AutoMARK™

Jurisdiction Guide

PUBLISHED BY

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Our documentation currently references the use of AutoMARK with Diebold AccuVote tabulators. Elections created by Diebold Gems are currently not federally certified for import. And manual entry of data for use with Diebold Accuvote ballots is not federally certified.

TRADEMARKS

Contents

1 Overview

Note:
Three types of tabulators work with the AutoMARK VAT—the ES&S M100, the ES&S Optech and the Diebold Accuvote. Sections specific to the Optech tabulator are clearly identified, usually by a text box or other type of box.

1.1 Operating Functions

The AutoMARK Voter Assist Terminal (VAT) offers the following functions:

- Marks voter selections on a standard ballot form in a human-readable format
- Provides Braille keypad and display shut-off to maintain privacy for voters who are visual impaired
- Provides audio and visual instructions in multiple languages
- Processes multiple ballot types and sizes
- Provides secure environment via a Compact Flash card protected in a locked compartment

1.2 Operating Modes

The VAT has three operating modes. Modes are selected via a key lock on the front of the terminal (see Figure 4.A.1). The three operating modes are as follows:

- *Off.* The system must be in 'Off' mode prior to unplugging the unit from power and packing for shipping.
- *On.* Select 'On' for selection functions. Voters use the system in this mode.
- *Test*. The 'Test' mode is used for verification testing prior to use in a polling place or to verify system updates.

1.3 Roles

The ***election officials*** prepare the ballots and the election database to be used by the VAT. See The *AutoMARK Information System Election Official's Guide* for more information.

Election officials and/or polling place staff unpack and install the system, conduct the verification test to determine the operational integrity, and are responsible for system shut down, maintenance, and packing. At the polling

place, election officials setup the system hardware and perform the following operations:

- System Installation and Test
- System Startup/Shutdown
- Database Installation
- System Test

***Polling place staff (Poll Workers*)** also assist voters with gaining familiarity with the system, clearing paper jams, etc. (Poll Workers refer to *AutoMARK Poll Worker's Guide* for information.)

Voters use the AutoMARK VAT to mark their ballot. (Voter procedures are described in the *AutoMARK Voters Guide*.)

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2 Steps to Prepare for the Election

This document guides the Election Official in preparing the VAT for use in an election.

The following steps must occur so the VAT preparation is completed and verified well before the election day. Note: Suggested deadlines may vary by state.

Step	Action Required	Suggested Due Date	Reference and Supporting Document
1	Prepare the actual ballots which will be used in the election, and the Election data files, using ballot preparation software.	At least six to eight weeks before election	See the *AutoMARK Information Management System (AIMS) Election Official's Guide* for details.
2	Import the data files created in Step 1 into AIMS	At least three weeks before election	See the *AutoMARK Information Management System (AIMS) Election Official's Guide* for details.
3	Test that the ballots are set up correctly and that the data was imported correctly by using the AIMS Preview function		
4	Create Flash Memory Card(s)	At least three weeks before election	
5	Prepare VAT for use	At least two weeks before election	See VAT Setup Instructions in this document.
6	Using new Flash Memory Card(s) and ballots, print test ballot(s) on VAT to verify that the data is correct.	At least two weeks before election	See the *AutoMARK Information Management System (AIMS) Election Official's Guide* for details.
7	Install VAT at polling place before polls open	At least the morning of the election	See Vat Setup Instructions in this document

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3 Introduction to the AutoMARK VAT

The AutoMARK VAT™ Voter Assist Terminal (VAT) is used to mark the ballot selections of voters who are visually impaired, have a disability, or who are more comfortable using an alternative language.

Ballot choices and instructions are displayed in large text print on the touch screen monitor, as well as read by the audio system in the language choice selected by the voter. Voters enter their selections by touching buttons on the screen, pressing keys on the keypad, or using an Assistive Technology (AT) device.

The AutoMARK VAT marks a ballot with the voter's selections and returns it to the voter. The voter can then submit the marked ballot in the normal manner for tabulation. This guide contains information on how to set up the AutoMARK VAT prior to an election and how to maintain the AutoMARK VAT between elections.

3.1 Features of the AutoMARK VAT

A voter can use the AutoMARK VAT to mark a ballot by using:

- The touch screen
- The Braille keypad
- An AT device (such as puff-sip or foot pedal)

The AutoMARK VAT has the capability to display ballots in alternate languages. Language choices are determined by individual jurisdictions. If the jurisdiction does not choose to allow alternate languages, the voter will not see the Language Screen, and the only Language available will be English. The audio matches the language selected.

The AutoMARK VAT has several privacy features. Audio volume can be increased or decreased as desired, and the screen can be turned on and off for privacy. If you want to use the audio system to listen to ballot choices and instructions, you will use the audio keys on the keypad (shown on the following page) to control audio sound. A jurisdiction can provide headphones with disposable earpieces.

The AutoMARK VAT also has a **ZOOM MODE** feature which enlarges the text on the screen, and a **High Contrast** mode which gives contrast to the screen resolution, for those who are visually impaired.

The AutoMARK VAT consists of the labeled components shown in the picture below.

Note

Using the Audio Pause and Repeat feature:

- **To pause (for 3.5 seconds) and repeat the current spoken label:** Briefly press the Repeat button.
- **To pause audio:** Hold down the Repeat button for 3 seconds.
- **To resume audio:** Briefly press the Repeat button.

3.2 Using the AutoMARK VAT Keys and Buttons

The AutoMARK VAT is designed so that you can use either the keys on the keypad, an AT device, or touch displayed text and buttons on the screen to enter your selections.

When you press the keys on the keypad or touch text or buttons on the screen, you are actually sending operating instructions (commands) to the computer. (For example, pressing the Screen Off/On key on the keypad tells the computer to turn the touch screen monitor off or on.)

Touch screen buttons in the picture below are displayed at the bottom of a screen.

Note

The buttons illustrated below do not appear on every screen.

Sample of Touch Screen Buttons

Touching the **BACK** button displays the previous screen.

Touching the **ZOOM** In/Out button on any screen increases and decreases the size of the text displayed.

Touching the **EXIT** Return Ballot button displays the EXIT screen.

Touching the **HIGH CONTRAST** button on any screen lightens or darkens the screen contrast.

Touching the **NEXT** button enters your selection and displays the next screen.

If you want to listen to choices and instructions in the language of your choice and use the keys on the keypad to enter your selections, plug in your headphones, or use the headphones provided by the jurisdiction.

Note

Audio includes keypad instructions. Therefore, no further audio and keypad information is included in this guide.

3.3 Using an AT Input Device

The AutoMARK VAT provides an interface for an input device for disabled voters to indicate their selections. This device is often called an AT device, Assistive Technology device, which requires that access be provided to citizens with disabilities.

The AT input device allows the voter to make his or her selections, in place of either the touchscreen, or the keypad, on the AutoMARK machine.

AT input devices supported include a sip and puff device, a paddle switch, a floor switch, or any similar two-position switching device that is comfortable for the voter and meets the electrical specifications below. The voter may choose to bring his or her device to the polling place. The polling place may choose to have devices on hand for voters to use. Please contact your sales representative for information on how to obtain these devices.

The AutoMARK VAT supports a type of electrical interface standard called DSA, dual-switch access. The AT input device plugs into the 3.5 mm “stereo” jack in the right section of the ACCESS area on the front panel of the AutoMARK VAT.

Within the input device there are two momentary switches. These switches are connected to a cable terminated with a 3.5 mm stereo plug. One switch connects to the TIP connection on the stereo plug, and the other switch connects to the RING pin on the stereo plug. Each switch is normally open. When actuated by the user, the switch closes either the TIP or the RING circuit to the common BARREL shaft of the stereo plug.

Electrical specifications for the two switches within the AT input device: switch contact resistance when a switch is closed, less than 100 ohms. DC current handling capability, 5 milliamperes. These specifications are readily met by DSA devices in the market that have been tested by Automark Technical Systems.

Circuitry within the AutoMARK VAT detects when an AT input device has been inserted into the jack, and activates a special interface mode. The sequences of choices on the LCD screen in AT input mode are adapted to accept either of two responses, YES and NO, or UP and DOWN, or LEFT and RIGHT, as may be suitable in context for the selections being made. Likewise, the audio prompts that are available at the headphone outputs are also adapted for this two-switch interface mode.

Note

An AT input device does not provide access to the following functionality.

- Adjusting the volume of the audio.
- Adjusting the tempo of the audio.
- Repeating the audio of the screen.
- Turning the display screen on and off.

It can take up to 6 seconds for the AT device to be recognized by the VAT when it is plugged in.

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4 Safety Information

Read the safety information, precautions and procedures in this section carefully before attempting to operate the AutoMARK Voter Assist Terminal.

4.1 INDUSTRY REGULATORY REQUIREMENTS

The AutoMARK Voter Assist Terminal has been designed to comply with the industry regulatory requirements set forth in IEEE and Federal Election Commission (FEC) Voting System Standards (VSS), 2002.

The Voter Assist Terminal complies with the basic product safety standard UL 60950-1: First Edition: Standard for Safety of Information Technology Equipment.

4.2 ELECTRICAL WORK AND SERVICE

The technical engineering staff of AutoMARK VAT Technical Systems LLC provides AutoMARK VAT electrical work and service.

4.3 LOCKOUT

The AutoMARK VAT has a key-activated switch that is located on the front panel of the enclosure. The key-activated switch is used to control the system's operating mode. Key switch positions are described as follows:

Key Position	Label	Key Removable
Right	TEST	No
Center	ON	Yes
Left	OFF	Yes

Note

Special security keys are provided to access and activate this switch. These keys are to be used by authorized election officials only.

When the key-activated switch is in the TEST or ON positions, the AutoMARK VAT is switched on and power is drawn from the AC power line (if available) or the battery (if AC power is unavailable).

When the key-activated switch is in the TEST position, the AutoMARK VAT enters a Test Mode, which allows the election official to perform system setup, reporting, testing and maintenance functions.

When the key-activated switch is moved to the ON position, the AutoMARK VAT is ready for normal operations.

When the system is powered up and the key-activated switch is moved to the OFF position, AC power continues to be supplied to the AutoMARK VAT. However, current is only drawn for recharging the battery while the key switch is in the OFF position. The terminal is shut down only when the key switch is in the OFF position.

4.4 HAZARD LABELS

Industry standard danger, warning, and caution labels are affixed to all hardware components that may cause hazardous results if accessed incorrectly.

4.5 EXPLANATION OF SYMBOLS USED ON THE EQUIPMENT

	This symbol instructs the Operator/User to consult the accompanying instructions before operating the equipment
	“PROTECTIVE EARTH”. This symbol is adjacent to the internal Protective Earth terminal

4.6 WEIGHT DISTRIBUTION

Attribute	Spec	Units
Overall Width	20.8	Inches
Overall Depth	26.0	Inches
Overall Height	17.6	Inches
Height, display stowed	7.5	Inches
Overall weight, including batteries	48	Pounds

4.7 SYSTEM POWER

The AutoMARK VAT contains a built-in power supply that operates from standard AC line voltages. It also includes batteries with sufficient capacity to allow the unit to continue to operate for at least 2 hours after loss of AC power. Specifications are described below.

Attribute	Spec	Units
Input Power Voltage	93-264	VAC
Input Power Frequency	45-66	Hz
Battery Hold-Up, Minimum	2	Hours

The AutoMARK VAT has a pilot light and battery monitor (bi-color LED) lamp on the front panel that indicates the current status of the power supply. Specifications are described below.

LED Attribute	Power Source	Battery Status
Steady Green	AC Power	Batteries Charged
Blinking Green	AC Power	Batteries Low or Discharged
Steady Yellow	Battery Power	Batteries Charged
Blinking Yellow	Battery Power	Batteries Low
Steady Red	AC Power/key switch off	

Since there is no power switch for the AC Mains Supply, the Disconnect Means for the equipment is the plug on the power supply cord-set (or the Appliance Inlet connector on the rear of the unit)

The Mains socket-outlet shall be installed near the equipment and be readily accessible.

To remove all power from the equipment, both the AC Mains Plug and the DC Plug of the external Charger must be disconnected from the equipment.

Complete Mains electrical rating: 120V~ 60Hz 1.5A.

Mains supply voltage fluctuations are not to exceed +10% percent of the rated supply voltage range.

The equipment is suitable for continuous operation.

4.8 Battery Replacement

The Lithium-Ion Battery Pack (and the 3V lithium coin cell battery in the Single Board Computer) is replaceable only by Authorized Service Personnel.

"CAUTION: RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO LOCAL REGULATIONS AND CONVENTIONS."

4.9 Environmental Conditions for Transport and Storage

The AutoMARK VAT is intended for indoor use only.

The AutoMARK VAT is designed for the following environmental conditions:

CONDITION	MINIMUM	MAXIMUM	UNITS
OPERATION	50	104	°F
	10%	50%	RELATIVE HUMIDITY
STORAGE	-4	140	°F
	10%	85%	RELATIVE HUMIDITY
TRANSPORT	-4	140	°F
	10%	85%	RELATIVE HUMIDITY

A shipping container is available for the AutoMARK VAT. It provides sufficient padding and protection to permit long-distance shipment of the unit via common carrier.

4.10 Additional Safety Instructions and Required Specifications

1. Indoor Use Only

2. Ordinary Protection (Not protected against harmful ingress of moisture)

3. Class I Equipment (Grounded Type)

4. Electrical rating: 120V~ 60Hz 1.5A

5. Mains supply voltage fluctuations are not to exceed +10% percent of the rated supply voltage range.

6. Pollution Degree 2 for the ambient environment

7. Installation (Over-voltage) Category II for transient over-voltages

5 AutoMARK VAT Setup Instructions

This chapter provides instructions on how to prepare for Election Day.

The following procedures must always be performed before each election:

1. Installation of a new ink cartridge.
2. Charging the battery (if installed).
3. Installation of a correctly programmed Flash Memory Card.
4. Testing of AutoMARK VAT operations to ensure full functionality of the system.

The instructions for performing the procedures are described in the rest of this chapter.

Note

If you need more information about the Flash Memory Card, or information on how to program a Flash Memory Card, see the *AutoMARK Information Management System (AIMS) Election Official's Guide* documentation. This documentation is provided with the AIMS Software, which is used to program the Flash Memory Card.

The AutoMARK VAT is a portable device, designed to be placed onto a standard table while in use during voting operations. It is the responsibility of the Jurisdictional Official to use a table of standard height with the VAT placed at the front edge on the table so that the AutoMARK VAT is accessible to voters with disabilities, allowing the VAT to meet the VSS standards for accessibility. When placed appropriately on a standard table the AutoMARK VAT meets the following standards:

- Where clear floor space only allows forward approach to an object, the maximum high forward reach shall be 48 inches. The minimum low forward reach shall be 15 inches.
- Where forward reach over an obstruction with knee space below, the maximum level forward reach is 25 inches. When the obstruction is less than 20inches deep, the maximum high forward reach is 48 inches. When the obstruction projects 20 to 25 inches, the maximum high forward reach is 44 inches.
- The position of any operable control is determined with respect to a vertical plane that is 48 inches in length, centered on the operational control, and at the maximum protrusion of the product within the 48-inch length.
- Where any operational control is 10 inches or less behind the reference plane, have a height that is between 15" and 54" above the

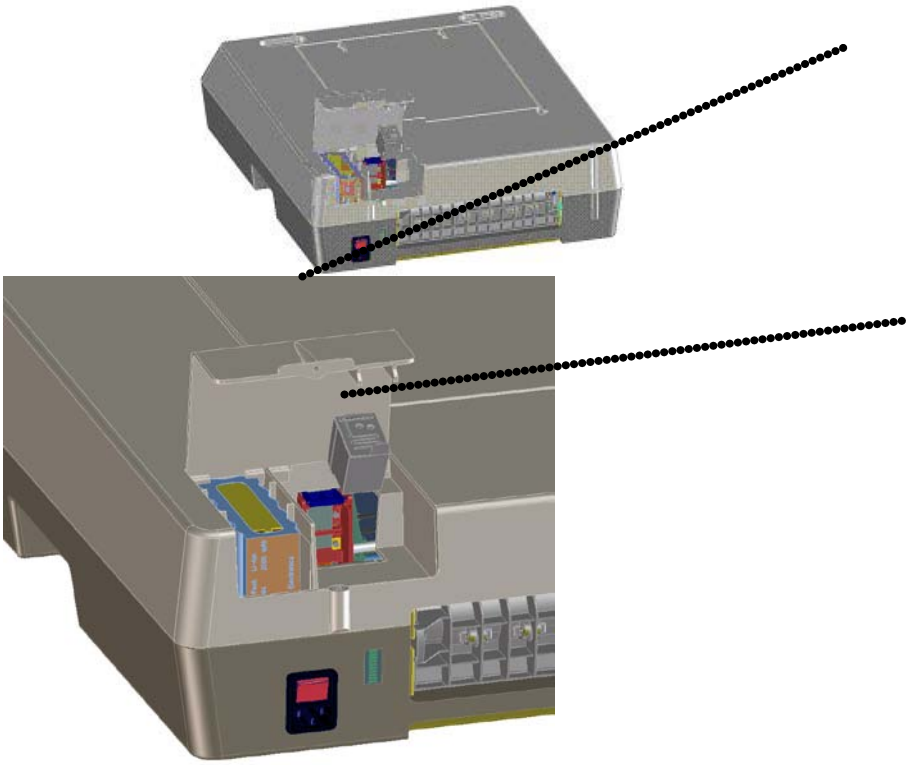
floor.

- Where any operational control is more than 10 inches and not more than 24 inches behind the reference plane, have a height between 15 inches and 46 inches above the floor.
- Have operational controls that are not more than 24 inches behind the reference plane.

5.1 INSTALLING A NEW INK CARTRIDGE

The AutoMARK VAT system is shipped without the ink cartridge installed. The ink cartridge should be installed prior to using the system for voting. The system writes with an Inkjet print cartridge from Hewlett Packard. This is a black-only ink cartridge. A new print cartridge should be installed prior to each election.

The access to the print cartridge is provided by a door in the right rear corner of the unit. With the door off, the rechargeable battery is also accessible. Refer to the picture on the following page.



Ink Cartridge Access in Rear of AutoMARK VAT

Follow the steps below to install a new ink cartridge.

1. Open the rear access door to view the holding unit for the ink cartridge (see the picture above.)
2. Open the new ink cartridge package.
3. Insert new ink cartridge into AutoMARK VAT.
4. Close the access door.
5. When the system is operating in TEST mode, choose **SERVICE PRINT CARTRIDGE**.
6. Select **Yes** to indicate that you have inserted a new ink cartridge and to re-set the counter.
7. Click **DONE**.

Note

When installing an ink cartridge, care should be taken not to bend the 'L' shaped piece of metal that has an attached rubber wiper. Contact between the rubber wiper and the print cartridge is important for 'spit and wipe' functionality.

5.2 Using Metallic Ink for Infrared Printing

Note: This section is only for Optech users.

If the ballot tabulation machine in use has an ***infrared*** scanner, a special metallic ink must be used in the AutoMARK VAT. When using this type of ink in the VAT, additional steps must be taken.

The metallic ink dries very fast and the metallic flecks in the ink cause the ink cartridge nozzles to clog and dry out in as little as six minutes after the ink cartridge is unsealed and left unused.

To prevent the ink from drying in the nozzles, the VAT is capable of a 'spit and wipe' function. If enabled, the VAT will move the print cartridge to the side, spit ink into a 'diaper', and then wipe the print-head over a rubber wiper every 3-4 minutes. For this reason, the VAT should not be turned off during the Election Day. A new ink cartridge must be installed if the VAT is turned off for a significant amount of time (ten minutes or more) and infrared ink is being used.

Follow the steps below to enable the 'spit and wipe' functionality.

1. Go to Test MODE by turning the key switch to the test position.
2. Press the **System Maintenance** button.
3. Enter Password.
4. Press **OK**.
5. In the System Maintenance menu, press **Ink Cartridge Type.**
6. Make sure **Enable for Infrared Ink** is checked.
7. Click **DONE**
8. Exit Menu

Follow the steps below to adjust the wiper blade.

If the Infrared Printing (spit and wipe) functionality has been enabled, it is also necessary to make sure that the rubber wiper blade is in the proper position to clear the print cartridge nozzles at each pass.

Follow the steps below to adjust the wiper blade.

1. Loosen the torque screw holding the wiper blade in place,
2. Raise or lower the assembly using the Phillips Head screw on top.
3. Re-tighten the torque screw.

Replacing the 'diaper':
The 'diaper' is a foam mat in a removable plastic tray located under the flap that opens in the back of the VAT. A new 'diaper' should be in place prior to a new election.

CHARGING THE BATTERY (IF INSTALLED)

Follow the steps below to charge the battery.

1. Plug the power cord into the rear panel of the AutoMARK VAT (see the picture below.)

AutoMARK VAT Power Cord Plug-In

2. Plug other end of power cord into your local power outlet.
3. The power meter on the rear panel of the AutoMARK VAT indicates the battery power level. The battery can be fully charged in approximately 2-3 hours.

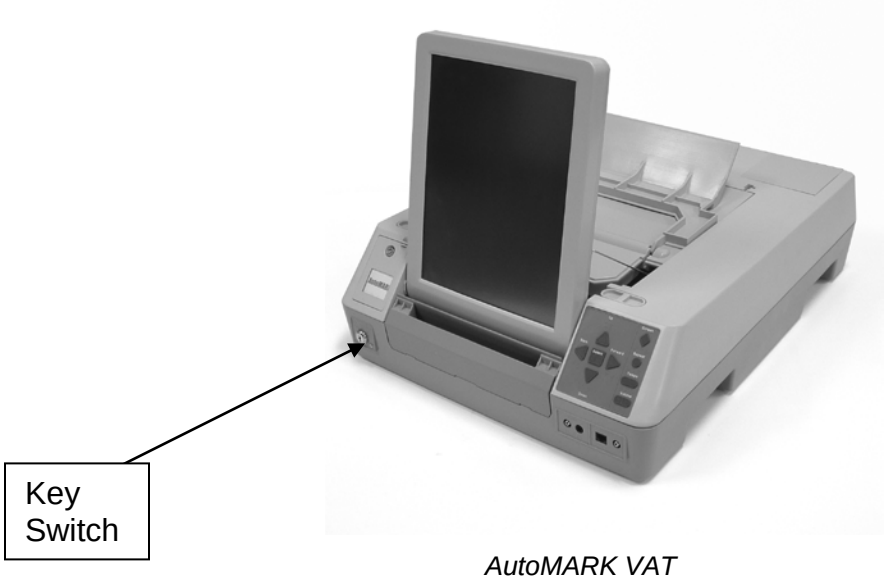
5.3 INSTALLING THE FLASH MEMORY CARD

You must provide a compact Flash Memory Card (FMC) that contains the data pertaining to your election (contests, candidates or choices and setup instructions).

The FMC must be correctly programmed before it is inserted into the AutoMARK VAT.

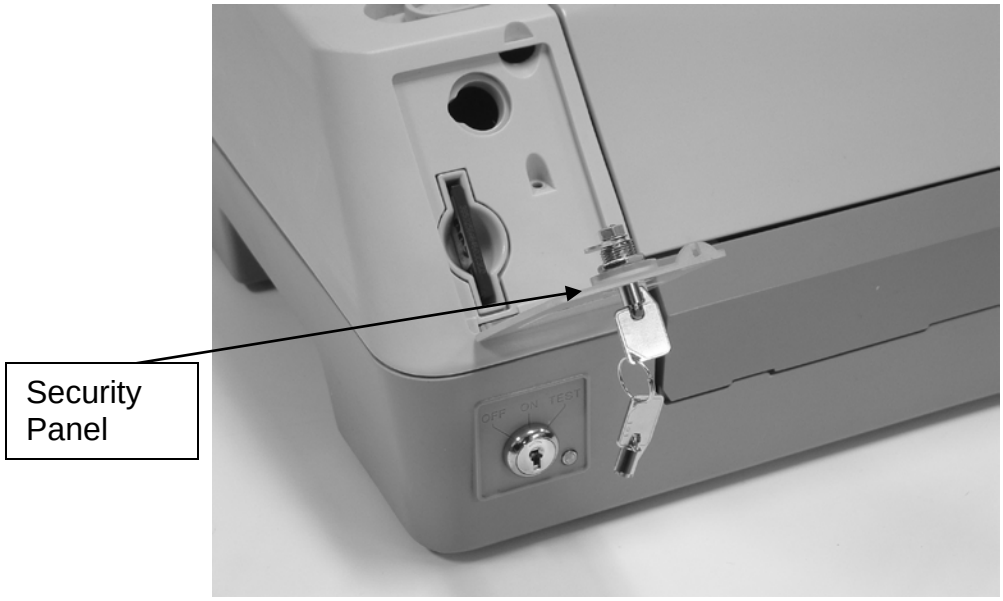
Follow the steps below to install the FMC.

1. Verify the key switch is in the OFF position.



AutoMARK VAT

2. Use the security key to open the security panel.
3. Touch the key switch with one hand to discharge any static buildup.
4. Insert the FMC into the AutoMARK VAT and lock the security panel (see the picture on the following page.)



Installing the FMC

5.4 TESTING the AUTOMARK VAT OPERATIONS

The AutoMARK VAT operations should be tested when the system is operating in the TEST mode.

Follow the steps below to test The AutoMARK VAT operations.

1. First, lift the display screen to an upright position and turn the key switch to ON (see page 16).

In TEST mode

2. Turn the key switch to the TEST mode position.
3. Select **Test Ballot Print** using the touch screen button.
4. If using a ballot with a removable stub, remove the stub before inserting the ballot
5. Insert an unmarked ballot. The AutoMARK VAT will fill all ovals and print the name of each candidate next to the oval. Verify that each oval is filled and each candidate name is printed in the proper place on the ballot. If the marks appear off due to rotation, x, or y offset errors, then the printer may need to be re-calibrated (see Section 6.5.6).

5.4.1 Display Screen Test

In ON mode

1. Turn the key switch to the ON mode position.
2. The **Insert Your Ballot** screen should be displayed. If not, check all power connections to ensure power is being supplied to the AutoMARK VAT.

5.4.2 Ballot Insert Test

1. If using a ballot with a removable stub, remove the stub before inserting the ballot.
2. Insert an unmarked ballot (corresponding to the FMC currently installed) into the AutoMARK VAT paper tray
3. The paper feed mechanism should feed your ballot into the AutoMARK VAT. If the test is successful, the AutoMARK VAT scans the ballot and displays a new screen. If the test is not successful, the AutoMARK VAT attempts to eject the ballot or displays an error message.

5.4.3 Audio Test

Plug in your headphones and use the audio keys on the keypad to test the audio operations as follows:

1. Press the round Audio **Repeat** key to repeat the presentation.
2. Press and hold the round Audio **Repeat** key to pause the audio. If keypad beeps are enabled, there will be a beep when pause is initiated.
3. Press the left side of the Audio **Tempo** key to decrease the audio speed.
4. Press the right side of the Audio **Tempo** key to increase the audio speed.
5. Press the left side of the Audio **Volume** key to decrease the audio volume.
6. Press the right side of the Audio **Volume** key to increase the audio volume.

Notes

The Tempo button does not affect Audio speed for .WAV files. Languages that use audio files for prompts and instructions include Cantonese, Vietnamese, Tagalog, and Creole.

5.4.4 Ballot Print Test

1. Turn the key switch to **Test Mode**.
2. Press the **Test Ballot Print** button on the touch screen.
3. If using a ballot with a removable stub, remove the stub before inserting the ballot.
4. Insert a ballot that is recognized by the currently inserted compact flash card. Use a spare ballot that is not needed, because the AutoMARK VAT will print on this ballot.
5. If the ballot is not recognized, repeat a few times. If it still does not recognize, then press **Done** and return to the test menu.
6. Confirm that the ballot races on the currently inserted compact flash card are the ones that are shown on the screen and match the ballot that you were trying to insert. If they do not match then you need to replace your compact flash card or your ballot.
7. Scrutinize the placement of the marks in relation to the ovals/voting locations on the ballot. If there is any discernable rotation of the marks with respect to the voting locations, uniform across all marks, that is an error greater than 0.05 degrees, or a couple millimeters, Calibrate the printer. See Calibrating the Printer in the Maintenance section (Section 6.5.6).
8. Once the marks are printing correctly in all orientations (right-side up, upside down, inserted front-wards, inserted backwards), the printing is working properly.
9. As a final check, move the key switch into test mode and check the ink level. (On the bottom left portion of screen.) If it is lower than 10%, replace the ink cartridge. If you do, make sure to reset the ink level meter using the Replace Ink Cartridge button from the test mode menu.

5.4.5 Ballot Read Test

1. Insert a marked ballot into the AutoMARK VAT paper tray.
2. The paper feed mechanism should feed your ballot into the AutoMARK VAT. If the test is successful, The AutoMARK VAT scans the ballot and displays the **Language Selection** screen (if your jurisdiction is programmed for more than one language) followed by the Verification Summary Screen. If the test is not successful, The AutoMARK VAT attempts to eject the ballot or displays an error message.

5.4.6 Multiple Page Ballots

If each ballot has multiple pages, ensure that each page is set up with unique timing marks recognizable by the VAT. Test each page using the *Ballot Print Test* in Section **5.5.4**. When voting, each page of the ballot needs to be voted, marked, and ejected before the next page can be inserted into the VAT.

Note

Each page of a multiple page ballot will increment the lifetime print count located at the bottom of the screen while in test mode.

5.4.7 Ballots Using Tinted or Colored Stock Paper

When using ballot stock that is colored or heavily tinted, perform the following steps to improve ballot scanning by the VAT.

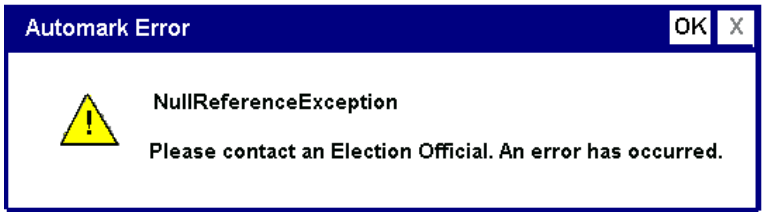
1. Go to Test MODE by turning the key switch to the test position.
2. Press the **System Maintenance** button.
3. Enter Password.
4. Press **OK**.
5. In the System Maintenance menu, press **Ballot Type Selection.**
6. Make sure **Enable for Colored Ballots** is checked. (With white ballots this option should be cleared)
7. Click **DONE**
8. Exit Menu

5.5 OPTIONAL SIGNAGE IN THE POLLING BOOTH FOR VOTERS WHOSE NATIVE LANGUAGE IS NOT ENGLISH

The AutoMARK VAT provides its instructions in a number of languages. The exception to this is that the "**OK**" button appears the same for all. If the translators in your Jurisdiction believe that this may cause confusion, then you might want to include additional instructions in the polling booth.

Also, the international symbol  may accompany various error messages which may not be translated into the voter's native language. For this reason, the Jurisdiction may wish to place a multi-lingual sign in the polling booth that explains that the symbol means an error has occurred and they should alert one of the election officials.

For example:



6 Maintenance

This chapter provides information on maintaining the AutoMARK VAT between elections. It also describes procedures that are completed in the TEST MODE, by an authorized Jurisdiction Official.

Before storing the AutoMARK VAT you must complete the following steps:

1. Remove the ink cartridge.
2. Charge the battery.
3. Clean the AutoMARK VAT.
4. Store the AutoMARK VAT.

See the categories below for more details on these steps.

6.1 Removing the Ink Cartridge

Always remove the used ink cartridge from the AutoMARK VAT and discard it before storing the AutoMARK VAT between elections. Spare ink cartridges should be purchased prior to the next election and stored separately from the AutoMARK VAT.

When purchasing extra ink cartridges, contact Automark Technical Systems for:
Part number 87002 (Non IR)
Part number 87003 (IR)

See Section 0 in this manual for steps to install a new ink cartridge.

6.2 Charging the Battery

Between elections and in order to be ready for the next election, you must always charge the battery on the AutoMARK VAT. For information on how to charge the battery, see Section 0 in this manual.

6.3 Cleaning the AutoMARK VAT

Before storing the AutoMARK VAT use alcohol wipes to clean the outside panels of the AutoMARK VAT unit.

6.4 Storing the AutoMARK VAT

The AutoMARK VAT is designed for storage and operation in any enclosed facility ordinarily used as a warehouse or polling place. During operation, facility temperature range should be 50^0 F to 104^0 F and moisture range should be 10%

to 50% relative humidity. For storage, facility temperature range should be -4^0 F to 140^0 F and moisture range should be 10% to 85% relative humidity.

6.5 Test Mode Maintenance Procedures

The following procedures are performed while the AutoMARK VAT is in TEST MODE, and must be performed by an authorized election official.

6.5.1 Printing the Operation Log (System Log File)

The Operation Log is used to view all signification operations that have occurred on the machine. The log entries are stored in a circular buffer on the Flash Card which will hold the most recent 277,777 entries.

NOTE: The Operation Log information is stored on the Flash Card. If you insert a different Flash Card from the original one in the system, then the data contained in the Operation log will also change. For example, the total number of Ballots log entry will change if you insert a different Flash Card. Before using a flash card on a different system, be sure to erase the entire contents of the flash card so that system oriented files, such as the Operation Log information, are deleted.

Follow the steps below to print the Operation Log.

1. Enter the Test Mode screen by turning the key switch to **Test**.
2. The **AutoMARK Main Menu** Screen will display
3. Press the **Operations Log** button. A text box with the operations log inside it displays.
4. Press the **Up** button to scroll one screen up, or press the **Down** button to scroll one screen down. Or, you can advance the display to show a particular page by touching the text box under “Go to page:”. A number keypad will be displayed. Press the numbers for the page you wish to display.

Note

The AutoMARK uses a canned keypad format that includes an unsupported +/- button. This button cycles between positive (no symbol visible) and negative (minus sign visible) numeric entry. The AutoMARK does not support negative entry. Attempting to navigate to a page number formatted as a negative value spawns an error message informing the user that the entered page number is invalid:

5. To print this log on completely blank ballot stock paper, press the **Print** button. The screen displays *Insert blank paper.* (Ballot stock is between 80 and 110 pound index stock. Ballot stock is slightly heavier than normal paper and less likely to jam.)
6. Insert a sheet of completely blank ballot stock paper.

7. After inserting the paper, the machine automatically begins printing the operation log, 66 lines per page. If there are more than 132 entries in the operation log, you will need several pages.
8. After the page has been ejected from the machine, if the message *insert another blank sheet of paper* appears, insert another page. Repeat this process until the message *printing done* appears.
9. Exit Test Mode by turning the key switch.

The following is a list of possible Operation Log entries:

System Powered On

Serial Number xxxxxx Build xxx
This entry indicates the system was powered on, and gives the Serial Number and Build number.

System Shutdown OK

This entry indicates the system was shut down using the key switch.

Keyswitch Test Mode

This entry indicates the key switch was used to enter test mode.

Keyswitch Run Mode

This entry indicates the key switch was used to enter run mode.

Hour Print Report

Total Printed: XXX
This entry is added when the machine is booted and once per hour during normal operation. It lists the total number of ballots printed on the VAT (lifetime count).

Printer Calibration

X=XXX
Y=XXX
Angle=XXX
This entry indicates that the printer has been calibrated through the Test Mode Printer Calibration feature, and gives the X, Y, and Angle settings made.

Unrecognized Ballot

This entry indicates that an unrecognizable ballot was inserted.

Ballot Marked Successful

This entry indicates that a ballot was printed.

Ballot Returned Unmarked

This entry indicates that a ballot was inserted, but ejected before it was printed.

Test Print Successful

This entry indicates that a ballot was printed using the Test Print feature of Test Mode.

Printer Malfunction

Failed to Verify
Paper Jam
Paper Too Short
This entry indicates that there was a printer malfunction, and the reason.

Printer Low On Ink

This entry indicates that the printer is running low on ink.

Printer Ink Used Up

This entry indicates that the ink cartridge should be immediately changed.

Scanner Malfunction

Top Scanner
Bottom Scanner
PV Scanner
Scanners/PEB
This entry indicates that there was a scanner malfunction, and indicates which scanner was involved.

Paper Misfeed

This entry indicates that the ballot was not inserted correctly.

No Election Data

This entry indicates that no election data was found.

CF Card Access Failure

This entry indicates that the system was unable to read the data on the compact flash memory card.

Loaded Ballot Id xxxx

This entry indicates that election data for a specified ballot was loaded.

Marked Ballot Inserted

This entry indicates that a ballot which has already been marked was inserted into the VAT.

Unit Locked Time Out

This entry indicates that the user (voter) did not take action within a preset amount of time.

Battery Low

This entry indicates that the battery power is low – a new battery will be needed soon.

Running on Battery Power

This entry indicates that the VAT is using battery for its power source.

Running on External Power

This entry indicates that the VAT is using external electrical power source.

Login Successful

This entry indicates that a user logged in successfully.

Login Failure

This entry indicates that a login was attempted, but was not successful.

Date/Time Change

This entry indicates that the current date and time was re-set.

Battery Charged

This entry indicates that the battery was charged.

Eject Ballot From Test Mode

This entry indicates that the ballot was ejected from the Test Mode screen.

Test Print Screen

Entered
Exited

This entry indicates that the user entered/ exited the Test Print screen (from Test Mode).

Service Print Cartridge Screen

Entered
Exited

This entry indicates that the user entered/ exited the Service Print Cartridge screen.

Manual Print Calibration Screen

Entered
Exited

This entry indicates that the user entered/ exited the Print Calibration screen.

View Operation Log Screen

Entered
Exited
This entry indicates that the user entered/ exited the Operation Log Screen

Battery Status Screen

Entered
Exited
This entry indicates that the user entered/ exited the Battery Status screen

Software Versions Screen

Entered
Exited
This entry indicates that the user entered/ exited the Software Versions screen

Calibrate Touch Screen

Entered
Exited
This entry indicates that the user entered / exited the Calibrate Touch screen.

Unlock Flash Card Screen

Entered
Exited
This entry indicates that the user entered/ exited the Unlock Flash Card screen.

View Scan/Service Log Screen

Entered
Exited
This entry indicates that the user entered/ exited the View Scan/Service Log screen.

Upload Firmware Screen

Entered
Exited
This entry indicates that the user entered/ exited the Upload Firmware screen.

Set Password Screen

Entered
Exited
This entry indicates that the user entered/ exited the Set Password screen.

Set Date/Time Screen

Entered
Exited

This entry indicates that the user entered/ exited the Set Date/Time screen.

Set Print Head Screen

Entered
Exited

This entry indicates that the user entered/ exited the Set Print Head screen

Loaded Election xxxxxxxxxxxx

This entry indicates that the user loaded a new election (actually puts string in operation log with election title (UNICODE) max 39 characters displayed).

Print Head Missing

This entry indicates that the print head was not found.

Unknown Operation

This entry should never appear – it basically means that the Operation Log file has been corrupted.

Scanner Intensity Measurements

This entry records the calibration values being used by the scanners.

6.5.2 Printing the Scan Log or Service Log

These log files record scanner error events and service events. To view or print either of these logs,

1. Enter the Test Mode screen by turning the key switch to **Test**.
1. The **AutoMARK Main Menu** Screen will display
2. Select Maintenance Menu.
3. Enter the system password.
4. Select Scan Log, or Service Log.
5. To print the log, follow the steps as for printing the Operation Log (in previous section).

The following is a list of possible Scan Log entries:

TopOfPage(TOP): not found

ScannerPrinterLibrary.DLL logs this when the top of the ballot from the top scanner could not be found.

BottomOfPage(TOP): not found

ScannerPrinterLibrary.DLL logs this when the bottom of the ballot from the top scanner could not be found.

TopOfPage(BOTTOM): not found

ScannerPrinterLibrary.DLL logs this when the top of the ballot from the bottom scanner could not be found.

BottomOfPage(BOTTOM): not found

ScannerPrinterLibrary.DLL logs this when the bottom of the ballot for the bottom scanner could not be found.

Noise on top scan image

ScannerPrinterLibrary.DLL logs this when the top scanner image has a lot of noise.

Could not create ScanPVDoneEvent!

ScannerPrinterLibrary.DLL logs this when the event could not be created.

TopOfPage(PV): not found.

ScannerPrinterLibrary.DLL logs this when the top of the page for the PV scanner could not be found.

BottomOfPage(PV): not found.

ScannerPrinterLibrary.DLL logs this when the bottom of the page for the PV scanner could not be found.

Didn't detect alignment marks.

ScannerPrinterLibrary.DLL logs this when alignment marks could not be found.

Error in PV scan/ballot edge.

ScannerPrinterLibrary.DLL logs this when the edge of the ballot is at a much different angle than the timing marks along that edge.

Optech: no front columns defined

ScannerPrinterLibrary.DLL logs this when no columns have been defined on the front for Optech ballots.

Optech: no back columns defined

ScannerPrinterLibrary.DLL logs this when no columns have been defined on the back for Optech ballots.

Bad angle on trailing edge.

ScannerPrinterLibrary.DLL logs this when detected angle of bottom of ballot has a problem.

Optech: no data found in cols selected

ScannerPrinterLibrary.DLL logs this when the scanned ballot doesn't match the definition.

Optech scan/definition mismatch.

ScannerPrinterLibrary.DLL logs this when the scanned ballot doesn't match the definition.

Ballot scan/definition error bottom side.

ScannerPrinterLibrary.DLL logs this when the defined ballot doesn't match the scan.

Ballot scan/definition error top side.

ScannerPrinterLibrary.DLL logs this when the defined balot doesn't match the scan.

Arrow count mismatch on back.

ScannerPrinterLibrary.DLL logs this when more or less arrows were detected on the back.

Arrow count mismatch on front.

ScannerPrinterLibrary.DLL logs this when more or less arrows were detected on the front.

Excessive PV rotation.

ScannerPrinterLibrary.DLL logs this when the ballot has rotated an excessive amount in the print zone.

TopOfPage(SHORT PV): not found.

ScannerPrinterLibrary.DLL logs this when the top of the ballot could not be found in the short PV scan.

Short PV Scan Truncation.

ScannerPrinterLibrary.DLL logs this when the top of the ballot in the short PV scan occurs immediately.

Did not detect ref mark in short pv.

ScannerPrinterLibrary.DLL logs this when the reference mark in the front scan cannot be found in the proper region of the short PV scan.

Illegal front ref point!

ScannerPrinterLibrary.DLL logs this when the front reference point is illegal.

Illegal back ref point!

ScannerPrinterLibrary.DLL logs this when the back reference point is illegal.

Warning: PV Scan Failed!

ScannerPrinterLibrary.DLL logs this when the short PV scan could not be recognized.

SCD_GetScanData(SHORT_PV) returned FALSE

ScannerPrinterLibrary.DLL logs this when SCANDRIVER.DLL has had a failure.

GETMARKS: X timing mark X array NULL!

ScannerPrinterLibrary.DLL logs this when GETMARKS.DLL has had a failure.

GETMARKS: X timing mark Y array NULL!

ScannerPrinterLibrary.DLL logs this when GETMARKS.DLL has had a failure.

Should be ... X front marks but ... found.

ScannerPrinterLibrary.DLL logs this when there is a mismatch in the expected number of X timing marks and the detected number of X timing marks.

Should be ... X back marks but ... found.

ScannerPrinterLibrary.DLL logs this when there is a mismatch in the expected number of X timing marks and the detected number of X timing marks.

Top Scan Truncation.

ScannerPrinterLibrary.DLL logs this when the top of the ballot appears at the top of the top scan.

Bottom Scan Truncation.

ScannerPrinterLibrary.DLL logs this when the top of the ballot appears at the top of the bottom scan.

Could not find bottom of back scan.

ScannerPrinterLibrary.DLL logs this when could not find the bottom of ballot in the bottom scan.

Too long Optech stub/margin back bottom!

ScannerPrinterLibrary.DLL logs this when it was detected that the ballot has a longer stub than the stub setting allows (or that the ballot has a stub that should not be there).

Illegal back_max_row_Y.

ScannerPrinterLibrary.DLL logs this when an illegal variable is calculated.

Did not detect any Y marks

ScannerPrinterLibrary.DLL logs this when no vertical timing marks could be detected.

Didn't detect marks in short PV scan.

ScannerPrinterLibrary.DLL logs this when no timing marks were found in short PV scan.

BOTTOM SCANNER: no data!

ScannerPrinterLibrary.DLL logs this when the bottom scanner never detected top of form.

Optech vote locations count mismatch

ScannerPrinterLibrary.DLL logs this when more or less arrows were found than the definition calls for.

TOP SCANNER: no data!

ScannerPrinterLibrary.DLL logs this when the top scanner never detected top of form.

Too long Optech stub/margin top side bottom!

ScannerPrinterLibrary.DLL logs this when it was detected that the stub length is not large enough to support the stub on the top scan bottom of the ballot (or that the ballot has a stub that should not be there).

Illegal front_max_row_Y.

ScannerPrinterLibrary.DLL logs this when an illegal variable was calculated.

Bad front top scan.

ScannerPrinterLibrary.DLL logs this when the top scanner image was not recognized.

Bad front bottom scan.

ScannerPrinterLibrary.DLL logs this when the bottom scanner image was not recognized.

Bad short PV scan.

ScannerPrinterLibrary.DLL logs this when the short PV scan image did not detect any marks.

Errant GetOvals call!

ScannerPrinterLibrary.DLL logs this when GetOvals was called without GetStyleKeys being called.

Missed vertical timing marks!

ScannerPrinterLibrary.DLL logs this when it was detected that vertical timing marks were missed being detected.

CreateEvent TopDone Failed!

ScannerPrinterLibrary.DLL logs this when an event could not be created.

CreateEvent TopStart Failed!

ScannerPrinterLibrary.DLL logs this when an event could not be created.

Create Event BotDone Failed!

ScannerPrinterLibrary.DLL logs this when an event could not be created.

Create Event PVDone Failed!

ScannerPrinterLibrary.DLL logs this when an event could not be created.

Create Event ShPVDone Failed!

ScannerPrinterLibrary.DLL logs this when an event could not be created.

Could not create ScanTopDoneEvent!

ScannerPrinterLibrary.DLL logs this when an event could not be created.

Could not create ScanBottomDoneEvent!

ScannerPrinterLibrary.DLL logs this when an event could not be created.

Could not create ScanPVDoneEvent!

ScannerPrinterLibrary.DLL logs this when an event could not be created.

Could not create ScanShortPVDoneEvent!

ScannerPrinterLibrary.DLL logs this when an event could not be created.

Stub setting too low!

ScannerPrinterLibrary.DLL logs this when it was detected the stub setting is too low for this ballot (or that the ballot has a stub that should not be there).

GSK2: an arg is NULL!

ScannerPrinterLibrary.DLL logs this when an argument to GetStyleKeys was NULL from AUTOMARK.DLL.

Both sides unrecognized!

ScannerPrinterLibrary.DLL logs this when neither side of the ballot could be recognized.

GETMARKS: GetTimingMarks front error #....

ScannerPrinterLibrary.DLL logs this when GETMARKS.DLL routine GetTimingMarks encounters a scan error on the top scan.

GETMARKS: GetTimingMarks back error #....

ScannerPrinterLibrary.DLL logs this when GETMARKS.DLL routine GetTimingMarks encounters a scan error on the bottom scan.

GETMARKS: GetTimingMarks PV error #....

ScannerPrinterLibrary.DLL logs this when GETMARKS.DLL routine GetTimingMarks encounters a scan error on the PV scan.

GETMARKS: GetTimingMarks UNKSCN error #....

ScannerPrinterLibrary.DLL logs this when GETMARKS.DLL routine GetTimingMarks encounters a scan error on an unknown scanner.

Truncation error on scanner ...

AUTOMARK.DLL and SCANDRIVER.DLL detected the top of the ballot started immediately or before scanning begun.

Overflow error on scanner ...

AUTOMARK.DLL detected that SCANDRIVER.DLL was not quick enough in getting data from the DSP RAM and scan data was lost.

Scanner Timeout!

AUTOMARK.DLL detected all scanners timed out acquiring data and end of data.

The following is a list of possible Service Log entries:

Failed to allocate slopetop

SCANNERPRINTERLIBRARY.DLL logs this when a memory allocation error occurred.

Out of memory alloc ....

SCANNERPRINTERLIBRARY.DLL logs this when a memory allocation error occurred.

Out of memory allocating ....

SCANNERPRINTERLIBRARY.DLL logs this when a memory allocation error occurred.

PVAngle: Failed to allocate slopetop.

SCANNERPRINTERLIBRARY.DLL logs this when a memory allocation error occurred.

PVAngle: Failed to allocate scanline.

SCANNERPRINTERLIBRARY.DLL logs this when a memory allocation error occurred.

Very Short Short PV Scan

SCANNERPRINTERLIBRARY.DLL logs this when short PV scan is impossibly short.

Failed to read EEPROM (print cal)

SCANNERPRINTERLIBRARY.DLL logs this when could not read NV EEPROM.

Math error placing Y mark

SCANNERPRINTERLIBRARY.DLL logs this when a math / algorithmic error was made.

Out of memory ...

SCANNERPRINTERLIBRARY.DLL logs this when a memory allocation error occurred.

NULL args to RetrieveBottomPos

SCANNERPRINTERLIBRARY.DLL logs this when a routine call was misused.

NULL args to RetrieveTopPos

SCANNERPRINTERLIBRARY.DLL logs this when a routine call was misused.

Scandriver DLL not initialized!

SCANNERPRINTERLIBRARY.DLL logs this when SCANDRIVER DLL is not present.

Printer board failed to respond!

SCANNERPRINTERLIBRARY.DLL logs this when the PEB fails to respond to a command.

DiagnosticLogger.DLL failed to init.

SCANNERPRINTERLIBRARY.DLL logs this when DIAGNOSTICLOGGER.DLL could not initialize.

DiagnosticLogger.DLL inconsistent.

SCANNERPRINTERLIBRARY.DLL logs this when DIAGNOSTICLOGGER.DLL is inconsistent.

GETMARKS.DLL not found.

SCANNERPRINTERLIBRARY.DLL logs this when GETMARKS.DLL was missing.

GETMARKS.DLL inconsistent.

SCANNERPRINTERLIBRARY.DLL logs this when GETMARKS.DLL was inconsistent.

Scandriver DLL not found.

SCANNERPRINTERLIBRARY.DLL logs this when SCANDRIVER.DLL was missing.

Scandriver DLL inconsistent!

SCANNERPRINTERLIBRARY.DLL logs this when SCANDRIVER.DLL was inconsistent.

Error: scandriver DLL unloaded.

SCANNERPRINTERLIBRARY.DLL logs this when SCANDRIVER.DLL was not loaded.

NonVolatileLibrary DLL not found.

SCANNERPRINTERLIBRARY.DLL logs this when NONVOLATILELIBRARY.DLL was missing.

NonVolatileLibrary DLL inconsistent!

SCANNERPRINTERLIBRARY.DLL logs this when NONVOLATILELIBRARY.DLL was inconsistent.

OperationLogger DLL not found.

SCANNERPRINTERLIBRARY.DLL logs this when OPERATIONLOGGER.DLL was missing.

OperationLogger DLL inconsistent!

SCANNERPRINTERLIBRARY.DLL logs this when OPERATIONLOGGER.DLL was inconsistent.

SCD_SetBubble failed for Optech bubble.

SCANNERPRINTERLIBRARY.DLL logs this when PEB fails to recognize new bitmap command.

GETMARKS:InitScan error #....

SCANNERPRINTERLIBRARY.DLL logs this when a memory allocation error occurred.

Xcoltmxcolpos memory alloc failed.

SCANNERPRINTERLIBRARY.DLL logs this when a memory allocation error occurred.

Mismatch in printer Y coord!

SCANNERPRINTERLIBRARY.DLL logs this when a math / algorithmic error occurred.

AddTimingMark (x) ... of ... alloc.

SCANNERPRINTERLIBRARY.DLL logs this when a memory allocation error occurred.

.... Exception

SCANNERPRINTERLIBRARY.DLL logs this when a low-level C/C++ DLL had an exception error.

NULL optechstruct arg!

SCANNERPRINTERLIBRARY.DLL logs this when a call to GETMARKS was misused.

NULL essstruct arg!

SCANNERPRINTERLIBRARY.DLL logs this when a call to GETMARKS was misused.

Arg optechstruct is NULL!

SCANNERPRINTERLIBRARY.DLL logs this when a call to GETMARKS was misused.

Arg essstruct is NULL!

SCANNERPRINTERLIBRARY.DLL logs this when a call to GETMARKS was misused.

Could not access thresholds data!

SCANNERPRINTERLIBRARY.DLL logs this when the thresholds RAM file could not be accessed.

Alloc temp scan buf 0 ptrs ... lines failed.

SCANNERPRINTERLIBRARY.DLL logs this when a memory allocation error occurred.

Alloc frontbuf failed.

SCANNERPRINTERLIBRARY.DLL logs this when a memory allocation error occurred.

Alloc backbuf failed.

SCANNERPRINTERLIBRARY.DLL logs this when a memory allocation error occurred.

GetOvals:128byte alloc error.

SCANNERPRINTERLIBRARY.DLL logs this when a memory allocation error occurred.

PVAngle: Failed to allocate slopetop.

SCANNERPRINTERLIBRARY.DLL logs this when a memory allocation error occurred.

logstr out of memory.

SCANNERPRINTERLIBRARY.DLL logs this when a memory allocation error occurred.

Unable to Set Abort Get Ovals Event.

SCANNERPRINTERLIBRARY.DLL logs this when unable to start an event.

No scanner image saved.

SCANNERPRINTERLIBRARY.DLL logs this when SCANDRIVER.DLL failed to store a RAM file bitmap.

Could not open I2C port

NONVOLATILELIBRARY.DLL logs this when the I2C OS resource could not be opened.

Read I2C Error ...

NONVOLATILELIBRARY.DLL logs this during an I2C NV EEPROM read error.

Could not get EEPROM data!

NONVOLATILELIBRARY.DLL logs this during an NV EEPROM read error.

Could not put EEPROM data!

NONVOLATILELIBRARY.DLL logs this during an NV EEPROM write error.

Bad CRC32 in Bank ... of EEPROM

Indicates corruption in one of the NV EEPROM banks. Here are the meanings of the bank numbers:
bank 2: ballot type, scanner calibration data
bank 3: maintenance password
bank 4: unlock code, printer angle calibrations
bank 5: manufacturer's data
bank 6: firmware revision, hardware revision
bank 7: print count, dot count, printer calibrations, serial number

Operation Log Corrupt!

AUTOMARK.DLL logs this when OPERATIONLOGGER.DLL detects that the OP.ELF file on the compact flash card is corrupted.

Write-in length error.

AUTOMARK.EXE logs this if the value specified in AIM's for write-in length caused an illegal value to be computed in the GUI.

...Exception

AUTOMARK.EXE logs this when an exception occurs of the specified type.

ERROR: ....

AUTOMARK.EXE logs this when an exception occurs in the managed code.

Error preparing audio for play.

AUTOMARK.EXE error occurred in the WAV file handler or waveOut... OS API.

Could not allocate pinned WAV header.

AUTOMARK.EXE failed in call to GCHandle.Alloc in WAV file handler.

Error waiting for audio ready.

AUTOMARK.EXE encountered an error waiting for a WAV file thread to terminate in WAV file handler.

Faulty Sound Driver - Reformat Drive.

AUTOMARK.EXE has detected that the OS sound driver has become corrupted. The NOR flash drive must be reformatted.

Error preparing new audio.

AUTOMARK.EXE encountered an error preparing new audio in the WAV file handler.

Error escaping WAV windows routine.

AUTOMARK.EXE encountered a timeout error in the WAV file handler.

Error waiting audio done cleanup.

AUTOMARK.EXE encountered a timeout error in the WAV file handler.

Error playing audio.

AUTOMARK.EXE encountered a timeout error in the WAV file handler.

Error waiting for audio windows exit.

AUTOMARK.EXE encountered a timeout error in the WAV file handler.

Error waiting for audio done.

AUTOMARK.EXE encountered an error waiting for a WAV file thread to terminate in WAV file handler.

Unable to initialize speech engine.

AUTOMARK.EXE encountered a problem initializing the Eloquence text-to-speech engine. The library files may have become unregistered or the engine may have been terminated improperly.

Dictionary load error. LangId=...

AUTOMARK.EXE encountered a problem loading a dictionary from the storage card election data folder.

6.5.3 Setting the Admin Password

You can change the Administrator Password to keep the machine secure. Unauthorized users of the AutoMARK VAT machine cannot reprogram the module, set the system date and time, or perform other Administrator tasks without knowing what the Administrator Password is. Follow the steps below to set the admin password.

1. Enter the Test Mode screen by turning the key switch to Test.
2. The **AutoMARK Main Menu** Screen will display
3. Press the **System Maintenance** button on the touch screen.
4. You will be prompted to enter a password. Enter the current Administrator Password
5. The **System Maintenance Menu** will be displayed
6. Press the **Set Administrator Password** button.
7. Re-enter the Administrator Password on the next screen. Press **Done/Enter** when you have entered this old password.
8. Enter the new password. Press **Done/Enter** when you are done.
9. Confirm that the screen shows the message indicating that the New Password was successfully saved.
10. Make sure to write down the new password in at least one location so that the password is not forgotten!
11. Move the key switch out of test position.

6.5.4 Setting the Date and Time

Edit the date and time settings used to time stamp entries in the system's operations and diagnostic logs.

Follow the steps below to set the date and time.

1. Turn the control key to the TEST position to enter Test Mode.
   (The terminal requires an installed Flash Memory Card to enter Test Mode.)
2. From the **AutoMARK Main Menu** Screen, select **System Maintenance**.
3. Enter the system password.
4. Press **Set Date/Time**.

To set the system Date

5. Select **Date** to update the terminal's internal calendar.

   a. Press **CLEAR** to delete the current date setting.
   b. Use the touch screen keypad to enter a new date value.

IMPORTANT -- Date Format

Enter the date in the displayed format:

DD-MM-YY

Include dashes (-) between each date element as shown. Do not replace dashes with colons or periods.

c. Press **Apply** to store date settings.

To set system Time

6. Select **Time** icon to update the system's internal clock.

   a. Press **CLEAR** to delete the current time setting.
   b. Enter a new value using the touch screen keypad.

IMPORTANT -- Time Format

Enter the time in the displayed format:

HH:MM AM/PM

Include a colon (:) between the hour and minute settings. Do not include a space or separator between the minute and 'AM/PM' setting. The system automatically adds this space.

Note – that the system will accept both 24 hour and 12 hour (AM/PM) entries. If PM is left off, the entry defaults to AM.

   c. Press **Apply** to save your time setting.

7. Press **Done** when you are done editing the date and time.
8. Turn the control key out of the TEST position.

6.5.5 Calibrating the Touch Screen

Calibrate the touch screen if you feel the spots that you are pressing on the touch screen are not the same spots that AutoMARK VAT recognizes For example, if it feels like you have to press too high or too low or too far to the left or too far to the right to get to a certain button, then you need to re-calibrate the touch screen. Follow the steps below to calibrate the touch screen.

1. Enter the Test Mode screen by turning the key switch to **Test**.
2. The **AutoMARK Main Menu** Screen will display.
3. Press the **Calibrate Touch Screen** button on the touch screen.
4. Press the **Calibrate** button on the touch screen..
5. Follow the on-screen instructions simply by touching the points on the screen that the screen indicates.
6. Press again on the screen when finished.
7. Make sure to press the **Done** button after you are done calibrating. If you skip this step, the settings may not be remembered when the system is re-booted.

6.5.6 Calibrating the Printer

Note

This procedure is used to calibrate the machine whenever there is a significant rotation or consistent X or Y offset during normal printing operations.

There are two functional screens which are used to calibrate the printer.

6.5.6.1 Manual Printer Calibration Utility

The Manual Printer Calibration Utility screen is used to enter calibration adjustments manually. You should begin the calibration process here.To access the Manual Printer Calibration Utility,

1. Enter the Test Mode screen by turning the key switch to **Test**.
2. The **AutoMARK Main Menu** Screen will display.
3. Press the **Printer Calibration** button on the touch screen.
4. To begin calibration, enter -18 for X and 21 for Y. This is a good “first guess” that will get you in the neighborhood for DV3.0 and DV3.5 machines. (Leave the angle calibrations at 0.)
5. Press the **Save Values** button on the touch screen.
6. Press the **DONE** button on the touch screen.
7. Then go to the **Automatic Printer Calibration** screen as described below.

6.5.6.2 Automatic Printer Calibration

Note: This section is *not* for Optech users.

Note

For automatic printer calibration use Election Data and paper ballots that have oval targets and oval density of 3 ovals per inch or less. For best results ballots should also have oval locations and timing marks on both sides and should be inserted first page up, front first.

The AutoMARK VAT implements an automatic printer calibration function that is accessible from the Test Ballot Print feature of Test Mode and may be used with any AutoMARK VAT compatible ballot.

1. Enter the Test Mode screen by turning the key switch to **Test**.
2. The **AutoMARK Main Menu** Screen will display.
3. Press **Test Ballot Print** button on the touch screen.
4. Use the touch screen to select the **Enable Calibration Suggestions** checkbox in the center top of the screen.
5. If using an ballot style with a removable stub, remove the stub before inserting the ballot
6. Insert a ballot compatible with the currently installed Flash Memory Card. For best results, ballot should have oval locations, timing marks on both sides, and should be inserted first page up, front first.
7. After printing, the system will provide feedback based on the print accuracy and will prompt the user whether or not to implement the new settings.
8. If the marks are consistently off in two directions on the front and the two opposite directions on the back, then you should select **yes** to accept the new settings.
9. If the printing is accurate enough, and the suggestion is just a couple units here and there, you might want to select **no**, and deem that it is calibrated enough (assuming all the marks are perfectly accurate except for a miniscule amount of rotation or offset that is not symmetrical with the back side).
10. Insert another ballot compatible with the currently installed FMC.
11. After the ballot prints, examine it for print accuracy. If additional refinement is desired, repeat the process from step 7 until the accuracy is acceptable.
12. When the print accuracy is finalized, press **no** when prompted to accept the new settings.
13. Press **done.**
14. Exit Test Mode by turning the key switch.

It usually takes about 4 test prints to fully calibrate the printer using the Automatic Printer Calibration suggestions. You can of course use the Manual Printer Calibration Utility to adjust things yourself once you get the hang of it. The Manual Printer Calibration Utility should rarely be used except for the initial "preset" to -18, 21, and also if you already know a particular machine's calibrations (such as if the machine's SBC was replaced or if software was re-installed from scratch). In these cases, you could enter them directly and bypass the Auto print cal procedure.

Note that print calibrations are logged in the Operation Log (See Section 6.5.1), so that if a machine loses its calibrations (due to changing SBC, re-installing software, or someone tampered with them) then you can go through the Operation Log and pick the values from the Operation Log to use in the Manual settings screen. (This assumes you are using the same Flash Memory Card as was used when the printer was calibrated successfully the first time.)

6.5.7 Unlocking the Flash Memory Card

You may need to unlock the flash card to set a new pin. Follow the procedure below to unlock the flash card and set a new pin.

1. Enter the Test Mode screen by turning the key switch to **Test**.
2. The **AutoMARK Main Menu** Screen will display.
3. Press the **Unlock Flash Card** button on the touch screen.
4. Enter the correct PIN number for the compact flash memory card by pressing the white box for the unlock code and typing the numbers on the touch screen keypad that appears.
5. Press the **Unlock** button on the touch screen when you are done typing the correct PIN number. If the PIN number was correct and the data on the compact flash card has not been tampered with, and there are no hardware problems on this machine, then the system will respond with *Unlocked successfully*.
6. Turn the key switch back to the ON position to resume use of the machine.

6.6 More System Maintenance Procedures

For more information on procedures for providing technical support, system maintenance and correction of defects, and for incorporating hardware upgrades and new software releases, see the AutoMARK 3210 System Installation and Maintenance Guide AQS-13-5010-001-F.

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7 Security Measures

7.1 Access Control

7.1.1 General Access Control Policy

It is the responsibility of the jurisdiction to provide a secure physical and procedural environment for the storage, handling, preparation, and transportation of the system hardware.

The VAT should be kept in a secure location in a manner similar to other voting machines, ballots and other election equipment or records.

Recommended policy for access controls are as follows. The Compact Flash content shall be programmed and verified by County or State election staff. Pre-programmed Compact Flash cards will be delivered to each precinct for installation by local precinct staff.

Security measures which should be taken when preparing the Compact Flash Card are provided in the *AIMS Election Official's Guide*.

7.1.2 Individual Access Privileges

The Election Official or his designee should

- Retain possession of the key to power on the VAT.
- Retain possession of the key to unlock and lock the Compact Flash compartment.
- Set the password for the VAT System Maintenance Menu and keep private.

7.2 Access Control Measures

Unauthorized access to the Compact Flash card is prevented by means of a locked compartment. Election officials at the precinct level will use the Compact Flash compartment key to unlock the compartment, insert the Compact Flash card, and lock the compartment prior to opening the polls for voting. No further access to the Compact Flash is necessary until the polls are closed, when it can be removed.

7.3 Polling Place Security

The AutoMARK VAT is powered on and off by use of a key. Removal of this key will prevent unauthorized use when VAT is left unattended.

Physical security measures for the AutoMARK system include a locked compartment to prevent access to the Compact Flash card. The Compact Flash

card contains ballot format information. The compartment is locked with a key. The key is held by the precinct staff.

A password is required to access the System Maintenance Menu items on the VAT, such as setting the time and date, or uploading new firmware. The password should be reset by the designated official and kept private. Headphones can be used to provide audio of the various ballot choices and the display screen can be turned off to prevent unauthorized access to vote information from a voter with visual impairments.

7.4 Security Seal Locations

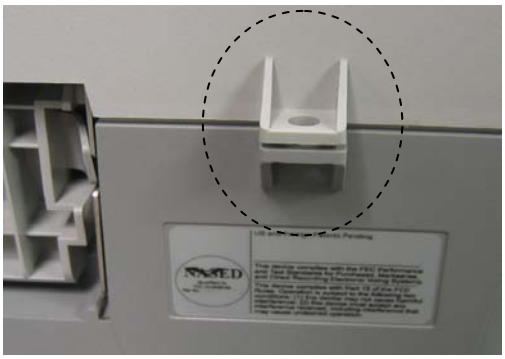
There are three locations on the AutoMARK VAT that are suitable for applying security seals during the election.

-The first location is in the front compartment of the machine that allows access to the CF card. This compartment has a key lock, but is also capable of being sealed with a security seal.

-The second location is in the rear of the machine opposite the power plug. This seal prevents the top cover from being uninstalled without removing the seal.

-The third location is on the top, rear of the machine on the ink compartment door. Sealing this compartment prevents access to the ink cartridge and diaper tray.

Compact Flash Secure Compartment



Rear Top Cover Seal

Rear Ink Compartment Seal

8 REVISION HISTORY

Revision	Date	Reason for Revision
1	4/11/2006	Original document based on AQS-31-5061-003-R.doc
2	12/13/2006	Updated address.
3	01/11/2007	Added note to section 3.1, Added 7.4 - ph
4	5/21/07	Added VAT preparation suggested due dates in section 2. Added 6.6 “More System Maintenance Procedures” reference. Disclaimer deleted. -gg. Updated audio test – ph. Updated copyright date & added new disclaimer. Formatted TOC & headings. Added filename, save date to footer. Updated “Printing the Scan Log or Service Log”—(deleted some “SetBubble” text).-gg Fixed AT reference - ph
5	6/4/07	Clearly identified Optech-specific text.–gg
6	03/07/08	Added reference documents to page 7., added note to 3.3, updated address. -ph
7	3/20/08	Added note to section 6.5.6.2, -ph
8	5/7/09	Updated section 6.5.1 to expand the description of the emulated keypad in the print operations log screen. Clarified instructions for setting the system date and time in Section 6.5.4 – mn
9	06/16/09	Updated configuration boilerplate to replace ATS references with ES&S.
10	01/17/11	Updated file project ID from 3010 to 3210 Updated the copyright date..

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