ATX™

EXTREME PULSE INDUCTION

Highly Refined Pulse Induction Technology

ATX Owner's Manual

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Owner's Manual

THANK YOU FOR CHOOSING
GARRETT METAL DETECTORS!

Your new Garrett *ATX*™ is a highly advanced pulse induction detector that is backed by 50 years of extensive research and development. It was specifically designed to overcome the most challenging prospecting and relic hunting environments, including extremely mineralized soils and saltwater environments.

Although the *ATX* was designed for the extreme needs of gold prospectors, it is a highly capable instrument for many other types of searching. Its ability to overcome mineralized soils, salts and mineralized stones, bricks, terra cotta, etc., creates numerous opportunities for industrial use, historical archaeology, game wardens (detection of poachers' bullets), etc.
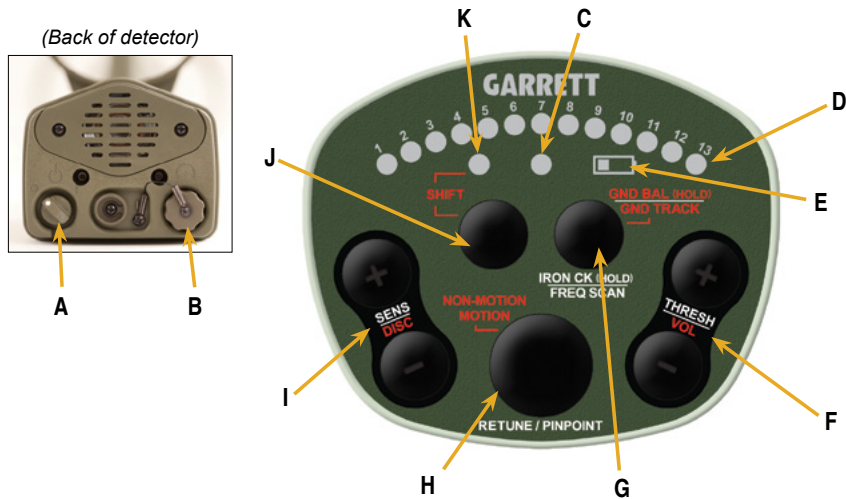
Relic hunters who encounter areas of highly mineralized ground will benefit from detection depths not available from conventional detectors. The optional 20" Deepseeker searchcoil is ideal for use in searching for caches and other deeply buried large objects.

In order to take full advantage of the special features and functions of the *ATX*, you are urged to carefully read this instruction manual in its entirety.

(Back of detector)

Garrett recommends that all new ATX owners completely read and understand the entire manual before using this detector. This section is only intended as a reminder.

1. **Switch ATX on and check batteries.**
   Four audio beeps indicates fully-charged batteries.

2. **Set to preferred Mode,** usually Motion Mode.

3. **Set Discrimination** to preferred level, usually to minimum (1 LED).

4. **Set Sensitivity, Threshold and Volume** to preferred levels.

5. **Perform Frequency Scan,** if needed, to eliminate electrical interference.

6. **Perform Ground Balance** to eliminate ground response and to ensure maximum detection.

7. **Begin searching.**
   Sweep searchcoil parallel to—and less than 1 inch from—the ground, scanning coil from side to side at a speed of about 2 feet/second (60cm/sec). *See p. 21.*

Note: All settings are saved at Power OFF. Therefore, once you have selected your preferred settings, you only need to perform Frequency Scan and Ground Balance, if needed, before starting to search.

ATX CONTROLS

PRIMARY CONTROLS
(White-text functions controlled directly by buttons)

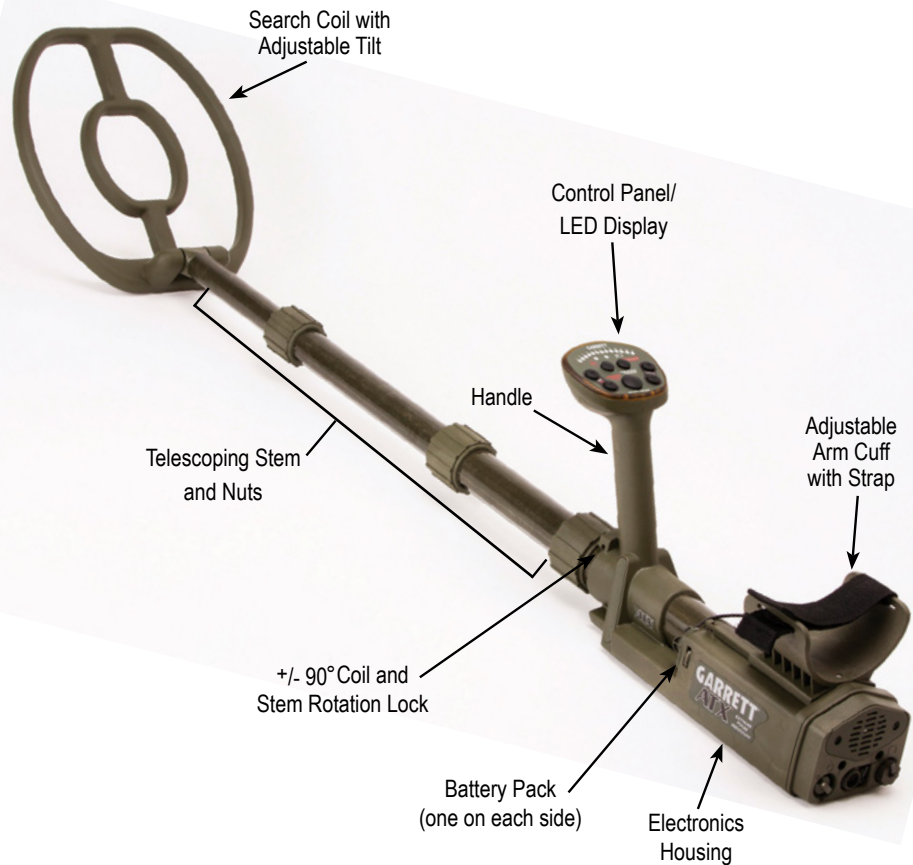|		
A:	**Power Switch ON/OFF**	*Located at rear of detector.*
B:	**Headphone Connector**	*Located at rear of detector.*
C:	**Power ON Indicator**	*Green LED indicates power ON; blinks if GND TRACK is on.*
D:	**Signal Strength Indicator**	*Increases from left to right. Also used to indicate settings (p. 10).*
E:	**Low Battery Indicator**	*(See p. 8 for details.)*
F:	**Threshold (+, -)**	*Set to preferred level; normally barely audible (p. 14).*
G:	**Freq. Scan (Quick Press)**	*Hold coil stationary away from metal and press button to scan for quietest frequency (p. 18).*
G:	**Iron Check (Hold Down)**	*Press and hold button to check target for iron, indicated by very low-tone growl (p. 19).*
H:	**Retune (Quick Press)**	*Press to quickly retune audio to zero; retune generally only required in Non-Motion Mode (p. 18).*
H:	**Pinpoint (Hold Down)**	*Press and hold button to pinpoint a target (p. 22).*
H+A:	**Factory Reset**	*Press and hold button while switching unit ON to return detector to original factory settings (p. 20).*
I:	**Sensitivity (+, -)**	*Set as high as stable operation will allow (p. 14).*

SECONDARY CONTROLS
(Red-text functions controlled by first pushing Shift Button)

J:	**Shift Button**	*Press to access Secondary controls. Press again to exit Secondary, or wait 5 seconds for automatic exit.*
K:	**Shift Indicator**	*Red LED indicates access to Secondary controls.*
J+F:	**Volume (+,-)**	*Limits how loud a large target sounds. Does not affect faint signals (p. 15).*
J+G:	**Ground Track (Quick Press)**	*Provides slow, continuous tracking to ground minerals. OFF = LED 1, SLOW = LED 5, MEDIUM = LED 9, FAST = LED 13. Set to OFF for max detection unless changing ground conditions require frequent Ground Balancing (p. 17).*
J+G:	**Ground Balance (Hold)**	*Hold button while repeatedly bouncing searchcoil to quickly balance out ground minerals (p. 16).*
J+H:	**Non-Motion/Motion Mode**	*Motion-Mode (indicated by LEDs quickly scanning back and forth) is normally preferred because it is more stable/quiet. Non-Motion Mode (indicated by stationary LEDs) can provide additional depth but may require frequent Retunes (p. 11).*
J+I:	**Discrimination (+,-)**	*Set to minimum (1st LED) for maximum detection. Increase if desired to eliminate small targets (p. 13).*

Note: When adjusting any setting, the initial button press shows the current setting; subsequent presses within 1.5 seconds will adjust the setting.

ATX COMPONENTS

Search Coil with
Adjustable Tilt

Control Panel/
LED Display

Handle

Telescoping Stem
and Nuts

Adjustable
Arm Cuff
with Strap

+/- 90° Coil and
Stem Rotation Lock

Battery Pack
(one on each side)

Electronics
Housing

LIST OF PARTS

No tools are required to assemble the *ATX*. Eight (8) AA batteries are included with the detector. The box for your detector contains the following parts:

❶ Detector with alkaline batteries
❷ Soft carry case
❸ Headphones
❹ Coil cover *(shown installed)*
❺ User's manual

❻ Battery charger kit with eight rechargeable batteries
❼ Garrett detector sling
Accessory items subject to change.

If any part is missing, please contact your local dealer.

Adjusting the searchcoil and stem:

Fold open the searchcoil. Disengage the armrest and stem rotation locks to allow stem to rotate. Rotate the stem and searchcoil to level and release the spring-loaded rotation lock to allow it to automatically reengage. The searchcoil can also be locked at 90º to the left or right for scanning walls and embankments. When the searchcoil is locked in your preferred orientation, reengage the armrest lock.

The *ATX* can be operated with the stems fully collapsed (preferred for shallow diving), fully extended, or anywhere in between. To extend the telescopic stem to the desired operating length, begin by loosening the bottom stem nut closest to the search coil. Fully extend the bottom stem and tighten the bottom stem nut. Then, loosen the middle stem nut, extend the middle stem, and tighten the nut. The upper stem should be used for final adjustments to the desired operating length.

The correct operating length should allow you to stand upright (no stooping forward) and swing the coil in front of you without stretching or bending.
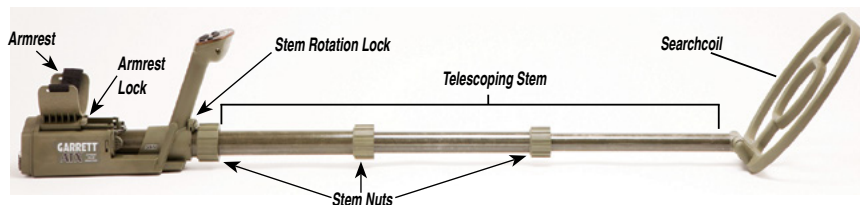
Adjusting the armrest:

To move the armrest forward or backward, open the armrest locking lever, slide the armrest to the desired position, and lock the lever.

Armrest locking lever shown in open position.   Armrest locking lever shown in locked position.

Adjusting searchcoil tension:

To adjust the tension on the searchcoil, use a thin coin or a flat-head screwdriver. Turn the screw clockwise to increase tension *(see below)*. When properly tightened, the searchcoil should maintain its position parallel to the ground while still allowing tilting during operation. **Do not overtighten.**

Attaching the headphones (if desired):

Remove the dust cap from the headphone connector on the back panel. Ensure the headphone connector is clean. Align the headphone plug with the connector pins in the proper orientation. If the detector will be submerged, be sure to lubricate the O-ring on the connector with silicone grease.

Fully insert the connector until it snaps snugly into place. Slide the metal locking collar onto the threads and tighten by hand. DO NOT over tighten.
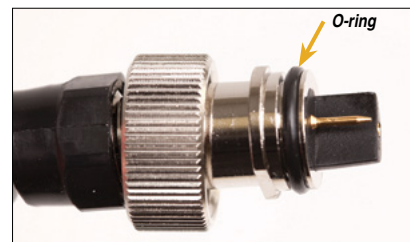
Lubricate O-ring for underwater operation.   Hand-tighten connector collar.

Switch the detector on.

The On/Off switch is located on the back of the electronics housing. It is best to switch on and operate the detector outdoors and away from sources of electrical interference (e.g. power lines, electrical equipment and appliances, fluorescent lights, transmitters, etc.).

On/Off Switch
(shown in On position)

Low Battery Indicator

Verify battery level.

Immediately after the initial turn-on beep, listen for one to four audio beeps indicating the charge level of the batteries. Four (4) beeps indicates fully charged. Three (3) beeps indicates approximately 75% battery charge. Two (2) beeps indicates approximately 50% battery charge. One (1) beep and a flashing low battery warning light indicates low charge and that the batteries should be replaced (see p. 32). During operation, the yellow low-battery warning light will begin flashing when there is approximately thirty (30) minutes of battery life remaining. In addition to the flashing LED, a brief audio alarm will sound every 60 seconds.

If no beep is heard after switching the detector on, verify the batteries have been properly installed.

The *ATX* operates with a continuous audio that responds proportionately to the target's signal strength (i.e. large/strong signals sound loud and small/weak signals sound faint). This enhances the ability to hear faint targets, and better judge a target's size, shape and depth.

In addition to enhancing faint target signals, the *ATX*'s proportional audio also allows the operator to hear faint background noise. By their nature, high-performance pulse detectors are often noisier than VLF-type detectors; therefore, some minor audio noise/chatter is normal. An experienced operator will learn how to distinguish random background noise from repeatable target signals.

The *ATX* also produces different audio tones to help identify a target's size and effective conductivity, as explained below.

Audio signals in Motion Mode

In Motion Mode, the searchcoil (or the target during air tests) must be in motion to create a response.

As a general rule, poor conductors such as small nuggets, most jewelry, pull-tabs, nickels, small bronze or hammered coins, etc. should produce a high tone followed by a low-tone echo. Good conductors such as large nuggets, copper and silver coins, large bronze coins, etc. should produce a low tone followed by a high-tone echo *(see chart on p. 10)*. A target on the borderline between a poor and good conductor may fluctuate multiple times between high and low tones to indicate a borderline conductor. Most, but not all iron will produce a low tone followed by a high-tone echo, since to a PI detector most iron behaves like a good conductor.

Audio signals in Non-Motion Mode

Non-Motion Mode does not require the coil (or target) to be in motion to produce a response.

Just as in Motion Mode, poor conductors produce a high tone and good conductors produce a low tone, but *without* the echo heard in Motion Mode *(see chart on p. 10)*.
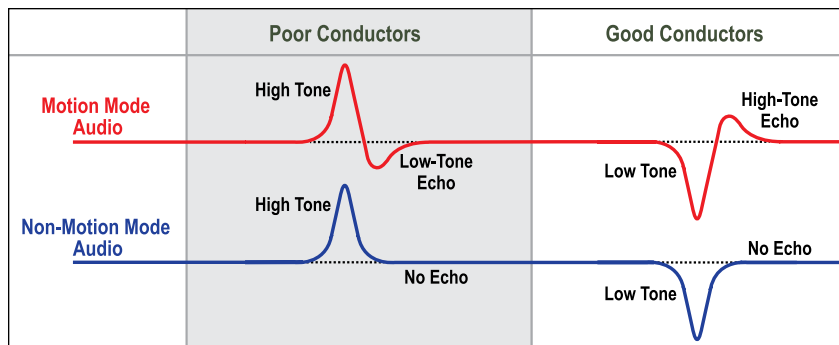
This chart illustrates the different audio signals produced in Motion versus Non-Motion modes.

Signal Strength Indicators

Target signals are visually indicated on the *ATX* by the upper row of LEDs. A trio of red LEDs moves from left to right in response to the increasing strength of the target. No lighted LEDs indicates zero signal response.

During adjustments, the upper row of LEDs also show the settings.
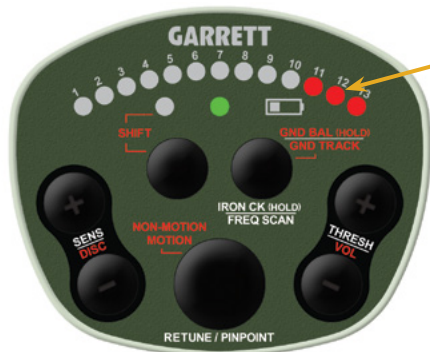
Three red LEDs to the far right indicates maximum target signal strength.

Primary and Secondary Controls

The ATX has two levels of controls, primary and secondary.

All primary controls (Sensitivity, Threshold, Retune, Pinpoint, Frequency Scan, Iron Check) are indicated with white letters on the control panel. These controls are directly accessible.

Secondary controls (Discrimination, Volume, Mode, Ground Track, Ground Balance) are indicated with red letters on the control panel. These are accessible by first pressing the SHIFT button, which turns on the red Shift LED. Secondary adjustments must be made while the SHIFT LED is lit; otherwise the ATX will automatically exit the Secondary Shift mode and return to primary adjustments in 5 seconds.

Note: When adjusting any setting, primary or secondary, the initial button press always shows the current setting, then subsequent presses must be made within 1.5 seconds in order to adjust the setting; otherwise, the LEDs will return to showing signal strength.

Motion vs. Non-Motion Detection Mode

The ATX can detect targets in either Motion Mode (requiring the coil or target to be in motion) or in Non-Motion Mode (static detection). The default detection mode of the *ATX* is Motion Mode.

To switch the detection mode:

- Press and release the SHIFT button to access the Secondary controls.
- Press the NON-MOTION/ MOTION button to toggle between the two modes *(see illustration on next page)*. The first press of this button indicates current setting; quickly press this button again to change the mode.
- Motion Mode is indicated by central LEDs that quickly scan back and forth; Non-Motion Mode is indicated by stationary LEDs.
- Press and release SHIFT button again to exit Secondary adjustments.

Note: The Red Shift LED must be visible to switch detection modes.

Motion Mode is the default setting. It is usually preferred because it is more stable and quiet, but requires the searchcoil to be in motion to

detect targets. When in Motion Mode, the *ATX* constantly adjusts to keep the Threshold tuned to a constant level (i.e. Auto-Threshold). In highly mineralized ground, Motion Mode can also help to suppress unwanted ground signals. Target signals produce audio with an echo effect *(see p. 10).*

Five stationary LEDs indicates Non-Motion Mode.

Change detection Mode by pressing the SHIFT button, then the NON-MOTION/ MOTION button.
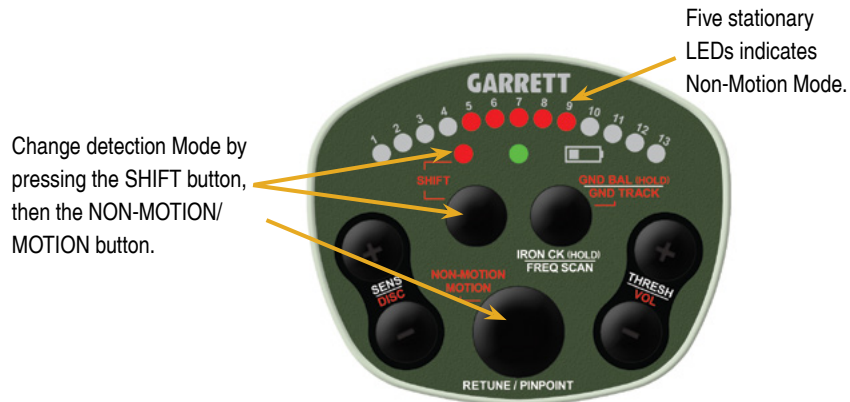
Non-Motion Mode can provide additional detection depth and allows the searchcoil to scan very slowly, even stationary, over targets. Non-Motion Mode is better at isolating targets, as target signals do not produce the audio echo which is heard in Motion Mode.

Non-Motion Mode may be less stable and noisier than Motion Mode, and more frequent Retunes may be required to cancel audio threshold drift and other environmental changes. Unlike Motion Mode—which automatically works to keep Threshold tuned to a constant level—the more powerful Non-Motion Mode leaves all Threshold tuning to the user. In highly mineralized ground, Non-Motion Mode may be more susceptible to ground variations, so it is even more important to use proper coil swing techniques *(see p. 21).* The use of Non-Motion Mode requires practice and is not recommended for beginners.

Discrimination

The *ATX* is capable of rejecting or discriminating out certain types/sizes of targets while still detecting others. The *ATX* has twenty-five (25) levels of discrimination. The default setting is zero discrimination (1st LED) for maximum detection of all metals.
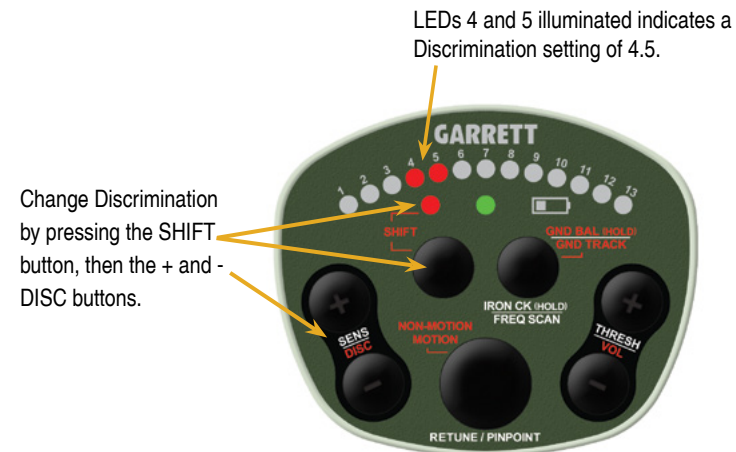
To adjust Discrimination:

- Press and release the SHIFT button to access Secondary controls.
- Use the DISC (+) and (-) buttons to adjust the discrimination to your preferred level *(see illustration below).*
- Zero discrimination is indicated by LED 1; maximum discrimination is indicated by LED 13. Half-step adjustments are indicated by two LEDs lit simultaneously.
- Press and release SHIFT button again to exit Secondary adjustments.

Note: The Red Shift LED must be visible to adjust discrimination.

LEDs 4 and 5 illuminated indicates a Discrimination setting of 4.5.

Change Discrimination by pressing the SHIFT button, then the + and - DISC buttons.

As discrimination is increased, you gradually begin to lose targets that are poor conductors (i.e. saltwater, nickel) and very small, thin targets (i.e. thin coins, bits of foil, small nuggets, thin jewelry). Large iron is the last to be discriminated. It is therefore recommended to search with the default Discrimination level of zero (1st LED).

Increase discrimination if desired to eliminate certain small targets, such as pull tabs or foil, but doing so may also eliminate small desirable tar-

gets. Increased discrimination may also be used to reduce interference from highly mineralized ground; however, this should rarely be required.

Sensitivity

Increase the *ATX*'s Sensitivity setting to achieve greater detection depth and enhanced detection of small targets. Be aware, however, that increasing Sensitivity can also increase the detector's susceptibility to electrical interference and other external conditions.

The *ATX* has thirteen (13) settings for sensitivity. The default Sensitivity setting is 10.

To adjust Sensitivity:
• Use the SENS (+) and (-) buttons to adjust the Sensitivity to your preferred level *(see illustration below).*

In general, set Sensitivity as high as possible while still achieving sufficiently stable operation. Use higher sensitivity settings when searching for very small or very deep targets. Use lower sensitivity levels in locations where the detector is behaving erratically (due to excessive metallic trash, electrical interference or the presence of other metal detectors) and the erratic operation cannot be resolved with ground balance or a frequency scan.
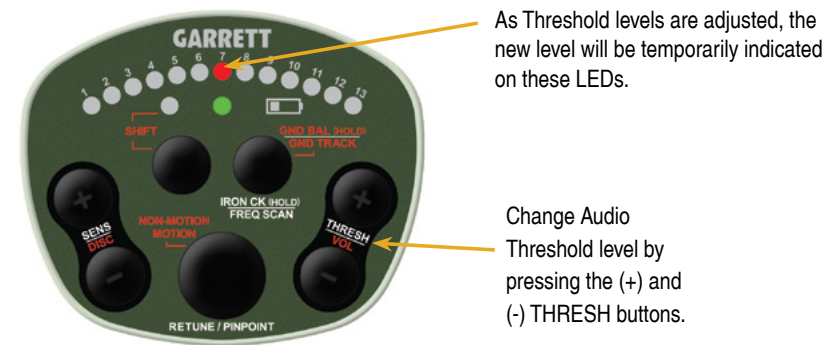

As Sensitivity levels are adjusted, the new level will be temporarily indicated on these LEDs.

Change Sensitivity by pressing the (+) and (-) SENS buttons.

Threshold

Threshold is the constant audio background "hum" that is added to the target response. The *ATX* has twenty-five (25) levels of Threshold adjustment. The default Threshold setting is Level 7.

To adjust audio Threshold:
• Use the THRESH (+) and (-) buttons to adjust the Threshold to your preferred level *(see illustration below).*

It is recommended the Threshold be set to a barely audible level, or just below, based on hearing ability and surrounding audio conditions. Faint targets may only create a small variation in the audio; therefore running with a *high* Threshold level may obscure such a target signal. Setting the Threshold level too *low* may prevent faint signals from being heard. Readjust the audio Threshold level as conditions change (i.e. strong winds, surf noise, etc.) that affect your ability to hear the background hum at a barely audible level.

As Threshold levels are adjusted, the new level will be temporarily indicated on these LEDs.

Change Audio Threshold level by pressing the (+) and (-) THRESH buttons.

Volume

The *ATX*'s Volume adjustment only affects the maximum audio level produced by a large signal and does not affect the audio level or sensitivity of a faint signal (i.e. Volume is a "limiter" and not a gain control), thereby ensuring maximum detection of faint signals. The *ATX* has twenty-five (25) levels of Volume adjustment. The default setting is 10.

To adjust audio Volume:
• Press and release the SHIFT button to access Secondary controls.
• Use the VOL (+) and (-) buttons to adjust the Volume to your preferred level *(see illustration on next page).*
• Press and release SHIFT button again to exit Secondary adjustments.

Note: The Red Shift LED must be visible to adjust Volume level.

Change Volume by pressing the SHIFT button, then the (+) and (-) VOL buttons.

As Volume levels are adjusted, the new level will be temporarily indicated on these LEDs.
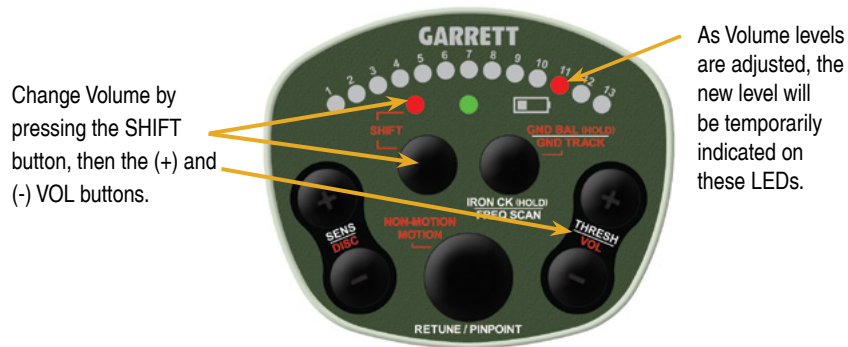
Ground Balance

In addition to dirt or sand, most ground also contains various minerals and salts. Concentrations of ground mineralization can create erratic detector sounds ("ground noise") and reduce performance if the mineralization is not compensated for. The *ATX* has advanced Ground Balance capabilities to handle all ground conditions—including ironstone ground and even saltwater—without the need to switch into a special mode.

Note: It its recommended to Ground Balance the *ATX* in each new environment in order to ensure maximum detection depth.

To Ground Balance:
- Find an area clear of metallic objects and raise the searchcoil about 6 inches above the ground.
- Press and release the SHIFT button to access Secondary controls.
- Press and hold the GND BAL button *(see illustration on next page)* and wait for the double beep (about one second) to indicate the Ground Balance function is engaged.
- While continuing to hold the GND BAL button, quickly bounce the searchcoil from 1 to 6 inches above the ground.
- Continue to pump the coil until the ground response is completely eliminated; typically takes 3 to 7 seconds. Release the GND BAL button and begin hunting.

Note: The first few seconds of Ground Balance audio allows the operator to "hear" how mineralized the ground is. Lightly mineralized ground will initially produce weak audio, while heavily mineralized ground will initially produce strong audio.

To Ground Balance, press the SHIFT button, then press and hold down the GND BAL button while pumping the searchcoil above the ground.
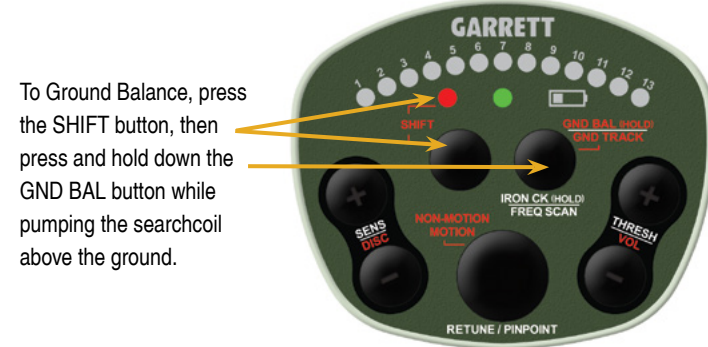
Ground Track

When switched on, Ground Track provides slow, continuous tracking to ground mineralization. The ATX has four Ground Track settings: OFF, SLOW, MEDIUM, and FAST, with OFF being the factory default setting.

To change the Ground Track setting:
- Press and release the SHIFT button to access Secondary controls.
- Repeatedly press the GND TRACK button to step through the four settings *(see illustration below)*. OFF is indicated by LED 1, SLOW is indicated by LED 5, MEDIUM by LED 9, and FAST by LED 13.
- Press and release SHIFT button again to exit Secondary adjustments.
- The green LED will blink during operation when Ground Track is on.

Note: Ground Track may reduce detection depth due to slowly tracking to a target, especially with repeated swings over the target. Therefore, Ground Track should only be used when changing ground mineralization requires frequent re-ground balancing.

Change Ground Track setting by pressing the SHIFT button, then repeatedly press the GND TRACK button to step through settings.

Medium Ground Track setting indicated by LED 9

Retune

Press and release the RETUNE button *(see illustration below)* to instantly reset the detector's audio/LED response back to zero. Use this function to quickly cancel out unwanted ambient signals such as when the detector's audio/LED response has drifted to an elevated level.

Retune is rarely required unless in Non-Motion Mode, or if a very large response persists and does not automatically decay away while in Motion Mode.

Press and **release** the RETUNE button to reset the audio signal back to zero.

Press and **hold** the PINPOINT button to utilize pinpointing.

Pinpoint

Press and hold the PINPOINT button to pinpoint a target's location. See p. 22 for pinpointing techniques.

Frequency Scan

Use this function to obtain the quietest operating frequency. Operating near power lines, other detectors, fluorescent lights, etc. may cause interference. To check, hold searchcoil stationary away from any metal and listen for signal interference (i.e. noisy operation).

To perform Frequency Scan:
- Hold searchcoil stationary away from any metal.
- Press and release the FREQ SCAN button *(illustration on next page)*.
- The searchcoil must remain stationary during the entire frequency scan process.
- The frequency scan function lasts for 35 seconds, as indicated by the scanning LEDs and audio pings. Completion is indicated by a triple-beep.

- The new setting remains in the *ATX*'s memory until the next time this function is performed, even after power is switched off and the batteries are removed.

Note: If you have accidentally activated the Frequency Scan function and want to abort, press the FREQ SCAN button again to stop the function. The setting will return to its previous value.

Press and release the FREQ SCAN while holding searchcoil stationary away from any metal.

Iron Check

Use this feature to audibly identify iron targets. Iron Check only works with the DD searchcoil and will not work with mono coils. If the IRON CK button is pressed while using a mono coil, a repeating dual-tone warning alarm will indicate this to be an invalid action.

To utilize Iron Check:
- Move the searchcoil to the side of the target.
- Press and hold the IRON CK button *(see illustration on p. 20)* and wait for the double beep.
- Then continue holding the IRON CK button while quickly scanning back and forth over the target with very flat, level swings.
- If desired, check the target again from different directions by rotating around 90 degrees. Maintain very flat, level swings over the target.
- Iron will produce a very low-tone growl/grunt sound that may or may not be flanked by normal tones.
- Non-ferrous and/or weak targets will produce normal tones, or may even be silent, but will not produce the iron tone (grunt).

Press and hold the IRON CK button, and then repeatedly scan back and forth over the target to check for iron.

Note: Iron Check is a conservative function. To help ensure the *ATX* does not misidentify a good target as iron, the iron tone (grunt) will only activate on strong signals. Therefore, small/weak iron targets will not identify as iron. In addition, due to their large, flat surface area and relatively high conductivity, steel bottle caps will typically not identify as iron. Examples of iron targets that will produce the iron tone (grunt) are: a 3-inch nail to a depth of about 5 inches; and a ¾-inch boot nail to a depth of about 1 inch.

In highly mineralized areas, Iron Check accuracy may be affected. Therefore, use flat, level swings to improve accuracy.

Factory Reset
All changes made to the *ATX* settings are saved when the unit is switched OFF. To return all settings back to Factory values, press and hold the RETUNE/ PINPOINT button while switching unit ON.

ATX FACTORY/DEFAULT SETTINGS

|	
Mode:	Motion
Discrimination:	Zero discrimination (1st LED)
Sensitivity:	10
Threshold:	7
Volume:	10
Ground Balance:	Neutral
Ground Track:	OFF

SEARCHCOIL BASICS

Use proper sweep of searchcoil.
Keep your searchcoil at a constant height (less than 1" if possible) and parallel to the ground at all times for best detection results. Do not lift the coil at the end of swings.

In Motion Mode, walk slowly as you scan your searchcoil in a straight line or slight arc from side to side at a speed of about 2 feet (60 cm) per second. Advance the searchcoil forward about half its length (approximately 6" or 15 cm) at the end of each sweep to ensure full coverage. Non-Motion Mode allows you to use a much slower swing speed.

2ft (60 cm)/second

Overlap swing by 6" (15 cm)
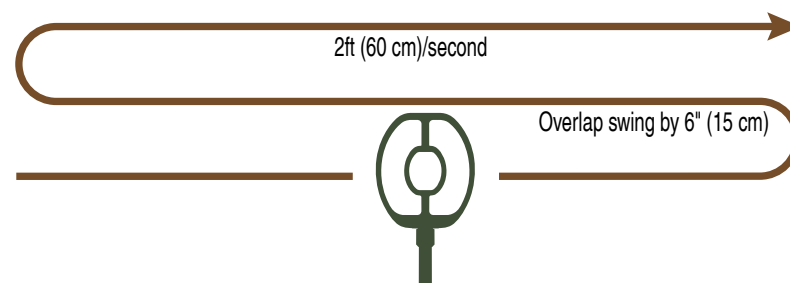
PINPOINTING TECHNIQUES

Accurate pinpointing of a target enables you to recover it quickly while also digging the smallest hole possible. Several pinpointing techniques will be offered below; use what works best for you.
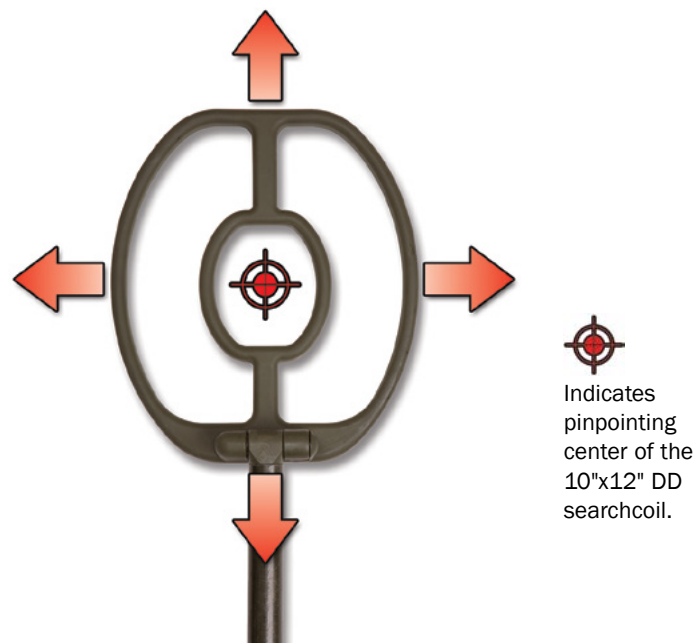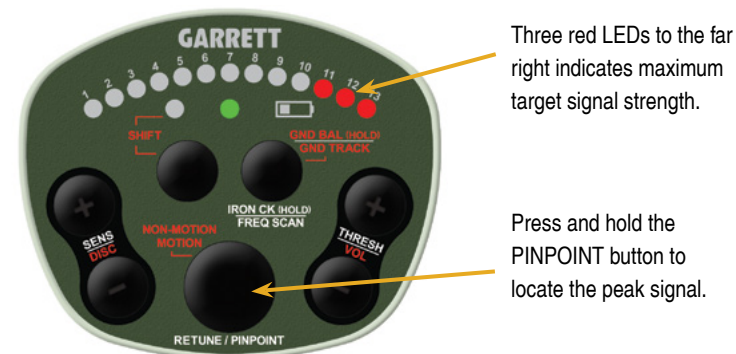
To utilize the Pinpoint button:
- Place the searchcoil on or near the ground, to the side of the target's suspected location.
- Press and hold the PINPOINT button *(see illustration on p. 23)* and wait for the single beep.
- Continue holding the PINPOINT button and sweep the searchcoil over the target area while maintaining the same fixed height above the ground.
- Sweep the coil side-to-side and front-to-back in a crosshair pattern to locate the peak signal, as indicated by the strongest audio and maximum number of LEDs.
- The center of the target should be directly beneath the center of the searchcoil.

To locate a target *without* the PINPOINT button, sweep the coil side-to-side and front-to-back in a cross-hair pattern over the target area while listening for the peak signal. In Motion Mode, it is important to keep the searchcoil in motion (i.e. wiggling back and forth) to pinpoint the peak signal area.

In Non-Motion Mode, static pinpointing is possible without the use of the PINPOINT button. Simply utilize the same front-to-back and side-to-side scans over the target area until your coil is over the peak signal, as indicated by the strongest audio and maximum number of LEDs.

Note: For best pinpointing results, maintain a constant coil height above the ground and ensure the detector is properly ground balanced. It is recommended to practice pinpointing in a test plot.

Three red LEDs to the far right indicates maximum target signal strength.

Press and hold the PINPOINT button to locate the peak signal.

Indicates pinpointing center of the 10"x12" DD searchcoil.

Sweep the searchcoil side-to-side and front-to-back to locate the peak signal at the center of the coil.

BENCH TESTING

You should conduct bench tests to become more familiar with the *ATX*'s audio signals and operation using different Modes, Discrimination settings, Iron Check, etc. Suggested test items include:

- Various size gold nuggets or gold rings
  (In the absence of gold nuggets, a U.S. nickel or small bronze coin are good imitators of the response characteristics of a similar size nugget.)
- Coins or relics that you expect to find in your search area
- Various size iron targets for testing the Iron Check feature

The ideal position for bench testing with the *ATX* is illustrated below. Extend the lower stem and lay the searchcoil back on top of the stem. This allows you to keep one hand near the controls while still reaching the coil with your test targets.

It is best to test the detector outdoors away from sources of electrical interference (e.g. power lines, electrical equipment and appliances, fluorescent lights, transmitters). Tests should be performed with the searchcoil completely stationary and several feet away from any large metallic object.

For bench testing, take the *ATX* outdoors, away from electrical interference and large metallic objects. Extend the first stem and lay the coil back as shown above.

Set up: Start with Factory Default settings (in Motion Mode) and run Frequency Scan to obtain quiet operation. If not sufficiently quiet, move to a different location away from sources of electrical interference.

Basic testing: Begin passing various metallic targets from side-to-side across the bottom of the searchcoil. Pass the targets both near and far from the coil to hear how Proportional Audio works (i.e. loud for strong signals, faint for weak signals).

Tone polarity test: Pass various poor conductors (i.e. small nuggets, nickels, small bronze coins, etc.) and good conductors (i.e. large nuggets, silver coins, etc.) to hear the tone polarity. Poor conductors will produce a High/Low tone and good conductors will produce a Low/High tone.

Discrimination test: After conducting the tone polarity test above, increase Discrimination. Notice how the poor conductors become reduced and disappear first from detection while the good conductors are less affected. Test various size iron objects to see the effects of Discrimination levels. Then return to a zero Discrimination setting (1st LED).

Iron Check test: Press and hold the IRON CK button and wait for the double beep before scanning targets. Continue to hold the IRON CK button while quickly scanning your test targets back and forth across the coil.

Notice which iron targets produce the very low-tone growl/grunt sound and at what distances. Notice that many iron targets will create a different response when their orientation is changed. Since the *ATX*'s Iron Check function is conservative to ensure that small/weak good signals are not misidentified as iron, small iron targets may not identify as iron.

Test both ferrous and non-ferrous targets at various depths to become familiar with Iron Check's capabilities and limitations.

Sensitivity test: Increase and decrease Sensitivity to see how detection depth and noise are affected. (e.g. higher Sensitivity increases depth and possibly increases noise).

Pinpoint test: Hold a target to the side away from the coil, then press and hold PINPOINT and wait for the single beep. While continuing to hold PINPOINT, pass the target side-to-side and front-to-back in a crosshair pattern and notice the peak response occurs over the center of the coil.

Non-Motion Mode test: Finally, switch to Non-Motion Mode and notice the differences from Motion Mode. In Non-Motion Mode, targets will not produce the audio echo and static detection is provided. This mode, however, can be noisier than Motion Mode, and more frequent Retunes may be required.

- **Scanning walls:** Rotate and lock the searchcoil at 90º to aid with scanning walls, embankments, rock ledges, or high places.

- **Mind your metal:** The *ATX* is very sensitive, so be mindful not to let the other metals you carry come too close to the coil (e.g. a pick or shovel, steel-toed boots, etc.).

- **Avoiding surface clutter:** You can help eliminate some of the smaller surface clutter by lifting the coil 2 or 3 inches above the ground. Larger targets will still be easily detected. This technique is most effective with larger size searchcoils such as the 20" Deepseeker coil.

- **Don't cancel a target:** Be careful not to ground balance over a target, as you may effectively eliminate the target in most cases.

- **Hot rocks:** Hot rocks are typically highly ferrous, iron-based rocks that are either more or less conductive than the surrounding soil, thereby creating a response that can resemble a target. Because of the *ATX*'s inherent immunity to most normal soil minerals, hot rocks can be eliminated by simply ground balancing to the hot rock instead of ground balancing to the soil.

   In extremely mineralized soil, the *ATX* must be ground balanced to the soil, in which case the hot rock will typically respond with a faint low tone. When in doubt, dig it out.

- **Non-uniform soil conditions:** One of the most challenging ground conditions to operate is where the ground contains both conductive and ferrous minerals that are non-uniformly mixed. An example is moist salty soil (conductive) with ironstone veins and/or hot rocks (ferrous) scattered throughout. Obtaining stable operation given these two very differing soil components is difficult at best.

   To operate most effectively in this scenario, first locate an area containing only the salty soil (no ferrous veins or hot rocks) and then increase Discrimination until the salt response is sufficiently reduced (a setting of 3 to 7 should suffice). Then locate a ferrous vein or hot rock and Ground Balance to it. In summary, use Discrimination to eliminate

This moistened ancient salt bed, which also contains veins of iron mineralization, is an example of a non-uniform soil condition.

the conductive component and Ground Balance to eliminate the ferrous component. Finally, reduce Sensitivity as needed to obtain sufficiently stable operation.

   For uniformly mixed soils, such as an ocean beach with ferrous black-sand, simply Ground Balance to the homogenous mixture of salt and sand as would be done for normal ground, without the need to increase Discrimination.

- **Disappearing targets:** If a target response disappears as you begin removing the soil, it was likely a pocket of concentrated ground minerals or decomposed iron that was disturbed during digging—thereby eliminating the response.

- **Coil covers:** Use a coil cover to protect the coil from abrasion and damage and prevent false responses that may occur when the coil abruptly impacts a rigid object such as a large rock, etc.

The *ATX* can be submerged in water to a 10-foot depth (maximum) to search in and along shorelines, rivers, piers, docks or swimming holes. Use of the *ATX* at depths exceeding 10 feet can cause leaks and damage the detector. Use of the *ATX* beyond the recommended depth will void the manufacturer's warranty.

The *ATX* is shipped with land-use headphones that include a waterproof connector and cable; do not, however, submerge the headset. Fully submersible headphones are available from Garrett as an optional accessory. For water hunting, use an open coil cover or no coil cover, as the optional closed coil cover can create excessive drag in the water.

After using the *ATX* in any body of water, it is very important to properly rinse the detector with fresh water before collapsing the stems. Saltwater and even freshwater sediment deposits can inhibit the easy operation of the *ATX* nuts and stems. *(See p. 37 for care and maintenance tips.)*

Saltwater Operation
When mixed with water, salt and other electrolytes become conductive and may therefore cause any detector to respond as if the saltwater were a metal target. In fact, to a detector, saltwater has an electrical conductivity very similar to foil, fine gold and other poor conductors.

Traditionally with pulse detectors, to address the saltwater response the Delay/Discrimination setting was increased until the saltwater response was

Waterproof headphones *(sold separately)* must be used if the headset is fully submerged.

sufficiently eliminated. This method, although effective, can significantly reduce the detection of fine gold, jewelry, and other poor conductors due to the increased Discrimination setting.

Therefore, to help reduce this undesirable loss of detection, the *ATX* has an alternative method to address saltwater. Specifically, the *ATX* can automatically ground balance out the saltwater response without the need to increase Discrimination; thereby maintaining a better response to fine gold, jewelry, and other poor conductors.

The two methods to address saltwater are:

1) Ground Balance Method: Leave Discrimination set to minimum and Ground Balance to the saltwater as would be done for any other ground. This method will provide the best detection of fine gold, etc., but will produce a low-tone response for all targets. It is important to Ground Balance the detector when it moves to a new region of the beach (i.e. from wet sand to dry sand at the water's edge).

2) Traditional Discrimination Method: Incrementally increase the Discrimination setting until the saltwater response is sufficiently eliminated, typically around 3–7. Ground Balance is not required with this method. This method will maintain normal high and low tone responses, but will have reduced detection of fine gold, etc. Reduce the Discrimination setting toward zero when moving from wet sand to dry.

For either method, the following basic techniques will help to achieve the best performance.

1. Swing the searchcoil flat and at a constant height. Do not bounce the coil or lift the coil at the end of swings.

2. Hunt the three different regions of the beach (dry sand, wet sand, submerged) one at a time rather than going back and forth between regions. This will allow the detector to be set optimally for each region.

3. Swing the searchcoil parallel to the water's edge to minimize changes in moisture levels within a given swing.

The detector may become less stable in shallow, breaking surf where the searchcoil is in and out of the saltwater. In this area the detector is encountering a constantly changing environment produced by the surf, making it more difficult for the detector to stabilize. Experiment with the two methods above to determine which you prefer, and if necessary, reduce Sensitivity to obtain stable operation.

SEARCHCOIL REMOVAL/INSTALLATION

Each *ATX* searchcoil is permanently attached to its telescoping stem assembly. To switch to another searchcoil, it is necessary to remove and install the entire assembly as described below.

Searchcoil removal

1. Fully collapse the telescopic stem and tighten stem nuts *(see Figure 1)*.
2. Remove the armrest by disengaging the armrest lock and sliding the armrest forward and off *(see Figure 2)*. It will be necessary to remove one battery cover to allow the cuff to fully slide forward *(see Figure 3)*.

Figure 1

Figure 2

Figure 3

3. Disengage the stem rotation lock *(see Figure 4)* and, while continuing to hold the lock open, rotate the stem 180° counterclockwise *(looking toward the coil)* such that the coil is upside down *(see Figure 5)*.

Figure 4

Figure 5

4. Partially slide the stem assembly out to access the coil connector.
5. Slide connector cover down the cable to expose the connector *(see Figure 6)*. Loosen and disconnect from the electronics housing by hand *(see Figure 7)*.

Figure 6

Figure 7

Figure 8

6. Remove the searchcoil/stem assembly from the electronics housing *(see Figure 8)*.

Note: It is also possible to replace the *ATX* searchcoil without fully removing the armrest or one of the battery covers. At Step 2 from above, simply disengage the armrest lock and slide the armrest forward without removing it. Continue with the remaining searchcoil removal steps. Reinserting the connector and tightening the collar is done in a more restricted space, but this method does not require removing parts *(see images below)*.

Optional method shown of searchcoil removal with the armrest cuff not fully removed.

Searchcoil installation

1. Fully collapse the telescopic stem and tighten the stem nuts.
2. Partially slide the stem into the electronics housing.
3. Reattach the searchcoil connector by properly aligning the pins *(see Figure 9)*, fully inserting the connector and tightening the collar by hand.

Figure 9

Figure 10

Note: The connector cover can be temporarily removed during this step if desired *(see Figure 10)*; however, be sure to snap the cover back around the cable once the collar has been tightened.

4. Note that it may be necessary to rewind the coiled cable so that it will properly fit inside the stem assembly. To do so, spin the stem assembly clockwise *(looking from detector toward the coil)* a few revolutions such that the stem assembly easily slides over the coiled cable; two to four revolutions is usually sufficient.
5. Rotate the stem assembly to the 180° position (i.e. coil upside down) and fully insert into the electronics housing.
6. Disengage the stem rotation lock, rotate the stem 180° or to the desired position, and release the spring-loaded rotation lock to automatically reengage.

The *ATX* uses eight AA batteries (alkaline and rechargeable batteries are included). The detector is shipped with one set of alkaline batteries installed. The set of rechargeable batteries also included with your detector can be recharged from AC power or a 12-Volt DC power source. The *ATX* accepts alkaline, 1.5V rechargeable AA batteries, or 1.5V lithium batteries (3.7V lithium batteries must not be used, as they can damage the detector).

Both *ATX* battery packs should be replaced when the unit indicates low battery level (i.e. one beep at turn-on, along with low battery warning light, and periodic audible warnings; see p. 8). Average operation time with fresh alkaline batteries is 12 hours; rechargeable battery time is 10 hours.

Battery Replacement

The battery compartments are located on both side of the detector's armrest *(see Figure 1)*. Press in the battery cover, rotate a quarter-turn counter-clockwise to release the lock, and pull to remove *(see Figure 2)*.

Figure 1   Figure 2

Tip the detector forward to allow battery pack to slide out.

When installing the individual batteries into the battery pack, ensure they are aligned with the correct polarity, as indicated by the plus and minus markings on the inside of the battery pack. Reinstall the battery pack with the correct polarity as indicated by the plus and minus markings on the side of the detector *(see Figure 3)*. Replace the battery cover and rotate a quarter-turn clockwise to lock into place. Repeat this process for the batteries on the opposite side of the detector. If the *ATX* will be submerged, be

sure to lubricate the O-rings on each battery cover with silicone grease *(see Figure 4)*.

Figure 3

(Detail view of ±
polarity markings)

Figure 4

O-Ring

Battery Charging

In addition to its factory-installed alkaline batteries, the *ATX* also includes one set of rechargeable batteries. Use the charger included to recharge batteries. The charger accepts from one to eight AA batteries at a time for charging *(see below)*.

Caution: Use only Ni-MH type batteries on this charger. Do not attempt to recharge lithium, alkaline or carbon batteries.

Eight individual LEDs indicate charging status for each battery. Steady Red LED indicates rapid charging in progress. Steady Green LED indicates the battery is fully charged. Flashing Red LED indicates the battery is faulty or not suitable for charging. Flashing Green LED indicates the battery is under-going a discharge cycle.

The soft carry case included with the *ATX* protects the detector during travel and when not in use. When properly arranged, it can hold the *ATX*, optional searchcoils and accessories, as shown on the following pages.

ATX with standard DD coil attached

Figure 1:   *ATX* with DD coil attached.
Secure straps around lower stem nut and housing.

Figure 2:   *ATX* with DD coil attached + Deepseeker coil + headphones.
Note: close velcro flap to secure Deepseeker coil.

Figure 3:   *ATX* with DD coil attached + Deepseeker coil + headphones + 8" mono coil.
Note: close velcro flap to secure Deepseeker coil.

ATX with 20" Deepseeker coil attached

Figure 4: *ATX* with Deepseeker coil attached + headphones. Secure straps around lower stem nut and housing.

Figure 5: *ATX* with Deepseeker coil attached + DD coil + headphones. Note: close velcro flap to secure DD coil.

Figure 6: *ATX* with Deepseeker coil attached + DD coil + 8" mono coil + headphones. Note: close velcro flap to secure DD coil.

CARE AND MAINTENANCE

The *ATX* is a rugged detector, designed for outdoor use in all environments. However, as with all electronic equipment, there are some simple ways to care for it to maintain its high performance.

- Avoid extreme temperatures as much as possible, such as storing the detector in an automobile trunk during the summer or outdoors in sub-freezing weather.
- Keep the detector clean, especially the touchpad and telescoping stem assembly. The *ATX* stems should never be collapsed and allowed to dry when the unit is muddy or sandy, or after any underwater use. Saltwater and even freshwater sediment can inhibit the easy operation of the stems and stem nuts. Rinse the unit with fresh water to remove sand, sediment, etc., and wipe down with a clean cloth.

Hold the *ATX* under running fresh water to rinse off sediment. Vigorously rotate the stem nuts back and forth and work the stems in and out while under the running water to help flush any grit from within the stem nuts. Flush any debris from the stem rotation lock as well.

Rinse stems and stem nuts with fresh water to remove dirt, salt, etc.

Rotate stem nuts and rinse again to ensure grit has been removed.

- If a freshwater source is unavailable after water hunting, rinse the unit in the body of water you have been hunting. Hold the *ATX* under the water surface while vigorously rotating the stem nuts back and forth and working the stems in and out to help free any trapped sediments. Then wipe the detector down with a clean cloth before collapsing the stems.
- Leave stem nuts in a loose (untightened) mid-point position for storage to prevent any remaining deposits from seizing up the stem nuts.
- When storing for longer than one month, remove detector's batteries.
- Install protective cover on the connector when not using headphones.

SYMPTOM	SOLUTION
No power	1. Ensure batteries are installed in the correct polarity. 2. Replace all old batteries with all new batteries.
Erratic sounds and noisy operation	1. Ensure your searchcoil is securely connected. 2. If using the detector indoors, be aware that excessive amounts of electrical interference exists, plus excessive amounts of metal can be found in floors and walls, etc. Move outdoors. 3. Determine if you are close to other metal detectors or other sources of interference such as power lines, wire fences, fluorescent lights, excessive metal, etc. 4. Move away from interference sources 5. Perform a Frequency Scan. 6. Reduce your Sensitivity setting.
Intermittent target signals	Intermittent signals typically mean you've found a deeply buried target or one that is positioned at a difficult angle for your detector to read. Scan from different directions to help define the signal, and/or scrape away some soil to get the coil closer to the target.
Responds when bumping coil against rocks, etc.	Use a coil cover to cushion the coil's impact with items such as rocks, trees, etc.

The following is a Code of Ethics that many treasure hunt clubs endorse and hobbyists follow to preserve our exciting hobby of metal detecting. We encourage you to do the same:

- I will respect private and public property, all historical and archaeological sites and will do no metal detecting on these lands without proper permission.

- I will keep informed on and obey all local and national legislation relating to the discovery and reporting of found treasures.

- I will aid law enforcement officials whenever possible.

- I will cause no willful damage to property of any kind, including fences, signs and buildings.

- I will always fill the holes I dig.

- I will not destroy property, buildings or the remains of deserted structures.

- I will not leave litter or other discarded junk items lying around.

- I will carry all rubbish and dug targets with me when I leave each search area.

- I will observe the Golden Rule, using good outdoor manners and conducting myself at all times in a manner which will add to the stature and public image of all people engaged in the field of metal detection.