Marconi

Installation

TRIND™ Transmitter/Receiver in Dispenser
Retrofit Kits C00011-002-XXXX
Using TIRIS™ Technology

Introduction

Purpose of this Manual

This manual provides instruction for installing TRIND™/TIRIS™ Retrofit Kits C00011-002-XXXX in The Advantage® Series and MPD®-3 units with InfoScreen®, monochrome CRIND™, or single-line CRIND.

The TRIND option allows customers to automatically authorize CRIND-equipped units, using either a hand-held or auto-mounted transponder provided by a major oil company (MOC). Use these kits for one- or two-sided units. Kits are customer specific, depending on unit type, number of sides, and MOC.

Retrofit Kits C00011-002-XXXX are configured according to specific unit requirements.

Prerequisites

Before installing any TRIND kit, ensure that the existing CRIND contains the following.

- Z-180 logic board and software (T17764-XX), which is not configured in TRIND retrofit kit. Refer to MDE-2628, Cash Acceptor Retrofit Assemblies for The Advantage Series Units with CRIND Card Reader in Dispenser Kit C00007-002.
- Plastic options doors for single-line/cash acceptor InfoScreen/cash acceptor and monochrome/cash acceptor

Important Notice

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.

Required Reading

Before installing the equipment, the installer must read, understand, and follow:

- this manual
- NFPA 30A, The Automotive and Marine Service Station Code
- NFPA 70, The National Electric Code
- applicable federal, state and local codes and regulations
- ASC TRIND Technology Update on page 18

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

Note: These kits must be installed by a Gilbarco ASC (Authorized Service Contractor)

Related Documents

MDE-2531	Pump & Dispenser Start-Up & Service Manual
MDE-2562	CRIND Service Manual
MDE-2628	Cash Acceptor Retrofit Assemblies for The Advantage Series with CRIND
MDE-2620	Graphics Panel Application for The Advantage Series
MDE-3640	Authorized Service Contractor (ASC) TRIND Installation Tool Kit K94577-01
PT-1728	The Advantage Series Illustrated Parts Manual
PT-1736	CRIND Card Reader Illustrated Parts Manual
PT-1810	The MPD Series Illustrated Parts Manual

Required Tools

The following equipment is needed to install TRIND™ kit C00011-002

- Allen wrench set, American standard
- square (carpenter's, 12"
- clean cloth or rag
- center punch
- chip extraction tool, e.g., IC extraction, Digikey Part No. K158-ND or equivalent
- cutting oil
- deburring tool or rounded file
- drill motor, pneumatic (air)
- electric tape, black vinyl
- fish-tape, standard 1/8"
- hammer
- hacksaw
- hole saw, 7/8 inch (for units with stop or call buttons on right options door)
- isopropyl alcohol (part# END-1082)
- knock-out punch set
- ladders, style 'A', quantity of two (2)
- multimeter
- pencil or marker
- pilot hole drill bits
- pliers
- pocket knife
- putty knife or scraper
- Q12534 CRIND diagnostic card
- ratchet set, standard
- screwdrivers, flat and Phillips head
- shears or snips, sheet metal
- static guard wrist strap
- TRIND ASC tool kit (See "ASC TRIND™ Tool Kit K94577-01" on page 8 and refer to MDE-3640, ASC TRIND Installation Tool Kit K94577-01)

Parts Lists

C00011-002-XXXX Kit Configurations by Suffix

-Suffix	Configured For	See
-WF_S	The Advantage® Series 48" (wide frame) single-sided	page 4
-WF_D	The Advantage Series 48" (wide frame) double-sided	
-NF_S	The Advantage Series 36" (narrow frame) single-sided	
-NF_D	The Advantage Series 36" (narrow frame) double-sided	
-MPDS	MPD®-3 single-sided with PMI bezel (slide-in faceplate)	page 6
-MPDD	MPD-3 double-sided with PMI bezel (slide-in faceplate)	
-MPBS	MPD-3 single-sided with Mack bezel (bolt-on faceplate)	page 7
-MPBD	MPD-3 double-sided with Mack bezel (bolt-on faceplate)	

The Advantage® Series Kit Parts

The Advantage Series Wide Frame (48”) Kits

Kits C00011-002-WF_S (single-sided) and C00011-002-WF_D (double-sided) for The Advantage® Series 48" units contain the following.

Description	Part Number	Quantity WF_S	Quantity WF_D
antenna assembly (see note 1)	T20632-G1 (see note 1)	1	2
antenna bracket kit (see note 3)	K96647-01 (see note 3)	1	2
cable clamp, gray	Q13558-04	10	10
cable group (see note 2)	Q13863-06 (see note 2)	1	1
cable, jumper assembly (see note 4)	M01380A001 (see note 4)	0	0
card cage assembly	T20606-G2	1	1
decal, UL	N23951-03	1	1
door assembly	T20613-G1	1	2
dummy load transmitter	R20526-G1	1	
grommet, edge	Q10315-06	1 ft.	1 ft.
grommet, heat shrinkable	Q13570-01	1 (see note 4)	1 (see note 4)
jump jack	Q11011-01	9	9
label, UL certification	N23957-G1	1	1
nameplate, FCC label	N23949-02	1	1
screw, sems, 6-32 x 3/8	Q12083-13	1	1
sealant, silicone	END 1576	1 tube	1 tube
software, CRIND™ Bios TRIND	K93744-XX	(see note 5)	(see note 5)
standoffs, circuit board	Q10651-16	4	4
tie wrap	Q10178-01	4	4
washer, flat	N16599-48	1	1

Notes:
1. For units with Exxon Light Box, kit is configured at order entry to replace antenna assembly T20632-G1 with T20632-G4 antenna assembly.
2. See “Cable Group Q13863-06” on page 5.
3. For units with Exxon Light Box, kit is configured at order entry to replace Bracket Kit K96647-01 with Bracket Kit K96647-06
4. For units with Exxon Light Box quantity is configured at 2 at order entry.
5. Order entry item.

The Advantage Series Narrow Frame (36’’) Kits

Kits C00011-002-NF_S and C00011-002-NF_D kits for The Advantage® Series 36" (narrow frame) single-sided (NF_S) and double-sided (NF_D) units contain the following.

Description	Part Number	Quantity NF_S	Quantity NF_D
antenna assembly	T20632-G2	1	2
antenna bracket kit (see note 4)	K96647-01 (see note 4)	1	2
cable clamp, gray	Q13558-04	10	10
cable group (see note 1)	Q13863-06 (see note 1)	1	1
card cage assembly	T20606-G2	1	1
decal, UL	N23951-03	1	1
door assembly (see note 2)	T20614-G1 (see note 2)	1	2
dummy load transmitter	R20526-G1	1	
grommet, edge	Q10315-06	1 ft.	1 ft.
grommet, heat shrinkable	Q13570-01	1	1
jump jack	Q11011-01	9	9
label, UL certification	N23957-G1	1	1
nameplate, FCC label	N23949-02	1	1
screw, sems, 6-32 x 3/8	Q12083-13	1	1
sealant, silicone	END 1576	1 tube	1 tube
standoffs, circuit board	Q10651-16	4	4
software, CRIND™ Bios TRIND	K93744-XX	(see note 3)	(see note 3)
tie wrap	Q10178-01	4	4
washer, flat	N16599-48	1	1

Notes:
1. See “Cable Group Q13863-06” on page 5.
2. For Narrow Frame units requiring Pump Stop button, kit is configured at order entry to replace door assembly T20614-G1 with T20614-G2 door assembly with pre-installed button.
3. Order entry item.
4. For units with Exxon Light Box Kit is configured at order entry to K96647-06.

Cable Group Q13863-06

Cable Group Q13863-06 for all The Advantage Series units contains the following parts:

Description	Part Number	Quantity
cable, AC Power	R20580-G1	1
cable, antenna (hi and low freq)	M00878A002	1
cable, light/multi-protocol	R20773-G2	2
cable, TRIND to CRIND	R20437-G01	1

MPD®-3 Series Kit Parts

MPD-3 Units with PMI Bezels (Slide-in Faceplates)

C00011-002-MPDS Kits for single-sided units and C00011-002-MPDD Kits for double-sided units with PMI bezels and slide-in faceplates contain the following.

Description	Part Number	Quantity MPDS	Quantity MPDD
antenna assembly (see note 1)	T20632-G1 (see note 1)	1	2
antenna bracket kit (see note 5)	K96647-01 (see note 5)	1	2
bezel assembly	T20616-G1	1	2
cable assembly (J203/J806) (see note 2)	R18163-G1 (see note 2)	1	1
cable clamp, gray	Q13558-04	10	10
cable group (see note 3)	Q13863-07 (see note 3)	1	1
cable, jumper assembly (see note 2)	M01380A001 (see note 2)	0	0
card cage assembly	T20606-G2	1	1
decal, UL	N23951-03	1	1
grommet, edge	Q10315-06	1 ft.	1 ft.
grommet, heat shrinkable (see note 2)	Q13570-01 (see note 2)	0	0
jump jack	Q11011-01	9	9
label, UL certification	N23957-G1	1	1
manager keypad assembly	T17549	1	1
nameplate, FCC label	N23949-02	1	1
screw, sems, 6-32 x 3/8	Q12083-13	1	1
sealant, silicone	END 1576	1 tube	1 tube
software, CRIND™ Bios TRIND	K93744-XX	(see note 4)	(see note 4)
standoffs, circuit board	Q10651-16	4	4
tie wrap	Q10178-01	4	4
washer, flat	N16599-48	1	1

Notes:

1. For units with Exxon Light Box, kit is configured at order entry to replace antenna assembly T20632-G1 with T20632-G4 antenna assembly.

2. For units with Exxon Light Box only, quantity is configured at order entry at one per unit.

3. For detail refer to "Cable Group Q13863-07" on page 7.

4. Order entry item.

5. *For units with Exxon Light Box Kit is configured at order entry to K96647-06.*

MPD-3 Units with Mack Bezels (Bolt-on Faceplates)

C00011-002-MPBS Kits for single-sided units and C00011-002-MPBD Kits for double-sided units with Mack bezels and bolt-on faceplates contain the following.

Description	Part Number	Quantity MPBS	Quantity MPBD
antenna assembly (see note 1)	T20632-G1 (see note 1)	1	2
antenna bracket kit (see note 5)	K96647-01 (see note 5)	1	2
bezel assembly	T20616-G2	1	2
cable assembly (J203/J806) (see note 2)	R18163-G1 (see note 2)	1	1
cable clamp, gray	Q13558-04	10	10
cable group (see note 3)	Q13863-07 (see note 3)	1	1
cable, jumper assembly (see note 2)	M01380A001 (see note 2)	0	0
card cage assembly	T20606-G2	1	1
decal, UL	N23951-03	1	1
grommet, edge	Q10315-06	1 ft.	1 ft.
grommet, heat shrinkable (see note 2)	Q13570-01 (see note 2)	0	0
jump jack	Q11011-01	9	9
label, UL certification	N23957-G1	1	1
manager keypad assembly	T17549	1	1
nameplate, FCC label	N23949-02	1	1
screw, sems, 6-32 x 3/8	Q12083-13	1	1
sealant, silicone	END 1576	1 tube	1 tube
software, CRIND™ Bios TRIND	K93744-XX	(see note 4)	(see note 4
standoffs, circuit board	Q10651-16	4	4
tie wrap	Q10178-01	4	4
washer, flat	N16599-48	1	1

Notes:
1.For units with Exxon Light Box, kit is configured at order entry to replace antenna assembly T20632-G1 with T20632-G4 antenna assembly.
2. For units with Exxon Light Box only, quantity is configured at order entry at one per unit.
3. For detail refer to "Cable Group Q13863-07" on page 7.
4. Order entry item.
5. *For units with Exxon Light Box Kit is configured at order entry to K96647-06.*

Cable Group Q13863-07

Cable Group Q13863-07 for all MPD-3 Series units contains the following parts:

Description	Part Number	Quantity
cable, AC Power	R20580-G1	1
cable, antenna (hi and low freq)	M00878A002	1
cable, TRIND to CRIND	R20437-G01	1

ASC TRIND™ Tool Kit K94577-01

Tool Description	Part Number	Quantity
co-axial cable tool	Q13628-01	1
field strength sensor	Q13626-01	1
test tag, TI/RFIDcar mount	Q13630-01	1
test tag, TI/RFID hand held	Q13630-02	1
threaded rod, 3/8-16 x 4"	N23880-01	4
tuning tool, plastic tipped	Q13631-01	1

Important Safety Information

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.

The first and most important information you must know is how to stop all fuel flow to the pump and island.

Emergency Total Electrical Shut-Off

Locate the switch or circuit breakers that shut-off all power to all fueling equipment, dispensary devices, and submerged turbine pumps (STPs). These you must operate in the event of an emergency.

⚠ 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 used the TOTAL ELECTRICAL SHUT-OFF in the case of an emergency and not only these cashier station "stops."

Total Electrical Shut-Off Before Access

Any procedure requiring access to electrical components or the electronics of the dispenser requires total electrical shut-off of that unit.

NFPA 30A, Section 4-1.2, published by the National Fire Protection Association, requires the installation of an easily accessible switch or circuit breaker to shut-off the power to all fueling equipment, dispensing devices and STPs in the event of an emergency. Know the function and location of this switch or circuit breaker before inspecting, installing, maintaining, or servicing Marconi equipment.

Evacuation, Barricading and Shut-Off

Any procedures requiring accessing the pump/dispenser or STPs requires the following three actions:

-  An evacuation of all unauthorized persons and vehicles
-  Using safety tape or cones as barricades to the effected units
-  A total electrical shut-off of that unit

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 Marconi Authorized Service Contractor or call the Marconi Call 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

There is applicable information in: NFPA 30A: *Automotive and Marine Service Code*; NFPA 70: *National Electrical Code (NEC)*; OSHA regulations; and federal, state, and local codes which 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.

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 that follow must be followed to prevent death, injury or damage to the equipment.

⚠ DANGER

This signal word is used to alert you to a hazard or unsafe practice which **will** result in **death or serious injury**.

⚠ WARNING

This alerts you to a hazard or unsafe practice that **could** result in **death or serious injury**.

⚠ CAUTION

This signal word designates a hazard or unsafe practice which **may** result in **minor injury**.

CAUTION

When used by itself, CAUTION designates a hazard or unsafe practice which may result in **property or equipment damage.**

Prevent Explosions and Fires

Fuels and their vapors will become explosive if ignited. Spilled or leaking fuels cause vapors. Even filling customer tanks will cause explosive vapors in the vicinity of dispenser or island.

No Open Flames

 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 fuels and their vapors. After getting out of a vehicle, touch the metal of your vehicle to discharge any electrostatic charge before you approach the dispenser island.

Prevent Electrical Shock and Sparks

Dispensing devices use high voltage. A potential shock hazard exists when working on or around a dispensing device.

Follow OSHA lock-out and tag-out procedures.

Always turn OFF power to the dispensing device and associated submerged turbine pumps (STPs) when servicing or making electrical wiring connections. Multiple disconnects may be required.

⚠ 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 used the TOTAL ELECTRICAL SHUT-OFF in the case of an emergency and not only these cashier station "stops."

Close Junction Boxes Tightly

Spilled or leaking fuels in the vicinity of electrical junction boxes can be hazardous if boxes are not properly closed. Replace all bolts and tighten junction box cover before turning on AC power. Do not use gaskets on junction box covers.

Field Wiring

Poorly wired pumps or dispensers could cause a fire, explosion or electrical shock. Place all power and lighting wires in threaded, rigid metal conduits. Plug all unused junction box holes. Never use knockout boxes or flexible conduit. Tighten all threaded connections and covers. Do not use gaskets with junction box covers. Do not disturb sealing compound around wires at junction box entrances. Use factory method of routing wires. Use tie wraps to keep unruly wires away from pinch point and hinges. Tuck wires into enclosure before closing doors, bezels, junction boxes, covers and breaker panels. Follow wiring recommendations in installation or service manuals.

Proper Grounding is Required

Proper grounding is required for safe operation. See installation manual and applicable NEC, NFPA and local electrical codes for requirements.

Avoid Pinched Wires

Pinched or cut wires (cables) may damage components. Exposed wires could create sparks and electrical shorts when applying power.

React Quickly to Fuel Spills, Fires or Vehicle Impact

Follow these steps in the event of a fuel spill, fire, or vehicle impact.

1 Use station EMERGENCY TOTAL ELECTRICAL SHUT-OFF immediately. Turn off all system circuit breakers to the island.

⚠ 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 used the TOTAL ELECTRICAL SHUT-OFF in the case of an emergency and not only these cashier station "stops."

2 Call emergency numbers for fires, vehicle impact or any significant spills.

3  Use safety tape, cones or barricades to block the work area. Do not go near fuel spill or allow anyone else in the area.

4  Take precautions to avoid igniting fuel. Do not allow starting of vehicles in the area and immediately stop use of open flames, smoking or power tools in the area.

5 Provide emergency and first aid assistance.

⚠ WARNING

If any gasoline has been inhaled, seek emergency help immediately.

Inhaled gasoline may cause unconsciousness and burns to lips, mouth and lungs.

⚠ WARNING

Gasoline spilled on skin may cause burns.

Wash area thoroughly with clean water.

Seek medical advice immediately.

6 Use approved and safe procedures to clean up all spills with a "fuel or gasoline absorbent" material approved by your local regulatory agencies. (Dispose of fuel and hazardous absorbent material promptly and according to the requirements of the fire department, local EPA, and federal, state or local resources.)

Emergency and First Aid Information

Refer to phone book for emergency phone numbers. If needed, follow first aid instructions as outlined in American Red Cross Standard First Aid manuals.

⚠ WARNING

Gasoline Ingestion

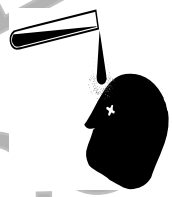
Gasoline ingested may cause unconsciousness and burns to internal organs.
Do not induce vomiting.
Keep airway open.
Oxygen may be needed at scene.
Seek medical advice immediately.

⚠ WARNING

Gasoline Vapor Inhalation

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

⚠ WARNING



Gasoline In Eyes

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

⚠ WARNING

Gasoline On Skin

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

Warning Labels

Several types of warning labels appear on Marconi products to inform and remind users of important safety information. Read, understand and follow these warnings.

Sample Warning Label

The following labels are typical of those you may find on Marconi's products:

Warning	Mise en garde	Advertencia
Electrical shock hazard Each electrical component within this unit may have its own circuit breaker or disconnect switch. Before servicing, turn off all circuit breakers and switches associated with this unit.	**Danger de décharge électrique** Chaque composant électrique au sein de cet élément a son propre disjoncteur ou interrupteur pour couper l'électricité. Avant tout service d'entretien, couper tous les disjoncteurs et les interrupteurs contrôlant cet élément.	**Peligro de shock eléctrico** Cada componente eléctrico en esta unidad puede tener su propio interruptor de circuito o interruptor para desconectar. Antes de darle mantenimiento, apague todos los interuptores asociados con esta unidad.

Load Table	115VAC	240VAC
Includes all options (Less Motor)	14.00 AMPS	7.00 AMPS
Upper lights (for Eclipse models EG, EL, EN only)	3.00 AMPS	1.50 AMPS

La Table Des Charges	115VAC	240VAC
Toutes options incluses (Sans Moteur)	14.00 AMPS	7.00 AMPS
Lumières du haut (pour les modèles Eclipse EG, EL, EN seulement)	3.00 AMPS	1.50 AMPS

Table De Consumo	115VAC	240VAC
Incluye todas las opciones (Menos Motor)	14.00 AMPS	7.00 AMPS
Luces superiores (solamente para Eclipse models EG, EL, EN)	3.00 AMPS	1.50 AMPS

Motor Load Table	(F.L. AMPS)		
	115VAC	230VAC	380VAC
3/4 HP 60HZ 1 PH	12.5 AMPS	6.3 AMPS	
3/4 HP 50HZ 1 PH	13.0 AMPS	6.5 AMPS	
3/4 HP 50HZ 3 PH		3.4 AMPS	2.3 AMPS

La Table Des Charges Du Moteur	(F.L. AMPS)		
	115VAC	230VAC	380VAC
3/4 HP 60HZ 1 PH	12.5 AMPS	6.3 AMPS	
3/4 HP 50HZ 1 PH	13.0 AMPS	6.5 AMPS	
3/4 HP 50HZ 3 PH		3.4 AMPS	2.3 AMPS

Table De Consumo De Motores	(F.L. AMPS)		
	115VAC	230VAC	380VAC
3/4 HP 60HZ 1 PH	12.5 AMPS	6.3 AMPS	
3/4 HP 50HZ 1 PH	13.0 AMPS	6.5 AMPS	
3/4 HP 50HZ 3 PH		3.4 AMPS	2.3 AMPS

Working Alone

It is highly recommended that someone who is capable of rendering first aid be present during servicing. Be familiar with Cardiopulmonary Resuscitation (CPR) methods if you are working 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 tag out and lock out procedures discussed later in this section.

Contacting Emergency Personnel

Keep the following emergency phone numbers at hand.

Ambulance:_____

Fire:_____

Police:_____

Poison Control Center:_____

Informing Emergency Personnel

Compile the following information for emergency personnel:

- Location of accident (e.g. address, front/back of building, etc.)
- Nature of accident (e.g. possible heart attach, run over by car, burns, etc.)
- Age of victim (e.g. baby, teenager, middle-age, elderly)
- Whether or not victim has received first aid (e.g. stopped bleeding by pressure, etc.)
- Whether or not victim has vomited (e.g. if swallowed or inhaled something, etc.)

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

Other Useful Safety Information

This subsection provides additional safety information.

OSHA Lock-Out and Tag-Out Requirements

OSHA Standard 29 CFR 1910-147 Control of Hazardous Energy Sources (Lock-Out/Tag-Out) covers ways to avoid personal injury because power was turned on or fuel pressure was applied **unexpectedly** while servicing equipment. The rule requires:

(1) Turning off equipment power and fuel under pressure

(2) Use of a locking device (breaker, valve, etc.) or label device with a warning tag.

Station employees and service contractors need to understand and comply with this program completely to ensure safety while the equipment is down.

Breakaways

Required by NFPA 30A, breakaways are emergency devices designed to retain liquid on both sides of the breakaway point installed on each hose. Refer to manufacturer's instructions for proper installation.

Collection of Fuel in Approved Containers

NFPA 30A, Section 2, requires use of approved containers to collect, transport, and dispose of fuel. Containers must be specifically designed and labeled for handling hazardous fuels.

Read Material Safety Data Sheets (MSDS)

Before working with any chemicals or fuels in and around a dispensing facility, read the MSDS pertaining to those chemicals as prescribed in the Occupational Safety and Health Administration Standard, 29 CFR 1910.1200. Refer to the supplier's literature.

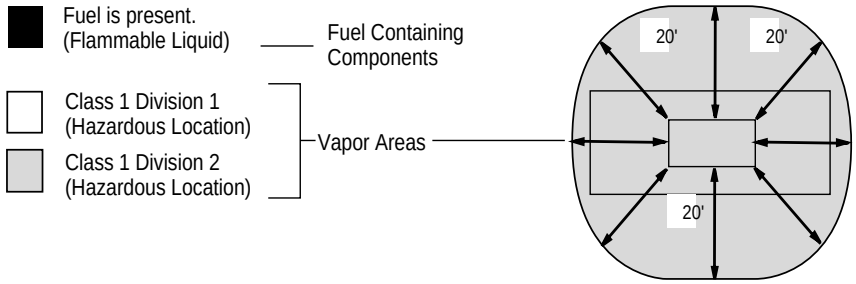
Replacement Parts

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

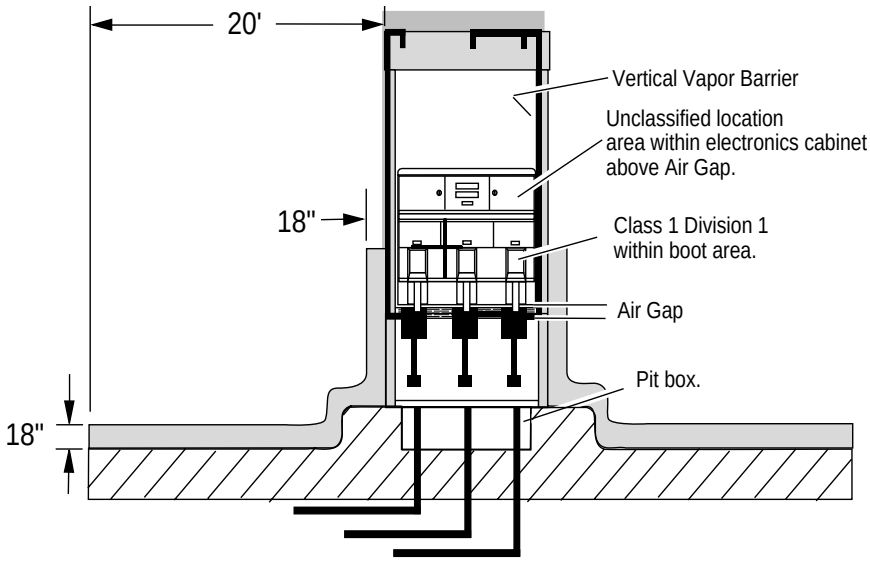
Classifying Hazardous Locations

Any activity that can cause an explosion (e.g., smoking, drilling, etc.) must be done well outside the vapor area.

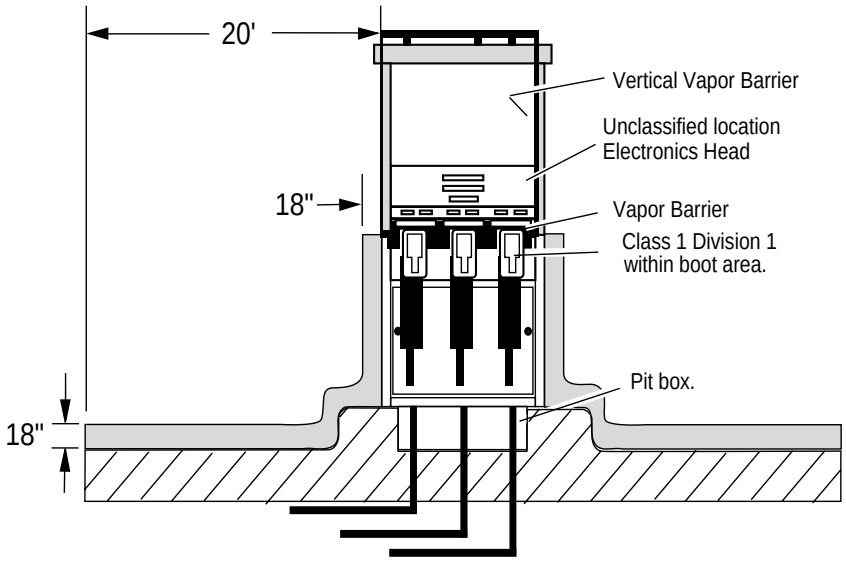
The following diagrams are based on NFPA 30A, section 6 and NFPA 70, section 514.



The Advantage® Series with Air Gap



MPD®-3 Series with Vapor Barrier



ASC TRIND™ Technology Update

ATTENTION: AUTHORIZED SERVICE CONTRACTORS

READ THIS SECTION BEFORE PROCEEDING WITH INSTALLATION

The TRIND™ system utilizes technology and devices not commonly used in the industry. Read the following carefully to familiarize yourself with relatively unique aspects of TRIND and prevent field problems.

RF Transmission and Antennas

Located in the TRIND card cage is a transmitter printed circuit board (PCB). The RF antennas are connected to this board during installation.

Applying power to the card cage with either antenna disconnected will result in damage to the transmitter PCB.

- The transmitter PCB may be burned up immediately, or its effective life shortened drastically.
- The PCB may perform properly at installation, but will require premature field service at a later date.

For single-sided units, a 'dummy load' connector R20526-G1 is provided for unused 'B' side of the PCB.

Note: Power must never be applied to the card cage without a load, either antennas or dummy load connector.

Co-Axial Cable

Co-axial antenna cables in cable harness M00878A002 used for TRIND are more flexible and smaller diameter than more familiar co-axial cable, such as that used for cable television. However, all co-axial cables share this feature:

Too severe a turn or bend in the cable will break the center (solid) wire.

This can result in a seemingly good but in actuality intermittent signal. This too may result in what appears to be proper performance at installation that is followed by premature failure and field service. Replacing damaged cable in the field is an extensive task.

In addition, a damaged cable will also cause a situation where the transmitter PCB is powered without load, and damage the PCB.

Note: Turns or bends in co-axial cables must be gradual loops, no sharper than a 1" radius (2" diameter).

Installation Instructions for All Kits

Before beginning read “Classifying Hazardous Locations” on page 17 and “ASC TRIND™ Technology Update” on page 18.

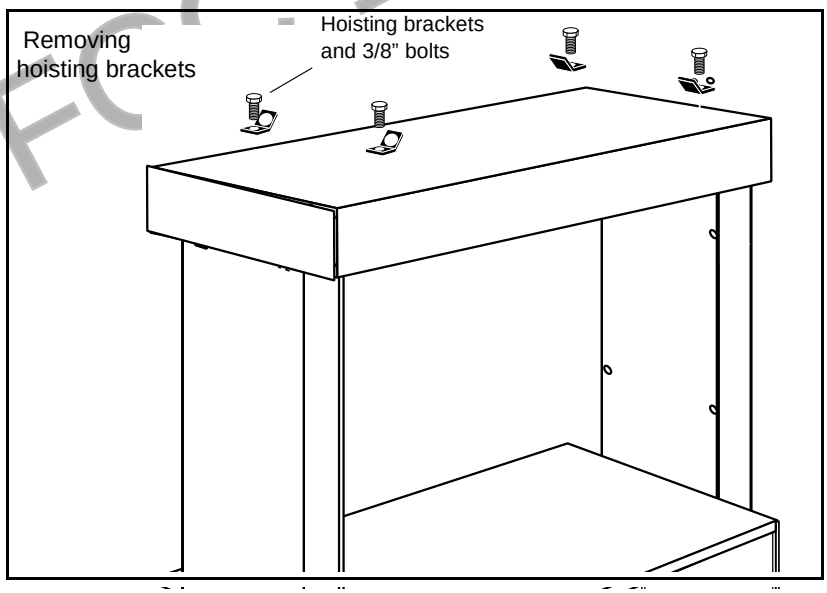
Preparing Exxon Light Boxes

Use these procedures for dispensers with Exxon light boxes only. For units without light boxes, proceed to ‘Preparing for Installation’ on page 19.

1. Open and lift display frames on both long sides of display and lock in-place according to light box manufacturer’s instructions.
2. Remove cover from electrical connection box in display cabinet and disconnect wires. Save cover, screws and wire connectors for reassembly.
3. Remove locking nut and washer from conduit nipple in display cabinet. Save nut and washer for reassembly.
4. Loosen four 3/8-16 bolts, lock washers, flat washers and soft aluminum flat washers securing display cabinet to top of unit.

Preparing For Installation

If present, remove four hoisting brackets from top of unit by removing four bolts, four metal washers and four rubber washers. Save hoisting brackets and hardware for reassembly.
Note: On units with light box, hoisting brackets may have already been removed.

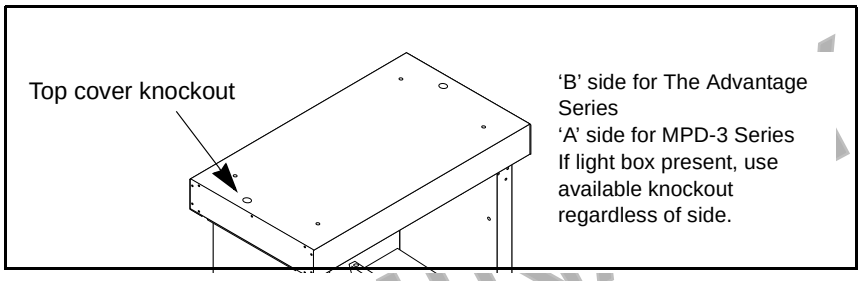


Removing Knockout in Unit Top Cover

1 Remove knockout from left side of unit top cover while facing 'B' side for The Advantage units or 'A' side for MPD-3 units.

Note: For units with light box, this will require lifting side of light box for access, by loosening and/or removing hardware as described in Step 4 of "Preparing Exxon Light Boxes" on page 19. If light box conduit is run through the knockout designated in this section, use the knockout on the opposite side of the top cover for the TRIND installation.

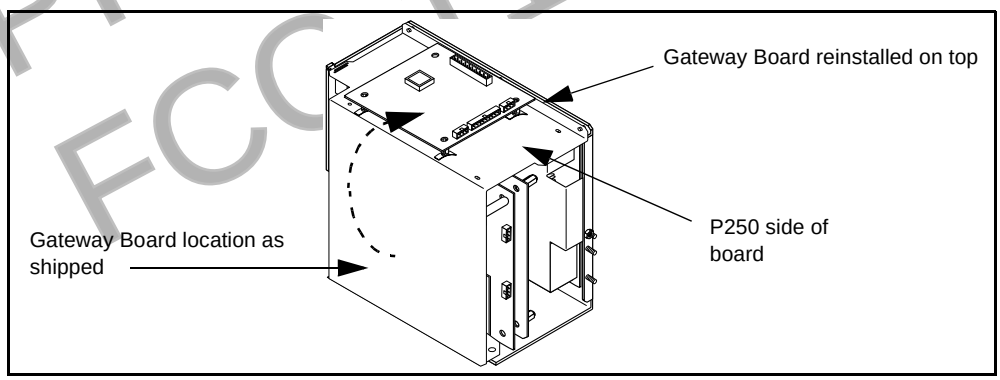
- For units without end plate, lift left side of top cover for access to knockout from bottom.
- For units with nine bolt end plates, remove plate for access.



2 Lower top cover to original position.

Note: For units with end plate, do not replace plate at this time. For units with light box, also remove knockout in light box aligning with knockout in top cover before returning top cover and light box to original position.

Relocate Gateway Board on Card Cage



Gateway board is shipped mounted to side of card cage. Relocate Gateway board to top of card cage according to the following steps:

1 Remove Gateway board and standoffs from side of card cage.

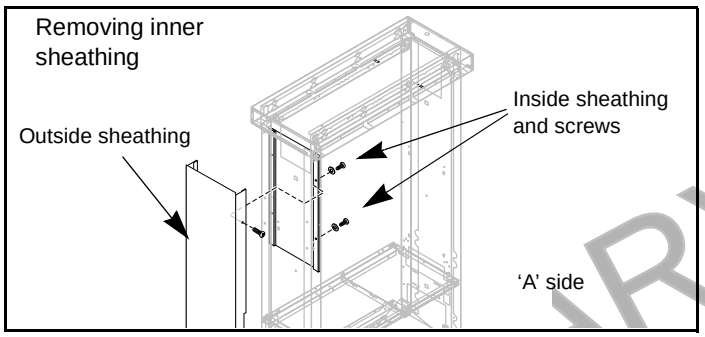
Note: Existing standoffs do not need to be reused and may be clipped or broken off card cage.

2 Relocate Gateway board to top of card cage as shown, using four Q10651-16 standoffs provided with kit.

Installation Instructions for The Advantage® Series Units

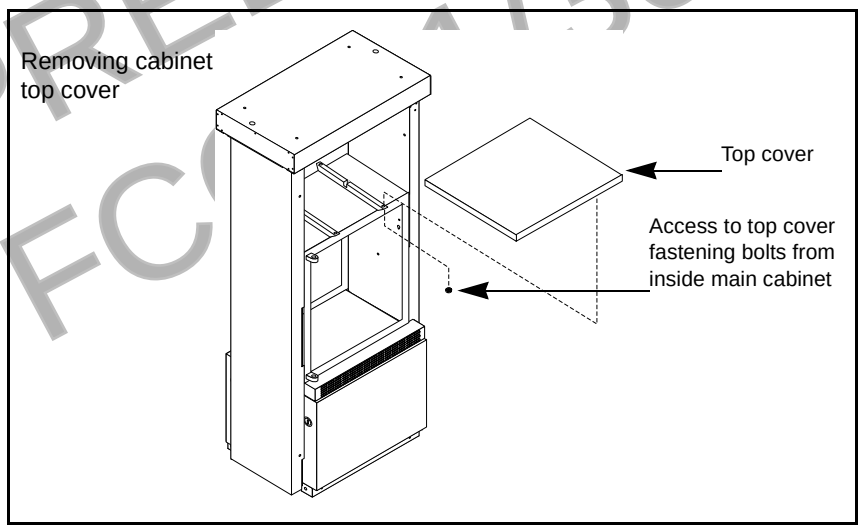
For MPD-3 Series, go to “Installation Instructions For MPD®-3 Units” on page 35.

1 From ‘A’ side of unit, remove inner sheathing on left column. Set sheathing and screws aside for reassembly.



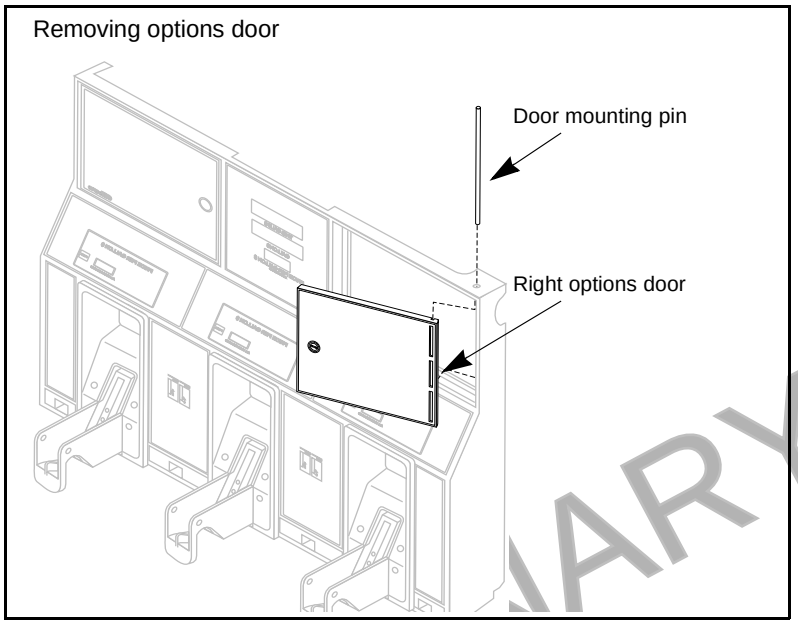
2 Open main access doors. Refer to MDE-2531, Pump and Dispenser Start-Up/ Service Manual for access instructions.

3 Remove top cover from main panel by accessing mounting hardware from inside main cabinet. Save top cover and fastening hardware for reassembly.



4 Remove any call or stop buttons, or magnetic switch hardware from door. Save all removed hardware for reassembly.

5 Remove door mounting pin and right options door.



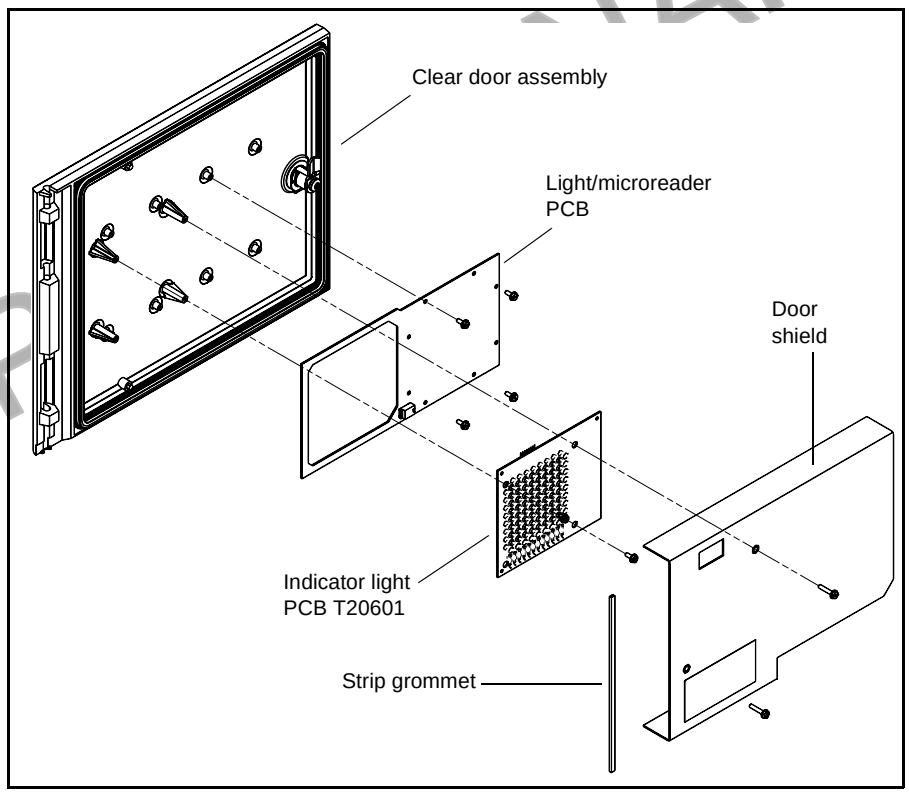
6 Dispose of door. Save pin for reassembly.

Modifying Right Options Door

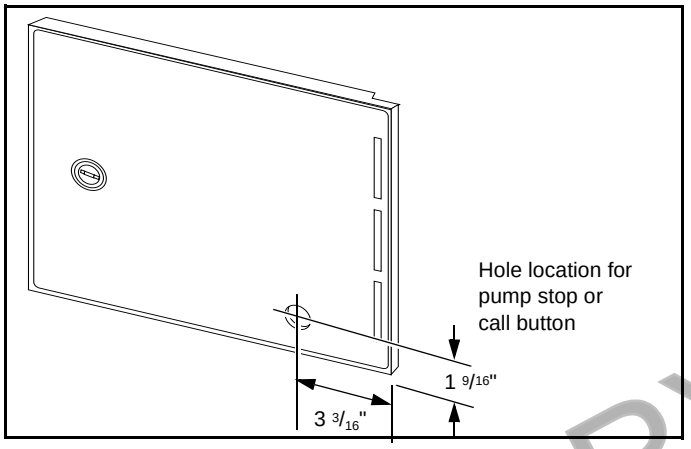
For 48" units without stop or call button on right options door, and all 36" units, go to 'Re-installing Door Alarm Switches' on page 25, if unit has door alarm. If unit does not have door alarm, go to "Installing Right Options Door" on page 25.

For 48" units with stop or call buttons previously installed, perform the following steps.

1 Remove all hardware from new right options door according to the following steps and save all parts for reassembly.
- Remove two screws mounting door shield on rear of door.
- Disconnect cable R20522-G2 from light/microreader printed circuit board (PCB) by disconnecting J181 on cable from P181 on board.
- Remove Indicator Light PCB.
- Remove standoff-screws holding light/microreader board, and remove board.



2 Mark placement of pump stop or call button on new right options door by measuring from door edges as shown.

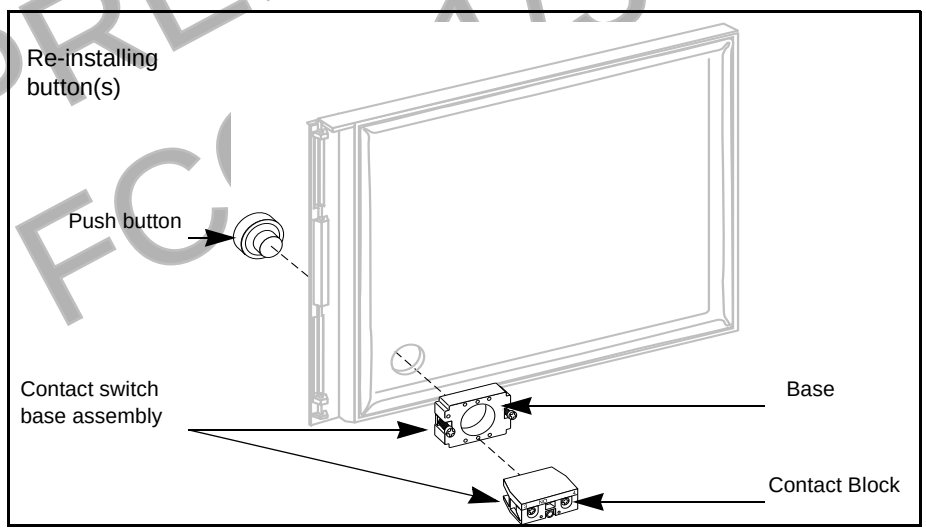


3 Away from fuel island, drill a 7/8 inch diameter hole in the location shown above. Remove any burrs around hole with deburring tool or rounded file.

Re-installing Button

1 Hold contact base on back of door and align with hole drilled earlier.

2 Insert push button from front of door by aligning tabs with slots in base.



3 Turn push button 45° clockwise to lock button to base.

4 Tighten two screws on base to secure push button and base assembly to door. *Note: Do not overtighten screws.*

5 Attach contact block to base with center screw if not already installed.

6 Reinstall all new right options door hardware by reversing procedures in Step 1of “Modifying Right Options Door” on page 23.

Re-installing Door Alarm Switches

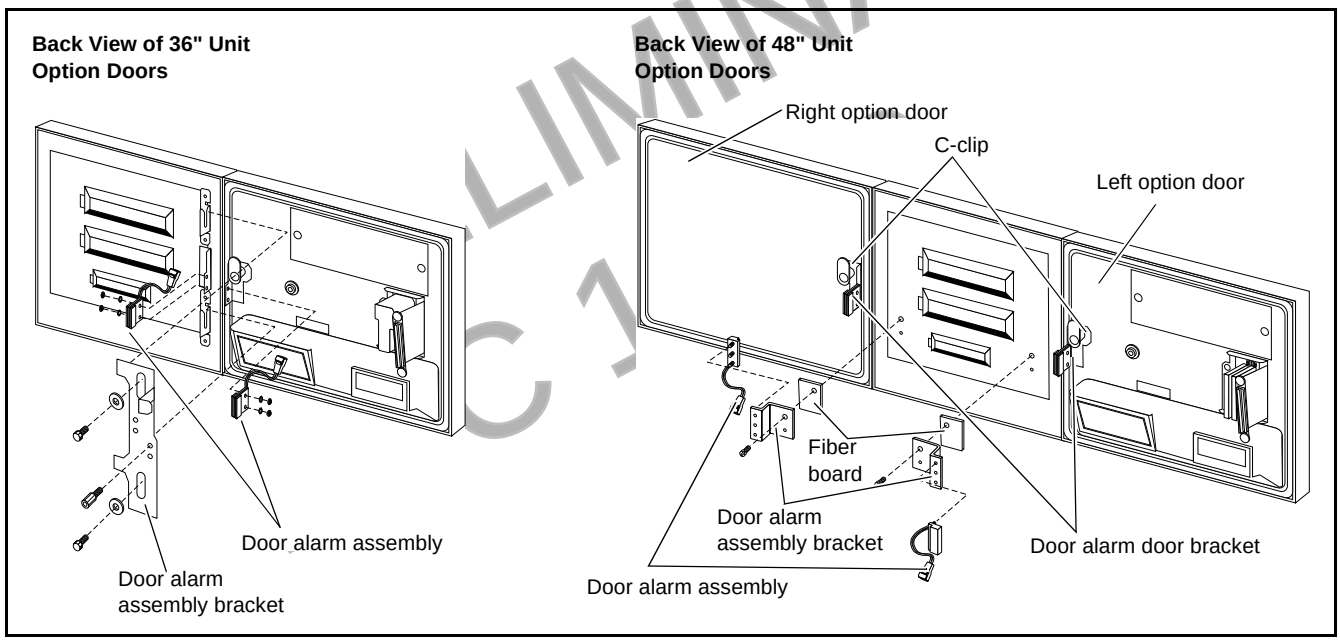
For units with cash acceptors, follow these steps to re-install door alarm assemblies on TRIND™ right option doors. Refer to diagram on this page for more information. Perform each step for both 'A' and 'B' side right option doors. If unit does not have door alarm, go to 'Installing Right Option Door' on page 25.

1 Re-install C-clips removed from old right side option doors.

2 Install door alarm assembly to door alarm assembly bracket with screw previously removed.

3 Attach door alarm assembly bracket to display board with screw previously removed.
Note: Replace the piece of fiberboard between door alarm bracket assembly and display board.

4 Be sure magnet does ***not*** touch door alarm door bracket. Slightly move door alarm door bracket away, if necessary.



5 Reinstall all new right options door TRIND hardware by reversing procedures in Step 1 of "Modifying Right Options Door" on page 23.

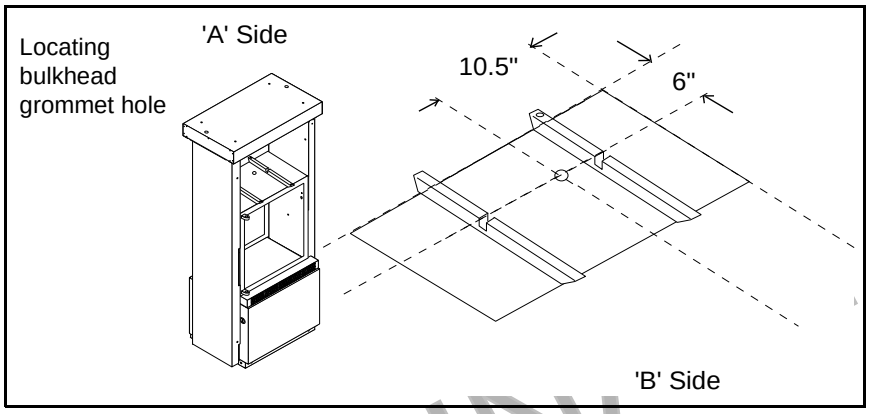
Installing Right Options Door

Install new TRIND/TIRIS right options door (one per side for two-sided units), using pin(s) removed and saved in Step 6 on page 22.

Installing Bulkhead Grommet

1 Disconnect two cables and remove ground connector to 'A' side printer. Remove printer from unit and save for reinstallation.

2 While facing 'A' side of unit, measure 6" in toward center of cabinet top from outside edge of top, and draw a line on top cover.



3 Measure 10.5" in from left side of top, and draw a line. Intersection of both lines is pilot hole location.

4 In packaging materials, locate thick rubber packing that can be broken into flat sided pieces, approximately six inches round, square or random.

5 On one flat side of thick rubber piece, apply light coating of cutting oil.

6 With oil coated surfaces in contact with metal surfaces, heavily tape one each foam piece to top and bottom of main cabinet top, above and below drilling point marked.

Note: For foam piece taped to top, mark foam with marking pen or pencil to identify drilling point under foam. Drilling point location accuracy of plus or minus 1/2" is acceptable.

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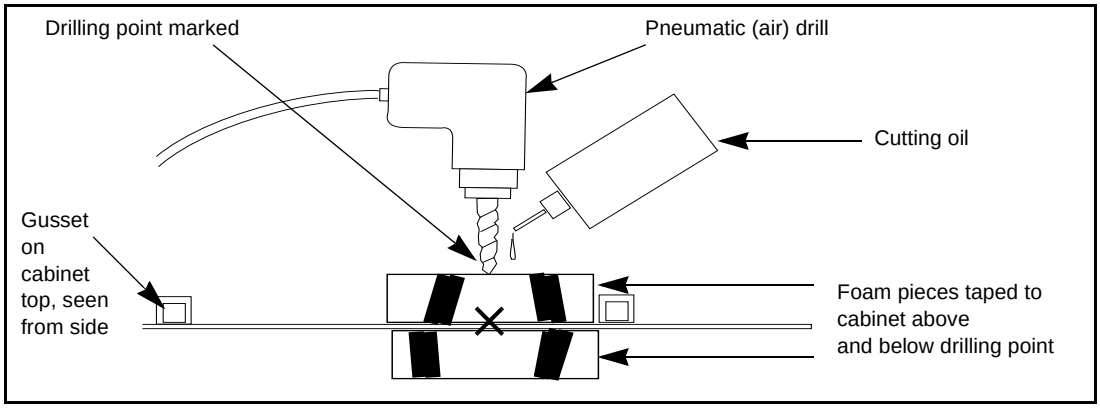


7 Cover shelf area under drilling position with plastic. Kit packaging materials may be used.

8 Follow these mandatory safety guidelines:
- Do not use electric drill. Use only pneumatic (air) drill set or controlled for low speed only (300-500 rpm) or hand operated drill.
- Deposit a few drops of cutting oil at drilling point and on drill bit, to keep bit from binding, to quench sparks and to bind drill shavings.

9 Drill through foam pieces, going only as deep as required to penetrate top cover, beginning with small diameter bit (approximately 1/8") and gradually increasing bit size until adequate pilot hole is made.
Note: Hole 3/8" in diameter should be sufficient as pilot for knockout.

10 Remove both top and bottom foam pieces, being careful that all drilling residue and oil is removed from cabinet area. Wipe off cabinet surface, top and bottom, with clean cloth or rag.
Note: Use file or deburring tool to remove burrs or edges that may cut hands.

11 Using hydraulic or manual knockout punch, make one inch (1") diameter hole.

12 Remove plastic covering hardware by folding inwards to retain any drilling residue, and dispose of plastic.

13 Carefully check interior of main cabinet for trash or residue and clean as needed.

14 Position bulkhead seal grommet (Q13570-01) with O-ring beneath hole.

15 Secure grommet in place with locking nut from top of cabinet.

16 From 'A' side of unit, drop (lower) CRIND™ tray

Installing Card Cage Assembly

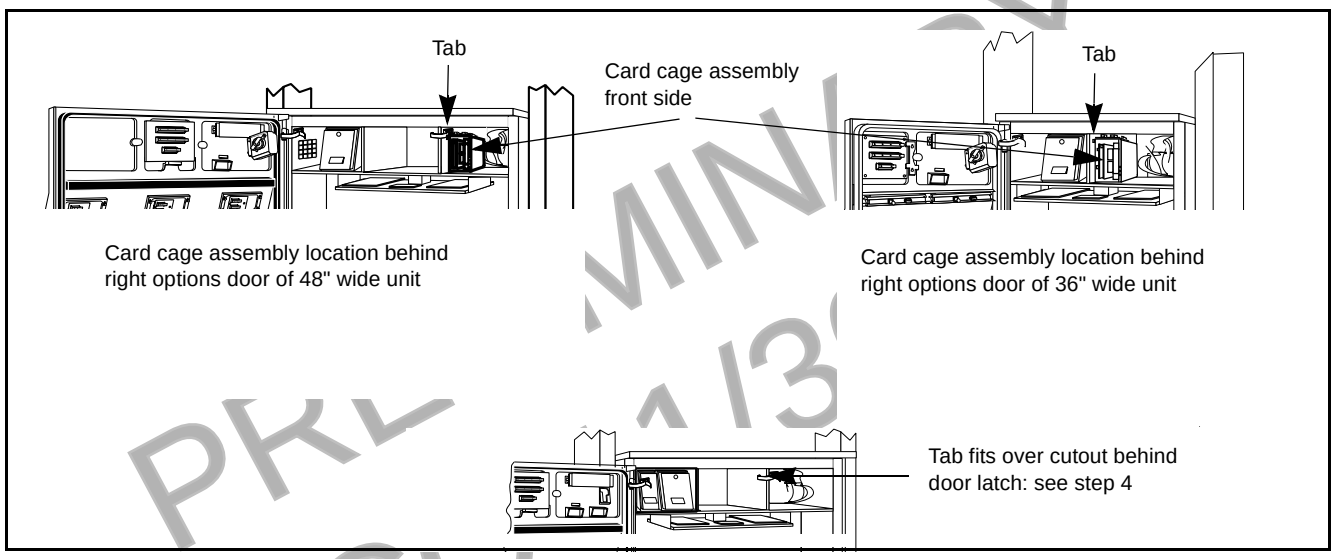
Install card cage assembly from 'B' side of unit according to the following steps:

1. Carefully pry out printer cable retainer from underside of printer shelf.

2. Pull printer cable out of 2 3/4" round hole from bottom, and install piece of strip grommet Q10315-06 around perimeter of hole.

3. For all single-sided units, connect dummy load connector R20526-01 to JB on low frequency transmitter PCB Q13579-01 in card cage. See "Card Cage Assembly T20606-G2" on page 54 for connection point.

4. Install card cage assembly fuse side first on printer shelf and against center divider behind right options door, as shown.



5. Position card cage so that tab on upper left side of housing fits over latch cutout for main door latch, securing card cage to divider.

6. From 'B' side of unit, feed screw Q12083-13 and washer N16599-48 up through hole in shelf into threaded hole in card cage bottom.

7. Feed three prong female end of power supply cable R20580-G1 up through grommeted hole in printer shelf to recessed receptacle on card cage assembly. Refer to "Card Cage Assembly T20606-G2" on page 54 for connection points.

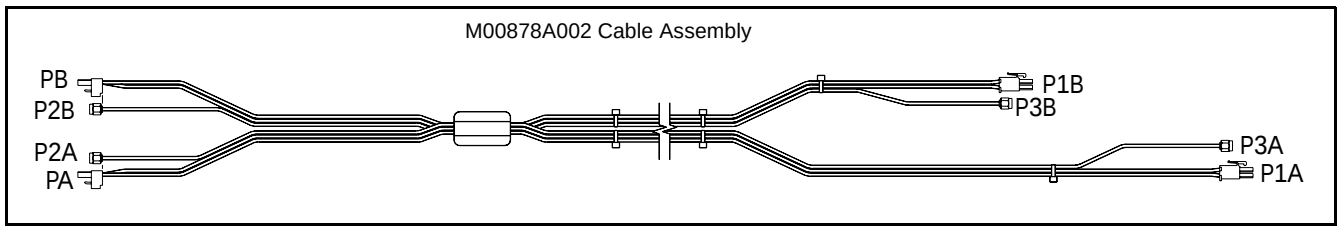
8. Secure power cable R20580-G1 in cable retainer removed in Step 1, so that power cable and printer cable are both secured, and reinstall cable retainer in grommeted hole.

9. Feeding J182 ends of cables R20773-G2 for A and B sides up through grommeted hole and connect P1 to J1 and P2 to J2 on T20662-G2 card cage harness.

10. Return printer to shelf and reconnect two printer cables and ground connector.

11. Reorient printer and secure to shelf.

Installing Transmitter Cables

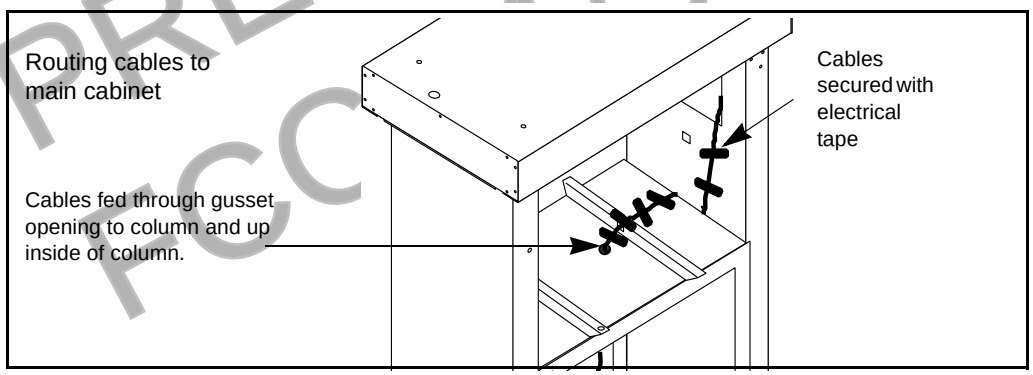


Before proceeding be sure to be able to easily identify A and B side cable ends. Electric tape, wire numbers or other suitable device may be used.
Note: Sharp bends in antenna cables will cause damage. All cable turns must be in loops and gradual. Refer to "ASC TRIND™ Technology Update" on page 18.

1 Feed P1A/B and /P3A/B ends of cable harness M00878A002 up through bulkhead grommet in main cabinet.

2 Be sure that there is sufficient length (24") of M00878A002 harness remaining in electrical cabinet to reach connection points on card cage. Cables must be routed through underside of card cage to connection points on 'B' side. See "Card Cage Assembly T20606-G2" on page 54 for connection points.

3 Lay cable harness flat across top of main cabinet, through gusset opening to column as shown.



4 Use electrical tape to secure cable harness flat to top of cabinet and in gusset opening. See illustration above.

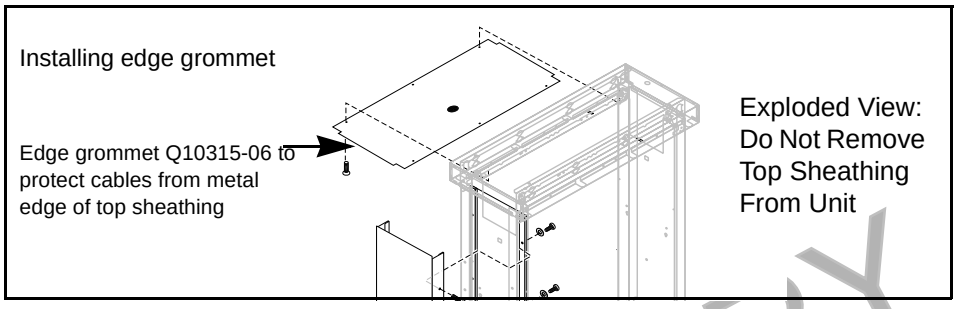
5 Route cables from top of main cabinet up along inside of column, keeping cables flat and parallel.

6 Loop cable harness 3" down into space between column and main cabinet and back up again to allow for reinstallation of inside sheathing.
Note: Turn in cables must be gradual, not sharp, to prevent damage to cables.

7 Feed cables up through knockout opening in unit top cover.

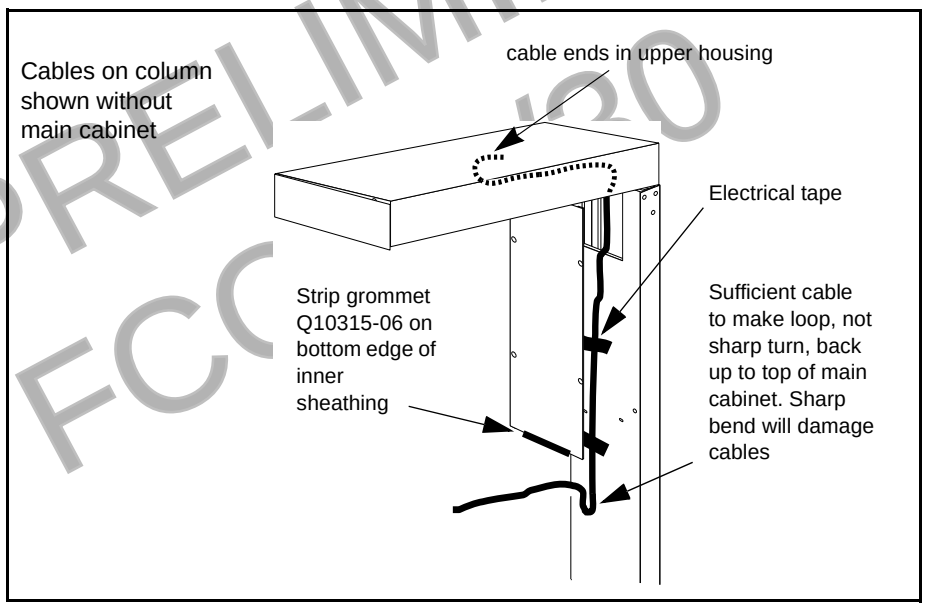
8 Without removing top sheathing, install piece of edge grommet Q10315-06 along edge of top sheathing where cables pass in column. See exploded illustration below.

Note: Carefully check for any points where cable harness is run where cables may come in contact with sheet metal edges, and install edge grommet to prevent cable damage.



9 Leave cable ends in upper housing.

10 Press cable harness flat and parallel to column and secure with electric tape as shown.

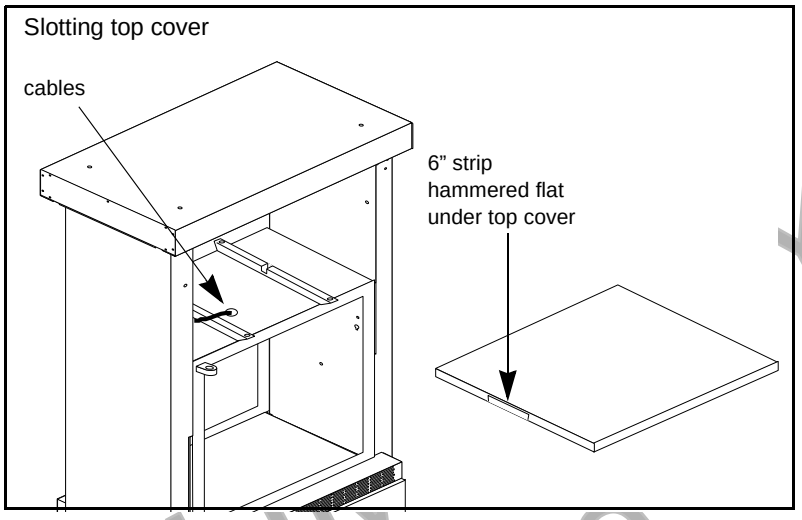


11 Install edge grommet Q10315-06 on bottom edge of inner sheathing and replace inner sheathing, using screws saved during disassembly.

Replacing Main Cabinet Top Cover

1 Use hacksaw to cut 3/8" slots in cabinet top cover to allow strip a minimum of 6" wide to be folded back with pliers and hammered flat as shown, to allow cables to pass under top cover to grommet.

Note: Remove top cover from work area to cut slot. Do not cut metal in proximity to dispensers. Place top cover on cardboard while hammering to prevent damage to paint.



2 Clean edges and burrs around cuts in cover with file or deburring tool.

3 Thoroughly seal spaces around and between cables in main cabinet bulkhead grommet with RTV sealant.

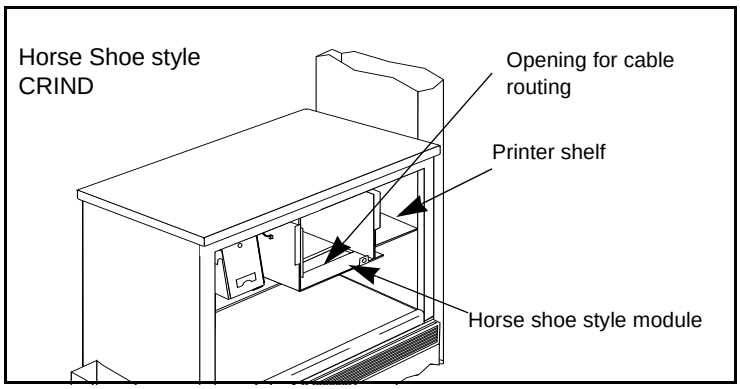
Note: Place some packaging plastic inside bulkhead grommet from top to prevent sealant from running out bottom when applied.

Routing R20773-G2 Cables

Note: Retrofit kit comes with ten (10) adhesive-backed cable clamps (Q13558-04). Note the following variations for routing cables to main cabinet:

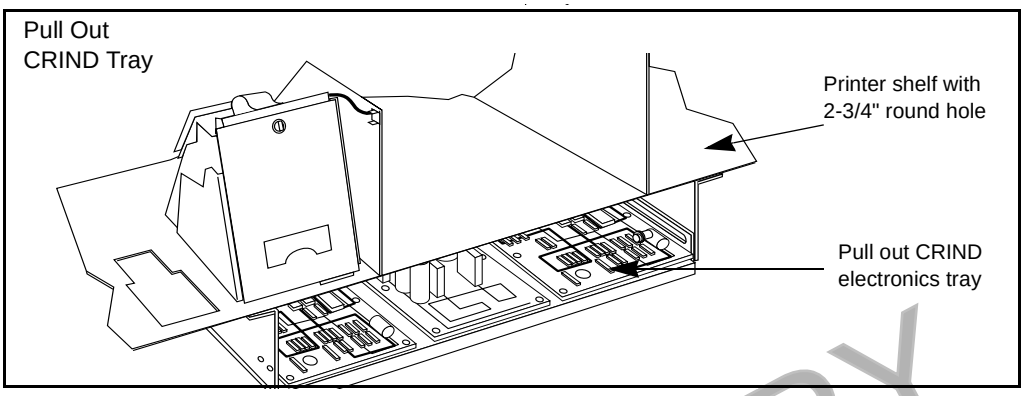
Horse Shoe style CRIND™

For these units, utilize opening in printer shelf bottom for routing.



Pull Out CRIND Tray

For these units utilize round 2-3/4" hole in printer shelf bottom, used for printer cable. Use cable clamps to secure cables to underside of printer shelf.



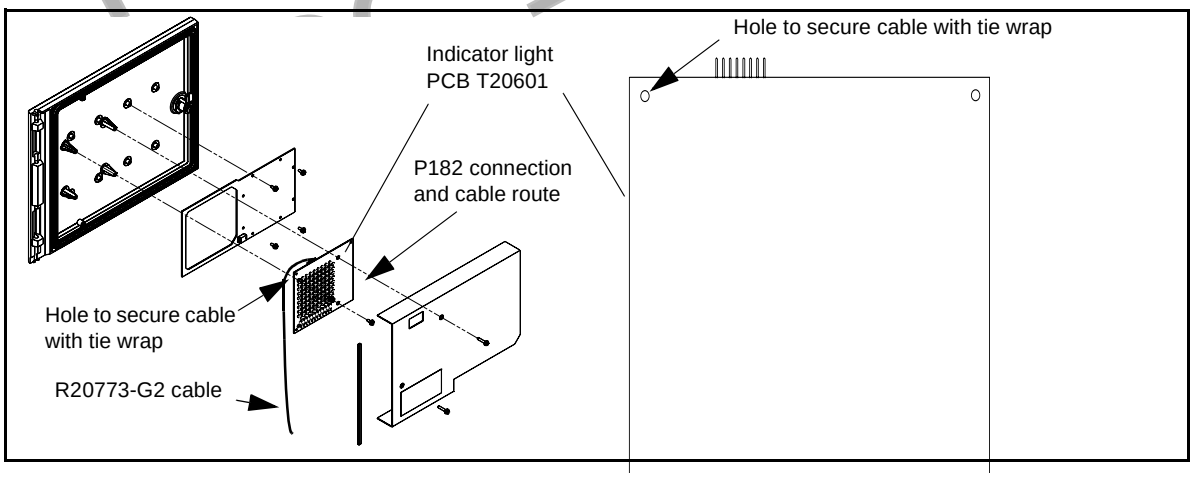
Cable Routing Along Option and Main Doors

When routing door cables to card cage, leave excess cable on door, routing cable around edges of printed circuit board.

Note: It is critical that door cables do not get crimped or pulled when either options door or main door are opened or closed. Be sure that door cables are secured such that they cannot be caught in main door. when door is closed, and always close main door before options door.

1 Remove option door shield

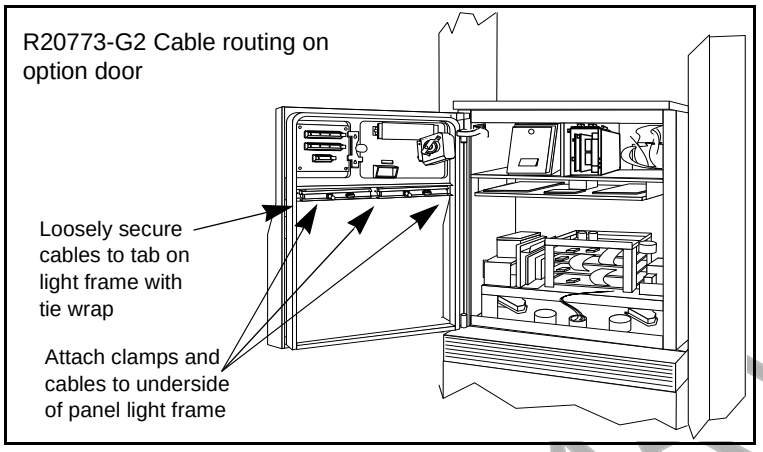
2 Connect J182 connectors on R20773-G2 cables to P182 on Light/Microreader PCB for each side right options door.



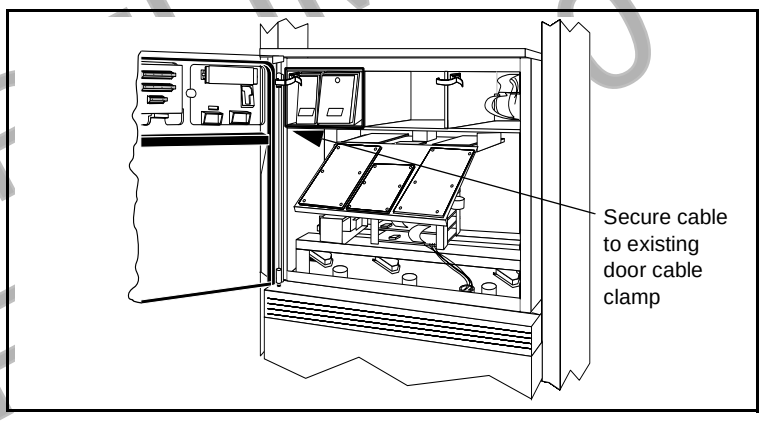
3 Loosely secure cables using tie wrap Q10178-01 and hole on indicator light printed circuit board.

4 Assuring sufficient cable to reach connection points on card cage, use clamps to secure cables to underside of lighting frame. Be sure clamps are secured to non-removable part of frame, so access is maintained for lighting service.

5 Being sure that option door opens and closes freely without stressing or crimping cables, use tie wrap Q10178-01 to loosely secure cables to small fixed tab at end of light frame, forcing cables between light frame and door gasket.

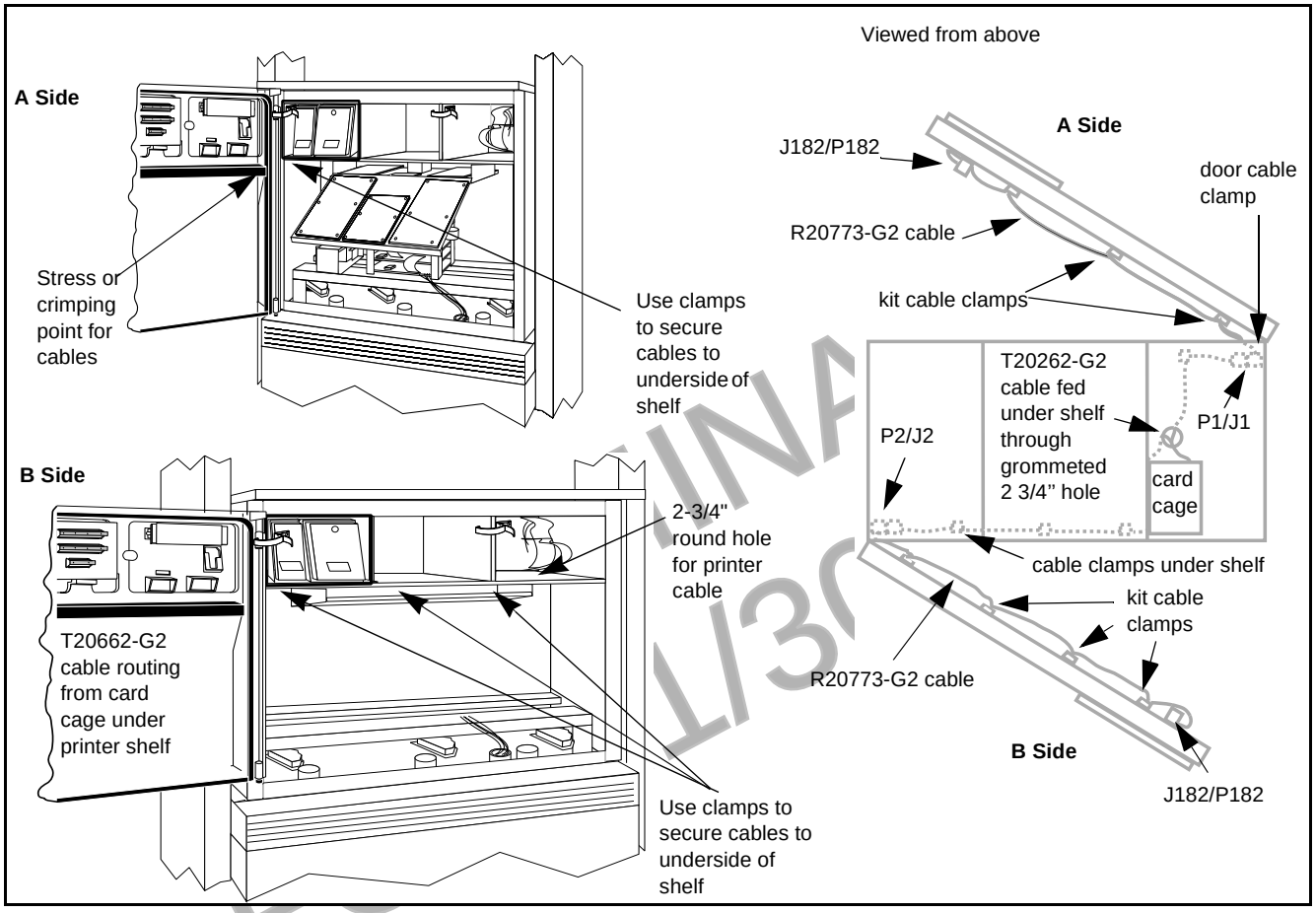


6 Secure J1/J2 end of each R20773-G2 cable to existing cable clamp (for door cabling) just inside main cabinet, allowing enough slack for main door to open and close freely without pulling on or crimping cable. See illustrations below and on next page.



T20662-G2 Cable Routing In Main Cabinet

Card Cage cable harness T20662-G2 contains two cables with connectors P1 and P2. P1 for A Side is shorter of the two. Each cable is designed to extended to the point where the main door and electronics cabinet are hinged. Feed cables through 2-3/4" round hole in printer shelf.



Go to "Instructions for All Units" on page 45.

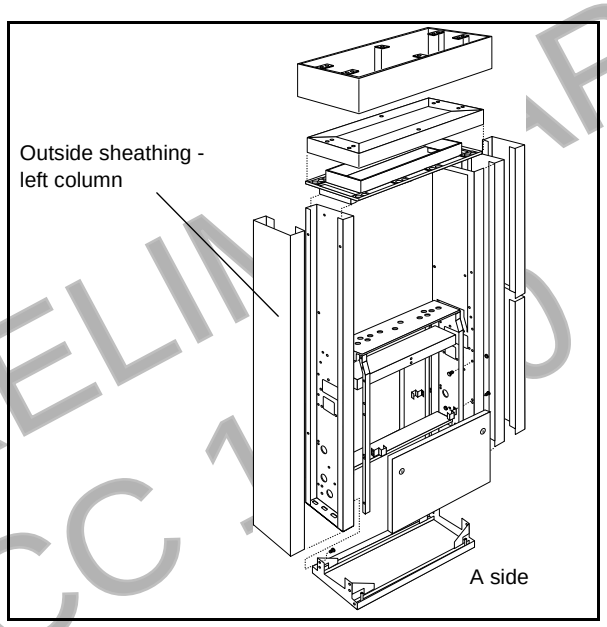
Installation Instructions For MPD®-3 Units

Before beginning read “Classifying Hazardous Locations” on page 17 and “ASC TRIND™ Technology Update” on page 18.

The TRIND™ retrofit can only be done on MPD-3 units with CRIND™ printer on left.

Preparing For Installation

1 From ‘A’ side, remove left column outside sheathing (or top section only for two piece sheathing).

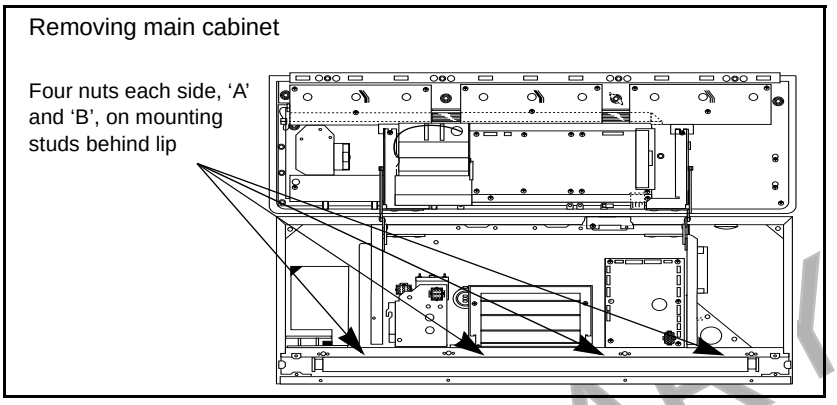


2 Temporarily secure inner sheathing to frame using tape.

3 Open main access door. Refer to MDE-2531 for instructions.

Removing Main Cabinet

1 Locate four nuts on each side of main cabinet, 'A' and 'B', that secure cabinet to frame.



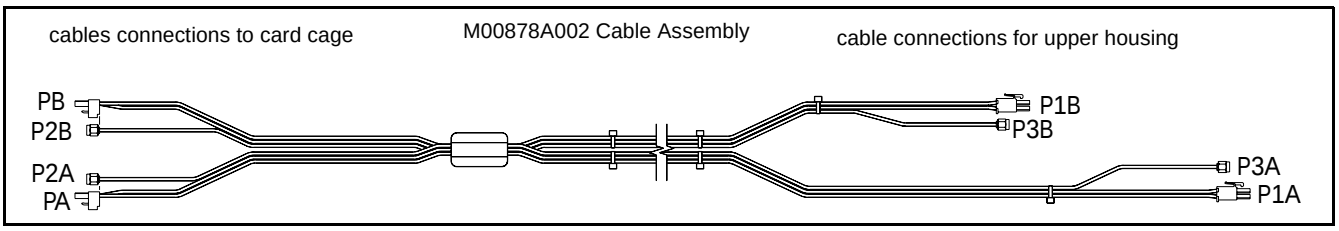
2 Remove all eight nuts and washers, and save for reassembly.

3 Disconnect barrel connectors to allow cabinet to be removed from unit.
Note: If barrel connectors are mounted to holding plate(s), remove plates and discard.

4 Carefully lift cabinet up and off studs, and remove from fuel island.

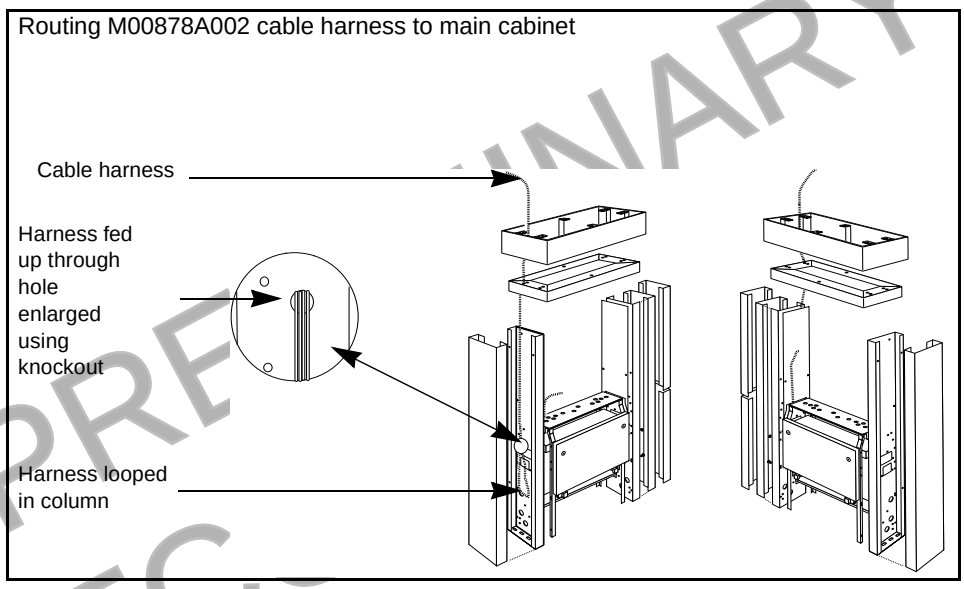
5 Remove inner sheathing on left column (viewed from 'A' side). Set sheathing and screws aside for reassembly. See illustration below.
Note: For units with VaporVac®, VaporVac pan does not need to be removed. Sheathing can be carefully pulled out from center until top bends clear of pan.

Installing Transmitter Cables



Before proceeding be sure to be able to easily identify A and B side cable ends. Electric tape, wire numbers or other suitable device may be used as needed.

Note: Sharp bends in antenna cables will cause damage. All cable turns must be in loops and gradual. Refer to "ASC TRIND™ Technology Update" on page 18.



1. Feed cable ends PA/B and P2A/B (see illustration above) down from upper piping housing into left column seen from 'A' side. Leave a minimum of 12" of cable in upper housing.

2. Feed cables down between piping brackets and inside column.

3. There are several holes in column above or below main cabinet level, approximately 7/16" in diameter. Locate hole that provides access for using knockout and is most closely aligned with bottom of cabinet, and open hole to 7/8" diameter or larger.

   Note: Various units have different holes and configurations. Any hole on column, square, rectangular or round, of sufficient size or made so with knockout can be used for cables.

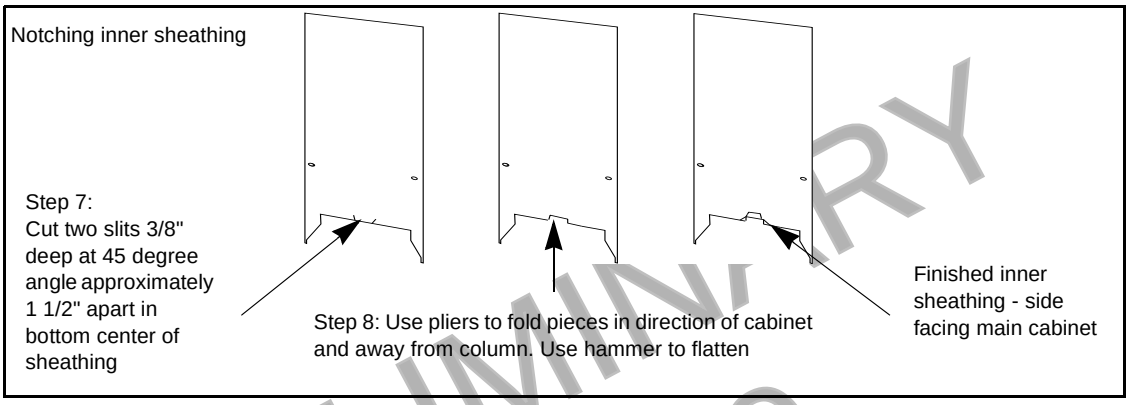
4. Use rounded file or deburring tool to round edges of hole. Cover edges of hole with electric tape.

5 Loop cables below hole and back up through hole and out of column.

6 Feed cable ends into vapor barrier, dressing and securing cables in place with electrical tape.

7 Away from island, use snips or shears to cut slits 1-1/2" apart in bottom center of inside sheathing at 45 degree angles. See illustration below.

8 Fold pieces forward on cabinet side of sheathing. Use hammer to flatten folded pieces as shown.



9 Reposition inner sheathing and tape in place, being sure that cables pass through opening at bottom.

10 Replace outside sheathing, and remove tape from inner sheathing.

11 Dress and secure cables on cabinet top with electrical tape.

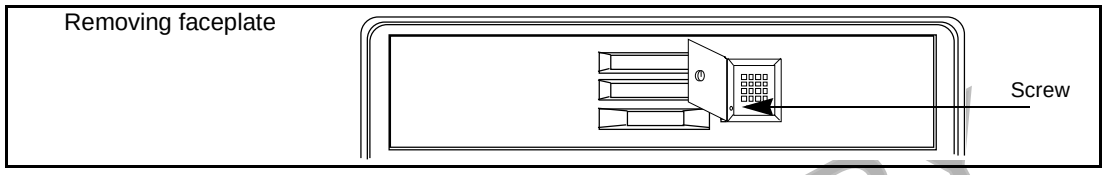
Removing Faceplate

MPD-3 units have two types of faceplates; slide-in (PMI bezel) and bolt-on (Mack bezel). Follow directions for the type of faceplate and bezel that applies.

For units with slide-in faceplates on PMI bezels, do the following:

1 Release right side faceplate using keyswitch.

2 Open manager keypad door and remove single screw.



3 Gently force faceplate up, and slide tip of knife or flat blade screwdriver under bottom edge of faceplate.

4 Pry bottom of faceplate away from unit, until faceplate can be removed from unit.

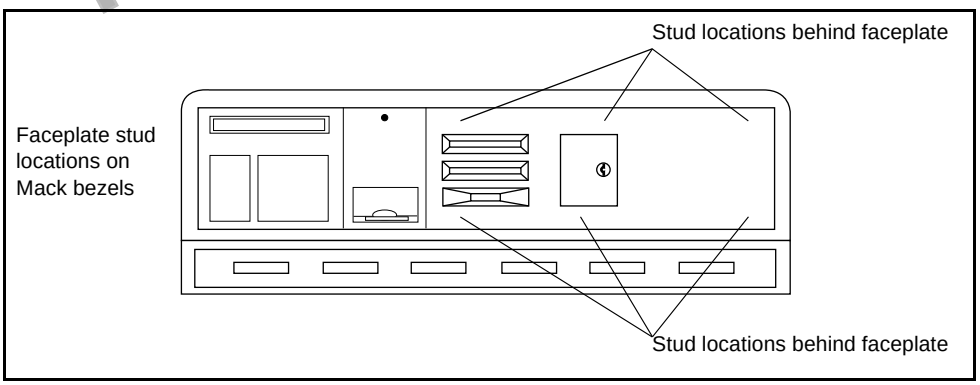
5 Dispose of faceplate.

For units with bolt-on faceplates on Mack bezels, do the following:

1 Open bezel door and lift until door is latched open.

2 Disconnect cable between manager keypad and logic board on bezel door, and discard cable.

3 Locate six sets of nuts and washers on studs securing faceplate to bezel door, and remove hardware.
Note: This may require removing mounting hardware from price per unit (PPU) and CRIND™ logic boards to gain access.



4 Remove 6 sets of nuts and washers from faceplate studs and remove faceplate. Dispose of hardware and faceplate.

5 With putty knife, remove keypad door gasket and any adhesive residue.

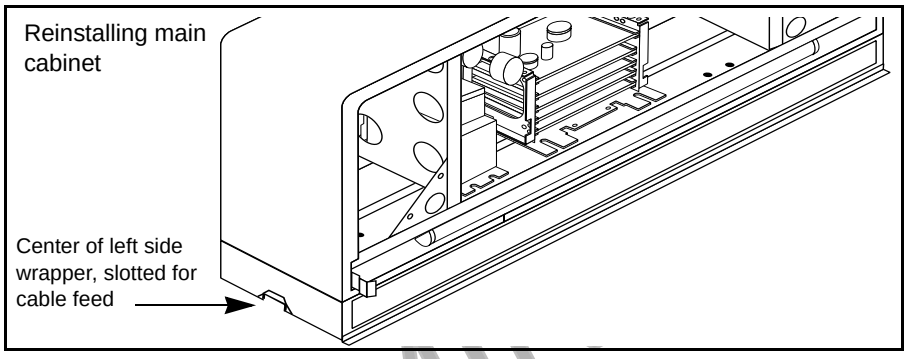
Routing Cables into Main Cabinet

1 Open bezel doors on main cabinet.

2 Locate indent on rear of door behind 3/4" diameter unopened access point.

3 Use 3/4" drill bit to open hole in plastic door from rear of door.
Note: If electric drill is used work must be 20' from fuel island.

4 Use deburring tool or file to round edges of hole.



5 On left side of main cabinet (viewed from 'A' side), in center bottom of wrapper, use snips to cut two 3/8" slits at 45 degree angle.
Note: Slots and folds duplicate those done on inner sheathing. See illustration on page 38.

6 Fold pieces out from cabinet and press flat against wrapper from outside.

7 Carefully return cabinet to unit, and lower cabinet on to studs.

8 Feed cables up into cabinet under slot made in wrapper.

9 Secure cabinet in place with nuts and washers removed with cabinet.

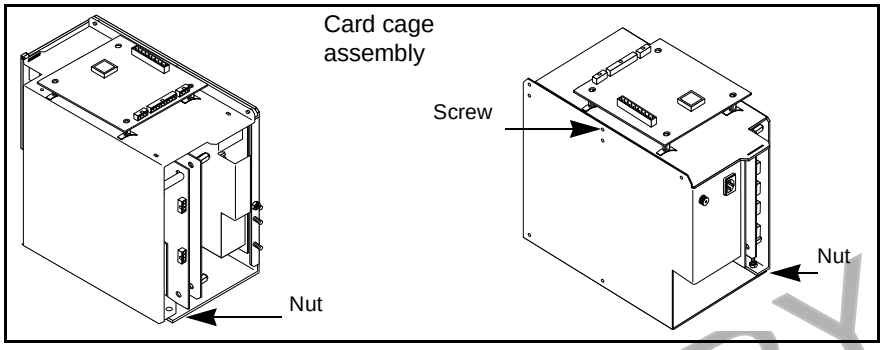
10 Heavily seal around cable entry slot with RTV sealant from inside cabinet.

11 Reconnect barrel connectors.

Installing Card Cage Assembly

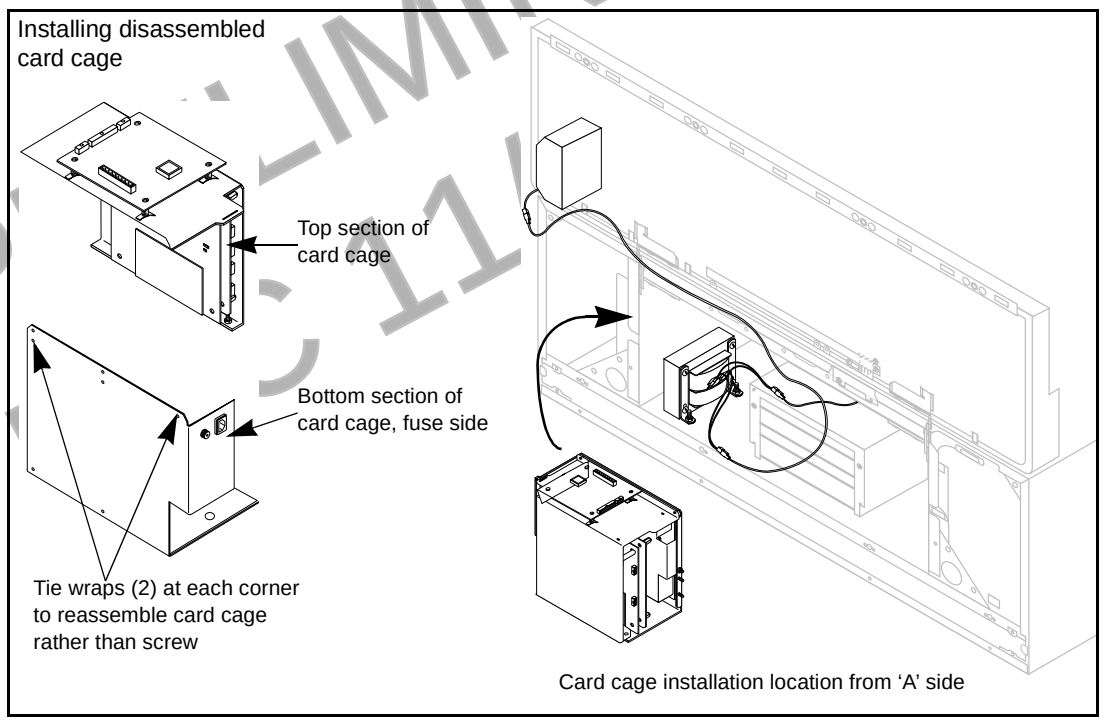
Install card cage assembly from 'A' side of unit, according to the following steps:

1 Begin to separate card cage assembly into two pieces by removing one screw on top and two nuts at bottom, one each front and rear.



2 Disconnect cables joining two sides of card cage.

3 From 'A' side, place bottom section of card cage fuse side first on to left shelf.



4 Reassemble card cage using nuts removed in Step 1 and two (2) tie wraps in place of screw and reconnect cables.

5 For all single-sided units, connect dummy load connector R20526-01 to JB on transmitter PCB. See "Card Cage Assembly T20606-G2" on page 54 for connection point.

6 For all units, from 'A' side of unit, fasten card cage to shelf using 6-32 x 3/8" screw (Q12083-13) supplied with kit.

Installing TRIND™ Faceplate Assembly.

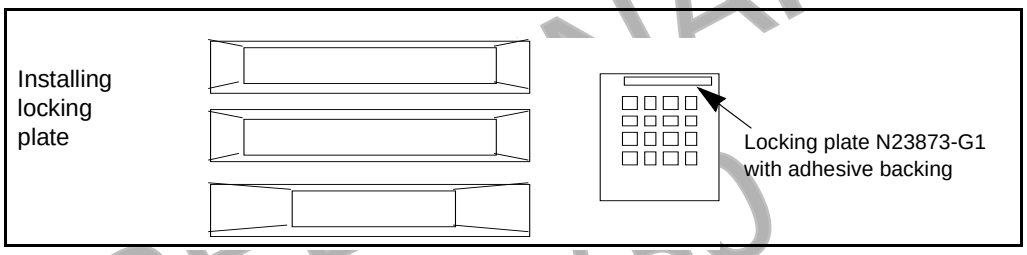
Perform the following steps for each side of unit.

For installing TRIND slide-in faceplates on PMI bezels, do the following:

1 Remove new TRIND faceplate assembly from box. For 'B' side faceplates only, feed faceplate cables back into faceplate housing through round hole in shield to shorten cable leads.
Note: 'B' side cables have a shorter run to card cage than 'A' side.

2 Peel adhesive backing off round gasket N23881-01. Install gasket adhesive side first to sheet metal shield on back of faceplate to form seal around hole for cables on faceplate assembly.

3 Peel paper backing off adhesive strip on rectangular locking plate N23873-G1 and install plate along top lip of manager keypad recess.



4 Feed ends of cables R20773-G2 through 3/4" hole on bezel door drilled in Step 3 of "Routing Cables into Main Cabinet" on page 40. Pull slack cable through hole.

5 Follow these directions to install new TRIND faceplate:
- Feed top edge of faceplate in to groove on top of door.
- Gently push bottom of faceplate in until faceplate drops into bottom groove.

Note: Faceplate may be tight fit. If needed, with faceplate forced up into top groove, firmly hit faceplate along bottom edge with palm of hand until faceplate is in bottom groove.

- Secure in place with keylock.

6 Refer to MDE-2620, Graphics Panel Application for instructions on installing graphics.

For installing TRIND™ bolt-on (stud type) faceplates, do the following:

1 Remove new TRIND faceplate assembly from box. For 'B' side faceplates only, feed faceplate cables R20773-G2 back into faceplate housing through round hole in shield to shorten cable leads.
Note: 'B' side cables have a shorter run to card cage than 'A' side.

2 Remove existing manager keypad from bezel door, and use putty knife to remove keypad gasket and adhesive residue from door.

3 Replace the door gasket removed in step 2 with adhesive backed gasket Q11659-01.

4 Replace existing keypad and keypad cable with T17549-G1 keypad and long cable R18163-G1, but do not install keypad on bezel door.

Note: At user's discretion, new keypad can be placed behind brand panel lighting or in the well behind the printer door, on either side of printer, provided cable is run and secured properly and safe access is maintained.

5 Remove yellow tape on back of bezel door covering round hole.

6 Peel adhesive backing off round gasket N23881-01. Install gasket adhesive side first to seal around hole on back of bezel door.

7 Feed ends of cables R20773-G2 through 3/4" hole on door and pull slack cable through hole.

8 Install 6 split spacers K87404-01 on the faceplate side of the bezel door, in the mounting holes for the faceplate. See illustration on this page.

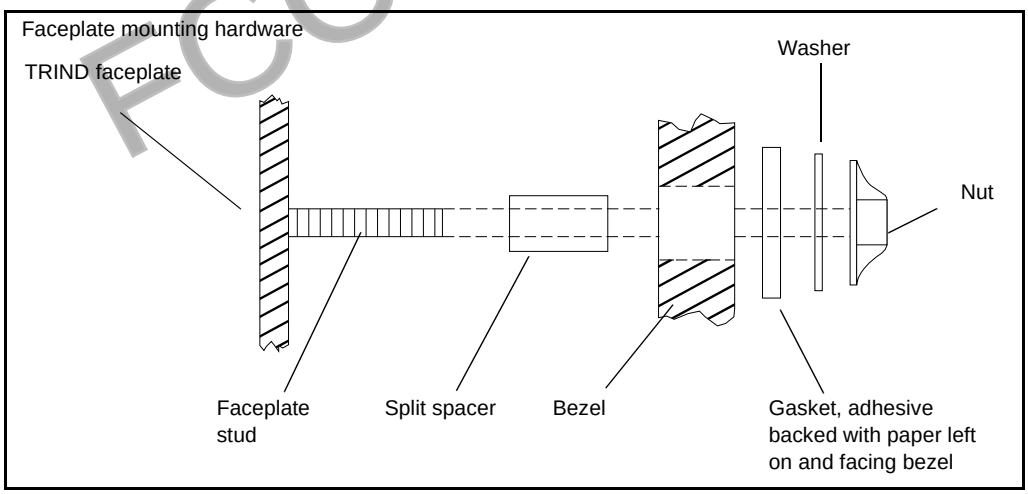
9 Install faceplate assembly T17534-XX securing in place from back side of bezel door using in this order:

- 6 adhesive backed gaskets, Q11659-01.

Note: Do not remove paper backing on adhesive side, and install paper side to bezel door.

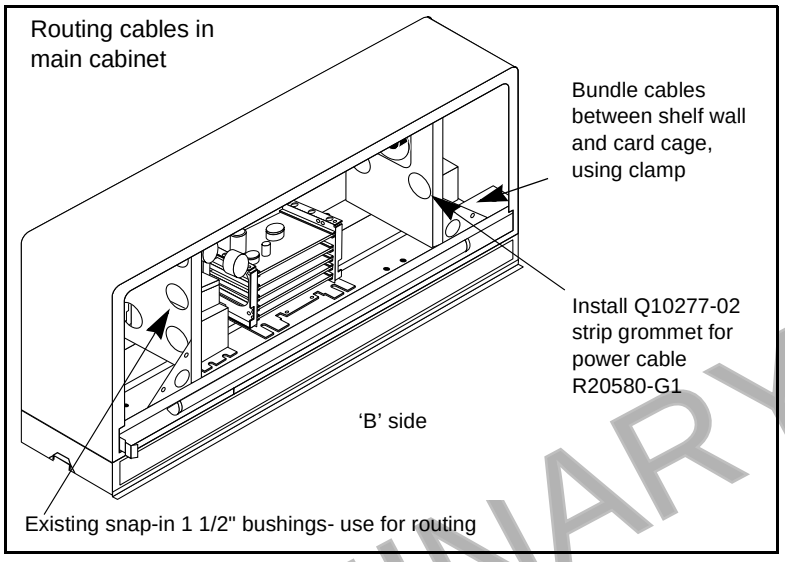
- 6 flat washers, N16599-01
- 6 self-locking nuts, Q10218-04

10 Refer to MDE-2620, Graphics Panel Application for instructions on installing graphics.



Routing Cables in Main Cabinet

Kit comes with ten cable clamps (Q13558-04).



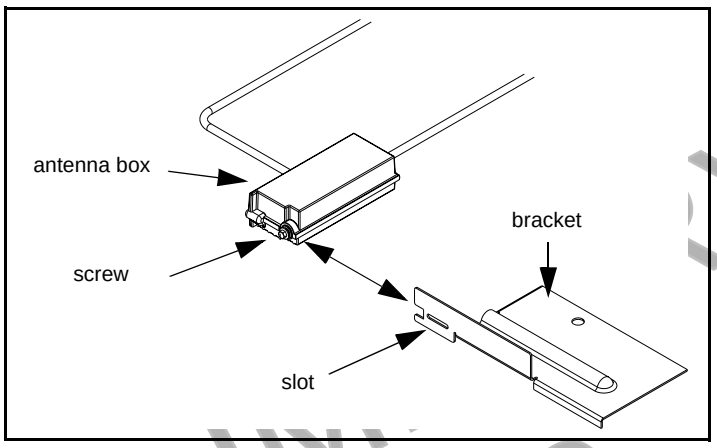
Install strip grommet Q10277-02 in 1-1/2" hole for power cable R20850-01.

Note: Route cables on 'B" side to card cage so that all cables are between card cage and shelf where possible, or door will not close without potential damage to cables or hardware.

Instructions for All Units

Installing Overhead Antennas and Brackets

For All Units
Do the following:



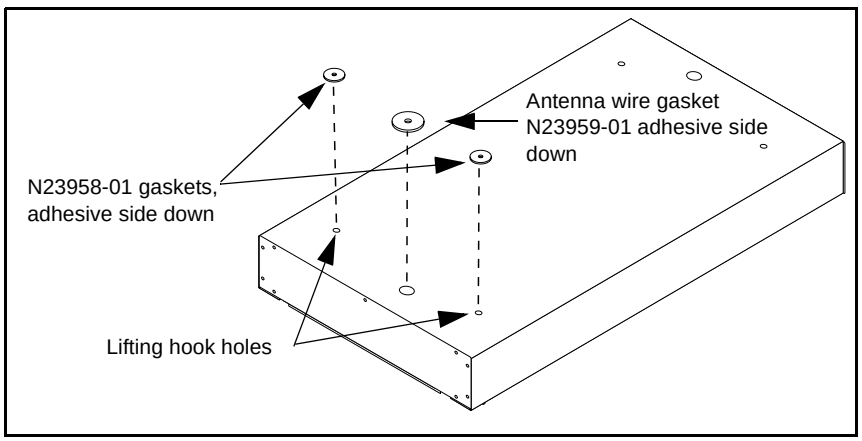
1 For each antenna assembly mounting box, remove screw.

2 Slide bracket slot over mounting box until antenna is secured in bracket.

3 Replace screw.

For Units Without Light Boxes
Note: For units with Light Boxes proceed to "For Units With Exxon Light Boxes" on page 47.

To seal top cover, do the following:



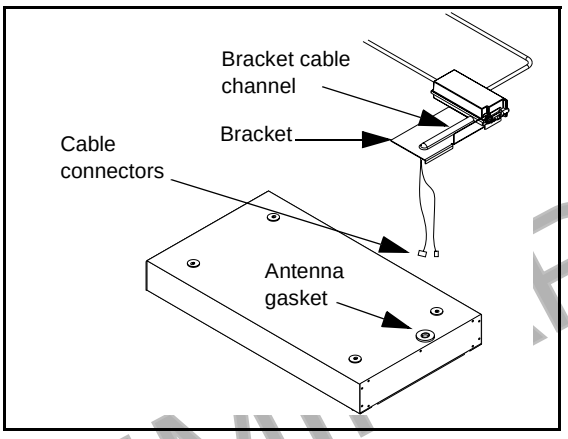
1 Peel adhesive backing off small gaskets N23958-01.

2 Center gaskets with lifting hook holes and install adhesive side down.

3 Peel adhesive backing off large gasket N23959-01.

4 Center gasket with knockout hole and install adhesive side down.

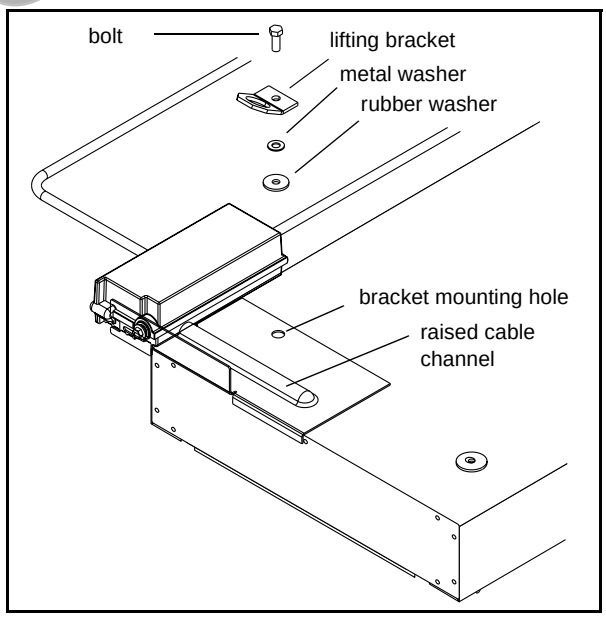
Routing Antenna Cables to Upper Housing



1 Carefully feed connector ends of P1A/B and P3A/B cables through antenna gasket on knockout opening to upper housing.
Note: Cables will always be on the left side of antenna assembly when facing unit.

2 Being sure that cables are contained in raised bracket cable channel, position antenna and brackets for mounting by aligning mounting hole on bracket with lifting hook hole.

Installing Brackets



Do the following:

1 For brackets attached to cable side of antenna assembly, be sure that cables are contained in raised bracket channel.

2 For all brackets, with or without cables, position rubber washer, metal washer and lifting bracket removed in "Preparing For Installation" on page 19 over bracket mounting hole.

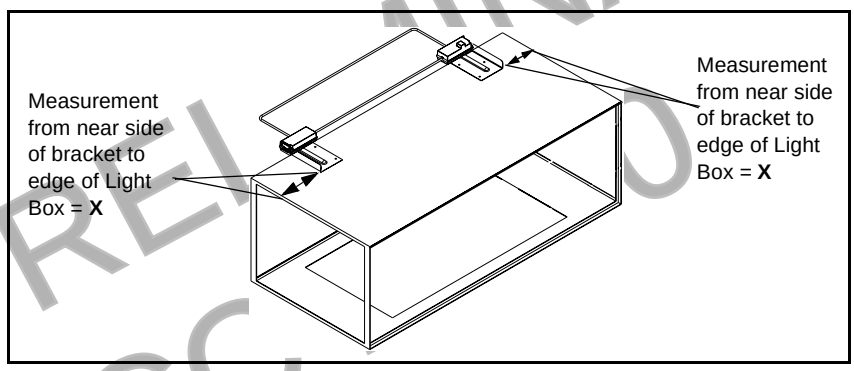
3 Secure with bolt removed in "Preparing For Installation" on page 19. Repeat for all brackets and sides.

4 Proceed to "Sealing Antenna Bracket with Cables on All Units" on page 49.

For Units With Exxon Light Boxes

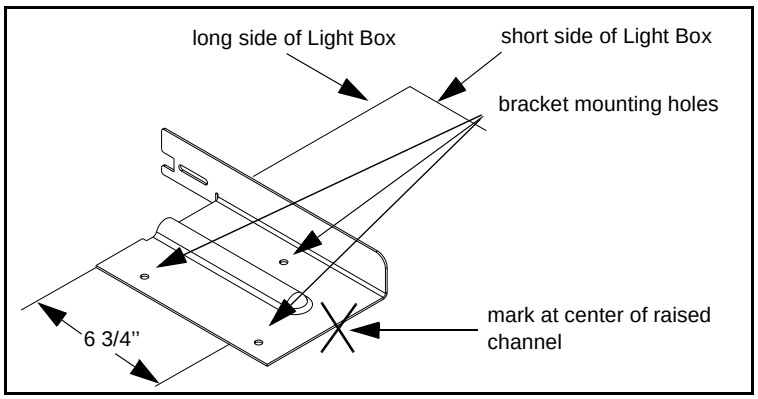
Do the following:

1 Place assembled antenna and bracket (as completed in "For All Units" on page 45) on A or B side of top of Light Box, as shown.



2 Center assembly by measuring equal distances from each end of Light Box.

3 Use center punch to mark centers of three mounting holes per bracket.



4 For bracket side with antenna cables only, place a mark on Light Box top at center of cable channel.

Note: Cables will always be on the left side of antenna assembly when facing unit.

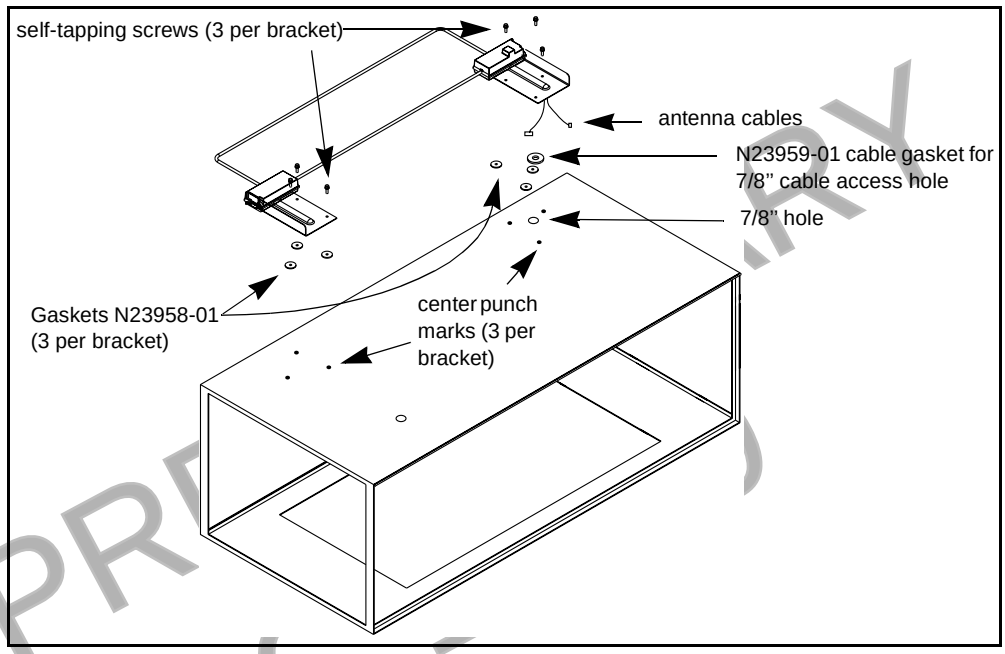
5 Remove antenna and bracket assembly from top of Light Box.

6 Use carpenter's square to draw line from long side of Light Box to mark.

7 Measure along line 6 3/4" from Light Box long side and mark with center punch.

8 Drill 7/8" diameter hole at center punch mark. Use file to clean sharp edges and burrs from hole perimeter.

Installing Antenna Assemblies on Light Box



Do the following per side:

1 Peel adhesive backing off gaskets N23958-01 (3 per bracket supplied with kit), and apply adhesive side down and centered on three center punches per bracket (marked in Step 3 on page 47).

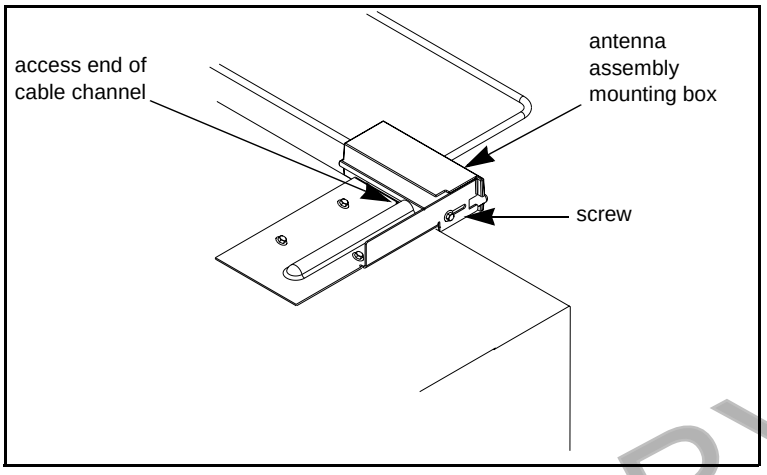
2 Peel adhesive backing off gasket N23959-01 (1 per antenna assembly) and apply adhesive side down and centered on 7/8" hole made in Step 8 on page 48.
Note: Gasket is only used on side of antenna assembly containing cables.

3 Feed connector ends of cables through N23959-01 gasket and into Light Box.

4 Being careful to keep cables in bracket channel, feed excess cable into Light Box and position antenna assembly so that bracket holes (3 each) are aligned with gaskets and center punches.

5 Use self-tapping screws (3 per bracket) supplied with kit to secure bracket to top of Light Box.

Sealing Antenna Bracket with Cables on All Units



To seal bracket cable channel (each side) do the following:

1 Loosen both screws holding each antenna assembly to bracket.

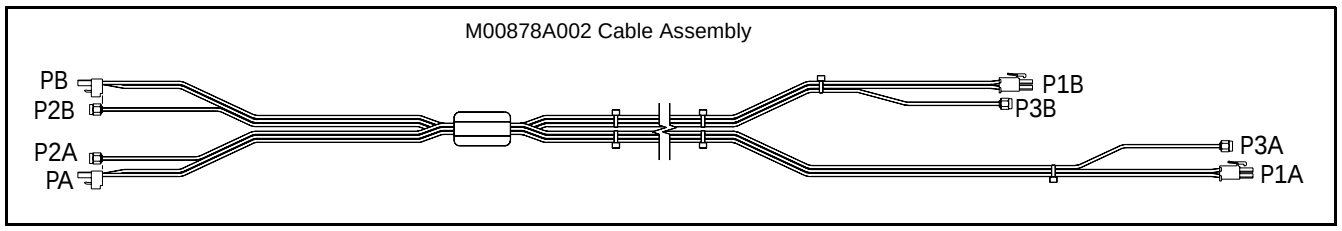
2 Pull antenna and mounting box out from bracket and allow antenna to lower, to allow sealing of access end of bracket cable channel with RTV sealant.
Note: Only one bracket per side (left side when facing unit) contains cables.

3 Restore antenna assembly to original level position on bracket and re-secure with screw.

Preparing Antenna Cable Connections

For all units, gain access to upper housing from underside, by removing upper housing bottom sheathing or VaporVac belly pan, as required. Refer to MDE-2531 Service Manual for instructions. Save all parts and hardware for reassembly.

For additional information refer to “Cable Block Diagram R20762” on page 52 and “Cabinet Cable Connections” on page 53.



Do the following:

1 Locate previously installed P1A/B and P3A/B ends (4 total) of cables on cable harness M00878A002 in upper housing.

2 Be sure that all connectors can be identified for A and B sides, respectively.

Upper Housing Connections Without Light Box

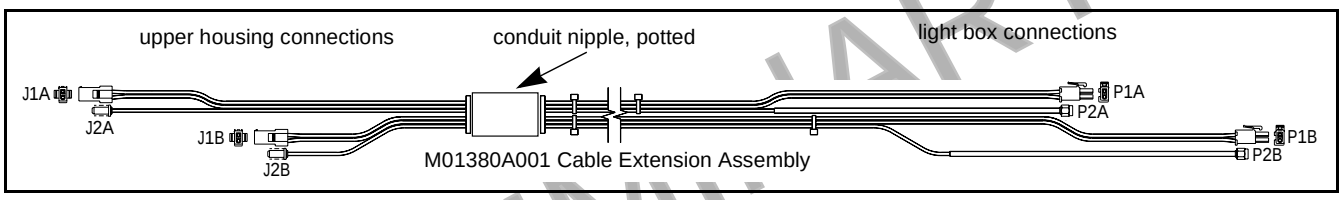
Do the following to connect M00878A002 cable harness assembly to antenna:

1 For A Side, inside upper housing:
- Connect P1A on harness to J1 low frequency antenna cable.
- Connect P3A on harness to J2 high frequency antenna cable.

2 Fro B Side, inside upper housing:
- Connect P1B on harness to J1 low frequency antenna cable.
- Connect P3B on harness to J2 high frequency antenna cable.

3 Use tie wraps supplied with kit to secure cables to frame in upper housing, away from maintenance access areas for piping and valves.

Upper Housing Cabling With Light Box



Do the following:

1 Locate aligned conduit knockouts on Light Box and top cover, and remove both.

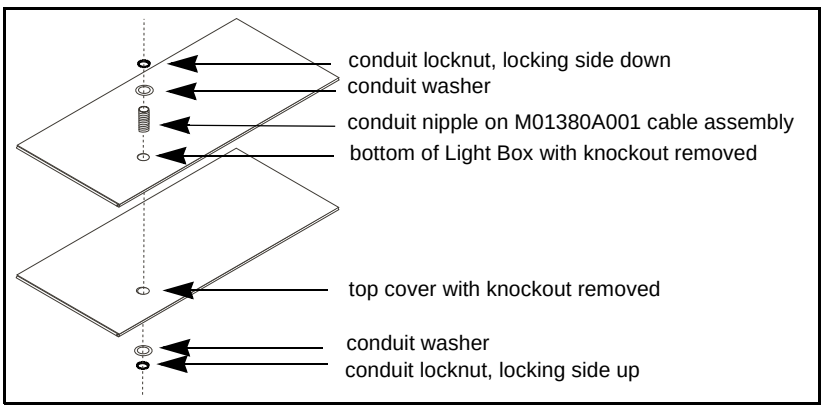
2 Feed conduit washer and lock nut over longer sections of cable divided by potted nipple, with nut locking side facing nipple.

3 Install locking nut at least four full turns onto nipple.

4 From Light Box, feed shorter sections of cable through knockout holes and into upper housing.

5 From upper housing, feed cables through second conduit washer and locking nut, with locking side of nut facing nipple.

6 Tighten conduit lock nut (easier from Light Box) until nipple is held firmly in place from both upper housing and Light Box.

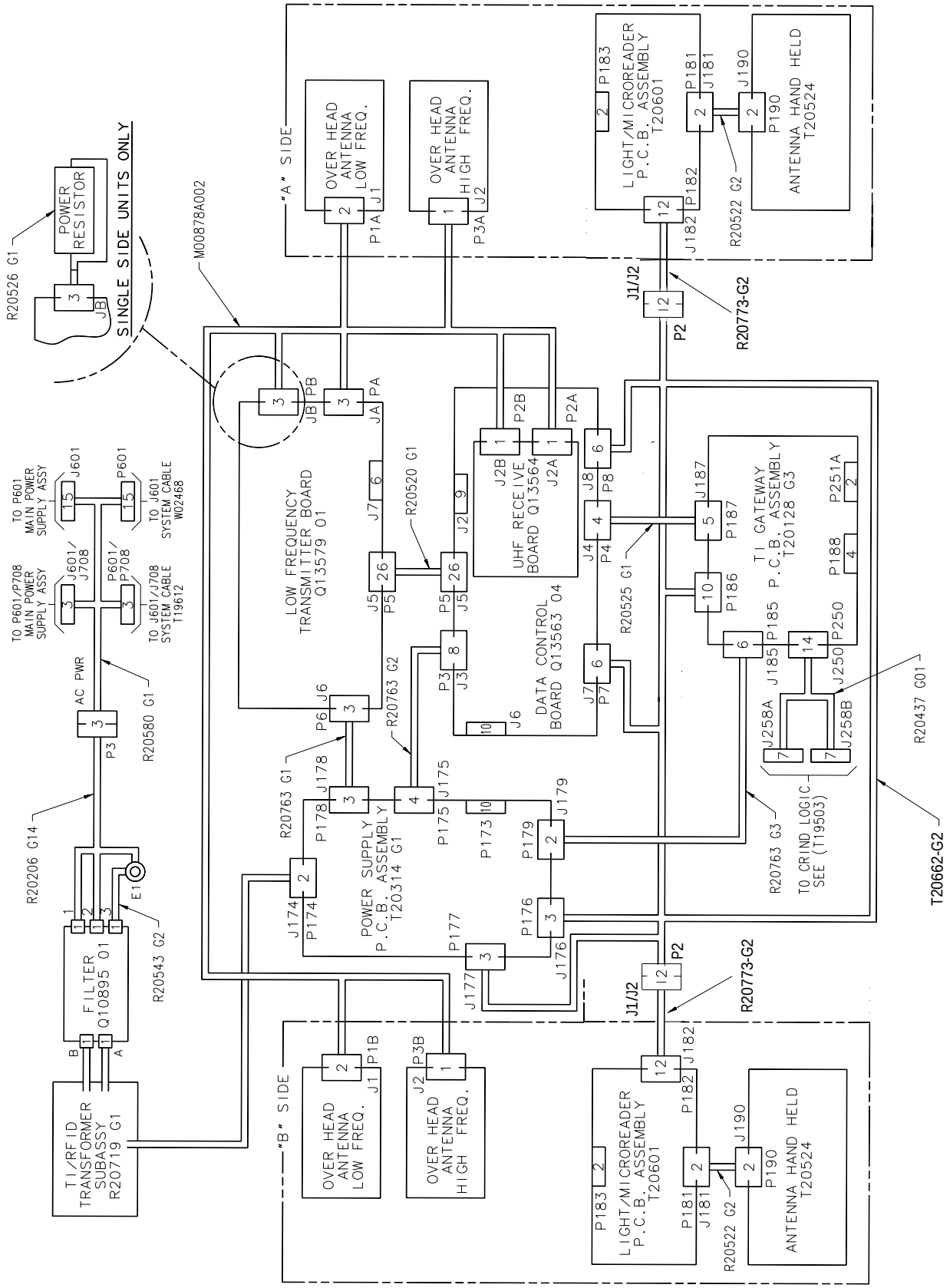


7 Make the following cable connections in Light Box:
- Connect P1A on cable harness to A Side J1 antenna cable.
- Connect P2A on cable harness to A Side J2 antenna cable.
- Connect P1B on cable harness to B Side J1 antenna cable.
- Connect P2B on cable harness to B Side J2 antenna cable.

8 Make the following cable connections in upper housing:
- Connect P1A on M00878A001 harness to J1A on extension assembly M01380A001 assembly.
- Connect P3A on M00878A001 harness to J2A on extension assembly M01380A001 assembly.
- Connect P1B on M00878A001 harness to J1B on extension assembly M01380A001 assembly.
- Connect P3B on M00878A001 harness to J2B on extension assembly M01380A001 assembly.

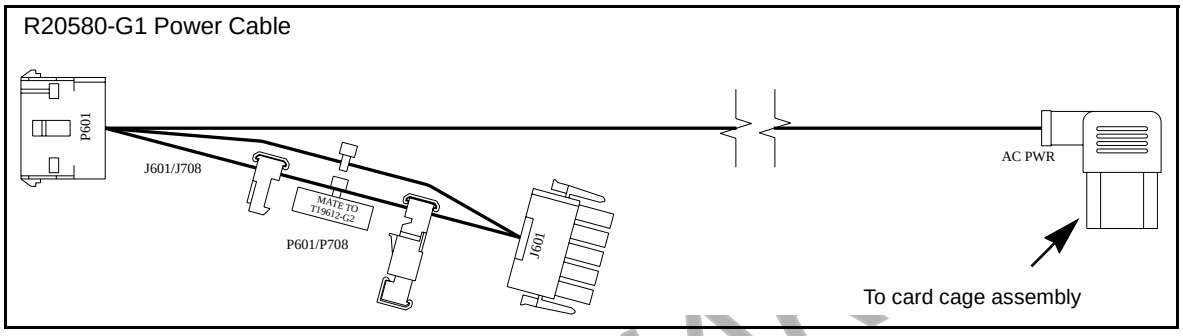
9 Use tie wraps supplied with kit to secure cables to frame in upper housing, and for both Light Box and upper housing to keep cables away from maintenance access areas for piping, valves and fixtures.

Cable Block Diagram R20762



Connections for power supply cable R20580-01 are unit specific. Plug three prong female end into three-prong receptacle of card cage (see “Card Cage Assembly T20606-G2” on page 54), and use appropriate connector to intercept power on unit power cable by installing R20580-01 in-line.

Note: Check whether brand panel lighting ballast is connected to power supply. If so, disconnect ballast from power supply and terminate wires ends according to NFPA 70, the National Electric Code and applicable local codes.



Cabinet Cable Connections

For illustration of card cage assembly, see “Card Cage Assembly T20606-G2” on page 54.

Note: For all single-sided units, install dummy load connector R20526-01 on JB on transmitter PCB and skip all ‘B’ side connections. If power is applied to card cage without antenna cables or dummy load connected the transmitter board will be damaged.

Cable harness T20662-G2 is shipped with card cage connections made. Make the following connections to the cable harness connectors:

Side	Connector	On Installed Cable	to Connector on Card Cage Harness
A	J1	A Side R20773-G2	P1
B	J2	B Side R20773-G2	P2
Notes: Cable R20773-G2 comes already installed in MPD-3 faceplate assembly.			

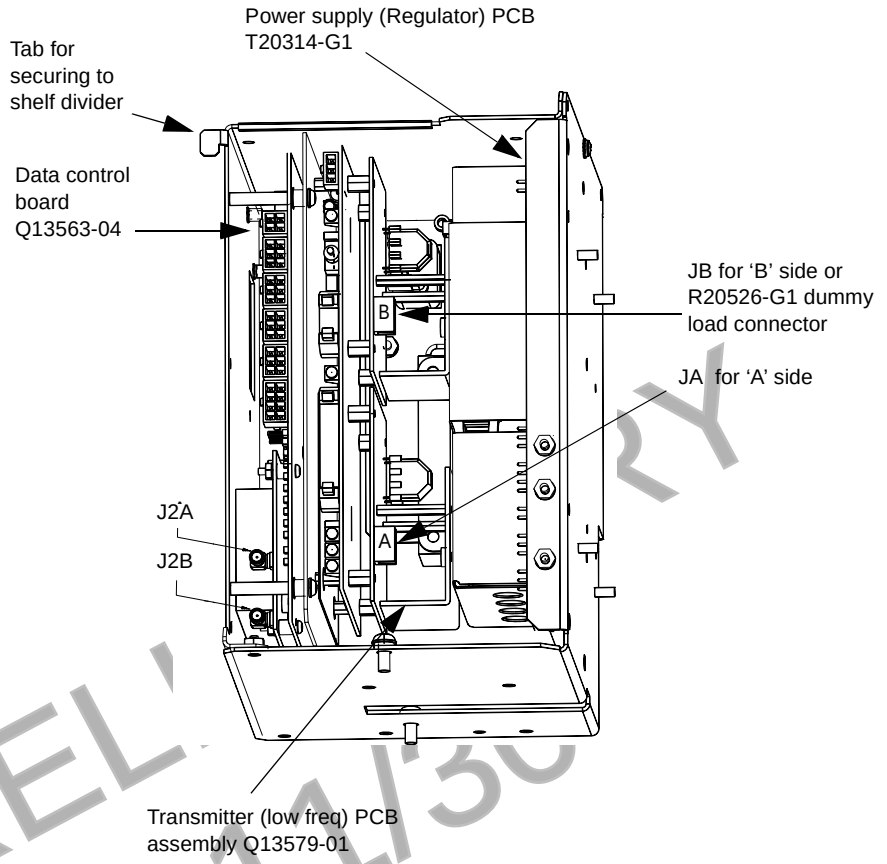
Card Cage Connections:

Note: For illustration refer to “Card Cage Assembly T20606-G2” on page 54.

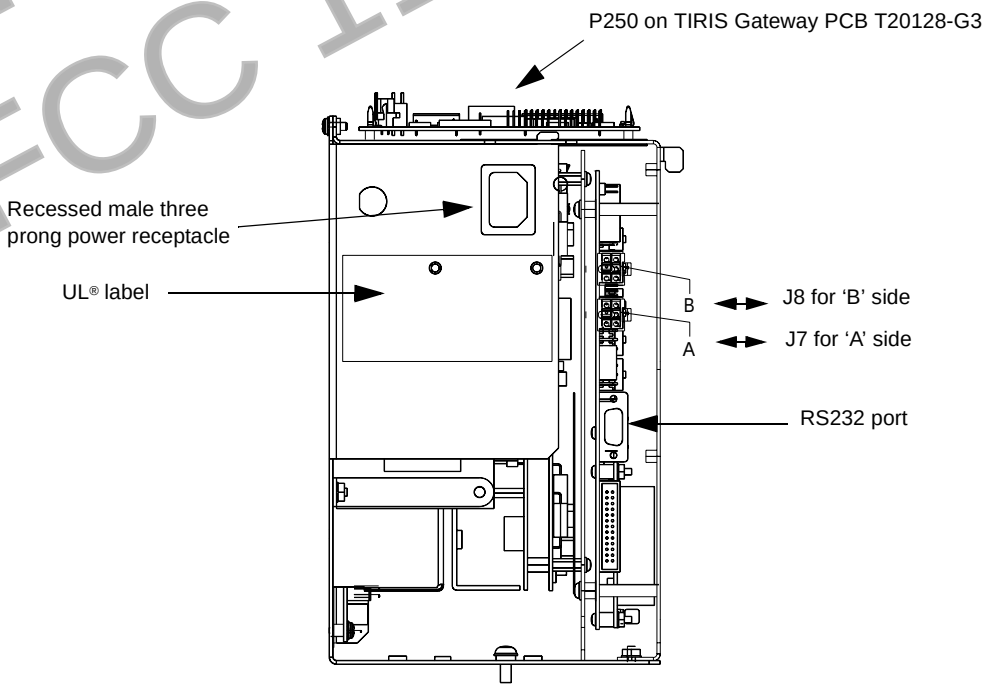
Side	Connector	On Installed Cable	to Connector on...
A	PA	M00878A001	JA on Card Cage
	P2A		J2A on Card Cage
B	PB		JB on Card Cage
	P2B		J2B on Card Cage
A&B	J250	R20437-G01	P250 on Card Cage
A	J258A		P258A on CRIND Logic Board A Side
B	J258B		P258B on CRIND Logic Board B Side

Card Cage Assembly T20606-G2

Back Side



Front Side

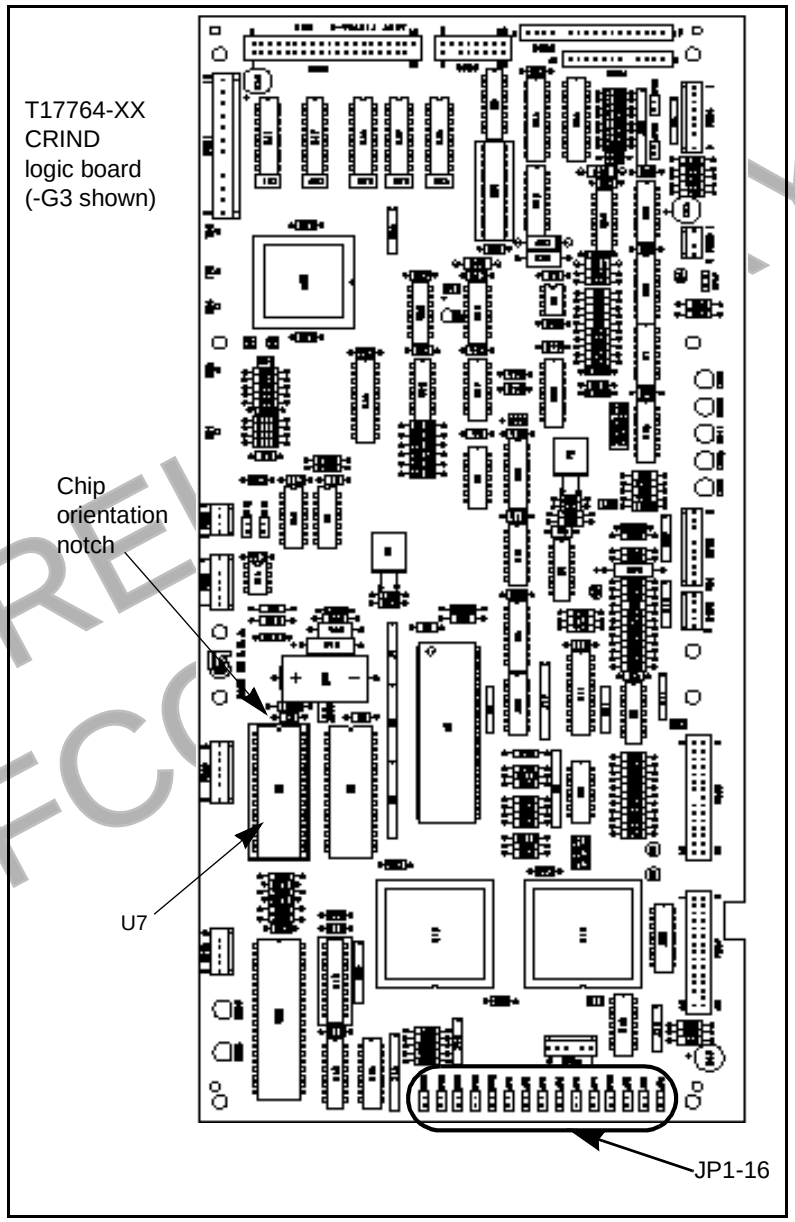


CRIND® BIOS TRIND™ Multi 1 Upgrade

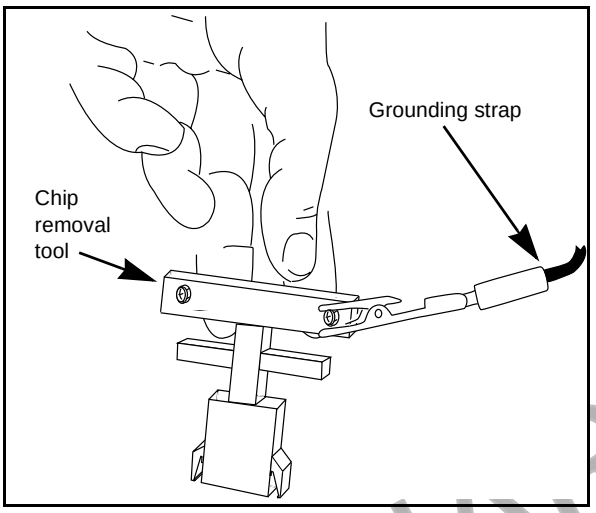
Units must have current Z-180 CRIND logic board.

Install the CRIND Bios TRIND software K93744-01, one per logic board, on the T17764-XX CRIND logic board(s) according to the following steps.

Note: A properly grounded electrostatic discharge wrist strap must be worn during this procedure.



1 Locate and remove existing BIOS at U7 on CRIND® logic board T17764-XX using a grounded chip removal tool.



2 Install TRIND BIOS K93744-01 (one per logic board) at position U7, orienting notch on chip with indication mark on board as shown.

3 Install jump jack on JP-16 for each side of unit.
Note: Jumper on JP-16 informs the CRIND that a TRIND system is present.

4 Restore CRIND tray to operating position.

Dispenser Set-Up

Addressing Dispenser

Each dispenser on the G-Site controller must be addressed differently; no two dispensers may have the same address. Address is at discretion of the installer. Follow these steps:

1 From A side of unit, locate dip switches on power supply board (PCB) T20314-G1 in card cage.

2 Using switches 2, 3, 4 and 5 address each dispenser according to the following table:
Note: Switch one in down position is standalone mode selected, used for service only.

Setting Baud Rate

For major oil company (MOC) TRIND™ installations there is no requirement to set or change baud rate.

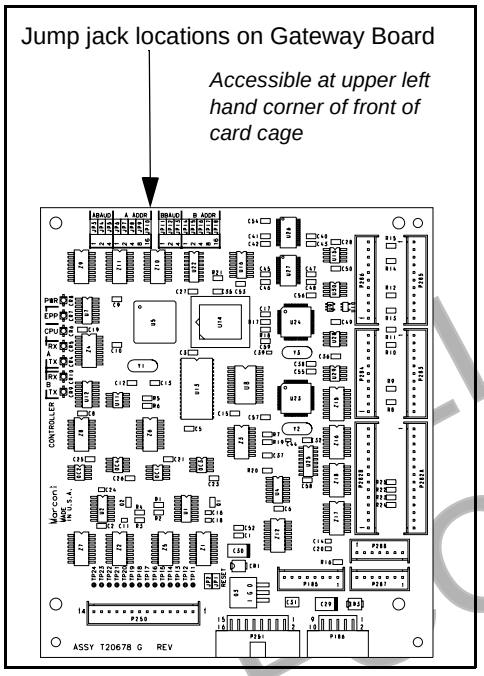
Addressing Gateway Board

Address for TRIND™ must match address on CRIND® logic board. Follow these steps:

1. Access unit's CRIND logic board. Refer to MDE-2562 CRIND Service Manual.

2. Locate jump jacks on A and B side CRIND logic boards T17764-XX.

3. Note position of jump jacks and set jump jacks on Gateway board T20128-G3 to match address on CRIND logic boards for both A and B sides.



MOC and Generic CRIND Addresses

Address On CRIND Logic Board T17764-XX	JP8	JP7	JP6	JP5	JP4
= Address on Gateway Board T20128 'A' Side	JP6	JP7	JP8	JP9	JP10
= Address on Gateway Board T20128 'B' Side	JP14	JP15	JP16	JP17	JP18
1	IN	OUT	OUT	OUT	OUT
2	OUT	IN	OUT	OUT	OUT
3	IN	IN	OUT	OUT	OUT
4	OUT	OUT	IN	OUT	OUT
5	IN	OUT	IN	OUT	OUT
6	OUT	IN	IN	OUT	OUT
7	IN	IN	IN	OUT	OUT
8	OUT	OUT	OUT	IN	OUT
9	IN	OUT	OUT	IN	OUT
10	OUT	IN	OUT	IN	OUT
11	IN	IN	OUT	IN	OUT
12	OUT	OUT	IN	IN	OUT
13	IN	OUT	IN	IN	OUT
14	OUT	IN	IN	IN	OUT
15	IN	IN	IN	IN	OUT
16	OUT	OUT	OUT	OUT	IN
17	IN	OUT	OUT	OUT	IN
18	OUT	IN	OUT	OUT	IN
19	IN	IN	OUT	OUT	IN
20	OUT	OUT	IN	OUT	IN
21	IN	OUT	IN	OUT	IN
22	OUT	IN	IN	OUT	IN
23	IN	IN	IN	OUT	IN
24	OUT	OUT	OUT	IN	IN
25	IN	OUT	OUT	IN	IN
26	OUT	IN	OUT	IN	IN
27	IN	IN	OUT	IN	IN
28	OUT	OUT	IN	IN	IN
29	IN	OUT	IN	IN	IN
30	OUT	IN	IN	IN	IN
31	IN	IN	IN	IN	IN
32	OUT	OUT	OUT	OUT	OUT

Preparation for Tuning Antennas

Antenna tuning requires use of field strength sensor Q13626-01 supplied with ASC tool kit.

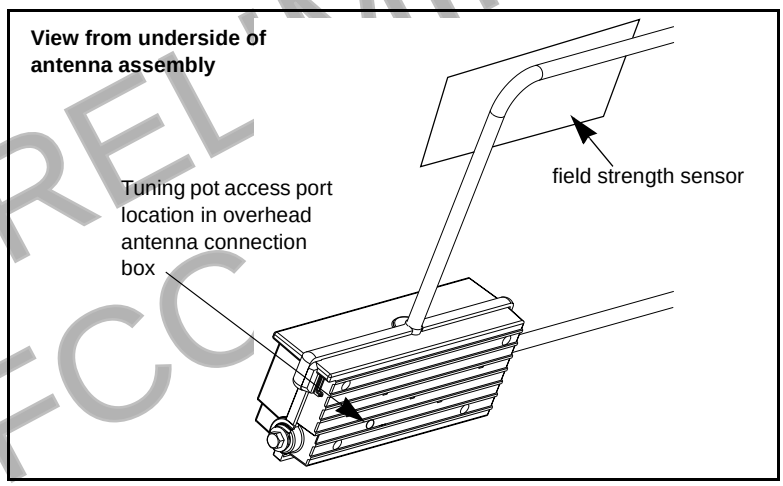
1. For units without G-Site™ put unit in 'Stand Alone' mode by disconnecting J4 on the DCB board and placing jumper on light microreader board at JP3.
   Note: JP3 and J4 can never both be in or both out. One and only one must always be in, the other out.

2. If applicable, restore CRIND tray to operating position.

3. Restore power to unit(s) and cold start the CRIND. Refer to MDE-2562, CRIND Service Manual for detailed instructions.
   Note: Be sure transmitter cables are connected before restoring power.

4. Once the CRIND display indicates unit is downloading, remove the Cold Start jump jack.

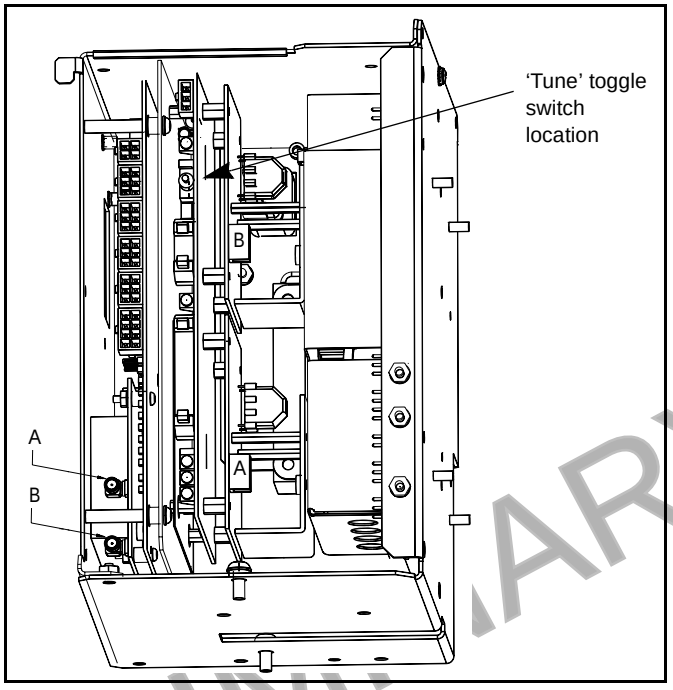
Tuning Antennas



1. Locate access port for tuning pot in over-head antenna connection box.
   Note: Use tuning tool Q13631-XX from the ASC TRIND tool kit to make pot adjustments. Refer to MDE-3640 ASC TRIND Tool Kit for instructions. Hex end of tuning tool matches hex shape of tuning pot.

2. Lay field strength sensor on antenna roughly as shown. Exact location is not critical.

3 On card cage, move three position 'tune' toggle switch from center position to 'A'.



4 Connect leads on multi-meter set to DC voltage to field strength sensor.

5 By fine adjustments to tuning pot, set to highest DC voltage reading.
Note: Voltage will peak at a point, and then decrease with turns in either direction. Set at peak.

6 Repeat Steps 1 through 8 for 'B' side and then return tune toggle switch to center position.

Testing TRIND™

1. From 'A' side of unit touch hand held test tag (Q13630-02 from the ACS TRIND tool kit) to TRIND target graphic. Door or faceplate TRIND indicator will light.
   Note: If indicator fails to light check whether light on other side is on; if so it indicates a crossing of 'A' and 'B' side cables. Check connections.

2. From 'A' side of unit hold car mount test tag (Q13630-01 from the ASC TRIND tool kit) in front of unit, at a distance of approximately 6 feet from overhead antenna. Door or faceplate TRIND indicator will light.

3. Repeat Steps 1 through 3 for 'B' side.

Alternative Testing Using Laptop

1. Connect laptop to RS232 port on DCB.

2. Go to:
   - Windows program
   - Accessories
   - Terminal
   - Settings
   - Communications

3. Set for:
   - 9600 baud
   - 8 bit
   - No parity
   - Comm 1

4. Then go to:
   - Help screen
   - Antenna scan
   - Choose 1, 2, 3 and 4

   Note: This will test both antennas

5. From 'A' side of unit touch hand held test tag (Q13630-02 from the ACS TRIND tool kit) to front of TRIND target graphic. Door or faceplate TRIND indicator will light.

6. From 'A' side of unit hold car mount test tag (Q13630-01 from the ASC TRIND tool kit) in front of unit, at a distance of approximately 6 feet from overhead antenna. Door or faceplate TRIND indicator will light.

7. Repeat Steps 5 and 6 for 'B' side.

Completing Installation

After all testing has been completed, do the following:

1. Shut off all power to the unit.

2. Replace or refasten all components and hardware, including:
   - Replace all sheathing and/or pans removed.
   - For units with Light Boxes, replace and tighten all mounting hardware.

3. Close all secure all doors, including Light Box doors (if present).

4. Clean up work site, removing all materials to be discarded and all tools.

5. Reapply power and Cold Start the unit.

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