

Introduction

Purpose

This manual provides instructions for replacing the Encrypted Card Reader (ECR) (M16711B001), Legacy (Non-EMV®) CRINDs.

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Required Tools and Materials

The following tools and materials are required for replacing the ECR:

- 1/4-inch Nut Driver or Ratchet and Socket
Note: Use magnetic nut drivers for convenience.
- Putty Knife
- Isopropyl Alcohol (to clean the surface of the dispenser after the gasket is removed, if required)
- CRIND® Diagnostic Card (Q12534-170)

Parts List

The following table lists the parts included in the ECR replacement kit (M16711K002):

Item	Name	Part Number	Version	Quantity	Unit
1	Gasket, Card Reader, Universal	M13127B006	E.4 (Design)	1	Each
2	Cable, Ground	M14084A001	A.7 (Design)	1	Each
3	Screw, Metric M5 X 10 Thread Former	M00417B101	W.4 (Design)	1	Each
4	Card Reader, Encrypted	M16711B001	A.5 (Design)	1	Each
5	Manual, Installation, ECR Replacement	MDE-5492	A (Design)	1	Each

Related Documents

Document Number	Title	GOLD SM Library
MDE-2531	Gilbarco® Pump and Dispenser Start-up and Service Manual	<ul style="list-style-type: none">• Gilbarco Fuel Dispensers Service Manual• Pump and Dispenser Start-Up and Service Manual
MDE-3804	Encore® and Eclipse® Start-up/Service Manual	<ul style="list-style-type: none">• Encore and Eclipse Service Manual
PT-1936	Encore Series Pumps and Dispensers Illustrated Parts Manual	<ul style="list-style-type: none">• Encore and Eclipse Service Manual• Encore and Eclipse Installers Parts Manual

Abbreviations and Acronyms

Term	Description
CPR	Cardiopulmonary Resuscitation
CRIND	Card Reader in Dispenser
ECR	Encrypted Card Reader
EMV	Europay®, MasterCard®, and Visa®
ESD	Electrostatic Discharge
FCC	Federal Communication Commission
GOLD	Gilbarco Online Documentation
LED	Light Emitting Diode
NEC®	National Electrical Code
NFPA®	National Fire Protection Association
OSHA	Occupational Safety and Health Administration
STP	Submersible Turbine Pump
TAC	Technical Assistance Centre

Important Safety Information

Notes: 1) *Important Safety Information section in a readily accessible location.*

2) *Although DEF is non-flammable, Diesel is flammable. Therefore, for DEF cabinets that are attached to Diesel dispensers, follow all the notes in this section that pertain to flammable fuels.*

This section introduces the hazards and safety precautions associated with installing, inspecting, maintaining, or servicing this product. Before performing any task on this product, read this safety information and the applicable sections in this manual, where additional hazards and safety precautions for your task will be found. Fire, explosion, electrical shock, or pressure release could occur and cause death or serious injury, if these safe service procedures are not followed.


Preliminary Precautions


You are working in a potentially dangerous environment of flammable fuels, vapors, and high voltage or pressures. Only trained or authorized individuals knowledgeable in the related procedures should install, inspect, maintain, or service this equipment.

Emergency Total Electrical Shut-Off

The first and most important information you must know is how to stop all fuel flow to the pump/dispenser and island. Locate the switch or circuit breakers that shut off all power to all fueling equipment, dispensing devices, and Submerged Turbine Pumps (STPs).

⚠ WARNING

 The EMERGENCY STOP, ALL STOP, and PUMP STOP buttons at the cashier's station WILL NOT shut off electrical power to the pump/dispenser. This means that even if you activate these stops, fuel may continue to flow uncontrolled.

 You must use the TOTAL ELECTRICAL SHUT-OFF in the case of an emergency and not the console's ALL STOP and PUMP STOP or similar keys.

Total Electrical Shut-Off Before Access

Any procedure that requires access to electrical components or the electronics of the dispenser requires total electrical shut off of that unit. Understand the function and location of this switch or circuit breaker before inspecting, installing, maintaining, or servicing Gilbarco equipment.

Evacuating, Barricading, and Shutting Off

Any procedure that requires access to the pump/dispenser or STPs requires the following actions:



- An evacuation of all unauthorized persons and vehicles from the work area
- Use of safety tape, cones, or barricades at the affected unit(s)
- A total electrical shut-off of the affected unit(s)

Read the Manual

Read, understand, and follow this manual and any other labels or related materials supplied with this equipment. If you do not understand a procedure, call the Gilbarco Technical Assistance Center (TAC) at 1-800-743-7501. It is imperative to your safety and the safety of others to understand the procedures before beginning work.

Follow the Regulations

Applicable information is available in National Fire Protection Association (NFPA) 30A; *Code for Motor Fuel Dispensing Facilities and Repair Garages*, NFPA 70; *National Electrical Code (NEC)*, Occupational Safety and Health Administration (OSHA) regulations and federal, state, and local codes. All these regulations must be followed. Failure to install, inspect, maintain, or service this equipment in accordance with these codes, regulations, and standards may lead to legal citations with penalties or affect the safe use and operation of the equipment.

Replacement Parts

Use only genuine Gilbarco replacement parts and retrofit kits on your pump/dispenser. Using parts other than genuine Gilbarco replacement parts could create a safety hazard and violate local regulations.

Federal Communications Commission (FCC) Warning

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. Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment.

Safety Symbols and Warning Words

This section provides important information about warning symbols and boxes.

Alert Symbol



This safety alert symbol is used in this manual and on warning labels to alert you to a precaution which must be followed to prevent potential personal safety hazards. Obey safety directives that follow this symbol to avoid possible injury or death.

Signal Words

These signal words used in this manual and on warning labels tell you the seriousness of particular safety hazards. The precautions below must be followed to prevent death, injury, or damage to the equipment:

DANGER: Alerts you to a hazard or unsafe practice which will result in death or serious injury.

WARNING: Alerts you to a hazard or unsafe practice that could result in death or serious injury.

CAUTION with Alert symbol: Designates a hazard or unsafe practice which may result in minor injury.

CAUTION without Alert symbol: Designates a hazard or unsafe practice which may result in property or equipment damage.

Working With Fuels and Electrical Energy

Prevent Explosions and Fires

Fuels and their vapors will explode or burn, if ignited. Spilled or leaking fuels cause vapors. Even filling customer tanks will cause potentially dangerous vapors in the vicinity of the dispenser or island.

Important Safety Information

No Open Fire



Open flames from matches, lighters, welding torches, or other sources can ignite fuels and their vapors.

No Sparks - No Smoking



Sparks from starting vehicles, starting, or using power tools, burning cigarettes, cigars, or pipes can also ignite fuels and their vapors. Static electricity, including an electrostatic charge on your body, can cause a spark sufficient to ignite fuel vapors. Every time you get out of a vehicle, touch the metal of your vehicle, to discharge any electrostatic charge before you approach the dispenser island.

Working Alone

It is highly recommended that someone who is capable of rendering first aid be present during servicing. Familiarize yourself with Cardiopulmonary Resuscitation (CPR) methods, if you work with or around high voltages. This information is available from the American Red Cross. Always advise the station personnel about where you will be working, and caution them not to activate power while you are working on the equipment. Use the OSHA Lockout/Tagout procedures. If you are not familiar with this requirement, refer to this information in the service manual and OSHA documentation.

Working With Electricity Safely

Ensure that you use safe and established practices in working with electrical devices. Poorly wired devices may cause a fire, explosion, or electrical shock. Ensure that grounding connections are properly made. Take care that sealing devices and compounds are in place. Ensure that you do not pinch wires when replacing covers. Follow OSHA Lockout/Tagout requirements. Station employees and service contractors need to understand and comply with this program completely to ensure safety while the equipment is down.

Hazardous Materials

Some materials present inside electronic enclosures may present a health hazard if not handled correctly. Ensure that you clean hands after handling equipment. Do not place any equipment in the mouth.

WARNING

The pump/dispenser contains a chemical known to the State of California to cause cancer.

WARNING

The pump/dispenser contains a chemical known to the State of California to cause birth defects or other reproductive harm.



Gilbarco Veeder-Root encourages the recycling of our products. Some products contain electronics, batteries, or other materials that may require special management practices depending on your location. Please refer to your local, state, or country regulations for these requirements.

In an Emergency

Inform Emergency Personnel

Compile the following information and inform emergency personnel:

- Location of accident (for example, address, front/back of building, and so on)
- Nature of accident (for example, possible heart attack, run over by car, burns, and so on)
- Age of victim (for example, baby, teenager, middle-age, elderly)
- Whether or not victim has received first aid (for example, stopped bleeding by pressure, and so on)
- Whether or not a victim has vomited (for example, if swallowed or inhaled something, and so on)

WARNING



Gasoline/DEF ingested may cause unconsciousness and burns to internal organs. Do not induce vomiting. Keep airway open. Oxygen may be needed at scene. Seek medical advice immediately.

WARNING

DEF generates ammonia gas at higher temperatures. When opening enclosed panels, allow the unit to air out to avoid breathing vapors. If respiratory difficulties develop, move victim away from source of exposure and into fresh air. If symptoms persist, seek medical attention.

WARNING



Gasoline inhaled may cause unconsciousness and burns to lips, mouth, and lungs. Keep airway open. Seek medical advice immediately.

WARNING



Gasoline/DEF spilled in eyes may cause burns to eye tissue. Irrigate eyes with water for approximately 15 minutes. Seek medical advice immediately.

WARNING



Gasoline/DEF spilled on skin may cause burns. Wash area thoroughly with clear water. Seek medical advice immediately.

WARNING

DEF is mildly corrosive. Avoid contact with eyes, skin, and clothing. Ensure that eyewash stations and safety showers are close to the work location. Seek medical advice/recommended treatment if DEF spills into eyes.

IMPORTANT: Oxygen may be needed at scene if gasoline has been ingested or inhaled. Seek medical advice immediately.

Lockout/Tagout

Lockout/Tagout covers servicing and maintenance of machines and equipment in which the unexpected energization or start-up of the machine(s) or equipment or release of stored energy could cause injury to employees or personnel. Lockout/Tagout applies to all mechanical, hydraulic, chemical, or other energy, but does not cover electrical hazards. Subpart S of 29 CFR Part 1910 - Electrical Hazards, 29 CFR Part 1910.333 contains specific Lockout/Tagout provision for electrical hazards.

Before You Begin

Read and understand all safety information found in *MDE-3804 Encore and Eclipse Start-up/Service Manual*.

CAUTION



A properly grounded Electrostatic Discharge (ESD) wrist strap must be worn while servicing any electronic devices or components. Failure to use electrostatic precautions may damage electronic components and void warranty.

To prepare the site and dispenser for the installation, proceed as follows:

- 1 Inform the manager.
- 2 Barricade the unit to be worked on.
- 3 Remove power to the unit at the breaker panel. Follow OSHA lockout/tagout procedures.
- 4 Match the parts received in the kit with “Parts List” on [page 1](#).

WARNING

Failure to turn off the unit during kit installation may cause injury or bodily harm from electrical shock. Ensure that all power to the unit is switched off before opening the door to the unit and during kit installation.

Replacing the ECR (M16711B001)

Removing the Card Reader

To remove the card reader to be replaced, proceed as follows:

Note: Read all of the instructions before beginning and observe all safety precautions.

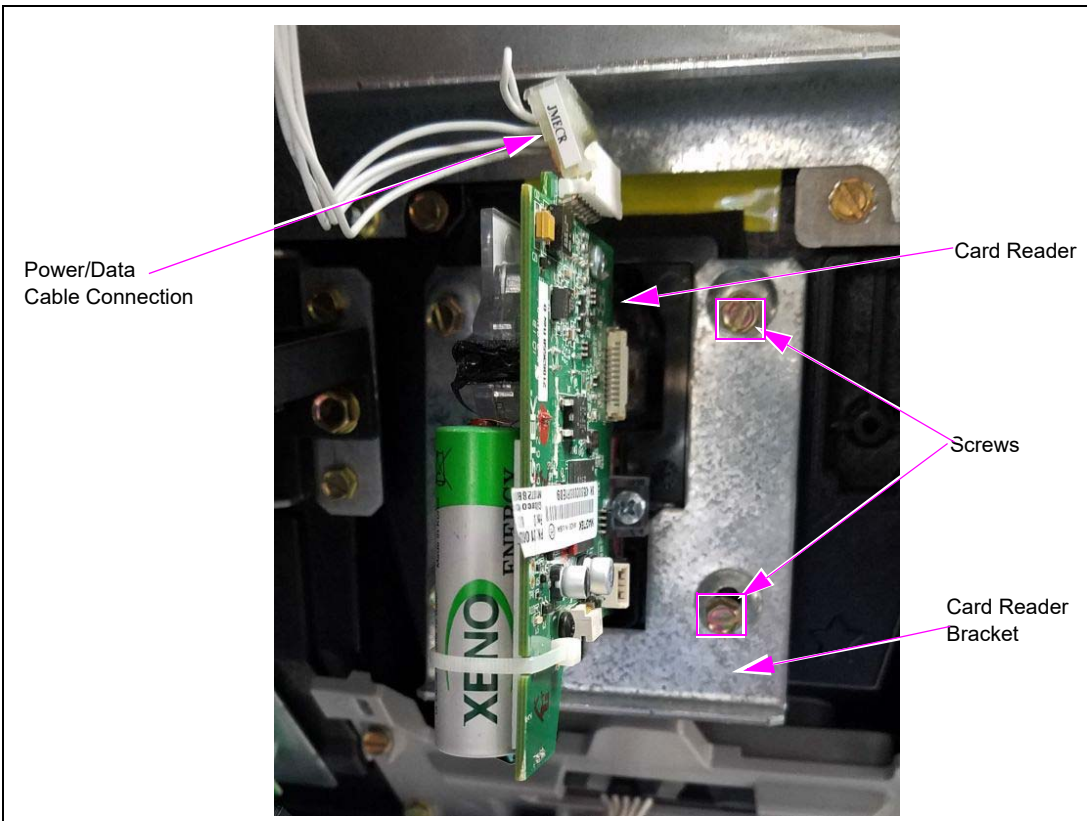
- 1 Open the door to the dispenser.
 - For Encore 500 or later, remove the lower hydraulics panel. The main door has a lower latch underneath the lower left main door corner. Open this latch. Locate the upper main door lock. Insert the main door key to open the main door.
 - For The Advantage® Series units, open the left and right option doors using the key. From side A, unlatch the four door latches located behind the right and left option doors. Loosen the four screws at the bottom of the main access door using a 5/32-inch or 3/8-inch Allen wrench. On side A, open the main access door by lifting slightly. Place the main access door hinge bracket pin into the end slot/lock position. This locks into a maximum 90-degree angle.
 - For Encore 300 units, locate the main door, insert the key, and open the door.

- 2 Disconnect the cable harness connection from the card reader (see [Figure 1](#) on [page 6](#)).

Note: Unused cables left connected can cause noise issues in a unit.

- 3 Remove the ground cable if it is connected to the card reader.
- 4 Remove the four hexagonal-head screws that secure the card reader bracket and card reader to the option door using a 1/4-inch nut driver or 1/4-inch ratchet and socket (see [Figure 1](#)). Remove and discard the card reader. Reserve the screws and card reader bracket to reuse with the new ECR.

Figure 1: Rear View of Encore S Main Door with Card Reader



- 5 Remove the existing card reader gasket from the option door. Use a putty knife and isopropyl alcohol, if required.

Removing the existing card reader is now complete.

Installing ECR (M16711B001)

To install the ECR, proceed as follows:

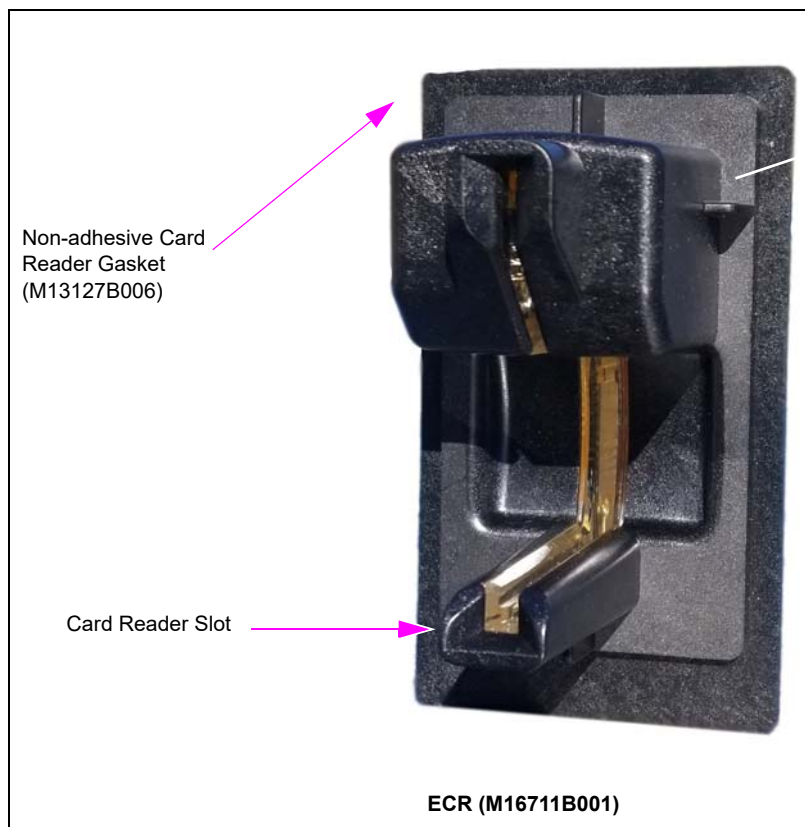
CAUTION



A properly grounded ESD wrist strap must be worn while servicing any electronic devices or components. Failure to use electrostatic precautions may damage electronic components and void warranty.

- 1 Obtain the ECR (M16711B001) and Card Reader Gasket (M13127B006) from the kit.
Note: Do not remove the foam block from connector on the card reader until after installation is complete. This is to protect the connector pins from damage during installation.
- 2 Place the card reader gasket over the front of the card reader and ensure that the gasket is seated on the flange as shown in [Figure 2](#).
Note: Installing this non-adhesive gasket is different from installing the previous gasket. The non-adhesive gasket is laid over the card reader snout first, then the card reader is inserted into the card reader opening on the door.

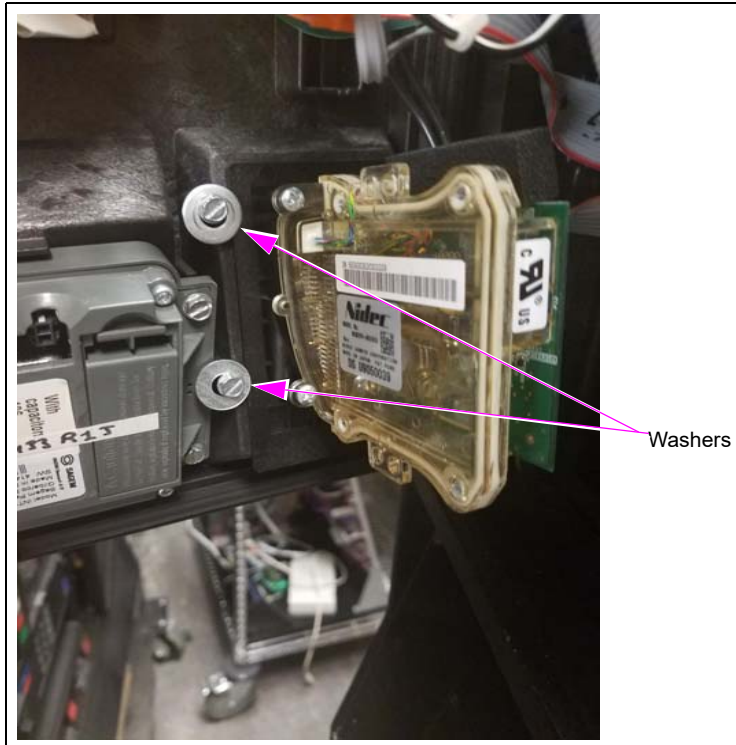
Figure 2: Card Reader and Gasket



- 3 From the rear of the main door, position the card reader and then the card reader bracket on the door so that the opening on the bracket is positioned at the top. If the bracket cannot be reused because it does not fit with the new card reader, then secure the reader to the bezel using a screw and washer in each location.

Note: Washers are not provided as part of the kit (see [Figure 3](#)).

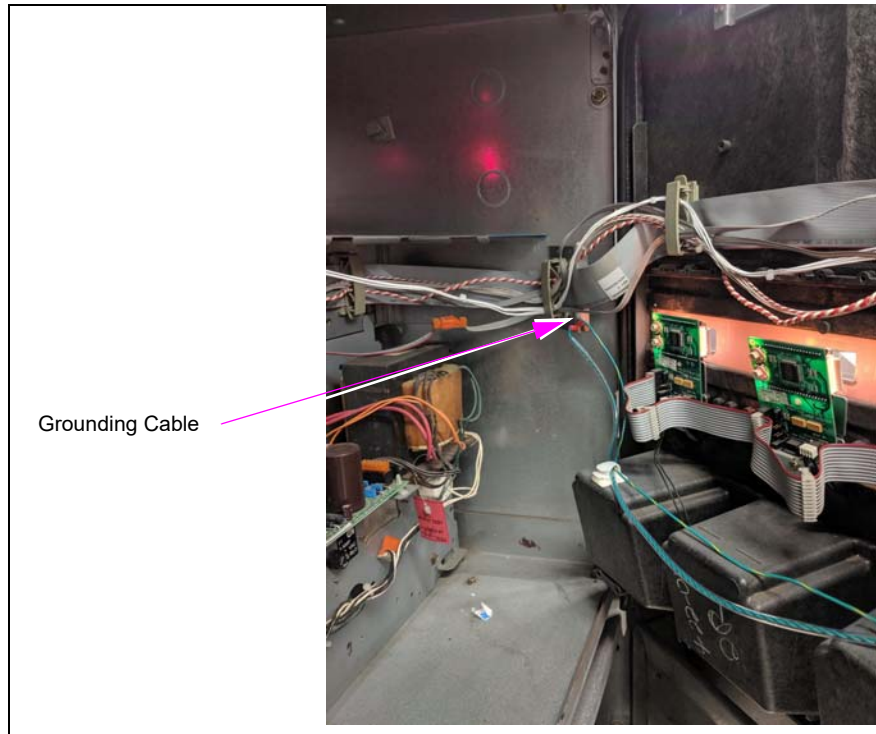
Figure 3: Mounting Card Reader Using Washers



- 4 Loosely secure the card reader bracket and card reader to the main door using the Hexagonal-head Screws (Q11677-24) that were reserved for reuse from the old ECR.
- 5 Tighten the card reader mounting screws in a star or diagonal pattern.
- 6 Connect the JMECR end of the 8-pin power/data cable (M07702A017) to the ECR.

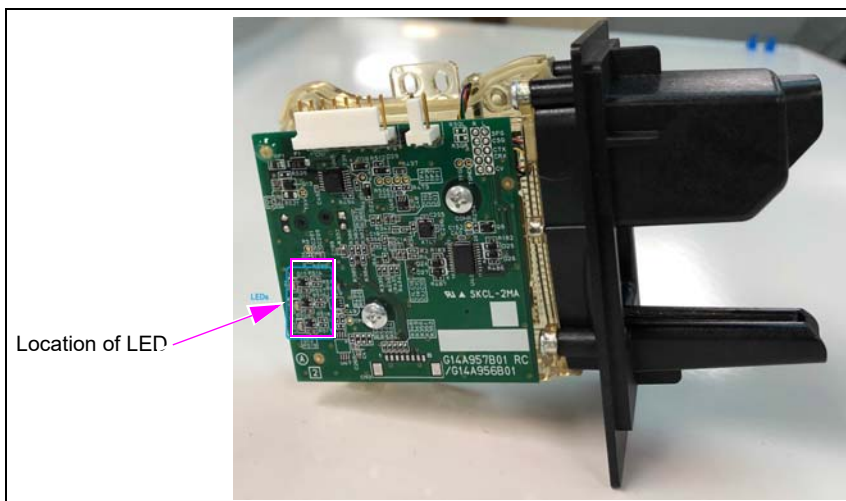
- 7 Ensure that the 8-pin power/data cable is secured to the unit with sufficient slack to prevent cable pull and pinching.

Figure 4: Grounding the ECR



- 8 Connect the grounding cable to the ECR and to the unit, routing to keep the grounding cable separate from the power/data cable.
- 9 Power ON the unit and observe the LEDs on the ECR.

Figure 5: Location of LEDs



LED Status for ECR

The following table depicts the Light Emitting Diode (LED) statuses for ECR:

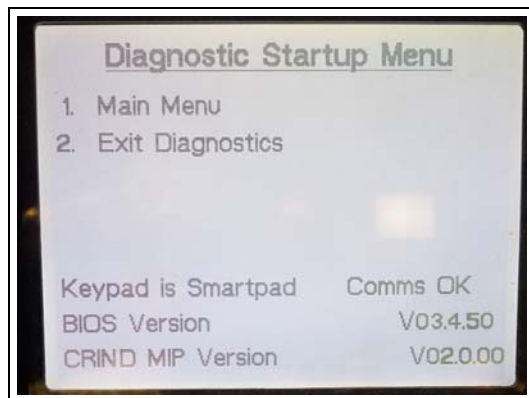
LED Status	Power	Tamper	Comms	Keys	Authenticated	Card Reader Condition
Off						No Power
Red - Solid		✓				Tampered
Yellow - Solid	✓					Power Only
Yellow - Flash	✓		✓			Power + CRIND Communication
Yellow - Flash	✓		✓	✓	✓	Power + CRIND Communication + Ready to Read Magnetic Stripe Data

Completing Installation

To complete the installation, proceed as follows:

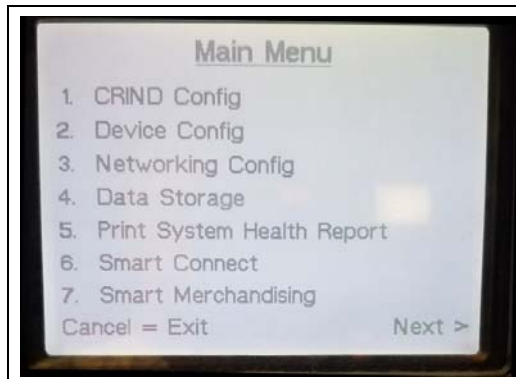
- 1 Close and secure the main door using the security latch and main door lock.
- 2 Reinstall and lock the lower hydraulics panel.
- 3 For Encore 500 units, from the Diagnostics Menu, reset the card count to zero.
 - a From the Diagnostic Startup Menu, press **1** to go to the Main Menu.

Figure 6: Diagnostic Startup Menu



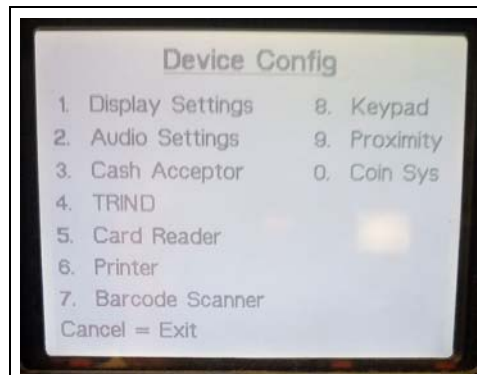
b From the Main Menu, press **2** to go to the Device Config menu.

Figure 7: Main Menu



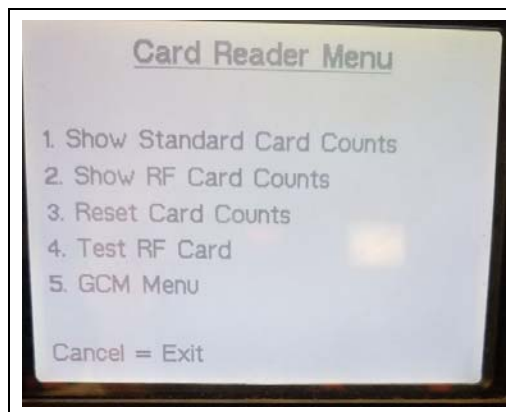
c Press **5** to go to the Card Reader Menu.

Figure 8: Device Config



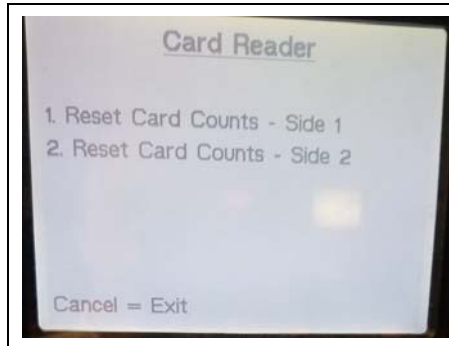
d Press **3** to open the page to reset card counts.

Figure 9: Card Reader Menu



- e To reset Card Counts for sides 1 and 2, proceed as follows:
- Press **1** to Reset Card Counts for side 1.
 - Press **2** to Reset Card Counts for side 2.

Figure 10: Reset Card Counts



- f The "Card Counts Reset" message is displayed.

Figure 11: Card Count Reset



- g Press **Cancel** to Exit.
- 4 Test the card readers by sliding the CRIND diagnostic card or running a transaction through both the readers with the magnetic stripe facing upward.

Installing the ECR kit is now complete.

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