

White's Electronics, Inc.

1011 PLEASANT VALLEY ROAD

SWEET HOME, OREGON 97386

OPERATORS INSTRUCTIONS



Manufacturers of The World's Largest Line of Mineral and Metal Detectors

MINERAL AND METAL
DETECTORS

ELECTRONIC
MAGNETOMETERS

SUPER GEIGER AND
SCINTILLATION COUNTERS

ULTRA VIOLET
LIGHTS

**G.E.B.
Metal Detectors
(Hipmount Models)**

**A Message from
Mr. Kenneth White, Sr.
President, White's Electronics**

Congratulations! You are now the proud owner of one of the world's finest metal detectors. You'll enjoy the many relaxing hours you'll spend with your new detector.

Ahead of you lie exciting experiences you'll never forget. For years to come you'll have yarns to spin about the places you'll visit, the people you'll meet, the history you'll learn, and the treasures and relics you'll uncover. We envy you your journey and wish you every success.

Before we tell you how to assemble and operate your instrument, however, there are two important points to leave you with:

1. Your new detector is precision-made and has been carefully tested at our factory. Properly cared for, it will last for years and years. Treat it like a good friend and it should never let you down.

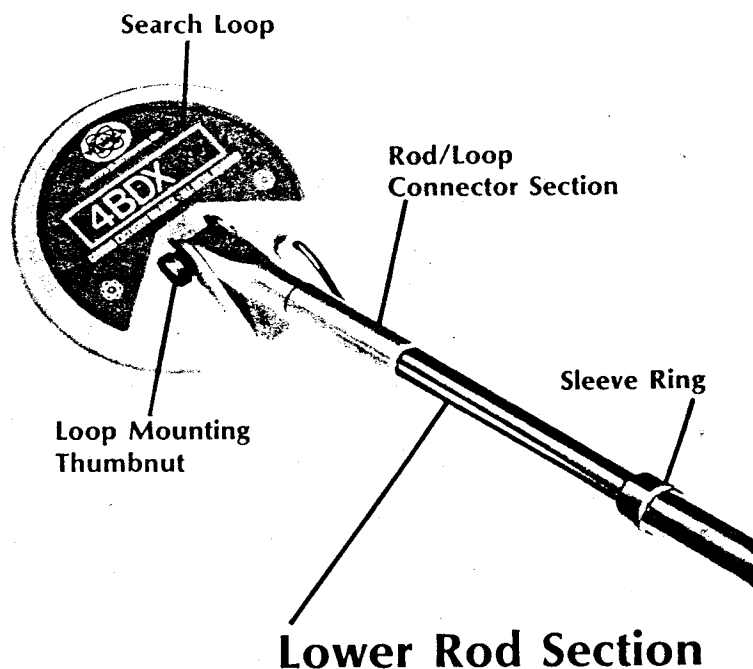
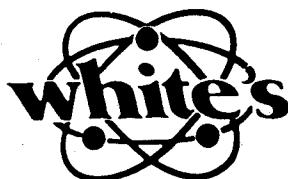
2. Any piece of fine equipment is only as good as the person operating it. Right now your detector is "smarter" than you, so you've got some catching up to do. Become very familiar with your instrument. Practice as much as you can. Soon it will become a part of you.

You and your metal detector will make an outstanding team. We've known many "shooters" who could follow in the tracks of others and find buried coins and rings the others had missed. You've got the equipment to out-shoot most anyone. Now all you need is the practice.

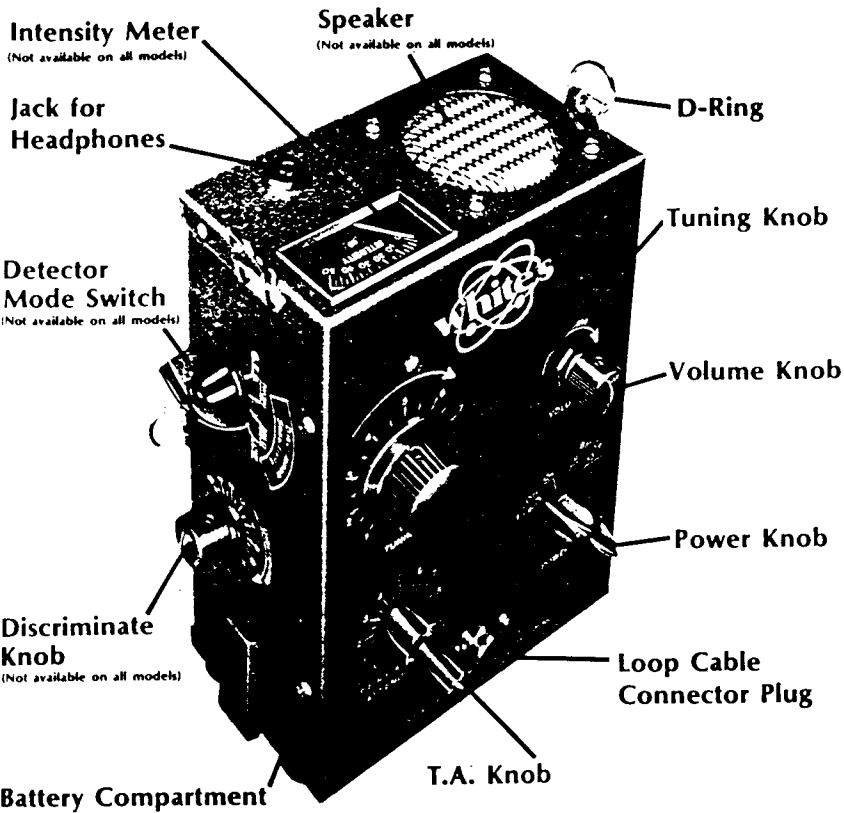
Good Hunting,

Kenneth White

Kenneth White, Sr.

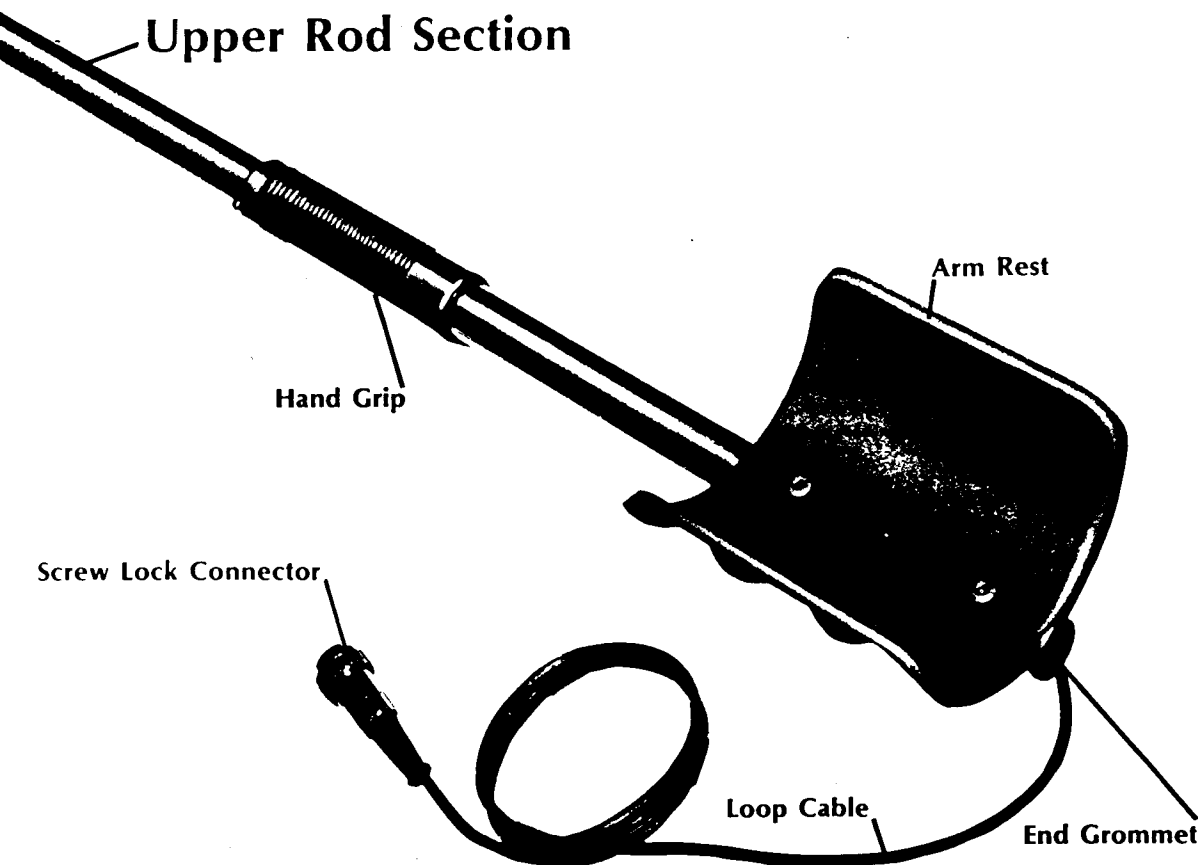


Check The Contents of Your Metal Detector Kit:



Your detector kit should contain the items listed below. If any parts are missing, contact your dealer at once. If you cannot do that, note the problem on the warranty card and send it back to the factory. In either case, your problem will receive prompt attention.

1. Probe consisting of:
 - a. search loop, with protective cover and loop cable attached
 - b. brass-colored lower rod section
 - c. brass-colored upper rod section with attached hand grip, plastic arm rest, and plastic end grommet
 - d. plastic rod/loop connector section (**Note:** Some units are shipped from the factory with this section already attached to the search loop.)
2. Instrument and adjustable carrying strap
3. Small Jiffy Bag containing:
 - a. white battery pack (eight batteries)
 - b. black battery pack (six batteries)
 - c. coin and mineral samples
4. Large envelope containing:
 - a. Assembly and Operating Instructions
 - b. Warranty statement and card



Assembly Instructions

1 Note that the upper and lower rod sections are already partially assembled. To complete their assembly, grasp the lower rod section in one hand and the upper rod section in the other. Insert the lower rod section a few inches into the upper rod section.

2 While holding the upper rod section, screw the sleeve ring tightly over the threaded end of the upper rod section, locking the two sections firmly together. (*Illustration A*) To adjust the length of the probe, (1) loosen the sleeve ring, (2) adjust the upper and lower sections to lengthen or shorten the probe, (3) pull on the top end of the loop cable to prevent it from "bunching" inside the joined rod sections; and (4) retighten the sleeve ring.

3 You are now ready to attach the rod/loop connector to your search loop. If this was accomplished prior to shipping, however, simply proceed to Step 9.

4 Place your loop on a table. Using your left thumb and forefinger, unscrew and remove the black thumbnut, setting it to one side. Note how the brass flange bolt passes through the holes in both of the mounting flanges, and through two plastic washers. (*Illustration B*) Gently remove the flange bolt and the two washers, setting them to one side also.

5 Next, examine the plastic rod/loop connector end. Note that it has two circular depressions, one on either side. Insert the two washers into these depressions.

6 Now, steady the loop with your right hand and, grasping the connector section in your left hand, slowly lower the connector end down between the two mounting flanges until both pairs of holes are lined up. (*Illustration C*)

7 Grasp the brass flange bolt between the thumb and forefinger of your right hand and insert it slowly through the aligned holes. You may find it a bit difficult to align the holes so that the bolt slips through on your first try. If so, just push the rod a little deeper until the holes align.

8 Finally, using the thumb and forefinger of your left hand, screw the black thumbnut onto the brass flange bolt until it is *finger tight*. If it's too tight, the loop will not adjust to different angles. If it's too loose, the loop may not stay in position.

9 Next, grasp the rod/loop connector section in your left hand and the probe rod in your right hand. Align the two ends and insert the rod/loop connector section into the rod, about 3/4 inch. (*Illustration D*)

10 With your left thumb, depress the spring-loaded stud on the rod/loop connector section and push this section gently into the rod until the holes on both sections match up. The spring will then automatically force the stud through the hole, locking the two sections together.

11 Now, check the position of the arm rest/hand grip in relation to the loop. If they are out of alignment, hold the lower rod section in one hand and twist the upper rod section in the other until you have them aligned. Loosen the sleeve ring, if necessary, while you do this.

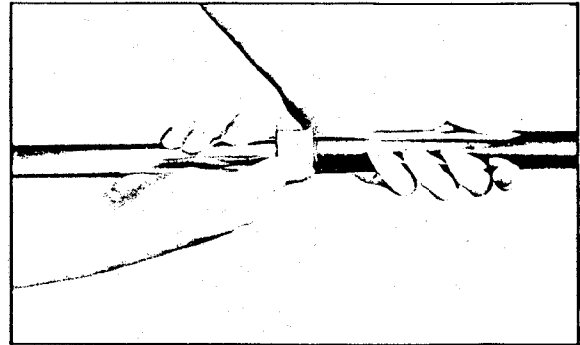


Illustration A

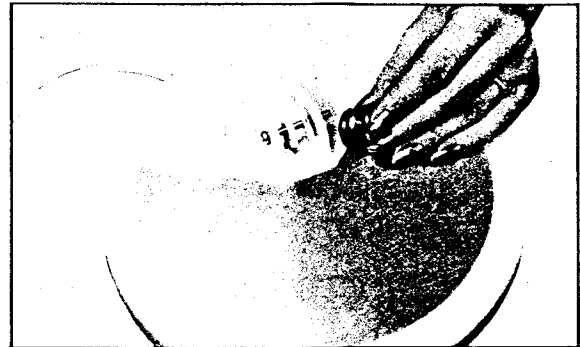


Illustration B



Illustration C

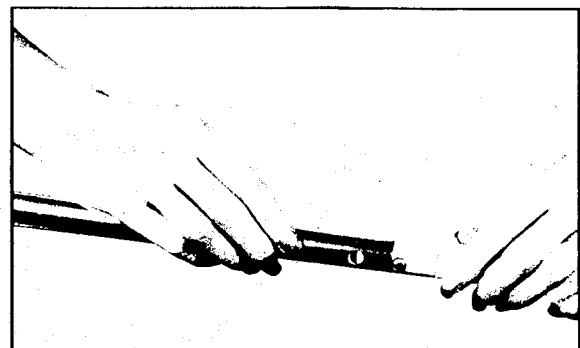


Illustration D

12 Your probe is now complete and you are ready to connect the loop cable to the instrument. Insert the screwlock connector into the plug on the instrument case. (Illustration E) There is only one way it will go in, so there's no need to force it. Simply turn the connector one way or the other until it slips in.

13 Now, using the same thumb and forefinger, push the locking ring over the connection and twist to lock the cable in place. Check this by trying to remove the connector from the plug. If it doesn't come out, it's locked in place.

14 Now you're ready to install your two battery packs. Set the instrument case on the table.

15 At the bottom of the case are two latches, one on either side of the case. Unsnap these, allowing the battery access door on the bottom of the instrument case to open.

16 Inside the opened case, you will notice two sets of red and black wires twisted together. Gently pull on both of these, so that the battery lead snaps on the ends of each red and black wire set are outside the case. Note that one twisted red and black wire set has a white battery lead snap end. The other has a black battery lead snap end. (Illustration F)

17 Now, examine the two battery packs. Note that each pack has a pair of button snaps. Snap the white battery lead snap to the white battery pack and the black battery lead snap to the black battery pack. Be sure each is snapped firmly in place.

18 Next, slip both packs into the plastic battery compartment. Keep the red and black wires outside the compartment. Make sure the snap ends of each pack face you and that snap ends are down. (Illustration G)

19 Slowly close the battery access door, tucking all the wires inside the case as you do. Lift up on each latch until the top of the latch is engaged and then firmly press the latch snugly against the side of the case.

20 You are now ready to prepare your instrument case for wearing in the hip mount position.

21 Take the adjustable carrying strap and pass it around your waist, adjusting the strap so that the two snap ends are about four inches apart. Remove the strap from around your waist and attach one end of it to either of the "D-rings" on the upper part of the instrument case.

22 Now, lift up the instrument case, rest it on either hip, and pass the free end of the strap around your waist. Snap the free end onto the other "D-Ring" located on the opposite side of the instrument case. (Illustration H)

23 The instrument case should be resting comfortably against your hip. The strap should not be too tight or too loose. If you need to make a slight adjustment, unsnap one of the strap ends, tighten or loosen the strap, and snap it back in place.

24 Your new detector is fully assembled and ready to use.

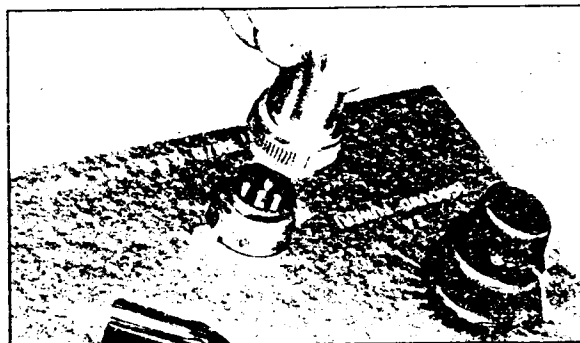


Illustration E



Illustration F

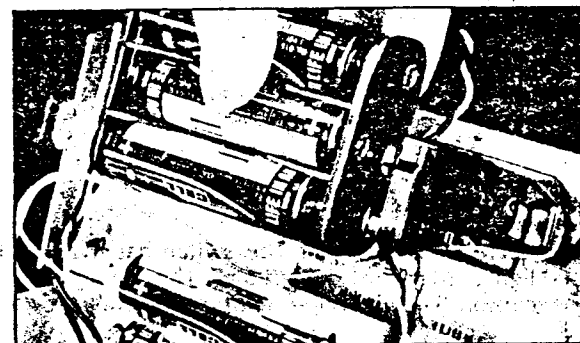


Illustration G

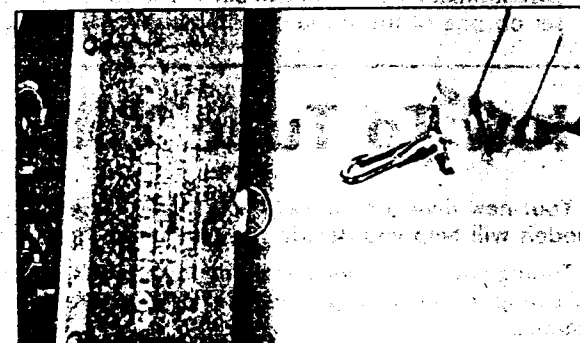


Illustration H

Operating Instructions

Familiarizing Yourself With Your Detector

First, examine the instrument case, which contains the following items, and compare it with the photograph on page 3 of this manual.

Power Switch: This switch has four positions: "Off/1-cell", "On", "Bat. Ck. 9" and "Bat. Ck. 12". "Off/1-cell" is the position to use when you want to turn the detector off, or when you want to check the condition of one of your batteries. "On" is the normal operating position of the switch. "Bat. Ck. 9" is the position to use when you want to check the condition of your small, black battery pack. "Bat. Ck. 12" is the position to use when you want to check the condition of your large, white battery pack.

Intensity Meter: This meter has two uses. The signal coming from the loop goes to the speaker *and* to the meter. You can listen for the telltale sound of a buried object *and* you can watch for it on the meter. When the indicator needle moves, the loop may be over a buried object. The other use is for testing your two battery packs or individual batteries. For this use, the meter is used in conjunction with the *Power Switch*. (**Note:** Some units incorporate a *Battery Check Meter* instead of this meter. Other units simply utilize a different style *Intensity Meter*.)

Tuning: This knob is used to help tune the detector in the air. Note that it has a graduated scale around the outside of the knob which you can use as reference points to aid you in tuning. You may find that this is a "Ten-Turn Control" knob which takes ten turns to turn it all the way from its "lowest" position to its "highest" position. It may actually have no definite stopping points. When you've reached the highest or lowest point, the knob may simply become a bit more difficult to turn. This *drag* is the same as a definite stopping point.

T.A. (Terranean Attenuator or Ground Tuner): These two stacked knobs are used to help tune the detector on the ground. There is a graduated scale around the outside of the knobs for use as reference points to aid in tuning. Notice that one full turn of the bottom knob produces ten full turns on the top knob. The bottom knob is used for *coarse tuning*. The smaller top knob is used for *fine tuning*. Notice, also, that this may be a "Ten-Turn Control" knob, too.

Speaker: The round, brass-colored grill near the back of the case covers the speaker. (**Note:** Not available on Model "G.E.B. 1." Unit shipped with headphones.)

Volume: This knob is used to increase the volume of sound coming from the speaker, from a set of headphones, or from an earplug. The arrow marked "Increase" shows the correct direction to turn the knob to make the sound louder.

Jack: This is the hole into which you can insert the plug on headphones or an earplug.

Detector Mode Switch: This switch has four positions. Three are for setting the sensitivity in the discriminator mode, "High", "Medium", and "Low". The other position is "G.E.B." which is used for normal detecting activity or the Ground Exclusion Balance mode. (**Note:** Not available on all models.)

Discriminate: This knob will allow you to select different amounts of discrimination when your *Detector Mode Switch* is set on one of the three discriminator modes: high, medium, low. (**Note:** Not available on all models.)

How To Tune Your Detector

Your new detector will help you locate buried metal or mineral objects, and the discriminator circuit available on some models will help you decide on whether or not to dig them up.

Tuning your instrument properly is extremely important, as you would expect, considering how versatile it is. Read the following instructions carefully and practice the various tuning procedures until you can do them without looking at this manual.

One more thing: Always tune your instrument out-of-doors. That way you won't get unwanted interference from metal objects used in the construction of your home.

G.E.B. Tuning

This tuning is used to detect buried ferrous or non-ferrous objects. Ferrous objects are those that contain *mostly* iron. We call them MINERALS. Sometimes these objects are metallic (nails, horseshoes), and sometimes they are not (black sand for prospecting). You should note, however, that your detector—when tuned according to the instructions—will not detect non-metallic objects.

Non-ferrous objects are those that contain little or no iron. We call them METALS. Gold, silver and copper coins, brass, lead and platinum are all METALS.

Follow these steps for G.E.B. Tuning:

1. While standing, let the loop rest flat on the ground. If your instrument has a built-in Discriminator, be sure you have set the *Detector Mode Switch* to "G.E.B."
2. Turn the *T.A.* knob so that the pointer points to "5". Turn the *Tuning* knob all the way to the left (counter-clockwise) until it stops or begins to *drag*. If your instrument has a built-in Discriminator, be sure you have set the *Discriminate* knob all the way to the left (counter-clockwise) to "0".
3. Turn the *Volume* knob all the way to the right (clockwise), in the direction of the arrow. If you are wearing headphones, however, you only need to turn this control a small amount to the right (clockwise).
4. Turn the *Power Switch* to "On".
5. Raise the loop until the rod or probe is parallel to the ground, or the loop is two to three feet off the ground. At this point, there will be *no sound* coming from the speaker or headphones. (*Illustration I*)
6. Now, turn the *Tuning* knob to the right (clockwise), in the direction of the arrow, until a tone appears. Slowly turn the knob back to the left (counter-clockwise) until the tone *almost* completely goes away. This *faint* sound is the *Threshold Tone*, and this step is called *Air Tuning*.
7. Next, lower the loop again, letting it rest flat on the ground. Do not force it against the ground.
8. The *Threshold Tone* you've been hearing will now do one of three things: a) it will *increase* in volume; b) it will *decrease* or *disappear* completely; or c) there will be virtually *no change* in the volume.
 - a) If the sound *increases*, then turn the top *T.A.* knob slowly to the left (counter-clockwise) until the tone *almost* completely goes away. If this does not occur, however, within a very short time (about ¼-turn), simply stop and proceed to Step 9. This is called *Ground Tuning*.
 - b) If the sound *decreases* or *disappears*, then turn the top *T.A.* knob slowly to the right (clockwise) until the sound reappears. If this does not occur, however, within a very short time—about ¼-turn—simply stop and proceed to Step 9. Now, turn the top *T.A.* knob slowly back to the left (counter-clockwise) until the tone is *almost* completely gone again. This is called *Ground Tuning*.
 - c) If there is virtually no change, then your detector is properly tuned and ready for G.E.B. use.
9. Now raise the loop back into the air and reset *Air Tuning*. This is done by simply turning the *Tuning* knob to the right (clockwise) as needed in order to restore the faint *Threshold Tone*.
10. Again, lower the loop back to the ground and reset *Ground Tuning* (Step 8).
11. Repeat Steps 9 and 10 until there is virtually no difference in the volume of sound coming from the speaker or headphones as you raise and lower the loop. Three or four repetitions of these steps should be sufficient.
12. Your detector is now properly tuned and ready for G.E.B. use. Remember, though, if you move to a different search area, you may have to retune your instrument. To do so, simply follow the steps described above.

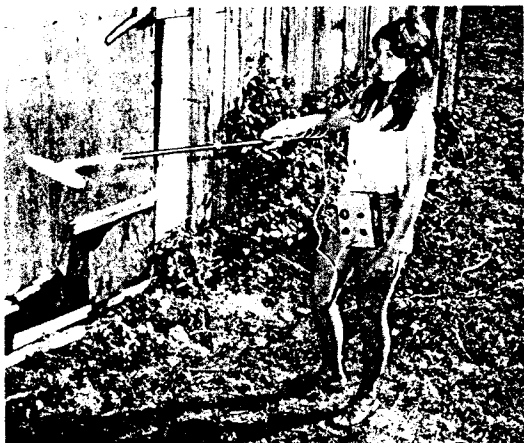


Illustration I



Illustration J

Using Your Detector in the Discriminate Mode

Once you have located a buried object using G.E.B. operation, you can use the Discriminate mode available on some models to help you decide whether you should dig it up.

The Discriminate function will help identify small *junk* items (bottle caps, tin foil, gum wrappers, nails and the like). It will also identify ferrous objects regardless of size. Remember, a ferrous object is one made mostly of iron (belt buckles, cannon balls, chunks of scrap iron, tin cans and the like).

If you are searching for coins, rings or jewelry on a beach or in a park, then you will probably want to use the Discriminate function to help you eliminate both the small *junk* items and the ferrous objects.

On the other hand, if you're searching on an old Civil War battlefield for relics (swords, cannonballs, rifles and the like), or if you are prospecting, then you would not want to use the Discriminate function as that eliminates these ferrous objects, as well as the *junk* items.

Follow these steps for Discriminate Operation:

To simplify matters here, we will consider both small *junk* items and ferrous objects as MINERALS, even though many *junk* items are not made mostly of iron.

1. Turn the *Detector Mode Switch* to the "High" Discriminate Sensitivity position, be sure the *Discriminate* knob is set all the way to the left (counter-clockwise) to "0".
2. While standing, let the loop rest flat on the ground, just along side the spot where you located the object.
3. Turn the *Tuning* knob all the way to the right (clockwise) until it stops or begins to drag. A loud tone should then come from the speaker or headphones.
4. If you do not hear a loud tone, move the *Detector Mode Switch* to the "Medium" Discriminate Sensitivity position. If there is still no sound coming from the speaker or headphones, then set the *Detector Mode Switch* on the "Low" position.

(The reason there may be no sound while in the "High," or sometimes "Medium" position, is that the ground ranges from heavy mineralization to extremely heavy mineralization. It will be most unusual if you ever have to set the switch in the "Low" position. But, regardless, you want to hear a tone from the speaker or headphones because it is this tone that will help you discriminate in your "shooting".)

5. Now that you have a loud tone, turn the *Tuning* knob slowly back to the left (counter-clockwise) until the sound almost completely goes away. This faint sound is called the *Threshold Tone*.
6. Next, pass the loop over the exact spot where you first received a reading that an object was buried. If the sound fades or disappears, the object is MINERAL and probably a bottle cap or small nail.

(Note: The object could be MINERAL even if the tone did not fade or disappear. You can determine this by increasing the amount of discrimination as described below.)

Adjusting Discrimination

With the *Discriminate* knob set on "0", your detector will discriminate against such items as bottle caps and small nails while in Discriminate modes. You can, however, increase the amount of discrimination by advancing this control to the right (clockwise).

For example, by setting the *Discriminate* knob at about "4" you can discriminate against pull tabs and foil. You should note, however, that at this setting you will also discriminate against such objects as nickels and rings. By turning the *Discriminate* knob even further to the right (clockwise), you can rule out larger items like aluminum screw caps, tin cans and large chunks of iron. But at the same time, you will eliminate most single coins.

Generally, you can determine through practice just how far the *Discriminate* knob needs to be turned in order to eliminate various types of MINERAL objects. You should, therefore, avoid turning it further than absolutely necessary, as this will result in discriminating against other objects for which you may be searching.

After you have identified the type of object you have located, decided whether or not to dig, and are finally ready to resume searching, you should retune your instrument in the G.E.B. mode, as described earlier in this manual.

Searching with Your Detector

To locate hidden or buried objects with a properly tuned detector, systematically sweep the loop from side to side across the area you are working. (*Illustration J*, page 7) The larger the diameter of your loop, the more area you can cover in a single sweep and the faster you can search an area. For example, with an eight-inch loop you should take four-inch steps, moving the loop ahead the same amount after each sweep. For maximum performance when searching, you should always try to keep the loop at a constant level and as close to the ground as possible, *following the tuning instructions described earlier in this manual.*

You should note that you can also search an area with your detector in the Discriminate mode. The Discriminate function, however, tends to work best in areas of lighter mineralization and in areas where the ground is relatively smooth and even, thereby allowing you to search with the loop *flat* on the ground or *just barely* above it.

Should you decide to search an area with your detector in the Discriminate mode, use the same searching procedures as described above. *But first, tune your instrument as follows:*

1. Tune your instrument in the G.E.B. mode.
2. Follow Steps 1 through 5 for tuning in the Discriminate operation, but keep the loop *slightly* (about $\frac{1}{2}$ -inch) off the ground at all times.
3. Finally, lower the loop until it is *flat* against the ground and you are ready to begin searching with your detector in the Discriminate mode. It should now eliminate automatically MINERAL objects as previously described.

(**Note:** You should remember that if you are searching in an area of rough terrain (a plowed field for example), it may not be possible to search with your loop *flat* on the ground. In such cases, you should search with the loop *just barely* off the ground, after tuning your instrument *slightly* above the level at which you intend to search. Remember, also, that if the loop is raised above the height at which the detector was tuned, a loud tone may be emitted from the speaker. Yet, an unneeded loss of detection depth may occur if the instrument is tuned with the loop higher than necessary.)

All in all, the depth to which your instrument will detect in the Discriminate mode may depend on a number of factors: 1) The degree of mineralization in the ground. The less mineralization, the deeper it will detect. 2) The height of the loop during tuning and searching. The lower the loop, the deeper it will detect. And, 3) How carefully your detector is tuned. The more accurate the tuning, the deeper it will detect.

Finally, it is a good policy, no matter which mode you are using, to periodically stop and readjust the tuning of your instrument slightly. As you become more experienced, however, you will begin to notice—just by differences in the tone you hear—whether or not the tuning needs to be adjusted.

Listen for the Tone

The tone coming from the speaker or headphones will tell you where objects are located. When the volume of the tone increases, the loop is over the object. When the volume decreases, the loop has passed away from the object. The volume will be the loudest when the center of the loop is directly over the object. An exception to this rule, however, is a coin buried on edge. In this case, the volume will be loudest when the *edge of the loop* passes over the coin.

Another exception is a nail buried *flat*. To become more familiar with the sound of nails, place a large nail flat on the ground and pass the loop lengthwise high over it. Notice the *double sound* by which you can usually tell a nail or other long iron object is being detected. Notice, also, that you *lose this double sound* if you lower the loop or sweep it at a different angle. Thus, you can avoid digging up most unwanted nails if you test for the *double sound* by simply raising your loop slightly higher and passing it over the area at different angles.

Now, place a quarter flat on the ground and pass the loop over it at different heights. Notice that if the loop is too low, there is a *multiple sound* similar to the sound of nails as described above. This, therefore, is another reason to raise the loop slightly after first locating a buried object.

Finally, large or small increases in the volume of the tone are usually caused by one of three things when detecting an object: 1) the size of the object; 2) how deeply the object is buried; or 3) a combination of the two. Generally, the larger the object, the greater the increase in volume. The deeper it is buried, the smaller the increase. Thus, a single coin—deeply buried—may cause only a slight increase in volume, while a large object—buried just as deeply—may cause a much larger increase.

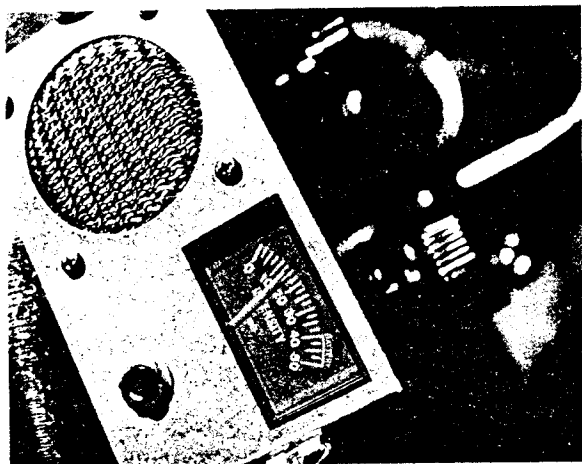


Illustration K



Illustration L

Watch the Meter

The indicator needle on the *Intensity Meter* is very sensitive to change. It will register buried objects that you might miss by just listening to the tone from the speaker. The meter will always provide a visual reading to match sound readings, even if you cannot hear a difference in the tone. So, keep an eye on that meter; it could be very important. (Illustration K)

Practice Makes Perfect

Here are a few ideas to help you practice and sharpen your "shooting" skills:

1. Place a small object (the sample that comes with your detector kit), a medium-sized object (a tin can lid will do nicely), and a large object (a frying pan from the kitchen) out on the lawn. Leave a few feet between them. Following the instructions given earlier, tune your instrument. Pass the loop over each object, noting how much the volume increases or decreases as you move from object to object. (Illustration L)
2. Take two quarters. Place one on top of the grass. A few feet away, dig a small hole, no more than two inches deep, and bury the other coin. Tune your instrument and pass the loop over the coin on the surface, then over the buried coin. Note how the volume increases or decreases as you move from one to the other.
3. Plant a test garden. To become better acquainted with various kinds of buried objects, bury some metal items at known depths. Make sure your test garden is located where you can get to it easily. It's best to make a map of the area, showing what is buried and its depth. Your test garden will help you practice and will also provide a handy method of periodically checking the performance of your instrument.

Proper Care Of Your Detector

The following are precautions you should take to protect your instrument from harm, insure its long life, and avoid nullifying the warranty.

Cleaning: The loop and rod or probe are waterproof. They can be cleaned with fresh water and a mild cleanser. After cleaning, however, dry the instrument thoroughly. *Caution!* The instrument case is not waterproof, and water—if allowed to enter it—may damage electronic components.

Weather Conditions: Protect your detector from excessively cold weather. Freezing can damage the electronic components, the case and/or the batteries. Excessive heat can also damage the instrument. Never leave it in the sun. It's best to lay it in the shade when temporarily not in use. If it's left in a car on a hot day, cover it with a blanket or something similar to protect it from the direct rays of the sun, and then leave the windows slightly open to permit ventilation. Needless to say, protect your detector if you operate it in the rain, as water may get into the instrument case.

Salt Water: Salt water is very corrosive! Immediately after your detector has been exposed to salt water, rinse it thoroughly with fresh water, being careful not to allow water to enter the instrument case. Then wipe it with a cloth dampened with fresh water and dry it thoroughly.

Storage: if you plan to store your detector for any length of time, unsnap the battery pack, remove it from the instrument and take the batteries out of the holder. Whenever your detector is not in use, turn the *Power* knob all the way to the "Off" position.

Batteries

Batteries are the lifeblood of your instrument. Your white battery pack holds eight 1½-volt AA penlight batteries. Your black battery pack holds six 1½-volt AA penlight batteries. (*Illustration M*) These are available at drug and grocery stores almost everywhere. Any brand will work well, although many "shooters" recommend the alkaline type for longer life.

To change batteries, first remove the battery pack from the instrument. Before you remove any batteries examine the pack. Note the exact position of each battery and the position of the battery lead snaps. Your detector will not work unless the batteries are properly installed and the battery lead is properly connected.

Each battery has a positive (+) end and a negative (-) end. The plus (+) and minus (-) symbols are clearly marked on all batteries. Remove one of the batteries from the battery pack. Notice that the slot from which it was removed also has the positive (+) and negative (-) symbols clearly marked.

To replace the batteries, simply match the plus (+) and minus (-) symbols on the new battery with the plus (+) and minus (-) symbols on the battery snap, and then snap the new battery into place.

The battery lead snaps must also be matched to the button snaps on the pack—plus (+) to plus, minus (-) to minus—before you reconnect the power cable.

Your detector is designed so that you can test (1) the full white battery pack, (2) the full black battery pack, or (3) each battery, one at a time.

1. To test the full white battery pack:
 - a. Set the *Power* switch to the "Bat. Ck. 12" position.
 - b. Turn the *Volume* knob all the way to the right, in the direction of the arrow, so that the volume of sound coming from the speaker is as loud as it can be. Adjust the *Tuner* knob if necessary.
 - c. Observe the *Intensity Meter*. Notice the area on the dial which has the words "Bat. Check" printed on it. If the indicator needle moves into that area and stays there for three or four seconds, your pack is in good condition. If it does not move into the "Bat. Check" or "Battery" area, or it moves there for only a second and then drops back down, your pack is weak. (**Note:** On models with *Battery Check Meters* only, the needle should register in the "Bat." zone.)
 - d. If your pack is weak you will have one or more weak batteries. See the instructions below for testing a single battery.
2. To test the full black battery pack:
 - a. Set the *Power* switch to the "Bat. Ck. 9" position.
 - b. Follow the steps listed above for testing the white pack.
3. To test a single battery:
 - a. Open the battery access door at the rear of your instrument case by unsnapping the side latches.
 - b. Remove the white battery pack (if it is the pack that tested as being weak), or the black battery pack (if it is the weak pack).
 - c. Now, remove a single battery from the weak pack.
 - d. Notice that the battery access door has a receptacle designed to hold one battery. Match the positive (+) end of the battery with the positive (+) end of the receptacle and press the battery into place. (*Illustration N*)
 - e. Observe the indicator needle on the *Intensity* or *Battery Check Meters*. If it moves into the Bat. Check area and stays there three or four seconds, the battery is good. If the needle fails to move into the area or drops out of it after a second, the battery is weak and should be discarded.
 - f. Repeat this entire procedure to test each individual battery in the weak pack. When you have located all the weak batteries and discarded them, snap new ones in their place and replace the battery pack in its proper position in the battery pack compartment.

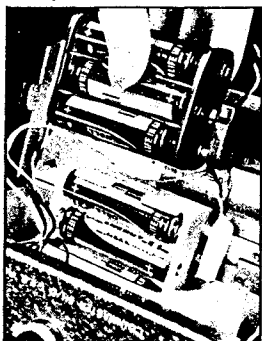


Illustration M



Illustration N

Prolonged use of your detector will cause a severe drain on your batteries. It's best to turn the power off from time to time during the day of "shooting". This gives you a chance to take a break and it gives your batteries a rest. In a few minutes both you and your batteries will be ready to go again.

If you plan to store your detector for several weeks or more, it would be wise to keep the batteries in the refrigerator. Doing so will prolong their lives. Also, it's a good idea to carry an extra battery pack and some spare batteries with you on outings.

What Will Your Instrument Detect?

Silver, lead, copper, bottle caps, tin foil, cartridge cases, rings, brass and tin cans are just a few of the highly conductive objects that will cause a response in your speaker or headphones. Your instrument, however, will not detect sticks, rags, bones, paper, wood or other non-metallic objects.

The longer many metal objects have been buried, the better you may be able to detect them. A chemical reaction between such objects as silver or copper coins and the surrounding soil often creates a "halo" effect. This "halo" may cause your detector to register a much larger increase in volume than might otherwise be expected for a small coin. The "halo" can actually help you detect better! In fact, if the "halo" is strong enough, your instrument may continue to register even after you have dug up the coin.

Some Thoughts on Ethics

Treasure hunting is the kind of new hobby that fires the imagination and generates its own enthusiasm. It's the most natural thing in the world to dig as fast as you can the minute you hear that first loud, unmistakable signal. It will be a real thrill to discover what treasure is right beneath your feet.

But stop a minute! Be a little far-sighted and consider the long-run, too.

We strongly urge you to adopt a code of ethics which will preserve the environment and also the rights of treasure hunters to operate detectors with as few restrictions as possible.

Before you even begin a search, check the law, ordinance or regulations about hunting on publicly owned sites. Abide by the rules. If the area is private property, get written permission from the owner to search it. You may find he will be more eager to give permission if you suggest sharing your finds with him, or if you offer to search for a specific item he has lost.

About digging: in lawn areas use a screwdriver of no more than six or eight inches as your tool. Limit the size of the hole to a maximum of two inches in diameter, cutting a plug of sod which can be easily replaced after you make your find and fill the hole. Leaving holes is both unsightly and dangerous!

Detectors or detector modes designed for locating large and deeply buried objects should be used with discretion—never in lawn areas, and with careful judgment in other locations. Consider the scar you may leave by your digging before you start. This will vary a lot from one part of the country to another, depending on local soil and climatic conditions.

Public officials and private property owners will be much more likely to allow continued treasure hunting if you do no environmental damage. You may even be able to increase your reputation as an ethical hunter by volunteering to carry out and dispose of whatever trash items you find.

Adoption of these attitudes can only enhance the public's opinion of treasure hunters and assure that many areas, both public and private, remain open to you and your new detector.

Service And Warranty Information

If your new metal detector is ever in need of service, ship it to us at the factory address below or to one of the Service Centers listed on the back of the warranty statement. Insure it fully, prepay the charges and enclose a letter describing the nature of the problem. As long as your detector is under warranty, there is no charge other than a small handling and postage fee.

Read your warranty card carefully. It describes completely what is covered and the length of the coverage. If you have any questions, don't hesitate to write us. We will be happy to answer any questions you may have.



White's Electronics, Inc.

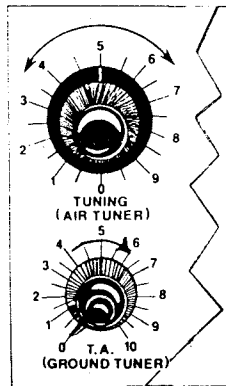
1011 Pleasant Valley Road, Sweet Home, Oregon 97386, U.S.A.

ALTERNATE GEB TUNING PROCEDURES

Note: Familiarize yourself with controls (see page 6 in instruction manual).

INSTANT CONTROL CHECK: This is to check that your GEB controls and search loop are operating correctly. Follow this procedure to complete the control check.

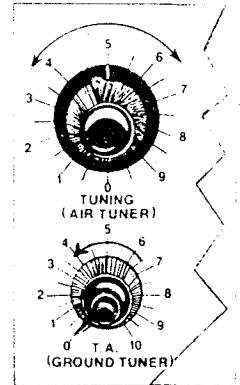
1. Set the Detector Mode Switch to the GEB position; turn the volume control knob fully in the direction of the arrow (to the right); and turn the instrument to the "ON" position.
2. Hold the loop 6" to 8" in the air; set the T.A. Knob (ground tuner) fully clockwise (right) and adjust the tuning knob (air tuner) for a slight tone from the speaker. The tuner must be turned clockwise to increase or reach the tone or counter-clockwise to reduce the tone.



Lower the loop to the ground. **THE TONE SHOULD GET LOUDER!**



3. Raise the loop again 6" to 8". Turn the T.A. knob fully counter-clockwise (left) and readjust the tuning knob (air tuner) for a slight tone from the speaker.



Lower the loop to the ground. **THE TONE SHOULD GET QUIETER!**



KEEP CLEAR OF ANY BURIED OBJECTS

You have now completed the control checks and may

proceed with the Dynamic GEB Tuning procedures below.

DYNAMIC GEB TUNING

With the T.A. Knob (ground tuner) turned **clockwise** (right), lowering the loop to the ground caused the tone to get LOUDER.

With the T.A. Knob (ground tuner) turned **counter-clockwise** (left), lowering the loop to the ground caused the tone to get QUIETER.

Between these two T.A. positions, however, there is a setting where the ground will have no effect on the tone as the search loop is raised and lowered, and where the sensitivity is the greatest. This is the setting that you must find. You will need to adjust the Air Tuner for a slight tone, and the T.A. (ground tuner) alternately, several times in succession. As you search for the setting remember the 6 rules below.

DYNAMIC GEB TUNING RULES TO REMEMBER.

- Rule 1. Start with the T.A. (ground tuner) near the center of its range (at 5 or 6) because this is usually close to the correct setting.
- Rule 2. It doesn't matter what happens to the tone level when you turn the T.A. (ground tuner), it

only matters what happens to the tone when the loop is being lowered to the ground. (The tone will either increase, decrease or remain the same.)

- Rule 3. The AIR TUNER may be used at anytime to tune for a slight tone so you can listen for the tone change when the loop is lowered to the ground. The tuner must be turned clockwise to increase the tone or reach the tone or counter-clockwise to reduce the tone.
- Rule 4. If lowering the loop makes the tone get louder, turn the T.A. (ground tuner) to the left. **DON'T FORGET RULE 2.**
- Rule 5. If lowering the loop makes the tone get quieter, turn the T.A. (ground tuner) to the right. **DON'T FORGET RULE 2.**
- Rule 6. As you get closer to the correct setting the ground affects the tone less as the loop is being lowered. When you seem to be close to the correct setting, turn the T.A. (ground tuner) in smaller steps ($\frac{1}{4}$ turn or less of the small top knob). You have gone past the correct setting if the tone goes the other way when the loop is lowered. With a little experience you will be able to tell about how far the T.A. (ground tuner) needs to be turned.

S P E C I A L N O T I C E

You need not be concerned if the instrument you have just received appears slightly different from the one pictured in White's catalog or the enclosed instruction manual.

We are now in the process of updating certain instrument labels, such as decals on search loops, but you may rest assured that you have been shipped the most up-to-date production model, according to your recent order.

The instruction manual included in this package was designed for all models utilizing the same circuitry as your new metal detector. While your specific unit may not be pictured, you will find this book the most comprehensive and accurate set of instructions available.

Proper Care of Your Detector

The following are precautions you should take to protect your instrument from harm, insure its long life, and avoid nullifying the warranty.

Cleaning: The loop and rod or probe are waterproof. They can be cleaned with fresh water and a mild cleanser. After cleaning, however, dry the instrument thoroughly. Caution! The instrument case is not waterproof, and water—if allowed to enter it—may damage electronic components.

Weather Conditions: Protect your detector from excessively cold weather. Freezing can damage the electronic components, the case and/or the batteries. Excessive heat can also damage the instrument. Never leave it in the sun. It's best to lay it in the shade when temporarily not in use. If it's left in a car on a hot day, cover it with a blanket or something similar to protect it from the direct rays of the sun, and then leave the windows slightly open to permit ventilation. Needless to say, protect your detector if you operate it in the rain, as water may get into the instrument case.

Salt Water: Salt water is very corrosive! Immediately after your detector has been exposed to salt water, rinse it thoroughly with fresh water, being careful not to allow water to enter the instrument case. Then wipe it with a cloth dampened with fresh water and dry it thoroughly.

Storage: If you plan to store your detector for any length of time, unsnap the battery and remove it from the instrument. Whenever your detector is not in use, turn the **VOLUME** knob all the way to the **"PWR OFF"** position.

Service And Warranty Information: If your new metal detector is ever in need of service, ship it to us at the factory address below or to one of the Service Centers listed on the back of the warranty statement. Insure it fully, prepay the charges, and enclose a letter describing the nature of the problem. As long as your detector is under warranty there is no charge other than a small handling and postage fee.

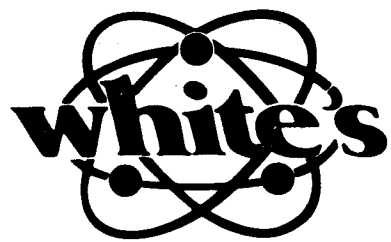
Read your warranty card carefully. It describes completely what is covered and the length of the coverage. If you have any questions don't hesitate to write us. We will be happy to answer any questions you may have.

HELPFUL HINTS AND TIPS

1. "How deep will it go?" Detection depth is determined by five main factors.
 - a. The **SIZE** of the object.
 - b. The **SIZE** of the loop.
 - c. The **LENGTH OF TIME** the object has been buried.
 - d. The **SKILL** of the operator.
 - e. The ground **MINERAL CONTENT**.

The longer an object has been buried, the better you will be able to detect it. A chemical reaction called a "halo effect" between such objects as silver or copper coins and the surrounding soil may cause your detector to register a much larger increase in volume than might otherwise be expected for a small coin. If the halo effect is strong enough, your detector may continue to register even after you have dug up the coin.

2. "What will my detector locate?" Silver, lead, copper, bottle caps, tin foil, pull tabs, cartridge cases, rings, brass and tin cans are just a few of the conductive objects that can be detected. Your detector will not locate sticks, rags, bones, paper, wood or other non-metallic objects.
3. Learn how to interpret the different types of responses from your detector. A nail lying flat in the ground will sometimes produce a double or single reading depending upon whether your loop passed across it lengthwise or across its width. So it's a good idea to sweep your finds from several different directions to try to learn as much as possible about the object you have located. Coins will usually only produce one reading regardless of sweep direction.
4. Rather than waste time, check around the trees for junk items such as foil, pull tabs, bottle caps, etc. This will frequently indicate whether or not someone has already been in the area with a detector.
5. Always "criss-cross" an area when hunting it.
6. After you have dug up a coin, always check the hole again for more. As many as 10 coins have been found in one hole!
7. When beachcombing the best place to look for coins is near the concession stands.
8. Check the shallow water in swimming areas. Most rings and coins are lost when people enter the water.
9. If you make plans for coinshooting, check the history records of the area.
10. Always carry a plastic bag for your detector in case you get caught in the rain.
11. Never ask permission to treasure hunt over the phone. People tend to visualize you using a pick and shovel, making large holes.
12. Join a local historical society or get acquainted with its members.
13. In lawn areas, use a screwdriver of no more than eight inches as your tool. Limit the size of the hole to a **MAXIMUM** of two inches in diameter. Don't forget to fill in the hole. Public and private officials and property owners will be more likely to allow continued treasure hunting if you do no environmental damage.



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