GARRETT® Multi Zone™

MZ 6100™ WALK-THROUGH METAL DETECTOR

Part No. 11710xx

USER MANUAL

English

GARRETT®

ISO 9001 CERTIFIED

MADE IN THE USA

GARRETT®

USA
Security Division
Garrett Metal Detectors
1881 West State Street
Garland, Texas 75042-6797 USA

Phone: 972-494-6151
Email: security@garrett.com
Website: www.garrett.com

OUTSIDE USA
International Division
Garrett Metal Detectors
1881 West State Street
Garland, Texas 75042-6797 USA

Phone: 972-494-6151
Email: international@garrett.com
Website: www.garrett.com

MANUFACTURER CAUTION

Read Thoroughly Before Operating

CAUTION! If the equipment is used in a manner not specified by the manufacturer, the protection provided by this equipment may be impaired and result in damage to property or injury to persons.

Electrical:	100 – 240 V~ ±10% 40 Watts 50/60 Hz
Installation Category:	II
Pollution Degree:	3
Maximum Relative Humidity:	95% non-condensing
Operating Temperature:	-4°F (-20°C) to +140°F (60°C)
Storage Temperature:	-22°F (-30°C) to +176°F (80°C)
Maximum Altitude:	3000 meters

CAUTION! MZ 6100 must be firmly anchored to the floor or used with the optional stabilizer base, adhesive floor mounts to reduce the risk of injury to persons or property damage due to accidental knock-down.

CAUTION! To satisfy FCC RF Exposure requirements for mobile and base station transmission devices, a separation distance of 20 cm or more should be maintained between the antenna of this device and persons during operation. To ensure compliance, operation at closer than this distance is not recommended. The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Warning! Battery Safety: The Multi Zone comes with a battery that requires proper disposal.

- Caution: Do not short circuit. Serious burns may result.
- Caution: Do not dispose of batteries in a fire. They may explode.
- Caution: Do not open or mutilate batteries. They may contain an electrolyte which is toxic and harmful to the skin and eyes.
- Caution: Replace batteries with the same type and number of batteries as originally installed in the equipment.

- Caution: Do not put the batteries in trash that is disposed of in landfills. When disposing of the battery, comply with local ordinances or regulations and your company's safety standards.
- Recycling centers and retailers with recycling programs may be found online.

CAUTION! "This equipment may be transported in any position provided that it is properly supported to prevent damage."

SPECIAL NOTE: A final decision on program and base sensitivity settings is the sole responsibility of the end user and must be determined by keeping the purpose of the security application in mind.

SYMBOLS:

Alternating current

Protective conductor terminal

CAUTION! Risk of electric shock

CAUTION! Refer to accompanying documentation

Recycle

Garrett Metal Detectors and garrett.com are trademarks and registered trademarks of Garrett Electronics, Inc. If further assistance is required, please contact the factory using the contact information on the front cover.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device contains license-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:
(1) This device may not cause interference.
(2) This device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :
(1) L'appareil ne doit pas produire de brouillage;
(2) L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

MEDICAL SAFETY

Garrett Metal Detectors makes every effort to ensure its products are safe for use. Extensive research by Garrett has produced no information which would indicate that its products have any adverse effects on medical implants, pregnancy, recording media or magnetic strips. Garrett makes every effort to cooperate with medical device manufacturers and to communicate with agencies such as the United States Food and Drug Administration and Health Canada as a means of assuring product safety. The electromagnetic fields produced by Garrett products are similar to those encountered in the daily environment and meet U.S. and International standards for electromagnetic emissions.

Garrett recognizes that certain medical devices may have additional requirements which may require special care. Any recommendations or directives issued by personal physicians or medical device manufacturers should be followed. If, for any reason, (e.g. doctors orders, etc.), a patron objects to being scanned with a metal detector, it is recommended that alternative procedures be used.

The following should be considered when developing a security checkpoint screening plan.

- **Traffic Flow—**Traffic flow should remain consistent and encourage unrestricted traffic flow as a means of minimizing the time a person remains within the archway of a walk-through metal detector.

- **Alternative Screening—**Alternative screening methods such as scanning with a hand-held metal detector, hand searching or denial of access should be clearly defined in checkpoint screening procedures as approved alternatives to screening with the walk-through metal detector.

- **Personnel Training—**Security screening personnel should be instructed in the care of persons with special medical needs and use of alternative screening methods that meet the requirements of medical practitioners or medical device manufacturers.

TABLE OF CONTENTS

1. GENERAL DESCRIPTION OF MULTI ZONE MZ 6100

- **Usage:** The intended usage of the Garrett *Multi Zone (MZ 6100)* is as a walk-through metal detector for security and loss prevention applications.

- **Basic Description:** The Garrett *MZ 6100* (Model #11710xx) is a digitally controlled multi-zone pulse induction metal detector.

- **Memory:** All program selections and settings are in nonvolatile memory. The unit will maintain all settings even when disconnected from power. No battery is required for memory retention.

- **Precise Zone Indicator:** The Garrett *MZ 6100* is an advanced Digital Signal Processor (DSP)-based walk-through metal detector that provides superior target detection with excellent metal discrimination capabilities. Multiple targets are identified on the body from head to toe within 20 distinct areas using a unique array of Light Emitting Diodes (LEDs) located on the entrance and/or exit side of Panel A and Panel B. Independent zone by zone calibration capability ensures optimal archway field uniformity, regardless of installation challenges.

- **Improved Sensitivity:** An improved multi-coil design allows programming for the detection of the smallest of metallic targets regardless of shape and orientation.

- **Traffic Flow:** Red and green indicators on the entry and/or exit of the archway allow smooth and efficient traffic flow.

- **Security:** Settings are secured with a 5-digit alphanumeric access code with 3 levels of user access. Physical security is accomplished with a cabinet lock which prevents unauthorized access to cables, connectors and circuit boards. A keypad inhibit switch is located in this locked cabinet.

- **Controls/ Displays:** The *MZ 6100* utilizes LED displays and bar graphs for continuous on-line operating status and self-diagnostic reporting. All controls and settings are simplified with menu selections and touchpad controls.

- **1.5 Ahr Battery Backup:** A battery backup is preinstalled to provide approximately one hour of uninterrupted walkthrough operation. While recharging, a monitoring circuit allows the battery to charge in less than three hours and then switches to trickle charge to ensure maximum charge without battery damage. The charge status is indicated on the Control Panel Display and an alarm warns the operator when the battery is low.

- **Optional Accessories:** Optional accessories include Desktop Remote Control, a wheel assembly for easy portability, and adhesive floor mounts and stabilizer base. Other interactive accessories include a wired/wireless iC Module (Internet of things Control Module) with networking software and a relay module with dry contact relays. The MZ comes equipped with a wireless sync module, so that accessory is not needed.

2. MZ 6100 QUICK START GUIDE

Contents

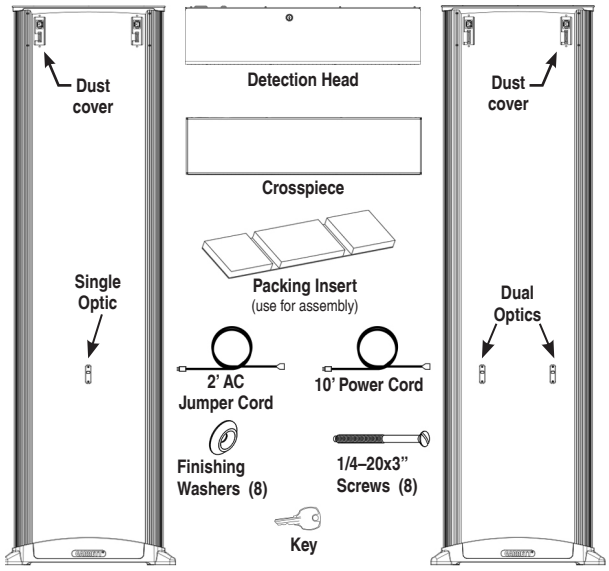
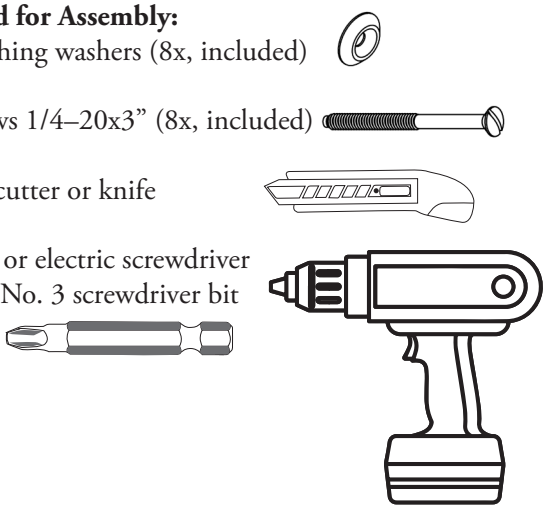


FIGURE 2-1

Required for Assembly:

- Finishing washers (8x, included)
- Screws 1/4–20x3" (8x, included)
- Box cutter or knife
- Drill or electric screwdriver with No. 3 screwdriver bit



Single Unit Assembly Steps

1. Open box, and place panels parallel on the ground, about three feet apart, with connector and IR sensors facing up. *See Figure 2-1.*
2. Place provided foam spacer between panels, and lay detection head face down on the foam. *See Figure 2-2.*
3. Use provided brass key to open detection head.
4. Stand one panel on its side so connectors match up with cutout for them on detection head. Secure with screws and finishing washers.
5. Repeat for the second panel.
6. Determine on which side of detector the power will be located and install internal power jumper between the power module and panel. *See Figure 2-3.*
7. Connect Cable A (15-pin) and Cable B (25-pin) to connectors on the panels. Ensure connectors are facing the correct way. Do not force them, as bent pins will ruin the panel. A snap will be heard when the connector is properly attached.
8. Place cross piece between two panels, with the Garrett logo facing outward.
9. Use four remaining screws and washers to secure cross piece in place.
10. Extract power cord from the base of the panel on the selected side. *See Figure 2-4.*
11. Tighten screws securely after lifting detector to a vertical position on a flat floor.

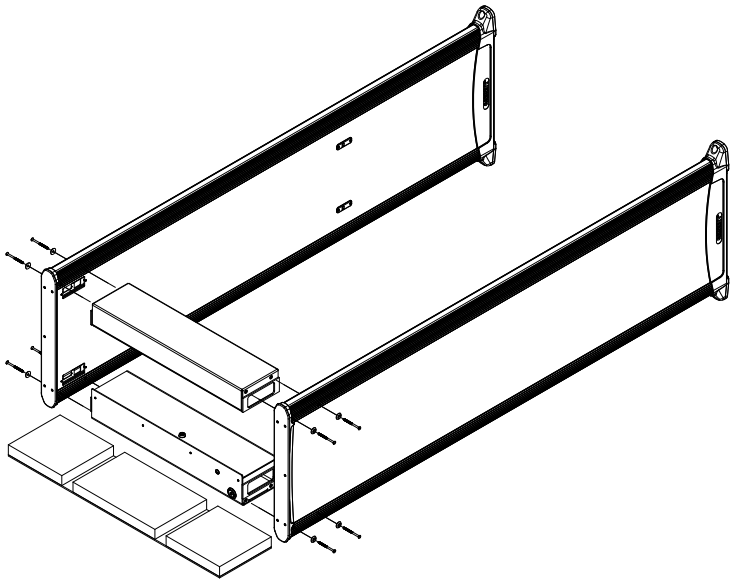


FIGURE 2-2

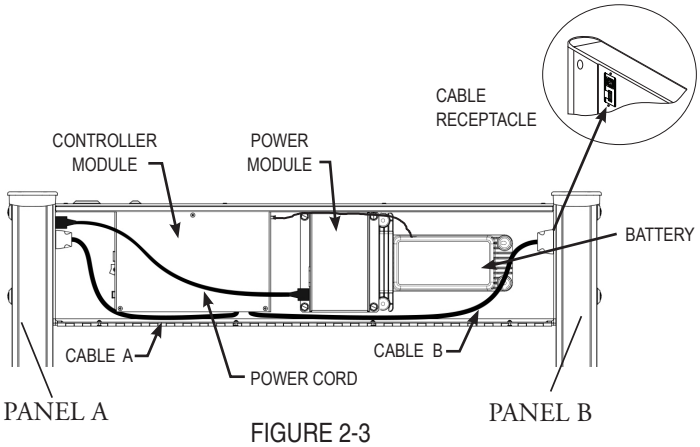
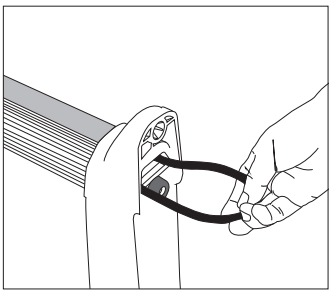
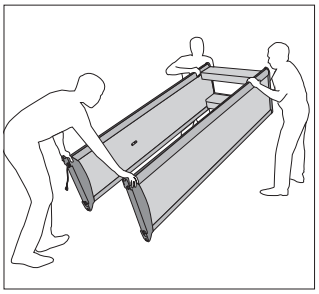


FIGURE 2-3

Final Assembly Steps



Pull the power cord from the panel that the power cable was connected to in the detection head.



Stand the walkthrough up and ensure all screws are firmly tightened.

FIGURE 2-4

Powering On

- Attach the power cord and connect to AC power
- Press OPERATE to switch power on. *See Figure 2-7.*

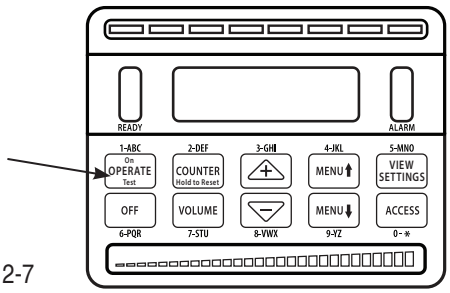


FIGURE 2-7

Programming

For single unit operation, the unit will be configured as the "Solo" unit. To program units for multi-unit operation, see Section 7.

Always consult your security plan to determine the most appropriate program and base sensitivity settings for your checkpoint. The following setting are merely suggested settings for single-unit operation.

- To access the Administrative menu press Access and enter the code 67890
- Set unit to SOLO
- Activate Auto Frequency Scan and allow 30 seconds to complete the scan and automatically select the frequency.
- Set Program to SPECIAL EVENTS
- Set Base Sensitivity to 155
- Press OPERATE

3. BASIC INSTALLATION AND ASSEMBLY

3.1 Site Selection and Requirements

Before choosing a site for the *MZ 6100* walk-through metal detector, it is important to consider the volume and throughput requirements of patron traffic, space availability and overall environmental conditions. The *MZ 6100* must always be installed on a level, stable floor. The following site requirements are provided as a guide to successful installation.

Garrett Metal Detectors has decades of experience designing, installing and operating security screening checkpoints. Garrett's experience ranges from very small—one and two detector checkpoints—to very large, 900-detector Olympic operations. Garrett always prefers to work closely with its clients when designing checkpoints. Every client has a unique situation and may need a somewhat customized solution. Garrett is happy to assist in designing and implementing these solutions. This section is intended to provide general information for designing security screening checkpoints.

• Electrical Power

Electricity is a critical element for successful, trouble-free installations. Garrett metal detectors require 100-240 Volt, 50/60 Hertz power, and draw less than one-half ampere each. Consequently, "power load" is minimal for any group of detectors. Refer to the setup procedure described in section 7 for multi-unit installations.

Garrett metal detectors are very versatile and can be connected to power from either the top or bottom of either side. This makes connecting power very convenient and gives users more options when designing their sites. When running power along the ground it is recommended that cords be secured to the ground using highly visible industrial tape or cable trays. This ensures that the cord is visible to patron traffic and prevents personal injury as well as equipment damage. When running power overhead, it is recommended that power cords be suspended above the detector. This keeps the cord accessible for maintenance, but out of reach of regular traffic.

• Physical Site

Appropriate selection and preparation of a site is paramount for successful, efficient and effective checkpoint screening operations. The site must be flat, level and free from obstructions. The surface must be solid and free from any vibration or movement. Most indoor surfaces are already adequate. Outdoor surfaces should be asphalt or concrete. Wooden or metal platforms cannot be used. The site shall be free from running or standing water and shall provide protection from weather elements. An industrial, four-walled tent is the best way to provide shelter from the weather elements when outdoors. The tent must be strong enough to repel rain, snow, sleet, and unexpected wind load.

• Checkpoint Configuration

A site must also allow for efficient spacing and configuration of metal detectors. If a site is too small the operation of the checkpoint becomes choked and bottlenecks form. This severely hampers the flow of traffic through a checkpoint and can be troublesome when trying to operate within time constraints. If a site is too big it becomes difficult to oversee the checkpoint, and valuable space is wasted. As a general rule a rectangular block of space, 4' wide and at least 10' deep, should be reserved for every checkpoint lane. There are many ways to arrange detectors at a checkpoint. ***Please refer to the illustrations on the following pages for configurations suggested by Garrett.***

See Section 7 for additional equipment spacing requirements and set-up information.

• Interference

Many variables can potentially cause interference with any metal detector operation. However, there are some major variables which may be identified and addressed during site selection. Electrical sources of interference including generators, transformers, electrical panels, etc., should be kept as far away as possible. Large moving or stationary metallic objects such as revolving doors, elevators, garbage cans, barricades, etc., should be kept as far away as possible. Search tables and personnel should be placed a minimum of 6" from the detector. X-ray machines and other complementary screening equipment should be placed a minimum distance of 12" from the detector.

Note: The *MZ 6100* can be assembled with its TX panel (Panel A) on either the right or left side. The TX panel should always be placed toward any potential noise source (i.e. x-ray machine or any other potential electrical interference).

See section 9.1 for information about identifying and resolving sources of interference.

SUGGESTED SINGLE LANE CONFIGURATION

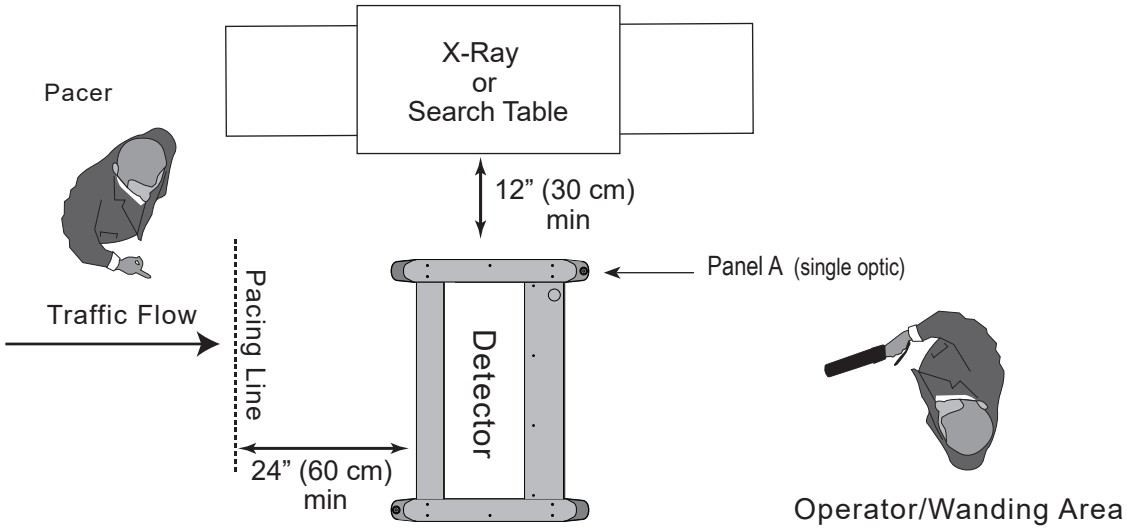


FIGURE 3–1

SUGGESTED MULTI-LANE CONFIGURATION–A

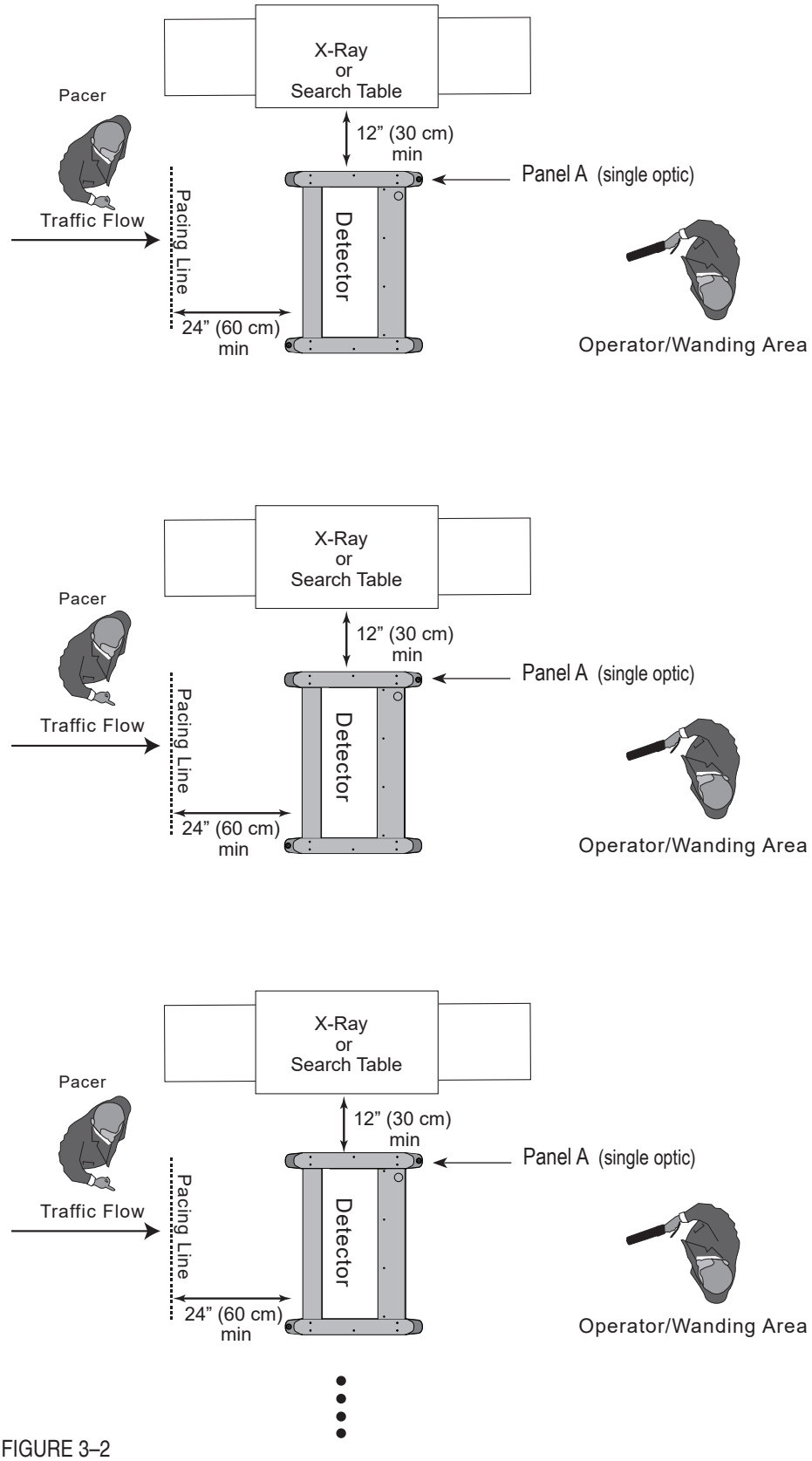
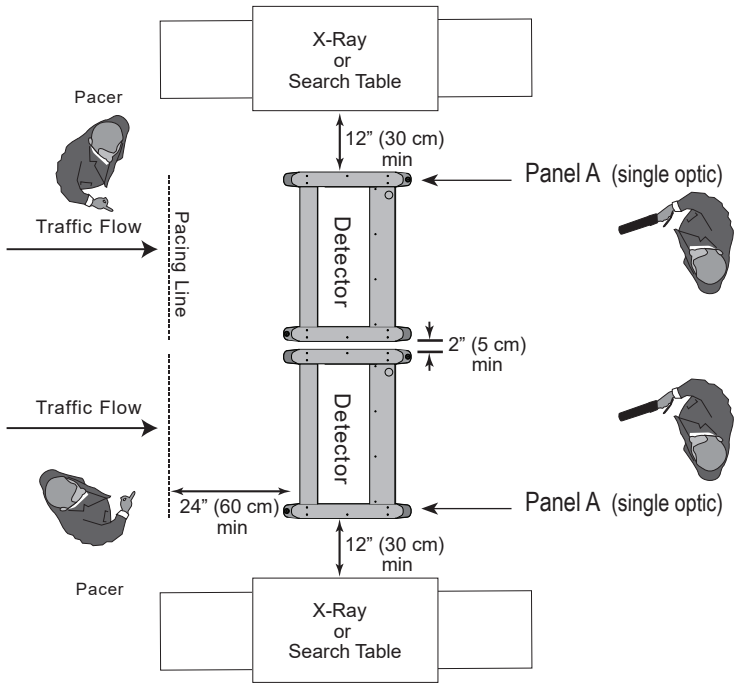


FIGURE 3–2

SUGGESTED MULTI-LANE, BACK-TO-BACK CONFIGURATION–B



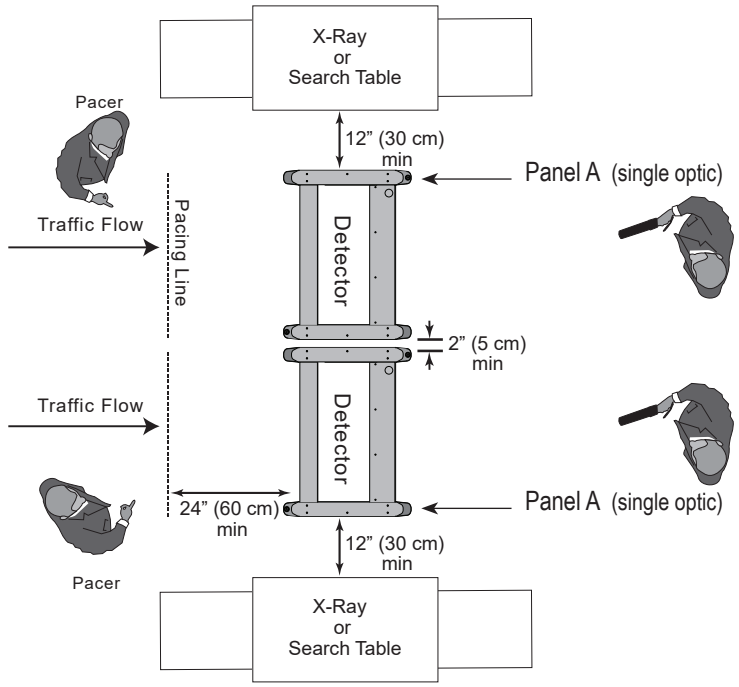


FIGURE 3–3

3.2 Unit Assembly

Assemble the unit and position it at the checkpoint location, connect to power, set the desired program / operating procedures, check for interference, and perform necessary tests.

• Assembly

The following steps will assist in the assembly of the *MZ 6100* including the mechanical assembly, orientation of a single or multiple units, and electrical connections. For additional documentation, please visit our Sharefile website at *https://garrett.sharefile.com*.

1. Verify that the following contents are included:
- Panel A (single optic transmit panel)
- Panel B (dual optic receiver panel)
- Detection unit (head)
- Crosspiece (support brace)
- 2' AC jumper cord
- 10' power cord
- Eight 1/4-20x3" screws
- Eight finishing washers

Accessories:
- User manual
- Pocket item container (coin tray)

2. Arrange the major components as shown in Figure 3–4.

3. Place the packing insert on floor as shown in Figure 3–5. Lay detection unit (with touchpad panel facing down) on packing insert. Place the panels as shown with Panel A (single optic) on the left side. Use a No. 3 Phillips bit or screwdriver to connect detection unit to the panels with four screws and finishing washers. Do not tighten!

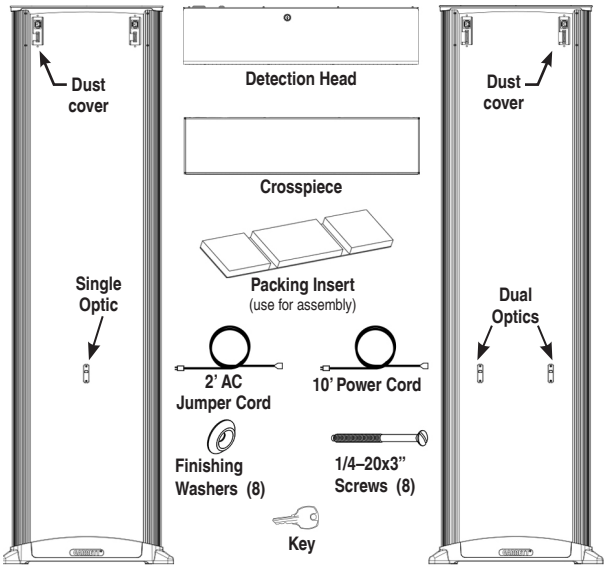


FIGURE 3-4

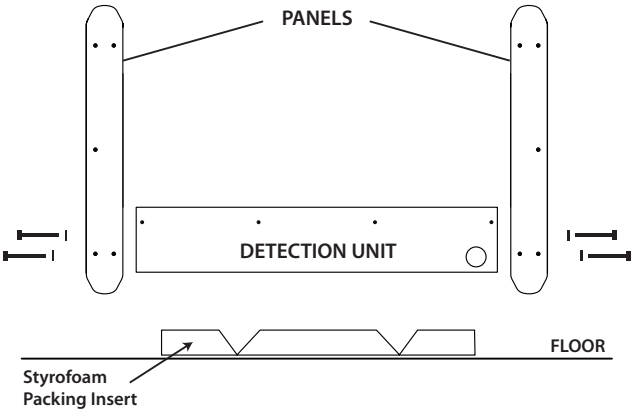


FIGURE 3-5

4. Connect Panel Cables
Open the door of the detection unit. Connect cables A (15-pin) and B (25-pin) into the corresponding panels. *(See Figure 3–6.)*

Note: The *MZ 6100* can be configured with the panel (Panel A) on either side. See Step 5 for recommendations where this altered orientation is preferred.

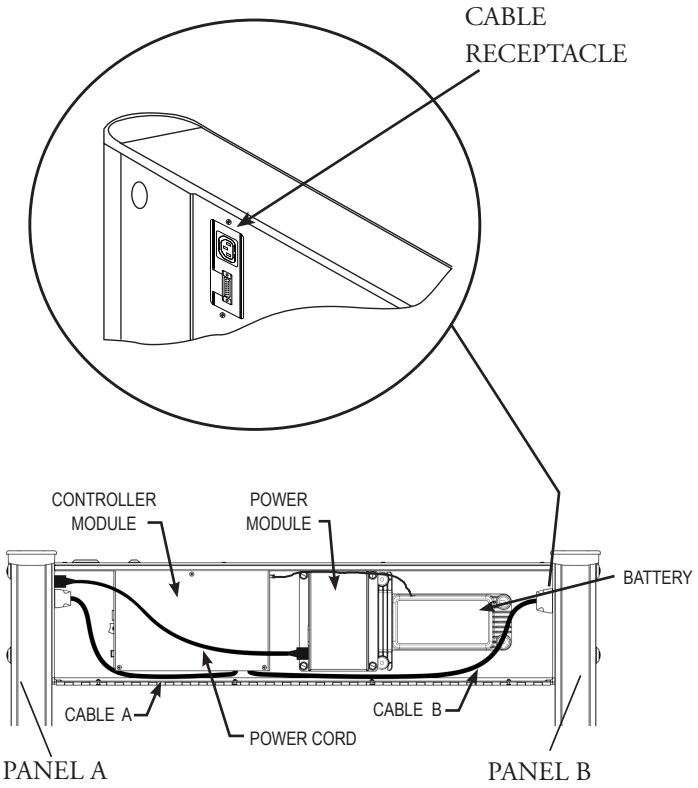


FIGURE 3-6

5. Normally a detector is assembled in the Standard Orientation with Panel A on the right side when facing the control panel. In some instances this is not the optimum orientation such as when the detector is placed near a noise source such as x-ray equipment, power cables, electrical equipment etc. In these cases it is desirable to place Panel A nearest the source and the Alternate Orientation should be used.

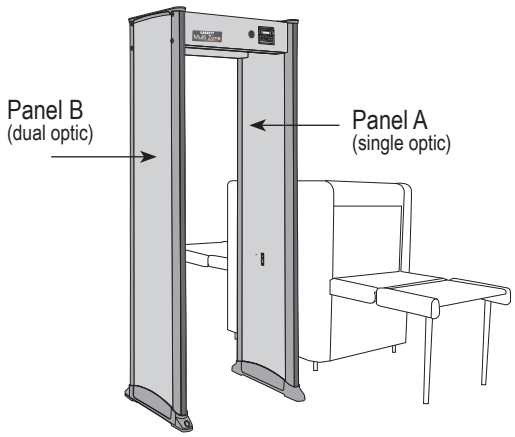


FIGURE 3-7: Standard orientation

Standard Orientation

- Prepare for assembly as shown in Figure 3-4 with Panel A on the right.
- Assemble as described. While viewing the detection head, Panel A should be on the right.

Alternate orientation

- Prepare for assembly as shown in Figure 3-4 except swap Panel A and Panel B.
- Move the connector dust covers to the other connectors on each panel
- Reverse the cables inside the detection unit.
- Assemble as described. While viewing the detection head, Panel A should be on the left and Panel B on the right.
- Note that the traffic flow counters, the location of the entry and exit status lights and the location of the zone indicators will automatically be reversed.

6. Determine the location of the AC power outlet and select a power connection means. If power is to be supplied from an overhead source, remove the rubber access plug in the top of the detection unit, feed the power cord (or the 2' AC jumper cord if required) into the detection unit and plug directly into the power module.

If power is to be supplied at floor level, determine the panel that is nearest the power outlet. Within the detection unit, plug in the 2' AC jumper cord from the selected panel to the power module. Retrieve the power cable at the bottom of the entrance side of the selected panel through the opening in the bottom of the panel. *(See Figure 3–8.)*

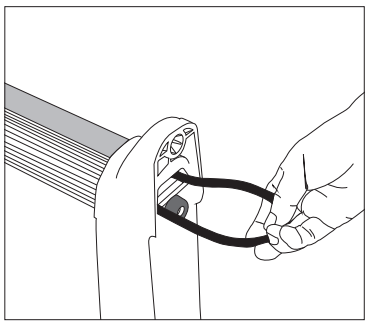


FIGURE 3-8: Power cable retrieval

Slip the power cord into the clamp to prevent pinching and abrasion when the unit is set upright. Secure the connection with electrical tape or other means if required.

7. Use the four remaining screws and washers to attach the crosspiece to the two panels. *(See Figure 3–9.)*

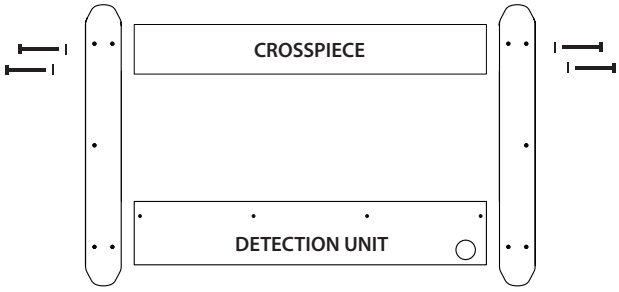


FIGURE 3-9

8. If optional adhesive floor mounts are to be used, attach the mounting plates to side panels. Do not remove adhesive protectors at this time. Follow instructions provided in the mounting kit.

9. Use two or more people to lift the *MZ 6100* to a vertical position and move to desired location. *(See Figure 3–10.)*

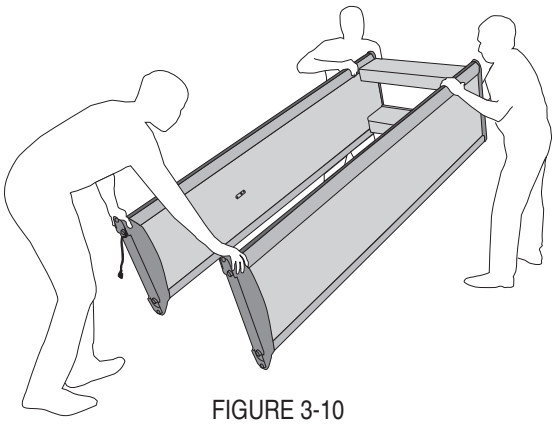


FIGURE 3-10

10. Ensure the *MZ 6100* is physically stable and does not sit on top of power cord.

11. Tighten all screws.

• Power Cord Wiring Description

The *MZ 6100* (Model 1171000) includes a standard American ground power cord. To replace or remove plug use:

Green	To Ground
Black	To line Hot
White	To line Neutral

The *MZ 6100* (Model 1171010) INTERNATIONAL includes a European power cord. To replace or remove plug use:

Green/Yellow	To Ground
Brown	To line Hot
Blue	To line Neutral

Note: Do not replace detachable mains supply cords with inadequately rated cords.

3.3 Stabilizing

The MZ 6100 may be bolted directly to the floor using the holes in the unit's boot. Alternately, optional adhesive mounting plates, stabilizer bar may be used.

Stabilizing the unit is particularly important in locations where the floor slopes or tilts, disorderly crowds, high winds, etc., are possible. It is recommended that the unit be tested for functionality and interference prior to permanent mounting.

3.4 Installation Completion

Complete the installation of the MZ 6100 by:

1. Connecting the unit to a power source

2. Selecting the operating setting

3. Selecting the appropriate multi unit role, frequency and channel settings. See section 7 for specific instructions to your installation.

4. Establishing the required program and settings

5. Checking for interference and verifying proper operation

4. CONTROLS, DISPLAYS, ALARMS OVERVIEW

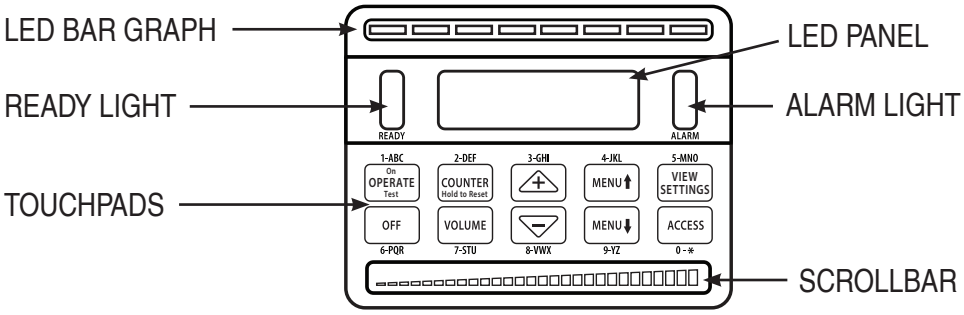


FIGURE 4-1

4.1 DESCRIPTION OF VISUAL CONTROLS AND DISPLAYS

- **Bar Graph**

The LED bar graph is comprised of a series of lights. The bar graph light activity represents the level of metal detection intensity occurring within the archway. The detection intensity is dependent upon the quantity and composition of the metallic object(s), and the program and sensitivity settings of the unit.

The bar graph also indicates the presence of electrical interference and interference from nearby moving metallic objects.

- **Ready Light**

The green READY light appears when power is on and the MZ 6100 is ready to detect metal. The ready light must be illuminated before a patron is permitted to enter the walk-through. A blinking ready light is an indication that AC power has been disconnected and the unit is operating on the optional battery system.

- **LED Panel**

This visual display reports calibration and operational information, including program and sensitivity settings, operator functions and fault indication. The LED Panel displays regulation and control function prompts, as well as traffic count information.

- **Alarm Light**

The red ALARM light is a visual indication of an alarm when the unit detects a targeted amount of metal within the walk-through according to the program and base sensitivity settings. When a target is detected the alarm light appears even if audio volume is off.

- **Key Pad Enable/Restrict**

This switch, located inside the detection head cabinet, may be used to restrict the functions of the touchpads to prevent tampering. See "Keypad Restrict" in section 5.6 for details.

- **Touchpads**

Use to turn unit on, access and adjust setup and programming. Function of touchpad depends upon key lock and user access level.

- ***OPERATE (ON / TEST):*** The OPERATE touchpad is used to turn the MZ 6100 on. Unit will be ready to operate within ten seconds. Activate the manual self-test at any time by pressing OPERATE.
- ***OFF:*** The OFF touchpad is used to turn the MZ 6100 off.
- ***COUNTER:*** The COUNTER touchpad is used to view the traffic count. The counter also reports alarm statistics such as alarm count and alarm count %. The counter can be reset by pressing the COUNTER touchpad for approximately five seconds.
- ***VOLUME:*** Use to access the volume control of the audio alarm.
- ***(+) and (–):*** The plus (+) and minus (–) touchpads are used to change numerical settings, activate certain on/off functions and adjust the volume of the audio alarm.
- ***MENU (+) and (–):*** Use to scroll through menu items after entering supervisor or administrator access code.
- ***VIEW SETTINGS:*** Enables the user to view the current program and base sensitivity settings.
- ***ACCESS:*** Used to initiate password login for supervisors and administrators.

- *SCROLLBAR:* Enables rapid scrolling through numeric settings by sliding finger across. Most useful for adjusting items that have a large range, such as Frequency.

- **Status Lights**

Status lights are located on both the entrance and exit sides of Panel A. These status lights can be switched to OFF, PACING, or READY/ALARM independently.

- **PACING**
  When set to PACE, these indicate whether or not a patron may enter the walk-through. The green symbol indicates the unit is ready for a patron, while the red symbol indicates the patron should wait. *(See Figure 4-2.)*

- **READY/ALARM**
  When set to READY/ALARM, these lights provide an eye level status of the operational status of the detector. The Green symbol indicates that the system is ready for a patron, the red indicates an alarm has occurred.

- **Zone Lights**

Zone lights located on both the entrance and exit sides of Panel A and Panel B provide alarm location information using 20 positions These lights help the operator to identify the precise location of alarming metal objects. These zone lights can be switched on or off independently on the entrance or exit side.

4.2 DESCRIPTION OF AUDIO RESPONSES

- **Metal Alarm**

The steady, single pitch audio alarm indicates that a metal target has been identified according to the program and sensitivity settings.

- **Random Alarm**

Indicated by rapidly pulsing audio and blinking or scrolling zone lights.

- **Saturation Alarm**

Indicated by alternating two-tone audio, flashing bar graph, and RX SATURATION indicated on the LED Panel. Saturation Alarm occurs when a very large metal object (e.g. wheelchair or metal container) passes through or near the detector, or when there is severe interference from an adjacent metal detector due to incorrect multi unit setup. Operator must correct the situation before allowing anyone to pass through the metal detector.

- **Tamper Alarm**

When the ACCESS touchpad is pressed, the detector beeps for about ten seconds until a valid access code is entered. If a person or object passes through the archway during this time, a loud low-toned alarm will activate. If an invalid code is entered, the message: ACCESS DENIED appears on the LED Panel, and an audible tamper alarm momentarily sounds and normal operation resumes.

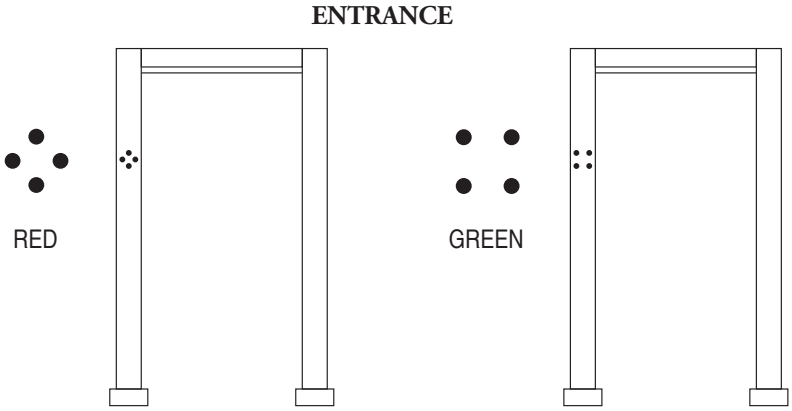


FIGURE 4-2
LED status light
(Red/Green)

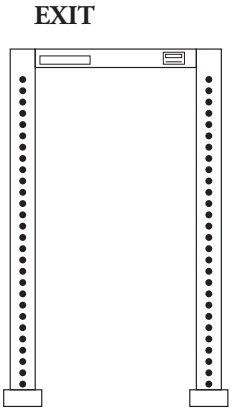


FIGURE 4-3
LED zone
lights (red)

5. ACCESS, SETUP, AND PROGRAMMING

5.1. Security Clearance Access Levels

There are three access levels of security clearance for the MZ 6100.

• Operator Level

The Operator can view the Program, Base Sensitivity, Patron Count, Alarm Count, Alarm %, Random Alarm % and Sequence settings as well as alter Volume settings and reset the Counter without a User Code. See Monitor Functions *(Table 5-1)*. At any time the Administrator can deny the Operator access to these Monitor Functions.

Press the VIEW SETTINGS touchpad to view Program and Base Sensitivity. Press the COUNTER touchpad to view Patron Count, Alarm Count, Alarm % and Random Alarm %. Press and hold the COUNTER touchpad to reset the Counter to zero (0). Press the VOLUME touchpad to view the volume setting; then press the + / - touchpad to increase or decrease the volume setting.

• Supervisor Level

The Supervisor requires a user code and may require a key access to the Keypad switch inside the locked cabinet to allow viewing and adjustment of authorized functions. *(See Table 5-1 and Section 5.5 for more information.)*

• Administrator Level

The Administrator requires a user code and may require a key access to the Keypad Switch inside the locked cabinet to allow viewing and adjustment of authorized functions. *(See Table 5-1 and Section 5.5 for more information.)*

5.2 Menu Table

Table (5-1) on the following page lists access levels and menu functions.

5.3 Power ON / OFF

When you press the OPERATE touchpad for the first time, the READY light appears and the LED Panel displays the message, GARRETT SECURITY. Press OPERATE again, and the unit will report critical settings and self-test results. The LED Panel displays the following information, in sequence as seen in FIGURE 5-2.

5.4 Self Test

The self-test feature within the unit is in constant operation and will reveal "critical failures" instantaneously. Press the OPERATE/TEST button *(see Figure 4-1)* to display the self-test results on the Display screen *(see Figure 5-2)*. Should the self-test reveal a problem, a "failure" message will appear (e.g., TX FAIL; Refer to section 9.2 for a list of possible failures and remedies).

5.5 Supervisor and Administrator Level Access

To log in, the user must press the "ACCESS" touchpad *(see Figure 4-1)*. The unit will prompt the Supervisor or Administrator to enter their password. Characters for each password can be found just above the buttons. Access codes can be changed using alphanumeric characters.

LED DISPLAY MESSAGE	DEFINITION
1. S/N ########	serial number
2. VER ###	software version
3. FREQUENCY #	frequency selection
4. MULTI UNIT ROLE (Solo, Leader or Follower)	synchronization
5. TRANSMIT CHANNEL (1, 2, 3,or 4)	channel selection
6. PROGRAM: XXXXXXXX	program selection
7. BASE SENSE: ###	base sensitivity setting
8. SINGLE OPTIC POSITION	
9. SELF-TEST...	self test in progress
10. BATT POWER XX%	strength of battery
11. OPERATE	resume operate mode

FIGURE 5-2

TYPE	FUNCTION	VALUE		
		Operator	**Supervisor**	**Administrator**
	Default Access Code	Not Required	12345	67890
	Power	OFF / ON	OFF / ON	OFF / ON
	Self Test	View	View	View
Programming, Preferences, and Monitoring	Language	-	-	Select Language
	User Presets Function:	-	-	Select ON / OFF
	User Presets:	-	Select 1, 2, 3	Define and Select 1, 2, 3
	Multi-Unit Role	-	-	Select Solo/Leader/Follower
	Auto Freq Scan	-	-	Press + to Start
	Frequency:	-	-	Press + to Alter from 0 - 2300
	Channel:	-	-	Press + to Alter from 1, 2, 3, 4
	Program *	-	View	Select Program
	Base Sensitivity *	-	View	Select 1 - 200
	Alarm Level:	-	View / Reset	View / Reset
	Zone Boost (zones 1 - 2) *	-	-	Select + / - 50%
	Zone Boost (zones 3 - 18) *	-	-	Select + / - 15%
	Zone Boost (zones 19 - 20) *	-	-	Select -100% to +150%
	Volume:	Min. Volume -12	Min. Volume - 12	Select 0 - 12
	Minimum Volume	-	-	Select 0 - 12
	Tone:	-	-	Select 1 - 9
	User Count	View / Reset	View / Reset	-
	User Real Alarms:	View / Reset	View / Reset	-
	User Real Alarm %:	View / Reset	View / Reset	-
	Admin Counters	-	-	View / Reset
	Admin. Real Alarm Count	-	-	View / Reset
	Admin. Real Alarm %	-	-	View / Reset
	Reset Counters	Press to reset	Press to reset	Yes
	Count Direction	-	-	Select Fwd. Only, Rev. Only, Subtract Rev., Bidirectional
	Random Alarm % *	View	View	Select 0 to 100%
	Random Alarm on Alarm: %	-	View	Select 0 to 100%
	Audio Alarm Duration:	-	-	Select OFF or 1, 2, 3, 4 seconds
	Zone Light Duration:	-	-	Select 1, 2, 3, 4 seconds
	Entry Zone Lights:	-	-	Select ON / OFF
	Exit Zone Lights:	-	-	Select ON / OFF
	Entry Status Lights:	-	-	Select Pace / Ready-Alarm / OFF
	Exit Status Lights:	-	-	Select Pace / Ready-Alarm / OFF
	IR Analysis:	-	ON / OFF	Select ON / OFF
	Bar Graph:	-	-	Select Normal / Diagnostic
	Detection Speed	-	-	Select Normal / Expanded
	Transmit Mode	-	-	Select ON / OFF
	M Filter:	-	-	Select ON / OFF
	RX Bal:	-	-	View
	Batt Cap**	-	-	1.5 AH, 14 AH
	Sequence:	View	View	View
	Operating Hours	-	View	View
Access Control	Keypad Switch	-	-	Select Restrict All / Restrict Access
	Supervisor Code		-	Press + to Alter
	Admin Code	-	-	Press + to Alter

* These values will be stored and retrieved for each USER PRESET.

** Available if batteries are installed.

5.6 Detector Settings

Once an access code has been entered, the user may scroll through the menu items. Depending upon the user's access level, some menu items are available as "view only". The MZ 6100 will not allow a user to change any of the "view only" items. To scroll down or up through the menu items, use the MENU⇩ and MENU⇧ touchpads; or press OPERATE to exit and return to normal operation.

- **Language**

LANGUAGE, which indicates the current language setting, appears on the Display. If the user is authorized to change the language setting, the user may scroll through the language selections using the + / - touchpads. Choose from: English, Spanish, Turkish, German, Czech, French, Polish, Japanese, Italian, Portuguese, Russian, or Dutch.

- **User Presets Function**

Switching ON this setting allows the Administrator to define the critical detection settings (i.e. Program, Sensitivity, Zone Boosts, and Random Alarm %) and assign them to three User Presets. For example:

- User Preset1 = {Program Special Events, Base Sensitivity 155, Zones 1–20 = 0% boost, Rand Alarm 0%}
- User Preset2 = {Program Airports, Base Sensitivity 165, Zones 1–20 = 0% boost, Rand Alarm 10%}
- User Preset3 = {Program Prisons, Base Sensitivity 185, Zones 1–20 = 0% boost, Rand Alarm 0%}

Once defined by the Administrator, the Supervisor or Administrator can select from the different User Presets to quickly change the detector to the different user-defined security levels *(see Section 5.1)*. Switch OFF to disable the User Presets setting. Press the + / - touchpads to switch ON/OFF.

Select User Preset

1. Log in as Administrator
2. Press MENU to confirm that Users Presets is set to ON.
3. Press the MENU⇩ touchpad again to see the current User Preset number (1, 2, or 3).
4. To select a different User Preset, press the (+) or (-) touchpads until the desired User Preset is shown.
5. Once prompted press (+) touchpad to confirm this selection, or press (-) touchpad to cancel.

Modify User Presets (Administrator only)

Any of the three User Presets can be defined or modified by the Administrator by following these steps:

1. Select User Preset 1, 2, or 3 using the (+) or (-) touchpads.
2. Once prompted press plus (+) to confirm selection or minus (-) to cancel.
3. Scroll through the menu items to modify or define the following four critical detection parameters: Program, Base Sensitivity, Zone Boost, and Random Alarm %. Note that any detection parameter can be modified, but only these four parameters will be permanently retained by the User Preset that is being modified.
4. Repeat steps 1–3 for remaining User Presets as needed.

- **Multi-Unit Role**

This setting is factory preset to SOLO. *(Refer to Section 7 for a more detailed explanation of synchronization.)*

SOLO is for a standalone unit and provides self-generated synchronization based on the FREQUENCY setting with no synchronization available to adjacent units.

LEADER provides self-generated synchronization based on the FREQUENCY setting, and, using am embedded wireless sync module or hard wires, provides synchronization information to nearby detectors.

FOLLOWER synchronizes the MZ 6100 to a designated LEADER that is set to the same FREQUENCY.

- **Auto Frequency Scan**

Press the (+) button to initiate the unit's automatic 1 minute frequency scan procedure, which will select the operating frequency with the least interference from surrounding electrical equipment. The MZ uses an embedded wireless sync module for this feature.

Note: This adjustment is most effective with M Filter OFF.

- **Frequency**

As an alternative to Auto Frequency Scan, this setting allows the detector's operating frequency to be manually adjusted. Use this setting to manually chose the quietest frequency or to set a designated LEADER and/or FOLLOWER to the same frequency which is required for proper synchronization. Auto or manual adjustment of the operating frequency is very useful and often necessary when operating the MZ 6100 in proximity to non-Garrett walk-through metal detectors or other environmental noise sources. The Frequency setting can be adjusted from 0 to 2300 or Line using the + or – touchpads or the scroll bar.

Note: A Frequency setting of zero (0) will result in the highest power consumption and shortest battery life. Synchronizing with a PD 6500i will require an SM 100 wireless sync module to be installed in the PD 6500i.

- **Channel**

This setting enables multiple Garrett walk-through metal detectors to operate simultaneously at spacing of less than two inches using consecutive channels. Role and Frequency must be set following the Multi-Unit process described in section 7. Choose Channels 1, 2, 3 or 4 when two or more MZ 6100's are operating near each other. *(See Figure 3-3.)*

Note: When using a Garrett PD 6500i or Paragon with MZ 6100s, use channels 1 and 2 to coincide with PD 6500i/Paragon channels 1 and 2.

- **Program**

PROGRAM, which indicates the current program setting, will appear on the display. If the user is authorized to change the program, the user may scroll the menu of programs using the + / - touchpads to find the new program. Stop scrolling when the desired program appears on the display. *(Refer to Table 6-1 for a listing and description of programs.)*

- **Base Sensitivity**

Increase the sensitivity to metal objects by increasing this number. At higher sensitivity settings, smaller metal objects are detected. Conversely, at lower sensitivity settings, only larger metal objects are detected. Keep in mind that the sensitivity should be set high enough so that the smallest forbidden object (depending on your security needs) can be detected.

BASE SENSITIVITY, shown with the current base sensitivity setting, will appear on the Display. If user is authorized to change the base sensitivity, the user may select from 1-200 using the + / - touchpads or scroll bar. To determine proper sensitivity setting, follow ALARM LEVEL instructions below.

(See "Zone Sensitivity Boost" on next page for instructions on adjusting sensitivity of individual zones.)

SPECIAL NOTE: A final decision on program and base sensitivity settings is the sole responsibility of the end user and must be determined by keeping the purpose of the security application in mind.

- **Alarm Level**

The Alarm Level reading is a useful installation tool that helps you determine the lowest level of sensitivity required to activate an alarm for a particular metal object. This information can then be used to determine the desired level of sensitivity. Alarm Level is also very useful in evaluating interference and noise levels. Alarm Level is a "view only" reading and is a measurement or readout of the signal level present on the detector.

ALARM LEVEL, followed by the current alarm level reading, will appear on the Display. The following are examples of the use of Alarm Level.

Using Alarm Level to evaluate interference:

1. View for several seconds. A reading greater than 190 is ideal. Otherwise, interference is present.
2. Ensure the detector is not moving and there is no movement of nearby metal or people.
3. Gently press the + (plus) touchpad to reset the Alarm Level reading.
4. Observe the Alarm Level reading for several seconds.
5. Repeat steps 3 and 4 several times to determine the background interference level.
6. It is desired that the Alarm Level numbers remain very close to or greater than 200, indicating small levels of interference.
7. If necessary, try switching off nearby equipment or moving the detector and repeating steps 2, 3, 4, and 5 in order to determine the source and/or location of interference.

Using Alarm Level to determine required sensitivity:

1. Ensure that you are metal free.
2. Hold the selected test object at the center of your waist.
3. Walk through the metal detector.
4. Note the new alarm level reading.
5. Press the (+) keypad to reset the reading.
6. Change the test object's location and/or its orientation.
7. Repeat steps one through five several times with the target in various locations until you are

satisfied that you've performed enough tests.

8. Choose the highest reading produced by the test object.
9. Return to the base sensitivity menu item and enter the alarm level reading that you chose in Step 7 as the base sensitivity.
10. Confirm new base sensitivity setting is appropriate by testing the selected test object at varying locations and orientations within the walk-through (alarms should occur with each pass), particularly in critical locations and orientations where you suspect detection is the most difficult.
11. After setting the base sensitivity, verify detection in all zones. If alarms do not occur in the critical locations, preferably increase the zone boost for that location, or increase base sensitivity.

- **Zone Sensitivity Boost**

Individually adjusting the sensitivity of the detector's zones helps establish an optimal detection field. The MZ 6100 contains a total of 20 zones from top to bottom. The 20 zones and their corresponding zone lights are shown in Figure 5-3 on the next page.

Zone Boost applies a percentage of gain, or attenuation, to objects passing through that zone. For example, setting Boost to +10% will make the response of objects in that zone 10% stronger. Likewise, setting Boost to -10% will make the response of objects in that zone 10% weaker. Leaving Boost set to +0% means no additional gain or attenuation is applied to objects in that zone.

The user may increase or decrease the percentage of Zone Boost in 1% increments by pressing the + (to increase) or - (to decrease) touchpads.

The zones lights on the detector will light up to indicate the area being adjusted.

The adjustment ranges for the zones are as follows:

1. ZONE 1: -50% to + 50%
2. ZONE 2: -50% to + 50%
3. ZONE 3: -15% to + 15%
4. ZONE 4: -15% to + 15%
5. ZONE 5: -15% to + 15%
6. ZONE 6: -15% to + 15%
7. ZONE 7: -15% to + 15%
8. ZONE 8: -15% to + 15%
9. ZONE 9: -15% to + 15%
10. ZONE 10: -15% to + 15%
11. ZONE 11: -15% to + 15%
12. ZONE 12: -15% to + 15%
13. ZONE 13: -15% to + 15%
14. ZONE 14: -15% to + 15%
15. ZONE 15: -15% to + 15%
16. ZONE 16: -15% to + 15%
17. ZONE 17: -15% to + 15%
18. ZONE 18: -100% to + 150%
19. ZONE 19: -100% to + 150%
20. ZONE 20: -100% to + 150%

- **Volume**

VOLUME shows the detector's current volume setting. The user may use the + / – touchpads to increase or decrease the alarm volume. Note: the minimum volume that can be selected is controlled by the Administrator using the MINIMUM VOLUME setting. Maximum volume should be set to no higher than required relative to ambient noise.

- **Minimum Volume**

This is an Administrator setting that specifies the minimum volume that can be selected by the Operator.

- **Tone**

TONE, which indicates the current tone setting, appears on the Display. The user may use the + / - touchpads to adjust the tone from 1 (bass) to 9 (treble).

- **User Count**

A built-in and user resetable traffic counter records the number of patrons who pass through the walk-through. To reset the counter to zero, refer to the "Reset Counter" section.

- **User Real Alarms Count**

This is a "view only" menu item that displays the number of metal alarms that have occurred. ***Note:*** The Real Alarms count does not include alarms produced by the Random Alarm setting. The Real Alarms count automatically resets to zero when the count is reset.

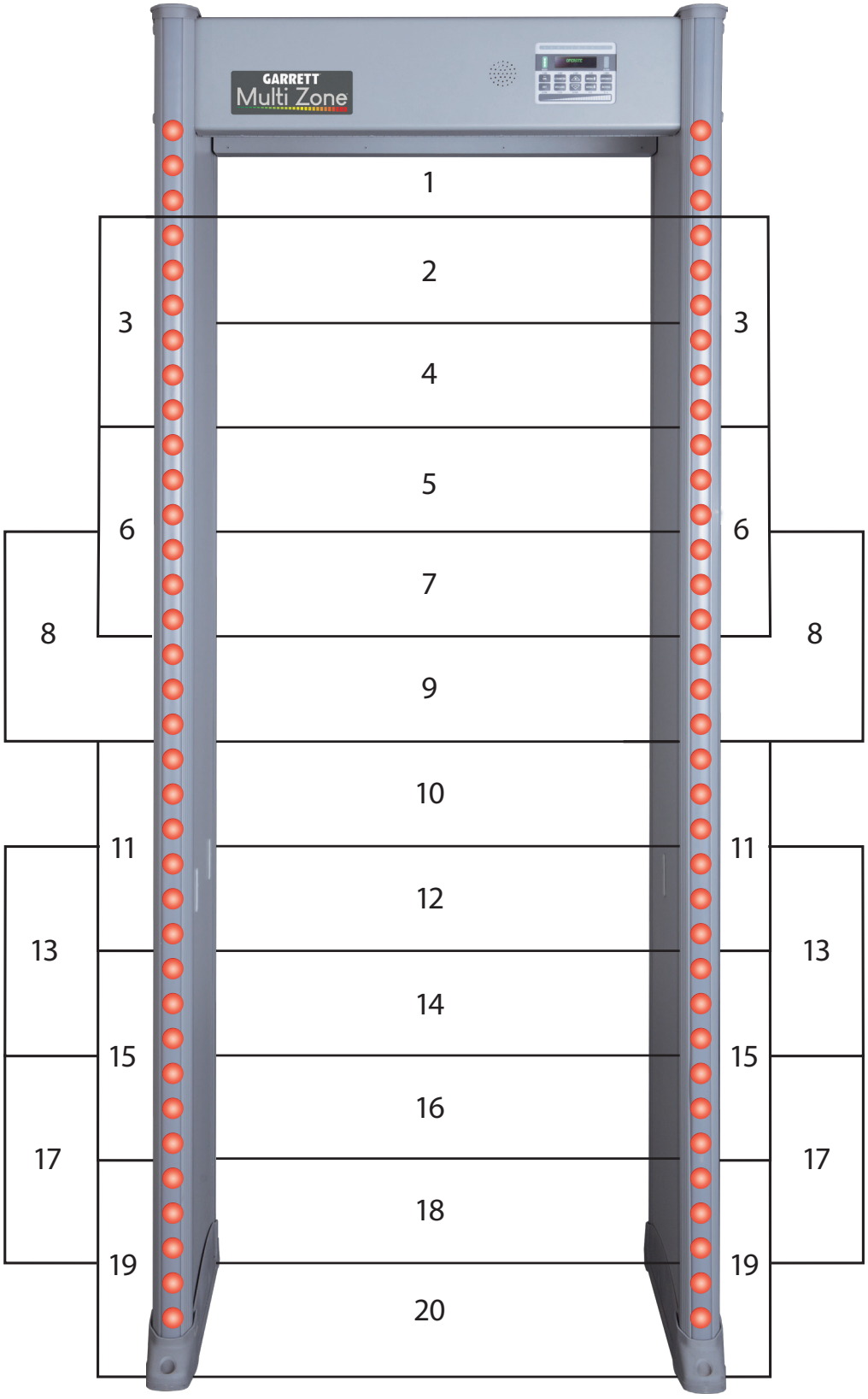


FIGURE 5-3: MZ 6100 Zones

- There are 20 individually adjustable detection zones from top to bottom.

- **User Real Alarm %**

This is a "view only" menu item that displays the percentage of real alarms divided by patron count. The Real Alarm % automatically resets to zero when the count is reset.

- **User Counters**

Press + to reset

- **Administrator Count**

ADMIN COUNT is a traffic counter that can be viewed and reset only by the administrator.

- **Admin Real Alarms Count**

ADMIN REAL ALARMS displays the number of alarms and can be viewed only by the administrator. The Admin Real Alarms Count automatically resets to zero when the Admin Count is reset or rolls over.

- **Administrator Real Alarm %**

ADMIN REAL ALARM% displays the percentage of real alarms and can be viewed only by the administrator. The Admin Alarm % automatically resets to zero when the Admin Count is reset or rolls over.

- **Admin Counters**

Press + to reset allows the traffic and Alarm counts to be reset to zero (0).

Note: The user may also reset the user counters by pressing the COUNTER button and hold for 3 seconds.

- **Count Direction**

Used to select the way in which traffic flow will be counted.

—FORWARD ONLY counts patrons passing in the normal forward direction only; passing in the reverse direction has no affect on count.

—REVERSE ONLY counts patrons passing in the reverse direction only and does not count passes made in the forward direction.

—SUBTRACTS REVERSE counts patrons passing in the forward direction and subtracts from the count for patrons passing in the reverse direction.

—BIDIRECTIONAL counts patrons passing in both directions.

- **Random Alarm %**

This setting provides the ability to randomly alarm on a selected percentage of non-alarming persons. The Random Alarm rate is adjustable from 0 to 100% using the + or – touchpads. If set to 10%, for example, the detector will automatically alarm on 10% of the persons which would otherwise not have alarmed. Random alarms are indicated by a pulsed alarm audio and zone lights sequencing from top to bottom. The interval of these Random Alarms is randomly distributed among the non-alarming persons. Note: Random Alarms are not included in the Real Alarms count or Real Alarm %.

For Supervisor ACCESS level, this is a "view only" menu item that displays the current Random Alarm Setting.

- **Random Alarm on Alarm %**

This setting provides the ability to randomly alarm on a selected percentage of alarming persons; whereas the Random Alarm setting above acts only on non-alarming persons.

The Random Alarm On Alarm rate is adjustable from 0 to 100% using the + or – touchpads. Random Alarm On Alarm is indicated by a pulsed alarm audio and zone lights rapidly blinking at the location of the metal alarm(s). The interval of these random alarms is randomly distributed among the alarming persons. Note: Random Alarms On Alarms are not included in the Real Alarms count, Real Alarm % or Random Alarm %.

For Supervisor ACCESS level, this is a "view only" menu item that displays the current Random Alarm On Alarm setting.

- **Audio Alarm Duration**

Sets the duration for audible alarms for 1, 2, 3 or 4 seconds using the + / - touchpads.

- **Zone Light Duration**

The zone light duration may be adjusted to 1, 2, 3, or 4 seconds using the + / - touchpads:

- **Entry Zone Lights**

This setting allows the entry zone lights to be set to ON or OFF.

- **Exit Zone Lights**

This setting allows the exit zone lights to be set to ON or OFF.

- **Entry Status Lights**

Use the (+) or (-) touchpad keys to select PACE to activate the green walk and red wait indicator lights located on the entrance side of Panel A and B. Set to READY-ALARM to view the status of the detector. Select OFF to deactivate the entry status lights.

- **Exit Status Lights**

Use the (+) or (-) touchpad keys to select PACE to activate the green walk and red wait indicator lights located on the exit side of Panel A and B. Set to READY-ALARM to view the status of the detector. Select OFF to deactivate the exit status lights.

- **IR Analysis**

Infrared sensors have been designed to help prevent false alarms caused by nearby external moving metallic materials such as wheelchairs, elevators, persons possessing metal, etc., and when outdoors by wind causing the unit to rock and then alarm. When IR Analysis is on, the above circumstances will not cause the detector to audibly alarm when no one is passing through the unit. When IR Analysis is off, the unit may audibly alarm under these circumstances even when no one is passing through the unit. Although useful, the IR Analysis is not required for operation and may be disabled if desired.

IR ANALYSIS, shown either ON or OFF, will appear on Display. Press the minus (–) touchpad to disable or (+) touchpad to activate.

- **Bar Graph**

The LED graphical indicator on the front panel is a visual indicator to provide information about the size of metallic objects passing through the archway and provides an indication when interference from nearby moving objects and electrical sources is present. There are two bar graph settings. Press the + or - touchpads to select the desired setting, as follows:

Normal—This default setting is intended for use under normal operation and indicates activity that is significant, relative to the detection setting.

Diagnostic—This setting is intended for technical troubleshooting where a more active bar graph is useful for locating and resolving nearby noise sources.

- **Detection Speed**

Detection speed refers to the speed at which a metal object passes through the archway. There are two settings for the detection speed. Press the + or - touchpad to select the desired setting, as follows:

Normal—This default setting accommodates typical transient speeds ranging from a very slow walk to a very fast walk, which are commonly encountered at security checkpoints and as are specified by known international standards.

Expanded—This setting is intended for use in those rare applications where excessive detection speeds are required such as throwing a metal object through the archway. Activating the Expanded Detection Speed setting may increase the level of noise interference.

- **Transmit Mode**

This setting allows the transmitter to be switched off for diagnostic purposes.

- **M Filter**

This is a special filter designed to eliminate low-frequency impulse interference such as produced by the refresh pulse of CRT monitors. Set to OFF for most situations. Set to ON when receiving interference from a CRT monitor within 40” (1m). Try both settings to determine which provides the quietest operation.

Note: Press + or – touchpads to adjust.

- **Keypad Switch**

This setting works in conjunction with the "Enabled" or "Restricted" switch position. This switch is located on the left side of the circuit module inside the detection unit (see Figure 5-4).

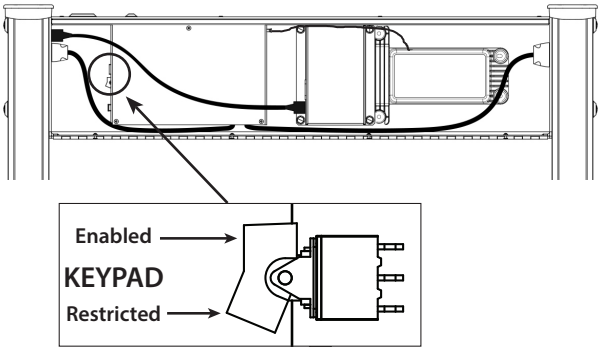


FIGURE 5-4

The keypad switch allows the MZ 6100 to further protect menu settings from tampering. Settings are as follows on this table (Figure 5-5):

Keypad Menu Selection	Keypad Switch Position	
	Enable	Restricted
RESTRICT ACCESS	All touchpads are OPERATIONAL	All touchpads are OPERATIONAL except ACCESS
RESTRICT ALL	All touchpads are OPERATIONAL	All touchpads are BLOCKED except ON and OFF

FIGURE 5-5

- **Supervisor Code (+ To Alter)**

The Supervisor Adjustments code (referred to as CODE 1) is factory preset to 12345. To change it:
1. Press the + touchpad.
2. Enter a new five-digit alphanumeric code. Toggle through alpha or numeric characters by pressing the same button multiple times.
3. When the LED Panel prompts, REPEAT CODE, re-enter the new five-digit code. The message, CODE ENTERED OK, should appear. (If the message, INVALID ENTRY, appears, repeat steps 2 and 3.)

- **Administrator Code (+ To Alter)**

The Administrator Adjustments code (referred to as CODE 2) is factory preset to 67890. To change it:
1. Press the + touchpad.
2. Enter a new five-digit alphanumeric code.
3. When the prompts, REPEAT CODE, re-enter the new five-digit code. The message, CODE ENTERED OK, should appear. (If the message, INVALID ENTRY, appears, repeat steps 2 and 3.)

Note: See Section 5.8 for resetting access code.

- **RX Balance**

RX BAL refers to the balance level of the receiving antennas and is a "view only" item. Any number less than 50 is acceptable. A number greater than 50 will elicit the message, RX BAL #, and the pinpoint lights within the problem zone will illuminate. Should this occur, ensure that there is no large metal object adjacent to the MZ 6100. Then, ensure that the balance number has fallen below 50 and the corresponding pinpoint lights are off. *(Refer to section 9.2 for more help in resolving this issue if necessary.)*

- **Batt Cap**

The Batt Cap option is used when selecting the battery capacity that is installed in the system. By default, the menu displays "Batt Cap 1.5Ahr Press + to Alter" because the Multi Zone comes with a 1.5Ahr backup battery. A higher capacity 14Ahr battery is also available to purchase as a separate option. The Batt Cap menu should be changed if using the 14Ahr battery by using the + button to select "Battery Type 14Ah". Press the Operate button to exit the menu and press "+ to Confirm" or "- to Cancel". If a battery is not connected, this menu item will not be present. Note: Any time the battery is disconnected and reconnected, allow the system to reach 100% full charge to properly set the charge indicator. This will help reflect a more accurate battery capacity on the Control Panel Display. Battery status can be verified by pressing the Operate button on the keypad.

- **Sequence**

SEQUENCE indicates the number of times the system has been accessed via password. This is a "view only" menu item.

- **Operating Hours**

OP HOURS indicates the number of hours the unit has been in operation (i.e. switched on). This is a "View Only" menu item.

5.7 Factory Default Settings

The Garrett MZ 6100 arrives from the factory with the following default settings:

Function:	Value:
Language	English
User Presets Function	OFF
Multi-Unit Role	Solo
Frequency	2200
Channel	1
Program	Special Events
Base Sensitivity	150
Zones 1 - 20 BOOST	0%
Volume	05
Minimum Volume	0
Tone	5
Count Direction	Forward Only
Random Alarm %	0 %
Random Alarm on Alarm %	0 %
Audio Alarm Duration	2 Sec
Zone Light Duration	2 Sec
Entry Zone Lights	Off
Exit Zone Lights	On
Entry Status Lights	Pace
Exit Status Lights	Ready-Alarm
IR Analysis	On
Bar Graph	Normal
Detection Speed	Normal
Transmit Mode	ON
M Filter	OFF
Batt Cap	1.5 Ahr
Keypad Switch	Restrict Access
Supervisor Code	12345
Admin Code	67890

5.8 Code Reset

Should the administrator access code be forgotten or misplaced, the MZ 6100 has a mechanical method for resetting the administrator access code to factory preset code.

1. Open the main cover of the detection unit.
2. Remove the three screws attached to the controller module cover.
3. With power turned on and the unit in Operate mode, press and hold the ACCESS CODE RESET button (on the lower left side of the circuit board) for ten seconds. *(See shaded area in Figure 5-6.)*

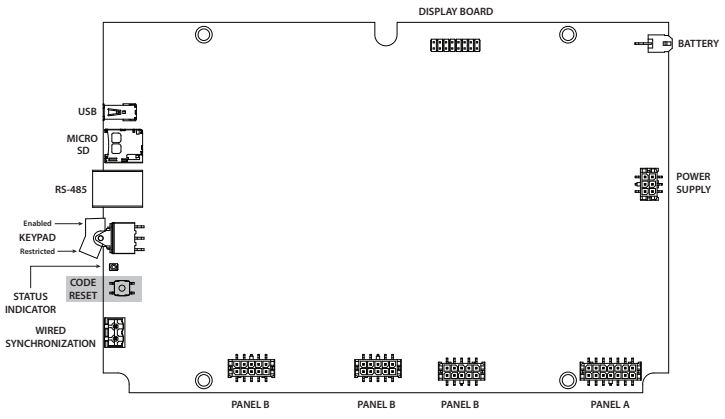


FIGURE 5-6

6. PROGRAMS, SENSITIVITY, AND ZONE BOOST

The *MZ 6100* is shipped with program and sensitivity settings which are suitable for many general security applications. It is important that prior to placing a unit in service that the Administrator determine the specific needs of the installation and make necessary changes to the settings described in Section 5.

The required Program and Sensitivity settings of walk-through metal detectors are dependent on individual security screening requirements and therefore must be the responsibility of the customer. Program, sensitivity and zone boost settings should be established at a level that permits detection of the forbidden objects. Included in the test procedure should be the requirement that the tester be free of all metallic items, including watches, belts, shoe shanks, cell phones, etc. prior to arming himself with the test objects. A hand-held metal detector can be used to confirm that the tester is "clean" of metallic items.

Careful determination of Program, Sensitivity and Zone Boost settings is important, since lower than required sensitivity settings can decrease the ability of the equipment to detect forbidden objects and higher than necessary settings can result in excessive nuisance alarms that may disrupt traffic flow and decrease effectiveness of the equipment and security operation.

• Program Selection

The MZ 6100 is equipped with several programs to address a variety of security needs. A program whose characteristics are appropriate to the application should be selected. The following bulleted topic "Program Descriptions" is a list of available programs and information about the characteristics of the programs. Figure 6-1 shows the detection characteristics of the Loss Prevention programs for various metals.

• Selecting Sensitivity and Zone Boost Settings

The procedure described in Section 5.6 (Alarm Level) is helpful in determining the required base sensitivity setting for the selected program. This test is often performed with the test objects carried in various orientations near the center of the body. Once the base sensitivity has been established, continue testing at various elevations to make any necessary zone boost adjustments. It is often helpful to return to the alarm level reading to evaluate the effects of the zone boost adjustments. *(See "Zone Sensitivity Boost" in Section 5.6.)*

• Program Descriptions

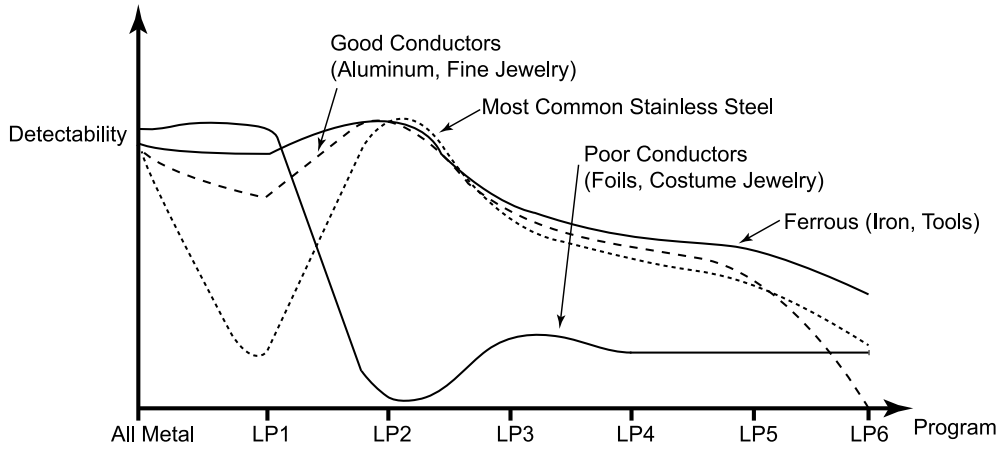
The following list of MZ 6100 program settings provides basic description and suggested use for the programs:

Program	Description / Use
Schools Buildings Special Events Courthouses	Designed primarily for detection of guns and other such weapons. Exceeds FAA detection requirements (i.e. FAA 3-gun test). Provides excellent discrimination against innocuous items such as coins, keys, jewelry, shoe-shanks, cigarette packs, foil, etc. Recommended for applications requiring general weapons detection while providing high traffic throughput with minimal nuisance alarms.
Prisons	Specialized weapons detection programs designed to detect all metals and provide the highest level of security available. Exceeds FAA and TSA detection requirements. Provides no discrimination against innocuous items and is therefore recommended for applications which allow low traffic throughput.

Airports Nuclear	Designed for the detection of guns as well as knives and other flat or rod-shaped weapons. Meets the Transportation Security Administration's (TSA) Enhanced walk-through Metal Detector (EMD) requirements and exceeds FAA requirements. Provides good discrimination against innocuous items such as coins, keys, jewelry, cigarette packs, foil, etc. Recommended for applications requiring comprehensive detection of guns and knives while providing moderate traffic throughput with low-to-moderate nuisance alarms.
All Metal Loss Prevention 1 - 6	The All Metal and Loss Prevention programs are used to detect metals ranging from conductive to non-conductive and/or ferrous to non-ferrous. The All Metal and Loss Prev1 programs are designed to detect most metals, ferrous and non-ferrous such as jewelry, computer components and most coins. Loss Prev 2 is similar to Loss Prev1 except it is designed to ignore poor conductors, such as cigarette or chewing gum foil and keys. Loss Prev3 to 6 are designed to detect items that are increasingly less conductive and more ferrous (i.e., contain more iron), e.g., Loss Prev3 to 5 detects most weapons; Loss Prev6 is most recommended for detecting steel tools. Low–moderate throughput. See Figure 6-1 for a graph representing detection capabilities of the All Metal and Loss Prevention programs.
Alternate	For use as an alternative under difficult environmental conditions, including electrical interference. A general weapons program that provides moderate discrimination against pocket items while offering the best balanced response to all metals. Meets FAA requirements (i.e., three-gun test).

TABLE G-1

FIGURE 6-1
All Metal and Loss Prevention Programs



7. MULTIPLE WALK-THROUGH SITE INSTALLATION

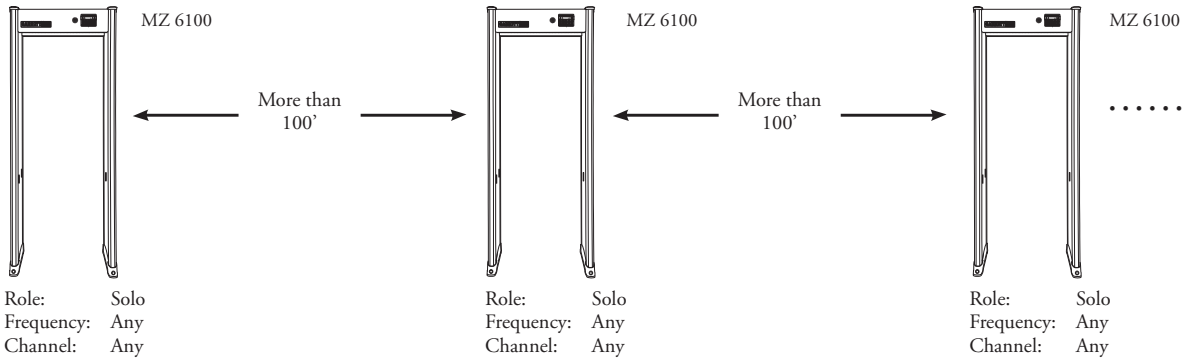
For multiple walk-through metal detector operation (units within 25' to 100' of each other depending on sensitivity setting), certain power requirements and installation adjustments are necessary to avoid cross talk (interference) among units.

There are several ways to successfully install multiple walkthroughs in close proximity with no crosstalk. The following examples are aimed to help the installer determine an appropriate method for eliminating crosstalk.

7.1 CASE 1

All detectors are MZ 6100s, separated by 100 feet or more, connected to the same AC-Line Phase.

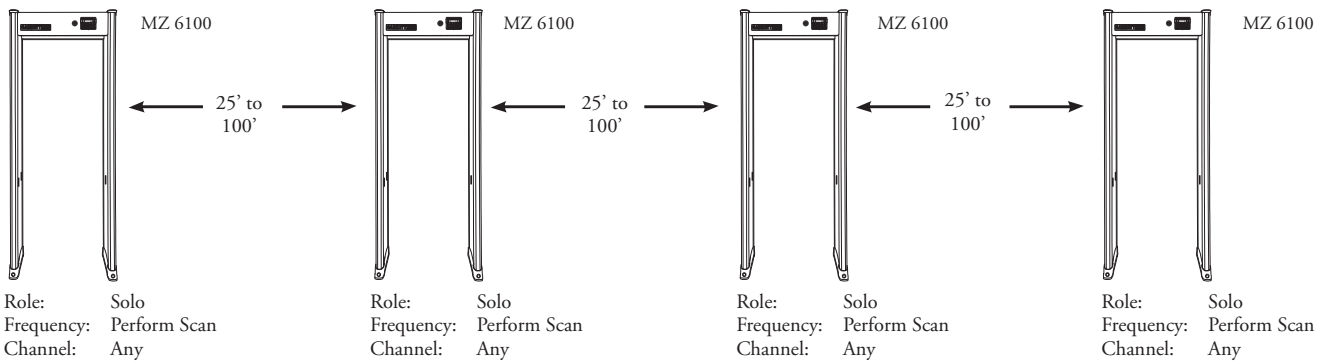
Distance to Adjacent Unit	Sync Method	Detector Location	Multi-Unit Role	Frequency	Channel	Notes
More than 100 feet	None required	Any	Solo	Any	Any	Frequency Scan if bar graph is noisy.



7.2 CASE 2

Spacing between detectors is 25 feet to 100 feet.

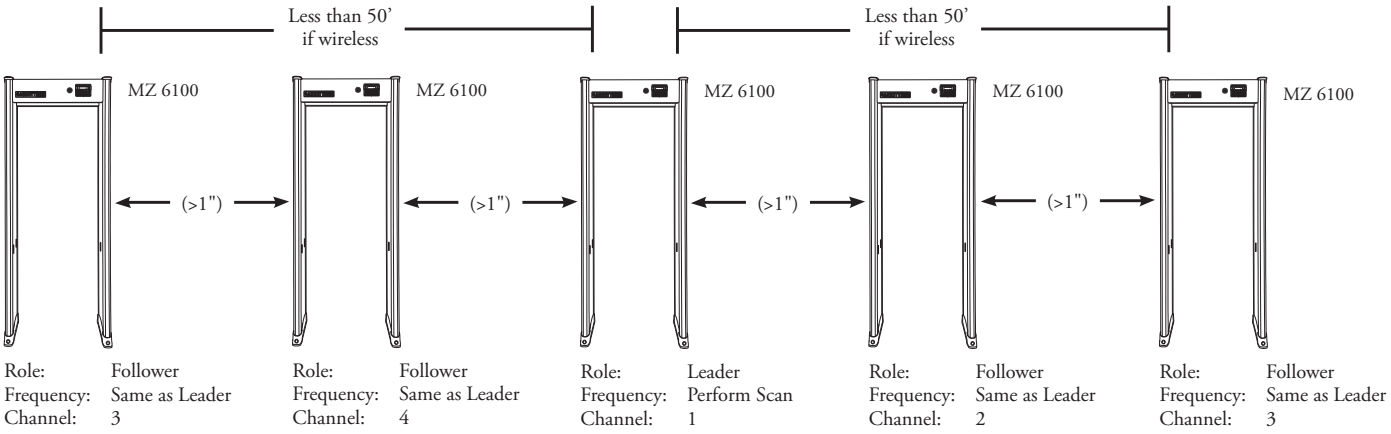
Distance to Adjacent Unit	Sync Method	Detector Location	Multi-Unit Role	Frequency	Channel	Notes
25 to 100 feet	Frequency Offset	Any	Solo	Perform Auto Frequency Scan	Any	1. Begin with all units off. 2. Switch on one unit. 3. Perform Frequency Scan. 4. Leave unit on and repeat steps 2-4 for all other units, one unit at a time.



7.3 CASE 3

Detector cluster with distance to Leader less than 50 feet with Wireless Sync or any distance with Wired Sync.

Distance to Adjacent Unit	Sync Method	Detector Location	Multi-Unit Role	Frequency	Channel	Notes
Any	Wireless Sync or Wired Sync	Central	Leader	Perform Auto Frequency Scan	See below	• For Wireless Sync, all units must be within 50 feet of the Leader. • For Wired Sync, connect twisted pair wire between all detectors. • Follow instructions below for setting up Leader and Follower units. • If a unit is too noisy, switch off all other units, frequency scan the noisy unit only and set frequency of all other units to this frequency. • Spacing between units can be as close as 1". • Frequency should be 1970 to 2300
		All others	Follower	Manually Set to Frequency of Leader	Sequential: Ch1, Ch2, Ch3, Ch4, Ch1, Ch2…	



Setting up Leader Unit

1. Begin with all units off.
2. Switch on center unit and login with admin access (ACCESS > 67890).
3. Press MENU ⇩ to "Multi-Unit Role" and set to "Leader" using + or - buttons.
4. Press MENU ⇩ to "Auto Freq Scan" and press + to start scan. This will take several seconds to select an appropriate frequency for your location. This frequency will be used for all Follower units in the cluster so be sure to write it down.
5. Press MENU ⇩ to "Channel:" and press + to alter the setting. Press + or - to change to channel 1.
   Note: The leader does not have to be Channel 1 as long adjacent units are in sequential order. See above image for example.

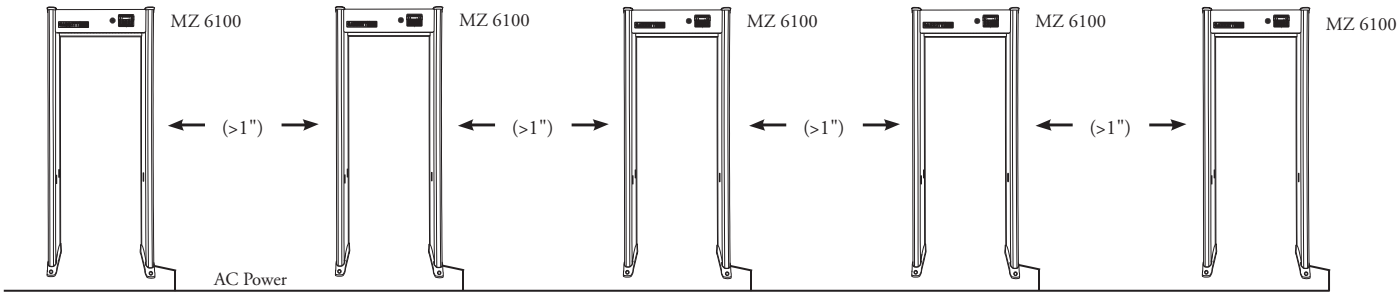
Setting up Follower Unit

1. Switch on next unit and login with admin access (ACCESS > 67890).
2. Press MENU ⇩ to "Multi-Unit Role" and set to "Follower" using + or - buttons.
3. Press MENU ⇩ to "Frequency:" and press + to alter the setting. Set to the same frequency chosen for the Leader in Step 4 of the previous section. Note: The frequency value can be changed by using + or - buttons or by swiping left or right on the Scrollbar (See Figure 4.1).
4. Press MENU ⇩ to "Channel:" and press + to alter the setting. Press + or - to change to channel 2.
   Note: All units should be set in increasing numerical order from left to right and decreasing numerical order from right to left to avoid channel interference.
5. Repeat steps 1-4 for additional Follower units making sure to sequence channels in numerical order.

7.4 CASE 4

Description: All detectors are MZ 6100s connected to the same AC-Line Phase.

Distance to Adjacent Unit	Sync Method	Detector Location	Multi-Unit Role	Frequency	Channel	Notes
Any	Line Sync	Any	Solo	Manually Set Frequency to LINE	Sequential: Ch1, Ch2, Ch3, Ch4, Ch1, Ch2…	• All units must be powered from the same phase of AC power line, i.e. daisy chain power cords or ensure all outlets are connected to the same breaker, or breakers are on the same phase.



Role:	Solo	Role:	Solo	Role:	Solo	Role:	Solo	Role:	Solo
Frequency:	Line	Frequency:	Line	Frequency:	Line	Frequency:	Line	Frequency:	Line
Channel:	1	Channel:	2	Channel:	3	Channel:	4	Channel:	1

Setting up Multiple Units using Line Sync

1. Begin with all units off.
2. Switch on one unit and login with admin access (ACCESS > 67890).
3. Press MENU ⇩ to "Multi-Unit Role" and set to "Solo" using + or - buttons.
4. Press MENU ⇩ to "Frequency:" and press + to alter the setting. Change the frequency by pressing + button until "Line" is shown on the screen or by using the Scrollbar to slide right until "Line" is shown on the screen.
4. Press MENU ⇩ to "Channel:" and press + to alter the setting. Press + or - to change to channel 1.
   Note: Additional units should be set in increasing numerical order from left to right and decreasing numerical order from right to left to avoid channel interference.
5. Repeat steps 2-4 for additional units.

8. OPERATION

8.1. Operational Testing

- **Operational Test Piece**

  Actual forbidden objects should be used as targets for initial calibration. Once the detector settings are established it is recommended that a test piece be selected which is similar in size, shape, and metallic composition to the smallest forbidden object. This test piece can be used to generally verify operation on a regular basis without the necessity of having actual weapons on-hand at the screening station.

  Garrett offers an optional Operational Test Piece (OTP) that meets the specifications established by the U.S. Federal Aviation Administration (FAA) and is a representation of a small handgun. Garrett also offers an optional Flat Test Piece (FTP) which represents a small knife. You may want to consider other test pieces if your screening operation requires detection of objects other than guns and / or knives.

8.2 Operator Responsibilities

The Operator must follow the Supervisor's instructions regarding use of the MZ 6100 and the appropriate response to alarms.

The Operator's ongoing responsibility is to ensure that the MZ 6100 always operates according to the information displayed on the LED Panel *(see Figure 4-1)* and to determine the cause of the alarms.

The Operator should ensure that the:

1. MZ 6100 is always operating properly.
2. Program and sensitivity settings are correct by pressing VIEW SETTING
3. LED bar graph shows minimal interference (two lights maximum)
4. Green READY light is on
5. Operational testing is performed according to the Supervisor's instructions.
6. Volume set no higher than needed relative to ambient noise.

- **Ready Light**

  The Green READY light must appear before a patron is permitted to enter the walk-through for inspection.

  If the READY light shuts off and remains off, the Operator should activate the self test report by pressing the OPERATE touchpad; the results will appear on the LED Panel. During this time, no one is permitted to enter the walk-through. Traffic may resume only when the READY light reappears and remains on. If the READY light does not reappear or a failure message is displayed on the LED Panel, the Operator should attempt to solve the problem or consult the Supervisor.

- **Diagnostic Problems**

  As a general rule, the operator should follow the instructions regarding the appropriate response to failures revealed by the self test. The operator may be able to remedy the following failures:

  • **RX OPTIC FAIL:** Ensure the openings for the optical sensor (located inside both side panels at approximately 30" from the floor) are not blocked.

  • **RX ZN # BAL FAIL:** Ensure there is no large metal object near the MZ 6100.

  If the self-test reveals a failure that severely limits or prohibits the MZ 6100's performance, the alarm will sound, the LED Panel will flash and the message SYSTEM FAILURE will appear on the LED Panel. The LED will continue flashing until the power is turned off or the failure is remedied. The Operator should inform the Supervisor of any problems that occur.

- **Responding to Alarms**

  If a patron triggers an alarm and the alarm light appears, the Operator should instruct the individual to step outside the walk-through and remove any metal objects from their body and/or clothing. The Operator should then either scan the patron with a hand-held metal detector, such as a *SuperScanner* or *SuperWand* or ask the person to re-enter the walk-through.

  If an alarm sounds after the patron re-enters the walk-through, he or she must be re-scanned with a hand-held metal detector.

  The pinpoint lights facilitate the screening process by indicating the location of ALL alarmable objects within 20 zone areas. In cases, where there is more than one object, the lights appear in each array that requires investigation. This enables the Operator to know from which area(s) objects require removal and to concentrate on the problem areas when hand scanning, resulting in improved overall security and increased throughput.

9. MAINTENANCE / TROUBLESHOOTING

There are several factors that may cause difficulties with the MZ 6100. These can include installation, environmental noise, and program selection, as well as failures of the circuitry. Often a problem can be corrected quickly and easily by using the following information without the need for replacement parts or assistance from the factory or your dealer.

The following sections contain specific information and setup and should be read as part of the troubleshooting procedure:

Procedure:	**Manual Section:**
Site Selection & Requirements	Section 3.1
Unit Assembly	Section 3.2
Self Test	Section 5.4
Program and Sensitivity Settings	Section 6
Multi-unit Installation	Section 7
Operation	Section 8

Note: If you are having difficulties during setup or would like to start over with factory defaults, refer to *section 5.7, "Factory Default Settings".*

If the above-listed sections do not take care of a specific problem, sections 9.1 and 9.2 cover other issues which can commonly affect performance.

9.1 Locating and Resolving Noise Sources

The MZ 6100 uses the latest digital signal processing technologies to eliminate the effects of most external noise sources. However, the high sensitivity required to detect smaller objects may make the equipment susceptible to interference from a variety of external sources. The presence of these noise sources may be recognized through unusual bar graph activity typically spiking into the yellow or red when no one is being screened. The source of the noise may be mechanical or electrical. Two techniques are often helpful in locating external noise sources.

• Method to Locate Noise Interference

1. Enable the keypad by switching the keypad switch on the left edge of the controller board upward to ENABLE *(see Figure 5–4).*
2. Enter the diagnostic mode by pressing the ACCESS touchpad and then entering the code 09821.
3. Press the MENU key incrementally to view the alarm levels for each zone. The number in the center indicates the zone currently being observed, and the number on side indicates the alarm level reading (i.e. noise level) for that particular zone.
4. The alarm level indicates the peak level of the interference. Press the + key to reset the indicator to allow a new reading. After taking several readings for a given zone, press MENU⇩ to proceed to the next zone.
5. Observe the alarm levels for each zone. Lower numbers indicate greater ambient noise. Higher numbers (above 190) indicate low or no external interference. Zones with alarm level numbers approaching or below the selected sensitivity setting must be corrected.
6. Attempt to identify and resolve noise sources by switching off nearby electrical equipment sequentially while observing changes to the alarm levels. Moving the detector to change the distance or angle from nearby equipment or interference sources in the floor or walls is often helpful.
7. Possible sources of interference are moving gates, loose panels on x-ray cabinets or electrical components in nearby equipment. Remember that nearby sources (within a few feet) are likely to cause the zone lights to activate in only one or two zones. Sources that are farther removed may cause more zone lights to activate.
8. If operating in Solo Role, use the Auto Frequency Scan feature. If operating with Wired or Wireless Sync be sure the LEADER and all FOLLOWERS are set to the same frequency. If a change is required to resolve an issue with one detector in the group, that frequency must be applied to all detectors in the group.
9. The interference may also be resolved by switching M Filter ON or OFF, or adjusting Frequency. *(See "M Filter" in Section 5.6.)*

Failure Message	Critical Failure	Possible Failures	Remedy
TX (Transmit) Fail	YES	Transmitters turned off (TX off).	Turn transmitter on.
		Panel A Cable connection at panel	Insert connector firmly. Replace cable.
		Panel A Cable connection at PCB	Insert connector firmly. Replace cable.
RX (Receiver) Saturation	YES	Very large object near panel.	Remove large metal object.
		Interference from nearby metal detector.	Switch off nearby metal detectors, increase distance between detectors, ensure proper multi-unit synchronization
RX (Receiver) Zone # Fail	YES	Panel B connector at panel	Insert connector firmly. Replace cable.
		Panel B connectors J4 and J5 at PCB	Insert connectors firmly. Replace cable.
TX Optics Fail	NO	Panel A Cable connection at panel	Insert connector firmly. Replace cable.
		Panel A connector J7 at PCB	Insert connector firmly. Replace cable.
RX Optics Fail	NO	Panel B connector at panel	Insert connector firmly. Replace cable.
		Panel B connector J8 at PCB	Insert connectors firmly. Replace cable.
		Panel B IR blocked	Remove obstruction.
		Defective RX Optics module in panel	Check connector. Replace module.
No Line Sync	NO	Power Mod failure	Replace
		Controller PCB failure	Replace
		Power supply connection at J1	Insert connector firmly.
Power Mod Fail	YES	Defective power supply	Replace Power Mod
Cable Misconnect	YES	Cable disconnected at panel or PCB.	Reconnect
		Cables plugged into incorrect connector on PCB J4 and J5 (cables are identical).	Match connector numbers to PCB diagram.
No Leader	NO	No wireless or wired leader available	Switch on designated Leader. Verify that Group Leader and the Follower frequencies are the same for wireless sync. Verify wire connections for wired sync.
DSP Fail	YES	Bad controller board	Replace controller board
Invalid TX Freq Please Correct	NO	Invalid frequency range (between 0-1969) with Multi-Unit Role value of "Leader" or "Follower"	Change Multi-Unit Role value to "Solo" or change Frequency to value between 1970-2300

FIGURE 9-1

9.2 Error Code Table Diagnostics

Critical Failures and Non-Critical Failures

Failures are classified as either "critical" or "non-critical" *(see table in Figure 9-1)*. A critical failure prevents the MZ 6100 from operating and must be corrected immediately. When a critical failure occurs, the audio alarm sounds, the overhead display begins flashing and the message, SYSTEM FAILURE, appears on the LED Panel.

A non-critical failure does not prevent the MZ 6100 from operating; however, it should be corrected as soon as possible.

9.3 Repair

The MZ 6100's modular design facilitates assembly and maintenance.

If problems are site-related, see Section 3.1 or contact the factory for assistance. Often adjusting or relocating the equipment, or removing nearby objects resolves problems.

If the equipment does not perform properly, contact the factory for assistance.

- **Controller Board**

  The controller board, located in the detection unit, contains the primary circuit board required for operation. The cables that connect the controller board to the side panels are plugged into connectors at the top of each panel. The controller module cover should not be removed except to:
  - Revert access codes to factory setting (see Section 5.7.);
  - Perform a repair;
  - Connect sync wires.

- **Power Module**

  The power module supplies the power required for operation. Ensure that the power jumper is plugged into the connector on the lower left side of the module and to the panel connected to the cord.

- **Battery Module**

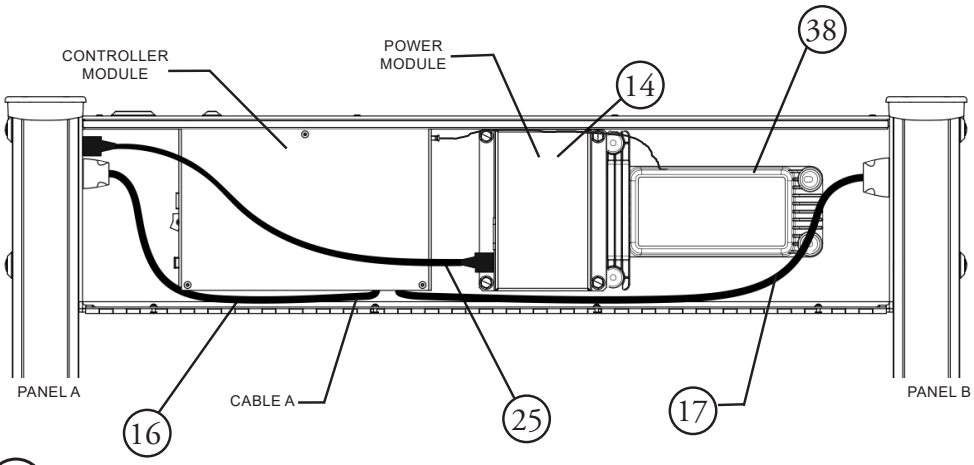
  The lithium battery backup module must be calibrated before use. This is done by fully charging the Battery Power to 100% which allows the Battery Power indicator to reflect the actual battery capacity. Should the Multi Zone continue to operate for an extended period while the Battery Power status displays 0% or the Multi Zone shuts off when the Battery Power status displays a sufficient charge percentage, the battery should be calibrated.

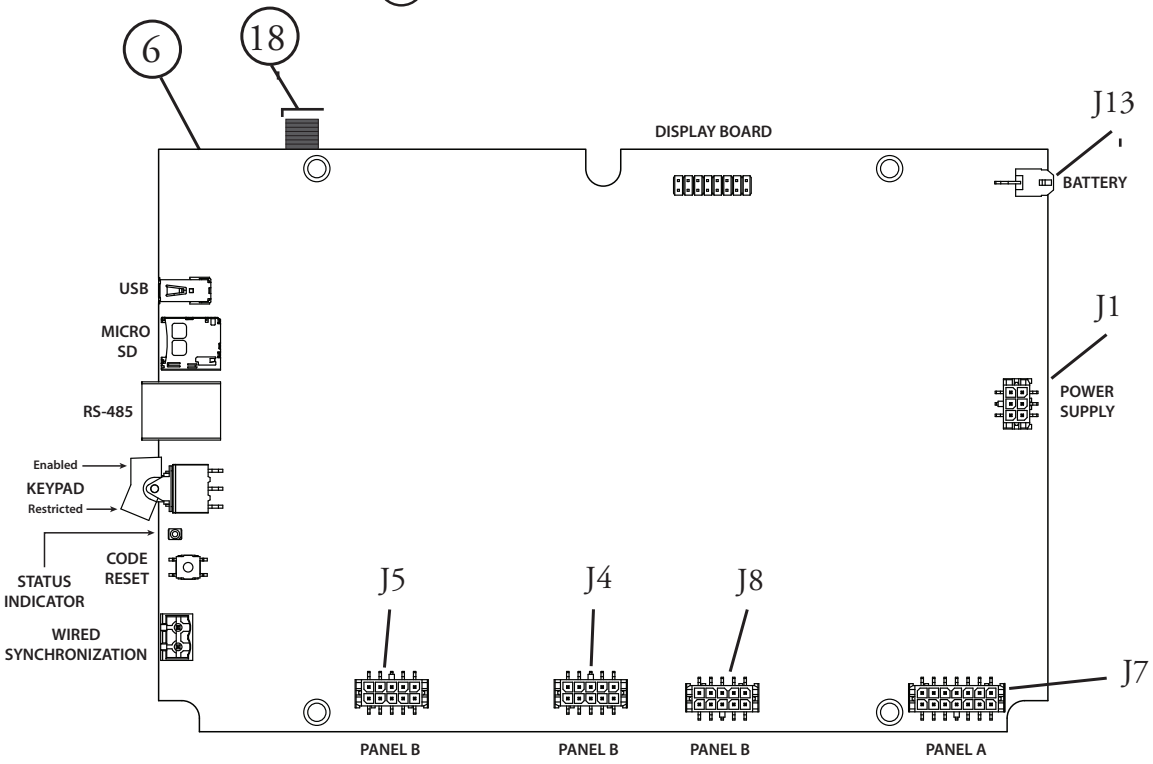
9.4 Replacement Parts

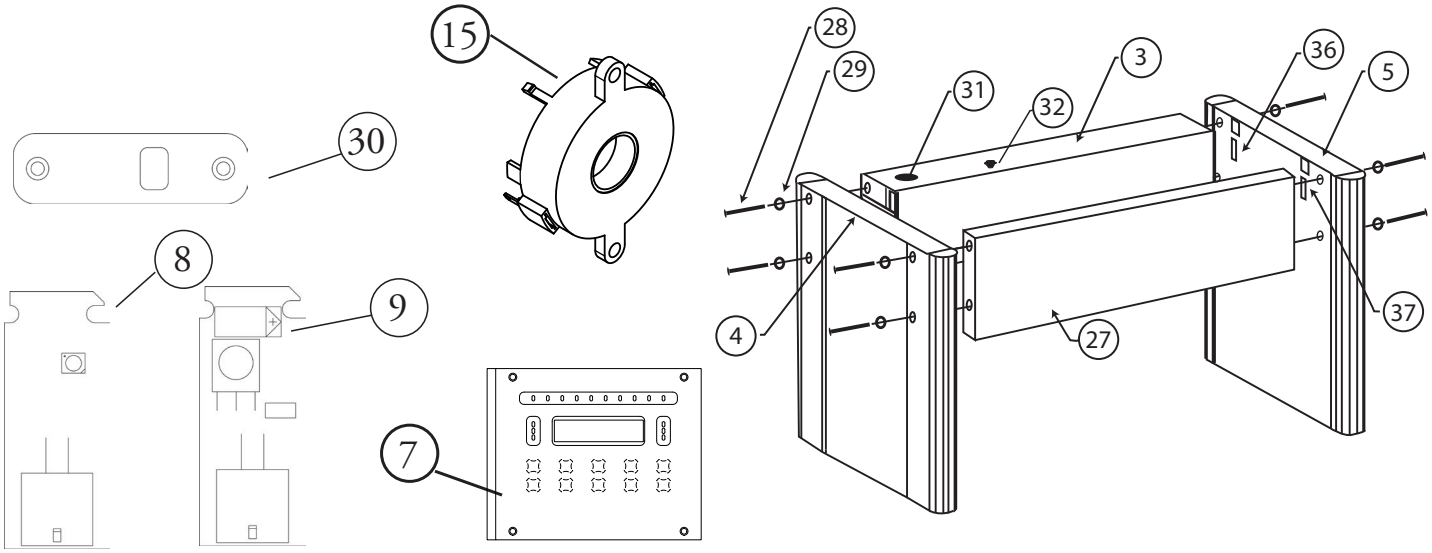
Replacement parts are available from Garrett. Refer to Table 9-4 and following illustrations to identify parts and part number.

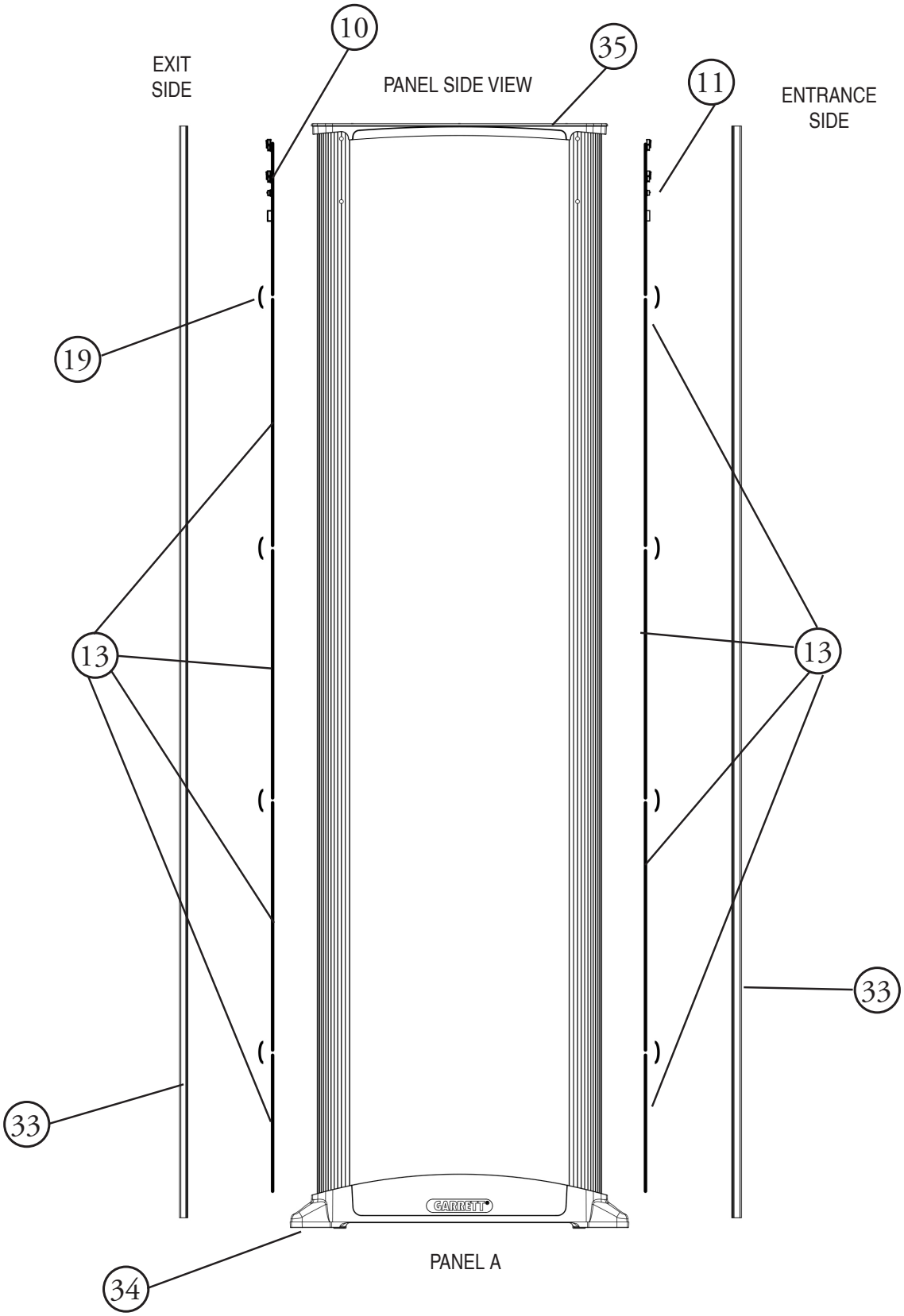
ITEM	DESCRIPTION	PART	QTY
1	Access Code Card	1556000	2
2	User's Manual	1534500	1
3	Detection Unit	2235701	1
4	Panel A	2235501	1
5	Panel B	2235601	1
6	TX/RX/Controller Pcb Assembly	2341001	1
7	User Interface Pcb Assembly	2351001	1
8	IR Emitter Pcb Assembly	2342002	1
9	IR Detector Pcb Assembly	2342102	2
10	Zone Indicator Controller Panel A	2350601	1
11	Zone Indicator Controller Panel A/B Aux	2350611	1
12	Zone Indicator Controller Panel B	2350621	1
13	Zone Indicator Set	2236500	2
14	Power Supply Module	2338612	1
15	Speaker Assembly	2425100	1
16	Cable Assembly A (15 pin)	2465901	1
17	Cable Assembly B (25 pin)	2466001	1
18	Ribbon Cable 16 x 6"	9504700	1
19	Flex Cable 4 x 1"	9440300	8
20	Power Cord 110V 17'	9411500	1
21	Power Cord - Euro Plug	9421300	1
22	Power Cord - British B51363	9435700	1
23	Power Cord - Australian A53112	9428400	1
24	Power Cord - NEMA L5-I5P Locking	9411570	1
25	Power Cord Jumper, 2 ft.	9427600	1
26	Power Cord, 10 ft. Daisy Link	9431900	1
27	Crosspiece	2351300	1
28	Screw ¼-20x3	9820400	8
29	Finishing Washer	9820501	8
30	Mount Assembly IR Emitter/Detector	2400203	3
31	Hole Plug 1 3/16"	9832300	1
32	Hole Plug 7/16"	9887900	1
33	Lens Light Bar	9889000	4
34	Boot	9889200	2
35	Cap	9889100	2
36	Dust Cover 25 PIN	9890100	1
37	Dust Cover 15 PIN	9890200	1

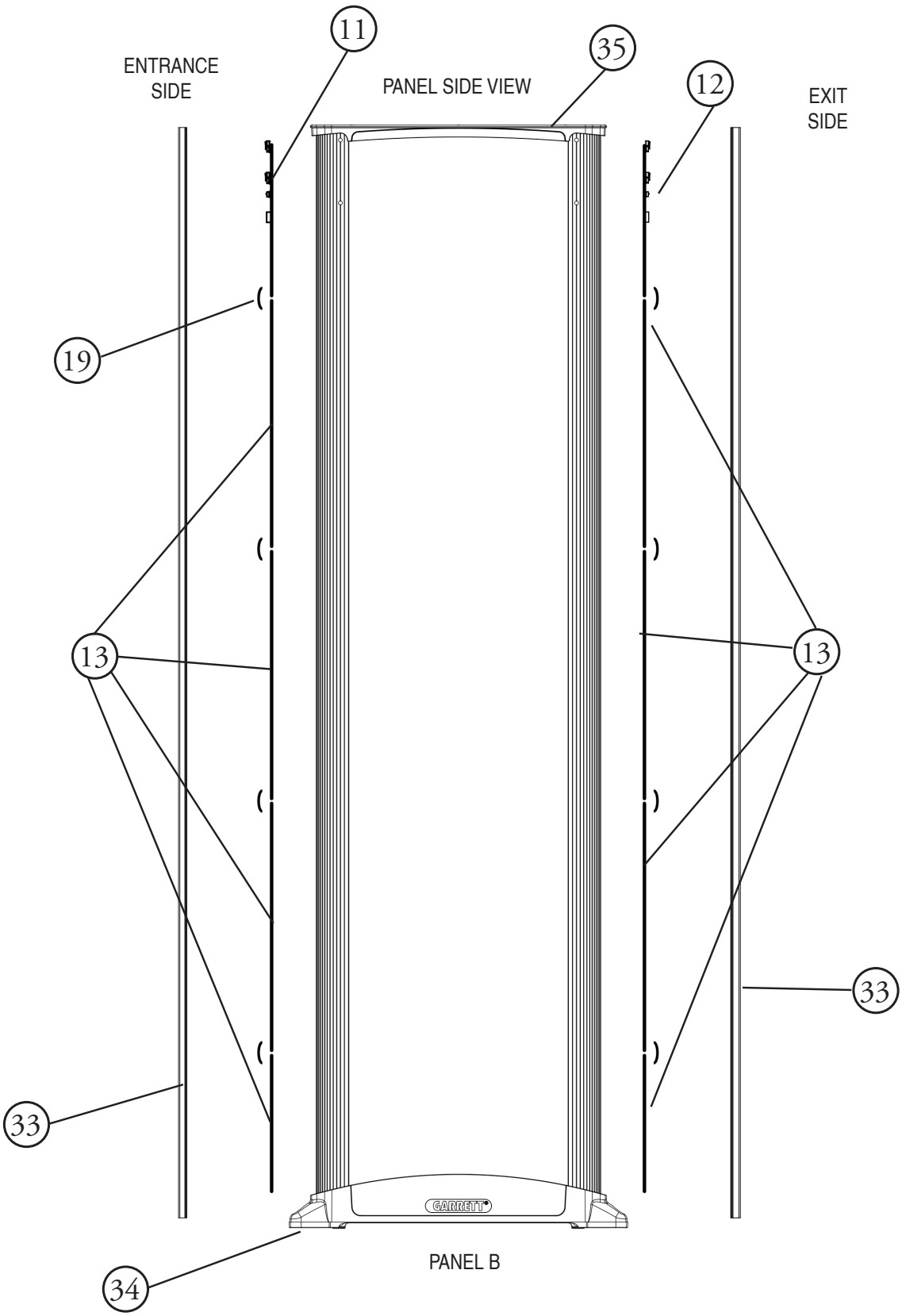
FIGURE 9–4


CONTROLLER MODULE
POWER MODULE
38
14
PANEL A
CABLE A
16
25
17
PANEL B


6
18
DISPLAY BOARD
J13
BATTERY
USB
MICRO SD
RS-485
J1
POWER SUPPLY
Enabled
KEYPAD
Restricted
STATUS INDICATOR
CODE RESET
WIRED SYNCHRONIZATION
J5
J4
J8
J7
PANEL B
PANEL B
PANEL B
PANEL A


15
30
8
9
7
28
29
31
32
3
36
5
4
27
37


EXIT
SIDE
PANEL SIDE VIEW
ENTRANCE
SIDE
10
35
11
19
13
13
33
33
34
GARRETT
PANEL A


11
35
12
ENTRANCE SIDE
PANEL SIDE VIEW
EXIT SIDE
19
13
13
33
33
34
GARRETT
PANEL B

9.5 Warranty Information

REGISTER YOUR GARRETT DETECTOR ONLINE

garrett.com/security/warranty-registration

QR SCAN - SECURITY

10. ACCESSORIES

For the most current description of accessory items, please visit garrett.com to view the Multi Zone (MZ 6100) web pages, where you can click the "Accessories." Examples of a few Multi Zone accessories are shown here.

Operational Test Piece (OTP): FAA approved

MZ 6100 Desktop Remote Console

Walk-Through Caster sets for full mobility

SmartScan™ Thermal Screening System

11. TECHNICAL SPECIFICATIONS: MZ 6100

11.1 30” UNIT DIMENSIONS

- Passage Interior:
  Width: 30” (0.76m)
  Height: 80” (2m)
  Depth: 23” (0.58m)
- Overall Exterior:
  Width: 35.6” (0.9m)
  Height: 87” (2.2m)
  Depth: 23” (0.58m)
- Shipping:
  Width: 35.5” (0.9m)
  Height: 92” (2.3m)
  Depth: 6.5”(0.17m)
- Shipping Weight:
  155 lbs (70.3 kg)

32.5” UNIT DIMENSIONS

- Passage Interior:
  Width: 32.5” (0.83m)
  Height: 80” (2m)
  Depth: 23” (0.58m)
- Overall Exterior:
  Width: 38.1” (0.97m)
  Height: 87” (2.2m)
  Depth: 23” (0.58m)
- Shipping:
  Width: 35.5” (0.9m)
  Height: 92” (2.3m)
  Depth: 6.5”(0.17m)
- Shipping Weight:
  157 lbs (71.2 kg)

11.2 OPERATING CONDITIONS

- Operating Temperature:
  +14ºF (-10ºC) to +140ºF (60ºC)
- Storage Temperature:
  +14ºF (-10ºC) to +176ºF (80ºC)
- Charging:
  +32ºF (0ºC) to +113ºF (45ºC)
- Humidity:
  Up to 95% non-condensing.

11.3 WIRELESS SPECIFICATIONS

The *MZ 6100* complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user’s authority to operate the equipment.

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Ce produit est conforme aux normes RSS exemptes de licence d’Industry Canada. Son fonctionnement est soumis aux deux conditions suivantes : (1) ce dispositif ne peut pas provoquer d’interférences et (2) ce dispositif doit accepter toute interférence, y compris celles pouvant entraîner un dysfonctionnement.

Wireless Transmitter Specifications

Operating Frequency:	2405–2480 MHz
Transmit Power:	7.6 dBm EIRP
Certifications:	CSA, FCC, CE, IC, AS/NZ

12. REGULATORY INFORMATION

12.1 ELECTRICAL SAFETY

The Garrett MZ 6100 has been tested and found to comply with:

- International Standard:
  IEC 61010-1 3rd ED:2010 Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use, Part 1: General Requirements (for temperatures up to 50°C).
- CAN ICSA C22.2 No. 61010-1-12 Safety requirements for electrical equipment for measurement, control, and laboratory use
- UL 61010-1 Safety requirements for electrical equipment for measurement, control, and laboratory use.
- OSHA Regulation 29 CFR 1910.147 De-energizing Equipment.

12.2 MAGNETIC FIELD SAFETY

The Garrett MZ 6100 has been tested and found to comply with:

- ACGIH-0302 Sub-Radio Frequency (30 kHz and below) Magnetic Fields.
- Institute of Electrical and Electronic Engineers IEEE C95.1 "IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz," and IEEE C95.6 "IEEE Standard for Safety Levels with Respect to Electromagnetic Fields, 0–3 kHz."
- EN 62311:2008 Assessment of Electronic Equipment Related to Human Exposure Restrictions for Electromagnetic Fields (0 Hz to 300 GHz).
- International Commission for Non-Ionizing Radiation Protection (ICNIRP), "Guidelines for Limiting Exposure to Time-Varying Electric, Magnetic and Electromagnetic Field (Up to 300 GHz)."
- NBS Special Publication 500-101, "Care and Handling of Computer Magnetic Storage Media.
- National Institute of Law Enforcement and Criminal Justice: Standards for Walk-Through Metal Detectors for use in Weapons Detecting NILECJ-STD-0601.00 Section 4.11.

12.3 MEDICAL SAFETY

- Canada Health and Welfare: Performance Standards (Walk-Through), RPB-SC-18 section 3.2.2 which addresses the issue of electromagnetic effects to cardiac pacemakers.
- Occupational and Safety Health Administration: Radiation Protection Guide, 29 CFR 1910.97 section (2) i.
- Magnetic fields produced by the MZ 6100 are below the test levels specified for Active Implantable Medical Implant certification in IS0 14117 and ISO 14708-1 through ISO 14708-7.

12.4 ELECTROMAGNETIC COMPATIBILITY

The Garrett MZ 6100 has been tested and found to comply with:

- FCC 47 CFR, Part 15, Subpart B: Class A for Conducted Emissions and Radiated Emissions.
- EN 55024: Information Technology Equipment - Immunity Characteristics.
- EN 55032: Electromagnetic Compatibility of Multimedia Equipment.
- EN 61326 Electrical Equipment for measurement, control, and laboratory use - EMC requirements
- EN 303 454, Short Range Devices, Metal and object detection sensors in the frequency range 1 kHz to 148.5 kHz.
- ICES - 003, Issue 4 for Conducted and Radiated Emissions.

12.5 PHYSICAL

The Garrett MZ 6100 has been tested and found to comply with:

- IEC 68-2-27, 29 for Shock and Bump.
- ASTM F1468-95 Section 5.4 Tip Over (requires anchoring).
- IEC 529 IP55 or IP65 for protection from water and foreign objects.

GARRETT®

PN 1534500 REV E EC-10902