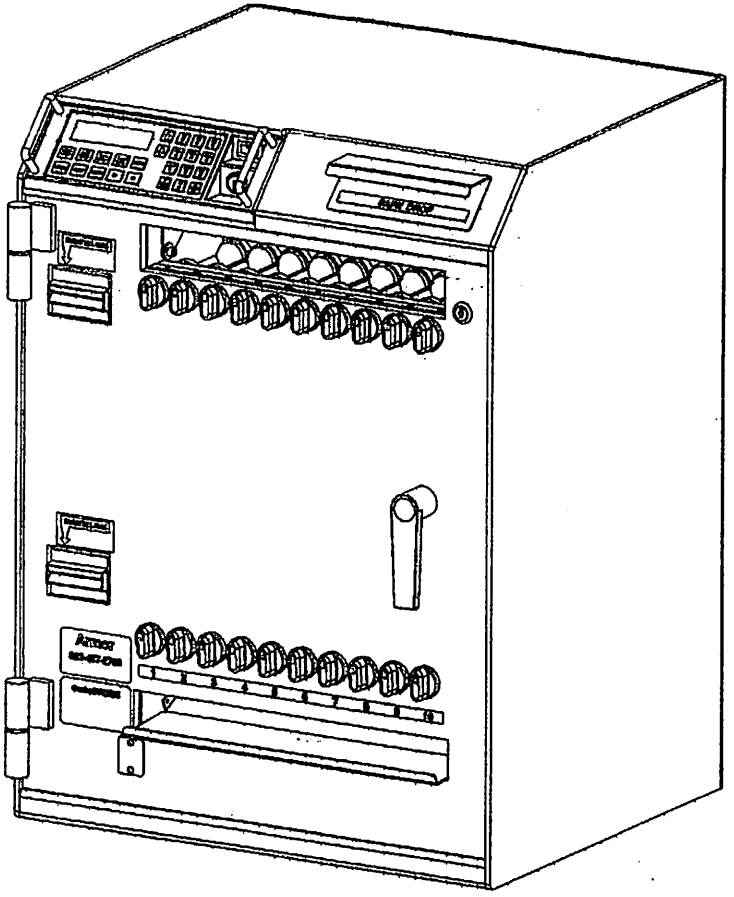
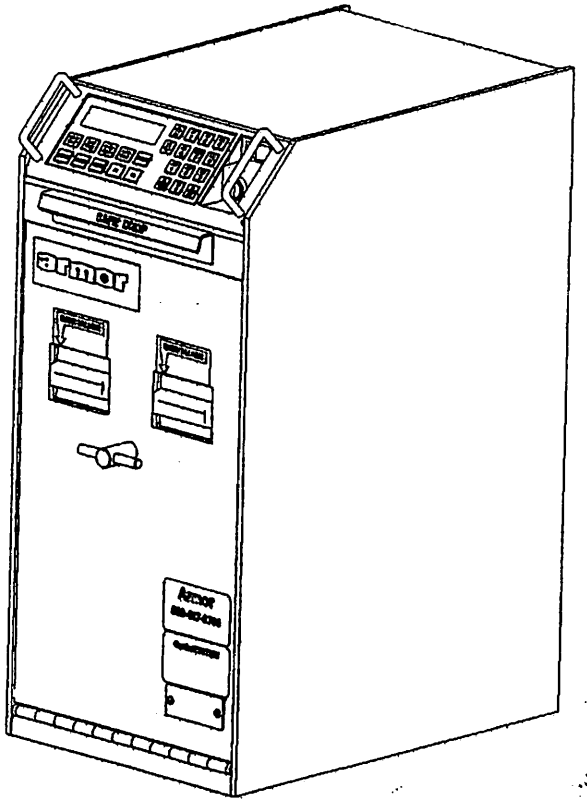
MASTER # 123456 ROCKY PACINI

armor™

ARMOR SAFE TECHNOLOGIES



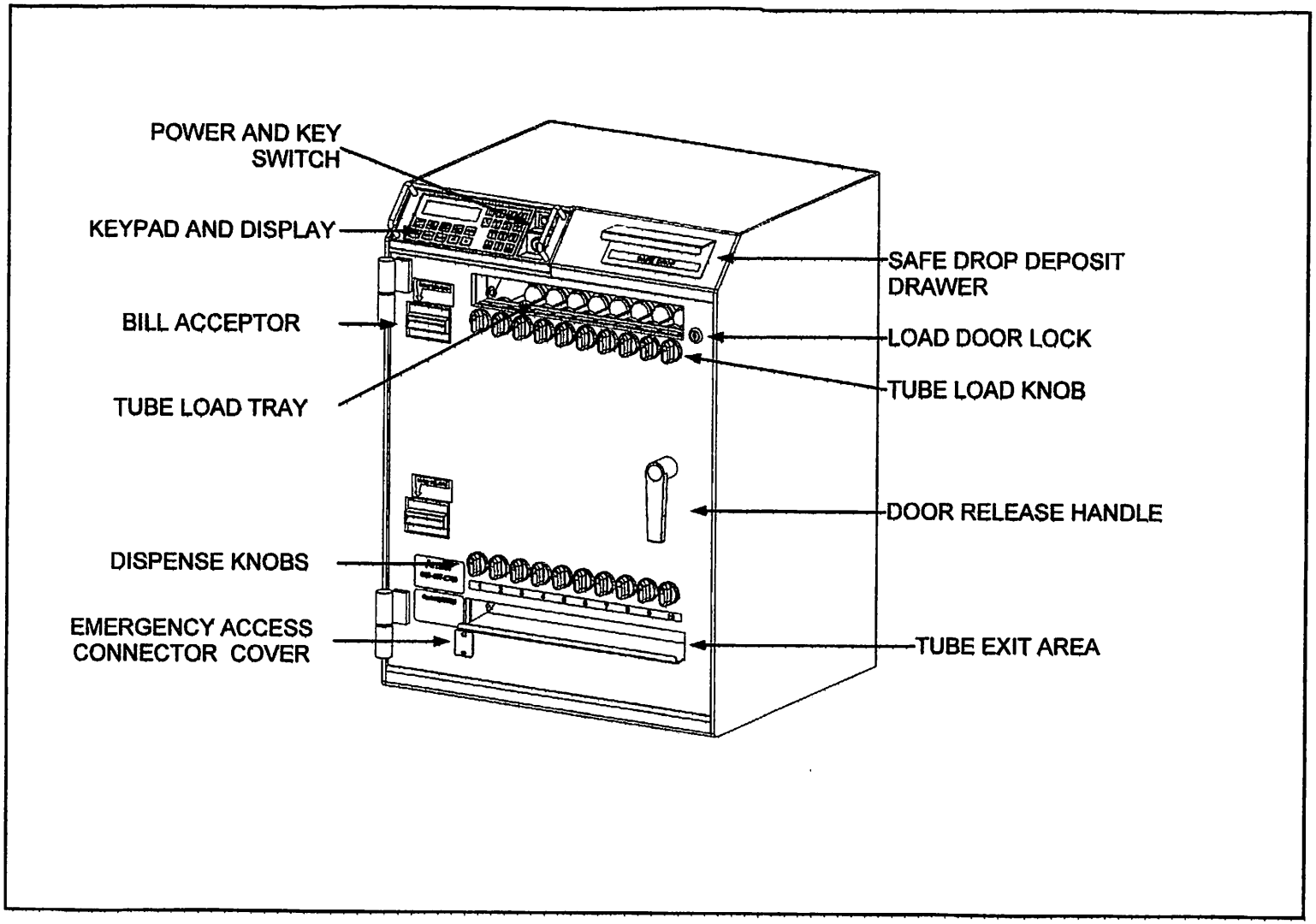


Series 7000, 7800, 2400 & 3400
Cash Controller Troubleshooting Guide

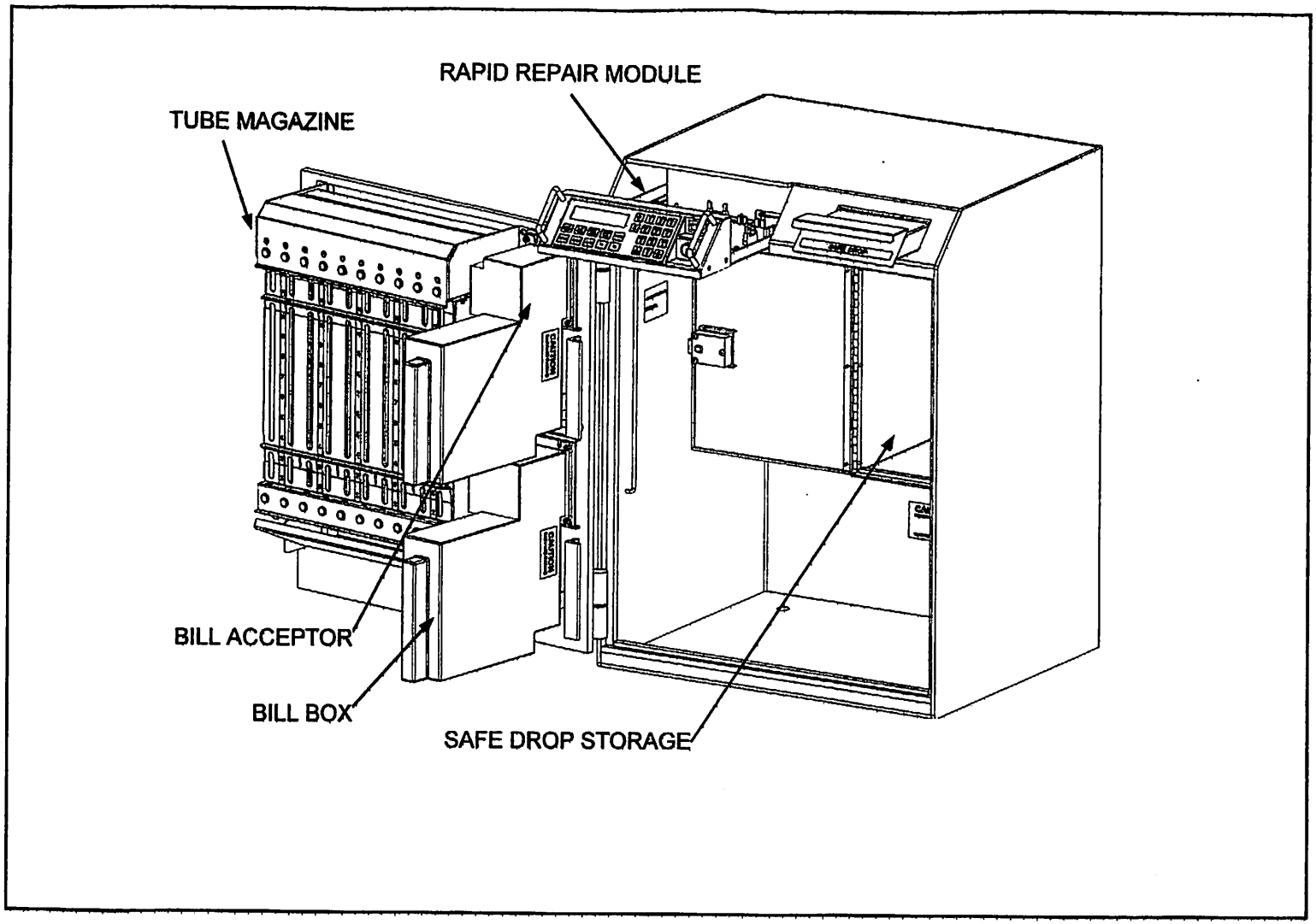
www armorsafe.com

Armor part number AC3000288 Rev. H 09/04

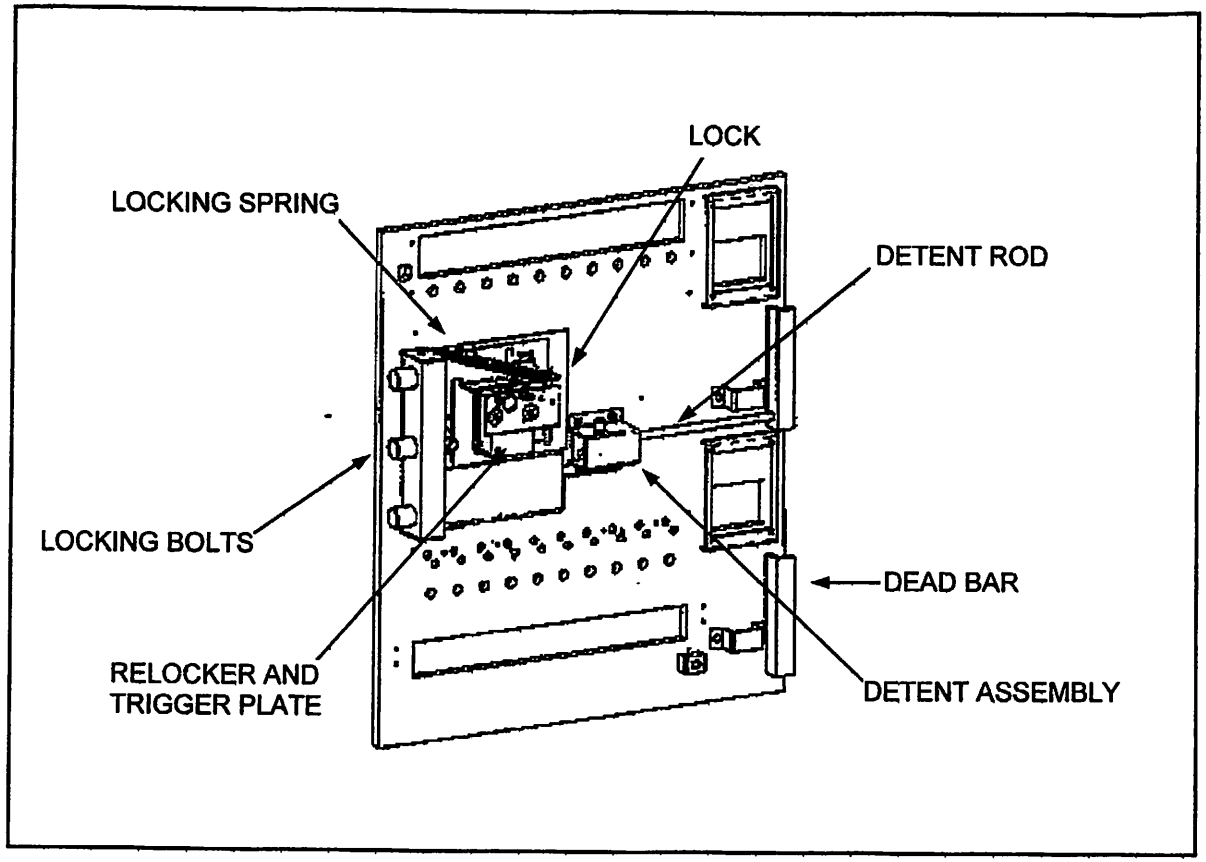
List Price $20.00



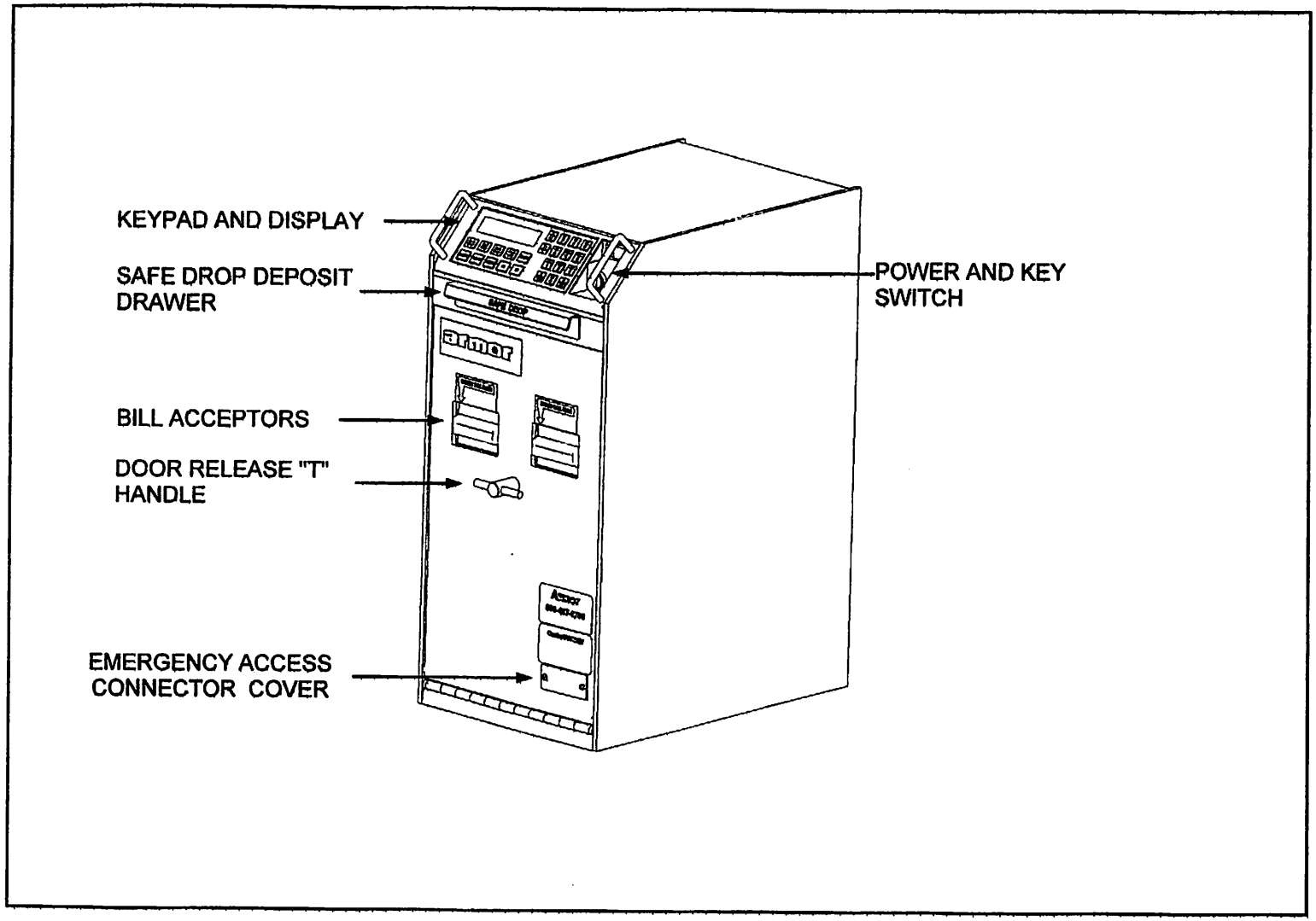
7000 SERIES OUTSIDE VIEW



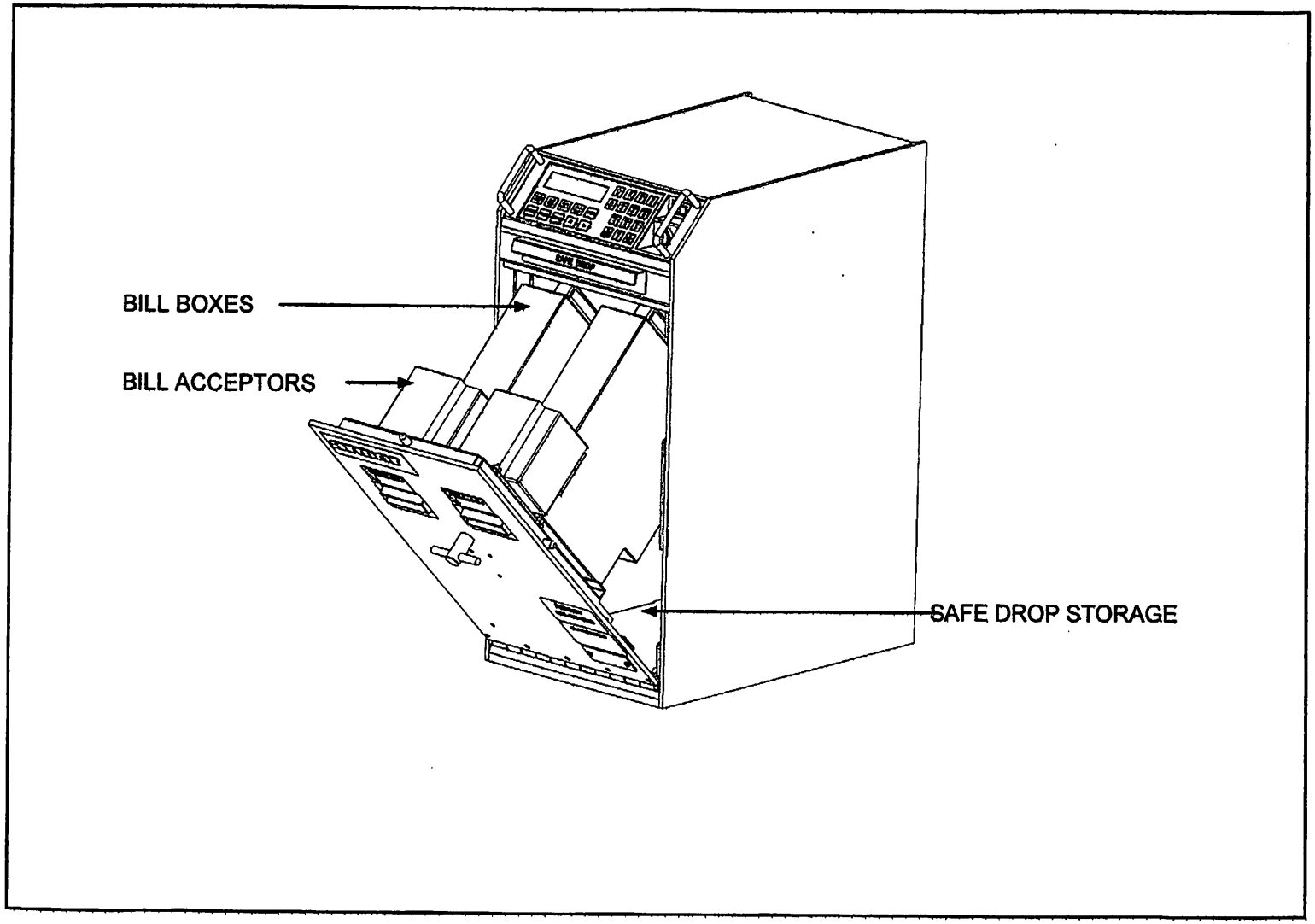
7000 SERIES
INSIDE VIEW



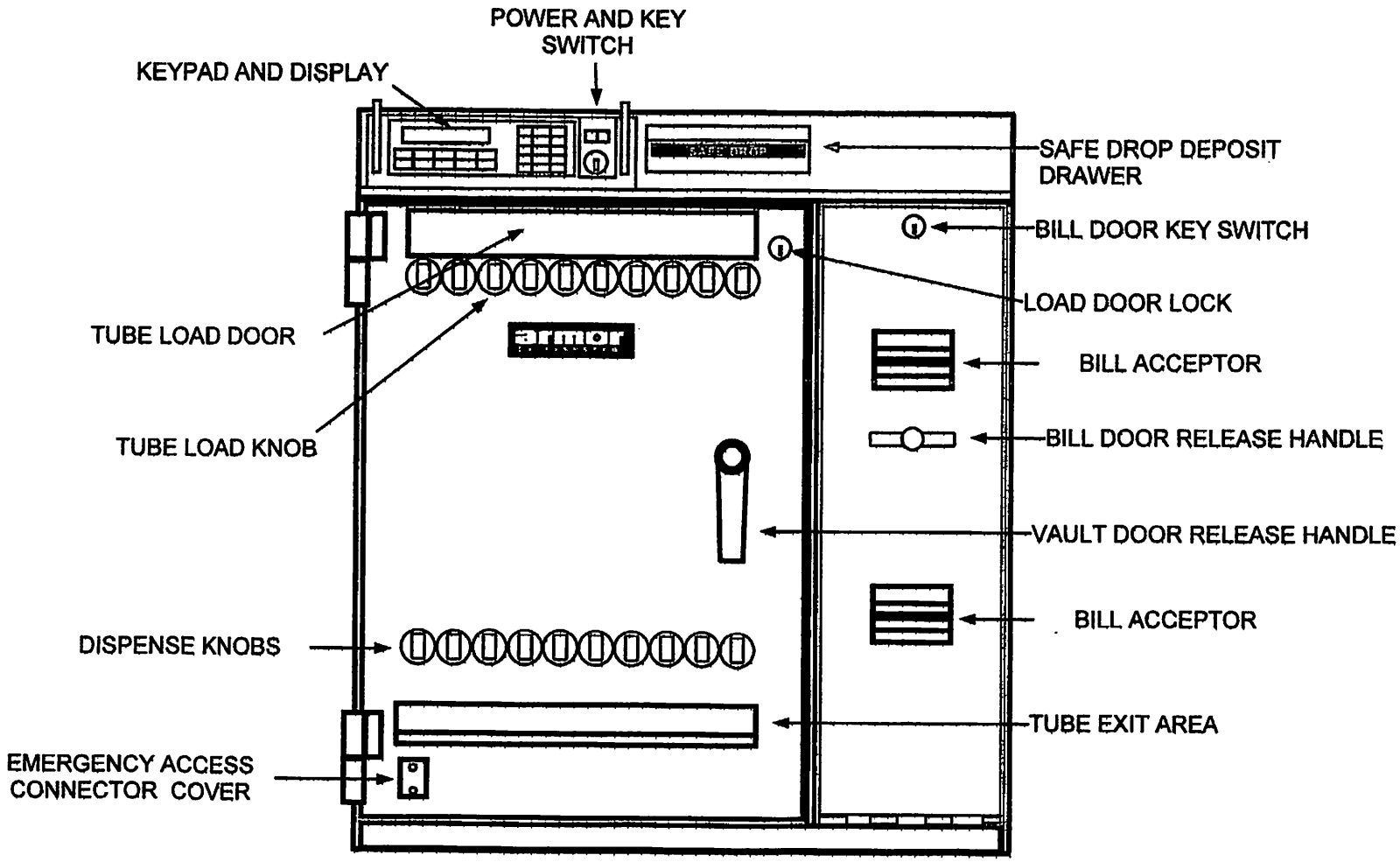
7000 SERIES
DOOR LOCK ASSEMBLY WITH DETENT



2400 SERIES
OUTSIDE VIEW

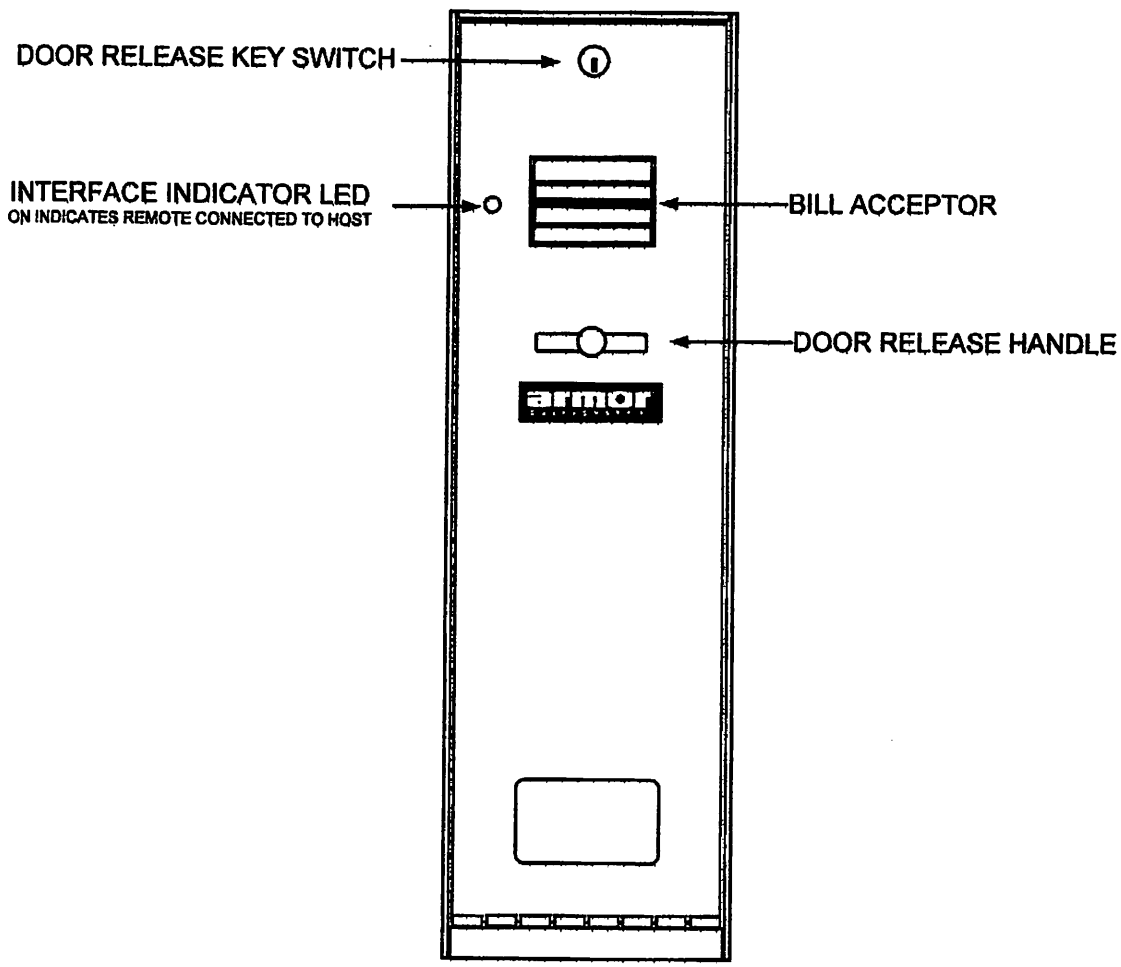


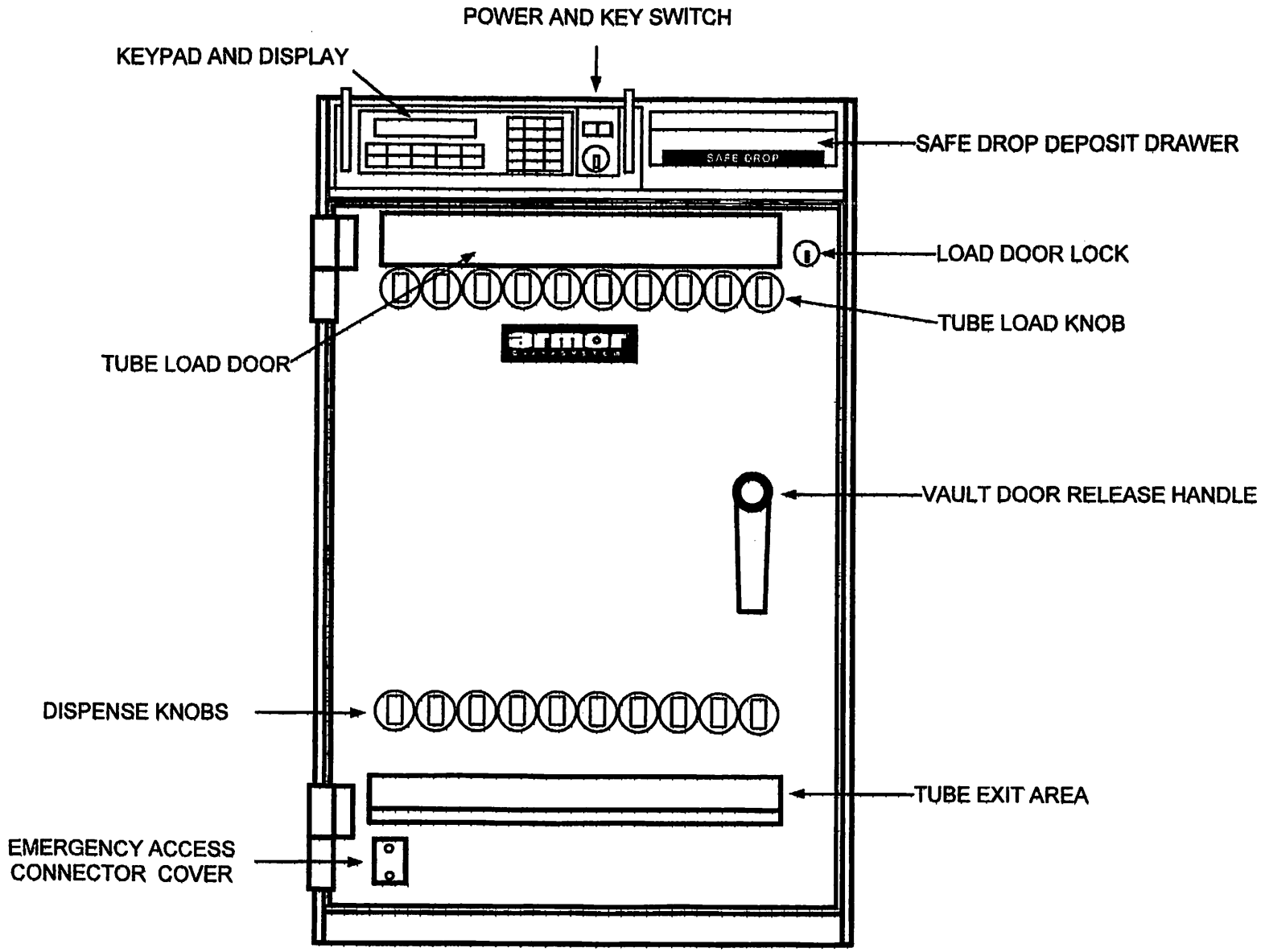
7000 SERIES
INSIDE VIEW



INTERIOR SAME AS 7000 SERIES

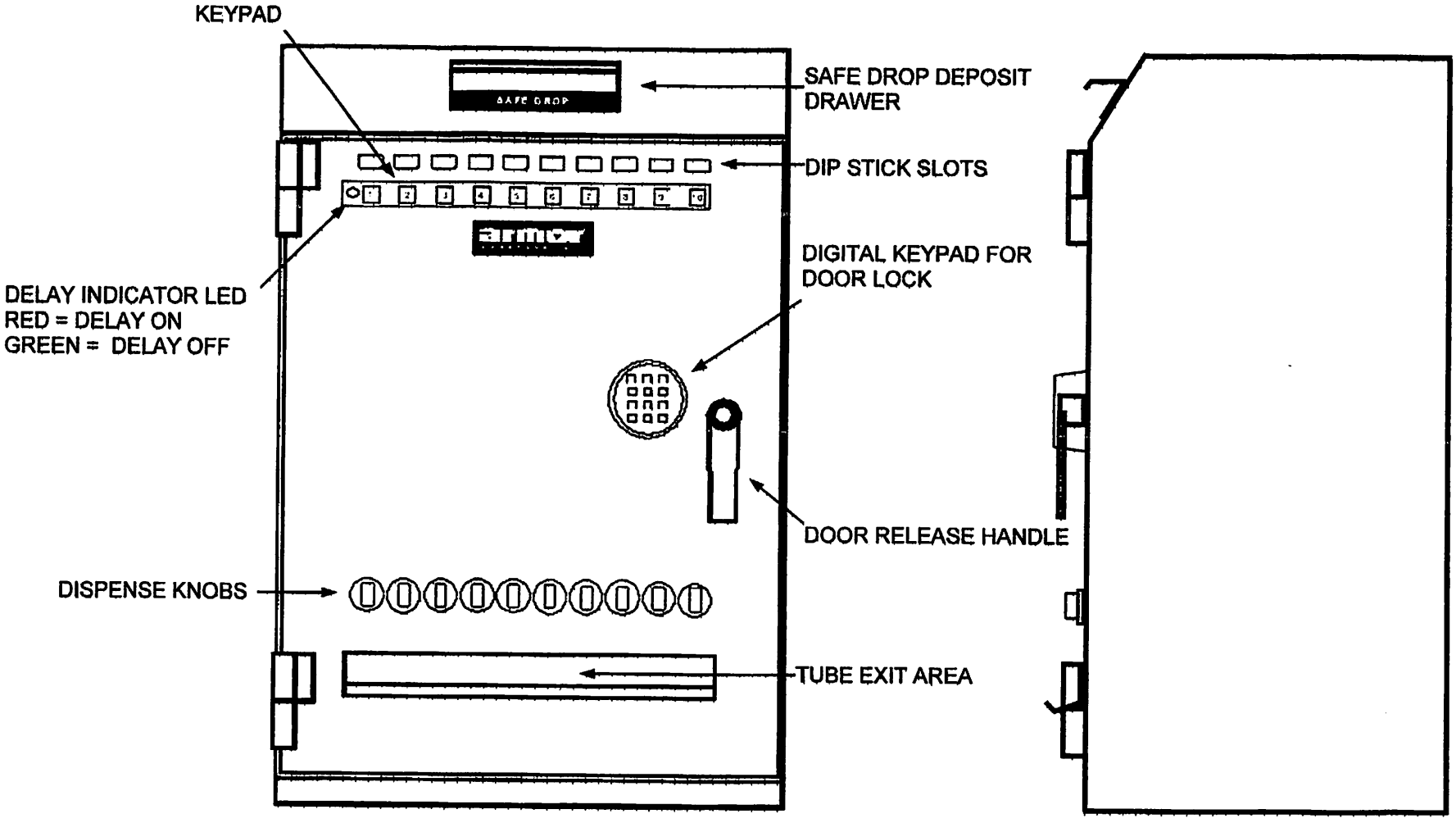
7800 SERIES


DOOR RELEASE KEY SWITCH
INTERFACE INDICATOR LED
ON INDICATES REMOTE CONNECTED TO HOST
BILL ACCEPTOR
DOOR RELEASE HANDLE
armor



INTERIOR SAME AS 7000 SERIES

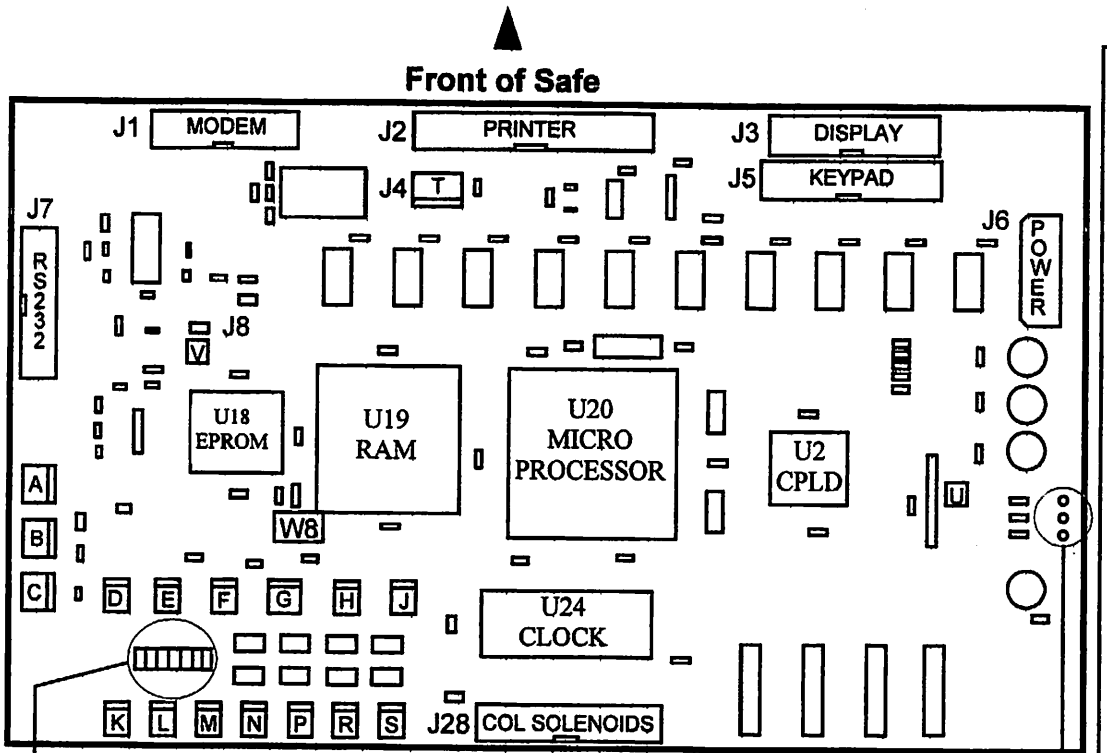
7000N SERIES



INTERIOR SAME AS 7000 SERIES

3400 SERIES

AC2000400 LAYOUT and SETUP



	ID	FUNCTION
A	J10	RS485 (bill reader)
B	J12	RS485 (bill reader)
C	J13	RS485 (bill reader)
D	J14	BUZZER (beeper)
E	J15	CAR SWITCH (key switch ac only)
F	J16	OPEN DOOR (door alarm)
G	J17	TUBE EXIT (optics input)
H	J18	5V (aux 5 volt output)
J	J19	5V (aux 5 volt output)
K	J21	KEY (key switch ac and non ac)
L	J22	BATT (bat. input for emergency override)
M	J2	CAR POWER (aux output from ac switch)
N	J24	DR 1 (vault door or main door)
P	J25	DR 2 (lower, inner or remote door)
R	J23	DR 3 (inner or remote door
S	J27	DR 4 (not used at this time
T	J4	AUX 5V (aux 5 volt output)
U	J11	CPLD (U2) PROGRAM INPUT
V	J8	EXTERNAL RESET

JUMPER #	PURPOSE
W1	INSTALL IF NOT ARMORED CAR (MUST ALSO INSTALL W7)
W2	INSTALL FOR STANDARD ARMORED CAR OVERRIDE
W3	INSTALL FOR INSTANT ARMORED CAR OVERRIDE FOR DOOR #4 (not used at this time)
W4	INSTALL FOR INSTANT ARMORED CAR OVERRIDE FOR DOOR #3
W5	INSTALL FOR INSTANT ARMORED CAR OVERRIDE FOR DOOR #2
W6	INSTALL FOR INSTANT ARMORED CAR OVERRIDE FOR DOOR #1
W7	INSTALL IF NOT ARMORED CAR (MUST ALSO INSTALL W1)

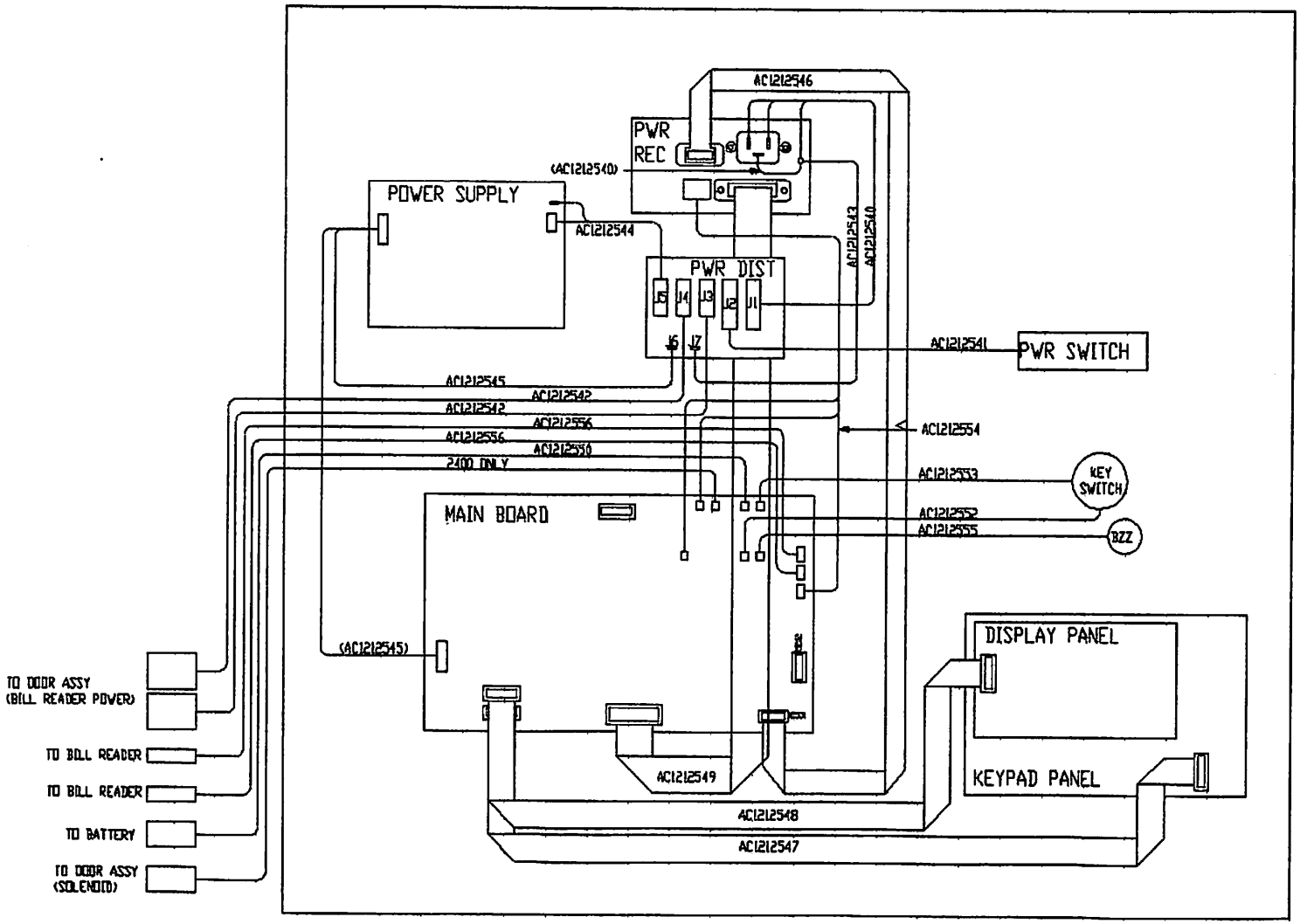
D1 GREEN LED	ON = +5 VDC
D2 RED LED	ON = LOW RAM BATTERY
D3 GREEN LED	ON = +12 VDC

JUMPER SETTING FOR EPROM SELECTION		
W8	INSTALLED	27C040 EPROM (not erasable)
W8	NOT INSTALLED	29C040 EEPROM (erasable & reusable)

AC3000288 Rev. H 09/04

MAIN LOGIC BOARD LAYOUT AND SETUP

CONTROL MODULE ASSEMBLY

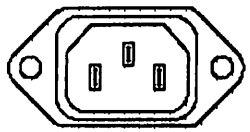


INTERCONNECT DIAGRAM

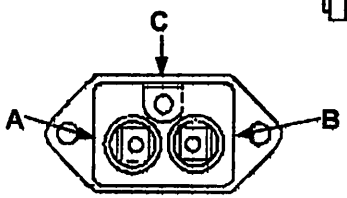
Electronics Drawer Wiring

AC INPUT AND FILTER

FRONT VIEW



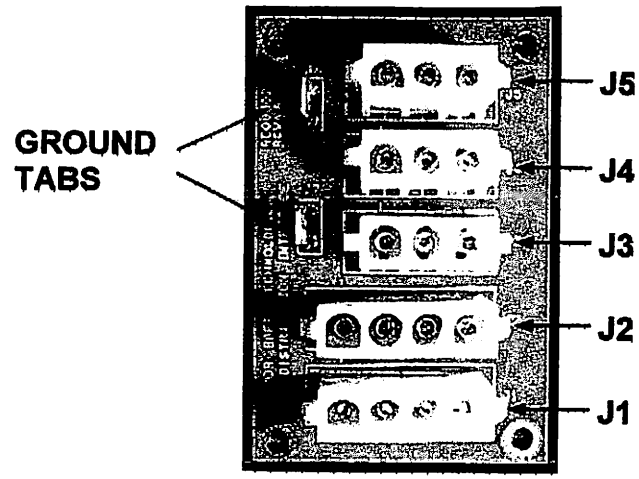
SIDE VIEW



REAR VIEW

A	NEUTRAL (BLACK)
B	LINE (WHITE)
C	GROUND (GREEN)

POWER DISTRIBUTION BOARD

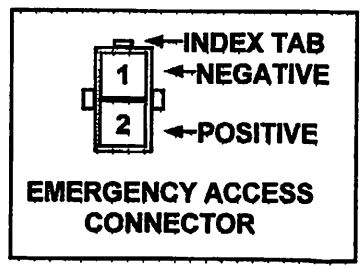


J1	AC POWER IN
J2	TO POWER SWITCH
J3 AND J4	BILL ACCEPTOR POWER
J5	TO POWER SUPPLY
J6 AND J7	GROUND TABS

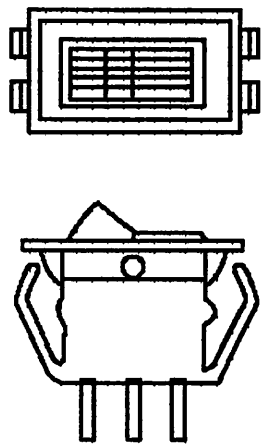
EMERGENCY ACCESS PROCEDURE

This procedure requires the override key, battery clip (Radio Shack 270-325 or equivalent) and an alkaline 9 volt battery.

1. Turn off safe using the power switch or by unplugging it.
2. Remove the **EMERGENCY ACCESS CONNECTOR** cover.
3. Insert the stripped end of the **RED** wire of the battery clip into the **POSITIVE** (2) terminal of the access connector.
4. Insert the stripped end of the **BLACK** wire of the battery clip into the **NEGATIVE** (1) terminal of the access connector.
5. Connect the 9 volt battery.
6. Turn the key, wait 2 seconds and turn the door handle.
7. After the door is open remove the battery.



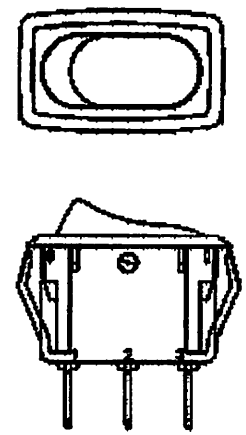
Power Switch Connections FOR SWITCHES USED BEFORE 05/03	
PIN 1	Orange (SWITCHED HOT)
PIN 2	Black (HOT)
PIN 3	White (NEUTRAL)
If the power switch is wired incorrectly, the system's power distribution board will be severely damaged	



OLD POWER SWITCH

USED BEFORE 05/03
AND REPLACEMENTS

Power Switch Connections FOR SWITCHES USED AFTER 05/03	
PIN 1	Black (HOT)
PIN 2	Orange (SWITCHED HOT)
PIN 3	White (NEUTRAL)
If the power switch is wired incorrectly, the system's power distribution board will be severely damaged	



NEW POWER SWITCH

USED AFTER 05/03
AND REPLACEMENTS

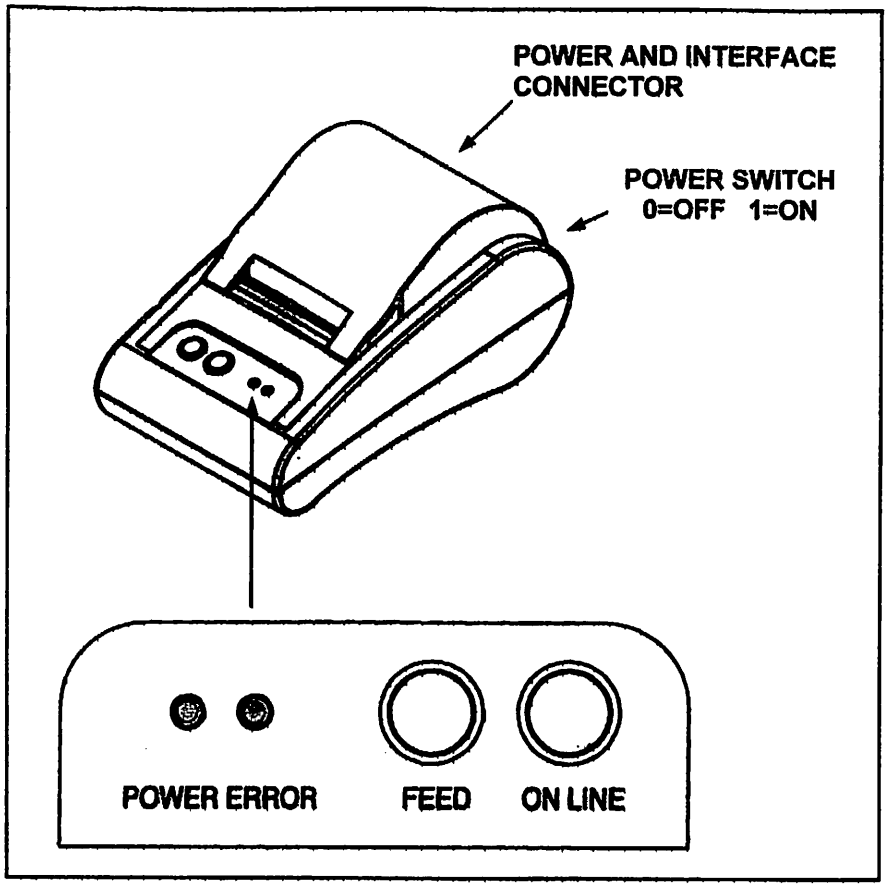
THE BUILD DATE OF THE SAFE CAN BE DETERMINED BY THE FIRST FOUR-DIGITS OF THE SERIAL NUMBER. THE FIRST AND SECOND DIGIT ARE THE MONTH . THE THIRD AND FOURTH DIGITS ARE THE YEAR. 0203 WOULD BE FEBRUARY OF 2003

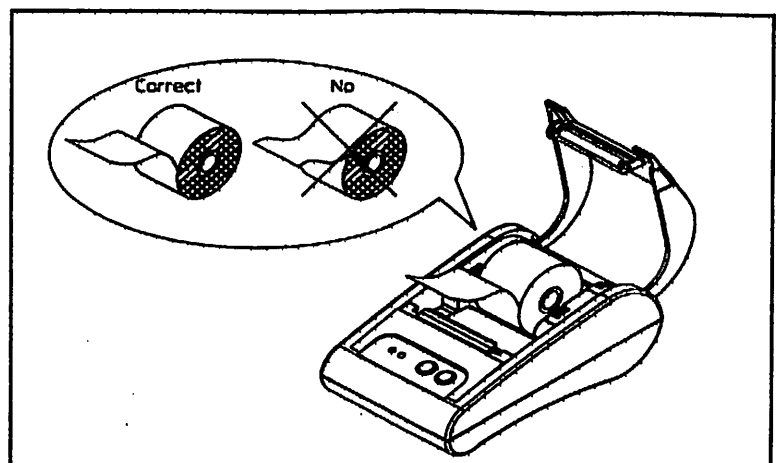
POWER SWITCH CONNECTIONS

CHANGING AN EPROM.

1. Power the system off then back on to print a power up receipt. Save this receipt it will be needed later.
2. Print all reports required to clear the day and do the required accounting.
3. Print all user class settings. Compare to attached documents.
4. Open the outer door and extend the bolts with the door open. For the CS 7000 series you will need to press on the END of the bolt detent locking rod. This rod is located on the hinge side of the door. Push the end of the rod towards the open end of the door. It may be hard to push
5. Open the electronics drawer and turn the power off to the safe
6. Remove the old EPROM, be careful not to damage the socket. Install the new EPROM. Close the drawer but do not secure.
7. Hold down the ✳ key and turn the power on. Hold the ✳ key until the screen turns all green then release the key.
8. The display should now say "**ENTER RESET PIN**". Enter the following number (63 71 72 71 01 71).
   Note: If the "ENTER RESET PIN" message is not displayed. Turn off the systems power and check for proper installation of the EPROM. If the EPROM is installed correctly check the position of jumper. See JUMPER SETTING FOR EPROM SELECTION on the next page.
9. The display should now say "**CLEARING ALL MEMORY**"
10. After the memory is cleared the display should display "**MODEL #**" and display the current model. If it is correct press "**E**". If it is incorrect press the ✳ key and enter the new model number and press "**E**" to enter. The system's original model number was printed on the power up receipt. If you are not sure what model number to set contact Armor Safe Technologies customer service at 800.487.2766.
    Note: To enter a letter when required:
    Press 1 for A, 2 for B, 3 for C, 4 for D, 5 for E, 6 for F, 7 for G and 8 for H
11. When the "**E**" is pressed the system will initialize the system's memory.
12. After initializing the system will print a receipt. The model should be the one you programmed with a build date of "MAY 01 2002 10:49:45"
    Note: If the build date is different, contact Armor Safe Technologies customer service at 800.487.2766.
13. The correct model should now be set.
14. Reprogram the system using the receipts and reports previously printed. Test the doors for proper operation.
15. After testing, secure the electronics drawer.

OMNI PRINT STP 100P





LOADING PAPER

NOTE
The printer must be turned off before installing the paper roll.

1. Open the printer cover and remove the used paper roll core if there is one.
2. Insert the paper roll as shown, feeding off the bottom.
3. Pull the end of the paper roll until the paper is over the front of the printer then close the printer cover.
4. Turn on the printer.

The control panel has two buttons and two lights.

Buttons

The control panel buttons perform paper feeding and on line functions

ON LINE Press the **ON LINE** button to receive data from the safe. The power LED should be steady when printer is on line.

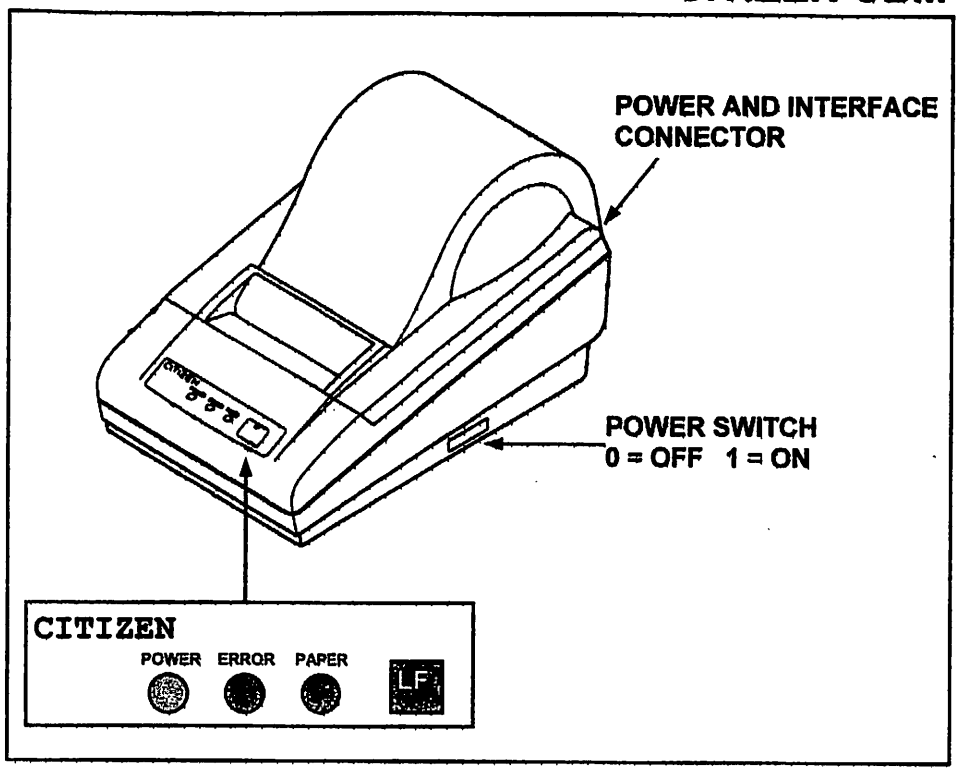
FEED Press the **FEED** button once to advance paper one line. Press and hold the **FEED** button to continuously feed paper. The feed button will only work when the printer is OFF LINE, the power LED blinking.

Indicator LEDs

POWER (green) The **POWER** LED is on when the printer is on. The LED is steady when ON LINE, ready to receive data. When blinking, the printer is OFF LINE and will only feed paper. **NOTE: If the POWER and ERROR LEDs are both on check printer for power.**

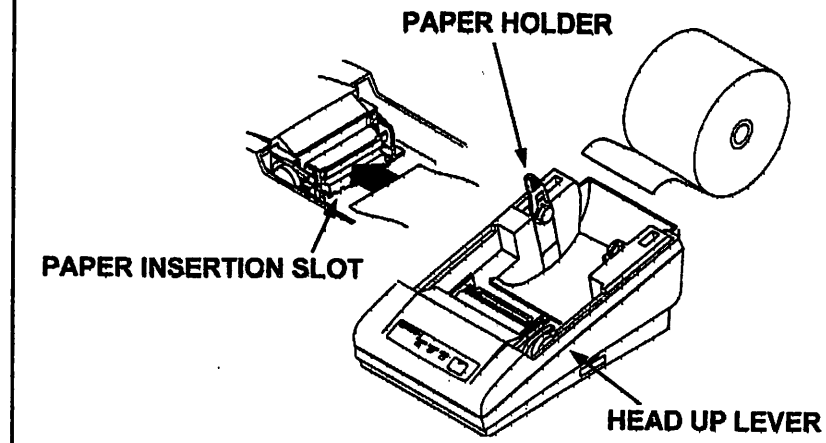
ERROR (red) The **ERROR** LED flashes when the printer is low or out of paper. If the **ERROR** LED is on steady the printer is in an error mode and need attention.

CITIZEN CBM-270



The control panel has only one button

LF (line feed) Press the **LF** button once to advance paper one line. Press and hold the **LF** button to continuously feed paper.



LOADING PAPER

1. Remove the printer cover by holding the printer body and lifting the back of the cover up and towards the front.
2. To remove the old roll. Lift the **HEAD-UP LEVER**. Cut the paper from the roll and pull the remaining paper through the print head. **DO NOT** pull the paper backwards.
3. Install the new roll by first cutting the end of the paper at a right angle.

4. Insert the end of the paper roll straight into the **PAPER INSERTION SLOT**. Set the paper roll in the paper holder. Lower the **HEAD-UP LEVER**. The paper will automatically feed. Replace the cover. Press the **PAPER FEED BUTTON** and feed about six-inches of paper.

Indicator LEDs

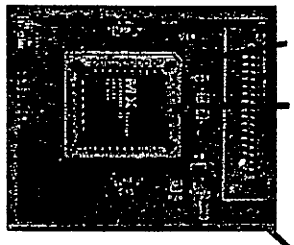
POWER (green) The **POWER** LED is on when the printer is on. **NOTE: If the POWER and ERROR LEDs are both on check printer for power.**

ERROR (red) The **ERROR** LED is on when the HEADS-UP LEVER is in the up position or if the printer is in an error condition and need attention.

PAPER (red) The PAPER LED is on when the printer is running out of paper or it is incorrectly feed into the **PAPER INSERTION SLOT**.

Printer Test: Hold Down "P" Button and Power @ Same Time will Printer a Test Print

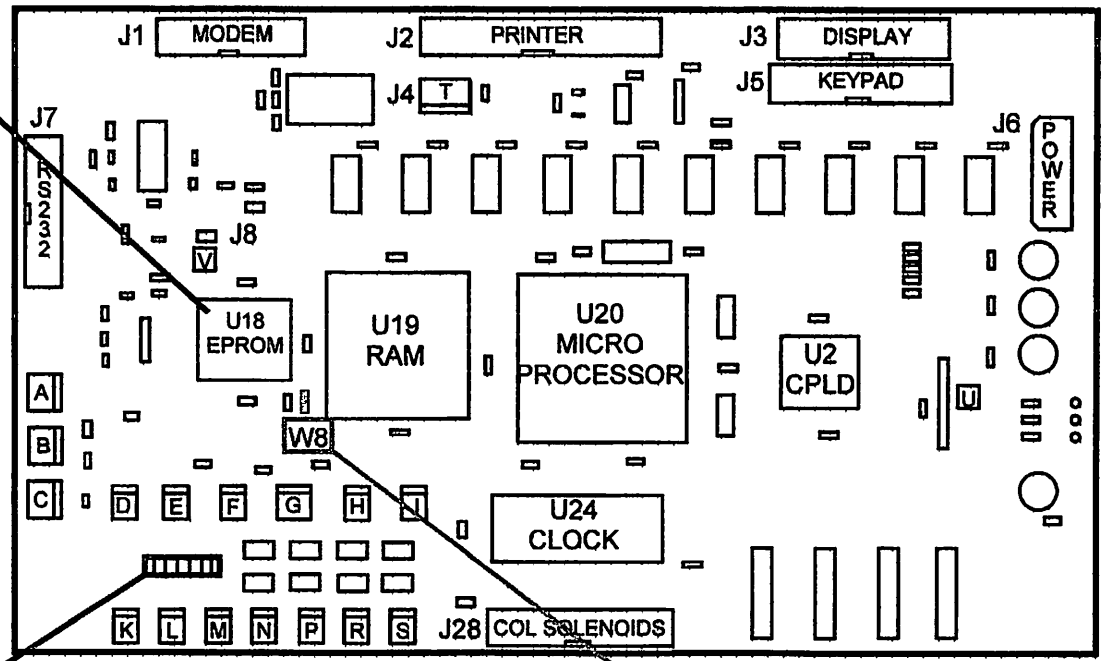
CHANGING AN EPROM. (cont.)



Cut corner of EPROM

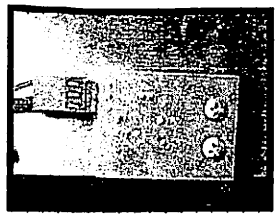
Dot on beveled end EPROM

Front of the electronics drawer

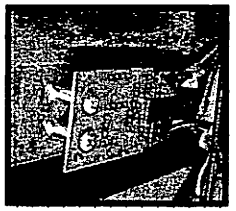


JUMPER #	PURPOSE
W1	INSTALL IF NOT ARMORED CAR (MUST ALSO INSTALL W7)
W2	INSTALL FOR STANDARD ARMORED CAR OVERRIDE
W3	INSTALL FOR INSTANT ARMORED CAR OVERRIDE FOR DOOR #4 (not used at this time)
W4	INSTALL FOR INSTANT ARMORED CAR OVERRIDE FOR DOOR #3
W5	INSTALL FOR INSTANT ARMORED CAR OVERRIDE FOR DOOR #2
W6	INSTALL FOR INSTANT ARMORED CAR OVERRIDE FOR DOOR #1
W7	INSTALL IF NOT ARMORED CAR (MUST ALSO INSTALL W1)

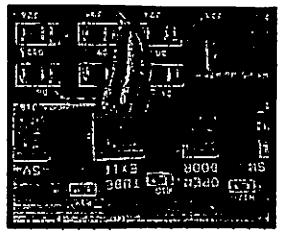
JUMPER SETTING FOR EPROM SELECTION		
W8	INSTALLED	27C040 EPROM (not erasable)
W8	NOT INSTALLED	29C040 EEPROM (erasable & reusable)



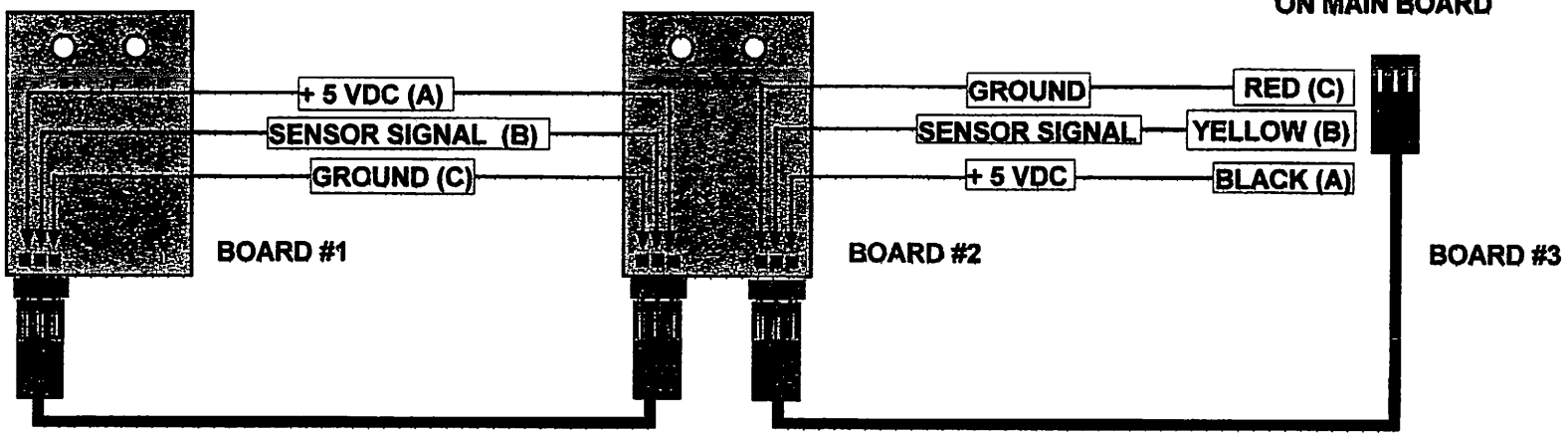
OPTICS RECEIVER BOARD
OPEN SIDE OF DOOR



OPTICS TRANSMITTER BOARD
HINGE SIDE OF DOOR



TO J17 (TUBE EXIT)
ON MAIN BOARD



A DIGITAL MULTIMETER THAT CAN READ TWO PLACE AFTER THE DECIMAL IS REQUIRED TO PERFORM THE FOLLOWING TEST. SET YOUR METER SO YOU CAN READ 5.00 VDC.

BOARD #1 (RECEIVER BOARD)

1. Connect the positive lead of your digital multimeter on pad A and the negative lead on pad C. You should read 5.15 to 5.18 vdc. If not in specification, adjust using power supply adjustment procedure in this manual. If you have no voltage at all check the connections on board #1, board #2 and board #3 and all cables.
2. Connect the negative lead of your digital multimeter on pad C and the positive lead on pad B. You should read 4.8 to 5.1 vdc if the optics are working correctly. If you read .1 to .7 the beam is blocked. If the beam is not blocked the receiver or transmitter board may be bad. If your reading is between 1.0 and 4.0 vdc you may have an open wire.

BOARD #2 (TRANSMITTER BOARD)

You can use the same tests as BOARD #1 above.

BOARD #3 (MAIN LOGIC BOARD)

1. Connect the positive lead of your digital multimeter to wire A (BLACK WIRE) and the positive lead to wire C (RED WIRE). You should read 5.15 to 5.18 vdc. . If not in specification, adjust using power supply adjustment procedure in this manual
2. Connect the negative lead of your digital multimeter to the black wire going to J6 located on the left side of the main logic board. Connect the positive lead to wire B (YELLOW WIRE). You should read 4.8 to 5.1 vdc if the optics are working correctly. If you read .1 to .7 the beam is blocked. If the beam is not blocked the receiver or transmitter board may be bad. If your reading is between 1.0 and 4.0 vdc you may have an open wire.

Power Supply Adjustment

The power supply may need periodic adjusting due to component aging. The most common symptom of this aging is a high incident of false dispenses.

A false dispense is when the user select a column to dispense and press the E key. When the E key is pressed the system displays "Dispense Success" before the user has the opportunity to turn the dispensing knob.

To Adjust the Power Supply

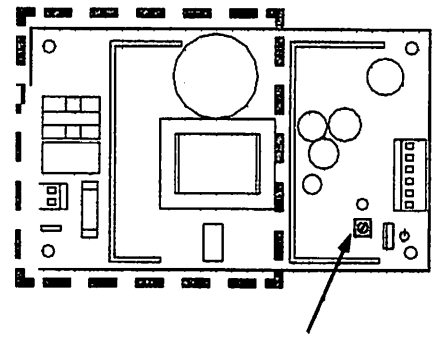
1. Loosen, but do not remove, the electronics drawer locking screws. The screws are located inside the vault below the electronics drawer. Unplug the safe.
2. Carefully slide electronics out so the cover over the power supply can be removed. Be careful not to damage or disconnect any of the cables connected to the rear of the drawer.
3. Set the scale on your meter so **5.15 vdc** can be read.
4. On the main board connect the positive lead of your meter to J6 pin 1 (red wire) and the black lead to J6 pin 3 (black wire).
5. Reconnect the power to the unit.
6. Using a trimpot adjusting tool or small nonmetallic screwdriver turn the trimpot on the power supply until the voltage on your meter reads **+5.15 vdc**. (see drawing)

CAUTION do not adjust the voltage higher than 5.25 volts. EXCEEDING 5.25 VOLTS WILL DAMAGE THE EQUIPMENT.

7. Test the dispensing function to see if the problem has been corrected. If not the, the tube exit sensor frequency may require adjusting.
8. Remove power from the door and reinstall the power supply cover. And slide the drawer back to its normal position.
9. Reconnect the power to the unit and test before returning the unit to service.
10. Before securing the electronics drawer, test all functions including the outer door, remotes, printer and modem (if installed.)
11. Secure the electronics drawer before putting system into service

CAUTION High Voltage

The area inside the dotted line contains High Voltage.



Voltage adjustment Trimpot

POWER SUPPLY VOLTAGE ADJUSTMENT

Optics Oscillator Adjustment

The systems tube exit sensors consisting of a pulsed LED and receiver IC system detects the tubes as they exit the tube magazine. This pulsed system allows the system to operate in any lighting condition.

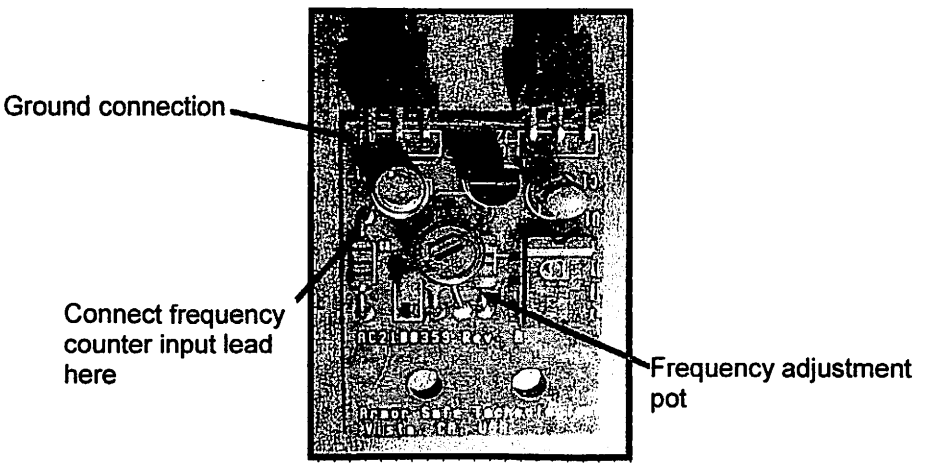
Due to component aging it may become necessary to adjust the oscillator frequency. Indications that the oscillator may need adjusting is the system not seeing a tube exit the magazine or a false dispense. A false dispense is when the user select a column to dispense and press the E key. When the E key is pressed the system displays "Dispense Success" before the user has the opportunity to turn the dispensing knob.

Use the following procedure to adjust the oscillator.

Sensor Access and Adjustment

The oscillator adjustment is located on the transmitter board. The receiver board is located on the right side of the tube magazine when viewed from the rear of the door.

1. Turn off the power to the system using the power switch located on the front of the safe.
2. Remove the lower bill acceptor if two bill acceptors are installed.
3. Remove the two screws securing the sensor board to the tube magazine.
4. Using the drawing, Connect a frequency counter input lead to R3 and the ground lead to ground.
5. Secure the sensor board and any other components removed so they will not short out or in any other way be damaged.
6. Turn on the systems power using the power switch located on the front of the safe.
7. Using a small flat blade screwdriver adjust pot until frequency counter reads 33 kHz +/- .2 kHz.
8. After the adjustment has been made, turn off the systems power.
9. Remove your test leads and reinstall the sensor board to the tube magazine.
10. Reinstall any components previously removed.
11. Test the dispensing function to see if the problem has been corrected. If not the, the power supply voltage may require adjusting or one or both of the optics sensor boards need to be replaced.



OPTICS OSCILLATOR FREQUENCY ADJUSTMENT

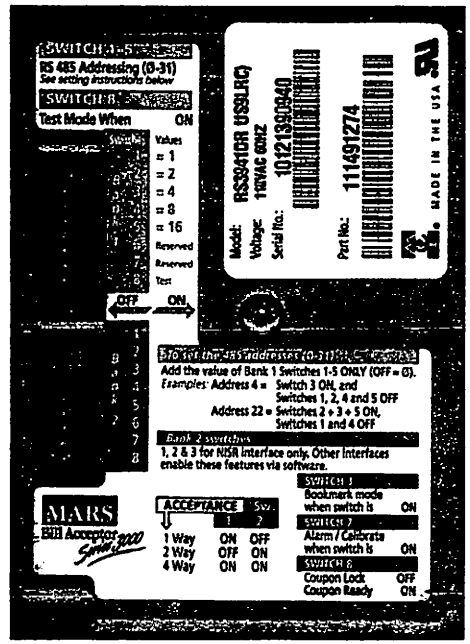
BILL ACCEPTOR
BEZEL LED's and FLASH CODES

The Series 3000 bezel has two green LEDs above the opening of the bill path. These LEDs are on steady when the bill acceptor is ready to accept a bill. The LEDs will be off once a bill has been inserted, the acceptor in in calibration mode or the unit is in software download mode. The LEDs will repeat a flash code in a fixed patter (half seconds flashes separated by a two seconds off) to signal a particular code. These codes are listed below. (example "BILL PATH IS JAMMED flash code", is four half second flashes and two seconds OFF)

FLASH CODE	REASON FOR FLASH CODE
1	NOT USED
2	ACCEPTOR IS DISABLED OR WAITING FOR INTERFACE
3	READY FOR COUPON
4	BILL PATH IS JAMMED (LOOK FOR BILL OR FOREIGN OBJECTS STUCK IN THE BILL PATH)
5	LRC REMOVED OR LRC NOT HOME (CHECK BILL BOX LOCKING KNOB, BOX MAY BE BAD)
6	ALARM MODE HAS BEEN ACTIVATED
7	TOP OF STACKER SWITCH IS STUCK (CHECK FOR STUCK BILL IN STACKER OR STUCK SWITCH)
8	BILL HELD IN ELEVATOR / NO PUSH MODE (CHECK FOR BILL STUCK IN STACKER ASSEMBLY)
9	AIR CALIBRATION FAILURE. (TURN THE POWER ON AND OFF. ACCEPTOR MAY NEED CLEANING)
10	ACCEPTANCE RATE IS BELOW 85%
RAPID BLINKING	BILL BOX FULL (EMPTY OR CHANGE THE BILL BOX. MAY ALSO INDICATE A BILL JAM.)

BANK 1 (GREEN)

BANK 2 (BLUE)



Bank one is the GREEN BANK and is used to set the bill acceptor address

Bank two is the BLUE BANK and is not used in Armor Safe's current products.

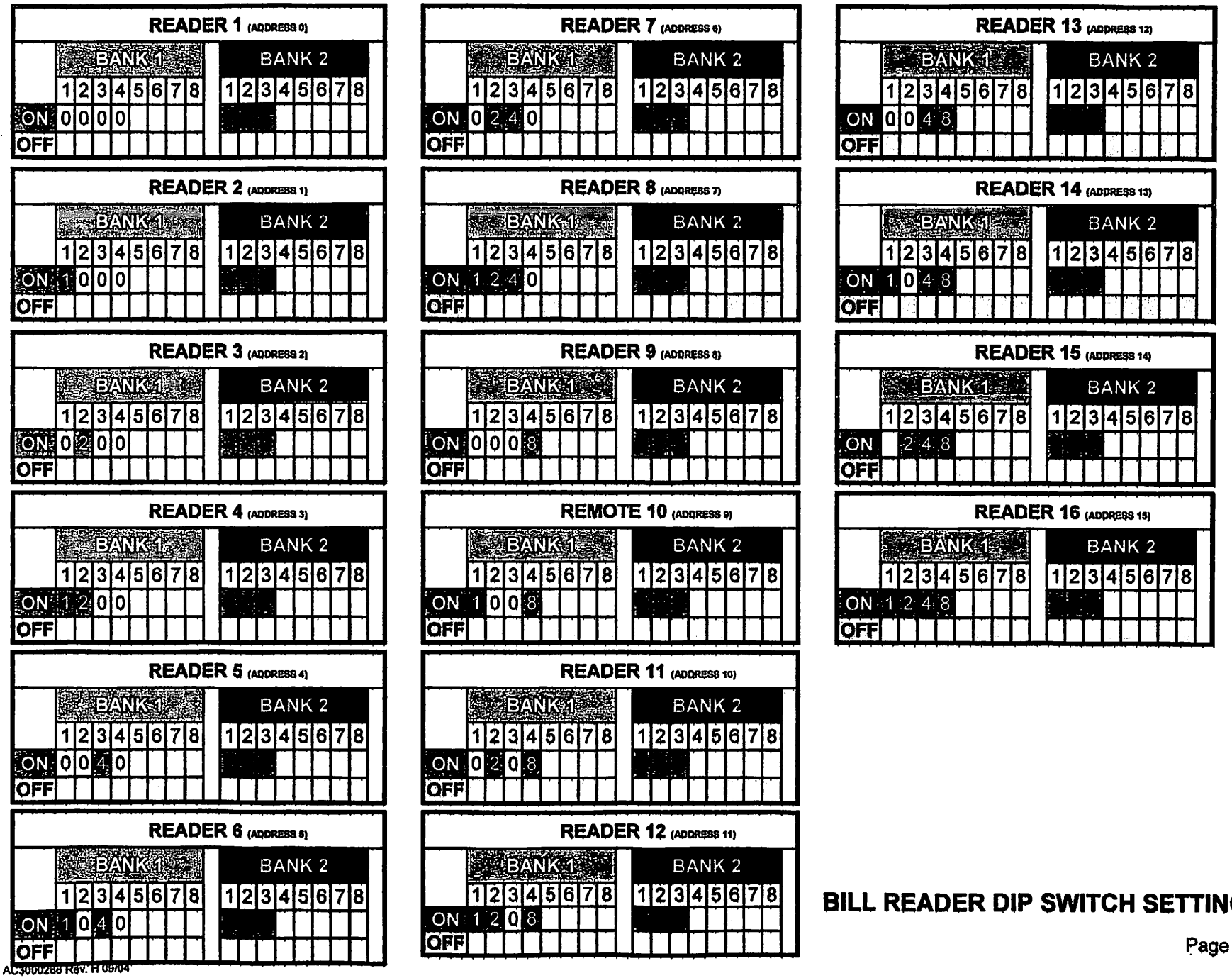
The dip switches are located on the side of the bill readers gray electronics package. The switches must be set to the settings in the table on the next page. Sw1-1 through sw1-8 are the bill reader address switch. For most system all 8 switches would be set to off. If a second bill reader is installed in the system sw1-1 would be set to ON for the second bill reader. If both bill readers are set to the same address the bill readers will not be recognized. Failure to address the bill acceptors correctly will cause all the system's bill acceptor to fail.

On a single bill acceptor system, the host acceptor is always set to "0". If a system has two host bill acceptor the first is set to address "0" and the second is always set to address "1". If the system consist of a host and remotes. The first remote would be set to the next highest address.

As an example, if the system consists of one host acceptor and one remote the host acceptor would be at address "0" and the remote acceptor would be at address "1". If the system consists of two host acceptors and one remote. The first host acceptor's address would be set to "0", the second host acceptor's address would be set to "1", and the remote's acceptor would be set to address "2". In both cases, each subsequent remote acceptor would have the next higher address.

BILL ACCEPTOR SWITCH SETTINGS

BILL READER DIP SWITCH SETTINGS



COUPON CONFIGURATION

When a new bill reader is installed it must be configured. The configuration controls what bill will be accepted, security level and the direction the bill can be inserted. The bill reader configuration can also be changed to a different configuration because of requirements at the store level. The configuration is changed by putting the bill reader in the coupon configuration mode using the DIP switches and a coupon

1. Make a copy of the coupon with a standard, carbon-based, non-color copier, copies of the coupon are useable if cut to match the size of the coupon
2. Fill out the coupon using a #2 pencil to fill in the blocks for desired options. For correct operation, all 8 lines must be completed. Fill in only one block per line. **DO NOT MARK THE BACK OF THE COUPON**
3. Complete lines 1 thru 7 to enable desired bill denominations. Fill in one block for each denomination. High accept enables maximum bill acceptance High security may be desired for locations where a higher level of discrimination is desired. Off will reject bills of the selected denomination.
4. Complete line 8 to enable desired bill direction. Enable 1 or 2 way face up, or 4 way acceptance (which allows acceptance in all directions).

TO ENABLE THE COUPON CONFIGURATION MODE

1 Turn DIP switches #1 thru 7 (switch bank 1 to OFF position) and DIP switch #8 to ON

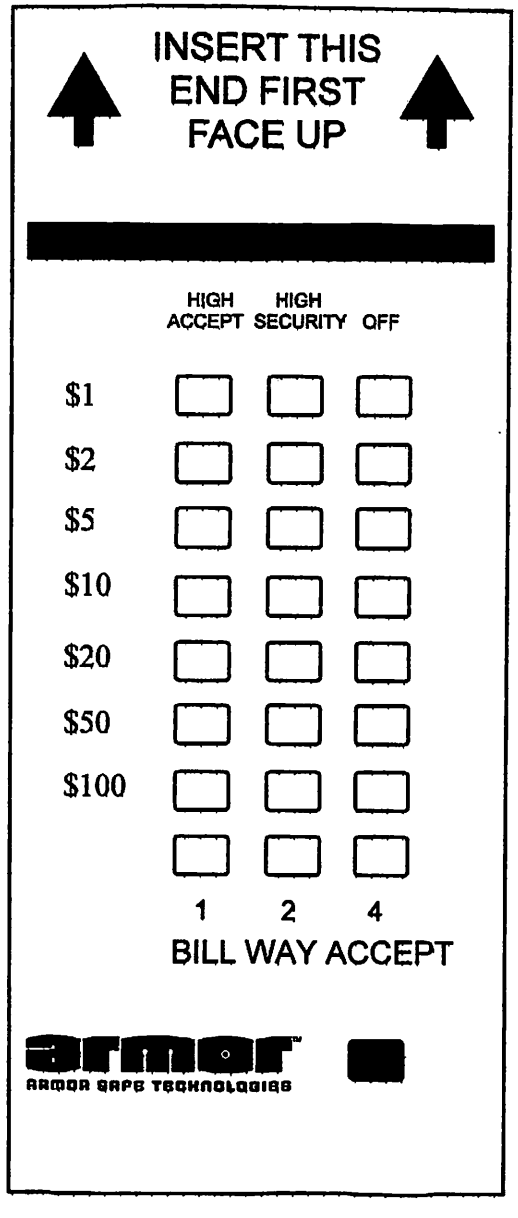
2. Turn DIP switches #1 thru 7 (switch bank 2 to OFF position) and DIP switch #8 to ON

3 **INSERT COUPON FACE UP, AND VERIFY SETTINGS WERE ACCEPTED**

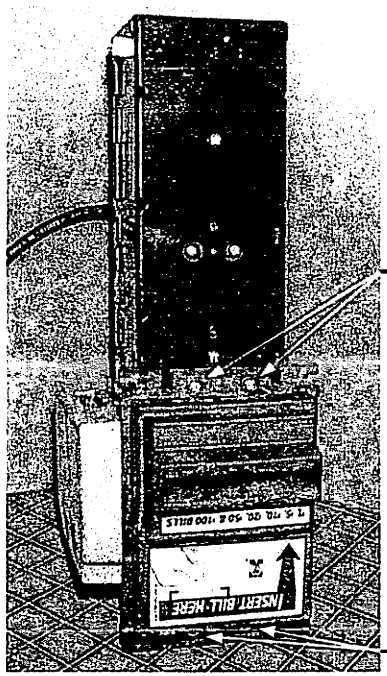
If the coupon is accepted, it will be held in escrow mode for about 3 seconds then returned.

If the coupon is rejected, it will be immediately returned. If rejected, review instruction or try a new coupon.

4. After completing the procedure be sure to reset the DIP switches to their original configuration. **Failure to do so will cause the bill reader to not be recognized.**



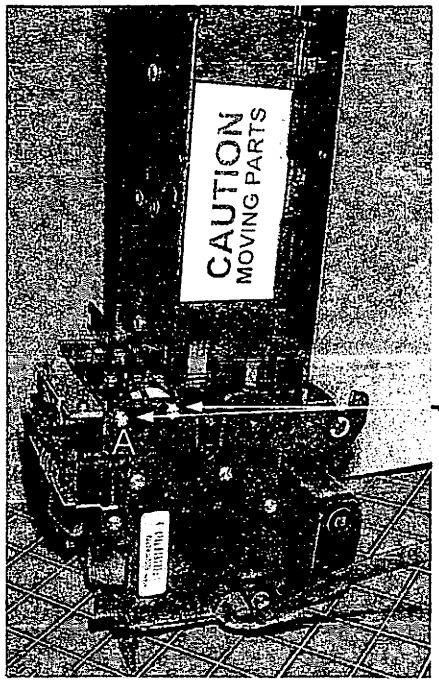
BILL ACCEPTOR SETUP INSTRUCTIONS



REMOVE 2 UPPER SCREWS

REMOVE 2 LOWER SCREWS

Step 1



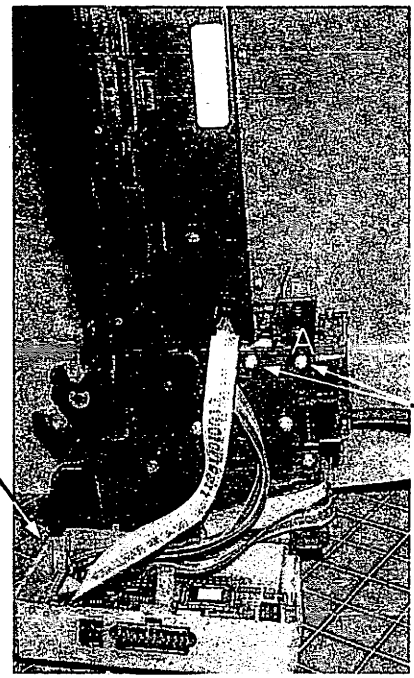
FROM THE RIGHT SIDE
REMOVE BILL PATH SCREW
AND ELEVATOR SCREW

Step 2

INSTRUCTION

1. Disconnect the bill acceptor power and interface cable.
2. Remove the bill acceptor from the safe by removing the four mounting fasteners.
3. Remove the four screws holding the bezel to the bill acceptor, step 1.
4. From the right side remove the bill path and elevator screw shown in step 2.
5. From the left side loosen the screw holding the gray electronics module to the bill acceptor, step 3.
6. From the left side remove the bill path and elevator screw shown in step 3.
7. Remove the elevator by sliding it back and off shown in step 4. Set aside.
8. Open the upper half of the bill path as shown in step 4.
9. Remove all debris and any foreign objects. Using compress air or a soft brush remove any dirt or dust in the bill path.
10. To assemble, close the bill path and install the two screws marked A in steps 2 and 3.
11. Reinstall the elevator by sliding the rear slots over the rear drive wheel's axel.
12. Slide the elevator forward and install the right and left side screws.
13. To install the front bezel, slide it over the front of the bill acceptor and install the four mounting screws.
14. Reinstall the bill acceptor in the safe. Tighten the mounting fasteners and reconnect the interface and power cable.
15. Test.

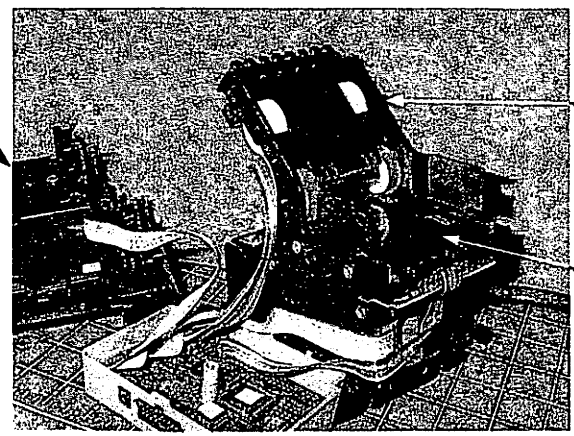
BILL ACCEPTOR BILL PATH ACCESS INSTRUCTIONS



FROM THE LEFT SIDE LOOSEN THE SCREW AND REMOVE THE GRAY ELECTRONICS MODULE.

FROM THE LEFT SIDE REMOVE BILL PATH SCREW AND ELEVATOR SCREW

Step 3



SLIDE THE ELEVATOR BACK AND OFF.

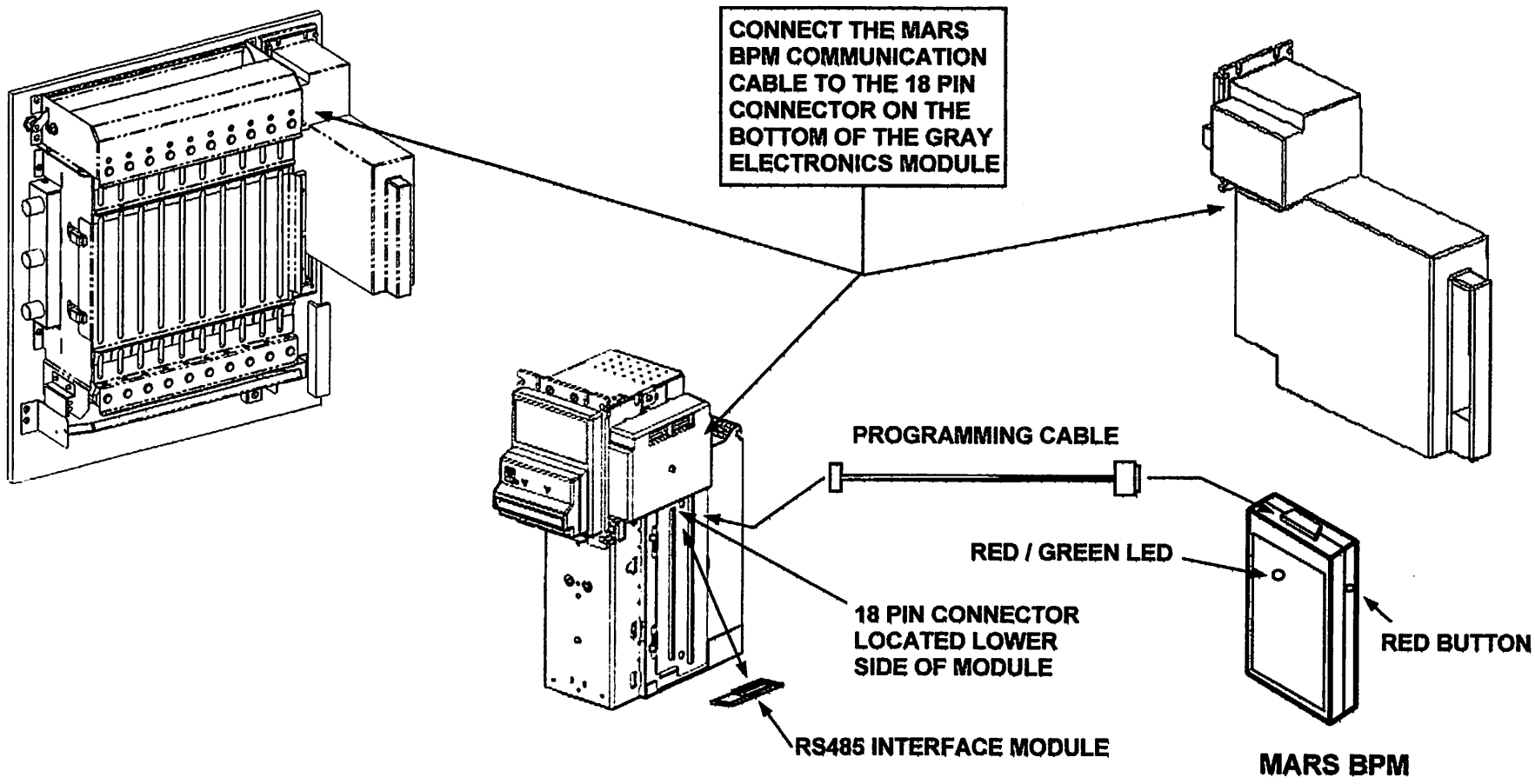
SWING THE TOP SECTION OF THE BILL PATH TO EXPOSE THE COMPLETE BILL PATH. REMOVE ANY DE-BRIS AND CLEAN THE PATH.

BILL PATH

Step 4

BILL ACCEPTOR BILL PATH ACCESS INSTRUCTIONS

BILL READER NEW CURRENCY PROGRAMMING



DOWNLOADING PROCEDURE

1. Remove power to the bill acceptor
2. Locate and remove the RS485 interface module from the bottom of the Electronics Module. (see above)
3. Apply power to the Series 3000 Bill Acceptor then connect the BPM to the 18-pin connector of the Series 3000 Bill Acceptor
4. Press the Red Button on the BPM till the Green LED illuminates to indicate power to the BPM.
5. The Green LED on the BPM will flash then go solid. If the Green LED does not light turn to the Troubleshooting Section on next page
6. Power down the Series 3000 Bill Acceptor and reconnect the original cables
7. Apply power to the Series 3000 Bill Acceptor
8. Place the New Currency Ready Label on the Bill Acceptor to indicate the unit has been updated.

BPM TROUBLESHOOTING

FLASH CODE	DESCRIPTION OF CODE	SOLUTION
SOLID GREEN	BILL ACCEPTOR IS ALREADY PROGRAMMED	BILL ACCEPTOR ALREADY HAS THE SOFTWARE REVISION INSTALLED
SOLID RED	BPM NOT CONNECTED TO A BILL ACCEPTOR	CHECK TO ENSURE THE HARNESS BETWEEN THE BPM AND THE BILL ACCEPTOR ARE SEATED PROPERLY
SOLID AMBER / NO LED ILLUMINATED	LOW BATTERY	CHANGE THE BATTERIES NOTE: MEI DOES NOT RECOMMEND DOWNLOADING NEW SOFTWARE WITH LOW BATTERIES. TE BP TAKES 2 AA BATTERIES. THE BATTERY PANEL IS LOCATED IN BACK OF BPM.
1 LONG RED FLASH	NO CREDITS	BPM MAY BE OUT OF CREDITS. FOLLOW PROCEDURE BELOW TO CHECK HOW MANY CREDITS ARE LEFT IN BPM
1 SHORT RED FLASH	INVALID PRODUCT	THE BPM DOES NOT HAVE THE REVISION SOFTWARE INSTALLED TO DOWNLOAD THE MODEL BILL ACCEPTOR YOU ARE TRYING TO UPGRADE
2 SHORT RED FLASHES	UNRECOVERABLE ERROR WHEN DOWNLOADING	BPM FAILED DURING THE DOWNLOAD PROCESS. WITH THE BMP STILL CONNECTED CYCLE POWER TO BILL ACCEPTOR (UNIT MAY NOT DO A RUN AND STACK) THEN TRY AGAIN
3 SHORT RED FLASHES	BPM IS DEFECTIVE	BPM WILL NEED TO BE RETURNED TO ARMOR SAFE TECHNOLOGIES FOR SERVICE

FLASH CODES WILL REPEAT FOR 10 SECONDS

Check Number of Credits in BPM:

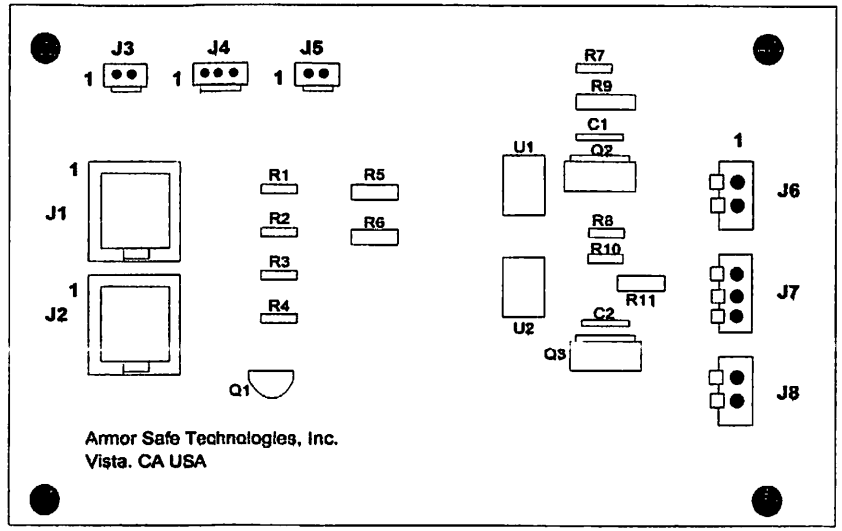
Disconnect BPM from Bill Acceptor. Press and hold the Red Button. The LED will first be red than after 3 seconds the LED will start flashing a code to show how many credits are left in the BPM (see below). The flash code will repeat continuously while the Red Button is held down. NOTE: A credit is only taken from the BPM when a downloaded is successful.

Red / Green Repeatedly ..... Represents over 100 credits
Green ..... Represents 10 credits for each flash
Red ..... Represents 1 credit for each flash

Examples

Credits	Green Flashes	Red Flashes
5	0	5
17	1	7
30	3	0

Questions should be directed to Armor Safe Technologies at (800) 487.2766



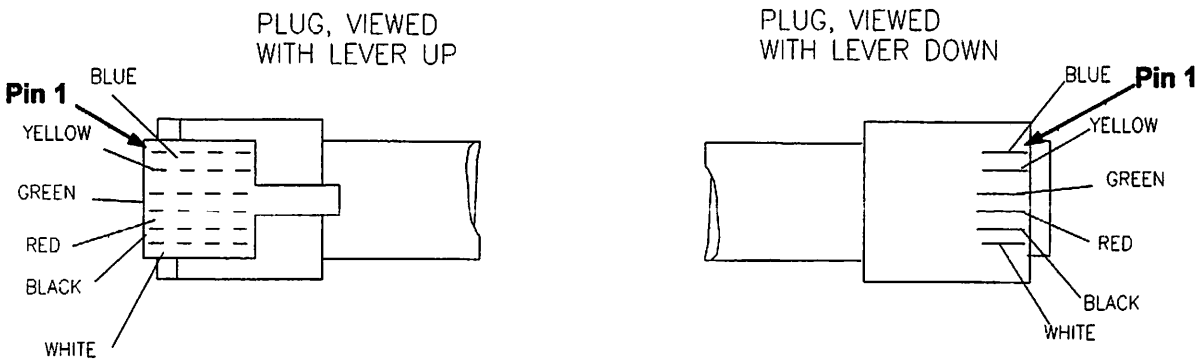
Connection Table

J 1 From CacheDROP I/O
J 2 From CacheDROP I/O
J 3 To Bill Acceptor Data
J 4 To LED
J 5 To Key Switch
J 6 To Bill Acceptor Power
J 7 From AC Input
J 8 To Door Solenoid

The remote interface board is mounted to the inside surface of the door and is protected by a cover assembly. **WHILE SERVICING THIS BOARD BE EXTREMELY CAREFUL NOT TO COME IN CONTACT WITH THE 120 VAC CIRCUITS.** While servicing the board extend the door locking bolts to the locked position with the door open. This will prevent a lockout that may require the door to be drilled open. To release the locking bolts the remote must be connected to the host and both must be powered up. Start the open door sequence for the remote, "OPEN BILL DOOR" and when the host displays "TURN KNOB TO OPEN" insert and rotate the key on the front of the remote. With the key fully turned rotate the "T" handle and open. When open release and remove the key. If the system has more than one remote, insert the key in each remote's key switch and open it's door. After you have opened all the required doors. Remove the key and press the asterisk key on the host's keypad to end the door opening procedure.

BILL ACCEPTOR ADDRESSING:
Each bill acceptor in the system must have an unique address, this includes each remote. If the host system has one bill acceptor the first remote's bill acceptor must be set to address 1, see page 19. Each subsequent bill acceptor would have the next higher address. If the host system has two bill acceptor the first remote's bill acceptor must be set to address 2 , see page 19. Each subsequent bill acceptor would have the next higher address. If you fail to address the bill acceptors correctly the system will not operate correctly.

As an example, if you were installing a system with two bill acceptors in the host and three remote. The first host bill acceptor's address would be "0", the second host bill acceptor's address would be "1", the first remote's bill acceptor's would be address "2", the second remote's bill acceptor's would be address "3", and the third remote's bill acceptor's would be set to "4".

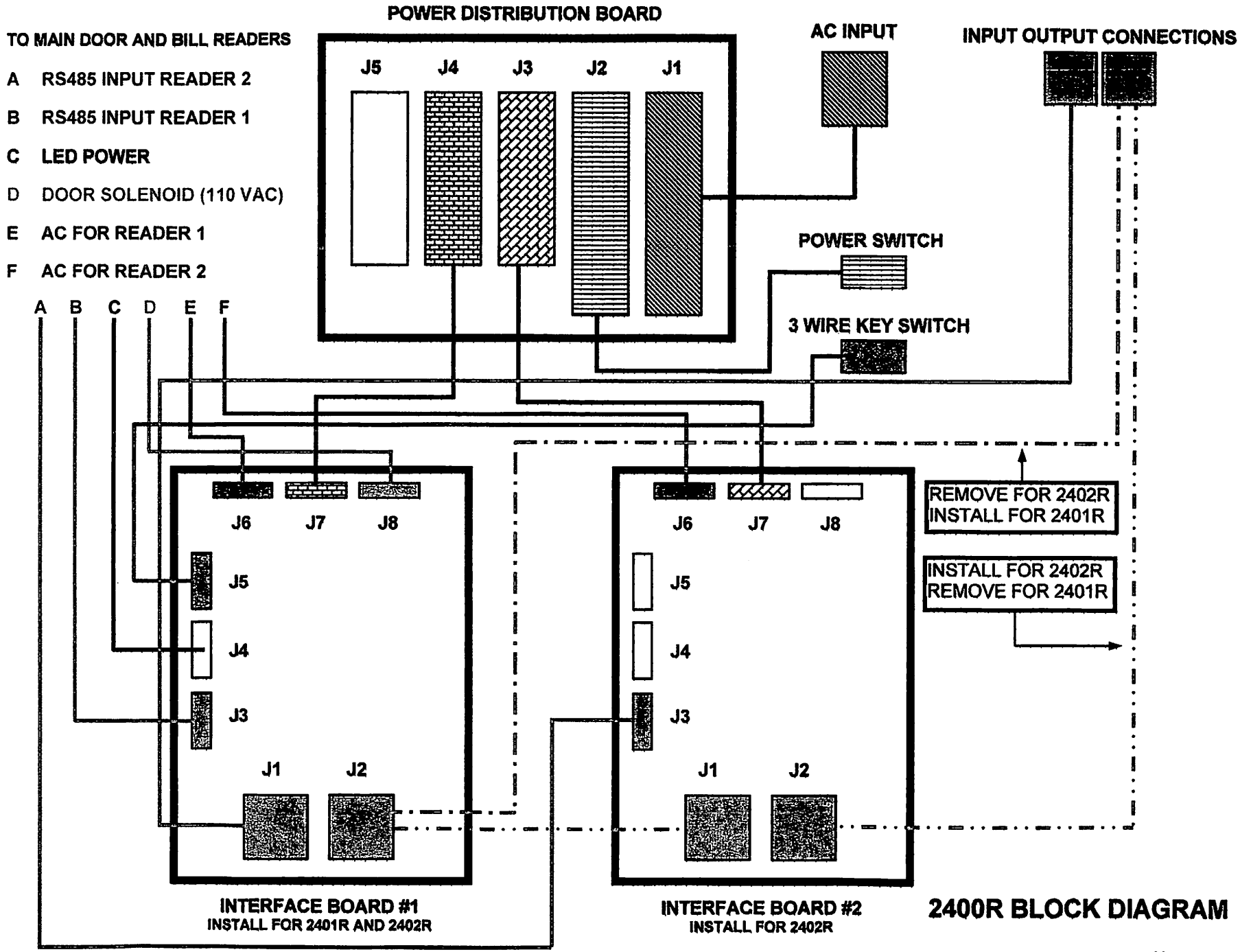


Remote Signal Names

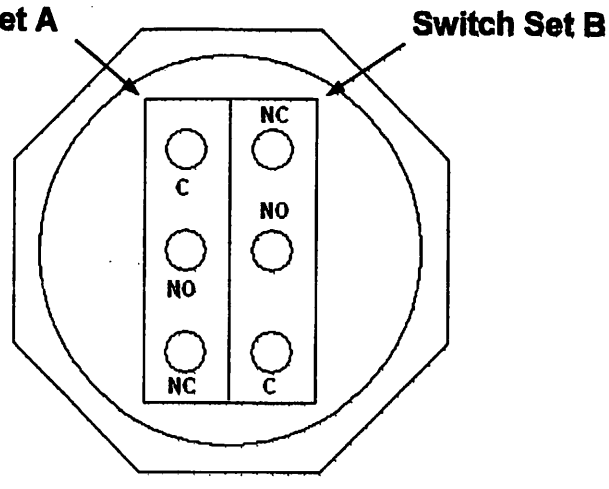
Pin 1	**+ 12 vdc**
Pin 2	**LED Control**
Pin 3	**Bill Acceptor Data**
Pin 4	**Bill Acceptor Data**
Pin 5	**Ground**
Pin 6	**Solenoid Control**

The remote communication cable is made with two RJ-12 6X6 telephone connectors. And uses 26 AWG Flat telephone cable. The connectors are wire pin 1 to pin 1, pin 2 to pin 2 and so on. **DO NOT USE A OFF THE SHELF TELEPHONE CABLE BECAUSE IT IS WIRED BACKWARD FOR OUR APPLICATION.** The length is dependent on location of the remote in relation to the host safe. The maximum length between the the host and the remote mounted the furthest away should not exceed 3000 feet. The system should be wired as a straight line, daisy changed, not a hub.

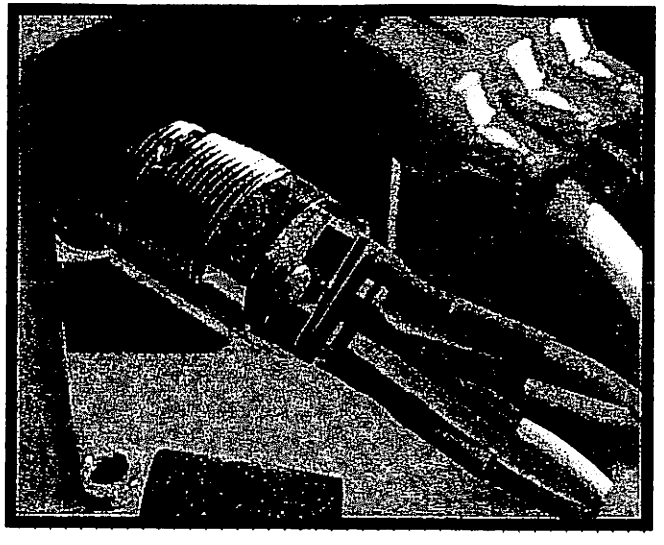
REMOTE COMMUNICATION CABLE



2400R BLOCK DIAGRAM



Rear Of Key Switch



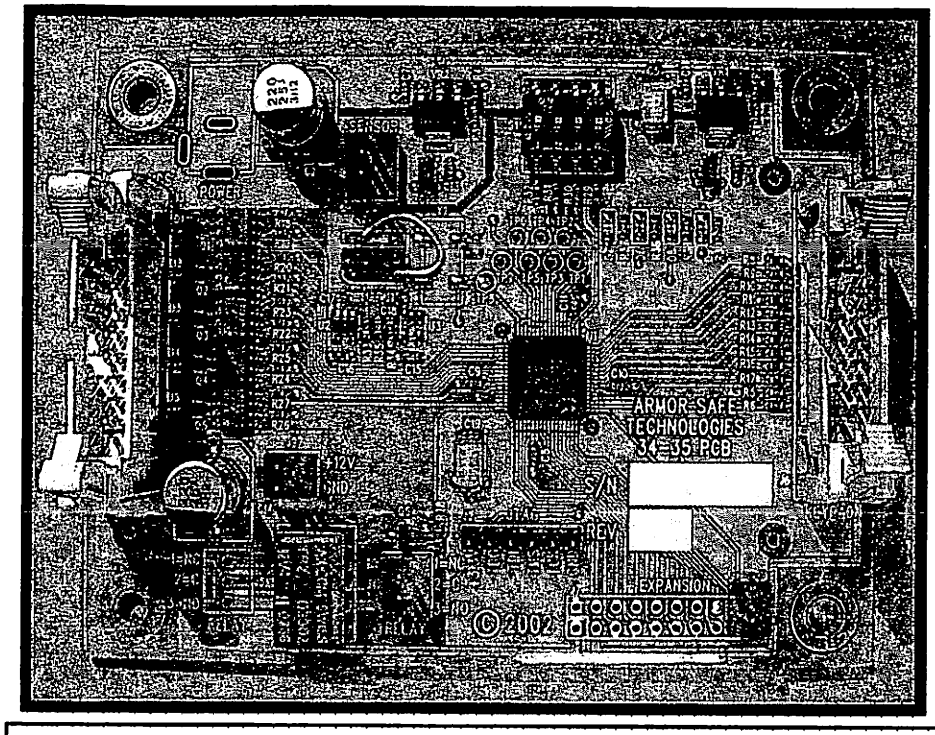
C	**Common; This connection is common to the NO and NC connections**
NO	**Normally; Open No connection between C and NO terminal when the key is removed.**
NC	**Normally; Closed Connection between C and NC terminal when the key is inserted and turned.**

The key switch must be wired correctly in order for the armored car or the override functions to work correctly. Both switch sets are the same and either one can be use.

If the system only has override only one side of the key switch is use. The black and white wires are connected the C and NO terminals on one switch set. Connect the black wire to C terminal and the white wire to NO terminal. The other end is connected to J21 (KEY) on the main board.

If the system is set for armored car both sides of the key switch are used. The black and white wires are connected the C and NO terminals on one switch set. Connect the black wire to C terminal and the white wire to NO terminal. The other end is connected to J21 (KEY) on the main board. The green and yellow wires are connected to the C and NO terminal of the other switch set. Connect the yellow wire to the C terminal and the green to the NO terminal. The other end is connected to J15 (CAR SW).

3400 / 3500 PCB (AC2000072 Rev B) Revised 04/03



J1	NOT USED	J5	NOT USED
J2	Xilinx Programming Port Using a xilinx parallel port programming cable	J6	Keypad Input 14 pin connector
J3	Solenoid Out 16 Pin connector	J7	Expansion port. Pins 18 and 20 Used for key switch delay override
J4	Relay Out Pin 1 = Normally Closed Pin 2 = Common Pin 3 = Normally Open	J8	Optical Sensor Input 3 pin connector

Dip Switch (S 1) Time Delay Settings

Minutes	Switch 4	Switch 3	Switch 2	Switch 1
0	OFF	OFF	OFF	OFF
1	ON	OFF	OFF	OFF
2	OFF	ON	OFF	OFF
3	ON	ON	OFF	OFF
4	OFF	OFF	ON	OFF
5	ON	OFF	ON	OFF
6	OFF	ON	ON	OFF
7	ON	ON	ON	OFF
8	OFF	OFF	OFF	ON
9	ON	OFF	OFF	ON
10	OFF	ON	OFF	ON
11	ON	ON	OFF	ON
12	OFF	OFF	ON	ON
13	ON	OFF	ON	ON
14	OFF	ON	ON	ON
15	ON	ON	ON	ON

LED Description

D6 Exit sensor beam broken or disconnected

D7 System in delay

D8 Relay in operation

D9 Ready to dispense

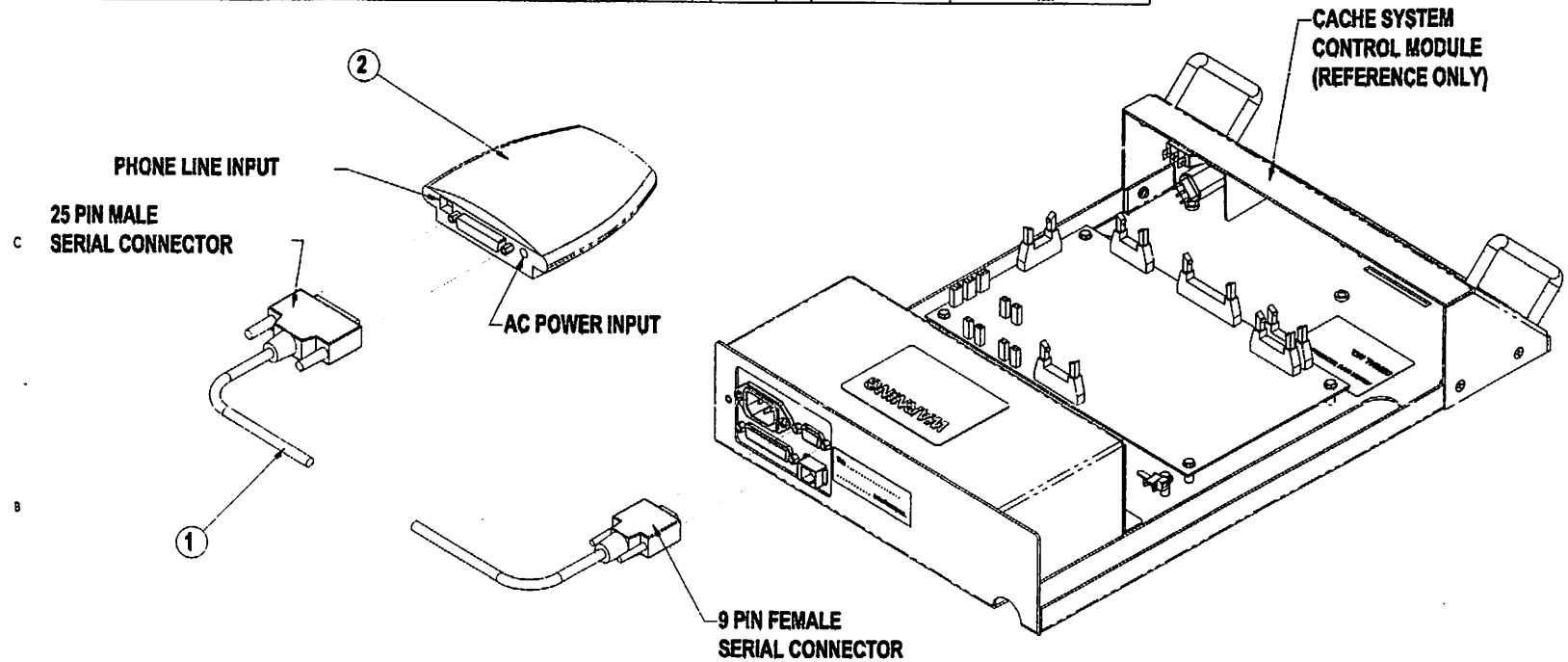
The above conditions are indicated by a lit LED.

3400 / 3500 LOGIC BOARD

REVISIONS

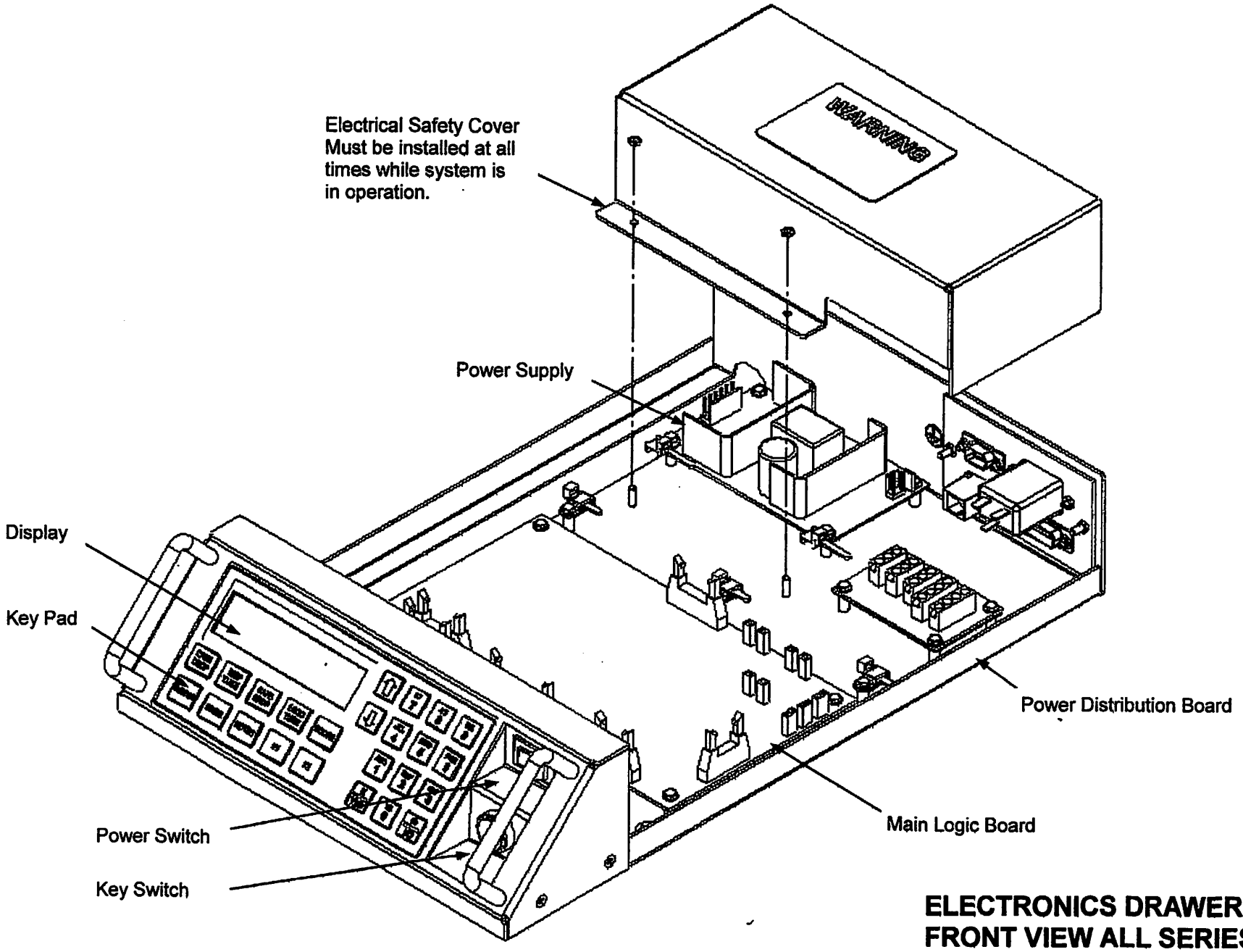
REV.	DESCRIPTION	DATE	APPROVED
A	RELEASED FOR PRODUCTION	12/07/01	

ITEM	PART NO	PART DESC.	QTY	MATERIAL	WIDTH	X	LENGTH	TYP.	SS PART - ITEM NO	MANUFACTURER
1	AC1212593	RS-232C CABLE, MALE DB25 TO FEMALE DB9	1	N/A		X	6'	N/A		N/A
2	AC1212590	EXTERNAL DATA MODEM, 56K, V.92/V.44	1	N/A		X		N/A		BEST DATA PRODUCTS
3	AC3000287	MANUAL, CACH TALK 2	1	N/A		X		N/A		N/A

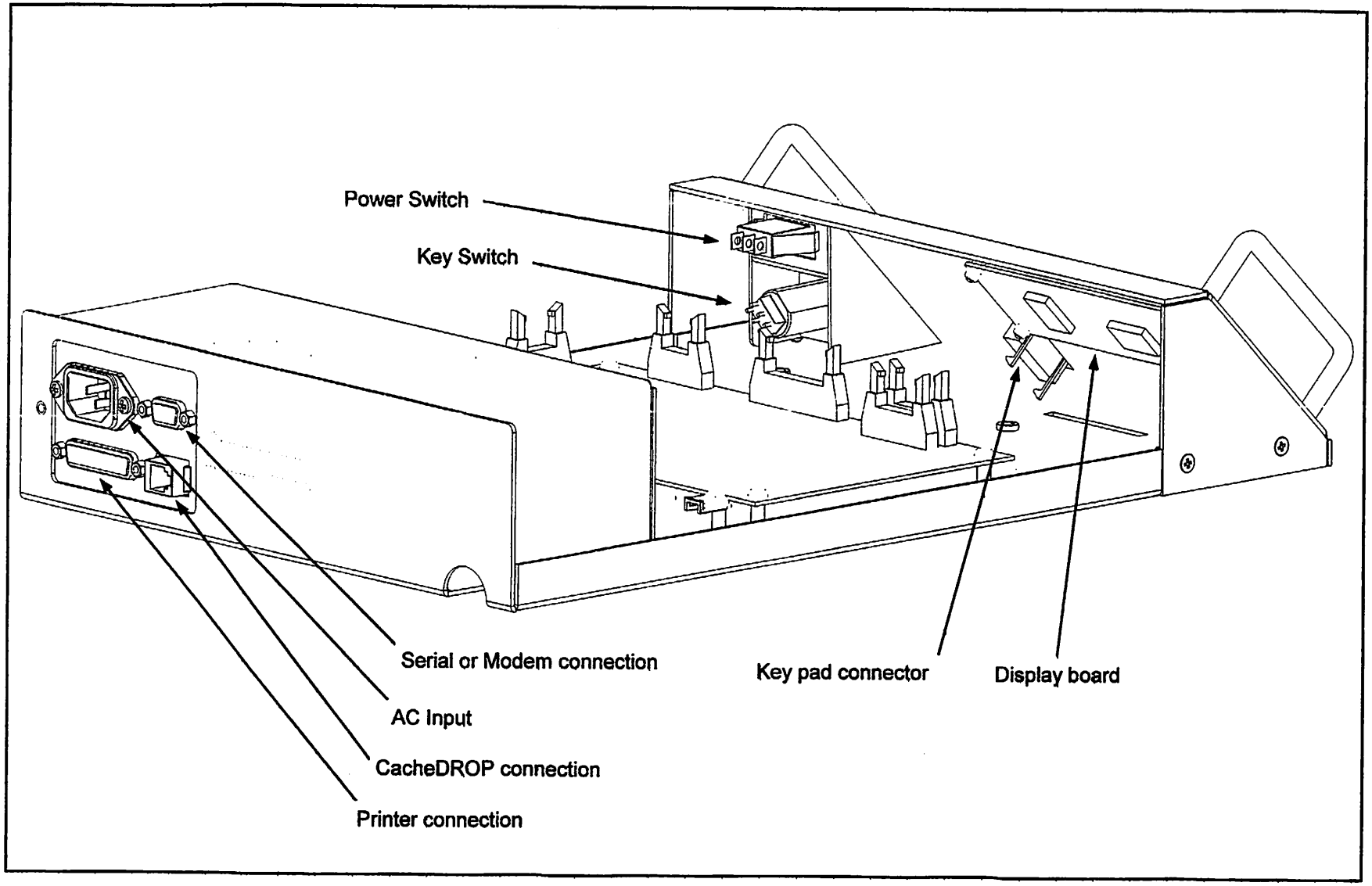


UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS ANGLES ±1/64 XX±.03 ±2° XXX±.010	CAD GENERATED DRAWING DO NOT MANUALLY UPDATE	ARMOR SAFE TECHNOLOGIES VISTA, CALIFORNIA	
MATERIAL	APPROVALS / DRAWN C.ROCHARDS	DATE 12/07/01	CACHE TALK II
FINISH	CHECKED		
NEXT ASSY / USED ON	ENG APP		
APPLICATION	MFG APP		
DO NOT SCALE DRAWING	QUAL APP		SIZE B DWG. NO. AC1212542-100 REV. A
			SCALE N/A CAD FILE SHEET 1 OF 1

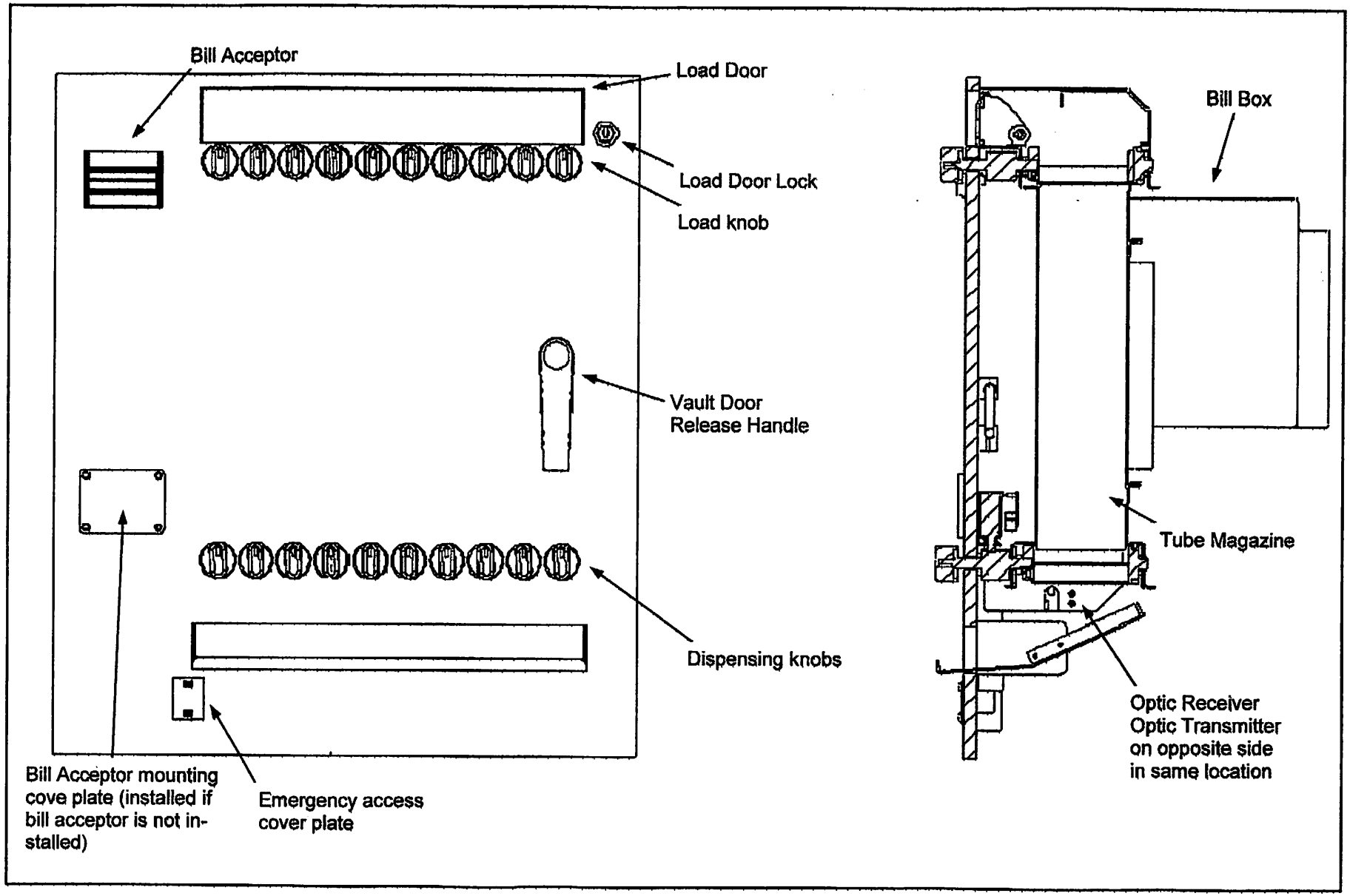
EXTERNAL MODEM CONNECTIONS



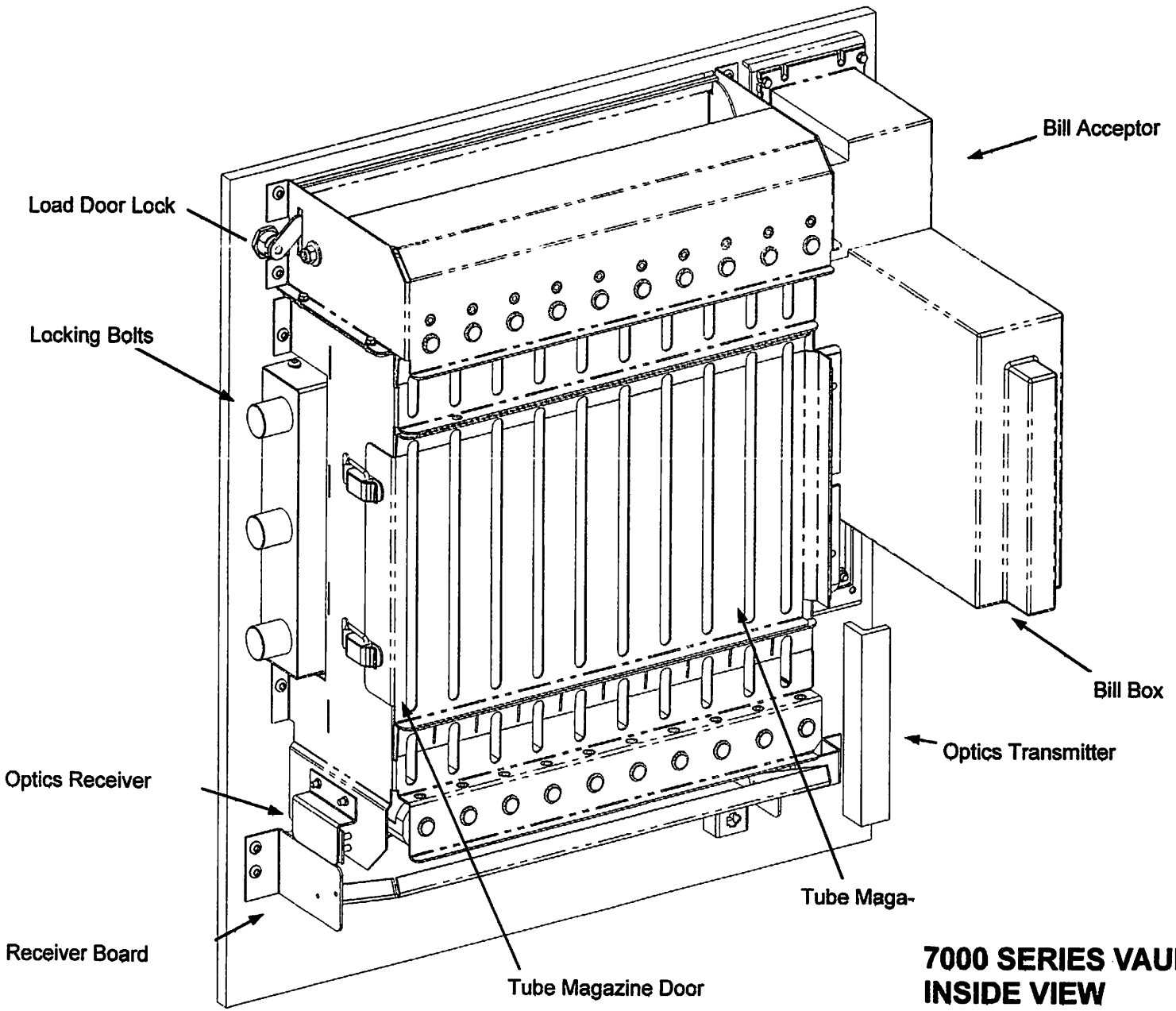
ELECTRONICS DRAWER
FRONT VIEW ALL SERIES



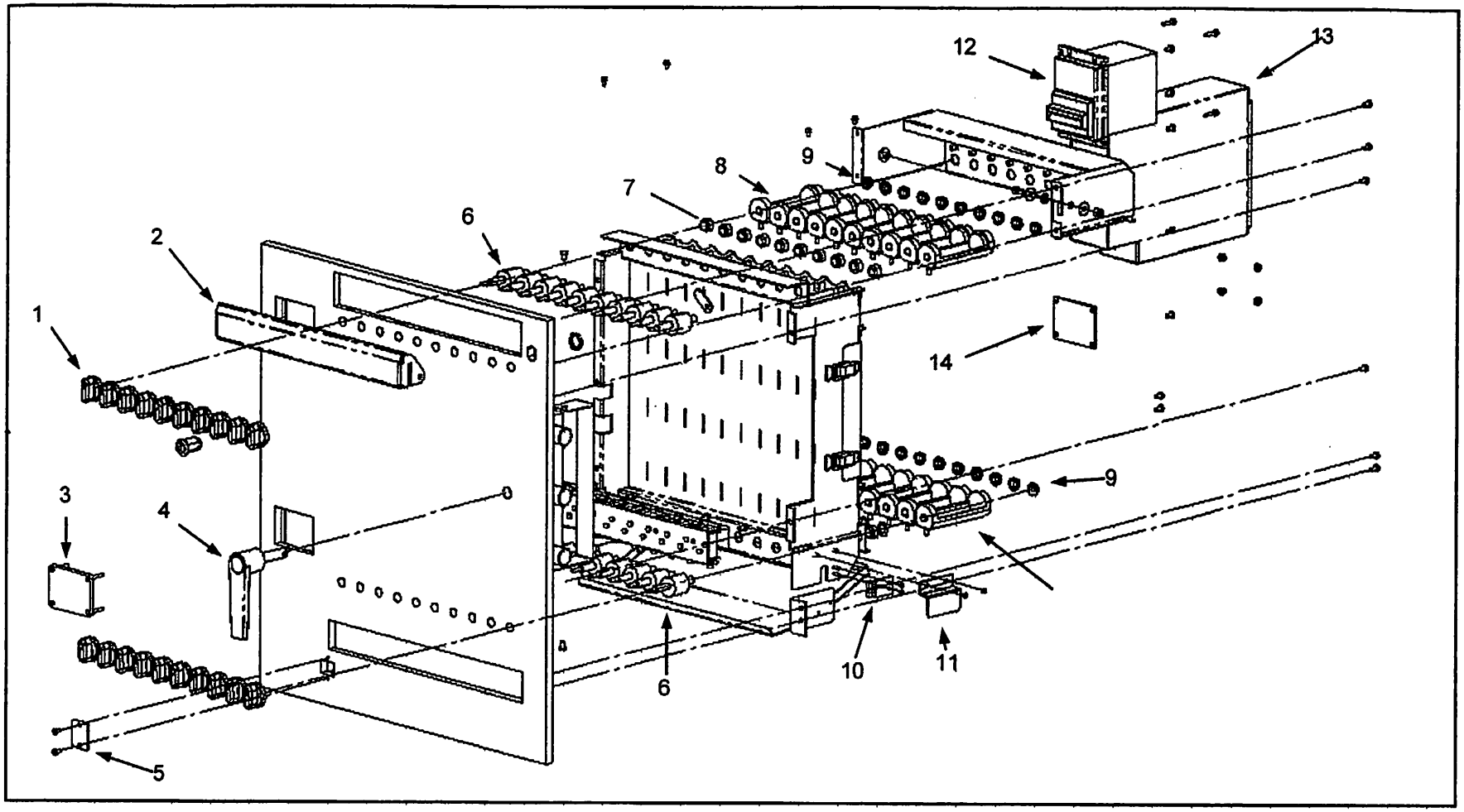
ELECTRONICS DRAWER
REAR VIEW ALL SERIES



7000 SERIES VAULT DOOR OUTSIDE VIEW



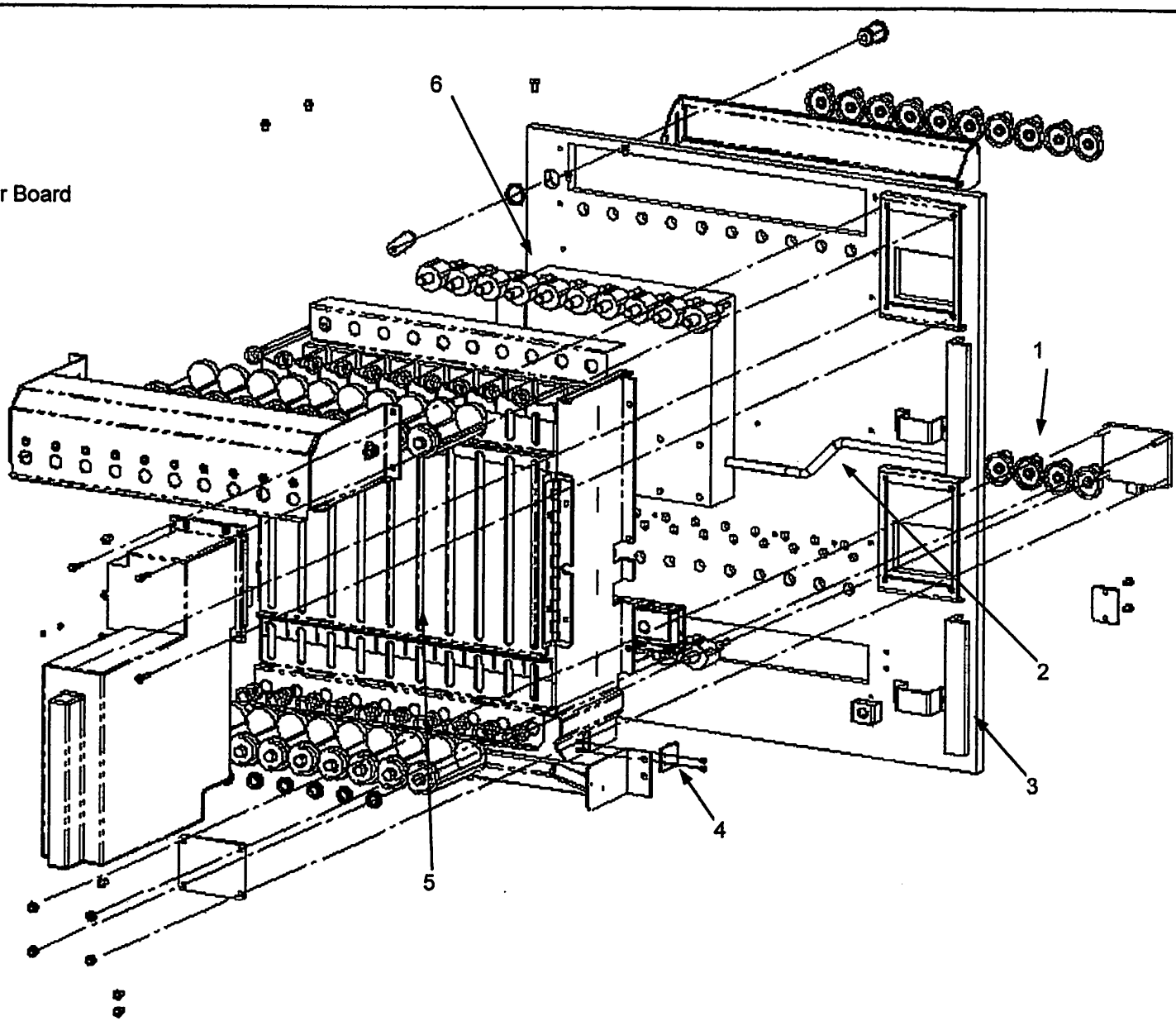
7000 SERIES VAULT DOOR
INSIDE VIEW



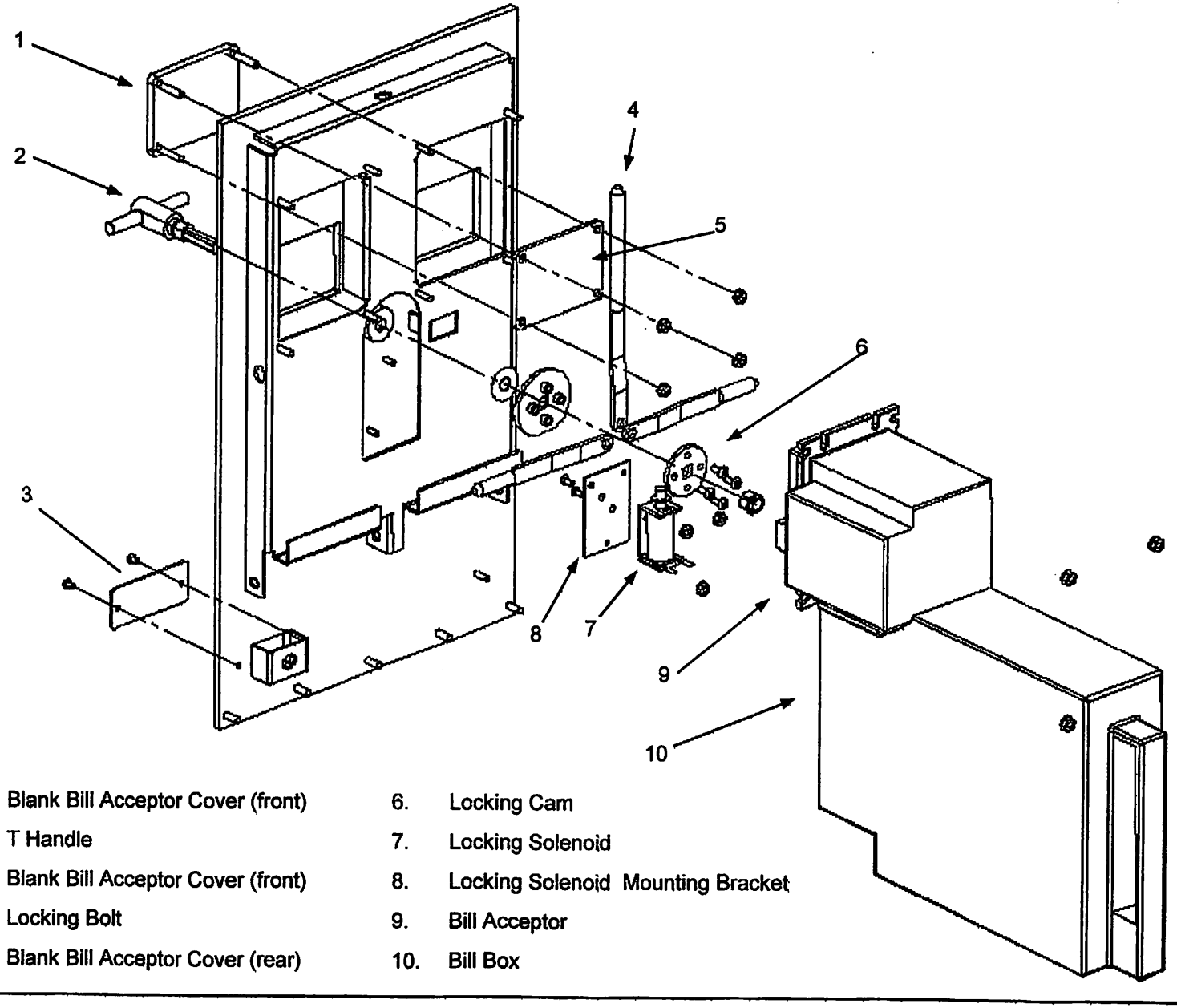
1. Load knob
2. Load Door
3. Blank Bill Acceptor Cover (front)
4. Vault Door Handle
5. Emergency Access Cover Plate
6. Tube Tray Stop
7. Front Bushing
8. Tube Tray
9. Rear Bushing
10. Optic Receiver Board
11. Receiver Board Cover
12. Bill Acceptor
13. Bill Box
14. Blank Bill Acceptor Cover (rear)

7000 SERIES VAULT DOOR FRONT VIEW (EXPLODED)

1. Dispense knob
2. Door
3. Dead Bar
4. Optics Transmitter Board
5. Tube Magazine
6. Boltwork Cover



7000 SERIES VAULT DOOR
REAR VIEW (EXPLODED)



1. Blank Bill Acceptor Cover (front)
2. T Handle
3. Blank Bill Acceptor Cover (front)
4. Locking Bolt
5. Blank Bill Acceptor Cover (rear)
6. Locking Cam
7. Locking Solenoid
8. Locking Solenoid Mounting Bracket
9. Bill Acceptor
10. Bill Box

2400 SERIES DOOR REAR VIEW (EXPLODED)