



PARAGON WALK-THROUGH METAL DETECTOR



Part No. 1557900

USER MANUAL

English

GARRETT®





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MANUFACTURER CAUTION

General Info

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%
	60 Watts
	50/60 Hz
Installation Category:	II
Pollution Degree:	3
Maximum Relative Humidity:	95% non-condensing
Operating Temperature:	-4°F (-20°C) to +131°F (55°C)
Storage Temperature:	-22°F (-30°C) to +176°F (80°C)
Maximum Altitude:	2000 meters



CAUTION! *Paragon* 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! Connect the equipment to a power source with protective earthing. Position to allow access to the disconnecting device.



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: *Paragon* 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

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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.

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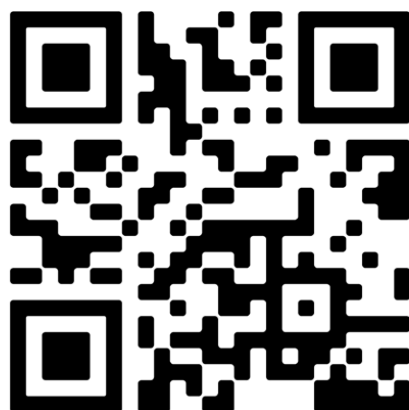
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1. GENERAL DESCRIPTION OF PARAGON

- **Usage:** The intended usage of the Garrett *Paragon* is as a walk-through metal detector for security and loss prevention applications.
- **Basic Description:** *Paragon* (Model #11720xx) 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:** *Paragon* 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 66 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 10-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 key lock inhibit switch is located on the key pad.
- **Controls/ Displays:** *Paragon* utilizes OLED displays and bar graphs for continuous on-line operating status and self-diagnostic reporting. All controls and settings are simplified with menu selections and keypad controls.
- **1.8 Ahr Battery Backup:** A battery backup is pre-installed 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 14 ah Battery, External Battery Charger, 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. *Paragon* comes equipped with a wireless sync module, so that accessory is not needed.

2. PARAGON QUICK START GUIDE

SCAN TO VIEW PARAGON QUICK START GUIDE



3. BASIC INSTALLATION AND ASSEMBLY

3.1 Site Selection and Requirements

Before choosing a site for the *Paragon* walk-through metal detector, it is important to consider the volume and throughput requirements of patron traffic, space availability and overall environmental conditions. The *Paragon* must always be installed on a level, stable surface. 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. Wooden or metal platforms cannot be used.

- **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.

SUGGESTED SINGLE LANE CONFIGURATION

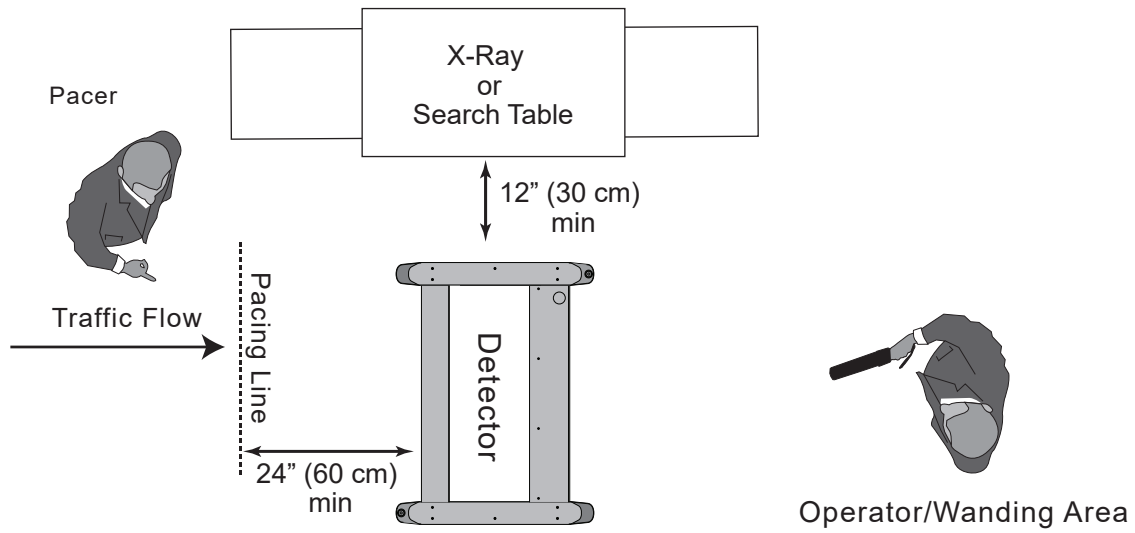


FIGURE 3-1

SUGGESTED MULTI-LANE CONFIGURATION-A

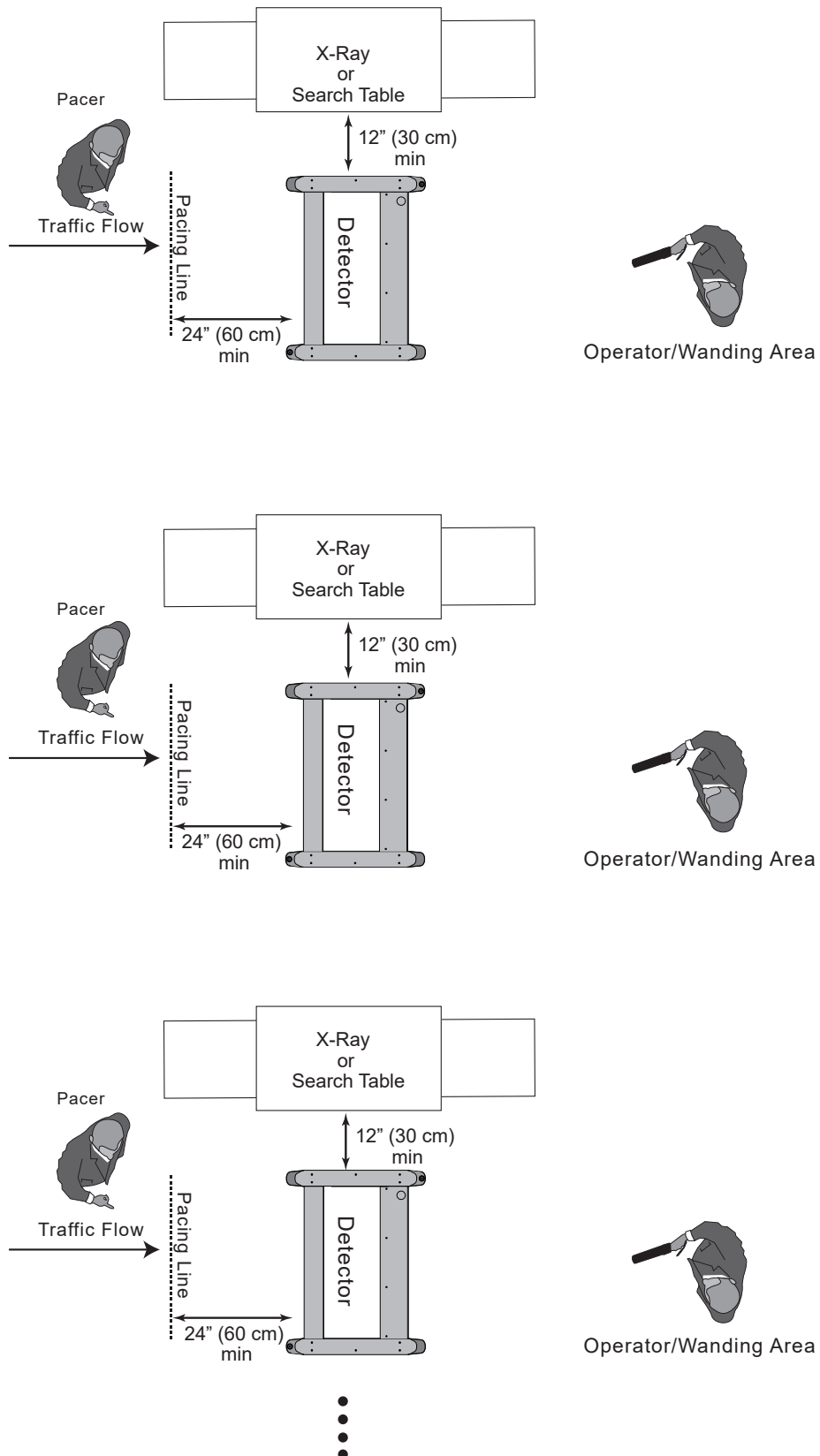


FIGURE 3-2

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

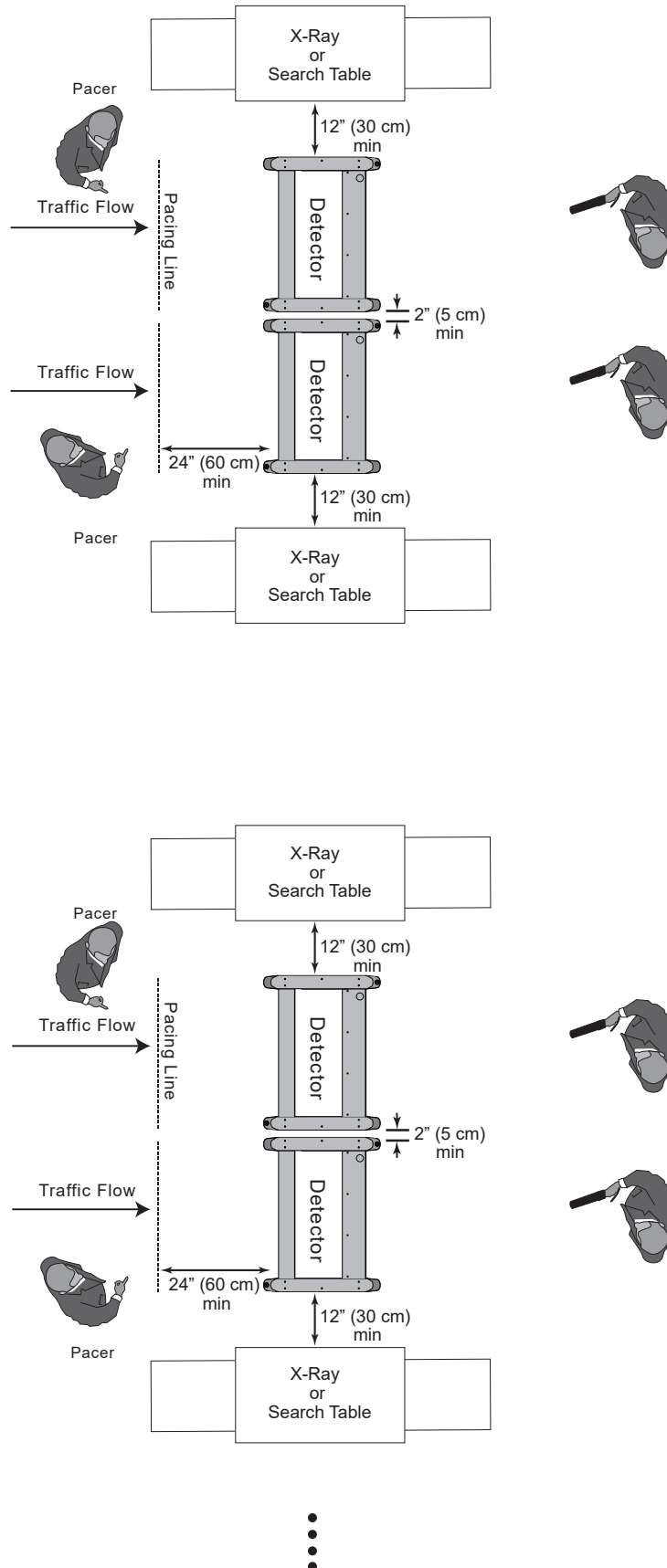


FIGURE 3-3

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 *Paragon* including the mechanical assembly 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
- Panel B (MOTION sensor panel)
- Detection unit (head)
- Beacon Crosspiece (support brace)
- 2' AC jumper cord
- 10' power cord
- Eight 1/4 -20x3.29" screws
- Eight finishing washers

Tools:

- Drill or electric screwdriver w/
No. 3 screwdriver bit

Accessories:

- Quick Start Guide
- 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 keypad panel facing down) on packing insert. Place the panels as shown with Panel A (no MOT 1000 sensor) on the left side. Make sure the lip on

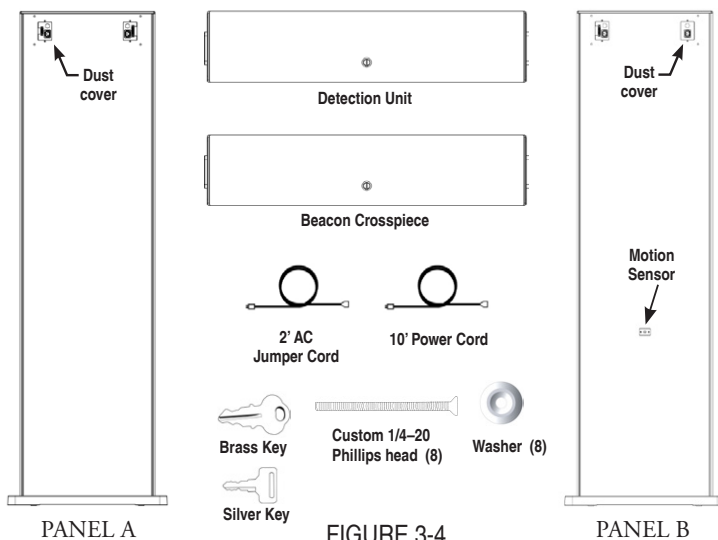


FIGURE 3-4

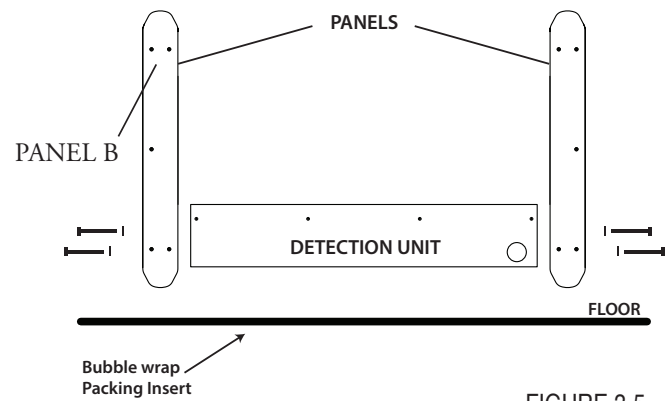


FIGURE 3-5

the spacer that is mounted to the detection unit fits inside the opening on the panel. This helps hold the unit in place and ensures the screws are not cross-threaded and inserted properly. Use a No. 3 Phillips bit or screw-driver to connect detection unit to the panels with four screws and finishing washers. Do not tighten!

4. Connect Panel Cables

Open the door of the detection unit. Connect cables A (44-pin) and B (44-pin) into the corresponding panels. (See Figure 3-6.)

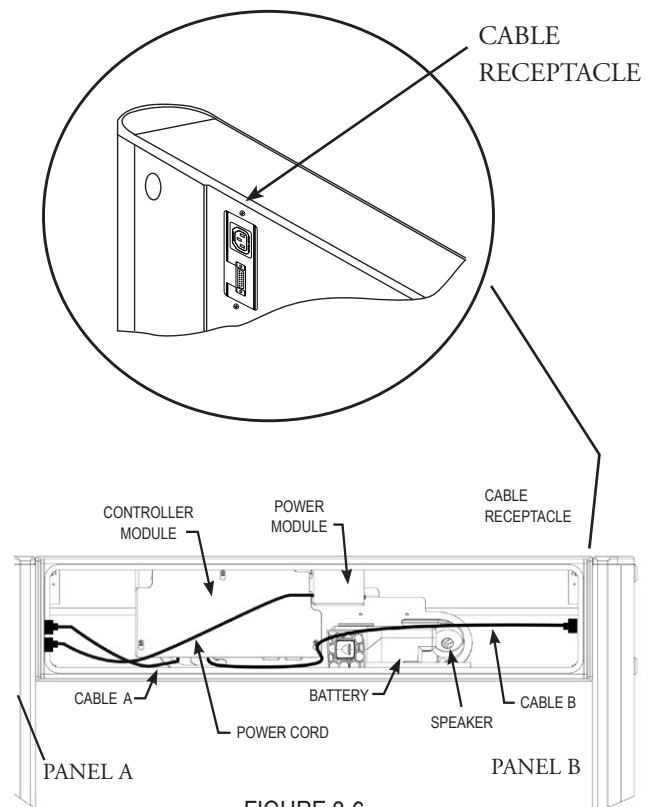


FIGURE 3-6

5. 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 3-7.)

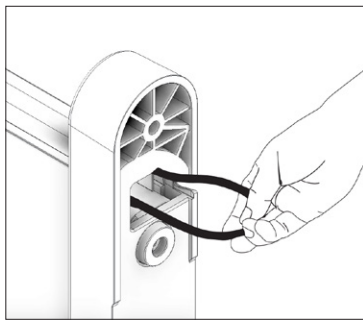


FIGURE 3-8: Power cable retrieval

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.

6. Use the four remaining screws and washers to attach the beacon crosspiece to the two panels. (See Figure 3-8.)

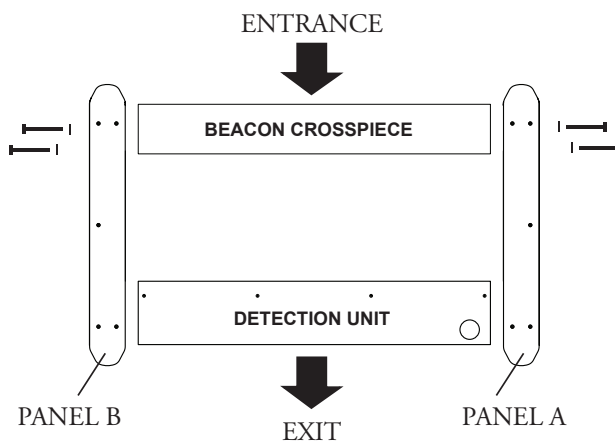


FIGURE 3-8

7. Open beacon crosspiece and insert 15-pin cable into Panel A. Ensure connector is facing the correct way. Do not force connection as bent pins could ruin the panel.
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 *Paragon* to a vertical position and move to desired location. (See Figure 3-9.)

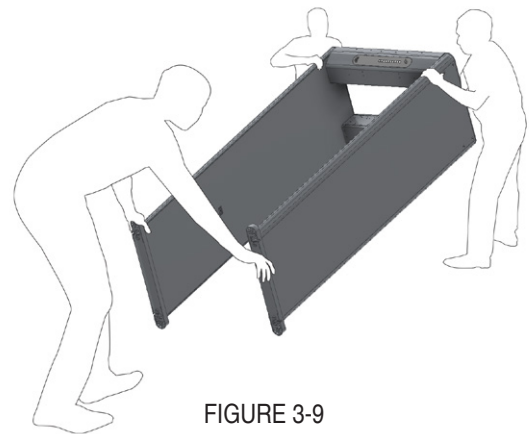


FIGURE 3-9

10. Ensure *Paragon* is physically stable and does not sit on top of power cord.
11. Orient *Paragon* for operation where the beacon crosspiece is the entrance side and the detection unit is the exit side.
12. Tighten all screws.

• Power Cord Wiring Description

Paragon includes a standard American ground power cord. To replace or remove plug use:

Green	To Ground
Black	To line Hot
White	To line Neutral

Paragon 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

Paragon 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.

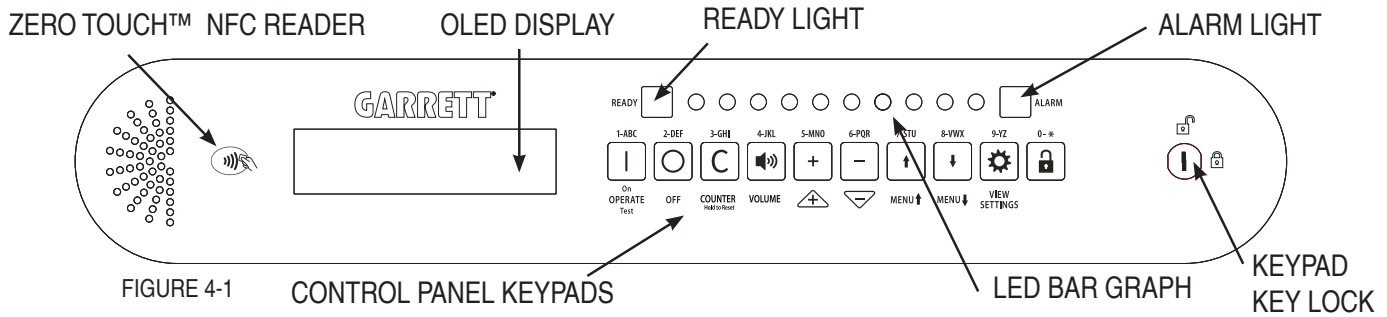
3.4 Installation Completion

Complete the installation of *Paragon* 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

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.

4. CONTROLS, DISPLAYS, ALARMS OVERVIEW



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 *Paragon* 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.

- **OLED Display**

This visual display reports calibration and operational information, including program and sensitivity settings, operator functions and fault indication. The OLED Display 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.

- **Keypad Key Lock**

This switch may be used to restrict the functions of the keypads to prevent tampering.

See "Operator Enabled" in section 5.6 for details.

- **Zero Touch NFC Reader**

This NFC reading sensor allows the securable, touchless reprogramming of *Paragon* with programmable and non-programmable NFC cards.

- **Keypads**

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

- **[I] OPERATE (ON/TEST):** The OPERATE keypad is used to turn *Paragon* on. Unit will be ready to operate within ten seconds. Activate the manual self-test at any time by pressing OPERATE.
- **[O] OFF:** The OFF keypad is used to turn *Paragon* off.
- **[C] COUNTER:** The COUNTER keypad 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 keypad for approximately five seconds.
- **[Speaker] VOLUME:** Use to access the volume control of the audio alarm.
- **[+] and [-]:** The plus (+) and minus (-) keypads are used to change numerical settings, activate certain on/off functions and adjust the volume of the audio alarm.
- **MENU [Up] and [Down]:** Use to scroll through menu items after entering supervisor or administrator access code.
- **[Gear] VIEW SETTINGS:** Enables the user to

view the current program and base sensitivity settings.

-  **ACCESS:** Used to initiate password login for supervisors and administrators.

• Status Lights

Status lights are located on both the entrance and exit sides of Panel A and Panel B. 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 66 positions left, center, and right. 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.

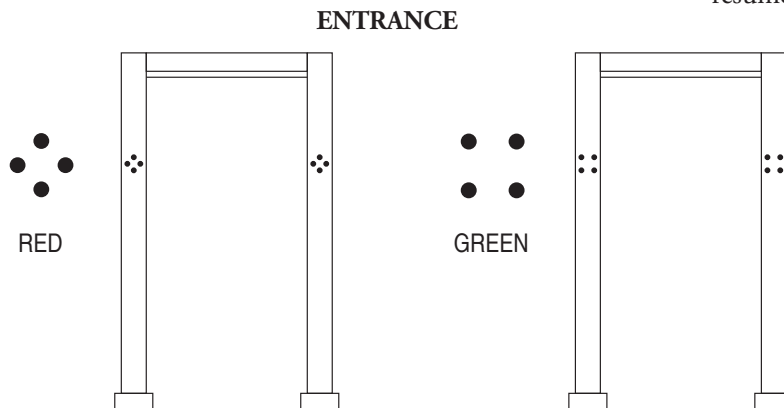


FIGURE 4-2
LED status light
(Red/Green)

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 OLED Display. 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 keypad 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 OLED Display, and an audible tamper alarm momentarily sounds and normal operation resumes.

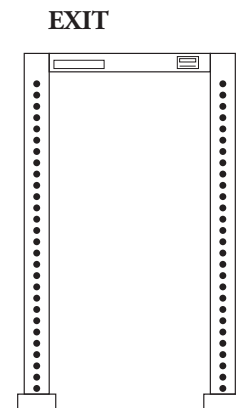


FIGURE 4-3
LED zone
lights (red)

5. ACCESS, SETUP, AND PROGRAMMING

5.1. Security Clearance Access Levels

There are three access levels of security clearance for *Paragon*.

• Operator Level

The Operator can turn the unit on or off, 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 On or Off button to power cycle the unit. Press the VIEW SETTINGS keypad to view Program and Base Sensitivity. Press the COUNTER keypad to view Patron Count, Alarm Count, Alarm % and Random Alarm %. Press and hold the COUNTER keypad to reset the Counter to zero (0). Press the VOLUME keypad to view the volume setting; then press the + / - keypad 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 on the front of control panel 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 key access to the Keypad Switch on the front of the control panel 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 keypad for the first time, the READY light appears and the OLED Display displays the logos followed by the message, GARRETT SECURITY. Press OPERATE again, and the unit will report critical settings and self-test results. The OLED Display displays the following information, in sequence as seen in FIGURE 5-2.

Press OFF to power off unit.

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 Control Panel*) 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” keypad (*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.

OLED 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 or 2)	channel selection
6. PROGRAM: XXXXXXXX	program selection
7. BASE SENSITIVITY: ###	base sensitivity setting
8. BATTERY	battery capacity
9. SELF-TEST...	self test in progress
10. BATT POWER XX%	strength of battery
11. OPERATE	resume operate mode

FIGURE 5-2

Note: If Ambiscan is On, both the Forward and Reverse Program and Base Sensitivity will be displayed.

TABLE 5-1

Access / Setup / Programming

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	On, Off, Define 1, 2, 3
	Multi-Unit Role:	View	-	Select Solo/Leader/Follower
	Auto Freq Scan	-	-	Press + to Start
	Frequency:	View	-	Press + to Alter from 0 - 2300, Line
	Channel:	View	-	Press + to Alter from 1, 2
	Directional Prog:	-	-	On, Off
	Program: ^{1, 2}	View	View	Select Program
	Base Sensitivity: ^{1, 2}	View	View	Select 0-200
	Alarm Level: ²	-	View / Press + to Reset	View / Press + to Reset
	Zone Boost:	-	-	Press + to Alter Zones 1-22
	Zone Boost (zones 1 - 2) ¹	-	-	Select +/- 50%
	Zone Boost (zones 3 - 19) ¹	-	-	Select +/- 15%
	Zone Boost (zones 20 - 22) ¹	-	-	Select -100% to +150%
	Volume:	Select 0-12	Select 0-12	Select 0-12
	Minimum Volume:	-	-	Select 0-12
	Tone:	-	-	Select 0-9
	User Count	View/Reset	View/Reset	-
	User Real Alarms:	View/Reset	View/Reset	-
	User Real Alarm %:	View/Reset	View/Reset	-
	User Counters	-	Press + to reset	-
	User FWD Count	-	View	-
	User FWD Alarm	-	View	-
	User REV Count	-	View	-
	User REV Alarm	-	View	-
	Admin Count	-	-	View / Press + to Reset
	Admin Real Alarms	-	-	View / Press + to Reset
	Admin Real Alarm %	-	-	View / Press + to Reset
	Admin Counters	-	-	Press + to Reset
	Admin FWD Count	-	-	View
	Admin FWD Alarm	-	-	View
	Admin REV Count	-	-	View
	Admin REV Alarm	-	-	View
	Count Direction:	-	-	Select Fwd. Only, Rev. Only, Subtract Rev., Bidirectional
	Random Alarm %: ¹	View	View	Select 0 to 100%
	Random Alarm on Alarm %:	-	View	Select 0 to 100%
	Audio Alarm Duration:	-	-	Select 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
Access Control	Entry Status Lights:	-	-	Select Pace / Ready-Alarm / Off
	Exit Status Lights:	-	-	Select Pace / Ready-Alarm / Off
	Motion Sensor:	-	Select On / Off	Select On / Off
	Bar Graph:	-	-	Select Normal / Diagnostic
	Detection Speed:	-	-	Select Normal / Expanded
	Transmit Mode:	-	-	Select On / Off, On/On, Off/On, Off/Off
	M Filter:	-	-	Select On / Off
	Operator Enable:	-	-	Select On / With Key / Off
	Supervisor Code:	-	-	Press + to Alter
	Admin Code:	-	-	Press + to Alter
	RX Bal	-	-	View

¹ These values will be stored and retrieved for each USER PRESET.² If Ambiscan is On, both Forward and Reverse Program, Base Sensitivity, and Alarm Level will be displayed.

TABLE 5-1

Access / Setup / Programming

TYPE	FUNCTION	VALUE		
		Operator	Supervisor	Administrator
Access Control	Sequence	-	View	View
	Operating Hours	-	View	View
	NFC:	-	-	Select On / Off / With Key / With Password
	NFC Remove Card	-	-	Press+, Tap Card Now to Remove All, Card List
	NFC List Cards	-	-	Press +, Card List
	NFC Update Card	-	-	Press +, Tap Card Now
	NFC View Card	-	-	Press +, Tap Card Now
	Relay:	-	-	Relay Controlled, WTMD Controlled
	Beacon Light:	-	-	Select Entry Status / Off

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" and don't show a colon after the function name. Menu functions that are selectable will have a colon after the function name. *Paragon* 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↑ keypads; 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 + / - keypads. Choose from: English, Spanish, Turkish, German, Czech, French, Polish, Japanese, Italian, Portuguese, Russian, or Dutch.

Other languages are available on request.

• 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 1–22 = 0% boost, Rand Alarm 0%}
- User Preset2 = {Program Airports, Base Sensitivity 155, Zones 1–22 = 0% boost, Rand Alarm 10%}
- User Preset3 = {Program Prisons, Base Sensitivity 185, Zones 1–22 = 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 + / - keypads 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↓ keypad again to see the current User Preset number (1, 2, or 3).
4. To select a different User Preset, press the (+) or (-) keypads until the desired User Preset is shown.
5. Once prompted press (+) keypad to confirm this selection, or press (-) keypad 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 (-) keypads.
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 an embedded wireless sync module or hard wires, provides synchronization information to nearby detectors.

FOLLOWER synchronizes *Paragon* 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. *Paragon* 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 choose 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 *Paragon* 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 - keypads to increment by 1. Press the Count and Volume buttons to increment by 10.

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*. Line is located one step above 2300.

- **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 or 2 when two or more *Paragons* are operating near each other. (See Figure 3-3.)

Note: When using a Garrett *Paragon* with *Multi Zone* or *PD 6500i*, use channels 1 and 2 to coincide with *Multi Zone* or *PD 6500i* channels 1 and 2.

- **Ambiscan**

When Ambiscan™ is set to On, the Program and Base Sensitivity can be set to one setting for the forward direction and a different setting for reverse direction as needed. The Program/Base Sensitivity menu will also change to Program/Base Sensitivity Forward and Program/Base Sensitivity Reverse to allow for both settings to be modified discretely. When set to Off, the Program/Base Sensitivity setting will be the same for both the forward and reverse direction.

- **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 + / - keypads 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. Individual zones can also be adjusted using "Zone Sensitivity Boost" section.

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 0-200 using the + / - keypads or scroll bar. To determine proper sensitivity setting, follow ALARM LEVEL instructions below.

Warning: Changing Base Sensitivity to Zero completely disables metal detection capability.

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 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.

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) keypad 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 Alarm Level number.
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.
8. To view the interference using zone lights, turn Motion Sensor Off and increase Base Sensitivity to a value higher than the background interference Alarm Level number.

• Zone Sensitivity Boost

Individually adjusting Boost in the detector's separate zones can help ensure uniform detection by compensating for external stationary metal, if needed, such as excessive metal in the floor; or it can be used to increase or decrease detection in certain areas, if desired, such as reducing shoe alarms at the floor.

The Paragon contains a total of 66 zones: 22 zones from top to bottom and three zones from left to right. However, for the sake of simplicity in making

individual zone adjustments, these 66 zones are consolidated into 22 adjustable areas from top to bottom. These 22 adjustable areas are displayed on the walk-through's LCD as Zones 1–22. The 22 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) keypads.

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: -15% to + 15%
19. ZONE 19: -100% to + 150%
20. ZONE 20: -100% to + 150%
21. ZONE 21: -100% to + 150%
22. ZONE 22: -100% to + 150%

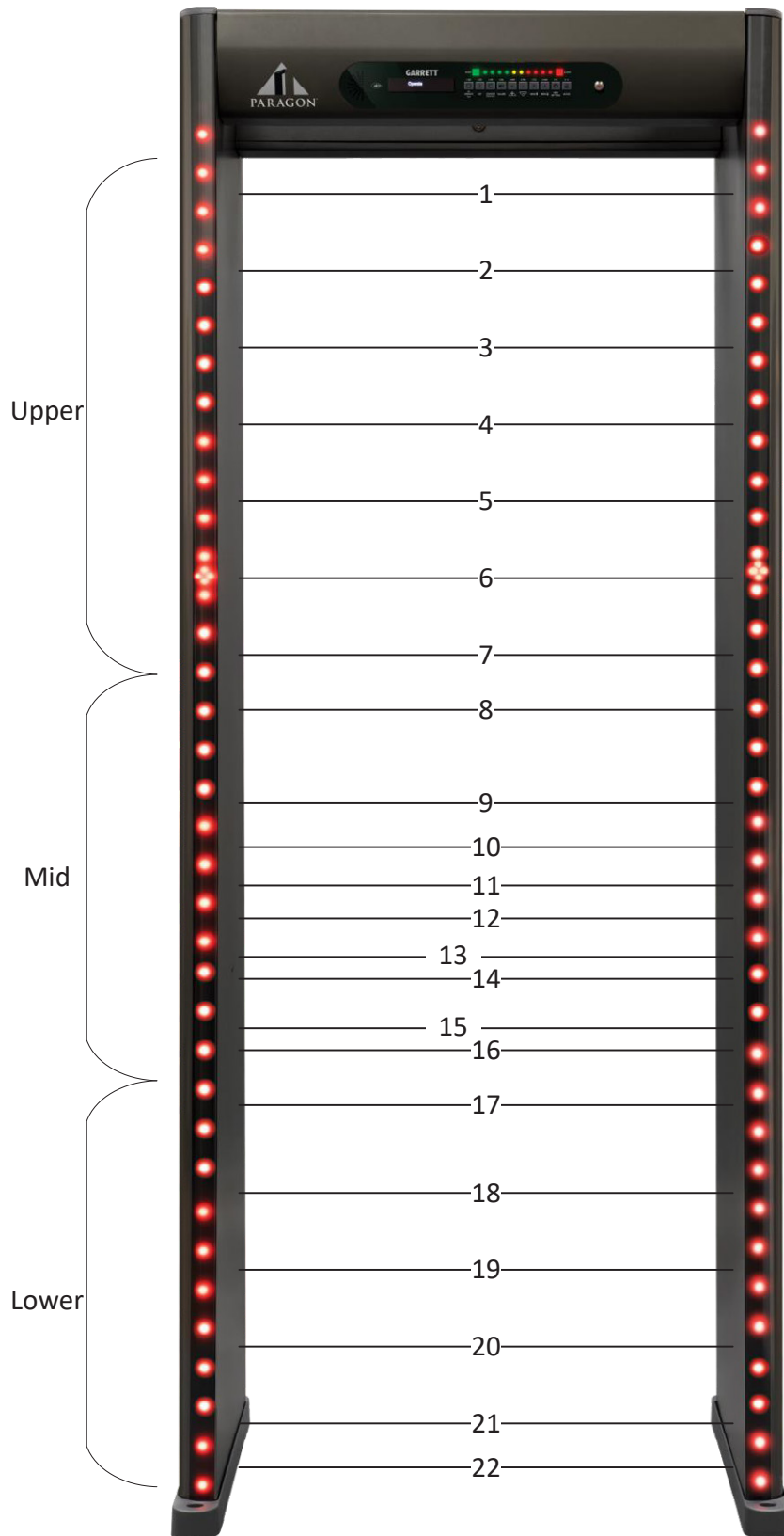


FIGURE 5-3: Paragon Boost Zones

- There are 22 individually adjustable detection zones from top to bottom.

- **Volume**

VOLUME shows the detector's current volume setting. The user may use the + / – keypads 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 + / – keypads to adjust the tone from 1 (bass) to 9 (treble).

- **User Count**

A built-in and user resettable traffic counter records the number of patrons who pass through the walkthrough. 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.

- **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

- a. **User FWD Count**

User FWD Count is a user-level traffic counter that can be viewed and reset by a supervisor. It counts movement through the walkthrough from the beacon crosspiece to the detection head.

- b. **User FWD Alarm**

User FWD Alarm displays the number of alarms and can be viewed only by the user and supervisor. It automatically resets to zero when the User FWD Count is reset or rolls over. It counts alarms from movement through the walkthrough from the beacon crosspiece

to the detection head.

- c. **User REV Count**

User REV Count is a user-level traffic counter that can be viewed and reset by a supervisor. It counts movement through the walkthrough from the detection head to the beacon crosspiece.

- d. **User REV Alarm**

User REV Alarm displays the number of alarms and can be viewed only by the user and supervisor. It automatically resets to zero when the User REV Count is reset or rolls over. It counts alarms from movement through the walkthrough from the detection head to the beacon crosspiece.

- **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.

- e. **Admin FWD Count**

Admin FWD Count is an admin-level traffic counter that can be viewed and reset only by an administrator. It counts movement through the walkthrough from the beacon crosspiece to the detection head.

- f. **Admin FWD Alarm**

Admin FWD Alarm displays the number of alarms and can be viewed only by the administrator. It automatically resets to zero when the Admin FWD Count is reset or rolls over. It counts alarms from movement through the walkthrough from the beacon crosspiece to the detection head.

- g. **Admin REV Count**

Admin REV Count is an admin-level traffic counter that can be viewed and reset only by an administrator. It counts movement through the walkthrough from the detection head to the beacon crosspiece.

h. Admin REV Alarm

Admin REV Alarm displays the number of alarms and can be viewed only by the administrator. It automatically resets to zero when the Admin REV Count is reset or rolls over. It counts alarms from movement through the walkthrough from the detection head to the beacon crosspiece.

- **Count Direction**

Used to select the way in which traffic flow will be counted. For reference, the Beacon Crosspiece side is the entrance and the Detection unit side is the exit.

—FORWARD ONLY counts patrons passing in the normal forward direction only (from entrance side to exit side); passing in the reverse direction (from exit side to entrance side) 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 – keypads. 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 – keypads. Random Alarm On Alarm is indicated by a pulsed alarm au-

dio 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 + / - keypads.

- **Zone Light Duration**

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

- **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 (-) keypad 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 (-) keypad 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.

- **Motion Sensor**

A Time of Flight (TOF) sensor has been designed to help prevent false alarms caused by nearby external moving metallic materials such as wheel-chairs, elevators, persons possessing metal, wind, etc. causing the unit to rock and then alarm. When Motion Sensor is on, the above circumstances will not cause the detector to audibly alarm when no one is passing through the unit. When Motion Sensor is off, the unit may audibly alarm under these circumstances even when no one is passing through the unit. Although useful, the Motion Sensor is not required for operation and may be disabled if desired.

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 *Paragon*. 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.*)

- **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.

- **NFC**

Control NFC accessibility with four settings.

- **NFC Remove Card**

To remove an NFC Card from the walkthrough memory, press + and hold the card up to the NFC icon on the left side of the detection head.

- **NFC List Cards**

Press + to view and cycle through the NFC cards that have been added to the walkthrough.

- **NFC Update Cards**

To update an NFC Card that has been added to the walkthrough, press + and hold the card up to the NFC icon on the left side of the detection head. Then, follow the menu prompts on the display to update the settings available on your card.

- **NFC View Cards**

To view the settings of an NFC Card, press + and hold the card up to the NFC icon on the left side of the detection head.

- **Relay:**

To determine whether an attached Relay Module controls the walkthrough switches or whether the walkthrough does, press + or -.

- **Beacon Light:**

To turn the beacon light on or off, press + or - to alternate between entry status (On) and Off.

5.7 Factory Default Settings

The Garrett *Paragon* arrives from the factory with the following default settings:

<u>Function:</u>	<u>Value:</u>
Language	English
User Presets Function	OFF
Multi-Unit Role	Solo
Frequency	Line
Channel	1
Ambiscan	OFF
Program*	Airports
Base Sensitivity*	155
Zones 1 - 20 BOOST	0%
Volume	5
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
Motion Sensor	ON
Bargraph	Normal
Detection Speed	Normal
Transmit Mode	ON
M Filter	OFF
Operator Enable	OFF
Keypad Switch	Restrict Access
Supervisor Code	12345
Administrator Code	67890
NFC	With Password
Relay	Relay Controlled
Beacon Light	Entry Status

*When Ambiscan is on, program and sensitivity will be defaults for both Forward and Reverse.

5.8 Code Reset

Should the administrator access code be forgotten or misplaced, *Paragon* 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 upper left side of the circuit board) for ten seconds. (See shaded area in Figure 5-6.)

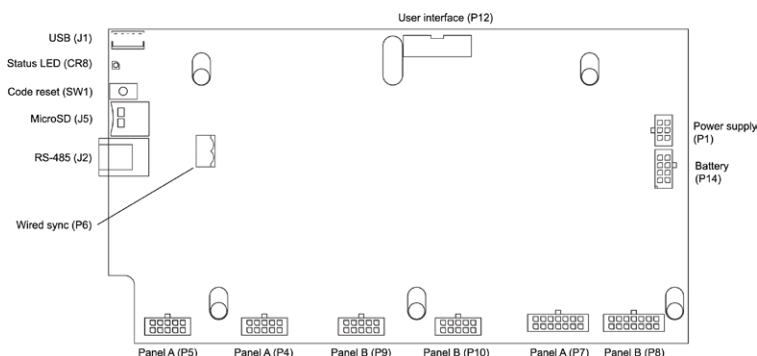


FIGURE 5-6

6. PROGRAMS, SENSITIVITY, AND ZONE BOOST

The *Paragon* 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 *Paragon* 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

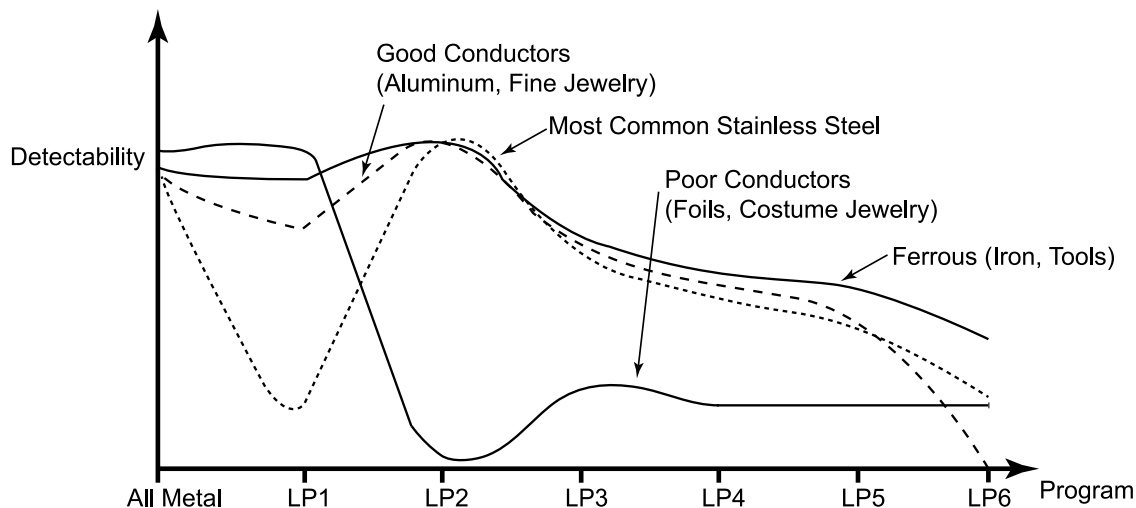
The following list of *Paragon* program settings provides basic description and suggested use for the programs:

Program	Description / Use
Quick Q Schools Events	Designed for detection of most guns and similar weapons while providing excellent discrimination against cellphones and other common innocuous items. Recommended for applications where moving high volumes of patrons is needed. Designed to meet NILECJ Standard Security Level-3 (i.e. AM5 test piece). Quick-Q does not require the divestment of cell phones or other small metallic items.
Buildings Special Events Courthouse Schools Standard	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.
Airports Nuclear ECAC Schools Enhanced	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) and other international airport security 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.

Prisons School High Security	Specialized weapons and contraband detection program 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.
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 6-1

FIGURE 6-1
All Metal and Loss
Prevention Programs



7. MULTIPLE WALK-THROUGH SITE INSTALLATION

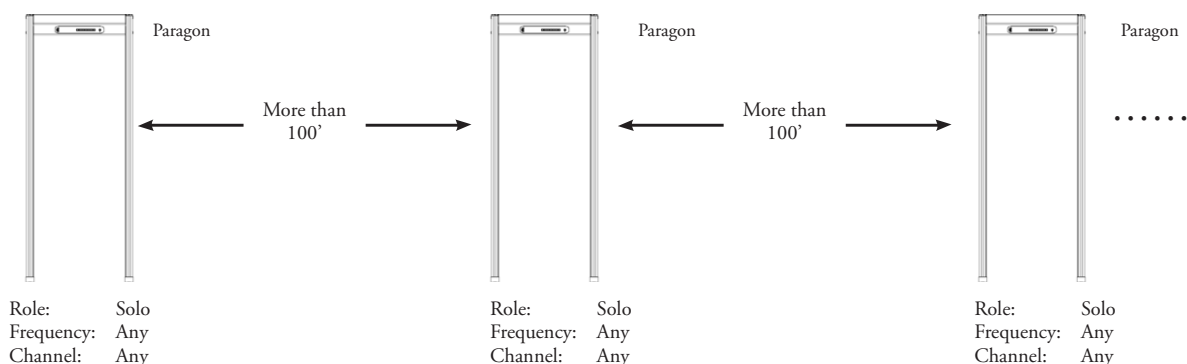
For multiple walk-through metal detector operation (units within 25' to 100' of each other depending on sensitivity setting), certain power requirements and installation adjustments are necessary to avoid cross talk (interference) among units.

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 Paragons, separated by 100 feet or more, connected to the same AC-Line Phase.

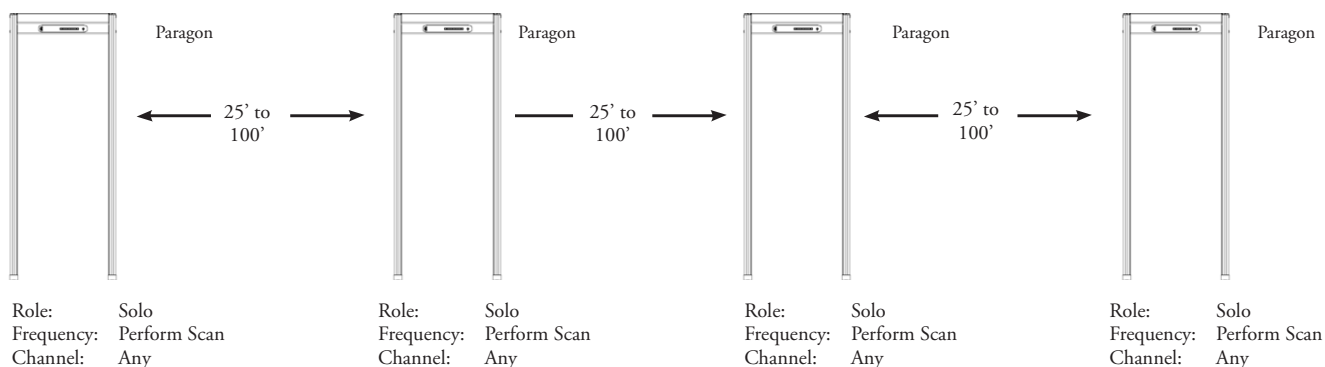
Distance to Adjacent Unit	Sync Method	Detector Location	Multi-Unit Role	Frequency	Channel	Notes
More than 100 feet	None required	Any	Solo	Any	Any	Frequency Scan if bar graph is noisy.



7.2 CASE 2

Spacing between detectors is 25 feet to 100 feet.

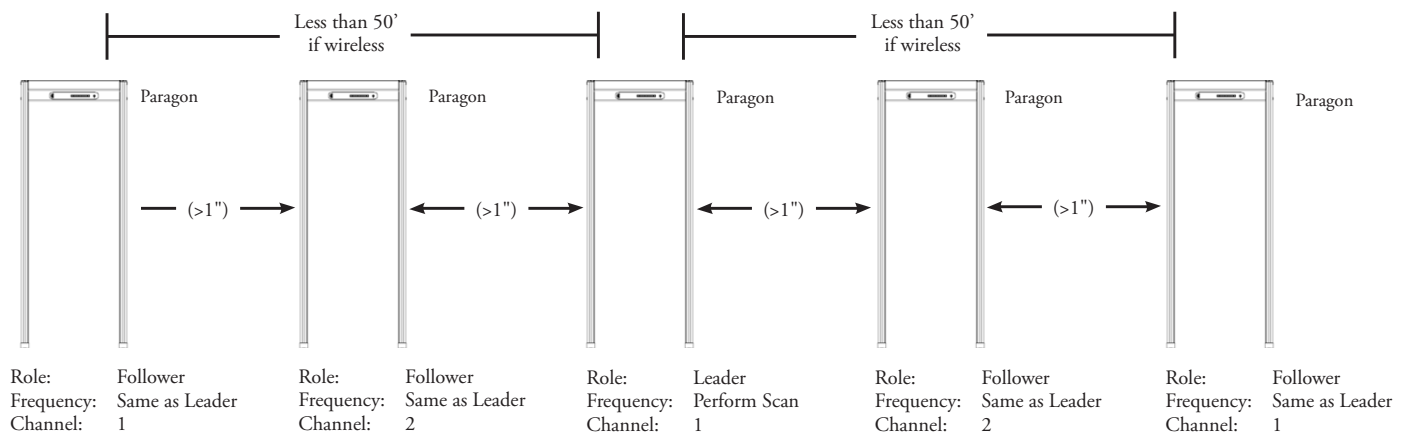
Distance to Adjacent Unit	Sync Method	Detector Location	Multi-Unit Role	Frequency	Channel	Notes
25 to 100 feet	Frequency Offset (in increments of 39 units)	Any	Solo	Perform Auto Frequency Scan	Any	1. Begin with all units off. 2. Switch on one unit. 3. Perform Frequency Scan. 4. Leave unit on and repeat 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, 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 as adjacent units are in sequential order. See above image for example.

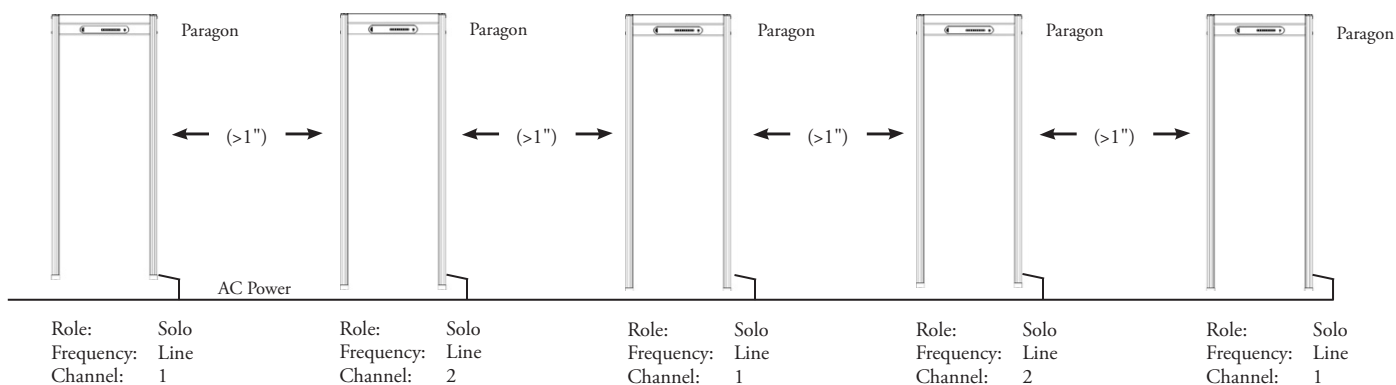
Setting up Follower Unit

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 Paragons 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, 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.



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 Paragon and the appropriate response to alarms.

The Operator's ongoing responsibility is to ensure that the Paragon always operates according to the information displayed on the OLED Display (see Figure 4-1) and to determine the cause of the alarms.

The Operator should ensure that the:

1. Paragon 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 keypad; the results will appear on the OLED Display. 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 OLED Display, 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:

- **MOTION SENSOR FAIL:** Ensure the openings for the motion sensor located at mid height of the B panel are not blocked.

- **RX ZN # BAL FAIL:** Ensure there is no large metal object near the Paragon.

If the self-test reveals a failure that severely limits or prohibits the Paragon's performance, the alarm will sound, the OLED Display will flash and the message SYSTEM FAILURE will appear on the OLED Display. The OLED 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. Additional Diagnostic Info can be found in Table 9-1.

- **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 66 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 Paragon. 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 Paragon 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 key switch on the right side of the detection head counter clockwise to ENABLE (*see Figure 5-4*).
2. Enter the diagnostic mode by pressing the ACCESS keypad 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. This is an example of spiking.
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 using 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
Transmitter Off	YES	Transmitters A and B switched Off	Switch On using the Administrator Menu Option
Transmitter Off	NO	Transmitter A or B switched Off	Switch On using the Administrator Menu Option
Transmitter Fail Receiver A Zone* Peak Fail	YES	Panel A Cable connection at panel	Insert connector firmly. Replace cable.
		Panel A Cable connection at PCB P7	Insert connector firmly. Replace cable.
Transmitter Fail Receiver B Zone* Peak Fail	YES	Panel B Cable connection at panel	Insert connector firmly. Replace cable.
		Panel B Cable connection at PCB P8	Insert connector firmly. Replace cable.
Receiver B Zone 5-8 Peak Fail	YES	Panel B Cable connection at PCB P10	Insert connector firmly. Replace cable.
Receiver B Zone 1-4 Peak Fail	YES	Panel B Cable connection at PCB P9	Insert connector firmly. Replace cable.
Receiver A Zone 5-8 Peak Fail	YES	Panel B Cable connection at PCB P5	Insert connector firmly. Replace cable.
Receiver A Zone 1-4 Peak Fail	YES	Panel B Cable connection at PCB P4	Insert connector firmly. Replace cable.
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.
Motion Sensor Fail	NO	Panel B Cable connection at panel	Insert connector firmly. Replace cable.
		Panel B connector at PCB P7	Insert connector firmly. Replace cable.
No Line Sync	NO	Power Mod failure	Replace
		Controller PCB failure	Replace
		Power supply connection at P1	Insert connector firmly.
Power Mod Fail	YES	Defective power supply	Replace Power Mod
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 PCB	Replace Controller PCB
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
AC Sync Fail	NO	AC cord connection Power supply connection to PCB Orange and White wire connection to PCB Power Supply failure Controller PCB failure	Check AC cord connected firmly on both ends. Check that connector is firmly seated to PCB. Replace Power Supply first. Replace controller PCB.

FIGURE 9-1

See figure 5-6 for connection locations.

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 Paragon 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 OLED Display.

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

9.3 Repair

The Paragon’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 power outlet.

• **Power Cord**

A detachable power cord is supplied to meet North American or European standards. If an alternate cord is used ensure that the cord is adequately rated.

• **Battery**

The lithium battery modules contain internal battery monitoring circuitry. Accuracy of the charge indication improves with repeated charge and discharge cycles. To remove battery, hold the back of the battery on the right side with one hand and with the other hand, press the white spring-loaded button on the battery while sliding it to the right, away from battery carrier. Because the battery is heavy, use both hands to hold it while removing it from the carrier and taking it out of the detection head. To replace a battery, place it into the carrier with both hands and ensure it is aligned with the carrier and is free from cables or other objects that may prevent it from seating properly. The battery should slide smoothly and freely to the left until the white spring-loaded button snaps into place.

Scan to view all Paragon Spare Parts



9.4 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 *Paragon* web pages, where you can click the “Accessories.”

11. TECHNICAL SPECIFICATIONS: Paragon

11.1 30" UNIT DIMENSIONS

- Passage Interior:
Width: 30" (0.76m)
Height: 80.95" (2.06m)
Depth: 23.89" (0.61m)
- Overall Exterior:
Width: 34.94" (0.89m)
Height: 87.64" (2.23m)
Depth: 23.89" (0.61m)
- 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: 80.95" (2.06m)
Depth: 23.89" (0.61m)
- Overall Exterior:
Width: 36.44" (0.95m)
Height: 87.64" (2.23m)
Depth: 23.89" (0.61m)
- 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:
-4°F (-20°C) to +131°F (55°C)
- Storage Temperature:
-22°F (-30°C) to +176°F (80°C)
- Charging:
+32°F (0°C) to +122°F (50°C)
- Humidity:
Up to 95% non-condensing.

Wireless Transmitter Specifications

Operating Frequency: 2405–2480 MHz
Transmit Power: 7.6 dBm EIRP 0.0022 Watt
Certifications: FCC, CE, IC, AS/NZ

11.3 WIRELESS SPECIFICATIONS

The *Paragon* 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.

NFC Transmitter Specifications

Operating Frequency: 13.56 MHz
Transmit Power: -60 dBm ERP
Certifications: FCC, CE, IC, AS/NZ

12. REGULATORY INFORMATION

12.1 ELECTRICAL SAFETY

The Garrett Paragon 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 Paragon 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-0601.02.

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 Paragon are below the test levels specified for Active Implantable Medical Implant certification in ISO 14117 and ISO 14708-1 through ISO 14708-7.

12.4 ELECTROMAGNETIC COMPATIBILITY

The Garrett Paragon has been tested and found to comply with the EMC and Radio requirements of:

- USA (FCC)
- Canada (ICES)
- European Union (CE)
- Australia/New Zealand

12.5 PHYSICAL

The Garrett Paragon 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®