FARGO®
Card Identity Solutions

HDP600 High Definition Card Printer/Encoder User Guide (Rev. 2.5)

- **HDP600 (Dual-Sided Card Printer/Encoder)**
- **HDP600-LC (Dual-Sided Card Printer/Encoder)**
- **HDP600 CR100 (Dual-Sided Card Printer/Encoder)**
- **HDP600-LC CR100 (Dual-Sided Card Printer/Encoder)**

Part Number: L000444

HDP600 High Definition Card Printer/Encoder User Guide (Rev. 2.5), property of Fargo Electronics, Incorporated

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Revision 2.5	1 September 2007	HDP600 High Definition Card Printer/Encoder User Guide
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Revision 1.0	1 February 2004	Same title

These reference documents were thoroughly reviewed to provide Fargo with professional and international standards, requirements, guidelines and models for our technical, training and user documentation. At all times, the *Copyright Protection Notice* for each document was adhered to within our Fargo documentation process. This reference to other documents does not imply that Fargo is an ISO-certified company at this time.

- ANSI/ISO/ASQ Q9001-2000 American National Standard, (sub-title) Quality Management Systems - Requirements (published by the American Society of Quality, Quality Press, P.O. Box 3005, Milwaukee, Wisconsin 53201-3005)

- The ASQ ISO 9000:2000 Handbook (editors, Charles A. Cianfrani, Joseph J. Tsiakals and John E. West; Second Edition; published by the American Society of Quality, Quality Press, 625 N. Plankinton Avenue, Milwaukee, Wisconsin 53203)

- Juran's Quality Handbook (editors, Joseph M. Juran and A. Blanton Godfrey; Fifth Edition, McGraw-Hill)

Any questions regarding changes, corrections, updates or enhancements to this document should be forwarded to:

FARGO Electronics, Incorporated
Support Services
6533 Flying Cloud Drive
Eden Prairie, MN 55344 (USA)
(952) 941-0050
FAX: (952) 941-7836
www.fargosupport.com

Table of Contents

Section 1: Printer Overview

How to use the guide

The HDP600 High Definition Card Printer/Encoder User Guide (Rev. 2.5) is designed to provide installers and technicians with quick, efficient lookup of related procedures, components and terms. The Guide can be used effectively either in soft or hard copy, depending on the preference of the installer or technician.

Manual	Description
Glossary of Terms and Technical/Functional Specifications (hyper-linked)	You can go directly to the Glossary of Terms, Technical Specifications and Functional Specifications to learn how to use the processes, procedures, functions and windows for the HDP600 within concise, correlative tables.
Table of Contents (hyper-linked)	You can use the automated Table of Contents to quickly locate, for example, an error message, a procedure, the index or an appendix.
Cross-Referencing (hyper-linked)	You can use the cross-referencing links to quickly locate, for example, an error message or a procedure.
Comprehensive Index (hyper-linked)	You can use the Comprehensive Index to quickly locate information on the HDP600, relating to a specification, a procedural step, a window or screen, a component, a term, a qualifier or a related feature to this Printer.

Safety Messages (review carefully)

Symbol	Critical Instructions for Safety purposes
Danger:	**Failure to follow these installation guidelines can result in death or serious injury.** Information that raises potential safety issues is indicated by a warning symbol (as shown to the left). • **To prevent personal injury**, refer to the following safety messages before performing an operation preceded by this symbol. • **To prevent personal injury**, always remove the power cord prior to performing repair procedures, unless otherwise specified. • **To prevent personal injury**, make sure only qualified personnel perform these procedures.
Caution:	**This device is electrostatically sensitive. It may be damaged if exposed to static electricity discharges.** Information that raises potential electrostatic safety issues is indicated by a warning symbol (as shown to the left). • **To prevent equipment or media damage**, refer to the following safety messages before performing an operation preceded by this symbol. • **To prevent equipment or media damage**, observe all established Electrostatic Discharge (ESD) procedures while handling cables in or near the Circuit Board and Printhead Assemblies. • **To prevent equipment or media damage**, always wear an appropriate personal grounding device (e.g., a high quality wrist strap grounded to avoid potential damage). • **To prevent equipment or media damage**, always remove the Ribbon and Cards from the Printer before making any repairs, unless otherwise specified. • **To prevent equipment or media damage**, take jewelry off of fingers and hands, as well as thoroughly clean hands to remove oil and debris before working on the Printer.

HDP600 Overview

Reviewing the HDP600 Block Diagram

The HDP600 Block Diagram will be created and added to this service document at a future date.

No.	Part	No.	Part	No.	Part
1	Card Input	19	Thermocouple	37	Card Feed Roller
2	Card Feed Stepper	20	Film Supply Encoder	38	Flattener Cooling Fan
3	Flipper Stepper	21	Film - Print	39	Lamination Roller
4	Lamination Stepper	22	Ribbon Sensor Array	40	Platen Roller
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11	Print Headlift	29	Flipper Table Roller	47	Lamination Roller
12	Card Low	30	Flipper Table	48	Platen Roller
13	Encoding TOF	31	Encoding Module	49	Printhead
14	Flipper Home	32	Encoding Feed Roller	50	Printhead Cooling Fan
15	Card TOF	33	Card Feed Roller	51	Card Input Hopper
16	Film - Transfer	34	Card Feed Roller	52	Card Detection
17	Film Take Up Encoder	35	Transfer Platen Roller	53	Flipper Table Card
18	Encoding TOF	36	Flattener Roller	54	Flattener Cooling Fan

Reviewing the HDP600 Sequence of Operations

The following sequence describes a dual sided full color print job with magnetic encoding. (**Note:** The HDP625/625-LC Printers have two (2) Card Input Hoppers that load 100 cards in each Hopper.)

Step	Process
1	The File information is received from the PC.
2	The Heater warms up and/or maintains the heat on the hot Roller using the Thermocouple to help maintain the desired temp.
3	The DC Motor and Flipper Stepper turn ON and run until a card is seen by the card Sensor, which will cause the Card Input Motor to stop. The Stepper will continue to run a certain number of steps to position the card on the Flipper Table. All stop. Card Low Sensor will check for cards in Input Hopper.
4	The Flipper Stepper will turn ON, causing the Flipper Stepper to turn to the magnetic angular position. The Flipper Position Sensor and counted steps are used to determine the angular position. All stop.
5	The Flipper Stepper will engage to drive the card into and past the Magnetic Card Sensor and the Magnetic Head.
6	The Flipper Stepper engages to drive the card to a centered position on the Flipper Table using the Magnetic Card Sensor and a step count. All stop.
7	The Flipper Stepper will turn ON, causing the Flipper to turn to the default (flat) position. The Flipper Position Sensor and counted steps are used to determine the angular position. All stop.
8	Steppers engage to move the card OFF the Flipper and to a position near the hot Roller, using Card Feed Sensors and a step count. All stop.
9	The Ribbon Drive Motors turn ON and move until the correct panel is found by the Print Ribbon Sensor array (5 reflective). All stop. (**Note:** The Print Ribbon Encoder is active during this step.) This step occurs simultaneously with Step 10 (below).
10	The Film Drives turn ON until the Film is positioned with the Film Mark Alignment Sensor. (**Note:** This is the closest Sensor to the Transfer Rollers.) All stop. (**Note:** The Film Ribbon Encoder is active during this step.)
11	The Headlift Motor engages, moving the Printhead down until Headlift Sensor is activated. All stop.

Continued on the next page

Reviewing HDP® 600 Series Card Printer - Sequence of Operations (continued)

Step	Process
12	The Fan turns ON as required to keep head cool.
13	The Ribbon Drives, Film Drives and Print Platen Stepper turn ON and the Printhead burns the image data until the image data is depleted. All stop. (**Note:** The Ribbon Encoders and Film Encoders are active during this step.)
14	The Headlift Motor engages, moving the Printhead up until the Headlift Sensor is activated. All stop.
15	The Ribbon Drives and Film Ribbon Drives advance until the Print Ribbon Encoder sees acceleration at release. (**Note:** The Ribbon Encoders are active during this step.)
16	The Ribbon Drives move until the Print Ribbon Position Sensor finds the next panel. All Motors stop. (**Note:** The Ribbon Encoder is active during this step.)
17	Repeat Steps 9 to 15 for the appropriate number of color/heat seal panels.
18	The Film/Ribbon Drives and Print Platen Stepper turn ON to advance the printed portion of the Film into position at the heated Transfer Roller, using the Lamination Film Alignment Sensor.
19	The Headlift Motor engages, moving the Printhead up until the Headlift Sensor is activated. All stop. (**Note:** This step is not performed after the last Color/Heat Seal Panel is printed.)
20	If the heater is not at the required temperature yet, the job will pause.
21	Stepper engages to move the card to a position directly under the hot Roller. The Top of Form Sensor determines card edge and number of steps to position card. All stop.
22	The Transfer Roller Motor turns ON to lower the Transfer Roller and will stop when the Sensor is activated. All off.

Reviewing HDP® 600 Series Card Printer - Sequence of Operations (continued)

Step	Process
23	The Stepper and Film Drive engage to laminate the printed Film onto the card. They will turn off after a given number of steps based on the position given by the Card Sensor. All stop. (**Note:** The Film Encoder is active during this step.)
24	The Transfer Roller Motor turns ON to raise the Transfer Roller and will stop when the Sensor is activated. All off.
25	The Film Drive and Stepper turn ON for a given number of clicks based on Film Encoder, until the film is released.
26	The Stepper turns ON to move the card into the Output Hopper (based on steps from a known position). All stop.
27	The Heater and Thermocouple are maintained at a set temperature at all times when the Printer is ON. The cooling fan is ON when the Printhead is ON or hot.

Reviewing the HDP600 Boot up Sequence

Step	Process
Step	Process
1	The Card feed stepper turns ON (to check for a card on the Flipper table).
2	The Hot Roller Lift turns until the head up position is returned from the Headlift Sensor).
3	The Film transfer take-up Motor turns ON to take up any slack in the film.
4	The Print Headlift turns until head up position is returned from Headlift Sensor.
5	The Print Ribbon moves forward until it finds the yellow panel, pauses, advances to magenta, then backs up to yellow (the Ribbon Sensor detects marks on the ribbon).
6	The Transfer Film advances forward two panels from supply (advances until the Transfer Film Sensor senses 2 marks on the Film).
7	The Transfer Film advances forward one panel from supply (advances until the Transfer Film Sensor senses 1 mark on the Film).
8	The Transfer Film reverses for one panel onto supply (reverses until the Transfer Film Sensor senses 1 mark on the Film).

Reviewing the Lamination Module Sequence of Operations

The LAM sequence of operations begins after printing has occurred with the Card Printer.

Step	Process
1	The card is fed onto the Lamination Module Flipper Table.
2	The card is fed to the Card Position Sensor.
3	The Lamination Ribbon Motor begins cycling until the Lamination Sensor detects the mark.
4	The Card Feed Motor activates to position the card on the Platen Roller.
5	The Lamination Roller Lift Motor cycles until the Lamination Roller Lift Sensor detects state change.
6	The Card Feed Motor and the Lamination Ribbon Motor activate for the length of the card.
7	The Lamination Roller Lift Motor cycles until the Lamination Roller Lift Sensor detects state change.
8	The card is fed back to the Flipper Table.
9	The Flipper Table Clutch engages.
10	The Flipper Table Motor activates until the Card is inverted based on the Flipper offset setting.
11	The Flipper Table Clutch disengages.
12	The card is fed off the Flipper Table.
13	The Flipper Table Clutch engages.
14	The Flipper Table Motor activates until the Flipper Table is homed.
15	The Flipper Table Clutch disengages.
16	Repeat Steps 2 through 7.
17	The card is fed out of the Printer.

Reviewing the Lamination Module Boot up Sequence

Step	Process
1	The Lamination Headlift turns until the head up position is returned from Headlift Sensor.
2	The Lamination Ribbon Motor activates to determine the presence of a roll of lamination.
3	The Lamination Flipper table homes itself.
4	The Card Sensor checks for the presence of a card and ejects it if found.

Section 2: Specifications

The purpose of this section is to provide the User with specific information on the Regulatory Compliances, Agency Listings, Technical Specifications and Functional Specifications for the HDP600, HDP600-LC, HDP600 CR100 and HDP600-LC CR100 Card Printers.

Safety Messages (review carefully)

Symbol	Critical Instructions for Safety purposes
Danger:	**Failure to follow these installation guidelines can result in death or serious injury.** Information that raises potential safety issues is indicated by a warning symbol (as shown to the left). • **To prevent personal injury**, refer to the following safety messages before performing an operation preceded by this symbol. • **To prevent personal injury**, always remove the power cord prior to performing repair procedures, unless otherwise specified. • **To prevent personal injury**, make sure only qualified personnel perform these procedures.
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Introduction

The purpose of this section is to provide the User with specific information on the Regulatory Compliances, Agency Listings, Technical Specifications and Functional Specifications for the HDP® 600 Card Printer/Encoder.

Reviewing the HDP600 Printer Overview table

HDP600 Series	Input Hoppers	Card Capacity	Accepted Card Size	Encoding Modules	Lamination Module
HDP600 (Dual-Sided Card Printer/Encoder)	2	200 (100 per Hopper)	CR-80	Included	Optional
HDP600-LC (Dual-Sided Card Printer/Encoder)	2	200 (100 per Hopper)	CR-80	Included	Included
HDP600 CR100 (Dual-Sided Card Printer/Encoder)	1	100 (for single Hopper)	CR-100	Not included	Optional
HDP600-LC CR100 (Dual-Sided Card Printer/Encoder)	1	100 (for single Hopper)	CR-100	Not included	Included

Reviewing the HDP600 Package

These items are included with your HDP600:
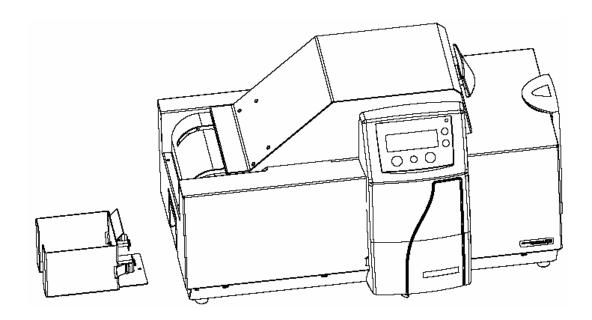
- Unpacking Instructions and Training Video CD
- Software Installation CD (includes Printer Driver)
- Cleaning Roller Assembly
- One (1) power supply with Printer; one (1) power supply with Laminator
- Card Feed Weights

Reviewing the HDP600 (front)
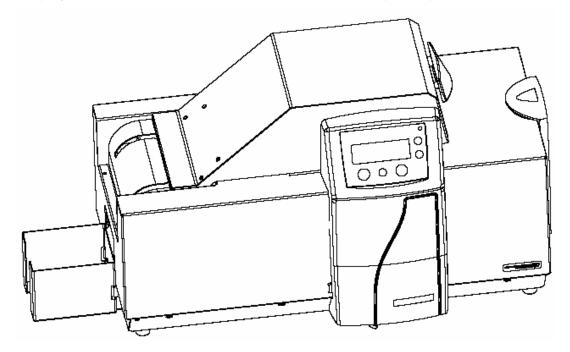
Reviewing the HDP600 CR100 Card Printer

Display A – HDP600 CR100 Printer with detached Output Hopper

Display B – HDP600 CR100 Printer with attached Output Hopper

HDP600 - Regulatory Compliances

Term	Description
CSA (cUL)	The Printer manufacturer has been authorized by UL to represent the Card Printer as CSA Certified under CSA Standard C22.2 No. 60950-1-03. **File Number:** E145118
FCC	The Card Printer complies with the requirements in Part 15 of the FCC rules for a Class A digital device. (**Note:** These requirements are designed to provide reasonable protection against harmful interference in a residential installation.) If equipment operation in a residential area causes unacceptable interference to radio and TV reception, the operator is required to take whatever steps are necessary to correct the interference.
ITS-EMC	The Card Printer has been tested and complies with EN55022 Class A: 1995 and EN82082-1: 1997 standards for EMI emissions. (**Note:** Based on the above testing, the Printer manufacturer certifies that the Card Printer complies with all current EMC directives of the European Community and has placed the CE mark on the Card Printer.) **License Number:** J99032510
UL	The Card Printer is listed under UL IEC 60950-1 (2001) INFORMATION TECHNOLOGY EQUIPMENT. **File Number:** E145118

HDP600 - Agency Listings

Term	Description
Emissions Standards	CE, FCC, CRC c1374, EN 55022 Class A, FCC Class A, EN 55024: 1998, EN 61000-3-2 and EN 61000-3-3.
Safety Standards	UL IEC 60950-1 (2001), CSA C22.2 No. 60950-1-03.

Caution: For safety purposes, Ethernet is not intended for a direct connection outside of the building.

Technical Specifications

Term	Description
Accepted Standard Card Sizes	**HDP600 and HDP600-LC (See Card tab under Printer Adjustments):** • **CR-80:** This selection is the default form size for the HDP600. This will print a 3.375 in. L x 2.125 in. W (85.6mm L x 54mm W) image including a .04 over-bleed on each of the 4 sides. This makes the overall form size 2.204 X 3.452 (56 X 87.7 mm). • **Custom:** This selection is used to create a custom form size from 1.0 x 3.0 to 2.204 to 3.452 (25.4 X 76.2 mm to 56 X 87.7 mm). **HDP600 CR100 and HDP600-LC CR100 (same reference):** • **CR-100:** This selection is the default form size for the HDP600 CR100. This will print 3.88 in. L x 2.63 in. W (98.5mm L x 67mm W) including a .04 over-bleed on each of the 4 sides. This makes the overall form size 3.92 in. L x 2.67 in. W (98.9mm L x 71mm W). The CR-100 size PolyGuard applies only if laminating with HDP600-LC CR100. • **Custom:** Select the **Custom** option under Card tab in the Printer Driver. Enter the dimensions of the card into the Print Width and Print Length boxes if using a card size that varies from the CR-100. Add .04" (1mm) to each dimension to ensure Edge-to-Edge printing.

Technical Specifications (continued)

Term	Description
Accepted Card Thickness	.030 in. (30 mil) to .070 in. (70 mil) (.762mm to 1.778mm). (.030 to .040/.762mm to 1.02mm if laminating with HDP600-LC; thicker cards are allowed to pass through the Lamination Module if you choose to print-only)
Accepted Electronic Card types (only HDP600 and HDP600-LC)	HID Proximity Cards, Mifare Contactless Smart Cards and Contact Smart Cards
Accepted Card Compositions	ABS, PVC, PET and PETG
Colors	Up to 16.7 million colors and 256 shades per Pixel.
Card Capacity	**HDP600 and HDP600-LC:** • 200 cards (.030/.762mm) auto or Guide feed **HDP600 CR100 and HDP600-LC CR100:** • 100 cards (.030/.762mm) auto or Guide feed
Cardstock	**HDP600 and HDP600-LC:** • CR80, 30 mil UC1 cardstock (No-Co, Lo-Co and Hi-Co) • CR80, 30 mil UC3 cardstock (No-Co and Hi-Co) **HDP600 CR100 and HDP600-LC CR100:** • CR100, 30 mil UC1 cardstock (No-Co, Lo-Co and Hi-Co) • CR100, 30 mil UC3 cardstock (No-Co and Hi-Co)

Technical Specifications (continued)

Term	Description
Dimensions	• **HDP600:** 15" H x 26.1" W x 14" D/381mm H x 663mm W x 356mmD • **HDP600-LC:** 15" H x 34.75" W x 14" D/381mm H x 883mm W x 356mmD • **LC Module:** 10 H x 13 W x 14.2D/362mm H x 330mm W x 254mmD • **HDP600 (CR100):** 15" H x 26.1" W x 14" D/381mm H x 663mm W x 356mmD • **HDP600-LC (CR100):** 15" H x 34.75" W x 14" D/381mm H x 883mm W x 356mmD • **LC Module (CR100):** 10 H x 13 W x 14.2D/362mm H x 330mm W x 254mmD
Display	User-friendly, SmartScreen LCD Control Panel; LED display on Card Lamination Module.
Encoding Options (only HDP600 and HDP600-LC)	• ISO Magnetic Stripe Encoding Module, dual high- and low-coercivity, Tracks 1, 2 and 3 • JIS II Magnetic Stripe Encoding Module • E-card Docking Station (required for all e-card options or 3rd party smart card encoding) • Contact Smart Card Encoder (ISO 7816), Parts 1-4; T=0 & T=1 • Contactless Smart Card Encoder (Mifare®) • Prox Card Encoder (HID read-only) (**Note:** Corporate Express 1000 Cards can be used with special order Weigand/ASCII Converter) • iCLASS™

Technical Specifications (continued)

Term	Description
Fargo Certified Supplies	Fargo Card Printer/Encoder require highly specialized media to function properly. To maximize printed card quality and durability, Printhead life and Printer/Encoder reliability, use only Fargo Certified Supplies. Fargo warranties are void, where not prohibited by law, when non-Fargo Certified Supplies are used.
HDP Film Options	• Clear, 1,250 prints • Standard Holographic (only HDP600 and HDP600-LC) • Custom Holographic, special order (only HDP600 and HDP600-LC)
HDP Film Storage Temperature	77ºF (25ºC) or lower for no longer than 1.5 years.
Humidity	20% to 80% (non-condensing)
Input Hopper Card Capacity	**HDP600 and HDP600-LC:** • 200 cards (.030/.762mm) **HDP600 CR100 and HDP600-LC CR100:** • 100 cards (.030/.762mm)
Interface	• Centronics parallel, IEEE-1284 Compliant or USB 1.1 • Interfacing information for E-card Options
Maximum Accepted Card Width	2.125 in. to 2.63 in. (54mm to 67mm)
Maximum Accepted Card Length	3.375 in. to 3.88 in. (85.6mm to 98.5mm)

Technical Specifications (continued)

Term	Description
Memory	8 MB RAM; expandable to 32 MB RAM
Operating Temperature	65º F to 80º F (18º C to 27º C).
Options	• The options are the 32MB RAM Upgrade Kit • Printer Cleaning Kit • External Print Server (Windows only; required for stand-alone networking of Printer/Encoder) • Card Lamination Module
Output Hopper Card Capacity	**HDP600/HDP600-LC** • 100 cards (.030/.762mm) **HDP600 CR100/HDP600-LC CR100:** • 100 cards (.030/.762mm)
Overlaminate Options (HDP600-LC and HDP600-LC CR100 only)	All overlaminates are available in either clear, holographic globe design or custom holographic design. They can also be optimized for use with smart cards and Magnetic Stripes. PolyGuard is available in CR-80 patch sizes (HDP600-LC only). Here are the options: • Thermal Transfer Overlaminate, .25 mil thick, 500 prints • PolyGuard Overlaminate, .6 mil thick, 250 prints • PolyGuard Overlaminate, 1.0 mil thick, 125 prints
Power Supply	• 80W for HDP600 • 160W (two 80W bricks) for the HDP600-LC
Print Area	Over-the-edge on all accepted standard card sizes.
Printing Method	HDP™ Dye-Sublimation/Resin Thermal Transfer

Technical Specifications (continued)

Term	Description
Print Ribbon Options	**HDP600 and HDP600-LC:** • Full color, YMC, 700 prints • Full color with resin black, YMCK, 250 or 500 prints • Full color with two resin black Panels, YMCKK, 400 prints **HDP600 CR100 and HDP600-LC CR100:** • Full color with two resin black Panels, YMCKK, 400 prints • Full color with resin black and YMCKK, 400 prints; extra wide for over-the-edge printing on CR-100 cards All HDP Ribbons utilize Fargo's exclusive RibbonTraq™ system for maximum print quality, performance, reliability and ease of use. **Note No. 1 (CR100):** The YMCKH and YMCKK Ribbons are used on the HDP600/HDP600-LC Printers and the HDP600 CR100/HDP600-LC CR100 Printers. **Note No. 2 (HDP600 print ribbons):** Indicates the ribbon type and the number of ribbon panels printed where Y=Yellow, M=Magenta, C=Cyan, K=Resin Black, O=Overlay, F=Fluorescing.
Print Speed-Batch Mode	**HDP600 and HDP600-LC (see note below):** • 35 seconds per card/112 cards per hour (YMC with transfer) • 40 seconds per card/94 cards per hour (YMCK with transfer) • 72 seconds per card/54 cards per hour (YMCKK with transfer) • 40 seconds per card/90 cards per hour (YMCK/Lamination) • 72 seconds per card/50 cards per hour (YMCKK/Lamination) **HDP600 CR100 and HDP600-LC CR100 (see note below):** • 85 seconds per card/45 cards per hour (YMCKK with Transfer) • 93 seconds per card/45 cards per hour (YMCKK/Lamination) Print speed indicates an approximate print speed and is measured from the time a card feeds into the Printer to the time it ejects from the Printer. • Print speeds do not include encoding time or the time needed for the PC to process the image. • Process time is dependent on the size of the file, the CPU, amount of RAM and the amount of available resources at the time of the print.

Technical Specifications (continued)

Term	Description
Resolution	300 dpi (11.8 dots/mm)
Software Drivers	Windows® 2000/XP
Supply Frequency	50 Hz / 60 Hz
Supply Voltage	100 to 240 VAC, 3.75A (HDP600 and HDP600-LC) 100 to 240 VAC, 4.25A (HDP600 CR100 and HDP600-LC CR100)
System Requirements	IBM-PC or compatible. Windows 2000/XP. Pentium™ class 133 MHz computer with 64 MB of RAM or higher, 200 MB free space or higher and USB 1.1
Warranty	• **Printer:** One year; optional Extended Warranty Program (U.S. only) • **Printhead:** Lifetime; unlimited pass with Fargo-certified Cards
Weight	• **HDP600:** 35 lbs. • **HDP600-LC:** 55 lbs. • **LC Module:** 20 lbs. • **HDP600 (CR100):** 35 lbs. • **HDP600-LC (CR100):** 55 lbs. • **LC Module (CR100):** 20 lbs.

Functional Specifications

The Card Printer utilizes two different, yet closely related printing technologies to achieve its remarkable print quality for dye-sublimation and resin thermal transfer.

The following describes how each of these technologies works:

Function	Description
Dye-Sublimation	Dye-Sublimation is the print method the Card Printer uses to produce smooth, continuous-tone images that look photographic. (**Note:** This process uses a dye-based Ribbon roll that is partitioned by a number of consecutive color Panels.) • **Process colors:** The Panels are grouped in a repeating Series of three process colors - yellow, magenta and cyan (YMC), along the entire length of the Print Ribbon. • **Panels:** The Printer always prints the yellow Panel first, followed by the magenta Panel and the cyan Panel. • **Printhead:** As the Print Ribbon passes beneath the Printhead, hundreds of thermal elements within the Printhead heat the dyes on the Ribbon. (**Note:** When these dyes are heated, they vaporize and diffuse into the surface of the film and then the film is laminated onto the card surface. A separate pass is made for each of the three color Panels on the Ribbon.) • **Color Shades:** By combining the colors of each Panel and by varying the heat used to transfer these colors, it is possible to print up to 16.7 million different shades of color. (**Note:** This blends one color smoothly into the next, producing photo-quality images with absolutely no dot pattern.) • **Dye-Diffusion Thermal Transfer:** It is the process of heating a dye suspended in a cellulous substrate until the dye can flow, diffusing into the dye receptive surface of the card or InTM. This produces the image in the surface of the card.

Functional Specifications (continued)

Function	Description
Resin Thermal Transfer	Resin Thermal Transfer is the print method the Printer uses to print sharp black text and crisp bar codes that can be read by both infrared and visible-light bar code scanners. Like dye-sublimation, this process uses the same thermal Printhead to transfer color to a card from a resin-only Print Ribbon or the resin black (K) Panel of a full color Print Ribbon. The difference, however, is that solid dots of resin-based ink are transferred and fused to the surface of the film and then the film is laminated onto the card surface. (**Note:** This produces very durable, saturated printing.)
Card Input Hopper	Load blank cards into this hopper.
Card Output Hopper	Stores printed cards.
Card Lamination Module	Works in conjunction with the Printer to apply a variety of different overlaminates to printed cards, providing increased card durability and security. The Module has its own LED indicator light and control buttons; so it can be operated separately from the Printer. (**Note:** When printing a batch of cards, the Printer can be encoding and printing one card while the Lamination Module laminates another card.)
LCD Display	Displays the current status of the Printer.
LED Light	Indicates the Printer ON, OFF, pause and error conditions.
Printhead	The component of the Printer that actually does the printing. This component is fragile and must not be bumped or touched with anything other than a cleaning pen.
Softkey Buttons	Current function is displayed above the button and will change depending upon the Printer's mode of operation.

Functional Specifications

Function	Description
Scroll Buttons	Used to scroll through menus and sub-menus and to adjust certain menu options.
Card Thickness Adjustment Lever	Adjusts the Printer to feed varying card thicknesses.
Card Cleaning Assembly	Automatically cleans cards for higher print quality. (**Note:** Clean this Assembly after every 1000+ cards or as needed.)
Power Switch	Turns the Printer power ON and OFF.
Power Port	Connect to the included power supply.
USB Interface Port	Connect to the Windows PC USB cable.

Printer Components: LCD and Softkey Control Pad

The Printer provides a four line, eighty (80) character LCD Displays that can communicate helpful information about the Printer's operation.

- The top three lines of the LCD Display will always be used to communicate print status, error messages and menu options.

- The bottom line of the LCD Display will always be used to communicate the current function of the Printer's softkey buttons.

This section describes how the LCD Display and Softkey Control Pad work together.

Component	Description
Softkey Buttons	The Printer has three **softkey buttons** that appear below the LCD Display. Their current function is indicated by the words appearing above them. This function will change according to the Printer's current mode of operation. • Press the corresponding softkey button under the choice you want to select. If no word appears above a particular button, this indicates it has no function in that particular mode of operation. The Printer also has another type of button on its control pad called scroll buttons. These buttons are located just to the right of the LCD Display. • Use these buttons to scroll through help text, to navigate through the Printer's menus and to adjust certain Printer settings.
LCD Display	The Printer's LCD Display will change according to the Printer's current mode of operation.

Printer Components: LCD and Softkey Control Pad (continued)

Component	Description
Ready / Printer Open Screens	Once the Printer has finished its system check and with the Printer closed, the Printer will display READY to indicate that the Printer is ready for operation. (**Note:** The Printer will stay in this mode until it receives a print job or it is turned OFF.) • If the Printer is opened, the Printer Open screen will appear. Press either the FWD or BWD buttons to move the Printer's card path Rollers in the indicated direction. In any of these screens, the Printer will always display the **Menu** option above the center softkey button. Press this button to access the Printer's menu options. (**Note:** The **Menu** option is available only in the Ready / Printer Open screens.) • If the Printer is equipped with the Card Lamination Module and the Lamination Station is opened, an LCD message will appear; and the Lamination Module's LED will flash. (**Note:** To move the Lamination Module's Rollers, push the Module's **Cancel** or **Resume** buttons.) • If both the Printer and Lamination Station are open, the LCD's FWD or BWD softkey buttons will move ALL Rollers. In any of these screens, the Printer will always display the **MENU** option above the center softkey button. Press this button to access the Printer's menu options. (**Note:** The **MENU** option is available only in the READY / PRINTER OPEN screens.)

Printer Components: LCD and Softkey Control Pad (continued)

Component	Description
Print Status Screen	During operation, the LCD will indicate the current Print Status by showing you the area of the Printer that is active. It does this by displaying the following icons on the second line: • FEEDING: Indicates that cards are being fed into the Printer. • FLIPPING: Indicates that the card is being transported to the Flipper station. • ENCODING: Indicates the encode station is encoding a card (appears only if you are using a Printer with an optional built-in Encoding Module). • PRINTING: Indicates the Printer is printing onto the HDP film. • RECIEVING DATA: Indicates that the Printer is receiving data from the PC. • TRANSFERRING: Indicates the Printer is transferring an image to a blank card. • LAM: Indicates the Lamination Station is applying an overlaminate to a card (appears only if using a Printer equipped with the optional Card Lamination Module. Since the Printer is capable of performing several of these functions simultaneously, one or all of these icons may appear at once, depending on if you are printing just one card or a batch of cards. The Print Status screen always displays **Cancel** in the lower left and **Pause** in the lower right.
The **Cancel** button	Use this button to cancel print jobs and reset the Printer for the next print job. **Cancel** now has two options: • Cancel single job in memory. • Cancel all jobs in memory. This **Cancel All** function will cancel all print jobs in the Printer and will completely reset the Printer. In this case, be sure to cancel the print jobs from the PC before pressing **YES**.

Printer Components: LCD and Softkey Control Pad (continued)

Component	Description
The **Pause** button	Use this button to pause the Printer at any time during operation. Note the Printer will always finish its current task before pausing. When the Printer is paused, the LED Light will flash and the **Pause** softkey button will change to **Resume**. Press **Resume** to continue Printer operation.
The LED Light	This light works in conjunction with the Printer's LCD Display to help communicate the Printer's current status. It is especially effective when you are too far away from the Printer to read the LCD Display. The following explains how to interpret both LED Lights on the exterior of the Printer. • **Off:** Indicates the Printer power is OFF. • **Solid GREEN:** Indicates the Printer is powered ON and ready for operation. • **Flashing GREEN:** Indicates a Printer ERROR or ATTENTION condition. Refer to the Printer's LCD Display for information.

Printer Components: LCD and Softkey Control Pad (continued)
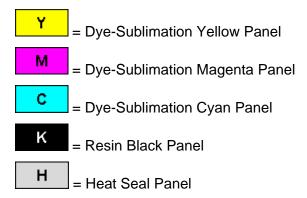
Component	Description
Error/Attention Screens	The Printer is capable of communicating two similar yet different types of message or prompt screens:
	The first is called an ATTENTION screen. (**Note:** This screen appears if an error occurs and will completely stop Printer operation. In this case, the LCD will display ATTENTION on the first line and a brief description of the error on the following lines.)
	• Press the **Help** button if you would like a more detailed explanation of the error message. This will bring up the help screen explaining the nature of the error and how to correct it. If necessary, use the scroll buttons to scroll down the paragraph of help text.
	• Press **Quit** when you are done reading. Once the error is corrected, resume operation or reset the Printer according to how you were instructed in the help screen.
	The second type of prompt is called a MESSAGE screen. (**Note:** This screen will not stop Printer operation and serves to communicate helpful reminders, such as if you are running low on print supplies and also communicates any other Printer conditions of which you should be aware. In this case, the LCD will display Message on the first line and a brief description of the condition on the following lines.)
	• Like error messages, help text explaining the particular condition can also be accessed by pressing the **Help** button.

Printer Components: Print Ribbons

The Card Printer utilizes both dye-sublimation and/or resin thermal transfer methods to print images (print to film and transfer film to card). Since the dye-sublimation and the resin thermal transfer print methods each provide their own unique benefits, Print Ribbons are available in dye-sublimation-only and combination dye-sublimation/resin versions.

To make it easier to remember which Print Ribbons are which, a letter code has been developed to indicate the type of Ribbon Panels found on each Ribbon.

This letter code is as follows:

Y = Dye-Sublimation Yellow Panel

M = Dye-Sublimation Magenta Panel

C = Dye-Sublimation Cyan Panel

K = Resin Black Panel

H = Heat Seal Panel

Printer Components: Blank Cards

⚠ **Caution:** Never run cards with a contaminated, dull or uneven surface through the Printer. Printing onto such cards will ultimately lead to poor print quality. Always store the card stock in its original packaging or in a clean, dust-free container. Do not print onto cards that have been dropped or soiled.
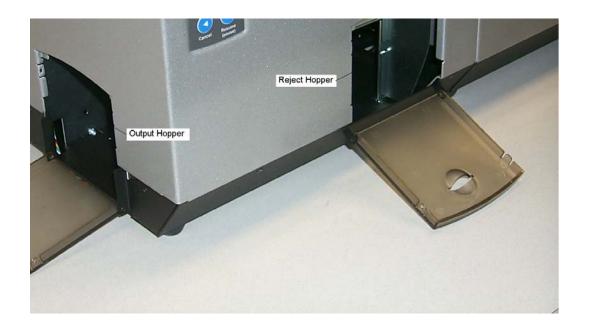
Type	Description
Card Size	**HDP600 and HDP600-LC:** These Card Printers accept standard CR80 sized cards (3.375L x 2.125W / 85.6mmL x 54mmW) with a thickness of 30 mil to 70 mil (.030/.762mm). **HDP600 CR100 and HDP600-LC CR100:** These Card Printers accept standard CR100 sized cards (2.625" X 3.875") (+/-0.002" W, +/-0.005" L) or 66.675 X 98.425 mm. standard of 2.625" X 3.875" (+/-0.002" W, +/-0.005" L) or 66.675 X 98.425 mm.
Card Design	The Printer will print onto any card with a clean, level and polished PVC surface.
Card Surface	Suitable cards must have a polished PVC surface free of fingerprints, dust or any other types of embedded contaminants. • In addition, cards must have a completely smooth, level surface in order for the Printer to achieve consistent color coverage. • Some types of Proximity cards, for example, have an uneven surface which will inhibit consistent color transfer. Likewise, some smart card chips are raised slightly above the cards surface, which also results in poor color transfer.
UltraCard stock	Due to the importance of using high-quality blank cards, a factory-approved card stock called UltraCard™ is available and recommended for best results. • UltraCard stock has a glossy PVC laminate on top and bottom and is optically inspected to provide the cleanest, most scratch and debris-reduced cards possible. • Two types of these cards are available: UltraCard and UltraCard III. • UltraCard stock has a PVC core and offers medium card durability. • **Recommended:** UltraCard III stock has a 40% polyester core and offers high durability. Both types of UltraCards produce printed images with a glossy, photo-quality finish.

Printer Components: Card Input and Output Hoppers

Type	Description
Card Input Hopper	The Card Input Hopper is where cards are initially loaded for printing. Your Printer's hopper provides a large door that opens widely to make card loading simple and closes securely to help protect your card stock.
	HDP600 and HDP600-LC:
	The Printer will hold a maximum of 200 cards (HDP600 has two Card Input Hoppers; load 100 cards per Hopper) (based on a standard 30 mil card thickness).
	• Load 100 cards in each of the two (2) Card Input Hoppers in the HDP600 Printers.
	• Insert card weights as instructed in the HDP600 Training Video.
	HDP600 CR100 and HDP600-LC CR100:
	The Printer will hold 100 cards in the Input Hopper, based on a standard 30 mil card thickness).
	• Load 100 cards in the Card Input Hoppers in the HDP600 CR100 and HDP600-LC CR100 Printers.
	• Insert card weights as instructed in the HDP600 Training Video. (**Note:** The card weight is twice as thick as the regular card weight.)

Printer Components: Card Output Hopper and Reject Hopper

Type	Description
Card Output Hopper	**HDP600/HDP-LC and HDP600 CR100/HDP600-LC CR100:** All standard HDP Card Printers provide a 100-card capacity Card Output Hopper (based on a standard 30 mil card thickness). (**Note:** This Hopper stores the cards after they are printed.) Shown in the lower left.
Reject Hopper	Shown in the lower right.

Printer Unit: Reviewing the Card Lamination Module

⚠ **Danger:** The Printer's Lamination Roller can reach temperatures exceeding 350° F (175° C). Use extreme caution when operating the Laminator. Never touch the Lamination Roller unless the Printer has been turned off for at least 20 to 30 minutes.

Select Printer models support the attachment of an optional Card Lamination Module. This Module can be ordered pre-installed on your Printer from the factory or can be ordered separately as a field upgradeable Module.

- **HDP600/HDP600-LC and HDP600 CR100/HDP600-LC CR100:** These Printers have the same field upgradeable features. The functionality of the Laminator for the HDP600-LC and the HDP600-LC CR100 is identical.

Printer Components: Transfer Roller

⚠ **Danger:** The Printer's Transfer Roller can reach temperatures exceeding 350 degree F (175 C). Use extreme caution when operating the Transfer Roller. Never touch the Lamination Roller unless the Printer Power has been turned off for at least 20 to 30 minutes.

Type	Description
Controls	Both the Printer itself and the Printer's software Driver control the built-in Transfer Roller.
Temperature Adjustment	To change the temperature of the Transfer Roller, adjust its temperature through the Image Transfer within the Printer Driver setup window.
	Once adjusted, the new temperature settings will be sent down with the next print job along with the rest of the Printer Driver information.
New Temperature Setting	Before printing begins, the Transfer Roller will automatically adjust itself to the new temperature setting. (**Note:** This new temperature setting will remain programmed within the Printer until it is once again changed within the Printer Driver or until the Printer is turned OFF.)
	Whenever the Printer is turned OFF, the Transfer Roller will automatically reset itself and return to its default temperature the next time the Printer is turned ON.
	Flip the Power Switch to OFF.
	OR
	Disconnect the Printer's power supply. (**Technician Note:** Both the Power Switch and the Printer's power supply serve to reset the Transfer Roller to its default temperature. The temperature setting within the Printer Driver, however, will stay the same until it is changed.)

Reviewing the Overlaminates

IMPORTANT! Fargo Card Printers require highly specialized overlaminates to function properly. To maximize Printer life, reliability, printed card quality and durability, you must use only Fargo Certified Supplies. For this reason, the Fargo warranty is void, where not prohibited by law, if you use non-Fargo Certified Supplies. To order additional materials, please contact the authorized reseller.

Reviewing the Thermal Transfer Film and PolyGuard Overlaminates

Term	Description	Cross Reference
Thermal Transfer Film and PolyGuard Overlaminates	The Card Lamination Module will accept either a Thermal Transfer Film overlaminate or a Polyester Patch Overlaminate called PolyGuard™. • **Thermal Transfer Film:** The Thermal Transfer Film overlaminate is a relatively thin material which covers a card Edge-to-Edge and provides a medium level of card durability and security.) • **PolyGuard Overlaminate:** PolyGuard is a much thicker material which does not cover Edge-to-Edge, but provides an extremely high level of card durability and security. (**Note:** PolyGuard is available in either a 1.0 or .6 mil thickness and should always be used for those applications requiring the highest degree of card durability and security.)	See the Loading the Overlaminate.

Reviewing the CR-90 or CR-100 Patch Size

Term	Description	Cross Reference
CR-90 or CR-100	PolyGuard Overlaminate is available in a standard CR-80 patch size as well as a CR-90 and CR-100 patch size for laminating oversized CR-90 or CR-100 cards. (**Note:** Thermal Transfer Film overlaminate will accommodate CR-80 and CR-90 card sizes, but is not recommended for CR-100 cards.)	See the Loading the Overlaminate.

Reviewing the Overlaminate Design

Term	Description	Cross Reference
Design	Both PolyGuard and the Thermal Transfer Film overlaminates are available in either a clear or generic secure holographic-type design. (**Note:** Custom holographic-type overlaminates are also available with specific designs, patterns, logos and security features.) Please contact the authorized reseller for more information about custom Overlaminates..	See the Loading the Overlaminate.

Section 3: Installation Procedures

Safety Messages (review carefully)

Symbol	Critical Procedures for Safety purposes
Danger:	**Failure to follow these installation guidelines can result in death or serious injury.**
	Information that raises potential safety issues is indicated by a warning symbol (as shown to the left).
	• **To prevent personal injury**, refer to the following safety messages before performing an operation preceded by this symbol.
	• **To prevent personal injury**, always remove the power cord prior to performing repair procedures, unless otherwise specified.
	• **To prevent personal injury**, make sure only qualified personnel perform these procedures.
Caution:	**This device is electrostatically sensitive**. **It may be damaged if exposed to static electricity discharges.**
	Information that raises potential electrostatic safety issues is indicated by a warning symbol (as shown to the left).
	• **To prevent equipment or media damage**, refer to the following safety messages before performing an operation preceded by this symbol.
	• **To prevent equipment or media damage**, observe all established Electrostatic Discharge (ESD) procedures while handling cables in or near the Circuit Board and Printhead Assemblies.
	• **To prevent equipment or media damage**, always wear an appropriate personal grounding device (e.g., a high quality wrist strap grounded to avoid potential damage).
	• **To prevent equipment or media damage**, always remove the Ribbon and Cards from the Printer before making any repairs, unless otherwise specified.
	• **To prevent equipment or media damage**, take jewelry off of fingers and hands, as well as thoroughly clean hands to remove oil and debris before working on the Printer.

Introduction

Important: The procedures in this section apply for the HDP600/HDP600-LC and HDP600 CR100/HDP600-LC CR100.

The following guide will walk you through the installation of the Fargo HDP600 Driver.

Time Requirement

This software installation process will require approximately 2 to 6 minutes (depending on the speed of your PC).

System Requirements

The System Requirements are as follows:

- IBM-PC or compatible, Windows® 2K/XP, Pentium® class 133MHz computer with 64MB of RAM or higher, 200MB free hard disk space or higher, USB 1.1

(Note: The Printer will be available with parallel port.)

Inspection – HDP600

While unpacking your Printer, inspect the carton to ensure that no damage has occurred during shipping. Make sure that all supplied accessories are included with your unit.

Unpacking the Printer

The following items are included with your Printer:

- Unpacking instructions and Setup video CD

- Software Installation CD (includes Printer Driver, Online User's Guide and Printer Diagnostic Tool)

- Power Supply with Power Cord

- Card Cleaning Cartridge

- Two (2) Card Hoppers - Feed Weights (only one for the HDP600 CR100 and HDP600-LC CR100)

- Warranty Card

- Registration Card

- Sample Pack of 25 Ultra Card III (not included with the HDP600 CR100 and HDP600-LC CR100)

This is included with the HDP600-LC Only:

- Card Lamination Module - Power Supply with Power Cord

Choosing a Good Location

Follow these guidelines:

- Place the unit in a location with adequate air circulation to prevent internal heat build-up.

- Use the Printer's dimensions as a guideline for the minimum clearances to the unit. (**Note:** Allow for adequate clearance above the unit to accommodate the height of the unit with its covers open.)

- Do not install unit near heat sources such as radiators or air ducts or in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.

About Moisture Condensation

If the unit is brought directly from a cold to a warm location or is placed in a very damp room, moisture may condense inside the unit. Should this occur, print quality may not be optimum.

Leave the unit turned OFF in a warm, dry room for several hours before using. This will allow the moisture to evaporate.

Printer Loading Procedures

Loading the Print Ribbon

Note: Fargo Card Printers require highly specialized supplies to function properly.

- To maximize Printer life, reliability, printed card quality and durability, you must use only Fargo Certified Supplies.

- For this reason, your Fargo warranty is void, where not prohibited by law, if you use non-Fargo Certified Supplies.

Step	Procedure
1	Load the Print Ribbon into the Print Station, as shown in the four (4) photos (Displays A to D) in this section.
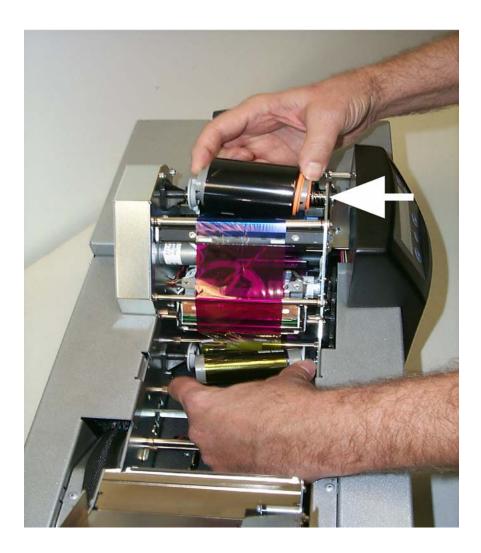
Display A – Loading the Print Ribbon (lift up cover)

Loading the Print Ribbon (cont.)
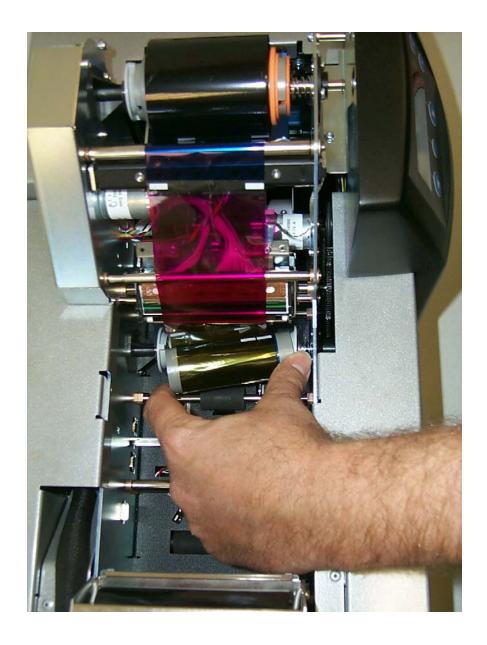
Display B – Loading the Print Ribbon (supply spool).

(Note: The Print Ribbon comes wound on a gray spool with an orange ring around one side. Match the orange ring on the Ribbon Spool to the orange Hub inside the Printer. When properly installed, the orange ring will be in the upper-right-front position.)
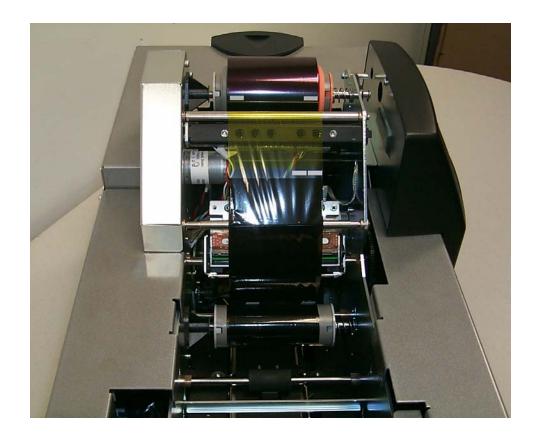
Loading the Print Ribbon (cont.)

Display C – Loading the Print Ribbon (take-up spool)

Loading the Print Ribbon (cont.)

Display D – The Print Ribbon is shown successfully installed below.
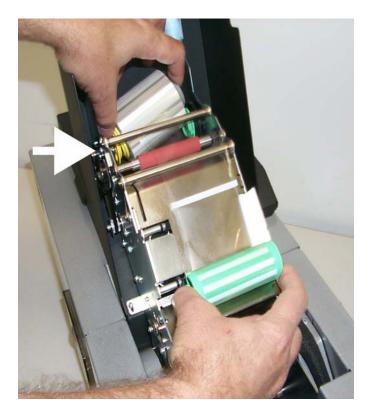
Loading clear HDP Film into the Transfer Station

Step	Procedure
1	⚠ **Caution:** Ensure that the Printer is turned off and the power cord is unplugged from the Printer.
2	Load the HDP Film into the Transfer Station, as shown in three (3) photos (Displays A to C) in this section. (**Note:** Be sure the film is fed from underneath both rolls.) See the next page.

Display A – Loading the HDP Film (supply spool)

(**Note No. 1:** HDP Film comes wound on a green spool with a yellow ring around one side. Match the yellow ring on the Ribbon Spool to the yellow Hub inside the Printer. When properly installed, the yellow ring will be in the upper-left-front position.)

(**Note No. 2:** Yellow colors still need to match. The Drive Hub is yellow on the HDP600 CR100 and HDP600-LC CR100 and the Hub needs to line up with the yellow Film Ring.)

Loading clear HDP Film into the Transfer Station (continued)

Display B – Loading the HDP Film (take-up spool).

Loading clear HDP Film into the Transfer Station (continued)
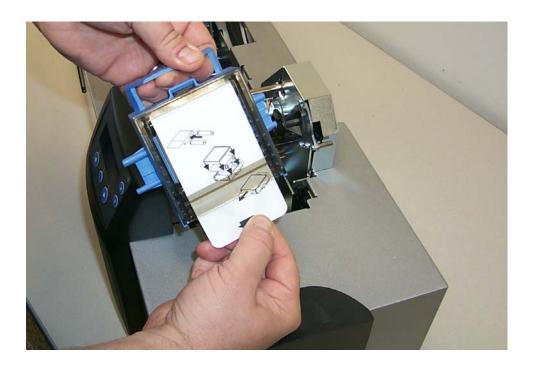
Display C – Loading the HDP Film (take-up spool).

Inserting the Card Cleaning Cartridge

Step	Procedure
1	Load the Card Cleaning Cartridge, as shown in the three (3) Photos (Displays A to C) in this section.

Display A – Removing the white cover sheet
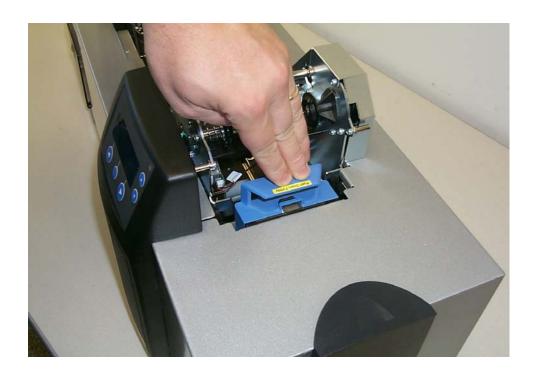
Inserting the Card Cleaning Cartridge (cont.)

Display B – Inserting the Card Cleaning Cartridge

Inserting the Card Cleaning Cartridge (cont.)

Display C – Pressing down on the Cleaning Cartridge until it snaps into place.

Loading the Overlaminate

(**Note:** This procedure only applies to the HDP600-LC Laminating Card Printer/Encoder.)

The loading process for both the Thermal Transfer Film and the PolyGuard™ Overlaminate material is the same. Refer to the following steps to load either type of overlaminate into the Printer.

⚠ **Danger:** Do not touch the metal Lamination Shield or the Lamination Roller when loading the overlaminate. These components can become very hot.

Step	Procedure
1	Open the Lamination Module's Top Cover and lift the Lamination Arm.
2	Remove the overlaminate from its packaging.
3	Load the overlaminate into the Lamination Module, as shown in the four (4) photos (Displays A to D) in this section.

Loading the Overlaminate (continued)

Step	Procedure
4	Place the supply end of the overlaminate roll in between the two black Lamination Drive Hubs. Use the end of the supply roll with the black core plug to push in the spring loaded hub located on the front side of the Printer. (**Note:** Make certain the overlaminate material is fed from beneath the roll, as shown below.)

Display A – Loading the overlaminate (supply spool)

Loading the Overlaminate (cont.)

Step	Procedure
5	Load the take-up end of the roll just as you loaded the supply end. (**Note:** When loaded properly, the overlaminate material should feed underneath from and take-up from underneath each roll.)

Display B – Loading the overlaminate (take-up spool)

Loading the Overlaminate (continued)

Step	Procedure
6	Close the Lamination Arm by pressing down on the center of the Lamination arm until it snaps into place, as shown below. ⚠️ **Caution:** Do not reverse the overlaminate roll. Damage may occur to the Lamination Roller!

Display C – Securing the Lamination Arm

Loading the Overlaminate (cont.)

Step	Procedure
7	To complete this section, close the Lamination Module cover.

Display D – The Lamination Module is shown with the overlaminate properly installed and the Lamination Arm in the closed position.

Connecting power to the HDP600 Printer
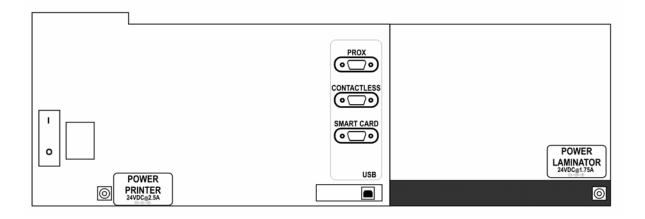
⚠ **Caution:** Do not remove the red Warning sticker across the USB connection. Do not plug in the USB cable until prompted to do so during the installation of the HDP600 Printer Driver. See the Installing the HDP600 Printer Driver procedure (Step 10).

(**Note:** The diagram shown below displays a USB Printer connection. If working with a Parallel or Ethernet port, the port will be in the same location as the USB connection.)

Step	Procedure
1	The Printer connections are shown in the eight (8) photos (Displays A to H) in this section.

Display A – Viewing the Printer Connections of the HDP600-LC Card Printer/Encoder (see below)

Connecting power to the HDP600 Printer (cont.)
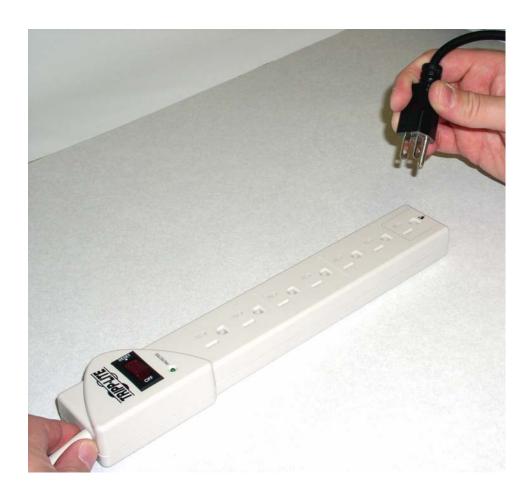
Display B - Connecting the AC power cable to the power supply.

Connecting power to the HDP600 Printer (cont.)

Display C - Connecting the other end of the AC power cable to a Surge Protector. See both notes below.

Note No. 1: Instead of connecting the AC power cable directly into an AC outlet, it is recommended that a Surge Protector be used to protect against power surges.

Note No. 2: Some buildings have surge protection built into the electrical outlets. Please consult your building supervisor regarding this material.

Connecting power to the HDP600 Printer (cont.)

Display D - Connecting the plug from the power supply to the Printer as shown below. (**Note:** If working with a non-Lamination unit, proceed to Display H in this section.)

Connecting power to the HDP600 Printer (cont.)

This applies to the HDP600-LC Printer only.

Display E - Connecting the AC power cable to the Card Lamination power supply.

Connecting power to the HDP600 Printer (cont.)
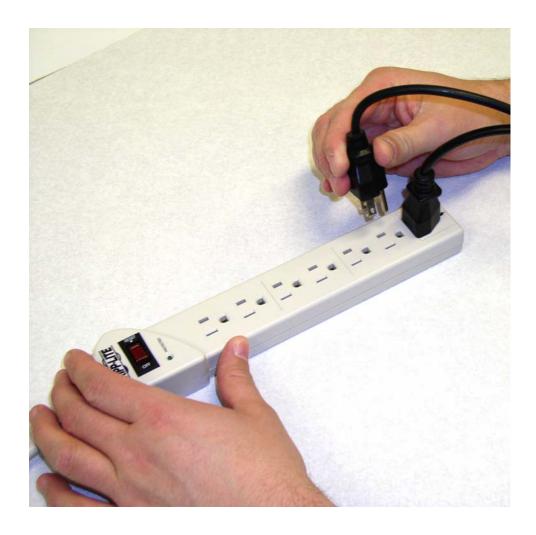
This applies to the HDP600-LC Printer only.

Display F - Connecting the other end of the AC power cable to a Surge Protector. See both notes below.

Note No. 1: Instead of connecting the AC power cable directly into an AC outlet, it is recommended that a Surge Protector be used to protect against power surges.

Note No. 2: Some buildings have surge protection built into the electrical outlets. Please consult your building supervisor regarding this material.

Connecting power to the HDP600 Printer (cont.)

This applies to the HDP600-LC Printer only.

Display G - Connecting the plug from the power supply to the Card Lamination Module, as shown below.

Connecting power to the HDP600 Printer (cont.)

Display H – Displays the Printer power switch (ON/OFF).

Note No. 1: Turn on the Printer's power by pressing on the power switch.

Note No. 2: Once the HDP600 has been powered on, the Printer will initialize both the Print Ribbon and the HDP Film.

Loading the Blank Cards

Step	Procedure
1	Load the blank cards, as shown in the three (3) photos (Displays A to C) in this section.

Display A – Setting the Card Thickness Adjustment Lever to the appropriate setting. Depress the blue tab, move the lever and release it when properly set.

Loading the Blank Cards (cont.)

Display B – Loading the Blank Cards into the empty Hopper.

Note No. 1 (HDP600 and HDP600-LC only):   Cycle between Hopper 1 and Hopper 2 by selecting H1 or H2 from the Printer's SmartScreen™ LCD Control Panel.

Note No. 2: Additional information regarding the LCD can be found in the HDP600 User's Guide.

Loading the Blank Cards (cont.)
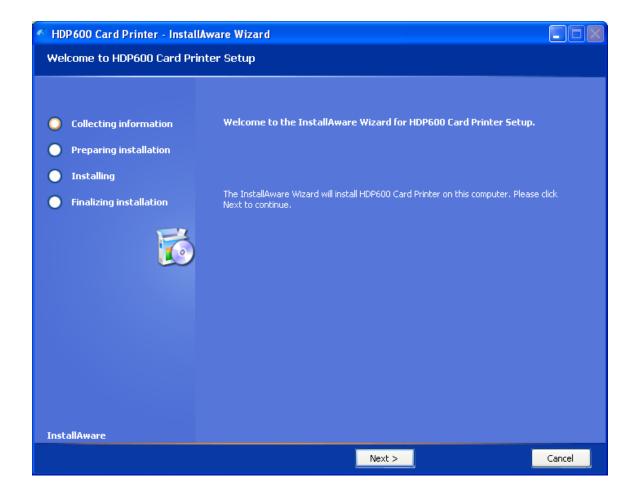
Display C – Inserting the Card Weight (Push to the back).
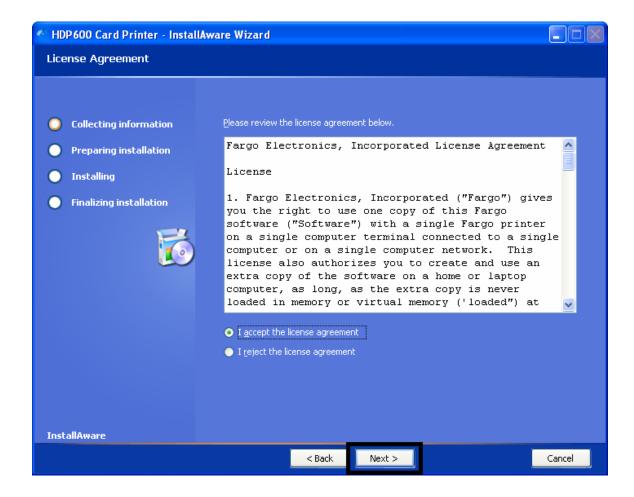
Printer Driver Installation Procedures

Installing the HDP600 Printer Driver

Step	Procedure
1	Close down all programs and insert the Software Installation CD into your computer's CD drive. After a few seconds, the CD's installer program will automatically open.
	Follow the CD's on-screen Procedures to complete installation.
	(**Note:** If the CD does not automatically open, use "My Computer" or "Windows Explorer" to view the contents of the CD. Then, double-click on the Setup.exe file listed on the CD.)
	See the next page.
2	Click on the **Next** button to continue with the installation.

Installing the HDP600 Printer Driver (cont.)
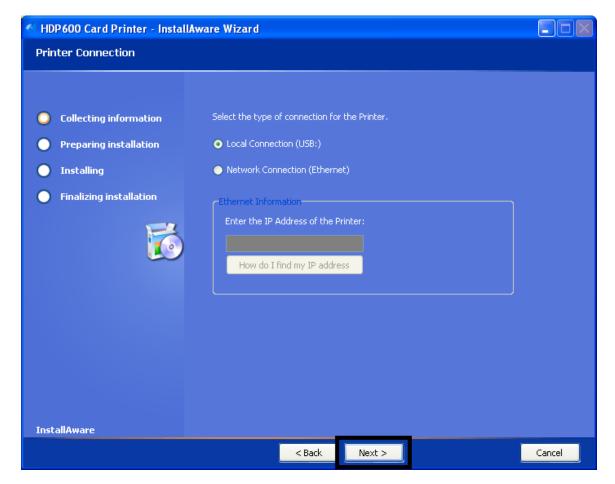
Step	Procedure
3	a. Read the License Agreement. Select the **I accept the terms of the license agreement** option. b. Click on the **Next** button to continue with the installation.

Installing the HDP600 Printer Driver (cont.)
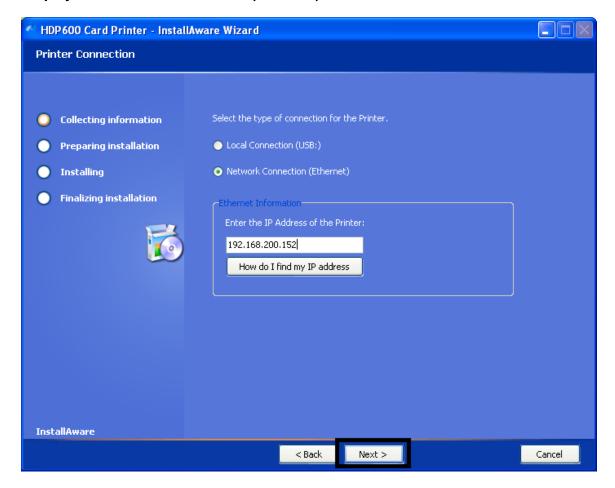
Step	Procedure
4	If installing a USB Printer, select the Local Connection (USB) radio button. See Display A (below).
	OR
	If installing an Ethernet Printer, select the Network Connection (Ethernet) radio button. Enter the IP address of the Printer. See Display B (on the next page).
	See Accessing the HDP600 IP address .
5	Click **Next** to continue.

Display A – Local Connection (USB) radio button

Installing the HDP600 Printer Driver (cont.)
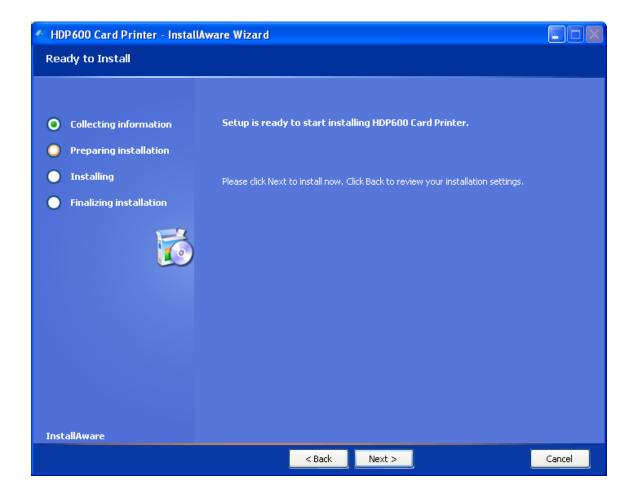
Display B – Network Connection (Ethernet) radio button
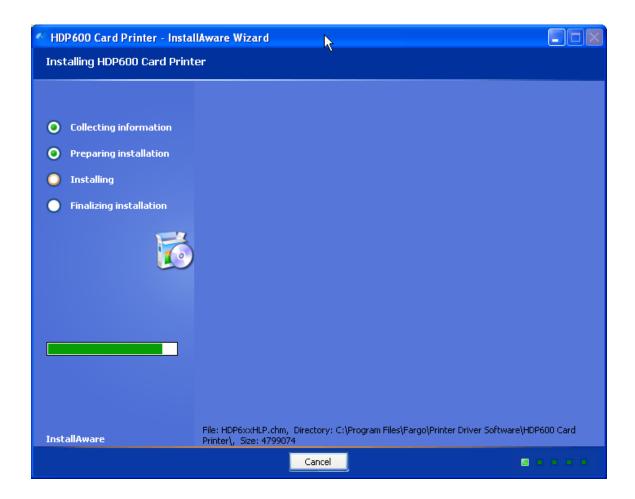
Installing the Printer Driver (Windows 2000 Only)

Step	Procedure
6	Click **Next** to continue.

Installing the Printer Driver (Windows XP Only) (cont.)

Step	Procedure
7	Wait during the installation.

Installing the HDP600 Printer Driver (cont.)
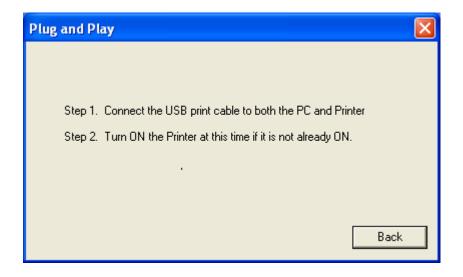
Step	Procedure
8	Click on **Continue Anyway**.

Installing the HDP600 Printer Driver (cont.)

Step	Procedure
9	Click on **Continue Anyway**.

Software Installation

The software you are installing has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.)

Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the software vendor for software that has passed Windows Logo testing.

[Continue Anyway]   [STOP Installation]

Installing the HDP600 Printer Driver (cont.)

Step	Procedure
10	This step only applies if you are installing a USB Printer. a. Connect the USB cable to the Printer. b. Turn ON the Printer at this time if it is not already ON. c. Wait during the installation.

Plug and Play

Step 1. Connect the USB print cable to both the PC and Printer

Step 2. Turn ON the Printer at this time if it is not already ON.

Back

Installing the HDP600 Printer Driver (cont.)
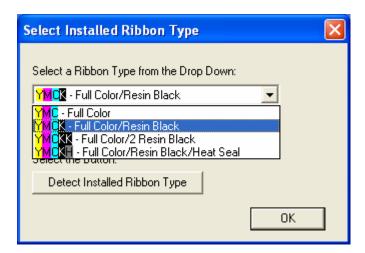
Step	Procedure
11	Select the Ribbon Type from the dropdown menu. See Display A under this procedural step.
	OR
	If the Ribbon Type is not known, select the **Auto Ribbon Select** button. See Display B under this procedural step. (**Note:** The Ribbon needs to be installed for this procedure to work.)
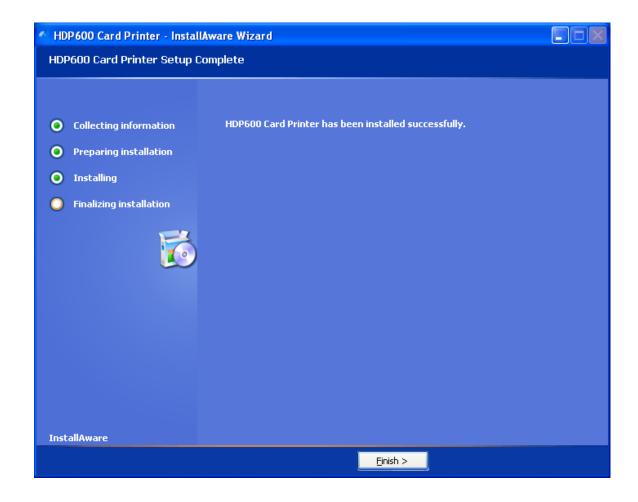
Display A – Ribbon Type dropdown menu

Display B – Auto Ribbon Select button

Installing the HDP600 Printer Driver (cont.)

Step	Procedure
12	Click the **Finish** button to complete the Installware Wizard.
13	**You have completed this procedure.**

Printing a Test Print Image
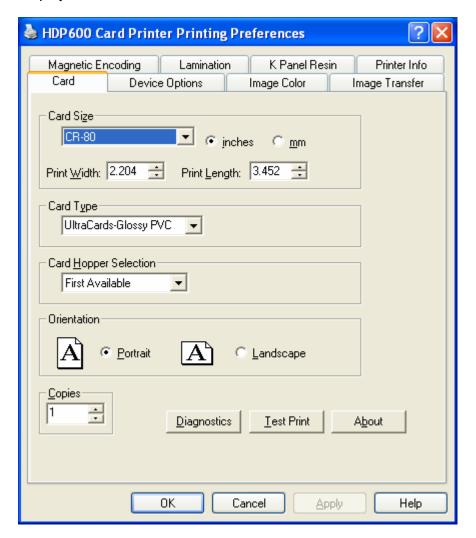
Step	Procedure
1	a. From your computer's startup menu, select Settings > Printers and Faxes (Windows XP) or > Printers (Windows 2000). b. Double click on the HDP600 Card Printer under the Printers window. c. Select Printing Preferences under the Printer drop-down menu. This will bring up the HDP600 Printing Preferences window.
2	a. Select the Card tab, then click on the **Test Print** button, as shown in Display A on the next page. b. When the **Test Print** button is selected, an image is copied to the Printer.

Printing a Test Print Image (cont.)

Display A - HDP600 Printer Driver Card Tab:

Printing a Test Print Image (cont.)

Step	Procedure
3	This completes the HDP600 High Definition Card Printer/Encoder Installation Guide.
	For additional help regarding the Test Print and other related items, please see the **HDP600 Card Printer User Guide** located under Start > Programs > Fargo.

Refer to the HDP600 Setup Training Video as needed.

This video provides instructions on initial Printer setup requirements, such as, loading the Ribbon and Film, inserting the Cleaning Cartridge, loading the Lamination Module, connecting and powering up the Printer, adjusting the Card Thickness Slide, inserting cards and weights, and using the lower right LCD button.

This video is located inside of the Printer's accessories box. You can use Microsoft™ Windows Media Player to view this video.

Card Lamination Module Installation

Introduction

The following guide provides a step-by-step installation procedure for the HDP600 Lamination Module and Printer Driver Upgrade. Refer to the HDP600 High Definition Card Printer/Encoder User Guide for details on operating your new card Lamination Module.

The time required for each installation is provided below:

- **Lamination Module Installation (time required):** This hardware installation process will require approximately 10 to 15 minutes.

- **Driver Software Installation (time required):** This software installation process will require approximately 2 to 6 minutes (depending on the speed of your PC).

The System Requirements are as follows:

- IBM-PC or compatible, Windows® 2K/XP, Pentium® class 133MHz computer with 64MB of RAM or higher, 200MB free hard disk space or higher and USB 1.1

Inspecting the Card Lamination Module

While unpacking your Lamination Module, inspect the carton to ensure that no damage has occurred during shipping. (**Note:** Make sure that all supplied accessories are included with your unit.)

Your new Lamination Module is packaged in a standard HDP600 Card Printer/Encoder carton. (**Note:** It is recommended that you save the packaging in the event that you need to transport the Card Printer/Encoder/Laminator at a future date.)

Unpacking the Card Lamination Module

The following items are included with your new Lamination Module:

- Card Lamination Module

- Power Supply with a Power Cord (for the Card Lamination Module)

- Installation CD

- Warranty Card

- Registration Card

Choosing a proper Location

Follow these guidelines:

- Place the unit in a location with adequate air circulation to prevent internal heat build-up.
- Use the Printer's dimensions (10.75 H x 35.5 W x 13 D) as a guideline for the minimum clearances to the unit. (**Note:** Allow for adequate clearance above the unit to accommodate the height of the unit with its covers open.)
- Do not install the unit near heat sources, such as, radiators or air ducts.
- Do not install the unit in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.

Preventing Moisture Condensation

If the unit is brought directly from a cold to a warm location or if the unit is placed in a very damp room, moisture may condense inside the unit. (**Note:** If this condition occurs, print quality may not be at its optimum level.)

Follow this guideline:

- Leave the unit turned OFF in a warm, dry room for several hours before using it. (**Note:** This will allow the moisture to evaporate.)

Installing the HDP600 Series Card Lamination Module

	Tools Needed: #2 Phillips screwdriver, Torx T-10 screwdriver **Parts Included:** Card Lamination Module (D860105), Phillips 4-40 Flathead Screws (X2) and Torx T-10 0.5M3X5 Screws (X2) **Estimated Repair Time:** Ten (10) minutes
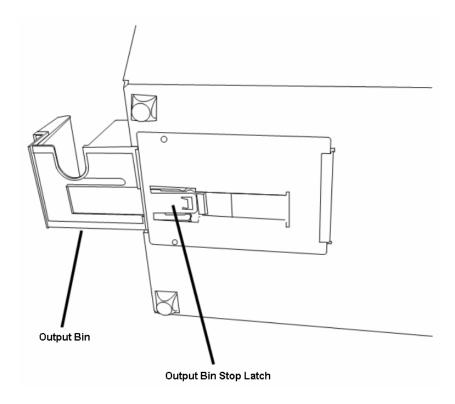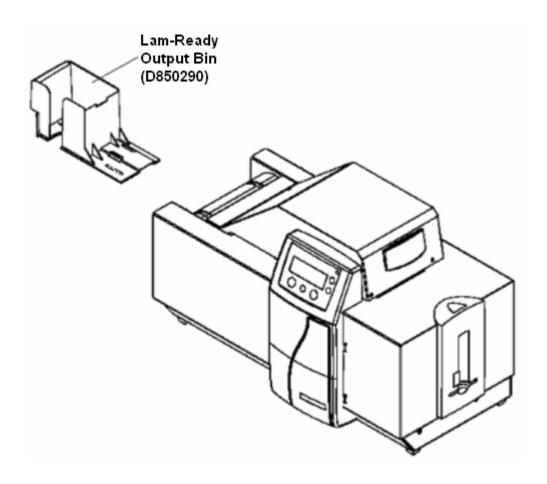
Steps	Procedure
1	⚠ **Caution:** Turn off the Printer and unplug the power cord from the Printer.
2	Remove the Lamination-Ready Output Bin (D850290) from the Baseplate (D860060) by pulling out on the Stop Latch on the Baseplate Access Cover and then pulling out the Bin. See Display A (below) and Display B (next page).

Display A – Output Bin and Output Bin Stop Latch

Output Bin

Output Bin Stop Latch

Installing the HDP600 Series Card Lamination Module (continued)
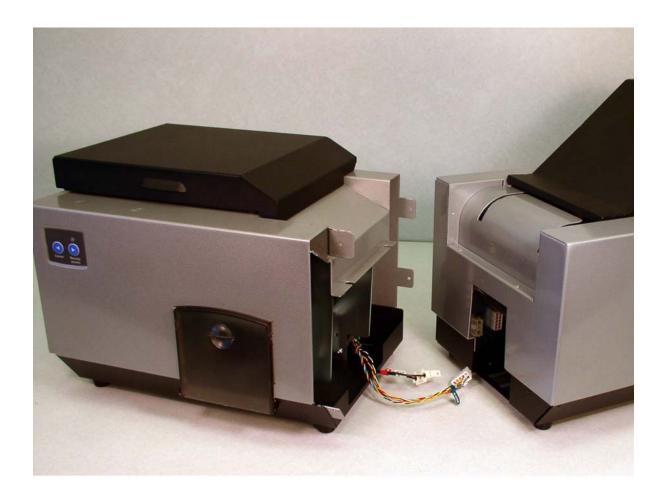
See the previous page.
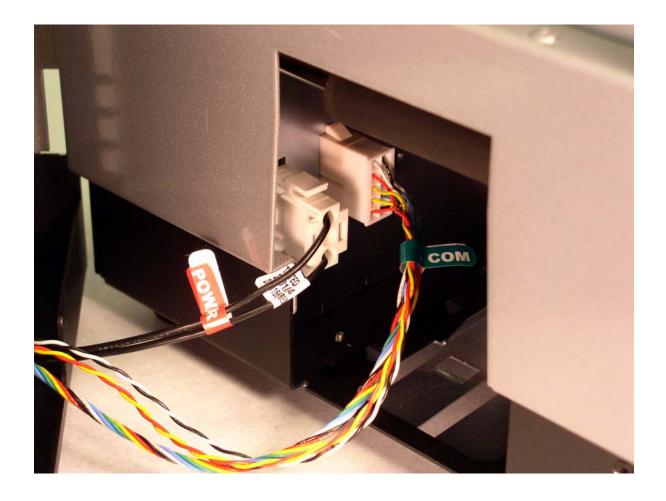
Display B – Lam-Ready Output Bin

Installing the HDP600 Series Card Lamination Module (continued)

Step	Description
2	Place the Lamination Module at a slight angle to the Printer, as shown below.

Installing the HDP600 Series Card Lamination Module (continued)
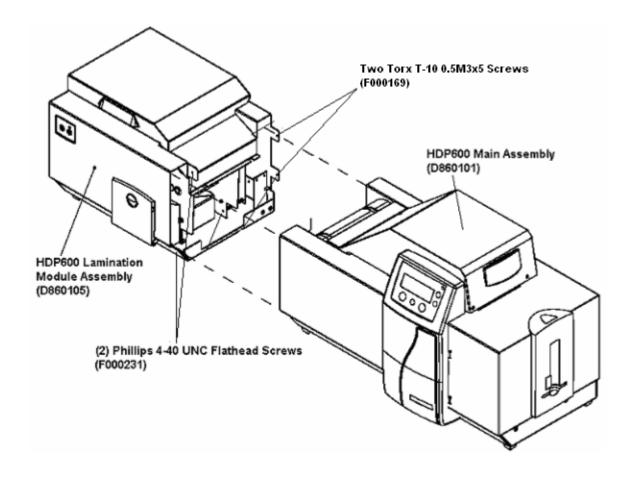
Step	Description
3	Connect the Lamination Power Cable (3-pin connector) to the Connector mounted on the HDP Sideplate. (**Note:** See the RED label for **Power**.)
4	Connect the Lamination Communication Cable (10-pin connector) to the Connector mounted on the HDP Sideplate. (**Note:** See the GREEN label for **Com**.)

Continued on the next page

Installing the HDP600 Series Card Lamination Module (continued)

Step	Description
5	a. Slide the Card Lamination Module (D860105) horizontally to engage the Printer or the HDP600 Main Assembly (D860101), as shown below. b. Push the Lamination Module and the Printer together. (**Note:** Be careful not to pinch the Lamination cables.)

Continued on the next page

Installing the HDP600 Series Card Lamination Module (continued)

Step	Description
6	a. Fasten the two (2) Torx T-10 0.5M3 X 5 Screws (F000169) into the Rear Cover, as shown below. b. Fasten the Laminator Module (D860105) to the Printer (D860101) with the two (2) Phillips 4-40 UNC Flathead Screws (F000231) inserted into the base and in the Front Cover tab, as shown below.
7	a. You have completed installing the Lamination Module Hardware Upgrade. b. Go to Steps 8 to 12 on the next page for the remaining steps in this specific installation procedure.

Installing the HDP600 Series Card Lamination Module (continued)
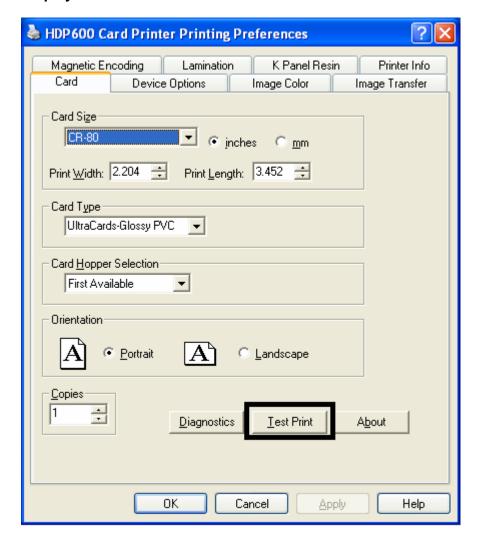
Step	Description
8	Insert the Driver disk into the CD drive of your PC. See <u>Installing the HDP600 Printer Driver</u>.
9	Follow the Windows Installation Wizard instructions to install the Driver.
10	When prompted by the Driver, connect the Printer, the Lamination power supplies and the USB cable.
11	Continue with the Driver installation until prompted to exit by the Driver. (**Note:** The Printer will automatically update the Firmware to include the Laminator.)
12	**You have completed this procedure.**

Printing a Test Print Image

Step	Procedure
1	d. From your computer's startup menu, select Settings > Printers and Faxes (Windows XP) or > Printers (Windows 2000). e. Double click on the HDP600 Card Printer under the Printers window. f. Select Printing Preferences under the Printer drop-down menu. This will bring up the HDP600 Printing Preferences window.
2	c. Select the Card tab, then click on the **Test Print** button, as shown in Display A on the next page. d. When the **Test Print** button is selected, an image is copied to the Printer.

Display A - HDP600 Printer Driver Card Tab:

Printing a Test Print Image (continued)

Step	Procedure
3	This completes the HDP600 High Definition Card Printer/Encoder Installation Guide.
	For additional help regarding the Test Print and other related items please see the HDP600 Card Printer User Guide located under Start > Programs > Fargo.

Refer to the HDP600 Setup Training Video as needed.

This video provides instructions on initial Printer setup requirements, such as, loading the Ribbon and Film, inserting the Cleaning Cartridge, loading the Lamination Module, connecting and powering up the Printer, adjusting the Card Thickness Slide, inserting cards and weights and using the lower right LCD button.

This video is located inside of the Printer's accessories box. You can use Microsoft™ Windows Media Player to view this video.

Section 4: General Troubleshooting

The purpose of this section is to provide the User with specific procedures relating to the LCD Messages, Communication Errors, Card Feeding Errors, Encoding Errors, Printing Process Errors, Transfer Process Errors and Diagnosing the Image Problems for the HDP600.

IMPORTANT! Fargo Card Printers require highly specialized print Ribbons to function properly. To maximize Printer life, reliability, printed card quality and durability, you must use only Fargo Certified Supplies. For this reason, your Fargo warranty is void, where not prohibited by law, if you use non-Fargo Certified Supplies. To order additional materials, please contact your authorized reseller.

LCD Messages

Important: The procedures in this section apply for the HDP600/HDP600-LC and HDP600 CR100/HDP600-LC CR100.

The LCD display shows the current status of the Printer. Refer to the cause and solution tables in this section for all possible LCD messages. (**Note:** These tables display the LCD messages in alphabetical order. If the LCD message is communicating an error or requires an action, these tables will also offer a solution to what should be done.)

Reviewing LCD Messages

Message	Cause	Solution
Cancel Prompt		Cancel the current print job or all jobs in memory.
Check Cards Error	The Card Hopper is either empty or there was an error while feeding a card.	Add cards or check for an error. Press **RESUME** to retry. See <u>Resolving a Card Hopper Empty Error</u> .
Unable to Feed Error	The Printer was unable to feed a card from the Card Hopper.	Check the following, then press **RESUME** to continue. • Verify the card thickness setting is set to the thickness of your cards. • Clean the in-feed Rollers. • Verify your cards are within the Printers accepted card size range. • Be sure the cards are not sticking together.
Card Hopper Jam	The Card Hopper is jammed.	Clear the jam.

Continued on the next page

Reviewing LCD Messages (continued)

Message	Cause	Solution
Card Jam: Lam	There is a card jam in the Laminator.	Clear the jam.
Card Jam Error	A card is jammed.	Clear the jam.
Card Jam Flipper Error	A card is jammed in the card flipping area of the Printer.	Clear the jam.
Multiple Card Feed Error	Two or more cards fed from the Card Hopper.	Remove the fed cards and Verify the card thickness setting is set to the thickness of your cards. Press **RESUME** to continue.
Can't Find Card Error	The Printer was expecting to find a card in the Printer but could not locate it.	If you have removed the card, press **CANCEL** to reset or **REFEED** to redo the current operation with a new card. Press **RESUME** to look for the card again.
Check Film Error	The transfer film may be jammed, not installed properly, broken or damaged.	Verify the film is installed properly. • If jammed, clear it. • If broken, repair by taping the Ribbon back on to the take-up core. Press **RESUME** to continue or **CANCEL** to reset the Printer. See Resolving a Transfer Film Mark Not Found Error .

Continued on the next page

Reviewing LCD Messages (continued)

Message	Cause	Solution
Check Ribbon Error	The print Ribbon may be jammed, not installed properly, broken or damaged.	Verify the Ribbon is installed properly. • If jammed, clear it. • If broken, repair by taping the Ribbon back on to the take-up core. Press **RESUME** to continue or **CANCEL** to reset the Printer.
Please clean your Printer.	The Printer requires cleaning.	For best Printer performance, replace the Cleaning Cartridge Tape and clean the Printer's Feed Rollers and Printhead at this time. See Cleaning.
Data Excess Error OR Job Data Error	The print or job data sent to the Printer is corrupt or has been interrupted. Printer has stopped receiving data.	Check the interface cable or cancel the print job and resend. Press **RESUME** to continue or **CANCEL** to reset the Printer.
EEPROM Erased	An error was detected in the Printer's EEPROM structure and the EEPROM has been erased.	Enter the factory Print, Encoder and Transfer settings into the LCD. The factory settings are located on the inside of the Printer.

Continued on the next page

Reviewing LCD Messages (continued)

Message	Cause	Solution
Heater Timeout	The Transfer Roller was unable to reach its goal temperature.	Turn the Printer OFF and ON to reset and try reprinting. If the problem persists, call for technical assistance.
Head Thermistor	The Printhead thermistor is not functioning properly. See the HDP600 Printhead Replacement Procedure procedure.	• If the Printer is cold, allow it to warm up to room temperature. • Check the Printhead cable. • Replace the Printhead.
IEEE 1284 Timeout	The Printer cannot communicate properly with your PC.	Verify that you are using the proper print cable.
Magnetics Encoder not installed.	You are trying to send encoding data but the Printer is not configured with this Encoder type.	Check the Encoding Settings menu under Setup Printer to verify which Encoder are currently activated.
Film Calibration Fail Error	One of the Film Sensors was not able to properly calibrate.	Verify no film marks are under the Film Sensors during calibration. If the problem persists, call for technical assistance.
Flipper Jam Error	Unable to align Flipper.	Check for obstruction. If the problem persists, call for technical assistance.

Reviewing LCD Messages (continued)

Message	Cause	Solution
Film Sensors are not calibrated.	Your film Sensors must be calibrated before the film will align properly.	Press CALIBRATE to set them at this time. See Resolving a Transfer Film Sensor Not Calibrated Error .
Film is out!	The transfer film has run out.	Install a new roll of film and press **RESUME** to continue or **CANCEL** to reset. See Resolving a Transfer Film Out Error .
Transfer film not installed.	The transfer film is not installed or it is broken.	Install the film and press RETRY or press IGNORE to continue with no film installed. See Resolving a Transfer Film Not Installed Error .
Flip Command Error	A flip command was sent to a Printer with no Flipper installed.	Cancel the print job and send a single-sided print.
FPGA Load Fail!	The FPGA is not responding.	Verify that the Lamination Module cable is seated properly.
Head Temperature Error	The Printhead is too hot.	Allow the Printhead to cool and press **RESUME** to continue. If the problem persists, there may be a problem with the temperature Sensor or the Printhead fan. Call for technical assistance.

Continued on the next page

Reviewing LCD Messages (continued)

Message	Cause	Solution
Head Voltage Error	A hardware fault has prevented setting the correct Printhead voltage. A default value will be used.	Call for technical assistance.
Burn Timeout Error	The panel burn ended abruptly or did not end.	Cancel the job and try again. If this problem persists, call for technical assistance.
Head Resistance Error	Your Printhead resistance is not set to a valid value.	Press SET to enter the value or press RETRY to try again.
Hopper Jam Error	The Card Hopper was unable to move to the proper position.	Clear any obstructions and close the hopper door.
Hopper Blocked Error	A card has not completely fed into the Printer and the hopper cannot move.	Remove the card and try again.
Job Excess Data Error	An abnormal amount of data was received while loading the print job.	**CANCEL** all jobs and send the job again.
Check Lam Material	The Lamination Module cannot align the current material.	Check the Lamination material and press resume.
Check Lam Power	The Lamination Module is unplugged.	Please check the Lamination Module's power, making sure that both of the Printer's power supplies are connected to the Printer.

Continued on the next page

Reviewing LCD Messages (continued)

Message	Cause	Solution
Lam Error	The Lamination Module requires attention.	Check the indicated condition and correct using the Laminator's control buttons.
Lam Calib Failed	The Lamination Material Sensor was not calibrated properly.	Verify that there is not a black mark over the material Sensor.
Lam Card Flip Error	The Laminator was unable to flip a card.	Reseat the card on the Laminator's Flipper table and press resume.
Lam Lift Error	The Laminator Roller was unable to move.	Verify that the Laminator Roller is not jammed. CAUTION: The Lamination Roller may be very hot!
Lam Heater Timeout	The Lamination Roller was unable to reach its goal temperature.	Reboot the Printer and try sending the print job again. If this problem persists, call for technical assistance.
Lam Memory Error		Reboot the Printer and try sending the print job again. If this problem persists, call for technical assistance.
Lam Pass Thru Error	All data is now being passed through to the Lamination Module.	Reboot the Printer and try sending the print job again. If this problem persists, call for technical assistance.

Continued on the next page

Reviewing LCD Messages (continued)

Message	Cause	Solution
Wrong Lam Type	The installed Lamination material does not match the material required by the print job.	Replace the current material with the material that is required and try again.
Failed to verify the encoded mag data.	The card's magnetic stripe was not encoded properly.	Check the orientation and coercivity of the card's magnetic stripe and press **RESUME** to retry encoding.
Transfer Roller Lift Error	The Printer is unable to move the desired part.	Verify that the part is not jammed. Press **RESUME** to retry. If the problem persists, call for technical assistance. Caution: The transfer Roller may be very hot!
Print Head Lift Error	The Printer was unable to raise or lower the Printhead.	Verify that the head is not jammed. Press **RESUME** to retry. If the problem persists, call for technical assistance.
Print Timeout Error	The Printer was unable to complete the print process.	Turn the Printer OFF and ON to reset and try reprinting. If the problem persists, call for technical assistance.
Prox card Encoder not installed.	The Proximity Card Encoder is not properly installed.	

Continued on the next page

Reviewing LCD Messages (continued)

Message	Cause	Solution
Communication Error	The Printer is not able to communicate with the host PC. Printer to PC communication has been disabled.	Verify that you are using an appropriate print cable. Reboot the PC and the Printer to restore communication.
Ribbon is out!	The print Ribbon has run out.	Install a new Ribbon and press **RESUME** to continue or **CANCEL** to reset.
Print Ribbon not installed.	The print Ribbon is not installed.	Install a Ribbon and press RETRY or press IGNORE to continue with no Ribbon installed.
Ribbon Release Timeout Error	There is a problem with the Ribbon release timeout function.	Cancel the print job and try again. If the problem persists, call for technical assistance.
Smart card Encoder not installed.	The Smart Card Encoder is not properly installed.	
Upgrade Required: LAM	The Laminator Module needs its Firmware upgraded.	Upgrade the Laminator Firmware as directed by the Maintenance section of the User's guide.
Wrong Ribbon	The print Ribbon installed in the Printer does not match the Ribbon type selected in the Printer driver. Change either accordingly.	Press **RESUME** to continue or **CANCEL** to reset the Printer.

General Troubleshooting Guide

Problem	Possible Solution
Ribbon Wrinkle	Verify the convex Roller (D860051) is installed correctly with the shorter notch towards the front of the Printer.
	Verify the density is set within specification (67-69).
	Check to see if the Ribbon Hubs are too tight.
	Check the Printhead alignment. See the Setting the Printhead Resistance procedure.
Film Wrinkle	Check the peel-off bar alignment with fixture TL 1733.
	Adjust the transfer tension. See the Adjusting the Transfer Tension procedure.
Flashing	Check for poor alignment of the peel-off bars, center plate or the Lamination Roller.
	Lower the transfer tension. See the Adjusting the Transfer Tension procedure.
	(**Note:** Flash is typically caused by excessive heat or excessive transfer tension.)
Smudge	If smudge is on the leading edge of the card, increase the transfer tension. Verify the Take-up Motor turns without delay when Lamination begins. If the Motor delays, increase the transfer tension.
	Adjust the transfer temperature. See the Adjusting the Transfer Temperature procedure.
	Increase the transfer dwell time. See the Adjusting the Transfer Dwell Time and Transfer Temperature procedure.
	(**Note:** Smudge is typically caused by low heat or low transfer tension.)
Film Chipping / Incomplete Transfer of Image onto Card	Check Printhead alignment.
	Lower transfer tension (if chipping is on the leading edge).
	Increase the transfer temperature. See the Adjusting the Transfer Temperature procedure.
	Increase the transfer dwell time. See the Adjusting the Transfer Dwell Time and Temperature procedure.

Continued on the next page

General Troubleshooting Guide (continued)

Problem	Possible Solution
Ribbon Chipping / Reverse Transfer during Printing	Print density is set too high.
Self Test is not square	Adjust the peel off bar height with peel off bar fixture (TL1733). Adjust position of the center-plate (D860132).
Scratches	Lightly buff any film contact points with a fine steel wool. Verify the scratch is not film wrinkle. See film wrinkle in this table.
Cards won't feed / or more than one is fed	Verify the correct position of the card thickness lever. Verify that the Cleaning Roller Assembly is fully seated.
Wash	Check the Printhead alignment. If washing out on resin, try changing to a different lot of film.
Printing pauses between panels	Check the air flow from the Printhead fan (D860149) to verify it is wired correctly. Replace Printhead cable (D860244). See the **Replacing the HDP600 Series Printhead Assembly (D860004)** procedure in the HDP600 Service Manual.
Card stops under flattener and won't continue	Adjust the Flattener position.
Print fans run all of the time	Check for pinched Printhead wires. Replace the Printhead cable (840143). Replace the Printhead (220052). See the **Replacing the HDP600 Series Printhead Assembly (D860004)** procedure in the HDP600 Service Manual.
Lamination Assembly sticking open	Check the clearance of the Lamination cover (840260-01) with the Lamination Roller (D880146). Check orientation of the Headlift Cam (762452).

Continued on the next page

General Troubleshooting Guide (continued)

Problem	Possible Solution
Printhead cutting Ribbon	Verify the solder leads on the Printhead are trimmed.
	Replace the Printhead cable (840143). See the **Replacing the HDP600 Series Printhead Assembly (D860004)** procedure in the HDP600 Service Manual.
	Warning: The Printhead may be extremely hot.
Transfer warming then heater time out after a period of time	The Transfer Roller is not connected to the Circuit Board (A000300).
	Check the crimp of the wires on the connector of the Thermocouple (D870168).
Transfer cooling then heater time out after a period of time	Replace the Transfer Heater (or Roller) Thermocouple (D870168).
	Replace the Circuit Board (A000300). See the **Removing the PCB Board Assembly (A000300)** procedure in the HDP600 Service Manual.
	Check the crimp of the wires on the connector of the thermocouple (D870168).
Poor Registration	See the Bad Registration Checklist.
Printer has no power	Verify the Printer and Lamination unit (if applicable) are plugged into outlet.
	Verify the power cables are connected to the Circuit Board (A000300).
	Check the fuse on the Circuit Board (A000300).
Ribbon won't queue up	Check the Ribbon orientation. Verify that you are using the correct Ribbon type. See the Adjusting the Ribbon Type procedure.
	Use the multi-meter to check for proper Ribbon Sensor voltage. See the Reviewing the Sensor Locations and Voltages section.
	Check to see if the Ribbon drive DC Motors (D840980) are rotating in the correct direction.

General Troubleshooting Guide (continued)

Problem	Possible Solution
Film won't queue up	Verify the Film Sensors have been calibrated. See Film Sensor Errors. See the Sensor Testing section.
	Check to see if the Film Drive DC Motors (D840980) are rotating in the correct direction.
	Check the Film Drive Hubs (D841152-XX) and verify the Hubs are not cracked.
Input Roller continually spins on power up	Verify the cable (D840687) is plugged into the Sensor (840176) and the Circuit Board (J58).
	Replace the cable (D840687). See the **Removing the PCB Board Assembly (A000300)** procedure in the HDP600 Service Manual.
Card Jam during printing 60 mil cards	Check the peel off bar height with fixture TL 1733.
	Verify the TOF and print offset are correct.
	Replace the Stepper Motor Cable (D860120).
	Verify the Lamination Roller (D880146) spins freely.
	Warning: The Lamination Roller may be extremely hot.
Printer will queue up Ribbon and film but will not print	In the diagnostic mode of the LCD, check the Platen Roller (D860022) to verify that it is spinning clockwise when pressing FORWARD. If the Motor is spinning counter-clockwise, replace the Stepper Motor Cable (D860120).
Dash Lines on Image	Check the Lamination Roller (D880146) or Platen Roller (D860022) for cuts or nicks.
Film Sensor Error	Verify the Film Sensors (J35 and J36) have not been switched.
	Verify the Take-up Motor turns without delay when Lamination begins. Increase the transfer tension if the Motor delays.
	Verify that the washers (760386) are between the e-clip and springs on the spring loaded film and Ribbon hubs.
	Verify the film is not telescoped on the roll with fixture TL1574.
	Verify the Platen Roller stepper Motor cable (D860120) is wired correctly and is connected to the Motor (E000062) and the circuit Board (A000300) J32.

General Troubleshooting Guide (continued)

Problem	Possible Solution
Ribbon Sticking to the Film	Increase the Ribbon Tension. See the Adjusting the Ribbon Tension procedure.
Film is only printing on the back half of the card	Check to see if the Lamination Lift Motor (D840980) is rotating in the correct direction.

Continued on the next page

Magnetic and E-card Troubleshooting Guide

You should use a Magtek Card Reader to troubleshoot with the following chart.

Problem	Possible Solution
Start Sentinel is yellow or red	Change the magnetic TOF in the LCD according to the start sentinel reference chart
	Verify correct Magnetic Module placement. The Magnetic Module should be adjusted so that the belt (F000111) is snug prior to installing the tensioner.
	Verify correct tension of the belt (F000111). Belt should have approximately 1/8 deflection at the center point between pulleys
Random yellow or red readings on each track	Verify correct tension of the belt (F000111). Belt should have approximately 1/8 deflection at the center point between pulleys
	Verify the belt (F000111) is riding in the middle of the press on pulleys (D850190). Adjust position so the press on pulleys are parallel / even.
	Check that all wires are free from any gears
	Verify Mag Voltage is @ 6 volts for Hi-Co, 3 Volts for Lo-Co and JIS2.
	Verify that the belts (F000092 and F000094) are not catching / rubbing against the edges of the pulleys (D850221 and D840888).
	Verify the belts (F000092 and F000094) are tensioned properly.
	Try replacing the input stepper (E000062)
Random yellow or red readings with a spike in the bits	Adjust the magnetic TOF down (closer to the ideal .293) if a spike is occurring at the end of the card.
	Verify correct Magnetic Module placement. The Magnetic Module should be adjusted so that the belt (F000111) is snug prior to installing the tensioner.
	Verify the card is not running into the Flipper Table. Check the alignment of the Flipper Table / Flipper Offset.
	Inspect all gears on the input hopper drive train for damaged teeth
	With cleaning Roller removed, verify all gears roll smoothly and do not bind.
	Check that all gears are free from wires.

Magnetic and E-card Troubleshooting Guide (continued)
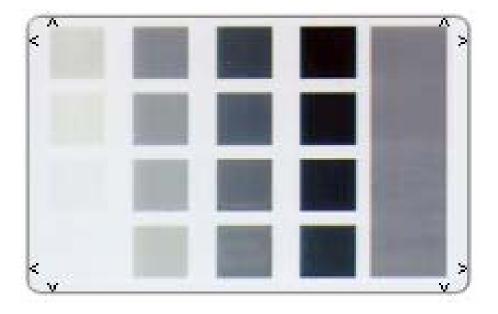
Problem	Possible Solution
Yellow or red readings on only one track	Verify wires are not pulling the Magnetic Head to one side. Inspect the Magnetic Module to verify Magnetic Head is parallel with Roller. If not, replace the Magnetic Module and notify Assembly.
Magtek gives good readings but Printer will not verify	Check that the correct magnetic circuit Board is being used - (A000294). Replace the Magnetic Head (840104).
Magtek reports - LRC parity error and track 1 or 3 has a red bar underneath it.	The Magnetic head (840104) is assembled backwards within the Module.
Magtek reports – First bit is excessively close to the edge of the card. Card may not be readable in the field	Check for a burr on the leading edge of the card. Scrape the burr off with an Exacto knife.
Mag Encode Failed - Card stops at the end of the mag card Roller (840234) and fails to exit completely.	Change the Sensor Board Assembly (140407)
E – Card Mifare / Iclass Station cannot be found	Verify in the Encoder settings that the Mifare / IClass is listed as installed. Verify Mifare components are installed.
E - Card component has no power	Verify that all cables are connected properly. Check the power @ J24 on the Circuit Board (Pin 1 +24 Volts, Pin 2 Ground, Pin 3 +12 Volts, Pin 4 +5 Volts).
E - Card application cannot find component	Verify that the serial cable is connected to the appropriate component and communication port Verify the correct RS232 cable is being used

Printing a Test Image

Step	Procedure
1	Choose **Print Test Image** to select a preset test image. (**Note:** These images help to determine if the Printer is functioning properly.)
2	Scroll to the desired test image from the **Select Test Image** options and press the **Select** button.
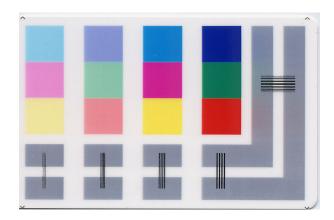
Reviewing the Gray/Align YMC/K Self-Test

Step	Procedure
1	Use this card to determine Image Placement and confirm that the Printer is working properly. See Printer Adjustments. **Note:** The image consists of sixteen (16) gray scale boxes and alignment arrows. The gray boxes are composed from a composite of YMC color panels.)
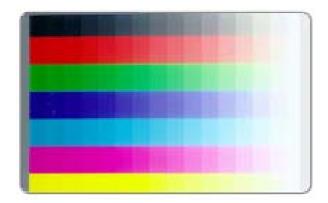
Reviewing the Color/Resin YMCK Self-Test

Step	Procedure
1	Use this card to determine Image Placement and confirm that (a) the image colors are properly reproduced and (b) the Resin Panel is printing properly. (**Note:** The Image consists of twelve spot colors, YMC and RGB, as well as gray density bars and thin resin lines.)

Reviewing the Color Bars YMC Self-Test

Step	Procedure
1	Use this card to confirm that image colors are properly reproduced. Image consists of sixteen graduated steps of RGB and YMCK. (**Note:** This print will provide maximum image size, giving complete card coverage on a CR-80 sized card.)

Reviewing the Card Count Self-Test

Step	Procedure
1	Use this card to view counts for Card Count (CC), Pass Count (PC) and Transfer Count (TC). • The **Card Count** is the total number of cards the Printer has produced. **Pass Count** is the total number of print passes made by the Printhead. (**Note:** A pass is measured each time a single Ribbon panel is printed or passes beneath the Printhead.) • The **Transfer Count** is the total number of times the Printer transfers an image to a card.
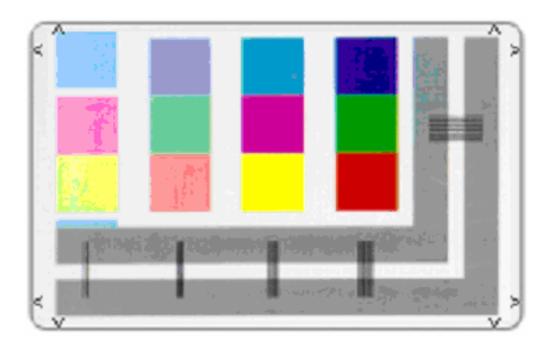
Reviewing the Magnetic Test option

Step	Procedure
1	Use this option only applies if a Magnetic Encoding Module is installed in the Printer. (**Note:** The Printer will feed, encode and eject a card. Be sure to have high coercivity cards installed when running this test.)

Reviewing the Lamination Color/Resin YMCK+L Self-Test

Step	Procedure
1	Use this card to determine Lamination Placement and confirm that (a) the image colors are properly reproduced and (b) the Resin Panel is printing properly. (**Note:** The Image consists of twelve spot colors, YMC and RGB, as well as gray density bars and thin resin lines.)

Communications Errors

Resolving the Communication Errors

Symptom(s): Incorrect output, communications error on PC or Printer, stalling, no response from Printer, no job printed, "paper out" error.

Step	Procedure
1	Confirm that the system meets the minimum requirements, as shown here: • IBM-PC or compatible. • Windows 98SE, Me/2000/XP Pentium™ class 233 MHz computer with 64 MB of RAM or higher • 200 MB free hard disk space or higher • USB Port (Optional Ethernet connection)
2	Confirm the correct installation of the Printer Driver. a. Close the software program and check the Printer Driver. b. Reboot the computer. c. Ensure the Printer Driver is installed correctly. (**Note:** Especially if an obsolete Driver was recently removed.) d. Ensure the correct setup options within the Printer Driver are selected. e. Confirm that the Driver is current by checking at: www.fargo.com
3	Confirm the correct installation of the Flipper Table Module Assembly. a. Reboot the computer. b. Ensure that the **Print Both Sides** option in the Printer Driver is set correctly. c. Verify the Flipper Table Module Assembly is functioning properly by printing out cards in a test run. d. If you are experiencing problems, see Resolving the No Flipper Table Module problem.

4	Determine the problem with printing from the application.
	a. Print a self-test from the Printer by holding down the **Pause** button on power up to ensure that the Printer (itself) is functioning properly.
	b. Print the Windows test page that is located in the General tab of the Driver.
	c. Use **WordPad** (a Windows 98SE, Me/2000/XP word processing program in the Accessories Program Group).
	1) Go to the **File** menu and select **Page Setup**.
	2) Click on the **Printer** button and select the HDP600 Card Printer.
	3) Click **OK** and reset all four margins to zero. (**Note:** The WordPad will automatically replace the values with its minimum margins.)
	4) Open the program and type: "This is a Test." then, go to **File** on the menu bar and select **Print**.
5	Determine whether there is adequate hard Drive space.
	(**Note:** A large volume of temporary files on the computer can cause communications errors.)
	a. Access the temporary files by following this process:
	• Search for all folders called TEMP. Once found, clear out the contents of the folders.
	• If using Windows 98SE, Me/2000/XP, run the System Utility - Disk Defragmenter found in the Accessories folder of the **Start** Menu.
	• Use a disk cleanup utility (such as **Disk Cleanup** found in the System Tools folder of the Start menu) or use a third party application.

Card Feeding Errors

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

Resolving an Unable to Feed Card Error

Step	Procedure
1	Review the following information. • **Symptom:** Cards will not feed at all. • **Printer Error State:** Card is not being detected by the Card TOF Sensor 11 seconds after the initiation of a print job causing the Printer to produce an error • **LCD Error Display:** Unable to Feed Card • **Driver Monitor Error Display:** Unable to Feed Card

HDP600 Card Printer

Unable to Feed Card

The Printer is unable to feed a card from the Input Hopper.

Ensure that cards are available and loaded correctly, press the Resume button located on the Printer's LCD display to continue printing. To cancel the print, press the Cancel Print button from the Driver's display dialog and the Cancel button located on the Printer's LCD display.

[OK]   [Cancel Print]   [Help]

Resolving an Unable to Feed Card Error (continued)
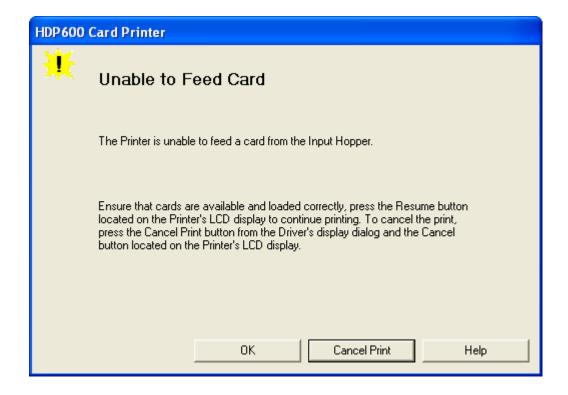
Step	Procedure
2	Check the card quality / loading. a. Remove cards from the Card Hopper. b. Ensure that the cards are not sticking together by fanning them out and then lining them back together in straight deck. c. Press the Card Hopper Load Lever down until the Card Tray locks into place. d. Load up to 100 cards into the Hopper with the print side down. e. Close the Card Hopper Cover to release the Card Tray. f. Press on the **Resume** button. g. If the cards do not feed, continue to Step 3.
3	Press the **Cancel Print** button on the Driver Monitor Error Display Message.
4	Reboot the Printer by cycling the power.
5	Check the Card Feed Motor. a. Remove all cards from the Hopper. b. Press the Card Hopper Load Lever down until the Card Tray locks into place. c. Using the Fargo Diagnostic utility, send a test print to the Printer. See the **Card** tab (**Diagnostic** button) in the Printer Driver. d. Gently touch the Card Hopper Feed Roller to verify that it is turning e. If Roller is NOT turning, continue to Step 7. f. If Roller is turning, continue to Step 6.

Resolving an Unable to Feed Card Error

Step	Procedure
6	Check Hopper Tray Spring Tension. a. Open Card Hopper Cover. b. Using the Fargo Diagnostic utility, send a test print to the Printer. See the **Card** tab (**Diagnostic** button) in the Printer Driver. c. When the Card Hopper Feed Roller engages, push up on the Card Hopper Tray. g. If the cards feed, replace the Card Hopper Lift Spring. d. If the cards do not feed, replace the Card Hopper Feed Roller.
7	Card Hopper Feed Roller is not turning during a print job. a. Remove the Printer rear cover. b. Ensure that the Card Hopper Feed Motor power cable is securely connected to J-20 on the Printers Main Board. c. Ensure that the Card Hopper Feed Motor power cable is securely connected to the Card Hopper Feed Motor. d. Use the Fargo Diagnostic utility to send a test print to the Printer. See the **Card** tab (**Diagnostic** button) in the Printer Driver. e. If the Card Hopper Feed Motor is not moving, continue to Step 8.
8	Replace Card Hopper Feed Motor. a. Replace the Card Hopper Feed Motor. b. Use the Fargo Diagnostic utility to send a test print to the Printer. See the **Card** tab (**Diagnostic** button) in the Printer Driver. c. If the Card Hopper Feed Motor does not turn, replace the Main Board.

Resolving a Card Not Fed Error (Two (2) or more card feed at the same time)

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

Step	Procedure
1	Review the following information. • **Symptoms:** Two or more cards feed at the same time causing the cards to jam at the Card Hopper Roller. Printer is out of cards. • **Printer Error State:** Card is not being detected by card TOF Sensor 11 sec after the initiation of a print job causing the Printer to produce an error • **LCD Error Display:** Card Not Fed • **Driver Monitor Error Display:** Unable to Feed Card

HDP600 Card Printer

Unable to Feed Card

The Printer is unable to feed a card from the Input Hopper.

Ensure that cards are available and loaded correctly, press the Resume button located on the Printer's LCD display to continue printing. To cancel the print, press the Cancel Print button from the Driver's display dialog and the Cancel button located on the Printer's LCD display.

| OK | Cancel Print | Help |
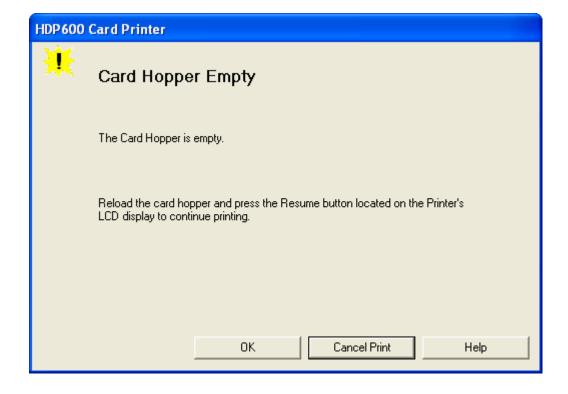
Resolving a Card Not Fed Error (Two (2) or more card feed at the same time)

Step	Procedure
2	Check card quality / loading. a. Remove cards from the Card Hopper. b. Ensure that the cards are not sticking together by fanning them out and then lining them back together in straight deck. c. Press the Card Hopper Load Lever down until the Card Tray locks into place. d. Load up to 100 cards into the Hopper with the print side down. e. Close the Card Hopper Cover to release the Card Tray. f. Press on the **Resume** button. g. If the cards do not feed, continue to Step 3.
3	Press the **Cancel Print** button on the Driver Monitor Error Display Message.
4	Reboot the Printer by cycling the power.
5	Check Card Feed TOF Sensor. a. Remove the Printers rear cover. b. Use a digital volt meter to place the Positive lead to pin 9 of the J-4 Main Board connection and the negative lead to pin 12 of the J-4 Main Board connection. • The blocked Sensor should read +4.99 vdc. • The open Sensor should read +1.5 vdc. c. If the Card Feed TOF Sensor does not read properly, replace the Sensor.
6	Clean the Card Feed Roller.
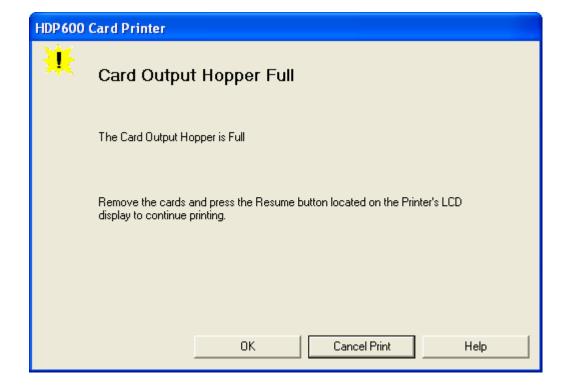
Resolving a Card Hopper Empty Error

Step	Procedure
1	Review the following information. • **Symptom:** The Card Hopper is empty. • **Printer Error State:** Reload the Card Hopper and press the Resume button, located on the Printer's LCD display to continue printing. • **LCD Error Display:** Card Hopper Empty • **Driver Monitor Error Display:** Card Hopper Empty

HDP600 Card Printer

Card Hopper Empty

The Card Hopper is empty.

Reload the card hopper and press the Resume button located on the Printer's LCD display to continue printing.

| OK | Cancel Print | Help |

Resolving a Card Output Hopper Full

Step	Procedure
1	Review the following information. • **Symptom:** The Card Output Hopper is full. • **Printer Error State:** Remove the cards and press the Resume button, located on the Printer's LCD display to continue printing. • **LCD Error Display:** Card Output Hopper Full • **Driver Monitor Error Display:** Card Output Hopper Full

HDP600 Card Printer

Card Output Hopper Full

The Card Output Hopper is Full

Remove the cards and press the Resume button located on the Printer's LCD display to continue printing.

| OK | Cancel Print | Help |
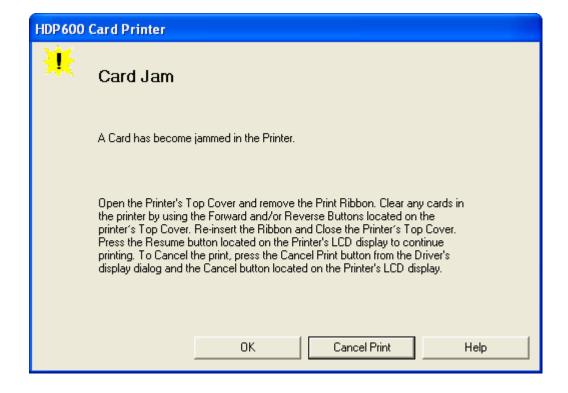
Resolving a Card Not Fed Error (Cards will not feed off the Hopper)

Step	Procedure
1	Review the following information. • **Symptom:** Cards will not feed at all. • **Printer Error State:** Card is not being detected by the Card TOF Sensor 11 seconds after the initiation of a print job causing the Printer to produce an error • **LCD Error Display:** Card Not Fed • **Driver Monitor Error Display:** Unable to Feed Card

Resolving a Card Jam Error

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.
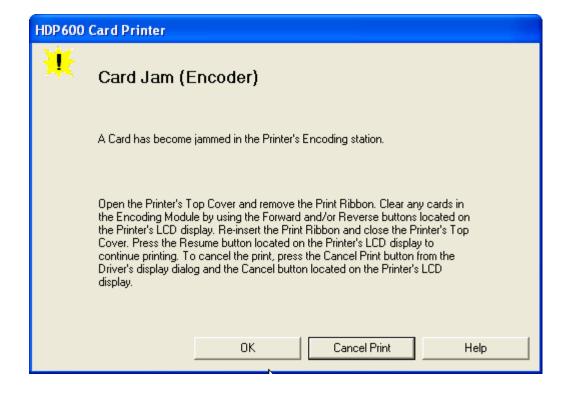
Step	Procedure
1	Review the following information. • **Symptom:** Card is jammed. • **Printer Error State**: Card TOF Sensor is detecting no card motion. • **LCD Error Display:** Card Jam • **Driver Monitor Error Display:** Card Jam
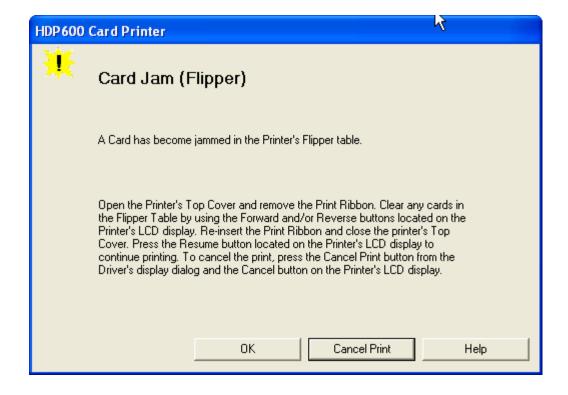
Resolving a Card Jam (Encoder) Error

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

Step	Procedure
1	Review the following information. • **Symptom:** A card has become jammed in the Printer's Encoding station. • **Printer Error State**: A card has become jammed in the Printer's Encoding station. • **LCD Error Display:** Card Jam (Encoder) • **Driver Monitor Error Display:** Card Jam (Encoder)

HDP600 Card Printer

Card Jam (Encoder)

A Card has become jammed in the Printer's Encoding station.

Open the Printer's Top Cover and remove the Print Ribbon. Clear any cards in the Encoding Module by using the Forward and/or Reverse buttons located on the Printer's LCD display. Re-insert the Print Ribbon and close the Printer's Top Cover. Press the Resume button located on the Printer's LCD display to continue printing. To cancel the print, press the Cancel Print button from the Driver's display dialog and the Cancel button located on the Printer's LCD display.

| OK | Cancel Print | Help |

Resolving a Card Jam (Flipper) Error

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

Step	Procedure
1	Review the following information. • **Symptom:** A card has become jammed in the Printer's Flipper Table. • **Printer Error State:** A card has become jammed in the Printer's Flipper Table. • **LCD Error Display:** Card Jam (Flipper) • **Driver Monitor Error Display:** Card Jam (Flipper)

HDP600 Card Printer

Card Jam (Flipper)

A Card has become jammed in the Printer's Flipper table.

Open the Printer's Top Cover and remove the Print Ribbon. Clear any cards in the Flipper Table by using the Forward and/or Reverse buttons located on the Printer's LCD display. Re-insert the Print Ribbon and close the printer's Top Cover. Press the Resume button located on the Printer's LCD display to continue printing. To cancel the print, press the Cancel Print button from the Driver's display dialog and the Cancel button on the Printer's LCD display.

OK   Cancel Print   Help

Resolving a Card Jam (Flipper) Error

Step	Procedure
2	Open the Printer's Flipper Table Module Cover. a. Clear any cards in the Flipper Table Module by using the **Forward** and/or **Reverse** buttons located on the Printer's Top Cover. b. Ensure that the Flipper Table Module can rotate freely. c. Close the Printer's Flipper Table Module. d. Press the **Resume** button on the Printer's Top Cover to continue printing. e. To cancel the printing, press the **Cancel Print** button from the Driver's display dialog.

HDP600 Card Printer

Card Jam (Flipper)

A Card has become jammed in the Printer's Flipper table.

Open the Printer's Top Cover and remove the Print Ribbon. Clear any cards in the Flipper Table by using the Forward and/or Reverse buttons located on the Printer's LCD display. Re-insert the Print Ribbon and close the printer's Top Cover. Press the Resume button located on the Printer's LCD display to continue printing. To cancel the print, press the Cancel Print button from the Driver's display dialog and the Cancel button on the Printer's LCD display.

[OK] [Cancel Print] [Help]
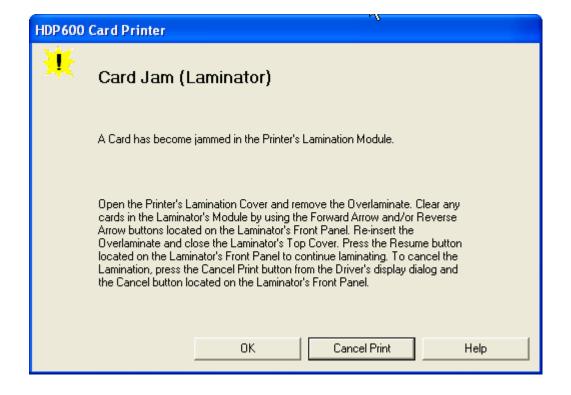
Resolving a Card Jam (Laminator) Error

Symptom: The Card Jam: Lam Error is displayed on the LCD.

Step	Procedure
1	Look for a jammed card in the Printer. a. Open the Printer's top cover. b. Remove the ribbon from the Printer. c. Check to see if a card is jammed in the Lam Station of the Printer. d. If a card is jammed in the Printer, use the **Pause**/**Resume** button and the **Cancel** buttons to move the feed rollers and free the card. (**Note:** The card can then be fed out of the Printer.) e. If no card was found in the Lam Station, continue to Step 2.
2	Test the TOF Sensor. (**Note:** If the Printer has begun laminating the card and then jams, it may be possible that the centering of the Lamination of the card has caused the jam.) a. Inspect the card and determine if the Lamination is centered on the card. b. If the Lamination is hanging off the leading or trailing edge of the card, see the Resolving the Laminator (General Error).

Resolving a Card Jam (Laminator) Error

Step	Procedure
3	Test the Card Detection Sensor (D840624).
	a. Remove the rear cover.
	b. Using a Digital voltmeter, connect the negative lead to ground.
	c. Connect the positive lead to Pin 1 of J6.
	• If **blocked**, the voltage should read 4.9 to 5.5 VDC.
	• If **unblocked**, the Sensor should read 0.15 to 0.18 VDC.
	d. If the voltages do not read correctly, replace the Sensor.

HDP600 Card Printer

Card Jam (Laminator)

A Card has become jammed in the Printer's Lamination Module.

Open the Printer's Lamination Cover and remove the Overlaminate. Clear any cards in the Laminator's Module by using the Forward Arrow and/or Reverse Arrow buttons located on the Laminator's Front Panel. Re-insert the Overlaminate and close the Laminator's Top Cover. Press the Resume button located on the Laminator's Front Panel to continue laminating. To cancel the Lamination, press the Cancel Print button from the Driver's display dialog and the Cancel button located on the Laminator's Front Panel.

OK   Cancel Print   Help

Resolving a Card Eject Error

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

Step	Procedure
1	Review the following information.
	• **Symptom:** The Printer is unable to eject the card.
	• **Printer Error State**: The Printer is unable to eject the card.
	• **LCD Error Display:** Card Eject
	• **Driver Monitor Error Display:** Card Eject

HDP600 Card Printer

Card Eject Error

The Printer is unable to eject a card.

Please check Printer for a card jam or other obstruction and press the Resume button located on the Printer's LCD display to continue printing. To cancel the print, press the Cancel Print button from the Driver's display dialog and the Cancel button located on the Printer's LCD display.

[OK]   [Cancel Print]   [Help]
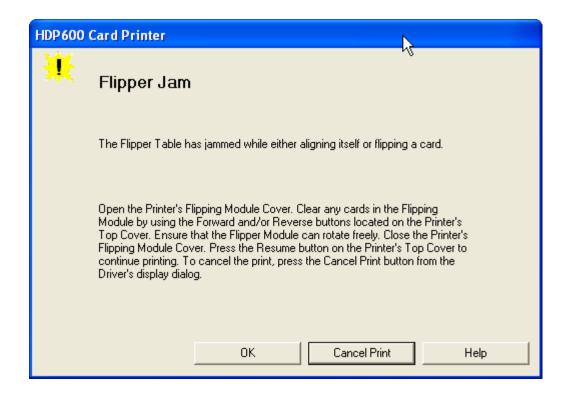
Resolving a No Flipper Table Module Error

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

Step	Procedure
1	Review the following information. • **Symptom:** The Flipper Table Module Assembly is not functioning. • **Printer Error State:** The Printer is unable to communicate with the Flipper Module. • **LCD Error Display:** No Flipper • **Driver Monitor Error Display:** No Flipper

HDP600 Card Printer

No Flipper

The Printer does not have flipping capabilities

Verify the Printer has flipper capabilities via the LCD Menu. If Flipper capabilities are present, ensure that the Print Both Sides option in the driver is set correctly. Press the Resume button on the Printer's Top Cover to continue printing. To cancel the print, press the Cancel Print button from the Driver's display dialog

| OK | Cancel Print | Help |

Resolving a Flipper Jam Error

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

Step	Procedure
1	Review the following information. • **Symptom:** The Flipper Table Module is jamming. • **Printer Error State:** The Flipper Table has jammed while either aligning itself or flipping a card. • **LCD Error Display:** Flipper Jam • **Driver Monitor Error Display:** Flipper Jam

HDP600 Card Printer

Flipper Jam

The Flipper Table has jammed while either aligning itself or flipping a card.

Open the Printer's Flipping Module Cover. Clear any cards in the Flipping Module by using the Forward and/or Reverse buttons located on the Printer's Top Cover. Ensure that the Flipper Module can rotate freely. Close the Printer's Flipping Module Cover. Press the Resume button on the Printer's Top Cover to continue printing. To cancel the print, press the Cancel Print button from the Driver's display dialog.

OK   Cancel Print   Help

Resolving a Flipper Jam Error

Step	Procedure
2	Open the Printer's Flipper Table Module Cover.
	a. Clear any cards in the Flipper Table Module by using the **Forward** and/or **Reverse** buttons located on the Printer's Top Cover.
	b. Ensure that the Flipper Table Module can rotate freely.
	c. Close the Printer's Flipper Table Module.
	d. Press the **Resume** button on the Printer's Top Cover to continue printing.
	e. To cancel the printing, press the **Cancel Print** button from the Driver's display dialog.

HDP600 Card Printer

Flipper Jam

The Flipper Table has jammed while either aligning itself or flipping a card.

Open the Printer's Flipping Module Cover. Clear any cards in the Flipping Module by using the Forward and/or Reverse buttons located on the Printer's Top Cover. Ensure that the Flipper Module can rotate freely. Close the Printer's Flipping Module Cover. Press the Resume button on the Printer's Top Cover to continue printing. To cancel the print, press the Cancel Print button from the Driver's display dialog.

[OK]   [Cancel Print]   [Help]

Magnetic Encoding Errors

Resolving a Magnetic Verify Error

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

Step	Procedure
1	Review the following information. • **Symptom:** The Printer is unable to verify encoded data. • **Printer Error State:** The Printer is unable to verify encoded data. • **LCD Error Display**: Magnetic Verify • **Driver Monitor Error Display**: Magnetic Verify

HDP600 Card Printer

Mag Verify Error

The printer is unable to verify encoded data.

Check the Cards and click on Cancel Print.

| OK | Cancel Print | Help |
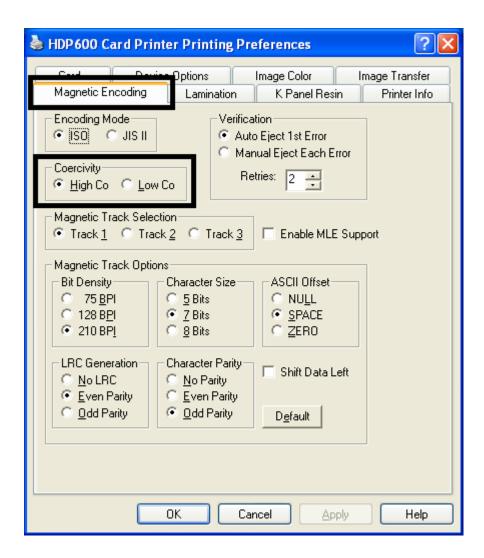
Resolving a Magnetic Verify Error

Step	Procedure
2	Check to ensure that the cards are loaded properly, as follows: The Magnetic Stripe should be down and away from the front. **Or** If facing the Hopper, the Magnetic Stripe should be down and to the right side.
3	a. Press on the **Resume** button. b. If the error continues, go to step 4.
4	Verify the Driver settings if cards are loaded properly. See the Using the Magnetic Encoding tab (HDP600) procedure.
5	Verify that data is being encoded to the Magnetic Stripe. a. Clear any Error Messages from the LCD by unplugging the Printer and reapplying power. b. Remove the failed card. c. Use a Magnetic Stripe reader or magnetic developer spray to determine if data is being written to the Magnetic Stripe. d. If data is not being written to the Magnetic Stripe, • Open the front cover. • Remove the Magnetic Module cover screw. • Remove the Magnetic Module cover. • Verify that the Magnetic Module is seated securely into the Magnetic Module docking station. e. If the Magnetic Module is properly seated, replace the magnetic head (as needed). (**Note:** See the current HDP600 Service Manual for related instructions in the Parts Replacement Section.) f. If data is being written to the Magnetic Stripe, the Magnetic Offset may need to be adjusted. See the Setting the Magnetic TOF procedure.
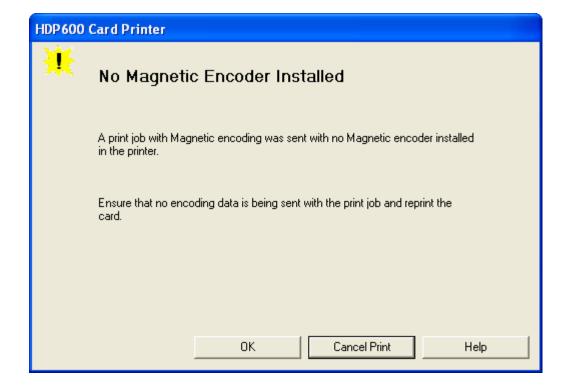
Resolving a Magnetic Verify Error

Step	Procedure
6	Verify that the coercivity of the cards matches the Driver Settings.

Resolving a No Magnetic Encoder Installed Error

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

Step	Procedure
1	Review the following information. • **Symptom:** There is no Magnetic Encoder installed. • **Printer Error State:** A print job with Magnetic encoding was sent with no Magnetic encoder installed in the Printer. • **LCD Error Display:** No Magnetic Encoder Installed • **Driver Monitor Error Display:** No Magnetic Encoder Installed

HDP600 Card Printer

⚠ **No Magnetic Encoder Installed**

A print job with Magnetic encoding was sent with no Magnetic encoder installed in the printer.

Ensure that no encoding data is being sent with the print job and reprint the card.

[OK]   [Cancel Print]   [Help]
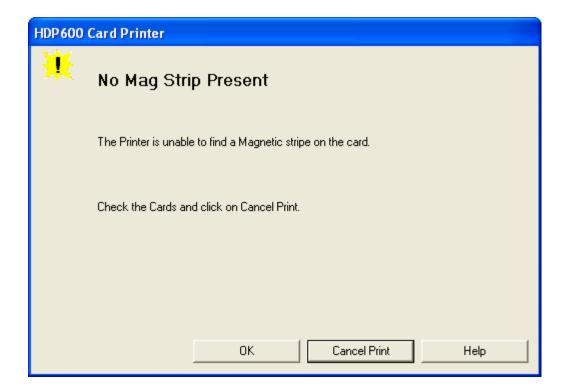
Resolving a No Magnetic Encoder Installed Error

Step	Procedure
2	Press the **Cancel Print** button on the Driver Monitor Error Display Message.
3	Reboot the Printer by cycling the power.
4	Verify that the Printer has a Magnetic Encoder installed. a. Open the front cover. b. Remove the Magnetic Module cover screw. c. Remove the Magnetic Module cover. d. Verify that the Printer has a Magnetic Module installed. (**Note:** If the Printer is equipped with a Magnetic Encoder Module, ensure that it is seated securely into the Magnetic Module docking station. If the issue persists, replace the Magnetic Module. See the HDP600 service manual for replacement procedures.)
5	If the Printer has no Magnetic Encoder Module, verify that the encoding data was sent in error, check the appropriate software user's manual for encoding instructions.

Resolving a No Magnetic Strip Present Error

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

Step	Procedure
1	Review the following information. • **Symptom:** There is no Magnetic Strip present. • **Printer Error State:** The Printer is unable to find a Magnetic stripe on the card. • **LCD Error Display:** No Magnetic Strip Present • **Driver Monitor Error Display:** No Magnetic Strip Present

E-card Encoding Errors
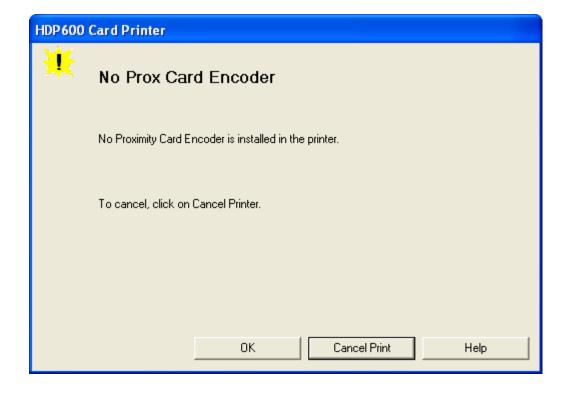
Resolving a No Smart Card Encoder Error

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

Step	Procedure
1	Review the following information. • **Symptom:** There is no Smart Card Encoder installed. • **Printer Error State:** No Smart Card Encoder is installed in the printer. • **LCD Error Display:** No Smart Card Encoder • **Driver Monitor Error Display:** No Smart Card Encoder

Resolving a No Prox Card Encoder Error

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

Step	Procedure
1	Review the following information. • **Symptom:** There is no Prox Card Encoder installed. • **Printer Error State:** Not Proximity Card Encoder is installed in the printer. • **LCD Error Display:** No Prox Card Encoder • **Driver Monitor Error Display:** No Prox Card Encoder

HDP600 Card Printer

No Prox Card Encoder

No Proximity Card Encoder is installed in the printer.

To cancel, click on Cancel Printer.

| OK | Cancel Print | Help |

Transfer Process Errors

Resolving a Transfer Film Mark Not Found Error

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

Step	Procedure
1	Review the following information. • **Symptom:** Transfer Film Mark is not found. • **Printer Error State**: The transfer film is jammed, installed improperly, broken or damaged. • **LCD Error Display:** Transfer Film Mark Not Found • **Driver Monitor Error Display**: Transfer Film Mark Not Found
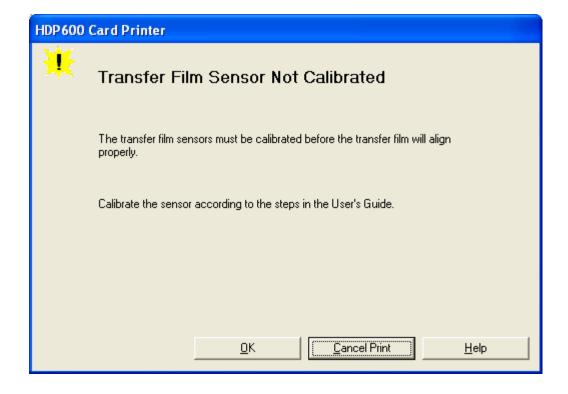
HDP600 Card Printer

⚠ **Transfer Film Mark Not Found**

The transfer film is jammed, installed improperly, broken or damaged.

Verify that the film is installed properly. If jammed, clear it according to the steps in the User's Guide. If broken, repair it by taping the film back on to the take-up core. Select RESUME to continue or CANCEL to reset.

| OK | Cancel Print | Help |

Resolving a Transfer Film Not Installed Error

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

Step	Procedure
1	Review the following information. • **Symptom:** The Transfer Film is not installed. • **Printer Error State**: The Transfer Film is not installed. • **LCD Error Display:** Transfer Film Not Installed • **Driver Monitor Error Display**: Transfer Film Not Installed
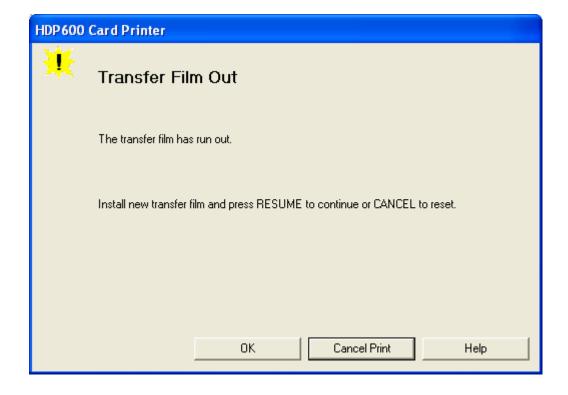
Resolving a Transfer Film Sensor Not Calibrated Error

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

Step	Procedure
1	Review the following information. • **Symptom:** The Transfer Film Sensors are not calibrated. • **Printer Error State**: The Transfer Film Sensors must be calibrated before the transfer film will align properly. • **LCD Error Display:** Transfer Film Sensor Not Calibrated • **Driver Monitor Error Display**: Transfer Film Sensor Not Calibrated

Resolving a Transfer Film Out Error

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

Step	Procedure
1	Review the following information.
	• **Symptom:** The Transfer Film has run out.
	• **Printer Error State**: The Transfer Film has run out.
	• **LCD Error Display:** Transfer Film Out
	• **Driver Monitor Error Display**: Transfer Film Out

Printing Process Errors

Resolving a Ribbon Sensor Error (Ribbon Miscue)

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

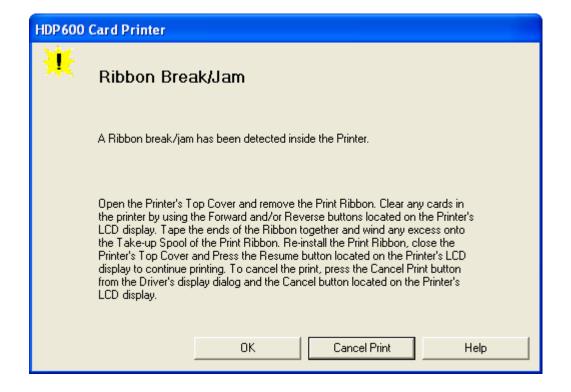| Step	Procedure
1	Review the following information. • **Symptom:** The Printer rolls through Ribbon and errors out • **Printer Error State**: The Printer cannot find the next panel on the Ribbon. • **LCD Error Display:** Ribbon Miscue • **Driver Monitor Error Display**: Ribbon Sensor

Resolving a Ribbon Sensor Error (Ribbon Miscue)

Step	Procedure
2	Open the front cover and remove the Ribbon. a. Check that the Ribbon is in good condition and not wrinkled or broken. b. If Ribbon is broke or wrinkled, repair the Ribbon and wind up the take-up roll 4-color panels past the damaged area.
3	Press on the **Resume** button. If the issue persists, continue to Step 4.
4	Replace the Ribbon. a. Press on the **Resume** button. b. If the issue persists, continue to Step 5.
5	Press the **Cancel Print** button on the Driver Monitor Error Display Message.
6	Reboot the Printer by cycling the power.
7	Using the driver calibration tab calibrate the Ribbon Sensor. If the issue persists, continue to Step 8.
8	Replace the Ribbon Sensor.

Resolving a Ribbon Break/Jam Error

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

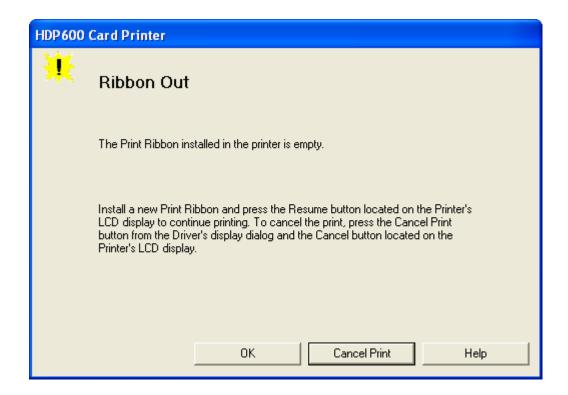| Step	Procedure
1	Review the following information.
	• **Symptom:** The Print Ribbon has become jammed or has broken in the Printer
	• **Printer Error State:** The Ribbon Supply Encoder Sensor has unexpectedly stop receiving information from the Ribbon Encoder
	• **LCD Error Display:** Ribbon Break/Jam
	• **Driver Monitor Error Display:** Ribbon Break/Jam

HDP600 Card Printer

Ribbon Break/Jam

A Ribbon break/jam has been detected inside the Printer.

Open the Printer's Top Cover and remove the Print Ribbon. Clear any cards in the printer by using the Forward and/or Reverse buttons located on the Printer's LCD display. Tape the ends of the Ribbon together and wind any excess onto the Take-up Spool of the Print Ribbon. Re-install the Print Ribbon, close the Printer's Top Cover and Press the Resume button located on the Printer's LCD display to continue printing. To cancel the print, press the Cancel Print button from the Driver's display dialog and the Cancel button located on the Printer's LCD display.

| OK | Cancel Print | Help |

Resolving a Ribbon Break/Jam Error (continued)

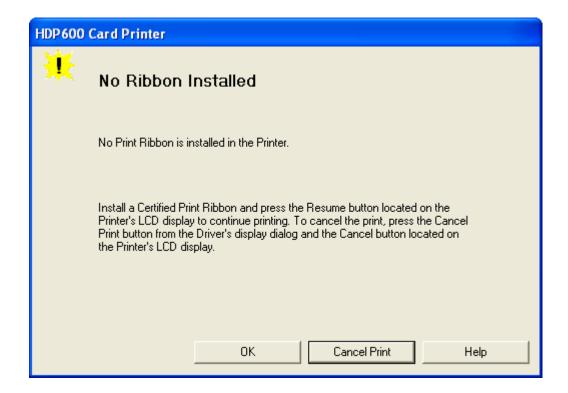| Step	Procedure
2	Open the front cover and remove the Ribbon. • If Ribbon is broken, continue to Step 3. • If Ribbon is in good condition, continue to Step 6.
3	Adjust the print offset. See the <u>Aligning the Print Offset</u> procedure. If the issue persists, continue to Step 4.
4	Repair the Ribbon and wind up the take-up roll 4 color panels past the damage area. a. Press on the **Resume** button. b. If the issue persists, continue to Step 5.
5	Use the Fargo Diagnostic utility to cycle the Printhead to ensure proper printhead operation. See the **Card** tab (**Diagnostic** button) in the Printer Driver. • If the Printhead does not cycle properly, see <u>Resolving the Headlift Motor / Sensor Error</u>. • If the Printhead functions properly, continue to Step 6.
6	Replace the Ribbon. a. Press on the **Resume** button. b. If the issue persists, continue to Step 7.
7	Remove the rear cover in order to check that the Ribbon Encoder Sensor is securely connected to the J-4 Main Board connection and to the Encoder Sensor. a. Press on the **Resume** button. b. If the issue persists, replace the Encoder Sensor.

Resolving a Ribbon Out Error

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

Step	Procedure
1	Review the following information. • **Symptom:** Printer will not print. • **Printer Error State:** The Ribbon Sensor has detected the End Of Ribbon mark • **LCD Error Display**: Ribbon Out • **Driver Monitor Error Display:** Ribbon Out
2	Replace the Ribbon a. Press on the **Resume** button.

HDP600 Card Printer

Ribbon Out

The Print Ribbon installed in the printer is empty.

Install a new Print Ribbon and press the Resume button located on the Printer's LCD display to continue printing. To cancel the print, press the Cancel Print button from the Driver's display dialog and the Cancel button located on the Printer's LCD display.

OK   Cancel Print   Help

Resolving a No Ribbon Installed Error

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

Step	Procedure
1	Review the following information.
	• **Symptom:** The Printer errors are out as soon as it receives data from PC
	• **Printer Error State:** The Printer RFID Sensor is not receiving a signal from the Ribbon
	• **LCD Error Display:** No Ribbon
	• **Driver Monitor Error Display:** No Ribbon Installed

Resolving a No Ribbon Installed Error

Step	Procedure
2	Verify that a Ribbon is installed in the Printer. a. Press on the **Resume** button. b. If the issue persist, continue to Step 3.
3	Remove the rear cover and check that the Ribbon RFID cable is securely connected to the Main Board (J-5) and the RFID Sensor. • If the connections are loose, reattach them. • Press on the **Resume** button. • If the connections are good or if the issue persists, continue to Step 4.
4	Replace the Ribbon RFID Sensor.

Resolving a Invalid Ribbon Error

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

| Step	Procedure
1	Review the following information. • **Symptom:** Printer errors out as soon as it receives data from the PC • **Printer Error State:** The Ribbon installed does not match the Printer model. • **LCD Error Display**: Invalid Ribbon • **Driver Monitor Error Display**: Invalid Ribbon
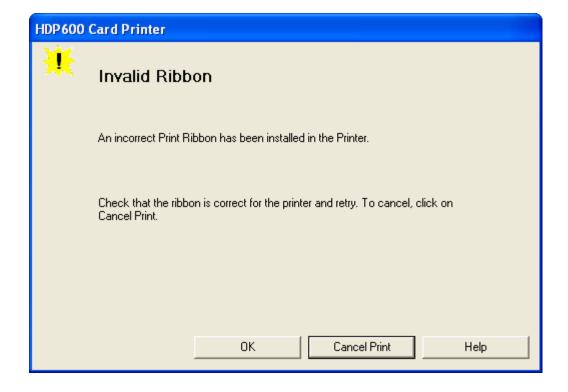
Resolving a Invalid Ribbon Error

Step	Procedure
2	Verify that the Ribbon installed is designed for the correct Printer model.
3	Press on the **Resume** button. If the issue persists, continue to Step 4.
4	Remove the rear cover and check that the Ribbon RFID cable is securely connected to the Main Board (J-5) and the RFID Sensor. • If the connections are loose, reattach • Press on the **Resume** button.. • If the connections are good or if the issue persists, continue to Step 5.
5	Replace the Ribbon RFID Sensor.

Resolving a Wrong Ribbon Error

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

Step	Procedure
1	Review the following information.
	• **Symptom:** Printer errors out as soon as it receives data from the PC
	• **Printer Error State:** The Ribbon installed does not match the Printer Driver information
	• **LCD Error Display:** Invalid Ribbon
	• **Driver Monitor Error Display:** Invalid Ribbon
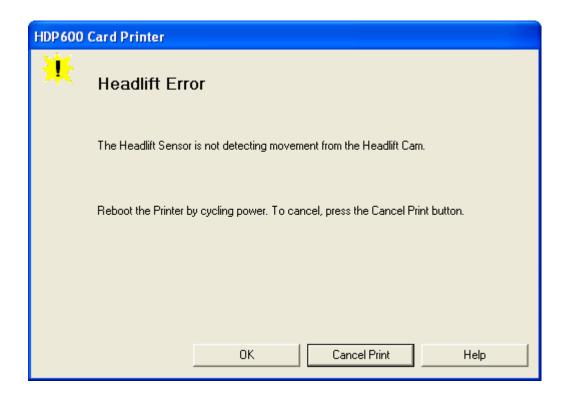
Resolving a Wrong Ribbon Error

Step	Procedure
2	Verify the Driver settings are correct. a. Open the Printer Control Panel from the Computer. • If using Windows 98SE, Me, right click on the HDP600 Card Printer Icon and select **Properties**. • If using Windows 2000/XP, right click on the HDP600 Card Printer and select **Printing Preferences**. b. Click on the Device Option tab. c. Click on the **auto select** button. d. Check that the Ribbon type matches the Ribbon selected.
3	Press on the **Resume** button. If the issue persists, continue to Step 4.
4	Remove the rear cover and check that the Ribbon RFID cable is securely connected to the Main Board (J-5) and the RFID Sensor. • If the connections are loose, reattach it. • Press on the **Resume** button. • If the connections are good or if the issue persists, continue to Step 5.
5	Replace the Ribbon RFID Sensor.

Resolving a Headlift Motor or Sensor Error

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

Step	Procedure
1	Review the following information. • **Symptom:** The Printhead continuously cycles or does not cycle at all • **Printer Error State:** Headlift Sensor is not detecting movement from the Headlift Cam. • **LCD Error Display:** Headlift Error • **Driver Monitor Error Display:** General Error
2	Press the **Cancel Print** button on the Driver Monitor Error Display Message.
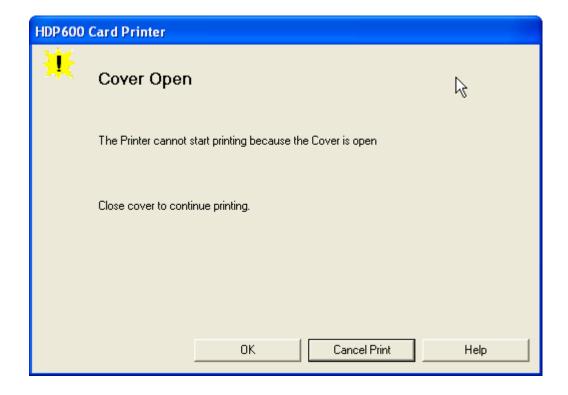
Resolving a Headlift Motor or Sensor Error

Step	Procedure
3	Reboot the Printer by cycling the power.
4	Cycle the Headlift Motors. a. Use the Fargo Diagnostic utility to cycle the Printhead to ensure proper printhead operation. See the **Card** tab (**Diagnostic** button) in the Printer Driver. b. Verify that the Headlift Motor turns. c. If the Motor does not turn or jams, continue to Step 5.
5	Check the Headlift Motor Main Board Connection (J20). a. Unplug the Printer. b. Remove the back cover. c. Verify that connection J20 is properly connected to the Main Board. d. If the Motor does not turn, continue to Step 7.
6	Test the Headlift Sensor. a. Remove the back cover. b. Attach the positive lead from a Digital Voltmeter to Pin 1 of J9. Attach the negative lead to the Pin 3 of J9. • If **open**, the Sensor should read 0.17 to 0.9 VDC. • If **closed**, the Sensor should read 4.9 to 5.5 VDC. c. Replace the Sensor if the voltages do not read correctly. (**Note:** See the current HDP600 Service for related instructions in the Parts Replacement Section.) d. If the Motor does turn, continue to Step 7.
7	Replace the Headlift Motor. (**Note:** See the current HDP600 Service Manual for related instructions in the Parts Replacement Section.) a. If the Motor does turn, continue to Step 8.
8	Replace the Main Board.

Resolving the Cover Open Error Message

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

Step	Procedure
1	Review the following information. • **Symptom:** The Printer errors immediately after sending a print job, or the Rollers do not operate by pressing the buttons on the front panel (when the cover is open). • **Printer Error State:** The front cover Sensor detects that the cover is open • **LCD Error Display:** Cover Open • **Driver Monitor Error Display:** None

HDP600 Card Printer

Cover Open

The Printer cannot start printing because the Cover is open

Close cover to continue printing.

OK   Cancel Print   Help

Resolving the Cover Open Error Message

Step	Procedure
2	Check for debris, as follows: a. Open the front cover and check that no debris has accumulated in the lid Sensor opening. Use compressed air to clean the opening id as needed. b. If the Sensor still does not work, continue to Step 3.
3	Check that the Sensor tab on the front cover is not damaged. a. Open the front cover and examine the Lid Sensor tab for damage, if the Sensor tab is damaged, replace the front cover. (**Note:** See the current HDP600 Service Manual for related instructions in the Parts Replacement Section.) b. If the Sensor still does not work, continue to Step 4.
4	Replace the Main Board. (**Note:** See the current HDP600 Service Manual for related instructions in the Parts Replacement Section.)

Resolving the Blank Output issues

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

Step	Procedure
1	Review the following information. • **Symptom:** A card is ejected blank (that should be printed). • **Printer Error State:** None • **LCD Error Display:** None • **Driver Monitor Error Display:** None
2	Run a self-test. See <u>Running the Self-Test</u>.
3	Look for an image on the Ribbon. a. After a self-test has been run, open the top cover. b. Remove the Print Ribbon from the Printer. c. Visually inspect the set of panels that were last used by the Printer. d. If an image is noticeable on the used Ribbon, continue to Step 4. e. If an image is not noticeable on the used Ribbon, continue to Step 5.

Resolving the Blank Output issues (continued)

Step	Procedure
4	Adjust the placement.
	a. Reset the Printer to clear any Error Messages by removing the power and reapplying it.
	b. Open the Printer Control Panel from the Computer.
	• If using Windows 98SE, Me, right click on the HDP600 Card Printer Icon and select **Properties**.
	• If using Windows 2000/XP, right click on the HDP600 Card Printer and select **Printing Preferences**.
	c. Click on the Image Transfer tab.
	d. Click on the **Settings** button.
	e. Adjust the Image Placement Setting by +5.
	f. Click on the **OK** button.
	g. Print a self-test.
	h. After adjusting the Image Placement, if a white border appears on the card, adjust the image placement back toward its original value in increments of 2 until the white edge is gone.
	i. If still having blank card issues, continue to Step 5.
5	Check the Printhead connections.
	a. Remove the Printer power and USB cables.
	b. Turn the Printer over to gain access to the base plate.
	c. Remove the one (1) thumbscrew from the Printhead cover plate and remove the cover plate.
	d. Depress the Printhead locking tabs and remove the Printhead.
	e. Check to ensure that Power and Data Cables (that connect to the Printhead) are properly seated.
	f. Remove the Back Cover.
	g. Ensure that the Printhead Power/Data Cable is properly seated on J16 on the Main board.
	h. If still having blank card issues, continue to Step 6.
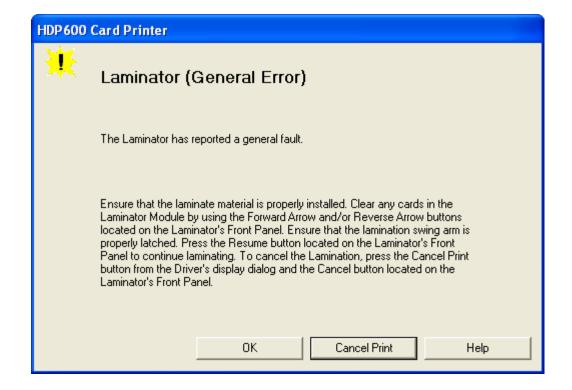
Resolving the Blank Output issues

Step	Procedure
6	Ensure that the proper voltage is being applied to the Printhead. a. Remove the back cover. b. Using a Digital Voltmeter, connect the negative lead to ground. c. Probe Pins 1 to 5 of the Printhead power connection on J16. d. Ensure that a voltage between 22 to 23 VDC is read on each pin. • If less than 22 volts is read on any of the pins, replace the Printhead. • If still having issue with blank cards, replace the Main Board. (See the current HDP600 Service Manual for instructions on replacing the Main Board in the Parts Replacement Section.)

Card Lamination Errors
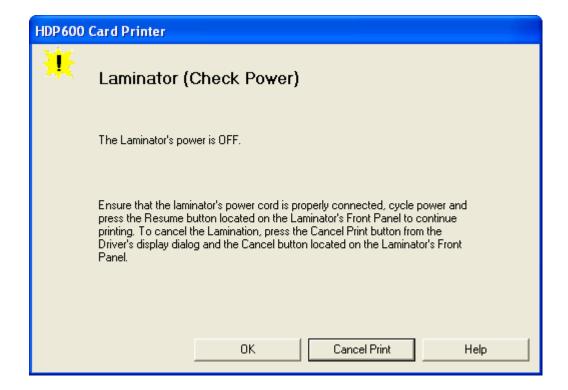
Resolving a Laminator (General Error)

Step	Procedure
1	Review the following information. • **Symptom:** The Laminator has reported a general fault. • **Printer Error State:** The Laminator has reported a general fault. • **LCD Error Display:** Laminator (General Error) • **Driver Monitor Error Display:** Laminator (General Error)

HDP600 Card Printer

Laminator (General Error)

The Laminator has reported a general fault.

Ensure that the laminate material is properly installed. Clear any cards in the Laminator Module by using the Forward Arrow and/or Reverse Arrow buttons located on the Laminator's Front Panel. Ensure that the lamination swing arm is properly latched. Press the Resume button located on the Laminator's Front Panel to continue laminating. To cancel the Lamination, press the Cancel Print button from the Driver's display dialog and the Cancel button located on the Laminator's Front Panel.

| OK | Cancel Print | Help |

Resolving the Laminator (Check Power) Error

Step	Procedure
1	Review the following information. • **Symptom:** The Laminator's power is OFF. • **Printer Error State:** The Laminator's power is OFF. • **LCD Error Display:** Laminator (Check Power) • **Driver Monitor Error Display:** Laminator (Check Power)

Resolving the Laminator (Heater Off) Error

Step	Procedure
1	Review the following information. • **Symptom:** The Laminator's Heater is OFF. • **Printer Error State:** The Laminator's Heater is OFF. • **LCD Error Display:** Laminator (Heater Off) • **Driver Monitor Error Display:** Laminator (Heater Off)

HDP600 Card Printer

Laminator (Heater Off)

The Laminator's Heater is OFF.

Press the Resume button located on the Laminator's Front Panel to continue.
To cancel the Lamination, press the Cancel Print button from the Driver's
display dialog and the Cancel button located on the Laminator's Front Panel.

[OK]   [Cancel Print]   [Help]
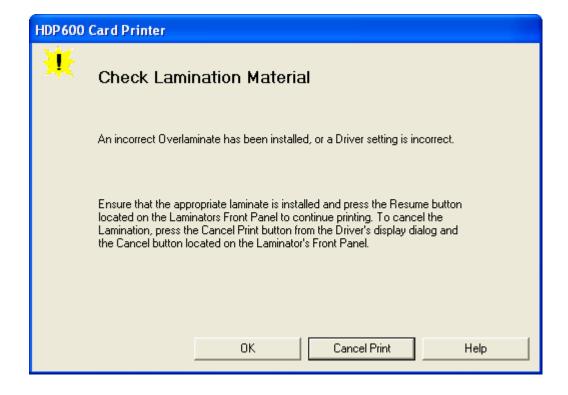
Resolving the Wrong Overlaminate Installed Error

Step	Procedure
1	Review the following information. • **Symptom:** An incorrect Overlaminate has been installed, or a Driver setting is incorrect. • **Printer Error State:** An incorrect Overlaminate has been installed, or a Driver setting is incorrect. • **LCD Error Display:** Wrong Overlaminate Installed • **Driver Monitor Error Display:** Wrong Overlaminate Installed

HDP600 Card Printer

Wrong Overlaminate Installed

An incorrect Overlaminate has been installed, or a Driver setting is incorrect.

Ensure that the appropriate laminate is installed and press the Resume button located on the Laminators Front Panel to continue printing. To cancel the Lamination, press the Cancel Print button from the Driver's display dialog and the Cancel button located on the Laminator's Front Panel.

[OK]   [Cancel Print]   [Help]

Resolving Check Lamination Material Error

Step	Procedure
1	Review the following information. • **Symptom:** An incorrect Overlaminate has been installed, or a Driver setting is incorrect. • **Printer Error State:** An incorrect Overlaminate has been installed, or a Driver setting is incorrect. • **LCD Error Display:** Check Lamination Material • **Driver Monitor Error Display:** Check Lamination Material

HDP600 Card Printer

! **Check Lamination Material**

An incorrect Overlaminate has been installed, or a Driver setting is incorrect.

Ensure that the appropriate laminate is installed and press the Resume button located on the Laminators Front Panel to continue printing. To cancel the Lamination, press the Cancel Print button from the Driver's display dialog and the Cancel button located on the Laminator's Front Panel.

| OK | Cancel Print | Help |

Diagnosing Image Problems

Resolving the Pixel Failure problems

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

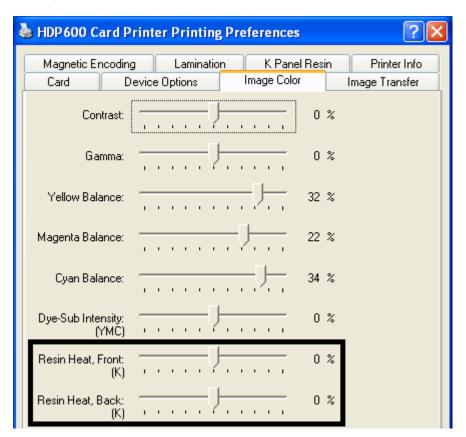| Step	Procedure
1	Review the following information. • **Symptom:** A thin line or scratch travels the entire length of the card (See sample image below). • **Printer Error State:** None • **LCD Error Display:** None • **Driver Monitor Error Display:** None
2	Check the card stock for scratches. Replace the cards (as needed).
3	Examine the Printhead for visible damage.
4	Clean the Printhead. See the <u>Cleaning the Printhead</u> procedure.
5	Replace the Printhead if the problem persists. See **Replacing the Printhead Assembly (D900023)** in the current HDP600 Service Manual.

Resolving the Card Surface Debris problems

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

Step	Procedure
1	Review the following information. • **Symptom:** Prints have spots (white or colored voids) and/or dust on them (See sample image below). • **Printer Error State:** None • **LCD Error Display:** None • **Driver Monitor Error Display:** None
2	Ensure the cards are clean and stored in a dust-free environment. Do not use cards with embedded contaminants in the surface.
3	Clean the inside of the Printer. See Cleaning inside the Printer.
4	Clean the Transfer Rollers. See Cleaning the Platen and Transfer Rollers .
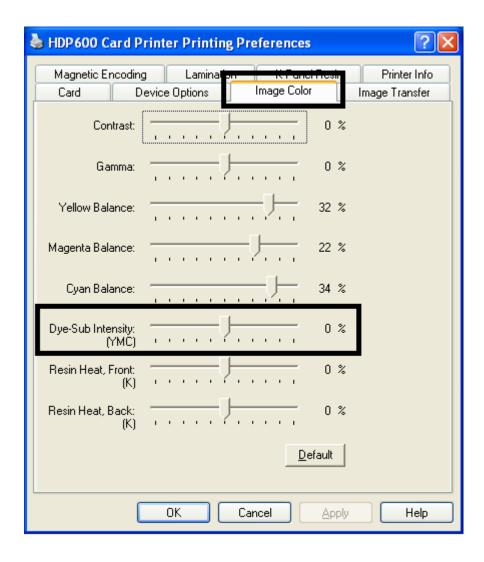
Resolving the Incorrect Image Darkness problems

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

Step	Procedure
1	Review the following information. • **Symptom:** Printed cards are too dark or too light. • **Printer Error State:** None • **LCD Error Display:** None • **Driver Monitor Error Display**: None
2	Run a self-test to ensure that the issue is not with the Driver settings.

Resolving the Incorrect Image Darkness problems (continued)

Step	Procedure
3	Adjust the **Dye-Sub Intensity** setting within the Image Color tab of the Printer Driver.

Resolving the Incorrect Image Darkness problems (continued)

Step	Procedure
4	Correct the **Image Darkness**. See the <u>Adjusting the Image Darkness</u> procedure.
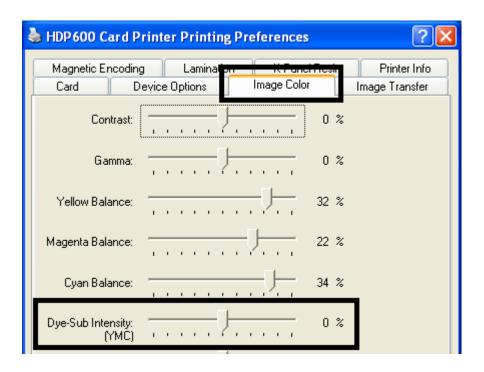
Resolving the Ribbon Wrinkle problems

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

Step	Procedure
1	Review the following information. • **Symptom:** Printed cards have off-colored lines or streaks on them. • **Printer Error State:** None • **LCD Error Display:** None • **Driver Monitor Error Display:** None
2	Confirm that the Printer is using the most current Driver via: http://www.fargo.com
3	Reduce the **Dye-Sub Intensity** setting within the Image Color tab of the Printer Driver.

Resolving the Ribbon Wrinkle problems

Step	Procedure
4	Reduce the Image Darkness. See the [Adjusting the Image Darkness](#) procedure.

Resolving the Excessive Resin Printing problems
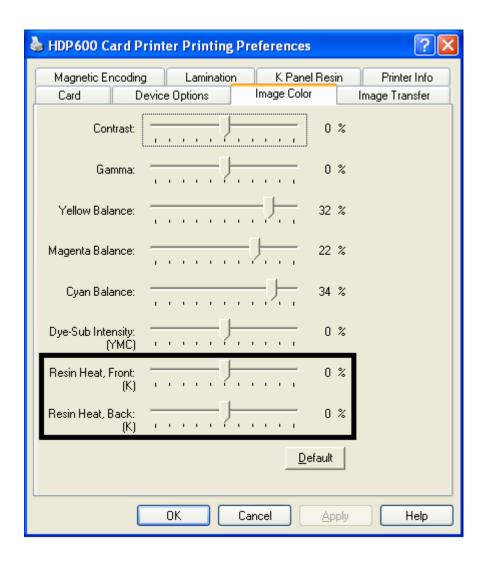
All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

Step	Procedure
1	Review the following information. • **Symptom:** Black resin text and barcodes appear smeared or too thick. • **Printer Error State:** None • **LCD Error Display:** None • **Driver Monitor Error Display:** None

Resolving the Excessive Resin Printing problems (continued)
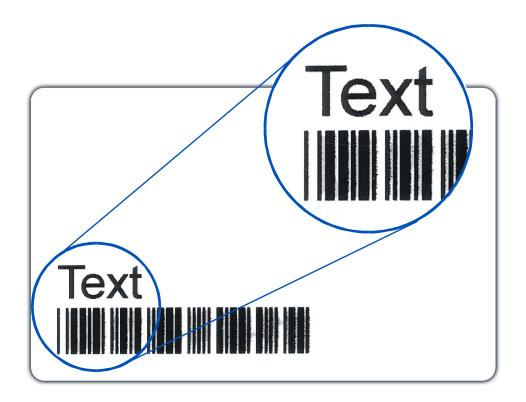
All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

Step	Procedure
2	Reduce the Resin Heat setting within the Image Color tab of the Printer Driver.

Resolving the Excessive Resin Printing problems

Step	Procedure
3	Reduce the Image Darkness. See the <u>Adjusting the Image Darkness</u> procedure.
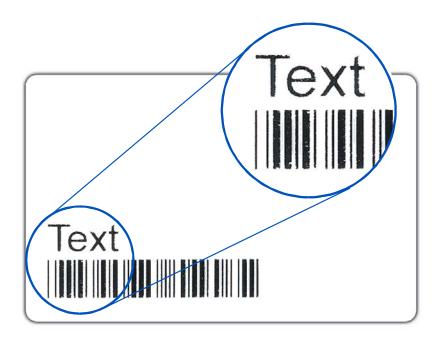
Resolving the Incomplete Resin Printing problems

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

Step	Procedure
1	Review the following information. • **Symptom:** Black resin text and barcodes appear faded or too light. See Display A below. • **Printer Error State:** None • **LCD Error Display:** None • **Driver Monitor Error Display:** None
2	Increase the **Resin Heat** setting within the Image Color tab of the Printer Driver. See Display B below.
3	Increase the **Image Darkness**. See the Adjusting the Image Darkness procedure.

Display A – See Procedural Step 1

Resolving the Incomplete Resin Printing problems (continued)

Display B – See Procedural Step 2
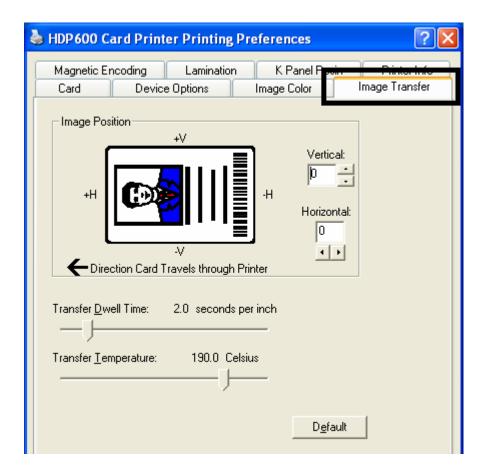
Resolving the Image Placement problems

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer. This procedure is used to adjust the position of the card in the Print driver and does not change the internal settings of the Printer.

Step	Procedure
1	Review the following information. • **Symptom:** Printing is cut off or is not centered on the card, or a white border appears. • **Printer Error State:** None • **LCD Error Display:** None • **Driver Monitor Error Display:** None

Resolving the Image Placement problems (continued)

Step	Procedure
2	Verify if the Image Position option within the Image Transfer tab is set correctly or incorrectly. a. Open the Printer Control Panel from the Computer. • If using Windows 98SE, Me, right click on the HDP600 Card Printer Icon and select **Properties**. • If using Windows 2000/XP, right click on the HDP600 Card Printer and select **Printing Preferences**. b. Click on the Image Transfer tab. c. Adjust the **Vertical** and/or **Horizontal Image Position** settings based on where the white border is on the card.

Resolving the Image Placement problems (continued)

Step	Procedure
3	Verify if the **Horizontal Image Position Setting** is set correctly or incorrectly. See the graphic below. • If the white border is on the leading edge of the card, adjust the Horizontal value by +2. • If the white border is on the trailing edge of the card, adjust the Horizontal value by -2. a. Click on **OK**. b. Run a self-test. c. If the white border is diminished, continue the adjustment until it is gone.

Resolving the Image Placement problems

Step	Procedure
4	Verify if the **Vertical Image Position Setting** is set correctly or incorrectly. See the graphic below. • If the white border is on the top edge of the card, adjust the Vertical value by +2. • If the white border is on the botom edge of the card, adjust the Vertical value by -2. a. Click on **OK**. b. Run a self-test. c. If the white border is diminished, continue the adjustment until it is gone.

Resolving the Poor Image Quality problems

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

Step	Procedure
1	Review the following information. • **Symptom:** Photos on the cards look pixilated or grainy, as shown below. • **Printer Error State:** None • **LCD Error Display:** None • **Driver Monitor Error Display:** None
2	Use high-resolution, 24-bit color images to always capture an image: • at a 24-bit color setting • at 300 dpi • at the same size that it will be printed on the card, as captured either with a scanner or with a digital camera If a small or low-resolution image is stretched or blown up, a pixilated or grainy effect will occur when printing, as shown below (rightside).

Good   Bad
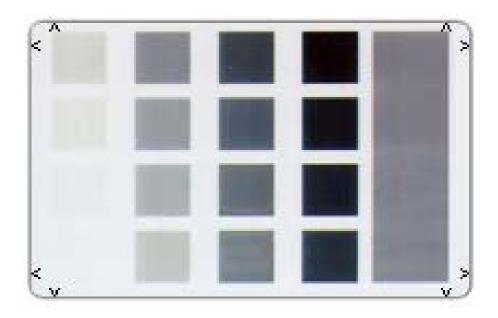
Running the Self Test

Perform a self-test after (a) an initial setup of the Printer, (b) a calibration procedure has been conducted, or (c) a part has been replaced to check for proper Printer operation.

Step	Procedure
1	Verify that a full-color or Premium Resin Ribbon is installed and that cards are properly loaded. ⚠ **Caution:** If the power is ON, disconnect the Power Cable from the Printer's rear panel.
2	Press and hold the **Pause/Resume** button.
3	While holding down the **Pause/Resume** button, plug the power cable back into the Printer.
4	• Full Color Ribbon installed: The Printer will print a 3-color process gray scale on the front of the card. The overlay pass is not printed during the Self-test. See the next page. • Premium Resin Ribbon installed: The Printer will print a single color gray scale on the front of the card. See the next page.)

Running the Standard Self Test Print

Display A - Full Color Test Print

Running the Magnetic Self Test (HiCo Only)

Perform a self-test after (a) an initial setup of the Printer, (b) a calibration procedure has been conducted, or (c) a part has been replaced to check for proper Printer operation.

Step	Procedure
1	Remove Ribbon from the Printer and close the front cover
2	Go to the LCD screen on your Printer. (**Important:** This option is only available if the Magnetic Encoder is installed.) a. Select MENU from the LCD. b. Select **Print Test Image**. c. Select **Magnetic Test**.
3	The Printer will Encode magnetic information on all 3 magnetic tracks

Section 5: Ethernet Option Section

Introduction

The Ethernet option includes the Ethernet port and the internal Printer Server.

- **Printer Management:** The Printer Driver provides bi-directional status information so you can monitor and manage the Printer just as you would any other networked Printer.

- **Compatibility:** The Fargo Ethernet option provides compatibility with TCP/IP and 802.3 Ethernet protocols with an IEEE 802.3 10/100Base-T Ethernet female RJ45 connector.

- **Application:** With the Ethernet Option properly installed and configured, these Printers are able to print in the same manner as a Printer directly connected to the PC via a USB interface.

Technical Specification - Ethernet Option

Here are the system requirements for Ethernet.

⚠ Caution: For safety purposes, Ethernet is not intended for a direct connection outside of the building.

Function	Requirement
Network	An IEEE 802.3 10/100 Base-T Ethernet network is required.
Printer	A Fargo Printer with the Ethernet option installed is required.
Printer Configuration	Since TCP/IP is used for the network communication, the Printer must be configured with an IP address and a subnet mask (before it can be seen on the network). An additional network setting for the Default Gateway can also be configured, which allows communication across the subnets.
Host Computer	A PC running Windows 2000 / XP / Server 2003 connected to the network is required.
Host Printer Driver	The host PC must have installed the correct Printer Driver with Ethernet support. (**Note:** This Driver must be configured for printing to the IP address of the Printer.)

Functional Specification - Ethernet Option

The Fargo Ethernet option includes these features.

Feature	Description
Simultaneous Printing	Provides the ability to simultaneously print from multiple PCs to the network Printer.
Printer Feedback	Provides status information from the network Printer to the PC.
Web Pages	Provides easy Printer configuration with any web browser.
Log Messages	Provides logging of usage and error events via e-mail, UDP or TCP/IP.
Password Security	Provides security with passwords and configurable User permission levels.
Telnet	Provides a Telnet command line interpreter for Printer configuration.
SNMP	Provides an SNMP agent that supports MIB-II.
Upgrades	Provides support for Firmware upgrades over the network.
Troubleshooting	Provides a Ping client for network troubleshooting.
IP Tracer	Provides a utility (IP Tracer) used to find Fargo Printers with Ethernet connection on a local network. (**Note:** This utility is included on the CD-ROM and online at www.fargo.com.)

Network Services - Overview

The Ethernet option provides the services described in this section. (**Note:** Other additional services include a Ping client, address assignment and Printer discovery functions.)

Reviewing the Print Server

The Print Server provides printing services in the same manner as a Printer connected directly to a USB interface except that the Printer is connected through the local area network to the client PC. The Print Server must be properly configured in order to provide this printing capability.

• The Print Server is capable of queuing up to eight (8) client PCs while printing. Communications between each PC and the Ethernet-enabled Fargo Printer are implemented over a bi-directional TCP/IP interface.

• All clients are able to send print jobs to the Printer and monitor Printer jobs and errors with the standard Windows printing system using the Fargo Printer Driver installed on their local PC.

In this way, the User knows whether or not a print job has been successful. Also, the User knows what problems have been encountered while processing the print job. Printing using Ethernet works in a manner similar to the USB-connected PC/Printer.

Reviewing the Web Page Server

An HTTP service serves web pages that provide an interface through which to configure and monitor the Printer. (**Note:** Users may also monitor all print jobs that have been sent to the Printer from any client PC.)

Reviewing the Network Management Interface

The Ethernet-enabled Printer operates as an SNMP agent to allow central administrators to monitor and configure the network interface and the Printer. (**Note:** A standard host MIB-II is implemented to maximize the utility of the Printer on the network.)

Reviewing the Telnet Server

The Ethernet interface has a command line interpreter. (**Note:** The User can connect to the Printer using a Telnet session on their PC, issue commands to the Printer and receive response from the Printer.)

The Telnet commands are primarily used for network administration and they will not be used by most Users. (**Note:** These commands will query the state of the Printer and configure various settings for the Printer. These include network settings, logging setting, User names and User passwords.)

Network Management Interface

The SNMP interface is described below.
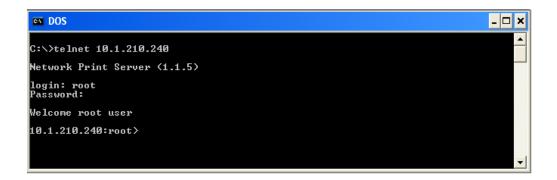
Interface	Description
SNMP	• The Ethernet interface is a fully-manageable SNMP agent that supports MIB-II. • The Ethernet interface is MIB II compliant, allowing SNMP managers to monitor protocol, network and routing statistics.

Telnet Command Line Interface

Initiating a Telnet Session

This procedure shows how to initiate a Telnet session from a PC in order to access the Telnet services provided by the Printer. Follow these instructions to issue Telnet commands.

Step	Description
1	Identify the IP address of your Printer. (**Note:** See the Accessing the IP address of your Printer.)
2	Initiate a Telnet session from a DOS window on your PC. At the DOS prompt, enter telnet [IP Address] **Example:** C:\>telenet 192.168.11.12 • All Telnet responses from the Printer will then be displayed in the Telnet session on the PC. • All commands entered will be sent to the Telnet client in the Printer.
3	Enter help or ? to get an on-window list of supported Telnet commands.

```
C:\>telnet 10.1.210.240
Network Print Server (1.1.5)

login: root
Password:

Welcome root user

10.1.210.240:root>
```

Reviewing the Telnet Command Table

The following table describes available Telnet commands. (**Note:** You can enter partial full-word commands: the Printer will respond with additional help. For example, you can enter list and the Printer will respond with all subcommands to the list command.)

Telnet Command	Command Purpose	Command Format
? help	Display help for Telnet commands.	?
reset	Reset the Ethernet interface for the Printer/Encoder.	reset
ping	Send a ping command to another IP address as a test of the Ethernet interface.	ping <IPADDR>

Reviewing the Telnet Command Table (continued)

Telnet Command			Command Purpose	Command Format
list	all		Display all information about this Printer.	list all
	diff		Display all differences between current and stored network settings.	list diff
	uptime		Display how long since the interface was last reset.	list uptime
	sysinfo		Display information about the Printer (i.e., model, label, contact, location, Firmware version and date and serial number).	list sysinfo
	ribbon		Display information about the installed Ribbon in the Printer.	list ribbon
	net		Display information about the current network settings of the Ethernet interface.	list net
	stored	net	Display information about the stored network settings of the Ethernet interface.	list stored net
	default	net	Display information about the default network settings of the Ethernet interface.	list default net
	user		Display information about the defined User names and their type (root or guest privileges).	list user

Reviewing the Telnet Command Table (continued)

Telnet Command		Command Purpose	Command Format
lpq		Display information about print jobs and their settings.	list lpq
printer		Display information about the Printer (i.e., model number, Firmware version and serial number).	list printer
printer	sm	Display information about the secure mark settings of the Printer.	list printer sm

Reviewing the Telnet Command Table (continued)

Telnet Command			Command Purpose	Command Format
set	sysinfo	contact	Set the contact string.	set sysinfo contact [<STRING>]
		location	Set the location string.	set sysinfo location [<STRING>]
		label	Set the label string.	set sysinfo label [<STRING>]
		from	Set all strings from default or current settings.	set sysinfo from default|current
	syslog	name	Change the name of a system log path	set syslog <LOG_NAME> name <NEW_NAME>
		type	Change the type of a system log path. This starts or stops logging on start of jobs or on faults.	set syslog <LOG_NAME> type [[-]job] [[-]pfault]
		dest	Change the destination of a system log path. This may be set to none, e-mail, udp or tcp.	set syslog <LOG_NAME> dest none|email|udp|tcp
		email	Change the e-mail address for e-mail notification for a system log path. It must specify a valid e-mail address.	set syslog <LOG_NAME> email <EMAIL>
		udp	Specify the IP address of the UPD system logging program.	set syslog <LOG_NAME> udp <IPADDRESS>
		from	Restore system log path settings from the default or current settings.	set syslog from default|current

Reviewing the Telnet Command Table (continued)

Telnet Command			Command Purpose	Command Format
set	user	add	Add a new User definition. Up to four (4) Users may be defined.	set user add <NAME>
		del	Delete a User definition.	set user del <NAME>
		passwd	Define a new password for a User.	set user passwd <NAME> [<PASSWORD>]
		type	Specify a User as root or guest. Only root Users have administrative rights to change network interface settings.	set user type <NAME> root|guest
		from	Restore User setting from default or stored settings.	set user from default|stored

Reviewing the Telnet Command Table (continued)

Telnet Command			Command Purpose	Command Format
store	net	addr	Store a new IP address.	store net addr <ADDRESS>
		mask	Store a new address mask.	store net mask <MASK>
		gateway	Store a new default gateway.	store net gateway <ADDRESS>
		dns	Store a new DNS server address.	store net dns <ADDRESS>
		domain	Store a new DNS domain suffix.	store net domain <STRING>

		opts	Enable or disable automatic address assignment using DHCP. Static (non-automatic) addresses will come from the stored or default settings, depending on the other settings.	To enable automatic address assignment:
				
				  store net opts dhcp
				
				To disable automatic address assignment:
				
				  store net opts -dhcp

		from	Restore the network settings from either the default settings or the current settings.	store net from default|current
	ifc	mode	Specify the Ethernet interface mode as: automatic, full or half duplex; 10 or 100 mHz.	store ifc mode auto|10half|10full|100half|100full
		from	Set the Ethernet mode settings from the default or current settings.	store ifc from default|current

Reviewing the Telnet Command Table (continued)

Telnet Command	Command Purpose	Command Format
save	Save all current settings as the stored settings in the permanent memory.	save
load	Take the settings from the stored memory and make them the current settings.	load
lpstat	Display information about the Printer status. This includes the status and device response. See the Printer web page description.	lpstat
cancel	Cancel a specific print job from the print queue.	cancel 10
quit	Stop the current Telnet session.	quit

Ethernet Web Pages – Standard Procedures

Reviewing Web page security

You can use the web pages from your Fargo Ethernet-connected Printer to view several attributes about the Printer. Users must have administrative rights and they must enter the correct password to alter settings of the Printer. See the Reviewing the Web Page Server section.

Logging In

When a User attempts to change any setting, they are asked for a User name and password. (**Note:** The Guest Users can only view settings.)

Step	Procedure
1	Enter the correct User name: • The default administrative User name is **root**. • The default non-administrative User name is **guest**. • Non-administrative Users can only view settings.
2	Enter the correct password: • The default password is an empty string. If the password has not been changed, leave the field blank. • See **Password** page procedure for changing passwords.
3	Press **Enter** or click on the **OK** button.
4	If the name and password is not accepted, another login prompt will appear on screen. Repeat this procedure with the correct User name and password.

Accessing the Home pages

Step	Procedure
1	Open a window for your network browser application on your local PC.
2	Find the IP address of the Printer. (**Note:** See the section <u>Accessing the IP address of your Printer</u> as needed to get this from the LCD of the Printer.)
3	Enter the IP address of the Printer you want to access into the address bar of the browser.
4	Press **Enter** or click on **GO**.
5	View the Home page. The Home pages display general information about the Printer, as shown in the next sections.

Reviewing the HDP600 Home Page

Reviewing the Home Page Categories and Fields (table)

You can view these categories and fields in the following table.

Category	Field	Purpose
Fixed for Printer	Serial Number (Print Server)	Displays the unique fixed serial number of the Print Server.
	Serial Number (Printer)	Displays the unique fixed serial number of the Printer.
	Hardware Address	Displays the unique fixed hardware address (MAC) of the Printer, which is the unique Ethernet device identifier.
Set by User (May be configured via Telnet or from the Administration web page.)	Label	Indicates the label that the User assigns to the Printer.
	Location	Indicates the location string that the User assigns to the Printer.
	Contact	Indicates the contact person string that the User assigns to the Printer.
Set by Firmware	Firmware Version (Print Server)	Displays the current Firmware version of the Print Server.
	Firmware Version (Printer)	Displays the current Firmware version of the Printer.
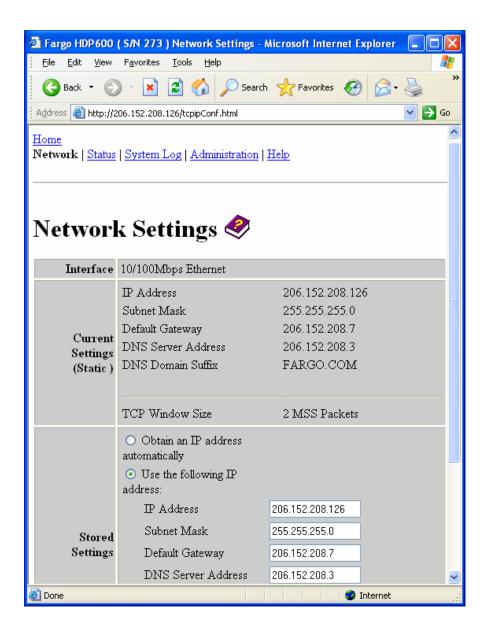
Configuring the Network Settings

The procedures needed to configure the network settings are presented in this section.

Accessing the Network Settings page
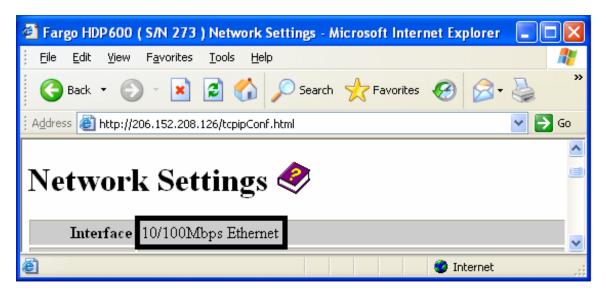
The Network page displays the current network settings and allows the User to change the settings.

Step	Procedure
1	Select the **Network** link from any web page of the Printer.

Reviewing the Interface
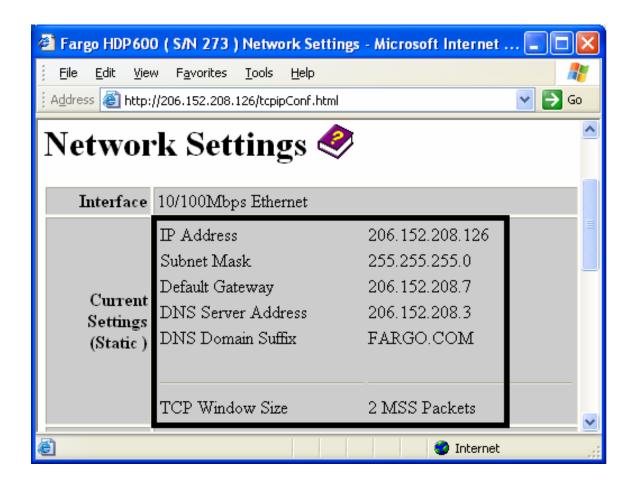
The Interface display indicates the network speed supported by the Printer.

Reviewing the Current Settings
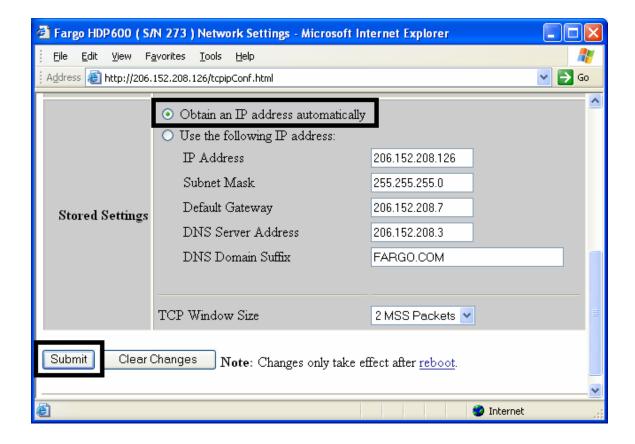
The Current Settings page section displays the current active network settings for the Printer.

- These are also labeled as Dynamic if they were provided by DHCP or Static if they came from the Stored Settings.

- The current settings will be Dynamic only if **Obtain an IP address automatically** was selected when the Printer was restarted last.

Switching to the automatic IP address mode

| Step	Procedure
1	Select the **Network** link from any web page of the Printer.
2	Select the **Obtain an IP address automatically** radio button to enable the DHCP/BOOTP, which automatically assigns the network settings. Even with this button selected, the User can enter Stored Settings and the Stored Settings will remain in memory. See below. (**Note:** This is the default method.)
3	Click on the **Submit** button to save this setting.
4	Log in as a root User if you are so prompted. (**Note:** Any change of setting will only be accepted after you have successfully logged in.)
5	Reboot the Printer to affect this change. See the procedures in Using the Reboot pages.
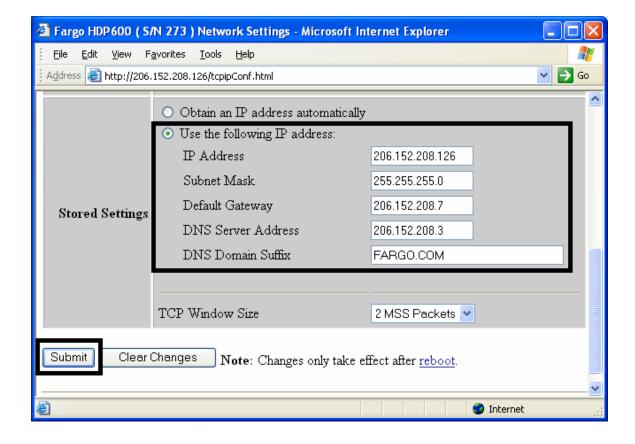
Changing to the static IP address mode

Step	Procedure
1	Select the **Network** link from any web page of the Printer.
2	Select the **Use the following IP address** radio button, which prepares the Printer to use network settings that the User has manually set. These manual settings will then be used the next time the Printer is rebooted.
3	Enter the network settings which are required for Ethernet communications from within the same subnet. With only these entries the User will be unable to print from a subnet other than the subnet on which the Printer is connected. These required settings are the following: • IP Address • Subnet Mask
4	Enter the optional network settings for Ethernet communications across a router from other subnets. The option setting is Default Gateway
5	Enter the optional network settings for DNS. These are the following: • DNS Server Address • DNS Domain Suffix
6	Select the **Submit** button to save these changes to stored settings in the memory of the Printer. (**Note:** These settings will not be lost if the power is removed from the Printer.)
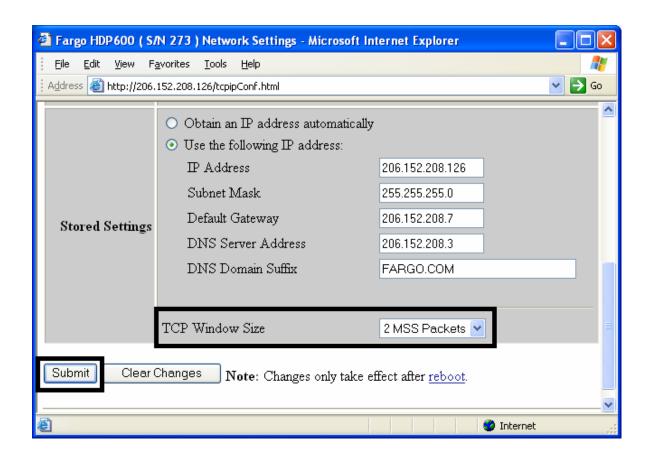
Changing to the static IP address mode (continued)

Step	Procedure
7	Log in as a root User if you are so prompted. (**Note:** Any change of setting will only be accepted after you have successfully logged in.)
8	Reboot the Printer to effect this change. See the <u>Reviewing Web page security</u> procedure.
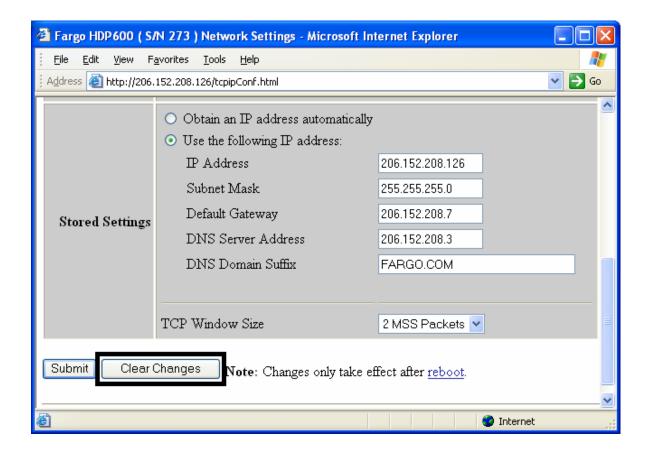
Entering the TCP Window Size

| Step	Procedure
1	Select the **Network** link from any web page of the Printer.
2	Select the TCP window size from the drop-down menu, as shown below. • This entry provides for entry of the TCP Window Size. It adjusts how much data can be sent to the Printer at any one time. • It is recommended that the default value of 2 MSS Packets be used to ensure good compatibility with all client applications.
3	Click on the **Submit** button to save this setting.
4	Login as a root User if you are so prompted. (**Note:** Any change of setting will only be accepted after you have successfully logged in.)
5	Reboot the Printer to effect this change. See the Reviewing Web page security procedure.

Using the Clear Changes button

Step	Procedure
1	Click on the **Clear Changes** button to delete the information in the textboxes in Stored Settings area. See the lower left corner of this display.

Using the TCP/IP page
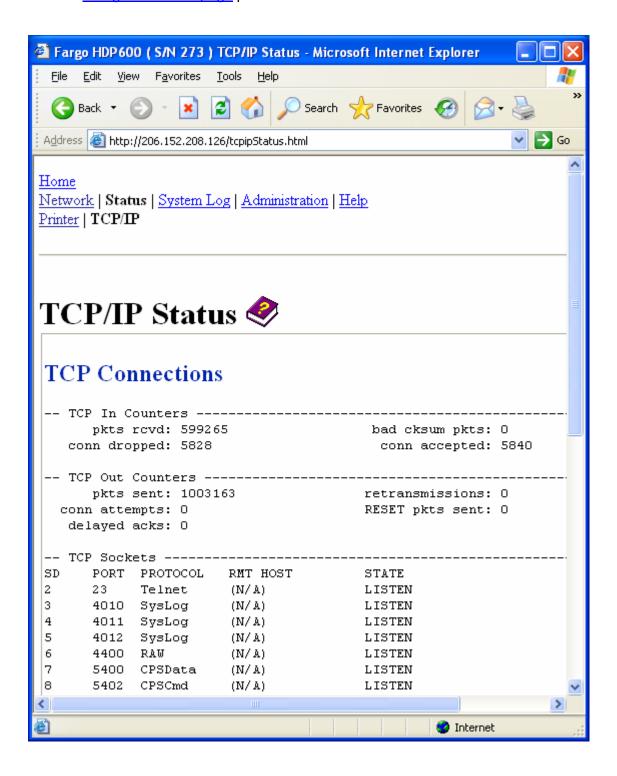
The TCP/IP page displays the TCP/IP Status of each Printer connection, which are not configurable. See the next two pages for displays.

Step	Procedure
1	Select the **Status** link from any web page of the Printer.
2	Select the **TCP/IP** page link.
3	View information on all current network connections in the **TCP connections** area.
4	Review information on the network DHCP status in the **DHCP Information** area.

Continued on the next page

Using the TCP/IP Status Web Page

See the Using the TCP/IP page procedure.

Using the Printer page

You can use the Printer page to review current information about the Printer device settings and print jobs. Device settings includes the following:
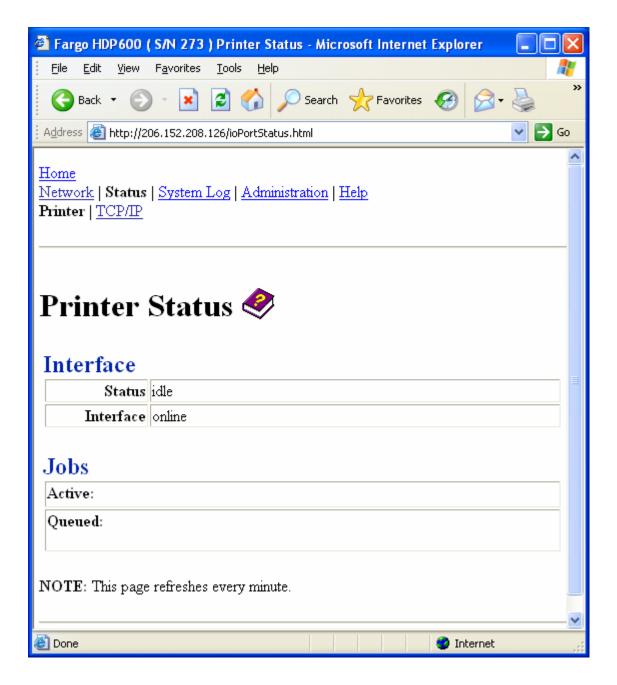
- The **status** which displays information about the current print job.

- The **device** which displays information about the Printer.

The fields are described below. See the next page to view the entire Printer page.

Field	Status	Description
status	Idle	Indicates that no print job is active.
	printing	Indicates that the job is being sent to the Printer.
	printing – waiting	Indicates that the communication is being slowed by print operations.
	printing – blocked	Indicates that the communication has been stopped by some condition.
	canceled	Indicates that the current job was canceled and is being deleted.
device	online	Indicates it is ready to print.
	offline	Indicates that the Cover is open or the Printer is not ready to print.
	Printer – error	Indicates that an error is detected.
	Busy	Indicates that printing is in progress.
Print Jobs		This is a display of the current print jobs that have been sent to the Printer. (**Note:** The current job that is being received by the interface is displayed as the active job.)
		Cancel a specific print job by selecting the appropriate **Cancel** button, which appears when a print job is queued.
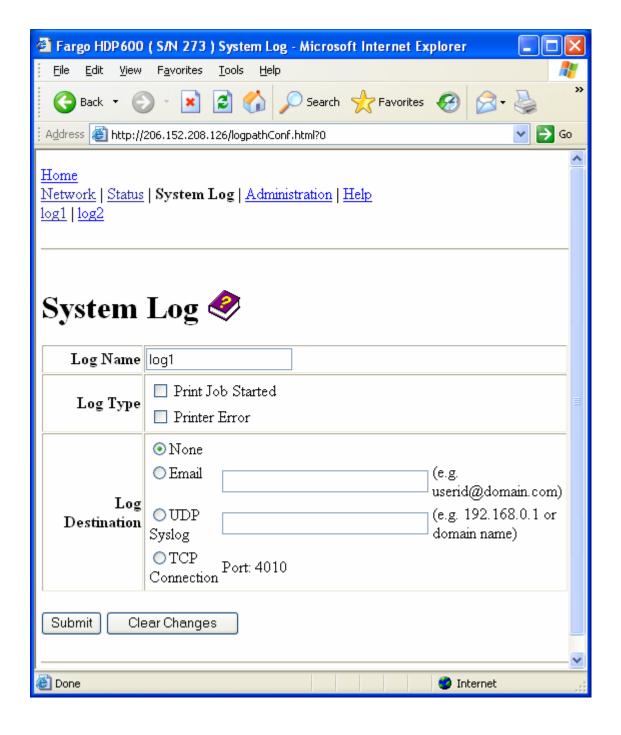
Reviewing the Printer page (continued)

See the previous page for descriptions of the fields.

Using the System Log page
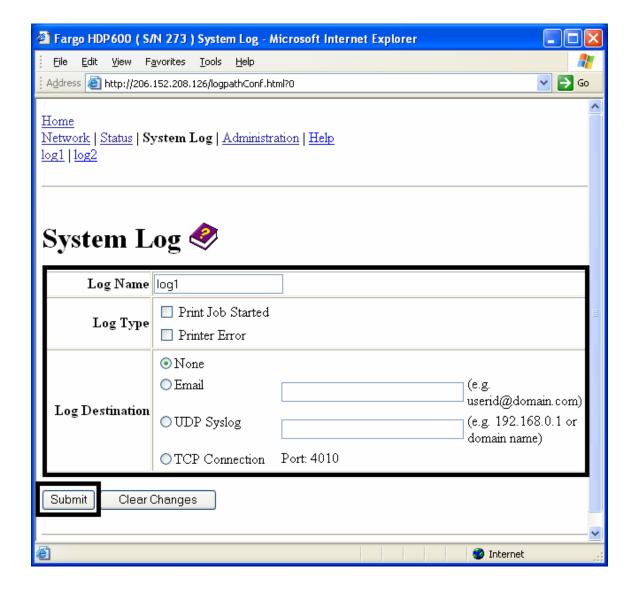
The System Log page displays the current system log settings and allows the User to change the settings. (**Note:** These settings configure how system logging occurs. There are two logs.)

Changing the Log Name

By default the names are log1 and log2. However, you can rename them from this page. (**Note:** This also updates the link to the corresponding web page.)

Step	Procedure
1	Select the **System Log** link.
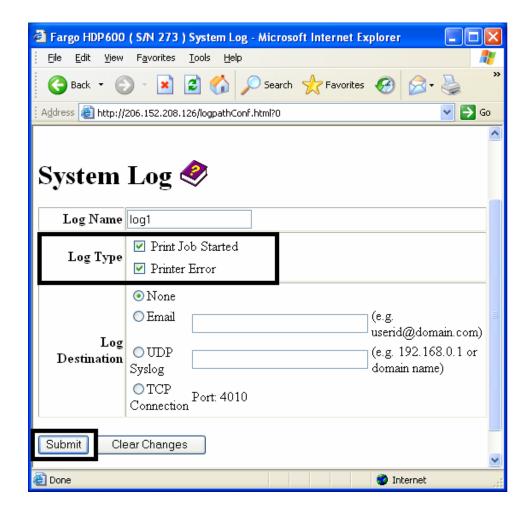
Changing the Log Name (continued)

| Step	Procedure
2	Select the link for the log name you want to view or configure (the default choices are **log1** or **log2**). See the previous page.
3	Enter a new log name in textbox.
4	Click on the **Submit** button to save this change.
5	Log in as a root User if you are so prompted. (**Note:** Any change of setting will only be accepted after you have successfully logged in.)

Selecting the Log Type
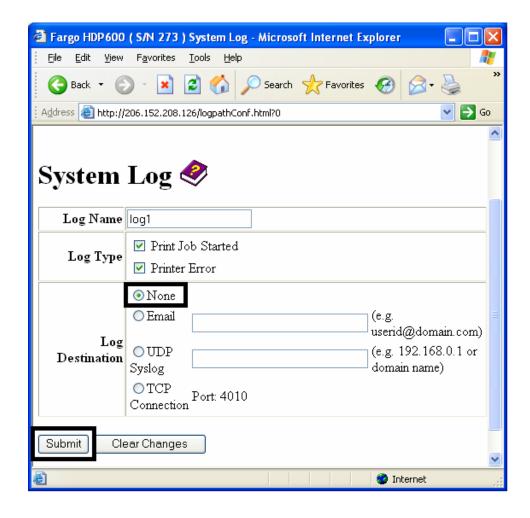
Step	Procedure
1	Select the **System Log** link. See the next page.
2	Select the link for the log name you want to view or configure (the default choices are **log1** or **log2**).
3	Select the **Print Job Started** checkbox to generate the log entries for each Print Job Started.
4	Select the **Printer Error** checkbox to generate the log entries for each Printer Error.
5	Select the **Submit** button.
6	Login as a root User if you are so prompted. (**Note:** Any change of setting will only be accepted after you have successfully logged in.)

Selecting the Log Destination

Specify one destination for the log.
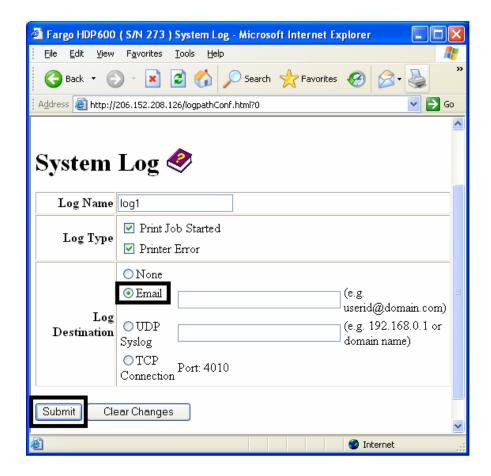
Step	Procedure (No event logging)
1	Select the **System Log** link.
2	Select the link for the log name you want to view or configure (the default choices are **log1** or **log2**).
3	Select the **None** radio button when no log is required. (**Note:** This is the default.)
4	Select **Submit**.
5	Login as a root User if you are so prompted. (**Note:** Any change of setting will only be accepted after you have successfully logged in.)

Setting up Email Event logging

Follow this procedure to enable logging using email notification:

| Step	Procedure (Specify email logging)
1	Select the **System Log** link.
2	Select the link for the log name you want to view or configure (the default choices are **log1** or **log2**).
3	Select the **Email** radio button to choose email log notification.
4	Enter a valid e-mail address in the associated textbox.
5	Select **Submit**.
6	Log in as a root User if you are so prompted. (**Note:** Any change of setting will only be accepted after you have successfully logged in.)
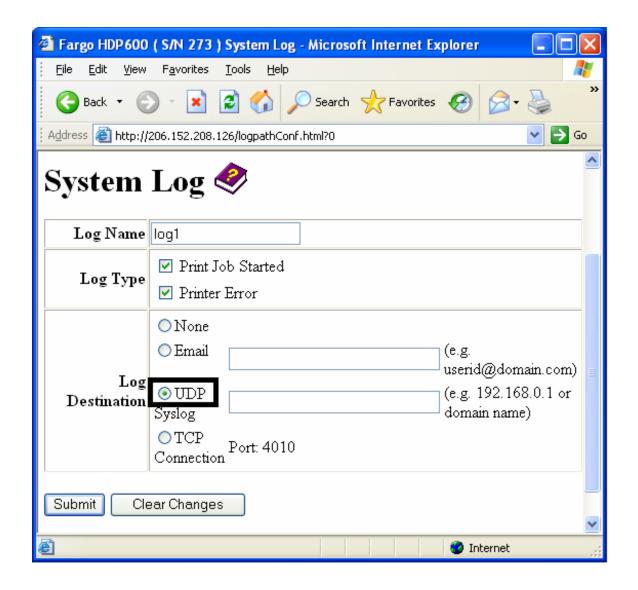
Specifying UDP Event logging

Follow this procedure to enable logging to a UDP Syslog program.

Step	Procedure
1	Select the **System Log** link. • The messages will be sent via UPD packets to the Syslog port (514) of the specified host. • It is up to the host program to listen to these messages for processing. • A syslog host program is necessary to use this method, such as, Kiwi Syslog Daemon or WinSysLog.
2	Select the link for the log name you want to view or configure (the default choices are **log1** or **log2**).
3	Select the **UDP Syslog** radio button.
4	Enter a valid IP address or domain name.

Specifying UDP Event logging (continued)

Step	Procedure
5	Select **Submit**.
6	Log in as a root User if you are so prompted. (**Note:** Any change of setting will only be accepted after you have successfully logged in.)
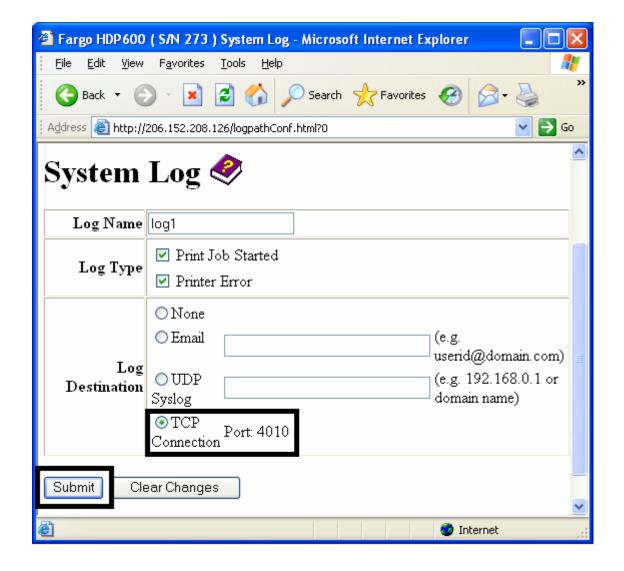
Specifying TCP Event logging

Follow this procedure to send logging messages to a pre-existing IP connection made on the TCP port.

Step	Procedure
1	Select the **System Log** link.
2	Select the link for the log name you want to view or configure (the default choices are **log1** or **log2**).

Continued on the next page

Specifying TCP Event logging (continued)

Step	Procedure
3	Select the **TCP Connection** radio button.
4	Select **Submit**.
5	Log in as a root User if you are so prompted. Any change of setting will only be accepted after you have successfully logged in.
6	Use a host program such as Telnet to receive these TCP logging messages (**Note:** Other programs such as HyperTerminal are also used to monitor TCP connections). See below. • **Telnet Client:** You can use a Telnet client connected to the TCP port (log1 = 4010, log2 = 4011) rather than the default Telnet port (23). • **Telnet Session:** If there is a Printer at IP address 192.37.23.155 (and you have configured log1 for TCP logging), then you could initiate a Telnet session from a DOS window of a PC by entering Telnet 192.37.23.155 4010. • **Log Messages:** All system log messages would then be displayed in that Telnet session window. (**Note:** This is a one way connection for logging only. Any input to the Printer on this connection is ignored.)

Using the Administration pages

The purpose of the Administration pages is to allow the User to upgrade, reboot, modify passwords and enter User-specified system information strings.

Using the System Information page
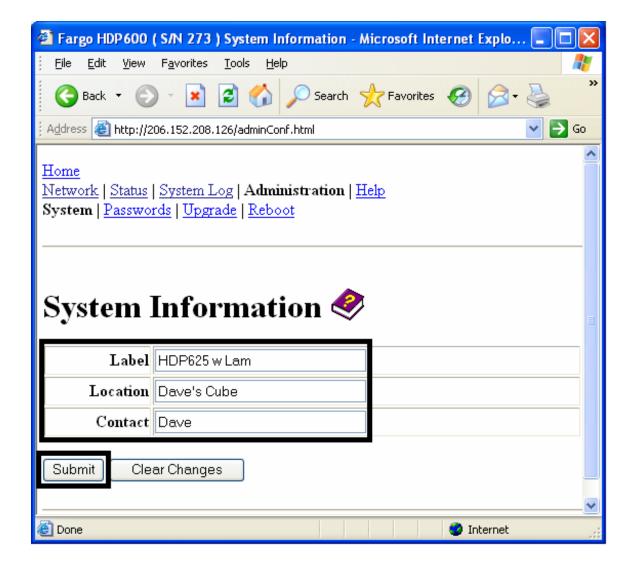
The System Information page displays the current system information and allows the User to change the system information (which appears on the Home page). See the for definitions.

Step	Procedure
1	Select the **Administration** link.
2	Log in as a root User (using the old password) if you are so prompted. (**Note:** Any change of setting will only be accepted after you have successfully logged in.)
3	Select the link for the **System** web page.
4	To change an attribute, type the new entry in one of these boxes: • **Label** textbox • **Location** textbox • **Contact** textbox

Continued on the next page

Using the System Information page (continued)

Step	Procedure
5	Select the **Submit** button.
6	Log in as a root User if you are so prompted. Any change of setting will only be accepted after you have successfully logged in.

Changing the Root Password
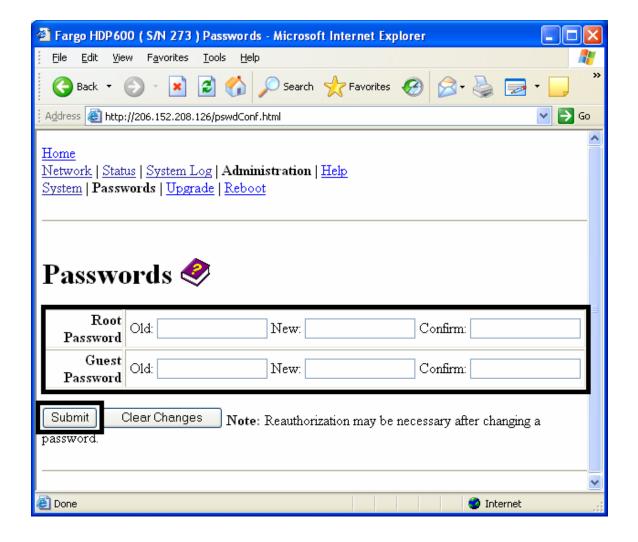
The Passwords page allows the User to change the passwords needed to log in as a User. Changes to all settings require a login. (**Note:** However, these changes are only protected by password after the password has been set. Users can only be added or removed using Telnet commands.)

Step	Procedure
1	Select the **Administration** link.
2	Log in as a root User (using the old password) if you are so prompted. (**Note:** Any change of setting will only be accepted after you have successfully logged in.)
3	Select the **Passwords** link to get to the Password web page.
4	Enter the current password in the **Root Password Old** textbox or leave it blank if no password has been previously set.
5	Enter the new password in the **Root Password New** textbox or leave it blank if you want to remove the old password.
6	Re-enter the new password in the **Root Password Confirm** textbox or leave it blank if you want to remove the old password.

Continued on the next page

Changing the Root Password (continued)
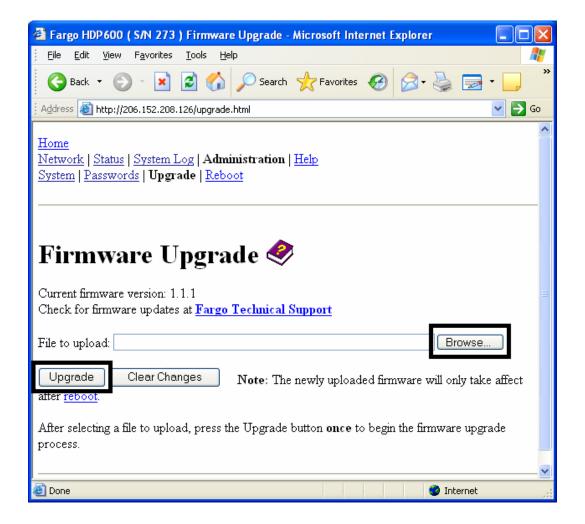
Step	Procedure
7	Select the **Submit** button.
8	Log in as a root User (using the old password) if you are so prompted. (**Note:** Any change of setting will only be accepted after you have successfully logged in.)

Upgrading the Print Server
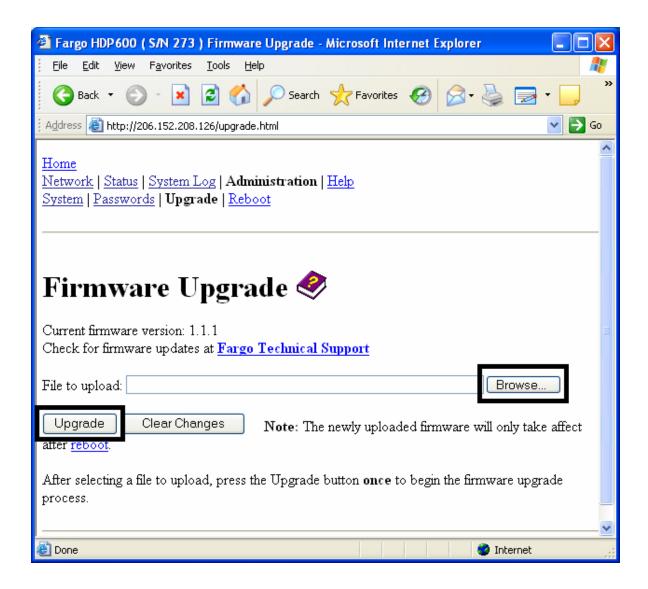
This procedure provides a means to upgrade the Firmware in the Printer Server not the main Printer.

Step	Procedure
1	Select the **Administration** link.
2	Log in as a root User (using the old password) if you are so prompted. (**Note:** Any change of setting will only be accepted after you have successfully logged in.)
3	Select the **Upgrade** link.
4	Select the **Browse** button.
5	Navigate to and select the appropriate file to upload.

Upgrading the DTC400 and HDP600 Print Server (continued)

Step	Procedure
6	Select the **Upgrade** button to start the Firmware upload.
7	Select Reboot when requested.
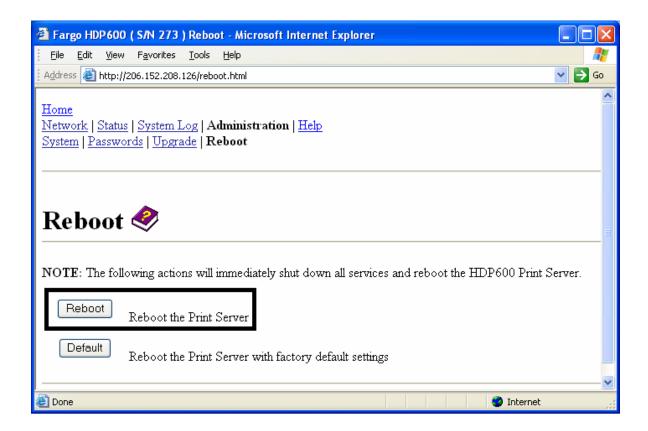
Using the Reboot pages

Rebooting the DTC400 and HDP600 restarts only the Ethernet Print Server.

Rebooting the Ethernet Server
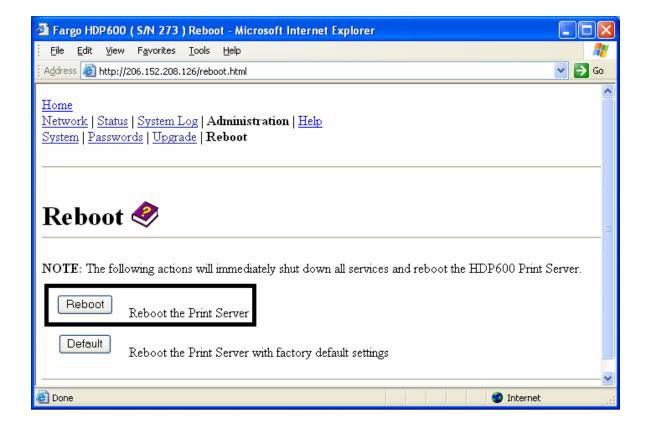
The Reboot page allows the User to restart the Ethernet Print Server.

Step	Procedure
1	Select the **Administration** link.
2	Log in as a root User (using the old password) if you are so prompted. (**Note:** Any change of setting will only be accepted after you have successfully logged in.)
3	Select the **Reboot** link.
4	Select the **Reboot** button.

Rebooting the Ethernet Server (continued)

Step	Procedure
5	Click **Yes** when prompted.
6	Wait for the Printer to reboot and display the home page.
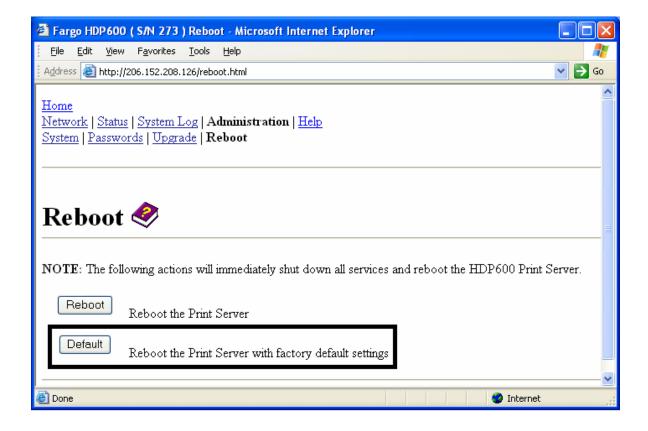
Resetting to Default Settings

The Reboot page also allows the User to reboot the Ethernet Print Server into a default settings mode. (**Note:** This simply restarts the Printer in a different state with the settings in memory temporarily ignored.)

When the **Default** button is selected, the stored settings in the Printer's memory are not changed.
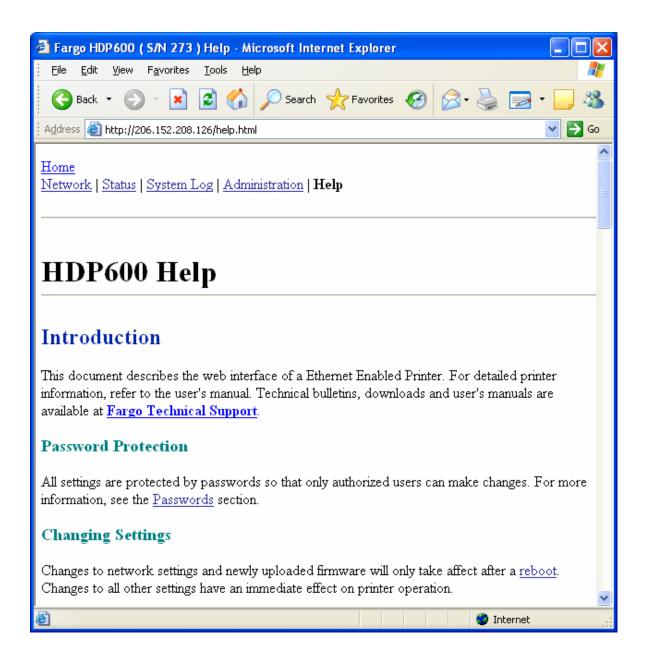
Step	Procedure
1	Select the **Administration** link.
2	Log in as a root User (using the old password) if you are so prompted. (**Note:** Any change of setting will only be accepted after you have successfully logged in.)
3	Select the **Reboot** link.
4	Select the **Default** button.
5	Click the **Yes** button when prompted.
6	Wait for the Printer to reboot and display the home page.

Using the Help page

The Help page displays the **Help** information.

Step	Procedure
1	Open this web page at the appropriate location by clicking on the Help book icon at the top of each page. See below.
2	Review the web interface for the Ethernet-enabled Printer.

Additional Procedures

Reviewing LED and Dipswitch Tables

The LEDs and dipswitches can be found on the back of Printers.

Reviewing the LED Table

LED	HDP600 position	Flash Rate	Indicates
STAT LED	Right	On once per second (i.e., more **OFF** than **ON**)	The Normal Mode, IP address is configured.
		On twice per second	The IP address is not configured.
		Off once per second (i.e., more **ON** than **OFF**)	The Download mode is for updating the Ethernet interface.
		Off twice per second	There is a system error.
NET LED	Left	On	The Network link is present.
		Off	The Network link is not present.
		Blinking, off 1/3 second	The Network link is present and transmitting. It flashes off for one-third (1/3) second each time a packet is transmitted.

Reviewing the Dip Switches

For the DTC400, **ON** means a Dipswitch is down and **OFF** means a Dipswitch is up. For the HDP600, **ON** means a Dipswitch is to the left and **OFF** means a Dipswitch is to the right.

Dipswitch		Comments
1	2	
OFF	OFF	Allows **Normal** operation.
ON	OFF	Forces **Factory default** settings. With the dip switches in this configuration, the unit will start up. All settings stored in permanent memory will be erased except for the Ethernet address and key value. This is useful to reset the passwords and User names when required, such as, reinstalling a Printer with an unknown configuration.
OFF	ON	Forces **Default IP (0.0.0.0)**. With the dip switches in this configuration, the unit will use the factory default settings. However, the stored settings in Printer's permanent memory are not changed. This simply starts the print in a different state with the settings in memory temporarily ignored.
ON	ON	Forces the **Download** mode. If the unit is reset and detects link integrity from a hub, the download mode is initiated so that the Firmware of the Printer Server may be upgraded.

Restoring the Factory Settings for Ethernet

There may be times when you are unable to use the current configuration of the Ethernet interface. (**Note:** This could be because you have lost the password for your Printer or you just cannot get it to work properly.)

- **Restore default settings:** The Printer has switches on the back which will restore the factory default settings to the Printer.

- **Dipswitch indicators:** For the DTC400, **ON** means a Dipswitch is down and **OFF** means a Dipswitch is up. For the HDP600, **ON** means a Dipswitch is to the left and **OFF** means a Dipswitch is to the right.

- **Lost Password or Printer Problems:** There may be times when you are unable to use the current configuration of the Ethernet interface. (**Note:** This could be because you have lost the password for your Printer or you just cannot get it to work properly.)

Enter this mode by following this procedure.

Step	Procedure
1	Remove power from the Printer.
2	a. Place the switch furthest from the LEDs in the **ON** position (Dipswitch 1 **ON**). b. Place the switch closest to the LEDs in the **OFF** position (Dipswitch 2 **OFF**).
3	Reconnect power to the Printer.
4	After 30 seconds, remove power, restore both switches to their normal positions (which is **OFF**) and then restore power.

Restoring the Default Settings

The DTC400 and HDP600 have switches on the back which will restore the factory default settings to the Printer.

- **Dipswitch indicators:** For the DTC400, **ON** means a Dipswitch is down and **OFF** means a Dipswitch is up. For the HDP600, **ON** means a Dipswitch is to the left and **OFF** means a Dipswitch is to the right.

To enter this mode on the DTC400 and HDP600, follow the next procedure.

Accessing the IP address of your Printer

The additional LCD menus for Ethernet-enabled Printers are provided to view the IP address of the Printer. Follow these procedures to access the IP Address of your Printer model.

Accessing the HDP600 IP address

Step	Procedure
1	Apply power to the Printer.
2	Ensure that the Printer is connected to your network.
3	Wait up to one (1) minute to allow the Printer to configure the IP address.
4	Select **MENU** on the LCD.
5	Select **System Info** on the LCD.
6	View the IP address displayed as a dotted quad number. **Example:** 168.192.1.1
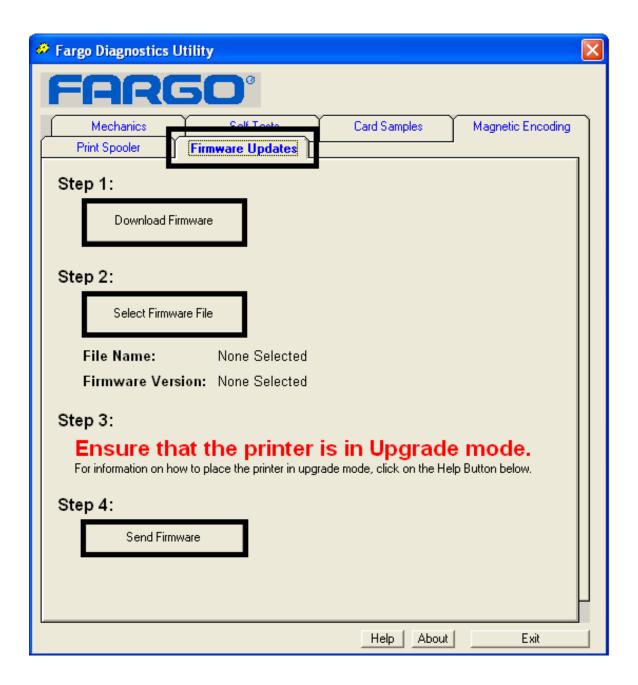
Upgrading the Main Firmware with the Fargo Diagnostics Utility

The Printer Server Firmware upgrades for the DTC400/HDP600 are done from the Upgrade web page for the Printer. See the Upgrade web page description.

The Main Printer Firmware upgrades are done with the same procedure as the USB-connected Printer. (**Note:** The PC doing the upgrade must have a Driver installed for the Fargo Printer to be upgraded.)

Step	Procedure
1	Run the Fargo Diagnostic Utility by selecting from the start menu the following: **Start -> Programs -> Fargo -> Fargo Diagnostic Utility**
2	Select the Fargo Printer to upgrade from the drop-down box.
3	Go to the Firmware Updates tab.
4	If you need to download the update file from the Internet, then select the **Download Firmware** button.
5	Choose the update file with the **Select Firmware** button.
6	Put your Printer into the upgrade mode. Refer to the appropriate service manual for your specific Fargo Card Printer.
7	Select the **Send Firmware** button.

Upgrading the Main Firmware with the Fargo Diagnostics Utility (continued)

Ethernet Printer Troubleshooting Procedures

Troubleshooting procedures

If you are having trouble connecting to your Ethernet Printer or printing to it, you should go through each of the following procedures.

Step	Procedure
1	Follow the <u>Verifying the Printer Connection</u> procedure.
2	Follow the <u>Verifying the Printer IP address</u> procedure.
3	Follow the <u>Verifying that your PC can access the Printer using the ping command</u> procedure.
4	Verify that you are choosing the correct Printer Driver. (**Note:** The Driver must match the model of the Printer.)
5	Verify that the port configuration of the PC Printer Driver is set to communicate to the Printer over the correct IP address. See <u>Frequently-asked Questions</u>.
6	Follow the <u>Printing a test page</u> procedure.

Verifying the Printer Connection

Step	Procedure
1	Ensure that your Printer has a valid network connection.
3	Verify that the Printer has both LEDs blinking on and off with network activity.
3	If the LEDs do not indicate connection, verify the network connection with another device.
4	If the connection is OK, then something may be wrong with the Ethernet option installation. See the Ethernet Setup and Printer Driver Installation procedure.

Verifying the Printer IP address

Step	Procedure
1	Check the LCD for a valid IP address (0.0.0.0 in not valid). • If the IP address is valid, go to step 4 (below). • If the IP address is not valid, go to step 2 (below).
2	If your network is using DHCP, then: • Use Fargo IP-Tracer to verify that the Printer has not been configured to use a static address. (**Note:** This guideline applies unless you have a known, unused static IP address assigned to this Printer.)
3	If you are using a static IP address, then: • Verify that there is no other device using the same address by removing your Fargo Printer and ping to the desired address. If any device responds, then you must find a different available IP address.
4	If the Printer reports an IP address, then: • Verify that it matches subnet of the network where it is connected. If your Printer has DHPC disabled, then: • The static IP address may have been previously set for a different subnet.

Verifying that your PC can access the Printer using the ping command

Step	Procedure
1	Follow these instructions to issue a ping command to the Printer:
	At a DOS prompt, enter **ping [IP Address]**
	Example: C:\>ping 210.1.10.240
	• If the ping response is successful, move on to the next troubleshooting procedure. See Display A below.
	• If the ping response is not successful, continue to step 2 of this procedure. See Display B below.

Display A - Example of sending a ping to the Printer with a successful response

```
C:\>ping 10.1.210.240

Pinging 10.1.210.240 with 32 bytes of data:

Reply from 10.1.210.240: bytes=32 time<1ms TTL=30
Reply from 10.1.210.240: bytes=32 time<1ms TTL=30
Reply from 10.1.210.240: bytes=32 time<1ms TTL=30
Reply from 10.1.210.240: bytes=32 time<1ms TTL=30

Ping statistics for 10.1.210.240:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>_
```

Display B - Example of ping timeout to an invalid IP address

```
C:\>ping 10.1.210.241

Pinging 10.1.210.241 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 10.1.210.241:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>_
```

Verifying that your PC can access the Printer using the ping command (continued)

Step	Procedure
2	Verify that the PC and the Printer are connected to the same network.
3	You may be on different subnets of your network and some of the network settings for the Printer are not correct. See your network administrator about this. (**Note:** The subnet mask must be the same as other devices on the network and that the unique IP address is part of the network specified by the subnet mask.)

Printing a test page

Step	Procedure
1	Try printing a test page from the Printer Driver properties window. a. Open the Printer Driver properties window. b. Select Start -> Settings -> Printers and Faxes -> [your Printer Driver name (i.e., DTC400 Card Printer)] -> Properties. c. Ensure that the printing preferences are set correctly for the Ribbon installed in your Printer. d. Then select the **Print Test page** button. See the next section.
2	If you cannot print a test page, then consider the following: • There may be an error at the Printer. • There may be a job in the Windows print queue which has stalled. • The Printer may be paused or set to operate offline in the Windows print queue.

Reviewing Frequently-asked Questions

Question	Answer
How do I know if my Printer has the Ethernet option installed?	If your Printer has the RJ45 connector installed on the back of the Printer, then it has this Ethernet option installed.
Can my non-Ethernet-enabled Printer be upgraded to have an Ethernet interface?	No.
What PC operating systems work with my Ethernet Printer?	The Windows 2000/ XP / Server 2003 operating systems work with your Ethernet Printer.
How do I connect my Printer to my network?	You can connect from the RJ45 network connection on the back of your Printer to an available connection on your network (not directly to your PC). You can use a good CAT-5 or better cable to make this connection.
How can I find the MAC address of my Ethernet Printer?	If you know the IP address of your Printer, you can access this through the home web page of the Print Server. See Reviewing the Reviewing the HDP600 Home Page. **OR** If you do not know the IP address or the Printer does not work with a usable IP address, then the MAC Address can be found using the tool Fargo IP-Tracer. (**Note:** This can be installed and used to locate all the Fargo-compatible Printers on your network.)

Reviewing Frequently-asked Questions (continued)

Question	Answer
How can I find the IP address of my Ethernet Printer?	You can find it in the LCD of the Printer if the Ethernet option is functioning properly. See Accessing the IP address of your Printer.
Can I print from my PC to multiple Ethernet Printers?	Yes. Follow this procedure: 1. You can install multiple Printer Drivers by using the add Printer wizard. 2. Run the Fargo Add Printer Wizard program by choosing in from the Start menu: Go to the start -> Programs-> Fargo -> Fargo Add Printer Wizard. 3. Select **Next** on the first window. 4. On the second window, specify the type of Fargo Printer you want and ask for a network connected Printer. Select **Next**. 5. Enter the IP address of your new Printer connection. Select **Next**. 6. Select **Finish**.
Can multiple PC's print to my Ethernet Printer?	Yes. Each PC must install the Printer Driver software for the specific Fargo Ethernet-enabled Printer and connect to the intended Printer, using the correct IP address.
Can I print from my PC to an Ethernet Printer on a different network segment?	Yes. If you know the IP address of the Printer on any segment of your network, you will be able to print to it.

Reviewing Frequently-asked Questions (continued)

Question	Answer
Can I use Fargo IP-Tracer to locate Printers on a different network segment?	No. The IP-Tracer can only locate Fargo-compatible Printers located in the same network segment (as the PC running IP-Tracer).
How do I upgrade the Printer Firmware in my Ethernet-enabled Printer?	This is done in the same manner as a USB-connected Printer. The PC doing the upgrade must have a Driver installed for the Fargo Printer to be upgraded. Follow this procedure. 1. Run the Fargo Diagnostic Utility from the start menu: Go to the Start -> Programs -> Fargo -> Fargo Diagnostic Utility. 2. Select the Fargo Printer to upgrade from the drop-down box. 3. Go to the Firmware Updates tab. 4. If you need to download the update file from the Internet, select the **Download Firmware** button. 5. Choose the update file with the **Select Firmware** button. 6. Put your Printer into the upgrade mode. See the instructions for your specific Fargo Printer. 7. Select the **Send Firmware** button.
How do I upgrade the Print Server Firmware for my Printer?	See Upgrading the Print Server.
What is the default User name and password for the Printer?	The default passwords are blank (i.e., an empty string). • The default Users are as follows: **root** as the administrative User and **guest** as a non-administrative User. • The Printer supports four (4) Users.

Reviewing Frequently-asked Questions (continued)

Question	Answer
What if I lose the password for my Printer or it is not accepted?	See <u>Reviewing the Dip Switches</u>. Factory default settings will be restored to the Printer if power is applied to the Printer with Dipswitch 1 in the **ON** position and Dipswitch 2 in the **OFF** position. (**Note:** This will reset all Print Server settings, which includes static network settings, user configurations and user passwords.)
What should I do if the IP address of my Printer is being changed by my network?	Follow this procedure: 1. Contact your network administrator. Ask that your current IP address be reserved or ask that they provide a specific IP address that you can use to configure the Ethernet interface. **OR** 2. Choose an IP address that you know will not be used by any other PC, server or network device. Use those settings to configure your Printer with static network settings. (**Caution:** Do not do this unless you know that these settings will always be available.)
How do I reconfigure my PC Printer Driver to connect to a different Printer or different IP address?	Follow this procedure. 1. Run the Fargo Add Printer Wizard program by choosing from the Start menu the following: Start -> Programs -> Fargo -> Fargo Add Printer Wizard 2. Select **Next** on the first window. 3. On the second window, specify the type of Printer you want and ask for a network connected Printer. Select **Next**. 4. Enter the IP address of your new Printer connection. Select **Next**. 5. Select **Finish**.

Reviewing Frequently-asked Questions (continued)

Question	Answer
How can I verify/change what IP address my installed Printer Driver is expecting to find my Printer?	Follow this procedure. 1. Open the Printer Driver properties window. 2. Select Start -> Settings -> Printers and Faxes -> [your Printer Driver] -> Properties. 3. From the Ports tab, select **Configure Port**.The Host name will indicate IP address of the connected Printer. (**Note:** If this does not match your Printer's IP address, you can change it from this window.) 4. Enter the correct IP address. 5. Select **OK**. 6. Select **Apply**. 7. Select **Close**. 8. Specify the new IP address. 9. Select: **Next**, **Next**, **Finish** and **Close**. 10. Select **Apply**. 11. Select **Close**.
How do I configure my Printer's IP settings?	By default, the Printer is configured for dynamic IP address assignment. That is, it will try to get its IP address and other settings from your network. If it is given valid network settings, it will use them. **OR** You can choose to configure the Printer, using a static IP address and network settings. (**Note:** This can be entered using the Network web page of the Printer or the Fargo IP Tracer program.) See Configuring the Network Settings.

Reviewing Frequently-asked Questions (continued)

Question	Answer
How do I choose a static IP address for my Ethernet Printer?	You can use the web pages if you know the current IP address. See the Accessing the Home pages. **OR** You can use Fargo IP-Tracer which allows you to find Fargo-compatible Printers and specify their addresses. (**Note:** You can save static addresses. However, they are not used until you reconfigure the Printer to use those static addresses and reboot the Printer.)
How do I set the Printer to work with a static IP address?	You can use the web pages if you know the current IP address. • Select the **Use the following IP address** button on the Network web page. **OR** • Use Fargo IP-Tracer, which allows you to find Fargo compatible Printers and specify their addresses.
What do the LEDs by the Ethernet connection on the back of the Printer indicate?	The LEDs indicates network activity. See Reviewing the LED Table.
How do I print a test page from Windows to verify the Ethernet configuration of the Printer and Printer Driver?	Follow this procedure. 1. Open the Printer Driver properties window. 2. Select Start -> Settings -> Printers and Faxes -> [your Printer Driver name (i.e., DTC400 Card Printer)] -> Properties. 3. Ensure that the printing preferences are set correctly for the Ribbon installed in your Printer. Then select the **Print Test page** button.

Glossary of Terms

Term	Purpose
MAC (Media Access Control)	The unique numeric value address associated with a network device that gives the device a unique identity. This address is assigned by the device manufacturer to ensure its uniqueness.
TCP (Transmission Control Protocol)	The Network protocol that allows reliable network communications between devices.
IP (Internet Protocol)	The Network protocol that identifies devices and messages by addresses so that communications can occur between devices on different local networks.
TCP/IP	Network communications using TCP and IP protocols.
ICMP (Internet Control Message Protocol)	The Basic message protocol for the internet.
DHCP (Dynamic Host Configuration Protocol)	The protocol used by a network to automatically assign network settings to connected devices so that they will work together.
DNS (Domain Name System)	Defines the Network protocol that allows devices to find IP addresses from a network name server.
DNS Server Address	This is the address of the server that provides the translation from a descriptive name to an IP address.
DNS Domain Suffix	This is the suffix to be added to the domain name make a complete name.

Glossary of Terms (continued)

Term	Purpose
SNMP (Simple Network Management Protocol)	This is protocol for the network management services. This protocol provides a means for network compliant devices, called agents, to store data about themselves in Management Information Bases (MIBs) and return this data to the SNMP requesters.
MIB (Management Information Base)	A formal description of the way an agent can be accessed using SNMP and the functions that can be managed.
Network Settings	The basic network parameters needed to configure the network interface. (**Note:** These include the IP Address, the Subnet Mask, the Default Gateway, the DNS Server Address and the DNS Domain Suffix.)
IP addresses	Specifies the current IP addresses that are 32-bit values that are normally expresses in dotted-quad format. (**Note:** This address must not be the same as another device on the same local network.)
Subnet mask	Specifies a 32-bit value that routers use to send a message to the correct subnet.
Default gateway	Specifies the address of the router (in a network using subnets) that forwards traffic to a destination outside of the subnet of the transmitting device.
Telnet	This is a common terminal emulation program that allows a User to send commands to a TCP/IP connected device and receive the responses.
UDP (User Datagram Protocol)	Defines a protocol for sending and receiving messages on a network.
Syslog	The standard method for logging system events.
Root User	A User with administrative rights to change any Printer settings.
Guest User	A User without rights to change Printer settings.
Ping	A common utility or command that sends a message to network devices asking for a return message. (**Note:** This is used to diagnose if the device is on the network or to troubleshoot the connection.)

Section 6: Card Lamination Module

Important: The procedures in this section apply for the HDP600-LC and HDP600-LC CR100 Card Printers.

The purpose of this section is to provide the User with specific information on Printer adjustment procedures.

Reviewing the Card Lamination Module

Safety Messages (review carefully)

Symbol	Critical Instructions for Safety purposes
Danger:	**Failure to follow these installation guidelines can result in death or serious injury.** Information that raises potential safety issues is indicated by a warning symbol (as shown to the left). • **To prevent personal injury**, refer to the following safety messages before performing an operation preceded by this symbol. • **To prevent personal injury**, always remove the power cord prior to performing repair procedures, unless otherwise specified. • **To prevent personal injury**, make sure only qualified personnel perform these procedures.
Caution:	**This device is electrostatically sensitive**. **It may be damaged if exposed to static electricity discharges.** Information that raises potential electrostatic safety issues is indicated by a warning symbol (as shown to the left). • **To prevent equipment or media damage**, refer to the following safety messages before performing an operation preceded by this symbol. • **To prevent equipment or media damage**, observe all established Electrostatic Discharge (ESD) procedures while handling cables in or near the Circuit Board and Printhead Assemblies. • **To prevent equipment or media damage**, always wear an appropriate personal grounding device (e.g., a high quality wrist strap grounded to avoid potential damage). • **To prevent equipment or media damage**, always remove the Ribbon and Cards from the Printer before making any repairs, unless otherwise specified. • **To prevent equipment or media damage**, take jewelry off of fingers and hands, as well as thoroughly clean hands to remove oil and debris before working on the Printer.

Opening the Card Lamination Module

Step	Procedure
1	Open the Top Cover of the Lamination Module by lifting up on its bottom edge and tilting it back into its fully open position. (**Note:** The Top Cover is designed to hold its last position to prevent it from falling shut.)

Opening the Card Lamination Module (continued)

Step	Procedure
2	Open the **Lamination Station** by lifting up on the blue Securing Latches. Pull the Lamination Station up and back into its fully upright position. Note the Lamination Station is also designed to hold its last position to prevent it from falling shut.
3	To close the Lamination Station, push the Lamination Station down until its blue Securing Latches close securely. (**Note:** The Lamination Station must be closed securely in order for your Printer to operate. It is also recommended that the Top Cover be closed whenever laminating for reliability and safety reasons.)

Adjusting the Card Lamination Module

The HDP600 supports the attachment of an optional Card Lamination Module. This Module can be ordered pre-installed on the Printer from the factory or can be ordered separately as a field upgradeable Module. Once attached, the Card Lamination Module allows you to apply Fargo certified overlaminates for more secure, tamper-resistant cards. This section explains all aspects of the Card Lamination Module's operation and the overlaminate materials available.

IMPORTANT! Fargo Card Printers require highly specialized Print Ribbons to function properly. To maximize Printer life, reliability, printed card quality and durability, you must use only Fargo Certified Supplies. For this reason, your Fargo warranty is void, where not prohibited by law, if you use non-Fargo Certified Supplies. To order additional materials, please contact your authorized reseller.

Adjusting the Card Flattener

The Card Lamination Module provides an adjustable Card Flattener that allows you to fine-tune the flatness of laminated cards. This flattener works by reverse bending cards as they eject from the Laminator while they are still warm.

In most cases, card warpage is only a concern when laminating on a single side of card stock which has a PVC-based core rather than a polyester-based core. Cards with a PVC-based core are not as heat resistant and are not recommended for use when laminating

By default, the Card Flattener is configured at the factory to accommodate UltraCard III type card stock. (**Note:** If you are experiencing an unacceptable amount of card warpage, please refer to the following to adjust the Card Flattener.)

Step	Procedure
1	Open the Card Lamination Module.
2	Remove the overlaminate material if installed.
3	If laminated cards are bowing upward, turn the Card Flattener Adjustment Lever clockwise. (**Note:** This pushes the flattener Roller down to increase the reverse bending pressure. For best results, turn the knob one full rotation, then print and laminate a test card. Repeat this process as necessary.)
4	If the card is bowing downward, the reverse bending pressure may be too great. In this case, rotate the adjustment knob counter-clockwise. (**Note:** Some card types have very low heat resistance and may not be acceptable for laminating.)

Section 7: Printer Adjustments

Important: The HDP600 CR100/HDP600-LC CR100 Printers have their own Printer Driver. However, the majority of the procedures in this section apply for all HDP600 Printers. Please see the Card tab section for different functionality between the two Printers.

The purpose of this section is to provide the User with specific information on Printer adjustment procedures.

Safety Messages (review carefully)

Symbol	Critical Instructions for Safety purposes
Danger:	**Failure to follow these installation guidelines can result in death or serious injury.** Information that raises potential safety issues is indicated by a warning symbol (as shown to the left). **To prevent personal injury**, refer to the following safety messages before performing an operation preceded by this symbol. **To prevent personal injury**, always remove the power cord prior to performing repair procedures, unless otherwise specified. **To prevent personal injury**, make sure only qualified personnel perform these procedures.
Caution:	**This device is electrostatically sensitive**. **It may be damaged if exposed to static electricity discharges.** Information that raises potential electrostatic safety issues is indicated by a warning symbol (as shown to the left). **To prevent equipment or media damage**, refer to the following safety messages before performing an operation preceded by this symbol. **To prevent equipment or media damage**, observe all established Electrostatic Discharge (ESD) procedures while handling cables in or near the Circuit Board and Printhead Assemblies. **To prevent equipment or media damage**, always wear an appropriate personal grounding device (e.g., a high quality wrist strap grounded to avoid potential damage). **To prevent equipment or media damage**, always remove the Ribbon and Cards from the Printer before making any repairs, unless otherwise specified. **To prevent equipment or media damage**, take jewelry off of fingers and hands, as well as thoroughly clean hands to remove oil and debris before working on the Printer.

IMPORTANT! Fargo Card Printers require highly specialized Print Ribbons to function properly. To maximize Printer life, reliability, printed card quality and durability, you must use only Fargo Certified Supplies. For this reason, your Fargo warranty is void, where not prohibited by law, if you use non-Fargo Certified Supplies. To order additional materials, please contact your authorized reseller.

Adjusting the Card Size

The Printer is configured to feed and print standard CR-80 sized cards; unless it is the CR100 Printer, in which case it prints the CR100 card size. (**Note:** When loading cards which vary from the standard 30 mil thickness, it is necessary to make simple adjustments to the Printer.)

- **Wider Cards:** HDP600 does not accommodate wider loads. Please consult with your Fargo sales representative if you have wider card needs.

- **Thicker or Thinner Cards:** If loading thicker or thinner cards into the Printer, adjust the Card Thickness Adjustment Lever.

Adjusting the Card Thickness Adjustment Lever

When loading thicker or thinner cards, it is important that the Card Thickness Adjustment Lever be set accordingly to ensure the Printer feeds only one card at a time. (**Note:** If the Printer is equipped with the Card Lamination Module, only cards with a thickness ranging from 30 mil to 40 mil can be laminated. Thicker cards will, however, be allowed to pass through the Lamination Module if you choose to print-only.)

Step	Procedure
1	Open the Printer's Card Access Door and locate the Card Thickness Adjustment Lever.
2	Press the blue lock and raise or lower the Lever to the setting that matches the thickness of the cards. (**Note:** If you do not find a setting for the exact card thickness, set the adjustment knob to the setting closest to the thickness of the cards.) The adjustment level controls the position of the Printer's internal Card Separator, which is designed to accommodate a range of card thicknesses surrounding the given card thickness settings.

Printing on Alternate Card stocks

Selecting the Right Cards and optimize the HDP Print Process

In order to optimize the HDP Card Printer's capabilities for cards with hard-to-print surfaces, we recommend evaluating the card stock selection before installation of the Printer.

The variability in cards based on:

- **Different surface textures and different sources of raw materials:** This may require different HDP Film transfer parameters.

- **Varied methods of assembling IC smart cards and proximity cards:** These particular adhesives used to glue a smart chip to a plastic card may react differently to a Lamination Roller's pressure and temperature.

- **Cleanliness of card stock:** The HDP process does not eliminate the need to use clean card stock. The best-looking card always starts with the cleanest card surface. Dirt and debris on a card can show up as blemishes on the card surface and may reduce the life of the image itself.

Selecting the Appropriate HDP Printer Driver settings

Fargo offers two types of PVC cards: glossy UltraCard III™ cards and matte-finished HDP-PVC Cards.

- **Defaults:** The HDP Printer Driver software has default Transfer Temperature and Dwell Time settings that deliver the best transfer for these card types. These defaults automatically configure based on the card type, Ribbon type and whether printing single- or dual-sided.

- **Card Type Selection:** Before printing, if using these standard Fargo card types, check to make sure that the appropriate card type option selected from the Card tab of the HDP Printer Driver:

- **Proper Settings:** It is very important to note that not all card types will be accommodated by these default settings. In some cases, experimentation may be needed to find the proper settings.

For the cases where custom settings are required, the Printer Driver's Card Type option also includes **Custom 1** and **Custom 2** options.

- **Settings:** These settings allow designating a unique Card Type name, which then saves custom Image Transfer settings.

- **Custom 1:** For example, Custom 1 could be changed to read as My Cards. Custom transfer settings would then be available whenever this Card Type option is selected and would be saved each time the Printer Driver setup window is closed.

- **Custom Card stock:** To determine the proper settings for custom card stock, Fargo recommends the Tape adhesion Test.

Card/Ribbon Type	Transfer Temp	Transfer Time
UltraCard IIIs-Glossy PVC + non-H Panel Ribbon	190º	2 seconds/inch
HDP Cards-Matte PVC + non-H Panel Ribbon	195º	2 seconds/inch
UltraCard IIIs-Glossy PVC + H Panel Ribbon [2]	190º	2 seconds/inch
HDP Cards-Matte PVC + H Panel Ribbon [2]	190º	2 seconds/inch

[1]   YMCKH Panel Ribbon provides a Heat Seal Panel that aids in transferring to matte-finished cards and requires a lower transfer temperature. (**Note:** Only matte-finished cards with a surface roughness (Ra) of 60 micro inches or less are recommended.)

Conducting the Tape adhesion Test

It is important to conduct Tape adhesion tests because Fargo cannot be certain which transfer temperature and Dwell Time will work best (when printing cards other than UltraCard III or HDP-PVC). (**Note:** The optimal transfer settings may vary from card type to card type.)

⚠ **Caution:** Inadequate time and temperature could produce cards that are more vulnerable to accelerated wear and dye migration. Use sufficient time and temperature to transfer HDP Film to the card to ensure a long lasting, durable card.

Step	Procedure
1	Test the adhesion quality of the HDP Film to the card by printing sample cards and completing an adhesive tape test. (**Note:** The Institute for Interconnecting and Packaging Electronic Circuits (IPC) outlines a pressure sensitive tape test that evaluates adhesion quality. Refer to their IPC-TM-650-3.7.1D test Guide, Section 3.7, Number 1.)
2	Select the UltraCard IIIs-Glossy PVC if the card is glossy and print a test card. **OR** Select the HDP Cards-Matte PVC if the card has a buff, matte finish and print a test card.
3	a. Apply a strip of ½ (12mm) wide Scotch-type clear adhesive tape (such as 3M brand 600), at least 2 (50mm) long, firmly across the surface of the card, pressing out all air bubbles with a fingertip. b. Remove the tape by smoothly and rapidly (approximately 2 inches/second (50mm/sec)) pulling it up at a perpendicular (90 degree) angle to the card. (**Note:** The IPC recommends a minimum of three tests for each card type evaluation.)

Conducting the Tape adhesion Test (continued)

1

FAIL:
Significant
transfer to tape

2

PASS:
Very slight
transfer to tape

3

PASS:
Absolutely NO
transfer to tape

Conducting the Tape adhesion Test (continued)

Step	Procedure
4	Visually examine the card and the strip of tape pulled from the card, to see if any portion of the HDP Film was removed from the card. • If any residue (e.g., oil or grease from fingertips) is present on the card surface, the evaluation results may be affected. • If the printed, transferred HDP Film particles (a) pull away from the card and (b) adhere to the tape, this indicates that inadequate adhesion of the HDP Film to the card. Increased heat and Dwell Times are necessary to resolve this problem. Samples 1, 2 and 3 show a representation of the adhesion level you can expect. • **Result 1:** Sample 1 shows a significant transfer to the tape and is an absolute failure. • **Result 2:** Sample 2 shows that <u>very slight</u> transfer to the tape can be acceptable without sacrificing overall image durability on matte finish cards. • **Result 3:** Sample 3 shows no transfer to the Tape and is an Absolute Pass.
5	If the tape test indicates inadequate adhesion, increase the heat setting by 5 degrees, print another card and try the tape test again. • Once the temperature has been increased 4 times (20 degrees), reset temperature to default and increase the Dwell Time by .5 second. • Repeat this process until adequate adhesion is achieved. • Use the YMCKH Ribbon if printing to a matte-surfaced card. (**Note:** This Ribbon provides a Heat Seal Panel that allows for improved adhesion to non-glossy PVC surfaces.) • Ensure that the cards (in use) have a surface roughness (Ra) of 60 micro inches or less. This information should be available from the card manufacturer.

Printer Driver Options

Installing Printer Driver Updates

Occasionally, new Printer Driver versions are released which have new or updated features. Before installing an updated Printer Driver version, always delete the existing Printer Driver version from the system. To do this, select Start, Programs and point to the Fargo folder. Then, select the **Uninstall Printer Driver** icon for the specific Printer model as shown here.

Step	Procedure
1	Once the existing Printer Driver is deleted, the updated version can be installed. The best way to get Printer Driver updates is to download them from the Fargo website.
2	a. To download the latest Printer Driver version, click on the Printer Driver's highlighted .exe file name on the web site. You will then be prompted to Save this program to disk. Fargo's downloadable Printer Driver files have names ending in .exe and are self-extracting Zip archives. (**Note:** A Zip archive is a package, containing one or more files, that has been zipped to make it smaller and provide easy downloading of numerous files simultaneously. An archive that is self-extracting is capable of unzipping itself.) b. Click **OK**, then choose the folder in which you would like to save the Printer Driver file. (**Note:** You may want to save it in an empty folder to prevent mingling its files with others already on the computer.) c. Once the file has completely downloaded to the computer, unzip the contents of the file by simply double-clicking on it. (**Note:** The archive will unzip itself, revealing its contents as a new list of files within the folder.)
3	To install, click the **Start** button, point to **Settings** and select **Printers**.
4	Double-click on the **Add Printer** icon.
5	Follow the on-screen instructions to begin installation. See previous procedure on Printer Driver installation in Section 2. (**Note:** When prompted, click on the **Have Disk** button; the Install From Disk window will appear.)
6	Click on **Browse**, navigate to the folder containing the Printer Driver files you just downloaded and unzipped and click on **OK**. Click on **OK** again to close the Install From Disk window and then click on **NEXT**.
7	Follow the remainder of the on-screen instructions to complete installation. (**Note:** When prompted, do not have Windows print a test print, since you most likely performed a Printer self test while you were setting up the Printer. Once installed, the HDP Card Printer icon will appear in the Printers folder.)

Setting Up the Printer Driver
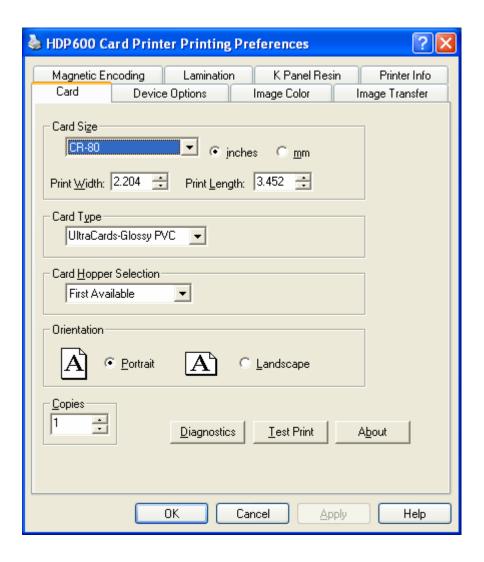
Once the appropriate Printer Driver for the computer has been installed, you will need to set the Driver up with the proper print options. To open the Printer Driver setup window, please refer to the following steps for the specific operating system:

Setting up Windows 2000/Windows XP

Step	Procedure
1	Click the **Start** button, point to **Settings** and select **Printers**.
2	Click on the **HDP600** icon with the right mouse button and select **Document Defaults...** if using Window NT or **Printing Preferences...** if using Windows 2000/XP. (**Note:** If you would like to permanently save the Printer Driver settings so you will not need to change them again, do so through the main Printer Driver setup window described above. Although most applications do allow you to change these same Printer Driver options from their own Print screens, the settings may not be permanently saved.)
3	To change or verify the appropriate Printer Driver options for the print job, please refer to the topics describing each of the Printer Driver's tabs.

Using the Card tab
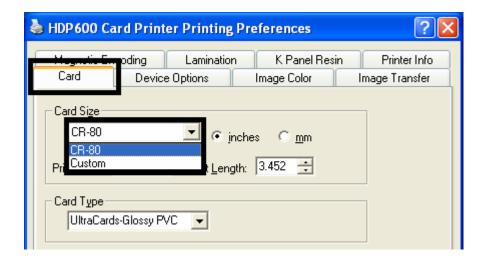
Using the Card tab (HDP600/HDP600-LC)

Use this option to control specific Printer functions.
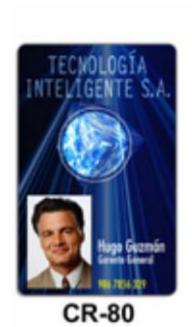
Selecting the Card Size (HDP600 and HDP600-LC)

Step	Procedure
1	Select the appropriate card option: • **CR-80:** This selection is the default form size for the HDP600. This will print a 2.125 X 3.374 image including a .04 over-bleed on each of the 4 sides making the overall form size 2.204 X 3.452 (56 X 87.7 mm). • **Custom:** This selection is used to create a custom form size from 1.0 x 3.0 to 2.204 to 3.452 (25.4 X 76.2 mm to 56 X 87.7 mm).

Selecting the Card Size (HDP600 and HDP600-LC) (continued)

See three previous procedures.
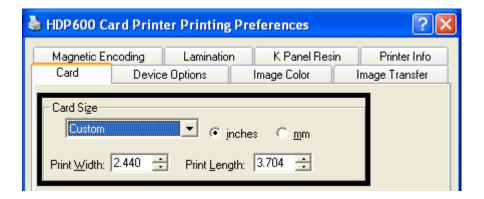
Selecting the Custom Card Size

Select the appropriate custom card size according to the dimensions of the card stock.

Step	Procedure
1	a. Select the **Custom** option and enter the dimensions of the card into the Print Width and Print Length boxes if using a card size that varies from the CR-80, CR-90 or CR-100. b. Add .04" (1mm) to each dimension to ensure Edge-to-Edge printing.
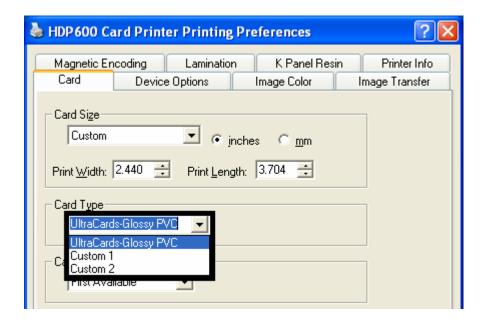
Using the Card tab (HDP600 CR100/HDP600-LC CR100)

Step	Procedure
1	Select the appropriate card size option from two (2) standard card sizes. • CR-100 **OR** • One (1) custom size is available. (**Note:** The dimensions of the total print area for each card size will appear in the Print Width and Print Length boxes. These print area dimensions are .04" (1mm) larger than the actual card size. This is so the Printer can overprint images to ensure they will appear Edge-to-Edge when transferred to the card. For this reason, when designing a card format, always set the card size or page size within the card design program to the exact Print Length and Width dimensions listed in the Printer Driver.) This Printer Driver will be provided at a future date.

Selecting the Card Type (all HDP600 Printers)
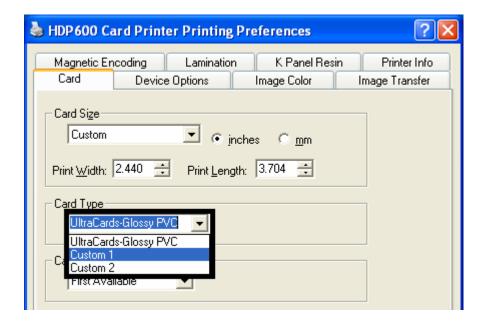
Select the appropriate card type according to the composition of the card stock.

Step	Procedure
1	Select **UltraCards-Glossy PVC** if using Fargo UltraCard III stock or any other similar card stock. Custom 1 and Custom 2 allows custom default Dwell Time and Transfer Temperature selections to be saved. These selections are found under the Image Transfer tab and have a direct effect the transfer of the Lamination material onto different card styles. ⚠ **Caution:** If the appropriate option is not selected, the wrong Dwell Time and temperature may be used during the image transfer process, which may result in poor adhesion of the HDP Film or warping of the card.)
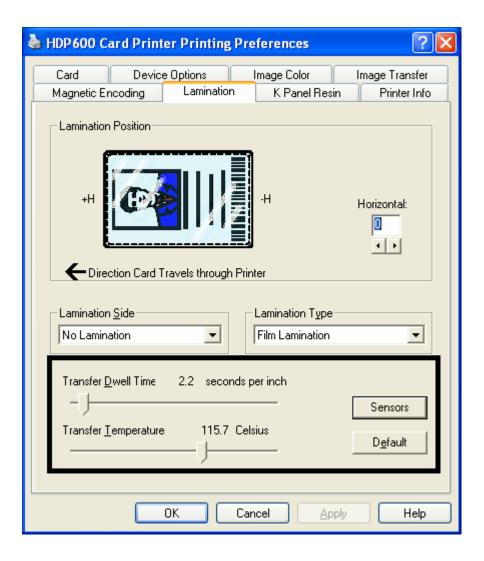
Selecting the Card Type (continued)

Step	Procedure
2	If using a card stock other than listed, use the **Custom 1** and **Custom 2** options to save custom Dwell Time and dwell temperature controls on the Image Transfer tab. a. Click on the **Custom 1** or **Custom 2** options and enter a name for the card stock. b. Click on the **Image Transfer** tab to adjust the Dwell Time and temperature sliders to the appropriate settings. (**Note:** These settings will be saved for the custom card type when the Printer Driver setup window is closed.)
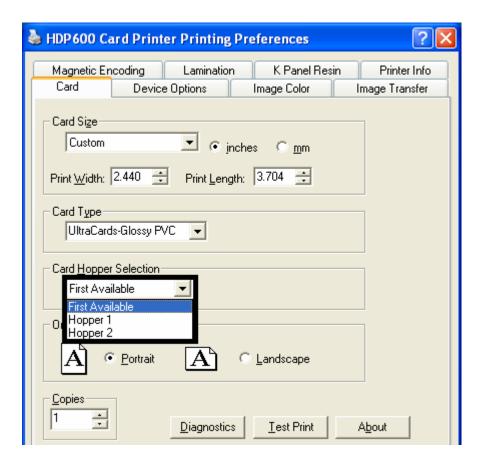
Selecting the Card Type

Selecting the Card Hopper (HDP600 and HDP600-LC only)
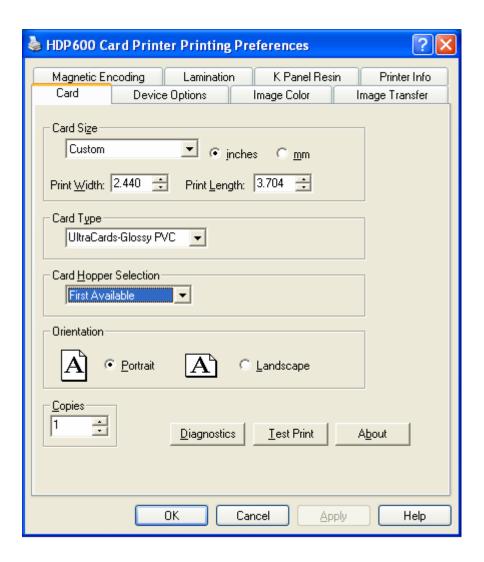
Selects the appropriate Card Hopper

Step	Procedure
1	a. Select **First Available** to print from the hopper currently selected as indicated on the Printer's LCD. Also select this option if you would like the Printer to automatically switch to the other hopper once the current hopper runs out of cards.
	b. Select **Hopper 1** to print only from Hopper 1. When this option is selected, the hopper will not automatically switch to the other hopper if you run out of cards in Hopper 1. Select **Hopper 2** to print only from Hopper 2 in this same fashion

Selecting the Card Hopper (HDP600 CR100 and HDP600-LC CR100 only)

There is only one (1) Input Hopper for one hundred (100) CR100 cards.
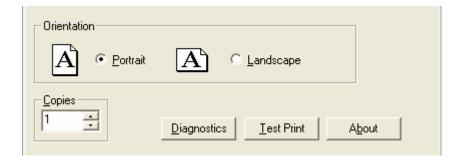
Setting the Orientation

Select either the **Portrait** or **Landscape** radio buttons for Orientation.

Step	Procedure
1	Select **Portrait** to cause the card to print in a vertical orientation.
	OR
	Select **Landscape** to cause the card to print in a horizontal orientation.
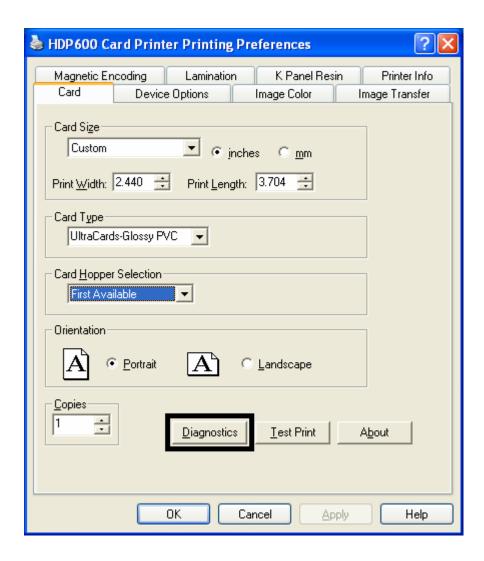
Specifying the number of Copies

Specifies the number of copies to be printed.
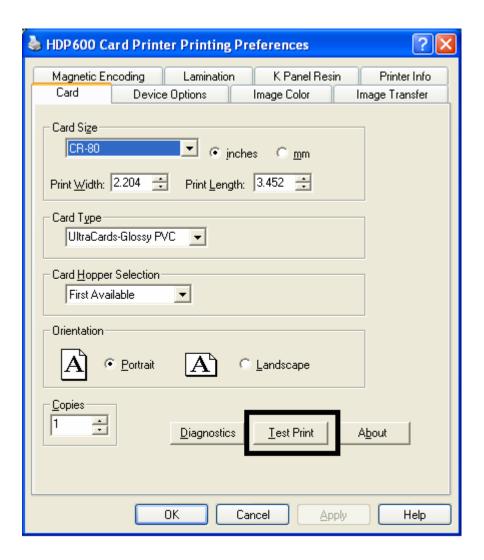
Selecting the Diagnostics button

This will launch the Diagnostic tool (if installed).
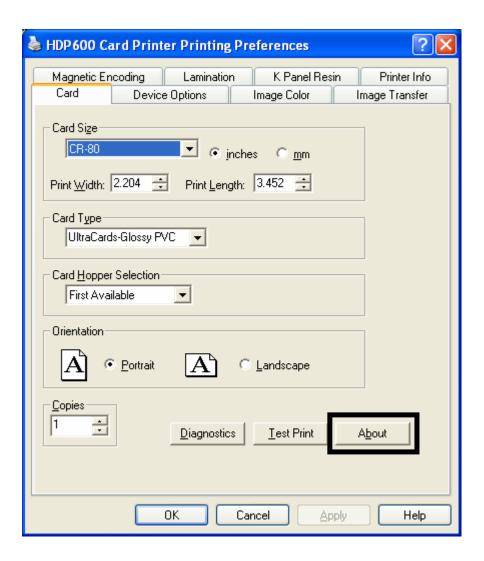
Selecting the Test Print button

When selected a file will be copied down to the Printer. This file will print a Full Color plus Resin print on the front side of the card and a Resin or black only image on the backside. This image is the same as what is supplied in the Printer's Supply Pack.
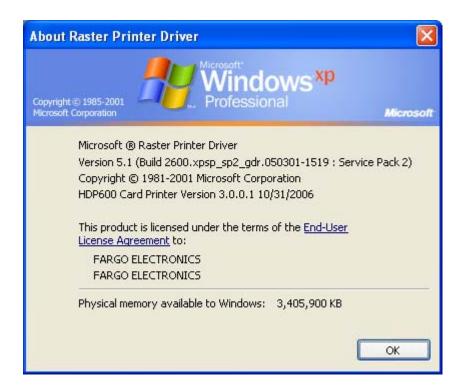
Selecting the About button

Select the **About** button to open a dialog box containing the copyright information as well as the driver's version number and date code.
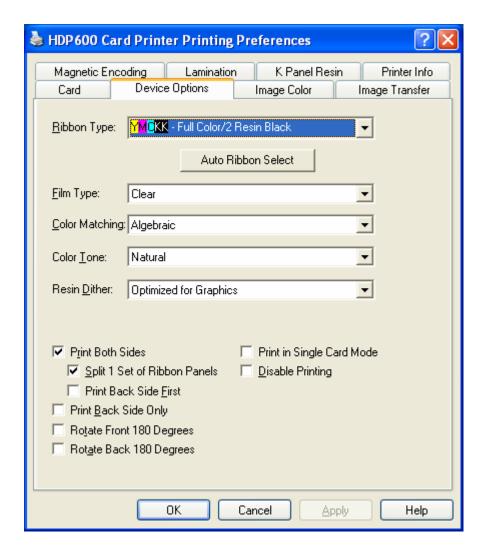
Selecting the About button

Using the Device Options tab (HDP600/HDP600-LC)
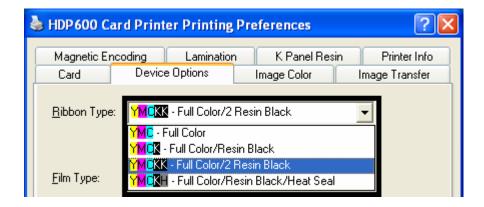
The HDP600 Printing Preferences window is used throughout this section for consistency within this document. See the HDP600 Printing Preferences windows (as needed for your specific Printer). The HDP600 CR100 Printing Preferences window has the same Device Options tab functionality as the HDP600 Printing Preferences window. (**Note:** The CR100 Printers only support the YMCKK and YMCKH Ribbons, which are wide enough for the CR100 printing requirements.)

Adjusting the Ribbon Type
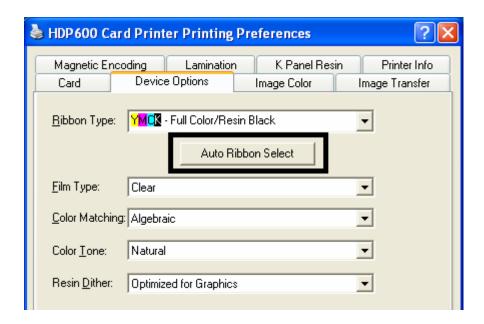
Use the Ribbon Type dropdown menu to match Ribbon type.

Step	Procedure
1	Adjust to match the Ribbon Type selection with the Ribbon type that is loaded in the Printer. (**Note:** The User can to the System Information Menu in the LCD and the Printer will tell the User which Ribbon is loaded at that time.) • **YMC:** Yellow, Magenta, Cyan **OR** **YMCK:** Yellow, Magenta, Cyan, Resin Black **OR** • **YMCKK:** Yellow, Magenta, Cyan, Resin Black, Resin Black **OR** • **YMCKH:** Yellow, Magenta, Cyan, Resin Black, Heat Seal
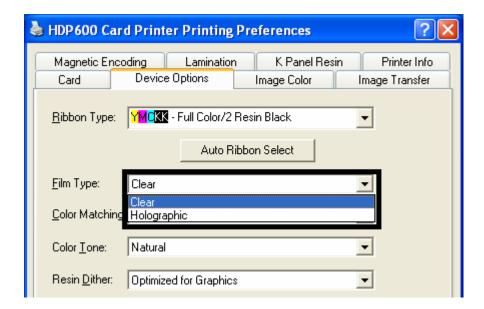
Selecting the Auto Ribbon Select option

Step	Description
1	Click on the **Auto Ribbon Select** button to verify that the Ribbon type selected matches the Ribbon installed in the Printer. (**Note**: The Printer Driver will change the Ribbon type to the correct setting or validate. It will also display a dialog that it has changed the current setting or that the current Ribbon type is correct.)

Adjusting the Film Type
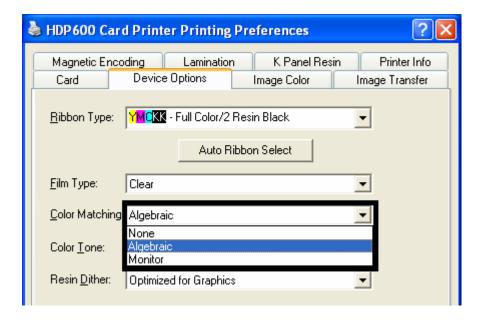
Step	Procedure
1	Allows you to select the film type option that is appropriate for the type of HDP film currently loaded in the Printer.
	• Select the **Clear** option to automatically adjust the appropriate transfer time and temperature to pre-determined defaults.
	OR
	• Select the **Holographic** option to change appropriate internal Printer settings needed to make the holographic film work. (**Note:** It will also adjust the necessary transfer temperature and the dwell settings in the Driver to provide the optimal holographic InTM performance.)
	See the Printer's LCD settings a new option for Holographic Film option. This setting is located via this path: Menu > Print Test Image > **Film:**
	When you get to the **Film:** setting, press the **Select** button to cycle between Clear and Holographic film.

Adjusting for the Color Matching

Allows selection of the color matching option that best fits the requirements of the print job.
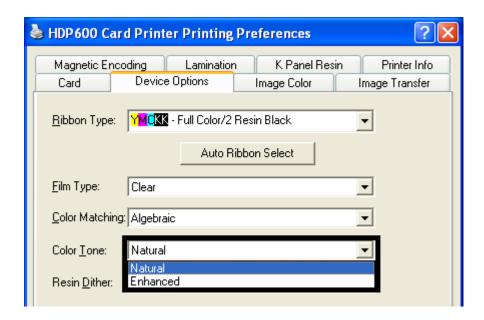
Step	Procedure
1	Select **None** (a) if interested in print speed rather than print color, (b) if color correcting the image for printing has already been done or (c) if using third party color matching software.
	OR
	Select **Algebraic** to allow the Printer Driver to make very simple, fast, color balance adjustments. (**Note:** This option gives a natural-looking image without slowing down the processing speed of the Printer Driver. It also allows further customization of the printed color of the cards through the Image color tab.)
	OR
	Select **Monitor** to allow the Printer Driver to make color corrections similar to the Algebraic option but through a more complex color matching algorithm. (**Note:** This option shifts colors more radically so the colors in the image will more closely match how they appear on screen.)

Adjusting for the Color Tone – Natural or Enhanced

Select the appropriate
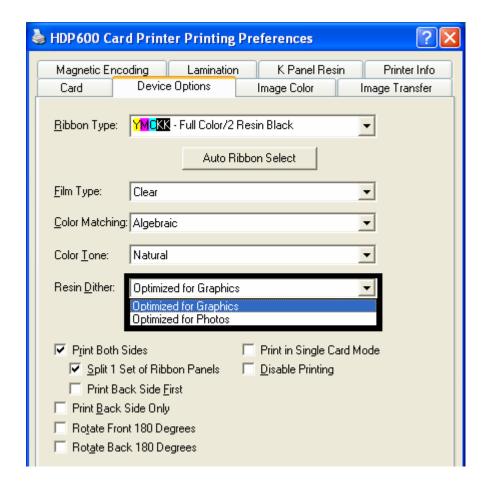
Step	Procedure
1	This will allow the selection between two different color levels. • **Natural**, the default selection is the standard HDP Series Color Tone. This gives the image more brightness, especially in the lighter tones. • **Enhanced** gives the image a softer look with more detail in the lighter tones.

Adjusting for the Resin Dither

Select the appropriate dither method according to the type of image to be printed. (**Note:** This option only affects those objects printed on the backside of a card with the resin black Panel of a YMCK or YMCKK Print Ribbon.)
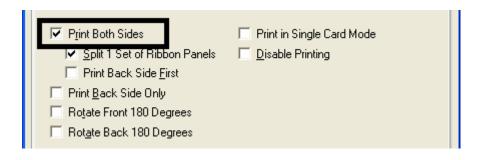
Step	Procedure
1	Select **Optimized for Photo** when printing photo quality images with resin. **OR** Select **Optimized for Graphics** when printing lower quality images (e.g., clipart, logos, etc.) with resin.

Using the Print Both Sides option

Use this option to automatically print on both the front and backside of a card.
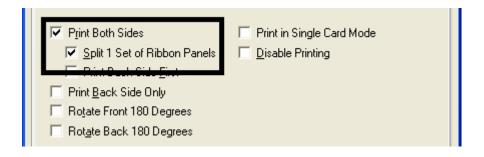
Step	Procedure
1	Select this option in conjunction with any application program that supports a multiple-page document, duplex printing. (**Note:** The program must be able to send down two or more separate pages to be printed within the same document.)
2	• Page 1 will be transferred to the front side of the card. • Page 2 will be transferred to the backside of the card. (**Note:** The Printer Driver will always place all odd numbered pages on the front side of the card and all even numbered pages on the back side with this option selected. If an odd number of pages are printed to the Driver while this option is selected, then the Printer will print an additional blank side and transfer it to the card.)

Using the Split 1 Set of Ribbon Panels option
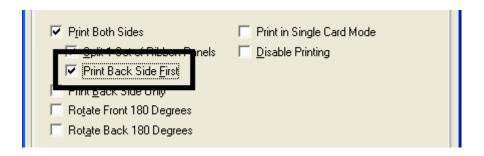
Use this option to provide the most economical means of printing a dual-sided card since a single set of Ribbon Panels will be split to print both the front and backsides of a card.

Step	Procedure
1	Select this option to automatically print full-color on the front of a card and resin black on the back of a card (using either of the Full-color YMCK or YMCKK Print Ribbons).
	• If using a YMCK Ribbon type, the front of the card is printed with the Ribbon's YMC Panels and the back is printed with the K Panel.
	• If using a YMCKK Ribbon type, the front of the card is printed with the YMCK Panels and the back is printed with the second K Panel.
	(**Note #1:** This option is automatically enabled when the YMCKK Ribbon type is selected.)
	(**Note #2:** This option is not available if using a YMCKH or YMC Print Ribbon.)

Using the Print Back Side First option
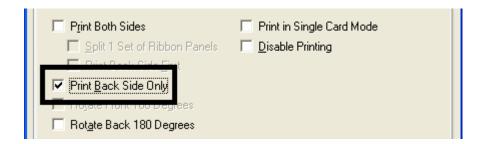
Step	Procedure
1	Select this option:
	If you need to print the first page of a two-page document on the backside of the card.
	OR
	If you need to print the resin black on the chip-side of the Smartcard.
	The second page of the document will be printed on the front side of the card.

Using the Print Back Side Only option

Use this option to print only onto the backside of cards.
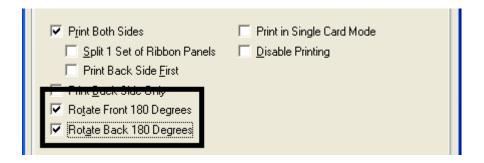
Step	Procedure
1	Select this option to print only onto the backside of preprinted cards that must have their Magnetic Stripe or smart card chip encoded. (**Note:** Load the cards in the usual fashion.)
	• When this option is selected, the **Print Both Sides** option is automatically disabled.)
	• When attempting to print a two-page document (if **Print Back Side Only** is selected), the first page of the document will print on the backside of the card.
	• The second page of the document will then be printed on the back of a second card.

Using the Rotate Front 180 Degrees or Rotate Back 180 Degrees options

Use this option to change the position of the printed image in relation to the set location of a card's Magnetic Stripe or smart chip.

Step	Procedure
1	Select the **Rotate Front 180 Degrees** option to rotate the image on the front of the card by 180 degrees when printed. **OR** Select the **Rotate Back 180 Degrees** option to rotate the image on the back of the card by 180 degrees when printed.

Using the Print in Single Card Mode option

Use this option to force the Printer's memory to buffer or to hold only one print job at a time.

Step	Procedure
1	Select this option only when printing to multiple Printers sharing print jobs over a network. (**Note:** In this case, this option ensures that all Printers share evenly all print jobs.)

Using the Disable Printing option

Use this option to disable the printing capabilities of the Printer while still allowing the Printer to encode cards. (**Note:** This option is useful to encode or re-encode preprinted cards without wasting additional time or printing supplies.)
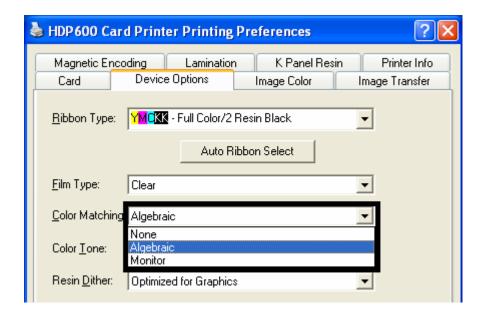
Step	Procedure
1	Select this option to ensure no print data will be sent to the Printer (while all encoding instructions will be sent according to how they are configured within the software).
	This option also allows you to laminate the card.
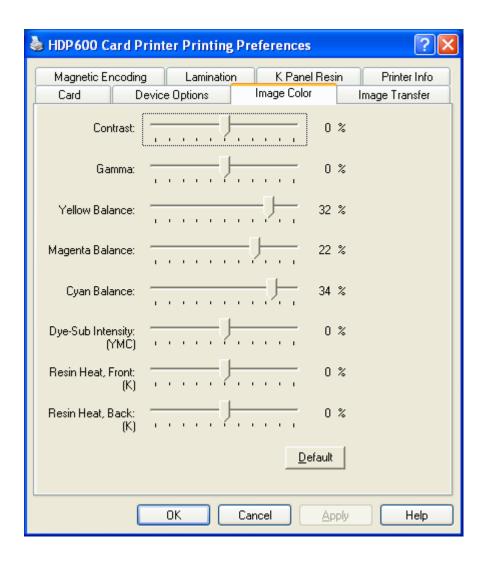
Using the Image Color tab (HDP600)
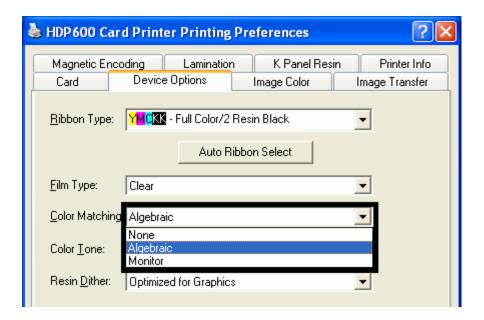
Use this tab to adjust color properties. (**Note:** The HDP600 CR100 Printing Preferences window has the same Image Color tab functionality as the HDP600 Printing Preferences window.)
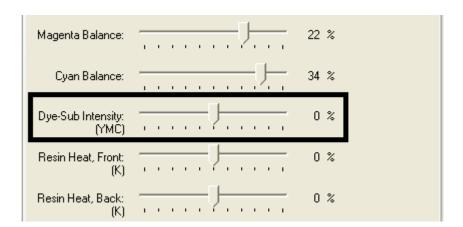
Step	Procedure
1	Select the **Algebraic color matching** option (see the Device Options tab, shown below) to control the **Contrast** and **Gamma** of the printed image, as well as the individual color balance of **Yellow**, **Magenta** and **Cyan** (see Image color tab, shown below).

Using the Image Color tab (continued)

Using the Image Color tab (continued)
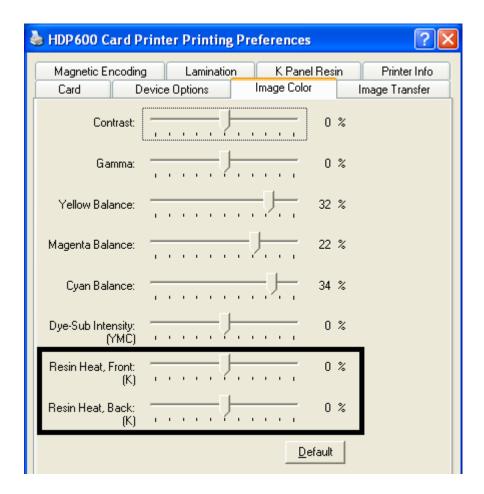
Step	Procedure
2	Select the **None** or **Monitor** option (see the Device Options tab, shown below) to only display the Dye-Sub Intensity and Resin Heat sliders.
3	Control the overall darkness and lightness of the dye-sub printed image by adjusting the **Dye-Sub Intensity** slide by clicking and dragging the slide's box. • Move the slide to the left to cause less heat to be used in the printing process, thus generating a lighter print. **OR** • Move the slide to the right to cause more heat to be used, thus generating a darker print. (**Note:** This slide only affects those images printed with dye-sublimation Ribbon Panels (YMC).)

Using the Image Color tab (continued)

Using the Image Color tab (continued)
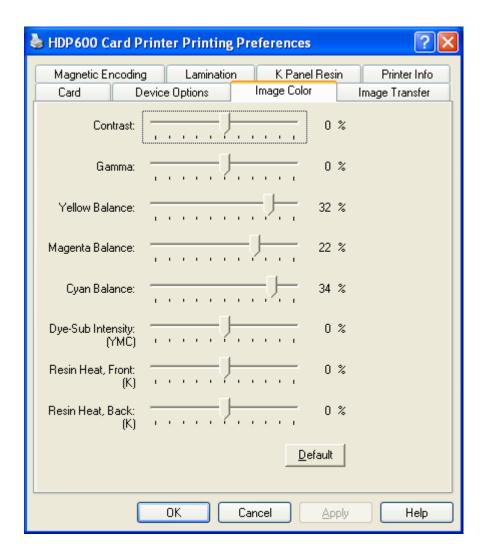
Step	Procedure
4	Control the amount of heat the Printer uses when printing with the resin black Panel by adjusting the **Resin Heat** slide.
	• Move the slide to the left to cause less heat to be used in the printing process, causing resin images to be lighter or less saturated.
	OR
	• Move the slide to the right to cause more heat to be used, causing resin images to be darker or more saturated.
	(**Note:** This control can be helpful for fine-tuning the sharpness of resin text and bar codes.)
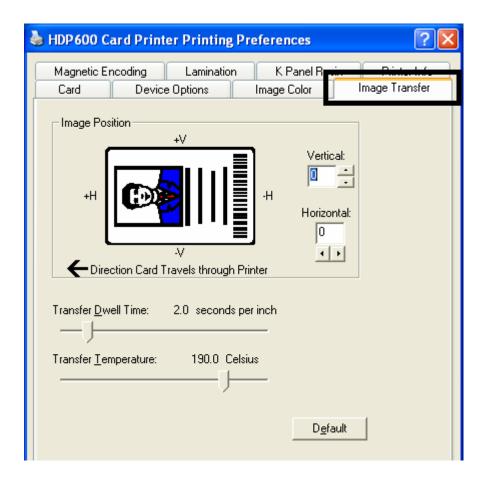
Using the Image Color tab

Step	Procedure
5	As needed, return all options to their factory settings by clicking on the **Default** button.

Using the Image Transfer tab
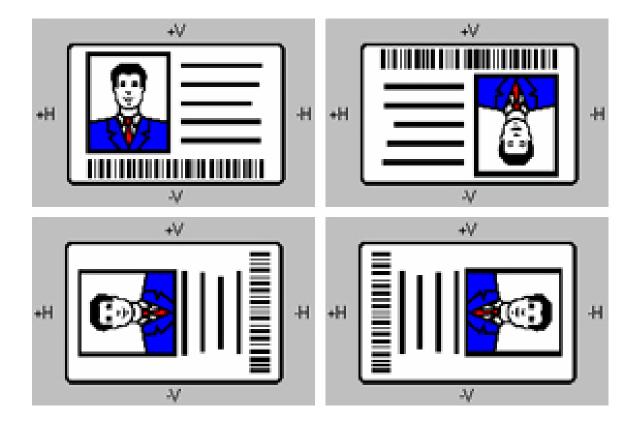
Use this tab to adjust the **Image Position**, **Transfer Dwell Time** and **Transfer Temperature**. (**Note:** The HDP600 CR100 Printing Preferences window has the same Image Transfer tab functionality as the HDP600 Printing Preferences window.)

Adjusting the Image Position controls
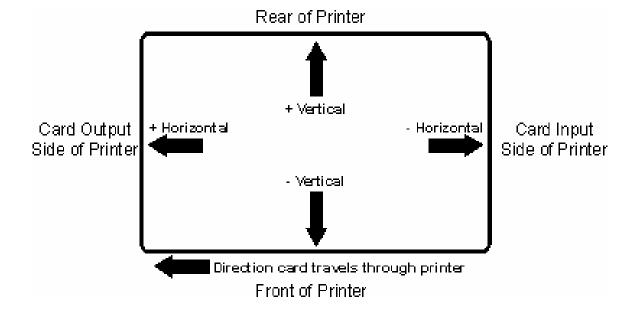
Use the **Image Position** controls to position the image on a card (to be adjusted).

Step	Procedure
1	Adjust the Image Position values by clicking on the **Vertical** and **Horizontal** adjustment arrows.
	• These values ensure that the Cards always remain in the same position as they travel through the Printer (regardless of image orientation).
	• The Card Illustration (shown in the Image Position box) will flip and rotate according to the selection of Portrait, Landscape or Rotate 180 Degrees.
	• The outline around the illustration will always remain in the same Landscape orientation.

The display (below) represents how the printed image will move in relation to the fixed card position as positive and negative image placement values are entered.

Step	Procedure
2	Use the **Vertical** adjustment to move the image toward the rear of the Printer if a positive number is entered and toward the front of the Printer if a negative number is entered.
	OR
	Use the **Horizontal** adjustment to move the image toward the card output side of the Printer if a positive number is entered and toward the card input side of the Printer if a negative number is entered.
	(**Note:** The maximum value for the **Vertical** and **Horizontal** adjustments is ±100 Pixels (10 Pixels = 0.03 (.8mm).)

Rear of Printer

+ Vertical

Card Output Side of Printer   + Horizontal   - Horizontal   Card Input Side of Printer

- Vertical

Direction card travels through printer

Front of Printer
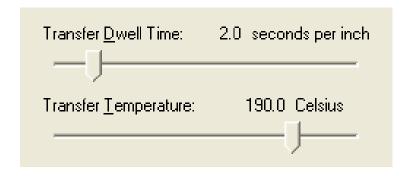
Adjusting the Transfer Dwell Time and Temperature

Use the Image Transfer option to control of the **Transfer Dwell Time** and **Transfer Temperature**.

- These settings control the speed and temperature at which printed images are transferred from the HDP Film to the card. These settings may vary depending on the card type.

- The Printer Driver automatically optimizes these settings according to the selection made in the **Card Type** option.

- Changes made to the Dwell Time and temperature settings are saved for the selected **Card Type** option (upon exiting the Printer Driver setup in the Printer's Control Panel).
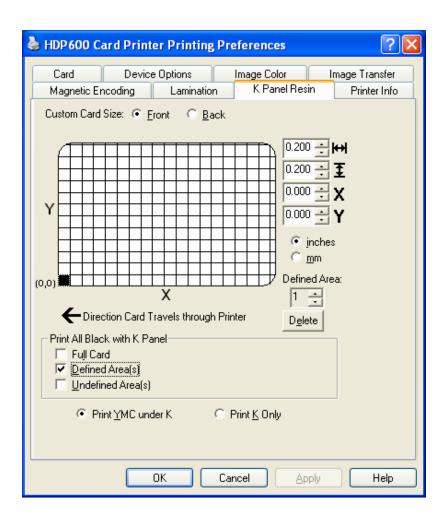
Step	Procedure
1	Return to the factory default settings for the selected **Card Type** by clicking on the **Default** button. If using cards (that differ from the **Card Type** Glossy-PVC or Matte-PVC options), select one of the **Card Type** Custom options.
2	Adjust the Dwell Time and temperature settings manually to ensure proper image transfer. Determine the appropriate settings for the card stock by setting the **Transfer Dwell Time** and **Transfer Temperature** to the default settings. Print a card. • If the HDP Film is not transferring properly, adjust these settings accordingly. **OR** • If the Film is transferring properly, perform a final durability test called the **Tape Test**. For instructions on how to do a tape test, see <u>Conducting the Tape adhesion Test</u> procedure.

Using the K Panel Resin tab
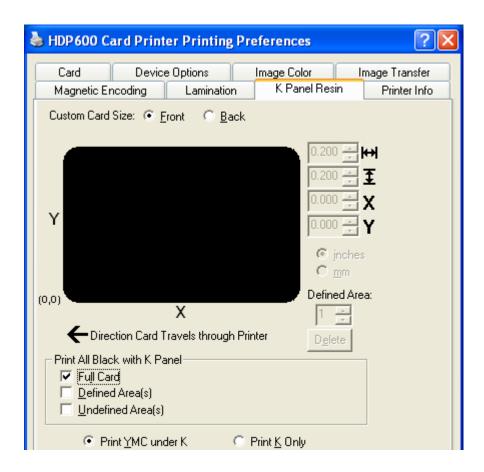
Use this tab to adjust the CR-80 Card Size, the Direction the Card Travels through the Printer, the Print All Black With K Panel (options) and the Defined Areas. Use this tab to control where the resin black (K) Panel of a full-color Ribbon is printed. (**Note:** The HDP600 CR100 Printing Preferences window has the same K Panel Resin tab functionality as the HDP600 Printing Preferences window.)

- If printing with a Ribbon type that does not have a K Panel, such as the YMC Ribbon type, all K Panel Resin options will be grayed out. Resin black text is desirable due to its sharp, saturated color and resin black barcodes are required to ensure readability when scanned by an infrared barcode reader. (**Note:** The Printer Driver will automatically print all TrueType black text and TrueType barcodes only with the resin black (K) Panel of the Print Ribbon by default.)

- If printing black text or barcodes that are not TrueType fonts or black graphics, select one of the three options listed under **Print All Black With K Panel** (see the procedure below). The Printer Driver will print areas of the image where it finds black coloring with the Print Ribbon's resin black (K) Panel as specified by each of the following options.
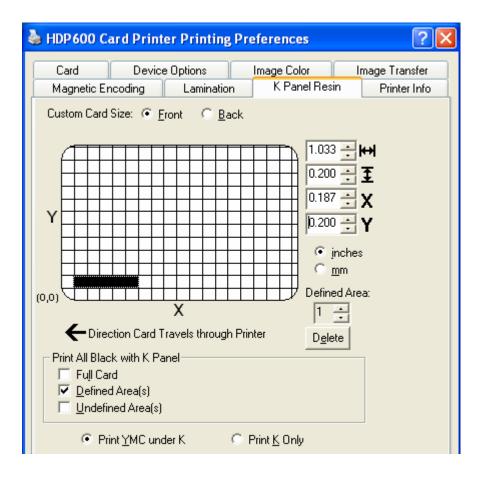
Selecting the Full Card with the K Panel Resin tab

Step	Procedure
1	Select the **Full Card** option to print the resin black (K) Panel for all black found within all areas of the image, as shown below.
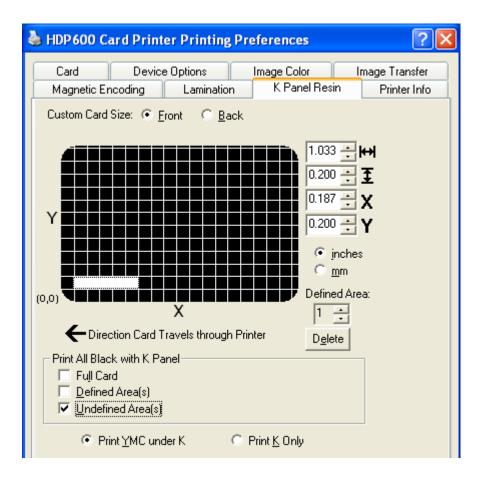
Selecting the Defined Area(s) with the K Panel Resin tab

Step	Procedure
1	Select the **Defined Area(s)** option to print the resin black (K) Panel for all black found only in an area or areas defined, as shown below.
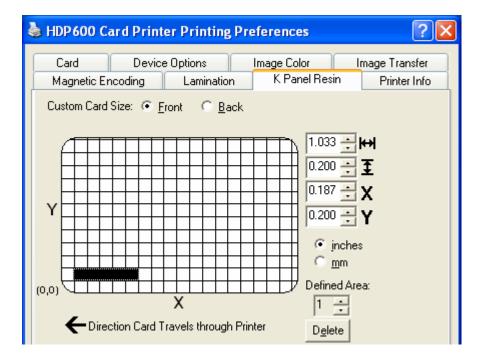
Selecting the Undefined Area(s) with the K Panel Resin tab

Step	Procedure
1	Select the **Undefined Area(s)** option to print the resin black (K) Panel for all black found only in the space outside the areas defined, as shown below.

Defining the Area to activate the Card Grid

Step	Procedure
1	Select on the appropriate **Defined Area** (see below) to activate the card grid in the upper half of the window. • It is through this card grid that up to five areas can be defined, as shown below. • When the card grid is first activated, then a small black square will appear at its default size of .2 x .2 (5mm x 5mm) and at its default location in the lower left-hand corner (0,0). (**Note:** This square represents the first defined area.)

Measuring the Total Card area

Step	Procedure
1	Determine the area of the card to define. (**Note:** This area is indicated by the dashed outline, as shown below. The easiest way to determine the size of this area is to actually print a card and look at it in the same orientation as when it exits the Printer.)
2	Measure the total area and enter those dimensions into the dimension boxes. (**Note:** The minimum size an area can be is .2 x .2 (5mm x 5mm).)

Measuring the Area to be positioned on the Card
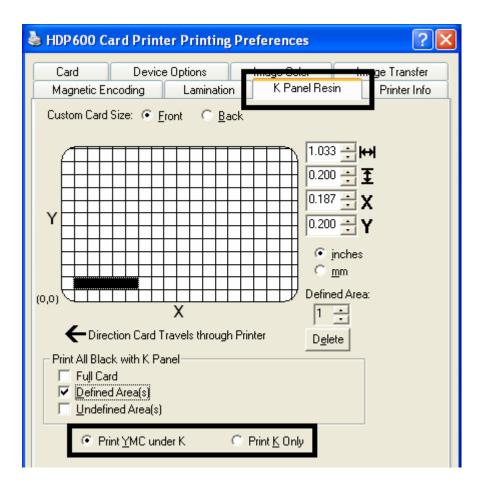
Step	Procedure
1	Once the area is sized properly, measure the location where this area is to be positioned on the card. a. Measure from the lower left corner of the card up and over to the lower left corner of where the defined area is to begin. b. Enter these values into the X and Y boxes, as shown below. c. Note that the card grid lines are spaced at .2 (5mm) intervals.

Selecting the Print YMC under the K and Print K Only options

Step	Procedure
1	Use the Defined Area function. a. Define an area by clicking on the **Defined Area UP** arrow. (**Note:** Another .2 x .2 (5mm x 5mm) area will appear in the lower left-hand corner. This is the location in which all newly defined areas will first appear. Up to 5 areas can be defined.) • Additional areas cannot be added until the most recently created area has been moved or sized. For this reason, size and position each area as it is created. • Use the **Defined Area** arrows to navigate back and forth from area to area. The active area will always be highlighted with a dotted outline. b. Delete an area by using the Defined Area arrows to select the area and click on the **Delete** button. (**Note:** If all areas are deleted, the K Panel Resin options will automatically be deselected.)
2	Select the **Print YMC Under K** option to print all black in the designated areas with the Yellow (Y), Magenta (M) and Cyan (C) Ribbon Panels directly beneath the resin black (K) Panel. (**Note:** Select this option if printing resin black text or barcodes onto a colored background to provide a more gradual transition between the two.) **OR** Select the **Print K Only** option to print all black in the designated areas only with the resin black (K) Panel or to print resin black onto a white background to maximize the sharpness of printed text and barcodes.
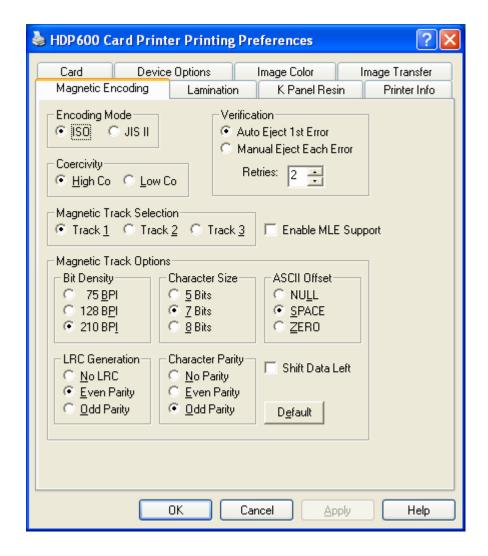
Selecting the Print YMC under the K and Print K Only options

Using the Magnetic Encoding tab

Use these options only if the Printer has an optional Magnetic Stripe Encoding Module installed. (**Note:** The HDP600 CR100 Printing Preferences window has the same Magnetic Encoding tab functionality as the HDP600 Printing Preferences window.)
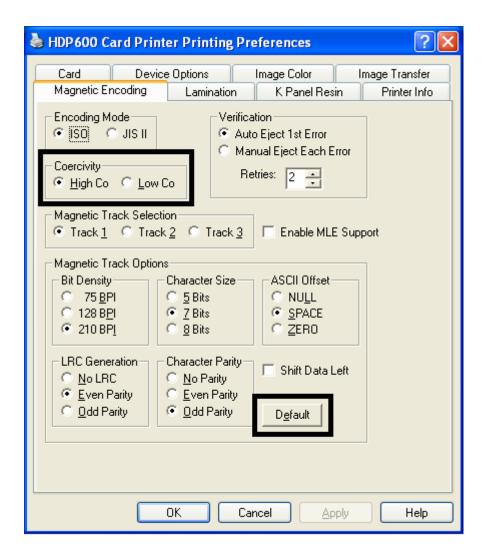
Step	Procedure
1	Select the **Magnetic Encoding** tab to display options for controlling the Magnetic Stripe encoding process. (**Note:** The following describes these options and the Printer's magnetic encoding process.)

Using the Encoding Mode option
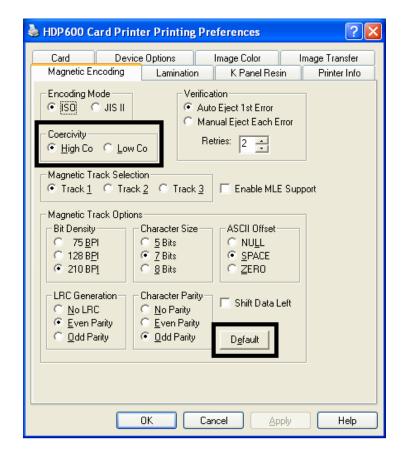
Use the **Encoding Mode** option to specify which magnetic encoding standard to use.

- The HDP Card Printer can be installed with one of two types of factory-installed Magnetic Stripe Encoding Modules.

- Change the encoding mode and coercivity setting or modify the ISO standards for tracks 1, 2 and 3, by correctly modifying these Magnetic Encoding options.

Using the Encoding Mode option (continued)
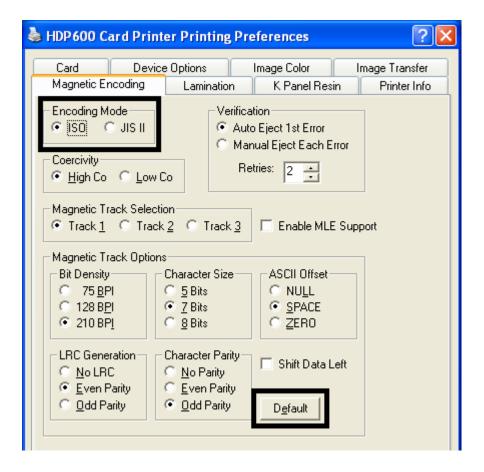
Step	Procedure
1	Select the ISO Standard Encoding Module with a dual-coercivity (high or low) encoding head. (**Note:** By default, the Printer Driver is set to encode according to ISO standards onto high-coercivity Magnetic Stripes.)
	OR
	Select the JIS II Standard Encoding Module commonly used in Japan. Select the **JIS II** mode to encode only Track 2.
	(**Note #1:** The **JIS II** option provides encoding compatibility with the JIS C 6220 Type II cards commonly used in Japan. No encoding customization options are available with the JIS II mode.)
	(**Note #2:** A JIS II Magnetic Head must be installed in the Printer to use any of the JIS II options in the Driver.)

Encoding the Mode/Coercivity/Magnetic Track Selection

Use the **ISO** option for encoding capability for either high- or low-coercivity cards on tracks 1, 2 and 3 and is the industry's standard mode of magnetic encoding.
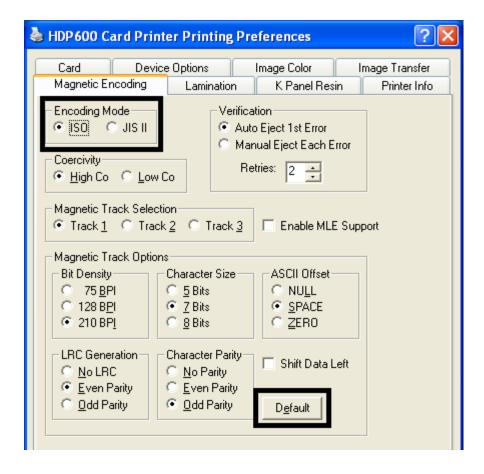
Step	Procedure
1	Select the **Coercivity** option to select the Magnetic Stripe type that matches the card type. • High Coercivity = 2750-4000 Oersted (Fargo's High Coercivity UltraCard IIIs are 2750Oe) • Low Coercivity = 300 Oersted
2	Select the **Magnetic Track Selection** option to specify which track is to be configured through the Magnetic Track Options (if the application being used requires customization of the standard ISO encoding process).

Encoding the Mode/Coercivity/Magnetic Track Selection (continued)

Use the **ISO** option for encoding capability for either high- or low-coercivity cards on tracks 1, 2 and 3 and is the industry's standard mode of magnetic encoding.
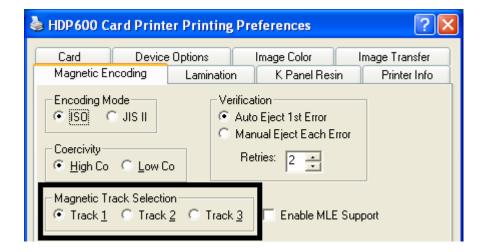
Step	Procedure
3	Customize these options if the application requires it; even though, the default ISO Magnetic Track Options should be correct for most applications. (**Note:** All options must be changed separately for each of the three individual tracks.) a. Set these options back to the ISO standard settings once they have been changed by selecting the **Default** button for each of the separate tracks.

Reviewing the Magnetic Track Options

Use these options to customize the ISO encoded data format for each of the Magnetic Stripe's three tracks.
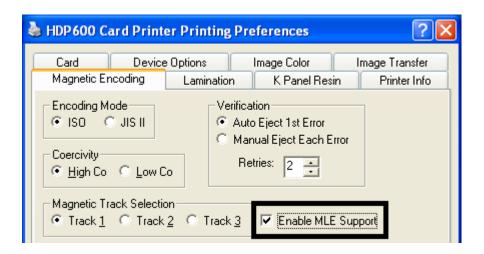
Step	Procedure
1	Specify which of the three (3) tracks to customize by selecting one of the three track options.
	• After making the required selection, the Magnetic Track Options box displays the current set of customization options for the selected track.
	• Remember that each track must be customized independently of the other two.

Reviewing the Enable MLE Support checkbox

Multi-Language Extension (MLE) support in Windows XP can cause text strings to be broken up into fragments. This fragmentation of the text string prevents magnetic encoding.
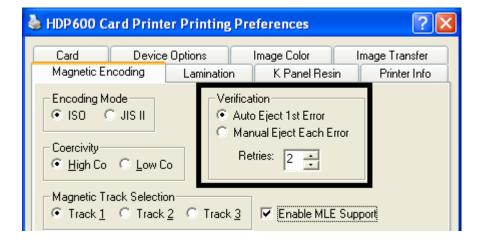
Step	Procedure
1	Check this box to allow the Driver to process the fragmented text.

Reviewing the Verification options

Use this option, which instructs the Printer to verify that all magnetic data has been correctly encoded on each card. (**Note:** With either of these options, the number of verification retries may be specified. A range of 1-5 retries is available.)
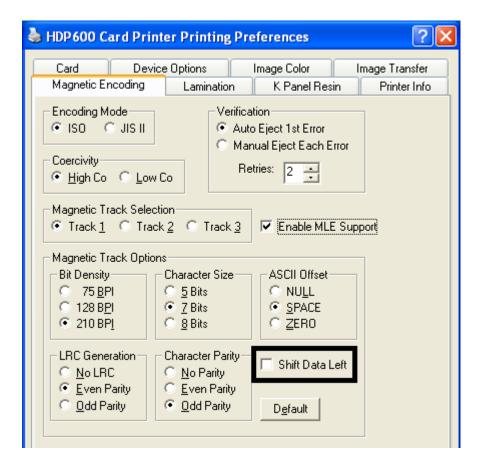
Step	Procedure
1	Select the **Auto Eject 1st Error** option, which instructs the Printer to automatically eject a card containing magnetic data (that was not verified).
	• Only the first mistakenly verified card will be automatically ejected. If a second consecutive card cannot be verified, the Printer will signal an error and go into Guide eject mode.
	• The auto eject option is the most direct means of dealing with mistakenly-verified cards, but may be undesirable (if batch printing) since mistakenly-verified blank cards are ejected into the same stack as verified printed cards. (**Note:** This does not apply when using the Laminator or Reject Hopper.)
	OR
	Select the **Manual Eject Each Error** option so the Printer will signal an error on its LCD Display stating that the magnetic data could not be verified. (**Note:** When this occurs, press the **Cancel** soft key to manually eject the mistakenly verified card. This option is helpful since Magnetic Stripe verification can sometimes require more than a single pass.))

Reviewing the Shift Data Left
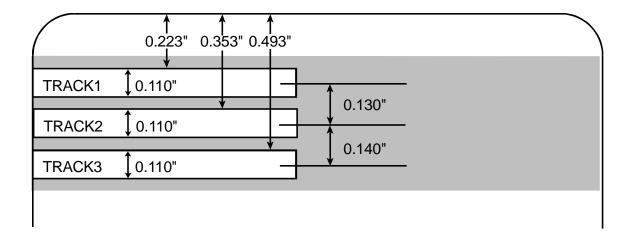
Use the **Shift Data Left** option, which applies to all tracks when selected.

Step	Procedure
1	Select this option to shift the recorded magnetic data to the left-hand side of the card's Magnetic Stripe. (**Note:** This is useful in situations that require cards to be readable with insert type readers.)

Reviewing the ISO Track Locations

The magnetic Encoding Module encodes onto tracks in accordance with an ISO 7811-2 Magnetic Stripe. For track locations, review the display below.

Sending the Track Information

Magnetic track data is sent in the form of text strings from the application software to the Printer Driver.

- In order for the Printer Driver to differentiate between Magnetic Track data and the rest of the printable objects, specific characters must be added to the magnetic data to be encoded.

- These specify the data that is to be encoded, the tracks to encode and mark the start and stop of the data string.

- In some cases, these specific characters are automatically added to the string of track data by ID software applications.

- In most cases, the user must manually add these characters to the string of Magnetic Track data. If these characters are not added to the track data, the text intended for the Magnetic Track will appear as printed text on the card.

- To avoid this, track information must be entered as described below.

Step	Procedure
1	When entering track data, the ~ (tilde) character is entered first, followed by the track number (1, 2 or 3) on which the data should encode. This is followed by the data to be encoded. • The first character of this data string must be the track's specific Start Sentinel (SS) and the last character must be the specific End Sentinel (ES). • The characters or data in between the SS and ES can include all of the valid characters specific to each track. • The number of these characters, however, is limited by each track's maximum character capacity. • When segmenting track data, the appropriate Field Separator (FS) must be used. The table below shows the SS, ES, FS and the valid characters defined for each track.

Reviewing the Sample String

- Track 1: ~1%JULIEANDERSON^1234567890?

- Track 2: ~2;1234567890987654321?

- Track 3: ~3;1234567890987654321?
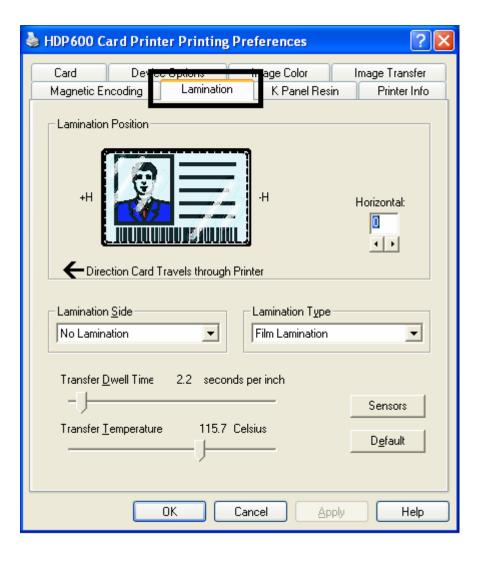
Track	Start Sentinel	End Sentinel	Field Separator	Valid Characters	Maximum Number of Characters
Track 1	%	?	^	ASCII 32-95 (See the table below.)	78
Track 2	;	?	=	ASCII 48-63 (See the table below.)	39
Track 3	;	?	=	ASCII 48-63 (See the table below.)	106

Reviewing the ASCII Code and Character Table

ASCII Code	Character	ASCII Code	Character	ASCII Code	Character
32	space	56	8	80	P
33	!	57	9	81	Q
34		58	:	82	R
35	#	59	;	83	S
36	$	60	<	84	T
37	%	61	=	85	U
38	&	62	>	86	V
39	'	63	?	87	W
40	(	64	@	88	X
41	)	65	A	89	Y
42	*	66	B	90	Z
43	+	67	C	91	[
44	'	68	D	92	\
45	-	69	E	93	]
46	.	70	F	94	^
47	/	71	G	95	_
48	0	72	H		
49	1	73	I		
50	2	74	J		
51	3	75	K		
52	4	76	L		
53	5	77	M		
54	6	78	N		
55	7	79	O		

Using the Lamination tab (only with Card Lamination Module)

Use this option to control specific Printer functions. These options allow you to control the Printer's Lamination process. (**Note:** The HDP600 CR100 Printing Preferences window has the same Lamination tab functionality as the HDP600 Printing Preferences window.)
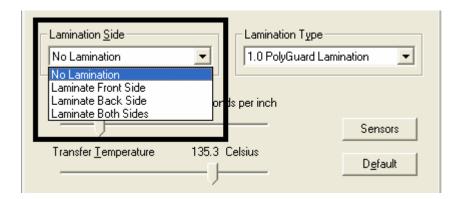
Selecting the Lamination Position

Step	Procedure
1	The Lamination Position control allows you to adjust the horizontal position of the PolyGuard Overlaminate. This control functions in the exact same fashion as the Image Position controls, except only the horizontal position of the overlaminate requires adjustment.
	• To adjust the Lamination position, click on the Horizontal adjustment arrows.
	• To move the overlaminate more toward the card output side of the Printer, enter a positive number.
	• To move the overlaminate more toward the card input side of the Printer, enter a negative number. (**Note:** The adjustment arrows point in the direction the patch will move on the card. The maximum value for the Horizontal adjustment is ±100 Pixels (10 Pixels = about .03/.8mm).)
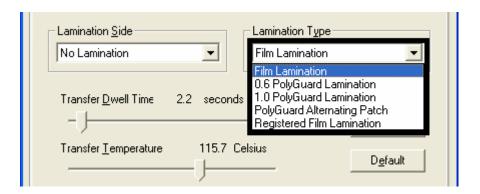
Selecting the Lamination Side

Step	Procedure
1	a. Select the **No Lamination** option if you do not want to use the Printer's built-in Laminator.
	b. Select Laminate Front Side, Laminate Back Side or Laminate Both Sides to specify the side(s) of the card to laminate.

Selecting the Lamination Type

Step	Procedure
1	Select one of the **Lamination Type** options, according to which type of Lamination media is currently installed. Two types of overlaminates are supported by the Driver: Film Lamination and PolyGuard Lamination. Custom versions of each type are also available. • Select the **Film Lamination** option if the Thermal Transfer Film Overlaminate type is installed in the Lamination Module. • Select the **0.6 PolyGuard Lamination** option or **1.0 PolyGuard Lamination** option for either patch thickness. (**Note:** These require different heat settings and Lamination speeds. Select the appropriate option according to the thickness of the PolyGuard material you are using.) • Select the **PolyGuard Alternating Patch** option only if using PolyGuard material that has alternating patch configurations on the same roll (e.g., full patch on the front of the card and half patch on the back).
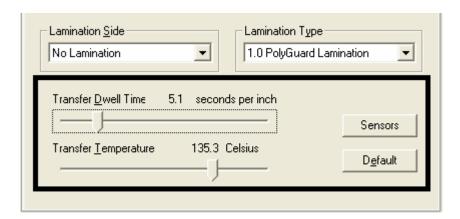
Adjusting the Transfer Dwell Time and Transfer Temperature

Step	Procedure
1	Adjust the Transfer Dwell Time and the Transfer Temperature to control the Lamination Dwell Time or through-put speed of a card in seconds/inch and the Lamination Temperature.

Selecting the Sensors button and Defaults button
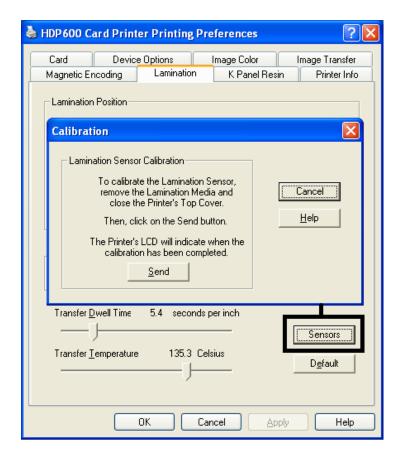
Step	Procedure
1	Select the **Sensors** button to bring up a separate dialog box to calibrate the Lamination Sensor. See below.
2	Click on the **Default** button to return the Transfer Dwell Time and Transfer Temperature to the Default settings for the Lamination Type being used.

Selecting the Sensors button and Defaults button

Step	Procedure
1	Select the Lamination Tab's **Sensors** button to display options for calibrating the Card Lamination Module's Lamination Sensor. The Lamination Sensor is what detects the start of each PolyGuard patch throughout the roll. This Sensor may occasionally need to be recalibrated. • If the Lamination Module seems to skip PolyGuard patches or wind the PolyGuard roll until the Lamination Module's LED flashes, recalibrate the Lamination Sensor according to the instructions given the in the Calibration window. • Be sure the Printer is powered ON and that the Lamination Module's Top Cover and Lamination Station are closed when calibrating. (**Note:** This Sensor is not used if applying Thermal Transfer Film overlaminate.) • The material must be loaded into the Laminator and the Lam material mark must not be over Sensor.

Section 8: Cleaning

Important: The procedures in this section apply for the HDP600/HDP600-LC and HDP600 CR100/HDP600-LC CR100 Card Printers.

This Section deals with the Printer's internal and external maintenance in regards to the unit's cleaning and general upkeep. (**Note:** The Printer should be cleaned on a regular basis to insure that the Printer consistently produces high quality output.)

⚠ **Danger:** Be sure to disconnect the Printer's power cord whenever performing any type of maintenance procedure unless otherwise directed.

Important: Fargo Card Printers require highly specialized Print Ribbons to function properly. To maximize Printer life, reliability, printed card quality and durability, you must use only Fargo Certified Supplies. For this reason, your Fargo warranty is void, where not prohibited by law, if you use non-Fargo Certified Supplies. To order additional materials, please contact your authorized reseller.

Using the Required Supplies

For the maintenance procedures outlined for the Printer, you will need a Printer Cleaning Kit, available from the reseller. This optional kit includes the following:

- **Printhead Cleaning Pens** pre-moistened with 99.99% isopropyl alcohol for cleaning the Printer's Printhead.

- **Cleaning Cards** with an adhesive backing for cleaning the Printer's Cleaning Rollers.

- **Cleaning Pads** pre-moistened with 99.99% isopropyl alcohol for cleaning the Printer's Platen Rollers, Card Feed Rollers and general inside and outside area.

⚠ **Caution:** As with any electronic device, internal components of the Printer, such as the Printhead, may be damaged if exposed to static electrical discharges. To avoid potential damage, always wear an appropriate personal grounding device, such as a wrist strap (with integral resistor) connected to an ESD ground. At a minimum, make positive contact with the bare metal chassis of the Printer with the hand prior to touching any internal electrical components.

Safety Messages (review carefully)

Symbol	Critical Instructions for Safety purposes
Danger: ⚠	**Failure to follow these installation guidelines can result in death or serious injury.** Information that raises potential safety issues is indicated by a warning symbol (as shown to the left). • **To prevent personal injury**, refer to the following safety messages before performing an operation preceded by this symbol. • **To prevent personal injury**, always remove the power cord prior to performing repair procedures, unless otherwise specified. • **To prevent personal injury**, make sure only qualified personnel perform these procedures.
Caution: ⚡	**This device is electrostatically sensitive**. **It may be damaged if exposed to static electricity discharges.** Information that raises potential electrostatic safety issues is indicated by a warning symbol (as shown to the left). • **To prevent equipment or media damage**, refer to the following safety messages before performing an operation preceded by this symbol. • **To prevent equipment or media damage**, observe all established Electrostatic Discharge (ESD) procedures while handling cables in or near the Circuit Board and Printhead Assemblies. • **To prevent equipment or media damage**, always wear an appropriate personal grounding device (e.g., a high quality wrist strap grounded to avoid potential damage). • **To prevent equipment or media damage**, always remove the Ribbon and Cards from the Printer before making any repairs, unless otherwise specified. • **To prevent equipment or media damage**, take jewelry off of fingers and hands, as well as thoroughly clean hands to remove oil and debris before working on the Printer.

Cleaning inside the Printer

Step	Procedure
1	Open the Lamination Arm.
2	Remove the Print Ribbon and HDP Film from the Printer.
3	If you have a can of compressed air, blow out all visible areas of the Printer interior. (**Note:** Remove any debris that may be inside.) **OR** If you do not have a can of compressed air, use a cleaning pad from the Printer Cleaning Kit to wipe out all visible areas inside the Printer. (**Note:** Remove any debris that may be inside.) ⚠ **Caution:** Be extremely careful not to let any alcohol drip inside the Printer!
4	Re-install the printing supplies.
5	Close the Lamination Arm.

Cleaning outside the Printer

Step	Procedure
1	The Printer has a durable casing that should retain its luster and appearance for many years. Clean it only with a Cleaning Pad from the Printer Cleaning Kit. ⚠ **Caution:** Do not use cleaning solvents of any kind or spray the cabinet with a cleaner!

Cleaning the Printhead

Clean the Printhead every time the Print Ribbon is changed to maintain consistent print quality, as instructed below. This procedure should also be performed approximately every 400 prints in order to maintain consistent print quality.

Caution: Never use a sharp tool or abrasive object of any kind to clean the Printhead. It will damage the Printhead. Watches, rings, bracelets and other jewelry can damage the Printhead if accidentally bumped against it. For best results, remove such items before touching any internal components of Printer.
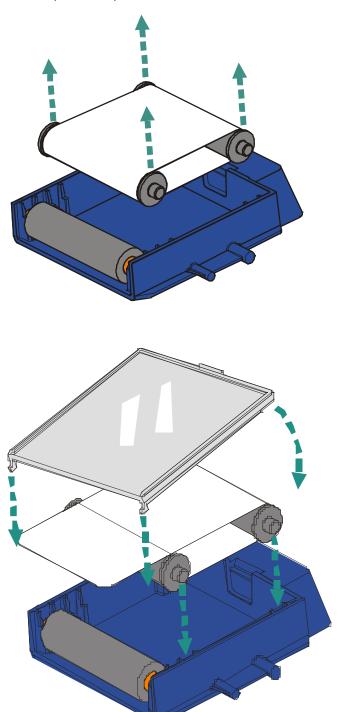
Step	Procedure
1	Remove watches, rings, bracelets and other jewelry.
2	Open the Lamination Arm.
3	Use a Printhead Cleaning Pen from the Printer Cleaning Kit to firmly wipe back and forth across the surface of the Printhead.
4	Close Lamination Arm once the Printhead is completely dry.

Replacing the Card Cleaning Tape

⚠ **Caution:** Replace the Card Cleaning Tape approximately every **2,000 to 3,000 prints**, depending on the cleanliness of the card stock or the environment in which the Printer is located.
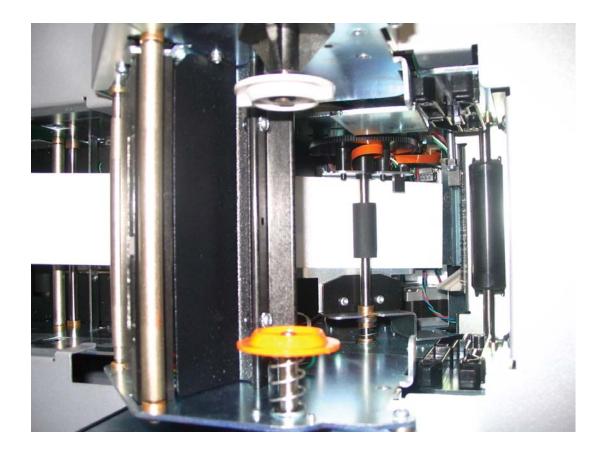
Steps	Procedure
1	Open the Printer's Top Cover.
2	Pull the Cleaning Cartridge out of the Printer.
3	Open the Cleaning Cartridge by pressing on the release tab of the clear Cleaning Cartridge Cover and pulling the cover up.
4	Pull up on the used cleaning tape and lift it and the two Tape Rollers out of the Cartridge. (**Note:** The Cleaning Roller can stay within the Cartridge.)
5	Insert the two Tape Rollers into the new Cleaning Tape loop.
6	Place the Tape Rollers and the new tape back into the cartridge by (a) placing the Roller (closest to the cartridge's handle) and (b) pressing the second Roller into place. ⚠ **Caution:** Be sure to orient the new tape loop so that it extends over the Cleaning Roller once it is installed. See below.
7	a. Set the clear Cleaning Cartridge Cover back into place. ⚠ **Caution:** Be sure the tabs on the cover are seated properly into the slots on the cartridge as shown below. b. When in place, press down on the top of the cover until it snaps shut.
8	Pull on the tape loop's tab to remove the backing from the tape.
9	Insert the Cleaning Cartridge back into the Printer. ⚠ **Caution:** Be sure to push down on the cartridge until it clicks into place. If the cartridge is not inserted properly, the Printer will not feed cards.

See the previous procedure in this section.

Cleaning the Magnetic Encoder

Step	Procedure
1	Open the Top Cover and remove the Ribbon.
2	a. Locate the Flipper Table in the Input Module. b. Turn the Printer on. c. Rotate the Flipper Table clockwise to a 45 degree angle. (**Note:** The Table will tilt and provide access to the Magnetic Encoder's opening.)
3	Open the Cleaning Card (082133), which is sold separately and is not included in the cleaning kit. (**Note:** You will need to work quickly because the alcohol will dry once it is removed from the envelope.)
4	Insert the card onto the Flipper Table. See below

Cleaning the Magnetic Encoder (continued)

Step	Procedure
6	Press the **REV** button on the LCD display seven (7) times to feed the card into the Magnetic Module. (**Note:** The card does not go all the way through the Flipper Table.)
7	Hold the end of the Cleaning Card securely with your thumb and index finger while you press the **REV** button on the LCD display five (5) more times. (**Note:** This allows the Roller to spin against the Cleaning Card and fully clean the Roller.) See below.
8	Remove the Cleaning Card by pressing the **FORWARD** button on the LCD display to eject this card from the Printer.
9	The process is now complete. (**Note:** This magnetic cleaning process should be done every time another cleaning is performed, which is roughly every 3,000 cards, or whenever you experience Magnetic Encoding problems.)
10	Be aware that the card can be used only once as it will dry out quickly. (**Note:** If it dries out before you clean the Roller, a new card must be used.)

Cleaning the Platen and Transfer Rollers

Step	Procedure
1	Leave the Printer power ON and open the Lamination Arm. If using a Printer with a Card Lamination Module attached, also open the Lamination Module's Top Cover and Lamination Station.
2	Remove the Print Ribbon and HDP Film.
3	Locate the Print Platen Roller.
4	Use a Cleaning Pad from the Printer Cleaning Kit to wipe the Roller clean.
5	Locate the Transfer Platen Roller.
6	⚠ **Danger:** Transfer Rollers will be extremely hot. Printer must be cold in order to clean it. a. Use a Cleaning Pad from the Printer Cleaning Kit to wipe the Roller clean. Press the **Forward** and **Back** buttons to move the Roller back and forth while cleaning. b. If using a Printer with a Card Lamination Module (attached), wipe the Lamination Transfer Roller clean as well.
7	Replace the printing supplies and close the Print and Transfer Stations after the Rollers are clean and completely dry.

Cleaning the Transfer Rollers using the Cleaning Card

Step	Procedure
1	Leave the Printer power ON and open the Lamination Arm. If using a Printer with a Card Lamination Module attached, also open the Lamination Module's Top Cover and Lamination Station.
2	Remove the cards from the hopper but leave the Print Ribbon and HDP Film and the Cleaning Cartridge in the Printer
3	Remove the paper from the adhesive side of the Cleaning Card.
4	Insert the cleaning card into the cards hopper with the sticky side UP. ⚠ **Caution:** Do not insert the card with the sticky side DOWN or it will stick to the card path.
5	⚠ **Danger:** Transfer Rollers will be extremely hot. Ensure that the Printer is cold before cleaning it. a. With the Cleaning Card inserted correctly into the hopper, press the **Forward** and **Back** buttons to move the Roller back and forth while cleaning. b. If using a Printer with a Card Lamination Module (attached), run this card through the Lamination Transfer Roller as well. c. Eject this card through the Output side of the Printer.
7	Replace the printing supplies and close the Print and Transfer Stations.

Section 9: Packing the Card Printer

Important: The procedure in this section apply for the HDP600/HDP600-LC and HDP600 CR100/HDP600-LC CR100 Card Printers.

The purpose of this section to provide the User with a specific packing procedure for the HDP600.

Follow this instruction to pack the Card Printer for transport.

Step	Procedure
1	Clean the inside of the Printer with deionized air. Wipe it down with a lint-free cloth.
2	Clean the Printhead with a Printhead pen.
3	Verify that the Latch is secure on the Lamination Arm.
4	Pack the Printer in the original carton and packing materials.
5	Be sure to enclose any necessary paperwork, test cards, etc.

Section 10: Board Level Diagnostics

Important: The procedures in this section apply for the HDP600/HDP600-LC and HDP600 CR100/HDP600-LC CR100 Card Printers.

The purpose of this section to provide the User with specific Board Level Diagnostic procedures for Board Errors and Sensor Testing for the HDP600.

Board Errors

Resolving the EE Memory Error

Symptom: An error has occurred in the permanent circuit memory. (**Note:** The Printer's LCD will state the following: EEPROM ERASED.)

Step	Procedure
1	Reboot the Printer.
2	If the problem persists, the Main Print Board will need to be replaced.
3	As an alternative to replacing the Main Print Board, the chip U21 may be replaced. (**Note:** Fargo recommends that only a qualified electronics technician perform this procedure.)

Resolving the EE Checksum Error

Symptom: An error has occurred in the permanent circuit memory.

Step	Procedure
1	Reboot the Printer.
2	If the problem persists, the Main Print Board will need to be replaced.
3	As an alternative to replacing the Main Print Board, the chip U21 may be replaced. (**Note:** Fargo recommends that only a qualified electronics technician perform this procedure.)

Resolving the DRAM Memory Error

Symptom: An error has occurred in the removable memory Module (SIMM). (**Note:** The LCD will state the following: Main Memory Error.)

Step	Procedure
1	Reboot the Printer.
2	If the problem persists, remove the rear cover and ensure that the SIMM (080229) is seated properly.
3	If the memory Module is not seated properly, lock the SIMM into place.
4	If the installation appears correct and the error persists, the SIMM (080229) on the Main Print Board will need to be replaced.

Resolving the RAM Memory Error

Symptom: An error has occurred in the permanent circuit memory.

Step	Procedure
1	Reboot the Printer.
2	If the problem persists, replace the Main Print Board.
3	As an alternative to replacing the Main Print Board, the chip U22 may be replaced. (**Note:** Fargo recommends that only a qualified electronics technician perform this procedure.)

Resolving the FPGA Error

Symptom: An unexpected hardware error has occurred.

Step	Procedure
1	Reboot the Printer.
2	If the problem persists, the Main Print Board will need to be replaced.
3	As an alternative to replacing the Main Print Board, the chip U34 may be replaced. (**Note:** Fargo recommends that only a qualified electronics technician perform this procedure.)

Sensor Testing

Step	Procedure
1	Check the voltage to determine if a Sensor is working.
2	a. Test the voltage of each Sensor using ground (GRD = Chassis) to the correct pin on each connector. See **Sensor Location and Voltages** table below). b. Block a slot Sensor with a card. c. Cover a reflective Sensor with a card.
3	a. Troubleshoot the Ribbon Sensor by using the RibbonTraq marks on the Ribbon and Film to cover the Ribbon and Film Sensors. (**Note:** The numbers indicate the location on J9, as shown in the **Sensor Location and Voltages** table below). b. Open the upper Module to find the Ribbon Sensor orientation. (**Note:** The numbers indicate the location on J9, as shown in the **Sensor Location and Voltages** table below.)

Reviewing the Sensor Locations and Voltages
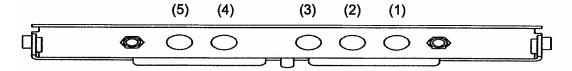
Sensor or Switch	Location	Low Range (VDC)	High Range (VDC)
Ribbon Supply Encoder D860095	J4 pin 12	Unblocked (.17 or lower)	Blocked 3.0 - 3.5
Print Head Lift Sensor D860093	J4 pin 8	Unblocked (.17 or lower)	Blocked 3.0 - 3.5
Card Position Sensor D860111	J5 pin 4	Unblocked (.17 or lower)	Blocked 3.0 - 3.5
Hopper Position Sensor D860113	J8 pin 4	Unblocked (.17 or lower)	Blocked 3.0 - 3.5
Film Supply Encoder D860100	J10 pin 4	Unblocked (.17 or lower)	Blocked 3.0 - 3.5
Transfer Head Lift Sensor D860100	J10 pin 12	Unblocked (.17 or lower)	Blocked 3.0 - 3.5
Ribbon Mark Sensor 1 D860112	J9 pin 9	Blocked (.8 or lower)	Unblocked +4
Ribbon Mark Sensor 2 D860112	J9 pin 7	Blocked (.8 or lower)	Unblocked +4
Ribbon Mark Sensor 3 D860112	J9 pin 11	Blocked (.8 or lower)	Unblocked +4
Ribbon Mark Sensor 4 D860112	J9 pin 5	Blocked (.8 or lower)	Unblocked +4

Continued on the next page

Reviewing the Sensor Locations and Voltages (continued)

Ribbon Mark Sensor 5 D860112	J9 pin 3	Blocked (.8 or lower)	Unblocked +4
Mag Card Sensor D860191	J6 pin 8	Covered (.9 or lower)	Uncovered 3.0 - 3.5
Flipper Home Sensor D860128	J6 pin 4	Covered (.9 or lower)	Uncovered 3.0 - 3.5
Stack Lift Sensor D860099	J3 pin 12	Unblocked (.17 or lower)	Blocked 3.0 - 3.5
Cover Open / Close Sensor D860094	J3 pin 16	Unblocked (.17 or lower)	Blocked 3.0 - 3.5
Card Feed Sensor D860096	J7 pin 4	Unblocked (.17 or lower)	Blocked 3.0 - 3.5
Flipper Table Card Sensor D860096	J7 pin 8	Unblocked (.17 or lower)	Blocked 3.0 - 3.5
Print Film Sensor D860146 / D860098	J36 pin 4	Use the Auto Calibration Procedure	
Transfer Film Sensor D860146 / D860098	J35 pin 4	Use the Auto Calibration Procedure	

Reviewing the Sensor Layout on Ribbon Sensor array

Reviewing the Motor Locations and Cables

Motor	Cable	Location
Flipper Table Motor (840124)	D860130	J31
Flip / Feed Motor (E000062 & D840861)	D860129	J34
Card Drive Stepper (D860138	D860119	J33
Print Stepper (840123)	D860120	J32
Hopper Motor (D840980)	D860117	J28 (1-2)
Lift Stack Motor (A000124 & 760286)	D860117	J28 (3-4)
In Feed Motor (D840980)	D860123	J30 (5-6)
Transfer Lift Motor (D860055)	D860115	J30 (3-4)
Print Lift Motor D860097	D860116	J30 (1-2)
Ribbon Take Up Motor D840980	D860154	J29 (5-6)
Ribbon Supply Motor D840980	D860153	J29 (1-2)
Film Take Up Motor D860097	D860152	J29 (7-8)
Film Supply Motor D860055	D860115	J29 (3-4)

Section 11: LCD On-Line Menu Navigation

Important: The procedures in this section apply for the HDP600/HDP600-LC and HDP600 CR100/HDP600-LC CR100 Card Printers.

The purpose of this section to provide the User with specific procedures for LCD On-Line Menu Navigation, Test Image Printing and Printer Setup for the HDP600.

Entering the LCD Menu and selecting an Option

The MENU option is above the center softkey button, as shown below. This allows you to access several test, setup and reporting functions. The Selecting from the Menu Option Tree Structure shows the available menu options. A description of each option and its function is included in this section following the on-line menu.
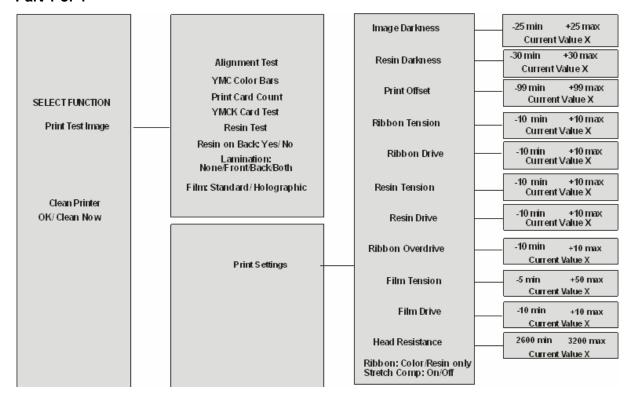
Step	Procedure
1	Press the **MENU** button to bring up the **Main Menu** screen appears.
1	Use the scroll buttons to move up or down through the menu options, as shown below. (**Note:** The brackets([ ]) appear on either side of the active Menu option.)
2	Press the button below **Select** to choose an option.

Selecting from the HDP600 Menu Option Structure Tree

You can view the Menu Tree at 150% for easier viewing.

Display A – HDP600 CR-100 Menu Tree (presented in below)

Part 1 of 4

SELECT FUNCTION		
Print Test Image	Alignment Test	
	YMC Color Bars	
	Print Card Count	
	YMCK Card Test	
	Resin Test	
	Resin on Back: Yes/No	
	Lamination: None/Front/Back/Both	
	Film: Standard/Holographic	
Clean Printer		
OK/Clean Now		

Print Settings

Setting	Range
Image Darkness	-25 min +25 max Current Value X
Resin Darkness	-30 min +30 max Current Value X
Print Offset	-99 min +99 max Current Value X
Ribbon Tension	-10 min +10 max Current Value X
Ribbon Drive	-10 min +10 max Current Value X
Resin Tension	-10 min +10 max Current Value X
Resin Drive	-10 min +10 max Current Value X
Ribbon Overdrive	-10 min +10 max Current Value X
Film Tension	-5 min +50 max Current Value X
Film Drive	-10 min +10 max Current Value X
Head Resistance	2600 min 3200 max Current Value X

Ribbon: Color/Resin only
Stretch Comp: On/Off

Selecting from the HDP600 Menu Option Structure Tree (continued)

Display A – HDP600 CR-100 Menu Tree (presented in below)

Part 2 of 4

Transfer Settings	Transfer TOF	-99 min +99 max / Current Value X
	Transfer EOF	-99 min +99 max / Current Value X
	Transfer Offset	-50 min +50 max / Current Value X
	Transfer Temp	-38 min +0 Max / Current Value X
	Transfer Tension	-10 min +10 max / Current Value X
	Transfer Drive	-10 min +10 max / Current Value X
	Transfer Speed.	-500min +0max / Current Value X

Setup Printer

Lam Settings	Lam Temp	-25min +25 max / Current Value X
	Lam TOF	-99 min +99 max / Current Value X
	Lam EOF	-99 min +99 max / Current Value X
	Lam Flip Offset	-5 min +5max / Current Value X
	Lam Invert Offset	-5 min +5 max / Current Value X
	Sensor Manual	+1 min +100 max / Current Value X
	Sensor Automatic	Auto Calibrates Lam Sensor No screen

Selecting from the HDP600 Menu Option Structure Tree (continued)

Display A – HDP600 CR-100 Menu Tree (presented in below)

Part 3 of 4

	Encoder Settings	Mag: Yes/No Contact: Yes/No Mifare: Yes/No iClass: Yes/No HID Prox: Yes/No Magnetic TOF Proximity TOF Contact Sense: Neg/Pos	-75 min +0 max Current Value X -99 min +99 max Current Value X
	Flipper Settings	Adjust Mag/Prox	-99 min +99 max Current Value X
		Adjust Level	-10 min +10 max Current Value X
		Adjust iClass	-10 min +10 max Current Value X
		Adjust Smart	-10 min +10 max Current Value X
		Adjust Inverted	-10 min +10 max Current Value X
		Home Flipper	-10 min +10 max Current Value X
	Set Sleep Timer	0 min +600 max Current Value X	
	Set Cleaning Rate	+100 min +3000 max Current Value X	

Selecting from the HDP600 Menu Option Structure Tree

Display A – HDP600 CR-100 Menu Tree (presented in below)

Part 4 of 4

Reviewing the Printer Setup

The Printer parameters found in Setup Printer are preset at the factory and should not need to be changed unless an issue develops.
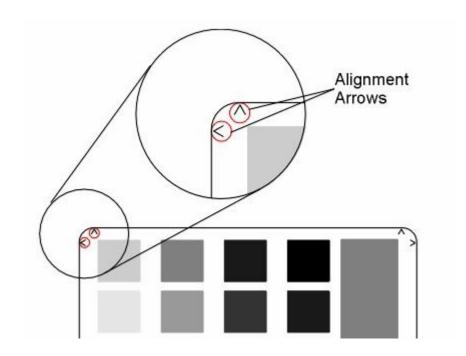
If a change to these settings is needed, be sure to record the changes on the Default settings sticker located inside of the Printer.

⚠ **Caution:** These settings are optimized at the factory and will rarely need to be changed.

Step	Procedure
1	⚠ **Caution:** Do not alter these settings unless directed to do so by Fargo Technical Support or instructions in this User Guide. Changing these settings may negatively affect Printer output. (**Note:** Located inside of the Printer is a label that states the factory defaults for all settings, along with the Printer serial number.) a. Use these values to reset the Printer for Printer problems. b. To adjust **Print Offset**, **Transfer Temperature** or **Image Darkness**, attempt to make these changes through the Printer Driver **Image Transfer** and **Image color** controls prior to changing the internal Printer settings.
2	Perform these three (3) procedures as a single alignment process: Print Offset, Transfer TOF and Transfer EOF. • The goal of these procedures is to align the printed image and the HDP Film precisely with the edges of the card. (**Note:** When aligned properly, the edge of the card will fall directly between all of the Outer and Inner Alignment Arrows.) • The numbers being entered for the settings are measured in Pixels. • The number of Pixels is equal to the measurement in inches multiplied by 300. (**Note:** For example, 0.100 in. multiplied by 300 equals 30 Pixels (0.1 x 300 = 30).) • The alignment test image is designed for setting these parameters.

Reviewing the Printer Setup (continued)

Step	Procedure
3	Be sure to run this test after each adjustment.
	Run the Alignment Test Image by selecting the following options: **MENU**, **PRINT TEST IMAGE** and **ALIGNMENT TEST**. All HDP images must have an extra 0.04 in. (1mm) over bleed on all sides of the card. The Outer Alignment Arrows should fall in this area when the image is properly centered; they will be left off of the card when transferred. See the display below.
4	a. Choose **MENU**, **Setup Printer** and the setting to be changed.
	b. Change the value and press **Save** to save the value.
	c. If the settings are lost due to replacing the Main Print Board, set the starting values to the settings listed on the label inside of the Printer.

Preparing to Adjust the Print Offset, Transfer TOF and Transfer EOF

Step	Procedure
1	Before starting the alignment procedures, you must first establish a baseline from which to start the adjustments.
	Before adjusting the Print Offset, TOF and EOF, the Print and Transfer Film Sensors should be calibrated.
	• Ensure that the Film is loaded into the Printer and that no Film marks are resting under Sensors.
	• Close the Lid and all other covers.
	• From the Sensor Calibration menu, select Calib Film Sensors. The Printer will then calibrate the Sensors automatically.
2	Select **MENU**, **Setup Printer**, **Print Settings**.
3	Select the **Print Offset button**.
4	Set baseline for CR-80 to -15 and CR-100 to -30 and press the **Select** button.
5	Select **Transfer TOF**.
6	Set to +40 and press the **Select** button.
7	Select the **Transfer EOF** button.
8	Set to ZERO and press the **Select** button.

Aligning the Print Offset
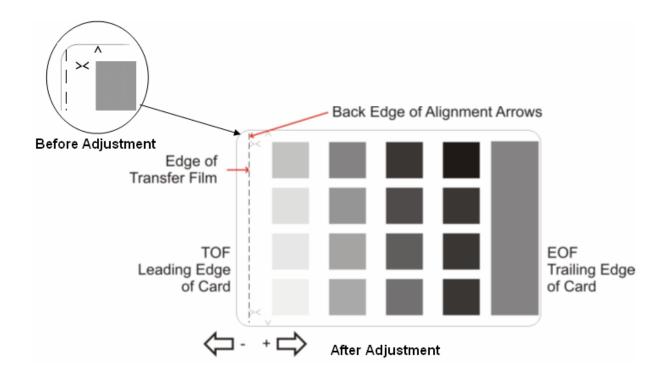
This procedure positions the image correctly on the HDP Film. Refer to the procedure for proper sequence.

Step	Procedure
1	a. Adjust the Print Offset such that it is equal 0 or at baseline (-15). b. Adjust the Transfer TOF to +40 and then print one card using the Alignment Test card which is located under the Print Test Image menu.
2	Pressing the Menu button three times will print the alignment card. (**Note:** The image will be shifted to right as shown in the diagram with this procedure.)
3	Adjust the Print Offset. (**Note:** This ensures that the jagged edge of the transfer film (illustrated by the vertical dotted line) is touching the back edge of the alignment arrows as shown below.) • **Increasing the Print Offset:** This moves the Back Edge of the Alignment Arrows to the Right (or the trailing edge of the card). • **Decreasing the Print Offset:** This moves the Back Edge of the Alignment Arrows to the Left (or the leading edge of the card).
4	Determine the amount of Print Offset adjustment needed quickly by using a caliper to measure the "Gap". • The Gap equals the distance between jagged edge of transfer film and back edge of alignment arrows • **See Using the Gap Distance** Table. This table will convert this "Gap" distance into an approximate adjustment value.
5	Repeat Steps 4 to 5 until the jagged edge of the transfer film touches the back edge of the alignment arrows.

Continued on the next page

Aligning the Print Offset (continued)

Step	Procedure
6	Proceed to Adjusting Transfer TOF to center the image on the card.

Setting the Transfer TOF
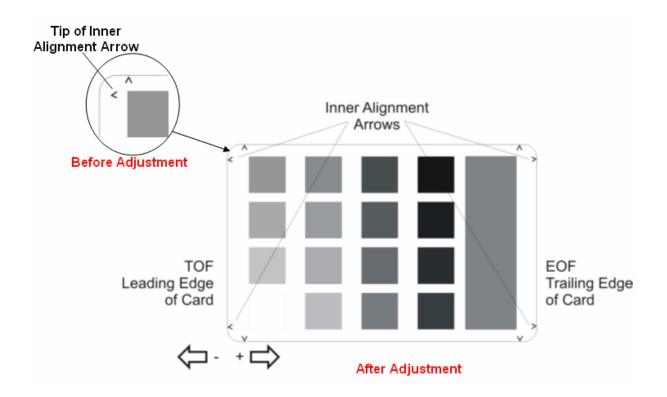
This procedure positions the HDP Film correctly on the leading edge of the card. Refer to the Preparing to adjust the Print Offset, Transfer TOF and Transfer EOF procedure for proper sequence.

Step	Procedure
1	a. Print one card using the Alignment Test card, which is located under the Print Test Image menu. b. Pressing the menu button three times will print the alignment card.
2	Adjust the Transfer TOF such that the alignment arrows appear to be equal on the leading and trailing edges of the cards. • **Increasing the Transfer Top of Form:** This moves Printed Image to the Right (or towards the trailing edge of the card). • **Decreasing the Transfer TOF:** This moves Printed Image to the Left (or towards the leading edge of the card).
3	To determine the amount of Transfer TOF adjustment needed quickly, you can use a caliper to measure the "Gap". • **The Gap:** This represents the distance from the Leading Edge of the card, to the tip of the TOF Inner Alignment Arrows. • **See Using the Gap Distance** Table. This table will convert this "Gap" distance into an approximate adjustment value.
4	Repeat steps 2-5 until the jagged edge of the transfer film touches the back edge of the alignment arrows

Continued on the next page

Setting the Transfer TOF (continued)
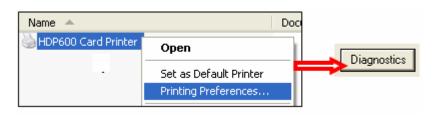
Step	Procedure
5	Proceed to Adjusting Transfer EOF to center the image on the card.

Setting the Transfer EOF

This procedure controls the point on the card at which the Transfer Roller lifts and ceases transfer. Refer to the Preparing to adjust the Print Offset, Transfer TOF and Transfer EOF procedure for proper sequence.

Step	Procedure
1	Adjust the Transfer EOF to -99.
2	Using the Diagnostics Utility, print any one card from the Sample Cards tab. • The diagnostics utility can be accessed through Printer preferences as shown below.

Setting the Transfer EOF (continued)

Step	Procedure
3	Determine the amount of Transfer EOF adjustment needed by using a caliper to measure the "Gap".
	• The Gap: Represents the distance from the Trailing Edge of the card to the edge of the image as shown below
	• **See Using the Gap Distance** Table. This table will convert this "Gap" distance into an approximate adjustment value.

Using the Gap Distance Table

Gap Distance				Gap Distance			
Print Offset & TOF Distance	Adjust	Print Offset & TOF Distance	Adjust	EOF Distance when LCD= -99	LCD Value	EOF Distance when LCD= -99	LCD Value
0.003	-1	0.130	-39	0.297	2	0.170	-36
0.007	-2	0.133	-40	0.293	1	0.167	-37
0.010	-3	0.137	-41	0.290	0	0.163	-38
0.013	-4	0.140	-42	0.287	-1	0.160	-39
0.017	-5	0.143	-43	0.283	-2	0.157	-40
0.020	-6	0.147	-44	0.280	-3	0.153	-41
0.023	-7	0.150	-45	0.277	-4	0.150	-42
0.026	-8	0.153	-46	0.273	-5	0.147	-43
0.030	-9	0.157	-47	0.270	-6	0.143	-44
0.033	-10	0.160	-48	0.267	-7	0.140	-45
0.036	-11	0.163	-49	0.263	-8	0.137	-46
0.040	-12	0.167	-50	0.260	-9	0.133	-47
0.043	-13	0.170	-51	0.257	-10	0.130	-48
0.046	-14	0.173	-52	0.253	-11	0.127	-49

Using the Gap Distance Table (continued)

Gap Distance				Gap Distance			
Print Offset & TOF Distance	Adjust	Print Offset & TOF Distance	Adjust	EOF Distance when LCD= -99	LCD Value	EOF Distance when LCD= -99	LCD Value
0.050	-15	0.177	-53	0.250	-12	0.123	-50
0.053	-16	0.180	-54	0.247	-13	0.120	-51
0.056	-17	0.183	-55	0.243	-14	0.117	-52
0.059	-18	0.187	-56	0.240	-15	0.113	-53
0.063	-19	0.190	-57	0.237	-16	0.110	-54
0.066	-20	0.193	-58	0.233	-17	0.107	-55
0.069	-21	0.197	-59	0.230	-18	0.103	-56
0.073	-22	0.200	-60	0.227	-19	0.100	-57
0.076	-23	0.203	-61	0.223	-20	0.097	-58
0.079	-24	0.207	-62	0.220	-21	0.093	-59
0.083	-25	0.210	-63	0.217	-22	0.090	-60
0.086	-26	0.213	-64	0.213	-23	0.087	-61
0.089	-27	0.217	-65	0.210	-24	0.083	-62
0.092	-28	0.220	-66	0.207	-25	0.080	-63

Using the Gap Distance Table (continued)

Gap Distance				Gap Distance			
Print Offset & TOF Distance	Adjust	Print Offset & TOF Distance	Adjust	EOF Distance when LCD= -99	LCD Value	EOF Distance when LCD= -99	LCD Value
0.096	-29	0.223	-67	0.203	-26	0.076	-64
0.099	-30	0.227	-68	0.200	-27	0.073	-65
0.102	-31	0.230	-69	0.197	-28	0.070	-66
0.106	-32	0.233	-70	0.193	-29	0.067	-67
0.109	-33	0.237	-71	0.190	-30	0.063	-68
0.112	-34	0.240	-72	0.187	-31	0.060	-69
0.116	-35	0.243	-73	0.183	-32	0.057	-70
0.120	-36	0.247	-74	0.180	-33	0.053	-71
0.123	-37	0.250	-75	0.177	-34	0.050	-72
0.127	-38	0.253	-76	0.173	-35	0.047	-73

Adjusting the Transfer Tension

This procedure positions the image correctly on the card. Refer to the [Preparing to adjust the Print Offset, Transfer TOF and Transfer EOF](#) procedure for proper sequence.

Step	Procedure
1	Choose **Menu**, **Print Test Image** and **YMC Color Bars** to print a test card.
2	Record the **Transfer Tension** value on the test card last printed.
3	Examine the test card.
4	a. Select **MENU**, **Setup Printer** and **Transfer Tension**. ⚠ **Caution:** Reducing the Transfer Tension too much may cause slack in the Film take-up, which is evidenced by a wrinkling noise and extra Film take-up during the release phase. b. Increase the Transfer Tension if this occurs. (**Note:** There may be a snapping or clunking sound during Film take-up if it is too tight. Errors may occur in either case.)
5	Press the **Select** button to save the value.
6	Print a test card as described in Step 1.
7	Repeat Steps 1 to 6 until the Film is applied smoothly to the card without wrinkles or creases.

Adjusting the Film Drive

The Film Drive sets the baseline for the Film Tension and should not be adjusted by the reseller or the end user.

Adjusting the Ribbon Tension

This procedure controls the tension of the color Ribbon during printing. Adjust the Ribbon tension if the Ribbon wrinkle is appearing on the card.

Step	Procedure
1	Be sure the **Transfer Tension**, **Print Offset**, **Transfer TOF** and **Transfer EOF** are set properly before adjusting the **Ribbon Tension**.
2	Choose **MENU**, **Print Test Image** and **Alignment Test** to print a test card. Examine the test card.
3	a. Select **MENU**, **Setup Printer**, **Print Settings** and **Ribbon Tension**. b. Record the **Ribbon Tension** value on the test card.
4	Adjust the **Ribbon Tension** value if needed.
5	Press **Save** to save the value.
6	Print a test card as described in Step 1.
7	a. Repeat Steps 1 to 6 (above) until the Ribbon wrinkle is alleviated. b. Refer to the HDP Transfer Film display. See Setting the Transfer TOF procedure.

Adjusting the Ribbon Drive

The Ribbon Drive sets the baseline for the Ribbon Tension and should not be adjusted by the reseller or end user.

Adjusting the Transfer Temperature

Step	Procedure
1	Choose **MENU**, **Print Test Image** and **Alignment Test** to print a test card.
2	Examine the test card.
3	Select **MENU**, **Setup Printer**, **Transfer Settings** and **Transfer Temperature**.
4	Record the **Transfer Temperature** value on the test card last printed.
5	Adjust the **Transfer Temperature** value. • Decrease the **Transfer Temperature** setting if the HDP Film appears to be creasing or wrinkling on the printed card. **OR** • Increase the **Transfer Temperature** setting if the printed image has ragged edges where the HDP Film seems to have peeled off. To ensure adequate transfer, see Selecting the Appropriate HDP Printer Driver Settings procedure for the Tape adhesion Test and Conducting the Tape adhesion Test procedure.
6	Press **Save** to save the value.
7	Print a test card as described in Step 1.
8	Repeat Steps 1 to 7 until the Film transfers correctly to the card.

Adjusting the Transfer Speed

The Transfer Speed sets the baseline for the rate of image transfer and should not be adjusted by the reseller or end user. If a different transfer speed is required, this parameter may be adjusted via the Printer driver.

Setting the Printhead Resistance
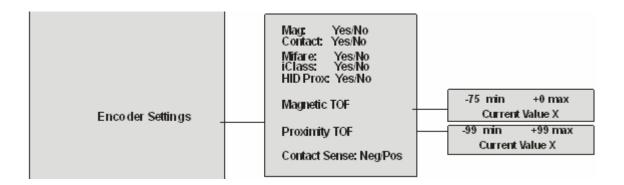
Step	Procedure
1	Locate the Printhead Setting Number on the bottom of the Printhead. The number reads **R=XXXX**.
2	Select **MENU**, **Setup Printer**, **Print Settings** and **Printhead Resistance**.
3	a. Input the Printhead Setting Number. (**Note:** The Printhead Resistance setting in the LCD Setup changes in increments of 50.) b. To select the proper resistance value, choose the setting that is closest to the value on the Printhead.)
4	Press the **Save** button to save the value.

Adjusting the Image Darkness

Step	Procedure
1	Choose **MENU**, **Print Test Image** and **Alignment Test** to print a test card.
2	Examine the test card.
3	Select **MENU**, **Setup Printer**, **Print Settings** and **Image Darkness**.
4	Record the **Image Darkness** value on the test card last printed.
5	Decrease the value to lighten the printed image. **OR** Increase the value to darken the printed image. (**Note:** Be sure to make adjustments in small increments of ± 2 or less, to avoid over-adjusting this setting.) ⚠ **Caution:** The Ribbon may jam or break if the setting is too high.
6	Press **Save** to save the value.
7	Print a test card as described in Step 1.
8	Repeat Steps 1 to 7 until the image darkness is correct.

Changing the Encoder Settings

Make this selection to modify the Encoder settings. These settings would need to be changed (a) if the Print Board is replaced or (b) if the Printer is upgraded to include an Encoder. See Selecting from the HDP600 Menu Option Structure Tree as needed.

Step	Procedure
1	Select **MENU**, **Setup Printer** and **Encoder Settings**.
2	Change the desired option as needed. **Example:** Adding a Mag Encoder change **MAG** from **No** to **Yes**.
3	Press **SELECT** to change the value.

Setting the Magnetic TOF

Use this setting to position the magnetic data at the correct distance from the leading edge of the card.

- The Magnetic TOF is the distance from the edge of the card to the Start Sentinel (SS).

- The Start Sentinel marks the beginning of the encoded data. (**Note:** According to the magnetic recording standard (ISO 7811), the correct Start Sentinel distance is 0.293 inches ± 0.020 inches (7.44 mm ± 0.51 mm) from the leading edge of the card.)

Step	Procedure
1	a. Print a magnetic selftest by selecting **MENU, Print Test Image, Magnetics Test.** (If the magnetics test is not listed, refer to the section on Changing Encoder Settings.) b. Measure this distance by making the data visible using a magnetic viewer or developer solution. c. Alternatively, use a magnetic card analyzer to measure the Start Sentinel distance.
2	a. Use a magnetic viewer or developer solution or spray to make the magnetic data visible (in order to identify the Start Sentinel as the first set of magnetic lines or first one-bit, which are visibly closer together than the large number of evenly spaced lines or leading zero-bits that fill the space to the edge of the card, as shown below). b. Use a magnifying device with a built-in measuring scale to measure the distance from the edge of the card to the Start Sentinel in the data, as shown below.
3	If the Start Sentinel is too far from the leading edge of the card, reduce (or make **negative**) the Magnetic TOF setting. **OR** If the Start Sentinel is too close to the leading edge of the card, increase (or make **positive**) the Magnetic TOF setting.

Setting the Magnetic TOF (continued)
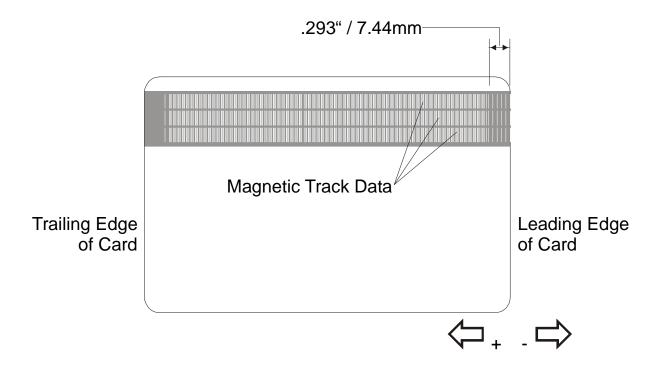
Use this setting to position the magnetic data at the correct distance from the leading edge of the card.

- The Magnetic TOF is the distance from the edge of the card to the Start Sentinel (SS).

- The Start Sentinel marks the beginning of the encoded data. (**Note:** According to the magnetic recording standard (ISO 7811), the correct Start Sentinel distance is 0.293 inches ± 0.020 inches (7.44 mm ± 0.51 mm) from the leading edge of the card.)

Step	Procedure
4	Select **MENU**, **Setup Printer**, **Encoder Settings** and **Magnetic TOF**.
5	Adjust the setting by the amount determined by the following formula: • 0.293 inches: Represents measured SS distance (inches) x 300 steps per in. **OR** • 7.4 mm: Represents measured SS distance (millimeter) x 11.8 steps per mm. **Example: (**0.293 – 0.284) x 300 = 2.7

Setting the Magnetic TOF

Step	Procedure
7	Press **Save** to save the value.
8	Test the position of the Start Sentinel by magnetically encoding a card and checking as described in Step 1 in this same procedure.
9	Repeat Steps 1 to 6 until the Magnetic TOF is correct.

.293" / 7.44mm

Magnetic Track Data

Trailing Edge
of Card

Leading Edge
of Card

⇐ + - ⇒

Adjusting the Flipper Offset
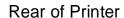
Step	Procedure
1	Select MENU, Setup Printer and Flipper Offset.
2	Change the setting in small increments if the card is not feeding correctly. (**Note:** A negative adjustment will lower the side of the Flipper Table closest to the Input Hopper.) There are five (5) settings under the Flipper Settings Menu: • **Mag/Prox** • **Level** • **Smart** • **Inverted** • **Home** See the Menu Tree in this section for their use. All settings can be tested from this Menu.
3	Press the **Save** button to save the value.

Adjusting the Lamination Flipper Offset

Step	Procedure
1	Select MENU, Setup Printer and Flipper Offset or Inverted Offset.
2	Change the setting in small increments if the card is not feeding or Flipping correctly. (**Note:** A negative adjustment will lower the side of the Flipper Table closest to the Exit Hopper.)
3	Press the **Save** button to save the value.

Adjusting the LAM TOF and EOF

Step	Procedure
1	Applies only if the Printer is equipped with the Card Lamination Module.
	• Use this control to align the PolyGuard Overlaminate patch on the card. Decrease the Lamination TOF value to move the overlaminate patch more toward the leading edge of the card.
	• TOF will not move the patch. It adjusts when the head lifts after patch has been applied.
	The numbers being entered for the settings are in Pixels. The number of Pixels is equal to the measurement in inches times 300 or the measurement in mm times 11.8.
	For example, 0.100 inches or 2.54mm equals 30 increments on the LCD. Once adjusted, this value will be stored in the Lamination Module. (**Note:** This adjustment can also be made more easily through the Printer Driver, but it will not be stored in the Lamination Module.)

Rear of Printer

Card Output Side of Printer (Leading Edge of Card)

Card Input Side of Printer (Trailing Edge of Card)

Direction card travels through printer

Front of Printer

Adjusting the Lamination Sensor Calibration

Step	Procedure
1	Applies only if the Printer is equipped with the Card Lamination Module. (**Note:** This setting reports the current Lamination Sensor calibration setting as dictated by the Printer Driver's Sensor calibration procedure. In most cases, this will not need to be changed.)

Adjusting the Lamination Temperature Setting

Step	Procedure
1	Applies only if the Printer is equipped with the Card Lamination Module.
	Use this setting to change the nominal setting of the Lamination Roller. (**Note:** In most cases, this will not need to be changed, as more direct control of the Lamination Roller can be achieved through the Printer Driver.)

Using the Show Card Count option

Step	Procedure
1	Use this option to view the total **Card Count (CC), Pass Count (PC), Transfer Count (TC)**. • The **Card Count** is the total number of cards the Printer has produced. • The **Pass Count** is the total number of print passes made by the Printhead. (**Note:** A pass is measured each time a single Ribbon Panel is printed upon beneath the Printhead.) • The **Transfer Count** is the total number of times the Printer transfers an image to a card. In most cases, this information is only necessary for certain warranty requirements, however, it can also be a helpful way to measure a Printer's overall work cycle.)

System Upgrade (Firmware Upgrade)

This option is used to upgrade the Printer Firmware.

Step	Procedure
1	Upgrade by selecting **SYSTEM UPGRADE**. The LCD will prompt: **Are you sure you want to continue?**
2	Select **YES** to begin the System Upgrade, select **NO** to return to the **READY** screen.

Section 12: Firmware Updates

Important: The procedures in this section apply for the HDP600/HDP600-LC and HDP600 CR100/HDP600-LC CR100 Card Printers.

The purpose of this section is to provide the User with information on the internal software or Firmware, which controls all aspects of the Printer's operation. New Firmware versions may be released containing enhancements, such as improved reliability, added features or better print quality. New Firmware updates can be downloaded from the Internet and loaded into the Printer through its input port (no chip replacement is needed). Includes the USB and Ethernet ports. Refer to the instructions in this Section to download and install Firmware updates.

Firmware Updater Application Program

The Firmware Updater application program is the software required to send Firmware updates from the computer to the Printer. To download and install the Firmware Updater from this site, refer to the following steps (using Step 1A or Step 1B as appropriate):

Step	Procedure
1A	**Option A:** Insert the Software Installation CD into your computer's CD drive. The CD browser is set to automatically open after a few seconds, however, you will not need the browser portion of the CD for this process. a. Once the CD browser has opened, close it by clicking on the exit icon shown below. b. Use My Computer or Windows Explorer to view the contents of the CD. Windows Explorer can be opened by selecting it from the Start, Programs menu. c. Open the Utilities folder, then open the Firmware Updater folder.
1B	**Option B:** Go to the [Fargo Electronics Technical Support Web site](http://www.fargo.com/tech_support/): http://www.fargo.com/tech_support/ Click on the Firmware Updater Program link.
2	Click on **OK** when prompted to **Save this Program to Disk** and then select a folder in which to save the Updater file.

Continued on the next page

Firmware Updater Application Program (continued)

The Firmware Updater application program is the software required to send Firmware updates from the computer to the Printer. To download and install the Firmware Updater from this site, refer to the following steps (using Step 1A or Step 1B as appropriate):

Step	Procedure
3	a. Once the file has been downloaded, navigate to the location where the file was saved. The Firmware Updater program has been compressed for ease of downloading. b. Decompress the file by double-clicking on the UPDATER.EXE icon.
4	Double-click on the SETUP.EXE file to launch the Firmware Updater Setup Program
5	Follow the on-screen instructions to complete installation. Once installed, the Firmware Updater icon will appear in the Start/Programs/Fargo folder.
6	Select the Firmware Updater icon displayed below to open the Firmware Updater application program.

Downloading Firmware Updates

Step	Procedure
1	Refer to the following steps to download Firmware updates:
2	Select the **Download Firmware** button. If you have Internet access, this will automatically take you to the Firmware Updates section of the Fargo website. If it does not, manually open your browser and go to the Firmware Updates section in the Fargo Electronics Technical Support Web site: http://www.fargo.com/tech_support/
3	Select your specific Printer model and click on the **Submit** button. Click on the Firmware file link labeled for the specific Printer model.
4	Click on **OK** when prompted to **Save this Program to Disk** and then select a folder in which to save the Update file.
5	a. Once the file has been downloaded, navigate to the location where the file was saved. (**Note:** The Firmware Update file has been compressed for ease of downloading.) b. Decompress the file by double-clicking on the designated icon.

Updating the Printer's Firmware

Now that you have installed and opened the Firmware Updater program and downloaded the Firmware update file, you can begin updating your Printer's Firmware.
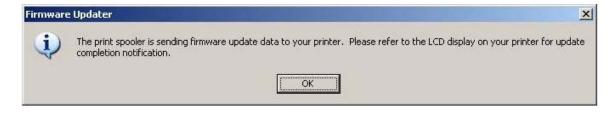
It is important to note that there are two types of Firmware for certain Fargo Printer models, the **Main Firmware** and the **LCD Firmware**, each of which has a slightly different update process.

Updating the Main Firmware

Step	Procedure
1	If you haven't already done so, select Start -> Programs -> Fargo and open the Firmware Updater program. From the Firmware Updater program, click the **Select Update File** button, as shown below in the Firmware Updater (Version 3.0.6) window.
2	Go to the folder, in which you saved the update file, select it and click **Open**. (**Note:** The file name, location and version will appear in the **Firmware Updater** window, as shown below.)
3	Click the **Select Printer** button and select the specific Fargo Printer model, click **OK**. Once your Printer model has been selected, the **Send Update** button will become active.
4	At this time, the Printer must be prepared to receive the Firmware update file. To do this, make sure the Printer is powered ON and in its READY mode. Then, press the Printer's **MENU** button.
5	Use the scroll buttons to scroll down to the **System Upgrade** option and press **SELECT**. When the Printer asks if you would like to continue, press **YES**.
6	a. Wait while the Printer restarts into the System Upgrade mode. b. Verify that the interface cable is securely connected to both the Printer and the computer and press the **START** button. • The Printer will wait up to 60 seconds to receive the Firmware update before timing out. • The clock will be indicated on the LCD Display.
7	From the Firmware Updater software, click the **Send Update** button to bring up the **Firmware Updater** dialog box, as shown below.

Updating the Main Firmware (continued)

Updating the Main Firmware (continued)
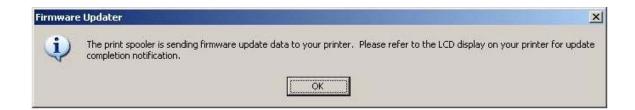
Step	Procedure
8	**Wait:** The Firmware update will now take a few minutes. Check the Printer's LCD for the status. (**Note:** When the update is complete, the LCD will indicate if the update was successful.)
9	If the Upgrade Successful is displayed, click on **Exit** on the **Sending Update to Printer** dialog screen.
10	Press the Printer's **Exit** button.
11	When prompted, turn the Printer power OFF for a few seconds and then back ON to complete the update process. (**Note:** As the Printer restarts, you will see the new Firmware version appear on the LCD.)
12	a. If the upgrade was not successful, the LCD will either display **Upgrade Failed or Upgrade Firmware Now** on boot up. b. If you receive this message, try updating the Firmware again.

Updating the LCD Firmware

Step	Procedure
1	Make sure the Printer is powered ON, connected to the PC and in its READY mode.
2	From the Firmware Updater program, click on the **Select Update File** button.
3	Go to the folder, in which you saved the update file, select it and click **Open**. The file name, location and version will appear in the **Firmware Updater** window, as shown below.
4	Click on the **Select Printer** button and select the specific Fargo Printer model, click **OK**.
5	Click on the **Send Update** button to bring up the **Firmware Updater** dialog box, as shown below.
6	Wait a few minutes while the Firmware updates itself. Check the Printer's LCD for the status. When the update is complete, the LCD will indicate if the update was successful. • If **Upgrade Successful** is displayed, click **Exit** on the **Sending Update to Printer** dialog screen. Press the Printer's **EXIT** button. When prompted, turn the Printer power OFF for a few seconds and then back ON to complete the update process. As the Printer restarts, you will see the new Firmware version appear on the LCD. • If the upgrade was not successful, the LCD will display **Upgrade Failed or Upgrade Firmware Now** on boot up. • If you receive this message, try updating the Firmware again.

Updating the LCD Firmware (continued)

Section 13: Fargo Technical Support

Important: The procedures in this section apply for the HDP600/HDP600-LC and HDP600 CR100/HDP600-LC CR100 Card Printers.

The purpose of this section to provide the User with an efficient, step-by-step procedure to be used when contacting Fargo Technical Support as needed for the HDP600.

Contacting Fargo Technical Support

Step	Procedure
1	Read the suggested Sections of the Technical Service and Maintenance Manual in order to troubleshoot the Card Printer.
	As needed, contact the Fargo Technical Support Group by phone at (952) 941-0050 or by fax at (952) 941-1852 for additional, technical assistance.
	OR
	Contact Fargo Technical Support via the Web:
	http://www.fargo.com/tech_support/contact_tech_support.asp
2	Position a phone near the Printer and Computer so Fargo technicians can help to help troubleshoot the Printer(s).
3	Please have a self-test and a sample card ready when calling Fargo Technical Support.

Reading the Serial Numbers on a Fargo Printer

The purpose of this section is to provide updated instructions for reading serial numbers on a Fargo Printer.

Finding out when a Fargo Card Printer was manufactured

You can determine when your Card Printer was manufactured by reading directly from the serial number (affixed to your Card Printer).

1. **Year Built:** The first two digits in the serial number indicate the year that the Printer was manufactured.

2. **Week Built:** The second two digits indicate the week.

3. **Numeric Order:** The last four digits indicate the sequence number for the numeric order in which the Printers were built.

Reviewing Example No. 1: Serial Number 80453289

1. **80453289:** The first two digits in the serial number indicate the year the Printer was built (e.g., the digits 80 indicate the year 1998).

2. **80453289:** The third and fourth digits in the serial number indicate the week the Printer was built (e.g., the digits 45 indicate week 45 of that year).

3. **80453289:** The last four digits indicate the sequence number for the numeric order in which the Printers were built.

Reviewing Example No. 2: Serial Number A1280224

1. **A1280224:** The first two digits in the serial number indicate the year the Printer was built (e.g., the letter and digit A1 indicate the year 2001).

2. **A1280224:** The third and fourth digits in the serial number indicate the week the Printer was built (e.g., the digits 28 indicate week 28 of that year).

3. **A1280224:** The last four digits indicate the sequence number for the numeric order in which the Printers were built.

Section 14: Reviewing Spare Parts Lists

Reviewing Spare Parts List for HDP600, HDP600-LC, HDP600 CR100 and HDP600-LC CR100

HDP600 Series
Recommended Spare Parts List
Effective Date: To be added at a later date
For current pricing see http://www.fargopartner.com/support_services/

The Spare Parts Lists for this Printer will be added at a future date.

Section 15: Glossary of Terms

Term	Definition
24-bit color	A color depth for an image that uses 8 bits for each color (red, blue, green) combining the possible 256 shades to provide a color depth of 16.7 million colors.
AC - Alternating Current	An electrical current that reverses its direction at regular intervals (typically 50 - 60 times a second).
Access Card	The card for the SmartGuard security system. A cared with embedded electronics that can be removed from the Printer, locking the Printer and preventing unauthorized use.
Adhesion	The firm attachment of a material to the card surface, confirmed by using the Tape Test -pulling an applied piece of adhesive tape (Scotch 600 or equivelent) off the card at 1 sec/in to see if any material is pulled off by the tape.
Algebraic	A type of color matching that takes the colors value of pixels and applies them to an algebraic equation to adjust the levels of hue, saturation and brightness.
ANSI (American National Standards Institute)	The United States Representative to ISO, providing standardization for U.S. Manufactures prior or in addition, to acceptance by ISO.
ASCII (American Standard Code for Information Interchange)	A standard for processing information in computer processors. An 8-bit character set of 255 decimal numbers, each assigned to numbers, letters, punctuation and special characters.
AT	Refers to an IBM standard in early computing with regard to the chipset and function of the Parallel Port, set up in the BIOS.
B (Black)	Black Dye-Sublimation panels are distinguished from the black panel using resin by the use of B for Dye-Sublimation black. K denotes resin black.

Continued on the next page

Glossary of Terms (continued)

Term	Definition
Barcodes	A series of alternating black and white stripes, of varying widths (each character denoted by a set number and width of black stripes) that allows characters to be optically read by a computer.
batch print	A file sent down from the computer that contains commands to print a number of cards, sequentially.
Battery Back-up	A power supply that can keep AC electronic equipment running for a short time when power is interrupted, allowing enough time for the user to save data and close the machine properly.
Bi-directional	A communication standard that allows two-way data transfer between PC and Printer.
BIOS (Basic Input/Output System)	The part of the operating system in a computer that handles communication between the PC mainBoard and its peripherals. Typically residing in chip-based, non-volatile memory.
Bit	An abbreviation for binary digital. Each bit is an element of information that can have two states: off and on.
Bit map	A graphic produced by an array of pixel elements with the color hue, brightness and saturation information stored in bits. The more bits, the more values and thus the greater variety. 1 bit color is black and white, 8-bit color produces 256 shades of gray and 24-bit color can produce 16.7 million colors.
Board	A term used for the circuit Board, a hard mylar plate made of many layers, that holds the electronic circuit elements and wire traces.
Boot-up	A series of operations that the Printer runs through when power is first applied including a series of initializing, status testing and a diagnostics program to ensure a ready state.
Buffer	A block of memory, in the Printer or PC, that holds print files until the processor is ready to print them.
Cable	A set of conductors wrapped together and often concealed within insulation, used for signal transfer from one device to another, with connectors on either end that allows the cable to be removed.

Continued on the next page

Glossary of Terms (continued)

Term	Definition
Cache	A type of memory Buffer to store data temporarily, used to hold information that is most often exchanged between controller and peripheral, to expedite data transfer.
Calibrating	A procedure to adjust an electro-mechanical device so that it operates within established parameters.
Cleaning Roller	High tack Rollers positioned just after the input hopper to lift debris off the card as it rolls over it. A clean card surface improves print quality.
CD (Compact Disc)	A 4.75 inch (12 cm) optical disk that stores data, written too and read from using a laser.
DMA (Direct Memory Access)	Channels designated within the Windows operating environment that are used for dedicated high-speed communication between the PC and the Printer port.
Centronics	A parallel communications interface that has become the standard for connections to Printers, designed by the Centronics Corp.
Coercivity	The property of a Magnetic Stripe that indicates the amount of force needed before magnetic saturation, measured in Oersted (Oe).
Color matching	The process of adjusting color hue, saturation and brightness, to duplicate a desired color. An algorithm within the driver, which adjusts the color balance and provides output with the desired color, automates this process.
Compressed air	Air stored in a tank or produced by an aerosol can, delivered by through nozzle at a high speed. Used in the Printer to blow out debris.
Contrast	The degree of difference in luminance of two areas.
Control panel	The panel on the Printer from which the user can control Printer functions. The Printer is usually composed of the control buttons and an LED or LCD display.

Glossary of Terms (continued)

Term	Definition
CR-79	A card dimension standard of 2.0625 L X 3.3125 W (+/-0.002 W, +/-0.005 L) or 52.400 X 84.150 mm.
CR-80	A card dimension standard of 2.125 X 3.370 (+/-0.002 W, +/-0.005 L) or 53.975 X 85.598 mm.
CR-90	A card dimension standard of 2.375 X 3.625 (+/-0.002 W, +/-0.005 L) or 60.325 X 92.075 mm.
CR-100	A card dimension standard of 2.625 X 3.875 (+/-0.002 W, +/-0.005 L) or 66.675 X 98.425 mm.
Cursor	The marker in the LCD display Window that indicates the active selection.
Darkness	A reference to color saturation.
DB-9	A 9 pin, D-shaped connector, typically used in serial port interfaces.
DC Motor	A Motor that works on DC with continuous motion.
DC (Direct Current)	Electronic flow that is unidirectional, flowing from the positive (+) to negative (-) of a power source.
Default	A setting or parameter that comes preset from the factory in driver or Firmware. Performance parameters can be customized in the driver, but can be reset to the factory values usually through the push of the default button. The default values for the Firmware are usually denoted on a label attached to the Printer.
Defrag	Abbreviation for defragmenting. The process of positioning the data in continguous sections on a hard drive so that it uses space more efficiently.
DIP switches (Dual In-line Package Switches)	A small array of mechanical switches installed on the Board that can be configured to change Printer operations including providing a variety of self-tests.

Continued on the next page

Glossary of Terms (continued)

Term	Definition
Direct-to-Card (DTC) Printing	The Direct-to-Card printing process prints digital images directly onto any plastic card with a smooth, clean, glossy PVC surface.
Dither	A system of distributing dots to control the hue, brightness and/or saturation. In monochrome printing, this controls the brightness. In color printing, Dithering can supply a larger color gamut than non-Dithering. In the driver, Dither modes can be selected to provide better image quality depending on the type of image to be printed.
Dongle	A peripheral that attaches to a port to act as a key for an installed application. The PC is able to run that application only when the dongle is installed. Typically, it works as a pass-through device and is connected in serial to the parallel cable.
Dot	The smallest unit of an image that the Printer is able to produce. The smaller the dot, see dot pitch, the sharper the image.
Dot pitch	A measurement of image sharpness denoting the width of the dots that makes up a pixel. The smaller the pitch, the sharper the image.
Download	The transfer of a data file from one device to the other over a network or cable, typically from the Internet to a PC.
DPI (Dot Per Inch)	A measurement of the Printer resolution indicating how many dots a Printer can produce in a linear inch.
DRAM (Dynamic Random Access Memory)	A microchip based volatile memory storage device. The Printer uses this to Buffer a print job, transferred from the PC, until the Printer is able to process the packet.
Driver	Software utility installed in Windows, that interfaces an application to rasterize image data and include command codes so the Printer can process the file.
Duplex Printing	Printing on the front and the back of the card.

Continued on the next page

Glossary of Terms (continued)

Term	Definition
Dwell Time	The speed at which the card moves across the Transfer and Lamination Roller, measured in seconds/inch (sec/in). This can be adjusted in the driver to ensure adhesion and card flatness.
Dye Migration	The diffusion of dye out of the card surface and into another receptive surface, such as a vinyl pouch card holder, resulting in a faded image.
Dye-Sublimation	Also called dye diffusion/thermal transfer, it is the process of heating a dye suspended in a cellulous substrate until the dye can flow, diffusing into the dye receptive surface of the card or InTM film. This produces the image in the surface of the card.
E-card	An abbreviation for electronic card. A generic term used to reference any card with built-in electronic devices such as Smart Cards or prox cards.
E-card Docking Station	The device in the Printer that accepts Smart Cards with an ISO Smart Card contact Station. This allows the user to write to the Smart Card chip with a standard RS-232 interface in the back of the Printer or with the optional built-in Encoder.
Edge-to-Edge	Refers to the maximum printable area on a card resulting in printed cards with virtually no border.
ECP Mode (Enhanced Capabilities Port Mode)	A type of Parallel Port mode, developed by Microsoft, to increase the port throughput and improve performance.
EE Memory	An abbreviation for EEPROM.
EEPROM (Electrically Erasable Programmable Read Only Memory)	A microchip based non-volatile memory storage device that can be rewritten in the field. The chip can hold new values as the Printer adapts its operational parameters.
Encoder (Smart Card)	An electro-mechanical interface to transfer data from the PC to a chip or Magnetic Stripe built into the card.

Glossary of Terms (continued)

Term	Definition
Encoder (wheel)	An electromechanical device, attached to a shaft that detects the change in rotational position, incremented to count ticks per revolution. The Printer's Encoder wheel both detects motion and measures the amount of rotation in the movement of the Ribbon.
Engine	A generic term for a collection of systems and mechanisms that is dedicated to executing a specific function. A Printer that also laminates would have both a print engine and a Lamination engine.
EOF (End Of Form)	The trailing edge of the card, detected to indicate when the Printer should stop printing.
EPP (Enhanced Parallel Port)	A type of Parallel Port mode, developed by Intel, to increase the port throughput.
EPROM (Electronically Programmable Read Only Memory)	A microchip based non-volatile memory storage device that cannot be rewritten in the field. Firmware for many Fargo Printers is stored on these chips and so a change of the chip is necessary for an upgrade.
Escape sequence	A string or control character that indicates to the processor that what follows is a command and not data.
ESD (ElectroStatic Discharge)	The discharge of static electricity (high voltage, low current) that can damage electronic devices.
Ethernet	A system of networking a series of computers for the sharing of data or peripherals.
Film	A thin flexible transparent sheet used to carry dye-impregnated material or resin to be transferred to the card.
Firmware	The instruction set, stored in chip memory, inside the Printer that controls functional and operational data. Some models require a chip change for updates; some Firmware can be changed by reprogramming from the PC.

Continued on the next page

Glossary of Terms (continued)

Term	Definition
Flash Memory	A microchip based non-volatile memory device that holds its data when power is removed. This allows for field reprogramming of the Printer commands, such as Printer Firmware upgrades, without the necessity of changing chips.
Font	A character set similar in style and form. Fonts can be graphical or mathematical constructs, represented by a series of dots or an Assembly of curves and lines.
FPGA (Field Programmable Gate Array)	A microchip with configurable logic circuits installed that takes care of the very high speed and intensive data manipulations needed by the printing engine.
Full bleed	Printing that covers the entire card surface.
Gamma	The degree of contrast of an image or the display of a monitor determined by the slope of a characteristic curve relating optical density to relative log exposure.
Glossy / Matte	A smooth polished surface in comparison to a rougher matte surface. Fargo matte cards have a surface index (Ra) of approximately 65 microinches while glossy have a Ra = 3.
Glossy PVC	A card made of PVC with a smooth polished surface (Surface roughness of approximately 0 - 10 micro-inches). This is required for direct to card Dye-Sublimation printing.
Graphical Device Interface (GDI)	A Windows standard for protocol between drivers and applications and the Windows interface. An application uses a driver to rasterize the data in the format necessary for the Printer but also for the Windows interface to execute the print commands.
Gray Scale	A graduation through the various brightness levels from white to black.
Halftoning	A process in monochrome printing that simulates continuous tone by using changes to the distribution of single dots. Increasing the number of dots in a given area increases the darkness even though the individual dots stay the same size.

Continued on the next page

Glossary of Terms (continued)

Term	Definition
Hard Drive	A high capacity storage device in a PC consisting of non-removable magnetically encodable platters.
Hardware	Physical components of a system such as the Printer, the PC, the power supply.
HDP (High Definition Printing™)	The High-Definition Printing process prints full-color images onto clear HDP transfer film (InTM). The HDP film is then fused to the card through heat and pressure via a heated Roller. The Printhead is capable of 256 shades with a sharper print and better color match.
Head	Abbreviation for Printhead.
Heat sink	A device used to dissipate heat into the ambient.
Heat Seal	A resinous film transferred by the Printhead onto the back of an HDP intermediate transfer film to facilitate adhesion.
HiCo (High Coercivity)	The Coercivity value of magnetic media between 2500 - 4000 Oe (ISO 7811-6). Fargo's High Coercivity encodes at 2750 Oe.
HTML (HyperText Markup Language)	A standard protocol used to format text files for use in a browser or on the Internet.
HTTP (HyperText Transfer Protocol)	A standard protocol by which computers can transfer data, compatible through multiple platforms.
IC (Integrated Circuit)	An electronic device that contains many individual circuits interconnected and placed within a discrete package.
ID (Identification)	An abbreviation for identification.

Continued on the next page

Glossary of Terms (continued)

Term	Definition
IEEE 1284 (Institute of Electrical and Electronics Engineers 1284)	A standard method of signaling for a bi-directional parallel interface on personal computers. To ensure proper Printer communications and image output, Fargo recommends a parallel interface cable that complies with this specification.
Image	A collection of pictures or graphical elements that compose the visual features on a card. Also refers to the digital representation.
Input	Any data or material being transferred to the Printer.
Input Hopper	The area of the Printer that stores the blank cards, ready to print.
Intermediate Transfer Media (InTM)	A thin flexible material coated with a resin material into which the dye is transferred from the Ribbon by the Printhead. The film is then transferred to the card surface by the Transfer or Hot Roller.
ISO	From the Greek, iso, meaning same. Used to represent data from the International Organization for Standardization.
JIS II (Japanese Industrial Standard)	The standard for encoding to a Magnetic Stripe provided by the Japan Standards Association. The single track is as wide as ISO tracks 1 and 2 combined and in the same approximate location as those tracks but on the front of the card. The Coercivity level is 600 Oe.
K Panel	An area of a multicolored Ribbon (e.g., YMCK) that contains black resin for transfer to the card surface. Also used in reference to the application of preference to items printed on the card - those using the black panel in lieu of a process (YMC) black.
Lamination	The application of a film or resinous substance, fused by heat and pressure, to the surface of a card.
LAN (Local Area Network)	An array of several computers connected through a series of data transfer cables for the sharing of data and peripherals.

Glossary of Terms (continued)

Term	Definition
Landscape	A document layout that is viewed with the document's long axis in a horizontal orientation.
LCD (Liquid Crystal Display)	A device that contains a liquid crystal between two pieces of polarized film through which reflected or ambient light can pass. When a current is applied, the liquid's polarity changes and blocks the passage of the light resulting in an opaque area of the display. The areas are arrayed to form characters.
LED (Light Emitting Diode)	A semiconductor that emits light when a current is applied.
Media	A generic reference to anything onto which the Printer can transfer an image including cards, Ribbon and film.
LoCo (Low Coercivity)	The Coercivity value of magnetic media between 250 - 600 Oe (ISO 7811-2). Fargo's Low Coercivity encodes at 300 Oe.
LPT Port (Line Printer Port)	The system abbreviation for a PC's parallel Printer port.
Mag encoding	The process of orienting successive magnetic bits to produce a serial data string.
Mag stripe	An area of the card with an applied or impregnated ferrous material that can hold encoded data through a series of prescribed polarity changes.
Mag Track	An area of a magnetic strip running the length of the card, with a given width and position, constitutes a track. This is the area dedicated to one data string, restricted to specific rules of format. ISO standards specify three Magnetic Tracks on the back of a card. The JIS standard specifies one track on the front.
Mag Verify	A process to confirm proper magnetic encoding. After encoding, the information is read off back and compared to the intended string.

Continued on the next page

Glossary of Terms (continued)

Term	Definition
MB (Megabyte)	A unit of storage that equals 1,048,576 bytes.
Memory	A generic term for any device that stores digital information using magnetic media or digital chip storage device.
Menu	A descriptive list of headings above nested functions that aid navigation to a specific operation. These are found in computer applications, with the heading at the top of a subset of like functions. They are also on the Printer LCD control panel.
Monochrome	An image composed of a single color.
Network	A series of computers connected by data transfer cable for communication and sharing of functions and peripherals.
Oersted (Oe)	The unit of magnetic field strength named after Dutch scientist Hans Christian Oersted who found the science of electromagnetism.
Offset	The prescribed distance between a reference point and the target point. The offset in card printing can refer to the position of the image relative to the leading edge or the distance of the start of magnetic encoding from the leading edge of the card.
O-Ring	A rubber ring used as a belt in several media driving applications.
OS (Operating System)	The instructions installed on the computer hard drive that run the computer's operations and applications. The driver used for any given OS will differ from other platforms. The correct version driver must be loaded for the Printer to interface with the OS and the application to print.
Output	Any product of the Printer including card image, encoded data and Lamination.
Output hopper	The portion of the Printer that accepts the completed cards.
Overlay	A resin-like substance that is transferred by the Printhead to the card surface over a printed dye image to prevent image fading, increase abrasion durability and prevent dye migration.

Continued on the next page

Glossary of Terms (continued)

Term	Definition
Oversized Cards	Oversized cards are used for more efficient visual identification and are available in many non-standard sizes. The most popular sizes are CR-90 (3.63 x 2.37/92mm x 60mm) and CR-100 (3.88 x 2.63/98.5mm x 67mm).
Overlaminate	Protective clear or holographic material to increase security and durability applied over the printed surface with a hot Roller.
Parallel	A method of data transfer in which serial data is divided into sections and sent simultaneously down parallel wires to speed transfer rate.
Parallel Port	A communication socket on a device that allows for parallel data transfer.
PC (Personal Computer)	A stand-alone, programmable, electronic device that can store, retrieve and process data consisting of a CPU, mouse, keyBoard and monitor.
PCB (Printed Circuit Board)	A solid, multi-layered plate on which electronic elements are attached, either through the Board or on the surface.
Peel	The removal of a film or Ribbon from a card surface (at a perpendicular angle) to ensure proper transfer, then separation, from the card surface.
Peel-Off	A bar on the Lamination section that holds the film at the correct position and provides proper peel angle.
Peripheral	Any device that is attached externally to a PC. These often share the same data cable or port as a Printer and can be the source of communication problems.

Glossary of Terms (continued)

Term	Definition
Pinch Roller	A free spinning (non-driven) Roller that presses the card against the drive Roller, on the opposite side, to ensure an adequate normal force for proper traction.
Pixel	Short for picture element. The smallest element of a graphic.
Platen	The hard rubber Roller that drives the media through the Printer, providing support to the backside of the media during printing or laminating.
PET	Abbreviation for polyester terephthalate, often called polyester. Sheets of PET are laminated with sheets of PVC to produce thermal acceptance composite cards.
Port	A communication interface, serial or parallel, used for the transference of data. Includes USB and Ethernet.
PolyGuard Overlaminate	A 1-mil or .6-mil thick polyester material that enhances card security and durability applied over the printed surface with a hot Roller. Available as clear or with embedded holographic-type security images.
Portrait	A document layout that is viewed with the document's long axis in a vertical orientation.
Potentiometer	An electronic resistor with a variable resistance value that can be mechanically set.
Print Driver	A software utility that serves as an interface between the Printer and the Windows GDI (Graphical Device Interface), making the Printer's functions available through the software application. It also provides the format information for the rasterizing of the print file including any necessary escape or function commands.
Print Job	A file of one or more cards for the Printer to print, including image data and Printer functions, transmitted through the parallel interface and at times stored temporarily in the print Buffer and spooler.
Print Server	A device used to connect and control a Printer on a network.

Glossary of Terms (continued)

Term	Definition
Printhead	The device on a Printer that produces the image on the media.
PVC	Abbreviation for polyvinyl chloride, often called vinyl. PVC is the component of the 0.002 thick clear, dye receptive film on the surface of the identification card and is the primary component of the identification card cores.
Queue	A sequence of files or sets of data, awaiting transmission or processing.
Proximity (Prox) Card	Proximity cards allow access and tracking utilizing contactless technology, usually by communicating through a built-in antenna.
Prox Card Encoder	The FARGO prox card Encoder uses an HID ProxPoint® Plus reader mounted on the e-card docking Station inside the Printer/Encoder. The ProxPoint is a read only device producing a Wiegand signal that is converted to RS-232 using a Cypress Computer Systems CVT-2232. Application programs can read information from HID prox cards via a RS-232 signal through a dedicated DB-9 port on the outside of the Printer labeled Prox.
RAM (Random Access Memory)	A storage device for digital information to be held temporarily, to facilitate processing.
Rasterize	The process of converting the elements of a graphic into a bitmap to be printed.
Reboot	Cycling the power to the Printer so that it resets and reinitializes.
Registration	The quality of the alignment of the separate primary-color images: YMCK.
Resin	A semi-solid material.

Continued on the next page

Glossary of Terms (continued)

Term	Definition
Resolution	The number of individual pixels in a graphic, taken over a given length, used to indicate the sharpness of the picture and the level of detail. The number of elements in the Printhead determines Fargo Printer resolution.
RFI (Radio Frequency Interference)	Electromagnetic waves radiated by poorly shielded cables or electronic devices that interferes with the operation or data transfer of another device.
RFID (Radio Frequency Identification)	This is a way of transmitting information via radio frequency. Data is sent from an RFID transceiver to an RFID tag (that is embedded in a Resin Ribbon).
RGB (Red/Green/Blue)	The three primary colors of the luminance or additive, model. Combinations of these three colors can produce practically all the colors of the spectrum that humans can detect. Computer monitors operate on an RGB model.
Ribbon	The dye impregnated film that is used for color printing.
Ribbon cable	Parallel wires held flat in a row by plastic insulation.
RibbonTraq	A FARGO Electronics method of placing bar code-like marks on the transition area between color panels. These marks are arranged for detection by a reflective Sensor array for the identification of Ribbon type and the Ribbon position.
RMA number (Return Merchandise Authorization number)	A number, acquired from FARGO Support, which authorizes the return of merchandise for repair or credit.
Roller	Elements of the Printer used for the transport of media consisting of a rotating steel shaft (for Ribbon) or a rotating steel shaft with a rubber cylinder installed at the shaft midpoint (for moving cards).
RS-232	An interface standard, established in 1969 by the Electronic Industries Association, regarding the connecting of computer peripherals.

Continued on the next page

Glossary of Terms (continued)

Term	Definition
Saturation	A measure of the degree of color, from gray, with the same brightness.
Self-test	A pre-determined print file used to confirm Printer operation typically sent from the driver or stored in the Printer's memory.
Sensor	An electro-mechanical/electro-optical device used to indicate a change in state in the Printer such as when a card reaches a certain location.
Serial communications	The transfer of data, one bit at a time and in sequential order, using a single wire.
Serial interface	A sub D 9 pin input/output port on the Printer, used for serial communication with the PC for AS400 operating systems or for e card encoding.
SIMM (Single In-Line Memory Module)	An array of memory chips, attached to a printed circuit Board that installs in a slot on the main Board.
Simplex	Single-sided printing.
SmartGuard	An application from FARGO Electronics that allows users to prevent access to the Printer through the use of a personally encoded Smart Card.
SmartGuard™	SmartGuard is a Printer security option that uses a custom access card and a built-in reader to restrict Printer access. Only a valid access card can enable the Printer to print cards.
SmartShield™	This option allows the Printer to print custom, security images on the card that reflect under a black or UV light source.
Smart Card	Smart cards have an embedded computer circuit that contains either a memory chip or a microprocessor chip. There are several types of Smart Cards: Memory, Contact, Contactless, Hybrid (Twin), Combi (Dual Interface), Proximity and Vicinity.
Software	Instructions saved in computer memory that directs the computer to perform certain tasks and functions.
Spooler	A computer application that allows the spooling of print jobs.

Continued on the next page

Glossary of Terms (continued)

Term	Definition
Spooling	Rather than moving a print job directly to the Printer, the job is written to the disk so that the user can access the application faster while Windows takes care of printing in the background.
SS (Start Sentinel)	The character denoting the end of a magnetic data string.
Stacker	The device that moves the finished cards onto the output column ordering them First In, First Out.
Stepper Motor	A Motor whose shaft turns in discrete steps, rather than continuously.
String	A sequence of characters that form a line of data.
Surface mount	A method of mounting circuit elements onto the surface of a circuit Board, attached at solder pads, rather than through holes in the Board.
Surge Protector	An electronic device, placed in serial to the Printer's power supply, that prevents damage to the Printer from electronic surges and electrical current that is outside of the normal parameters.
Switch Box	An electromechanical device to which a user can connect several peripheral devices to the Parallel Port simultaneously, yet using the selector switch to designate the active port.
TAC	Thermal Acceptance Composite cards. Card stock produced by laminating sheets of PVC with sheets of PET for better thermal distortion resistance. Ultra III cards.
Temp file	A temporary file, generated automatically by Windows, to store the information for an active document. Windows should delete these files when the application is closed.
Test Print	A file stored in or generated through windows that is sent to the Printer to test basic functionality.
Thermistor	An electronic resistor on the Printhead with a resistance value that varies in proportion to the heat to which it is exposed.

Continued on the next page

Glossary of Terms (continued)

Term	Definition
Thermocouple	A device for measuring temperature using a junction of two wires of dissimilar metals that produce a voltage when heated that varies proportionally with the temperature.
Thin Film Overlaminate	A 0.25-mil thick resin material that enhances card security and durability applied over the printed surface with a hot Roller. Available as clear or with embedded holographic-type security images.
Through-hole	A method of mounting circuit elements with the leads passing through holes in the circuit Board and soldered on the opposite side.
Timeout	An interruption of a print job that occurs when a function is not completed in the time allotted by the operating system.
TOF (Top of Form)	The leading edge of the card, as it travels through the Printer.
Track	The area on a mag stripe designated to contain the magnetic data string.
Troubleshooting	The process of investigating and determining the cause of a problem.
TrueType (TT)	A font format that produces each character using a mathematical equation, rather than a graphical representation, resulting in a much sharper, cleaner image.
UltraCard	The FARGO brand of card stock recommended for use in FARGO Printers, with the necessary glossy surface and composed of PVC.
UltraCard III	The FARGO brand of card stock, recommended for use in FARGO Printers that laminate, with the necessary glossy surface and composed of PVC and PET to prevent heat distortion.
Update	The process of installing a new revision of software or Firmware to implement new changes to the Printer's command codes and procedures.

Glossary of Terms (continued)

Term	Definition
UPS (Un-interruptible Power Supply)	An AC power supply, typically powered by batteries, which provides temporary power to the PC or Printer during an interruption of the supply voltage.
USB (Universal Serial Bus)	A 1.5M/sec (12Mbit/sec) serial communication interface that can support 127 separate devices consisting of 4 wires: power, ground, data in and data out.
Virtual Memory	A technique used by Windows when chip memory is exhausted, in which data is written to the hard to hold data temporarily and support Window's operations.
Wrinkle	The appearance in the card image of wavy or arched lines, either colored or clear, caused by improper film or Ribbon tension.
YMC	The designation of colored Ribbon by the panels of color in the order in which they are printed: Yellow (Y), Magenta (M) and Cyan (C).
YMCK	The designation of colored Ribbon by the panels of color in the order in which they are printed: Yellow (Y), Magenta (M), Cyan (C) and Black (K).
YMCKH	The designation of colored Ribbon by the panels of color in the order in which they are printed: Yellow (Y), Magenta (M), Cyan (C), Black (K) and Heat Seal (H).
YMCKK	The designation of colored Ribbon by the panels of color in the order in which they are printed: Yellow (Y), Magenta (M), Cyan (C), Black (K), Black (K) (the second K is for backside, black only printing).
YMCKO	The designation of colored Ribbon by the panels of color in the order in which they are printed: Yellow (Y), Magenta (M), Cyan (C), Black (K) and Overlay (O).
YMCKOK	The designation of colored Ribbon by the panels of color in the order in which they are printed: Yellow (Y), Magenta (M), Cyan (C), Black (K), Overlay (O), Black (K) (used for backside, black only printing).

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Appendix A: FCC Rules and Environmental Protection

FCC Rules

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference.

(2) This device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at your own expense.

Reference Safety Messages in this document.

Environmental Protection (China-RoHS)

Environmental Protection Use Period is based on the product being used in an office environment.

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