



SelfCheck™ System V-Series Cabinet Models

Field Service Handbook

3M Library Systems

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Revision history

- Change bars placed in the margins indicate where technical changes to a procedure or illustration occurred.
- If a procedure is added, or an existing procedure is entirely changed, the change bar is placed next to the procedure title.

Revision	Date	Changes
C	11/2006	Revised to include new Multiple Book Detection (MBD) calibration procedure.
D	2/2007	Revised to reflect changes to MBD calibration tools.
D1	8/2007	Added information for wireless networking option and for magnetic card reader option. Corrected MBD spacer to appear as a single plate; removed hot strip instructions for four-board systems; updated cabling diagram and block diagram to include cash box.

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Safety information

Read, understand and follow all safety information contained in these instructions prior to installation and use of the 3M™ SelfCheck™ System V-Series . Follow this safety information while you install and use the system. Retain these instructions for future reference.

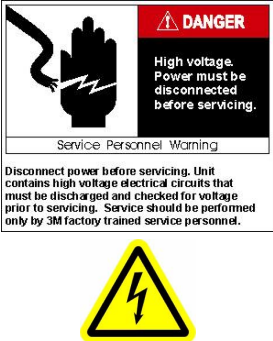
Intended Use

The 3M SelfCheck System V-Series is intended for use by library customers to check in and check out books with minimal assistance from library staff. The system can be installed into a desk unit from 3M or into furniture provided by the customer.

The system must be installed as specified in the SelfCheck System V-Series site planning guides and this field service handbook. It is intended for use in an indoor library environment and has not been evaluated for other uses or locations.

Explanation of Signal Word Consequences	
 DANGER:	Indicates a potentially hazardous situation, which, if not avoided, will result in death or serious injury and/or property damage.
 WARNING:	Indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury and/or property damage.
 CAUTION:	Indicates a potentially hazardous situation, which, if not avoided, may result in minor or moderate injury and/or property damage.
CAUTION:	Indicates a potentially hazardous situation, which, if not avoided, may result in property damage.

Safety Information for the SelfCheck System V-Series

Explanation of Product Safety Label Symbols	
	Attention: Read accompanying documentation
 Service Personnel Warning Disconnect power before servicing. Unit contains high voltage electrical circuits that must be discharged and checked for voltage prior to servicing. Service should be performed only by 3M factory trained service personnel.	Risk of Electric Shock
BACKLIGHT CONTAINS MERCURY, DISPOSE ACCORDING TO LOCAL, STATE, AND FEDERAL LAWS	Display Unit: Mercury disposal hazard
	Laser Scanner: Laser Exposure

 WARNING
To reduce the risk associated with fire due to modification or incorrect installation of system components or the use of non-approved replacement components: - Do not attempt to modify or repair — no user serviceable parts inside — contact 3M Service for repair; - Use approved system components, installed by 3M service personnel only; - Install system components into desk or enclosure according to instructions and specifications given in the SelfCheck System V-Series site planning guides.
To reduce the risk associated with hazardous voltage due to a user attempting to service a component or incorrect installation of system components: - Do not attempt to modify or repair — no user serviceable parts inside — contact 3M Service for repair; - Install system components into desk or enclosure according to instructions and specifications given in the SelfCheck System V-Series site planning guides.
To reduce the risk associated with back strain due to the heavy weight of the system components, and when installed within a desk unit: Follow safe lifting procedures.

 WARNING

To reduce the risk associated with tipping over of the desk unit due to incorrect installation of systems components within a desk unit:

- Install system components into desk or enclosure according to instructions and specifications given in the SelfCheck System V-Series site planning guides.

 CAUTION

To reduce the risk associated with environmental contamination due to the incorrect disposal of the lithium battery in PC, mercury in monitor/display, and/or any circuitry that contains lead in the solder:

- At the end of service life, dispose of the V-Cradle, coil driver box, interconnect box, appliance coupler, computer, monitor, and laser scanner in accordance with federal, state and local requirements.

To reduce the risk associated with exposure to laser light due to a person looking into the laser scanner:

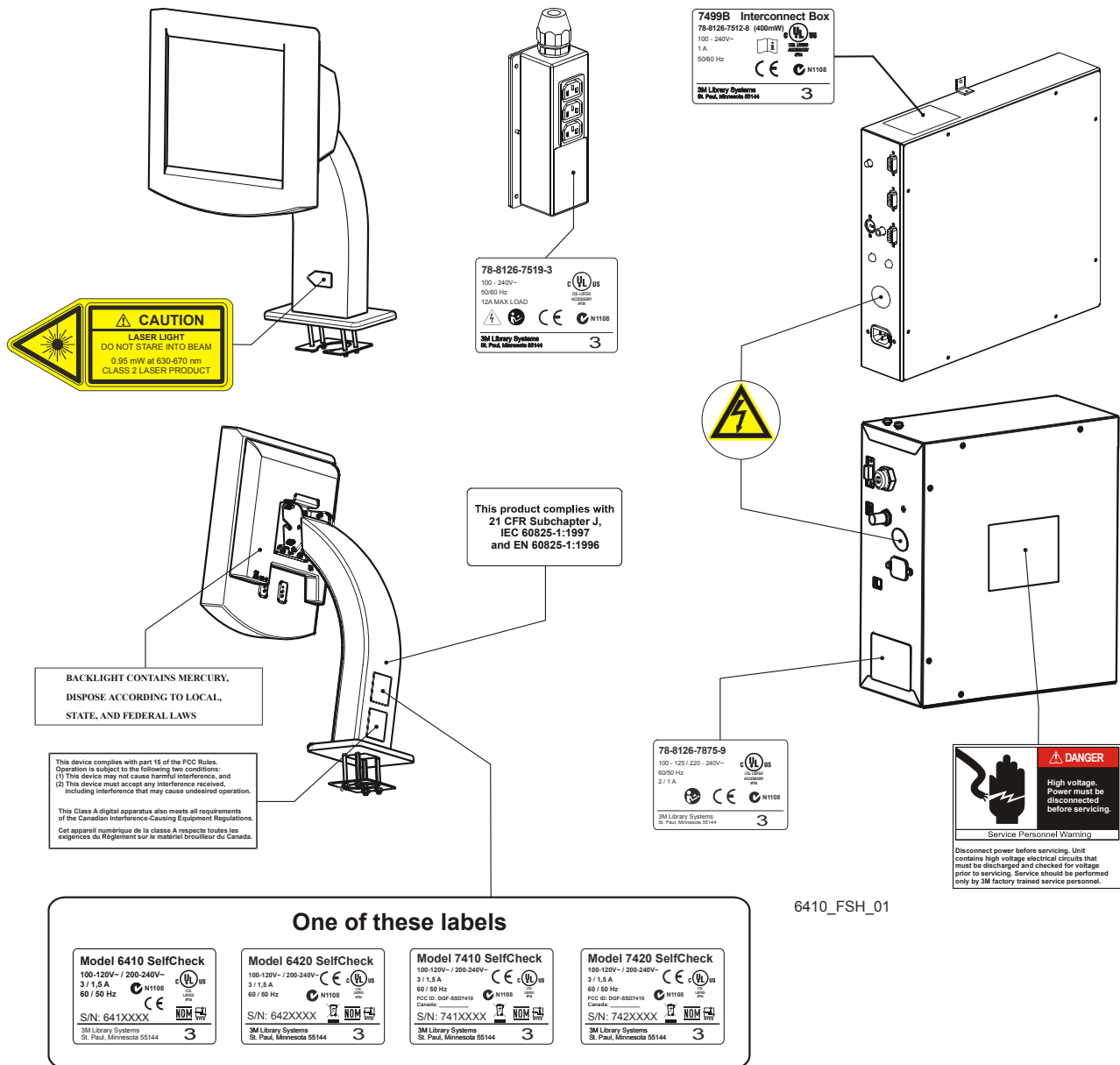
- Do not look directly into laser scanner device;
- At the end of service life, dispose of laser scanner in accordance with federal, state and local requirements.

IMPORTANT NOTE

The Code of Federal Regulations (CFR) 21CFR1040.10 requires the following statement for products containing lasers:

Caution—use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous laser light exposure.

Label locations



Note: The barcode scanner uses a Class II laser. Up to 0.95 mW of laser power can be emitted onto objects.

Regulatory compliance

EMC compliance USA and Canada

FCC Radio Frequency Rules and Regulations

This equipment has been tested and found to comply with the limits for a Class A device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can emit radiated radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.

NO MODIFICATIONS. Modifications to this device shall not be made without the written consent of The 3M Company. Unauthorized modifications may void the authority granted under Federal Communications Commission Rules permitting the operation of this device.

FCC Intentional Radiator Certification (Model 7410 and 7420 only)

Model 7410: FCC ID: DGFSSD7410

Model 7420: FCC ID: DGFSSD7420

This equipment contains an intentional radiator approved by the FCC under the FCC ID number shown above. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Industry Canada radio frequency rules and regulations

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

EMC compliance Europe

This equipment complies with the requirements of the EMC directive.

Australia

This unit complies with the EMC requirements for Australia.

Japan

同梱の電源コードは当該製品専用です。

Machine characteristics

Power requirements

Ensure that the following electrical power is available:

100 to 120 VAC, 6.0 A, 50/60 Hz, single phase or

200 to 240 VAC, 3.0 A, 50/60 Hz, single phase

Component specifications

Component	Dimensions	Weight	Electrical
Touch screen	16.1 in. × 10.2 in. × 15.7 in. 40.9 cm × 25.9 cm × 39.9 cm	16.3 lb 7.4 kg	12 VDC, 2.0 A
Scanner	2.59 in. × 1.38 in. × 3.47 in. 6.58 cm × 3.51 cm × 8.81 cm	7.5 oz 213 g	24 VDC, 300 mA
Printer	6.25 in. × 8.5 in. × 5.87 in. 15.9 cm × 21.6 cm × 14.9 cm	4.2 lb 1.9 kg	24 VDC, 3.0 A
Interconnect box	12 in. × 12 in. × 3 in. 30.5 cm × 30.5 cm × 7.62 cm	3.6 lb 1.6 kg	100–240 VAC, 1.0 A
Coil driver	11.5 in. × 10 in. × 4.8 in. 29.2 cm × 25.4 cm × 12.2 cm	15.0 lb 6.8 kg	100–240 VAC, 1.0 A
V-Cradle	6.6 in. × 16 in. × 18.4 in. 16.8 cm × 40.6 cm × 46.7 cm	5.0 lb 2.3 kg	Draws power from coil driver box
Computer without stand	13.3 in. × 3.95 in. × 15.1 in. 33.8 cm × 10.1 cm × 38.4 cm	22.2 lb 10.1 kg	120 VAC, 5 A or 240 VAC, 2.5 A
Computer with stand	14.3 in. × 7.0 in. × 15.1 in. 36.3 cm × 17.8 cm × 38.4 cm	23.2 lb 10.5 kg	
Appliance coupler	3.25 in. × 3.0 in. × 32.25 in. (max.) 8.26 cm × 7.62 cm × 81.9 cm	1.24 lb 0.56 kg	100–240 VAC, 12.0 A

Environmental

Humidity	0% to 85% RH, non-condensing
Operating Temperature	50° F to 93° F (10° C to 34° C)
Storage Temperature	–22° F to 131° F (–30° C to 55° C)

Installation

Before you arrive at the site

Prior to your arrival at the installation site, library personnel should have completed the following tasks:

- Filled out a *3M Library Systems Checklist* for each installation. This checklist provides information on such things as library barcodes, customer ID cards, the circulation system, SIP, and the network.
- Constructed custom cabinets—if the library plans to use SelfCheck systems without 3M-supplied cabinets. These cabinets should have been prepared according to the specifications provided in the *SelfCheck System V-Series Site-Supplied Cabinet Models Site Planning Guide*.

Before installation

Before beginning the installation, verify the following:

- Where the SelfCheck system is to be installed
- That power is available within 9.8 ft (3 m) of the power connector on the SelfCheck system cabinet

For wired network connection

- That a local area network connection (LAN) is available at the SelfCheck system location. This means that a standard Ethernet cable is available and is long enough to reach a network jack.

For wireless network connection (optional)

- That a wireless network is set up and functional, that the unit is set up within range of wireless network access point, and that a reliable wireless network connection can be established.
 - Transmitted signal strength from the wireless access point **must** be **greater** than **–27dBm** as measured **at the installed location of the SelfCheck System**.
 - Software RSSI (received signal strength indicator) **must** show **greater** than 80% signal strength (**all five** bars of RSSI are green) **at the installed location of the SelfCheck System**.

Network connection, wired or wireless, is required for communication with the Integrated Library System (ILS).

Required tools

SelfCheck system installation requires the following tools:

- Standard technician tool kit
- For MBD calibration, the MBD calibration tool kit is required
- Laptop computer with Windows® operating system and a CD-ROM drive, which are required to read the online documentation

Installation overview

This subsection lists key tasks required to install the SelfCheck system.

Note to those reading this document online: The blue text identifies hypertext links.

Procedure	Page	Applies to systems using ...	
		3M-Supplied Cabinets	Library-Supplied Cabinets
Unpack and move the system to its permanent location	9	√	√
Check the carton contents	11	√	√
Install the anti-tip hardware	12	√	No
Install the V-Cradle	13	No	√
Install the interconnect box	14	No	√
Install the coil driver	14	√	√
Install the MBD filter (models with MBD only)	16	√	√
Install the computer	16	√	√
Install the printer	17	√	√
Install the monitor	18	√	√
Install the optional magnetic card reader (models with magnetic card reader only)	19	√	√
Cable the system	20	√	√
Install the appliance coupler	21	No	√
Install the scanner	22	√	√
Connect the system to power	40	√	√
Calibrate MBD sensitivity (models with MBD only)	41	√	√
Test the magnetic card reader (models with magnetic card reader only)	58	√	√
Configure Windows XP networking	59	√	√
Configure optional wireless networking (models with wireless networking option only)	60	√	√
Set up the SelfCheck system software	60	√	√

Unpack and move the system to its permanent location

Applies to systems using ...	
3M-Supplied Cabinets	√
Library-Supplied Cabinets	√

Library-supplied cabinet procedure

- 1 Open the carton and remove its contents.
- 2 Move the SelfCheck system components to the location where they will be installed.

3M-supplied cabinet procedure

⚠ WARNING
To reduce the risk associated with back strain due to the heavy weight of the system installed within a desk unit: ▪ Follow safe lifting procedures.

This procedure requires the following:

- A furniture lever, furniture dolly, and small block of wood
- A thin piece of cardboard, if the move involves transitions from one floor surface to another (linoleum to carpet, for example)

- 1 Open the shipping carton and remove everything except the monitor, cabinet, and the components that come installed in the cabinet.

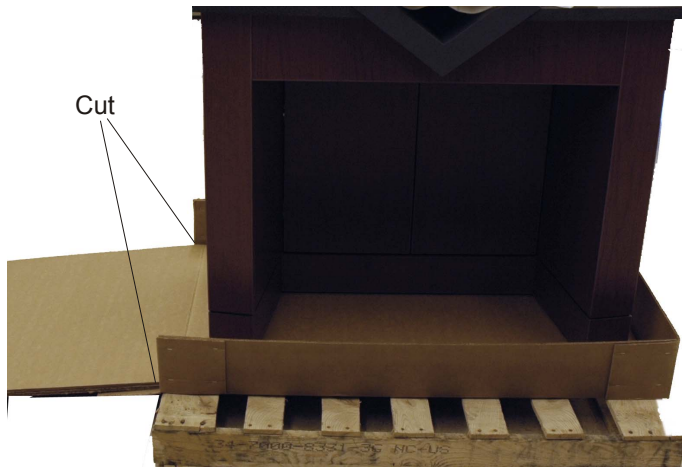


6410_FSH_004_Move3

Figure 1 Open Shipping Carton

Continued on next page ...

- 2 Lower the ramp by cutting the bottom of the packaging at the taped end.
- 3 Remove any remaining padding.
- 4 Using the furniture glides, push the cabinet down the ramp.



6410_FSH_001_cut_cardboard

Figure 2 Ramp

- 5 If you need to move the SelfCheck system very far, complete the following steps:
 - a Position the block of wood, furniture lever, and furniture dolly as shown in [Figure 3](#).



6410_FSH_002_move1

Figure 3 Lever and Wood Block in Position

- b Using the furniture lever, lift the cabinet; remove the furniture glide; and place the cabinet on the furniture dolly ([Figure 4](#)). Ensure that the single wheel side of the dolly is pointing in the direction you will be moving the cabinet.
 - c Repeat the previous step for each corner of the cabinet.



6410_FSH_003_Move2

Figure 4 Dolly in Position

- d Using the furniture dollies, push the cabinet to its permanent location. If you encounter a floor surface transition, use the cardboard as a bridge between surfaces.
 - e Move the other SelfCheck system components.
 - f Do *not* remove the furniture dollies yet; installing the anti-tip hardware will be easier with the furniture dollies under the cabinet.

Check the carton contents

Applies to systems using ...	
3M-Supplied Cabinets	√
Library-Supplied Cabinets	√

Package contents: 3M-supplied cabinets

☐ Cabinet with connected electronics	☐ Anti-tip hardware	☐ Power cable
☐ Monitor assembly	☐ Internal power cords (3)	☐ USB cable A/B
☐ Coil driver and cables	☐ External power cord	☐ Paper (4 rolls)
☐ Computer with base, operating system CD, and restore CD (For the wireless networking option, the computer contains a PCI wireless network adapter card.)	☐ Printer cover	☐ Computer keyboard
	☐ Serial cables (2)	☐ Mouse
	☐ USB cable A/B	
	☐ Alternate scanner mounting hardware	Optional Equipment
	☐ PCAnywhere CD	☐ Smart card reader
	☐ SelfCheck Software CD	☐ Magnetic card reader
	☐ Windows XP Security Upgrade CD	☐ Media Check Model 325 (VCX)
	☐ User Guide	☐ Cash box
	☐ Printer	☐ A wireless network adapter driver CD is included if the computer is equipped with the wireless network adapter card option.

Package contents: site-supplied cabinets

☐ Monitor assembly	☐ Anti-tip hardware	☐ Power cable
☐ V-Cradle	☐ Internal power cords (3)	☐ USB cable A/B
☐ Coil driver and cables	☐ External power cord	☐ Paper (4 rolls)
☐ Interconnect box	☐ Printer cover	☐ Computer keyboard
☐ Appliance coupler	☐ Serial cables (2)	☐ Mouse
☐ Computer with base, operating system CD, and restore CD (For the wireless networking option, the computer contains a PCI wireless network adapter card.)	☐ USB cable A/B	
	☐ Alternate scanner mounting hardware	Optional Equipment
	☐ PCAnywhere CD	☐ Smart card reader
	☐ SelfCheck Software CD	☐ Magnetic card reader
	☐ Windows XP Security Upgrade CD	☐ Media Check Model 325 (VCX)
	☐ User Guide	☐ Cash box
	☐ Printer	☐ A wireless network adapter driver CD is included if the computer is equipped with the wireless network adapter card option.

Install the anti-tip hardware

Applies to systems using ...

3M-Supplied Cabinets



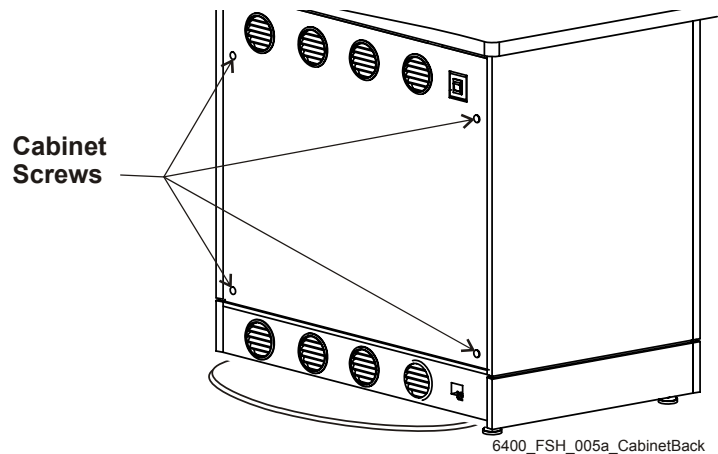
Note: To increase stability and meet CENELEC safety requirements, you *must* attach anti-tip hardware to SelfCheck systems that use 3M cabinets.

- 1 Remove the cabinet back panel by removing the four cabinet screws, which secure the back panel to the cabinet.



6410_FSH_005_remove_back

- 2 Remove the anti-tip bars and hardware from the accessory box.
- 3 Locate the four mounting holes in the floor of the cabinet, two on each side.
- 4 Mount the bars so that each extends behind the cabinet by approximately 15 cm.
- 5 Install the anti-tip cover over the bars.
- 6 Use the furniture dollies and block of wood to remove the furniture dollies from under the cabinet.
- 7 Do not replace the cabinet back yet; some remaining installation procedures require access from the rear of the cabinet.

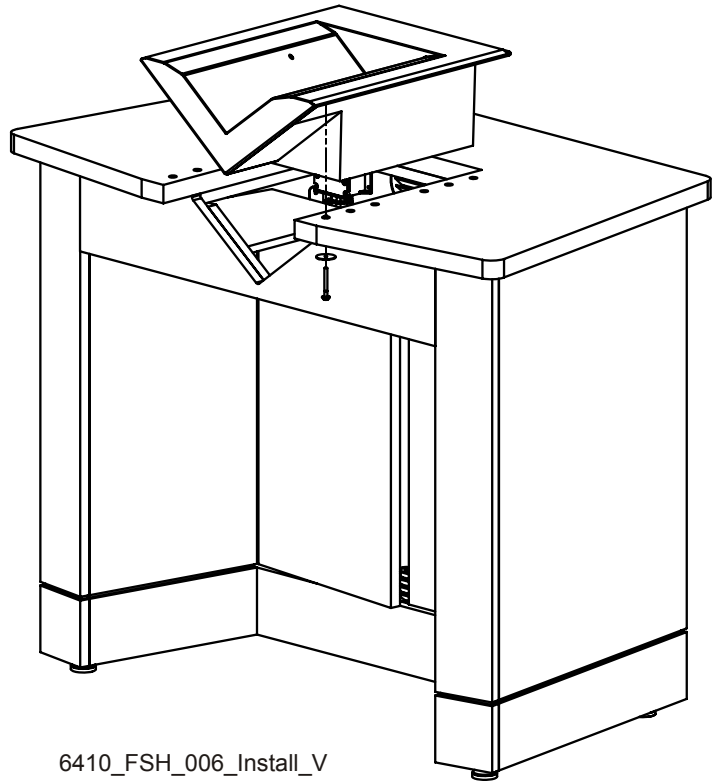


6400_FSH_005a_CabinetBack

Install the V-Cradle

Applies to systems using ...**Library-Supplied Cabinets**

- 1 Unpack the V-Cradle and carefully place it in the desk cutout as shown.
- 2 Secure the V-Cradle to the desk using the screws and washers provided.



6410_FSH_006_Install_V

Figure 5 V-Cradle Installation

Install the interconnect box

Applies to systems using ...

Library-Supplied Cabinets	√
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- 1 Place the interconnect box where directed by the library administrator. The interconnect box can be fastened to a panel or laid on a shelf. If possible, orient it so that the connectors can be easily seen and accessed.
- 2 If required, fasten it in place with the screws and angle brackets included in the SelfCheck system package.

Install the coil driver

Applies to systems using ...

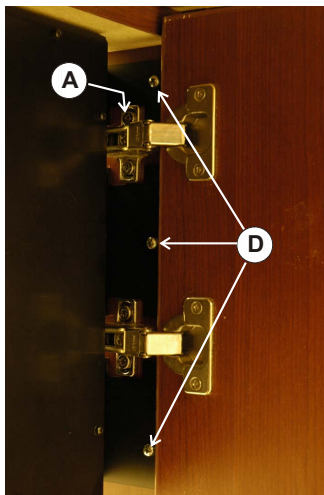
3M-Supplied Cabinet	√
Library-Supplied Cabinets	√



Library-Supplied Cabinets	√
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- 1 Adjust the voltage level (115/230) as required with the voltage switch.
- 2 Do one of the following:
 - For custom-cabinet installations, place the coil driver where directed and mount it if required. It can be fastened to a panel or laid on a shelf. Keep the following in mind, however: (a) Leave some space between the coil driver and cabinet walls to ensure that heat can be easily vented from the coil driver (b) Orient the coil driver so that the right side panel (as you are facing its front) is easily accessible.
 - For 3M-cabinet installations do the following from the front of the cabinet: (A) Rest the coil driver's side mounting brackets on the cabinet door hinges. (B) Insert the coil driver's top mounting bracket into the bracket on the cross-member. (C) Insert and tighten the screw to the cross-member. Tighten it just enough to secure the coil driver. (D) Secure the side-mounting bracket by tightening the screws. (E) Tighten all mounting screws.



6410_FSH_007_Coil_Driver1

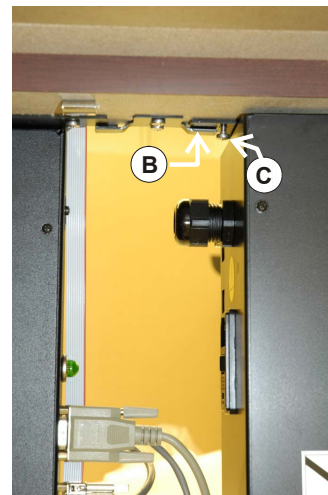


Figure 6 Coil Driver Mounted

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- 3 Remove the coil driver's side panel by loosening the screws that hold it in place.

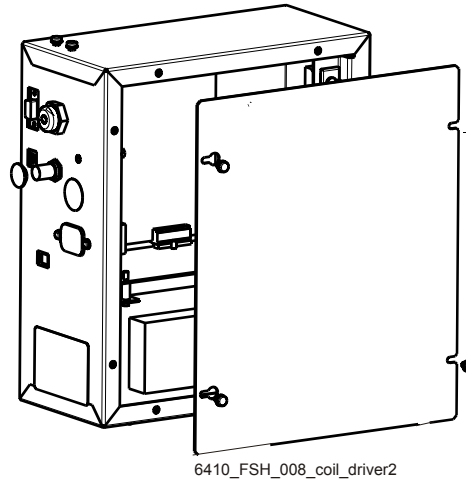


Figure 7 Side View of Coil Driver Box

- 4 Run the V-Cradle field coil cable through the strain relief on the coil driver and connect the ends to the screw terminals on the printed circuit board.

Note: There is no polarity dependence to this connection. Either end can be connected to either screw terminal.

- 5 Reinstall the cover, tightening all screws.

Note: If unit is equipped with MBD, keep upper-right screw loose until the MBD filter box is installed. Use the upper right screw later to fasten the grounding strap from the MBD filter to the coil driver enclosure.

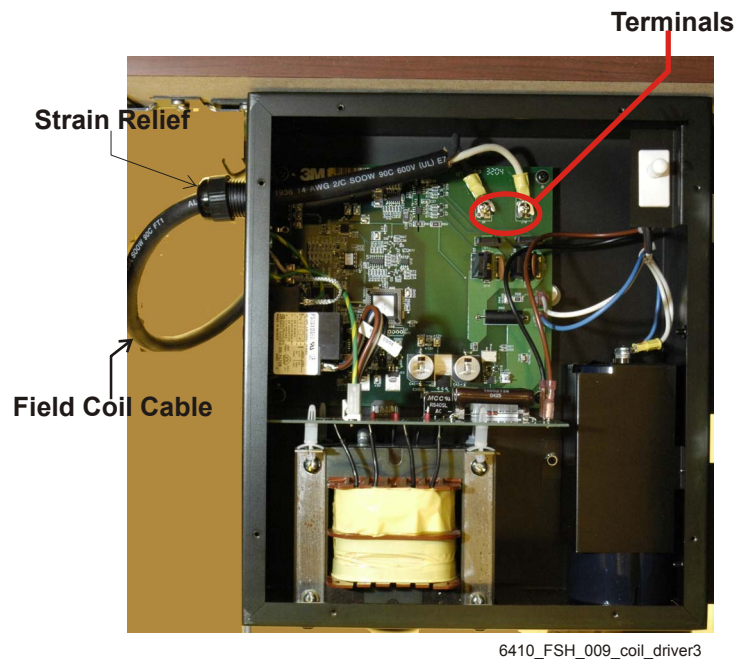


Figure 8 Field Coil Cable Connection

Install the MBD filter

Applies to systems using ...	
3M-Supplied Cabinet with MBD	✓
Library-Supplied Cabinets with MBD	✓

- 1 Install the grounding strap to ground the MBD filter enclosure to the coil driver by temporarily removing one screw from each, then reinstalling the screws through the grounding strap at each end.
- 2 Mount the MBD filter on top of the coil driver. An adhesive mounting pad is affixed to the MBD filter enclosure for this. If necessary, reposition the adhesive pad on the MBD filter enclosure to allow correct positioning.

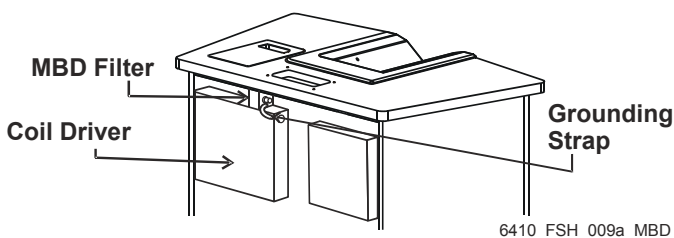


Figure 9 Installing MBD Filter and Grounding Strap

Install the computer

Applies to systems using ...	
3M-Supplied Cabinets	✓
Library-Supplied Cabinets	✓

- 1 Unpack the computer.
- 2 If the computer has a voltage selector switch (which is located near the power connector), adjust the computer's voltage level (115/230) as required.
- 3 Mount the computer on the computer stand:
 - a Line the screw up with the notch that's located on the bottom of the connector side of the computer.
 - b Tighten the screw to hold the computer firmly in place.
- 4 Stand the computer on its side inside the cabinet so that the connectors face the appliance coupler side of the cabinet and so that there is enough room to open the CD-ROM drive tray.

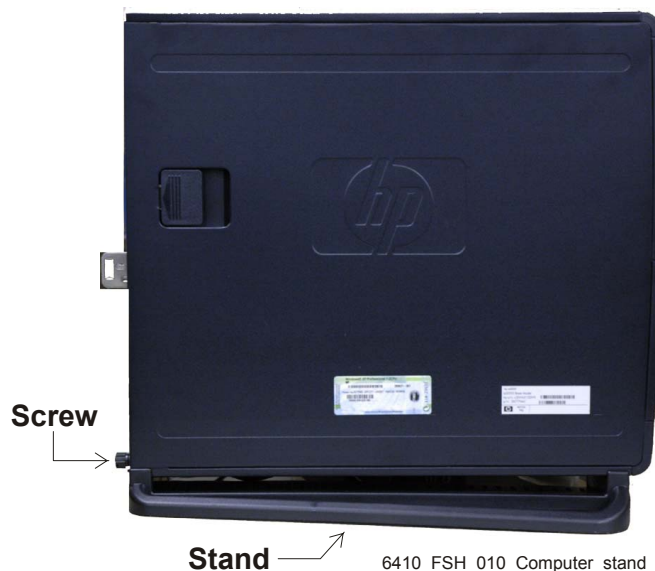


Figure 10 Computer and Stand

Install the printer

Applies to systems using ...	
3M-Supplied Cabinets	√
Library-Supplied Cabinets	√

- 1 Unpack the printer and its cables from the accessories box.
- 2 Connect the power cable and the USB cable to the connectors on the bottom of the printer.
- 3 Tie wrap the USB cable to the power cable to help prevent the USB cable from accidentally coming unplugged.
- 4 Load paper in the printer by doing the following
 - a Press the cover open button and lift the printer cover.
 - b Place a roll of paper in the printer so the paper unwinds from the bottom.
 - c Pull the front edge of the paper out until it is past the front edge of the printer.
 - d Close the printer cover.
- 5 For systems with 3M-supplied cabinets, place the printer in the printer hole and place the printer cover plate over the printer.



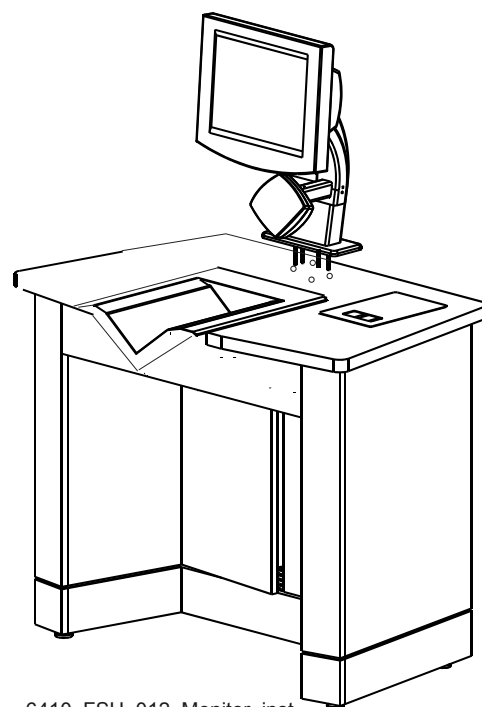
6410_FSH_011_printer

Figure 11 Printer Setup (3M-supplied cabinet pictured)

Install the monitor

Applies to systems using ...	
3M-Supplied Cabinets	√
Library-Supplied Cabinets	√

- 1 Remove the cover and packaging from around the monitor assembly.
- 2 Remove the post clamp plate and nuts from the post mounting screws.
- 3 Lay the monitor on countertop and feed the cables through the cable access hole (if necessary).
- 4 Install the monitor by inserting the mounting screws into the matching holes in the countertop (see figure).
- 5 Place the post clamp plate under the counter top.
- 6 Tighten all four nuts.



6410_FSH_012_Monitor_inst

Figure 12 Monitor Mounting

Install the optional magnetic card reader

Applies to systems using ...	
3M-Supplied Cabinets	√
Library-Supplied Cabinets	√

Follow these instructions to install the optional magnetic card reader and bracket to the touch screen monitor (see Figure 13).

- 1 Using two of the M3 × 0.5 × 8 pan head screws supplied with the magnetic card reader and bracket, mount the card reader to the bracket.
- 2 Temporarily remove the monitor from the monitor support.
- 3 Route the reader cable over the top of the card reader bracket.
- 4 Using the remaining four screws supplied with the magnetic card reader and bracket, mount the bracket to the back of the monitor.
- 5 Route the reader cable through the monitor support column to the computer. Do not plug the cable into the computer yet.
- 6 Reattach the monitor onto the monitor support.

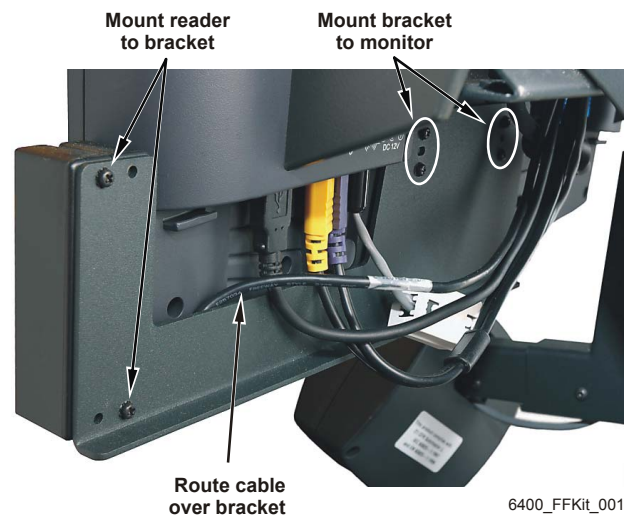


Figure 13 Mounting Magnetic Card Reader

To install the magnetic card reader driver

- 1 Insert the SelfCheck system installation disk into the CD-ROM drive.
- 2 When the **Proceed** message appears, click **Cancel**.
- 3 Plug the magnetic card reader cable into the magnetic card USB port on the computer.
- 4 When the **Found New Hardware Wizard** appears, select **No, not at this time**, and then click **Next**.
- 5 Click **Next**. The wizard searches for the driver.
- 6 In the **Hardware Installation** dialog box, click **Continue Anyway**.
- 7 When the wizard has finished installing the driver, click **Finish**.
- 8 Remove the installation disk and restart the computer.

Cable the system

Applies to systems using ...

3M-Supplied Cabinets

✓

Library-Supplied Cabinets

✓

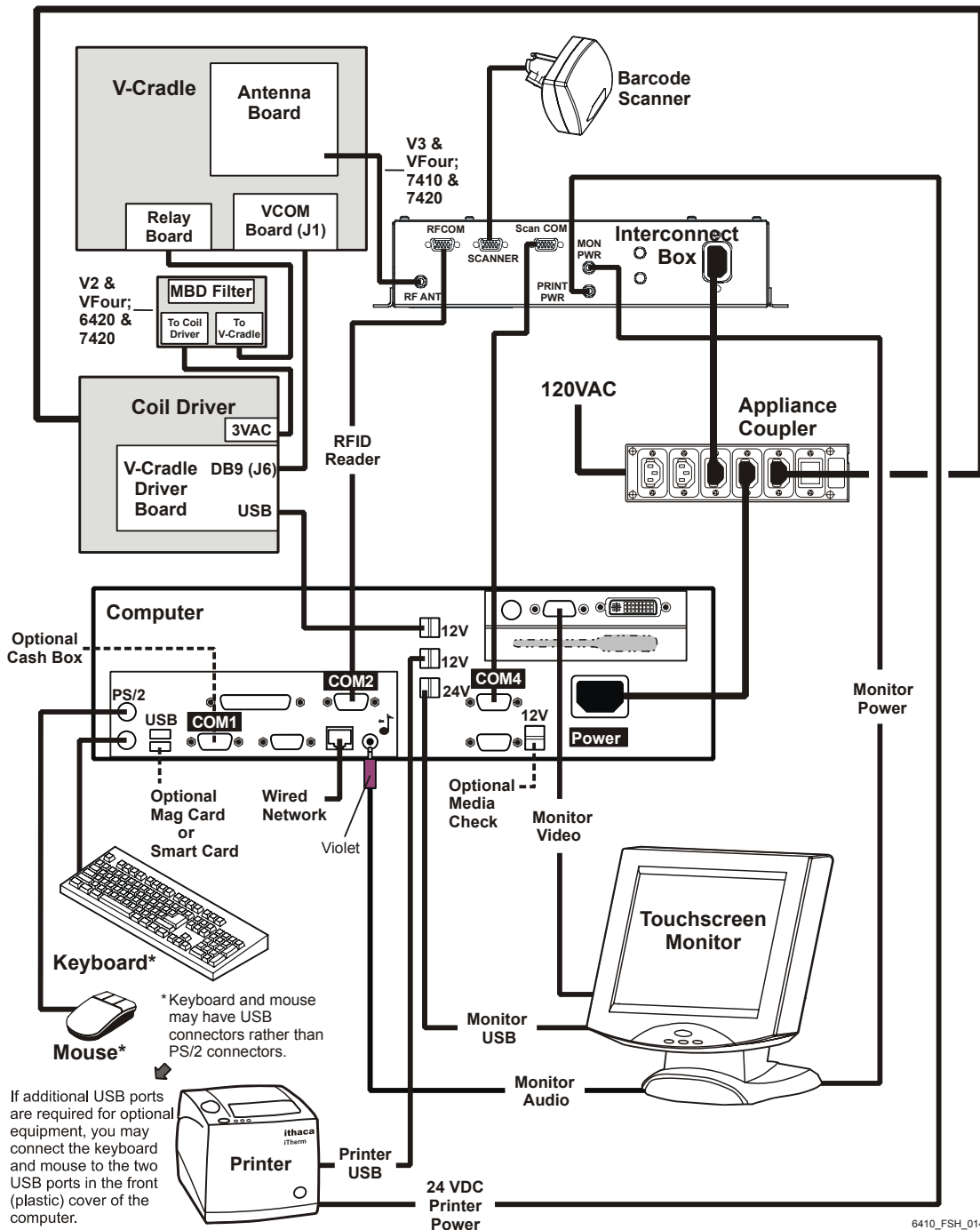


Figure 14 Cabling

Install the appliance coupler

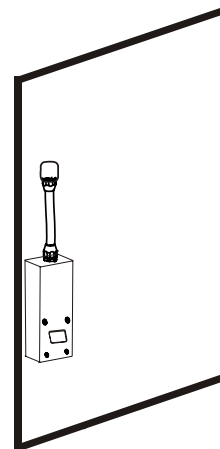
Applies to systems using ...

Library-Supplied Cabinets



This procedure describes how to install the appliance coupler, which is installed into two rectangular holes in a side or back panel. The upper hole is for the switch and the lower one for the input power cable.

- 1 From the inside of the cabinet, fit the switch into the upper hole.
- 2 Using four included screws, fasten the switch to the panel.
- 3 Place the power strip so the input power connector fits into the bottom hole.
- 4 Using four included screws, fasten the power strip to the panel.



6410_FSH_015_app_coupler

Figure 15 Appliance Coupler

Install the scanner

Applies to systems using ...	
3M-Supplied Cabinets	√
Library-Supplied Cabinets	√

CAUTION

To reduce the risk associated with exposure to laser light due to a person looking into the laser scanner:

- Do not look directly into laser scanner device.
- At the end of service life, dispose of laser scanner in accordance with federal, state and local requirements.

Before you begin scanner setup

Before you can begin assembling and mounting the scanner, you must complete the tasks described in this section.

Gather a library materials sample

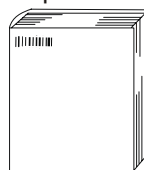
Scanner setup is largely determined by barcode placement. Consequently, you need to gather a library sample to determine typical placement for this library.

- 1 Gather between 10 and 20 books, ensuring that some are thick (about 3 in. or 7.6 cm) and some are thin (0.25 in. to 0.5 in. or 0.7 to 1.3 cm).
- 2 Sort through the books and find two thick and two thin ones that have typical barcode placements.
- 3 Go to [Determine barcode placement and orientation](#) on page 23.

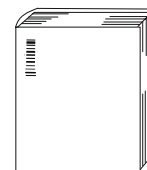
Determine barcode placement and orientation

- 1 Determine the orientation of the barcodes, that is, whether they are perpendicular to the spine or parallel to it.
- 2 Record this information.
- 3 Measure the distance the barcode is from the edge of the book.
 - If the barcode is perpendicular to the spine, measure from the top or bottom of the book, depending on which is closest to the barcode.
 - If the barcode is parallel to the spine, measure from the spine.
- 4 Record this measurement.
- 5 Go to [Verify the mounting option](#) on page 24.

Perpendicular



Parallel



6410_FSH_016_perp_par_ex

Figure 16 Barcode Orientation



6410_FSH_017_Measure

Figure 17 Barcode Measurement

Verify the mounting option

- 1 Use the information in the following table to determine the library's scanner mounting requirements.
- 2 Ensure that the library received the correct mounting hardware.

Go to one of the setup procedures

- [Assemble and mount the perpendicular-mounted scanner](#) on page 25.
- [Assemble and mount the parallel-mounted scanner](#) on page 33.
- [Mount the center-mounted scanner](#) on page 38.

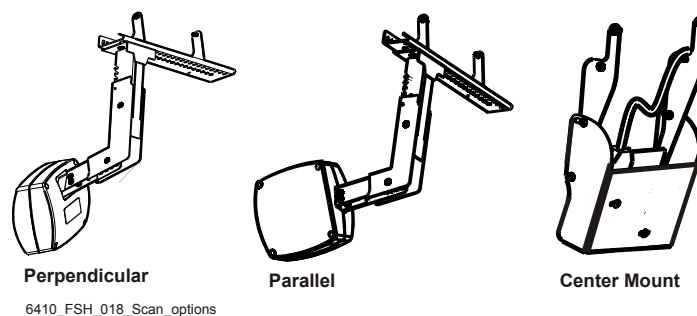
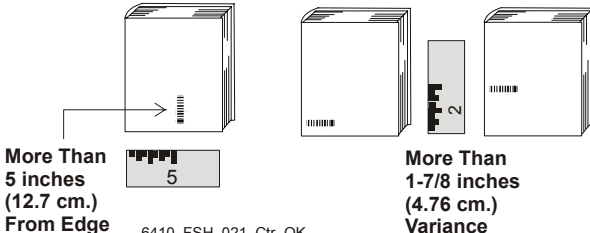


Figure 18 Scanner Mounting Options

Mounting Option	Description	Illustration
Perpendicular mount	Use this option when - Barcode orientation is perpendicular to the book's spine - Barcode placement is consistent, that is, placement does not vary by more than 1-7/8 in. (4.76 cm) - Barcode placement is less than 5 in. (12.7 cm) from the edge of the book	Less Than 1-7/8 Inches (4.76 cm.) Variance Perpendicular to Spine Less Than 5 Inches (12.7 cm.) From Edge 6410_FSH_019_perp_OK Figure 19 Perpendicular Mount Requirements
Parallel mount	Use this option when - Barcode orientation is parallel to the book's spine - Barcodes are less than 5 in. (12.7 cm) from the spine	Parallel to Spine Less Than 5 inches (12.7 cm.) From Edge 6410_FSH_020_Par_OK Figure 20 Parallel Mount Requirements

Center mount	Use this option when barcode placement does not permit use of the perpendicular or parallel mount scanners.	 Figure 21 When to Use Center Mount
--------------	---	--

Assemble and mount the perpendicular-mounted scanner

Follow the steps in this section to assemble and mount the perpendicular-mounted scanner.

Understand key principles

- 1 Understand the following key principles, which will help you successfully install the perpendicular-mounted scanner.
 - Set up the scanner so that there is approximately 8 in. (20.32 cm) between the window of the scanner and the deck of the V-Cradle. Since the scanner reads barcodes between 5 and 8 in. (12.7 to 20.32 cm) from its window, this will work for library items up to 3-in. thick (7.62 cm).
 - In order to turn the security strip on or off, customers will lay books spine down in the V-Cradle so that the book covers the V-Cradle sensors. A key setup objective is to install the scanner so that a book covers all the sensors *at the same time* that the scanner is reading its barcode (so that the book is processed without further movement).
- 2 Go to [Determine the correct horizontal extension](#) on page 26.

Determine the correct horizontal extension

The horizontal extension you choose determines how far from the back of the V-Cradle the scanner line appears.

- 1 Use the barcode placement measurements you took and recorded earlier to determine which of the two extensions to use.
 - If barcodes are less than 3 in. (7.62 cm) from the edge of the book, use the 3-in. extension, which is the default.
 - If barcodes are 3 in. (7.62 cm) or more from the edge, use the 4-inch extension.
- 2 Record your choice.
- 3 Go to [Determine where to mount the scanner](#) on page 27.



6410_FSH_022_Hor_ext

Figure 22 Three- and Four-Inch Horizontal Extensions

Determine where to mount the scanner

- 1 Use the table to determine the side of the monitor to mount the scanner on.
- 2 Record your selection.
- 3 Go to [Determine required assembly and mounting procedures](#) on page 27.

Location	Position	Mount on monitor's ...	
Outside front cover	Top	Left side	
	Bottom		Right side
Inside front cover	Top		Right side
	Bottom	Left side	
Front flyleaf	Top	Left side	
	Bottom		Right side
Inside back flyleaf	Top		Right side
	Bottom	Left side	
Inside back cover	Top	Left side	
	Bottom		Right side
Outside back cover	Top		Right side
	Bottom	Left side	

Determine required assembly and mounting procedures

Use the table to identify correct assembly and mounting procedures.

Setup Requirements	Procedures to Complete
- The scanner will be mounted on the right side of the monitor. - The 3-inch horizontal extension is required because barcodes are less than 3 in. (7.62 cm) from the edge of the book.	Mount the scanner on page 30
- The scanner will be mounted on the right side of the monitor. - The 4-inch horizontal extension is required because barcodes are more than 3 in. (7.62 cm) from the edge of the book.	Replace the horizontal extension on page 28. Mount the scanner on page 30.
The scanner will be mounted on the left side of the monitor.	Assemble the scanner for left-side mounting on page 28. Mount the scanner on page 30.

Replace the horizontal extension

This procedure describes how to replace the 3-inch horizontal extension with the 4-inch extension. It is intended for sites that want to mount the scanner on the right side (the default configuration) but need the 4-inch horizontal extension.

- 1 Remove the 6 screws that hold the 3-inch extension in place.
- 2 Install the 4-inch extension.
- 3 Mount the scanner. Go to [Mount the scanner](#) on page 30.

Assemble the scanner for left-side mounting

This procedure is required only if you need to mount the scanner on the left side of the monitor.

- 1 If you haven't done so already, take the scanner assembly apart.
- 2 Choose the left side mounting plate.
- 3 Choose a horizontal extension.
 - If the barcode is less than 3 in. (7.62 cm) from the edge of the page, use the 3-inch extension. Otherwise, use the 4-inch extension.
 - The scanner assembly comes from the factory with the 3-inch extension.
- 4 Connect the horizontal extension to the mounting plate and tighten all four screws.



6410_FSH_023_perp1

Figure 23 Horizontal Extension and Mounting Plate

Continued on next page ...

- 5 Mount the scanner on the mounting plate.
- 6 Connect the scanner cable. Be sure to route the cable through the opening in the scanner cover as shown.
- 7 Mount the assembly to the scanner cover.
- 8 Connect the other half of the scanner cover.
- 9 Mount the scanner. Go to [Mount the scanner](#) on page 30.



6410_FSH_024_perp2

Figure 24 Scanner Cover Assembled

Mount the scanner

This procedure describes how to mount the scanner assembly to the monitor assembly.

- 1** Tilt the monitor toward the ceiling to ensure that it is out of the way when you install the scanner mounting hardware.
 - a** Loosen the screws as shown. (There are four screws, two on each side.)
 - b** Tilt the monitor.
 - c** Tighten the screws.

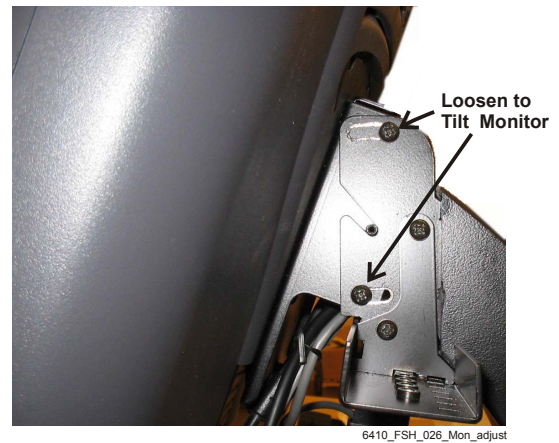


Figure 25 Tilt the Monitor

- 2** Connect the L-bracket to the horizontal extension using the first hole, that is, the hole closest to the mounting plate, which will put the extension in its shortest position.



Figure 26 Connect the L-Bracket

- 3** Connect the assembly to the vertical bracket. Ensure that 3-1/2 notches are showing on the vertical bracket (see figure).

3-1/2 Notches

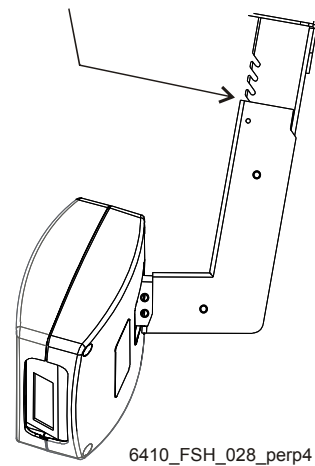
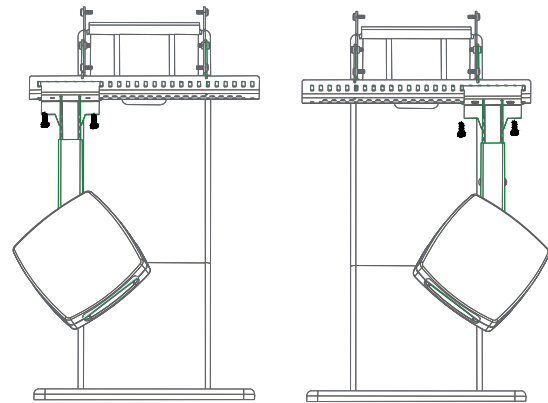


Figure 27 Vertical Bracket

Continued on next page ...

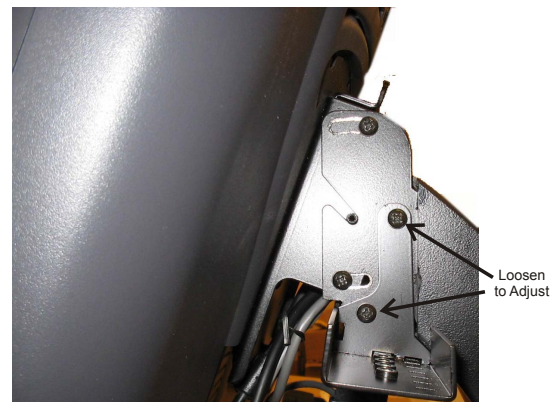
- 4** Mount the vertical bracket on the monitor stand and secure it with the two screws provided.
- Mount the vertical bracket to the extreme left or right as shown.
 - Put the screws in from the bottom.



6410_FSH_029_perp5

Figure 28 Vertical Bracket Mounting

- 5** Power on the scanner so you can see where the scan line falls.
- a** Using one of the power cords supplied, connect the interconnect box to a power outlet on the appliance coupler. Do *not* connect the computer or the coil driver yet.
 - b** Plug the SelfCheck system power cable into the appliance coupler's input power connector and into the wall receptacle.
 - c** Power up the system, which should power up the scanner.
- 6** Ensure that the distance between the window of the scanner and the V-Cradle is approximately 8 in. (20.32 cm). If an adjustment is required, do the following:
- a** Loosen the screws as shown.
 - b** Adjust and re-measure until the 8-inch (20.32 cm) distance is reached.
 - c** When you are through, tighten the screws.

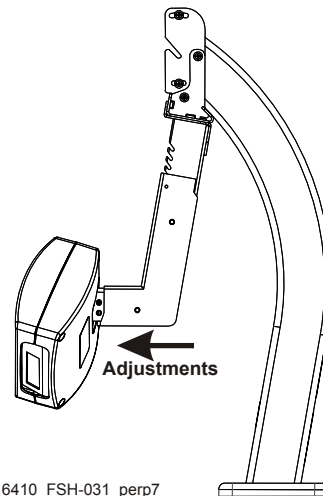


6410_FSH_030_perp6

Figure 29 Adjust Mounting Hardware

Continued on next page ...

- 7 Use the 3-inch (7.62 cm) books and the thin books to test the installation and make adjustments as required. Keep the following in mind:
 - The objective is for a book to cover all sensors at the same time that the scanner is reading its barcode.
 - Scanner installation is not complete until all four books work in this setup.
- 8 If you need to adjust the position of the scan line, that is, to move it farther from the back of the V-Cradle, use a different hole on the horizontal extension.
- 9 With each repositioning, you need to retest to ensure that distance between the scanner and the V-Cradle is approximately 8 inches (20.32 cm) and to ensure that the sensors are covered while the scanner is reading the barcode.
- 10 If you need to adjust the length of the scanner line, see [Adjust the length of the scan line](#) on page 64.
- 11 Tilt the monitor back into the correct position for easy viewing.



6410_FSH-031_perp7

Figure 30 Adjustment with Horizontal Extension

Assemble and mount the parallel-mounted scanner

Understand key principles

1 Understand the following key principles, which will help you successfully install the parallel-mounted scanner.

- Set up the scanner so that there are approximately 8 inches (20.32 cm) between the window of the scanner and the deck of the V-Cradle. Since the scanner reads barcodes between 5 and 8 inches (12.7 to 20.32 cm) from its window, this will work for library items up to 3 inches (7.62) thick.
- Once you establish an 8-inch (20.32 cm) distance between the scanner and the V-Cradle deck, maintain it by adjusting the scanner's horizontal and vertical positions together. The figure to the right illustrates this principle. For each notch you move the scanner to the right, you must move it down one notch.
- In order to turn the security strip on or off, customers will lay books spine down in the V-Cradle so that the book covers the V-Cradle sensors. Ideally, a book covers all the sensors *at the same time* that the scanner reads its barcode. Because of book thickness differences, however, you won't be able to set up the scanner so that this occurs in all instances. Consequently, you should strive for a setup that makes barcode reading and sensor covering *nearly* simultaneous.

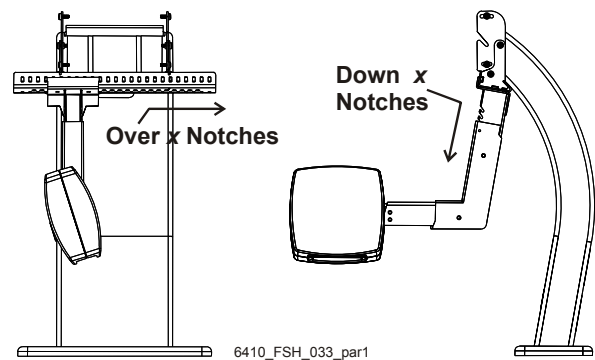


Figure 31 Parallel Scanner Adjustments

2 Go to [Determine where to mount the scanner](#) on page 34.

Determine where to mount the scanner

- 1 Use the following table to determine the side of the V-Cradle on which the scan line should fall:

Location	Position	Mount so scan line appears on the ...	
Outside front cover	Top		Right side of the V-Cradle
	Bottom	Left side of the V-Cradle	
Inside front cover	Top	Left side of the V-Cradle	
	Bottom		Right side of the V-Cradle
Front flyleaf	Top		Right side of the V-Cradle
	Bottom	Left side of the V-Cradle	
Back flyleaf	Top	Left side of the V-Cradle	
	Bottom		Right side of the V-Cradle
Inside back cover	Top		Right side of the V-Cradle
	Bottom	Left side of the V-Cradle	
Outside back cover	Top	Left side of the V-Cradle	
	Bottom		Right side of the V-Cradle

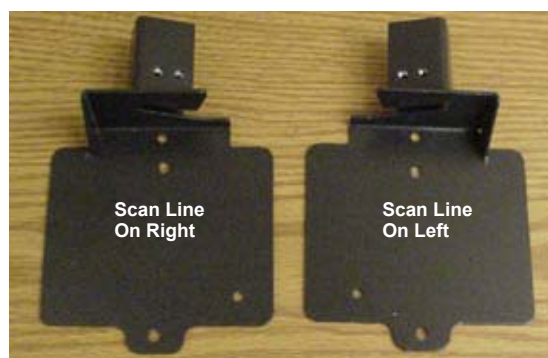
- 2 Record your findings.
- 3 Go to [Determine required assembly and mounting procedures](#) on page 34.

Determine required assembly and mounting procedures

Setup Requirements	Procedure(s) to Complete
The scan line will fall on the left side of the V-Cradle (default configuration)	▪ Mount the scanner on page 36
The scan line will fall on the right side of the V-Cradle	1 Assemble the scanner to read on the right side on page 34 2 Mount the scanner on page 36

Assemble the scanner to read on the right side

- 1 If you haven't done so already, disassemble the scanner assembly.
- 2 Choose the right side mounting plate, that is, the mounting plate that causes the scan line to fall on the right side of the V-Cradle.



6410_FSH_034_par2

Figure 32 Parallel Scanner Mounting Plates

- 3 Mount the scanner on the mounting plate and route the cable through the channel.
- 4 Mount the scanner to the scanner cover.
- 5 Connect the other half of the scanner cover.
- 6 Connect the horizontal extension.
- 7 Connect the assembly to the L-bracket so that the horizontal extension is in its shortest position.



6410_FSH_035_Par3

Figure 33 Scanner Assembly

Mount the scanner

- 1** Ensure that the mounting hardware on the monitor stand is as far back as it can be. Sometimes it comes from the factory tilted forward slightly.
 - a** Loosen the screws shown in Figure 34.
 - b** Ensure the mounting hardware is as far back as possible.
 - c** Tighten the screws.
- 2** Power up the scanner so you can see where the scan line falls.
 - a** Using one of the power cords supplied, connect the interconnect box to a power outlet on the appliance coupler. Do *not* connect the computer or the coil driver yet.
 - b** Plug the SelfCheck system power cable into the appliance coupler's input power connector and into the wall receptacle.
 - c** Power up the system, which should power up the scanner.

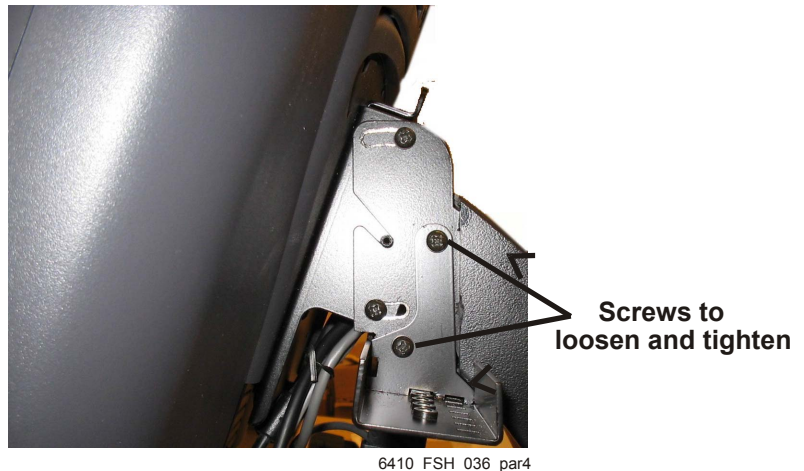


Figure 34 Mounting Hardware Adjustment

Continued on next page ...

- 3** Connect the assembly to the vertical bracket, mount it on the monitor stand, and then adjust as required. Use the information in Figure 35 to establish a starting point.

- Both suggested starting points meet the 8-inch (20.32 cm) distance requirement. If you need to make adjustments from the starting point, be sure to change horizontal and vertical settings together to maintain this distance.
- When you test the setup, use a thin book. If the setup works for thin books, it will work for thicker ones.
- Ideally, the scanner reads the barcode as the book covers the sensors. While book thickness differences won't always allow this to happen, strive to make this process nearly simultaneous.

Mounting Starting Point

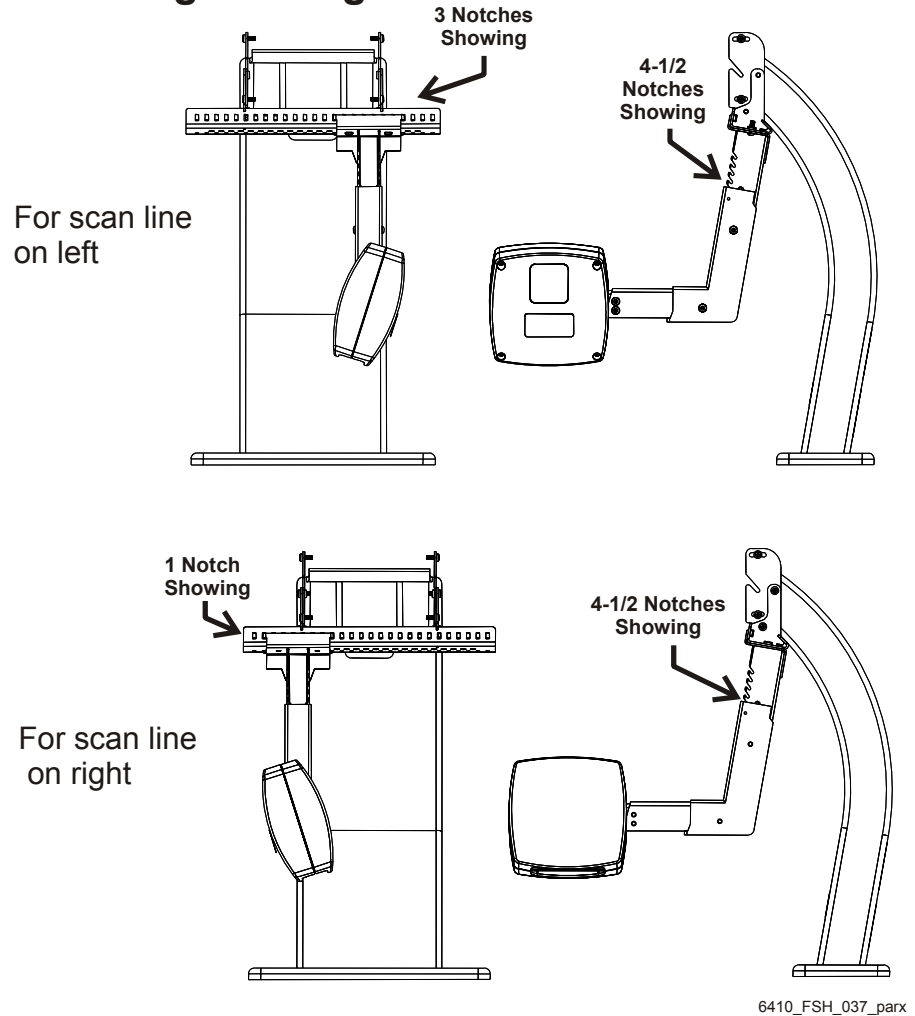


Figure 35 Starting Point

- 4** Tighten all screws when you have the scanner properly positioned.
- 5** If you need to adjust the length of the scan line, see [Adjust the length of the scan line](#) on page 64.

Mount the center-mounted scanner

Understand key principles

- 1 Understand the following key principles:
 - The distance between the scanner window and the surface of the desk should be approximately 8 inches (20.3 cm). Since the scanner reads barcodes between 5 inches and 8 inches (12.7 cm to 20.3 cm) from its window, this will work for library items up to 3 inches (7.6 cm) thick.
 - The scanner angle should be approximately 20 degrees from vertical relative to the barcodes to minimize reflection back into the scanner.
- 2 Go to [Mount and align the scanner](#) on page 39.

Mount and align the scanner

- 1 Use the following illustration to mount the scanner to the mounting bracket and the mounting bracket to the monitor stand.
- 2 Power on the scanner so you can see where the scan line falls.
 - a Using one of the power cords supplied, connect the interconnect box to a power outlet on the appliance coupler. Do not connect the computer or the coil driver yet.
 - b Plug the SelfCheck system power cable into the appliance coupler's input power connector and into the wall receptacle.
 - c Power up the system, which should power up the scanner.
- 3 Adjust the mounting bracket as required to ensure the following:
 - That there is approximately 8 in. (20.3 cm) between the scanner window and the desktop.
 - That the scan line falls 2 in. (5 cm) from the edge of the V-Cradle, which will ensure a 20-degree angle (approximately) between the scanner window and barcodes.
- 4 Test the setup with your library sample and adjust as required.

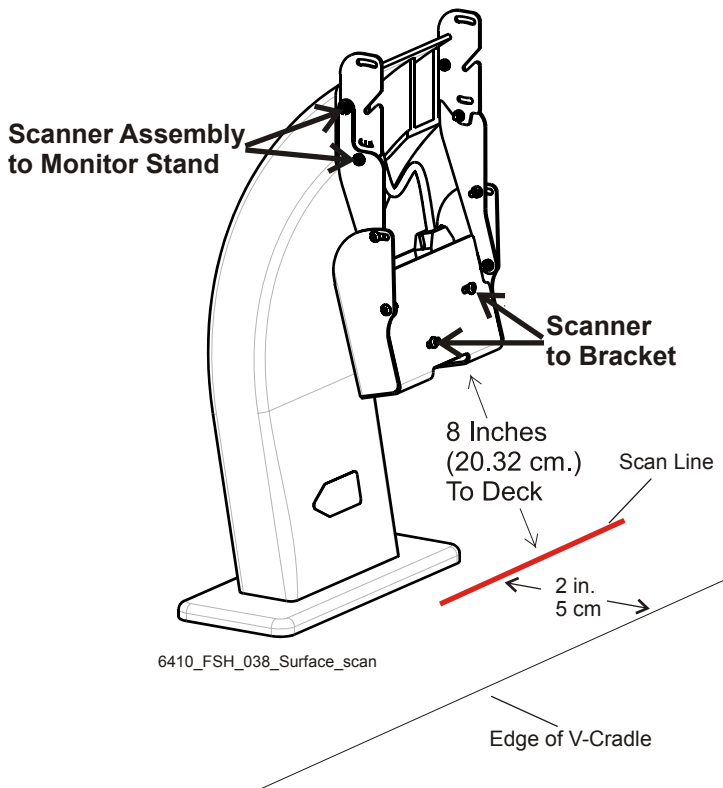


Figure 36 Center-Mounted Scanner

Connect the system to power

Applies to systems using ...	
3M-Supplied Cabinets	√
Library-Supplied Cabinets	√

- 1 Using the power cords supplied, connect the computer, coil driver, and interconnect box to the power outlets on the appliance coupler.
- 2 For systems in 3M cabinets, reinstall the back on the cabinet.

For systems with MBD, determine the V-Cradle type:

Before reinstalling the back of the enclosure, determine the type of V-Cradle installed in the system. Do this by comparing the exposed V-Cradle to the corresponding photo. This will be important later when calibrating the MBD, to determine which version of the MBD adjustment software you will be using.

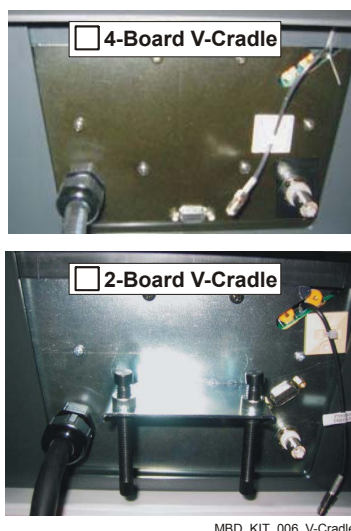


Figure 37 4-Board and 2-Board V-Cradle Versions

- 3 Plug the SelfCheck system power cable into the appliance coupler's input power connector and into the wall receptacle.
- 4 Turn the SelfCheck system's power on.

Calibrate MBD sensitivity

Applies to systems using ...	
3M-Supplied Cabinets with MBD	✓
Library-Supplied Cabinets with MBD	✓

When you install a SelfCheck System V-Series Model with Multiple-Book Detection (MBD), you need to test and calibrate MBD sensitivity.

Required tools

Here are the tools required to calibrate MBD sensitivity:

- 1 An MBD Calibration Template, which is made of black plastic with white markings intended to help position sensitized strips in the V-Cradle for calibration.
- 2 A normal-sensitivity sensitized strip tool in a clear plastic holder 9.4 inches (240mm) long.
- 3 A high-sensitivity sensitized strip (“hot” strip) tool in a clear plastic holder 7 inches (178mm) long.
- 4 You will also need to collect a representative group of books from the library that contain complete sensitized strips to test, verify, and possibly recalibrate the system when finished.

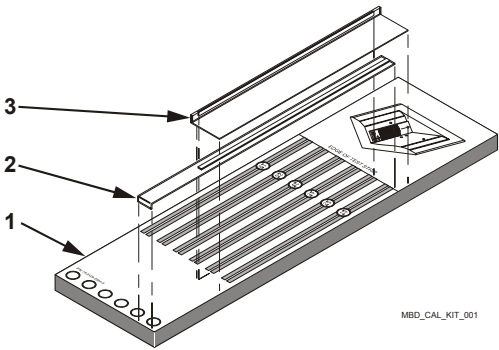


Figure 38 Calibration Kit Contents

Determining the V-Cradle type

The version of the MBD Adjuster interface you see depends on the version of the V-Cradle installed in the system. Current systems with the two-board design have a single row of colored rectangles. Earlier systems with the four-board V-Cradle design have two rows of colored rectangles. Both versions are functionally the same. (In the two-board version, a single row of rectangles is used to represent both the front and rear rows, with added sensors at the outer ends.)

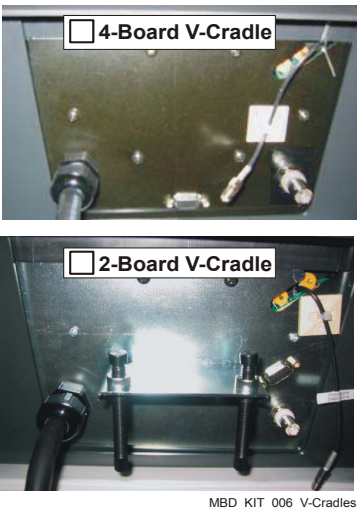


Figure 39 V-Cradle Versions

How MBD works

To calibrate the MBD system, it is essential to understand how this feature works. Key to this understanding is the role of the sensors and how the software uses them in the MBD. Each sensor can only sense either of two states: (1) no sensitized strip present, or (2) one or more sensitized strips present. A sensor can *not* determine the *number* of strips present nor distinguish whether one or many strips are present. MBD therefore relies on: an array of sensors in the V-Cradle, the fact that strips in separate books placed in the V-Cradle are separated by some distance relative to the sensors, and a detection algorithm to determine whether strips are present at more than one location in the V-Cradle.

The following tables summarize the algorithm used to determine what does or does not trigger an MBD state.

Condition	Triggers MBD State?
3 or more sensors detect strip*	Yes
2 non-adjacent sensors detect strip*	Yes
2 adjacent sensors detect strip	No
1 sensor detects strip	No
1 sensor detects multiple strips	No
No strips detected	No

*These MBD rules do not apply to the bottom two sensor positions on each side of the V-Cradle, where any combination of adjacent sensors detecting a strip will **not** trigger an MBD state.

Sensors	MBD Adjuster Interface	
... ● ● ● ...	... ■■■ ...	■ MBD!
... ● ○ ● ...	... ■■■ ...	■ MBD!
... ○ ● ● ○ ...	... ■■■ ...	■ Book
... ○ ● ○ ...	... ■■■ ...	■ Book
... ○ ● ● ...	... ■■■ ...	■ Book
... ○ ○ ○ ...	... ■■■ ...	■ No Books

The meaning of this table and its relationship to Conditions and Triggers at the left will become clear when you understand the MBD Adjuster interface, which you will use for sensor calibration.

False Conditions

The objective of calibrating the MBD system is to minimize false conditions as much as possible. False conditions are of two types: false positives and false negatives.

- **False positives** or false alarms occur if only one book is present in the V-Cradle, but MBD system misinterprets it as more than one. A possible example of this is if a book is presented in the V-Cradle at a steep angle, so one strip triggers three sensors. False positives will also result if sensor sensitivity is set too high.
- **False negatives** occur when more than one book is present in the V-Cradle, but the MBD system fails to detect multiple books. A possible example where this might occur is with a very thin book where two strips are so close as to trigger only one sensor, two adjacent sensors, or only sensors in the bottom of the V-Cradle. False negatives will also result if sensor sensitivity is set too low.

Adjustment Strategies

Proper calibration is intended to eliminate most false conditions, but cannot eliminate them entirely. To further complicate matters, setting sensor sensitivity higher to lessen false negatives increases the likelihood of false positives and setting sensitivity lower to lessen false alarms increases the likelihood of not detecting when a multiple-book condition occurs. Calibrating to minimize both types of false conditions can be a fine balance. You will need to pursue either a strategy of allowing a few false positives to minimize false negatives, or, conversely, a strategy of allowing a few false negatives to minimize false positives. Ultimately, this choice must be made by library decision-makers, based on their perceived level of risk for each type of false condition and which type they consider least objectionable.

Calibration Software, Tools, and Procedure

Following is an overview of the software interface and tools used and an outline of the procedure to calibrate the SelfCheck System V-Series. At the end, you will need to verify the accuracy of the system with actual books from the library, which represent a reasonable random sampling of books that will be checked out or in through the SelfCheck System V-Series. It may be necessary to recalibrate sensitivity using actual books from the site afterward to accommodate the needs of the site.

MBD Adjuster Interface

To access the MBD Adjuster Interface

The MBD Adjuster interface is part of the hardware diagnostics for the SelfCheck system. Use the system keyboard and mouse (press the Windows key [Win]) to access the Windows Start menu.

- 1 In the Start menu, click **Stop 3M SelfCheck** to close the SelfCheck system software.
- 2 Start the Hardware Diagnostics using the **Shortcut to HWDiagnostics** icon on the desktop or in the Start menu.
- 3 Click the **LCoil** tab in the Hardware Diagnostics, and then click the **MBD Calibration** button.

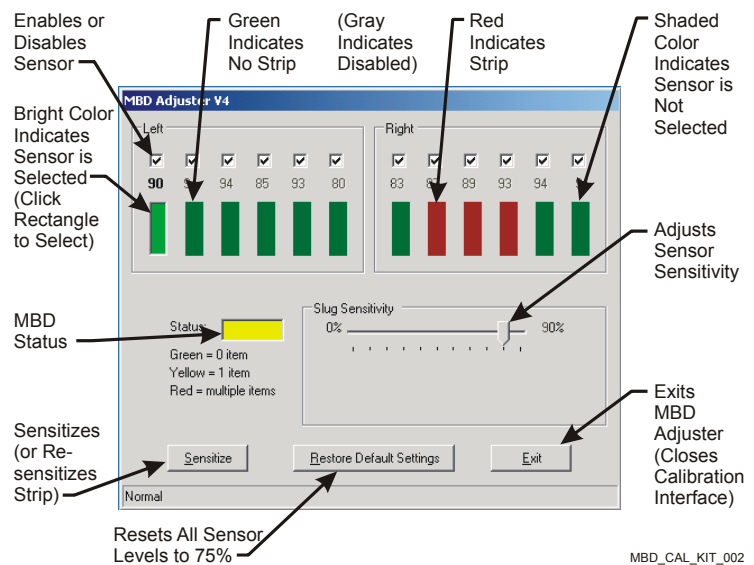


Figure 40 MBD Adjuster Interface – 2-Board Version

Using the MBD Adjuster Interface

Color-filled rectangles in the MBD Adjuster interface represent sensors in the V-Cradle. When the template is placed in the V-Cradle, numbered circles indicate sensor locations. MBD sensors are properly tuned or adjusted when the presence of a single strip changes the color of one or two adjacent bars representing sensors in the vicinity of the strip from green to red.

A solid red rectangle indicates a definite sensor trigger and a flashing red rectangle indicates that the sensor is at borderline sensitivity for detecting the strip. Sensors can be turned on or off (enabled or disabled) by clicking the checkbox above the corresponding rectangle. A gray rectangle indicates a sensor has been turned off (disabled).

A light red or light green rectangle indicates that the sensor is selected to adjust sensitivity. Adjust sensor sensitivity, when necessary, by selecting the rectangle that corresponds to the sensor, then sliding the Slug Sensitivity slider to the required percentage.

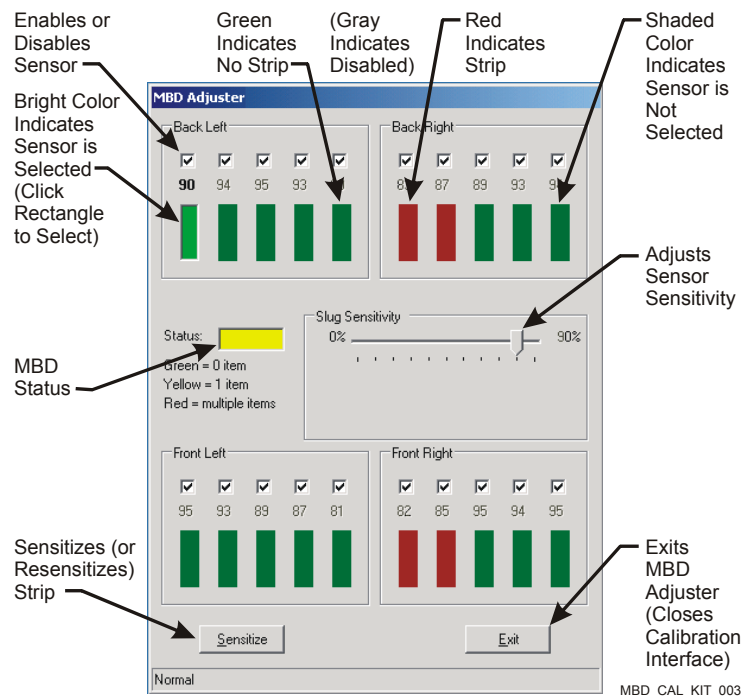


Figure 41 MBD Adjuster Interface – 4-Board Version

Calibration Tools

Markings printed on the MBD calibration template (1) identify sensor locations and aid in placing the sensitized-strip tools, when placed in the V-Cradle as shown in the illustration: snug against the back surface of the cradle and snug into the bottom of the V. Thickness ($\frac{1}{2}$ in. or 12 mm) of the template simulates the distance a sensitized strip will typically be inside books.

Important

When performing calibration, be sure to place the template, oriented as shown, snug against the back surface of the cradle and snug into the bottom of the V-Cradle.

The sensitized strip inside the longer calibration tool (2) has typical sensitivity and represents the strip placed in most books. The sensitized strip inside the shorter calibration tool (3) has a higher sensitivity (a “hot” strip) and represents the most highly-sensitized strip that might be encountered in actual practice. Use both tools flat to the surface of the template (1), with the long axis parallel to the long axis of the template.

Important

Because of the difference in sensor locations between the two-board and four-board models, a separate paper template is provided inside the back cover of this Field Service Handbook for the four-board model.

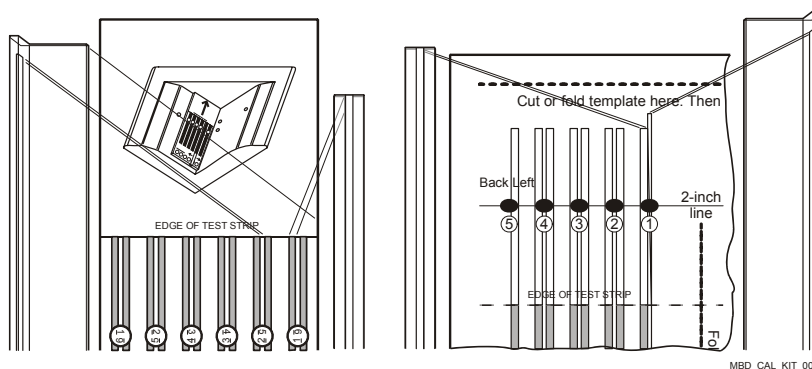


Figure 42 Markings Printed on the MBD Calibration Template Identify Sensor Locations and Aid in Placing Sensitized-Strip Tools

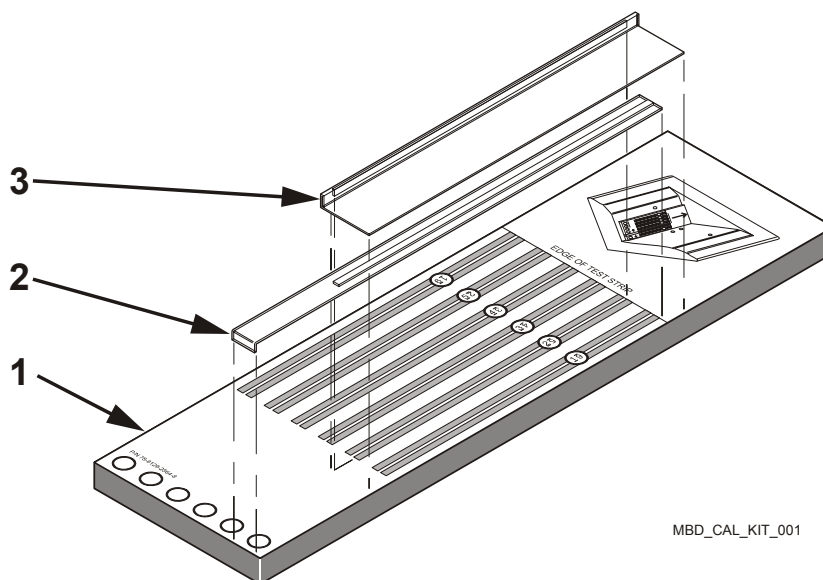
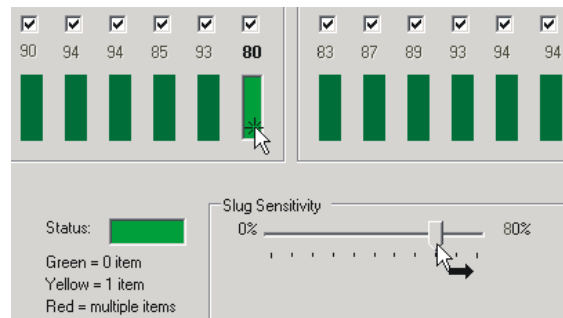


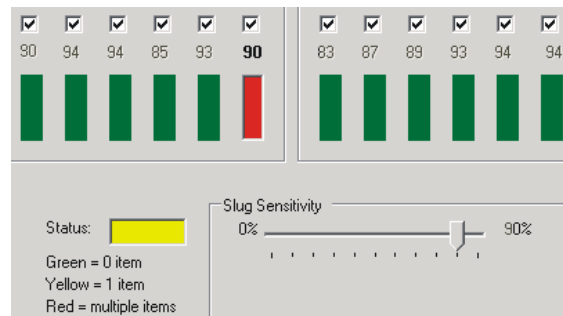
Figure 43 MBD Sensitized Strip Tools And Calibration Template

Calibration Procedure

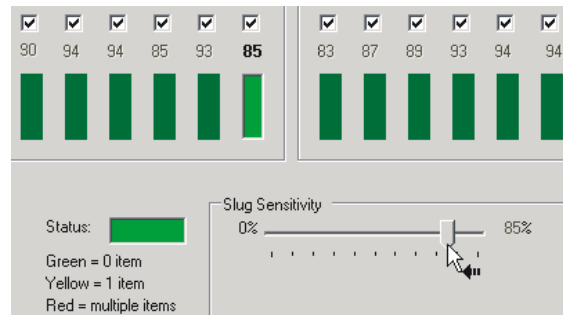
- 1 Begin the calibration procedure by determining the maximum allowable sensitivities for each MBD sensor.
 - a Select the rectangle that represents the lowest sensor in the V-Cradle on the left side.
 - b Using the sensitivity control slider, adjust the sensitivity upward until the bar color changes from green to red (flashing or solid).
 - c Carefully adjust the sensitivity downward, to just the point where the bar changes to and remains green. Record this sensor setting. This will be the maximum allowable sensitivity setting for the sensor.
 - d Repeat the above procedure for the remaining sensors on the left side, starting with the lowest sensor and working upward. (For 4-Board V-Cradle, complete the Back Left group of sensors and then repeat for the Front Left group.) Then, repeat to obtain maximum sensitivity settings for the sensors in the right side of the V-Cradle, starting from the bottom sensor and working upward. (For 4-Board V-Cradle, complete the Back Right group of sensors and then repeat for Front Right group.)



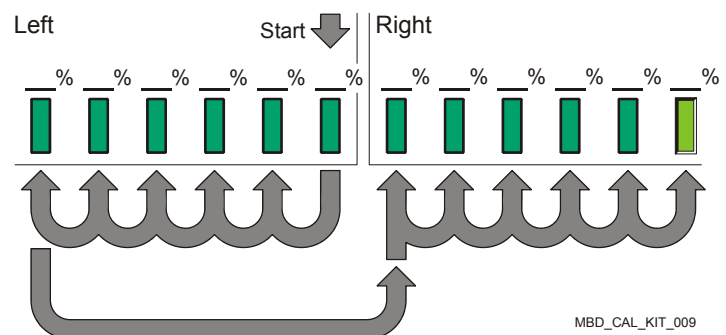
Select Rectangle that Represents Lowest Sensor on Left



Adjust Sensitivity Up Until Rectangle Changes to Red

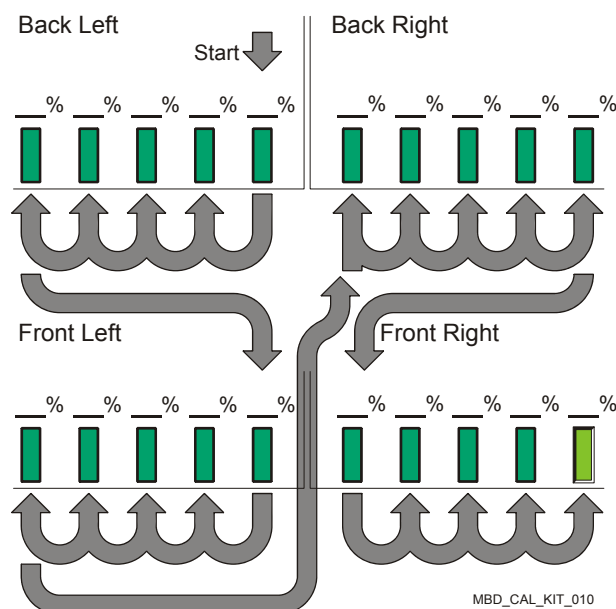
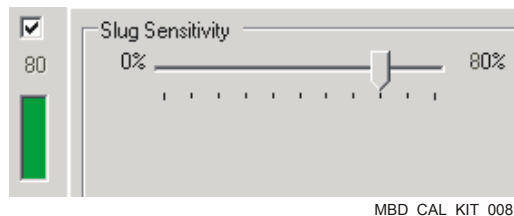


Carefully Adjust Sensitivity Downward Until Rectangle Changes to and remains Green



Record Maximum Sensitivity Settings – 2-Board System

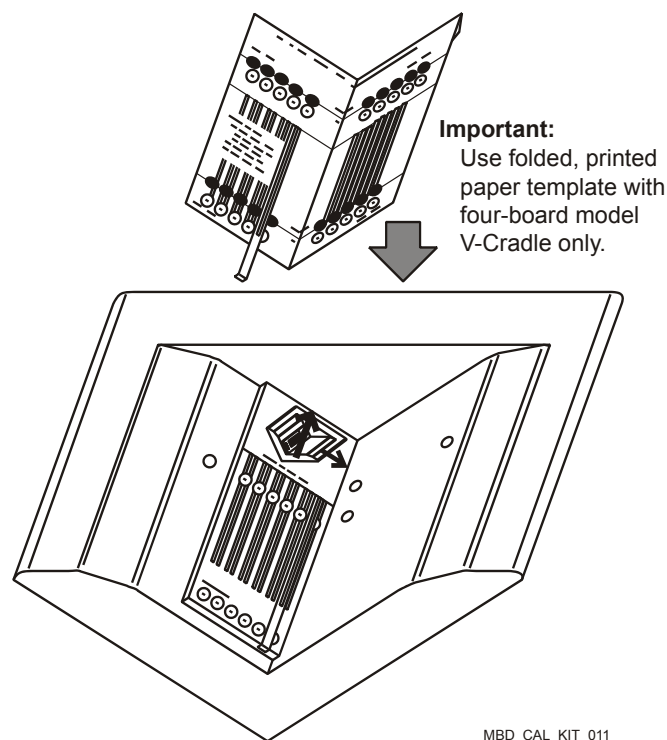
- 2** After recording the maximum sensitivity settings for all sensors, turn down the sensitivity of all sensors to 80%.



Record Maximum Sensitivity Settings – 4-Board System

Left Side Calibration

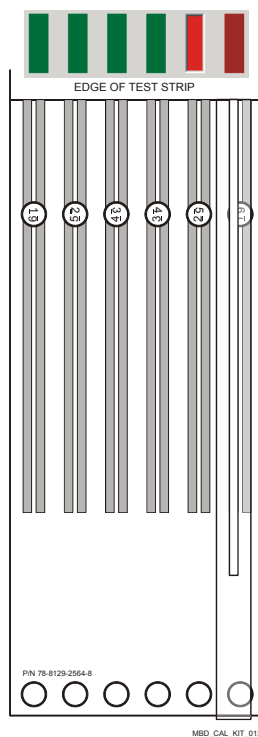
- 1** Adjust the sensitivity of the left-side MBD sensors using the midrange-sensitivity strip and template. After you have adjusted the sensitivity for all sensors, you will check for false MBD using the highly-sensitized strip tool.
- a** Place the template on the left surface of the V-Cradle as shown.
- Make sure the rear edge of the template is snug to the rear surface of the V-Cradle and the right edge is snug against the right surface of the V-Cradle.
 - For four-board system, fold printed paper template (provided inside back cover) and use over top of template provided in kit.



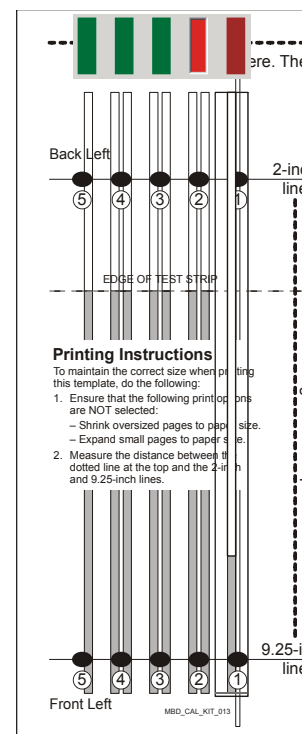
Template In Position For Calibrating the Left Side of the V-Cradle

- b** Place the medium-sensitivity test strip so the test strip covers the second-lowest shaded region of the template for the first sensor (lowest white rectangular region on the left side of the paper template for the four-board system).

- Check to make sure the first and second rectangles corresponding to the two lowest sensors on the left side of the V-Cradle are red, indicating that they sense the strip.
- If either sensor does not sense the strip, slowly adjust the sensitivity upward until the rectangle color changes to red.
- Make sure that when the strip is removed, the rectangle changes back to green.



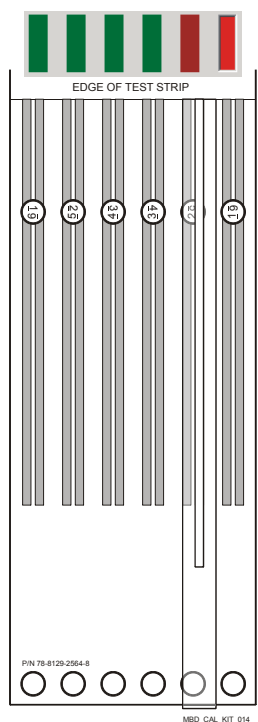
Test Strip at First Position for Calibrating Left Group of Sensors (2-Board System)



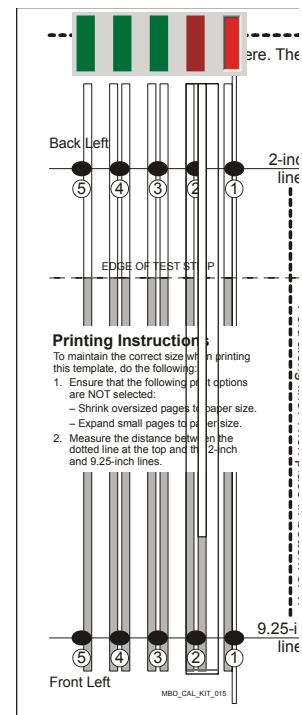
Test Strip at First Position for Calibrating Back Left Group of Sensors (4-Board System)

- c** Move the test strip to the left, to cover the first shaded region for the second sensor (first white rectangular region for the four-board system). The rectangles for the first and second sensors should remain red.

- If the first rectangle changes to green, gradually adjust the sensitivity for the sensor upward, just until the rectangle turns red (but do not exceed the maximum sensitivity, recorded earlier, for this sensor).
- If the third rectangle changes to red, gradually adjust the sensitivity for the sensor downward.

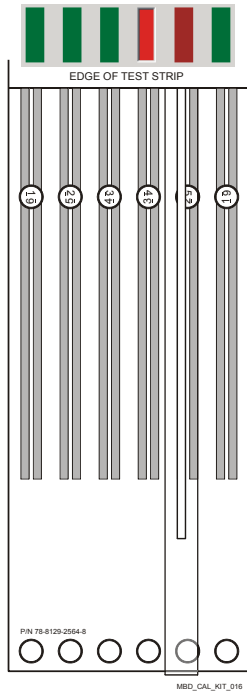


First and Second Sensors Sense the Test Strip at the First Shaded Region for the Second Sensor (2-Board System)

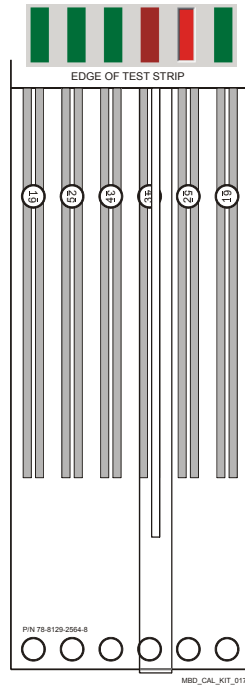


First and Second Sensors Sense the Test Strip at the First Unshaded Rectangular Region for the Second Back Left Sensor (4-Board System)

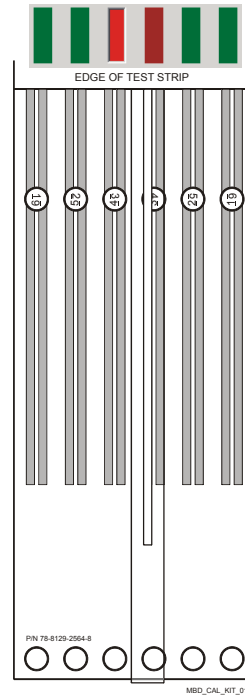
- d** For the **two-board system**, continue moving the test strip to the next shaded region on the template, continuing to adjust sensors to either side of the strip as shown, until all left-side sensors are calibrated.



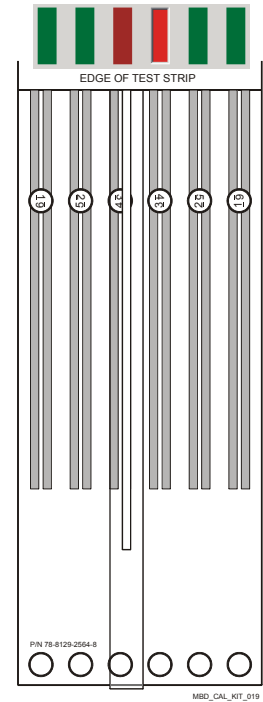
**Strip at Second Position
for Second Left Sensor**



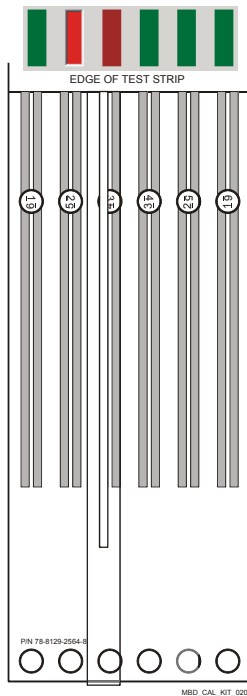
**Strip at First Position
for Third Left Sensor**



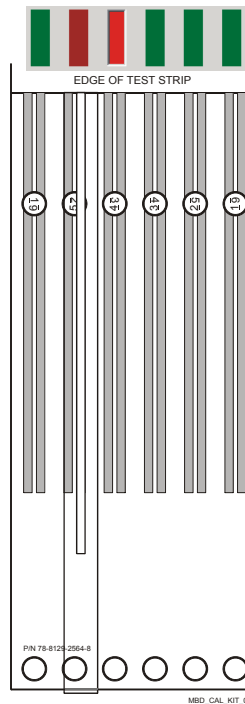
**Strip at Second
Position for Third Left
Sensor**



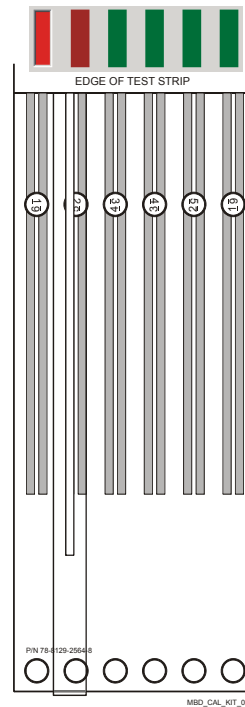
**Strip at First Position
for Fourth Left Sensor**



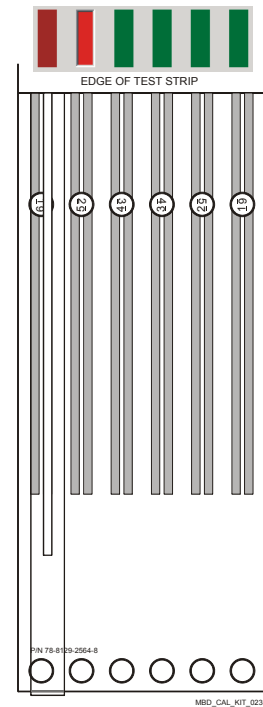
**Strip at Second Position
for Fourth Left Sensor**



**Strip at First Position
for Fifth Left Sensor**

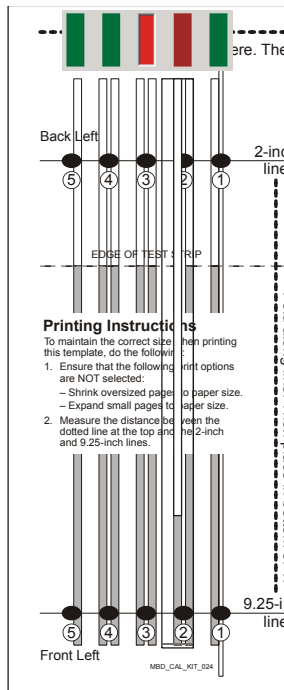


**Strip at Second
Position for Fifth Left
Sensor**

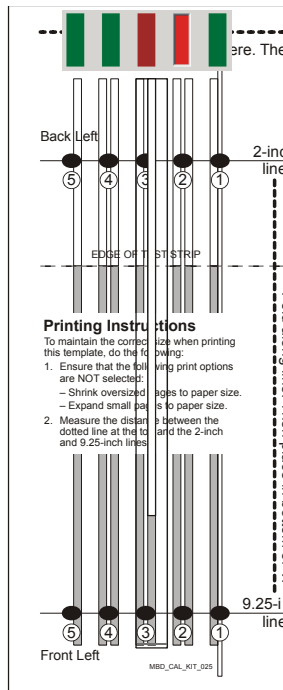


**Strip at First Position
for Sixth Sensor (Final
Position for Left Side)**

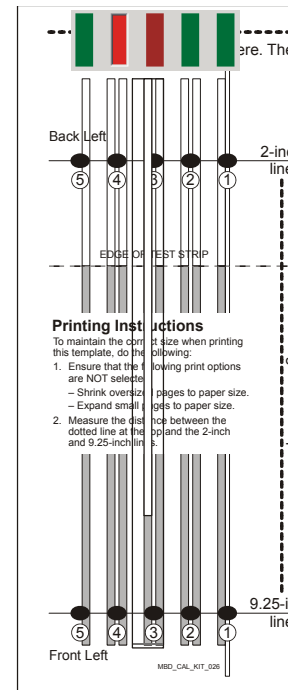
- e For the **four-board system**, continue moving the test strip to the next unshaded rectangular region on the left side of the paper template, continuing to adjust sensors to either side of the strip as shown, until all back left sensors are calibrated.



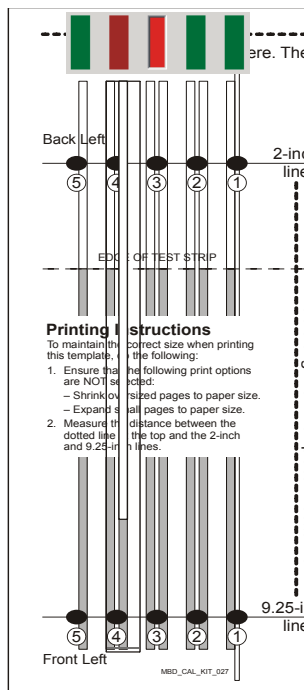
Strip at Second Position for Second Back Left Sensor



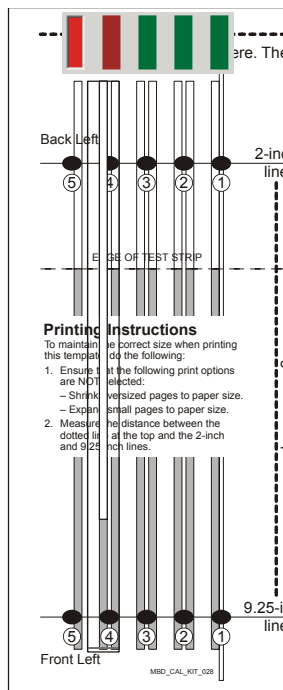
Strip at First Position for Third Back Left Sensor



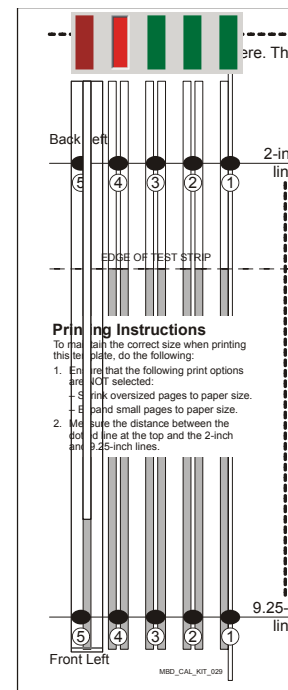
Strip at Second Position for Third Back Left Sensor



Strip at First Position for Fourth Back Left Sensor

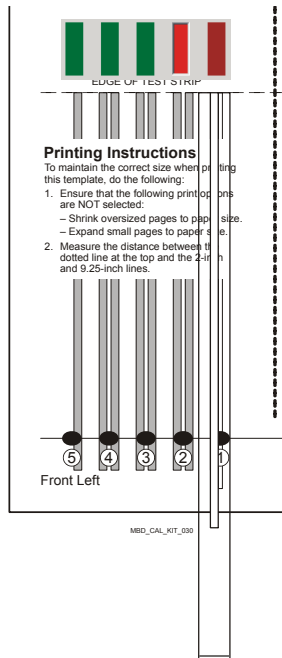


Strip at Second Position for Fourth Back Left Sensor

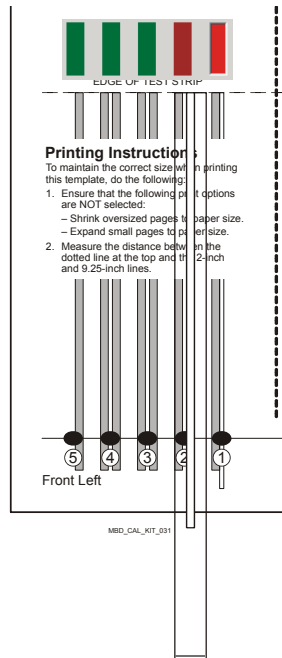


Strip at Position for Fifth Back Left Sensor (Final Position for Back Left Sensors)

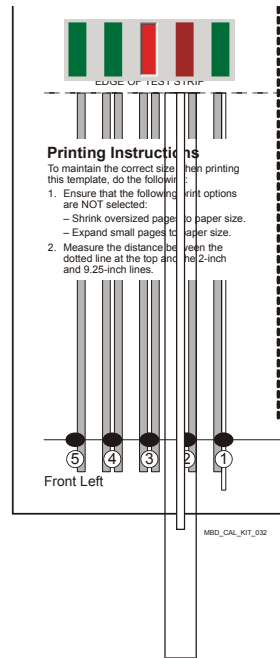
- f** For the **four-board system**, move the test strip similarly through the shaded rectangular regions on the paper template, continuing to adjust sensors to either side of the strip as shown, until all front left sensors are calibrated.



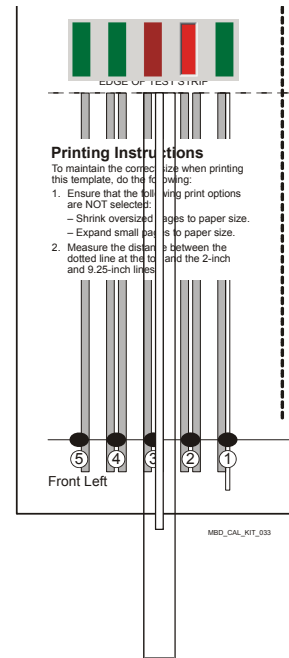
Test Strip at Initial Position for Front Left Sensor (4-Board System)



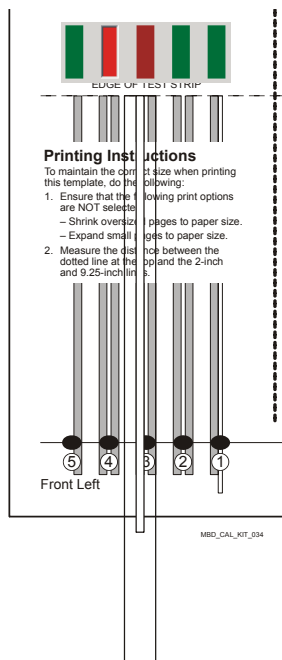
Strip at First Position for Second Front Left Sensor



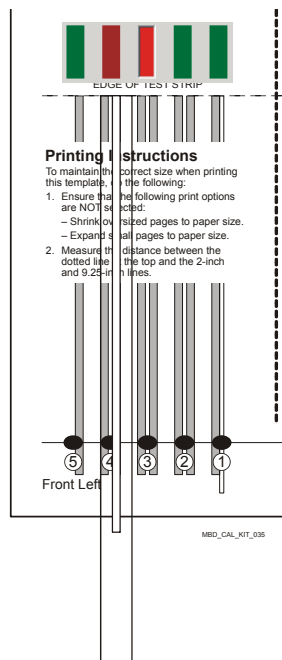
Strip at Second Position for Second Front Left Sensor



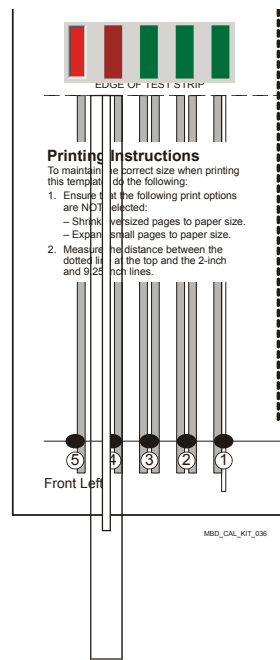
Strip at First Position for Third Front Left Sensor



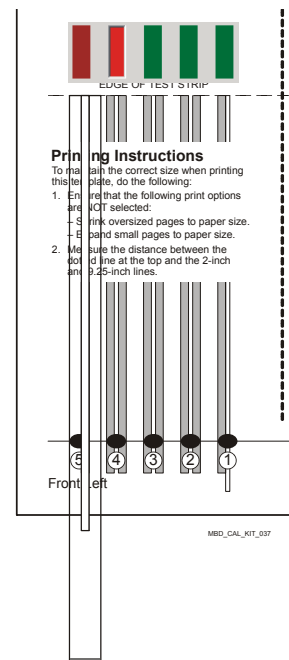
Strip at Second Position for Third Front Left Sensor



Strip at First Position for Fourth Front Left Sensor



Strip at Second Position for Fourth Front Left Sensor

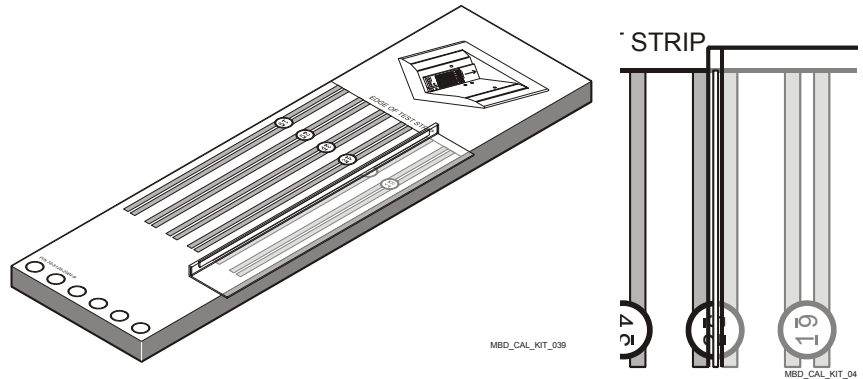


Strip at Position for Fifth Front Left Sensor (Final Position for Left Side Sensors)

- g** After adjusting all left-side sensors, slide the sensitized strip through all sensor locations smoothly in both directions, making sure the strip does not trigger any false positives. There should be a sense of “handing off” the sensitized strip from each sensor to the next, so that when a strip is in the vicinity of the sensors within the V-Cradle, it is always sensed by at least one sensor, most often by two, but never by more than two sensors at a time. If at any time the strip activates a third sensor, adjust the higher outside sensor downward to correct for the false positive.

- h** Use the highly-sensitized strip to verify sensitivity settings are not set too high, so as to trigger false positives.

- For the two-board system, place the highly-sensitized strip at the center of the second sensor from the bottom on the left side. If the strip causes an MBD condition, adjust the sensitivity of the first and third sensors downward slightly until the false MBD condition is corrected.
- For the four-board system, it is not necessary to test the MBD using the highly-sensitized strip.



For the Two-Board System, Use the Highly-Sensitized Strip at the Centerline of the Second Sensor to Test and Correct For False Positives.

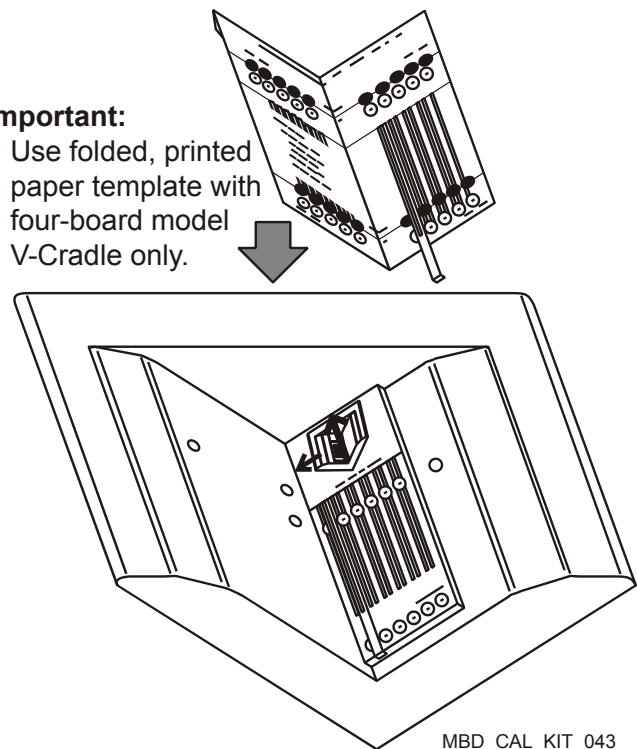
Right Side Calibration

- 1** Adjust the sensitivity of the right-side MBD sensors using the midrange-sensitivity strip and template. After you have adjusted the sensitivity for all sensors, you will check for false MBD using the highly-sensitized strip tool.

- a** Move the template to the right surface of the V-Cradle.
- Make sure the rear edge of the template is snug to the rear surface of the V-Cradle and the left edge is snug against the left surface of the V-Cradle.
 - For a four-board system, continue to use the folded printed paper template (provided inside back cover) and use it over the top of the template provided in the kit.

Important:

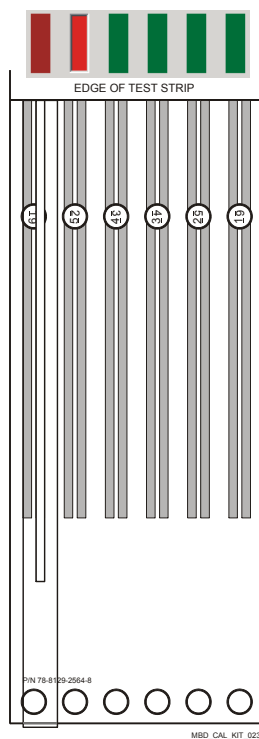
Use folded, printed paper template with four-board model V-Cradle only.



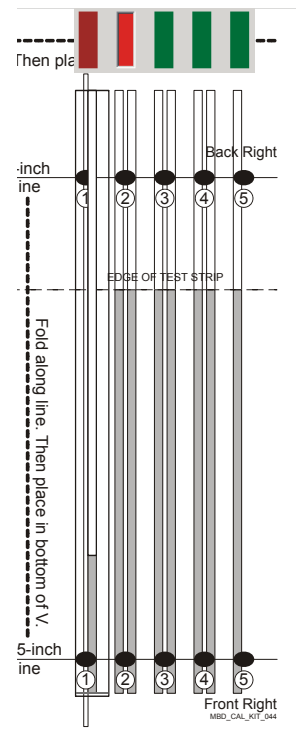
Template In Position For Calibrating the Right Side of the V-Cradle

- b** Place the medium-sensitivity test strip so the test strip covers the second-lowest shaded region of the template for the first sensor (lowest white rectangular region for the four-board system).

- Check to make sure the first and second rectangles corresponding to the two lowest sensors on the right side of the V-Cradle are red, indicating that they sense the strip.
- If either sensor does not sense the strip, slowly adjust the sensitivity upward until the rectangle color changes to red.
- Make sure that when the strip is removed, the rectangle changes back to green.



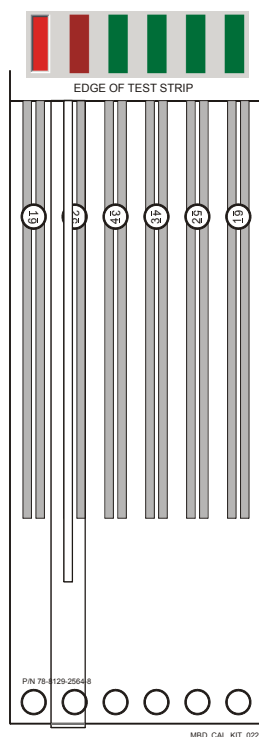
Test Strip at First Position for Calibrating Right Group of Sensors (Two-Board System)



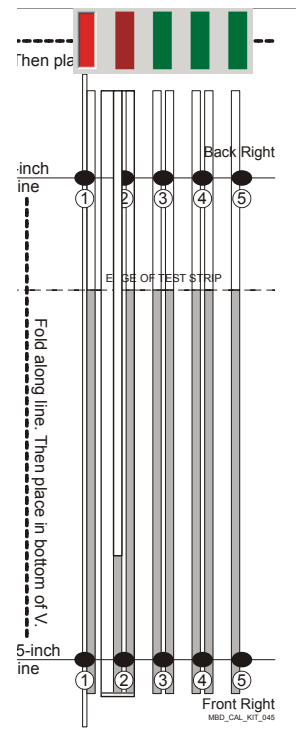
Test Strip at First Position for Calibrating Back Right Group of Sensors (Four-Board System)

- c** Move the test strip to the right, to cover the first shaded region for the second sensor (first white rectangular region for the four-board system.) The rectangles for the first and second sensors should remain red.

- If the first rectangle changes to green, gradually adjust the sensitivity for the sensor upward, just until the rectangle turns red (but do not exceed the maximum sensitivity, recorded earlier, for this sensor).
- If the third rectangle changes to red, gradually adjust the sensitivity for the sensor downward.

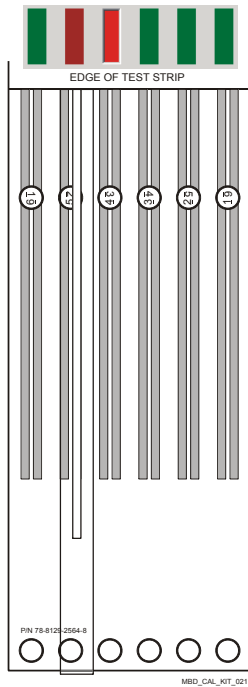


First and Second Sensors Sense the Test Strip at the First Shaded Region for the Second Sensor (Two-Board System)

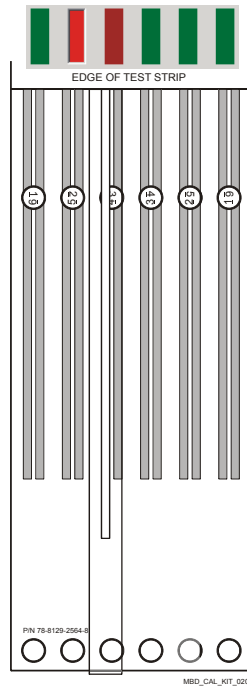


First and Second Sensors Sense the Test Strip at the First Unshaded Rectangular Region for the Second Back Right Sensor (Four-Board System)

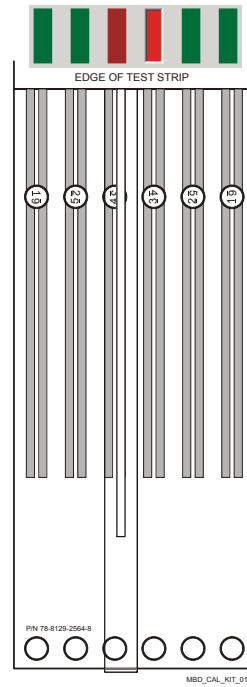
- d** For the **two-board system**, continue moving the test strip to the next shaded region on the template, continuing to adjust sensors to either side of the strip as shown, until all right-side sensors are calibrated.



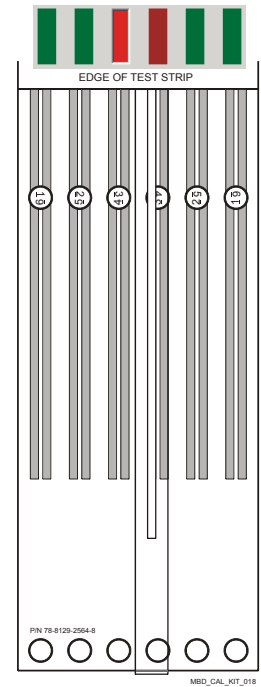
Strip at Second Position for Second Right Sensor



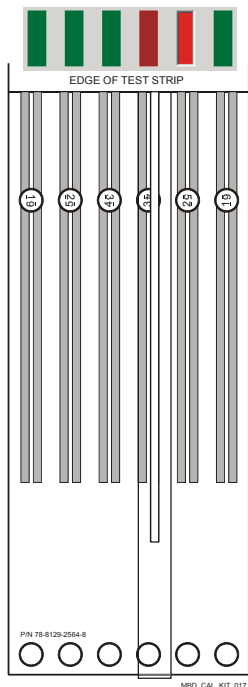
Strip at First Position for Third Right Sensor



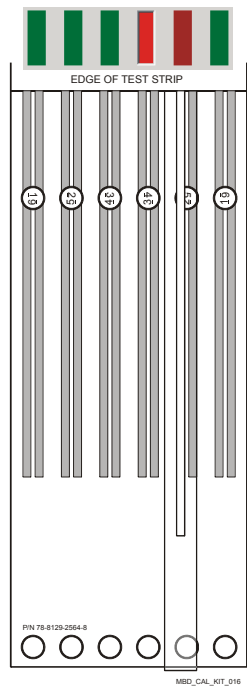
Strip at Second Position for Third Right Sensor



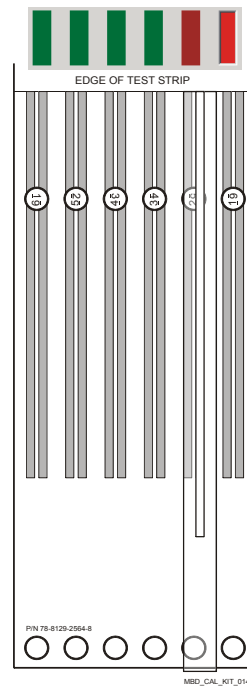
Strip at First Position for Fourth Right Sensor



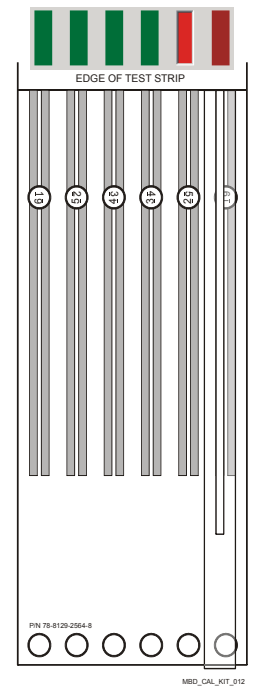
Strip at Second Position for Fourth Right Sensor



Strip at First Position for Fifth Right Sensor

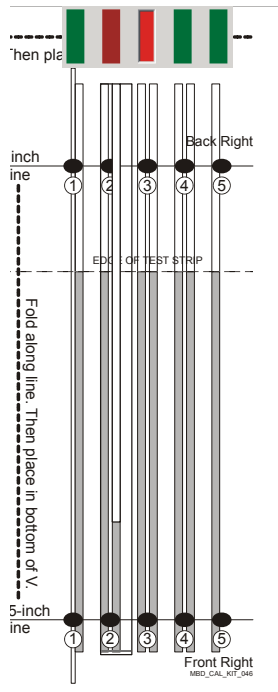


Strip at Second Position for Fifth Right Sensor

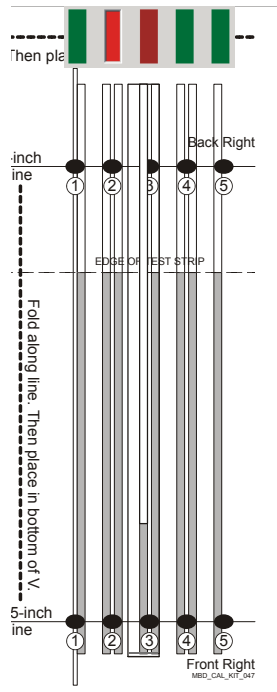


Strip at First Position for Sixth Sensor (Final Position for Right Side)

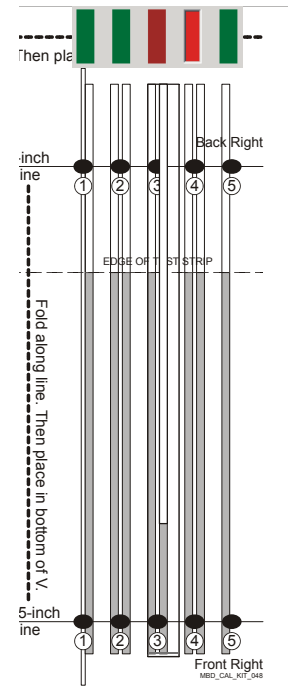
- e** For the **four-board system**, continue moving the test strip to the next unshaded rectangular region on the paper template, continuing to adjust sensors to either side of the strip as shown, until all back right sensors are calibrated.



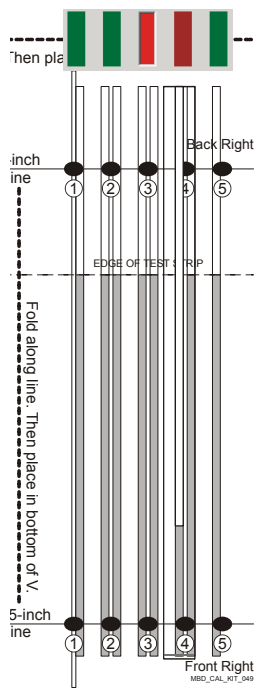
Strip at Second Position for Second Back Right Sensor



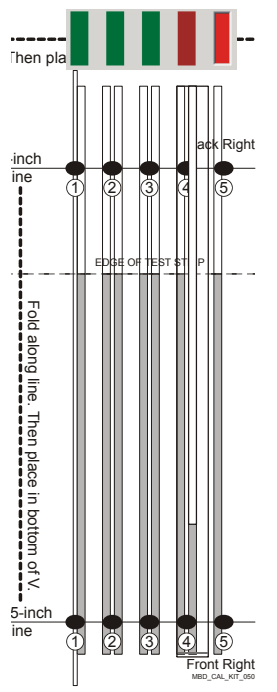
Strip at First Position for Third Back Right Sensor



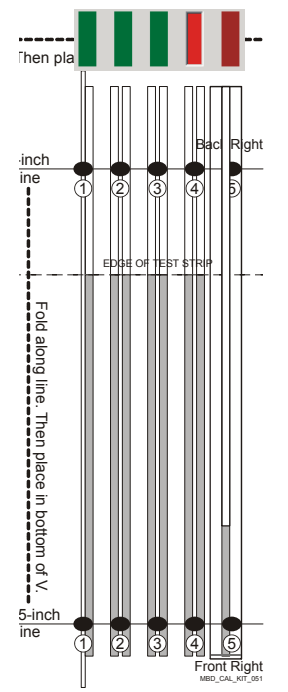
Strip at Second Position for Third Back Right Sensor



Strip at First Position for Fourth Back Right Sensor

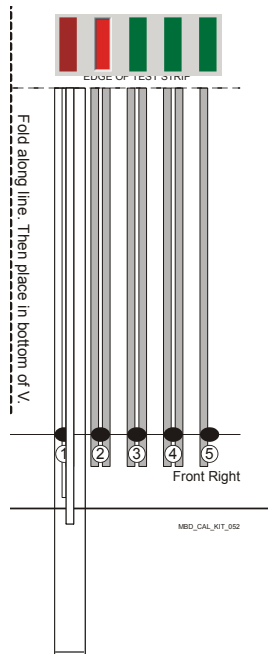


Strip at Second Position for Fourth Back Right Sensor

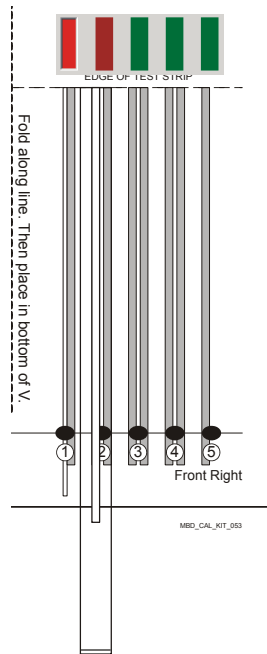


Strip at Position for Fifth Back Right Sensor (Final Position for Back Right Sensors)

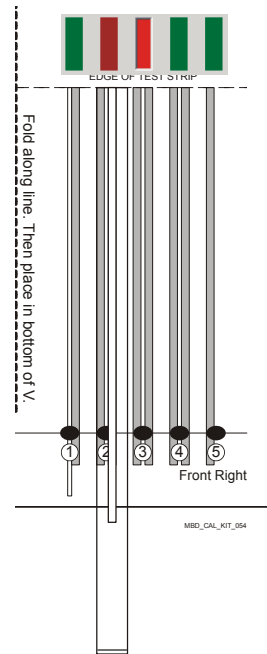
- f** For the **four-board system**, move the test strip similarly through the shaded rectangular regions on the paper template, continuing to adjust sensors to either side of the strip as shown, until all front right sensors are calibrated.



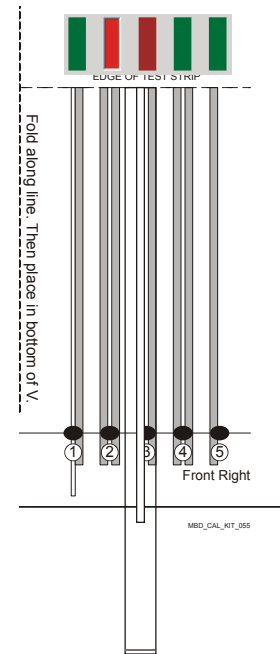
Test Strip at Initial Position for Front Right Sensor (4-Board System)



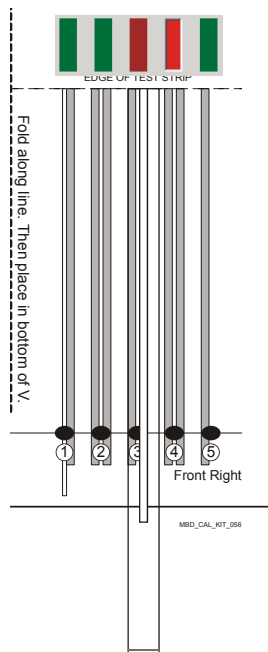
Strip at First Position for Second Front Right Sensor



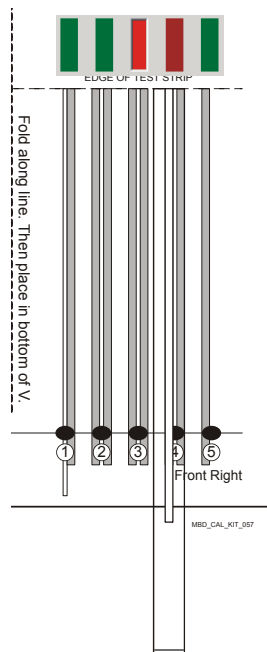
Strip at Second Position for Second Front Right Sensor



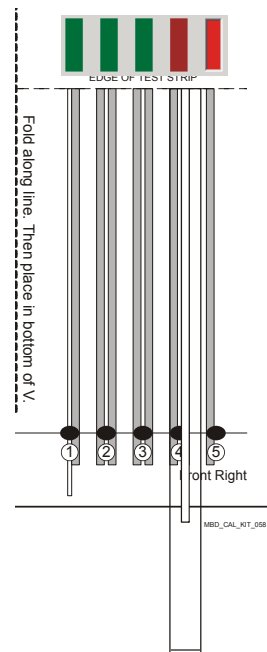
Strip at First Position for Third Front Right Sensor



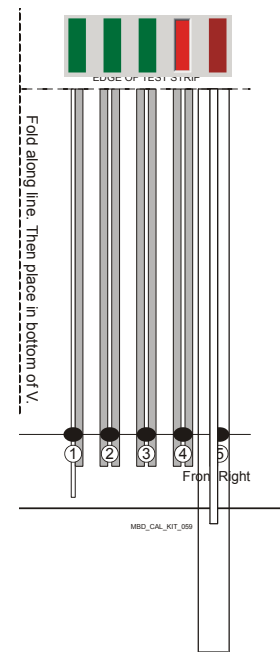
Strip at Second Position for Third Front Right Sensor



Strip at First Position for Fourth Front Right Sensor

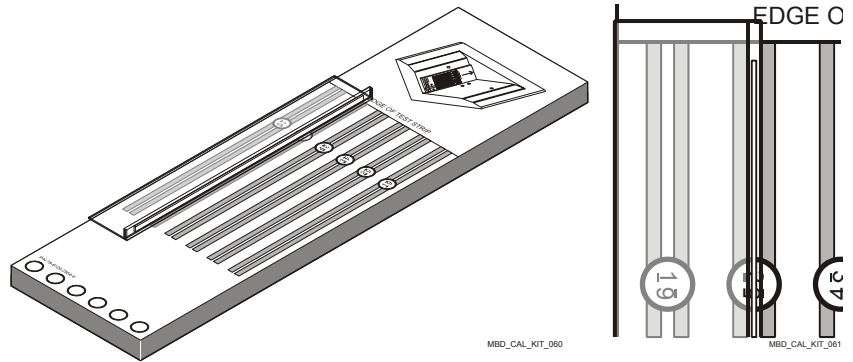


Strip at Second Position for Fourth Front Right Sensor



Strip at Position for Fifth Front Right Sensor (Final Position for Right Side Sensors)

- g** After adjusting all right-side sensors, slide the sensitized strip through all sensor locations smoothly in both directions, making sure the strip does not trigger any false positives. There should be a sense of “handing off” the sensitized strip from each sensor to the next, so that when a strip is in the vicinity of the sensors within the V-Cradle, it is always sensed by at least one sensor, most often by two, but never by more than two sensors at a time. If at any time the strip activates a third sensor, adjust the higher outside sensor downward to correct for the false positive.
- h** Use the highly-sensitized strip to verify sensitivity settings are not set too high, so as to trigger false positives.
- For the two-board system, place the highly-sensitized strip at the center of the second sensor from the bottom on the right side. If the strip causes an MBD condition, adjust the sensitivity of the first and third sensors downward slightly until the false MBD condition is corrected.
 - For the four-board system, it is not necessary to test the MBD using the highly-sensitized strip.



For the Two-Board System, Use the Highly-Sensitized Strip at the Centerline of the Second Sensor to Test and Correct For False Positives.

Verifying Calibration

After you have completed calibration, test the performance of the MBD system with several marked, sensitized books from the library, which represent a reasonable random sampling of books that will be checked out or in through the system.

Note

It may be necessary to change the position of the barcode scanner to improve MBD performance. In the two-board model, there may be locations in the V-Cradle where a strip may not be sensed. If you notice books not being sensed because this is occurring, move the barcode scanner to move its scan line toward the front (open end) of the V-Cradle, to prevent books from being scanned in any areas where strips might be undetected. Keep in mind that if you move the scan line outward, it may also be necessary to disable the rear optical item-sensor to allow smooth one-step operation.

Because of an emphasis on security at particular libraries, or if average sensitivity values of strips at the site are low, or if strips are placed farther from the book spines in many books, it may be necessary to recalibrate sensitivity using actual books to accommodate the needs of the site.

- When sensitivity needs to be decreased due to false positives from individual books, note which rectangles in the MBD Adjuster interface are red. Typically you will see three consecutive red bars (in the side of the V-Cradle for which the barcode scanner is mounted to work with), causing the false MBD condition. If so, reduce the sensitivity of the uppermost triggered sensor, to change the corresponding rectangle to green, to correct the false MBD condition.
- When sensitivity needs to be increased, it is important to increase the lowest sensor sensitivity on each side of the V-Cradle first. Turn up the sensitivity for the lowest sensor to attain adequate results, and then continue to increase the sensitivity of other sensors until you achieve the performance required.

Test the magnetic card reader

- 1 Start the hardware diagnostics program:

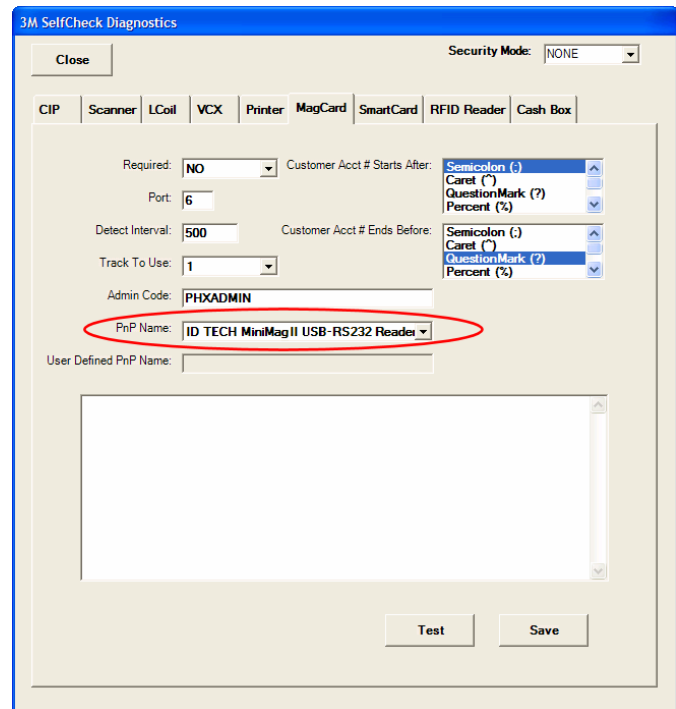
C:\Program Files\3M Library Systems\3M
SelfCheck\bin \HwDiagnostics.exe

- 2 Click the **MagCard** tab.

- 3 In the **PnP Name** box, select the PnP driver for the magnetic card reader you installed:

Part number	PnP name
IDT3321-33UB	ID TECH USB Serial Port
IDMB-336133B	ID TECH MiniMag II USB-RS232 Reader

- 4 Click **Save**.
- 5 Click **Test**. If the system cannot detect the reader, you may have chosen the wrong PnP name.
- 6 Swipe a magnetic stripe card and verify that the card is read.
- 7 Click **Stop**, and then click **Close** to quit.



Configure Windows XP networking

If the site uses DHCP, no Windows XP networking configuration is required, since the computer ships from the factory configured for DHCP. If, however, the library uses static IP addresses, you must reconfigure networking, and that is what this section covers.

Use the *3M DMFM Configuration* document to determine library requirements.

Required information

Before you begin the network setup, determine the following:

- The IP address to use for the computer
- The subnet mask used on the network
- The IP address for the default gateway
- Preferred and alternate DNS server IP addresses
- WINS server IP address

Configure the network

- 1 Right-click the **My Network Places** icon, and then click **Properties**.
 - 2 Right-click **Local Area Connection**, and then click **Properties**.
 - 3 Select **Internet Protocol (TCP/IP)**, and then click **Properties**.
-
- 4 Configure IP settings using the information provided by the library.
 - 5 Click **OK**.

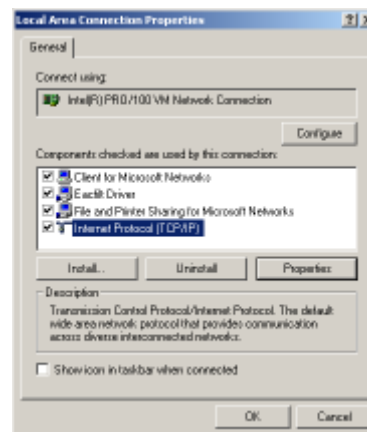


Figure 44. Network Protocols

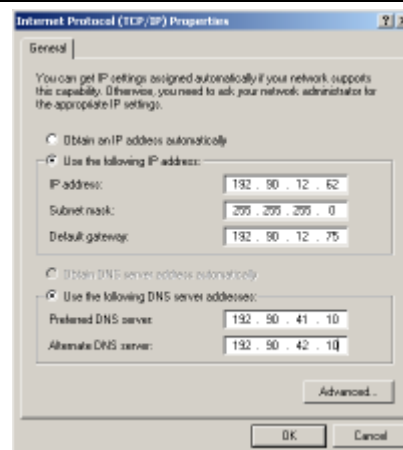


Figure 45. TCP/IP Setting.

Configure optional wireless networking

If the optional wireless network adapter card is installed, the **Wireless Network Monitor** and Windows Wireless **Network Connection** must be configured. The required drivers should be installed from the factory.

A library IT staff person who has access to security information, including the following information, will be required for connecting the SelfCheck System computer to the library's private wireless network:

- Access point SSID
- Wireless network password or passphrase
- IP address
- Network computer name
- Login password

Network security, wired and wireless, is the responsibility of the library, the library's IT department, or contracted IT personnel. Security measures include, but are not limited to the following:

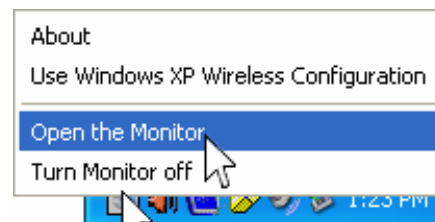
- Separation from the library's public wireless network and SSID transmission suppression, so the access point is not readily visible or likely to be used or connected to by library patrons.
- Either WPA encryption or WEP encryption, with encryption key rotation, and/or MAC address filtering.
- If financial transactions are implemented using credit or debit cards, the customer must conform to Payment Card Industry (PCI) data security standards (DSS) developed by the PCI Standards Council. Requirements can be found at <http://www.pcisecuritystandards.org/>.

Complete the wireless network setup

- 1 In the Windows notification area, right-click the Wireless Network Monitor icon, and then click **Open the Monitor**.



Wireless Monitor icon



Click Open the Monitor

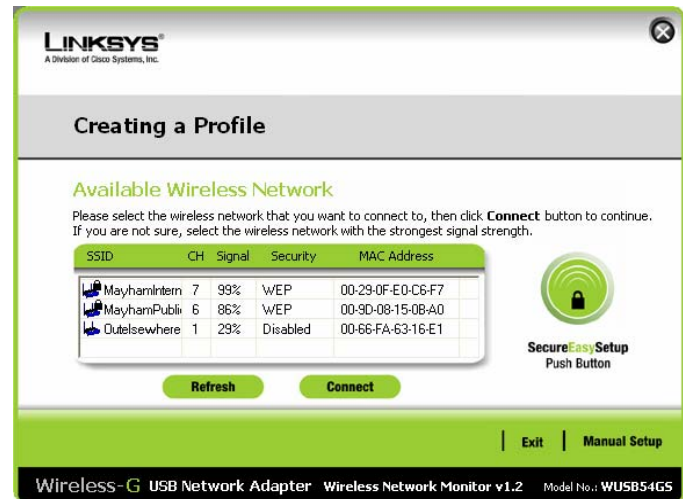
Continued on next page ...

The Wireless Network Monitor displays a **Creating a Profile** window. If any wireless network access points are detected, their detected information is displayed in the **Available Wireless Network** table.

- 2 Have the library IT staff person set up the wireless connection.

The library IT staff person may be able to use **SecureEasySetup**, or may need to use **Manual Setup**, depending on the wireless access point type and how it is configured.

- 3 The SSID, channel and signal strength are displayed for each visible access point. Make sure the signal strength for the access point you are connecting to is greater than 90%.
- 4 When you have successfully connected to a wireless access point, a **Congratulations** screen appears. Configuring the Wireless Network Monitor is complete.
- 5 Click **Connect to Network**.



Creating a Profile window showing several available wireless networks



Congratulations! Click Connect to Network

Verify received signal strength

- 1 When you click **Connect to Network**, the Wireless Network Connection icon appears in the system tray and indicates whether the SelfCheck System computer is connected to a wireless access point.
- 2 Hold the mouse pointer stationary over the Wireless Network Connection icon. Tool-tip information should verify that the SelfCheck system is connected, that the connection is to the correct wireless access point, and that the received signal strength is excellent.
- 3 If the tool-tip information does not show a status of Connected, or connection is to the wrong wireless access point, a library IT staff person will need to establish connection to the correct wireless access point. It may also be possible to connect through the **View Available Wireless Networks** command.



Wireless Network Connection icon



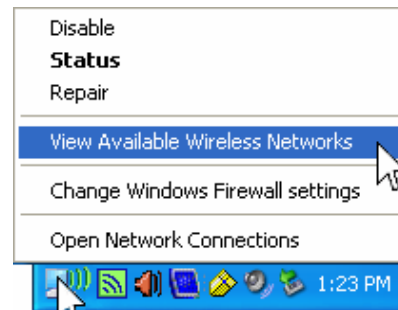
Hold the mouse over the Wireless Network Connection icon to display Tool-tip information about the connection status

Continued on next page ...

- 4 To view the Received Signal Strength Indicator (RSSI), which graphically represents the received signal strength, right-click the Wireless Network Connection icon in the Windows notification area, and then click **View Available Wireless Networks**.



Received Signal Strength Indicator (RSSI)

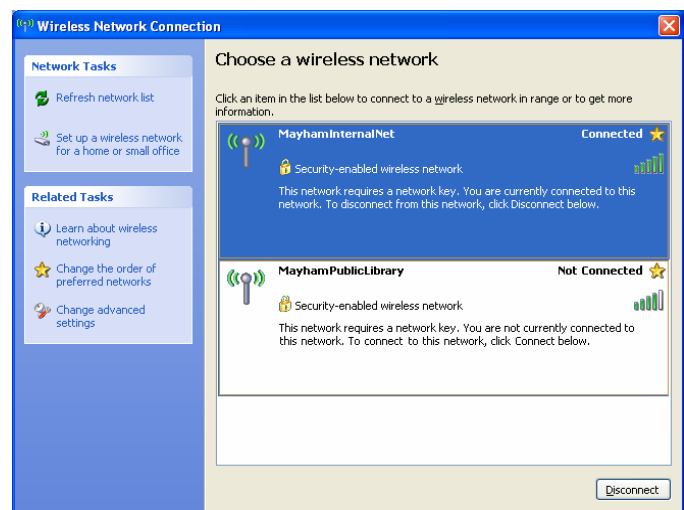


Wireless Network Connection icon context menu

The **Wireless Network Connection** window displays information about wireless access points that are visible to the wireless network adapter card, including the name (SSID), connection status, security-enabled or unsecured, and received signal strength.

The RSSI (📶) appears at the right of the window for each access point that is visible to the wireless network adapter card. All five bars of the RSSI must be green for the connected access point at the installed location of the SelfCheck system.

If the RSSI displays fewer than five green bars, try repositioning the wireless network adapter card antenna in the cabinet or enclosure or try relocating the SelfCheck system to a location where better received signal strength can be obtained.



View Available Wireless Networks

Guidelines to help achieve wireless signal strength criteria

The following can help ensure the required signal strength at the location where the SelfCheck System is installed.

- Install the SelfCheck system within twenty feet (20 ft. [6 m]) of the wireless access point.
- Install the SelfCheck system in line-of-sight of the wireless access point, with minimal or no metal objects between the SelfCheck system and the wireless access point, to reduce radio-frequency interference or multi-path distortion effects.

Set up the SelfCheck system software

Access the SelfCheck system as the administrator

- 1 If it is not already on, turn on the SelfCheck system.
- 2 Scan the administration control card to open SelfCheck System Manager in Internet Explorer.
- 3 On the Home page, supply a password. The default password for the administrator is **advanced**.

Configure settings

The following table lists tasks that you must complete and identifies the SelfCheck system software setup mode and tab on which the tasks can be completed.

Task	Tab
Enable devices (printer, V-coil, card readers, scanner, RFID reader).	Devices
Configure barcode symbologies.	Devices
Configure the application mode (check-in, checkout, both) and inactivity settings.	Workflow
Verify Customer ID, Item Processing, and barcode placement settings.	Workflow
Enter information on the system, operation mode, and logging	Support
Configure language settings.	Language
Set up receipts.	Receipt
Configure communication with the circulation system.	Network
Set up ID filters if required (recommended in using Store and Forward feature).	ID Settings

Adjustments

Adjust monitor controls

If the monitor requires adjustment, use the on-screen menu to adjust characteristics such as brightness, contrast, and color. Changing the display resolution is not recommended, because the default resolution of 1024 by 768 is optimized for the SelfCheck system graphics.

To adjust the display

- 1 Press the menu button to display the main menu.
- 2 Make adjustments as required using the selection buttons.
- 3 Exit the main menu by pressing the menu button again.

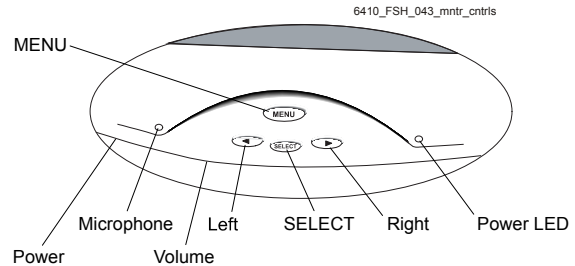


Figure 46. SelfCheck system monitor controls.

Adjust the length of the scan line

- 1 Right-click on the **Start** menu.
- 2 Click on **Explore**.
- 3 Navigate to the following directory:
My Computer\Program Files\3M\3M Library Systems\3M SelfCheck\bin
- 4 Click the **HwDiagnostics** file.
- 5 Click the **Scanner** tab.
- 6 Adjust the length of the scanner line with the **Long Line Delay** and **Long Line On Time** settings.
 - The difference between the two settings determines the scan line length. If the difference is large, the line length will be long. If the difference is small, the line will be short.
 - A typical setting for **Long Line Delay** is 16 and a typical setting for **Long Line on Time** is 79. These settings provide the longest line possible.
- 7 After you make an adjustment, test the new settings:
 - Click **Test** to start the test.
 - Click **Stop** to stop the test.
- 8 When the line is the correct length, click the **Save** button and exit the utility.

RFID antenna tuning

The RFID antenna is tuned in the factory and is not field adjustable.

Maintenance

Cleaning the components

Components soil with normal use and may require cleaning. To clean the component exteriors, dampen a soft cloth with water or a mild cleaning solution and gently wipe away dirt.

Cleaning the monitor

- Use care when cleaning the SelfCheck system monitor.
- Use pre-moistened towelettes that are sold specifically for monitor cleaning. If these are not available, use a non-solvent based cleaner to dampen a soft cloth, but use it very sparingly.

Cleaning the scanner window

IMPORTANT NOTE
The Code of Federal Regulations (CFR) 21CFR1040.10 requires the following statement for products containing lasers: Caution—use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous laser light exposure.

Clean the scanner window regularly to minimize scanning problems.

- 1 Shut down the SelfCheck system.
- 2 Access the scanner.
- 3 Wipe the scanner window with a clean, dry, cotton-tip swab or cotton cloth.

Troubleshooting

Monitor problems

Symptom	Possible solutions
Monitor will not come on.	Ensure that the monitor's power is on: - Confirm that the green light in the lower right corner of the monitor is lit. - If the light is not lit, ensure that the power cable is plugged into the Interconnect box and the Interconnect box is receiving power.
Generic touch screen driver loaded	- Check the cabling to ensure that the monitor's USB cable is plugged into the 24V port. See Cable the system on page 20 for cabling information. - Make sure that the correct <u>driver for the monitor</u>, which is part of the Windows XP Security update, has been installed.
No sound.	- Make sure the volume knob is turned up. - Make sure the cable connector is in the jack.
Graphics too large or small.	Check the Windows Display Properties to ensure that the screen area is set to 1024 by 768 pixels.

Check-in/checkout problems

Symptom	Possible solutions
Barcodes read, but some or all items cannot be checked out.	A barcode filter may be required to ensure that data sent to the host matches the item information stored in the circulation system database. See the user guide for information.
Barcodes read, but some or all customers not recognized or able to check out materials.	
Cannot read magnetic cards	Make sure that the - Magnetic card reader is enabled and the track setting is correct in the Devices tab - Card is inserted into the reader with the magnetic strip on the correct side - Card is removed quickly enough. A card that is removed too slowly can have read problems.
Cannot read smart cards	Make sure that the - Smart card reader is enabled and using the correct COM port. See Cable the system on page 20 for cabling information. - Smart card is inserted correctly into the reader.

Symptom	Possible solutions
Cannot read the customer card	Make sure that - Barcodes are not scratched, dirty, or damaged - Customer cards are placed barcode face up and under the scan line
Cannot select magnetic strip as the customer identifier	The SelfCheck system cannot simultaneously use two types of customer identification. It must use either customer cards with barcodes or cards with magnetic strips. Some libraries use customer cards with a barcode on one side for identification and a magnetic strip on the other for another purpose. Then, only the barcode is used for identification.
Sometimes customers cannot check out items.	Check the Suspicious activity response setting in the Workflow tab to ensure that the customer did not exceed the retry limit for PIN entry or left the library card too long without activity.
Sometimes customer cards are disabled during checkout.	

Printer problems

Symptom	Possible solutions
Printer won't print	- Ensure that the printer has paper and check for paper jams. - Ensure that the printer has power (LEDs should be lit). If not, do the following: (1) Ensure that the power cable is connected to both the printer and the Interconnect box. Be especially careful with the printer connection. Sometimes the cable seems to be connected but the power pins are not in contact with the printer. (2) If the power cable is properly connected, ensure that the 24V lamp on the Interconnect box is lit. If not, the printer's power supply is not working. - If the printer is getting power, do the following: - Ensure that the USB cable is connected to both the printer and the correct computer port. See Cable the system on page 20. - Try a different USB cable. - Ensure that the problem is not with the SelfCheck application by trying to print a test page: (1) From the Start menu, select Settings and then Printers. (2) Right-click on the printer icon. (3) Press the Print Test Page button.
Information on receipts incorrect	Check the receipt setup in the Receipt tab.
Receipts printed in wrong language	Make sure the correct language is selected in the Language tab.
Receipt information does not fit properly	Make sure the correct font size is selected in the Receipt tab.

Barcode scanner problems

Symptom	Possible solutions
Scanner won't start and a Scanner Fails to Initialize message appears during startup.	Check cable connections.
Scanner has a poor read rate	Check for dust and fingerprints on the scanner window and wipe it with a clean, dry cotton-tip swab or cotton cloth if required.

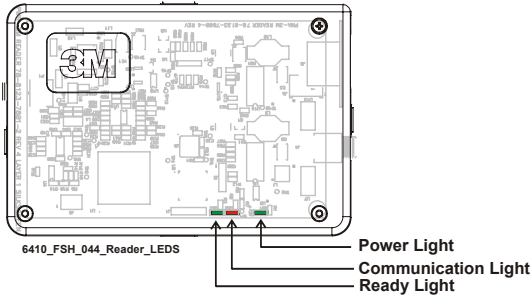
RFID reader problems

Symptoms and solutions

Symptom	Possible solutions
The reader does not read tags and the following message appears when the application comes up: "RFID reader failure: Device not found on COM2"	Ensure the following ▪ That the cable is connected to the correct computer port. See Cable the system on page 20. ▪ That the cable connection is tight (finger tight). ▪ That the reader has power (by checking the reader lights inside the interconnect box) See RFID Reader Status Lights on page 69.
Reader does not read tags but the message above does not appear	Ensure that the coaxial cable that connects the antenna to the reader (inside the Interconnect box) is tight.
Reader operation is intermittent	Ensure the following: ▪ That the cable connection is tight (finger tight) ▪ That tags are not disabled or blank ▪ That the book's jacket does not include metal foil, which may affect tag reading ▪ That tags are placed within the read range (10 inches/25cm from the center of the detection area) ▪ That multiple item checkouts are not stacked too high
Reader passes the diagnostic test but still can't read tags	Ensure that the coaxial cable that connects the antenna to the reader (inside the Interconnect box) is tight.

RFID Reader Status Lights

To view the reader status lights, you must remove the cover of the interconnect box and look through the shield that's in front of the reader.

Light	Description	
Power	Steady green: Power on If the power light isn't on, check the interconnect box. If the interconnect box has power and the reader does not, the problem is either with the reader itself or with the power cable to the reader.	
Communications	Blinking red: Communicating with software Off: No communication with software If there is no communication with the software, ensure that the cable is connected to COM2 on the computer.	
Ready	Flashing: Reader OK	

Running RFID diagnostics

- 1 Double-click **My Computer**.
- 2 Double-click the C drive.
- 3 Navigate to the following file:
C:\Program Files\3M Library Systems\3M SelfCheck\bin\HwDiagnostics.exe
- 4 Double-click HwDiagnostics.exe.
- 5 Click the **RFID** tab.
- 6 Ensure that the **Device Status** field says **OK**.

Testing RFID reader resistance

If the reader is working properly, resistance between the coaxial inner core and the shield should be very close to zero ohms.

The figure to the right shows where to connect an ohmmeter.

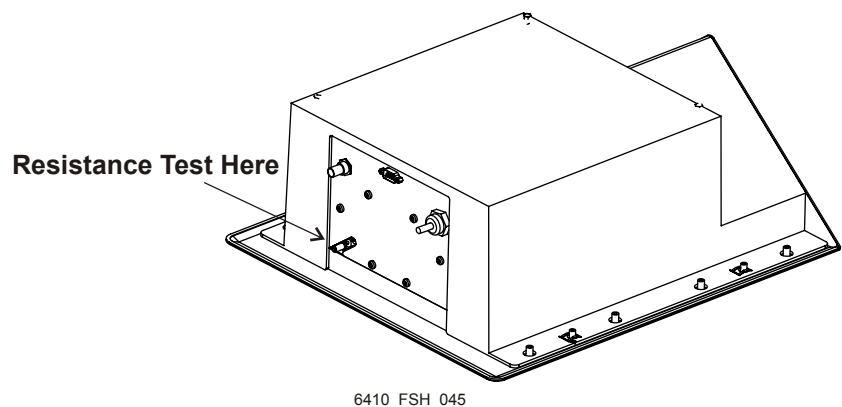
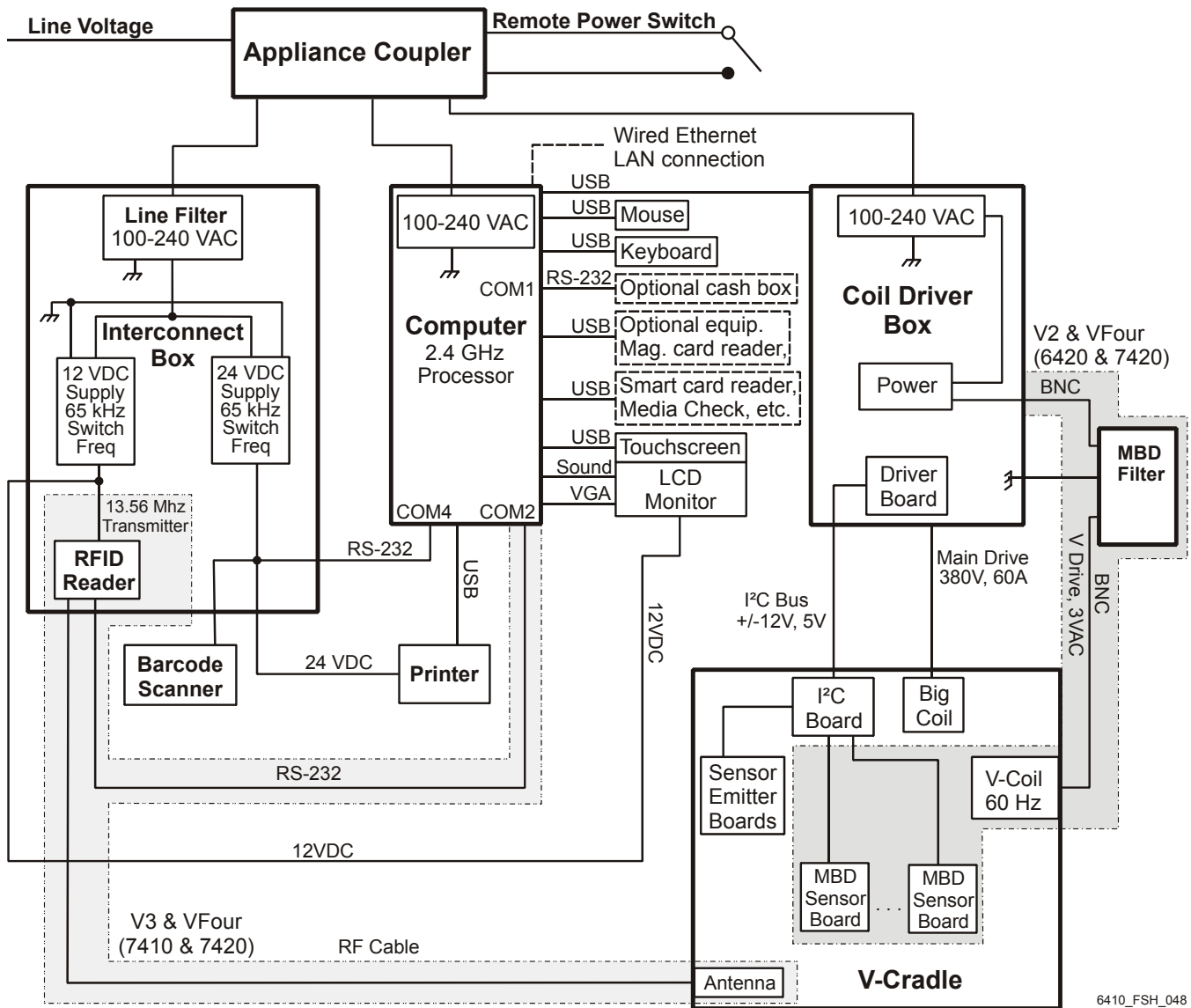


Figure 47 Testing Reader Resistance

Diagrams

Electrical block diagram

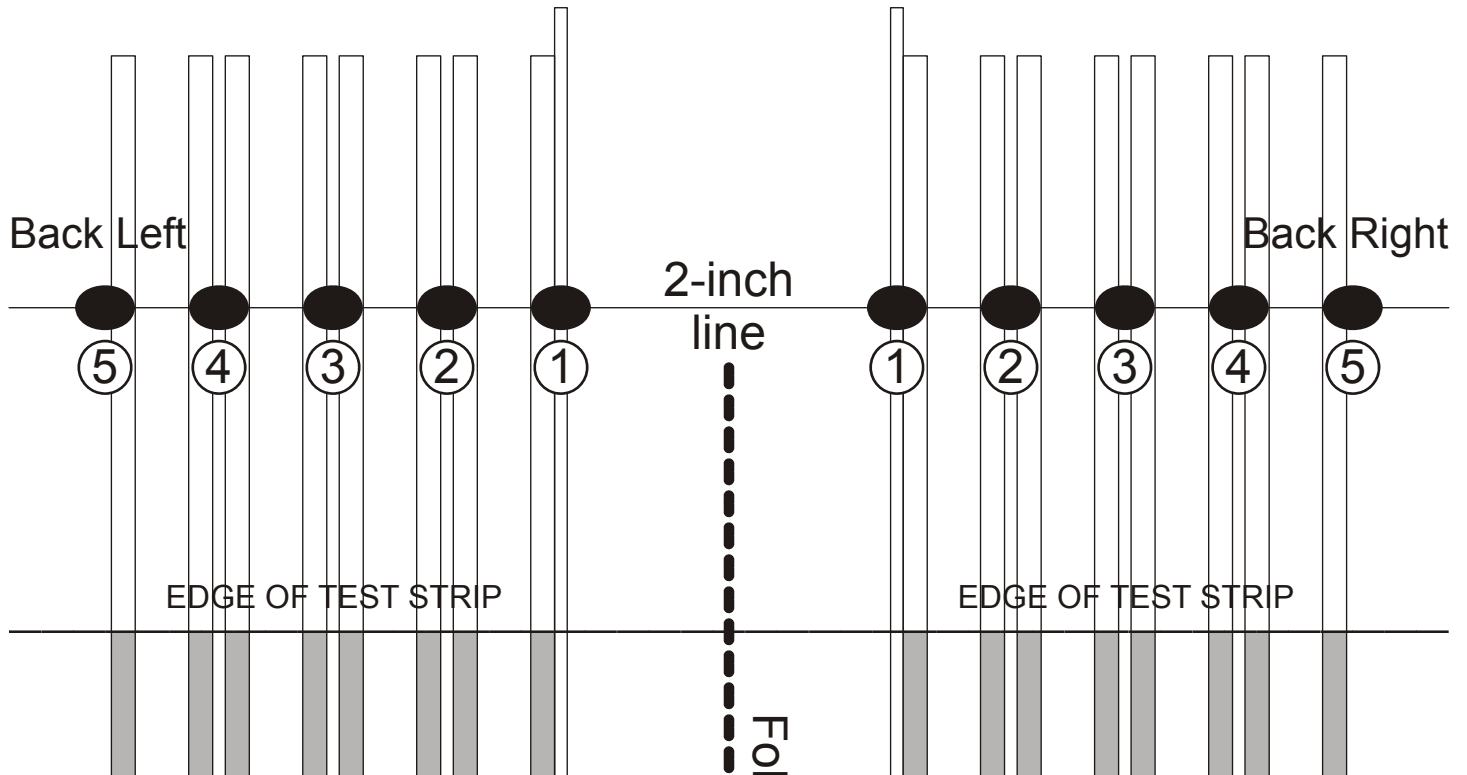


6410_FSH_048

Figure 48 Block Diagram

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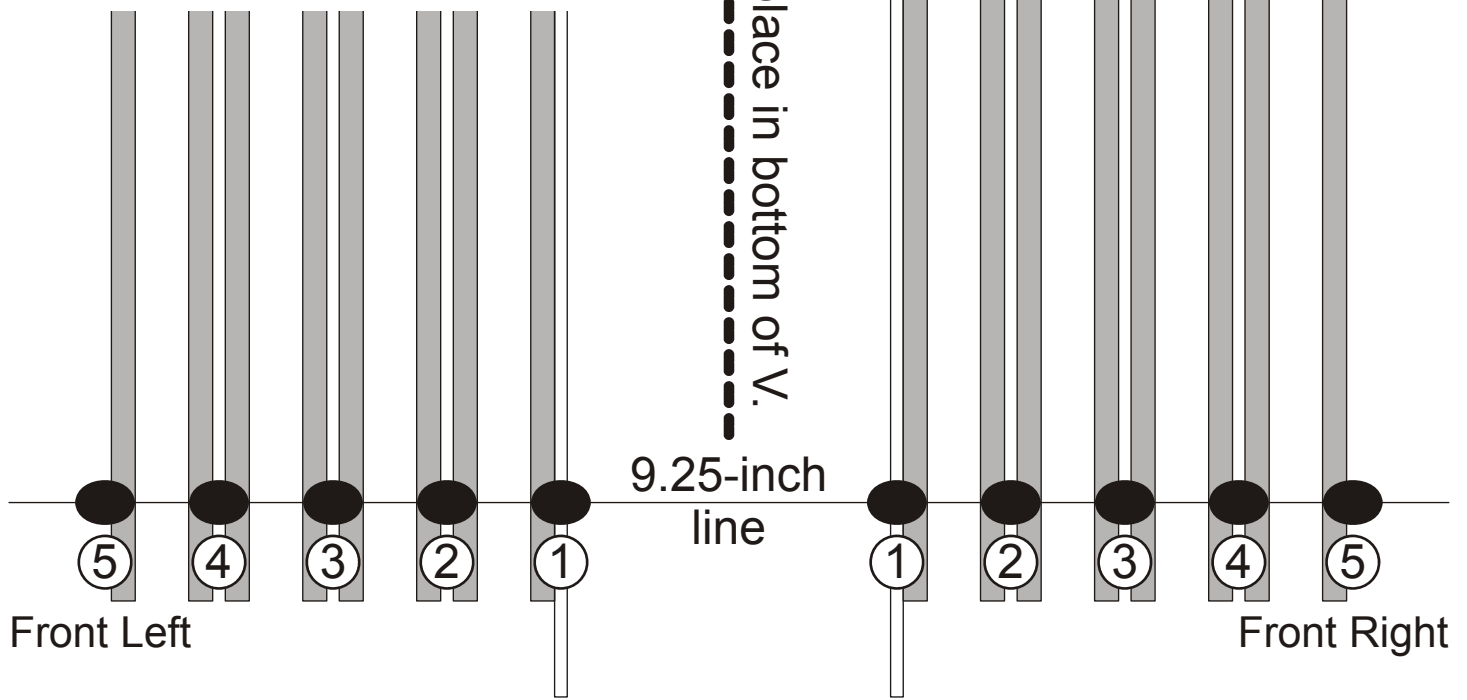
Cut or fold template here. Then place edge against stop.



Printing Instructions

To maintain the correct size when printing this template, do the following:

1. Ensure that the following print options are NOT selected:
 - Shrink oversized pages to paper size.
 - Expand small pages to paper size.
2. Measure the distance between the dotted line at the top and the 2-inch and 9.25-inch lines.



3M Library Systems

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