

## Introduction

### Purpose

This manual provides installation instructions for:

- **M02139K001 Dual Head Card Reader Kit:** Used in The Advantage® Series, Encore® 300/500, and Eclipse® units with InfoScreen®, monochrome CRIND® device, or single-line CRIND device.
- **M02139K002 Dual Head Card Reader Kit:** Used in Encore 500 and Eclipse units to upgrade U25 Integrated Circuit (IC) firmware.

The dual head magnetic card reader option contains two magnetic heads on top of the card reader directly opposite to one another, which enables the customer's card to be read from either side of the card, as long as the magnetic strip is positioned up. One kit is required for each side of a unit. Two kits are required for both sides of a fueling unit.

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### Required Tools and Materials

Following tools and materials are required for installing Dual Head Card Reader Kits:

- Allen® Wrench Set, American Standard
- IC Extraction Tool, Digi-Key® K158-ND (or equivalent)
- IC Extraction Tool, AMP® 821903-1 (or equivalent)
- Isopropyl Alcohol (to clean the surface of the dispenser after the gasket is removed, if required)
- Laptop Tool
- Nut Drivers, 1/4-inch, 8 mm, 3/8-inch, 9/32-inch
- Putty Knife
- CRIND Diagnostic Card (Q12534-170)
- Ratchet Set, Standard
- Screwdrivers, Flat-blade and Phillips®
- Static Guard Wrist Strap

## Parts List

### M02139K001 Dual Head Card Reader Kit

Following table lists the hardware parts for the M02139K001 Dual Head Card Reader Kit:

Description	Part Number	Quantity		
		Advantage	Encore	Eclipse
Vertical Card Reader Bracket	M07574B001	-	1	-
Card Reader Mounting Bracket	T19362-02	1	-	-
Dual Head Magnetic Card Reader	M02136B001 or M13968B001	1	1	1
Card Reader Gasket (Non-adhesive)	M13127B006	1	1	1
Advantage Graphics (see note 1)	T500XX-XXX	1	-	-
Eclipse Graphics (see note 2)	EC04001GXXX	-	1	-
Encore Graphics (see note 3)	EN0600XGXXX	-	-	1

Notes: 1. Advantage Dual Head Card Reader Graphics T50044-XXX and T50063-XXX are order entry items.

2. Eclipse Dual Head Card Reader Graphics EC04001GXXX is an order entry item.

3. Encore Dual Head Card Reader Graphics EN0600XGXXX is an order entry item.

### M02139K002 Dual Head Card Reader Kit

Following table lists the firmware part for the M02139K002 Dual Head Card Reader Kit used for the U25 IC firmware upgrade in Encore 500 and Eclipse units:

Description	Part Number	Quantity
Microcontroller, 87C52 U25	S115-10015	1

*Note: National Fire Protection Association (NFPA) 30A, section 4-1.2, published by the NFPA, requires the installation of an easily accessible switch or circuit breaker to shut-off the power to all fueling equipment, dispensing devices and Submersible Turbine Pumps (STPs) in the event of an emergency. Know the function and location of this switch or circuit breaker before inspecting, installing, maintaining, or servicing Gilbarco® equipment.*

## Required Reading

Before installing this kit, the installer must read, understand, and follow:

- This manual
- NFPA 30A, The Automotive and Marine Service Station Code
- NFPA 70®, The National Electrical Code (NEC®)
- Applicable federal, state, and local codes and regulations

Failure to do so may adversely affect the safe use and operation of the equipment.

*Note: These kits must be installed by a Gilbarco Authorized Service Contractor (ASC) to ensure warranty.*

## Related Documents

Document Number	Title	GOLD <sup>SM</sup> Library
MDE-2540	The Advantage, Legacy®, and MPD® Series Owner's Manual	<ul style="list-style-type: none"> <li>• Advantage &amp; Legacy Models</li> <li>• Domestic Warranty and Owners Manuals</li> <li>• Export Warranty and Owners Manuals</li> </ul>
MDE-2562	MPD-3 and The Advantage Series Single-Line CRIND, CRIND with Monochrome LCD, Infocscreen, External CRIND, C-PAM™ CRIND Service Manual	<ul style="list-style-type: none"> <li>• CRIND and TRIND®</li> <li>• Service Manual</li> </ul>
MDE-3804	Encore and Eclipse Start-up/Service Manual	<ul style="list-style-type: none"> <li>• Encore and Eclipse</li> <li>• Service Manual</li> </ul>
MDE-3893	Encore and Eclipse Series Owner's Manual	<ul style="list-style-type: none"> <li>• Encore and Eclipse Installers</li> <li>• Encore and Eclipse</li> <li>• Domestic Warranty and Owners Manuals</li> <li>• Export Warranty and Owners Manuals</li> </ul>
MDE-3921	Laptop Tool User Reference Guide	<ul style="list-style-type: none"> <li>• Encore and Eclipse Installers</li> <li>• Encore and Eclipse</li> </ul>
MDE-4625	Graphics Panel Application for The Advantage Series, Encore, Eclipse and Encore S	<ul style="list-style-type: none"> <li>• Advantage &amp; Legacy Models</li> <li>• Encore and Eclipse</li> </ul>
PT-1728	The Advantage Series Pumps and Dispensers Illustrated Parts Manual	Parts Manual
PT-1936	Encore Series Pumps and Dispensers Illustrated Parts Manual	<ul style="list-style-type: none"> <li>• Encore and Eclipse Installers</li> <li>• Encore and Eclipse</li> <li>• Parts Manual</li> </ul>
PT-1938	Eclipse Illustrated Parts Manual	<ul style="list-style-type: none"> <li>• Encore and Eclipse Installers</li> <li>• Encore and Eclipse</li> <li>• Parts Manual</li> </ul>

## Abbreviations and Acronyms

Term	Description
ASC	Authorized Service Contractor
BIOS	Basic Input/Output System
CIM™	Customer Interface Module
CRIND	Card Reader in Dispenser
ESD	Electrostatic Discharge
GOLD	Gilbarco Online Documentation
IC	Integrated Circuit
LCD	Liquid Crystal Display
MPD	Multi Product Dispenser
NEC	National Electrical Code
NFPA	National Fire Protection Association
OSHA	Occupational Safety and Health Administration
PCA	Printed Circuit Assembly
STP	Submersible Turbine Pump
TRIND	Transmitter/Receiver in Dispenser
UL®	Underwriters Laboratories

# Important Safety Information

**Notes:** 1) *Save this 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 a Gilbarco Authorized Service Contractor or call the Gilbarco Support Center at 1-800-800-7498. 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.

## 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.

DEF is non-flammable. Therefore, explosion and fire safety warnings do not apply to DEF lines.

**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.

**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

# Installing Dual Head Magnetic Card Reader in Encore 300/500 Unit

Installing the M02139K001 and M02139K002 Dual Head Card Reader Kits in Encore 300/500 unit involves the following:

- “Preparing for Installation”.
- “Removing Single Head Card Reader from Encore Unit” on page 8.
- “Installing Dual Head Magnetic Card Reader in Encore Unit” on page 9.
- “Upgrading BIOS for CRIND Logic Z180 PCA (Encore 300 Only)” on page 10.  
*Note: This upgrade is for Encore 300 units that contain a CRIND logic board and require dual head magnetic card reader functionality.*
- “Upgrading Door Node U25 IC and Application Code (Encore 500 Only)” on page 13.  
*Note: This upgrade is for Encore 500 units that require dual head magnetic card reader functionality. Encore units with single head card reader functionality do not require this upgrade. This upgrade involves replacing the U25 microcontroller IC and upgrading the door node application software.*
- “Completing Installation” on page 15.

## Preparing for Installation

To prepare for the installation of Dual Head Card Reader Kits, proceed as follows:

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

### 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.

- 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. For more information, refer to *MDE-3893 Encore and Eclipse Series Owner's Manual*.



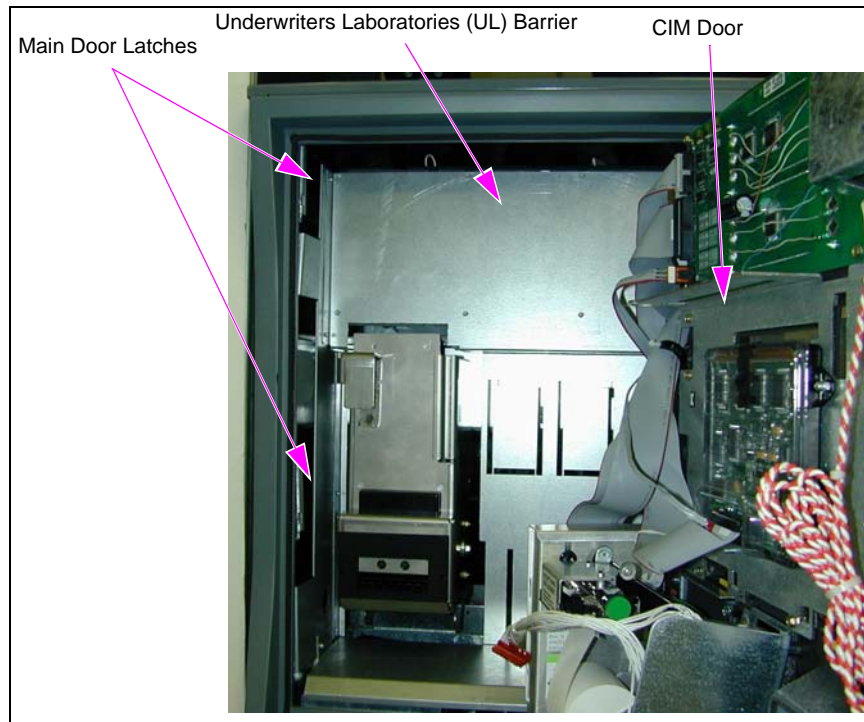
### WARNING

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.

- 4 Match the parts received in kits with “Parts List” on page 2.
- 5 Locate the CIM door (see Figure 1 on page 7), insert the key, and open the door.
- 6 If the installation is for an Encore 300 unit, proceed to step 7 on page 7; otherwise, proceed to “Removing Single Head Card Reader from Encore Unit” on page 8.

- 7 Disengage the main door latches (see [Figure 1](#)) and open the main door.

**Figure 1: Encore Unit with CIM Door**

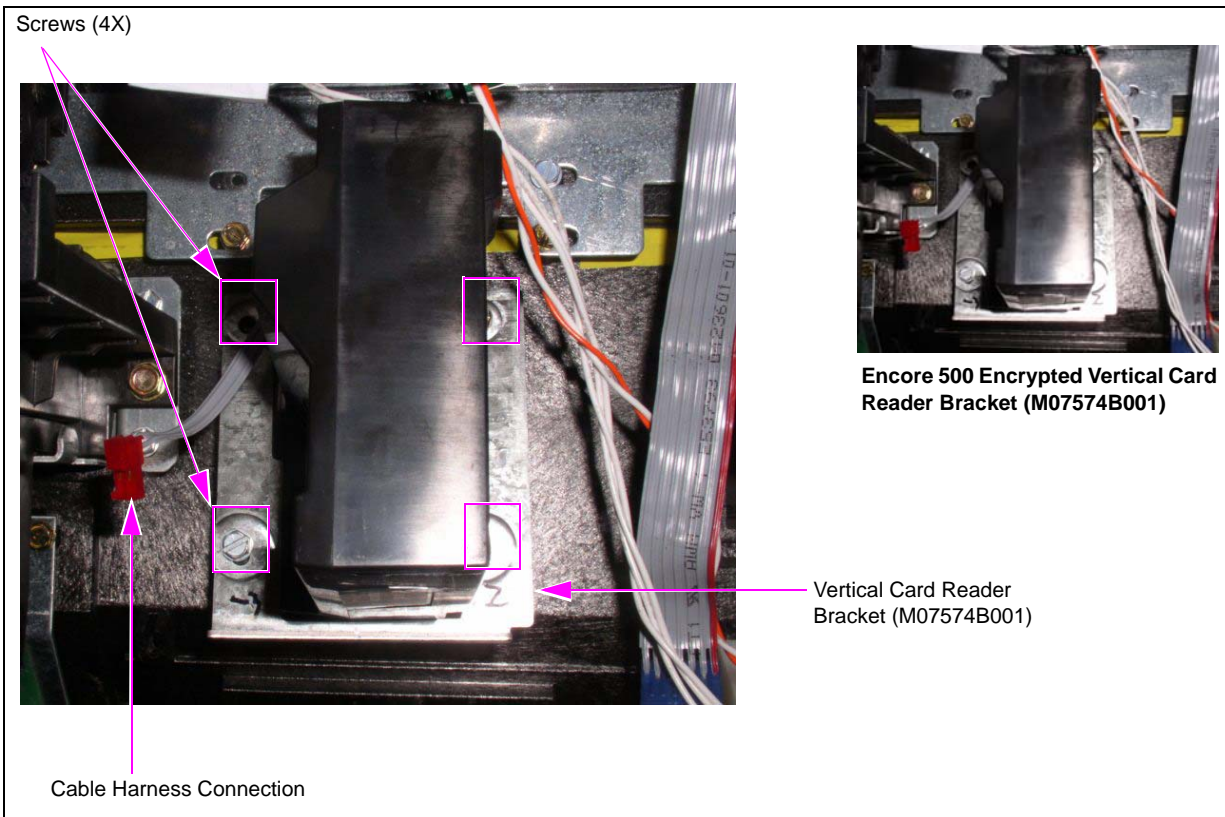


## Removing Single Head Card Reader from Encore Unit

To remove the single head card reader, proceed as follows:

- 1 On the rear of the CIM door, disconnect the cable harness connection (see [Figure 2](#)) from the card reader.

**Figure 2: Rear View of Encore CIM Door with Card Reader**



- 2 Remove the four hexagonal-head screws (see [Figure 2](#)) that secure the vertical card reader bracket and the card reader to the option door using a 1/4-inch nut driver or ratchet and socket.  
*Note: Remove and discard the card reader and vertical card reader bracket, and retain the screws for reinstallation.*
- 3 Remove the existing card reader gasket (see [Figure 2](#)) from the option door. Use a putty knife and isopropyl alcohol, if required.

Removing the single head card reader from Encore unit is now complete.



## Installing Dual Head Magnetic Card Reader in Encore Unit

To install the dual head magnetic card reader, proceed as follows:

- 1 Obtain the Dual Head Magnetic Card Reader (M02136B001 or M13968B001), Vertical Card Reader Bracket (M07574B001), and Card Reader Gasket (M13127B006) from the kit.

### CAUTION



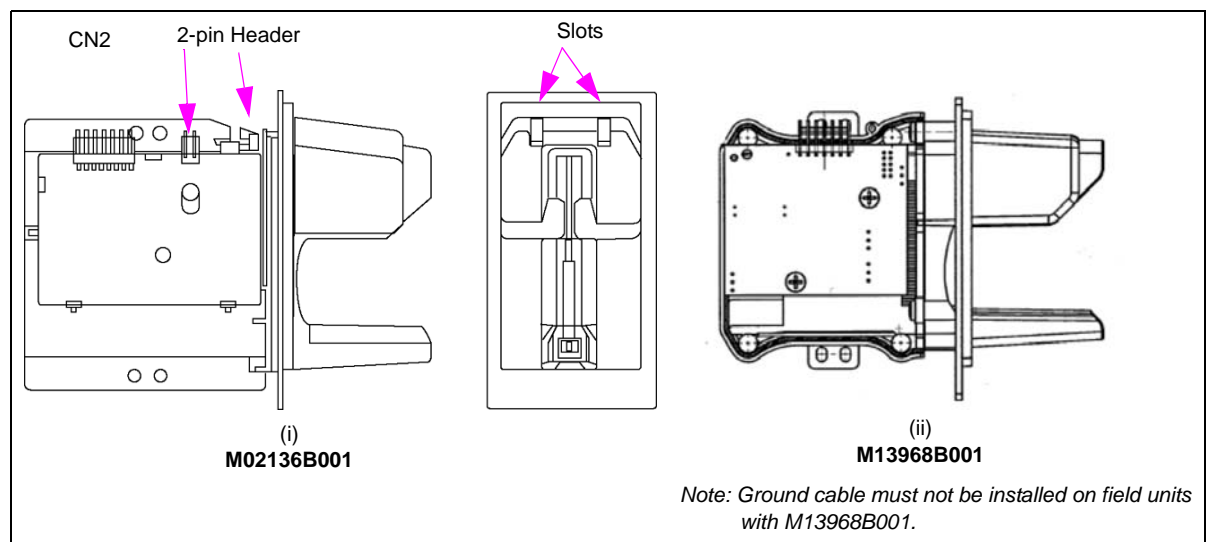
A properly grounded ESD wrist strap must be worn while servicing any electronic devices or components. Failure to use electrostatic precautions may damage electronic components and void warranty.

- 2 Place the card reader gasket over the front of the card reader making sure the gasket is seated on the flange (see [Figure 3](#)).

*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.*

- 3 Position the vertical card reader bracket on the dual head magnetic card reader with the gasket attached.
- 4 From the rear of the CIM door, insert the dual head magnetic card reader into the card reader opening. Position the card reader in the door so that the two slots (see [Figure 3](#)) are positioned on top of the card reader.

**Figure 3: Dual Head Magnetic Card Reader**



- 5 Attach the new vertical card reader bracket to the CIM door. Secure the bracket to the door using the four screws removed in step 2 on [page 8](#). Tighten the screws in a star or diagonal pattern to ensure correct seating of the card reader.
- 6 Reconnect the 7-pin power/data cable to CN2 on the dual head magnetic card reader circuit card.

## Upgrading BIOS for CRIND Logic Z180 PCA (Encore 300 Only)

*Note: This Basic Input/Output System (BIOS) upgrade is for Encore 300 units that contain a CRIND logic board and require dual head magnetic card reader functionality. Encore 300 single head card reader usage does not require this upgrade. Contact Gilbarco Technical Support at 1-800-743-7501 for the minimum version of CRIND BIOS required to operate the dual head magnetic card reader.*

To upgrade the CRIND BIOS, proceed as follows:

*Note: This upgrade is initiated by installing one U7 EPROM IC per logic board, on CRIND Logic Boards (T17764-XX).*

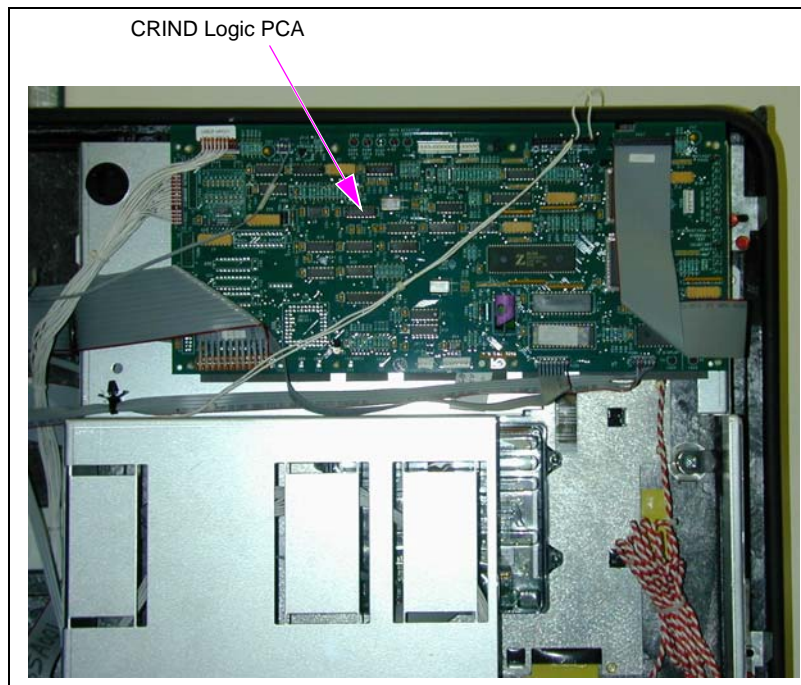
### CAUTION



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.

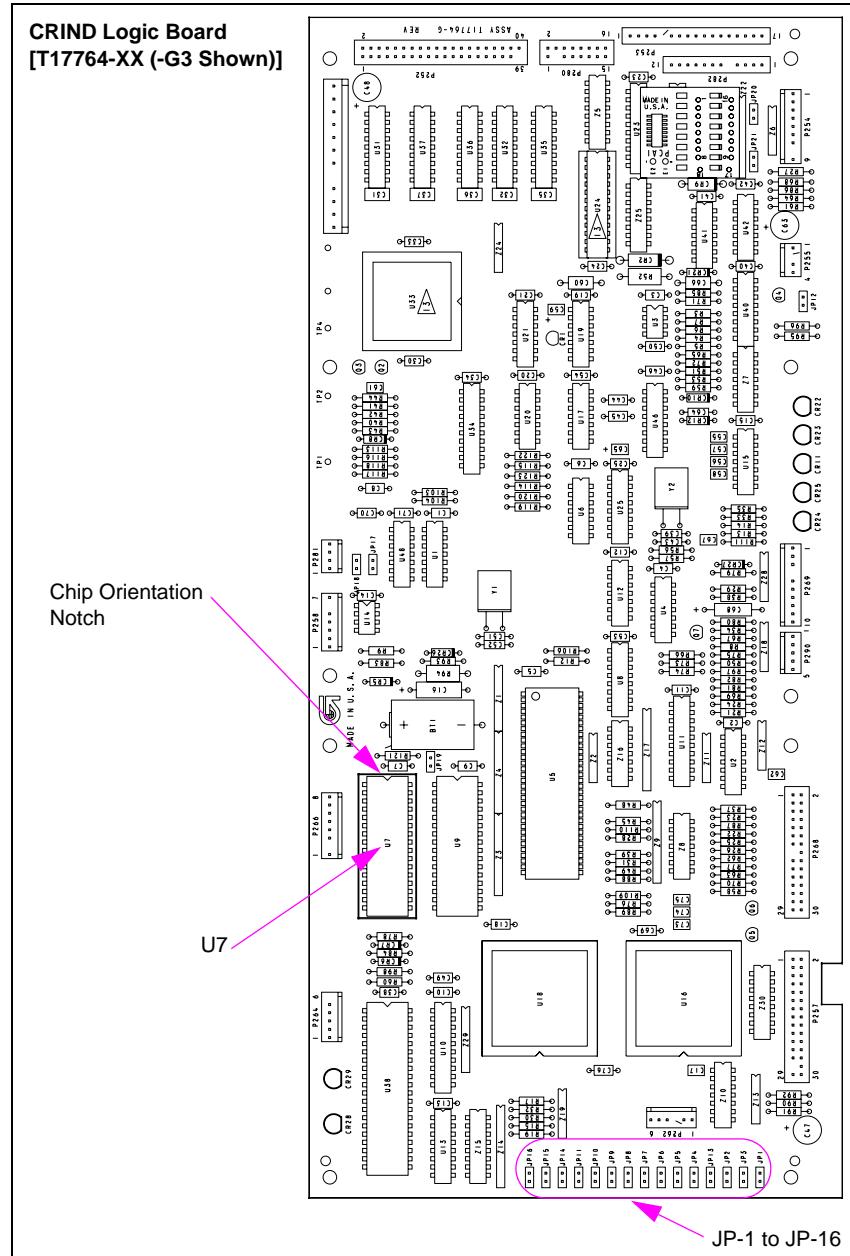
- 1 Locate the CRIND logic Printed Circuit Assembly [PCA (see [Figure 4](#))] on the rear of the main door of the Encore unit.

**Figure 4: Rear View of Encore Main Door**

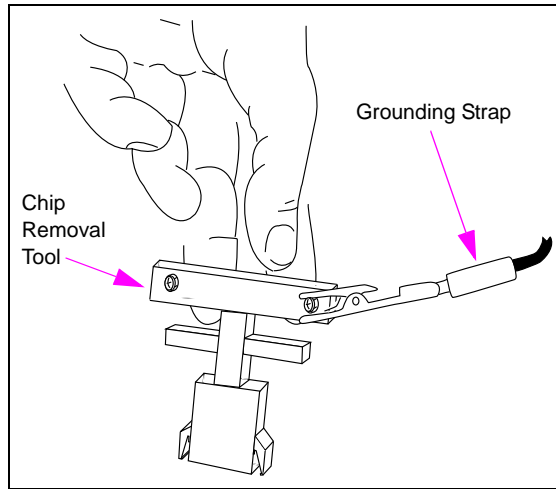


- 2 Locate and remove the existing EPROM IC at U7 (see [Figure 14](#) on [page 20](#)) on the CRIND Logic Board (T17764-XX), with a grounded chip removal tool (Digi-Key K158-ND or equivalent, see [Figure 6](#) on [page 12](#)).

**Figure 5: CRIND Logic Board (T17764-XX)**



**Figure 6: Grounded Chip Removal Tool**



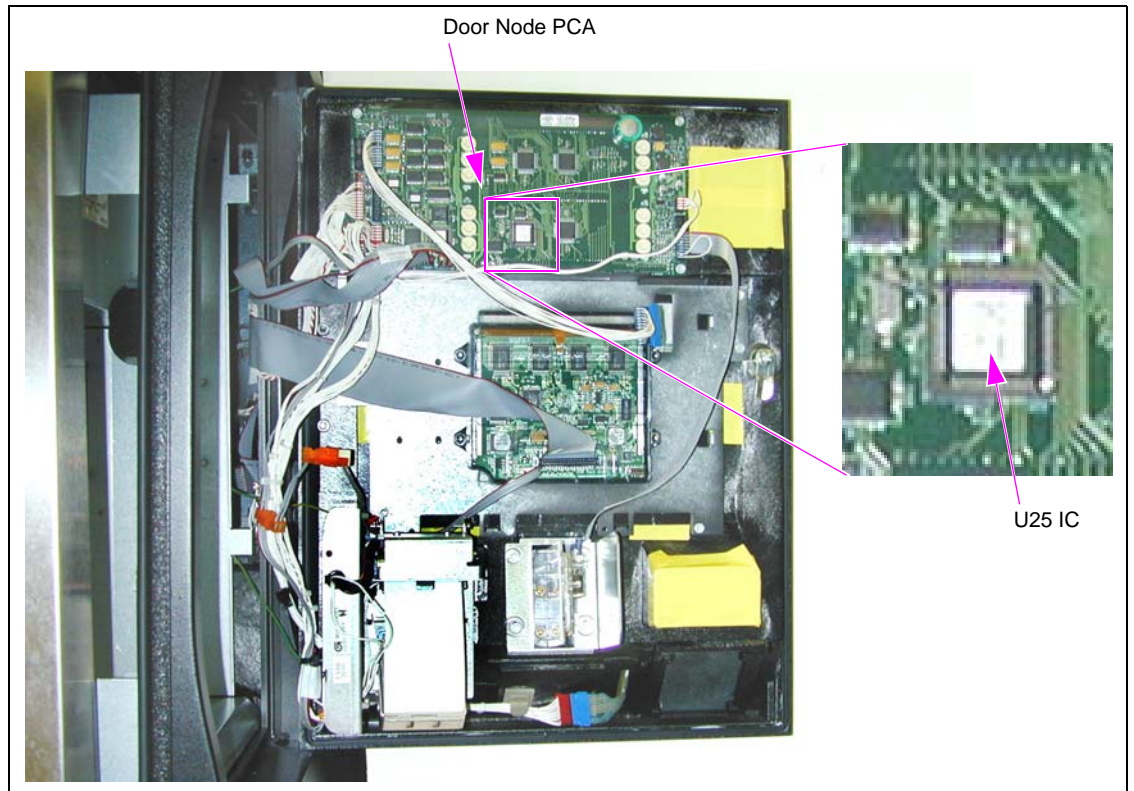
- 3 Install the EPROM IC (one per logic board) at position U7. Orient the notch on the chip with the indication mark on the board, as shown in [Figure 5](#) on [page 11](#).
- 4 Install a jump jack on JP-11 (see [Figure 5](#) on [page 11](#)) for each side of unit as required, to coldstart the unit.  
*Note: Jumper on JP-11 informs the CRIND that a system coldstart is present.*
- 5 Restore power to the unit. For more information, refer to *MDE-3893 Encore and Eclipse Series Owner's Manual*.
- 6 Ensure that the CRIND BIOS software installs and runs properly. For more information on CRIND BIOS installations and prompts, refer to *MDE-2562 MPD-3 and The Advantage Series Single-Line CRIND*, *CRIND with Monochrome LCD*, *Infoscreen*, *External CRIND*, *C-PAM CRIND Service Manual*.
- 7 When you receive a prompt from the CRIND BIOS to remove the coldstart jumper, remove power from the unit. Refer to *MDE-3893 Encore and Eclipse Series Owner's Manual* to remove system power.
- 8 Once the power has been removed, remove the coldstart jumper from JP-11 on the CRIND logic board.

## Upgrading Door Node U25 IC and Application Code (Encore 500 Only)

To install the door node application code, proceed as follows:

- 1 Locate the door node PCA (see [Figure 7](#)) on the CIM door.

**Figure 7: Rear View of Encore CIM Door**



- 2 Locate the U25 programmed IC on the door node PCA (see [Figure 7](#)).

### CAUTION

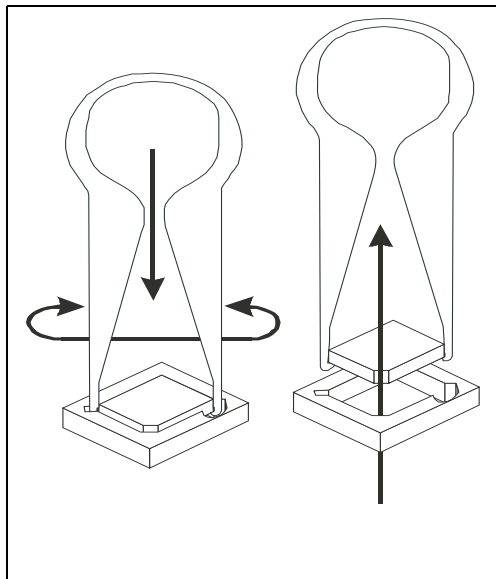


A properly grounded ESD wrist strap must be worn while servicing any electronic devices or components. Failure to use electrostatic precautions may damage electronic components and void warranty.

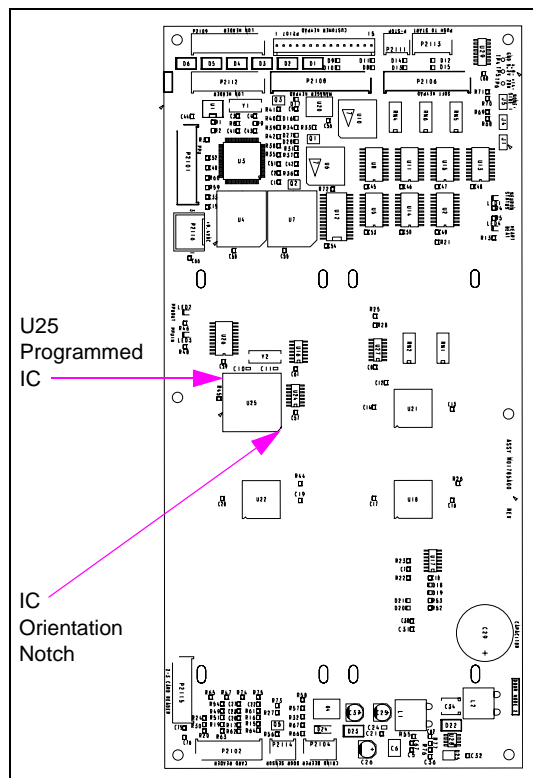
- 3 Carefully remove U25 on the door node using an IC Extraction Tool [AMP 821903-1 or equivalent (see [Figure 8](#) on [page 14](#))]. Ensure that you avoid damage to the socket. Discard the existing chip only after you ensure that the unit functions properly with the new chip installed.
- 4 In the M02139K002 Dual Head Card Reader Kit, locate the latest U25 IC Firmware (S115-10013).
- 5 Make a note of the orientation notch located on the chip (see [Figure 9](#) on [page 14](#)). Press the new U25 IC into the socket until it is fully and uniformly seated in the socket.  
*Note: Avoid using excessive force or misalignment of the chip.*

- 6 Refer to *MDE 3921 Laptop Tool User Reference Guide*, and download the latest version of the door node software into the unit.

**Figure 8: IC Extraction Tool**



**Figure 9: Door Node PCA Layout**



## Completing Installation

To complete the installation, proceed as follows:

- 1 Close and secure the main doors.
- 2 Close and secure the CIM doors.
- 3 Install the appropriate graphics. For more information, refer to *MDE-4625 Graphics Panel Application for The Advantage Series, Encore, Eclipse and Encore S*.
- 4 Restore power to unit. For more information, refer to *MDE-3893 Encore and Eclipse Series Owner's Manual*.
- 5 Test the dual head magnetic card reader by sliding the CRIND Diagnostic Card (Q12534-170) through both readers with the magnetic strip up.

Installing the dual head magnetic card reader in Encore unit is now complete.

## Installing Dual Head Magnetic Card Reader in Eclipse Unit

Installing the M02139K001 and M02139K002 Dual Head Card Reader Kits in Eclipse unit involves the following:

- [“Preparing for Installation”](#).
- [“Removing Single Head Card Reader from Eclipse Unit”](#) on page 18.
- [“Installing Dual Head Magnetic Card Reader in Eclipse Unit”](#) on page 18.
- [“Upgrading Door Node U25 IC Application Code for Eclipse Unit”](#) on page 20.

*Note: This upgrade is for Eclipse units that require dual head magnetic card reader functionality. Eclipse units with single head card reader functionality do not require this upgrade. This upgrade involves replacing the U25 microcontroller IC and upgrading the door node application software.*

- [“Completing Installation”](#) on page 21.

## Preparing for Installation

To prepare to install the Dual Head Card Reader Kits, proceed as follows:

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

### 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 Inform the manager.
- 2 Barricade the unit to be worked on.



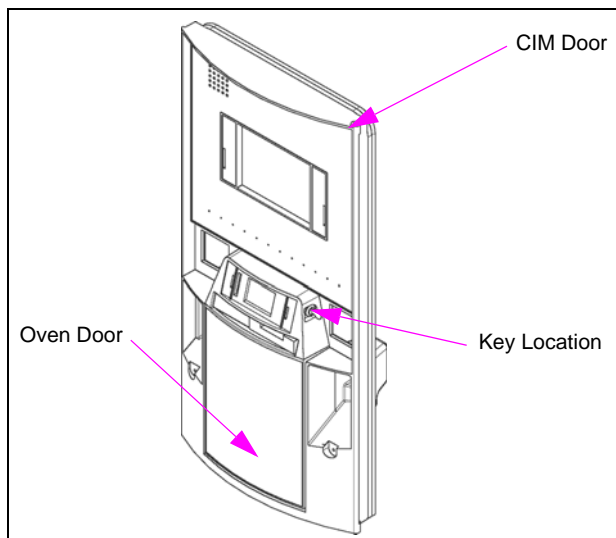
- 3 Remove power to the unit at the breaker panel. Follow OSHA lockout/tagout procedures. For more information, refer to *MDE-3804 Encore and Eclipse Start-up/Service Manual*.

### **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.

- 4 Match the parts received in kits with “[Parts List](#)” on [page 2](#).
- 5 On side A of the unit, use the key provided with the dispenser to open the oven door (see [Figure 10](#)) located on the CIM door.

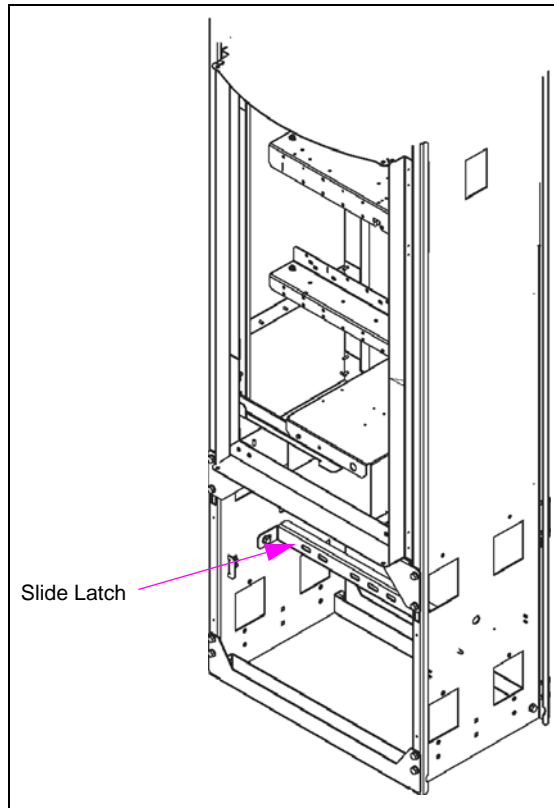
**Figure 10: Eclipse CIM Door**





- 6 Open the CIM door by pushing down on the slide latch (see [Figure 11](#)) located inside the unit.

**Figure 11: Eclipse Frame Assembly with CIM Door Removed**

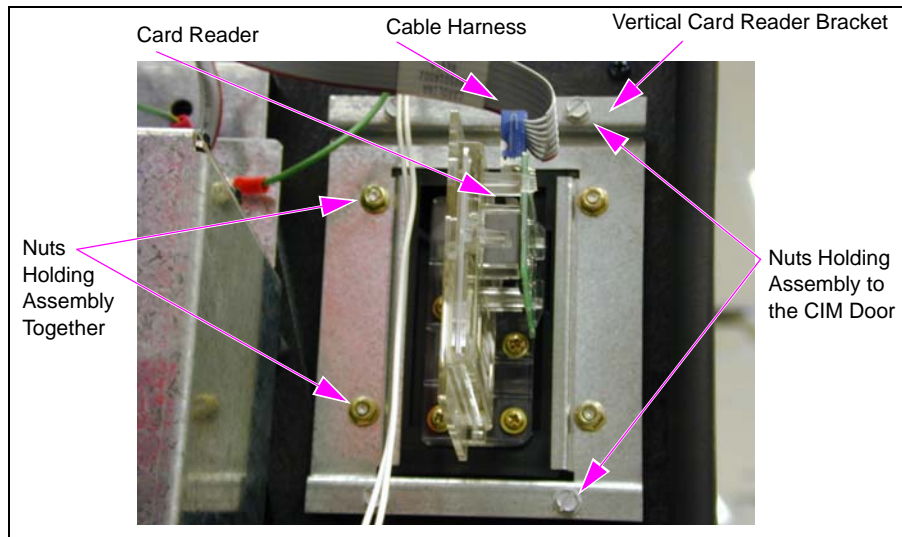


## Removing Single Head Card Reader from Eclipse Unit

To remove the single head card reader, proceed as follows:

- 1 On the rear of the CIM door, disconnect the cable harness (see [Figure 12](#)) from the card reader.

**Figure 12: Rear View of CIM Door with Card Reader**



- 2 Remove the four nuts that secure the vertical card reader bracket and card reader (see [Figure 12](#)) to the CIM door using a 9/32-inch nut driver. Discard the card reader. Retain the bracket and nuts for reinstallation.
- 3 Remove the existing card reader gasket from the card reader. Use a putty knife and isopropyl alcohol, if required.

## Installing Dual Head Magnetic Card Reader in Eclipse Unit

To install the dual head magnetic card reader, proceed as follows:

- 1 Obtain the Dual Head Magnetic Card Reader (M02136B001 or M13968B001) and Card Reader Gasket (M13127B006) from the kit.

### CAUTION



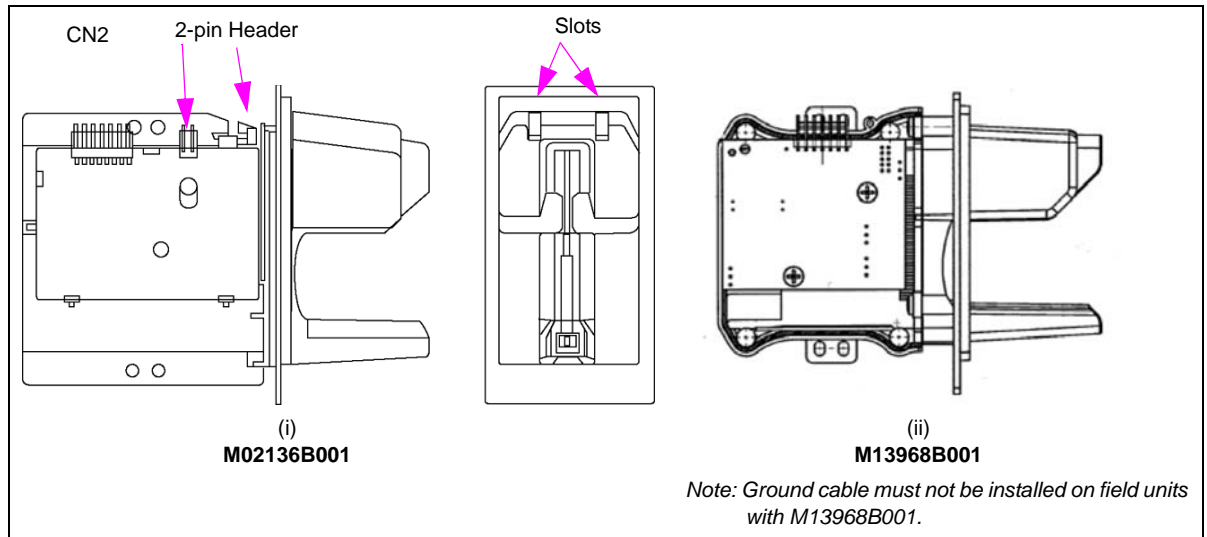
A properly grounded ESD wrist strap must be worn while servicing any electronic devices or components. Failure to use electrostatic precautions may damage electronic components and void warranty.

- 2 Place the card reader gasket over the front of the card reader making sure the gasket is seated on the flange.

*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.*

- 3 Position the vertical card reader bracket on the dual head magnetic card reader with the gasket attached.
- 4 From the rear of the CIM door, insert the dual head magnetic card reader with the gasket and bracket installed, into the card reader opening. Position the card reader in the door so that the two card reader slots are positioned on top, and the cable connections are positioned up (see [Figure 13](#)).

**Figure 13: Dual Head Magnetic Card Reader**



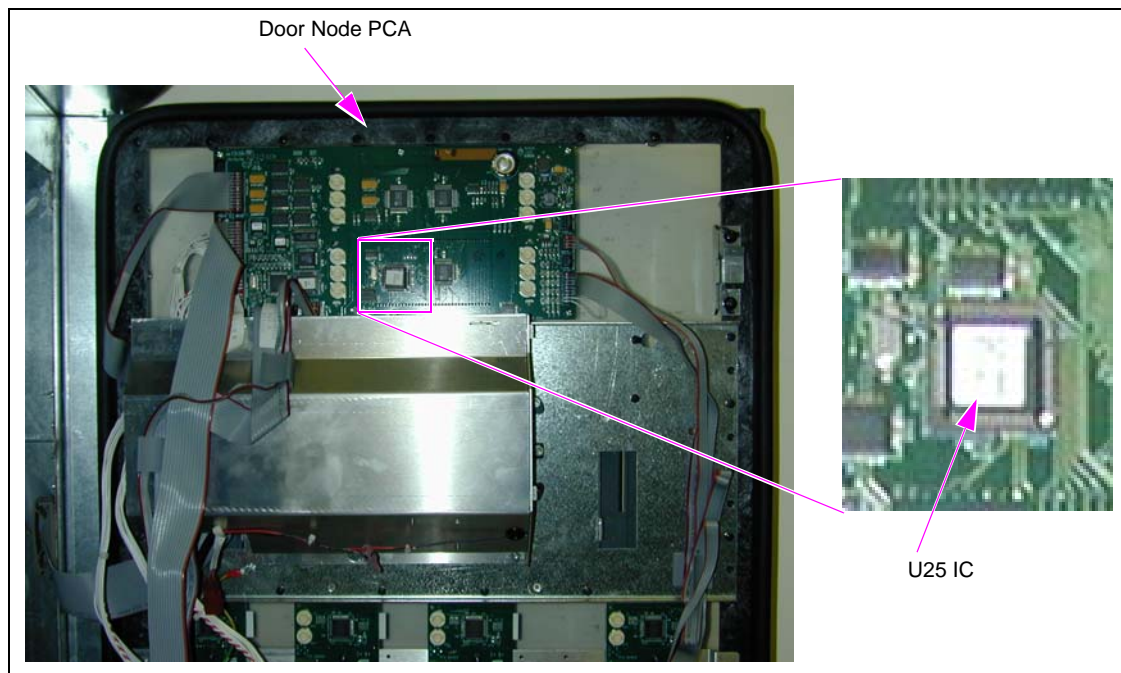
- 5 Secure the bracket to the door using the four nuts removed in step 2 on [page 18](#). Tighten the nuts in a star or diagonal pattern to ensure correct seating of the card reader.
- 6 Reconnect the 7-pin power/data cable to CN2 on the dual head magnetic card reader circuit card.

## Upgrading Door Node U25 IC Application Code for Eclipse Unit

To install the door node programmed IC U25 and door node application code, proceed as follows:

- 1 Locate the door node PCA on the CIM door (see [Figure 14](#)).

**Figure 14: Rear View of Eclipse CIM Door**



- 2 Locate the U25 programmed IC on door node PCA (see [Figure 14](#)).

### CAUTION

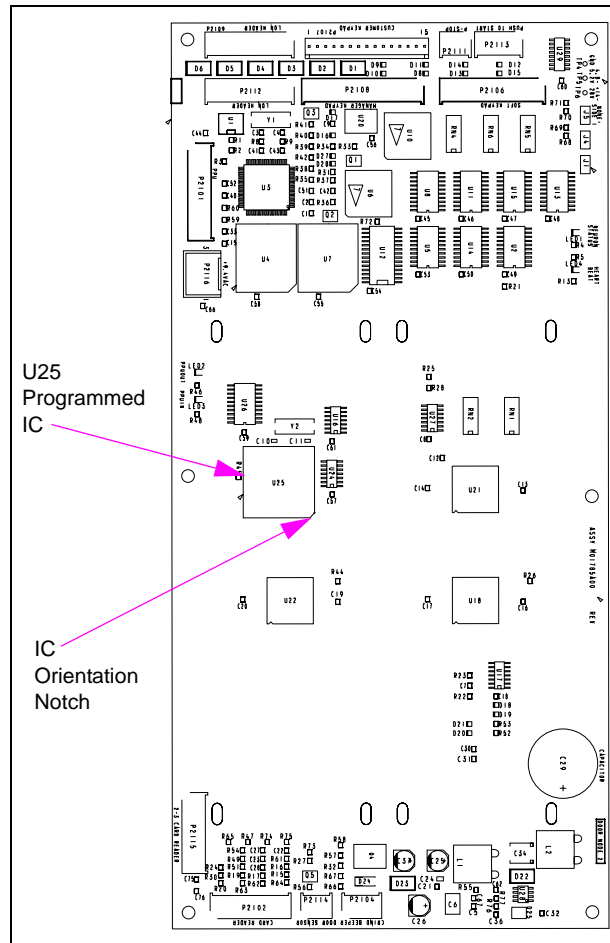


A properly grounded ESD wrist strap must be worn while servicing any electronic devices or components. Failure to use electrostatic precautions may damage electronic components and void warranty.

- 3 Carefully remove U25 on the door node using an IC Extraction Tool [AMP 821903-1 or equivalent (see [Figure 8](#) on [page 14](#))]. Ensure that you avoid damage to the socket. Discard the existing chip only after verifying that the unit functions properly with the new chip installed.
- 4 In the M02139K002 Dual Head Card Reader Kit, locate the latest U25 IC Firmware (S115-10013).
- 5 Make a note of the orientation notch located on the chip (see [Figure 15](#) on [page 21](#)). Press the new U25 IC into the socket until it is fully and uniformly seated in the socket.  
*Note: Avoid using excessive force or misalignment of the chip.*

- 6 Refer to *MDE 3921 Laptop Tool User Reference Guide*, and download the latest version of the door node software into the unit.

**Figure 15: Eclipse Door Node PCA**



## Completing Installation

To complete the installation, proceed as follows:

- 1 Close and secure the oven and CIM doors.
- 2 Install the appropriate graphics. For more information, refer to *MDE-4625 Graphics Panel Application for The Advantage Series, Encore, Eclipse and Encore S*.
- 3 Restore power to unit. For more information, refer to *MDE-3893 Encore and Eclipse Series Owner's Manual*.
- 4 Test the dual head magnetic card reader by sliding CRIND Diagnostic Card (Q12534-170) through both readers with the magnetic strip up.

Installing the dual head magnetic card reader in Eclipse unit is now complete.

# Installing Dual Head Magnetic Card Reader in The Advantage Series Unit

Installing the M02139K001 Dual Head Card Reader Kit involves the following:

- [“Preparing for Installation”](#).
- [“Removing Single Head Card Reader from The Advantage Series Unit”](#) on page 23.
- [“Installing Dual Head Magnetic Card Reader in The Advantage Series Unit”](#) on page 24.
- [“Upgrading BIOS for CRIND Logic Z180 PCA”](#) on page 26.

*Note: Software upgrades are required for dual head magnetic card reader functionality only.*

- [“Completing Installation”](#) on page 29.

## Preparing for Installation

To prepare for the installation of the Dual Head Card Reader Kit, proceed as follows:

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

### 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 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. For more information, refer to *MDE-2540 The Advantage, Legacy, and MPD Series Owner's Manual*.



### 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.

- 4 Match the parts received in kits with [“Parts List”](#) on page 2.
- 5 Locate the left and right option doors. Insert and turn the key to unlock and open the option doors.
- 6 For narrow frame units, open the main display door by raising the lever on the right side of the option door.
- 7 If the installation requires the use of the dual head magnetic card reader function, proceed to step 8 on [page 23](#). If only the single head card reader function is required, do not open the main doors; proceed to [“Removing Single Head Card Reader from The Advantage Series Unit”](#) on page 23.

- 8 On side A, unlatch the four draw latches located behind the right and left option doors. Use a 5/32-inch Allen wrench to loosen the four screws at the bottom of the main access door.
- 9 On side A, open the main access door by lifting it slightly. Place the main access door hinge bracket pin into the end slot/lock position. This locks into a 90-degree angle.

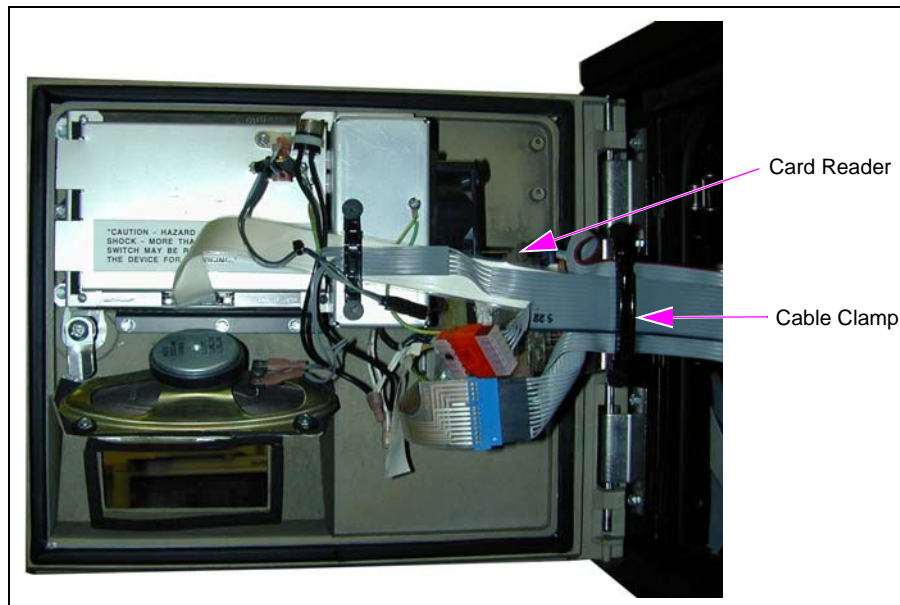
## Removing Single Head Card Reader from The Advantage Series Unit

To remove the single head card reader, proceed as follows:

*Note: A new option door must be installed when replacing a single head card reader with a dual head magnetic card reader.*

- 1 Remove the cable clamp (see [Figure 16](#)) attached to the card reader mounting bracket.

**Figure 16: Left Option Door**



- 2 Disconnect the cables from the keypads, CRIND display, card reader, and CSC antenna (if applicable).
- 3 Remove the four hexagonal-head screws that secure the vertical card reader bracket and the card reader, to the option door using a 1/4-inch nut driver or ratchet and socket.  
*Note: Remove and discard the card reader and vertical card reader bracket, and retain the screws for reinstallation.*
- 4 Remove the left option door by pulling the hinge pin up through the hole.  
*Note: The left option and the main door must be open to gain access to the hinge pin.*
- 5 Remove any existing old gaskets on the option door opening using a putty knife or scraping tool.
- 6 Place the new left option door in the opening. Reinsert the hinge pin to secure the new left option door.



## Installing Dual Head Magnetic Card Reader in The Advantage Series Unit

To install the dual head magnetic card reader, proceed as follows:

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

### CAUTION

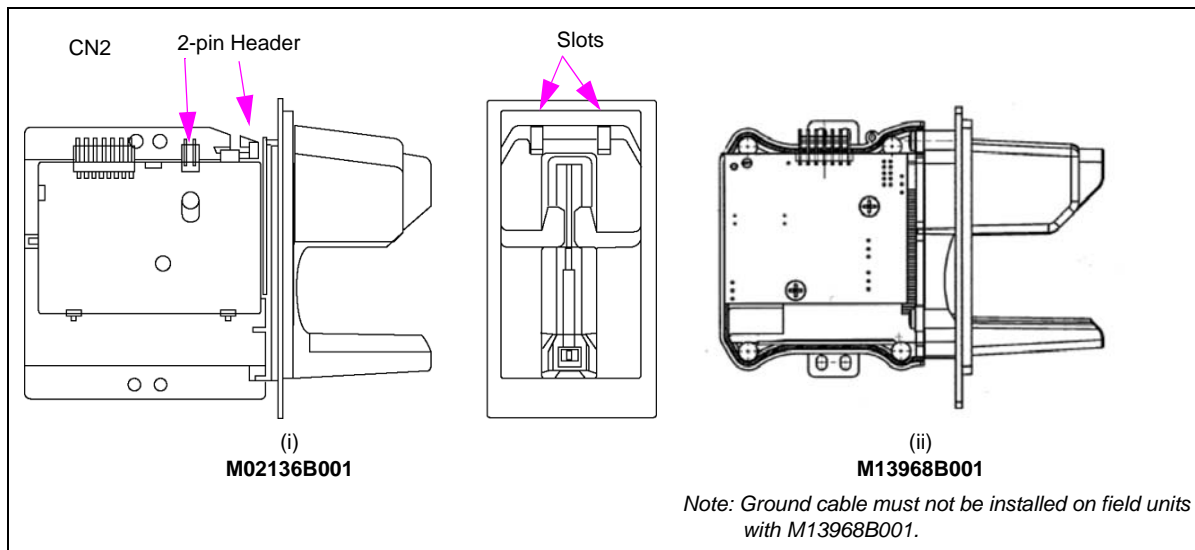


A properly grounded ESD wrist strap must be worn while servicing any electronic devices or components. Failure to use electrostatic precautions may damage electronic components and void warranty.

*Note: Fueling units that contain the InfoScreen option may require the removal of the lower right Infoscreen fan screw to allow installation of the new dual head vertical card reader bracket. The screw may be discarded once the installation has been completed.*

- 1 Obtain the Dual Head Magnetic Card Reader (M02136B001 or M13968B001), Card Reader Mounting Bracket (T19362-02), and Card Reader Gasket (M13127B006) from the kit.
- 2 Place the card reader gasket over the front of the card reader making sure the gasket is seated on the flange.  
*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.*
- 3 Position the vertical card reader bracket on the dual head magnetic card reader with the gasket attached.
- 4 From the rear of the main door, position the dual head magnetic card reader and then the vertical card reader bracket on the door so that the opening on the bracket is positioned at the top. Position the card reader in the door so that the two card reader slots are positioned at the top (see [Figure 17](#)).

**Figure 17: Dual Head Magnetic Card Reader**

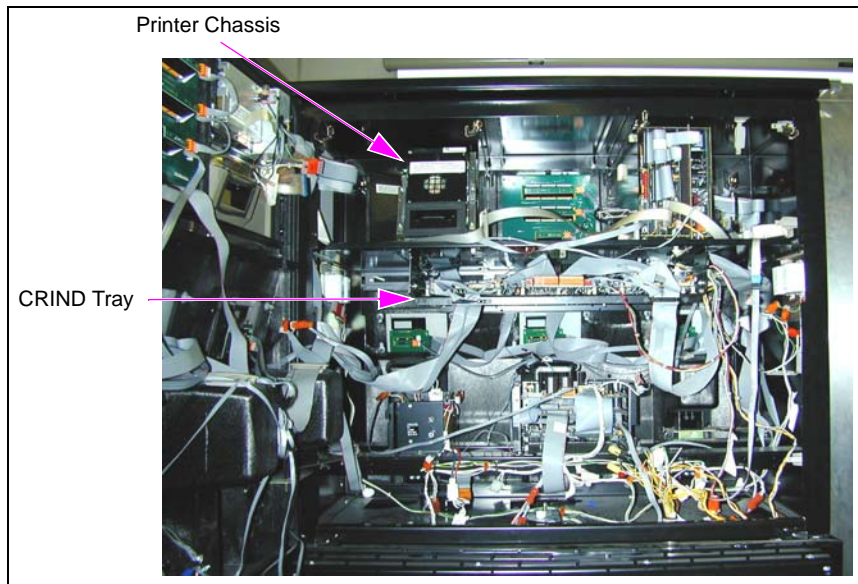


- 5 Secure the bracket to the door using the four screws removed in step 3 on [page 23](#). Tighten the screws in a star or diagonal pattern to promote equal pressure against the dismount switches.



- 6 Connect the 7-pin power/data cable to the dual head magnetic card reader circuit card.

**Figure 18: Side A of The Advantage Unit with Main Door**



## Upgrading BIOS for CRIND Logic Z180 PCA

*Note: This BIOS upgrade is required for dual head magnetic card reader functionality only. Single head card reader usage does not require this upgrade. Contact Gilbarco Technical Support at 1-800-743-7501 for the minimum version of CRIND BIOS required to operate the dual head magnetic card reader.*

To upgrade the CRIND BIOS, proceed as follows:

*Note: This upgrade is initiated by installing one U7 EPROM IC per logic board, on CRIND Logic Boards (T17764-XX).*

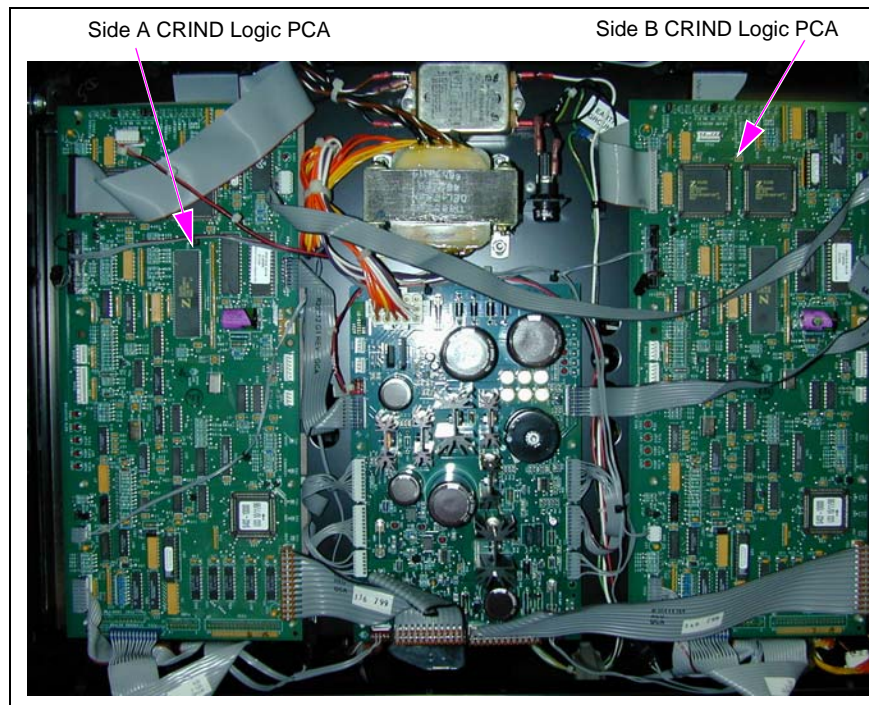
### CAUTION



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.

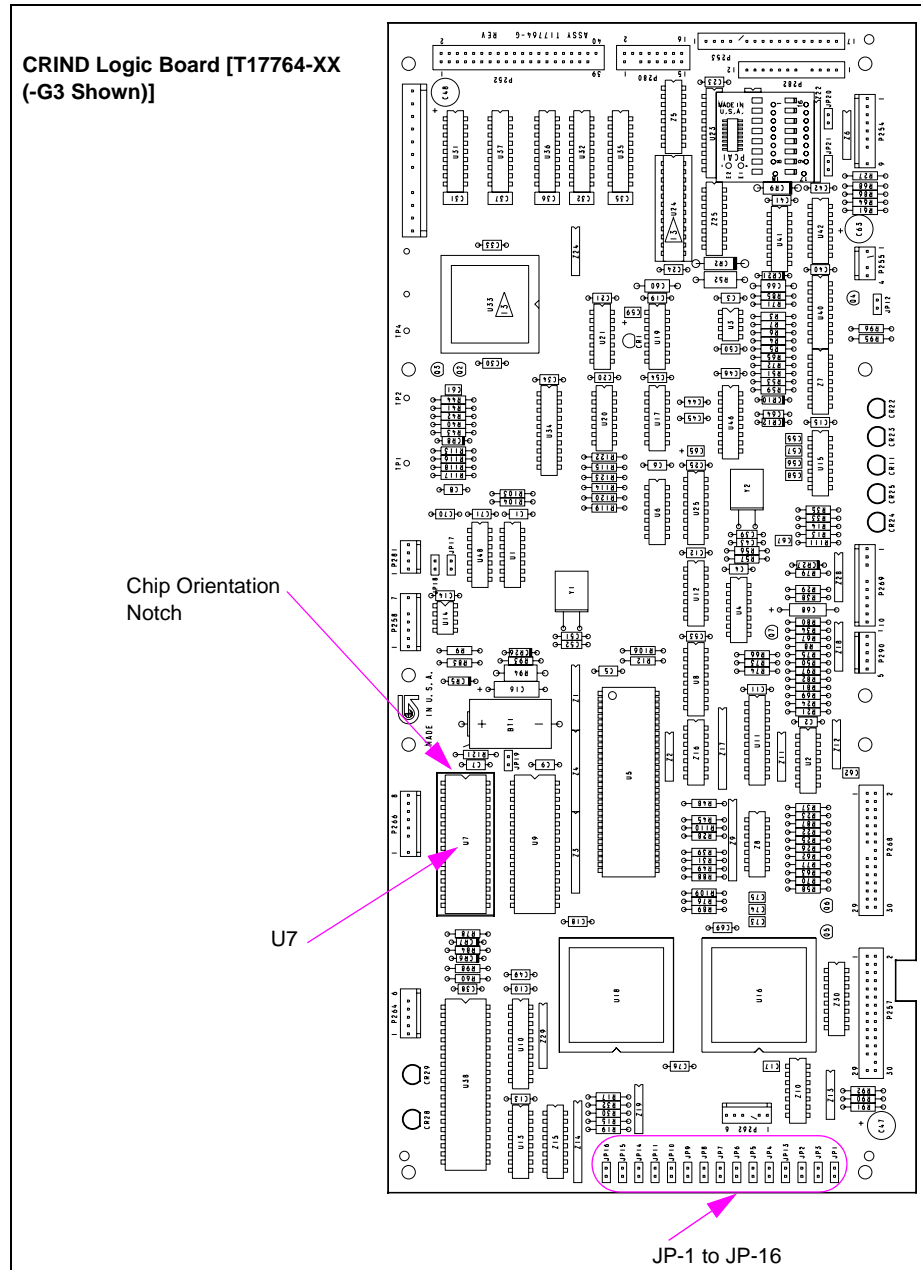
- 1 Locate the CRIND tray (see [Figure 18](#) on [page 25](#)) inside the unit and pull the tray forward to expose the CRIND Z180 logic Printed Circuit Assembly [(PCA) see [Figure 19](#)].

**Figure 19: Exposed CRIND Tray**

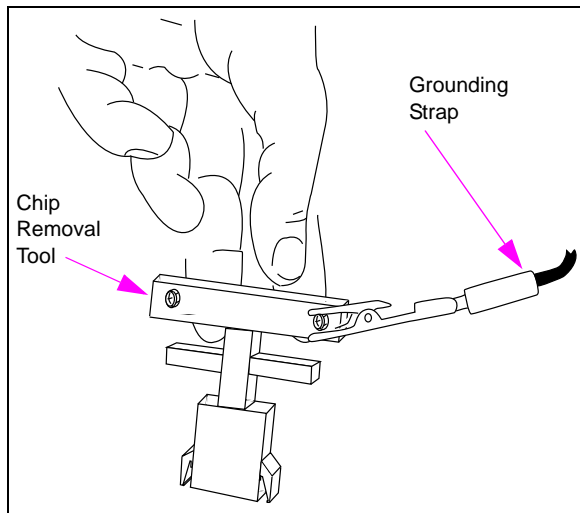


- 2 Locate and remove the existing EPROM IC at U7 (see [Figure 20](#)) on the CRIND Logic Board (T17764-XX) using a grounded chip removal tool (Digi-Key K158-ND or equivalent, see [Figure 21](#) on [page 28](#)).

**Figure 20: CRIND Logic Board (T17764-XX)**



**Figure 21: Grounded Chip Removal Tool**



- 3 Install the EPROM IC (one per logic board) at position U7. Orient the notch on the chip with the indication mark on the board as shown on [Figure 20](#) on [page 27](#).
- 4 Install a jump jack on JP-11 (see [Figure 20](#) on [page 27](#)) for each side of the unit, as required, to coldstart the unit.  
*Note: Jumper on JP-11 informs the CRIND that a system coldstart is present.*
- 5 Restore power to the unit. For more information on restoring system power, refer to *MDE-2540 The Advantage, Legacy, and MPD Series Owner's Manual*.
- 6 Ensure that the CRIND BIOS software installs and runs properly. For more information on CRIND BIOS installations and prompts, refer to *MDE-2562 MPD-3 and The Advantage Series Single-Line CRIND, CRIND with Monochrome LCD, Infoscreen, External CRIND, C-PAM CRIND Service Manual*.
- 7 When you receive a prompt from the CRIND BIOS to remove the coldstart jumper, remove power from the unit. For more information on removing system power, refer to *MDE-2540 The Advantage, Legacy, and MPD Series Owner's Manual*.
- 8 Once you remove the power, remove the coldstart jumper from JP-11 on the CRIND logic board.
- 9 Restore the CRIND tray to its original position.

## Completing Installation

To complete the installation, proceed as follows:

- 1 Close and secure the options and main doors.
- 2 Install the graphics. For more information, refer to *MDE-4625 Graphics Panel Application for The Advantage Series, Encore, Eclipse, and Encore S*.
- 3 Restore power to the unit. For more information, refer to *MDE-2540 The Advantage, Legacy, and MPD Series Owner's Manual*.
- 4 Test the dual head magnetic card reader by sliding CRIND Diagnostic Card (Q12534-170) through both readers with the card's magnetic strip positioned up.

Installing the dual head magnetic card reader in The Advantage Series is now complete.

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Greensboro, North Carolina 27420  
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