

# Bennett Credit Card Module

## Programming, Service, and Parts Manual

**Only Trained Personnel May Work on This Equipment**



### READ THIS BOOK

This book has important information for safe installation and operation of this equipment. Read and understand this book before applying power. Keep this book and tell all service personnel to read this book. If you do not follow the instructions, you can cause bodily injury, death or damage to the equipment.

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## IMPORTANT

Examine the shipment immediately upon arrival to make certain there has been no damage or loss in transit. Bennett Pump Company, as shipper, is not liable for the hazards of transportation. Please make damage claims directly to the truck line.

# Safety Instructions

## WARNING    ADVERTISSEMENT    ADVERTENCIA

For the safe installation of this equipment, read and understand all warning and cautions. Look for these warnings:

-  **“DANGER”** means: If you do not follow the instructions, severe injury or death will occur.
-  **“WARNING”** means: If you do not follow the instructions, severe injury or death can occur.
-  **“CAUTION”** means: If you do not follow the instructions, damage can occur to the equipment.

 **DANGER:** Fire, explosion, injury or death will occur if fuel filters are changed by untrained personnel. Make sure only trained personnel change filters.

 **DANGER:** To prevent injury to you from vehicles and onlookers, always place a barrier around this equipment before performing service or maintenance.

 **DANGER:** Gasoline is flammable.  
NO SMOKING OR OPEN FLAME.

 **DANGER:** Disconnect all power to this equipment and associated submerged pump(s) during installation, service or any maintenance, i.e., changing filters.

 **WARNING:** You must have training in the installation, service or maintenance of this equipment (dispenser, pump, console, control box or submerged pump) before working on it. Maintenance repairs must be done by authorized personnel only. Warranty work may only be performed by Bennett certified technicians.

 **WARNING:** To prevent electric shock, keep the electrical parts of the dispenser dry.

 **WARNING:** Electronic components are static sensitive. Use proper static precautions (static straps) before working on the equipment.

 **WARNING:** The emergency shut-off valve (also called the fire valve, shear valve or impact valve) must be closed when service or maintenance is performed on this equipment.

 **WARNING:** You must have training in the operation and programming of this dispenser before using it. READ THE OPERATORS MANUAL.

 **WARNING:** Make sure this equipment is correctly grounded. Failure to do will cause injury or damage equipment or improper operation. Improper grounding voids the warranty.

 **WARNING:** Do not operate the equipment as a dispenser unless it is completely assembled.

 **CAUTION:** Do not drill holes in fuel dispensers. Holes can cause failure of the electronic equipment. The warranty will become void. Use only adhesive backed sign mounting brackets.

# Introduction

## Powering up the Module:

The Credit Card Module receives its power through the dispenser. There are no power switches on the module. The only way to power on or off the module is by turning the power to the dispenser on or off.

As you power on the dispenser you will see the Bennett Logo appear on the module's display for approximately 15 seconds (see figure 1.1) .

After the Bennett Logo is displayed then the screen will display the "Out of Service" message.

**NOTE:** This is only if the Credit Card Module and/or P.O.S. (Point of Sale) has not been configured or installed at this time (see figure 1.2).

## Battery Back-up:

If the dispenser loses power then the display to the Credit Card Module will go blank. Even though the display is blank you may notice that it will remain illuminated. This display will remain illuminated until the back-up battery from the dispenser drops out. There is no battery in the module used to keep the display on during a power failure.

If the power is returned prior to the dispenser's back-up battery dropping out then the display will immediately return to normal.

If the power is not returned until after the dispenser's back-up battery drops out then you will see the Bennett Logo re-appear. After that, the display will return to normal.

## Idle Screen:

Once everything is installed, programmed and configured properly (see installation section) then the Credit Card Module should be ready to use. The idle screen of the module will prompt the user to either pay outside or pay inside (see figure 1.3).

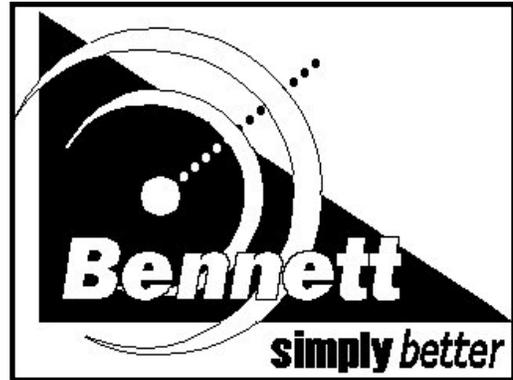


FIGURE 1.1 - Bennett Logo

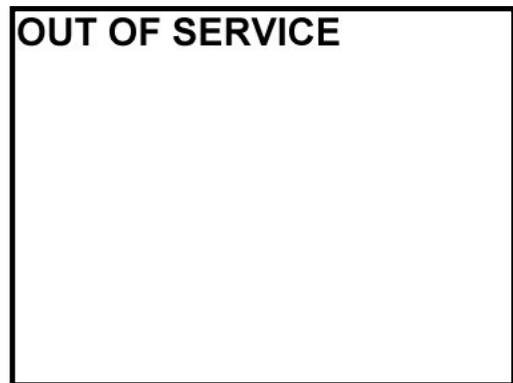


FIGURE 1.2 - "Out of Service"

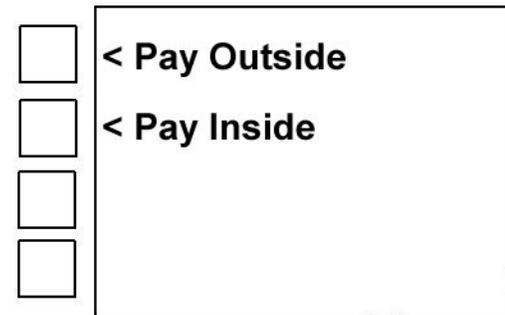


FIGURE 1.3 - Idle Screen

# Introduction

## Power Requirements:

The Credit Card Module receives its power through the J5 connector, on the back of the module (see figure 2.1).

The module uses a 12vdc voltage source and 24vdc voltage source. Both sources are received through the J5 connector.

The following components use the 12vdc voltage source:

- Door Sensor
- Card Reader
- Display Backlight
- Receipt Printer Data
- Cash Acceptor Data

The following components use the 24vdc voltage source:

- Receipt Printer Power
- Cash Acceptor Power
- Display

## Connector Descriptions:

All peripherals are plugged into the Credit Card Module in the back, bottom right corner, of the unit.

Following is a description of each connector (see figure 2.2).

- J4 - Door Sensor / Swipe Arrow
- J5 - Power Input/Data Link
- J6 - Card Swipe Reader
- J7 - Receipt Printer Power
- J8 - Receipt Printer Data
- J9 - Cash Acceptor Data
- J10 - Cash Acceptor Power

See the Service Section for more details on the connector pin-outs.

 **DANGER:** While connecting the plugs into the connectors you must make sure that the locking tab points to the right side of the connector. When you plug them in you should slightly tug the wires to verify that the locking tab is engaged.

Failure to plug these in correctly will damage the module!

 **DANGER:** You must power off the dispenser and disengage the battery prior to plugging anything into or unplugging anything from this module.

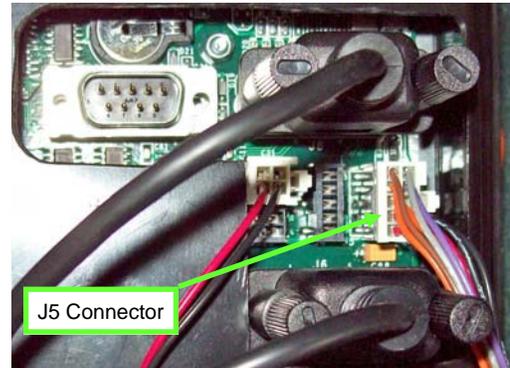


FIGURE 2.1 - J5 Incoming Power

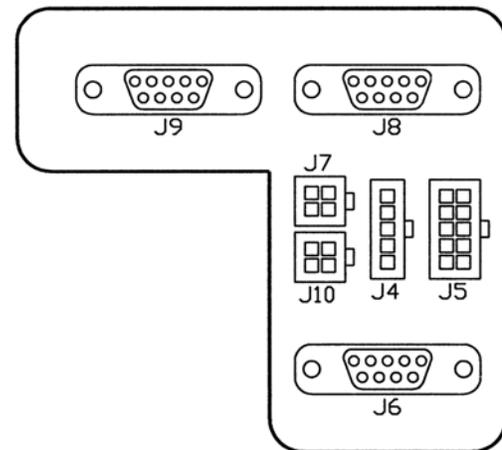


FIGURE 2.2 - Connector Descriptions

# Introduction

## Communication:

The data for the Credit Card Module is also received through the J5 connector. The module communicates directly to the P.O.S. (Point Of Sale) via the dispenser and Interconnect Box. The dispenser only carries the data from its point of entry (J5 on the Power Distribution Board) to J5 on the Credit Card Module. There is nothing in the dispenser that interfaces with this communication.

## Field Wiring:

Data wires required for installation:

- (1) 18 gauge for Data +
- (1) 18 gauge for Common
- (1) 18 gauge for Data -

### **NOTES:**

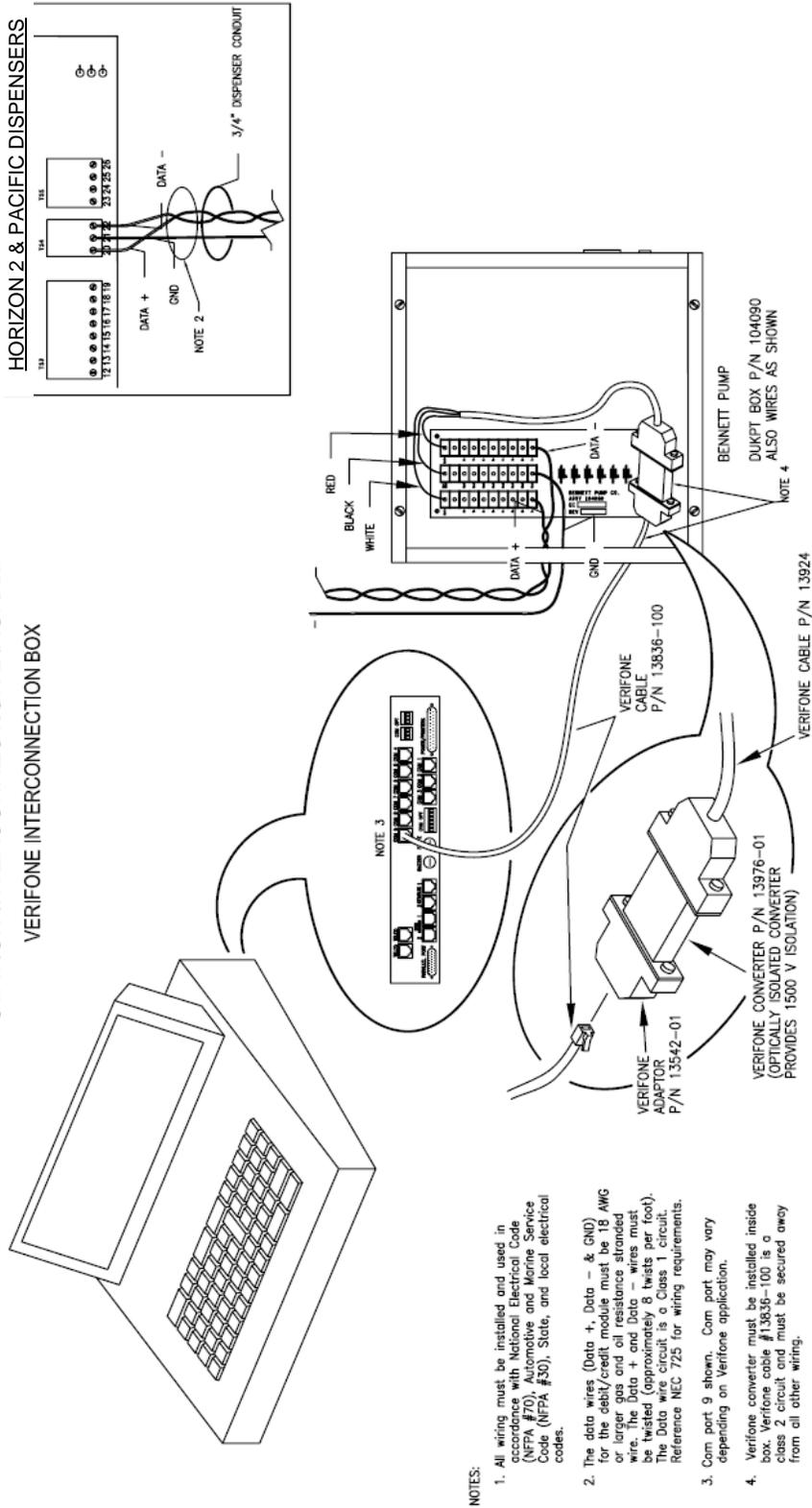
- All conductors are to be stranded copper with THHN and gas and oil resistant insulation per National Electrical Code.
- Do not use wire smaller than 18 gauge.
- These data wires should be twisted together at least 3 times per foot to reduce the effects of electrical noise on the communication circuit. Due to the risk of noise causing possible problems with communication, Bennett highly recommends the use of the twisted wires, but does not require it.
- Do not use wire nuts on Data Lines. Do not splice Data wires. They must be direct runs.
- You may pull the Data Lines in the same conduit as the dispenser's power.

*Field Wiring Diagram on Next Page...*

*This section intentionally left blank.*

# Introduction

## STATION INTERCONNECTION DIAGRAM VERIFONE INTERCONNECTION BOX



**NOTES:**

1. All wiring must be installed and used in accordance with National Electrical Code (NFPA #70), Automotive and Marine Service Code (NFPA #30), State, and local electrical codes.
2. The data wires (Data +, Data - & GND) for the debi/credit module must be 18 AWG or larger gas and oil resistance stranded wire. The Data + and Data - wires must be twisted together (approximately 8 twists per foot). The Data wires must be a Class 2 circuit. Reference NEC 725 for wiring requirements.
3. Com part 9 shown. Com part may vary depending on Verifone application.
4. Verifone converter must be installed inside box. Verifone cable #13836-100 is a class 2 circuit and must be secured away from all other wiring.

FIGURE 2.3 - Station Interconnection Diagram

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# Programming

Like the Dispenser, the Credit Card Module has a Manager's Mode used to access programming and diagnostics. The following instructions explain how to gain access to the Manager's Mode and how to configure it for operation.

## Using the Keypad:

There are different keys on the module that are used for different functions (see figure 3.1).

- Payment Keys - Normally used for customer interface. Used to select payment type or carwash type.
- Numeric Keys - Normally used for entering numeric data. Used to enter the Zip Code or which type of Car Wash is desired.
- Function Keys - Normally used to request a receipt or Car Wash. Used to cancel a transaction or if the customer needs help.

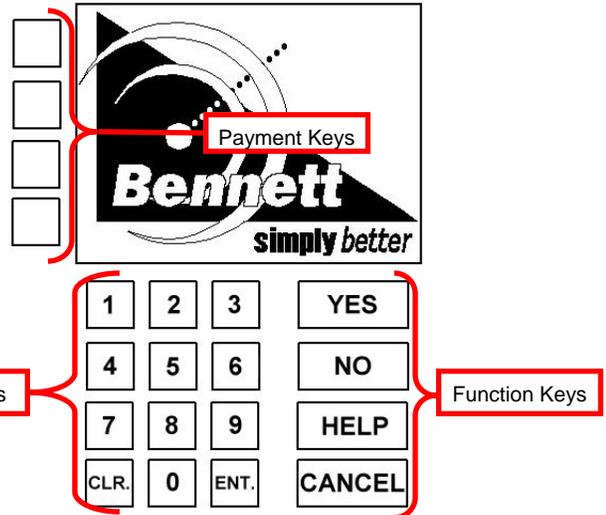


FIGURE 3.1 - key descriptions

## Gaining Access to Programming:

Once the Credit Card Module is powered on then you must press the bottom payment key, the numeric [CLR.] key and the numeric [ENT.] key simultaneously (see figure 3.2).

Once these buttons are pressed then you will see "Manager Mode: 00" at the top of the screen (see figure 3.3).

Below the manager's mode line you will see two sets of numbers. These numbers are for engineering purposes. You will not need to do anything with these numbers unless Bennett asks for the information.

## Programming Modes:

There are two modes that you will need to program prior to the module operating.

- Mode 01 - Address
- Mode 07 - Contrast Adjustment

These are the only two modes that are used to make the module operational. The other modes are for diagnostics and will be discussed in the Service Section.

*Programming Continued on Next Page...*

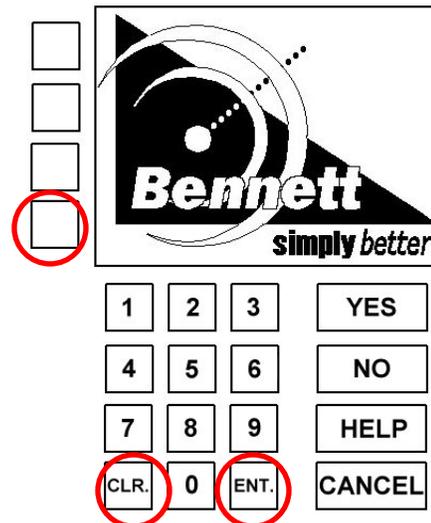


FIGURE 3.2 - Access Manager's Mode

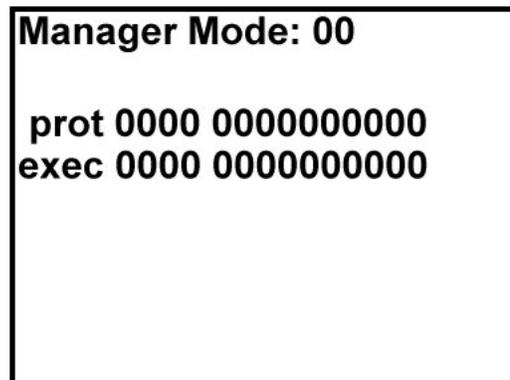


FIGURE 3.3 - Manager's Mode 00

# Programming

## Manager's Mode 01:

There is only one mode that you must program for the Credit Card Module to communicate with the P.O.S. (Point Of Sale) Unlike the dispenser, the module needs to be addressed. You address the module through Manager's Mode 01.

As soon as you enter into Manager's Mode you must press the numeric [1] key and then press the numeric [CLR.] key. The numeric [CLR.] key will be used to enter each mode for programming or diagnostics.

Once you press the numeric [CLR.] key then the display will show you which address it is currently configured for (see figure 3.4). At this time you must press the proper address for that module.

**NOTE:** You must use the same address in the module as the Fueling Point for that dispenser.

As soon as you press the first numeric number for the address then the display will tell you what the new address is (see figure 3.5).

Now that the proper address is being displayed you must press the numeric [ENT.] key. Once that is pressed then the previous display will return with the new address (see figure 3.4).

After this is complete then you must press the function [CANCEL] key to exit Manager's Mode 01.

If you are finished with programming then you will press the function [CANCEL] key again and the module will return to normal operation.

## Manager's Mode 07:

Even though this mode may not stop the module from communicating with the P.O.S. (Point Of Sale) it may be very important for you to configure prior to operating the unit.

If the display of the Credit Card Module is too light or too dark for you to read then you can adjust it in Manager's Mode 07.

As soon as you gain access to the manager's mode you must press the numeric [7] key and then press the numeric [CLR.] key.

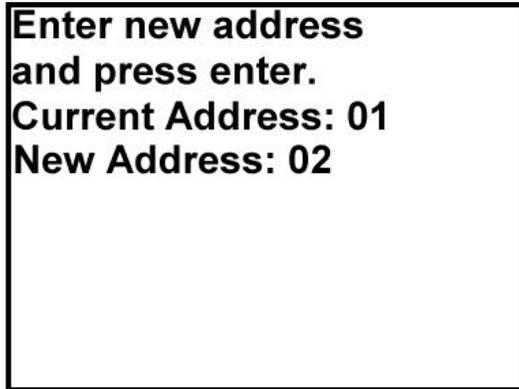
Once the numeric [CLR.] key is pressed then the display will instruct you how to adjust the contrast (see figure 3.6).

To make the contrast lighter you must tap the numeric [1] key until it is at the desired contrast. To make



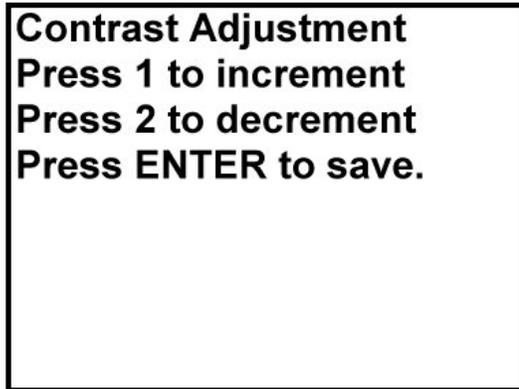
**Enter new address  
and press enter.  
Current Address: 01**

FIGURE 3.4 - Manager's Mode 01



**Enter new address  
and press enter.  
Current Address: 01  
New Address: 02**

FIGURE 3.5 - New Address



**Contrast Adjustment  
Press 1 to increment  
Press 2 to decrement  
Press ENTER to save.**

FIGURE 3.6 - Manager's Mode 07

## Programming

the contrast darker you must tap the numeric [2] key until it is at the desired contrast. Once you are satisfied you must press the numeric [ENT.] key to save the new setting.

**NOTE:** If you do not press the numeric [ENT.] key prior to exiting the manager's mode then the display will remain on the desired setting until the unit loses power and the battery drops out. When the power returns then the contrast will return to its original state.

After you are finished setting the contrast then you must press the function [CANCEL] key to exit Manager's Mode 07.

If you are finished with programming then you will press the function [CANCEL] key again and the module will return to normal operation.

*This section intentionally left blank.*

# Service

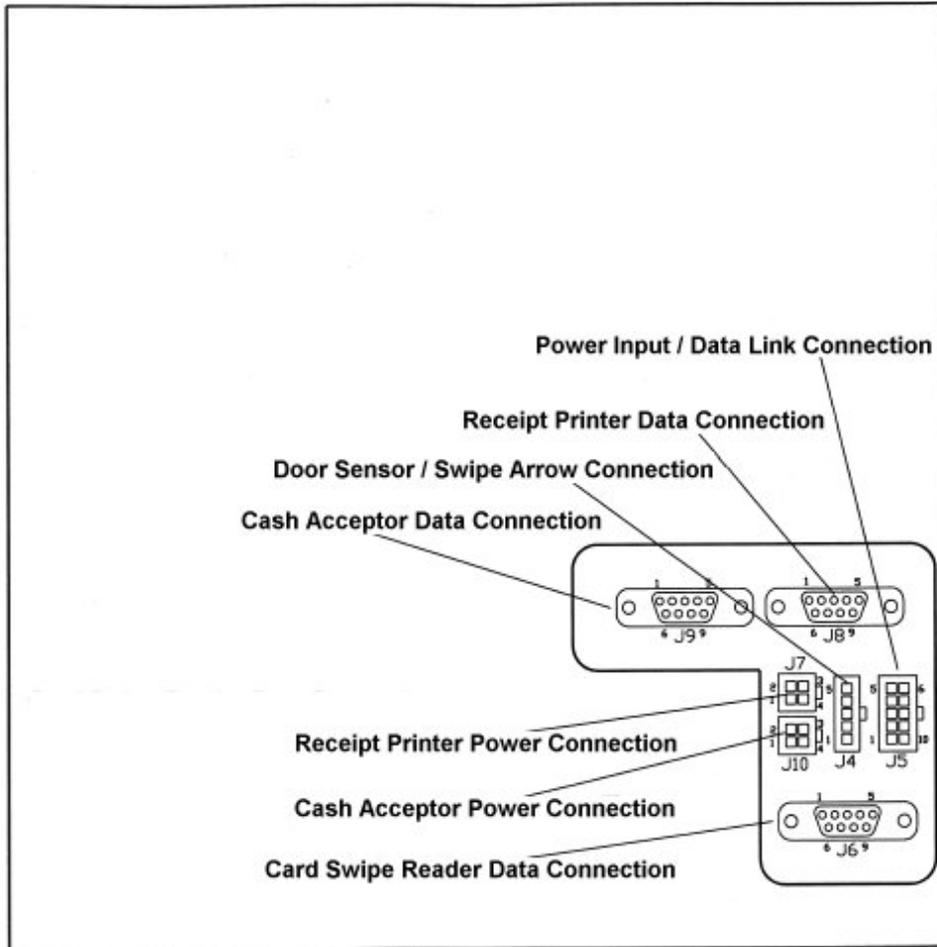


FIGURE 4.1 - Connector Functions

## Connector Functions & Pin-Outs:

### J4 - Door Sensor / Swipe Arrow

1. +12vdc
2. +12vdc
3. Swipe Reader Arrow Output
4. Door Sensor Input
5. Ground

### J5 - Power Input / Data Link

1. +12vdc
2. +12vdc
3. +24vdc
4. +24vdc
5. RS-485 +

6. RS-485 Return
7. RS-485 -
8. N/C
9. Ground
10. Ground

### J6 - Card Swipe Reader Data

1. N/C
2. RXD
3. TXD
4. +12vdc (Reader Power)
5. Ground
6. N/C
7. RTS
8. CTS
9. N/C

*Connector Functions & Pin-Outs Continued on Next Page...*

## Service

### J7 - Receipt Printer Power

1. +24vdc
2. +24vdc
3. Ground
4. Ground

### J8 - Receipt Printer Data

1. N/C
2. RXD
3. TXD
4. N/C
5. Ground
6. N/C
7. RTS
8. CTS
9. N/C

### J9 - Cash Acceptor Data

1. N/C
2. RXD
3. TXD
4. N/C
5. Ground
6. N/C
7. RTS
8. CTS
9. N/C

### J10 - Cash Acceptor Power

1. +24vdc
2. +24vdc
3. Ground
4. Ground

*This section intentionally left blank.*

# Service

## LEDs:

Number	LED Description	LED Response
D1	Happy Light (RED)	Flashes continually one time per second while software is running.
D6	RS-485 RXD (GREEN)	Strobes continually while data is being received from the P.O.S. (Point Of Sale).
D7	RS-485 TXD (RED)	Strobes continually while data is being transmitted to the P.O.S. (Point Of Sale).
D10	TXD to Card Swipe Reader (RED)	Flashes one time, quickly, while module is booting up and while entering Diagnostic Mode 04.
D12	RXD from Card Swipe Reader (GREEN)	Flashes quickly while card is inserted. Flashes longer while card is removed.
D14	TXD to Receipt Printer (RED)	Flashes once while data is being transmitted to the printer.
D16	RXD from Receipt Printer (GREEN)	Flashes once while data is being received from printer.
D18	TXD to Cash Acceptor (RED)	Flashes once while data is being transmitted to the cash acceptor.
D20	RXD from Cash Acceptor (GREEN)	Flashes once while data is being transmitted from the cash acceptor.

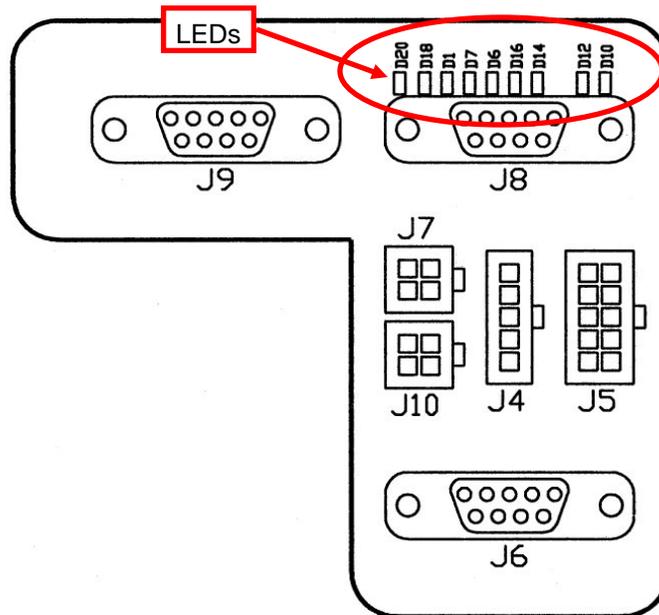


FIGURE 4.2 - LED Map

# Service

## Diagnostics:

There are seven diagnostic modes available with the Credit Card Module. These modes are used to help troubleshoot the software, keypad, printer or card reader. Here is a list of diagnostic modes:

- Mode 02 - RTC Change
- Mode 03 - Audit Trail Print
- Mode 04 - Card Reader Test
- Mode 05 - Printer Test
- Mode 06 - Key Test
- Mode 08 - Miscellaneous Diagnostic
- Mode 09 - Software Restart

To gain access to these modes you will follow the same instructions used to enter the programming modes (see page 8). Once you have gained access to the "Manager's Mode: 00" screen then you are ready to run the different diagnostic modes.

## Manager's Mode 02:

There is a Real Time Clock that the system uses to track three different Audit Events.

1. Software Restarts
2. RTC Changes
3. Door Open Alarms

You can use these events to help show you how many times the software in the Credit Card Module has restarted, how many times the Real Time Clock has been changed and how many times the door to the dispenser has been opened. You will also be able to see when these events took place.

**NOTE:** There is no way to reset these events.

As soon as you enter into Manager's Mode you must press the numeric [2] key and then press the numeric [CLR.] key.

Once you press the numeric [CLR.] key then the display will show you what the current date and time is set for (see figure 4.3).

The date in figure 4.3 is showing July 1st, 2009.

The time in figure 4.3 is showing 2:17 P.M.

To change the date and time you simply start with entering the last two digits of the year, then the two digits for the month, then the two digits for the day, next you enter the two digits for the hour (military time) and then the two digits for the minutes. When this is complete then you press the numeric [ENT.] key to save the new setting.

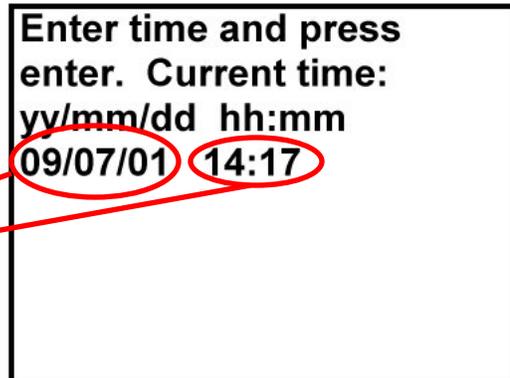


FIGURE 4.3 - Manager's Mode 02

After this is complete then you must press the function [CANCEL] key to exit Manager's Mode 02.

To exit completely out of manager's mode you must press the function [CANCEL] key one time. The unit will return to normal operating mode.

# Service

## Manager's Mode 03:

Now that the RTC (Real Time Clock) has been set then you can print the Audit Trail Report. These reports will tell you when each of the Audit Events have taken place.

As soon as you enter into Manager's Mode you must press the numeric [3] key and then press the numeric [CLR.] key.

Once you press the numeric [CLR.] key then the module will display the four different reports offered (see figure 4.4):

0. The last 25 times any of the Audit Events have occurred.
1. The last 25 times that the Software has Restarted.
2. The last 25 times that the Door has been Opened.
3. The last 25 times that the RTC (Real Time Clock) has been reset.

- 0 - next 25 events
- 1 - next 25 starts
- 2 - next 25 alarms
- 3 - next 25 clocks

FIGURE 4.4 - Manager's Mode 03

Simply press the numeric key that correlates with the desired report and the printer will print out the report.

The unit will store a maximum of 4,032 Audit Events. If you print a report and you need more than the last 25 events then continue to press the same numeric key until it prints the events that you are looking for. The report will print the newest events first.

After this is complete then you must press the function [CANCEL] key to exit Manager's Mode 03.

To exit completely out of manager's mode you must press the function [CANCEL] key one time. The unit will return to normal operating mode.

Figure 4.5 is an example of the Audit Events Report. This report shows the last 25 events that took place. Notice that the event column (left side of report) reflects the three different types of events.

Figure 4.6 is an example of the Software Starts Report. This report only reflects the last 25 times that the software reset. Notice that the event column (left side of report) reflects only the software starts event.

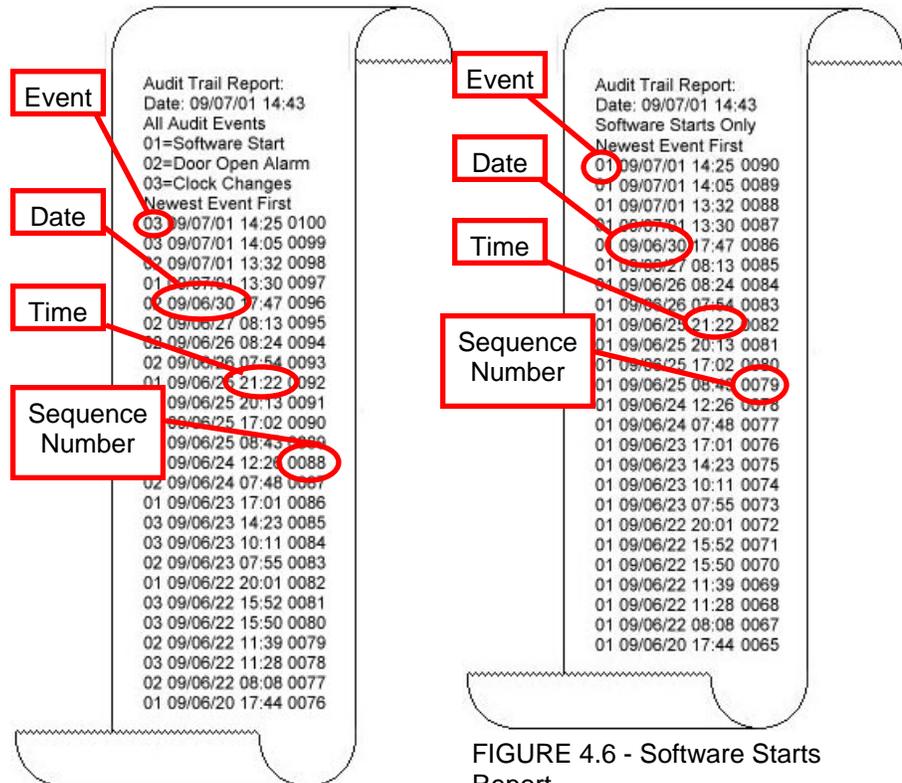


FIGURE 4.5 - All Audit Events Report

FIGURE 4.6 - Software Starts Report

# Service

Figure 4.7 is an example of the Door Open Alarms Report. This report only reflects the last 21 times that the door alarm went off. It has not reached the maximum 25 number of events. Notice that the event column (left side of report) reflects only the door open alarm event.

Figure 4.8 is an example of the Clock Change Report. This report only reflects the last 5 times that the RTC (Real Time Clock) was reset. It has not reached the maximum 25 number of events. Notice that the event column (left side of report) reflects only the clock changes event.

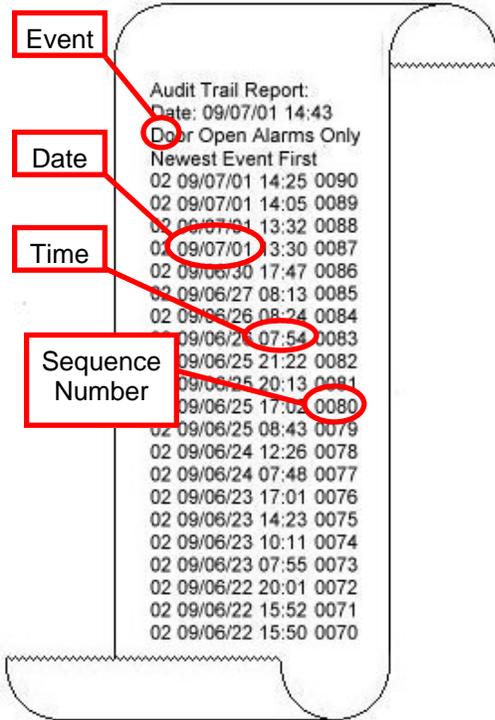


FIGURE 4.7 - Door Open Alarms Report

## Manager's Mode 04:

This mode is used to test the card reader for the Credit Card Module.

As soon as you enter into Manager's Mode you must press the numeric [4] key and then press the numeric [CLR.] key.

Once you press the numeric [CLR.] key then the module will send a signal to the card reader to see if it acknowledges it. Once the card reader receives the signal and responds then the display will tell you that the card reader is detected and that you need to insert a card (see figure 4.9)

If the module sends the signal to the card reader and it doesn't receive a response then the display will remain with "Waiting for response" (see figure 4.10). At this point the card reader is either inoperable or it is unplugged.

To determine if the card reader is plugged into the module, make sure that the J6 connector is plugged into the back of the module.

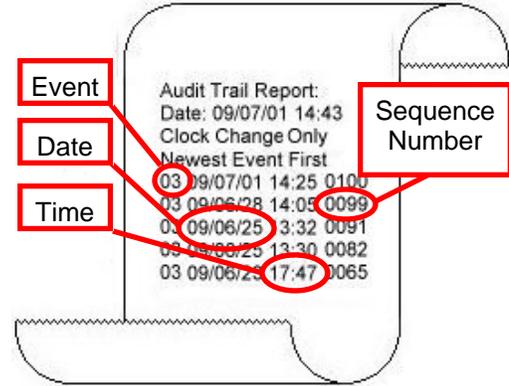


FIGURE 4.8 - Clock Change Report

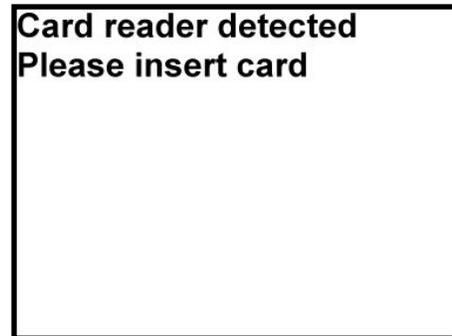


FIGURE 4.9 - Manager's Mode 04

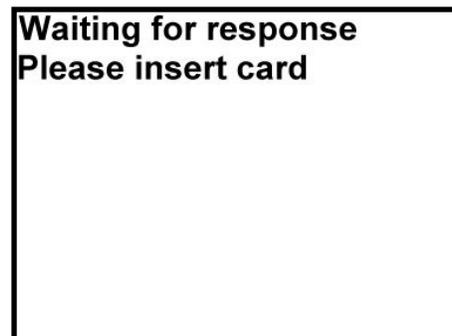


FIGURE 4.10 - Card Reader not detected

## Service

If it is loose or disconnected you must power off the dispenser and turn off the battery back-up prior to correcting the problem. If J6 is plugged in then you must verify that J4 on the card reader is plugged in (see figure 4.11).

When you enter the Manager's Mode and the module detects the card reader then you need to insert a Credit Card to verify that it is working properly. When you slide the card into the reader you must make sure that it has been inserted completely. When it has been inserted properly the module will tell you to remove the card (see figure 4.12).

At this point you must remove the card. If the card reader works properly then the display will tell you that both tracks are operational (see figure 4.13).

If one or both of the tracks failed then the display will tell you that there is either no data on the card tested or there was an error reading the card (see figure 4.14).

**NOTE:** To test the card reader make sure that the door of the dispenser remains closed. The card reader is very sensitive to light. If the dispenser door is open and if the sun is bright enough then the card reader may not work properly. The Card Sensor is an optical reader, and if the sun is shining on it then it may not detect the Credit Card.

After this is complete then you must press the function [CANCEL] key to exit Manager's Mode 04.

To exit completely out of manager's mode you must press the function [CANCEL] key one time. The unit will return to normal operating mode.

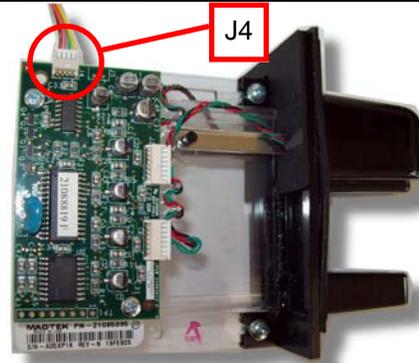


FIGURE 4.11 - Card Reader

**Card reader detected  
Please remove card**

FIGURE 4.12 - Please Remove Card

**Card reader detected  
Please insert card  
Track 1 data read ok  
Track 2 data read ok**

FIGURE 4.13 - Both Tracks Good

**Card reader detected  
Please insert card  
T1 no data or error  
T2 no data or error**

FIGURE 4.14 - Both Tracks Bad



## Service

Once you press the numeric [CLR.] key then you will be prompted to press a key to confirm that it is operational (see figure 4.18).

At this time any key that you press on the Credit Card Module will be displayed on the screen. For instance, if you press the top payment key then the message on the display will say, "Pay outside pressed" (see figure 4.19).

**NOTE:** The payment keys and function keys are not programmable from the location. They are programmed from the factory. These function keys are the same for all modules and can not be changed.

After all of the keys have been tested you must press the function [CANCEL] key to exit Manager's Mode 06.

**NOTE:** The function [CANCEL] key will exit this test mode once pressed. This is also the only way that you will know that the function [CANCEL] key is operational.

To exit completely out of manager's mode you must press the function [CANCEL] key one time. The unit will return to normal operating mode.

### Manager's Mode 08:

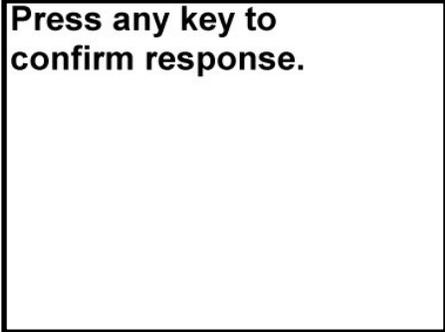
This mode will tell you what version of software the Credit Card Module is running.

As soon as you enter into Manager's Mode you must press the numeric [8] key and then press the numeric [CLR.] key.

Once you press the numeric [CLR.] key then the display will show the version of software (see figure 4.20).

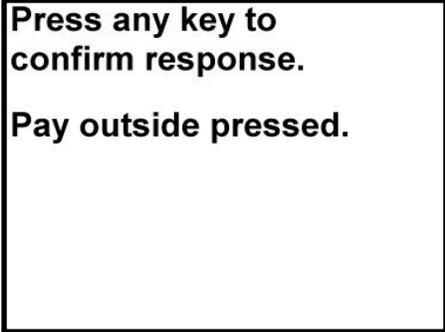
After this is complete then you must press the function [CANCEL] key to exit Manager's Mode 08.

To exit completely out of manager's mode you must press the function [CANCEL] key one time. The unit will return to normal operating mode.



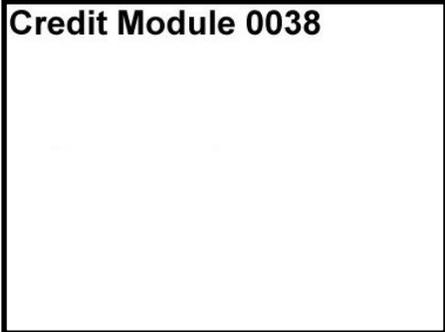
**Press any key to  
confirm response.**

FIGURE 4.18 - Manager's Mode 06



**Press any key to  
confirm response.**  
**Pay outside pressed.**

FIGURE 4.19 - Top Payment Key  
Test



**Credit Module 0038**

FIGURE 4.20 - Manager's Mode 08

## Service

### Manager's Mode 09:

This mode is used to restart the software.

As soon as you enter into Manager's Mode you must press the numeric [9] key and then press the numeric [CLR.] key.

Once you press the numeric [CLR.] key then the display will tell you to either press enter to restart the software or press cancel to exit the mode (see figure 4.21).

If you press the numeric [ENT.] key then the software will automatically reset. The display will go blank and then power up as described on page 4 "Powering Up the Module".

**NOTE:** If the Credit Card Module software does not restart after pressing the numeric [ENT.] key then you must flip the switch on the back of the unit so that the switch is in the "RUN" position (see figure 4.22).

If you press the function [CANCEL] key then it will exit Manager's Mode 09.

To exit completely out of manager's mode you must press the function [CANCEL] key one time. The unit will return to normal operating mode.

**Press enter to  
restart software.  
Press cancel to exit  
this mode.**

FIGURE 4.21 - Manager's Mode 09

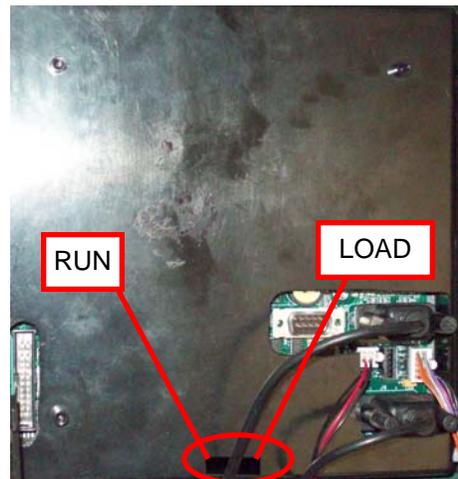


FIGURE 4.22 - Run / Load Switch

## Parts List

Part Number	Description	Comment
113965	Credit Card Module	
113838	Credit Card Module Power / Data Harness	
113615	Hecon Printer Kit	
	Printer Paper	Call Specialty Roll Products, Inc. for paper. (800-647-6267)
113444	Credit Card Reader	
113445	Credit Card Reader Harness	
113413	Credit Card Reader Bracket	

