Aurora

Currency Validator

Up-Stack Position

Down-Stack Position

Installation Guide

for

Aurora

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global payment technologies, inc.

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Change History

Throughout its life, this document will undergo changes that reflect improvements to the document and product line. Dates of issue for the original manual and subsequent revisions thereto are listed below:

Revision Status	Reason	Date
Original Issue	--	6 September 2002
Rev. A	Add new labeling information.	15 October 2002
Rev. B	Add instructions to install Protocol Adapter Assemblies.	1 March 2004
Rev. C	Add definitions and settings of DIP Switches used in Protocol Adapter Assemblies.	1 September 2004
Rev. D	Revise Part Number labeling information.	10 June 2005

Note: A copy of this document is available at *GPT's* Web site:
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Table of Contents

List of Figures

List of Tables

1. INTRODUCTION

Global Payment Technologies, Inc., welcomes you to our newest generation of Currency Validators, known as ***Aurora***, the flagship of *GPT's* Generation III vending line. This product continues our tradition of providing the very best in currency validation.

Instructions in this guide, which include simple troubleshooting and cleaning instructions, are intended to aid the service technician to install and maintain ***Aurora*** and its companion currency storage device known as the Cash Box (**Figure 1**).

2. UNPACKING AND INSPECTION

The Currency Validator and Cash Box are packaged with sufficient cushioning material to protect the equipment during shipment. However, the shipping box or carton should be inspected for any signs of shipping damage (e.g., dents, breaks, water and/or moisture damage), or other evidence of general mishandling.

If damage is found, file a complaint with the carrier, noting all damage, and notify *GPT* of such action. Also, retain the original shipping box and packaging material for inspection. If possible, take a photograph of the damaged area and include it with your damage report.

Figure 1. *Aurora* Currency Validator and Cash Box
(Shown in Up-Stack Position)

2.1 Unpacking

To unpack the equipment, proceed as follows:

? ? *Cut sealing tape at top of box and open the box.*

? ? *Remove all parts from the box and lay them on a clean workstation.*

- *Refer to invoice, packing slip or shipment breakdown label (used on cartons only) for a complete list of parts, and verify that all parts are present.*
- *Do not discard the shipping box until after all items pass inspection.*

2.2 Inspection

After the equipment is removed from the shipping box or carton, inspect the following items:

- *External surfaces of the unit for signs of damage.*
- *Connectors for physical damage, broken or bent pins.*
- *Cables and accessories for physical damage, broken connectors, and broken or bent pins.*

If an item is damaged, report it to the carrier and to *GPT* immediately. Also, do not discard the shipping box and its packaging material.

3. PRODUCT OVERVIEW

Using advanced designs and electronics, ***Aurora*** provides outstanding performance for fast, reliable bank note acceptance. Developed as a worldwide application Currency Validator, ***Aurora*** can process multi-country databases, consisting of up to 64 bank notes per database (between 60-mm to 78-mm in width), in four directions. Since ***Aurora*** fits into nearly all electronic vending, gaming, and beverage machines, it can replace most other models in the field.

Aurora can be positioned in an up-stack or down-stack orientation—merely turn the unit over. A specially-designed *GPT* Cash Box can be mounted directly above or below the unit without the need for unit reconfiguration (**Figure 2**). The locking Cash Box provides security for storing up to 1000 bank notes. It features a positive-drive note transport mechanism that moves and stacks paper or plastic currencies with superior reliability. (***Aurora*** can also be used with a deflector plate instead of a Cash Box to discharge bank notes from the bottom of the unit.)

The communication protocols supplied with ***Aurora*** include Multi-Drop (MDB), V1 RS-232, and V2.2 RS-232. Using a single cable with three connectors, ***Aurora*** can be easily connected to the Host Controller. (Additional protocols can be used with ***Aurora*** when a device called a Protocol Adapter Assembly is installed.)

A high level of acceptance and system security, combined with reliability and longevity, makes ***Aurora*** an ideal Currency Validator for all payment operations.

Figure 2. *Aurora* Currency Validators – Mounting Positions

3.1 Specifications

The mechanical and electrical specifications of ***Aurora*** are:

? ? *Bank Notes Accepted*
Four-way acceptance of bank notes from 60-mm (2.36 inches) to 78-mm (3.07 inches) wide; up to 64 notes per database can be created for multi-country, multi-note configurations.

? ? *Optics*
Uses red, green, blue, and infrared sensors to generate multi-channel optical information for a high-security validation process with a 5-second cycle-time (maximum with a Cash Box).

? ? *Interface?*
MDB, V1 RS-232 or V2.2 RS-232 (standard)
A2A or High-Level Pulse (optional; Protocol Adapter Assembly is required.)?

? ? *Environment*
Operating Temperature: -15°C to 65°C (5°F to 149°F)
Storage Temperature: -30°C to 90°C (-22°F to 194°F)
Humidity: 5% to 95% (non-condensing)

? ? *Power Source Required – Standard Operating Voltages are:*
For 24 VDC unit: *GPT* Switching Power Supply, Model 175C0213, or
ELPAC Power Systems[1], Model FW5024
For 12 VDC unit: ELPAC Power Systems[1], Model FW3012

? ? *Power Consumption*
Idle State: 7 Watts (max.)
Accepting/Stacking States: 24 Watts (max.)
In-rush Current: 4.5 amperes (max., current limited) for 5 milliseconds at 24 VDC

? ? *Compliance*
ETL (UL-756)
CETL (CAN/CSA C22.2 No. 950-95)
Testable parameters comply with CE requirements.

? ? *Shipping Weight (Approximate)*
1.35 kg (2.96 lbs) without Cash Box;
2.15 kg (4.74 lbs) with 400-bill Cash Box.

[1] Power Supply Adapter Cable Assembly (*GPT* PN 300EX009) is required for use with this power supply.

3.2 Identifying Your Currency Validator

Affixed to the case of ***Aurora*** are the identification labels that specify major characteristics of the unit (**Figure 3**). These labels are:

? ? *Part Number Label*

? ? *Program Label*

? ? *Serial Number Label*

? ? *CE/Warning Label (located on support bracket - see **Figure 2**)*

Figure 3. *Aurora* Label Identification

The **Part Number** label contains the date (i.e., month and year) that the Currency Validator was manufactured. It also contains an alphanumeric code that identifies the configurable components (i.e., mechanical and electrical) of the unit. The numbering scheme for the **Part Number** label is defined below (**Figure 4**):

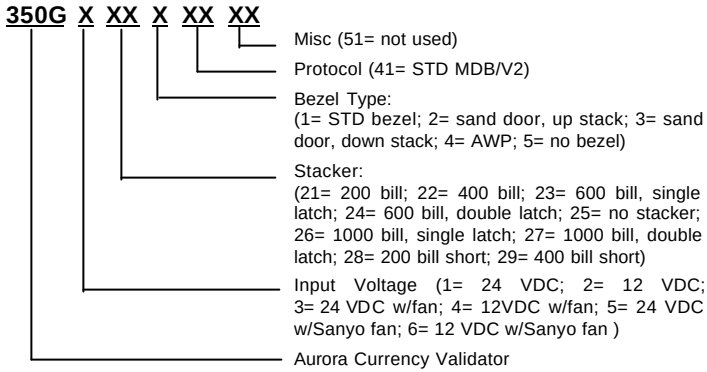


Figure 4. Part Number Label – Numbering Scheme

The following is an example of a part number to be used for ***Aurora***:

Example: **350G12214151**
where:

350G is an ***Aurora*** Currency Validator;
1 indicates 24 VDC is required to operate the unit;
22 indicates 400-bill stacker;
1 indicates standard bezel;
41 indicates STD MDB/V2 protocol;
51 not used.

The **Program** label, which uses an 8-digit alphanumeric code, defines the software characteristics of the Currency Validator (i.e., the currency or country database, the voltage required to operate the unit, the protocol type, and the database and software revisions). Two numbering schemes are used to define single-country and multi-country databases.

The numbering scheme for a single-country database is defined as follows (**Figure 5**): ?

? ? *The first two letters represent the ISO country code*

? ? *The next two digits specify the database revision (up to 99, maximum)*

? ? *The next letter identifies the voltage required to operate the unit (i.e., **V** = 24 VDC; **L** = 12 VDC)*

? ? *The letter in the sixth position identifies protocol type and the note-handling options at power up (i.e., **A** = V2.2; **M** = MDB generic; **L** = V1; **G** = MDB customer specific – bank note exits to stacker at power up only when rear sensor is closed; **F** = MDB customer specific – bank note exits validator at power up only when rear sensor is closed)*

? ? *The last two numbers specify the software revision.*

Note: If a detailed description of this matrix is required, contact Customer Service (**Section 9**) for assistance.

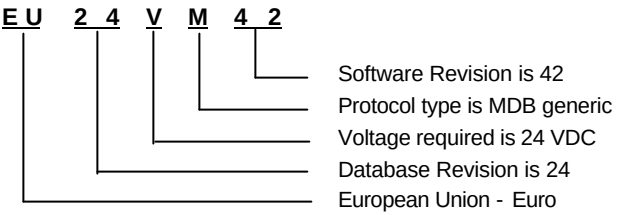


Figure 5. Program Label Numbering Scheme – Single-Country Database

The numbering scheme for a multi-country database is defined as follows (see **Figure 6**):

- *The first four characters of the alphanumeric code define the multi-country database (i.e., one letter defines the countries, and three digits define the database revision).*
- *The next letter identifies the voltage required to operate the unit (i.e., **V** = 24 VDC; **L** = 12 VDC)*
- *The letter in the sixth position identifies the protocol type and the note-handling options at power up (same as single-country database)*
- *The last two digits define the software revision.*

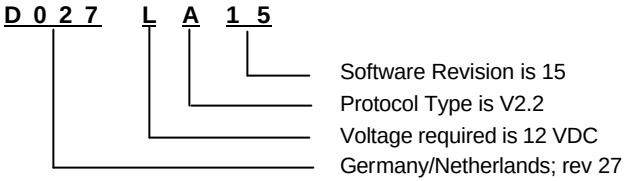


Figure 6. Program Label Numbering Scheme – Multi-Country Database

The **Serial Number** label contains a unique alphanumeric code that identifies the Currency Validator.

The **CE/Warning** label (shown below) indicates the Currency Validator complies with ETL, CETL, and CE safety requirements. It also specifies the rated input power (i.e., voltage and current) that is required to safely operate the Currency Validator. For label locations, refer to **Figure 2**.

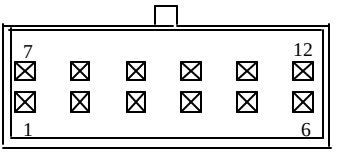
3.3 Communication Protocols/Interface Connectors

Internally, ***Aurora*** supports Multi-Drop Bus (MDB) and RS-232 communication protocols (V1 or V2.2). One cable with three connectors is provided for these protocols. The MDB interface uses two 6-pin Molex® type connectors (**Figure 7**), while RS-232 protocols are supported through a single 12-pin connector (**Figure 8**). When the MDB protocol is used, a Jumper Loop Plug (*GPT* PN 350EI010) must be inserted into the 12-pin connector.

(Pin-Side View)

Pin 1:	VDC IN	Pin 4:	Master RXD
Pin 2:	VDC Return	Pin 5:	Master TXD
Pin 3:	Sleep Output	Pin 6:	Comm. Return

Figure 7. MDB Interface Connectors, 6-Pin



(Pin-Side View)

Pin 1:	RS-232 GND	Pin 7:	GND Return
Pin 2:	RS-232 RXD	Pin 8:	RS-232 TXD
Pin 3:	Vcc	Pin 9:	SCL
Pin 4:	/BK_EN	Pin 10:	SDA
Pin 5:	GND	Pin 11:	VDC IN
Pin 6:	GND Sense	Pin 12:	GND IN

Figure 8. RS-232 Interface Connector, 12-Pin

If your Host Controller does not use V1, V2.2 or MDB protocols, then the Protocol Adapter Assembly is required for installation. This device connects to ***Aurora*** via the 12-pin connector and provides the appropriate cable/connector hookup to the Host Controller for the specified protocol. For information about using ***Aurora*** with your Host Controller, contact *GPT* Customer Service (**Section 9**).

For all installations, a separate, remotely-located power supply is required to operate the Currency Validator. Refer to the **CE/Warning** label for the acceptable voltage and current ranges for your unit.

When ***Aurora*** requires service, changes to the operational setup can be made via the DIP Switches. To obtain the functions of each switch, refer to the Program Specification Sheet for your software application.

Note: If the Program Specification Sheet is unavailable, contact *GPT* Customer Service for assistance.

4. INSTALLATION INSTRUCTIONS

This section explains how to install ***Aurora*** into a Host machine. Instructions are also provided for customers who replace their Generation I (GI) or Generation II (GII) Currency Validator with ***Aurora*** and require a Protocol Adapter Assembly. To obtain dimensional drawings of ***Aurora*** with or without a Cash Box, contact Customer Service (**Section 9**).

4.1 Currency Validator Installation

Instructions to install ***Aurora*** into a Host machine appear below. If Host Controller does not use V1, V2.2 or MDB protocol, a Protocol Adapter Assembly is required. This device allows ***Aurora*** to communicate with the Host Controller. For instructions to install a Protocol Adapter Assembly, proceed to **Subsection 4.2**.

4.1.1 Required Items

The items required for this procedure include:

- *Program Specification Sheet for your unit*
- *#1 Phillips-head screwdriver*

4.1.2 Procedure

To install ***Aurora***, follow these steps:

WARNING AVOID PERSONAL INJURY AND/OR DAMAGE TO EQUIPMENT. DISCONNECT POWER BEFORE SERVICING THE HOST MACHINE.

1. Disconnect electrical power to Host machine.
2. Ensure all DIP switches are set according to data in Program Specification Sheet or Interface Box Specification Sheet.
3. Using appropriate hardware, secure enclosure (if applicable) to Host machine.
4. Mount ***Aurora*** into enclosure of Host machine and ensure it is securely fastened via mounting slots of enclosure.
5. Connect appropriate interface-harness cable from Host machine or Protocol Adapter Assembly, if used, to ***Aurora's*** Main Cable Assembly Connector (i.e., RS-232 or MDB, **Figure 9**).

Note: For 12 V battery-operated Sielaff vending machines, an *Aurora* Power Relay (*GPT* PN 350EX008A or 350EX013) is required. For installation instructions, refer to Technical Bulletin **GBP4T03** (latest revision).

Notes:

1. When MDB protocol is used, ensure Jumper Plug (*GPT* PN 350EI010) is inserted into RS-232 connector.

2. MDB connectors are color-coded to designate the proper input voltage required to operate your Currency Validator. White-colored connectors are used for units that require 24 VDC, and green-colored connectors are used for 12 VDC units only.

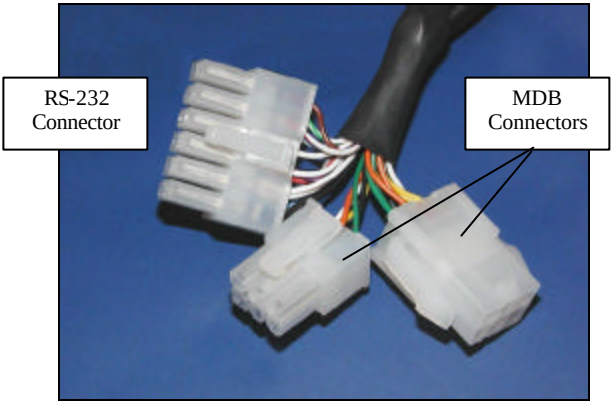


Figure 9. *Aurora* Main Cable Assembly – Identification of Connectors

6. Carefully place all cables to avoid interference with equipment operation.

7. Install Cash Box (if equipped); ensure spring-loaded latches on Cash Box engage cutouts on metal support bracket of Currency Validator; Cash Box should lock in place.

STOP

WARNING PERSONAL INJURY AND/OR DAMAGE TO EQUIPMENT MAY RESULT BY APPLYING INCORRECT VOLTAGE TO THE CURRENCY VALIDATOR. ONLY APPLY VOLTAGE AS SPECIFIED ON **CE/WARNING** LABEL (**Figure 2**).

8. Apply power to Host machine.

Note: On the bezel, observe that after the reset cycle is completed, the green LED is continuously lit and the red LED is off. This condition indicates the Currency Validator is operational and ready to accept currency. However, if both LEDs are flashing, an error condition exists; proceed to Bezel LED Codes (**Section 5**).

4.2 Protocol Adapter Assembly Installation

The Protocol Adapter Assembly (PAA) allows ***Aurora*** to communicate with the Host Controller, and it provides the cables that connect ***Aurora*** to the Host machine. The PAA is required for Host Controllers that do not use V1, V2.2 or MDB protocols. To determine the appropriate PAA for your Host machine, refer to Program Specification Sheet.

4.2.1 Required Items

Items required for this procedure include:

? ? *Program Specification Sheet for your unit*?

? ? *#1 Phillips-head screwdriver*

Notes:

1. Only one of the following items is required for installation. Verify that Part Number/Protocol ID label (**Figure 10**), which is on the cover of Protocol Adapter Assembly, identifies the appropriate protocol for your Host Controller.

2. The Currency Demoninations label, which specifies DIP-Switch settings of currency denominations for ***Aurora***, may appear on the cover. The setting on the label must be used instead of the values in the Program Specification Sheet.

? ? *Protocol Adapter Assembly for Host Vending Machines:*

- 24VAC/DC High-Level Pulse Protocol Adapter (*GPT* PN 350P0001-1),
- 110/220 VAC High-Level Pulse Protocol Adapter (*GPT* PN 350P0001-2),
- A2A/A2 Protocol Adapter (*GPT* PN 350P0001-3).

? ? *Protocol Adapter Assembly for Host Gaming Machines:*

- VFM Protocol Adapter Assembly (*GPT* PN 350P0002-1),
- IGT® Protocol Adapter Assembly (*GPT* PN 350P0002-2),
- Bally® VFM Protocol Adapter Assembly (*GPT* PN 350P0002-3).

Figure 10. Protocol Adapter Assembly – Label Identification

Dependent upon the protocol adapter used, proceed to **Subsection 4.2.2** or **Subsection 4.2.3** for installation instructions.

4.2.2 Protocol Adapter Assembly Installation Procedure for Host Vending Machines

Instructions to install a Protocol Adapter Assembly (PAA) into a Host vending machine appear in this section. If the Host Controller uses MDB protocol, the PAA is not required. Therefore, the cable from the Host Controller can be connected to ***Aurora's*** MDB connector.

To install a PAA into a Host vending machine, follow these steps:

Note: Verify that Part Number/Protocol ID label (**Figure 10**), which is on the cover of PAA, identifies the appropriate protocol (i.e., 24 VAC/DC High-Level Pulse, 110/220 VAC High-Level Pulse or A2A/A2) for your Host machine.

1. Disconnect electrical power to Host machine.
2. Disconnect all cables from Currency Validator.
3. Remove GI or GII Currency Validator from Host machine.
4. On PAA, remove and retain four screws that secure cover to box; remove cover by lifting it.
5. On PAA, set DIP Switches (**Figure 11**) to activate required functions indicated in Program Specification Sheet; refer to **Table 1** for DIP-Switch definitions.

Note: For DIP-Switches 1 through 8, the **ON** (closed) setting is toward the number (down), and the **OFF** (open) setting is away from the number (up).

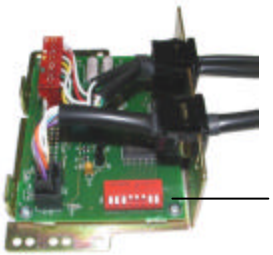


Figure 11. Protocol Adapter Assembly (Typical) — Location of DIP-Switches 1 through 8

Note: To obtain the settings for DIP-Switches 1 through 8 listed in **Table 1**, refer to Program Specification Sheet for your Currency Validator.

Table 1. DIP-Switch Definitions for PAAs used in Vending Machines

DIP-Switch Number	Function
1	Bill Enable Sw 1: OFF = disabled ON = enabled
2	Bill Enable Sw 2: OFF = disabled ON = enabled
3	Bill Enable Sw 3: OFF = disabled ON = enabled
4, 5	Pulse Count Multiplier – one of four values can be selected: (5 – 4) OFF - OFF = Option 1 OFF - ON = Option 2 ON - OFF = Option 3 ON - ON = Option 4
6	Pulse Length – one of two values can be selected: OFF = Option 1 ON = Option 2
7	Inhibit Logic: OFF = Normal (driven [ON] = L; Isolated [OFF] = H) ON = Inverted (driven [ON] = H; Isolated [OFF] = L)
8	Protocol: OFF = A2A ON = High Level

6. Re-attach and secure cover to PAA with four screws retained in **Step 4**. Preparation of PAA is now completed.

7. Install appropriate PAA as follows:

Note: New installations require an extension cable for the 9-Pin Credit Relay and Inhibit Connector. Contact *GPT* Sales Department to obtain the appropriate cable for your installation.

a. For 24 VAC/DC High-Level Pulse PAA, make the connections in **Figure 12**; for connector pin-signal assignments, refer to Technical Bulletin **GPB3T04** (latest revision).

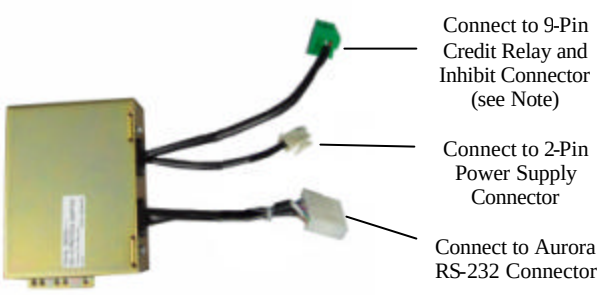


Figure 12. 24 VAC/DC High-Level Pulse PAA

b. For 110/220 VAC High-Level Pulse PAA, make the connections in **Figure 13**; for connector pin-signal assignments, refer to Technical Bulletin **GPB3T04** (latest revision).

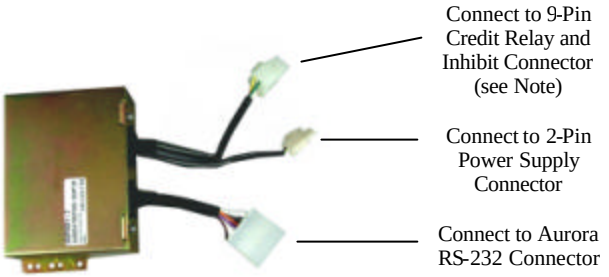


Figure 13. 110/220 VAC High-Level Pulse PAA

c. For A2/A2A PAA, make the connections in **Figure 14**; for connector pin-signal assignments, refer to Technical Bulletin **GPB3T04** (latest revision).

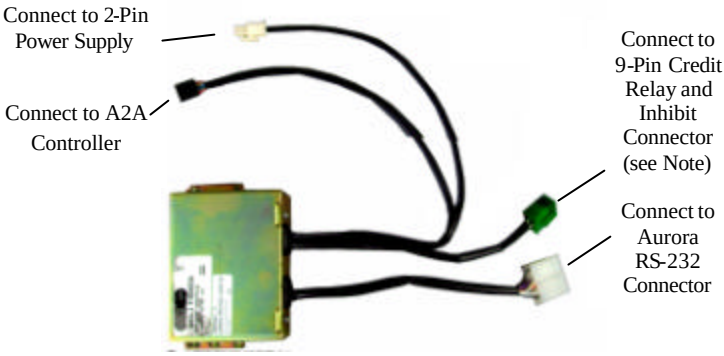


Figure 14. A2/A2A PAA

8. Install Currency Validator into Host machine as described in **Subsection 4.1**.

4.2.3 Protocol Adapter Assembly Installation Procedure for Host Gaming Machines

Instructions to install a Protocol Adapter Assembly (PAA) into a Host gaming machine appear in this section. If the Host Controller uses V1 or V2.2 RS-232 protocols, the PAA is not required; the cable from the Host Controller can be connected to ***Aurora's*** RS-232 connector.

To prepare a PAA for installation into a Host gaming machine, follow these steps:

Notes:

1. Verify that the Part Number/Protocol ID label (**Figure 10**), which is on the cover of PAA, identifies the appropriate protocol (i.e., VFM, IGT® or Bally®) for your Host Controller.

2. The Currency Denominations label, which specifies DIP-Switch settings of currency denominations for ***Aurora***, may appear on cover. The setting on label must be used instead of values in Program Specification Sheet. This label appears for programs ending with ***-1*** (e.g., 350PD013-***1***) for the last digit on Microprocessor Label (**Figure 16**).

1. Disconnect electrical power to Host machine.
2. Disconnect 24-pin interface cable from GII Currency Validator.
3. Remove GII Currency Validator from Host machine.
4. On PAA, remove and retain four screws that secure cover to box, and remove cover by lifting it.
5. On PAA, set DIP Switches (**Figure 15**) to activate required functions specified in **Table 2** for your unit.

Note: On DIP-Switches 1 through 5, the ON (closed) setting is toward the number (down) on face of switch, and the OFF (open) setting is away from the number (up).

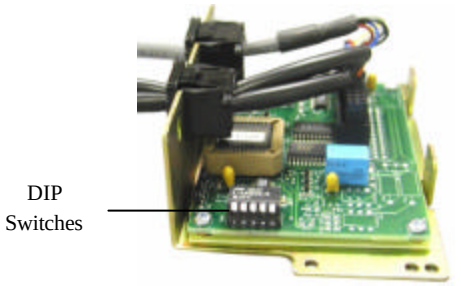


Figure 15. PAA – DIP-Switch Location

Table 2. DIP-Switch Settings for PAAs used in Gaming Machines

DIP-Switch Number	OFF Function	ON Function
Note: Use these settings for VFM PAA (PN 350P0002-1) only:		
1	Fast Credit Pulse Width: 50/50 ms	Slow Credit Pulse Width: 300/60 ms
2	Stacker required for operation.	Stacker not required for operation.
3	Will send stacker message.	Will not send stacker message.
4, 5	Not used.	Not used.

Table 2. DIP-Switch Settings for PAAs used in Gaming Machines

DIP-Switch Number	OFF Function	ON Function
Note: Use these settings for IGT PAA (PN 350P0002-2) only:		
1	IGT 2.5 (IDO 23) protocol	IGT Smoke (IDO 22) protocol
2	For use with 60 Hz AC power supply.	For use with 50 Hz AC power supply.
3, 4, 5	Not used.	Not used.
Note: Use these settings for Bally PAA (PN 350P0002-3) only:		
1	Not used.	Not used.
2	Stacker required for operation.	Stacker not required for operation.
3, 4, 5	Not used.	Not used.

6. Examine program number on Microprocessor Label (**Figure 16**), and then make the necessary settings to DIP Switches on **Aurora** as indicated in Program Specification Sheet.

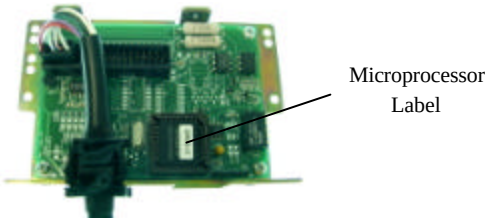


Figure 16. Location of Microprocessor Label

CAUTION: DO NOT hot plug Host machine's 24-pin connector to junction point JP2 in PAA. Ensure power to Host machine is off.

7. Connect 24-pin interface cable (removed in **Step 2**) from Host machine to JP2 in PAA (**Figure 17**); for JP2 pin-signal assignments, refer to **Table 3**.

Table 3. Pin-Signal Assignments for PAA Connector JP2

Pin	Signal Name	Pin	Signal Name
1	Enable COM	13	RS-232 GND
2	Enable IN	14	Account Number
3	LED PWR-Anode	15	Accept Enable
4	Credit Relay	16	Send
5	Reset	17	$1 Credit
6	Credit Relay	18	Serial/Pulse SEL
7	Stack	19	DATA
8	Credit COM	20	Out-of-Service
9	RS-232 RXD	21	INTERRUPT
10	Credit Out	22	+24 VDC IN
11	RS-232 TXD	23	GND
12	Program	24	POWER GND

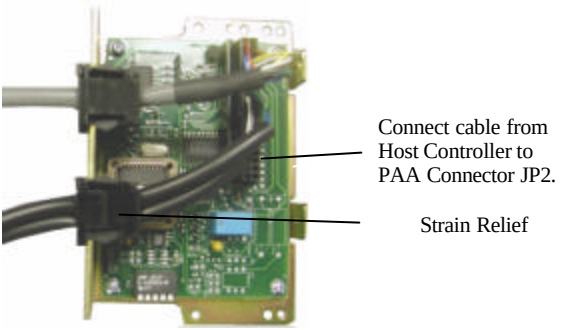


Figure 17. PAA – Installation of 24-Pin Interface Cable

8. Adjust cable length to allow strain relief to be fully seated in slot of PAA (**Figure 17**).
9. Re-attach and secure cover to PAA with four screws retained in **Step 4**; preparation of PAA is completed.
10. Install and secure PAA into Host machine.
11. Install Currency Validator into Host machine as described in **Sub-section 4.1**.

5. BEZEL LED CODES

The bezel contains two LEDs (i.e., green and red) that indicate diagnostic information about the unit. On power-up, ***Aurora*** performs a self-test routine. If the unit is operational, the green LED will be lit (i.e., Idle State). However, if a malfunction is detected, the unit will issue an error code that identifies the problem. In this case, the operator must clear the displayed error first, and then work through subsequent errors (if any) to enable the unit.

Descriptions of the flash codes for the green and red LEDs are provided in **Table 4**.

Table 4. Bezel LED Code Chart

Flash Code	Description of Code
Green LED is continuously lit and red LED is off.	Currency Validator is ready to accept currency (i.e., Idle State).
Green LED is off and red LED is flashing.	VLA Mode is enabled; unit is waiting for insertion of VLA card.
Green LED is off and red LED is continuously lit.	Inhibit Mode is enabled.
Green and red LEDs are flashing.	An error condition exists. To determine the error code, count the number of times the red LED flashes (i.e., between 1 and 21) between flashes of the green LED. Descriptions and remedies for error codes are defined below: Error Code — Description/Remedy 1 — Front Sensor is blocked. Remove object form Front Sensor area. 2 — All notes are disabled. Check that Host has enabled at least one denomination. 3 — Rear Sensor is blocked. Remove object from Rear Sensor area. 4 — Channel is jammed. Remove bank note or object from channel. 5 — Channel is open. Fully insert Lower-Guide Assembly into Upper-Guide Assembly, and ensure spring-loaded latch is engaged.

Table 4. Bezel LED Code Chart (Contd)

Flash Code	Description of Code	
Green and red LEDs are flashing.	Error Code	Description/Remedy
	6	Unit does not detect a Cash Box when a Cash Box is required for system operation. Install Cash Box.
	7	A full Cash Box is detected. Empty the Cash Box.
	8	Cash Box failure; either Cash Box failed to start or time allowed to complete the cycle was exceeded. Replace Cash Box.
	9	Unit is disabled by a command from Host. Host must send a command to enable unit.
	10	Unit has not received messages from Host before the protocol (i.e., MDB or V2.2) timeout period has elapsed. Check Host and associated cabling.
	11	Error occurred while trying to send credit to Host. Host did not acknowledge credit message. Check cabling.
	12	Error occurred in Protocol Adapter Box. Replace box.
	13	Slow Rear Flag. Remove object blocking Rear Flag Sensor.
	14	Unit's internal temperature exceeds operating range. Ensure Host machine's cooling fans are operating.
	15	Video adjustment failure; unit did not successfully complete VLA (e.g., incorrect paper medium, failed optics). Perform VLA.
	16	System error; a fault is detected in software controlling the unit. Check program; run CRC and, if necessary, reload program.
	17	Unit hardware error. Download MDB or V2.2 program (if not loaded), and use diagnostics command to display the particular fault.
	18 – 21	Not used.

6. TROUBLESHOOTING

The possible causes and corrective actions for malfunctions associated with ***Aurora*** (**Table 5**) and the Cash Box (**Table 6)** appear in this section. If the corrective actions fail to resolve the problem, contact Customer Service (**Section 9**). Should the unit require cleaning, refer to Periodic Cleaning (**Section 7**).

Note: Repair of ***Aurora*** is restricted to the corrective actions in **Table 5**.

Table 5. *Aurora* Troubleshooting Chart

Symptom	Possible Causes	Corrective Actions
Currency Validator is not working (i.e., no communication or power); bezel LEDs are not lit	External power is not applied to Currency Validator.	Verify that power and ground are connected to appropriate pins in RS-232 or MDB connector (**Figure 7 or 8**).
	Damaged pins in RS-232 or MDB connector.	Check for bent, missing or damaged pins in connector.
At power up, Currency Validator cycles and red LED is lit.	Obstruction is blocking front sensors.	Clean front sensors and/or prism.
At power up, stepper motor turns 5 times and then stops.	Rear Sensor Prism is blocked, dirty, or damaged.	Clean Rear Sensor Prism and check that sensor is not blocked or damaged. Perform VLA (**Section 8**).
Currency Validator is disabled after power up; bezel LEDs are not lit.	Side-Looking Sensors (SLS) are blocked; lens is dirty, scratched or damaged.	Clean Side-Looking Sensors. Reconnect or replace PSMD Cable.
	Upper-Guide and Lower-Guide Assemblies are not properly engaged.	Ensure that Lower-Guide Assembly is securely latched to Upper-Guide Assembly.
Bills continually jam in channel.	Foreign object(s) is in channel.	Remove foreign objects from channel; ensure channel is free of all debris.
	Drive Rollers and/or Pressure Rollers are dirty, damaged, or loose.	Clean Drive and Pressure Rollers; if damaged, replace rollers.
	Rear Sensor Prism is loose, misaligned or has fallen off.	Re-attach or replace Rear Sensor Prism.

Table 6. Cash Box Troubleshooting Chart

Symptom	Possible Causes	Corrective Actions
Cash Box malfunctions.	Entry slot is blocked by Pusher Plate (**Figure 18**).	Check entry slot for possible damage and/or blockage. Also, check slide guides for damage.
	Foreign object is jamming drive system.	Remove foreign object from drive system.
	Cash Box may be full.	Empty Cash Box.
Bills jam in Cash Box.	Dirty bill guides or foreign objects in Cash Box.	Clean bill guides; remove foreign objects.
	Cash Box may be full.	Empty Cash Box.
Currency Validator reports a jam in Cash Box but bill is not jammed.	Pusher Plate Sensor is damaged and it does not allow Pusher Plate to return to top-most position.	Replace Cash Box.

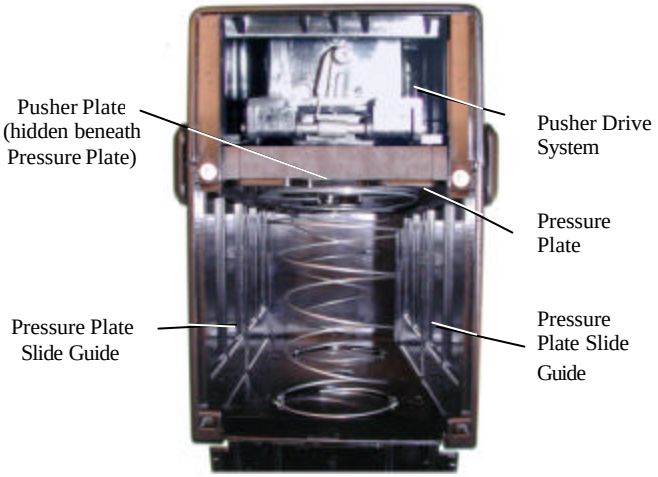


Figure 18. Cash Box – Internal Parts

7. PERIODIC CLEANING

Depending on its environment and amount of use, ***Aurora*** may require periodic cleaning to restore it to optimum performance. Under normal use, ***Aurora*** should be cleaned every 6 to 12 months. For unusual operating conditions, such as when the unit is exposed to dirt, dust, water spray, airborne oil, and/or sand, more frequent cleaning will be required.

7.1 Cleaning the Bezel

To remove dirty deposits and smudges from the bezel and other surfaces of ***Aurora***, use a soft, lint-free cloth, dampened with a **90-percent solution of isopropyl alcohol** only.

7.2 Cleaning the Currency Channel

With constant use, a buildup of dirt, which is transferred from the surface of the bank notes, will accumulate on the pressure rollers and optics. Periodically, these items should be cleaned to ensure reliable operation.

7.2.1 Required Items

The items required to clean ***Aurora*** are:

- *Soft, lint-free cloth*
- *Isopropyl alcohol (90-percent solution).*

7.2.2 Procedure

To clean the currency channel, follow these steps:

WARNINGS:

1. AVOID PERSONAL INJURY AND/OR SEVERE DAMAGE TO THE VALIDATOR. DISCONNECT POWER SUPPLY BEFORE CLEANING OR PERFORMING MAINTENANCE ON VALIDATOR.

2. REDUCE AND/OR PREVENT RISK OF ELECTRIC SHOCK. DO NOT CLEAN OR REPAIR THE VALIDATOR IN A DAMP OR WET ENVIRONMENT.

3. AVOID DANGEROUS SITUATIONS. DO NOT INTRODUCE FLAMMABLE LIQUIDS OR GASES TO MAINTENANCE WORK AREA WHEN CLEANING OR PERFORMING MAINTENANCE ON CURRENCY VALIDATOR.

1. Power-down Currency Validator and disconnect Interface Connector (RS-232) Harness Cable.
2. Remove Currency Validator from its mounting frame.

CAUTIONS:

1. DO NOT scratch the surfaces of the optics windows while cleaning these devices, as this can impair the validator's performance.

2. DO NOT use unapproved cleaners; unapproved cleaners may cause permanent surface damage. Use only cleaners as directed in this procedure.

3. DO NOT use cotton swabs to clean the unit as this can leave unwanted material on the surfaces.

3. To access currency channel, depress spring-loaded latch (**Figure 19**), and then pull out Lower-Guide Assembly.

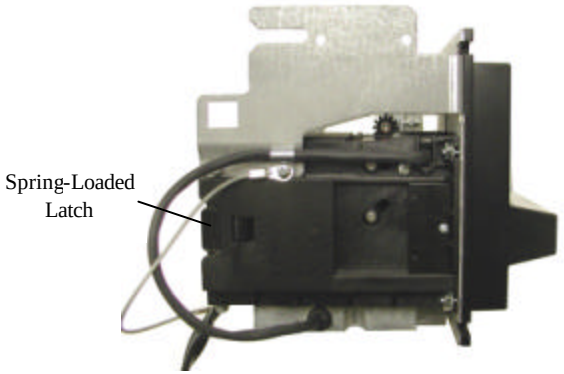
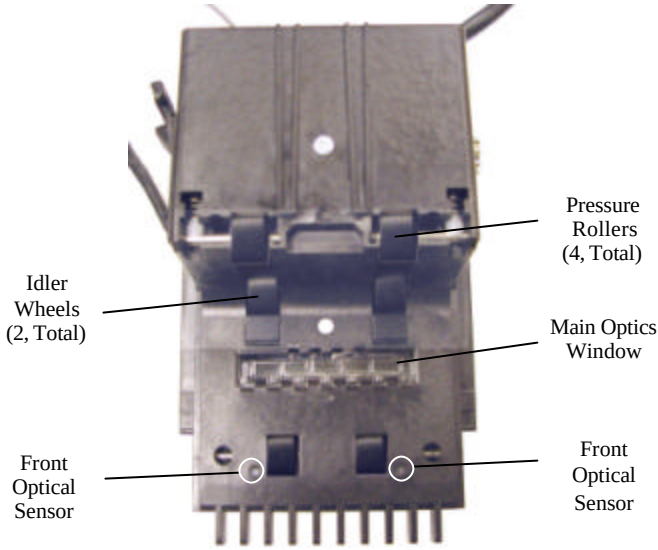
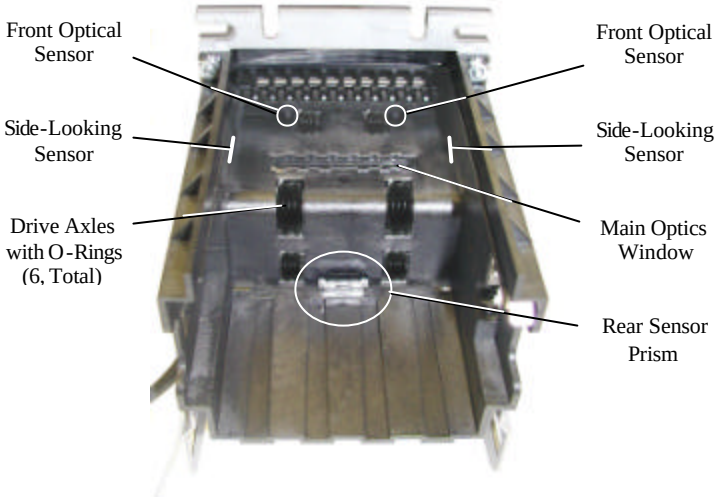


Figure 19. Location of Spring-Loaded Latch

4. Using a soft, lint-free cloth dampened with 90-percent isopropyl alcohol, clean the following areas (**Figure 20**):
   a. Currency channel surfaces: remove any surface dirt on both the upper and lower guides.
   b. Main optics window area: clean all optic window surfaces (top and bottom).
   c. Pressure Rollers/Idler Wheels: clean all rollers/wheels on Lower-Guide Assembly.
   d. Drive Axles with O-Rings: clean all o-rings on Upper-Guide Assembly.



Lower-Guide Assembly – Beltless-Type Unit



Upper-Guide Assembly

Figure 20. Currency Channel – Cleaning Surfaces

e. Front Optical Sensors: clean surface of lens.

f. Rear Sensor Prism: clean surface.

g. Side-looking sensors: clean surface of lens.

5. Using oil-free compressed air, dry all surfaces to remove residue.

6. Slide Lower-Guide Assembly into Upper-Guide Assembly until latch is engaged (locked).

7. Mount Currency Validator into enclosure of Host machine.

WARNING: PERSONAL INJURY AND/OR DAMAGE TO EQUIPMENT MAY RESULT BY APPLYING INCORRECT VOLTAGE TO THE CURRENCY VALIDATOR. ONLY APPLY VOLTAGE AS SPECIFIED ON **CE/WARNING** LABEL.

8. Connect Interface Connector Harness Cable to Currency Validator.

9. Apply power and close door of Host machine.

Note: On the bezel, observe that green LED is lit and red LED is off. If green LED is not lit, proceed to Bezel LED Codes (**Section 5**) and Troubleshooting (**Section 6**).

The Currency Validator is operational and ready to accept currency.

8. VIDEO-LEVEL ADJUSTMENT

The Video-Level Adjustment (VLA) is used to optimize the performance of the Currency Validator. Using an ***Aurora***-specific VLA card only from *GPT*, the service technician can calibrate the optical sensing circuitry to its optimal levels. This procedure can be done while the unit is in the vending/gaming machine or on the workbench with the appropriate 12- or 24-volt power source.

This procedure is applicable to all ***Aurora*** Currency Validators and it must be performed under the following conditions:

? ? *At final shop test of the machine, prior to public deployment.*

? ? *After preventive or corrective maintenance.*

? ? *Whenever bank note acceptance is degraded.*

8.1 Required Items

The items required to perform the VLA are:

? ? *Applicable Program Specification Sheet*

CAUTIONS

1. DO NOT perform VLA under adverse environmental conditions. The VLA should only be performed at temperatures between 0 to 60°C with a non-condensing humidity between 0 to 95 percent.

2. DO NOT use the wrong *VLA Card*. The use of the wrong *card* can result in impaired Currency Validator performance. ONLY USE the card specified in this procedure.

? ? *VLA Card for 70-mm wide channel (GPT PN 300EO005)*

? ? *Small DIP-switch manipulator (e.g., a small, non-metallic, non-conductive stick-like item such as a toothpick or plastic tweezers).*

8.2 Precautions

The quality of the VLA card will affect the quality of the adjustment. When not in use, the card should be kept in an envelope and stored in a cool, dry environment. If the card becomes soiled or physically damaged (e.g., creased, perforated, bent, etc.), replace it with a new one.

8.3 Procedure

To perform the VLA, follow these steps:

1. Power-down Currency Validator.
2. To access DIP-Switches, loosen screw and rotate cover (**Figure 21**).

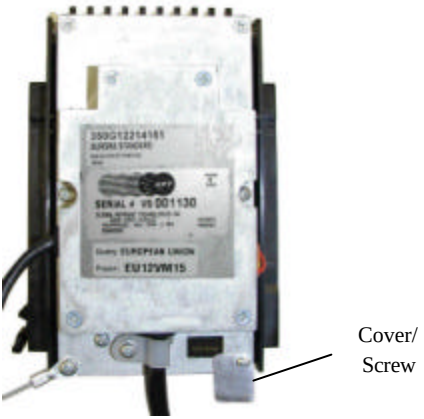


Figure 21. Location of DIP-Switch Cover/Screw

3. To enable VLA mode, set DIP-Switch 5 to **on** position (i.e., down, toward number) (**Figure 22**); all remaining switches should be set to **off** (up) position.

Notes:

1. DIP-Switch 5 is used for servicing the Currency Validator. All other DIP Switches are set to the applicable Program Specification Sheet for your unit and SHOULD NOT be changed.

2. If the Program Specification Sheet identifies the 5-pack DIP Switches and your Currency Validator has the 8-pack DIP Switches, then only DIP-Switches 1 through 5 are active and DIP-Switches 6 through 8 are inactive (i.e., not used); set DIP-Switches 6 through 8 to the **off** position.

5-Pack DIP Switches

8-Pack DIP Switches

Figure 22. DIP-Switch Packages

4. Power-up Currency Validator. Observe the red LED is flashing and the green LED is off (indicating unit is waiting for insertion of VLA card).

CAUTION: DO NOT use cut, torn, creased, folded or perforated VLA cards for this test. Such damaged cards should be discarded and replaced with new cards.

5. Insert VLA Card after validator's green LED turns off and red LED starts flashing.

Note: The VLA Card will be drawn into the Currency Validator. The red LED will stop flashing and will remain lit. After 20 to 25 seconds, the VLA card will be ejected from the Currency Validator, indicating the end of the validator's adjustment. The red LED will start flashing and the unit will return to VLA mode.

6. Power-down Currency Validator.

7. Set DIP-Switch 5 to **off** position (i.e., away from numbers), then set other switches as specified by applicable Program Specification Sheet for your software configuration.

Note: If the Program Specification Sheet identifies the 5-pack DIP Switches and your Currency Validator has the 8-pack DIP Switches, then only DIP-Switches 1 through 5 are active and DIP-Switches 6 through 8 are inactive (i.e., not used); set DIP-Switches 6 through 8 to the **off** position.

8. Close DIP-Switch cover, and then re-secure it in place by tightening cover screw.

9. REQUESTING SERVICE

When calling for service, have the following information ready so that a *GPT* Customer Service associate can quickly assist you. Refer to the Company Directory (**Subsection 9.1**) for the nearest *GPT* Service Center in your area.

- *Serial number (**Figure 3**)*
- *Part number (**Figures 3** and **4**)*
- *Program revision number (**Figures 3** and **5**, or **Figures 3** and **6**)*
- *Bezel LED Codes (**Section 5**) or a description of the problem.*

9.1 Company Directory

Global Payment Technologies, Inc.
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South Africa
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Fax: + 27-11-783-9549

GPT Russia & CIS
Russia, 127030 Moscow
Sushchevskaya 21, Office 31
Tel/Fax: +7-095-973-5760
Tel: +7-095-973-5761

GLOBAL PAYMENT TECHNOLOGIES, INC.
LIMITED WARRANTY PROVISION

Global Payment Technologies, Inc. (*GPT*) extends the following limited warranty to the purchaser (Purchaser) of *GPT* products (Products). Unless otherwise authorized and agreed to in writing by *GPT*, all Products are guaranteed to be free of defects in material and workmanship for the period outlined in the Product Line Warranty table noted below. *GPT* agrees to repair or replace, without charge during the applicable warranty period, any unit which proves to be defective upon examination by *GPT* or its licensed affiliates, provided that such unit is accompanied by proof of purchase satisfactory to *GPT*. Any and all associated risks and costs of shipping, including, but not limited to, any applicable duties and tariffs, for an allegedly defective unit to or from the offices of *GPT* or its licensed affiliates shall be borne by the Purchaser.

The warranty applies only if all parts of the Products have been properly serviced according to the applicable product manual, and provided the alleged defective part, upon examination by *GPT* or its licensed affiliates, in their sole determination, shall prove to be defective. This warranty will not apply to any of the Products in which non-approved *GPT* parts were used, and/or the electronic PCB assemblies, belts, or any other part, has been subject to any modification, accident, abuse, or misuse. Determination of such modification, accident, abuse or misuse will be solely at the discretion of *GPT* or its licensed affiliates.

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Product Line Warranty Table

Product Line	Warranty Period
Aurora Validators	18 months parts and labor; 24 months parts from date of shipment of goods from *GPT's* factory.
Cash Box	One (1) year parts and labor from date of shipment of goods from *GPT's* factory.
Repaired Products (In-Warranty)	90 days or remainder of standard warranty period, whichever is longer. This period is from date of shipment of goods from *GPT's* factory.
Repaired Products (Out-of-Warranty)	90 days from date of shipment of goods from *GPT's* factory.