AST VIRG POINT

1 2 3 4 5 6 7 8 9 0 £ € € * , .
 UNO DUE TRE QUATRO CINQUE SEI SETTE OTTO NOVE ZERO LIRA EURO AST VIRG PUNTO

1 2 3 4 5 6 7 8 9 0 \$ € € * , .
 UNO DOS TRES CUATRO CINCO SEIS SIETE OCHO NUEVE CERO DOLAR EURO AST COMA PUNTO

<Esc> (2Q<Esc> (søp6h22.68vøsb1T

French Small Convenience Amount Font (Troy SCF French)

<Esc> (2Q<Esc> (søp6h22.68vøsb2T

Italian Small Convenience Amount Font (Troy SCF Italian)

<Esc> (2Q<Esc> (søp6h22.68vøsb3T

Spanish Small Convenience Amount Font (Troy SCF Spanish)

<Esc> (2Q<Esc> (søp6h22.68vøsb4T

Trouble-shooting by Symptom

The following troubleshooting table provides solutions to the most common MICR printing problems. Some of the messages may not apply to your TROY Security Printing Solution. Visually inspect your MICR documents using the *TROY MICR Document Template* where appropriate.

NOTE: This table does not cover all of the ANSI and banking specifications that MICR-encoded documents must meet. Refer to the *TROY MICR Basics Handbook* (provided on the *TROY Security Printing Solutions CD*) for more information on MICR specifications and check design.

NOTE: Information on formatting and printing of image replacement documents (IRDs) is described in the American National Standard for Financial Services X9.100-140-2004 Specification and is available on the ANSI (American National Standards Institute) web site (www.ansi.org).

Condition	Possible Cause	Solution
Incorrect data in MICR line (account #, bank #, etc.).	Error typing in the account #, etc.	Re-enter the correct data.
Incorrect format of fields in MICR line (according to your bank's specifications).	Error typing in the field information.	Re-enter the correct data. Ask your bank for its specification sheet or copy the field format from your old checks, including any spaces.
Vertical streaking or smearing throughout document.	Problem with TROY MICR printer or toner cartridge.	Refer to the troubleshooting section in the printer user's manual.
Horizontal streaking in MICR clear band during document processing.	Problem with the reader/sorter machine.	The reader/sorter machine must be cleaned and checked or adjusted.

Troubleshooting by Symptom (cont.)

<p>600 dpi MICR font not used in MICR line (an incorrect font such as Courier or Times Roman was used instead).</p>	<p>No MICR font installed.</p> <p>MICR mode disabled and an attempt was made to use a TROY MICR font.</p> <p>Software error.</p> <p>MICR font requested orientation (portrait or landscape) not installed in the printer.</p> <p>Non-TROY MICR font was used.</p> <p>Font escape sequence coding error.</p>	<p>Install the TROY Memory Card and reprint.</p> <p>Consult your software dealer.</p> <p>Enable MICR mode by issuing the appropriate escape sequence via your check writing software.</p> <p>Install the correct orientation of MICR font via the TROY Memory Card.</p> <p>Use the TROY MICR font or consult the non-TROY MICR font manufacturer for assistance.</p> <p>Verify the escape sequence accuracy.</p>
<p>MICR clear band has magnetically chargeable printing besides the MICR line on front or backside of document.</p>	<p>Border, signature, or other printing extends into MICR clear band on front or back.</p> <p>Laser-printed items extend into MICR clear band on backside of the check.</p>	<p>Reformat your document design to ensure nothing besides the MICR line appears in the MICR clear band.</p> <p>Reformat your document design or other laser-printed items so that there is no MICR information in the clear band on the backside of the check.</p>

Section 8

Troubleshooting / Error Messages

Trouble-shooting by Symptom (cont.)

<p>MICR clear band has extra printing (such as toner splatter) besides the MICR line on front or backside of document.</p>	<p>Printer density setting is too dark.</p> <p>Printer fusing unit is contaminated.</p> <p>Faulty MICR toner cartridge.</p> <p>Use on Non-TROY MICR toner cartridge.</p>	<p>Use TROY MICR defaults.</p> <p>Refer to printer user's manual for cleaning instructions.</p> <p>Try another TROY MICR toner cartridge. If cartridge is faulty, return to the dealer.</p> <p>Try another TROY MICR toner cartridge or consult the non-TROY manufacturer for assistance.</p>
<p>MICR line is skewed on document.</p>	<p>Your MICR paper was cut or perforated inaccurately (lower edge of paper is not perpendicular to the right and left edges of paper).</p> <p>Your MICR paper has changed properties due to environmental conditions in storage or handling.</p> <p>Paper incorrectly loaded.</p> <p>Faulty paper transport system in printer.</p>	<p>Measure your MICR paper and/or perforation lines to ensure your MICR-encoded documents fall within ANSI specifications for document size. Ask your paper vendor for correctly sized MICR paper.</p> <p>Measure your MICR paper and/or perforation lines to ensure your MICR-encoded documents fall within ANSI specifications for document size.</p> <p>If using MP tray, paper width guide should lightly touch right side of paper stack.</p> <p>Try non-MICR paper to verify the problem. Contact TROY Technical Support if problem is verified on non-MICR paper.</p>

Trouble-shooting by Symptom (cont.)

<p>MICR line not positioned correctly on the document (vertically and horizontally).</p>	<p>Your MICR paper was cut or perforated inaccurately (paper is too short/long or narrow/wide).</p> <p>Software registration error (software is positioning data incorrectly on the printed page).</p> <p>Printer registration discrepancies (small inconsistencies in positioning of the image on the printed page)</p> <p>Faulty paper transport system in printer.</p>	<p>Measure your MICR paper and/or perforation lines to ensure your MICR-encoded documents fall within ANSI specifications for document size. Ask your paper vendor for correctly sized MICR paper.</p> <p>Use the TROY ExPT feature to adjust the positioning of the MICR line on your printed checks. Individual TROY printers may vary enough to require a one-time adjustment of registration via the ExPT feature or your software program.</p> <p>Small errors in the printer's registration can change the position of the MICR line, which is most noticeable on the trailing edge of the printed page. If the MICR line on your checks is positioned on trailing edge of the page (the edge of the page that exits the printer last), try using the TROY printer's Auto-Rotate feature to place the MICR line on the leading edge of the page to avoid any small registration errors that would significantly change the position of the MICR on your printed checks.</p> <p>Measure your MICR paper. If cut to correct size, consult your software vendor for assistance.</p> <p>Try non-MICR paper to verify the problem. Consult the printer user's manual or TROY Technical support if problem is verified on non-MICR paper.</p>
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Trouble-shooting by Symptom (cont.)

<p>MICR characters are too thick or too thin.</p>	<p>Printer density setting is too dark or too light.</p> <p>Your MICR toner cartridge is nearly empty.</p> <p>Your MICR paper is out of specification so that toner does not adhere properly to the paper.</p> <p>Faulty MICR toner cartridge.</p> <p>Use of Non-TROY MICR toner or font.</p>	<p>Use TROY MICR defaults.</p> <p>TROY MICR toner cartridge should not be used if a LOW TONER message appears on the printer control panel display. (There should be no visual fading across the document).</p> <p>Refer to TROY MICR paper specifications elsewhere in this guide and consult your paper vendor to ensure you have the correct paper (including correctly preprinted background areas). Also, check to ensure your paper has not altered due to environmental conditions during storage and handling.</p> <p>Try another TROY MICR toner cartridge. If the cartridge is faulty, return to dealer.</p> <p>Try TROY MICR toner or font or consult non-TROY manufacturer for assistance.</p>
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Troubleshooting by Symptom (cont.)

<p>MICR characters are broken, there are voids in characters or toner rubs off.</p>	<p>Your MICR paper is out of specification so that toner does not adhere properly to the paper.</p> <p>Faulty MICR toner cartridge.</p> <p>Use of Non-TROY MICR toner cartridge.</p> <p>Printer fusing unit is faulty.</p>	<p>Refer to the TROY MICR paper specifications and consult your paper vendor to ensure you have the correct paper (including correctly preprinted background areas). Also, check to ensure your paper has not altered due to environmental conditions during storage and handling.</p> <p>Try another TROY MICR toner cartridge. If cartridge is faulty, return to dealer.</p> <p>Try TROY MICR toner cartridge or consult non-TROY manufacturer for assistance.</p> <p>Confirm by verifying with a non-MICR application. Contact TROY Technical Support for instructions.</p>
<p>Voids in characters in MICR line or other text.</p>	<p>Transfer roller wear (check for page count of greater than 100,000).</p>	<p>Replace transfer roller.</p>
<p>MICR character spacing and positioning are not correct.</p>	<p>Error in typing MICR line information.</p> <p>Software placement of characters is incorrect.</p>	<p>Re-enter correct data. (Do not forget to enter the correct number of spaces where required.) If using TROY MICR fonts in Windows, ensure the point size is set to 12 pt.</p> <p>Consult your software dealer.</p>

Troubleshooting by Symptom (cont.)

<p>Your bank reports a high reject rate when processing your TROY MICR-printed documents.</p> <p>NOTE: This section covers conditions not addressed above. You should also investigate all of the items described above as possible causes of bank rejects as well as the other ANSI MICR specifications not covered in this table.</p>	<p>A Non-TROY MICR toner was used.</p> <p>The bank-of-deposit made a typing or imprinting error when they encoded the check AMOUNT onto the right end of the MICR line.</p> <p>Your MICR paper is out of specification so that your documents tend to jam or tear inside bank processing equipment.</p> <p>Documents were folded, spindled, or otherwise roughly handled before they reached the bank-of-deposit.</p> <p>Your bank's reader/sorter equipment is out of adjustment.</p>	<p>Print test documents using TROY MICR toner or consult the non-TROY manufacturer for assistance.</p> <p>Ask your bank or one of the document testing facilities in the list following this table to determine if the MICR line error is in the TROY MICR-printed portion of the bank-encoded portion (many errors are bank induced).</p> <p>Observe the condition of your processed checks. Refer to this guide for information on TROY and ANSI MICR paper specifications. Your paper vendor or bank may also provide assistance.</p> <p>Consider sturdier MICR paper or improved check-handling processes with your regular recipients.</p> <p>Ask your bank for assistance in determining the cause of your rejects.</p>
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Trouble-shooting by Symptom (cont.)

<p>MICR characters appear smeared after processing by a bank.</p>	<p>A Non-TROY MICR toner was used.</p> <p>Your MICR paper is out of specification so that toner does not adhere properly to the paper.</p> <p>Your bank's reader/sorter equipment is out of adjustment.</p>	<p>Print test documents using TROY MICR toner or consult the non-TROY manufacturer for assistance.</p> <p>Refer to TROY MICR paper specifications and consult your paper vendor to ensure you have the correct paper (including correctly preprinted background areas). Also, check to ensure your paper has not altered due to environmental conditions before printing the checks.</p> <p>Ask your bank for assistance in determining the cause of your rejects.</p>
<p>NO MICR TONER message displayed in the printer control panel.</p>	<p>No TROY MICR toner cartridge installed.</p> <p>Detect device on TROY MICR toner cartridge is damaged.</p> <p>TROY MICR toner cartridge detect sensor failed.</p> <p>TROY Memory Card has failed.</p>	<p>Install a TROY MICR toner cartridge.</p> <p>Install a new TROY MICR toner cartridge.</p> <p>Call TROY Technical Support.</p> <p>Call TROY Technical Support.</p>

Trouble-shooting by Symptom (cont.)

<p>Printer does not respond to a MICR print request after the administrator password is entered.</p>	<p>Invalid administrator password was entered.</p>	<p>Enter the correct administrator password.</p> <p>NOTE: If the administrator password has been lost or forgotten, perform the following three steps:</p> <ol style="list-style-type: none">1. Print a configuration page using the printer control panel or TROY Printer Utility.2. Do not continue to print MICR jobs.3. Call TROY Technical Support for assistance.
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Troubleshooting by Printer Control Panel Display Message

The following table contains the printer control panel display messages generated by TROY Security Printing Solutions. Some of the messages may not apply to your TROY Security Printing Solution. Refer to the Hewlett-Packard Printer User's Manual for other display panel messages.

Message	Description	Action
MICR PRINTER / MICR IS DISABLED	The printer has returned to non-MICR mode.	N/A
MICR PRINTER / MICR IS ENABLED	The printer has entered MICR mode.	N/A
NOT LOGGED IN	An invalid password was entered.	Enter correct password.
PCL PASSWORD PRESS ok	An invalid password was entered.	Enter correct password.
NO MICR TONER PRESS ok	When in MICR mode, the MICR sensor has determined that no MICR toner cartridge has been installed.	Install a TROY MICR toner cartridge. You must return to the MICR language through your application software.
LOW TONER	The TROY MICR toner cartridge is low on toner.	Replace the TROY MICR toner cartridge with a new TROY MICR toner cartridge. Do not re-install the old cartridge.
ACCESS DENIED MENUS LOCKED	Indicates that the printer manager has engaged the Control Panel Lock feature.	See your printer administrator if you feel you must change Control Panel settings.
INSUFFICIENT AUTHORIZATION. JOB PURGED.	User attempted to perform an administrator-level function but was not logged in as administrator	Correct login name and password in the file, and resubmit the file to the printer.
INSUFFICIENT MEMORY TO SORT	The printer does not have enough free memory to sort the audit records because too many audit records are stored in the printer memory.	Delete unwanted audit records, or print the audit report without sorting (set the sort order to the default setting of Print Order). Add more memory (RAM) to the printer.
USER LOGIN COMMAND FAILED. JOB PURGED.	User attempted to log in with a login name that was unknown to the printer.	Correct login name and password in the file, and resubmit the file to the printer.
IN CHANGE MODE. USER LOGIN COMMAND IGNORED.	The printer was in the middle of a user name or password change when the printer received a job attempting to log in.	Complete the changes to user names and passwords, and then resubmit the job.

Troubleshooting by Printer Control Panel Display Message (cont.)

IN CHANGE MODE. USER LIST COMMAND IGNORED.	The printer was in the middle of a user name or password change when the printer received a job attempting to print the user list.	Complete the changes to user names and passwords, and then resubmit the job.
IN CHANGE MODE. SECURITY STATE COMMAND IGNORED.	The printer was in the middle of a user name or password change when the printer received a job attempting to change the security state of the printer.	Complete the changes to user names and passwords, and then resubmit the job.
BAD USERNAME. ADD USER COMMAND IGNORED.	While attempting to add a user name the syntax of the user name provided was invalid.	Resubmit the add user name job with the proper syntax.
BAD PASSWORD. ADD USER COMMAND IGNORED.	While attempting to add a user password the syntax of the password provided was invalid.	Resubmit the add user password job with the proper syntax.
AT MAX USERS. ADD USER COMMAND IGNORED.	Trying to add more users to a printer than the printer can store.	Delete an unwanted user from the printer, and then resubmit the add user job.
ERROR. ADD USER COMMAND IGNORED.	Some other error occurred while trying to add a user to the printer.	Check the job for proper syntax. Delete all users and add them again. If the problem persists, call TROY for technical support.
NOT CHANGE MODE. ADD USER COMMAND IGNORED.	A job was received that attempted to add a user without being in the change mode.	Include a change mode command pair in the job and resubmit it to the printer.
NO SUCH USER. DELETE USER COMMAND IGNORED	Trying to delete a user that does not exist in the printer.	Specify a valid user name and resubmit the job to the printer.
BAD USERNAME. DELETE USER COMMAND IGNORED.	While attempting to delete a user name the syntax of the user name provided was invalid.	Resubmit the add user name job with the proper syntax.
PERMANENT USER. DELETE USER COMMAND IGNORED.	The user attempted to delete an administrator user, which is not allowed.	You cannot delete the administrator password.

Section 8

Troubleshooting / Error Messages

Troubleshooting by Printer Control Panel Display Message (cont.)

ERROR. DELETE USER COMMAND IGNORED.	Some other error occurred while trying to delete a user to the printer.	Check the job for proper syntax. Delete all users and add them again. If the problem persists, call TROY for technical support.
NOT CHANGE MODE. DELETE USER COMMAND IGNORED.	A job was received that attempted to delete a user without being in the change mode.	Include a change mode command pair in the job, and then resubmit it to the printer.
INSUFFICIENT AUTHORIZATION. JOB PURGED.	Trying to change a user password for a user that does not exist in the printer.	Specify a valid user name, and then resubmit the job to the printer.
USER LOGIN COMMAND FAILED. JOB PURGED.	While attempting to change a user password the syntax of the user name provided was invalid.	Resubmit the change user password job with the proper syntax.
NO SUCH USER. CHANGE USER COMMAND IGNORED	While attempting to change a user password the syntax of the password provided was invalid.	Resubmit the change user password job with the proper syntax.
BAD USERNAME. CHANGE USER COMMAND IGNORED.	Some other error occurred while trying to change a user password in the printer.	Check the job for proper syntax. Delete all users and add them again. If the problem persists, call TROY for technical support.
BAD PASSWORD. CHANGE USER COMMAND IGNORED.	A job was received that attempted to change a user password without being in the change mode.	Include a change mode command pair in the job, and then resubmit it to the printer.
ERROR. CHANGE USER COMMAND IGNORED.	A job was received that attempted to delete all users without being in the change mode.	Include a change mode command pair in the job, and then resubmit it to the printer.
NOT CHANGE MODE. CHANGE USER PASSWORD COMMAND IGNORED.	The audit file is full.	Cycle power, print any audit data you require, and then delete the audit data. You will need to restart printing your job at the point at which the audit file became full.
NOT CHANGE MODE. DELETE ALL COMMAND IGNORED	A fatal error has occurred in reading or writing data to the audit file system.	Cycle power and try again. If the problem persists, contact TROY Technical Support.

Section 8

Troubleshooting / Error Messages

Troubleshooting by Printer Control Panel Display Message (cont.)

AUDIT FILE FULL. CYCLE POWER NOW.	<p>There was not enough memory in the printer to sort the audit data.</p>	<p>Add more memory to the printer, or change the sort type to Record Number and print the audit report using this sort key. If the problem continues, power cycle the printer and try the audit again. If this does not resolve the problem, contact TROY Technical Support.</p>
AUDIT FILE SYSTEM FAILURE. CYCLE POWER NOW.	<p>Trying to change a user password for a user that does not exist in the printer.</p>	<p>Specify a valid user name and resubmit the job to the printer.</p>
FONT STORE ERROR XXXXXXXXXXXXXXXXXX	<p>An error occurred while trying to store a downloaded font. The actual error is shown in the second line of the message. The second line error message can appear as part of various different error messages, and can be found separately in this message list.</p>	<p>Find the actual error in this message list and perform the suggested action for that error.</p>
MACRO SAVE ERROR XXXXXXXXXXXXXXXXXX	<p>An error occurred while trying to save a downloaded macro. The actual error is shown in the second line of the message. The second line error message can appear as part of various different error messages, and can be found separately in this message list.</p>	<p>Find the actual error in this message list and perform the suggested action for that error.</p>
TROY INTERNAL RELIANCE MONITOR	<p>The TROY firmware contains advanced internal self-diagnostics checks to ensure constant data integrity. When the firmware detects an exception condition that may result in compromised data integrity, it halts printer operation. This message will be followed automatically with diagnostic information that may assist TROY engineers in evaluating the exception condition.</p>	<p>Contact TROY Technical Support.</p>

Trouble-shooting by Printer Control Panel Display Message (cont.)

<p>FIRMWARE FILE CRC ERROR</p>	<p>Following the downloading of a new TROY firmware image, the existing TROY firmware confirms the validity check upon the received image before performing the actual firmware update. This error message indicates that the image failed this validity check and that the existing firmware will not be replaced by the new (invalid) firmware. This problem usually occurs as the result of communication errors between the host computer and the printer.</p>	<p>Try performing the firmware update again. If the firmware update fails on the second attempt, contact TROY Technical Support.</p>
<p>FW UPDATE FAIL! XXXXXXXXXXXXXX IMAGE BLOCK #### OFFSET #####</p>	<p>An error in the Troy firmware update process has been detected. This error is usually the result of a communication error between the host computer and the printer during the TROY firmware image transfer.</p> <p>XXXXXXXXXXXXXX is the actual error that occurred. The two ### fields provide information that may assist TROY Technical Support in analyzing the error.</p>	<p>Try performing the firmware update again. If the firmware update fails on the second attempt, contact TROY Technical Support.</p> <p>In almost all cases, the error will be detected before the existing Troy firmware has started to be replaced by the new TROY firmware. As a result, the printer can be power-cycled, and it will continue to operate using the existing TROY firmware.</p>
<p>FILE NOT FOUND</p>	<p>An expected data file was not found.</p>	<p>Verify the path to the update file is correct, and then try the operation again. If the error persists, contact TROY Technical Support.</p>
<p>DEVICE IS FULL</p>	<p>There is no more room on the printer's internal storage device to complete the operation.</p>	<p>Delete any files, macros, fonts, etc. that are no longer needed from the printer's internal storage in order to reclaim memory space.</p>
<p>END OF FILE</p>	<p>The end of a data file was encountered before it was expected.</p>	<p>Try the operation again. If the error persists, contact TROY Technical Support.</p>

Section 8

Troubleshooting / Error Messages

Troubleshooting by Printer Control Panel Display Message (cont.)

ACCESS DENIED	An attempt was made to access a data file that the Troy firmware was not permitted to access. This error should not occur under normal printer operation unless the data files on the printer are being simultaneously accessed by a host computer via a network file accessing connection, such as NFS.	If the error persists, contact TROY Technical Support.
49.4C18 SERVICE ERROR	A firmware update has been uploaded to the printer. This error message may appear immediately after the update process has been completed, indicating that the printer has registered the new firmware.	Re-initialize the printer (cycle printer power), or perform a cold reset. Wait for the initialization sequence to finish before continuing to use the printer. The printer must be re-initialized in order for the firmware update to take effect.
53.ØX.1Ø ERROR	Your printer detected the presence of a second memory card.	Remove the memory cards one at a time until the message is cleared, or contact your authorized TROY service representative.
61.X SERVICE 62.X ERROR	Indicates that the TROY MICR DIMM is improperly installed or has failed.	Re-install the TROY DIMM.
68.1 ERROR	A firmware update has been uploaded to the printer. This error message may appear immediately after the update process has been completed, indicating that the printer has registered the new firmware.	Re-initialize the printer (cycle printer power), or perform a cold reset. Wait for the initialization sequence to finish before continuing to use the printer. The printer must be re-initialized in order for the firmware update to take effect.

Software Uninstall Procedures

Uninstall the TROY Screen Fonts

In the event you wish to reinstall or permanently remove the TROY Security Printing Solution support files and utilities, use the following procedures to properly uninstall (remove) all TROY software from your computer.

1. Close all applications before uninstalling the TROY screen fonts.
2. From the **Start** menu, click on **Settings**, and then click on **Control Panel**.
3. Double-click on the **Fonts** folder icon. Locate the TROY screen font installed (refer to the MICR font facsimile example on the previous page for font names).
4. Right-click on the TROY screen font to be uninstalled, and then click on **Delete** from the pull-down menu. A confirmation window will appear with the prompt, "**Are you sure you want to delete these fonts?**". Click on **YES** to confirm the deletion. The TrueType™ MICR screen font will be removed.
5. Repeat steps two and three for each TROY screen font to be uninstalled.
6. Close the **Fonts Folder** and **Control Panel**.
7. If removing all the TROY support files, proceed to the next section for removing all the TROY support files for Microsoft® Windows™.

Uninstall the TROY Support Files

1. Close all applications before uninstalling the TROY support files.
2. From the **Start** menu, click on **Settings**, and then click on **Printers**.
3. Right-click on the **Hewlett Packard LaserJet PCL 5e** (or renamed TROY printer) printer icon, and then click on **Properties** from the pull-down menu.
4. Click on the **Configure** tab located at the top of the **Properties** window.
5. Click on the **More** button located within the **Other Options** category.
6. Click on the **Configure...** button located within the **Fonts** category.
7. Within the **Configure Font Cards** window, locate the section labeled **Installed Cards**. Click on **TROY Security Font Collection** listed under **Installed Cards** (**TROY International Security Font Collection** for international support). Click on **Remove** to uninstall the TROY support files. The entry will be deleted from the **Installed Cards** list.
8. Close all remaining open windows. All the TROY support files have been removed.

Uninstall the TROY Printer Utility

1. Close all applications before uninstalling the TROY Printer Utility files.
2. From the *START* menu, click on *Settings*, and then click on *Control Panel*.
3. Click on *Add/Remove* Programs.
4. Locate the *TROY Printer Utility* from the listing.
5. Click on *Add/Remove*.
6. Follow the screen prompts.
7. Close all remaining open windows. The TROY Printer Utility files have been removed.

Uninstall the TROY Port Monitor

1. Close all applications before uninstalling the TROY Port Monitor files.
2. From the *Start* menu, click on *Settings*, and then click on *Control Panel*.
3. Click on *Add/Remove* Programs.
4. Locate the *TROY Port Monitor* from the listing.
5. Click on *Add/Remove*.
6. Follow the screen prompts.
7. Close all remaining open windows. The TROY Port Monitor files have been removed.

Installing the Duplexer

1. Switch the printer power OFF, and disconnect the printer power cord and data cable from the printer.
2. Use two people to move the printer to a temporary location while the auxiliary paper tray is prepared for installation.
3. Remove the auxiliary paper tray from the shipping box and place it on a stable surface where the printer will be located for normal operation.
4. Remove the auxiliary paper tray drawer from the auxiliary tray chassis and remove the packing materials from the paper tray compartment (Figure 1).

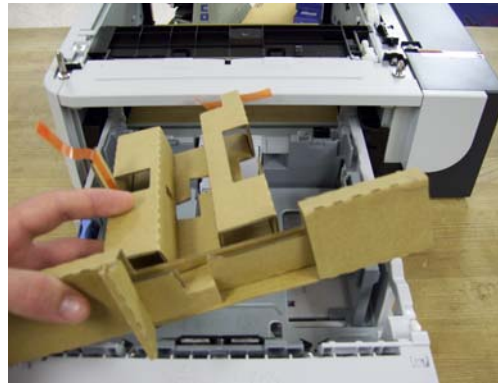


Figure 1

Installing the Duplexer (cont.)

5. Use two people to position the printer over the auxiliary paper tray, aligning the three metal alignment pins on the top of the auxiliary tray with the three receptacles in the bottom of the printer chassis (Figures 2- 3).

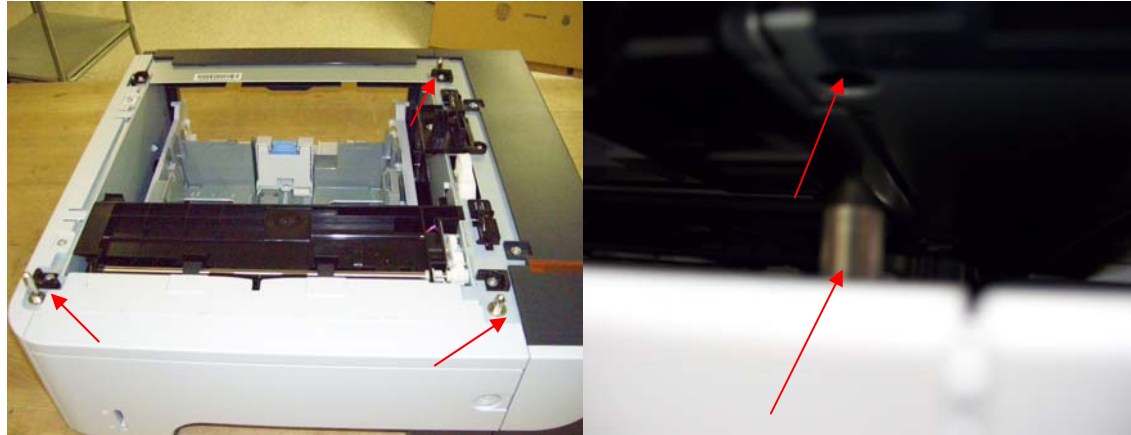


Figure 2



Figure 3

Installing the Duplexer (cont.)

8. Replace the auxiliary paper tray, and reconnect the printer power and data cables. The printer is now ready for normal operation.



NOTE: If assistance is required, call TROY Technical Support at (800) 332-6427, Monday through Friday, 8:00 AM to 8:00 PM, Eastern Standard Time. Customers outside the United States, please call (304) 232-0899.