

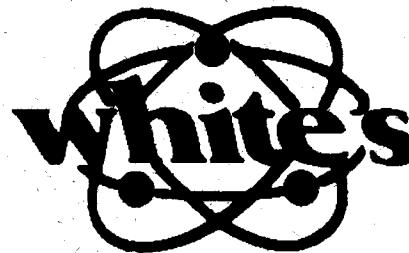
# Quantum XT

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SWEET HOME, OREGON USA



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**White's Electronics, Inc.**  
**A Message from...**  
**Kenneth R. White**  
**President**



**Dear Fellow Detectorists:**

Congratulations, and thank you for choosing the *Quantum XT*!

We listen to our customers wants and needs to assure new instruments are designed by and for you. Many ideas for the features we offer come directly from customers! We encourage you to continue to tell us what you want and need in a metal detector.

The *Quantum XT* is the answer to what detectorists have asked for, again and again: Major reductions in size and weight. Large display with easy to read graphics. Bright sun/cold weather display visibility (viewing angle adjustment). Software that guides, forgives errors, and avoids losing you. The list goes on and on. We leave it to you, and the information in this manual, to fully explore all the benefits of this wonderful new metal detector.

The following instructions will familiarize you with *Quantum XT*, and give you an understanding of the basics. Obviously, there are no substitutes for field experience. Practice using your detector in the field, and again study this manual. Before long you may be able to teach the experts a thing or two!

White's instruments are the highest performance, most advanced metal detectors available. However, regardless of a metal detector's performance, it is the operator who makes the critical decisions that result in great recoveries. A metal detector is simply a tool which increases the capabilities of the user to find such valuables. Knowledge and research are key elements to successful metal detecting.

Another important factor today is obtaining permission prior to hunting private property and publicly owned lands. These steps as well as maintaining the landscape, will go a long way towards protecting the hobby from future restrictive legislation.

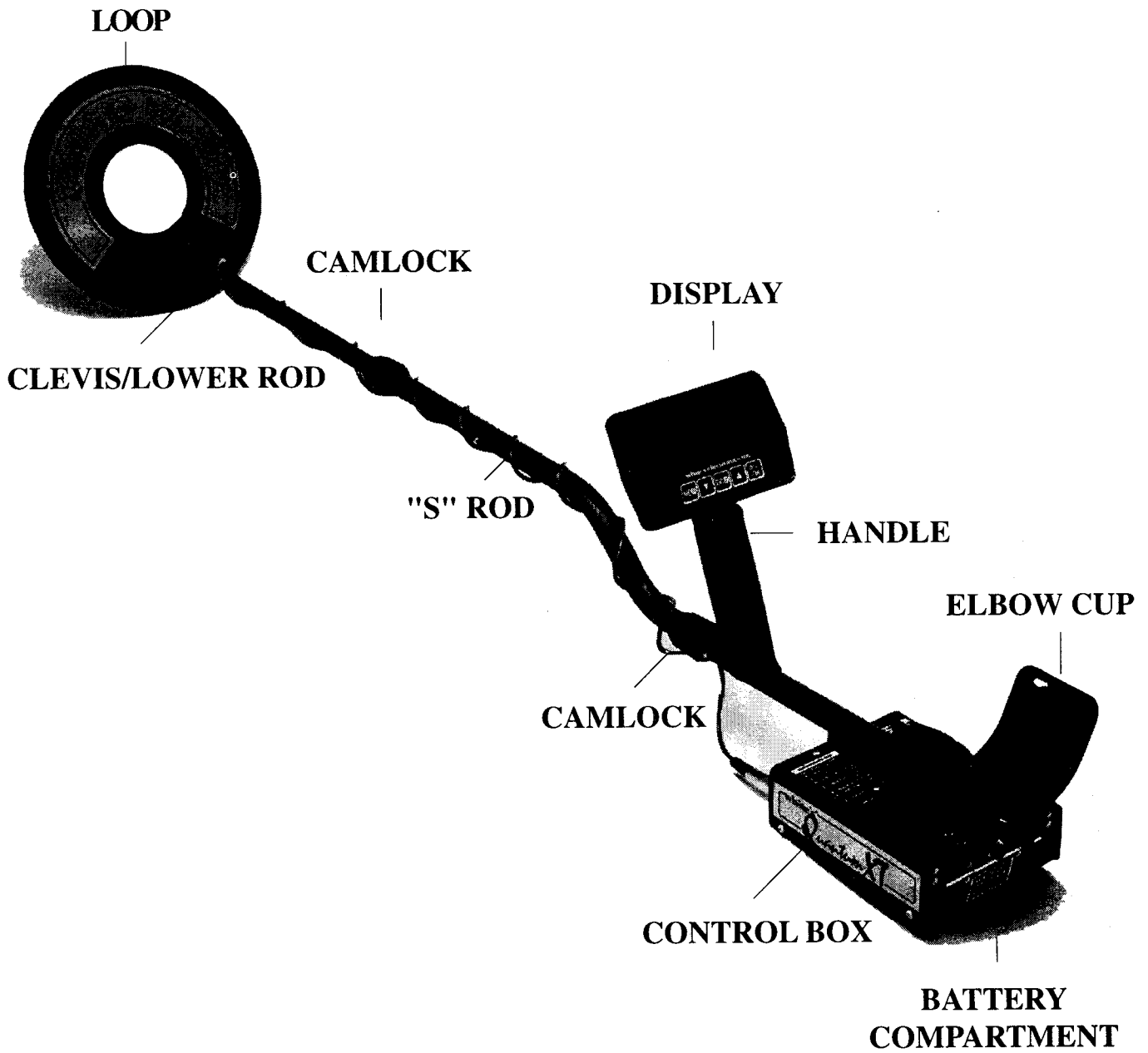
Thanks again for choosing the *Quantum XT*. We wish you the best of luck in all of your adventures.

A handwritten signature in black ink, appearing to read "Kenneth R. White". The signature is written in a cursive, flowing style and is located in the bottom right corner of the page.

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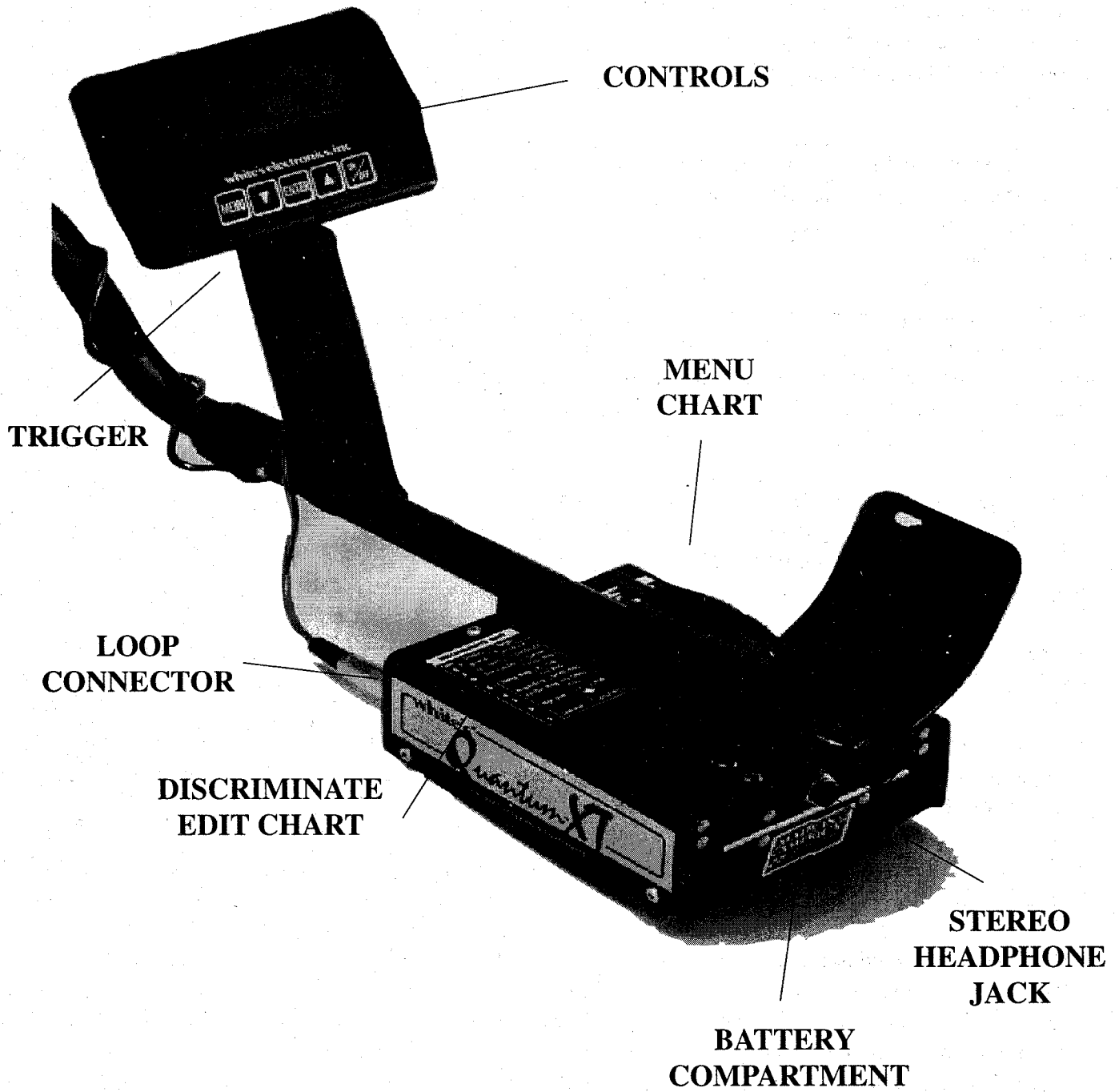
# ASSEMBLY



# ASSEMBLY continued...

1. Remove parts from shipping carton and check the assembly page to make sure all parts are present.
2. There are rubber washers between clevis/lower rod and loop ears. Use only non-metallic washers, fiber bolt, and thumbnut provided, to secure loop to clevis/lower rod.
3. Unlock "S" rod camlock and insert clevis/lower rod into curved "S" rod so that stainless steel spring clip buttons line up and lock into one of the adjustment holes in the curved "S" rod. Turn camlock to secure. The second or third adjustment holes are suitable for average size adults. Individuals 6' or taller should use the fully extended position. Individuals well over 6' tall should purchase the optional *Tall Man Rod*.
4. Unravel loop cable and wind the cable around the clevis and rod assembly, first revolution over the top of the rod. Wind cable all the way to the top of the curved "S" rod, about five revolutions. Use the black cable retainers, one near the loop, and one near the top of the curved "S" rod, to hold the loop cable in place.
5. Unlock control box rod camlock and insert curved "S" rod so that stainless steel spring clip buttons line up and lock into the rod on top of the control box. The "S" rod is designed to curve up toward the display. However, those who prefer to sweep the loop close to their feet may desire to assemble the "S" rod to curve down toward the ground. Turn camlock to secure. Plug loop connector into control box, screw lock ring to secure.
6. Grip the instrument by the handle, with your arm in the elbow cup, and sweep the loop over the floor. If the instrument fit feels uncomfortable, adjust the elbow cup by removing and repositioning the bolt/thumbnut and installing in one of the optional positions. If necessary, readjust clevis/lower rod position.
7. Remove the protective paper from the two black elbow cup foam pads. Carefully align pads on the inside of the elbow cup, one on each side of the center rod, and press firmly into place.
8. Adjust the elbow cup strap so that it is loose enough for you to slide your arm in and out without loosening each time you want to set the detector down. The elbow cup strap provides extra leverage and control. However, some prefer not to use it.
9. Install battery as described in the next section, **decal facing down**, with plastic tab and steel contacts facing toward inside of battery compartment.
10. It should be noted at this point that the detector may not work as expected indoors due to the high degree of metals used in modern construction. It is best to tune and practice out-of-doors to ensure stable, predictable results. Additionally, freshly buried targets will not produce the normal depth and discrimination results of targets that have been naturally lost and settled in the ground. Due to the abnormality caused by digging a hole in the ground matrix, and the sophistication of the ground rejection circuitry, it may take a number of years for freshly buried targets to respond at true depths and discrimination accuracy. The best way to determine true detection depth is in real search conditions.

# ASSEMBLY continued...



# BATTERIES

## ■ STANDARD BATTERIES (Blue Decal)

The standard battery holder holds eight "AA" cell batteries. Alkalines are the non-rechargeable batteries recommended for this model. A new set of Alkalines will provide approximately 25 hours of searching time. Low battery will appear on the display when new batteries are needed. This occurs when the batteries reach 8.2 volts or lower. Batteries well under 8.2 volts may not have enough power to achieve a battery check.

The non-rechargeable battery holder can use many different types of batteries, including rechargeable nicads and heavy duty cells. However, such cells (nicads or heavy duty) simply provide fewer hours of use before needing replaced or recharged compared to Alkalines. Some batteries however, are of a shortened length so that they will not work well in this holder. This holder is designed for standard size penlight "AA" batteries which should be 50 mm  $\pm$  .10mm, Battery lengths shorter than this will likely cause problems with this power supply.

## Using The Standard Battery (*Backup Pack*)

1. Slide open the battery pack lid (decal side of battery pack) by applying gentle upward pressure on the tab of the door so that it unlocks. Slide the door away from the battery box exposing the cell positions.
2. Remove all old cells from the pack. Note the (+) and (-) positions of each cell marked inside the cell tray. Replace them with new "AA" alkaline cells. **If the cells are put in backwards, the detector may require service by an Authorized Service Center.**
3. Slide the door closed so that it snaps securely.
4. Insert the battery pack into the detector so that the decal is facing down, with the door tab and metal contact points facing towards the inside of the battery compartment.

## ■ RECHARGEABLE BATTERIES

A rechargeable battery system is not standard equipment with your Quantum XT. However a high quality USA type home voltage system is available from White's. This battery can be recharged hundreds of times as long as the battery hasn't been stored for extended periods of time or overcharged. Full charge can be achieved anytime during the discharge cycle (non-memory) using either the quick charge or overnight charge options available with this system. **White's rechargeable battery #802-5211, and charger #509-0022 are recommended for use with the Quantum XT.**

Rechargeable batteries gradually deteriorate. As they age they do not provide the life per-charge they did when new. This is expected, and not grounds for replacement under warranty. Additionally, a damaged initial cell, which is caused by over charging with the QUICK option, *is not replaced under warranty*. Only cell failure through normal use, or a defect due to a problem with a White's warranted charger, is covered.

# BATTERIES continued...

## ■ ADDITIONAL BATTERY INFORMATION

When the instrument is turned on the battery voltage will momentarily appear, after the opening display. The detector will then request a **Ground Balance**. To recheck the battery voltage during operation, squeeze and hold the TRIGGER and press the ARROW DOWN control.

**Volatile memory** temporarily holds any program changes. *Short-term* or volatile memory is retained as long as a good battery remains in the detector. To recover volatile memory immediately squeeze and release the TRIGGER once the detector is turned ON and the battery check is completed. If the battery is removed all volatile memory is lost.

When using fresh batteries, the voltage will initially check somewhere in the 11-14 volt area. *Low Battery* will automatically appear on the display when the battery reaches 8.2 volts.

Like a personal computer, there are times (such as low battery conditions) when the microprocessor of a metal detector becomes out of sequence with the rest of the circuitry. This is often noted by peculiarities in the non-discrimination or pinpointing (TRIGGER squeezed) modes. Symptoms may be blaring or silent non-discriminate or pinpoint modes, depth indication inaccuracies or general abnormal operation. To correct such difficulties "re-boot" by:

1. Installing a good battery.
2. Turn ON, wait for battery check, then ground balance or squeeze and release the Trigger.
3. Open battery door and remove battery while detector is still ON.
4. Wait one minute, reinstall battery, turn detector ON, and check for proper function.



# SEARCHING

## GETTING STARTED

I. With the TRIGGER on the handle in the center position, push the ON/OFF control and an automatic sequence will begin.

II. The display will momentarily show an opening screen which lists the software version.

III. The display then shows a battery check screen.

VI. The last automatic display to appear on the screen is the ground balancing (ground cancelation) instructions. Follow these on screen instructions, lowering and lifting the loop from the ground until little or no change in the threshold hum (background sound) is noted.

A. Once little or no change in sound is noted as the loop is lowered to and lifted from the ground, squeeze and release the Trigger on the handle.

B. If more than twenty seconds pass, the detector will automatically proceed with a factory preset level of ground balance.

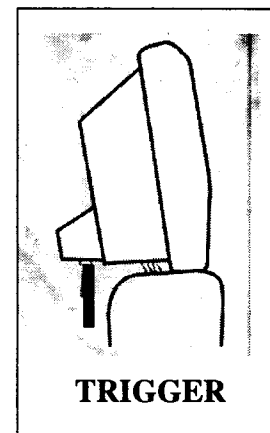
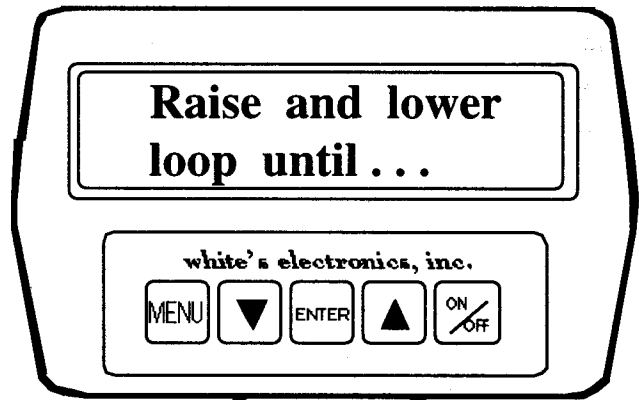
V. You are now ready to begin searching using the factory COIN program.

VI. To select one of the other factory programs press MENU, press ENTER, then use the ARROW controls to select the program you desire, press ENTER, and you're ready to search using that program.

VII. Once MENU is pressed, continuing to press ARROW down will lead you through all the features one by one, allowing you to build your own program beginning with the standard Coin Program settings.

A. When a feature appears that you want to adjust, press ENTER. Note that the pointer (prompt) which was next to the title is now next to the actual setting, indicating you can use the ARROW controls to make adjustments. Press MENU and then use the ARROWS to continue looking at other features, or squeeze and release the TRIGGER to begin searching.

B. If an ON/OFF selection is required, press ENTER to change the selection, use the ARROW controls to continue looking at other features, or squeeze and release TRIGGER to begin searching.



# SEARCHING continued...

## PROGRAMS "PRESET"

There are four different **Programs** to choose from. Each Program selects the features desirable for its purpose. The program selected becomes the default (beginning) starting program upon turn on and ground balance. Changes made to these programs and the default program itself remain until either the battery is removed for two minutes or, the program (or any other program) is re-entered through the Preset Program menu, resulting in the return to factory settings.

*Coin* selects general purpose settings. This Program discriminates (rejects) most common junk items like nails, foil, pull tabs, and hot rocks (ground); and responds to most coins and large jewelry. It is a good program to become familiar with the Quantum XT. Use in lawns, parks, and playgrounds where lots of trash rejection is desired. It may however, discriminate (reject) too much for some hunters.

*Coin & Jewelry* offers settings similar to Coin. However, it provides less discrimination (less trash rejection). Less discrimination is desirable because of the high degree of variance found in jewelry alloys. More digging must be acceptable in the area being searched. Coin & Jewelry is a good program to use in lawns, parks, and playgrounds (if less discrimination and more jewelry is desired), or for those who wish to rely more on their interpretation of the display.

*Jewelry & Beach* offers settings similar to Coin & Jewelry. However, it provides Adjustment settings to better deal with the typical conditions found on beaches.

*Relic & Prospecting* offers even less discrimination than Coin & Jewelry or Jewelry & Beach. It responds to all types of metals except small iron items such as nails, and some stainless steel. Brass, lead and aluminum, as well as copper, silver, and gold will all respond with a good solid sound. Ferrous (iron), such as large nails, weapons, and cannon ball fragments will also respond. This program is suitable for a variety of searching needs when the desire is to hear all significant targets and separate ferrous/nonferrous by display indications.

## SAVING CUSTOM PROGRAMS

The Quantum XT doesn't have long term memory storage. However, it will save programs with special custom settings during breaks, lunches, travel to a new area, etc. as long as a good battery remains in the instrument.

I. When any factory program is used, and the Adjustment Menus are used to make custom changes to that program, those settings (that entire program) become the default (starting) program and all settings are temporarily saved so long as a good battery remains in the unit.

A. After the detector has been turned off, upon turning it on, wait for the automatic battery check then follow the normal ground balance on screen instructions and squeeze and release the Trigger on the handle. The program last used with all custom settings will return exactly as they were prior to turning the instrument off.

# SEARCHING continued...

**B.** If you decide you no longer want to use the same program or custom settings, you can return to any original factory program. Follow the normal turn on procedure. After ground balancing press MENU, then press ENTER to enter the Preset programs, select the program you desire and press ENTER. The factory settings will then return, all custom settings are erased.

## ■ OTHER MEMORY FEATURES

**Return ARROW Key** - As long as a good battery remains in the instrument, the last adjustment screen used is remembered by your Quantum XT. From the search mode, either ARROW control will access the last adjustment screen used. This allows easy access to the most used adjustment (such as Transmit Frequency) during a competition hunt. It also allows a user to quickly switch from the search mode back and forth to a particular feature, to find the features best setting for the conditions and operator preference.

Again, the last adjustment screen used can be accessed from the search mode simply by pressing either ARROW control.

# SEARCHING continued...

## ■ ADDITIONAL GROUND BALANCE INFORMATION

Once the initial Ground Balance is completed, the detector is ready to be used.

Ground balance is critical to performance. It is recommended that each time you use the Quantum XT the *Ground Balance* instructions (which appear on the display) be followed.

The Ground Balance settings are not saved by the volatile memory. When a new Ground setting is required (such as upon turn on) the ground balancing instructions will appear on the display.

If twenty seconds pass during the ground balance on screen instructions, and the Trigger has not been squeezed and released, the instrument will go to the search mode with a factory preset level of ground balance.

If you can see a change in the ground color, texture, type, etc. during searching, it is recommended that you re-ground balance. Simply press ENTER while in any search mode and the ground balance instructions will appear. Follow these instructions, lower and lift the loop from the ground until little or no change in threshold can be heard, then squeeze and release the Trigger on the handle. The program settings will not be changed, all settings remain the same with a new ground balance.

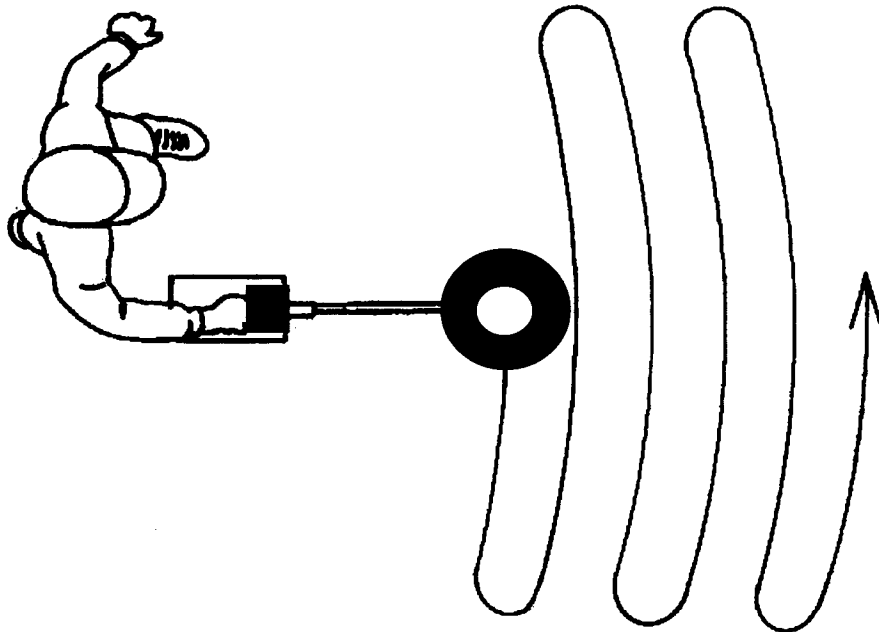
Minor or gradual changes in ground mineralization will be corrected by the automatic ground tracking system.

# SEARCHING continued...

## SEARCHING

Once Ground Balance has been completed the detector is now ready to locate metal.

Movement of the loop over the ground is critical to performance. **The loop must be in motion (sweeping from side-to-side) for this instrument to respond to metal in the search mode.** Practice a smooth sweep of the loop from side-to-side keeping the loop close to the ground throughout the swing. Each pass of the loop should take approximately three seconds from right to left, three seconds to return from left to right. This is a slow sweep instrument (slower than other White's models) meaning the best overall performance is achieved with a slow (three second) sweep of the loop.



### Fifteen second pattern.

Walk forward slowly. Take small steps no greater than half normal strides. Make sure each pass of the loop overlaps the last by at least half the length of the loop. Do not lift the loop at the end of each swing. Keep it close to the ground at all times.

To become comfortable with sweeping the loop takes some practice. Try to loosen up and find a comfortable grip on the handle. Premature fatigue may result from gripping the handle too tightly, improperly adjusted rod or elbow support, and limited body movement. Hold the handle loosely. Adjust the rod and elbow support for comfort and keep the elbow strap loose. Use your arm, shoulder and even your back a little to allow a smooth even sweep of the loop.

Now that you're sweeping the loop smoothly over the ground, you will notice that the detector starts making sounds (*beeps*). **Not all sounds are good targets; some trash targets also make the detector beep.**

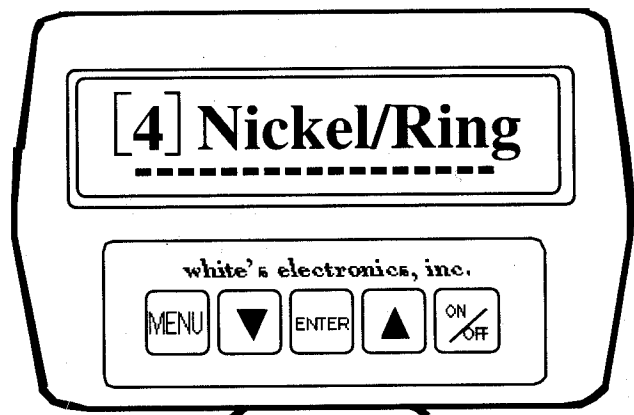
# SEARCHING continued...

As the loop is swept over the ground, ignore the display and concentrate on the sounds the detector makes.

As the loop is passed over a metal that is likely trash, the sound will be inconsistent. Trash targets typically produce a shorter, sputter-type sound, that is often broken or double in nature. Place a large steel nail on the ground. Pass the loop over it several times to become familiar with this sound at different loop sweep speeds. Note that an aluminum or bronze nail can not be used as it is a different type of target. Also note that very old rusty steel alloys may start reading as coins due to the elimination of the iron through deterioration. Once familiar with the sound typical nails produce, an operator may pass over such targets and continue searching without consulting the display information, saving more time for evaluating possible good targets.

As the loop passes over a metal that is likely good, a more consistent and smooth sound will be heard. A good target typically produces a longer, more solid sound. Place a quarter on the ground and sweep the loop over it several times to become familiar with the sound of a good target.

Once a smooth solid sound is found (or even a questionable sound), sweep the loop over the target several times and **look at the display**.



The display provides several pieces of information about the target.

## 1. ZONE ("target reference number")

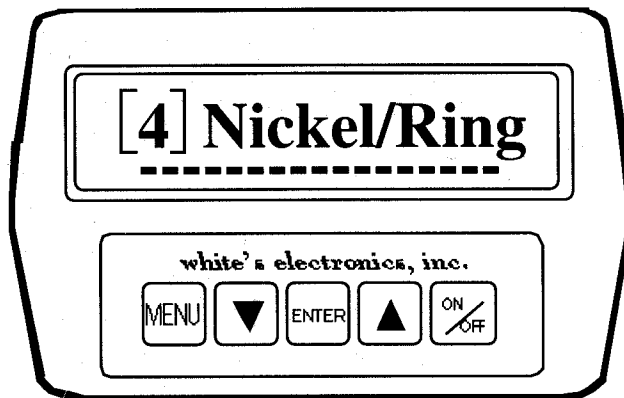
In the upper left hand side of the display there is a number. This is the ZONE number and it corresponds to the SCALE painted on the top right-hand side of the control box. It also corresponds to the Discriminate Edit feature allowing you to reject or accept targets based on their ZONE number. A reasonably consistent ZONE number in a desirable area of the chart is a vote to dig the target.

| DISCRIMINATE EDIT |               |                               |
|-------------------|---------------|-------------------------------|
| Zone              | Display       | Target                        |
| 8                 | (ground)      | HOT ROCK                      |
| 7                 | 1¢ - 50¢/1 \$ | COINS/SILVER                  |
| 6                 | Screwcap/Znc  | SC. CAP/ZINC,<br>INDIAN PENNY |
| 5                 | Tab/Lg. Ring  | PULLTAB/<br>LG. RING          |
| 4                 | Nickel/Ring   | NICKEL/RING                   |
| 3                 | Foil/Sm. Ring | FOIL/SMALL<br>RING            |
| 2                 | High Iron     | SMALL IRON                    |
| 1                 | Low Iron      | LARGE IRON                    |

# SEARCHING continued...

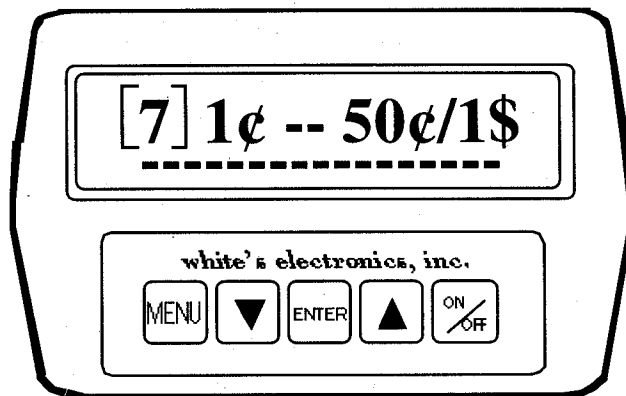
## 2. Possible Target Identities ("Probable or most likely Target")

To the right of the ZONE number, possible target identities will be listed. A fairly consistent indication of a desirable target is another vote to dig the target. One or two possible targets may be listed. There is significance to which appears first. The first target to appear is always the most likely, the second is another possibility slightly less likely than the first.



## 3. Target Intensity

Across the bottom of the display a continuous rolling indication of the intensity of the signal is displayed. Discrimination accuracy, both audio sound and display indications, weaken with distance from the target (depth). The more intense the signal the more likely the audio sound, ZONE and possible target labels are correct. The shallower or larger the target, the more intense the signal therefore the larger or taller the bars, and the more likely the audio sound, ZONE and possible target identity label can be relied upon. The deeper or smaller the target, the smaller and shorter the bars, indicating one should more likely question the audio sound, ZONE and possible target label accuracy. In other words deep targets, even if the audio sound and display indications are unsure, should be investigated until the characteristics of the ground in the area is known. The ground conditions in some areas tend to skew discrimination accuracy greater than other areas.



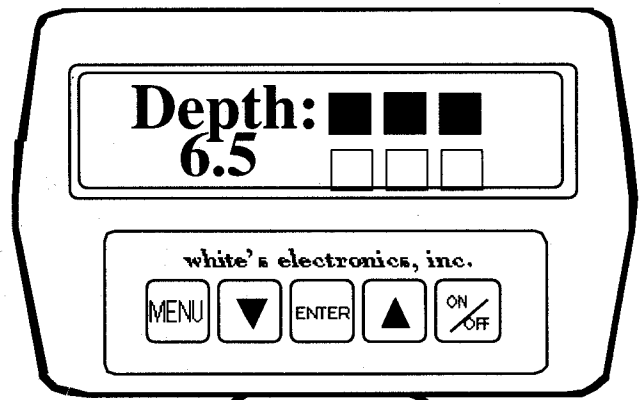
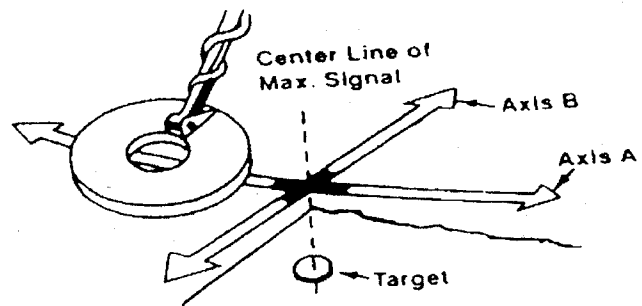
# SEARCHING continued...

## ■ READY TO DIG

Once the decision has been made to dig, move the loop off to one side of the target area, squeeze and hold the TRIGGER on the handle, and "X" the loop over the spot where you believe the target to be. Note that the TRIGGER also has a locked forward position that accomplishes the same thing as squeezing and holding it.

While the TRIGGER is being held, the loop doesn't need to be moving to detect the target. The loop may be moved slowly over the area. The display will indicate depth in inches and will also show the strongest reading to aid in pinpointing exactly where to dig. The shallowest reading on the depth display, the loudest sound coming from the speaker, and the two bars lining up with each other, indicate the center of the target. Don't forget to "X" the target as pinpointing cannot be accurate unless the target is swept from at least two different directions. Once pinpointing is complete, release the TRIGGER, or return it to the center position.

Pinpointing takes practice. The standard loop provided with the Quantum XT is a high powered, 9.5 inch design. If pinpointing becomes difficult or critical, an optional smaller loop is suggested. The smaller loops have advantages in high trash areas and pinpointing, but will **not** detect as deep as the standard 9.5 inch size.



There are three important things to keep in mind when pinpointing:

1. Metals that are near the surface, because they give a wider response, are harder to pinpoint than deep targets. When the trigger is held and the loop swept over the area, you may note a shallow depth indication. Lifting the loop slightly above the ground, releasing and re-squeezing the TRIGGER and again "X" ing the metal will aid pinpointing.
2. Lower Pinpoint Sensitivity settings pinpoint shallow metals better.
3. The depth reading has two indication bars. The top bar shows the current distance from the metal. The bottom bar shows a memory of the strongest reading. These two bars will be even with each other when the loop is directly over the center of the metal.



# SEARCHING continued...

## ■ DIGGING

**Permission** - Prior to searching and digging you must have permission to search private property, from the owner or caretaker.

**Laws** - Know the laws that apply to the area you are going to search. Laws vary a great deal with the City, County, State, and Country, regarding the use of metal detectors. Be respectful of private property, public property, and the laws which govern the use of metal detectors.

**Tools** - Care must be taken to dig in a way that is friendly to the landscape. Tools and methods vary a great deal with the area, season, and types of target you are recovering. Check with your dealer for recommended tools and methods for your area.

**Trash** - When searching, remove all trash you come across. This not only makes your future searches of the area more productive; it promotes the hobby of metal detecting.

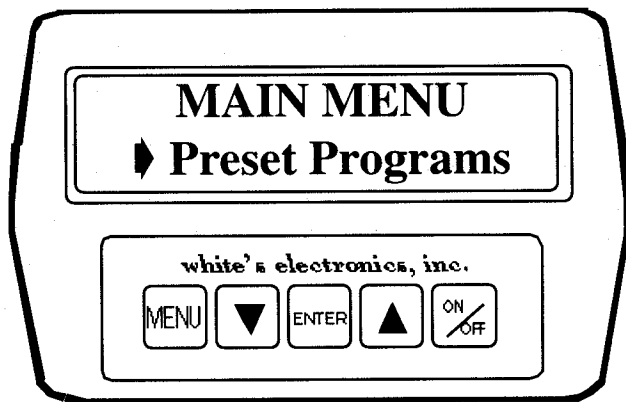
**Get Involved** - Your dealer knows of metal detecting clubs and organizations which promote and protect the hobby. A club is a great way to not only learn good detecting habits, but to gain permission to search areas as a group as well as have organized competition hunts.

# ADJUSTMENTS

## ■ MAIN MENU

After you have had some field experience, you may want to make some changes to the basic settings of your detector.

From the search mode press MENU. At this point, the **MAIN MENU** will appear on the display.



The choices are:

1. **Preset Programs**, which will return to the four ready-to-go factory starting programs: Coin, Coin & Jewelry, Jewelry & Beach and Relic & Prospecting.

Or press ARROW down:

2. **Adjustments**, used to make all the basic adjustments generally associated with most metal detectors: Volume, Threshold, Sensitivity, etc.

Use the ARROW controls to move the pointer to Adjustments, and then press ENTER.

And/or you may use the ARROW *down* control to scroll through the Basic Adjustments.

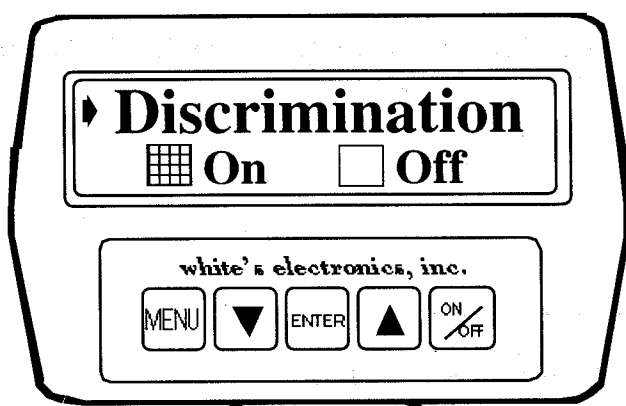
## ■ HOW TO MAKE ADJUSTMENTS:

Each adjustment shows the current setting. Most require you to first press ENTER, then use the ARROW up and down controls to adjust. Note: when ENTER is pressed, the pointer (prompt) moves from the title to the setting, indicating you are ready to make adjustments with the ARROW controls. Once the adjustment has been made press MENU and then use the ARROW controls to review or make adjustments to other features or, squeeze and release the Trigger to begin searching.

# ADJUSTMENTS continued...

**AFTER ADJUSTING** - Press MENU and use the ARROW controls to continue viewing/setting other Adjustments, or squeeze and release the TRIGGER to begin searching.

**ON/OFF SETTINGS** - Needs only for you to press ENTER to change setting. Pressing ENTER again changes back to the original setting. Filled in square indicates the current selection. ARROWS continue, TRIGGER begins searching.



**SCROLLING** - Any time you continue to press the ARROW *down* you can go beyond the MAIN MENU. If the ARROW *up* control is pressed, you will be scrolling backwards through the menus. All the MENU items are tied together so that the ARROW up and down controls scroll. You can scroll from any point within the MENU.

**ARROW RETURN** - An important feature of the ARROW controls; If an ADJUSTMENT has been made (for example Volume) and the trigger has been squeezed and released to return to a search mode, you can return to the volume adjustment simply by pressing either of the ARROW controls. This shortcut returns to the last adjustment that was made thereby allowing an operator to switch directly from a search mode to the adjustment currently being fine tuned. This feature is desirable as you start using ADJUSTMENTS that are located further down the menu listings, or any adjustment that may require some trial and error to find the appropriate setting.

If care is taken to use a desired adjustment screen last (just prior to squeezing and releasing the TRIGGER for a search mode), Custom Programs (such as a competition hunt program) can use this ARROW RETURN feature to allow quick easy access to the most used feature (Transmit Frequency). Using that feature (adjustment screen) last, just prior to squeezing and releasing the TRIGGER for searching. Then during searching, press either ARROW to return directly to that adjustment screen.

# ADJUSTMENTS continued...

## ■ "HOT KEY" (SHORTCUTS)

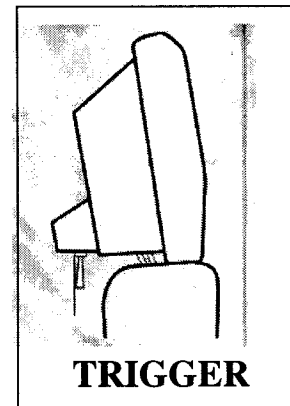
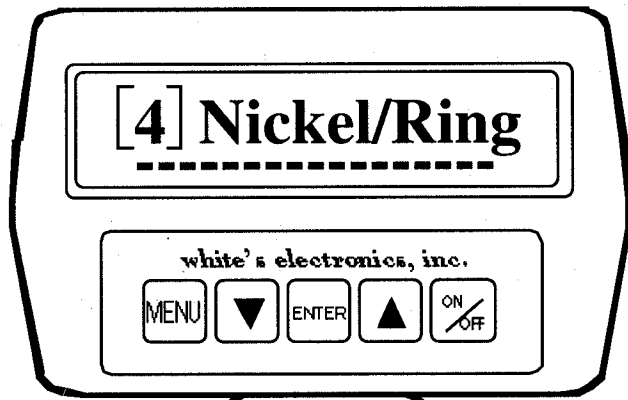
"HOT KEYS" will save time as they allow easy access, from the search mode, to the most needed adjustments.

**SCROLL OPTION** - After battery check, use ARROWS to scroll all the current settings/menus.

**GROUND BALANCE** - In search mode, press ENTER to re-Ground Balance.

**BATTERY CHECK** - While searching, hold the TRIGGER and press ARROW *down*.

**VIEW ANGLE** - While searching, hold the TRIGGER and press ARROW *up*. Release TRIGGER, press ARROWS to set.



# ADJUSTMENTS continued...

## ■ ADJUSTMENTS QUICK LOOK

**VOLUME (1-15)** - How loud a metal beeps when detected (maximum audio loudness).

**THRESHOLD (0-40)** - The slight hum or background sound heard continuously during use of the all metal (DISC OFF) mode, and pinpointing (trigger squeezed and help) prior to detuning.

**SEARCH SENSITIVITY (2-20)** - Degree the instrument is responsive to signals in all modes (except pinpointing). Also controls the signal strength required for information to appear on the display.

**PINPOINT SENSITIVITY (2-20)** - Degree the instrument is responsive to signals in the pinpoint mode (TRIGGER squeezed and held or locked forward).

**VIEWING ANGLE (0-30)** - Adjusts the display contrast (readability) for low or high temperature visibility.

**S.A.T. SPEED (0-20)** - Maintains the threshold over time, changes in temperature, and changes in the ground conditions which cause the threshold to drift. S.A.T. compensates (corrects) for such drift.

**TRACKING SPEED (0-20)** - Adjusts how often automatic corrections are made to the initial ground balance setting during searching.

**TRANSMIT FREQUENCY (1-25)** - Used when searching near other metal detectors to change the operating frequency and thereby avoid interference between two or more models.

**DISCRIMINATION (ON/OFF)** - The ability to turn on/off the discriminate feature that rejects trash by providing different sounds for different types of targets.

**VCO "Voltage Controlled Oscillator" (ON/OFF)** - Activates a change in pitch and volume in the non-discriminate and pinpointing modes, aids in target locating/pinpointing.

**NOISE REDUCTION (ON/OFF)** - When ON reduces extraneous noise by adding a signal strength requirement to all signals prior to allowing audio and display indications.

**MIXED MODE (ON/OFF)** - When ON allows two modes, an all metal mode which produces a lower pitch beep, and discrimination mode which produces a higher pitch beep, to operate simultaneously.

**DISCRIMINATION EDIT (1-8)** - The ability to reject or accept (turn on/off) any of the eight discriminate ZONES independently.

**TONE ALERT EDIT (1-8)** - Allows an operator to assign a higher pitch beep to any (or all) of the DISC EDIT ZONES to alert an operator when a metal falls into that particular ZONE or ZONES.

# DETAILED ADJUSTMENTS...

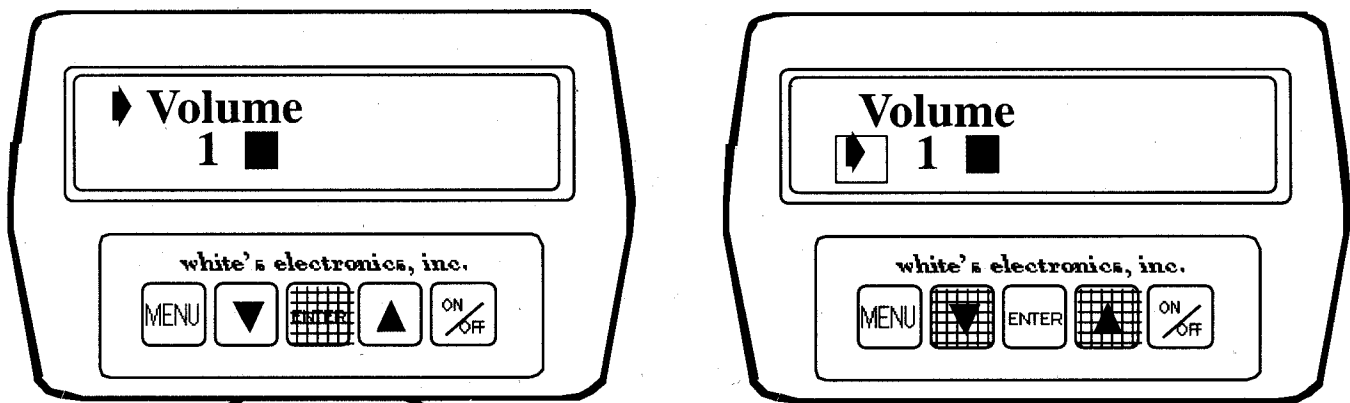
■ **TARGET VOLUME** - How loud a target *beeps* when detected.

**Tip** - Select the loudest comfortable level, lower with headphones, higher without.

Select TARGET VOLUME with the ARROW controls and press ENTER. The number designating the current level is shown on the bottom left side of the display. To the left, the bar graph indicates the relationship of the current setting to minimum and maximum levels.

Use the ARROW controls to select the volume level you desire. Volume level will select the loudest possible sound a shallow target can produce. High volume levels will slightly reduce battery life.

Press MENU and use the ARROWS to continue viewing other Adjustments, or Squeeze and release TRIGGER to begin searching.



■ **THRESHOLD** - The slight hum or background sound heard continuously during use of the all metal (DISC OFF) mode, and pinpointing (trigger squeezed and help) prior to detuning.

**Tip** - Select the lowest level you can still hear.

Select THRESHOLD with the ARROW controls, and press ENTER. The number designating the current level is shown on the bottom left side of the display. To the left the graphic knob indicates the relationship of the current setting to minimum and maximum levels. With the THRESHOLD at maximum, and the VOLUME at minimum, the detector will still respond to metal. Use the ARROW control to select the threshold level you desire. High threshold levels will slightly reduce battery life. Only when DISC OFF is selected, or the trigger is squeezed and held will the current Threshold be heard.

Press MENU and use the ARROWS to continue viewing other Adjustments or squeeze and release the TRIGGER to begin searching.

# DETAILED ADJUSTMENTS

## continued...

■ **SEARCH SENSITIVITY (2-20)** - Used to select the appropriate sensitivity (degree that the instrument is responsive to signals) while being used in any search mode (except pinpoint).

**Tip** - Preset levels work well for most conditions. Reduced levels will improve stability in difficult conditions. Increased levels will improve detection depth if stability can be maintained.

Select **SEARCH SENSITIVITY** with the **ARROW** controls, and press **ENTER**. Use the **ARROW** controls to select the desired level of sensitivity. A number designating the current level is shown on the left-hand side of the display. To the right, the graph indicates the relationship of the current level to minimum and maximum levels.

Remember that once the **TRIGGER** is squeezed and released to go to a search mode, you can return to the last adjustment screen used by pressing either **ARROW** control.

Sensitivity levels adjust detection depth and also have a direct effect on detector stability. **SEARCH SENSITIVITY** levels should be selected carefully to allow stable, predictable performance. If the detector responds erratically, a lower sensitivity level should be selected.

■ **PINPOINT SENSITIVITY (2-20)** - Used to select the sensitivity (degree that the detector is responsive to signals) while the detector is being used in the pinpoint mode. This modes (Trigger held or locked) doesn't require movement of the loop to respond. Pinpoint Sensitivity fine tunes stability and pinpointing for the conditions being searched.

**Tip** - Typically, lower Pinpoint Sensitivity settings pinpoint shallow targets far better than high settings. High settings will however, produce more pinpointing depth. Pinpointing (**TRIGGER** squeezed) and **V.C.O. AUDIO** are dramatically impacted by the Pinpoint Sensitivity setting.

Select Pinpoint Sensitivity with the **ARROW** controls, and press **ENTER**. Use the **ARROW** controls to select the desired Pinpoint Sensitivity level. The current level is shown on the left side of the display. The graph to the right shows the relationship of the current level to minimum and maximum levels.

Pinpoint Sensitivity levels should be selected carefully to allow for reasonable pinpointing.

Remember that once the **TRIGGER** is squeezed and released to go to a search mode, you can return to the last adjustment screen used by pressing either **ARROW** control.

# DETAILED ADJUSTMENTS

## continued...

■ **VIEWING ANGLE (0-30)** - Adjusts the display contrast for readability in low or high temperature conditions.

**Tip** - In cold temperatures the display typically will become slower at responding. Settings toward MAX (higher numbers) speeds the display and improves visibility at cool temperatures. In warm temperatures or intense direct sunlight, the display may become difficult to see. Settings toward MIN (lower numbers) will improve visibility of the display in all but extreme situations. If large variations in conditions result throughout the day search, you may have to make several VIEWING ANGLE adjustments to maintain good display visibility.

Select VIEWING ANGLE with the ARROW controls and press ENTER, use the ARROW controls to make changes. The current level is shown on the right side of the display. The graph indicates the relationship of the current setting to minimum and maximum levels.

Press MENU and use the ARROWS to continue viewing other Adjustments or squeeze and release the TRIGGER to begin searching.

### ■ **EMERGENCY VIEWING ANGLE PROCEDURE**

If your detector has been in the cold or heat prior to use, you may not be able to see the display to find and adjust the VIEWING ANGLE. Press the ON/OFF control then wait a few seconds, hold the TRIGGER and press ARROW *up*. You can then use the ARROW controls to find a VIEWING ANGLE level that allows you to read the display. Squeeze and release the TRIGGER to begin searching. You may need to use the EMERGENCY VIEWING ANGLE PROCEDURE to see the display, select the program you desire, use the ENTER control to enter, Ground Balance, then again use the EMERGENCY VIEWING ANGLE PROCEDURE if the display is unreadable. VIEWING ANGLE is preset at average levels in the factory preset programs. The display may be unreadable at either of the extreme settings in a particular environment.



# DETAILED ADJUSTMENTS

## continued...

■ **S.A.T. SPEED (0-20)** - Self-Adjusting Threshold (auto-tune) Speed. Smooths the THRESHOLD.

**Tips** - Recommended for most conditions as it provides greater stability particularly in non-discriminate modes or when sensitivity levels are maximized. Typically, faster S.A.T. SPEEDs (higher numbers) improve performance in more mineralized ground. Slower S.A.T. SPEEDs (lower numbers) improve performance in milder ground conditions.

Without S.A.T. SPEED (a setting of 0), changes in the ground and/or the passage of time, will tend to produce changes in the THRESHOLD sound. The TRIGGER will have to be squeezed and released repeatedly to maintain the THRESHOLD. This is particularly noticeable in non-discriminate modes. S.A.T. SPEEDs 1 through 20 will automatically correct for such THRESHOLD changes. The 0 setting offers no S.A.T.

S.A.T. (auto-tune) is a feature that has been used on metal detectors dating back to the 1970's. It adds a loop-motion requirement to modes which are ordinarily non-motion. It is also known to produce some variations in the responses to hot rocks (rocks more mineralized than the surrounding ground) which change with different speed selections.

Only enough S.A.T. SPEED required to maintain a stable threshold is recommended. Typically normal coin searching requires slower (lower number) speeds. Beach hunting and relic hunting require slightly faster speeds (higher numbers), and prospecting requires the fastest settings (highest numbers).

■ **TRAC SPEED (0-20)** - Dictates when automatic corrections to the initial Ground Balance setting are made.

**Tips** - It is desirable to select a TRAC SPEED that tracks the ground fast enough to maintain an accurate ground balance during searching. To check ground balance simply hold in the Trigger as if to pinpoint and lower and lift the loop from the ground. Significant change in the threshold indicates an improper ground balance. Re-Ground balancing can be achieved during searching simply by pressing ENTER, and lowering and lifting the loop from the ground. Significant change in the threshold hum as the loop is initially lowered to and lifted from the ground also indicates errors in the Trac Speed. A perfect ground balance and/or perfect tracking, may not be possible in extremely inconsistent ground conditions. Such conditions require continuous tracking to maintain close to correct ground balance.

Trac Speed allows the operator to adjust the automatic corrections made to the initial ground balance setting. At slower speeds (lower numbers) it takes a significant ground changes to cause tracking to occur. At faster speeds (higher numbers) it takes very little change in the ground to cause tracking to occur. The end result, more tracking occurs at higher numbers than at lower numbers. Too much tracking can cause errors in the ground balance setting. Not enough tracking can result in the ground balance setting never catching up with the ground.

# DETAILED ADJUSTMENTS

## continued...

■ **TRANSMIT FREQUENCY** - Alters the normal operating frequency (6592.5 Hz) to avoid interference from other metal detectors operating close by, or external electrical interference (noise) such as power lines and electronic sources. Operating frequency is the frequency the detector transmits and receives its signal.

**Tips** - Use level number "12" (6590. Hz) unless interference results from other detectors or external electrical noise. Move away from level "12" only far enough to prevent such interference. For optimum performance press ENTER and re-ground balance after each Transmit Frequency adjustment.

The frequency is adjustable +/- 240 Hz, with a resolution of 20 HZ per step. Lower numbers produce lower frequency settings 11 = 6570 Hz, 10 = 6550 Hz, 9 = 6530 Hz, etc. Higher numbers produce higher frequency settings 13 = 6610 Hz, 14 = 6630 Hz, 15 = 6650 Hz, etc. Crystal control is maintained over the entire range.

Other metal detectors operating at the same frequency or external electronic noise will cause interference. Such interference is noted by erratic beeping when the loop is held away from the ground. By shifting to a different frequency most often such interference can be avoided. If you cannot search due to interference, try an alternate frequency.

Remember that once the trigger is squeezed and released to return to a search mode, the last option used can be accessed by pressing either of the arrow controls. This ARROW RETURN feature can be used to handily change TRANSMIT FREQUENCIES during a competition hunt.

Press MENU and use the ARROWS to continue viewing other Adjustments or squeeze and release the TRIGGER to begin searching.

■ **DISCRIMINATION ON/OFF** - The ability to turn on/off the detectors feature that rejects trash by producing different sounds for different types of targets. Trash is rejected by going silent or producing a broken "cut-short" or inconsistent sound. Valuables are detected by a smoother, more solid and consistent sound.

**Tip** - Use AUDIO DISC ON for trash rejection, AUDIO DISC OFF for detection of all types of metals.

Select Discrimination with the ARROW controls, use the ENTER control to turn ON or OFF. When ON, specific targets will be accepted or rejected based on the Disc Edit settings currently in use.

Discrimination on/off turns ON or OFF the entire audio discriminate feature. When OFF, all types of metals produce an audio tone (*beep*). Only by selection of a different Program, or by entering the Disc Edit feature, can specific target ZONES acceptance or rejection criteria be altered. ENTER changes ON/OFF options. Filled in square indicates the current selection.

Use the ARROWS to continue viewing other ADJUSTMENTS, or squeeze and release the TRIGGER to begin searching.

# DETAILED ADJUSTMENTS

## continued...

■ **V.C.O.** - (Voltage Controlled Oscillator) produces a progressively higher pitched tone the stronger the target becomes. V.C.O. only works in the pinpoint or non-discriminate modes (Discrimination OFF).

**Tips** - V.C.O. is the best aid available for pinpointing.

V.C.O. (Voltage Controlled Oscillator) is a feature that will only work in the non-discriminate modes. When it is ON, the stronger the response the higher the pitch and volume of the sound. An excellent aid in pinpointing. V.C.O. will only function when the trigger is squeezed for pinpointing, or when Discrimination is OFF.

PINPOINT SENSITIVITY settings will dramatically change the performance of V.C.O. Too high a Pinpoint Sensitivity setting will peak the audio pitch too soon to allow V.C.O. to be useful. It is recommended to use a lower Pinpoint sensitivity when V.C.O. is used.

■ **NOISE REDUCTION (ON/OFF)** - Noise Reduction (when on) sets a level of signal strength that must be exceeded in order for the QXT to respond with the audio sound as well as display. In noisy ground conditions, or in areas of high external electrical interference, Noise Reduction will help to eliminate low level noise/interference.

**Tips** - Use the Noise Reduction OFF position for most searching. When the threshold becomes very unstable, and/or the detector operates erratically, try the Noise Reduction ON position.

When Noise Reduction is OFF signals too weak to be reliably identified, will still sound off with a beep and the display will guess at an indication. Although this will produce impressive results in air testing various targets, in the ground it can be frustrating particularly when there are many such signals in an area caused by non-metals.

When Noise Reduction is ON signals that are too weak to be reliably identified, will not sound off with a beep or display indication. They are kept below the threshold level so they are not heard or seen on the display by the operator.

There are advantages and disadvantages to ON or OFF settings. This feature is designed for extreme conditions when the detector is so noisy in a particular area continued searching requires steps be taken to reduce the interference so the operator can recognize real targets. There are areas where combinations of Noise Reduction ON and higher Search Sensitivity settings will increase detection depths over Noise Reduction OFF and the required lower Search Sensitivity settings. Still some areas will be better searched with Noise Reduction OFF. Try searching a small area with Noise Reduction ON, then search the same area with Noise Reduction OFF. If the ground is noisy, you will see a big difference in how well the detector behaves.

# DETAILED ADJUSTMENTS

## continued...

■ **MIXED-MODE** - A unique hybrid operating mode. It is an all-metal mode, working simultaneously with a discriminate mode. It is two modes, one detecting everything and another discriminating, operating at the same time.

**Tip** - Advanced operators can gain extra depth by monitoring the all-metal and discriminate channels simultaneously, checking depth and digging targets too deep for the discriminate channel alone. V.C.O. is recommended to be used in combination with Mixed Mode.

Select MIXED MODE with the ARROW controls, press ENTER control to turn MIXED MODE ON or OFF. Filled in square indicates the current setting.

Discrimination needs to be ON for MIXED MODE to perform properly.

When Mixed Mode is on, all types of metals will produce a sound (beep).

**Discrimination Channel** - When the loop is in motion, targets accepted by the Discriminate Edit feature will produce a high-pitched *beep*. Targets rejected by the Discriminate Edit feature will produce a lower pitched *beep*. High-pitched or low-pitched *beeps* are directly determined by the discrimination settings. An operator can select discriminate settings through the selection of an entire Program or by adjusting the accept and reject ZONE numbers under Discrimination Edit.

**All-Metal Channel** - When the loop is not in motion, or moved slowly, all types of targets will produce the same low-pitch *beep*. All-metal channel will by nature detect deeper than the discrimination channel. Deeper targets will produce a lower volume sound when the loop is moved slowly over the area.

# DETAILED ADJUSTMENTS

## continued...

■ **DISC EDIT** - Will have a greater impact on how the instrument operates than any other feature. DISCRIMINATE ON/OFF turns ON/OFF this DISC EDIT feature. Disc Edit allows for changing which targets ZONES (1-8) are ACCEPTed (detected), or REJECTed, (discriminated out) within the current Program you are using.

**Tips** - The factory Preset Programs have all the major DISC EDIT setups already defined and ready for you to use. Major changes in ACCEPT and REJECT targets should be selected by choosing one of these factory programs. EDIT allows customizing for specific or unusual targets you may want to either ACCEPT or REJECT.

Select DISC. EDIT and press ENTER. Now use the ARROW controls to view the ZONE numbers from 1 - 8 that appear on the left side of the display. These are the same reference numbers that are listed on the top left-hand side of the control box (DISCRIMINATE EDIT SCALE or target chart). For each ZONE number, an Accept or Reject will appear to the right indicating whether the current program will ACCEPT or REJECT targets that display that ZONE number. Press ENTER to change any ZONE from Accept to Reject or from Reject to Accept. Use the ARROWS to view other ZONES, and again press ENTER to make any desired changes.

Press MENU and use the ARROWS to continue viewing other Adjustments or squeeze and release the TRIGGER to begin searching.

■ **TONE ALERT EDIT (1-8)** - Allows an operator to assign a higher pitch sound (beep) to any ZONE or ZONES. That ZONE or ZONES can then easily be identified by their higher pitched sound (alarm).

**Tips** - Great for coin, jewelry, and relic searching.

TONE ALERT EDIT is used in the discriminate or motion modes only. It will not work when the Discriminate ON/OFF feature is OFF. When TONE ALERT EDIT is used to alert a particular ZONE, metals which fall into that ZONE produce a higher audio frequency or pitch. When a target indicates in one of the alert ZONES it will be immediately recognized due to the higher pitched sound. The sound that rejected metals (ZONES) produce will still be canceled or modified (broken up) by the discriminate circuit.

You cannot adjust the alert tone itself (pitch), it is predetermined by the factory and is not adjustable. However, you can assign any ZONE or ZONES this higher pitched tone alert. TRANSMIT FREQUENCY settings will add slight variations to these tones.

# PRESET PROGRAMS

## ■ COIN

### ADJUSTMENTS:

|  |       |                 |
|--|-------|-----------------|
| VOLUME (1-15)                          | ----- | 12              |
| THRESHOLD (0-40)                       | ----- | 10              |
| SEARCH SENSITIVITY (2-20)              | ----- | 16              |
| PINPOINT SENSITIVITY (2-20)            | ----- | 10              |
| VIEW ANGLE (0-30)                      | ----- | 15              |
| S.A.T. SPEED                           | ----- | 10              |
| TRACK SPEED                            | ----- | 0               |
| TRANSMIT FREQUENCY (1-25)              | ----- | 12              |
| DISCRIMINATION (ON/OFF)                | ----- | ON              |
| V.C.O. (VOLTAGE CONTROLLED OSCILLATOR) | ----- | OFF             |
| NOISE REDUCTION                        | ----- | OFF             |
| MIXED MODE                             | ----- | OFF             |
| DISCRIMINATION EDIT (1-8)              |       |                 |
| ACCEPT                                 | ----- | 4,6,7           |
| REJECT                                 | ----- | 1,2,3,5,8       |
| TONE ALERT                             |       |                 |
| ON (ALERT)                             | ----- |                 |
| OFF                                    | ----- | 1,2,3,4,5,6,7,8 |

# PRESET PROGRAMS Continued...

## ■ COIN & JEWELRY

### ADJUSTMENTS:

|  |       |                 |
|--|-------|-----------------|
| VOLUME (1-15)                          | ----- | 12              |
| THRESHOLD (0-40)                       | ----- | 10              |
| SEARCH SENSITIVITY (2-20)              | ----- | 16              |
| PINPOINT SENSITIVITY (2-20)            | ----- | 10              |
| VIEW ANGLE (0-30)                      | ----- | 15              |
| S.A.T. SPEED                           | ----- | 10              |
| TRACK SPEED                            | ----- | 5               |
| TRANSMIT FREQUENCY (1-25)              | ----- | 12              |
| DISCRIMINATION (ON/OFF)                | ----- | ON              |
| V.C.O. (VOLTAGE CONTROLLED OSCILLATOR) | ----- | ON              |
| NOISE REDUCTION                        | ----- | OFF             |
| MIXED MODE                             | ----- | OFF             |
| DISCRIMINATION EDIT (1-8)              |       |                 |
| ACCEPT                                 | ----- | 3,4,5,6,7       |
| REJECT                                 | ----- | 1,2,8           |
| TONE ALERT                             |       |                 |
| ON (ALERT)                             | ----- |                 |
| OFF                                    | ----- | 1,2,3,4,5,6,7,8 |

# PRESET PROGRAMS Continued...

## ■ JEWELRY & BEACH

### ADJUSTMENTS:

|  |       |                 |
|--|-------|-----------------|
| VOLUME (1-15)                          | ----- | 12              |
| THRESHOLD (0-40)                       | ----- | 10              |
| SEARCH SENSITIVITY (2-20)              | ----- | 12              |
| PINPOINT SENSITIVITY (2-20)            | ----- | 8               |
| VIEW ANGLE (0-30)                      | ----- | 15              |
| S.A.T. SPEED                           | ----- | 16              |
| TRACK SPEED                            | ----- | 15              |
| TRANSMIT FREQUENCY (1-25)              | ----- | 12              |
| DISCRIMINATION (ON/OFF)                | ----- | ON              |
| V.C.O. (VOLTAGE CONTROLLED OSCILLATOR) | ----- | ON              |
| NOISE REDUCTION                        | ----- | OFF             |
| MIXED MODE                             | ----- | OFF             |
| DISCRIMINATION EDIT (1-8)              |       |                 |
| ACCEPT                                 | ----- | 4,5,6,7         |
| REJECT                                 | ----- | 1,2,3,8         |
| TONE ALERT                             |       |                 |
| ON (ALERT)                             | ----- |                 |
| OFF                                    | ----- | 1,2,3,4,5,6,7,8 |



# PRESET PROGRAMS Continued...

## ■ RELIC & PROSPECTING

### ADJUSTMENTS:

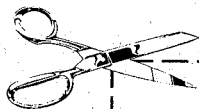
|  |       |                 |
|--|-------|-----------------|
| VOLUME (1-15)                          | ----- | 12              |
| THRESHOLD (0-40)                       | ----- | 10              |
| SEARCH SENSITIVITY (2-20)              | ----- | 16              |
| PINPOINT SENSITIVITY (2-20)            | ----- | 10              |
| VIEW ANGLE (0-30)                      | ----- | 15              |
| S.A.T. SPEED                           | ----- | 16              |
| TRACK SPEED                            | ----- | 10              |
| TRANSMIT FREQUENCY (1-25)              | ----- | 12              |
| DISCRIMINATION (ON/OFF)                | ----- | OFF             |
| V.C.O. (VOLTAGE CONTROLLED OSCILLATOR) | ----- | ON              |
| NOISE REDUCTION                        | ----- | OFF             |
| MIXED MODE                             | ----- | OFF             |
| DISCRIMINATION EDIT (1-8)              |       |                 |
| ACCEPT                                 | ----- | 2,3,4,5,6,7,8   |
| REJECT                                 | ----- | 1               |
| TONE ALERT                             |       |                 |
| ON (ALERT)                             | ----- |                 |
| OFF                                    | ----- | 1,2,3,4,5,6,7,8 |

# WARRANTY TRANSFER

If for any reason you should sell your White's detector prior to the date the warranty expires, the remaining warranty is transferable. **This transfer is authorized by calling 1-800-547-6911, and getting an Authorization Number.**

Simply fill out the following information, including the Authorization Number, seal it in a stamped envelope, and send it to **White's Electronics, 1011 Pleasant Valley Road, Sweet Home, Oregon 97386.** The remaining warranty period will then be available to the new owner.

The Warranty Statement applies to both the original owner as well as the second owner.



## WARRANTY TRANSFER

### Original Owner:

Name: \_\_\_\_\_

Address (Which appears on the original warranty card):  
\_\_\_\_\_  
\_\_\_\_\_

Instrument Serial Number: \_\_\_\_\_

Date Code: \_\_\_\_\_

Original Purchase Date: \_\_\_\_\_

### New Owner:

Name: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Distributor Authorization Code: \_\_\_\_\_

# CARE OF YOUR DETECTOR

## I. Cleaning

A. Both the loop and rod are waterproof and can be cleaned with fresh water and mild soap. The control box is not water proof and must be kept dry. **Never** lift a wet loop above the height of the control box as water can run down the inside of the rod damaging the electronics. A damp cotton cloth can be used to wipe off a dirty control box.

## II. Weather

- A. Do not expose your detector to the conditions of a car trunk during winter and/or summer extremes.
- B. Protect it from direct sunlight during storage.
- C. The control box is rain resistant. However, it must be protected from heavy rain. White's weather beater rain covers are ideal.

## III. Saltwater

A. Salt/alkali is very corrosive! After your detector has been exposed to salt, rinse the loop and rods in fresh water. Wipe down the control box with a damp cotton cloth. Do not allow water inside the control box and avoid lifting the loop above the height of the control box.

## IV. Storage

- A. When the instrument is not in use, make sure it is turned OFF.
- B. If you plan on storing your detector for long, remove the battery holder from the instrument and remove the batteries from the holder.
- C. Store the instrument indoors, in an area where it will be protected from abuse. Over the years White's has noted more service repairs and physical damage, on units in storage than those experiencing daily use.

## V. Additional Precautions

- A. Avoid dropping your detector while attempting to set it down to dig.
- B. Avoid using your detector for leverage when standing up from a dig.
- C. Do not use any lubricants, such as WD-40, on any part of your detector.
- D. Do not modify your instrument during its warranty period.

## VI. Service

White's reputation has been built on quality products backed by quality service. Our Factory Authorized Service Centers are factory trained and equipped. They offer the same quality service as the factory. Service before and after the sale is the cornerstone of our customer relations. For our Factory Authorized Service Center nearest you, please contact your Dealer, telephone toll free 1-800-547-6911, or toll 541-367-6121.

## VII. Before shipping detectors for service:

- A. Contact your Dealer. There may be a quick, simple fix or explanation that will prevent sending the detector in for service.
- B. Double check the obvious, such as batteries, and try the detector in another area to be sure there is not trouble due to electrical interference.
- C. Be sure to send all parts with your detector, such as batteries, holders, loops, etc. as these items can result in symptoms.
- D. Always include a letter of explanation about your concerns, even if you have talked to the Service Center by telephone.
- E. Take care in packaging instruments for shipping, follow the shippers guidelines for cardboard and packing material.
- F. Always insure your package.

# ACCESSORIES

**I. LOOPS:** The Quantum XT can use a variety of accessory loops to enhance specific performance characteristics. The smaller a loop the better the separation between multiple targets close together, the better the pinpointing, and the better the detection of physically small metal items. However, smaller loops do not detect as deep. The larger the loop the greater the detection depth. However, detection of physically small metal targets is reduced, pinpointing becomes more difficult, and close together targets become difficult to separate.

The following loops are appropriate to use with the Quantum XT:

#801-3198 Blue Max 350 (four inch) - Used for extreme trash or detecting close to metal obstacles.

#801-3188-1 Blue Max 600 (six inch) or #801-3188-2 Black Max 5.3 - Used for heavy trash and/or all around use.

#801-3194-1 Blue Max 800 (eight inch) - Standard equipment on Quantum XT. Good all around size. Better pinpointing and trash separation than BM 950.

#801-3187-1 Blue Max 950 (nine and a half inch) - Provides maximum depth to coin sized targets.

#801-3201 Blue Max 1500 (fifteen inch) - Maximum depth to larger than coin sized targets. Used mostly for relic hunting, or cache hunting in the Discriminate OFF mode. Used when the goal is to detect large metal items or a large group of small metal items, at great depths.

**II. HEADPHONES:** Headphones are recommended as they increase battery life, prevent external noises (surf, highway, etc.) from overriding the sounds of the detector, and prevent the noises the detector produces from bothering bystanders. They also provide privacy to the operator. White's has several high quality headphones available in summer and winter styles.

**III. CARRY CASES:** White's carry cases are recommended for storing and/or traveling with your instrument. Soft padded gun style cases are recommended for everyday use as they do not require full disassembly of the instrument. Hard style cases are also available and are intended for serious travel and/or deep storage.

**VI. RECHARGEABLE BATTERIES:** A high quality rechargeable battery system is available for the Quantum XT from White's. This system is described under the section on batteries.

**V. DIGGING TOOLS:** Digging tools vary greatly with the type of searching and the conditions. Please check with your Dealer regarding an appropriate digging tool for your area.

**VI. WEATHER BEATERS:** White's manufactures a Weather Beater rain cover to protect the control box from heavy rain.

Your Dealer may have additional accessories to enhance your metal detecting experience. Contact them directly, or telephone toll free 1-800-547-6911.

# GLOSSARY OF DETECTING TERMS

**AC (Alternating Current)** - Metal detector modes that require loop motion to respond to metal.

**Air Test** - Testing a metal detectors responses to various metallic samples with the loop held away from the ground.

**All-Metal** - Describes any mode or control setting allowing total acceptance of all types of metal targets, iron, and non-iron.

**Audio Identification** - Circuitry or mode producing different audio tones (itches) for different target types.

**AutoTrac (Automatic Ground Tracking)**- A feature that continually and automatically readjusts the ground balance (ground rejection) of a metal detector during searching.

**Back Reading** - A false target response caused by either overloading due to a very strong target near the loop, or a rejected trash target very close to the loop.

**Black Sand** - One of the most extreme components of nonconducting negative ground mineralization. Also called (Fe<sub>3</sub>O<sub>4</sub>), magnetite, iron oxide, magnetic sand.

**Cache** - Any intentionally buried or secreted hoard of valuables.

**Conductive Salts** - One of the major mineral types which makes up the positive ground matrix. Wet ocean salt/sand will produce a positive indication much like a metal target.

**Conductivity** - The measure of eddy currents of electricity that generate on a metals surface.

**Custom Program** - Feature choices on a computerized metal detector that are then saved or stored for future use.

**DC (Direct Current)** - Used to refer to metal detector modes that do not require loop motion to respond to metal targets.

**Detection Pattern** - The shape of the electromagnetic detection field generated by a metal detector's loop.

**De-tuning** - A method of narrowing a target signals width and length for precise pinpointing.

**Depth** - How deep a detector can respond to metal targets.

**Depth Reading** - Feature that indicates how deep a target is in the ground before digging.

**Discrimination** - Adjustable feature that can ignore or respond to different metal types based on their amplitude and phase. Used to cancel the responses of unwanted trash metals.

**Drift** - A loss or increase in threshold caused by the passage of time or variations in temperature.

**Eddy Currents** - Small circulating currents of electricity on the surface of metals produced by external electromagnetic fields.

**Electromagnetic Field** - An invisible force extending from the loop created by the flow of alternating oscillator frequency current around the transmit winding.

**Elliptical Coil** - A loop with an ellipse (oval) shape.

**False Signal** - An erroneous signal caused by nonmetal items.

**Faraday-Shield** - Conductive coating inside loops, loop cables, and control housings, to eliminate electrostatic interference.

**Ferrous Oxide** - Decomposed particles of iron (mineralization).

**Frequency** - The number of complete alternating current cycles produced by the transmit oscillator per second. Measured in Hertz (Hz) or cycles per second.

**Frequency Shift** - Changes the operating frequency suppressing the interference (cross talk) between detectors.

**Fringe Target** - A target so deep or so small as to be barely detectable with a metal detector.

**Ground Balance** - A feature that can be adjusted to ignore the masking effect ground minerals have over metal targets.

**Ground Matrix** - Total volume of undisturbed ground, usually contains varying amounts and combinations of minerals, moisture, and salt. In an undisturbed condition the ground matrix can exhibit numerous phenomena regarding metal detector performance.

**Hipmount** - A configuration where the control box of a metal detector is mounted on the operators hip limiting the weight one has to sweep to that of the loop and rod assembly.

**Hot Rock** - A rock that contains a higher concentration of minerals than the surrounding ground.

**Interference** - Hindrance of performance due to sources outside a metal detector causing static and unwanted or false signals.

**LCD (Liquid Crystal Display)** - A digital display used for graphic visual indications as an alternative to the use of meters.

**Loop** - A non-metals housing containing the transmit and receive windings used to generate and receive signals from metal targets. Also called search coil, antenna, or search disc.

**Memory** - A computerized metal detectors ability to retain operator selected settings for future use.

**Menu** - A display screen that allows the operator to choose among different features.

**Metal** - Metallic substances: iron, foil, nickel, aluminum, gold, brass, lead, copper, silver, etc.

**Meter** - An analog component which provides visual indications regarding a metal target (Alternative to LCD displays).

**Mineralized Ground** - Any soil or sand that contains conductive and/or magnetic components (minerals).

**Mixed Mode** - A special metal detector mode that combines all-metal and discriminate features into one operating mode.

**Mode** - A condition or feature of operation selected by the operator for specific functions.

**Motion Instrument** - A detector type that requires search loop movement to activate the signal from a metal target.

**Microprocessor** - An electronic component (chip) that can be programmed to perform variety of functions and control a variety of features.

**Negative Ground** - Soil containing mostly magnetic minerals.

**Neutral Ground** - Soil that contains no significant minerals.

**Nicad (Nicad Cadmium)** - A battery type that can be recharged.

**Non-Ferrous** - Not of iron. Metals of the precious and semi-precious class (i.e. aluminum, brass, lead, gold, silver, copper).

**Non-Motion** - Mode that will respond to metals with or without movement of the loop.

**Notch Discrimination** - Discrimination circuitry that allows an area of the discrimination range to be accepted or rejected independent of the remaining discrimination range (a window of acceptance or rejection within the discriminate range).

**Notch Width** - Finite range of a notch discrimination setting (how wide of window is accepted or rejected).

**Null** - A decrease in sound caused by rejection of targets or ground mineralization.

**Oscillator** - An electronic component or circuitry designed to generate a specific rate of current frequency to power the searchcoils transmit winding.

**Overlap** - Advancing each sweep of the loop in small increments to insure good area coverage. Each sweep should overlap the last by at least 50%.

**Overload** - Occurs when the receiver of a metal detector becomes overwhelmed due to too much signal (ground and/or target).

**Overshoot** - A false signal heard as the loop passes over a rejected target when using a non-motion discriminate mode in combination with automatic tuning (S.A.T.). Excessive tuning restoration pushes the audio above the threshold level creating a positive response at the edges of target detection.

**Phase** - The length of time between eddy current generation sustained on a metals surface and the resultant secondary electromagnetic field effect on the searchcoils receive winding. Relates to target conductivity.

**Pinpointing** - Finding the exact target location with respect to the loops physical center.

**PI (Pulse Induction)** - A type of metal detector circuitry that operates differently than the standard Transmit Receive or Very Low Frequency instruments. Primarily recommended for better results in salt water.

**Positive Ground** - Soils that contain conductive components such as salt.

**Preset** - A control setting or marking determined to work well for average conditions.

**Preset Program** - A selection of a computerized metal detector that automatically selects all the features suited to a particular type of searching condition.

**Prospecting** - Searching for gold in its natural state (nuggets).

**Rejection** - Nonacceptance or cancelation of a target response by discrimination circuitry.

**Relic** - An artifact of the past.

**S.A.T. (Self Adjusting Threshold)** - Automatically resets the threshold to correct for any minor ground, temperature, or electrical changes that typically cause threshold variations.

**Scrubbing** - Sweeping the loop with contact to the ground.

**Searchcoil** - (See Loop)

**Sensitivity** - Measure of a detectors ability to respond to targets within the detection pattern. Usually indicates the capability to respond to small targets rather than maximum detection depth.

**Signagraph** - A graphic display of a pattern characterizing a targets electrical and/or magnetic properties.

**Sweep** - Motion employed in moving the loop over the ground.

**Target** - Any object that causes a metal detector to respond.

**Target Masking** - When large size or high concentrations of trash metals, or extreme ground mineralization, drive the threshold into the null zone suppressing weaker positive responses.

**Ten-Turn Control** - A control knob which can be rotated ten times to cover the full electrical range of the feature.

**Test Garden** - A mapped plot of buried targets at various depths to aid in learning the characteristics of a metal detector.

**TH'er, TH'ing** - Universal word or contractions for treasure hunting and treasure hunter.

**Threshold** - The background hum heard continually during the use of a metal detector indicating the most sensitive audio.

**Tone Control** - An adjustment for audio frequency or pitch.

**Touch-Pad** - Switches encapsulated in plastic or that allows the operator to select different functions or features.

**Transmit Coil** - A coil of wire inside the loop that creates the primary electromagnetic field.

**TR (Transmit Receive)** - Term used to describe early metal detector technology. Usually describes non-ground rejecting detectors or modes.

**Two Box** - A metal detector that has the transmit and receive coils mounted in separate housings. By enlarging and separating the transmit and receive coils great depths regarding large metal items can be achieved. Also called cache detectors.

**Viewing Angle** - A liquid crystal display adjustment for contrast allowing optimum visibility for various light conditions.

**Visual Discrimination** - The ability of a metal detector to determine trash or non-trash by means of visual indications.

**Visual Discrimination Indication (VDI)** - A visual indication as to the type of target a metal detector is detecting.

**VLF (Very Low Frequency)** - Generally used to refer to metal detectors that can cancel the effects of ground mineralization, typically with operating frequencies in the 3-30 kHz range.

**VLF/DISC** - A detector that can cancel ground mineralization while at the same time discriminate against trash.

**Voltage Regulator** - Circuitry that controls the amount of electricity supplied to operate a metal detector with no loss in performance over a specific voltage/current range.

**Zero Discrimination** - Used to describe detectors whose discrimination control allows the acceptance of all types of metals when set to the zero position.



# WARRANTY

## WHITE'S ELECTRONICS INC. LIMITED WARRANTY STATEMENT

If within two years (24 months) from the original date of purchase, your White's detector fails due to defects in either material or workmanship, White's will repair or replace at its option, all necessary parts without charge for parts or labor.

Simply return the complete detector to the Dealer where you purchased it, or to your nearest Authorized Service Center. The unit must be accompanied by a detailed explanation of the symptoms of the failure. You must provide proof of date-of-purchase before the unit is serviced.

This is a transferable manufacturer warranty, which covers the instrument two years from the original purchase date, regardless of the owner.

Items excluded from the warranty are non-rechargeable batteries, accessories that are not standard equipment, shipping/handling costs outside the continental USA, Special Delivery costs (Air Freight, Next Day, 2nd Day, Packaging Services, etc.) and all shipping/handling costs inside the continental USA 90 days after purchase.

White's registers your purchase only if the Sales Registration Card is filled out and returned to the factory address soon after original purchase for the purpose of recording this information, and keeping you up-to-date regarding White's ongoing research & development.

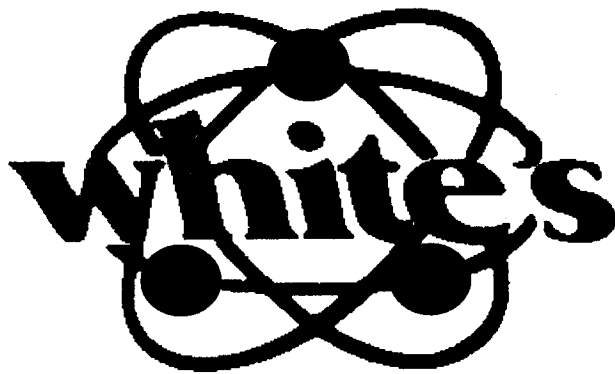
The warranty does not cover damage caused by accident, misuse, neglect, alterations, modifications, unauthorized service, or prolonged exposure to corrosive compounds, including salt.

Duration of any implied warranty (e.g., merchantability and fitness for a particular purpose) shall not be longer than the stated warranty. Neither the manufacturer or the retailer shall be liable for any incidental or consequential damages. Some states however, do not allow the limitation on the length of implied warranties, or the exclusion of incidental or consequential damages. Therefore, the above limitations may not apply to you.

In addition, the stated warranty gives you specific legal rights, and you may have other rights which vary from state-to-state.

The foregoing is the only warranty provided by White's as the manufacturer of your metal detector. Any "extended warranty" period beyond two years, which may be provided by a Dealer or other third party on your detector, may be without White's authority, involvement and consent, and might not be honored by White's.





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