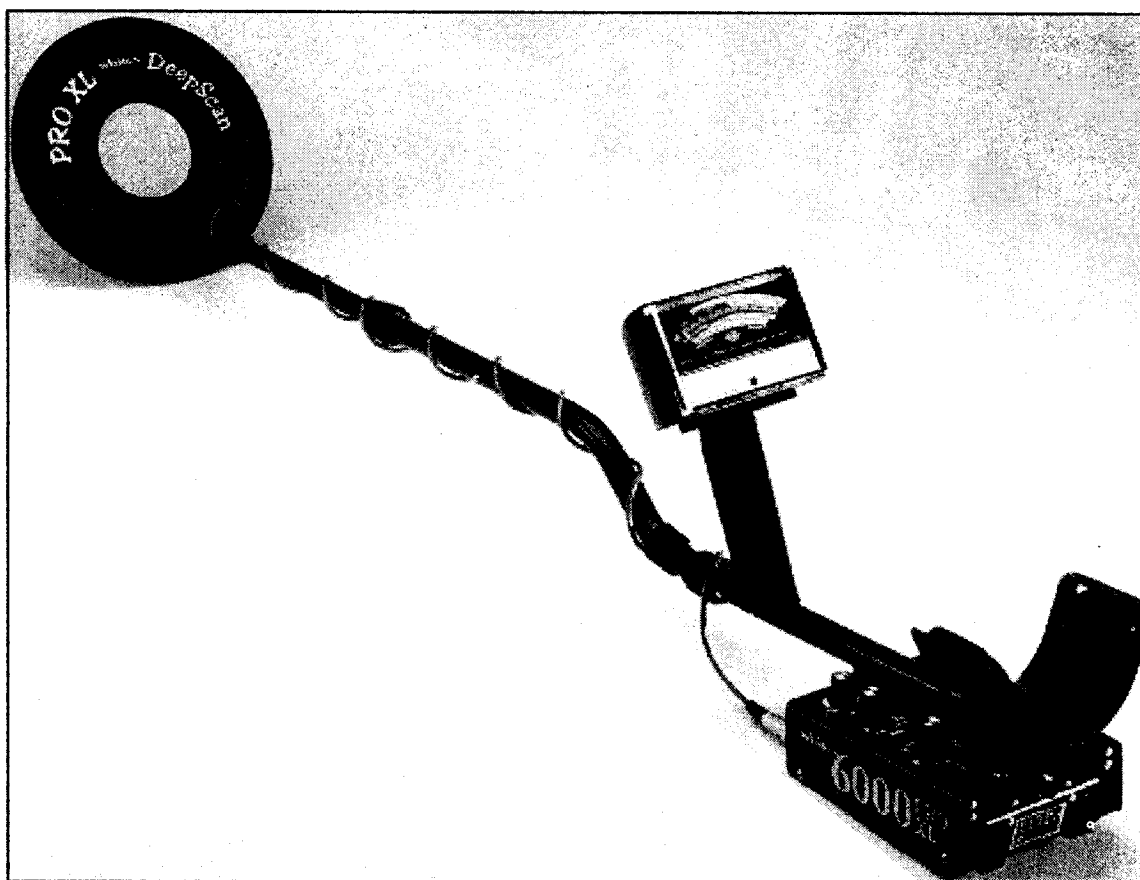




6000 PRO XL

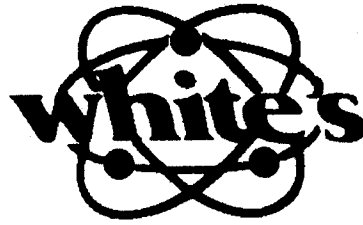
Manufactured by White's Electronics, Inc. Sweet Home, OR U.S.A.

INSTRUCTION MANUAL



PRESET: To search for precious metals with the 6000 PRO XL, in average ground...

1. Set all controls to their Δ position, squeeze and release the trigger on the handle.
2. Sweep loop very near ground, always keep loop moving about 2-3 seconds per pass, overlapping each pass by at least 50%.
3. Good metals sound with a smooth, solid, long "beep". Meter indication and sound is consistent.
4. Trash metals sound with a rough, broken, short "beep". Meter indication and sound is not consistent.
5. Squeeze and hold the TRIGGER on the handle and "X" loop to pinpoint and read depth.
6. To fine tune for specific applications or ground, refer to the information inside this manual.



White's Electronics Inc.
A Message from...
Kenneth R. White, C. E. O.

Congratulations, and thank you for choosing the 6000 PRO XL. For over 20 years 6000/D models have helped set the standard in metal detection technology. In the 6000/D tradition, the 6000 PRO XL will continue to be a strong force within the industry.

The following instructions are intended to familiarize you with this fine metal detector and give you a good understanding of the basics. Obviously, there is no substitute for field experience. Practice using your detector in the field and study this manual carefully. Before long you may be able to teach the experts a thing or two!

Your new 6000 PRO XL has been hand built and carefully tested at our factory in Sweet Home, Oregon. Properly cared for, it will last for years.

People use our metal detectors to find valuables every day. Regardless of a metal detectors performance, it is the operator who makes the critical decisions that result in great recoveries. A metal detector is simply a tool which greatly increases the capabilities of the user to find such valuables. Knowing your detector, and researching good places to use it, are key elements to successful metal detecting.

We know in a very short time you will be using the 6000 PRO XL to help you find treasure. We are proud you have given us the opportunity to continue the 6000/D tradition with todays high performance and reliability.

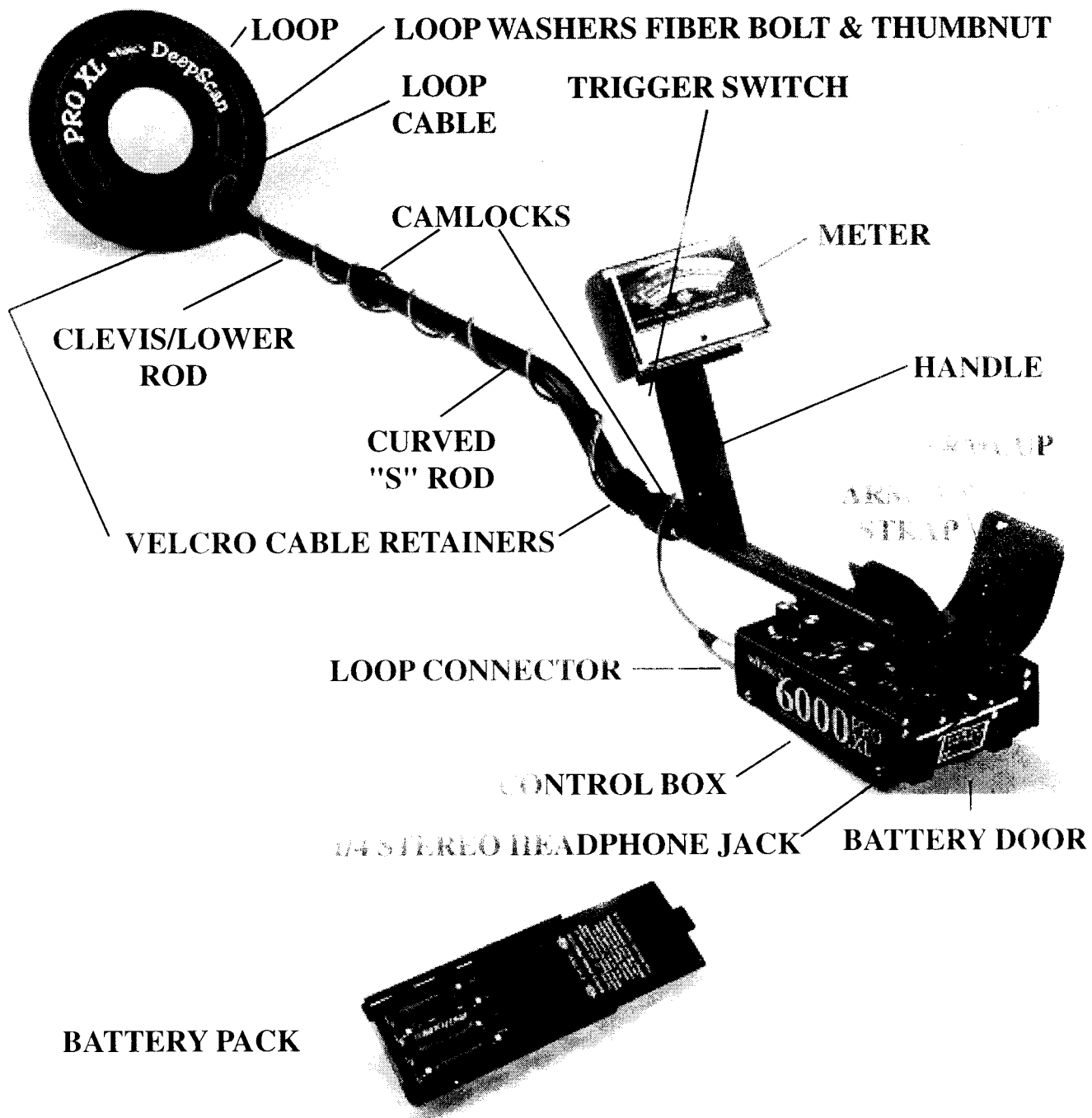


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PARTS & ASSEMBLY

I. Parts Identification



Parts & Assembly, Continued...

II. Assembly

A. Remove all parts from shipping carton. Check the parts identification page to make sure all parts are present.

B. Place loop washers on clevis/lower rod, one on each side, and slide clevis onto loop ears. Use fiber bolt and thumbnut to secure.

C. 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 consider the fully extended position. Individuals well over 6' tall should purchase the optional Tall Man Rod for a more comfortable fit.)

D. Remove the cable twist from the loop cable and wind the cable around the clevis rod with first revolution over the top of the rod. Leave a small section of slack in the cable near the loop to allow for loop tilting. Wind cable all the way to the top of the curved "S" rod. Use the black velcro cable retainers, one near the loop, and one near the curve in the "S" rod, to hold cable in place.

E. Insert curved "S" rod so that stainless steel spring clip buttons line up, and lock into the rod on top of the control box. Turn camlock to secure. Plug loop connector into control box, turn lock ring clockwise to secure.

F. Grip the instrument by the handle, with your arm in the armcup, and sweep the loop over the floor. If the instrument fit feels uncomfortable, adjust the armcup by removing and repositioning the bolt/thumbnut and installing in one of the optional positions. If necessary, readjust clevis/lower rod position.

G. Remove protective paper from the black armcup foam pad, carefully align it in the elbow support, and press firmly into place.

H. Adjust the armcup strap so that it is loose enough to slide your arm in and out without loosening each time you want to set the detector down.

I. Peel the protective paper from the two rubber feet (bumpers) and place them on the bottom of the control box, one in each corner (opposite corners from battery latches) .

J. Install the battery pack (described in the next section) decal facing up, steel contacts facing toward the loop.

NOTE: Your detector may not work as expected indoors due to the high degree of metal and high power electronics common within modern construction. To ensure predictable results it is best to tune and practice out-of-doors.

BATTERIES

I. Standard Batteries:

A. The standard battery holder holds eight "AA" cell batteries. Alkalines are recommended for use with this model. During normal searching conditions you can expect about 16 hours of hunting time from one set of eight quality alkalines.

B. Non-alkalines can be used in this holder. When non-alkalines or rechargeable "AA" cells are used in the holder, detecting time will be reduced (before replacement/recharge) to about eight to ten hours.

C. The batteries can be checked on the meter with the POWER control turned to BATT. CHECK. New batteries (12 volt +) will peg full scale. Toward the end of their useful life, batteries may check as low as **50** on the meters 0-to-100 scale (**50 = 6 Volts**). Shortly thereafter (under 6 Volts) the 6000 PRO XL may not respond to metals.

D. The battery compartment opens by gently pulling down on the front of each of the two latches on the bottom of the control box disengaging the catch and then hinging open the door. The box can then be tilted to slide the battery pack from the control box.



E. The 6000 PRO XL has a voltage regulated system that is designed to maximize instrument performance as well as battery life beyond what most battery manufacturers recommend. Individual "AA" battery cells used in the 6000 PRO XL battery tray will discharge at different rates. As a result, any cells that are significantly weak compared to other cells in the tray will cause a resistance to the remaining strong cells. As the instrument enters between eight to fourteen hours use time, the weak cells reduce the usable battery life of the strong cells and may deteriorate to the point of gassing/leaking causing residue that if left unchecked will cause corrosion within the holder.

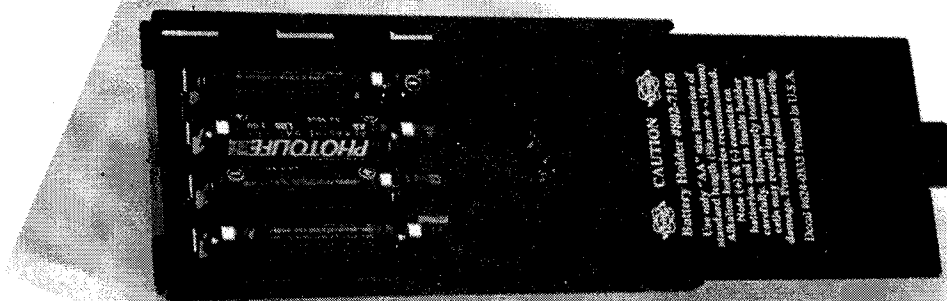
1. Once the instrument has eight or more hours use time, it is economical to open and inspect the battery tray/cells immediately after a long search.

a. Look at the ends of each cell for any white or black residue. Replace any cells that have such residue and clean any adjacent cell ends or tray contacts with a pencil eraser. Wash your hands thoroughly after completed.

b. If no residue is noted place your hand on the cells in the tray. Any individual cells that are warmer to the touch compared to other cells in the tray should be replaced.

c. By completing the above steps an operator can significantly improve upon the already economical 6000 PRO XL battery system.

Batteries Continued...



II. Using The Standard Battery Holder:





- A.** Slide open the battery holder lid (decalside of battery holder) 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.
- B.** Remove any old cells from the holder. Note the (+) and (-) positions of each cell and the (+) and (-) for each position marked inside the cell tray. Install new "AA" cells noting carefully the correct (+) and (-) positions.
 - 1.** If the cells are installed incorrectly (+/-), the detector may require service by an Authorized Service Center.
- C.** Slide the door closed so that it snaps securely.
- D.** Insert the battery holder into the detector so that the decal is facing down, with the battery holder door tab and metal contact points facing toward the inside of the battery compartment.
 - 1.** Close the battery compartment door and secure the two latches on the bottom of the case. Hook the front of each latch first, then press down on the rear.


III. Rechargeable Batteries:

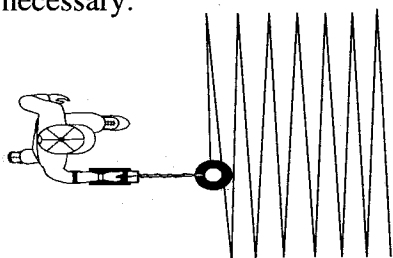
- A.** White's manufactures an optional rechargeable battery system for this model. Quick charge and overnight charge options are provided, as well as the latest in state of the art non-memory characteristics. If searching once a week or more the rechargeable system saves money over through away batteries.
 - 1.** White's nicad battery #802-5211, and charger #509-0022 are recommended for use with the 6000 PRO XL.
 - 2.** The sealed spot welded system (no internal contacts) has proven to be more reliable and convenient than loading the standard holder with rechargeable cells. However, loading the standard battery holders with rechargeable cells is an acceptable option. If rechargeable cells are used in the standard battery holder, they will need to be removed from the standard battery holder to be recharged by an aftermarket charging system.

TUNING & GENERAL USE

I. Preset:

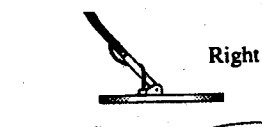
Placing all the controls to their  (Preset), position will produce good results in average conditions. However, it may be necessary to fine tune the detector for use in other than average ground, or simply to maximize performance for a specific type of searching. The  positions are intended to offer generally acceptable settings for each control. Most anxious detectorists prefer to venture out and use their new detector for the first time, before they have carefully read this manual. The  allows such use with surprising success. After use, the 6000 PRO XL will eventually fine tune its own ground rejection through tracking, thus improve its performance automatically. It has also been found that becoming proficient using the detector at the  settings eases the learning curve, making further study a smoother and more enjoyable experience.

A. To use the Preset settings place all the controls to . Keep the loop sweeping from side to side very close to the ground, always moving. Those using a detector for the first time often sweep the loop too slowly; a brisk sweep of about 2-3 seconds for each pass is necessary.



Overlap each pass by at least 50%.

Keep loop flat to the ground.



B. Good metals sound smooth, solid, long "beep", meter indication and sound is consistent. Trash metals sound rough, broken, short "beep", meter indication and sound is not consistent. Ignore the meter until a smooth solid sounding target is heard. Once a smooth solid sound is heard, sweep the loop over the area several times and look at the meter indication. Once the decision has been made to dig, squeeze and hold the Trigger on the handle and "X" the loop over the area to pinpoint and read its depth. The strongest sound and furthest meter movement to the right indicate target center.

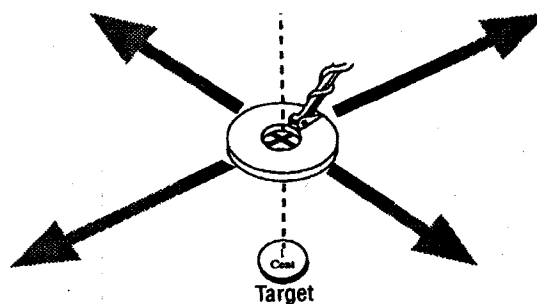
Good metals sound smooth.



Trash metals sound rough.



Center of maximum signal equals center of target.



Tuning & General Use, continued...

II. Fine Tuning:

A. Fine tuning the 6000 PRO XL will improve performance, particularly in mineralized ground (ground containing magnetic and/or conductive compounds). The keys to fine tuning are the AUTO GEB switch and the SIG BAL control.

1. AUTO GEB: Ground mineral effects are minimized by using the AUTO GEB switch. The AUTO GEB switch balances the detector to compensate or reject the soils specific magnetic and/or conductive minerals. When the 6000 PRO XL is balanced for that specific type of ground the detector can see further through it to detect deeper metal targets.

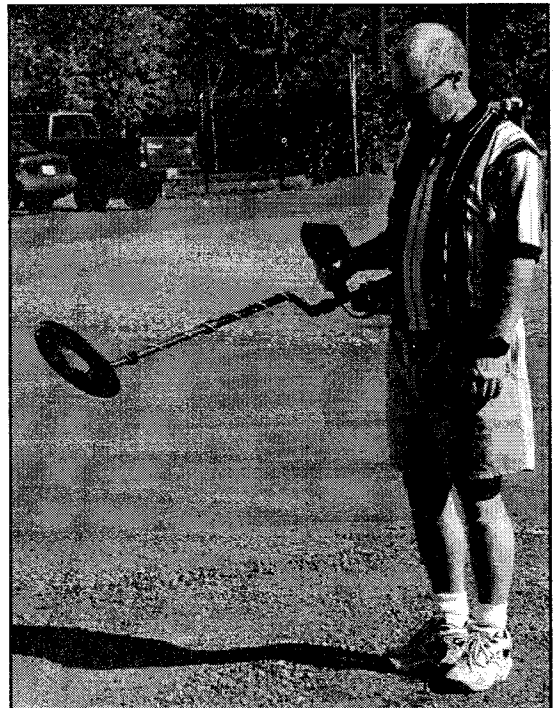
2. SIG BAL: The Signal Balance control allows the receive signal from the loop to be optimized for the ground rejection circuits preventing overload and increasing detection depth in a variety of ground conditions. The signal from the soils magnetic and/or conductive minerals is often several thousand times larger than that of a metal target. By tailoring this signal to what AUTO GEB can adequately handle overloading (signal saturation) is avoided and maximum detection depth can be achieved in each specific area or ground conditions. SIG BAL will also effect overall stability against external electrical noise and should be set cautiously for smooth stable performance in any given area.

III. When a new area is to be searched, the following steps should be followed to maximize performance. When changing to another area, or when dramatic changes in the ground are visible, these steps should be repeated.

NOTE: AUTO GEB can be set in any of the GEB modes. However, AUTO GEB and SIG BAL can only be checked for proper position in the GEB/NORM mode. From "GEB/DISC" simply squeeze and hold the trigger on the handle to access GEB/NORM.

A. Fine Tuning Steps:

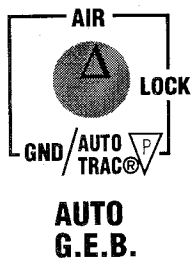
- 1.** Place all controls to their **△** position. Squeeze and release the TRIGGER on the handle
- 2.** Hold the loop at waist level away from all types of metals. adjust the TUNER control for a slight, faint hum known as a threshold (edge of sound).



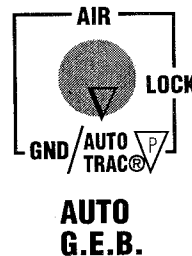
Tuning & General Use, Continued...

3. Push the AUTO GEB switch to the AIR position and hold it there until the detector beeps. Immediately lower the loop to the ground and pull the AUTO GEB switch to the GND AUTO/TRAC position. Hold the loop steady until the detector again beeps. Some audio chatter prior to this "beep" is not abnormal. If you happen to lower the loop directly on top of a metal, movement of the loop around that spot on the ground will cause a 'beep', move to a different spot and repeat the above steps.

**Loop in
air
push to AIR,
wait "beep".**



**Loop on
ground
push to GND,
wait "beep".**




4. Squeeze and hold the Trigger on the handle and lift the loop from the ground while listening for any dramatic change in the detector's steady hum (threshold). If there is not a significant change in the steady hum (threshold) the detector is tuned and ready to be used. Release the Trigger and skip to step number 6 on page 9. If the steady hum (threshold) changed dramatically when the loop was lifted from the ground, further adjustments are necessary. Release the Trigger and proceed with step number 5 below.

5. If the steady hum (threshold) changed dramatically as the loop was lifted from the ground, and there is not a metal at that spot on the ground (sweep the loop around it), turn the SIG BAL control slightly toward bad ground, and repeat steps 3 and 4. Continue until little or no change in the steady hum (threshold) is noted as the loop is lifted in step 4.

a. If this procedure seems to result in a SIG BAL setting fully toward bad ground, or it seems impossible to get little change in the steady hum (threshold) as the loop is lifted, there may be lots of metal in that particular ground. Move to a different spot on the ground and repeat the above steps.

b. It may not be possible to balance extreme conditions such as wet conductive salt, and/or concentrated black sand, see Advanced Techniques page 28 - 30.

Tuning & General Use, Continued...

6. If there is no dramatic change in the steady hum (threshold) as the loop is lifted with the SIG BAL set at , turn the SIG BAL control slightly clockwise, squeeze and release the TRIGGER on the handle, and then repeat steps 3 and 4. By finding the furthest SIG BAL setting clockwise that allows little or no change in the steady hum (threshold), maximum detection depth is achieved.

A. If there is a dramatic change in the steady hum (threshold) when the loop is lifted from the ground, failure to turn the SIG BAL control toward bad ground, and repeating steps 3 and 4, will result in poor detection depth. A setting toward bad ground may also be required in areas of heavy electrical interference to promote smooth stable operation. Squeeze and release the TRIGGER on the handle, and repeat steps 3-4 after every SIG BAL adjustment.

7. The 6000 PRO XL is ready to be used. However, an operator must still make an important Mode decision which will significantly alter how the detector responds. Every time the MODE control is moved to another position, squeeze and release the TRIGGER on the handle with the loop held at waist level. This resetting ensures that all parts of the electronic circuitry are working in unison.

a. **GEB/NORM (All Metal Ground Exclusion Balance Normal)** is used for tuning, searching in areas without lots of trash or mineralization, and Relic Hunting. Because it responds to all types of metals, and doesn't operate as smoothly as GEB/SAT, GEB/NORM is usually not recommended for trashy or high mineral areas. However, if the detection of all metals is required without any loop motion, GEB/NORM would be the correct MODE to use. Because of its non-motion status, GEB/NORM is susceptible to drift from both internal and external sources. The TRIGGER on the handle will need to be squeezed and released every few minutes to reset the threshold hum, thereby keeping GEB/NORM operating correctly.

b. **GEB/SAT (All Metal Ground Exclusion Balance Self Adjusting Threshold)** If all types of metals are desired, recommended when prospecting for natural gold, copper, or silver nuggets, meteorites, and Relic Hunting, the GEB/SAT MODE should be selected. GEB/SAT will allow the detection of all types of metals while automatically maintaining smooth steady operation. It is necessary to keep the loop moving slightly for GEB/SAT to continue responding to metal. When pinpointing, "X" the loop slowly, always maintaining some movement. Another option would be to switch back to GEB/NORM momentarily to pinpoint. GEB/SAT is also a good MODE to use for locating steel pipes or iron property stakes. Such iron/steel targets are typically rejected in the discrimination modes.

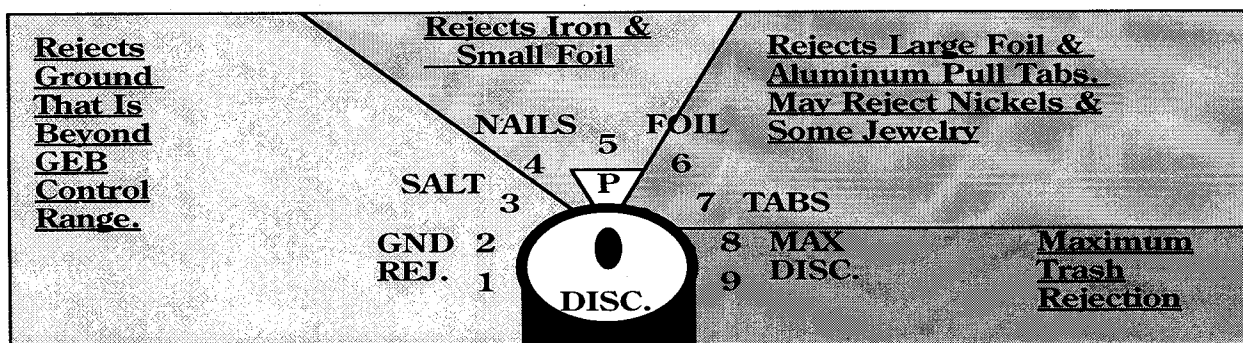
Tuning & General Use, Continued...

c. GEB/DISC (Ground Exclusion Balance Discrimination) When the rejection of non-valuable metals, such as iron nails, bottle caps, etc. is desired, one of the DISC MODES should be selected. The GEB/DISC MODE is by far the most popular MODE to use. GEB/DISC is a true motion MODE. In other words, movement of the loop is critical for GEB/DISC to respond to metal. Practice with a steel bottle cap and a coin on top of the ground. See that when the loop is moved too slowly, or stopped, this MODE doesn't respond. Only when the loop is in motion 2-3 seconds per pass will GEB/DISC perform as designed. Also note that the coin produces a smoother sound than the bottle cap. The rejection of trash metals is often recognized by the rougher sounds produced by trash targets. Because the 6000 PRO XL is designed to detect as deep as possible into the ground, large targets on top of the ground may not respond. This is known as over load. Sweep the loop several inches above targets that are on top of the ground for normal results. It is rare for overload to occur when targets are actually in the ground. On the same note, targets which you bury in the ground will seldom produce accurate test results. Metals have to be left in the ground undisturbed for several years before accurate tests can be made. This phenomena results from digging which makes the minerals look different than the surrounding ground (ground matrix scarring). Such targets act much like mineralized hot rocks and therefore are rejected. Other factors, such as ground composition play a significant role in regards to detection depth, as well as discriminate accuracy.

d. TR/DISC (Transmit Receive Discrimination) When searching low mineralized areas, such as the dry sand or wood chip playgrounds, any area that allows an extreme clockwise SIG BAL setting, you may want to take advantage of the TR/DISC MODE. In low mineralized areas, TR/DISC provides excellent detection depth, and superior trash rejection, as well as being a non-motion mode. When there are minerals in the ground, GEB/DISC will detect deeper than TR/DISC. Once the TR/DISC MODE has been selected, simply lower the loop to one inch above the ground, squeeze and release the Trigger on the handle, lower the loop the rest the way to the ground and search. Keeping the loop close to the ground at all times is critically important for TR/DISC to perform.

CAUTION: Use of TR/DISC in high mineralized areas (which require SIG BAL settings toward BAD GND) will result in poor detection depth. There is a method of tuning TR/DISC for extremely high mineralized areas. It can then provide a non-discriminate, severe ground rejection, manual mode. This method is described in the Advanced Techniques section, page 28.

Tuning & General Use, Continued...



8. If either the GEB/DISC or TR/DISC MODES are selected, the DISC control then becomes active, and thus important.

a. The **P** position is recommended. At this position, most common trash such as nails, steel bottle caps, and light foil are rejected, and most valuables are accepted. The downside is that the aluminum pull tabs and aluminum twist-off bottle caps will still respond with a solid beep. The meter will often identify such targets as trash before digging. Some will however, read as good targets. The depth meter can provide valuable information, deep targets are more likely to be valuable.

b. Turning the DISC control counterclockwise will provide less trash rejection. Thin white gold and platinum rings typically require low degrees of trash rejection to locate.

CAUTION: If searching saltwater beaches, the DISC control should not be reduced below the SALT indication marked on the dial. Salt when wet is conductive to a degree which cannot be rejected with the normal ground rejection feature. Rejection of salt is possible with a DISC setting clockwise of the SALT marking.

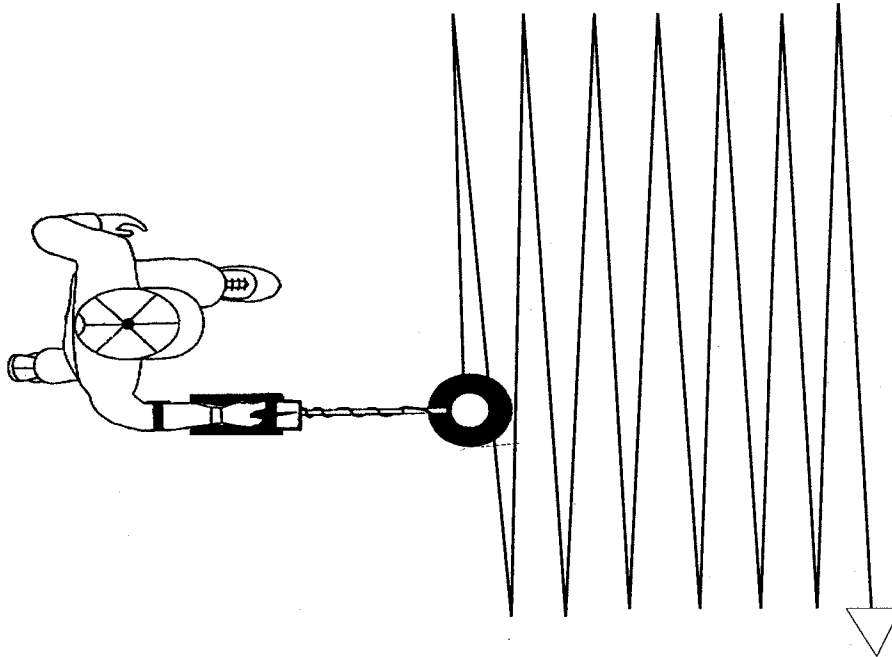
c. Turning the DISC control clockwise from **P** will provide more trash rejection. When the amount and types of trash make it difficult to search an area, higher degrees of trash rejection will accept the silver, copper, and bronze metals well.

CAUTION: If the DISC control is turned much further clockwise than **P**, nickels and many gold items will be rejected.

d. You may ask, "How can optimum discrimination be achieved"? The answer is, "Use the **P** setting, and watch the meter indications". Before long, trends will surface that give subtle clues regarding those difficult targets. Only when the number of accepted trash targets becomes unbearable would it be advised to increase discrimination. Most difficult targets can be recognized through the use of the meter indications. A consistent size/alloy will read consistently the same on the display. Do not underestimate the value and implications of the target depth. Deep targets are more likely to be valuable. Often recommended is the highest DISC position that still responds to the U.S. nickel. Maximum trash rejection with minimum good target rejection is achieved at this nickel accept setting.

Tuning & General Use, Continued...

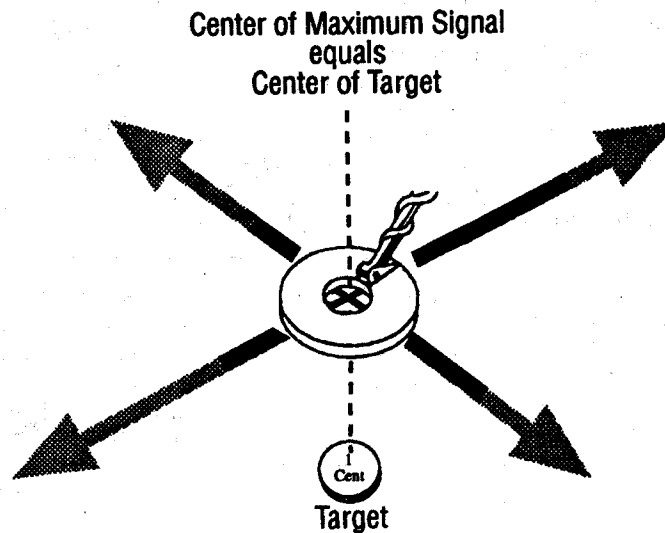
9. As searching begins, the sweep of the loop plays a critical role in how well the detector works. Sweep the loop close to the ground, from side to side, overlapping each pass. One pass from left to right should take 2 -3 seconds. Moving from right back to left, where the sweep first started, should take another 2-3 seconds. The maximum detection depth will be in the center of the loop, thus if loop passes are not overlapped by at least 50%, some deep targets may be missed. Do not arc the sweep at each end. Keep the loop close to the ground throughout the sweep.



10. Once a smooth, solid, consistently "beep" is heard, (indicating a good target), sweep the loop over the area several times. Consult the meter indication. Squeeze and hold the TRIGGER on the handle, and "X" the loop over the area. Note the loudest sound and furthest meter movement to the right. This pinpoints the targets precise location, and how deep it is in the ground. The meter depth indication scale is the (9+ to 1) information located toward the lower portion of the meter face. Depth is measured in inches, and the meter only displays its depth measurement while the TRIGGER is squeezed. Deeper targets are more likely to be valuable and more likely to produce questionable responses, thus deeper, questionable targets should often be dug. The meter and sound are more accurate on shallow targets. However, strong targets that are shallow may overload, producing a junky sounding response. Lifting the loop a few inches higher and again sweeping over the area will improve discrimination accuracy in such cases. Additionally, once a questionable target's precise location is determined (pinpointed), release the TRIGGER and sweep the loop directly over the center again consulting the meter. The most accurate indications are achieved when the loop is swept directly over the center of the target.

Tuning & General Use, Continued...

11. Pinpointing and digging take some time and practice (see page 23). Many different types of digging tools are available to help you. If you don't have a digging tool, contact your dealer. The type of digging tool best for your area, your type of searching, and best for you personally, is a matter of opinion. The important thing to remember is consideration. Fill in all holes you dig. Be thoughtful regarding where and when you dig. Obviously midday on a beach crowded with sun bathers, is not a good place to search. Early morning or late evening are more appropriate. If someone cares for a lawn (keeps it looking nice) and yet gives you permission to search, be equally thoughtful by taking extra steps to minimize any damage digging may do to the vegetation. The use of a small drop cloth (to place dug soil onto) is suggested in such areas. This minimizes soil smearing around the hole making such diggings less noticeable (*see page 14*).




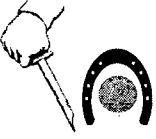
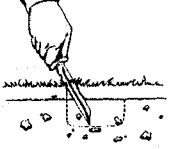

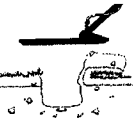



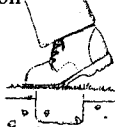
12. A good location to search and getting permission, is a major part of successful metal detecting. Research always pays off. It may mean digging through old newspapers at the local library, documents at city hall, or just talking to a lot of longtime citizens. You will be surprised what you can find out, and research can be half the fun! Do not be discouraged if someone has already searched an area, that just makes for a little more challenge. No one finds all the valuables in an area even with multiple searches. Take a little more time and dig a few more of the questionable targets. Often areas replenish themselves either through use, such as a beach where jewelry is continually lost, or through naturally occurring shifts in the soil, frost heave, erosion, etc., which bring previously undetected targets within reach. Sand and soil movement in many areas makes each season a new ball game. You must have permission to search on private property. Any public area with historical markers is likely off limits to metal detecting.

TARGET RECOVERY

I. The "Hinged Door Method" of digging is widely recommended to minimize damage to lawns.

A. Careful recovery in multiple-use well groomed areas is the responsibility of all metal detector users.

B. Be a good neighbor - do it right!

<p>#1. After locating a good target (metal), pinpoint the center. If your instrument has depth reading, take note of the depth. Practice on surface metals with the loop held several inches above target.</p> 	<p>#2. Using a sturdy digging tool, preferably a trowel or knife, cut a horseshoe-shaped size plug around the pin-pointed target. Leave an uncut hinge area to keep the grass in place.</p> 	<p>#3. Cut through the turf, being careful to cut around the target and not damage it.</p> 
<p>#4. Use your digging tool to pry the turf flap up and hinge it over. Your pin-pointed target now rests down- side-up.</p> 	<p>#5. Check for the target visually, and with your detector, to see if the target is in the flap or remains in the hole.</p> 	<p>#6. A pinpointing probe can be used to speed the process of finding the target in the flap or in the hole.</p> 
<p>#7. If additional dirt needs to be removed from the hole, place it on a drop cloth.</p> 	<p>#8. After recovering the target, the dirt can then easily be replaced with a minimum of spreading.</p> 	<p>#9. Replace the turf flap and step on it firmly. Once completed very little indication of digging should be seen.</p> 

II. It is very important for the future of metal detecting that you use care in digging.

A. Check with your Dealer, Area Club, Local Police, or Parks & Recreations Department.

B. Some areas may have rules on the size and type of digging tools allowed.

C. Be aware of the rules. Respect the laws and restrictions in your area.

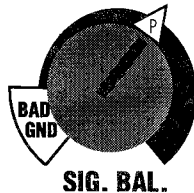
D. Unfilled holes are dangerous to people and livestock, and detrimental to the continued use of detectors.

CONTROLS

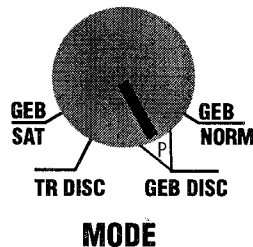
I. Control Location and Overview:

SIG BAL, (Signal Balance):

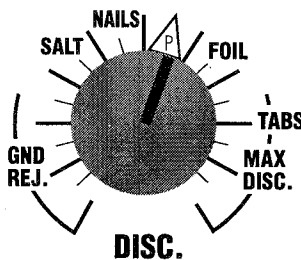
The Signal Balance control allows the receive signal from the loop to be optimized for the ground rejection circuits preventing overload and increasing detection depth in a variety of ground conditions.



MODE: The Mode control selects the manner in which the detector operates, such as the detection of all types of metals, or the rejection of some metals, etc. No single Mode will offer all the advantages an operator desires, therefore four different modes are available.



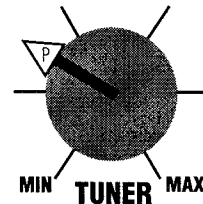
DISC: The Discrimination control selects the amount of rejection against junk metals such as nails, tin or aluminum foil, etc. Only used in the GEB/ DISC and TR/DISC MODES.



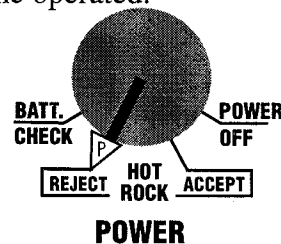
AUTO GEB: The AUTO GEB switch is used to select the actual ground rejection setting, so that ground minerals (magnetic and/or conductive components) can be ignored. The AUTO GEB also selects whether the ground rejection setting stays as originally set (LOCK) or whether the instrument automatically updates this original setting (AUTO TRAC) to accommodate naturally occurring changes in the soil.



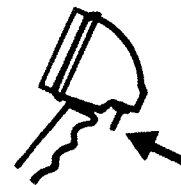
(15)



TUNER: The Tuner sets the steady hum or threshold which should be heard continually during use. The Tuner should be set to a slight steady hum, "edge of sound" or threshold, each time operated.



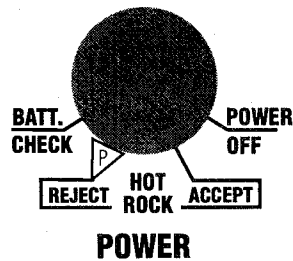
POWER: The Power control turns the instrument ON/OFF, selects either Hot Rock Accept or Hot Rock Reject, and tests the battery strength.



TRIGGER SWITCH:

The Trigger Switch located on the handle is used for several different purposes. Three positions; "center" used for normal searching, "squeezed and held" PINPOINT activates a temporary change in the mode and meter. "Locked forward" the same as squeezing and holding except mode and meter changes are locked in. And squeeze and release "resets" after control adjustments.

Controls, Continued...



II. Power: The Power control turns the instrument ON/OFF, selects either Hot Rock Accept or Hot Rock Reject, and tests the battery strength.

A. POWER OFF position is selected when the detector is not in use. (Batteries should be removed when the detector is stored.)

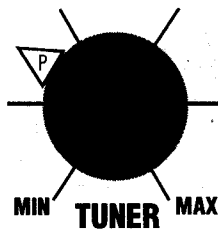
B. HOT ROCK ACCEPT / REJECT only affects the GEB/DISC MODE.

1. ACCEPT provides maximum results. This setting may, however, be plagued by false signals in some areas. These false signals are caused by rocks higher in mineral content than the current ground rejection setting (Hot Rocks) and are recognized by a meter indication pegging left and/or right firmly, and the audio signal often disappearing upon attempting to pinpoint. Typically ACCEPT produces more audio sounds which need to be interpreted by the operator.


2. REJECT **A** eliminates most of the false signals associated with mineralized rocks. Rejection occurs by a nulling or fading of the audio sound. The meter may still peg left and/or right over such targets. REJECT cancels responses caused by rocks higher in mineral than the current ground rejection setting. By definition this is a hot rock. The drawback is that some very deep targets, in highly mineralized ground, may appear similar to a hot rock, and be rejected. It is recommended to use this reject position until some field experience is gained. At the point of becoming comfortable with field use, try using the ACCEPT position. If hot rocks make it unbearable to search, switch back to REJECT. If hot rocks are not a problem, or if you can easily identify them with the meter and pinpoint mode, continue using the ACCEPT position.

C. BATT. CHECK. Battery Check is used to check the condition of the batteries. When placed in this position, the current battery condition is shown on the meter. An indication anywhere 50 or above on the 0-100 meter scale will operate the detector. New batteries 12 volt + will peg the meter full scale. Once the battery no longer indicates 50 or above on the 0-100 meter scale (under 6 volts), new batteries should be installed. Most batteries types/brands last 8-16 hours of use. Battery life varies with type, brand, temperature, mode, and the number of targets signals. The use of headphones will significantly improve battery life. Because the 6000 PRO XL is designed for maximum performance and battery life, some attention to the individual battery cells after eight hours use is advised (*see page 4*).

Controls, Continued...



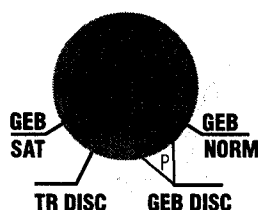
III. Tuner: The Tuner sets the steady hum or threshold which should be heard continually during use. The Tuner should be set to a slight steady hum, "edge of sound" or threshold, each time the instrument is to be operated.

A. To set the Tuner: Place the Mode control to GEB NORM, hold the loop at waist level away from all metals or ground minerals, squeeze and hold the Trigger on the handle, and turn the Tuner control until a very slight faint hum (threshold) is heard. Release the Trigger. Tuner control should end up near the  preset mark in average temperatures.

B. Silent Search: Once the threshold has been set, the Tuner can be turned slightly toward MIN to produce silence until a target is detected. Some detection depth may be compromised. In silent search a target signal must be strong enough to first reach threshold and then go beyond threshold in order to be heard by the operator. When operating with a threshold a target signal needs only to go beyond the threshold to be heard by the operator.


C. Volume: The TUNER controls only the level of threshold, not the maximum sound (beep) of a metal target. The 6000 PRO XL has a fixed volume level (not adjustable). If the volume level is too loud, the use of headphones with volume controls is advised. Headphones automatically disconnect the external speaker for privacy and additional battery life. If use without headphones is desired, and the volume level is too high, a speaker cover decal is available that can be used to partially or fully cover the speaker opening for different levels of reduced volume.

Controls, Continued...



IV. Mode: The Mode control selects the manner in which the detector operates, such as the detection of all types of metals, or the rejection of some metals, the rejection of ground minerals, etc. Mode selection has the greatest impact on how the detector operates and performs. No single Mode will offer all the advantages an operator desires, therefore four different modes are available.

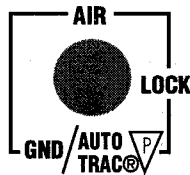
A. GEB / NORM: Responds to all types of metals while rejecting ground mineralization. It is a true non-motion Mode, which indicates that the loop can be held stationary over a metal target and the detector will continue to respond. This makes GEB/NORM an excellent Mode to pinpoint a target's exact location. If the Trigger is squeezed and released several times as the loop is passed over the target area, more precise pinpointing can be achieved. This is called de-tuning. Before continuing to search, lift the loop to waist level, squeeze and release the Trigger once more to clear for wide-scan searching.

B. GEB / DISC:  Rejects some metals based on the DISC control setting and rejects ground mineralization. It is best used for coin, beach, and general purpose searching. It is a true motion Mode, which indicates that the loop must be continuously swept (kept in motion) for metal targets to continue to respond. GEB/DISC is the most commonly used Mode. It rejects junk and ground minerals and thus operates smoothly and efficiently. Squeezing and holding the Trigger switch (on the handle) will temporarily access the GEB/NORM Mode for pinpointing. Releasing and re-squeezing the Trigger several times will allow more precise pinpointing (de-tuning). Before continuing to search, squeeze and release the Trigger once more with the loop at waist level to clear for wide-scan searching.


C. TR / DISC: Rejects some metals based on the DISC control setting. It will not reject ground minerals when set for discrimination, thus is only recommended for very low mineralized areas such as tan or white color sand, or areas which allow extremely high SIG. BAL. settings. TR/DISC has superior rejection against junk and is a true non-motion Mode. However, it will not penetrate mineralized ground and reject trash at the same time. (*See section on Advanced Techniques for setting TR/DISC for extended manual ground rejection.*) The TR/DISC Mode will pinpoint well. Holding the trigger temporarily switches to GEB/NORM and depth reading if extra help is needed for pinpointing the target's exact location.


Controls, Continued...

D. GEB / SAT responds to all types of metals while rejecting ground minerals. Unlike GEB/NORM, the GEB/SAT Mode has a feature called Self Adjusting Threshold which smooths operation over varied ground. This feature makes GEB/SAT a better choice for general all metal searching. Although it is not a true motion Mode, loop motion is required for GEB/SAT to continuously respond to a metal target. To pinpoint, either slow the loop sweep in an "X" pattern over the target area, hold the Trigger and "X" the area using the meter with no audio sound, or switch to GEB/NORM and pinpoint as described for that Mode.



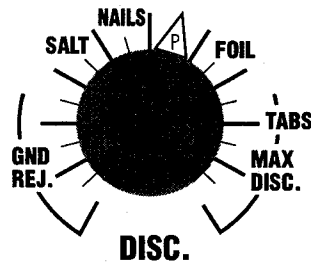
V. AUTO GEB: The AUTO GEB switch is used to select the actual ground rejection setting, so that ground minerals (magnetic and/or conductive components) can be ignored. When ground minerals are ignored, increased detection depth and smoother operating stability are achieved. The AUTO GEB also selects whether the ground rejection setting stays as originally set (LOCK) or whether the instrument automatically updates this original setting to accommodate naturally occurring changes in the soil's mineralization, (AUTO TRAC). Setting the AUTO GEB is recommended each time you use your instrument, and can be completed in any of the GEB modes although GEB/NORM is recommended.

A. To set the AUTO GEB place all controls to . Hold the loop at waist level away from all types of metals and ground minerals, press the AUTO GEB switch to the air position and hold it there until a "beep" is heard. Immediately lower the loop to the ground to be searched and pull the AUTO GEB switch down to the GND AUTO TRAC position. Hold the loop steady until another "beep" is heard. Squeeze and hold the Trigger on the handle and lift the loop from the ground. Proper ground rejection is indicated by little or no change in sound as the loop is lifted. (Page 6-14 *Tuning & General Use for more information.*)

B. GND AUTO TRAC  is recommended for most searching conditions as it automatically tracks (adjusts) to any changes in the ground. This continual updating of the ground rejection setting improves performance.

C. LOCK may be desired in areas which contain a lot of man-made decomposed iron, such as rusty iron which will tend to trick the AUTO TRAC feature (recognizing it as a mineral rather than a metal).

Controls, Continued...



VI. DISC: The Discrimination control selects the amount of rejection against junk metals such as nails, tin or aluminum foil, etc. It only affects the GEB/DISC and TR/DISC MODES.

A. GND REJ (Ground Reject) is used when operating one of the discriminate modes to extend ground rejection for extreme conditions. (See Advanced Techniques).

B. SALT indicates the DISC control must be set at this point or higher (further clockwise) when used on a saltwater beach. Salt is conductive when combined with water and tends to respond like a metal rather than a mineral. The DISC control can cancel much of this salt response when set at salt or higher.

C. Nails indicates the point on the dial that most iron is rejected.

D. P Is the recommended setting for coins and general purpose searching. At the P setting, most common junk is rejected and most valuables are detected. Settings further clockwise than P may reject common gold jewelry. This exact point can be determined by finding the highest point on the dial that still responds to the U. S. nickel. When the DISC control is set to this point, maximum rejection of junk is achieved with very little rejection of gold jewelry.

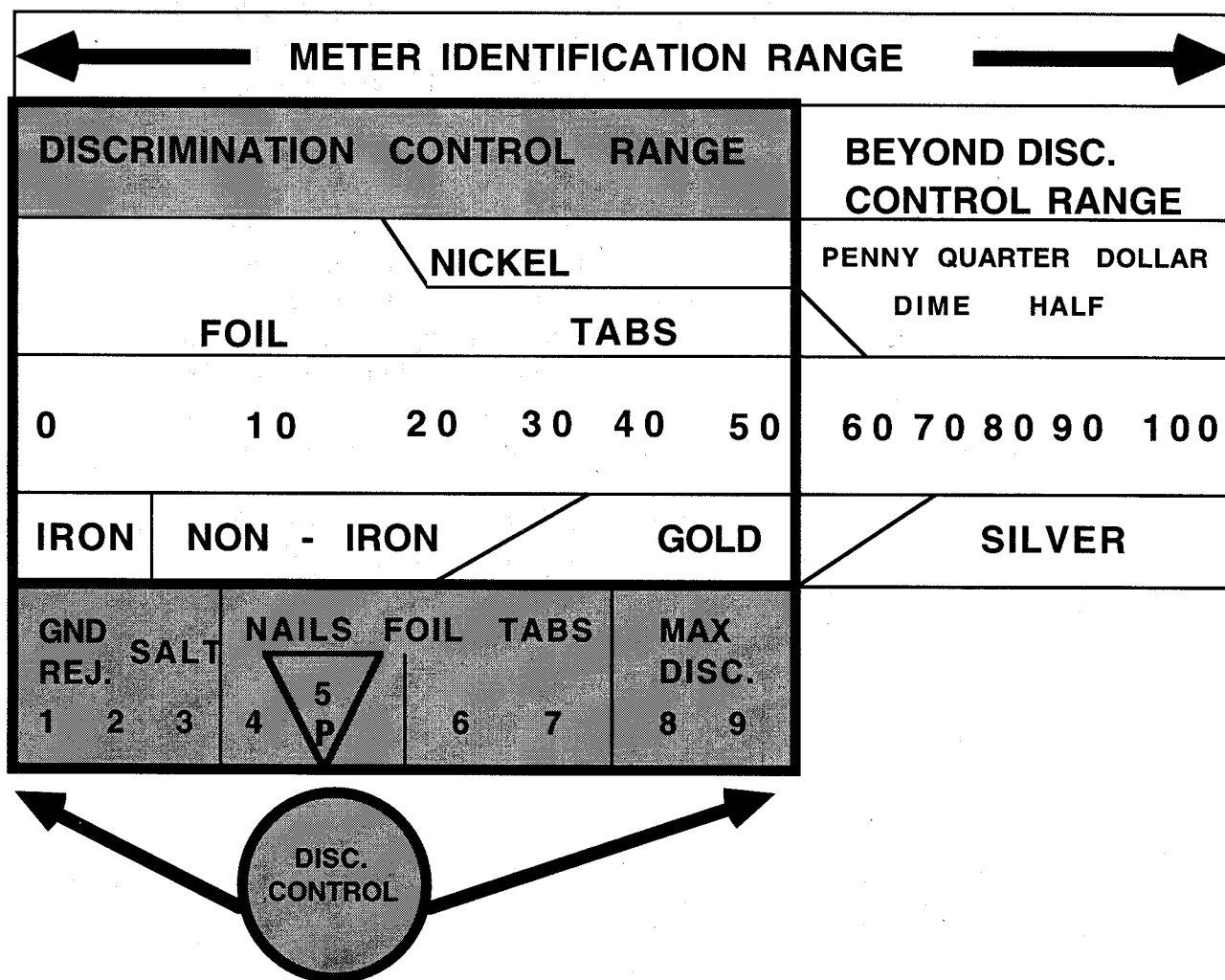
E. DISC control range from P through MAX is represented on the lower section of the meter. IRON and small FOIL is rejected prior to NICKEL on the meter and on the control knob. Large FOIL may not be rejected until after the NICKEL and gold jewelry (clockwise from P). The P setting on the DISC control represents a setting between FOIL and NICKEL on the meter.

F. MAX DISC. would represent a setting on the meter just below PENNY. PENNY indication is a copper one cent. 1982 and newer USA cents are made mostly of zinc and will therefore indicate just below PENNY on the meter. (See Meter section page 25 - 27 for more on meter indications.)

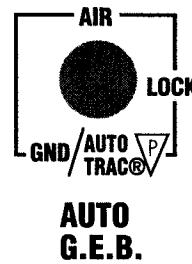
Controls, Continued...

G. It is advised to use **A** or lower DISC control settings, and then use the meter to further decide if a target is worth digging. Both meter identification and depth indication are important factors to consider. (See *Meter section, page 25 - 27*).

H. When the DISC control is set to a particular position, all targets which fall counterclockwise of that position will be rejected. They will not respond with an acceptable smooth solid sound. Typically, either no sound will be heard or a broken "cut-short" sound will be produced by such rejected targets. Everything clockwise of that position will be accepted. Accepted targets produce noticeably smoother, more solid sounding responses.



Controls, Continued...



VII. SIG BAL, (Signal Balance): The Signal Balance control allows the amount of receive signal coming from the loop into the circuitry to be controlled, thus optimizing detection depth in a variety of ground conditions.

A. To set the SIG BAL, find the furthest position clockwise which allows ground rejection and smooth stable operation. (*See Tuning, pages 7,8, 9.*)

B. High Mineralization typically will cause more receive signal than the electronic circuitry can handle. Such conditions result in overload of the receiver, which will cause poor detection depth. A SIG BAL setting toward BAD GND will reduce the size of the receive signal to a manageable level, thereby improving detection depth and stability.

C. Low Mineralization typically has little or no effect on the receive signal, therefore a SIG BAL setting further clockwise will improve detection depth. At some point as the SIG BAL control is turned clockwise, the detector will become unstable and unpredictable. A slightly counterclockwise SIG BAL setting will regain the stability necessary for good detection results. More range than is usable is allowed on the SIG BAL control to allow for all possible conditions one may experience.

D. AUTO GEB must be reset after every SIG BAL adjustment. Failure to reset the AUTO GEB after a SIG BAL adjustment will result in improper ground rejection and poor performance. The SIG BAL and AUTO GEB controls work hand in hand to tune out the effects of the ground and maximize detection depth.

Controls, Continued...

VIII. TRIGGER SWITCH: The Trigger Switch located on the handle is used for several different purposes. The Trigger has three possible positions; "center" which is used for normal searching, "squeezed and held" (pinpoint) which activates a temporary change in the mode and meter, and "locked forward" which is the same as squeezing and holding except mode and meter changes are locked in.

A. Reset, clear, or retune after control adjustments or pinpointing. Most control adjustments will cause sections of the electronic circuitry to become out of sequence. Squeezing and releasing the Trigger will reset or clear so that all the electronic circuitry works in unison.

B. Manual Pinpointing when the Trigger is squeezed and released while the loop is near a metal "double clutching" the loop's detection field will narrow. This is called de-tuning. The loop's detection field will remain narrow until the Trigger is squeezed and released (while holding the loop away from any metal). This resets the loop's detection field allowing it to detect its widest possible search pattern.

C. Changes Mode to the opposite of that in use. If operating in GEB/ DISC mode, squeezing and holding the Trigger switch will temporarily activate the all-metal GEB/ NORM mode. This is ideal for pinpointing as GEB/NORM requires no movement of the loop to respond to metal targets. Releasing the Trigger returns the instrument to the original mode. Mode changed to depends on what mode the instrument is in at the time.

- 1. GEB/NORM**, holding the Trigger will switch to GEB/DISC. This is useful as GEB/NORM ignores most mineralized rocks, hot rocks, and detects all metals. A determined operator may want to search in GEB/NORM and hold the trigger to check each target in GEB/DISC. This type of searching takes a lot of patience as all types of metals will respond.
- 2. GEB/DISC**, holding the Trigger will switch to the GEB/NORM mode. This is useful as GEB/DISC must always have loop movement to respond to a metal target, making pinpointing difficult. GEB/NORM requires no loop movement to respond to metal targets.
- 3. TR/DISC**, holding the Trigger switches to the GEB/NORM mode. TR/Disc can be tuned for one mineral type (see page 28), GEB/NORM can be tuned for a different mineral type and the AUTO GEB switch set to lock. Confirming mineral types (ferrous/nonferrous) in rocks can be completed.
- 4. GEB/SAT**, holding the Trigger switches to the GEB/DISC mode. This can also be used in the same manner as GEB/NORM. Searching in the GEB/SAT mode, all metals are detected with little trouble from mineralized rocks (hot rock). Once a metal target is located the Trigger can be held (switching to GEB/DISC mode) to check if the metal is trash.

Controls, Continued...

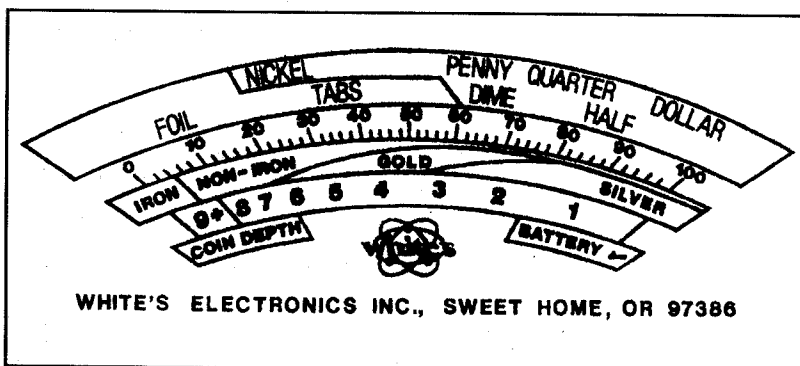
C. Meter Switching Whenever the Trigger is squeezed and held, the meter changes from indicating probable identification to indicating likely target depth. This is true regardless of what mode you are in or are being switched to with the Trigger. The meter operates independently from the audio. It provides valuable information about the target and can also be used to aid pinpointing. Depth reading indicates a target's likely distance from the loop bottom. The likely target depth will indicate the furthest to the right (shallowest depth indication) when centered above the metal target. The depth meter is calibrated for coin-sized targets. Metals larger or smaller than a coin will not give accurate depth indications. (The depth indication is the lower section of the meter face and is listed in inches, from 9 plus to 1.)

MODE CONTROL	TRIGGER CENTERED		TRIGGER SQUEEZED & HELD, OR LOCKED	
	OPERATING MODE	METER	OPERATING MODE	METER
GEB/NORM	GEB/NORM	TARGET I.D.	GEB/DISC	TARGET DEPTH
GEB/DISC	GEB/DISC	TARGET I.D.	GEB/NORM	TARGET DEPTH
TR/DISC	TR/DISC	TARGET I.D.	GEB/NORM	TARGET DEPTH
GEB/SAT	GEB/SAT	TARGET I.D.	GEB/DISC	TARGET DEPTH

THE METER

The Meter indicates probable target identification, based on a comparison of common coin sized targets... and probable depth (how deep the metal target is likely buried in the ground) based on a metal the size of a coin. Both of these measurements are designed to provide valuable information about the metal target before it is dug.

I. Probable Identification is listed on the meter in three scales, FOIL through DOLLAR, 0 through 100, and IRON through SILVER. Only those indications which are fairly consistent are of value.



A. FOIL - DOLLAR scale gives an indication as compared to common USA type metal targets. NICKELS, TABS (pull tabs), PENNY, DIME, QUARTER, HALF (half dollar), and DOLLAR. Some overlapping occurs due to varying amounts of the alloys used in such coins over their years of production and wear. The TAB and NICKEL are a particular challenge. Only a ring pull tab with tail, of average size (and not bent in an unusual shape) will indicate TAB. Often when the tail of the tab is not attached, a NICKEL indication results. Any indication from FOIL up to PENNY could possibly be valuable jewelry. A deeply buried aluminum can will indicate QUARTER -DOLLAR. The Depth meter can provide some help in that deep aluminum cans will give shallow depth indications. Another clue is that cans tend to produce wider pinpointing responses, not as small and isolated as a coin or jewelry response. Very old bottle caps, because they are made of both ferrous (iron) and nonferrous (not iron), may read with a solid sound and QUARTER indication once the ferrous iron deteriorates and the better alloy becomes a dominating percentage of the item.

B. 0 - 100 is often used for referencing targets not listed on the scale (foreign coins), or those which do not seem to indicate where expected. This is of particular assistance when trying to limit the number of troublesome undesirable targets. See what number they usually indicate and start passing up targets which indicate that particular number.

Meter, Continued...

C. IRON - SILVER scale gives some indication of where natural and man made alloys of gold and silver may indicate. The overlapping effect gold alloys have over the NICKEL, TAB, and PENNY area is apparent. Two 14 K gold rings, both of the same size and weight, may indicate differently on the meter. 14 K is only 14 parts pure gold, and is 10 parts "something else". It is this "something else" that significantly affects the meter indication. Copper, will produce a higher meter reading. Nickel a lower reading. Jewelers use many different alloys with 14 K gold to harden it for better wear, and tailor the exact shade or color of a piece of jewelry. Pinning all jewelry down to exact meter indications is not possible. Similarly, natural gold nuggets are not pure 24 K gold. They are, in fact, alloys of gold mixed with other metals. The exact mixture will affect where they indicate on the meter. Natural gold usually indicates below nickels in the small foil area. General purpose models such as the 6000 PRO XL can detect nuggets penny weight and larger.

II. Variables will be noted. The 6000 PRO XL meter displays a probable or likely comparison with common alloys and alloy sizes. Area specific types of trash can be passed up in any given area once a frustrating number of that type of target is dug, all reading the same on the meter. In that area that indication can then be ignored.

A. Size And Shape will affect the meter indications. For example, large pieces of foil will tend to indicate higher on the scale, small pieces of foil will indicate low. The surface area has more of an effect than actual size. A spread-out flat piece of foil will indicate high on the scale. The same piece of foil wadded up in a ball will tend to indicate low on the scale. Similarly, depth indications are affected. The highest degree of accuracy can be expected on coin-sized targets lying flat. Less accuracy will result from coins on edge, and even less accuracy from metals larger or smaller than the average U.S.A. coin.

B. Probable Meter Identification is not tied directly to the audio sound (beep) of the instrument. The meter indication and audio discriminator may not agree as to whether a metal is valuable or not. The meter operates independent of the audio discriminator. It offers a second opinion as to whether a metal target should or should not be dug. Peculiar ground conditions can make the meter indications more or less accurate than the audio discriminate sounds.


C. Practical Application means an operator will consult the audio discrimination and meter indications simply as measurements, comparisons to known metals, and opinions, as to whether a metal target should or should not be dug. Ultimately it is the individual who must decide through experience and interpretation, which indications mean good metal targets in the area being searched. A specific size, shape and alloy metal will read identically on the display to anything else of the same size, shape, and alloy.

Meter, Continued...

III. Depth Indication is listed on the lower section of the meter face, 9 + 8 7 6 5 4 3 2 1. The meter only indicates depth when the Trigger is held or locked forward. Depth is indicated in inches from plus nine through one, and is only accurate on metal targets the size of coins. In addition, accuracy is reduced by the use of alternate-size accessory loops and performance Signal Balance settings.

A. Reading Target Depth is achieved in any mode simply by squeezing and holding in the Trigger, or locking it forward, and sweeping the loop slowly over the area. The strongest reading, shallowest depth indication, furthest meter movement to the right, indicates the center of the metal target and its depth in inches.


B. Depth Implications should not be overlooked. For example, if the audio and/or the meter indication leaves some doubt as to if a metal target is worth digging, check the depth. A deep questionable target should be dug. Audio discrimination and meter identification accuracy tapers off at extreme depths. Many valuable finds produce questionable responses, but show deep depth indications. As audio discrimination and meter accuracy are greatest at the shallow depths, questionable targets which indicate shallow depths are more likely to be trash. To be sure, sweep the loop a little higher above the metal target. Good metal targets often will start producing a better sound and better meter indications. Junk targets still indicate junk. Another problem can result from several metal targets close together. Try pinpointing the general area. If several different pinpoint spots appear, release the Trigger and try sweeping each individually for greater accuracy.

C. Depth Reading Errors will be consistent when it comes to accessory loop sizes, performance Signal Balance settings, and metal targets not of coin size. For example if a particular target smaller than a coin indicates three inches deep, and after digging is found to actually be two inches deep, you can assume that all similar size, shape, and alloy, targets will indicate an inch deeper than they actually are. If a target larger than a coin indicates three inches deep, and after digging is found to actually be six inches deep, you can assume that all similar size, shape, and alloy, targets will indicate three inches shallower than they actually are. Loops other than the standard size and Signal Balance settings (other than ) will show target depth errors. These errors will be consistent and therefore predictable for any given setting, loop size, and target size/type. This knowledge of error can be used to determine actual depths.



ADVANCED TECHNIQUES

I. There are many advanced searching techniques used with today's metal detectors, the scope of which can not be covered in this instruction manual. Once the information in this manual is fully understood, special uses and conditions will become a matter of common sense, experience, and experimentation. The following advanced technique has many different uses. It provides a way of manual ground rejection that has a range far beyond that possible with the standard automatic system. Primarily used for prospecting natural gold nuggets, it also can be useful in other high mineral areas such as black sand salt water beaches.

A. To Begin place all controls to  except MODE, DISC., and Auto GEB. Place MODE to the TR/DISC position. Place DISC in the middle of the area marked GND REJ. (ground reject). And place AUTO GEB to the LOCK position. Squeeze and hold the Trigger with the loop at waist level, and adjust the TUNER for a very slight faint hum (threshold). Release the Trigger.

B. Lower The Loop to the ground while listening to the slight threshold hum. The hum will either increase, decrease, or stay the same. The desire is to find the point on the DISC control that allows the loop to be lowered to the ground with no noticeable change in the threshold hum. This indicates the ground is being ignored.

C. If The Hum Increased as the loop was lowered to the ground, turn the DISC control clockwise very slightly, lift the loop to waist level squeeze and release the Trigger, and again lower the loop to the ground while listening for any change in hum.

D. If The Hum Decreased as the loop was lowered to the ground, turn the Disc control counterclockwise slightly, lift the loop to waist level squeeze and release the Trigger, and again lower the loop to the ground while listening for any change in hum.

E. If The Hum Both Increases and Decreases "wobbles" as the loop was lowered to the ground, turn the Sig Bal control counterclockwise slightly, lift the loop to waist level squeeze and release the Trigger, and again lower the loop to the ground while listening for any change in hum. Slight wobble may be necessary and OK in some ground conditions. However, very little is preferred.

F. Continue the above steps until little or no change in hum is noted as the loop is lowered to the ground. Note that a very small adjustment of the DISC control has a dramatic effect, so each adjustment will need to be as small as possible.

Advanced Techniques, Continued...

II. At this point the detector is ready to be used and will perform very similarly to the GEB/NORM MODE but with greater ability to reject extreme ground mineralization. The detector will be susceptible to occasional electronic drifting. Lifting the loop to waist level and squeezing and releasing the Trigger will be necessary to maintain the threshold. Additionally, changes in the ground such as dry sand to wet saltwater sand will be dramatically apparent. Attempts must be made to search one general area of a similar ground type, then when changing to another ground type retune as previously described under steps A-F, of this section. Some areas of quickly changing ground conditions will be impossible to search using this method. The GEB/SAT MODE is better suited to these areas.

A. The SIGNAL BALANCE control will have an effect on the TR/DISC Mode. As with the GEB/NORM Mode, the Signal Balance control should be set at the furthest point that allows ground rejection. Ground rejection is indicated by no change in the threshold hum as the loop is lowered to the ground. If when attempting to set the DISC control for ground rejection, it is not possible to achieve little change in hum as the loop is lowered, turn the Signal Balance control slightly counterclockwise (toward Bad Ground) and try again. If it seems easy to achieve ground rejection, turn the Signal Balance control slightly clockwise and try again. By finding the furthest clockwise position which allows ground rejection, optimum detection depth will be achieved. As the Signal Balance control is turned clockwise, the instrument will become more temperamental (sensitive to both electrical and ground interference). A slightly counterclockwise Signal Balance setting may be required for smooth running performance.

III. Ore Sampling While Searching Although tedious, ore sampling can be done while searching.

- A.** First tune TR/DISC to reject the common ground in the area (Page 28).
- B.** From TR/DISC squeezing and holding the Trigger switches to the GEB/NORM Mode. This is useful in that two different ground rejection settings can be set and maintained to check mineralized rocks for valuable microscopic metal content, "ore sampling".
- C.** A piece of ferrite will be needed. Ferrite is a magnetic iron sample which can be purchased inexpensively from local radio or electronic shops.
- D.** The GEB/ NORM mode is tuned to ignore ferrite as if it were the ground using the AUTO GEB switch that is then set to LOCK. When an unusual rock is found while searching in TR/DISC, the Trigger is squeezed and held, and the loop passed over the rock. Significant response (beep), indicates the presence of valuable ore.

Advanced Techniques, Continued...

1. Once TR/DISC has been tuned for ground rejection (page 28), switch to the GEB/NORM Mode and hold the loop away from all metals or the ground.
2. Press the AUTO GEB switch to air wait for the "beep".
3. Hold a ferrite mineral sample up to the loop and place the AUTO GEB switch in the GND Auto Trac position. Hold the ferrite sample steady until a "beep" is heard.
4. Now sweep the ferrite sample across the loop several times. Make sure it doesn't respond with a "beep". The air and ground balance may need to be completed several times to get good rejection of the ferrite sample, which is necessary for accurate ore sampling. Reduced Signal Balance may also be required for good rejection of ferrite.
5. Once completed, place the AUTO GEB in the LOCK position so that the ground rejection will stay as set. Switch back to the TR/DISC Mode and if the Signal Balance was changed, correct the Ground/Disc setting (page 28). Begin searching for nuggets. If an unusual rock is found, squeeze and hold the Trigger and pass the loop over it. A significant sound (beep) should be checked by separating a sample of the rock from the ground around it, and testing it by passing it by the loop. A significant increase in sound while in TR/DISC "with the Trigger held" (GEB/NORM) and the sample passed by the loop, indicates that the sample rock has traces of valuable nonferrous metal.
6. Nonferrous metal is a metal not of iron i.e. nickel, aluminum, copper, silver, gold, etc., all of which have some value. Only a professional assay can tell exactly what and how much nonferrous metal is present. Knowing what samples are strong (indicated by significant response), and which are weak (indicated by a softer weaker response), can save time and money. A worthwhile mining proposition will vary with the size and accessibility of the material, how many ounces of valuable metal per ton of rock, as well as what type of ore it is, i.e., nickel, copper, silver, gold, etc.

VI. Bench Ore Sampling is often a more practical and accurate way to ore sample.

A. The TR/Disc Mode is preferred for its greater ability to reject strong ground. Tune TR/Disc to ignore ferrite. The procedure is the same as tuning TR/Disc for the ground (page 28) except the detectors loop remains in the air and the ferrite sample is brought closer to the loop rather than the loop to the ground. Once the Disc control is set so that the ferrite sample can be brought close to the loop without significant response, keep the loop away from the ground. Pass rock samples past the loop and note the response. Loud, strong response "beep" indicate good samples to have assayed. Weak response indicate samples far less likely to contain significant nonferrous (valuable) metal. No response, or a negative (fading of sound) indicates the rock contains iron oxides or nonmetallic minerals.



PROPER CARE

I. Cleaning

A. Both the loop and rod are waterproof and can be cleaned with fresh water and mild soap. The control box and display are not waterproof 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 your detector from direct sunlight during storage.

C. The control box is rain resistant. However, it must be protected from heavy rain.

III. Water

A. Saltwater 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.

B. The loop is waterproof and submergible. No harm will come to the detector from getting the loop wet so long as the pinpoint toggle switch on the handle remains dry, as well as the control box and display.

C. **CAUTION:** When the loop is held underwater the rods will fill with water. If the loop is then lifted above the level of the control box this water will run down the inside of the rod and splash the toggle and connecting wiring. Although steps have been taken to minimize water damage in this area, such splashing is not good for the instrument and may cause damage. Again when the loop has been underwater never lift the loop higher than the level of the control box. Take care to keep the loop lower than the control box until you are certain all water has drained from the rods. If the instrument does get wet and stops working correctly setting the instrument in a warm area for several days will dry the circuitry and normal performance will return. However, in some cases, the instrument must be returned for service.

Proper Care, Continued...

IV. Storage

- A. When the instrument is not in use, make sure the POWER knob is turned fully counterclockwise, to the OFF position.
- B. If you plan on storing your detector for long, remove the battery holder from the instrument and remove the battery cells 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. Avoid

- 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.
- E. Again when searching with the loop in the water or wading, be careful. The rod will fill with water, and if lifted above the height of the control box, will run into the rod on top of the control box. Although sealed, some seepage can occur into and on top of the circuitry, causing malfunction. Again, drying the detector in a warm area with battery removed and compartment open will most often cure such a malfunction. If for any reason the control box is dunked in saltwater, flush the entire instrument with fresh water immediately prior to letting the detector dry out.



TROUBLE SHOOTING

When trouble occurs with the use of a metal detector, often a person can avoid unnecessary inconvenience by reviewing the following tips.

I. False Signals or Instability can often be caused by situations outside of the detector. For example electrical interference from power lines, or other high power transmitting devices. Often these devices can be identified, sometimes they can not.

A. Try reducing the Signal Balance control slightly counterclockwise, and Air and Ground Balance using the AUTO GEB control.

B. Persistent false signals may require that you try searching a different area, at least several miles away. If you really want to search a high interference area, try different times of the day or week. Often such interference is only present at scheduled times.

C. If not area related, start checking the components of the detector. The battery pack should be removed from the instrument and the contacts scratched clean of any corrosion buildup. The instrument control box should be checked with a different loop, either an accessory, or a friend's loop off a similar model. Your Dealer may also be able to assist you in checking the instrument. Loop problems are most often due to damaged cable, from snags on brush or blackberry vines, or simple cable wear. Inspect the cable for any visible signs of damage.

II. Moisture and Humidity, when extreme, can cause problems with all electrical circuits. Most electronics are only guaranteed to operate in up to 75% humidity, which is minimal humidity in some areas. Although the electrical circuitry of your instrument has been sealed with a plastic coating, wetness can still cause failure, particularly when combined with salt, as occurs in many beach environments.

A. Damp Environment Use should always be followed by placing the detector in a warm dry place to dry out when not in use. Remove the batteries and leave the battery door open.

Trouble Shooting, Continued...

III. Meter Indications can be affected by static electricity. This static can get on the meter face and housing and cause improper meter indications, inaccuracy, and even total lockup of the meter needle. Such static electricity usually comes from household or automobile carpet, or clothing. When passing your finger past the meter needle causes significant meter movement, static electricity is the problem.

A. Meter Failure should be remedied by discharging any electrical field built up in the meter housing and meter face cover. Antistatic clothes dryer sheets work well for this purpose, and can be purchased inexpensively from the grocery store. Computer stores have an antistatic spray which also works well. With the clothes dryer sheets simply wipe the black meter housing and meter face cover thoroughly. Use several of the individual sheets. With the antistatic spray, spray the meter housing and face cover, wipe dry with a cotton cloth.

B. Once Static is Removed the meter should return to normal. Removing meter static electricity may be necessary from time to time particularly in dry weather.

IV. Repairs in the unlikely event your instrument requires servicing should be referred to a trained professional at an Authorized White's Service Center. Today's models require specialized equipment and training to service properly. All White's Authorized Service Centers have years of experience and their work is guaranteed by the factory.

V. The Location of the White's Authorized Service Center for your area is listed on page 36.



TRANSFERABLE WARRANTY

Should you for any reason sell your metal detector prior to the warranty described on the inside back cover of this manual expiring, the remaining warranty is transferable. This transfer is authorized by calling 1-800-547-6911, and getting an authorization number.

Fill out the following information, including the authorization number obtained from the toll free number, seal it in a stamped envelope, and send it to White's Electronics Inc. 1011 Pleasant Valley Road Sweet Home, Oregon 97386 USA. The remaining warranty will then be available to the new owner.

The warranty statement on the following page applies to both the original owner as well as the second owner.



Original Owner:

Name: _____

Address which appears on original warranty card: _____

Instrument Serial Number: _____

Date Code: _____

New Owner:

Name: _____

Address: _____

Telephone: _____

Comments: _____

Authorization Code: _____

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.

I. Before shipping detectors for service:

- A. Contact your Dealer. There may be a quick, simple fix or explanation that will prevent having to send 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 interference.
- C. Be sure to send all necessary parts with your detector, such as loops, batteries and holders. 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 and always insure your package.

1. White's Electronics

1011 Pleasant Valley Rd.
Sweet Home, OR 97386
(541) 367-6121
FAX (541) 367-2968
E-Mail: wandamc@proaxis.com

2. Electronic Exploration

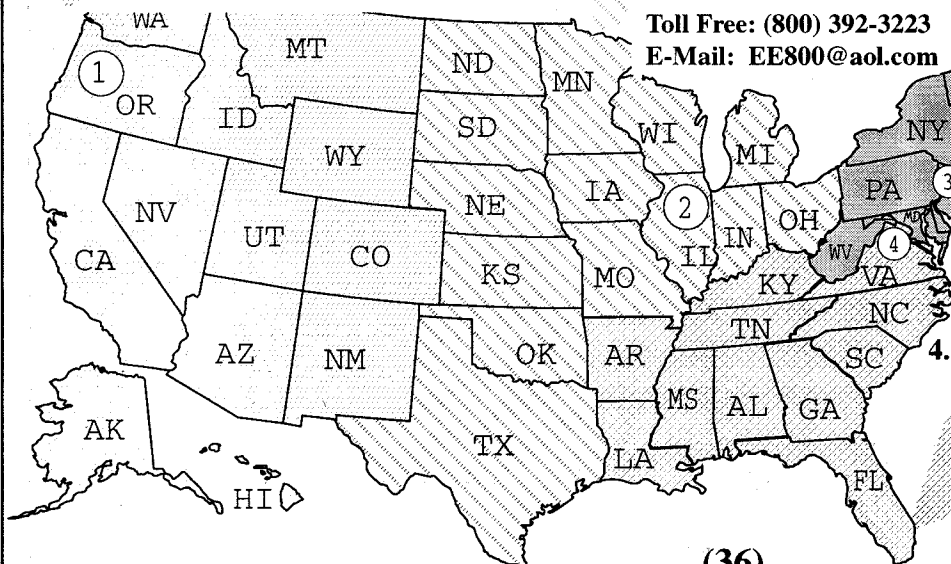
700 South Main
Lombard, IL 60148
(630) 620-0618
FAX (630) 620-1005
Toll Free: (800) 392-3223
E-Mail: EE800@aol.com

3. Geoquest

106 US Hwy 46
Saddlebrook, NJ 07663
(973) 772-7443
FAX (973) 772-7773
Toll Free: (877) 772-7443
E-Mail: geoquest@erols.com

4. Centreville Electronics

13810 B Braddock Rd.
Centreville, VA 20121
(703) 631-0202
FAX (703) 222-8625
Toll Free: (888)-645-0202
E-Mail: centelec@erols.com





LIMITED WARRANTY

If within two year (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.

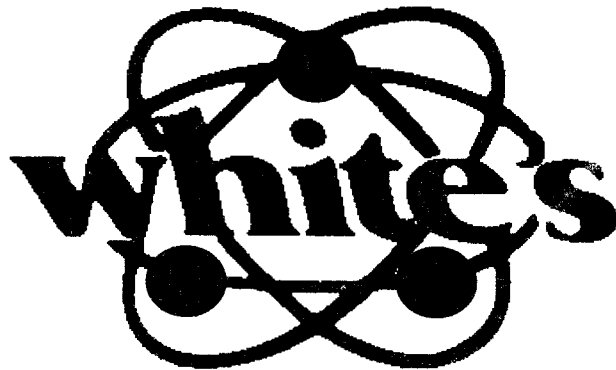
White's registers your purchase only if the Sales Registration Card is filled out and returned to the factory address by your Dealer, soon after original purchase for the purpose of recording this information, and keeping you up-to-date regarding White's ongoing research & development.

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 Electronics, Inc.



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