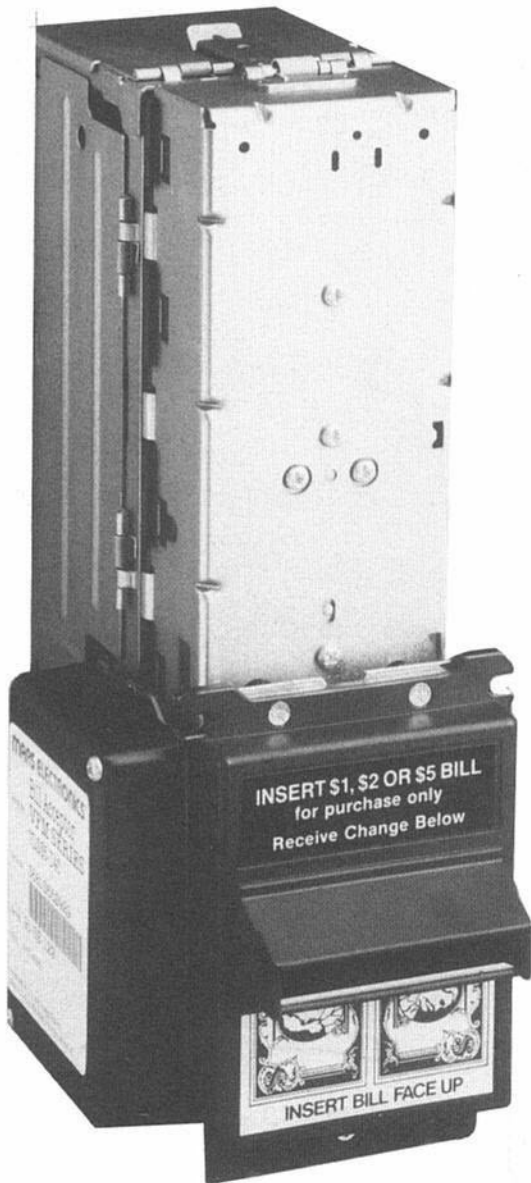


**Mars Electronics  
Bill Acceptors**

VFM1 and VFM3

# VFM Series



## Operation and Service Guide

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# GENERAL INFORMATION

## OVERVIEW

The VFM1/VFM3 Operation and Service Guide contains important information on installing, operating and maintaining Mars Electronics™ Bill Acceptors. These Bill Acceptors are designed for Full Line and Bottler vending from both electromechanical and electronically controlled machines.

To obtain the best performance from your Mars Electronics Bill Acceptor, read this manual before installing and using the unit.

## FEATURES

### VFM1

- The VFM1 accepts \$1 bills only. Bill insertion must be "face up" but may be in either direction.
- Various configurations are available to accommodate 24 Volt AC and 115 Volt AC.
- Magazines are interchangeable and are available with capacities of 200, 400, 600 and 1000 bills.
- Interface to the coin changer or control system is automatically selected when the appropriate harness is installed.
- A high security option switch provides increased protection against clone acceptance.

### VFM3

- The VFM3 accepts \$1, \$2, and \$5 bills "face up" in either direction. Switch selection can limit acceptance to \$1 only if so desired.
- As with the VFM1, the VFM3 is available in 24 Volt AC and 115 Volt AC models and both are auto configurable for logic interface.
- As with the VFM1, the VFM3 has interchangeable magazines with capacities of 200, 400, 600 and 1000 bills.

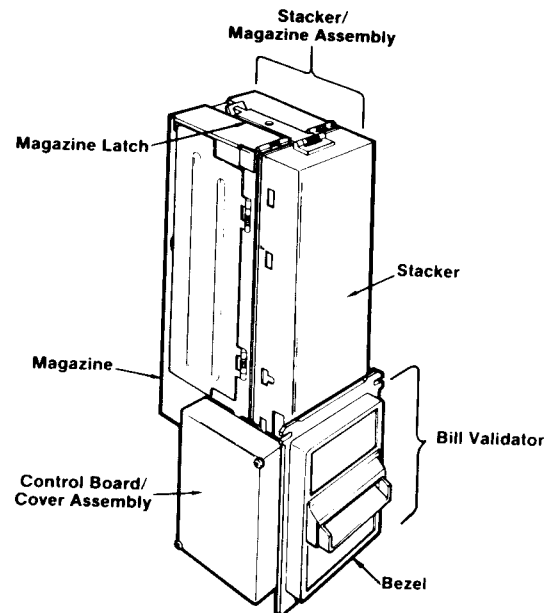


Figure 1.  
Mars Electronics  
Bill Acceptor

---

# GENERAL INFORMATION

## FEATURES (Continued)

- Logic to control the operation of the bill acceptor is derived from either the Coin Changer or the Electronic Control System installed in the vending machine.
- Accumulation of credit, change availability and price setting are all external to the Bill Acceptor.
- U.S. currency is accepted based on electronic recognition of features on the face of the bill. Units are tuned to maximize bill acceptance while preventing fraudulent use.
- Under certain circumstances an inserted bill will be held in escrow pending product status or change availability. **Only one bill may be held in escrow.**
- The Mars Electronics Bill Acceptor is designed to withstand the rigors of the most demanding vending environment.
- No special tools are required for normal cleaning and maintenance.

## SPECIFICATIONS

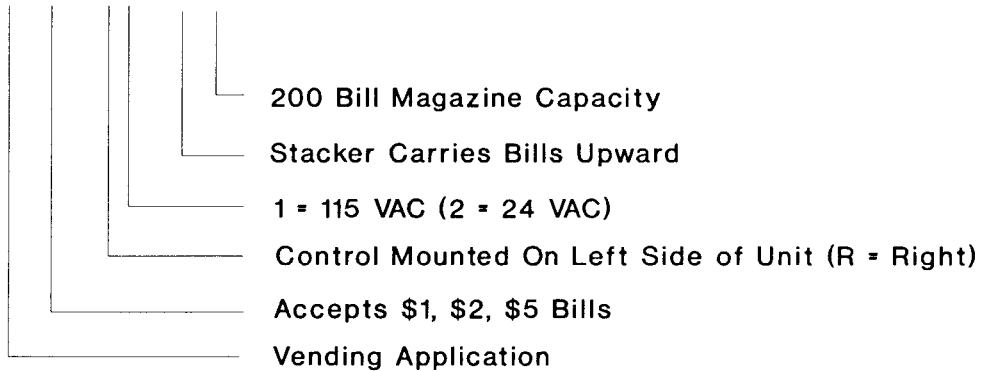
- **Power Requirements**
  - 95 - 135 Volts AC, 60 Hz.
  - 23.4 - 30.1 Volts AC, 60 Hz.
  - Maximum power required is 65 Watts.
- **UL Listing**
  - The VFM1 And VFM3 Bill Acceptors are UL listed under File Number E 57869 (N).
- **Physical Characteristics** (typical). Dimensions and weight vary with model.
  - Height 11 1/2 inches
  - Width 4 7/16 inches
  - Depth 4 1/4 inches (with 200 bill capacity magazine)
  - Weight 6 lbs 1 oz

---

# GENERAL INFORMATION

## CONFIGURATION

VFM3 - L1 - U2C



## UNPACKING THE BILL ACCEPTOR

Unpack the Bill Acceptor and immediately inspect it for any damage. If the unit is damaged, return it to its original carton, along with packing materials.

Notify the delivering carrier of damages and request immediate inspection. Send a letter of intent to file a claim to the delivering carrier within 72 hours from the time of delivery. Send a copy of the letter to the shipper.

Only the consignee (the person or company receiving the Bill Acceptor) can file a claim against the carrier for concealed damages.

Retain the original carton and packing materials for future use in shipping or transporting the Bill Acceptor.

## WARRANTY

Once the unit has been inspected, record the serial and model numbers from the label on the side of the Bill Acceptor. Refer to these numbers when you call Mars Electronics for service or information.

The first three digits of the serial number contain the manufacturing date code. This code indicates the beginning of the warranty period. The first two digits indicate the week of manufacture; the third digit indicates the year of manufacture. For example: a Bill Acceptor with serial number 37910850553 was manufactured in the 37th week of 1989 (September 1989).

A module of a Bill Acceptor has the same warranty as the total unit. When a module is returned for service, the original serial number must be noted on the module and the packing slip.

---

# GENERAL INFORMATION

## OPERATION

The acceptance of a bill in a Mars Electronics Bill Acceptor proceeds through the following steps:

- bill detection
- transport
- recognition
- validation
- credit
- storage

As a bill is inserted, the acceptor senses its presence and the drive motor is energized. Drive belts transport the bill past electronic sensors that evaluate features of the bill for authenticity.

When it has been determined that the bill is authentic, the bill is held in an escrow position until the conditions of the transaction are determined. Conditions of the transaction include:

- vend selection
- price
- change availability
- product availability

When the conditions of the transaction are met, credit for the bill is transferred and the bill is stored.

If the Bill Acceptor is configured with a stacker/magazine assembly, the bill is elevated to the top of the stacker where the actuator plate moves the bill into the magazine. If the Bill Acceptor is configured without a stacker, the bill is discharged into a cash box or other storage device.

## INTERFACE

The interface of a Bill Acceptor refers to the transfer of electronic data to and from the Bill Acceptor and the controlling device. The controlling device in a vending application is the associated Coin Changer or the Electronic Controller of the vending machine. The signals transferred include input signals to the Bill Acceptor such as:

- the vending system is ready to accept money
- the denomination of bills to accept
- whether or not bills should be returned from escrow

---

# GENERAL INFORMATION

Output from the Bill Acceptor to the control device includes signals that the bill has been accepted and the value of the credit issued.

The VFM1 Bill Acceptor is capable of operating with one of two interfaces:

- Low Level
- AC/High Level

The VFM1 Bill Acceptor automatically configures to the proper interface when the appropriate harness is used.

The VFM3 Bill Acceptor is capable of operating with one of three interfaces:

- Low Level
- AC/High Level
- Serial

The VFM3 Bill Acceptor automatically configures to the AC/High Level or the Low Level when the proper harness is used.

Use of the Serial interface requires a special harness connection at the 18 pin connector and appropriate switch settings.

## TYPES OF INTERFACES

- **Low Level Isolated**

Communications are at + 5 Volts DC. This is an isolated interface because the Changer or the Controller and the Bill Acceptor do not have a common ground. Switching is done optically or through a relay.

SMARTCHANGE™ \* and last bill escrow\*\* depend on the type of Changer or Controller.

\* SMARTCHANGE™ maximizes the availability of change for a vend transaction by reviewing the inventory of nickels, dimes and quarters. Change availability is determined relative to vend price, resulting in fewer lost sales due to a lack of change.

\*\* Last Bill Escrow is a feature that allows the last bill inserted to be returned to the customer if selection or change is not available. Use of the High Level AC Interface does not provide for escrow of the bill.



---

## GENERAL INFORMATION

- **High Level Pulse**

The Coin Changer and the Bill Acceptor communicate at the 115 Volt AC level. Acceptance by the Bill Acceptor is inhibited by the level of nickels in the nickel tube of the Coin Changer. When the Coin Changer runs out of nickels, the Bill Acceptor will not accept currency until the nickel tube is replenished.

SMARTCHANGE™\* and last bill escrow\*\* are not available with this interface.

- **Serial**

This type of interface uses a "smart" data link between the Bill Acceptor and the Control System. Communications is digital, similar to the communications between the Mars Electronics TRC-6000 and a machine Control System. This interface is used with electronically controlled vending machines.

- **Low Level Non Isolated**

This interface requires that the logic circuit ground of both the Bill Acceptor and the Control System be common to both. This interface is not recommended for vending applications.

\* SMARTCHANGE™ maximizes the availability of change for a vend transaction by reviewing the inventory of nickels, dimes and quarters. Change availability is determined relative to vend price, resulting in fewer lost sales due to a lack of change.

\*\* Last Bill Escrow is a feature that allows the last bill inserted to be returned to the customer if selection or change is not available. Use of the High Level AC Interface does not provide for escrow of the bill.

---

# INSTALLATION

To install a VFM1 or VFM3 Bill Acceptor in a vending machine, follow the step by step instructions provided below. Installation in some machines requires a special mounting kit. For more detailed instructions, refer to the Installation Guide shipped with the Bill Acceptor or Mounting Kit.

## DISENGAGE CONTROL BOARD/COVER ASSEMBLY

The Bill Acceptor option switches allow the unit to be customized to the installation.

Locate the option switches by loosening the two captive screws at opposite corners of the black cover and disengage the Control Board/Cover Assembly.

## SET THE BILL ACCEPTOR OPTION SWITCHES

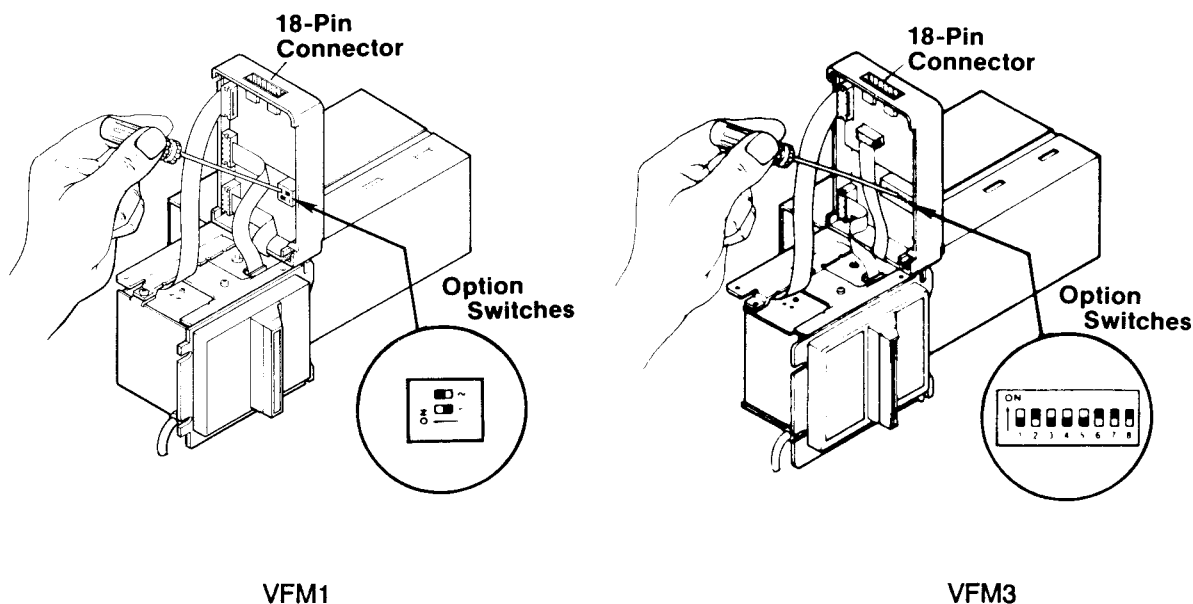


Figure 2. Setting The Bill Acceptor Option Switches

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# INSTALLATION

## VFM1

The Bill Acceptor option switches may be set as shown in Figure 3.

- This setting allows "Standard" acceptance and bi-directional insertion of the dollar bill.

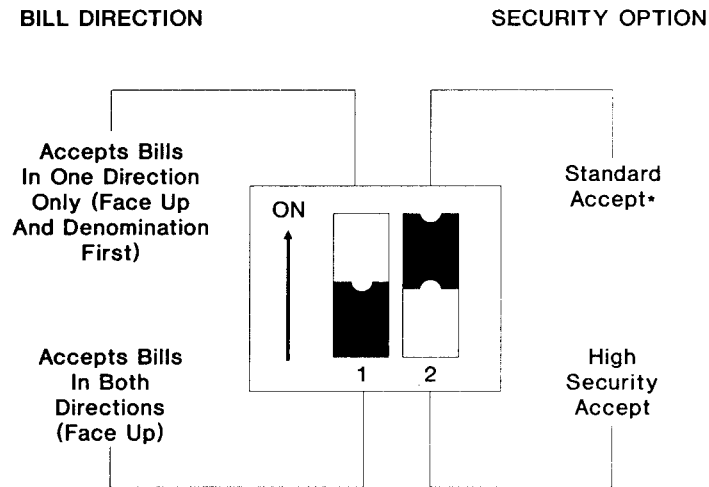


Figure 3. VFM1 Option Switch Functions

NOTE: The "standard" accept mode (switch #2 On) recognizes only bi-directional acceptance of the dollar bill regardless of switch #1 setting.

# INSTALLATION

## VFM3

The Bill Acceptor option switches may be set as shown in Figure 4. This allows for \$1, \$2, and \$5 acceptance, bi-directional insertion of each bill and High or Low Level interface selection.

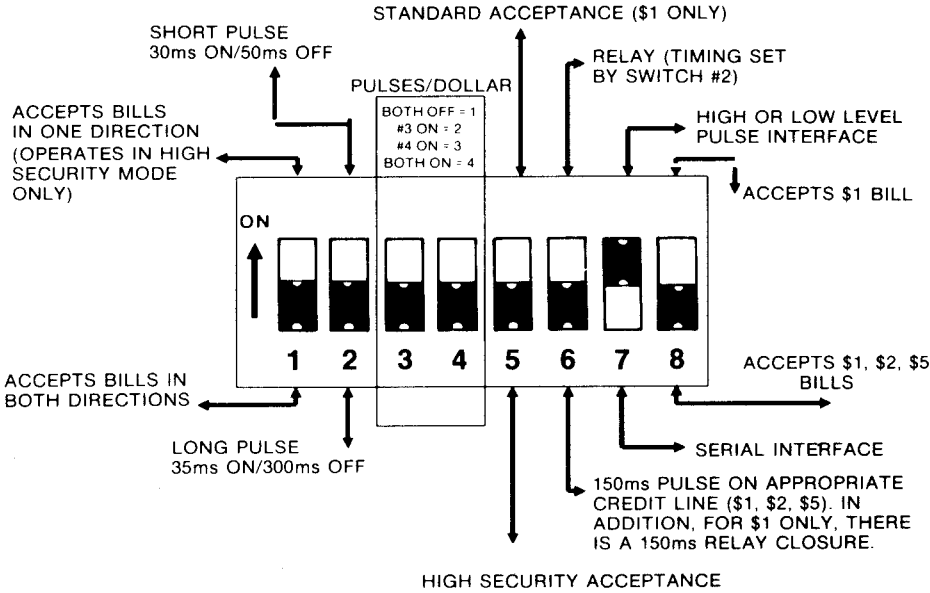


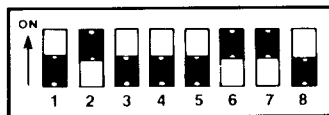
Figure 4. VFM3 Option Switch Functions

NOTE: The "standard" accept mode (switch #5 and # 8 On) recognizes only bi-directional acceptance of the \$1 bill regardless of switch #1 setting. (Switch #5 and #8 must be off to accept \$2 and \$5 Bills.)

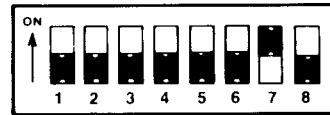
# INSTALLATION

The VFM3 option switches must be set as required by the Coin Changer or Controller. The option switch setting is determined by the application and the type of interface supported by the Coin Changer or Controller.

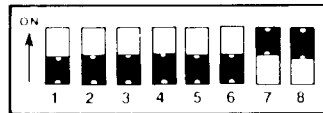
## LOW LEVEL INTERFACE (Relay Output)



## LOW LEVEL INTERFACE (Credit Line Output)



## A/C HIGH LEVEL INTERFACE



- **Optional** - Set Switch #1 to accept bills in one direction only (ON) or both directions (OFF). To accept bills in one direction only, switch #5 must be OFF (High Security Acceptance).
- **Optional** - Set Switch #5 to Standard Acceptance (ON or High Security Acceptance (OFF)). In the Standard Acceptance Mode (# ON) the bill acceptor will accept \$1 bills only. **Option switch #8 must be in the ON position.** Also, bills are accepted both directions regardless of the position of switch #1.
- **Optional** - Set Switch #8 to accept \$1 (ON) or \$1, \$2, & \$5 (OFF). To accept \$1, \$2 & \$5 bills, switch #5 must be in the off position (High Security Acceptance).

## INTERFACE FOR APPROPRIATE MEI COIN CHANGERS

TRC-6800/TRC6800H	Either Low Level (Relay Output) or AC/High Level
MC5800D	Low Level (Relay Output), Escrow to Vend
MC5805D	Low Level (Relay Output), Escrow to Select - Cigarette
MC5802	AC/High Level, Escrow to Vend
MC5807	AC/High Level, Escrow to Select - Cigarette
TRC-6200	AC/High Level, Escrow to Vend

Figure 5. VFM3 Bill Acceptor Switch Settings

# INSTALLATION

## TRC 6800/6800H COIN CHANGER SWITCH SETTING

The TRC-6800/TRC-6800H Coin Changers have the capability of using either AC/High Level or Low Level Interface. **Option switch #4** selects the type of interface.

**Note:** With all TRC-6800 changers, the Accept Gate activates with each bill insertion. This is a signal indicating that a bill has been inserted.

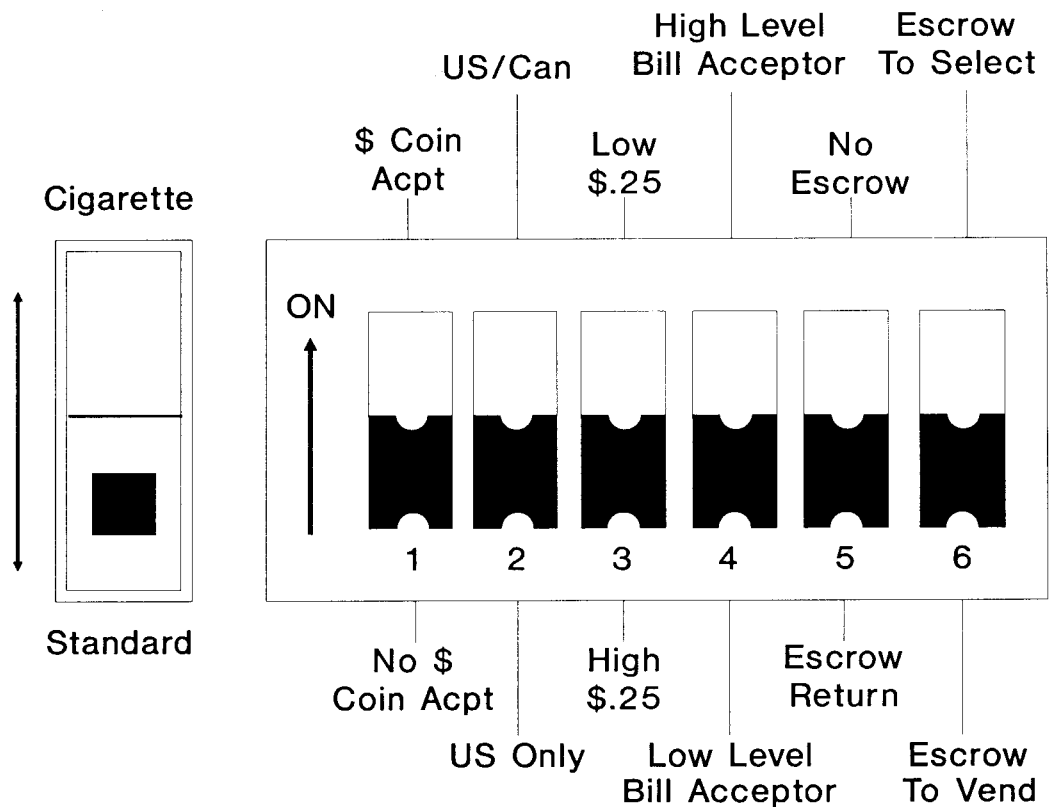


Figure 6. TRC-6800/TRC-6800H Changer Option Switches

# INSTALLATION

## BILL ACCEPTOR/CHANGER INTERFACE

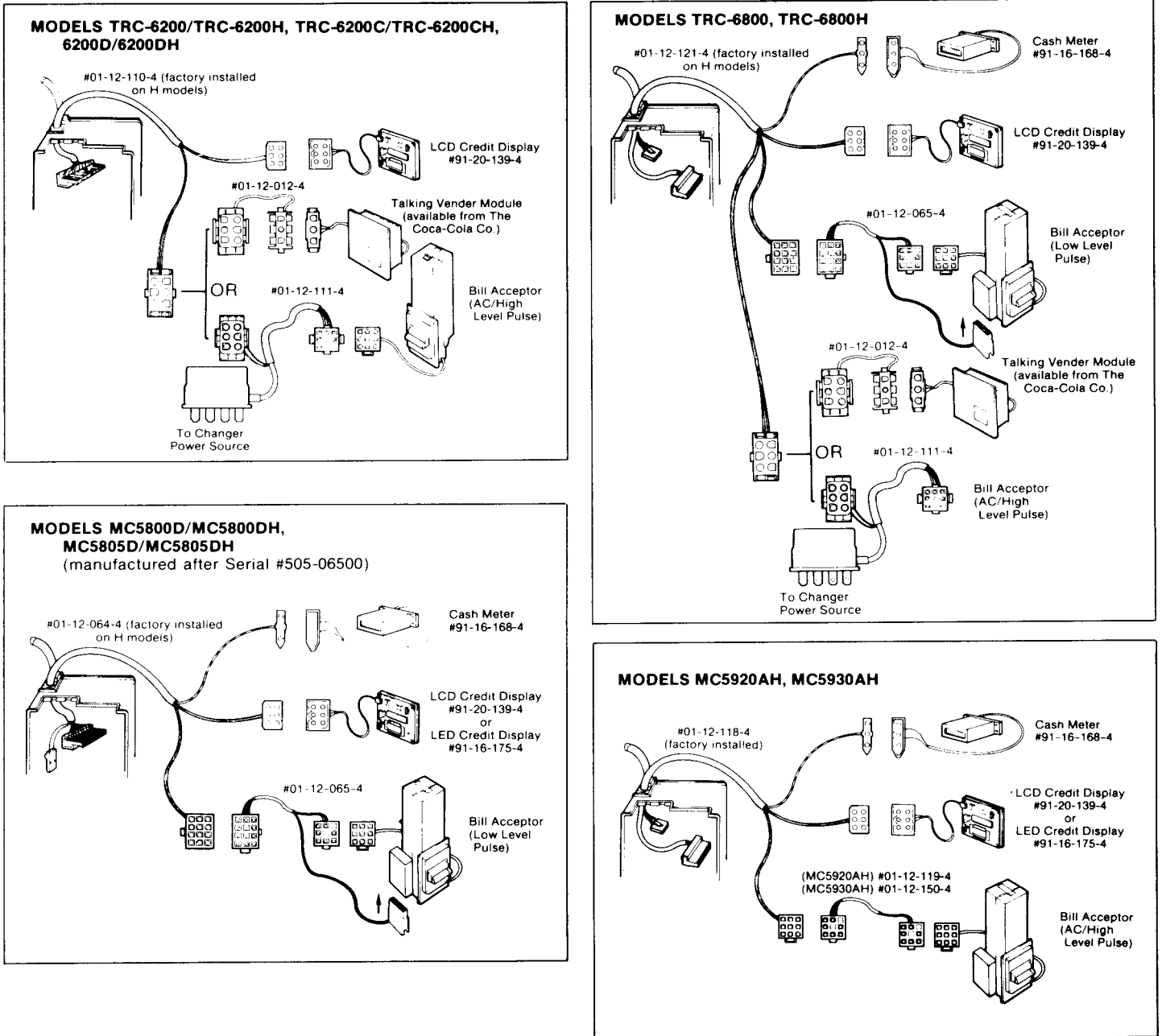


Figure 7. Bill Acceptor/Changer Interface Guide

# INSTALLATION

## SPECIAL HARNESS

Special harnesses are required when installing a Mars Electronics Bill Acceptor in an electronically controlled vending machine. Some examples are listed below:

<u>VENDING MACHINE</u>	<u>MARS ELECTRONICS P/N</u>	<u>MANUFACTURERS P/N</u>
Automatic Products Series 6000/7000	01-12-078	
Automatic Products Series 113 115 Volt Bill Acceptor	112519009	
24 Volt Bill Acceptor	01-12-186	
Dixie-Narco MPC Series	01-12-065	<b><u>ALSO</u></b> Requires D/N Harness C531,050,020.03 (2X5567)
Lektro-Vend	-----	Contact Manufacturer
National Hottron, Coldtron, Foodtron	-----	Requires National Harness: 4255129 (Pulse)
SnackCenter	-----	1471277 (Pulse) 1471073 (Serial)
Shoppertron	-----	4301275 (Pulse) 4305055 (Serial)
Polyvend	-----	Contact Manufacturer
RMi 203/303	01-12-186	
Rock-Ola CCC-6E	01-12-096	
Rowe 406Z, 425	91-16-270	
Royal Vendors Version 2.0 Software		
VFM1	01-12-210	
VFM3	113867001	
Version 5.0/6.0 Software		
VFM1	113883001	
VFM3	113870001	
Vendo 427E/475E	01-12-096	
U-Select-It	-----	Contact Manufacturer



---

# INSTALLATION

## MOUNTING KITS

Most "Full Line" vending machines (hot cup, cold cup, snack, etc.) are factory prepared to accept a Mars Electronics Bill Acceptor without the need for an additional mounting kit.

Most "Can/Bottle" machines require a mounting kit, (available from Mars Electronics) to mount a Mars Electronics Bill Acceptor.

<u>MACHINE TYPE</u>	<u>MARS ELECTRONICS KIT NUMBER</u>
Dixie Narco, Cavalier, Royal (Round Front)	# 110953001
Vendo (Round Front)	# 110966001
Older (Flat Front) Point of Sale Vendors	# 91-16-228

## CHECK BILL ACCEPTOR OPERATION

- Set a vend price in the vending machine or Coin Changer.
- Assure that change is available in the Coin Changer payout tubes.
- Insert a dollar bill, receive credit, make a vend selection and receive vended product plus change.
- Check the parameters that have been set for the installation, such as one way acceptance or \$1 bill acceptance only.

---

# BILL ACCEPTOR OPERATION

## GENERAL

U.S. currency is validated in the Mars Electronics Bill Acceptor by analyzing the optical and magnetic characteristics of the bill. Sensors determine that a bill has been inserted into the Bill Acceptor. The drive motor turns on and transports the bill past additional sensors.

If the bill is valid, a positive signal is sent to the microprocessor on the control board of the Bill Acceptor. A vend decision can now be made based on availability of product, the vend price and the presence of coins in the pay out tubes of the Coin Changer.

If the criteria for a vend are met, the bill will be elevated in the stacker mechanism and placed in the magazine. If the bill is determined to be invalid it is rejected by reversing the drive motor.

## BILL DETECTION

As a bill is inserted into the Bill Acceptor, it breaks the light path between transmissive sensors and sends a signal to the microprocessor. The microprocessor then turns on the drive motor to pull the bill into the validator portion of the Bill Acceptor.

## BILL TRANSPORT

The motor assembly drives the lower drive belts. The sensor assembly drive wheels rotate as the drive belts turn. The bill is drawn into the validator between the upper wheels and lower drive belts.

## BILL RECOGNITION

As the bill is transported, sensors scan it optically and transmit data to the microprocessor for analysis. The bill is then scanned by the magnetic sensor. A pinch roller assembly improves scanning by maintaining uniform contact of the bill against the magnetic sensor. The output signal of the magnetic sensor is transmitted to the microprocessor for analysis.

---

# **BILL ACCEPTOR OPERATION**

## **BILL VALIDATION**

Once the optical and magnetic characteristics are transmitted to the microprocessor the bill is held in escrow. Within microseconds the data is analyzed and compared to the criteria for valid currency.

## **CREDIT OR RETURN**

If the bill is not valid, the drive motor reverses and returns the bill to the customer. If the bill is valid, credit is established allowing the customer to either request a vend or request escrow return. However, not all vending systems permit return of escrow. Escrow is dependent on features controlled by the Coin Changer or vending machine controller.

## **BILL STORAGE**

If the bill is accepted, credit is established, a vend is requested and the bill is transported to the stacker assembly. As the bill travels up the elevator assembly it is driven until an upper limit switch is contacted.

Under the control of the stacker circuit board the stacker motor rotates and drives the actuator plate forward. The bill, which is adjacent to the actuator plate, is moved into the bill storage magazine. If the magazine is full, the stacker is prevented from completing its cycle. When the microprocessor detects this condition, an out of service signal is sent to the controlling device. When the magazine is emptied and the actuator plate is allowed to cycle, the stacker completes its cycle and is reset.

---

# BILL ACCEPTOR INTERFACE

## GENERAL

Mars Electronics Bill Acceptor models VFM1 and VFM3 are most often used with a TRC-6800 Coin Changer in an electromechanical vender or with a TRC-6000/TRC-6010 in an electronically controlled vending machine.

The VFM1 Bill Acceptor accepts \$1 bills face up only, in either direction, at standard or high security levels. The automatic compatibility selector chooses AC/High Level or Low Level interface depending on the combination of Coin Changer, Bill Acceptor or Controller harnesses used.

The VFM3 Bill Acceptor accepts \$1, \$2, and \$5 bills face up only, in either direction at standard or high security levels. The VFM3 Bill Acceptor is switch selectable for automatic compatibility with AC/High Level or Low Level interface.

When the VFM1 or VFM3 Bill Acceptor is used with a TRC-6800 Coin Mechanism in the Low Level interface, the Mars Electronics P/N 01-12-065 harness must be used. If the AC/High Level interface is chosen P/N 01-12-111 harness must be used.

When the VFM1 or VFM3 Bill Acceptor is used in an electronically controlled vending machine, a harness particular to that machine must be used ( refer to the **SPECIAL HARNESS** section - Page 13 of this manual for specific examples).

The Coin Changer or the vending machine controller supply the logic for Bill Acceptor operation. Bill Acceptor operation will vary in different applications. Variables include:

- Accept/no accept function
- Number of bills accepted
- Bill denomination accepted
- Exact change operation
- Escrow return
- Interface levels

Characteristics of specific vending applications determine the interface to be used:

### LOW LEVEL

- SMARTCHANGE™ Logic
- + 5 Volt DC inputs
- Uses both 9 and 18 pin connectors
- \$1,\$2 and \$5 acceptance
- One bill escrow

### AC/HIGH LEVEL

- Low nickel sensor level inhibit
- 115 Volt AC inputs
- Uses 9 pin connector only
- \$1 acceptance
- No escrow capability

---

# BILL ACCEPTOR INTERFACE

## LOW LEVEL OPERATION

Operation in the Low Level Interface mode varies depending upon whether the vender is set for Escrow to Vend or Escrow to Select. To ensure that change will be available, \$5 bills are accepted only when the vend price is \$2.75 or greater.

### ESCROW TO VEND

#### Vend Price Less Than \$1

- The maximum number of bills accepted is one, based on the availability of change.
- The bill is transported into the validator for evaluation of authenticity, and is held in escrow until change availability is determined.
- If change is available, the bill is transported to the stacker magazine assembly, a vend occurs and change is paid in the fewest coins.
- If change is not available, the exact change light illuminates and the bill is returned.

#### Vend Price Equals \$1

- One bill will always be accepted regardless of coin tube status.
- The bill is transported into the bill validator for evaluation of authenticity, and is then stacked as no change is required.

---

# BILL ACCEPTOR INTERFACE

## LOW LEVEL OPERATION/ESCROW TO VEND (Continued)

### Vend Price Greater Than \$1

- The maximum number of bills accepted is four, based on escrow return requirement, vend price and change availability.
- Bills are stacked until one of three conditions are met:
  - Vend price is met.
  - An inserted bill causes the vend price to be exceeded.

This bill is held in the bill validator while the Coin Changer scans the coin tubes for change availability. If change can not be paid, the exact change light illuminates, and the bill is returned. Coins may be inserted to reach vend price, or escrow return may be requested. The fewest coins are paid in lieu of bills stacked.

- The maximum number of bills permitted by the coin tube levels has been accepted (the last bill is held in escrow with the Exact Change Light illuminated). If vend price has not been met, coins may be inserted to reach vend price or escrow return may be requested.

### Escrow Return

- Escrow return may be requested at any time prior to reaching vend price.

### No Escrow Return

- No escrow return is allowed and bills are accepted regardless of coin tube status.

---

# BILL ACCEPTOR INTERFACE

## LOW LEVEL OPERATION (Continued)

### ESCROW TO SELECT

- \$1, \$2 and \$5 bills will be accepted until vend price is met or exceeded.
- Bills are accepted if the lower quarter tube sensor is covered with coins.

**NOTE:** If the bill acceptor is installed in an AP Smokeshop vendor using the AP supplied harness, \$2 and \$5 bills are not accepted.

### Escrow Return

- All bills are transported into the bill validator for evaluation of authenticity, then immediately stacked.
- Change is paid in fewest coins. If correct change is not available, the Exact Change light illuminates and all monies are automatically returned in coin equivalent.
- Escrow return can be requested prior to making a selection or if the selection is sold out. Fewest coins are paid in lieu of bills stacked.

### No Escrow Return

- All bills are transported into the bill validator for evaluation of authenticity, then immediately stacked.
- Change is paid in fewest coins. If correct change is not available, full payback may not be possible. No escrow return is allowed and all credit is held until a selection is made and product is delivered. Once vend price is met or exceeded, no further monies are accepted until a vend is completed.

---

# BILL ACCEPTOR INTERFACE

## HIGH LEVEL OPERATION

The AC/ High Level interface mode is generally selected when a Mars Electronics Bill Acceptor is used with another manufacturer's Coin Changer. Refer to the Installation Guides for the VFM1 (P/N 07-14-160) and VFM3 (P/N 07-14-161) for information on setting the option switches for the bill acceptors.

### **ESCROW TO VEND**

In this mode, the Exact Change Light illuminates for two seconds after a vend or escrow request.

#### **Vend Price Equals \$1**

- One bill is always accepted, regardless of the nickel tube status.
- The bill is transported into the bill validator for evaluation of authenticity, then is automatically stacked, as no change is required.
- With the vend price set at \$1, the Exact Change Light does not illuminate when the lower nickel tube sensor is exposed.

#### **Vend Price Less Than or Greater Than \$1**

- \$1 bills will be accepted until the vend price is met or exceeded.
- Acceptance is based on the nickels available for change.
- The lower nickel tube sensor must be covered for bills to be accepted.
- If an inserted bill causes the vend price to be exceeded, a vend occurs and change is paid.
- Bills are not accepted when the Exact Change Light is illuminated.



---

# BILL ACCEPTOR INTERFACE

## HIGH LEVEL OPERATION/ESCROW TO VEND (Continued)

### Escrow Return

- Escrow return can be requested at any time prior to reaching vend price.
- Fewest coins are paid in lieu of bills stacked, however full payback may not be possible.

### No Escrow Return

- No escrow return is allowed and all credit is held until vend price is met or exceeded.
- When a vend occurs, change is paid in fewest coins.

## ESCROW TO SELECT

In AC/ High Level, Escrow to Select mode, the Exact Change Light illuminates once a vend price is reached and remains on until a selection is made, or escrow is requested. After the transaction occurs, the light remains on for an additional two seconds.

### Vend Price Equals \$1

- One bill is always accepted regardless of the nickel tube status.
- The bill is transported into the bill validator for evaluation of authenticity, and is then automatically stacked, as no change is required.

- Escrow Return

The Exact Change Light illuminates once the bill is stacked, indicating that the correct payback for an escrow return request may not be available.

- No Escrow Return

No escrow return is possible, therefore no exact change indication is given.

---

# BILL ACCEPTOR INTERFACE

## HIGH LEVEL OPERATION/ESCROW TO SELECT (Continued)

### Vend Price Less than or Greater than \$1

- \$1 bills will be accepted until the vend price is met or exceeded.
- Acceptance is based on nickels available for change. Bills are not accepted when the Exact Change Light is illuminated.
- All bills are transported into the bill validator for evaluation of authenticity and then immediately stacked.
- Change is paid in fewest coins.

- Escrow Return

Escrow return can be requested prior to making the selection or if the selection is sold out.

Fewest coins are paid in lieu of bills stacked. The changer always attempts to return all accepted monies, however full payback may not be possible.

- No Escrow Return

No escrow return is allowed and all credit is held until product is delivered. Once vend price is met or exceeded, no further monies are accepted until a vend is completed.



---

# MAINTENANCE

## ROUTINE MAINTENANCE

Periodic routine maintenance improves the performance and extends the optimum working life of the Bill Acceptor. However, it should be cleaned only if it becomes inoperable or if acceptance rates fall below normal.

Frequency of maintenance required will depend on environment and number of transactions. If cleaning does not improve performance, it must be serviced by an authorized Mars Electronics service center.

## DISASSEMBLE THE BILL ACCEPTOR

### REMOVE THE BILL ACCEPTOR FROM THE VENDING MACHINE

- Disconnect the Bill Acceptor from the power source.
- Remove the nuts holding the Bill Acceptor on the mounting studs and remove the Bill Acceptor from the machine.

### REMOVE THE BEZEL

- Remove the three flathead screws (A) from the face of the Bill Acceptor bezel. Refer to Figure 8.
- Remove the bezel.

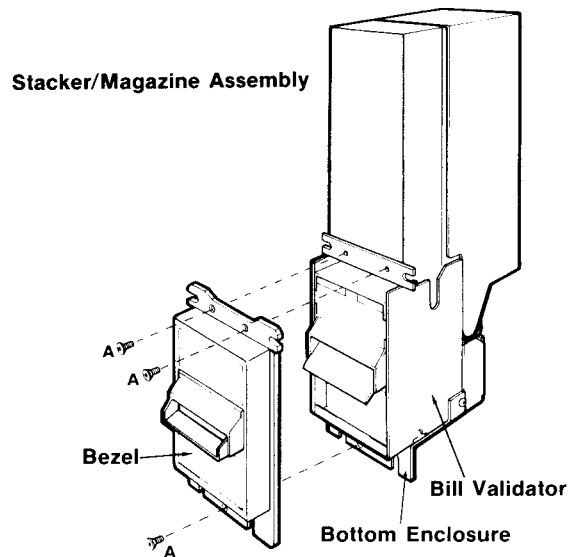


Figure 8. Removing the Bezel

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# MAINTENANCE

## REMOVE THE CONTROL BOARD/COVER ASSEMBLY

- Remove the control board/cover assembly by loosening the captive screws (B) of the assembly. Refer to Figure 9.
- Pull the assembly away from the Bill Acceptor.
- Try not to unplug the harnesses. If they are inadvertently unplugged, reconnect them by locating the red or blue marking on the ribbon harness as indicated by the heavy line in Figure 10.

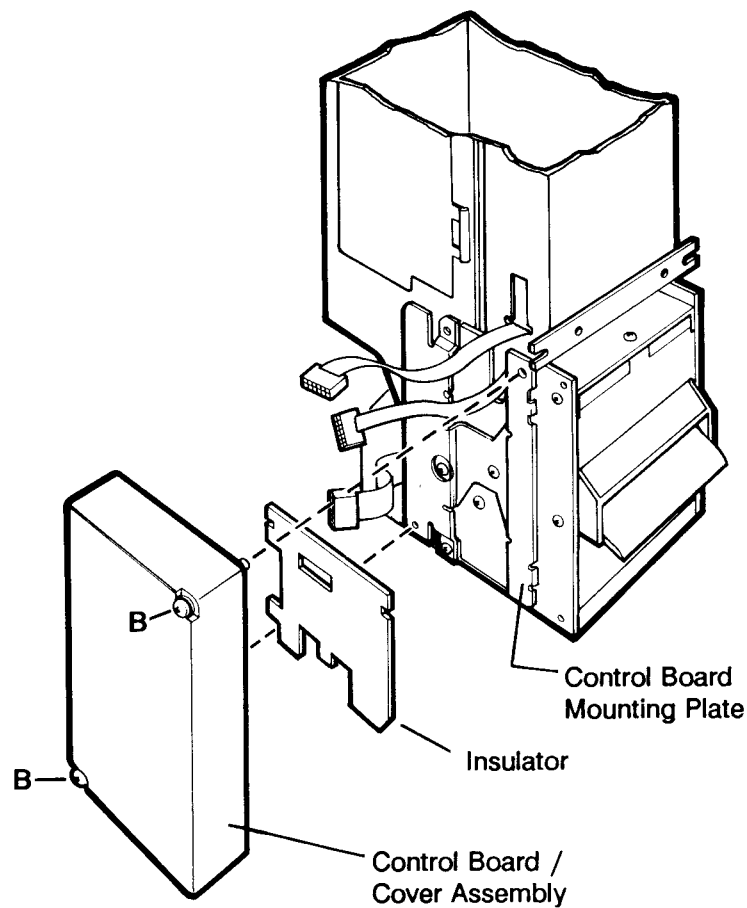


Figure 9. Removing The Control Board/Cover Assembly

**MAINTENANCE**

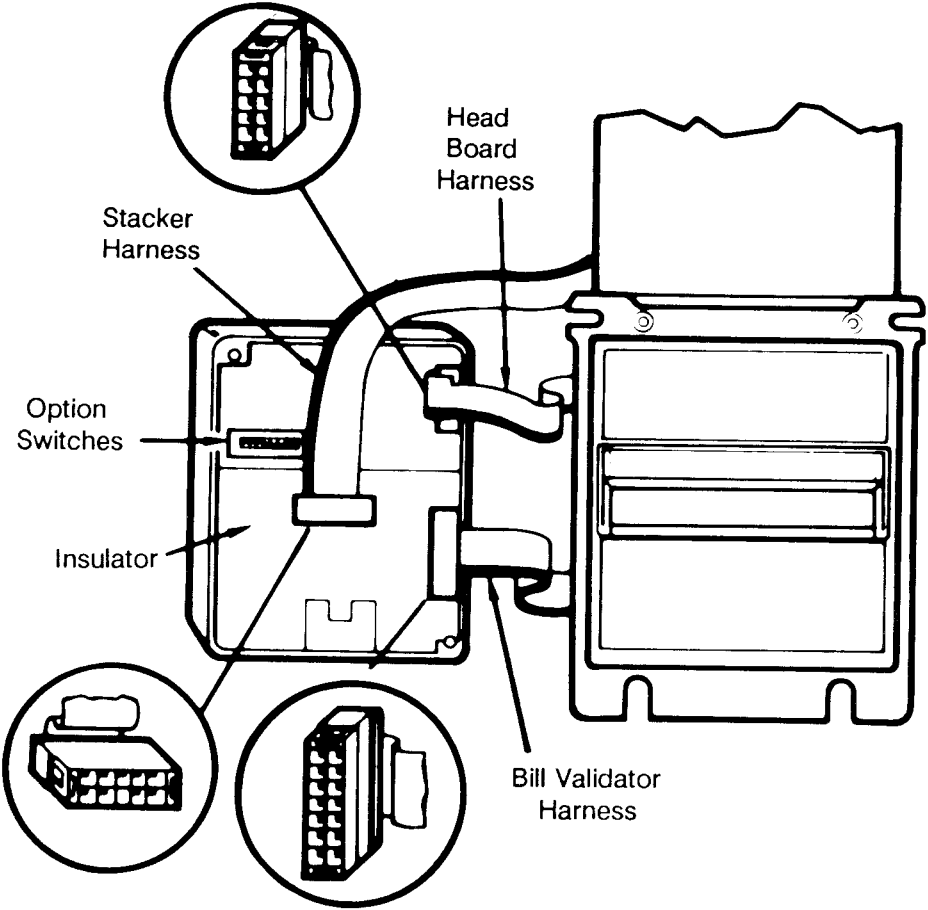


Figure 10. Harness Connections

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# MAINTENANCE

## REMOVE THE CONTROL BOARD MOUNTING PLATE

- Remove the screws holding the control board mounting plate to the side of the Bill Acceptor. Refer to Figure 11.

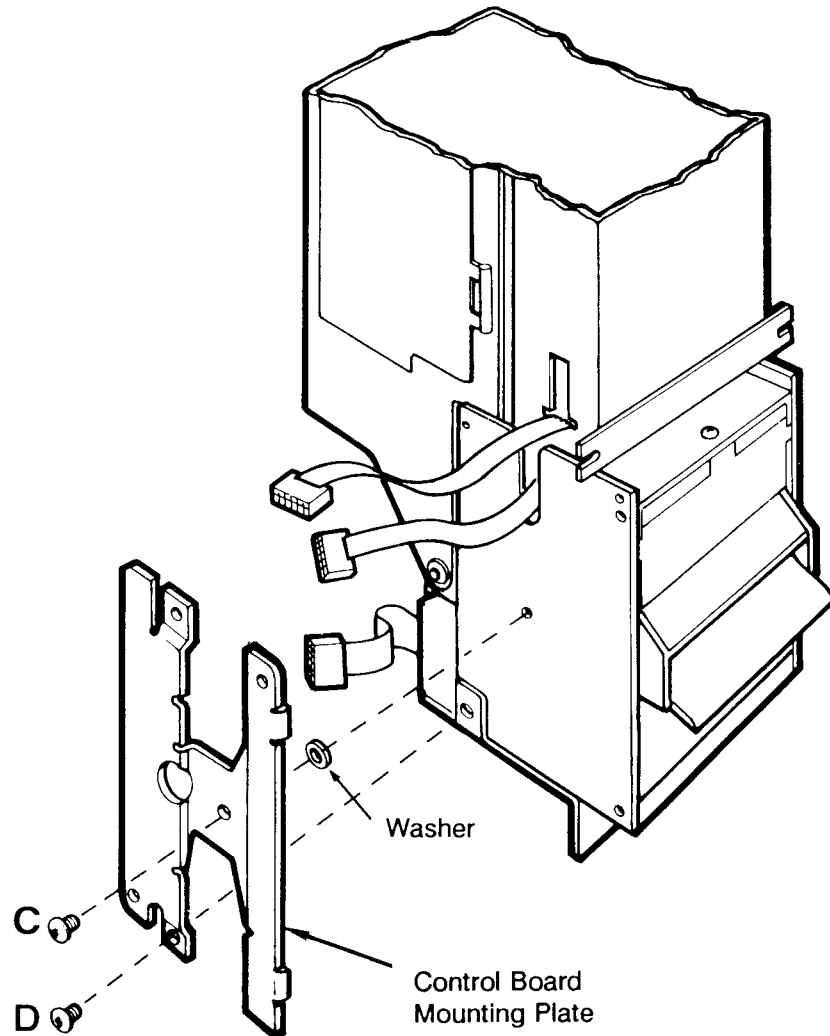


Figure 11. Removing Control Board Mounting Plate

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# MAINTENANCE

## REMOVE THE BOTTOM ENCLOSURE

- Remove the bottom enclosure and insulator by removing the two screws (E) on the sides of the enclosure. Refer to Figure 12.
- Some models may not have an insulator in this location.

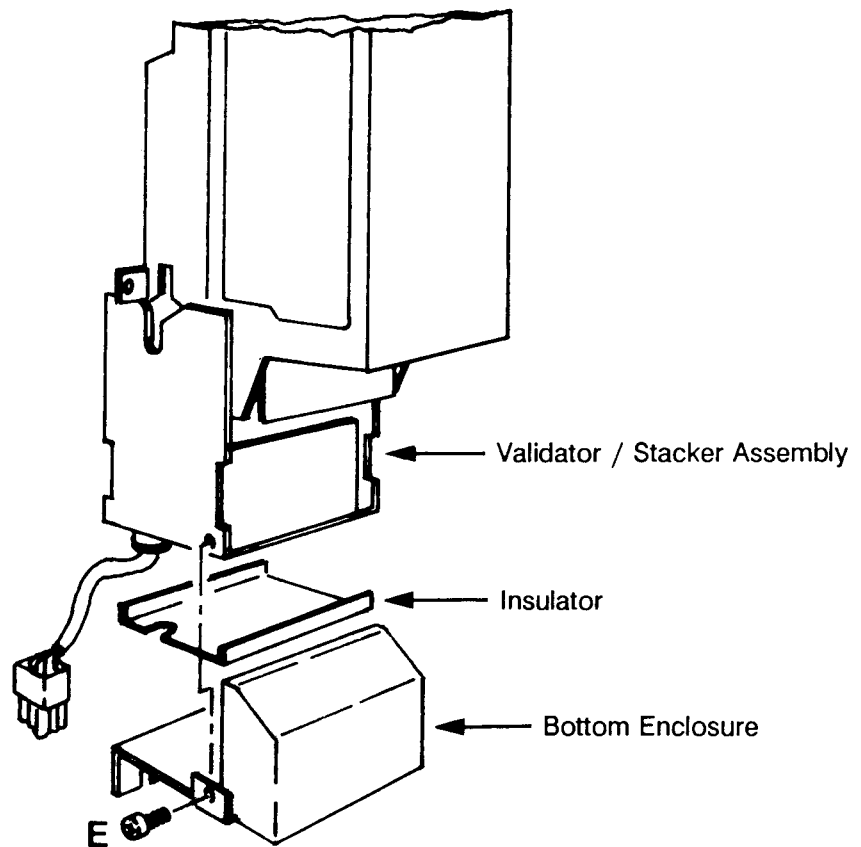


Figure 12. Removing The Bottom Enclosure And Insulator



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## MAINTENANCE

### SEPARATE THE BILL ACCEPTOR FROM THE STACKER/MAGAZINE ASSEMBLY

- Remove the two screws (F) that hold the bill validator to the stacker/magazine assembly.
- Grasp the bill validator in one hand and the stacker/magazine in the other.
- Slide the bill validator forward and away from the stacker until the two separate. Refer to Figure 13.

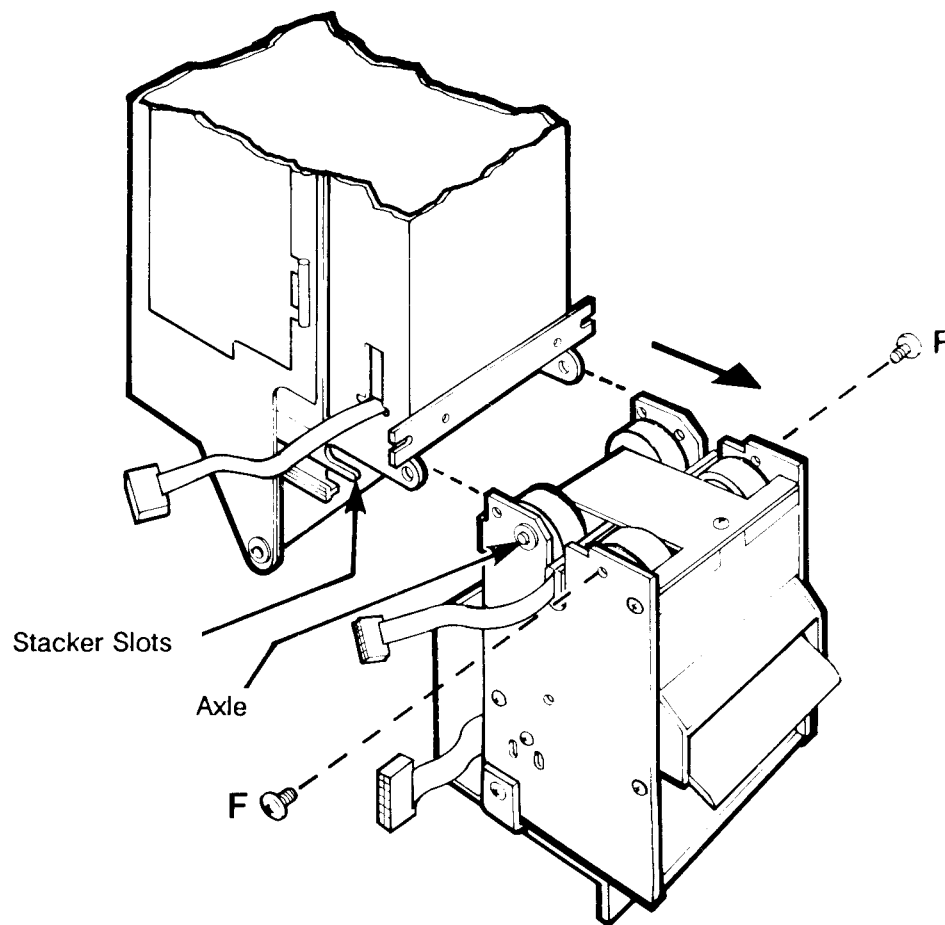


Figure 13. Removing The Stacker/Magazine Assembly

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# MAINTENANCE

## OPEN THE BILL ACCEPTOR

- Remove the screws (G) that hold the bill validator closed. Refer to Figure 14.
- Lift the upper sensor assembly to open the bill validator.

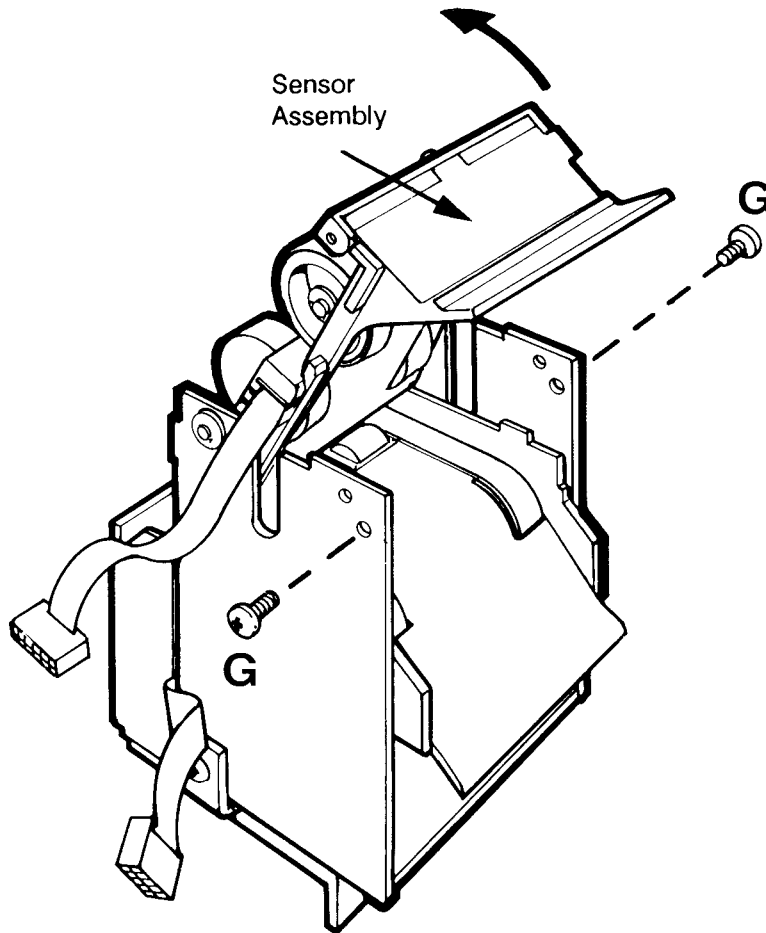


Figure 14. Opening the Bill Validator

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# MAINTENANCE

## CLEAN THE BILL ACCEPTOR

- Clean the magnetic sensor with an alcohol swab.
- Clean the pinch roller by pulling a strip of household transparent tape across the roller, turning the roller as the tape is pulled.
- Clean the bill path plastic and timing belts with a cloth moistened with a mild household cleaner. Do not spray liquid into or on the bill validator.
- Remove any debris trapped by the pinch roller or credit lever.

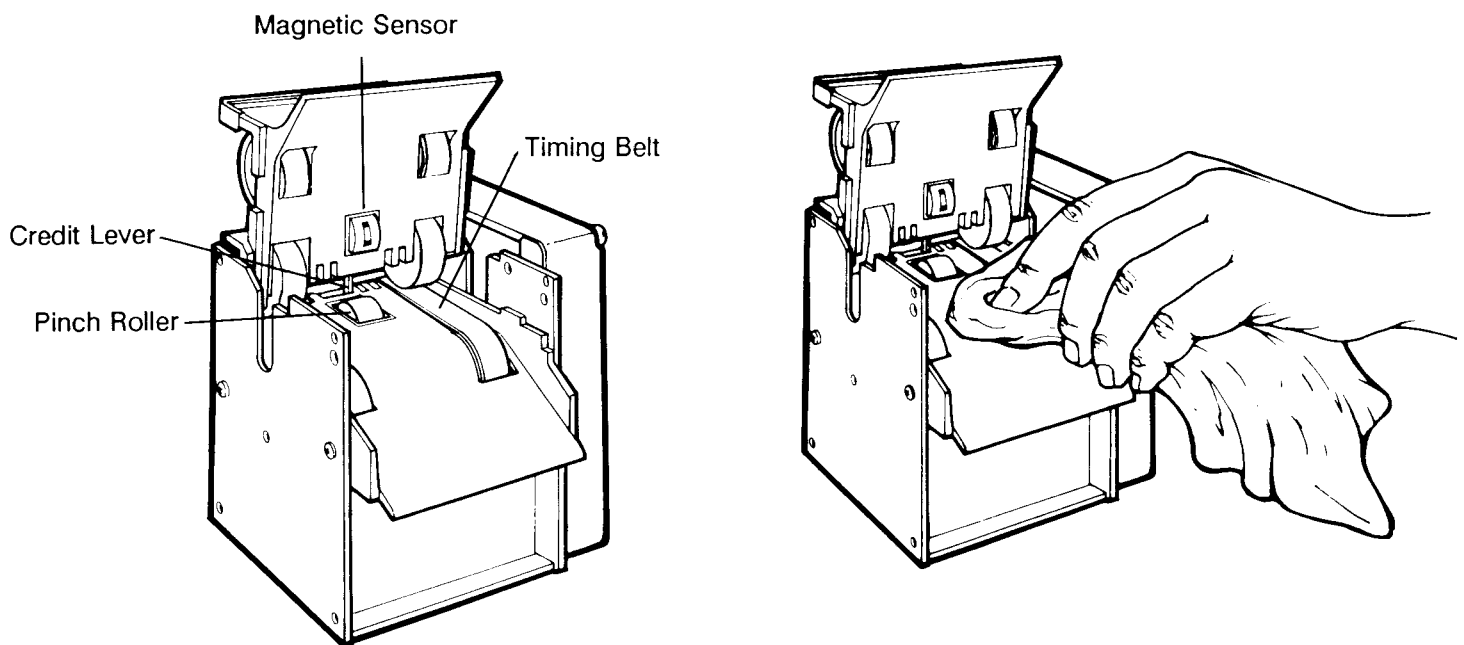


Figure 15. Cleaning The Bill Acceptor