



# HAMILTON

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# STA Validator Operational Manual

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## ABOUT THIS MANUAL

This manual will enable the operator to complete basic maintenance, identify error codes, and perform basic troubleshooting.

An electrical connection diagram and Validator package dimensions are provided to assist operators in customizing the Validator to individual needs.

There are no user serviceable parts inside the Validator. Further technical assistance can be obtained by calling (800) 837-5561 or (419) 867-4858.

When calling for service, it is important to have the serial and model number readily available. Please record this number in the space provided.

**VALIDATOR MODEL #** \_\_\_\_\_

**SERIAL #** \_\_\_\_\_

# I. INTRODUCTION

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The STA VALIDATOR is a state of the art, optical reading bill acceptor capable of validating one, five, ten or twenty dollar bills. The STA can also accept the patented Hamilton paper Tokenotes®.



**Tokenotes® are only interchangeable between the STA Validator and HV-X Validators. Please include the model number of the Validator when ordering Tokenotes®.**

## FEATURES OF THE STA INCLUDE:

- ◆ Optical reading of bills.
- ◆ Tokenote® acceptance.
- ◆ Stainless steel.

An upgradeable EPROM allows the software to be updated if new software becomes available.

## II. SWITCH SETTINGS

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DIP SWITCH SETTINGS		
Switch #	OFF	ON
1	Normal	Diagnostic
2	Accept Tokenotes	Reject Tokenotes
3	Accept Both Directions	Accept Black Seal First
4	Hopper Payout	Pulsed Payout
5	Accept \$1	Reject \$1
6	Accept \$5	Reject \$5
7	Accept \$10	Reject \$10
8	Accept \$20	Reject \$20

When programming Tokenotes® with the STA, all switches need to be set to the “ON” position. The switches should be turned “ON” from BOTTOM to TOP, starting with switch 8. When programming is complete, the switches should be turned “OFF” from TOP to BOTTOM, starting with switch 1. This will prevent accidental entry into any diagnostic modes.

Switch #1 should ALWAYS be in the OFF position. The Validator will not function properly otherwise.

Switch #2 should be in the ON position unless the new Hamilton Tokenotes® are being used. If they are being used, this switch should be moved to the OFF position. When the #2 switch is ON, the Validator rejects Tokenotes® already programmed in.



**Tokenotes for the STA Validator have been printed using improved techniques for code generation and acceptance. Because of this step forward in Tokenote® technology, these new Tokenotes® and Tokenotes® purchased for use with previous Validators, other than the HV-X, are not interchangeable.**

Switch #3 selects which direction the Validator will accept an inserted bill. If this switch is OFF, the Validator will accept bills face up in either direction. If this switch is ON, the Validator will only accept bills face up and the end with the black seal inserted first. New \$5, \$10 and \$20 bills will only be accepted Black Seal first.

Switch #4 selects how the Validator signals the dispensing equipment after accepting a bill. If this switch is OFF, the Validator will activate the \$1 Relay once for an accepted \$1 bill, the \$5 Relay once for an accepted \$5 bill, the \$5 Relay twice for an accepted \$10 bill, and the \$5 Relay four times for an accepted \$20 bill. If switch #6 is ON, the Validator will activate the \$1 Relay once for an accepted \$1 bill, the \$1 Relay five times for an accepted \$5 bill, the \$1 Relay ten times for an accepted \$10 bill, and the \$1 relay twenty times for an accepted \$20 bill.



**The STA should not be used with tube-style machines.**

Switch #5 selects whether the Validator will accept or reject \$1 bills. If the switch is in the OFF position, the Validator will accept \$1 bills. If the switch is ON, the Validator will reject \$1 bills.

Switch #6 selects whether the Validator will accept or reject \$5 bills. If the switch is in the OFF position, the Validator will accept \$5 bills. If the switch is ON, the Validator will reject all \$5 bills.

Switch #7 selects whether the Validator will accept or reject \$10 bills. If the switch is in the OFF position, the Validator will accept \$10 bills. If the switch is ON, the Validator will reject \$10 bills.

Switch #8 selects whether the Validator will accept or reject \$20 bills. If the switch is in the OFF position, the Validator will accept \$20 bills. If the switch is ON, the Validator will reject \$20 bills.

# III. ELECTRICAL CONNECTIONS

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The electrical connections are made via a 9-pin connector located on the rear panel of the unit. The following diagram and chart have been included for custom installation.

## 9-PIN CONNECTOR

### EXTERNAL VIEW

3	2	1
6	5	4
9	8	7

### WIRE VIEW

Pin #	Color	Name
1	Blue	Enable
2	White	120VAC Neutral
3	Brown	Vend Common
4	N/A	N/A
5	N/A	N/A
6	Green	Ground
7	White/Blue	\$1 Vend Contact Closure
8	White/Brown	\$5 Vend Contact Closure
9	Black	120VAC Hot

# IV. TESTING

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After installation, a short test may be performed to verify correct installation.

★ **For testing, be sure Switch #1 is off.**

TEST	DESIRED RESULT
Turn on unit.	Version is displayed for approximately 3 seconds. The display changes to 00 and then counts to 49 rapidly before stopping at the flashing decimal point indicating the unit is ready.
Insert bill.	Payout proper change for each bill.
Test with a quantity of bills.	Should accept a variety of bills with acceptance rate in the 90 percentile.

**Should this unit fail to operate accordingly, check for an error code and refer to the Error Code List on page 12.**

# V. MAINTENANCE

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## ***MONTHLY - Depending on use***

The bill path, also known as the platen assembly, should be opened and cleaned regularly. To do this:

1. Unplug the changer.
2. Disconnect the 9-pin plug.
3. Remove the Validator from the holder.
4. Open the bill path (Refer to Appendix B for instructions).
5. Clean rollers, heads, belts and sensors with cotton swabs and rubbing alcohol.
6. Close the platen assembly.

## ***YEARLY***

The STA Validator should be serviced annually to maintain maximum performance. **THIS WORK SHOULD ONLY BE DONE BY A TRAINED TECHNICIAN.**

## **STA Validator Calibration**

- 1) Take a clean piece of white copier paper and cut it to the size of a bill (test bill).
- 2) Set the switches on the side of the validator so that only #8, #7 and #1 are in the ON position.
- 3) Insert the paper. It should step in slowly (takes about 8-10 seconds).
- 4) The validator will reject the paper. When you remove the paper from the validator, the display should flash "11". This means the process was completed.
- 5) Turn all the switches back to the OFF position.
- 6) **IMPORTANT!** Power down the validator for about 15 seconds. Then power it back up and try a bill.
- 7) Calibration complete.

<b>PARTS LIST</b>		
<b>Part #</b>	<b>Description</b>	<b>Qty.</b>
46-1037	ROLLER, PRESSURE	6
46-1038	LEVER, HEAD	2
46-1041	LEVER, HEAD ASSM.	2
46-1042	SPRING, HEAD	1
46-1043	ROLLER, HEAD	2
46-1044	SPRING, PRESSURE	6
46-1099	MOV HSV VAL	1
46-6502	CAPACITOR, 1 MFD 35 V	7
46-6530	CAPACITOR, 22 MFD 50 V	2
46-8501	12 PIN HEADER	1
46-8518	DPDT DIP RELAY	2
47-0275	CABLE TIE 6"	3
90-0026	SCREW, 4-40 X 1/2 PH	7
90-0120	SCREW, #4-40 X 1/8 PH	8
90-0122	SCREW, 4-40 X 1/4 P.P.H.M.S.Z.	2
90-0129	SCREW, 6-32 X 3/8 PH	2
90-0130	SCREW, #6-32 1/8 PH	23
90-0131	SCREW, #6-32 3/16 PH	1
90-0132	SCREW, #6-32 X 1//4 PH	2
90-0134	SCREW, #6-32 X 1/2 PH	1
90-0142	SCREW, 8-32 X 1/4	2
90-0146	SCREW, 8-32 X 3/16 PH	2
90-0264	SCREW, #6-32 X 1/8 SET	1
90-0303	NUT, 4-40 HEX	2
90-0310	NUT, #6-32 X 5/16 HEX	2
90-0506	RING, RETAINER 1/8	4
90-0604	SCREW, 6-32 X 1/4 HEX W H	2
90-0625	WASHER, HV-2000 MAIN	2
90-0626	WASHER, HV-2000 SPINNER	2
90-0627	WASHER, HV-2000 SPACER	4
90-0671	BUTTON HEAD SCREW, 10-24 X 1/2	8
90-9000A	ASSM., HV-2000 HARDWARE	1

# VI. PARTS

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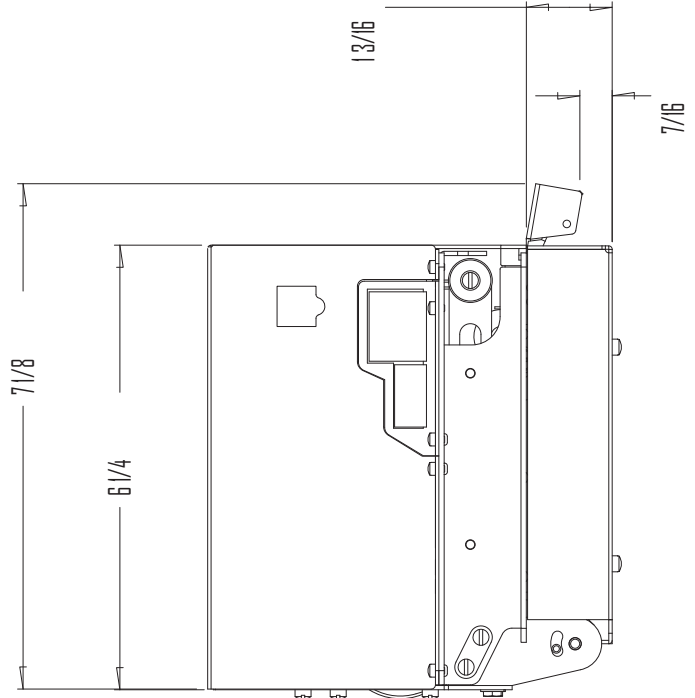
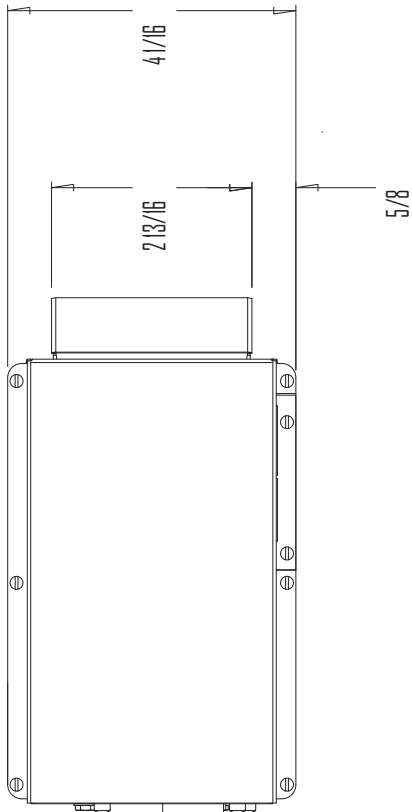
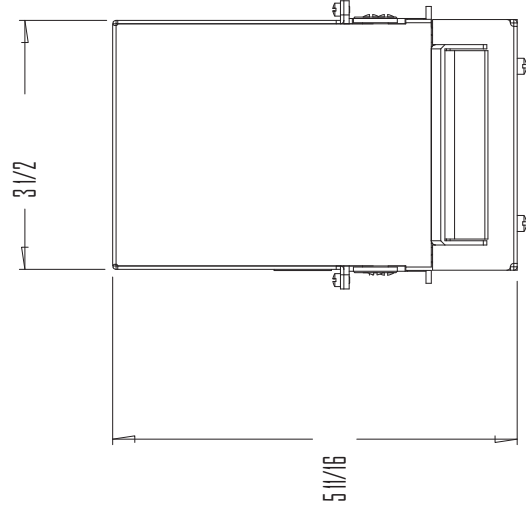
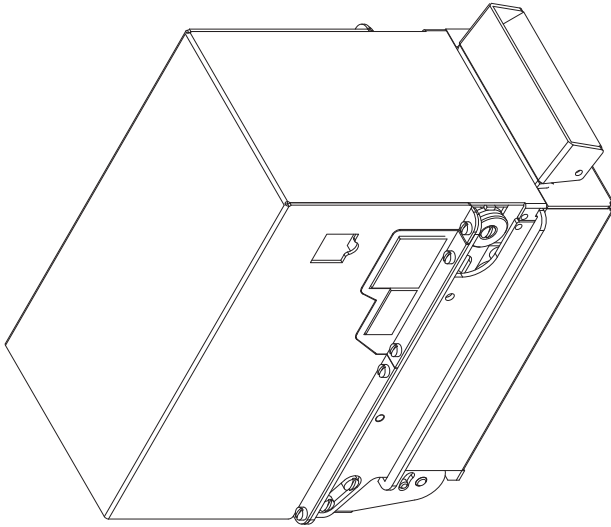
ERRORS ON POWER UP	
Error Code	Problem/Solution
70	Optical Sensor error./ Make sure Sensors are not blocked or dirty. Return for service.
71	Optical Sensor error./ Make sure Sensors are not blocked or dirty. Return for service.
72	Optical Sensor error./ Make sure Sensors are not blocked or dirty. Return for service.
73	Optical Sensor error./ Make sure Sensors are not blocked or dirty. Return for service.
74	Optical Sensor error./ Make sure Sensors are not blocked or dirty. Return for service.
75	Optical Sensor error./ Make sure Sensors are not blocked or dirty. Return for service.
76	Side Scan Sensor error./ Make sure Sensors are not blocked or dirty. Return for service.
77	Side Scan Sensor error./ Make sure Sensors are not blocked or dirty. Return for service.

## BILL ACCEPTANCE ERROR CODES

Error Code	Error Description
00.	All of the bill accept switches are turned off. Clears when switches are reset.
01.	New Style Money-Bill Magnetics Error. Tokenote-did not find end marker. Clears on next bill.
02.	New/Old Style Money-Visual rejection/total error too high. Tokenote-too many digits on Tokenote. Clears on next bill.
03.	New/Old Style Money-Visual rejection/individual error too high. Tokenote-unable to store Tokenote. Too many Tokenotes stored. Clears on next bill.
04.	Tokenote-general rejection. Clears on next bill.
05.	Tokenote-Head 1 and Head 2 pattern different. Clears on next bill.
06.	Tokenote-each head matched a different stored Tokenote. Clears on next bill.
07.	New Bills Only-Too much noise in portrait. Tokenote-unable to store Tokenote. Too many Tokenotes stored. Clears on next bill.
08.	Bill type found was not acceptable or unknown. Bill accept switch or bill direction switch. Clears on next bill.
11.	A checksum error was found in the Tokenote EEPROM. Clears on next bill.
32.	The flipper was blocked when the Validator was waiting for a bill to be inserted. Clears in 10 seconds.
60.	At payout time the bill was not blocking the rear flipper. Clears on next bill.
61.	The front or validation sensors were blocked during stack.
86.	A timeout occurred when ejecting the bill. Clears after 10 seconds.
87.	The bill appears to be too long or short. Clears after 30 seconds.
91.	Sidescan error. Clears on next bill.
92.	Sidescan error. Clears on next bill.
93.	Seal noise error. Clears on next bill.
94.	Visual bill orientation did not match visual orientation. Clears on next bill.
95.	Sidescan error. Clears on next bill.
97.	There was a limited amount of visual variation on the last bill. Clears on next bill.
P .	Tokenote programming mode is entered by turning all DIP switches on. This error will clear when the switches are reset. Clears when switches are reset.

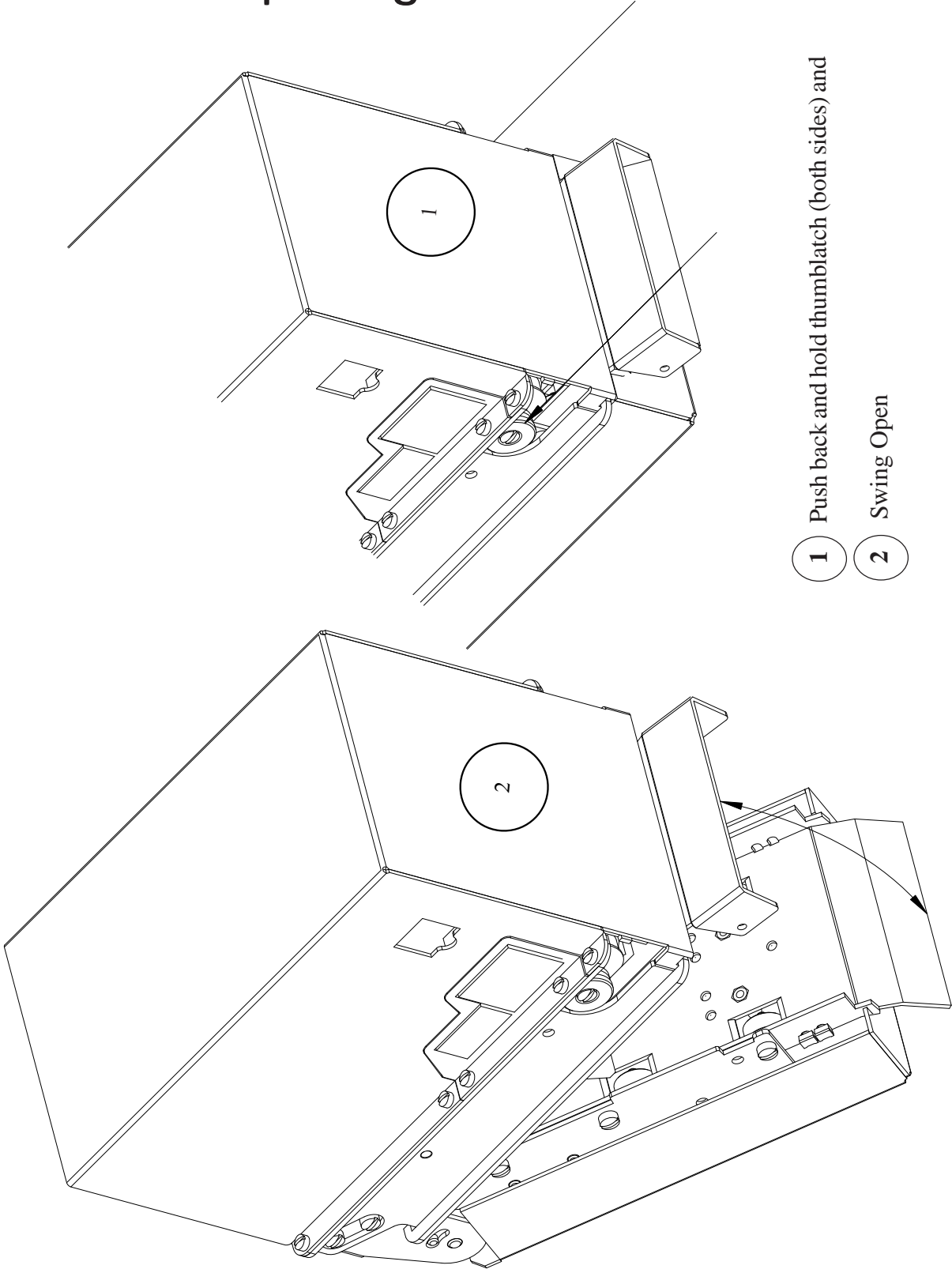
# APPENDIX A

## Validator Dimensions



# APPENDIX B

## Opening the Bill Path



- 1 Push back and hold thumb latch (both sides) and
- 2 Swing Open

## LIMITED WARRANTY AGREEMENT OF HAMILTON MANUFACTURING CORP.

Hamilton Manufacturing Corp., an Ohio Corporation, (“Seller”) warrants to Purchaser that all new equipment shall be free from defects in material and factory workmanship for a period of one (1) year from the original shipping date. Hamilton Manufacturing Corp. further warrants if any part of said new equipment in Seller’s sole opinion, requires replacement or repair due to a defect in material or factory workmanship during said period, Seller will repair or replace said new equipment. Purchaser’s remedies and the liabilities and obligations of Seller herein shall be limited to repair or replacement of the equipment as Seller may choose, and Seller’s obligation to remedy such defects shall not exceed the Purchaser’s original cost for the equipment. Purchaser EXPRESSLY AGREES this is the EXCLUSIVE REMEDY under this warranty. There are no other express or implied warranties which extend beyond the face hereof. All warranty repair service must be performed by either a Factory Trained Service Representative or **HAMILTON MANUFACTURING CORP., 1026 Hamilton Drive, Holland, Ohio 43528 PHONE (419) 867-4858 or (800) 837-5561, FAX (419) 867-4867.**

The limited warranty for new equipment is conditioned upon the following:

1. The subject equipment has not, in the Seller’s sole opinion, been subjected to: accident, abuse, misuse, vandalism, civil disobedience, riots, acts of God, natural disaster, acts of war or terrorism.
2. The Seller shall not be liable for any expense incurred by Purchaser incidental to the repair or replacement of equipment and Purchaser shall assume full responsibility for any freight or shipping charges.
3. The coverage of this warranty shall not extend to expendable parts.
4. Purchaser shall have a warranty registration card on file with Seller prior to any claim in order for warranty protection to apply.
5. No warranty coverage is applicable to any equipment used for currency other than that specified at the time of the purchase.
6. Seller expressly disclaims any warranty that counterfeit currency will not activate said equipment.
7. Seller expressly disclaims any warranty for any losses due to bill manipulation or theft or loss of cash under any circumstances.
8. Use of the equipment for anything other than its intended and designed use will void the Limited Warranty Agreement. Use of equipment for anything other than its intended and designed use includes, but is not limited to, downloading software/applications not certified by Seller such as e-mail, spyware, screen savers, viruses, worms, third party software, web search engines, cookies, spam, desktop applications, games, web surfing, etc.

Seller further warrants all repair or service work performed by a factory trained representative or Hamilton Manufacturing Corp. for a period of ninety (90) days from the date the repair or service work was performed. Purchaser’s remedies and the liabilities and obligations of Seller herein shall be limited to repair or replacement of equipment as Seller may choose, and Seller’s obligation to remedy such defects shall not exceed the Purchaser’s depreciated value of the equipment. Purchaser EXPRESSLY AGREES this is an EXCLUSIVE REMEDY under this warranty. There are no other express or implied warranties on repair or service work performed by a factory trained representative or Hamilton Manufacturing Corp. which extend beyond the face hereof.

The limited warranty for repair and service work is conditioned upon the following:

1. The subject equipment has not, in the Seller's sole opinion, been subjected to: accident, abuse, misuse, vandalism, civil disobedience, riots, acts of God, natural disaster, acts of war or terrorism.
2. The Seller shall not be liable for any expense incurred by Purchaser incidental to the repair or replacement of equipment and Purchaser shall assume full responsibility for any freight or shipping charges.
3. The coverage of this warranty shall not extend to expendable parts.
4. Purchaser shall have a warranty registration card on file with Seller prior to any claim in order for warranty protection to apply.
5. No warranty coverage is applicable to any equipment used for currency other than that specified at the time of the purchase.
6. Seller expressly disclaims any warranty that counterfeit currency will not activate said equipment.
7. Seller expressly disclaims any warranty for any losses due to bill manipulation or theft or loss of cash under any circumstances.
8. No person or entity other than a factory trained representative or Hamilton Manufacturing Corp. has performed or attempted to perform the subject repair or service.
9. Using equipment which has been serviced or repaired for anything other than its intended or designed use such as downloading software applications not certified by Seller will void the Limited Warranty Agreement. This includes software/applications such as e-mail, spyware, screen savers, viruses, worms, third party software, web search engines, cookies, spam, desktop applications, games, web surfing, etc.

THIS AGREEMENT IS MADE WITH THE EXPRESS UNDERSTANDING THAT THERE ARE NO IMPLIED WARRANTIES THAT THE EQUIPMENT SHALL BE MERCHANTABLE, OR THAT THE GOODS SHALL BE FIT FOR ANY PARTICULAR PURPOSE. PURCHASER HEREBY ACKNOWLEDGES THAT IT IS NOT RELYING ON THE SELLER'S SKILL OR JUDGMENT TO SELECT OR FURNISH EQUIPMENT SUITABLE FOR ANY PARTICULAR PURPOSE AND THAT THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THAT WHICH IS DESCRIBED HEREIN.

The Purchaser agrees that in no event will the Seller be liable for direct, indirect, or consequential damages or for injury resulting from any defective or non-conforming new, repaired or serviced equipment, or for any loss, damage or expense of any kind, including loss of profits, business interruption, loss of business information or other pecuniary loss arising in connection with this Limited Warranty Agreement, or with the use of, or inability to use the subject equipment regardless of Sellers knowledge of the possibility of the same.



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