DRESSER Wayne

iX™ Pay Secure Payment

Secure Payment Module
SPM (U.S.)

Startup and Service

DANGER

READ THIS MANUAL BEFORE YOU BEGIN

Dispensers have both electricity and a hazardous, flammable and potentially explosive liquid. Failure to follow the below precautions and the Warning and Caution instructions in this manual may result in serious injury. Follow all rules, codes and laws that apply to your area and installation.

SAFETY PRECAUTIONS - INSTALLATION AND MAINTENANCE

Always make sure ALL power to the dispenser is turned OFF before you open the dispenser cabinet for maintenance. Physically lock, restrict access to, or tag the circuit breakers you turn off when servicing the dispenser. Be sure to trip (close) the emergency valve(s) under the dispenser BEFORE beginning maintenance.

Make sure that you know how to turn OFF power to the dispensers and submersible pumps in an emergency. Repair all leaks or defects immediately.

HOW TO CONTACT WAYNE

Technical questions related to the installation of this product should be referred to Wayne Technical Support (1-800-926-3737).

INDICATORS AND NOTATIONS

DANGER	Danger indicates a hazard or unsafe practice which, if not avoided, will result in severe injury or possibly death.
WARNING	Warning indicates a hazard or unsafe practice which, if not avoided, may result in severe injury or possibly death.
CAUTION	Caution indicates a hazard or unsafe practice which, if not avoided, may result in minor injury.
NOTE:	Important information to consider, otherwise, improper installation and/or damage to components may occur.

Secure Payment Module
SPM

(U.S. Version)

Service

December 2008 Part No. 940014 Rev A

1 INTRODUCTION

This manual provides startup, operation and service instructions for iX™ Pay Secure Payment. Information contained in this manual applies to the Secure Payment Module (SPM) U.S. version.

The term SPM refers to the secure keypad assembly, however, as of this writing, the SPM solution in the dispenser consists of the iX board and the keypad assembly. In the future, this may also include the card reader if the secure type card reader becomes a requirement in the U.S. See Section 3 for more details on the SPM components.

The SPM has two temporary modes (Waiting to Install and Production Test) and three functional modes: (Operation, Diagnostic, and Maintenance).

The SPM will be in the *Waiting to Install mode* while the dispenser is in shipment or warehoused, or while the service part keypad is in service parts stock. At Startup, the technician transitions the SPM from the Install mode to the *Operation mode*. Before entering the Operation mode, the SPM can be placed in the *Production Test mode* for 30 minutes to establish communications with the POS and test online sales.

The *Diagnostic mode* is used to test the bezel devices (softkeys, keypad, printer and card reader). This mode can be entered either before or after the SPM is put into the Operation mode. However, before placing the SPM into the Operation mode during startup, the procedure is to test the bezel devices, perform the DM configuration setup and, as necessary, use the Production Test mode to test sales with the POS.

Once the SPM is in the normal Operation mode, as with standard iX dispensers, the DM configuration steps can be performed by rebooting and pressing softkey #2 at the “One Moment Please” prompt. At anytime during normal operation, either online or offline with the POS, you can press the two top softkeys to access the Diagnostic mode or to access system information such as software version numbers. You can also press the two bottom softkeys to print out CAT status information.

The *Maintenance mode* serves two purposes: It allows the technician to change the encryption being used without having to change out the keypad, and it allows for the removal of the keypad from the dispenser without causing the security keys to be erased. This mode must be used if there is a need to remove a working SPM, or if there is a need to remove the SPM panel. If the Maintenance mode is not used in these cases, the SPM security keys will be erased and the keypad will be inoperative. See *Section 1.2 Avoiding Accidental Breaches.*

It is not necessary to use the Maintenance mode when replacing the ix board or when replacing the SPM battery. However, the keys will be erased if the battery is disconnected while power is off. **When replacing the SPM battery, dispenser power must remain ON and the USB cable must be connected.**

1.1 Functional Block Diagram

A simplified block diagram of the dispenser SPM system is shown in Figure 1 on the following page. A detailed dispenser wiring diagram is provided in the back of this manual.

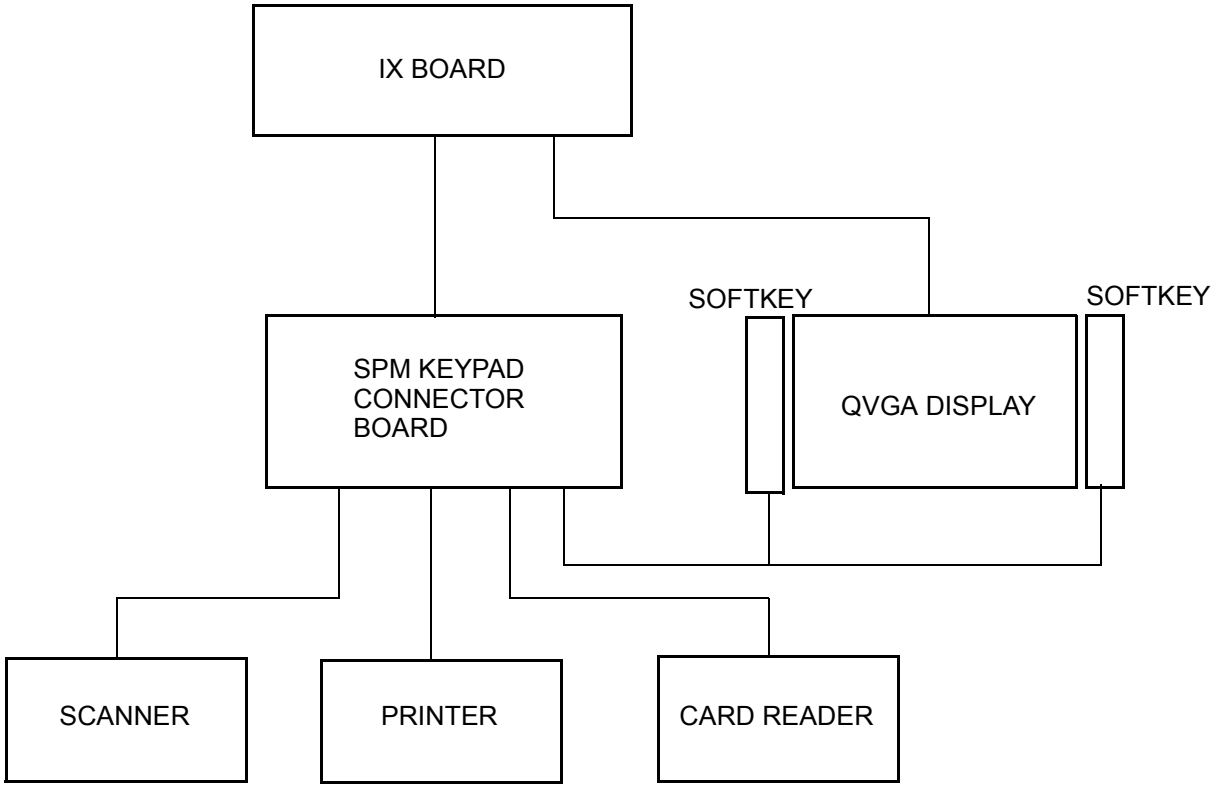


FIGURE 1 SPM FUNCTIONAL BLOCK DIAGRAM

1.2 Avoiding Accidental Breaches

When a breach in the security occurs, keys are erased and the SPM (keypad) becomes inoperative. Below are some guidelines to keep from accidentally erasing the keys.

1. Battery:
   Do not replace the battery on the SPM with the dispenser powered down. Dispenser power to the SPM must remain on when disconnecting the battery.

   Do not disconnect the USB cable or power from the iX board when replacing the battery.

   Do not disconnect battery from the service part SPM while it is in spare parts stock.

2. Maintenance mode:
   Must enter the maintenance mode to change out keypads, assuming the keypad has not been breached yet. Example, if a customer is changing out keypads, or if there is a need to remove the panel.

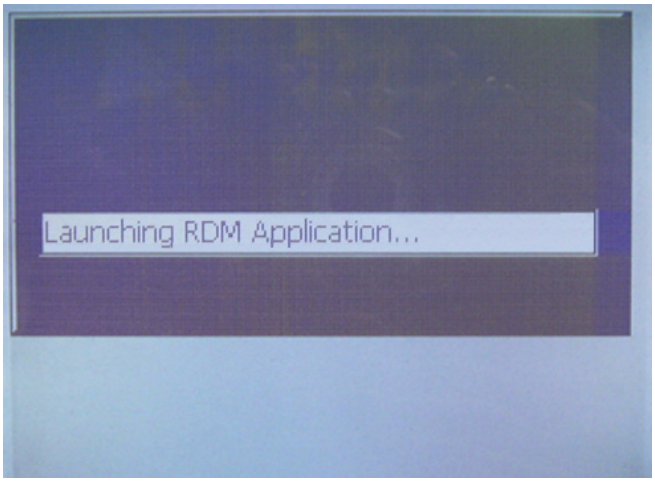
   If the keys have been erased, as will be shown on the configuration printout, there is no need to enter the maintenance mode to replace the SPM.

2 STARTUP INSTRUCTIONS

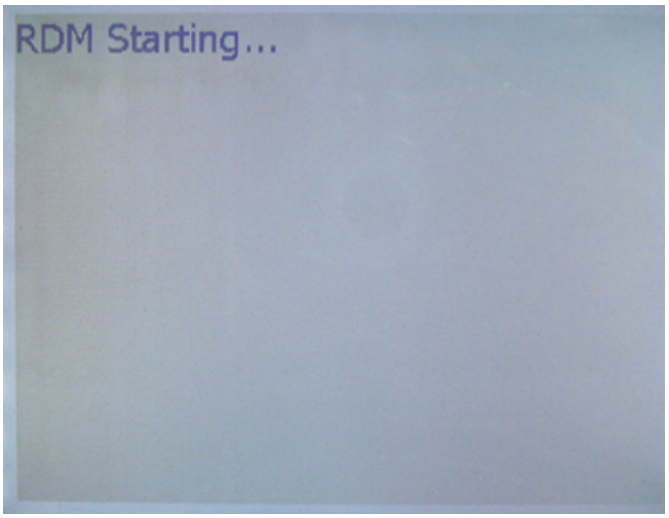
To simplify showing the screen sequences in this manual, only the screen shots are shown during the following startup instruction steps. However, since some of the instructions in this manual refer to the softkey numbers, both the softkeys and associated softkey numbers are shown in the first step.

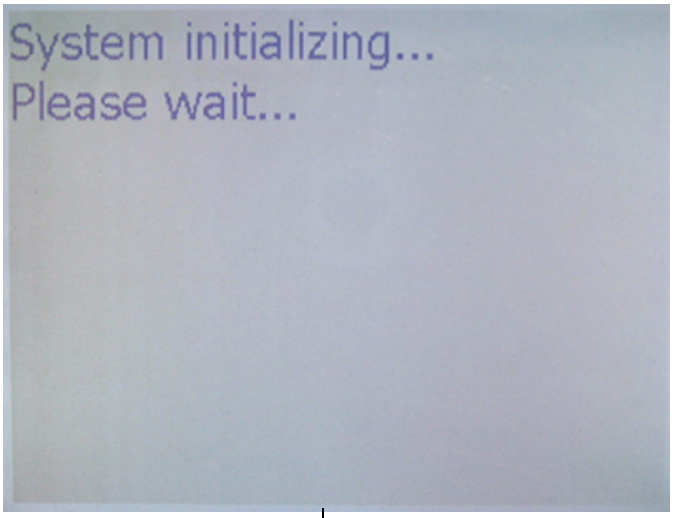
Follow the instructions in the order presented in this section.

The following screen sequence occurs when powering up the dispenser for the first time.



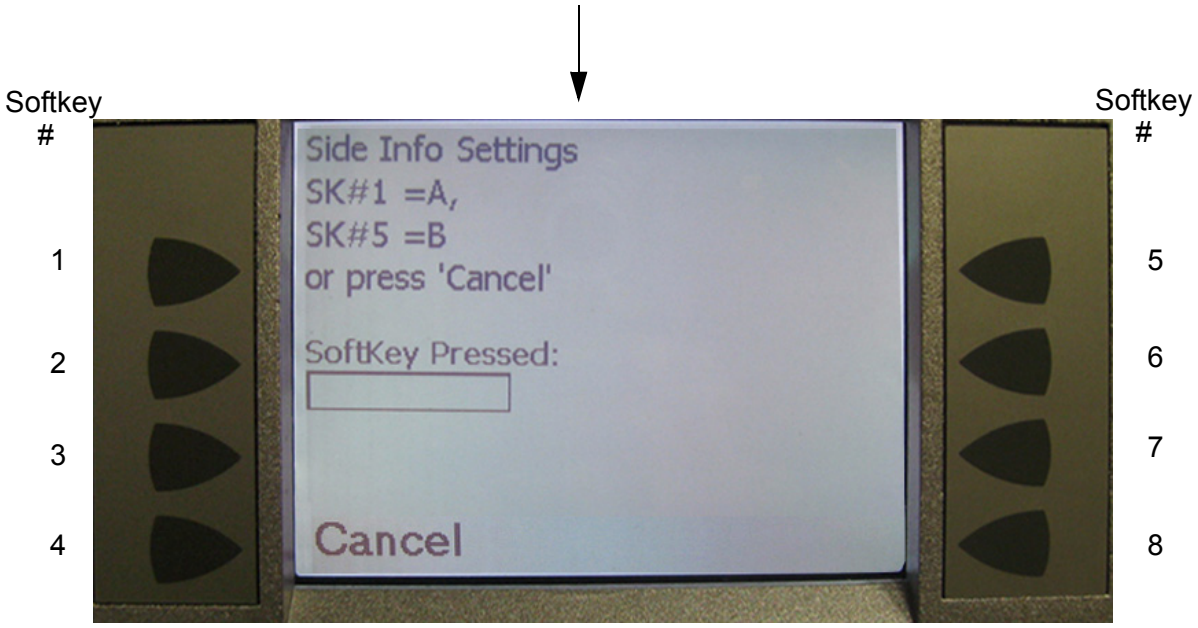
BLANK SCREEN



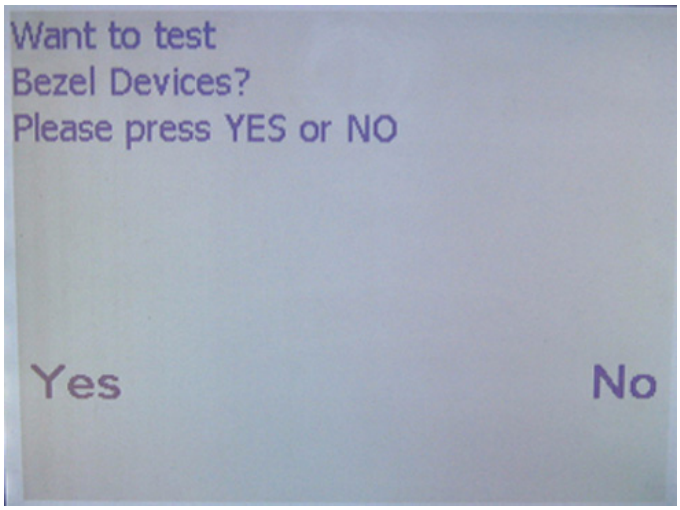


continued on next page

At installation and startup, perform the steps indicated as the screens are displayed.

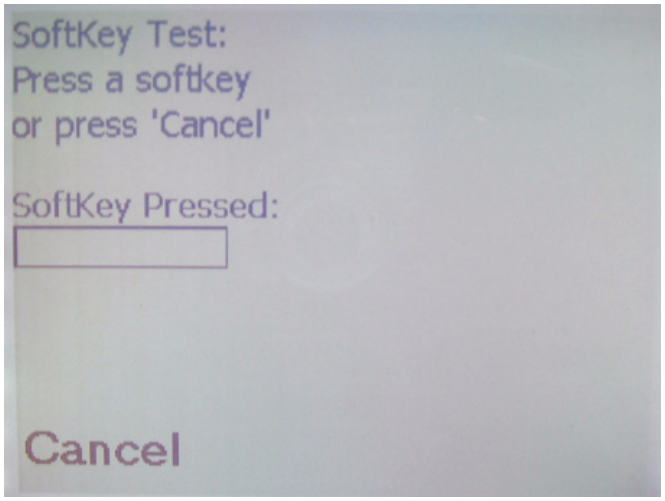


STEP 1. PRESS UPPER LEFT SOFTKEY #1 FOR SIDE A OR PRESS UPPER RIGHT SOFTKEY #5 FOR SIDE B, THEN PRESS THE CANCEL SOFTKEY.
NOTE: THE JUCTION BOX SIDE OF DISPENSER IS SIDE A.

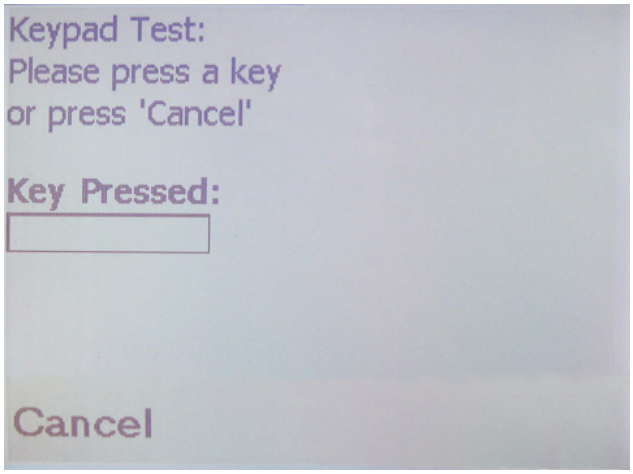


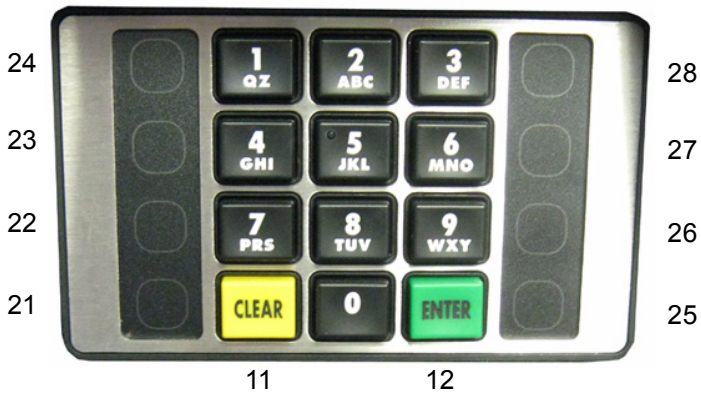
STEP 2. SELECT YES AND TEST BEZEL DEVICES

continued on next page



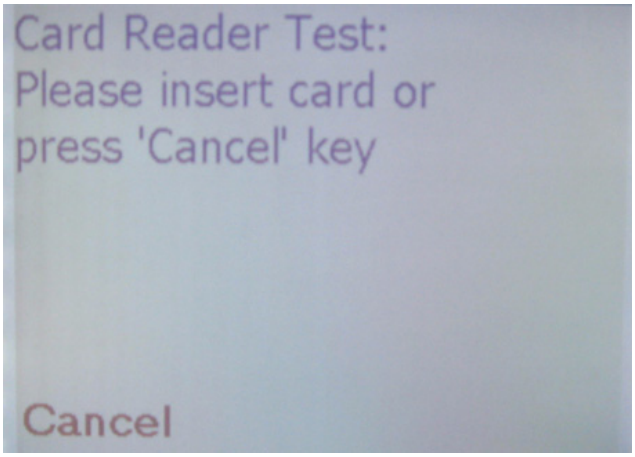
STEP 3. PRESS EACH SOFTKEY AND VERIFY THAT THE SOFTKEY NUMBERS ARE DISPLAYED.

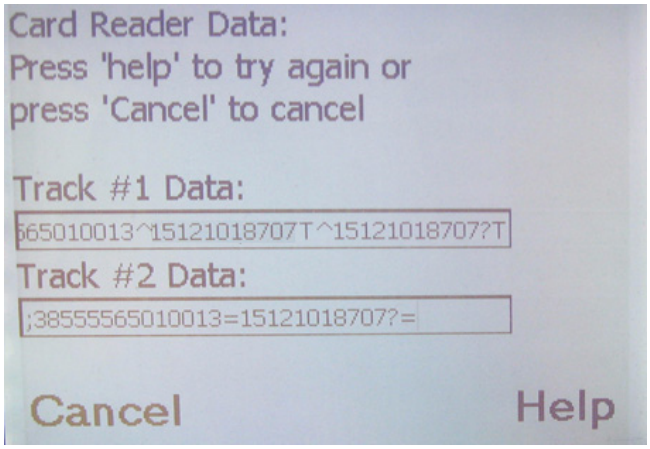




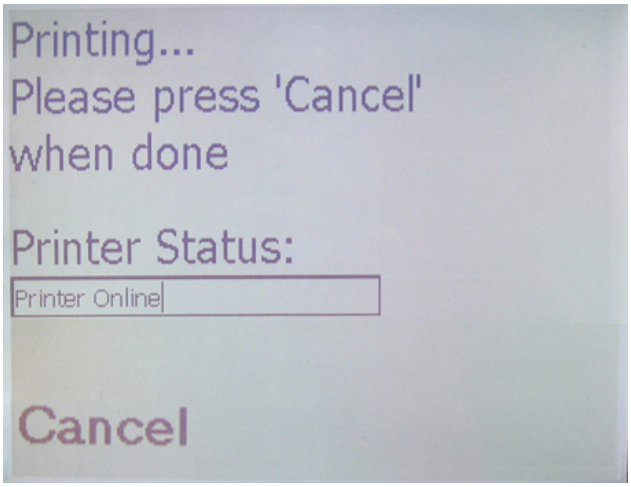
STEP 4. PRESS EACH KEY ON THE KEYPAD AND VERIFY THE NUMBER IS DISPLAYED. NON-NUMERIC KEYS WILL DISPLAY THE HEX VALUE AS SHOWN AT RIGHT.

FOR EXAMPLE, “Val: 11 Hex” SHOULD BE DISPLAYED WHEN THE CLEAR KEY IS PRESSED.



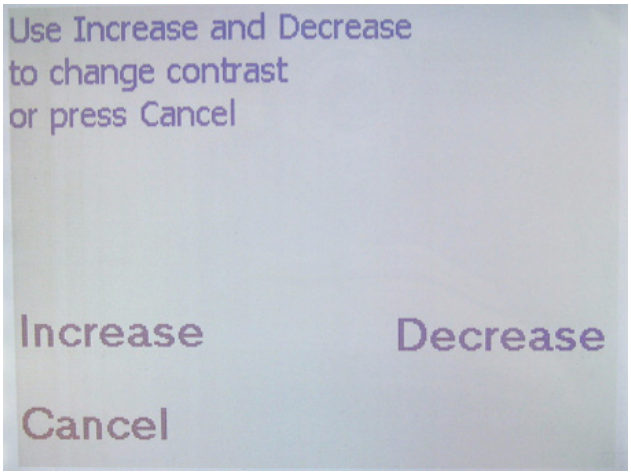


STEP 5. INSERT AND REMOVE A CARD TO TEST THE CARD READER. PRESS HELP, TURN CARD AROUND AND INSERT TO TEST DOUBLE SIDED READER FUNCTION. PRESS CANCEL OR PRESS HELP TO TEST SCANNER IF APPLICABLE.

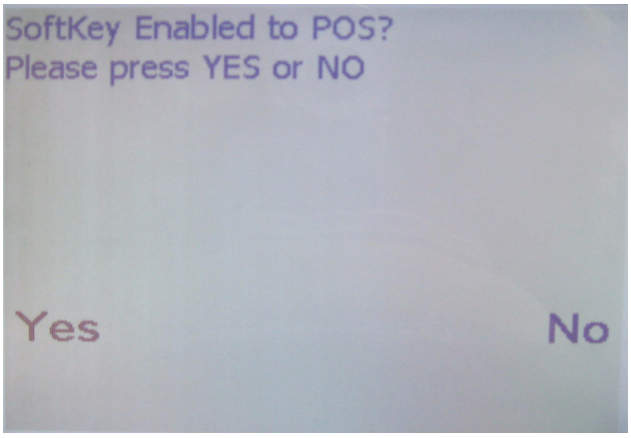


STEP 6. THE PRINTER WILL AUTOMATICALLY PRINT A REPORT. PRESS CANCEL AFTER THE REPORT IS PRINTED.

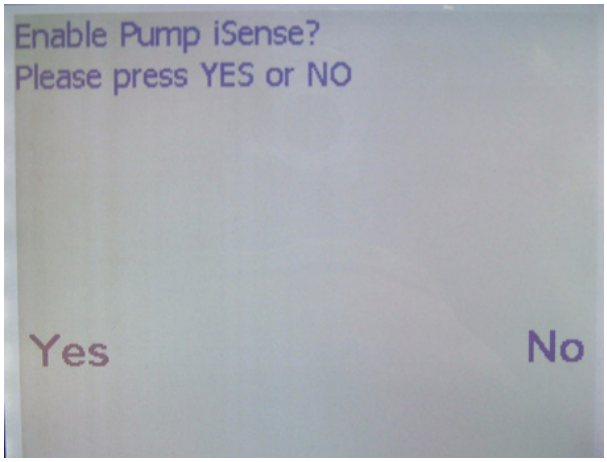
NOTE: SOME DATA ON THIS INITIAL REPORT MAY NOT BE ACCURATE UNTIL THE DM CONFIGURATION IS COMPLETED IN THE FOLLOWING STEPS.



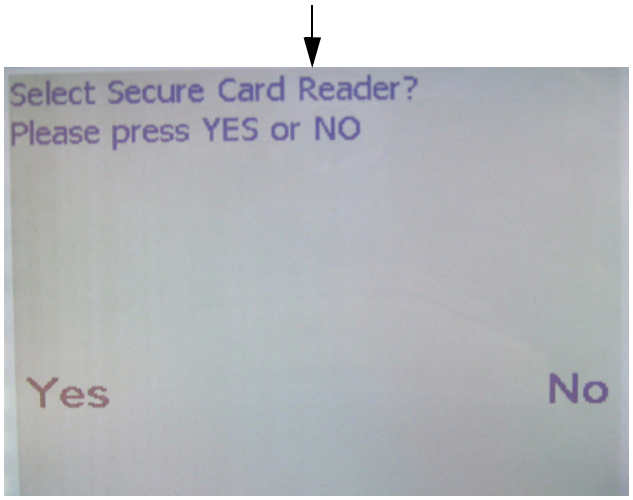
STEP 7. IF NECESSARY, REPEATEDLY PRESS THE INCREASE OR DECREASE SOFTKEY TO ADJUST THE SCREEN CONTRAST, THEN PRESS CANCEL.



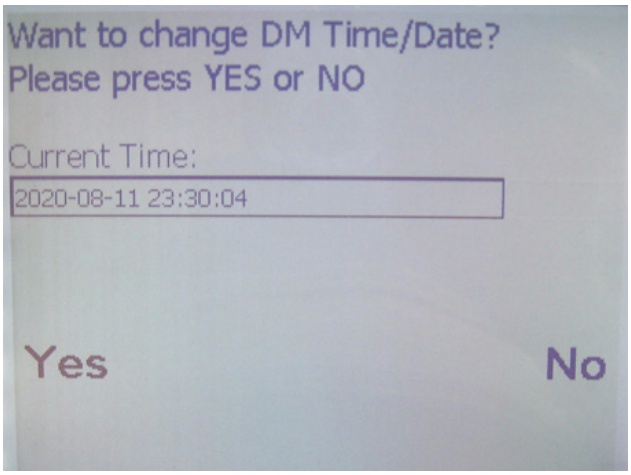
STEP 8. IF THE POS WILL RECONGNIZE SOFTKEYS AT THE DISPENSER SELECT YES, OTHERWISE SELECT NO.



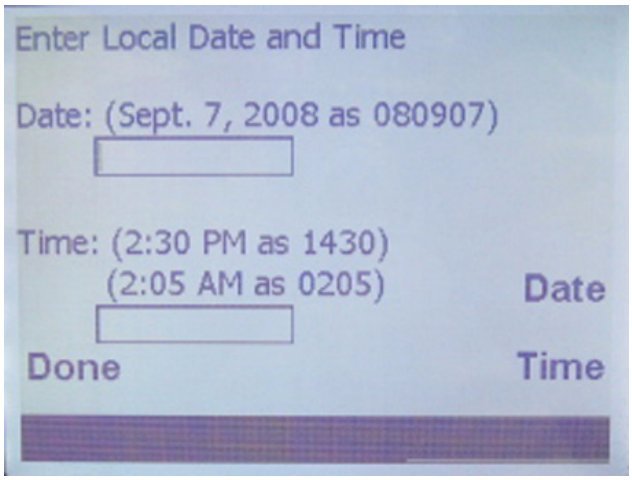
STEP 9. IF THE SITE IS USING A GATEWAY TO RECEIVE PUMP INFORMATION, SELECT YES, OTHERWISE SELECT NO. WHEN ENABLED, THE GATEWAY CAN RETRIEVE THE PUMP TEST DATA SHOWN ON PAGE 15. IN THIS CASE, THE SCREEN WILL BE DISPLAYED AFTER THE CARD READER AND PRINT TEST.



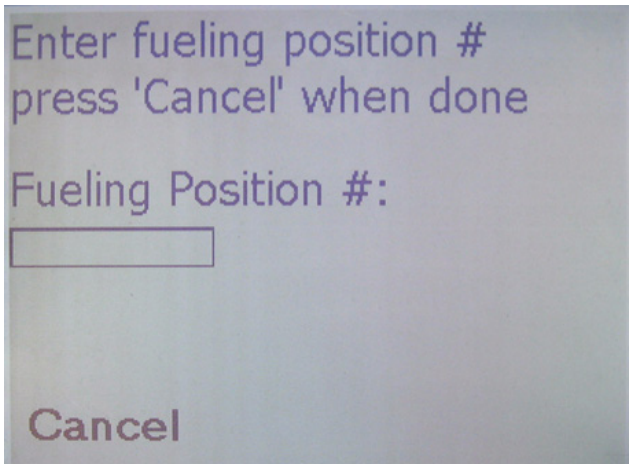
STEP 10. SELECT NO UNLESS USING THE SECURE/ENCLOSED CARD READER SHOWN IN SECTION 3.



STEP 11. SELECT YES AND SET THE TIME AND DATE IN THE FOLLOWING SCREEN.

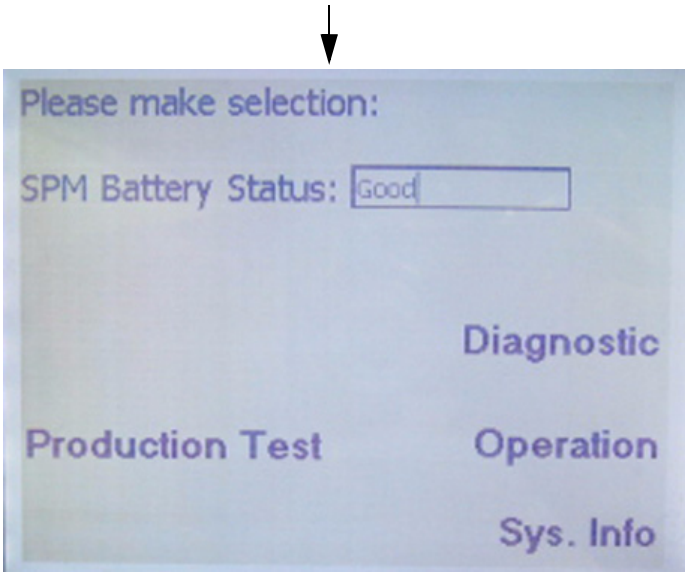


NOTE: TIME ENTRY IS ESSENTIAL SINCE THE IX AUTOMATICALLY RESETS ONCE EVERY 24 HRS AT 2:00 AM.



STEP 12. AT THE KEYPAD, ENTER THE FP NUMBER AND PRESS THE ENTER KEY OR PRESS CANEL SOFTKEY.

After entering the fueling point number, the screen shows Dispenser Manager Starts, the system configuration report prints and the system reboots and goes to the screen that shows ‘Production Test”. If a fueling point is not entered (0 on the printout) the system will reboot to the Want to Test Bezel Devices screen and the configuration must be repeated.



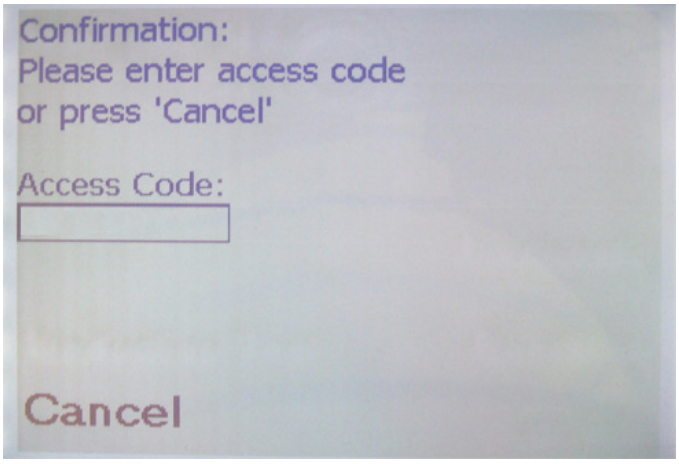
STEP 13. PERFORM STEPS A) THROUGH C) AS NECESSARY, THEN PERFORM STEP D).

A) TO RUN TEST SALES WITH THE POS BEFORE PLACING THE SPM INTO THE OPERATION MODE, SELECT ***PRODUCTION TEST*** AND ENTER THE ACCESS CODE (STEP 14). THIS WILL ALLOW 30 MINUTES TO ESTABLISH POS COMMUNICATIONS AND TEST SALES. FOR 30 MINUTES, THE SCREEN WILL DISPLAY THE DEFAULT PROMPT “PLEASE PAY INSIDE (E01)” AND THEN RETURN TO THE PRODUCTION TEST SCREEN. NOTE: THE PRODUCTION TEST SCREEN IS NOT DISPLAYED AGAIN ONCE THE SPM IS PLACED INTO THE OPERATION MODE. NOTE: A REBOOT IS REQUIRED TO EXIT SOONER THAN 30 MINUTES.

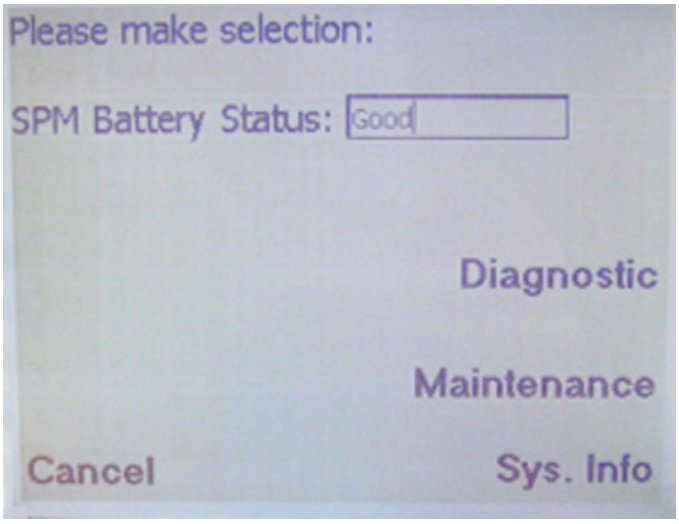
B) TO PERFORM THE BEZEL DEVICES TEST AGAIN, SELECT ***DIAGNOSTIC***, ENTER THE ACCESS CODE (STEP 14), AND PERFORM TEST AS SHOWN IN PREVIOUS STEPS 3 THRU 6. PRESS CANCEL WHEN FINISHED TO RETURN TO THE ABOVE SCREEN.

C) TO VIEW THE IXCAT, SPM OR CARD READER SOFTWARE REVS, SELECT ***SYS. INFO*** AND THE SCREEN ON PAGE 15 WILL BE DISPLAYED. PRESS CANCEL WHEN FINISHED TO RETURN TO THE ABOVE SCREEN.

D) PLACE THE SPM INTO THE OPERATION MODE BY SELECTING ***OPERATION*** AND ENTER ACCESS CODE (STEP 14) AND THEN PROCEED TO STEP 15



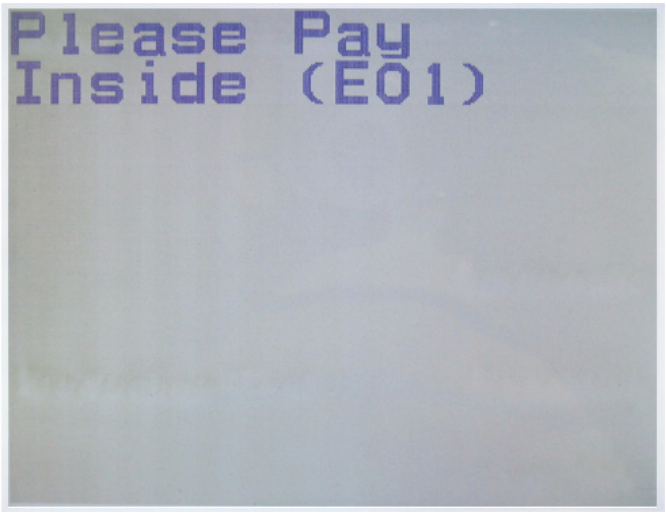
STEP 14. ENTER THE 4-DIGIT ACCESS CODE ON THE KEYPAD AND THEN PRESS THE ENTER KEY.



STEP 15. THIS IS THE OPERATION MODE SCREEN. PRESS CANCEL OR SEE NOTE BELOW.

When the Diagnostic and Maintenance screen is shown, the system is in the Operation mode. Press Cancel or let the screen time out in a few seconds, in either case, the screen will change to the default offline prompt shown below. This screen will be displayed until the system comes online with the POS and the online prompt is displayed.

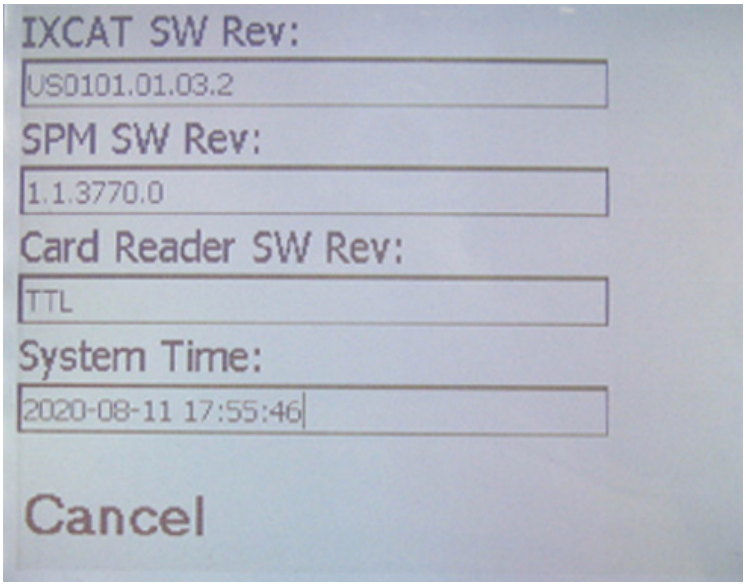
NOTE: At startup, it should not be necessary use the Maintenance mode. The encryption type, either DES or 3DES, is predetermined by each customer's order and set accordingly at the factory. However, if it should be necessary to change from one type to another, select Maintenance and follow the procedure in the Maintenance Mode section of this manual.



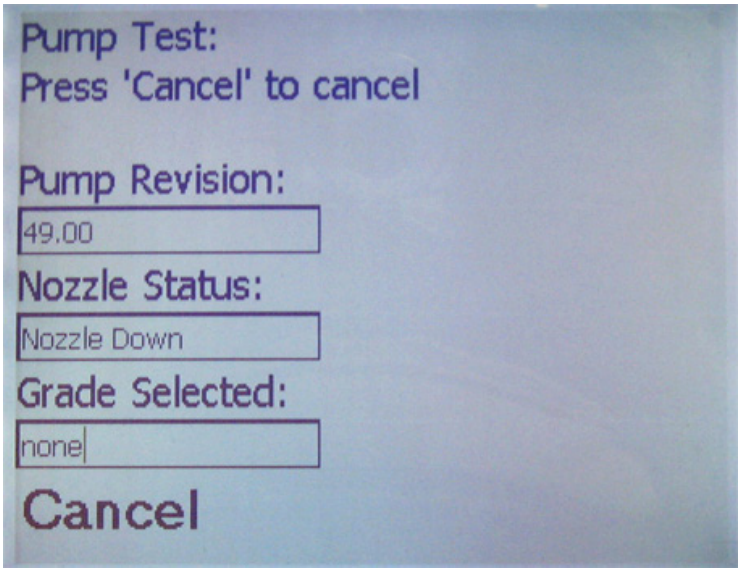
DEFAULT OFFLINE SCREEN

STEP 16. WHEN THE ABOVE DEFAULT SCREEN CHANGES TO THE ONLINE PROMPT (INSERT CARD, BEGIN FUELING, ETC.), RUN A FEW TEST SALES TO VERIFY OPERATION.

THIS COMPLETES THE STARTUP OF THE SPM.



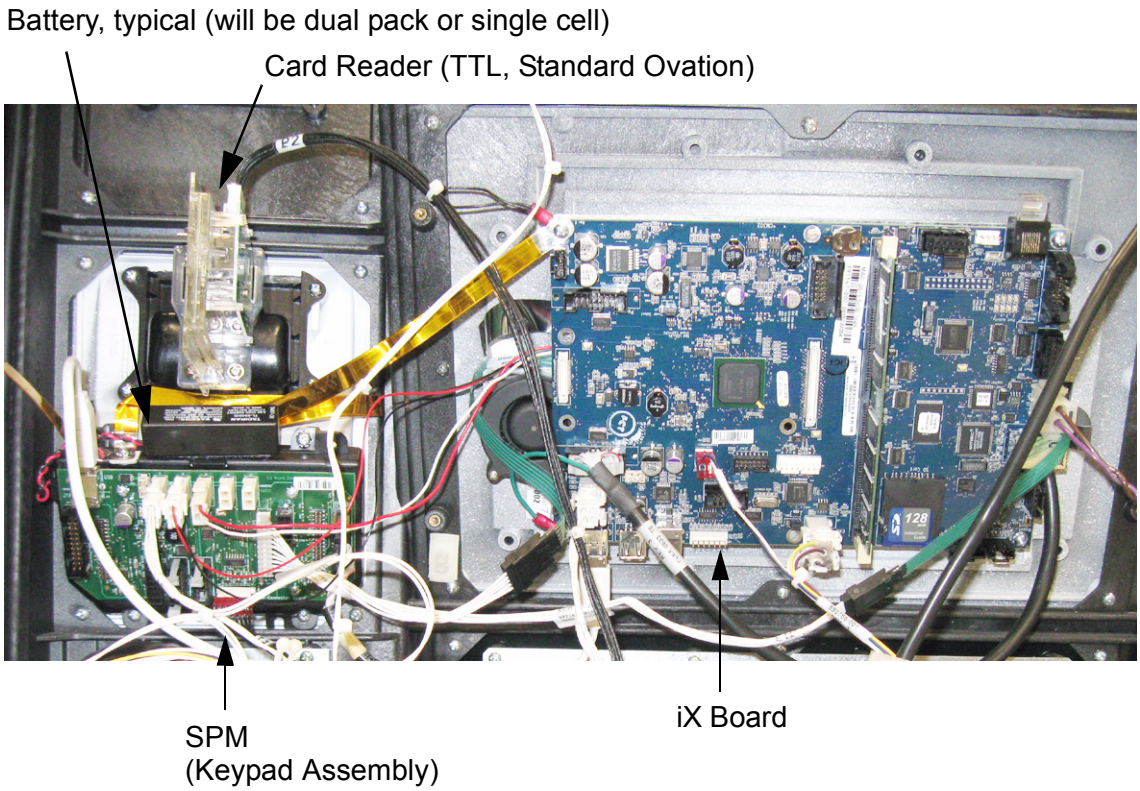
SYSTEM INFO SCREEN

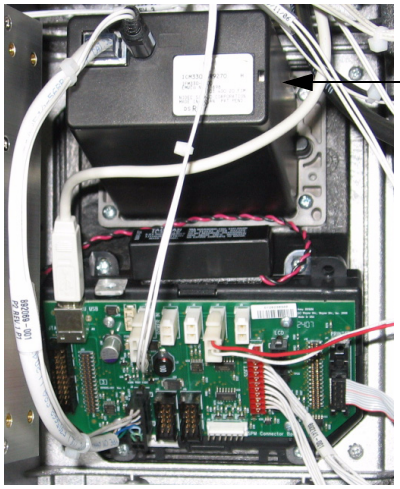


PUMP TEST SCREEN

3 COMPONENT DETAILS

3.1 SPM, Card Reader and iX Board





Secure Enclosed Card Reader, Typical (**Not currently used,** but may be offered in the future if U.S. requirements so dictate.) Shown here for comparion purposes when performing the DM configuration setup.

Figure 3-1 SPM AND COMPONENTS.

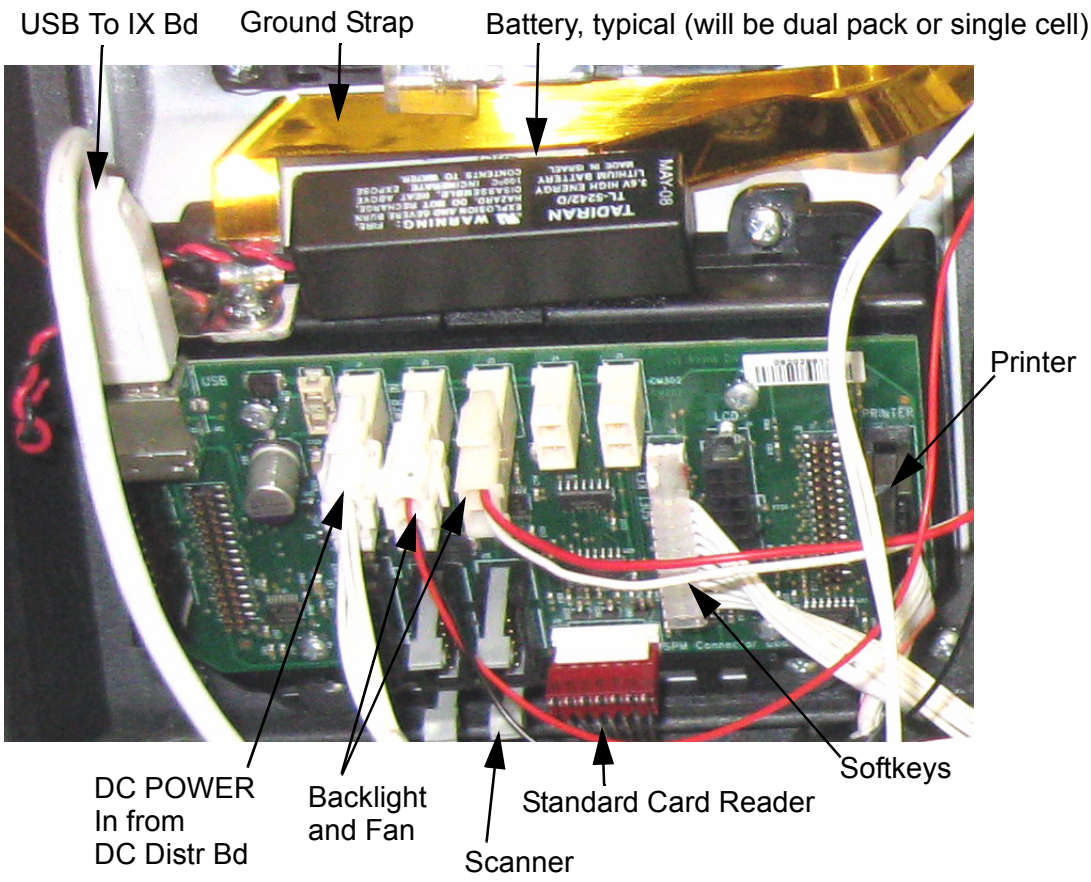


Figure 3-2 SPM CONNECTIONS.

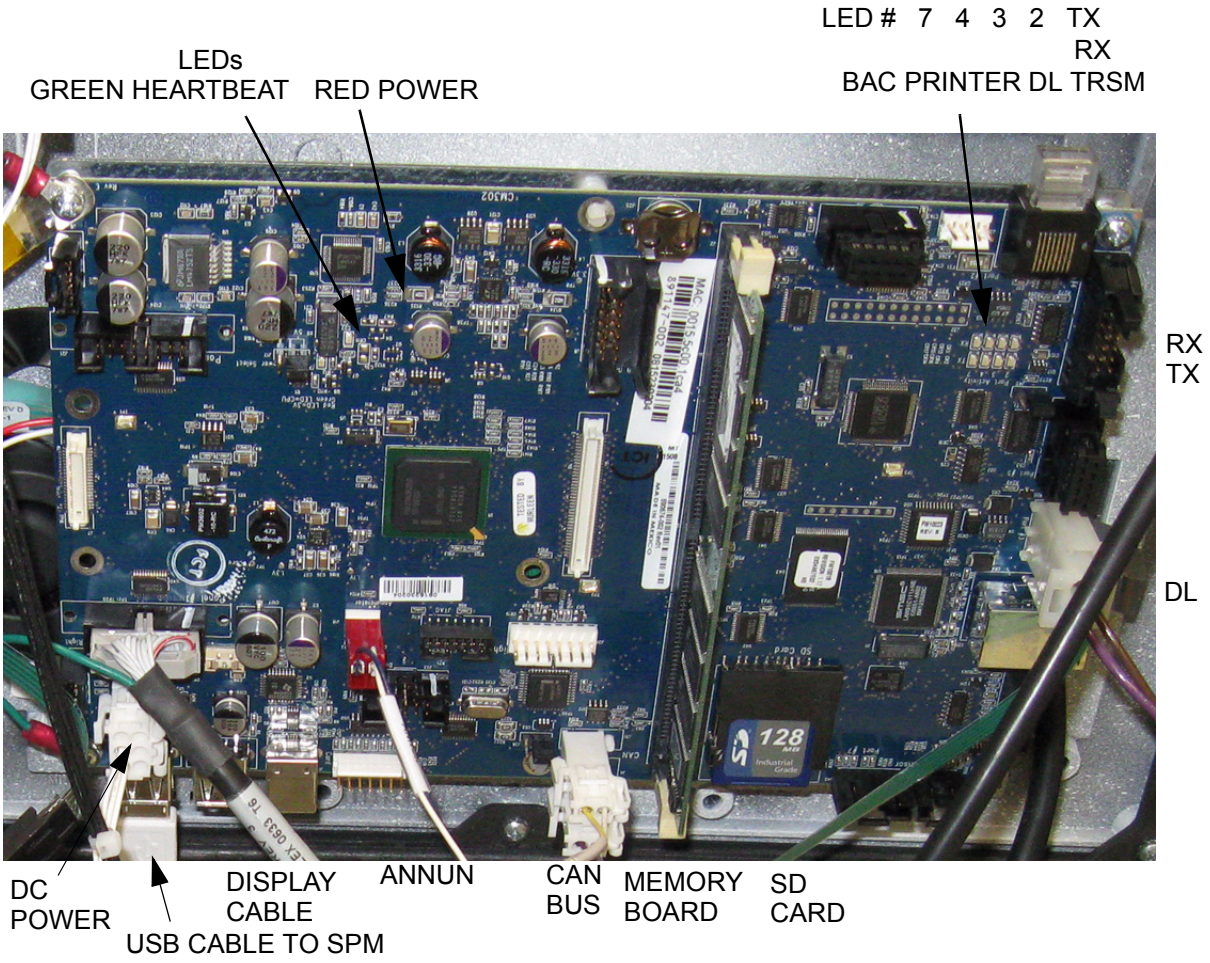


Figure 3-3 iX BOARD CONNECTIONS.

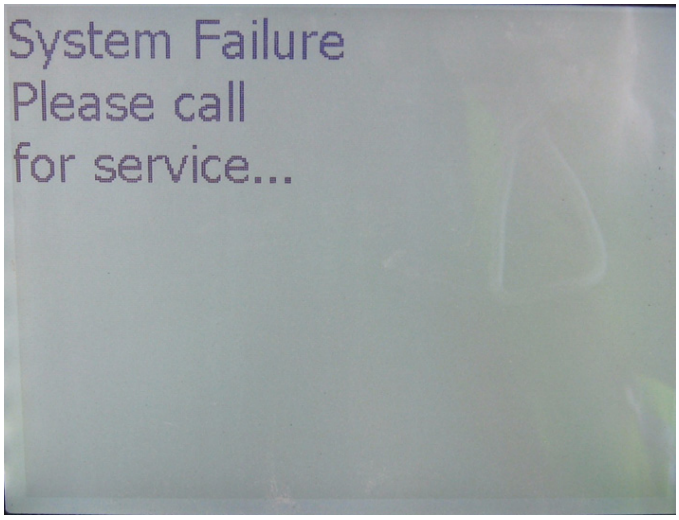
4 PROBLEM SYMPTOMS AND SOLUTIONS

When the keypad and card reader are inoperative due to a security breach, a configuration report can still be printed by rebooting and pressing the 2 softkey at the One Moment Please prompt. In the Diagnostic/Test Bezel Devices, the test automatically skips the keypad and card reader tests and goes directly to the printer test and prints the configuration report. A sample report is shown later in this section.

4.1 Indications That Keys Were Erased

The following are indications that a security breach occurred and the keys were erased.

1. “System Failure, Please call service…” is displayed as shown below.



2. The configuration report shows a two digit code number under the Erase Reason Buffer. Note: Look for numbers in addition to 80, which is always listed on the report.

4.2 Reasons for Keys Being Erased

1. SPM has been tampered with.

2. Loss of power to the SPM:

   Battery is bad or disconnected while dispenser power was off.

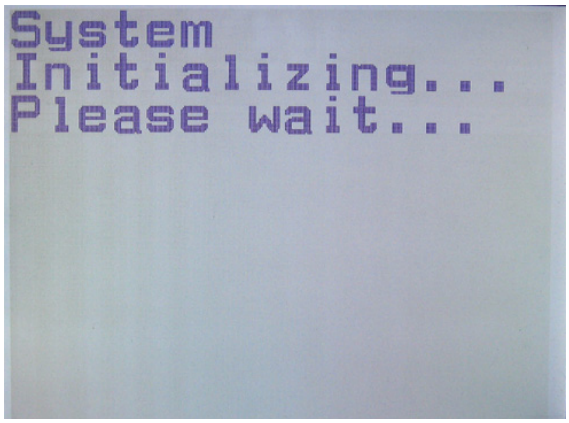
3. Did not enter Maintenance mode before attempting to replace the keypad or panel. See replacement procedures section.

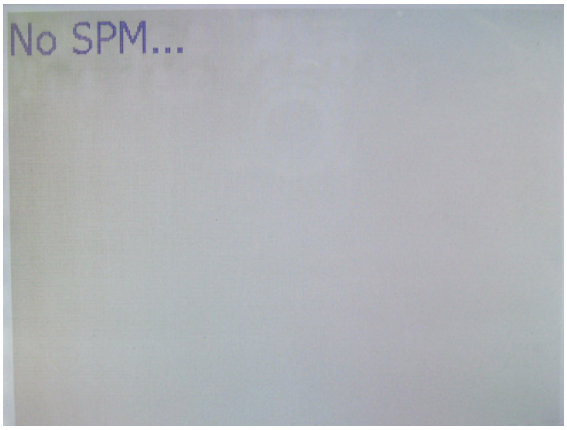
Once the keys have been erased, the keypad must be replaced.

4.3 USB

The screen sequence below is a symptom of lost USB communications. When USB communications are lost, the “System Initializing Please Wait..” and the “No SPM..” screens are displayed until communications are restored. The No SPM screen is displayed for 60 seconds and then the iX will try to re-establish USB communications by re-initializing. This sequence will continue repeatedly until the problem is solved.

Check the USB cable/connection between iX board and SPM. .





4.4 Battery

The SPM battery has a nominal voltage of 3.6 V. When the battery voltage goes below 3.2 volts, the screen will display the prompt “Low Battery, do you wish to continue?” The user can select Yes or No. If No is selected, a sale can not be made until a reboot occurs at which time the prompt is displayed again. If Yes is selected, sales will continue and the prompt will appear again on the next reboot. A system reboot occurs automatically every 24 hours. When the battery voltage goes below 3.0 volts, the SPM system will shut down to avoid erasing the security keys. CAT sales can not be made until the battery is replaced.

The battery voltage level is shown on the configuration report. Battery status: Good, Low, or Replace is shown in the Operation mode screen.

Be sure to leave power on and the USB connected when replacing the SPM battery. If power is off and the battery is disconnected, the SPM keys will be erased.

Always have the battery connected when the SPM is out of the dispenser.

4.5 iX Board and SD Card

Problem Symptom: At power up, the status bar at the bottom of the screen keeps scrolling from left to right and over again. The display never proceeds beyond the iX Ovation screen.

Solution: 1. Replace the SD card. The SD card's software may be corrupt.

2. Replace the iX board. The boot loader may not be compatible with secure iX software.

4.6 Printer

If problems with the printer during the Diagnostic test, check the following:

1. Verify that the printer is set for 115 baud rate.
   a. Push test button on printer and check printout shown below for a Clamshell printer.
   b. Set the two 2-pin jumpers on the Clamshell printer as follows: front jumper is across the pins (terminated) and back jumper is moved to the left (not across the pins). On the DW-10 printer, set dip switches 6 and 7 to On as shown in Figure 4-2.
   c. Check printer data cable is properly connected to printer and to SPM board. “Printer offline” will be shown on screen during Diagnostic test if cable/connection is faulty. .

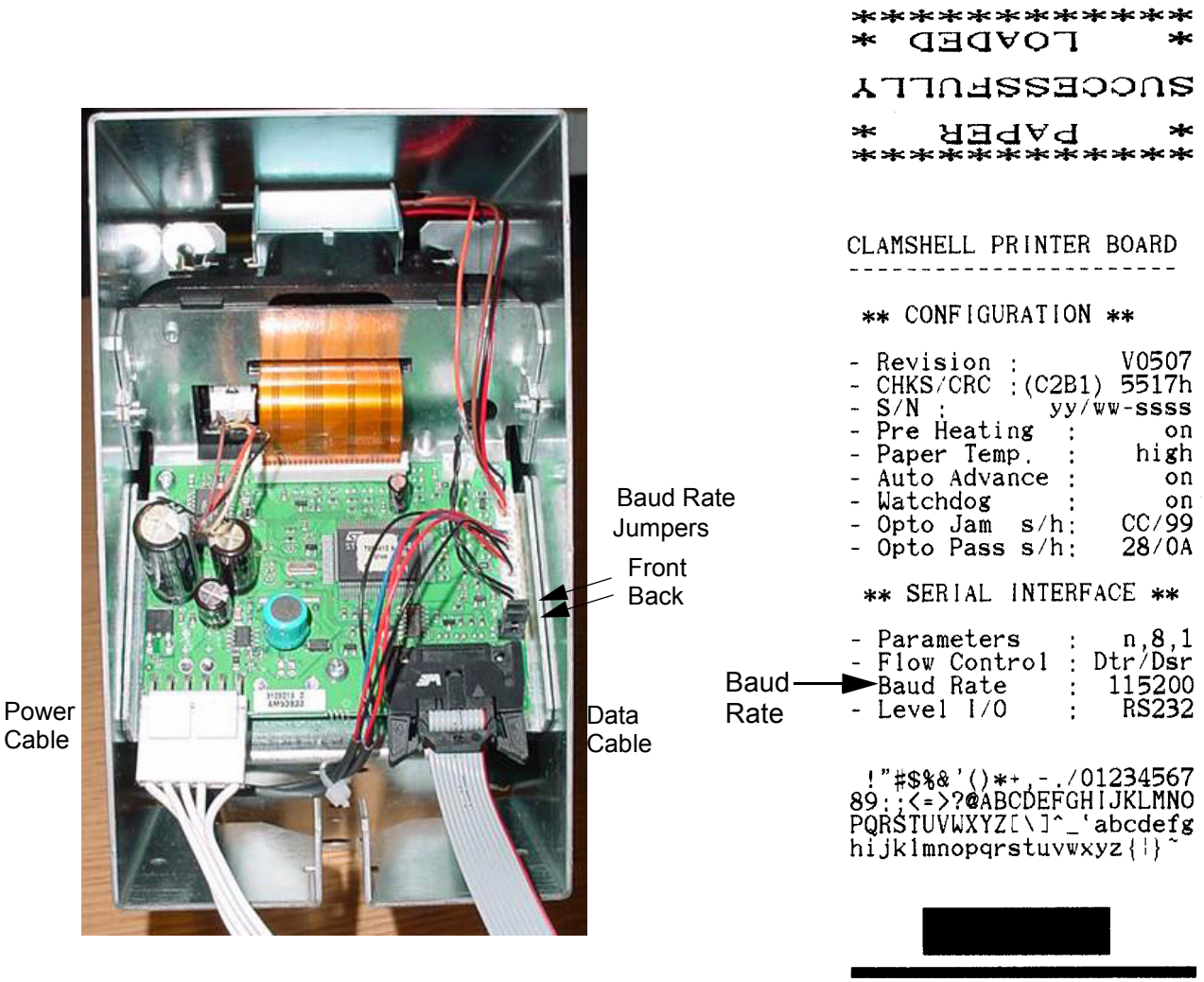


Figure 4-1 CLAMSHELL PRINTER.

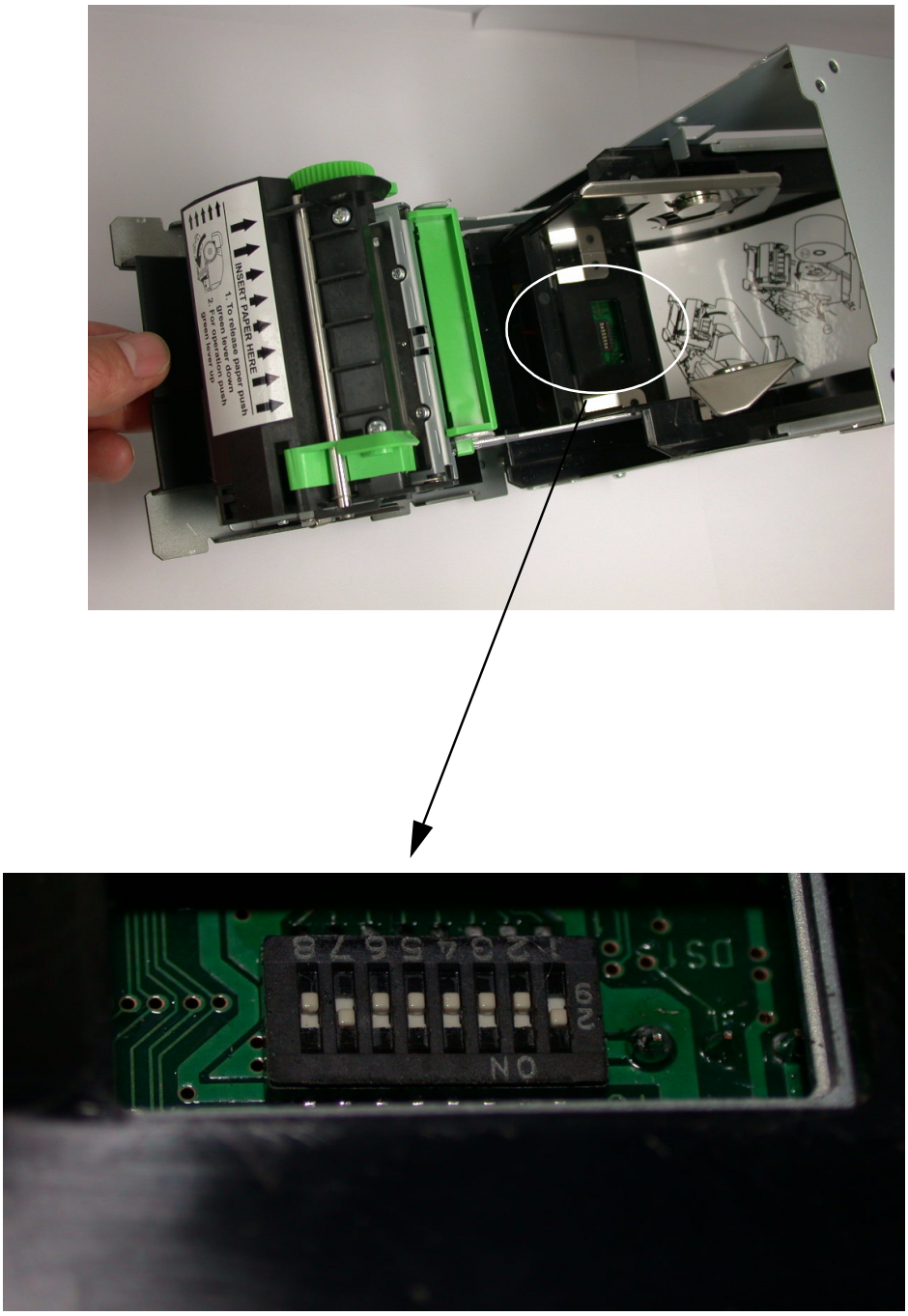
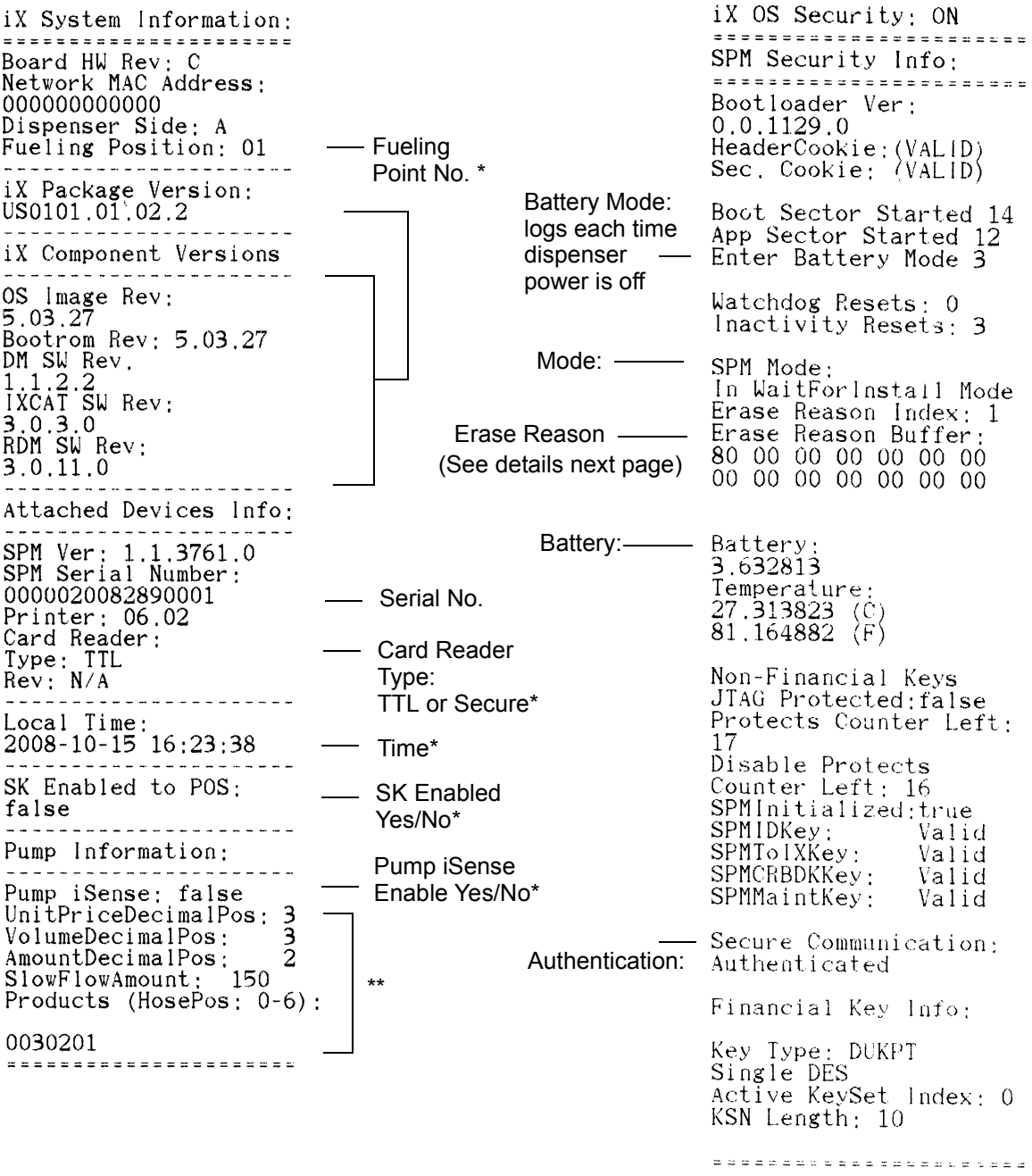


Figure 4-2 DW-10 PRINTER.

4.7 iX Configuration Report

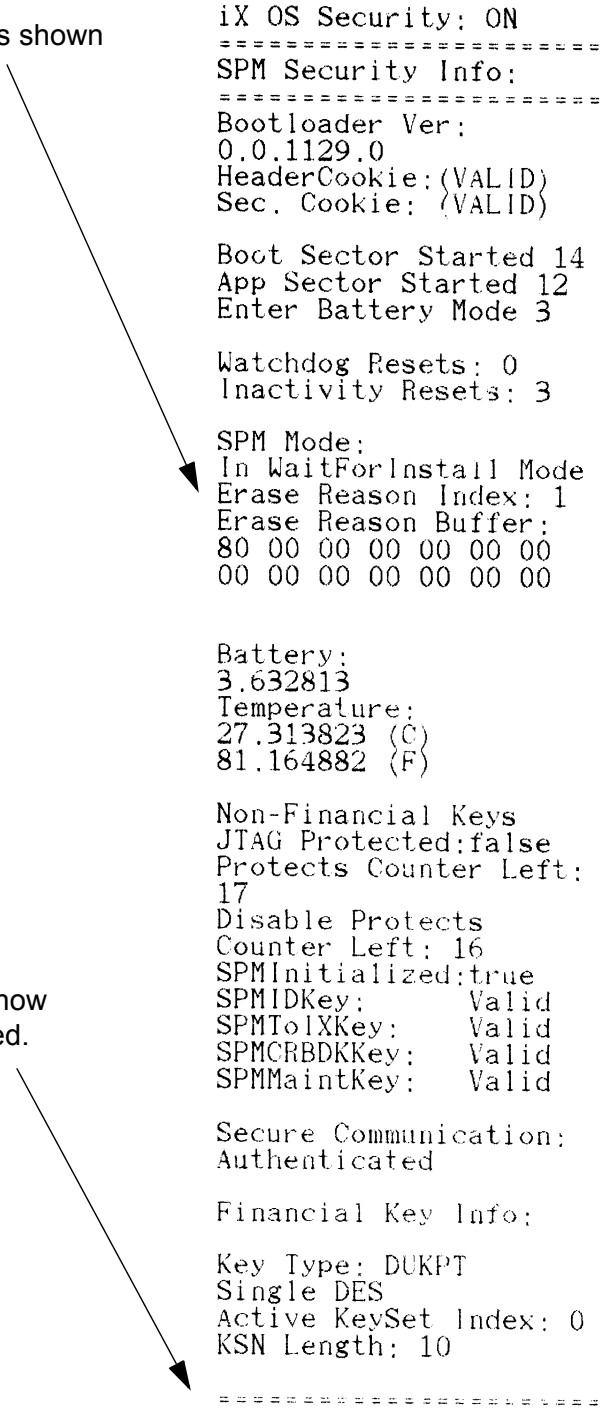
A sample configuration report is shown below with some noted items of interest. See the following page for a listing of the code numbers that may appear under the Erase Reason Buffer heading if a security breach of the SPM occurs.



* determined by technician during DM configuration
** determined by iGEM dispenser template

“Erase Reason Buffer” numbers are defined as follows:

INITIALIZED VIA USB	(80) always shown
PIC NONRESPONSIVE AT BOOT	(81)
PIC BREACHREAD AT BOOT	(82)
TAMPERLOW BOOTCHECK	(83)
PIC TAMPER FULLPOWER	(84)
PIC TAMPER LOWPOWER	(85)
PIC PROGRAMMED VIA USB	(86)
PIC ERROR PROGRAMMING	(87)
FLASH OPERATION RAM	(88)
INITIALIZING OF KEYS	(89)
INITIALIZE	(8A)
BREACH POLL	(8B)
MAINTSENSOR POLLED	(8C)
CONNECTOR BOARD REMOVED	(8D)
HEADERS MISMATCH BUG	(8E)
JTAG UNPROTECTED	(8F)
POWER REMOVED	(90)
POWER REMOVED ONINIT	(91)



“Breach Reason” and a code letter below will show at the bottom of printout if a breach has occurred.

“Breached Reason” is defined as follows:

TAMPER BOTTOM	'B'
TAMPER COVER	'C'
TEMPERATURE LOW	'L'
BATTERY RAMP	'M'
MAINT MODE EXPIRE	'O'
TEMPERATURE RAMP	'R'
TAMPER TOP	'T'
BATTERY LOW	'V'
ACCELERATE X	'X'
ACCELERATE Y	'Y'
ACCELERATE Z	'Z'

4.8 Additional Problem Symptoms and Solutions

Problem: Blank display; no LED's glowing on iX board

Solution: The iX board normally has a solid glowing red power LED. Check the power connector for 24 volts. If good, disconnect power and pull fuse FS3 off the board with small needle-nose pliers and check for continuity with a multi-meter. The fuse resistance should be under 1 ohm. If open, check for shorts to ground. Replace the iX board.

Problem: Printer self-test printout does not show 115k baud or RS-232 setting

Solution: Check jumpers (Clamshell) or DIP switches (DW-10). See printer section 4.6. Power cycle the printer to enable any changes.

Problem: Printer self-test printout shows 115k baud, RS-232 but iX self-test does not print.

Solution: Check printer data cable to verify it is connected to the SPM module.

Problem: LED display very dark, but correct images show dimly.

Solution: LED power cable not connected, or bad LED backlight. The QVGA display requires 24 volts incoming on the red-and-white power wiring.

Problem: No beep or tone when pressing a softkey or SPM keypad key.

Solution: Check annunciator wiring (part of Canbus cable P/N 890766-002.)
Note: If beep is present when performing the Diagnostic selftest but not during normal online operation, the problem is with the POS.

Problem: Printer self-test button does not function; can't advance paper with the FEED button.

Solution: Verify the printer power connector is attached and has 24 volts. If the iX board is powered down, unplug the printer data cable and run self-test again. (Paper will not advance if the CAT control board is powered down.)

Problem: At iX bootup, a message displays on the screen "No SPM" and the bootup halts.

Solution: Verify the USB cable between iX and SPM is installed. Verify that the SPM power cable is installed. Voltage at the connector should be 24 volts.

Problem: During the Test Bezel Devices at startup: after the keypad test, the system skips the reader and the printer test and automatically reboots and goes back to the Test Bezel Devices screen.

Solution: Enabled the wrong type card reader during DM configuration. Card reader cable disconnected. Card reader connector on backwards.

Problem: No LED's light up when dispenser power is restored. A fuse on the 24-volt power distribution board may glow red, then burn out.

Solution: Check for blown fuses and if present, replace the power distribution board. Verify the pinouts on the power distribution cables are correct and no shorts exist to ground on the new components. Ensure the ground straps are not shorting components. Unplug all power connectors to the SPM, LED QVGA display, sales display, and iX, then power up the dispenser and connect the components one at a time, checking for power to the boards.

Problem: At power up, the status bar at the bottom of the screen keeps scrolling from left to right and over again. The display never proceeds beyond the iX splash screen.

Solution: Replace the iX board and/or SD card. The iX board's boot loader may not be compatible with secure iX software, or the SD card's software may be corrupt.

Problem: The QVGA displays a message "System Failure / please call for service" or "Not Authenticated."

Solution: The SPM keypad security may be breached. To verify, reset the iX board, press the 2 softkey on the left at the "One Moment Please prompt, and enter Bezel test. Skip to the printer test by pressing Cancel. If the printout reads:

"SPM Mode:
In Sec Breached Mode",

the keypad encryption is lost. Replace the SPM keypad. There is no need to use the Maintenance mode in this case since the keys already have been erased.

Problem: IX CATs with SPM code seem to reset randomly during normal operation. A Gateway isn't installed.

Solution: Run an iX print test and examine the time of the report. If the time is way off, then set the correct time using the softkey #2 press at the "One Moment Please." prompt. The iX SPM code is hard-wired to reset every day at 2 AM by its internal clock. If time is not set correctly at installation then CAT will reset at the time it thinks is 2 AM. If the site has a Gateway then the iX will get an hourly time update from iSense.

5 DIAGNOSTIC AND MAINTENANCE MODES

As shown in the Startup instructions, the Bezel Device tests and the DM configuration screens are displayed automatically when the SPM is powered-up for the very first time. Once the SPM is placed into operation, re-configuration if needed and the diagnostic self-tests can be performed — as with any iX application — by rebooting and pressing softkey 2 when the “One Moment Please” prompt is displayed. Now however, the *Diagnostic mode allows much easier access* to the self-tests.

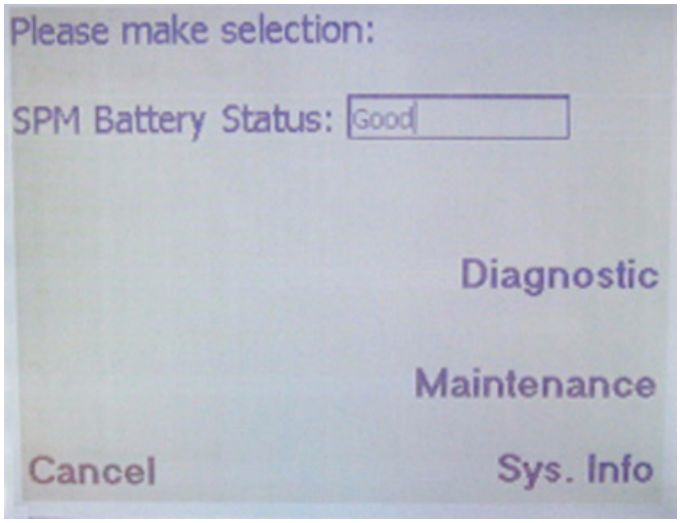
5.1 Diagnostic Mode

An easy way to perform the self-tests or check battery status is by entering the Diagnostic mode. This mode is available while the dispenser is in the operating idle state by simultaneously pressing the two top softkeys (softkey 1 and 5) on the display panel. This is also a good way to quickly get a configuration report without rebooting the iX, assuming the SPM is working.

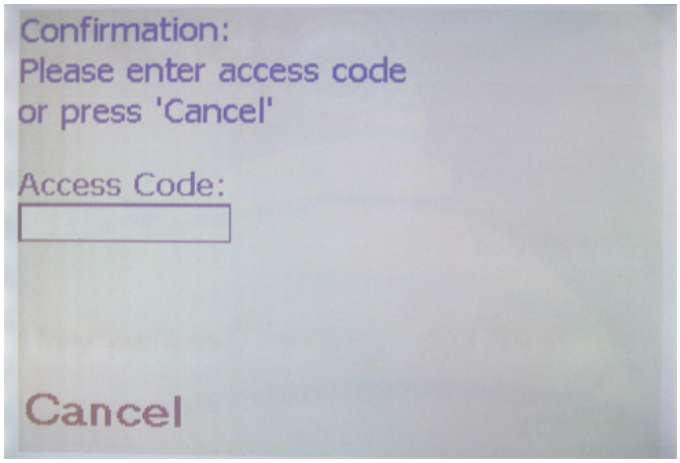
To get just a configuration report without testing the CAT bezel devices, once in the Diagnostic mode, just press Cancel at each self-test screen and the report will print. Then, press Cancel to return the dispenser to the operating idle state. Also, at anytime during normal operation, a CAT Status report will print when the two bottom softkeys are pressed simultaneously.

Follow the procedure below to enter the Diagnostic mode and perform the tests.

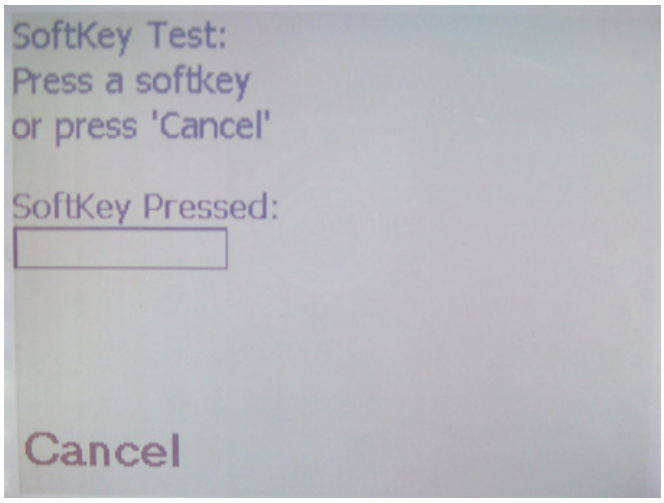
STEP 1. AT THE ONLINE OR OFFLINE IDLE SCREEN, PRESS THE TWO TOP SOFTKEYS. THE BELOW SCREEN WILL BE DISPLAYED.



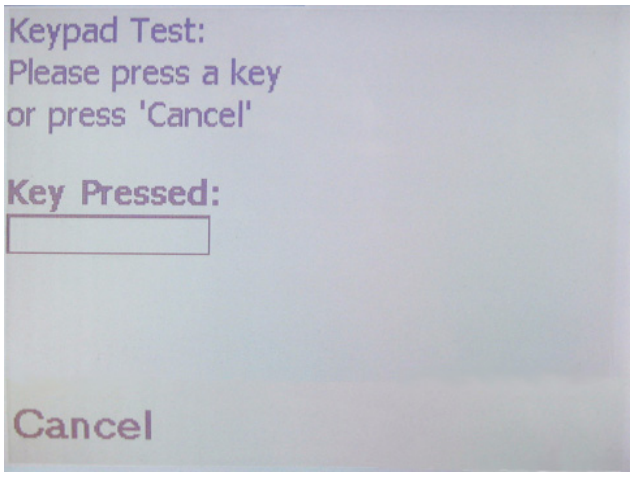
STEP 2. SELECT DIAGNOSTIC.

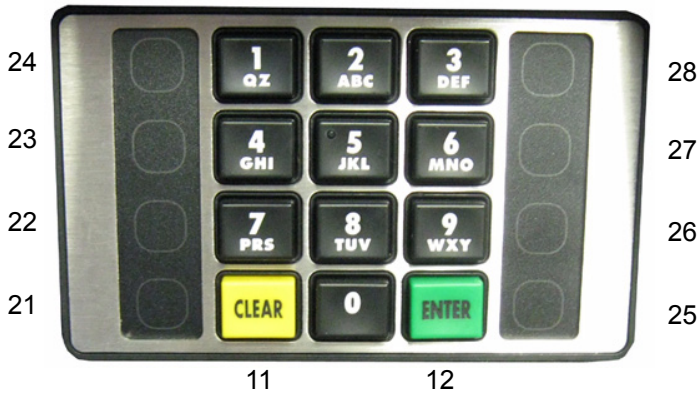


STEP 3. ENTER THE 4-DIGIT ACCESS CODE AT THE KEYPAD AND PRESS THE ENTER KEY.



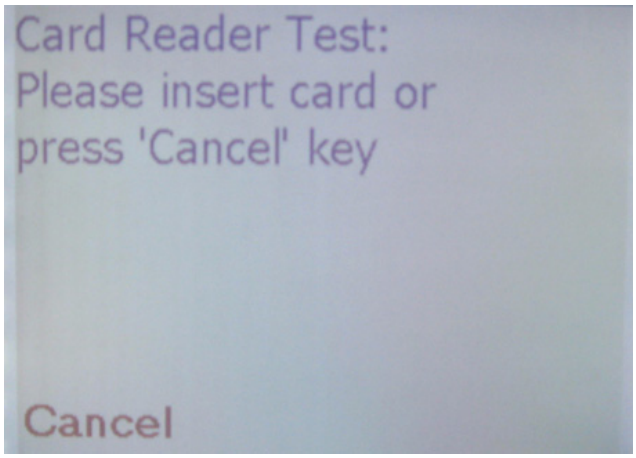
STEP 4. PRESS EACH SOFTKEY AND VERIFY THAT THE SOFTKEY NUMBERS ARE DISPLAYED.

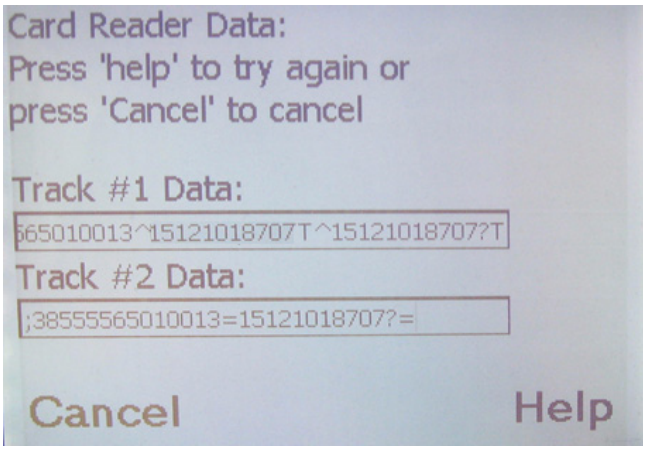




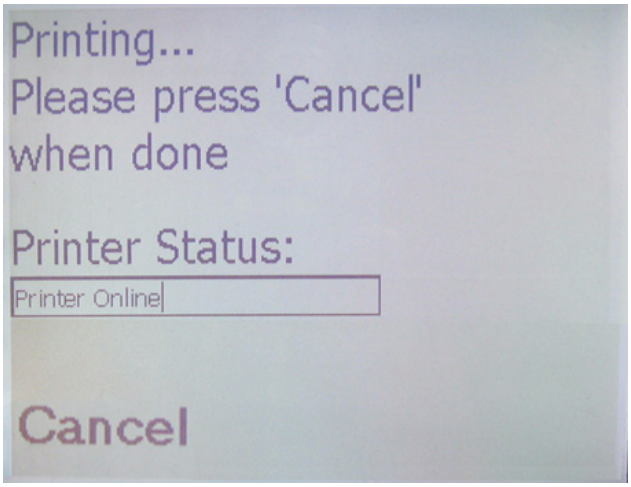
STEP 5. PRESS EACH KEY ON THE KEYPAD AND VERIFY THE NUMBER IS DISPLAYED. NON-NUMERIC KEYS WILL DISPLAY THE HEX VALUE AS SHOWN AT RIGHT.

FOR EXAMPLE, “Val: 11 Hex” SHOULD BE DISPLAYED WHEN THE CLEAR KEY IS PRESSED.





STEP 6. INSERT AND REMOVE A CARD TO TEST THE CARD READER. PRESS HELP, TURN CARD AROUND AND INSERT TO TEST DOUBLE SIDED READER FUNCTION. PRESS CANCEL OR PRESS HELP TO TEST SCANNER IF APPLICABLE.



STEP 7. THE PRINTER WILL AUTOMATICALLY PRINT A REPORT[1]. PRESS CANCEL AFTER THE REPORT PRINTS TO RETURN TO THE DIAGNOSTIC SELECTION SCREEN, THEN PRESS CANCEL TO RETURN TO NORMAL OPERATIONS[2].

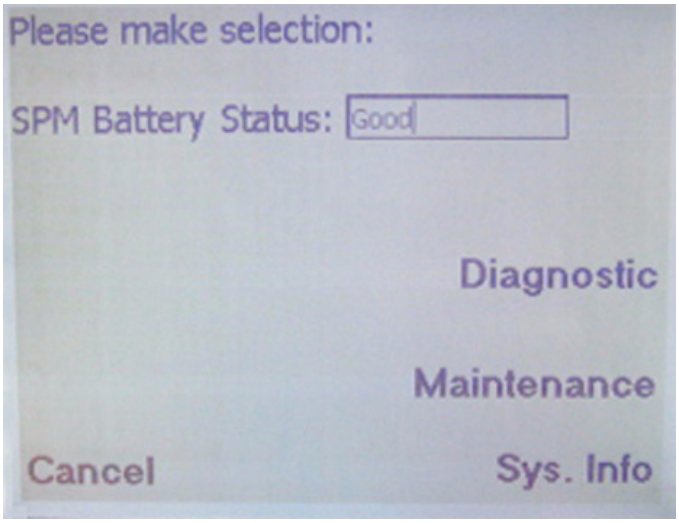
---

1. After the printer test, the Pump Test screen shown on page 15 is displayed if it was enabled during the configuration setup. Press Cancel when finished and the screen returns to the Diagnostic screen.
2. At the Diagnostic screen, press Cancel to return to the dispenser to the operating idle state or, to view the CAT information screen shown on page 15, select Sys. Info and then press Cancel.

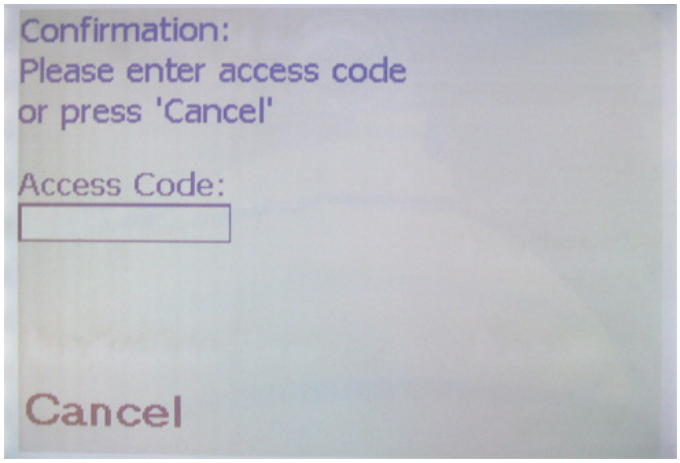
5.2 Maintenance Mode

The Maintenance mode is used to change out working keypads or to change the DUKPT encryption type. Follow the procedure below to enter the Maintenance mode.

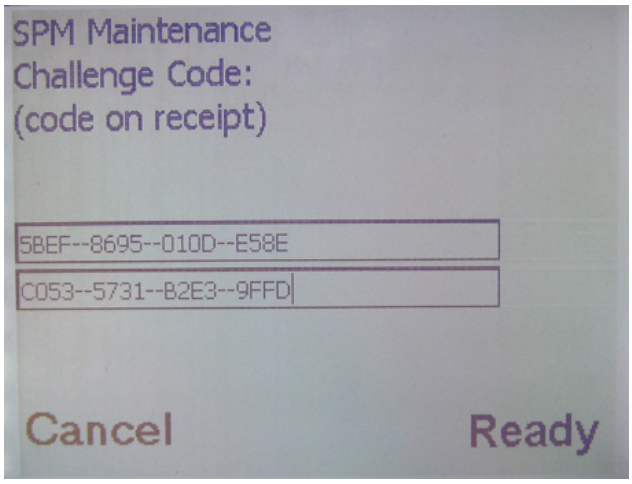
STEP 1. AT THE ONLINE OR OFFLINE IDLE SCREEN, PRESS THE TWO TOP SOFTKEYS. THE BELOW SCREEN WILL BE DISPLAYED.



STEP 2. SELECT MAINTENANCE.



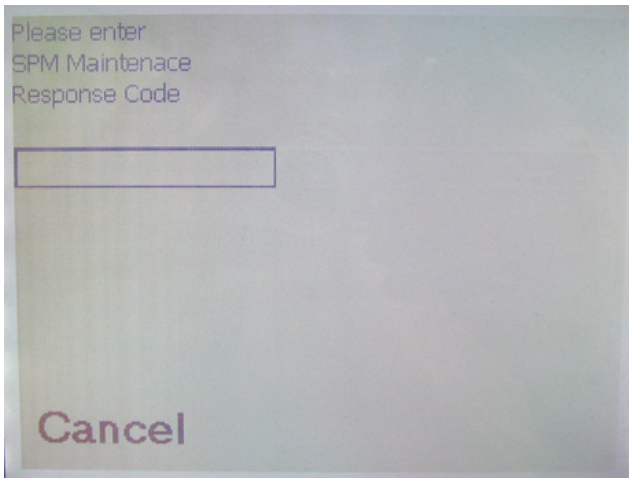
STEP 3. ENTER THE 4-DIGIT ACCESS CODE AT THE KEYPAD AND PRESS THE ENTER KEY.



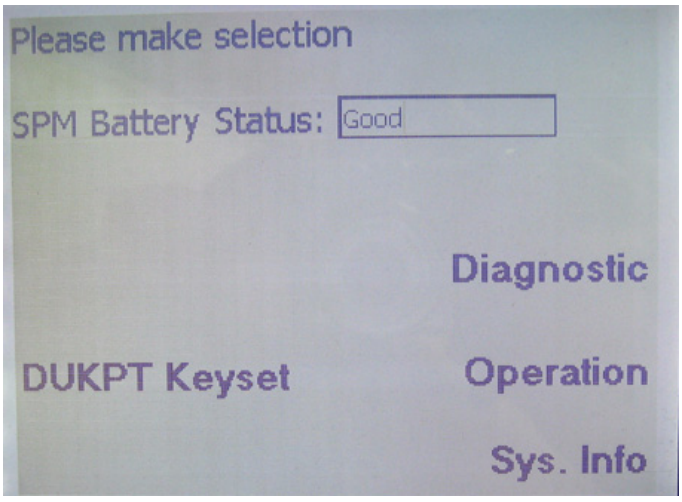
STEP 4. A CHALLENGE CODE WILL BE DISPLAYED AND PRINTED. 30 MINUTES ARE ALLOWED TO COMPLETE THE NEXT STEPS. AFTERWARDS, THE PROCESS MUST BE REPEATED.

STEP 5. CALL THE HELPDESK AND GIVE THEM THE CHALLENGE CODE FROM THE PRINTOUT AND YOU WILL RECEIVE A REPSONSE CODE.

STEP 6. ONCE YOU HAVE THE RESPONSE CODE, PRESS THE READY SOFTKEY AND THE FOLLOWING SCREEN IS DISPLAYED.



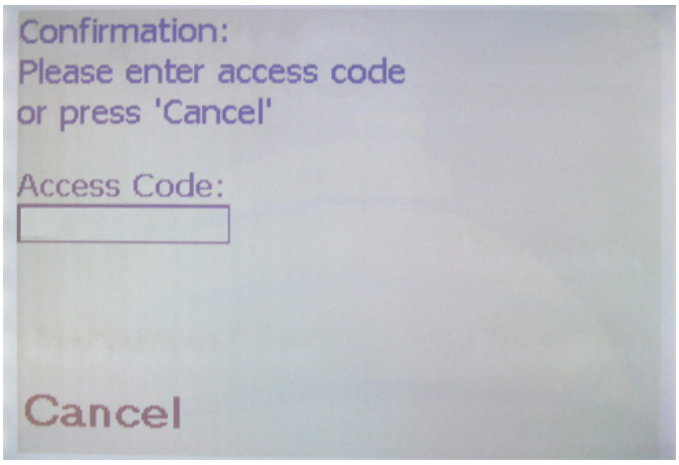
STEP 7. ENTER THE RESPONSE CODE AT THE KEYPAD AND PRESS ENTER.



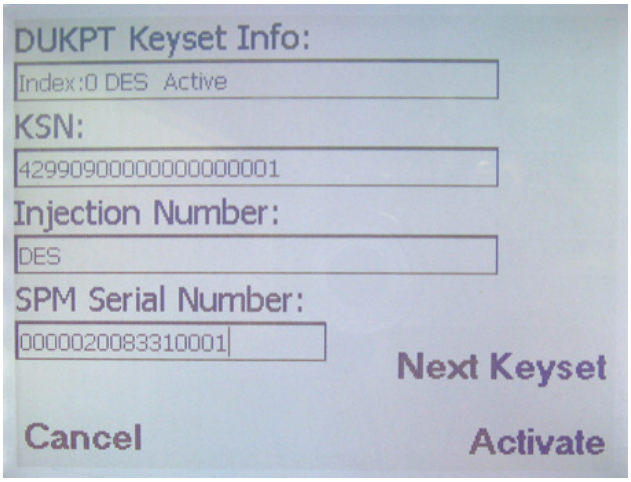
STEP 8. WHEN THIS SCREEN IS DISPLAYED, THE SYSTEM IS IN THE MAINTENANCE MODE AND A WORKING SPM CAN BE REMOVED AT THIS TIME WITHOUT CAUSING THE KEYS TO BE ERASED.

ALSO IN THIS MODE, SELECTING “DUKPT KEYSET” WILL ALLOW THE ENCRYPTION TYPE TO BE CHANGED BETWEEN SINGLE DES AND TRIPLE DES (TDES) IF REQUIRED BY THE CUSTOMER. TO MAKE THIS CHANGE, CONTINUE WITH THE FOLLOWING STEPS.

STEP 9. SELECT DUKPT KEYSET.



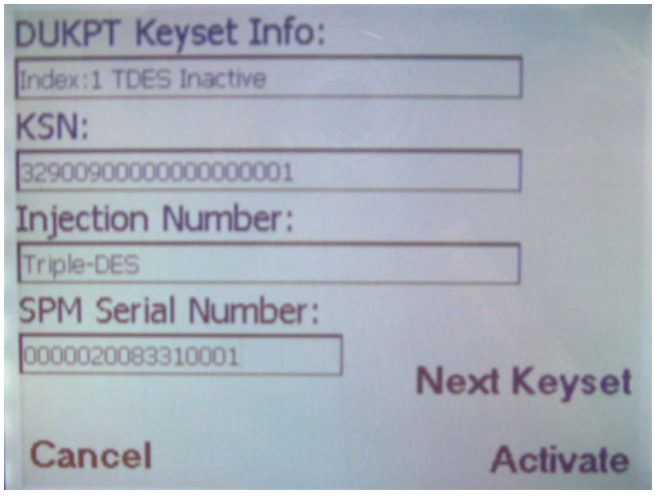
STEP 10. ENTER THE 4-DIGIT ACCESS CODE AT THE KEYPAD AND PRESS THE ENTER KEY.

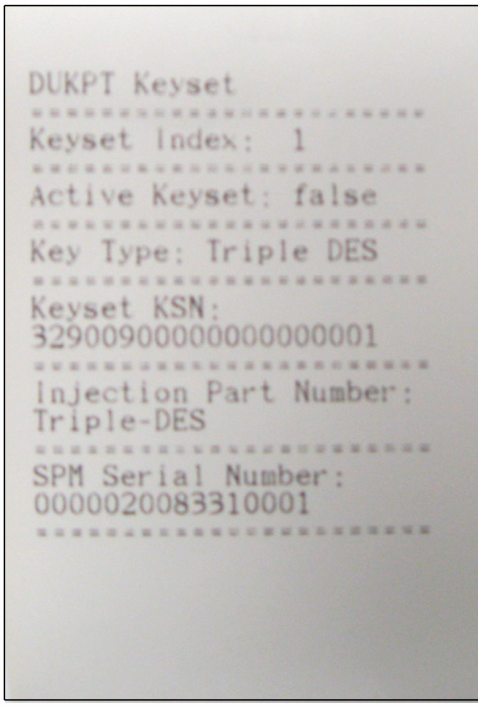


STEP 11. THE ACTIVE KEYSET INFORMATION IS DISPLAYED AND PRINTED. INDEX 0 IS THE DEFAULT ACTIVE KEYSET. IN THE ABOVE EXAMPLE, THE ACTIVE KEYSET IS SINGLE DES.

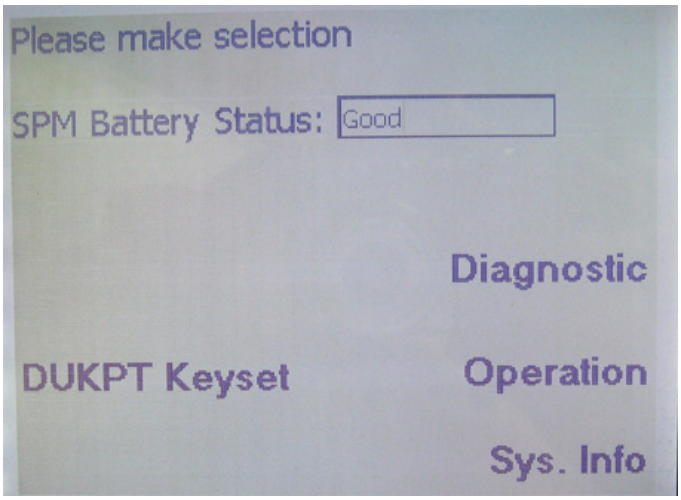
TO CHANGE THE KEYSET TO TDES, SELECT “NEXT KEYSET”. THE FOLLOWING SCREEN WILL BE DISPLAYED AND PRINTED. IN THIS CASE, INDEX I HOLDS THE INACTIVE TDES KEYSET.

STEP 12. SELECT “ACTIVATE”. THE SCREEN WILL THEN UPDATE TO SHOW “INDEX 1: TDES ACTIVE” AND AGAIN THE INFORMATION WILL PRINT OUT.

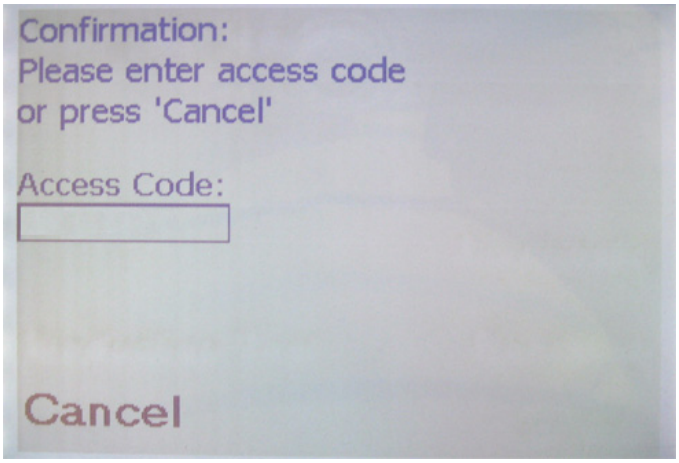




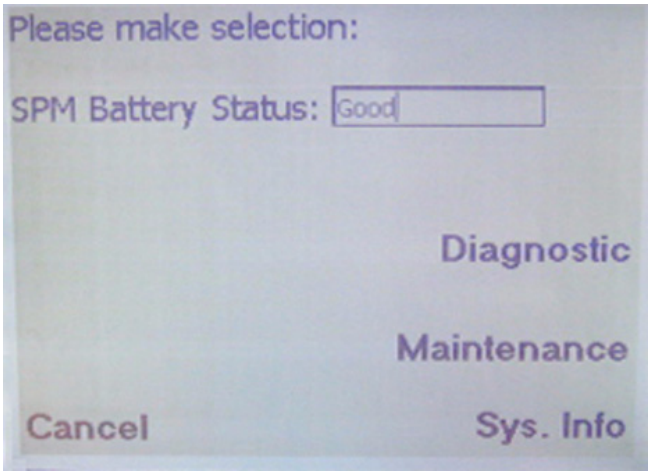
STEP 13. SELECT CANCEL TO RETURN TO THE MAINTENANCE SCREEN.



STEP 14. SELECT OPERATION.



STEP 15. ENTER THE 4-DIGIT ACCESS CODE AT THE KEYPAD AND PRESS THE ENTER KEY.



STEP 16. THE SPM IS NOW BACK IN OPERATION. PRESS CANCEL. THE DEFAULT OFFLINE PROMPT WILL BE DISPLAYED UNTIL THE SYSTEM COMES ONLINE WITH THE POS AND DISPLAYS THE ONLINE PROMPT.

6 REPLACEMENT PROCEDURES

See Section 4.1, *Indications That Keys Were Erased*. When it has been verified that the SPM keys have been erased, there is no need to enter the Maintenance mode to replace the SPM. In this case, follow the SPM replacement instructions below.

When it has been verified that the SPM keys have not been erased, enter the Maintenance mode before removing a working keypad or before relocating dispensers. Follow the instructions in Section 5.2, *Maintenance Mode*.

6.1 SPM Replacement

Follow the steps below to replace a faulty SPM.

Note: Do not disconnect the battery; it should always remain connected unless it is being replaced and dispenser power should be on at that time.

1. Use an authenticated USB thumb drive to recover the RDM log files from the iX.
    a. Insert USB drive into iX board and reboot the iX.
    b. Remove the USB drive when the configuration screen appears on the display.
    c. Insert the USB drive into laptop and verify the USB key contains the log files.
    d. Remove USB drive and return it to the factory along with the SPM that is removed in this procedure.
2. Power down dispenser.
3. Referring to Figure 6-1, disconnect all cables and the ground strap from the SPM connector board. Do not disconnect the battery.
4. Remove (4) Phillips head screws that secure the SPM to the bezel panel and remove the SPM.
5. Inspect gasket around bezel window and replace as necessary.
6. Install new SPM reusing the (4) screws.
7. Reconnect all cables and the ground strap as shown in Figure 6-1.
8. Power up. (The SPM will be in the wait to install mode showing the Production Test screen.)
9. Perform the Startup procedure in Section 2 of this manual to place the SPM into operation.
10. Return the faulty SPM (along with the USB drive and configuration report) to the factory as per the return parts instructions in Section 7.2

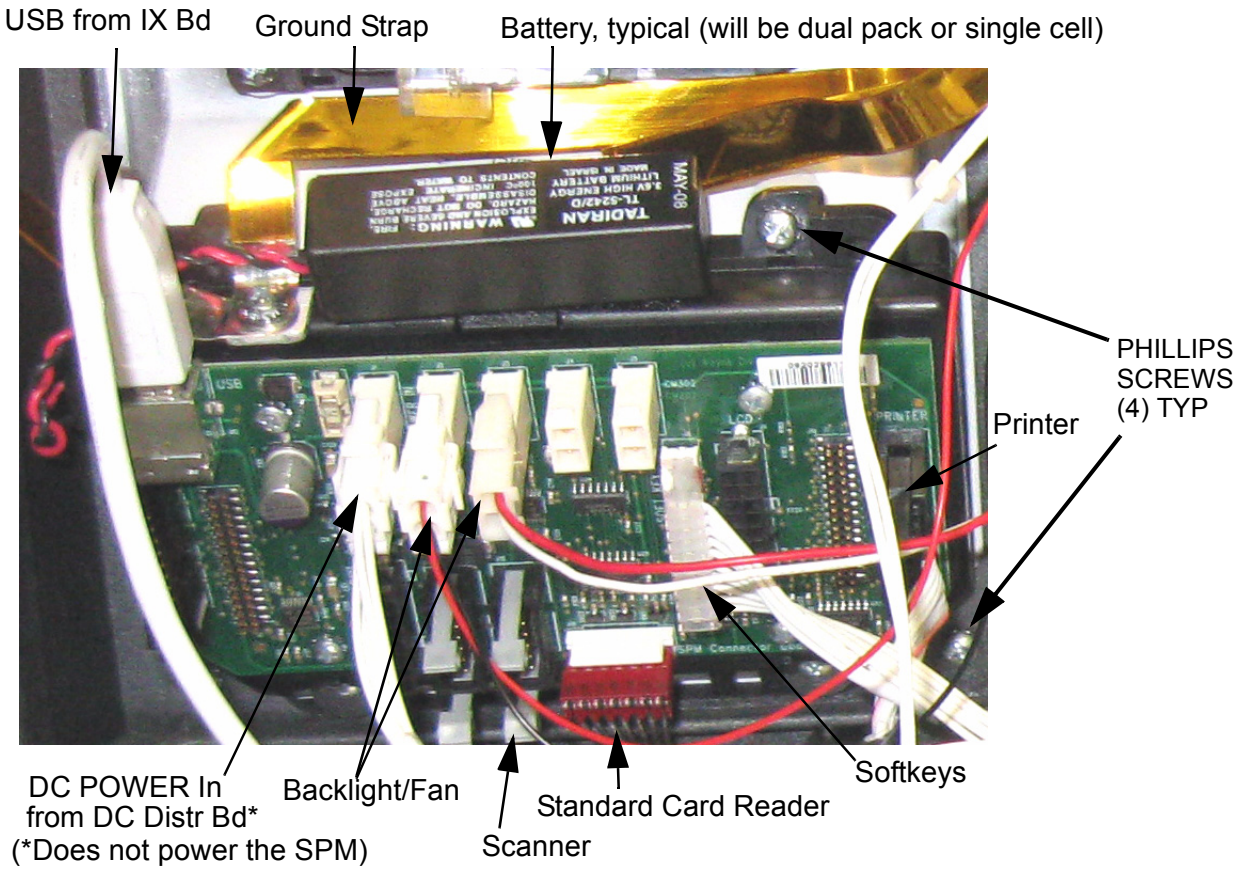


Figure 6-1 SPM ASSEMBLY.

6.2 Battery Replacement

Do not disconnect battery from the SPM when USB power is not supplied to the connector board.

1. Print out a configuration report and verify battery voltage is low (below 3.2V).
2. With power On, disconnect battery from the connector board.
3. Lift battery up off the Velcro strip.
4. Install and reconnect new battery.
5. Print out a configuration report and verify battery voltage is 3.6V.

Note: Dispose of the old battery in accordance with local regulations governing battery disposal.

6.3 iX Board

The service replacement SPM iX board listed in Section 7.1 has the secure Bootrom 4.5 (or later version) required for the SPM; this board is used when replacing the existing SPM iX board, therefore, proceed with the normal iX replacement procedure reusing the existing SD.

For upgrading sites to SPM where customers will be reusing the existing iX boards (which do not have the secure Bootrom), follow the upgrade procedures in Section 8 of this manual.

6.4 Card Reader:

1. Power down.
2. Disconnect cable from card reader.
3. Remove (4) screws that secure the card reader to the bezel panel and remove card reader.
4. Install new card reader and reconnect cable.
5. Power up.
6. If changing from one type card reader to another, press the 2 softkey at the ‘One Moment Please” screen prompt and configure the DM for the appropriate type.
7. Select Diagnostic and test the card reader.
8. After the printer test, select Cancel and return to normal operations.
9. Once the CAT comes online with the POS, run test sales to verify operation.

7 SERVICE PARTS

7.1 Replaceable Parts

The service part numbers for SPM and associated components are listed below. XXX is a placeholder for customer specific applications.

Part Number	Description
WU001031-	iX Board (part number shown must be used with SPM)
891082-002	RAM Memory Board
892638-002-XXX	SPM Keypad assembly (includes keypad & connector bd and battery*)
WU001468-001	SPM Battery Pack **
892139-001	USB Cable
887749-001	Card Reader, Standard Ovation TTL type reader
889873-002	QVGA display
892134-001	Display Glass
889987-002	Softkeys Left
889987-003	Softkeys Right

*Note: The SPM assembly includes the connector board (not separately replaceable) and the Battery, which is separately replaceable. The battery must not be disconnected from the SPM when power is off at the USB port or when the SPM is out of the dispenser.

**Note: When replacing the battery, dispose of the old battery in accordance with local regua-tions governing battery disposal.

7.2 SPM Return Parts Procedure

Please follow the procedure below for returning the SPM. The SPM includes the connector board on the back side of the keypad.

Note: The Battery **MUST** remain connected to the SPM when returning.

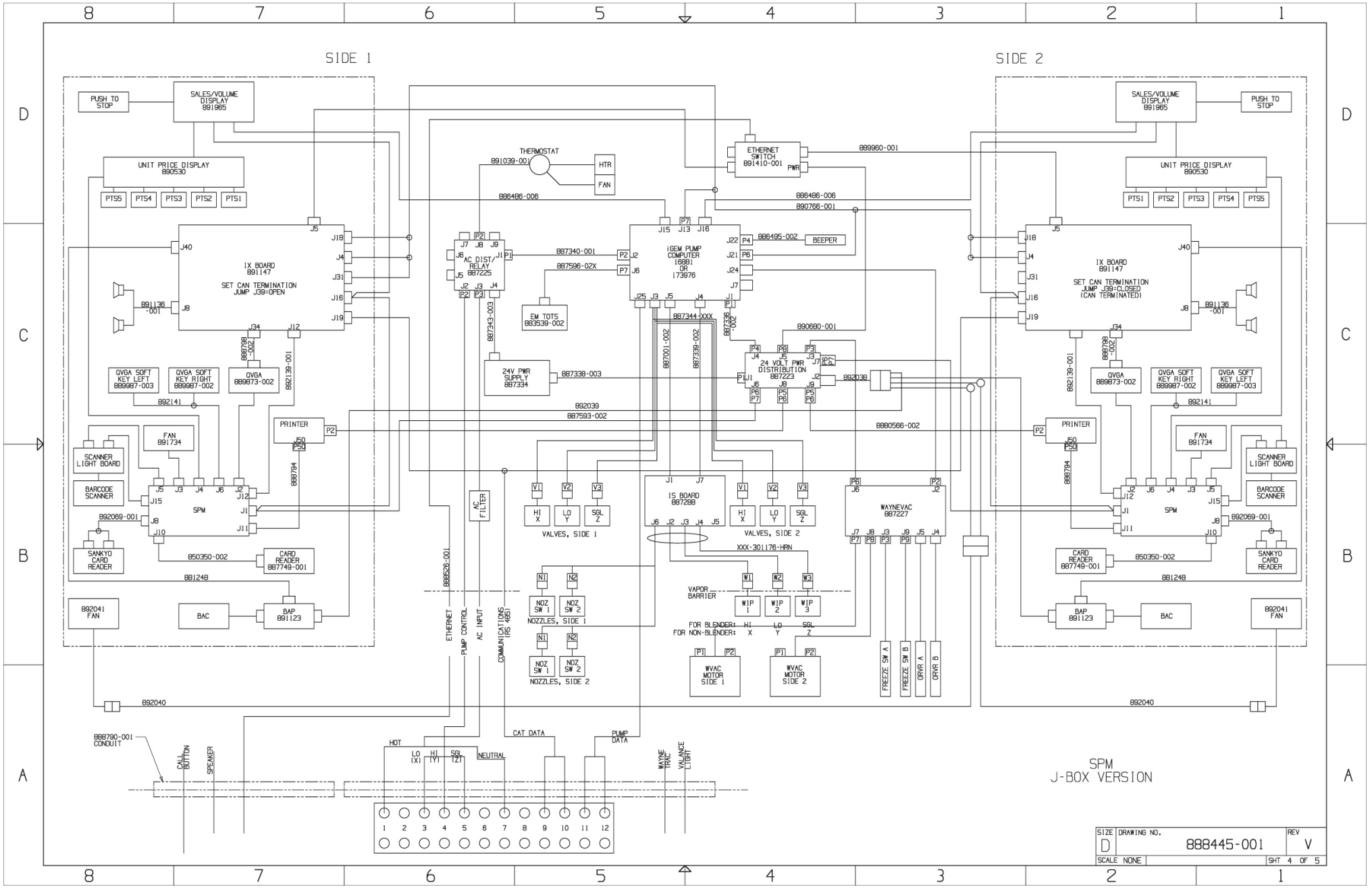
Note: If replacing the battery only, be sure to keep the **iX board powered up** so that power remains On to the USB port on the SPM. If the battery is disconnected, while power is Off, or while the USB cable is disconnected, the SPM keys will be erased and the SPM will need to be replaced.

The **USB drive provided** with the replacement SPM MUST be returned with the failed SPM. This USB drive must contain the iX RDM log files retrieved from the fueling point at fault; only these files should be on the thumb drive.

1. Insert the USB drive provided into either of the USB ports on the iX board.
2. Reboot IX board.
3. Remove the USB drive when the screen displays “System initializing…” .
4. Use laptop to verify that log files were copied to the USB drive. The files should be in the fueling point number subfolder in the “Log” folder. The files are *Asset.xml, DMWatchdogTimer.log, and RDMLog.xml*
5. Place the failed SPM into an anti-static bag, and along with the USB drive and the Configuration report printout, return to Dresser Wayne using the shipping box from the replacement SPM as shown below.
6. When closing the service call in Oracle, describe the problem symptoms in Debrief Notes.

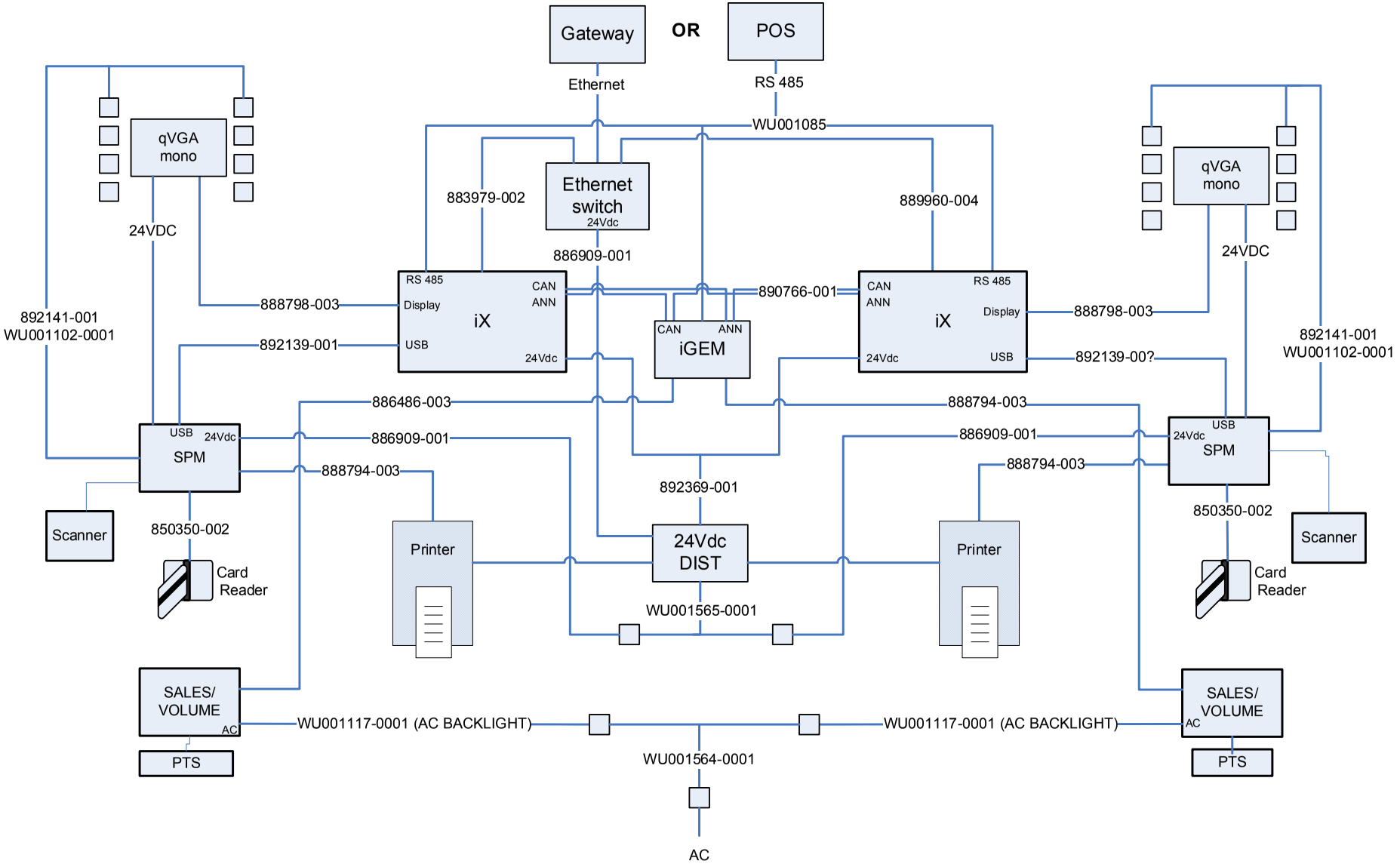
Note: Due to DOT regulations governing equipment containing Lithium batteries, RMA return shipments of the SPM to Dresser Wayne must be via ground parcel service only.

9 WIRING DIAGRAM



Ovation SPM Wiring

Vista SPM Retrofit Wiring Diagram



SERVICE MANUAL

SPM (U.S.)

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Dresser Wayne, Dresser, Inc., is located at 3814 Jarrett Way, Austin TX 78728.
Wayne's general telephone number is (512)-388-8311.

NOTE: “This equipment has been tested and found to comply with the limits for a Class A digital 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 radiate 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 his own expense.”

DRESSER Wayne

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Part No. 940014 Rev A

12/08