

# 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

# B E A C H C O M B E R 5 D I S C R I M I N A T O R

\*(Temporary Instructions)

- \* A comprehensive instruction book is being compiled and should be available in about 60 - 90 days.

## INTRODUCTION

We do not believe you can buy a finer instrument than you have chosen for the use the instrument is designed for, but remember the instrument is no better than its operator, (even though we have heard customers say the instrument was smarter than they). You are the operator, and the more familiar you become, through use and practice, the better operator you will be. The better the operator, the more finds you will make.

## GENERAL DESCRIPTION

These instruments are completely transistorized (solid state), giving maximum sensitivity, excellent reliability, and economy in operation. They are designed specifically for coin hunting, but have features which allow them to be used for general exploration.

The audio system is complete, offering both earphone and speaker operation.

This instrument employs the balanced induction principle of operation, the loop being the heart of this system.

This instrument has a sensitive meter for good reaction on finds as well as for testing the batteries.

Batteries used are penlight, size "AA" 1-1/2 volt cells. Six are required for operation.

The Beachcomber Discriminator incorporates: a power switch, which also is used to control the volume; a ten turn metal/mineral tuner; and a discriminator control.

## ROD AND LOOP ASSEMBLY

After unpacking your instrument, check the tightness of the screw for the adjustable loop. Tightening this screw limits the ability of the loop to change position in relation to the rod. The loop should be adjustable to different angles, and yet hold desired position. Mount the loop at half-way adjustment point (90° to the rod) during assembly.

Next, lengthen the rod sections so they are in the fully extended position by depressing the Spring Clip Buttons and advance the Small Rod Section until the Spring Clip Buttons lock into the last pair of Retaining Holes.

Mount the loop to the Rod by depressing the Spring Clip Button on the Plastic Isolator and then insert the Isolator into the Small Rod Section until it locks in place.

Slide the Large Rod Section over the Rod Holder by depressing the Spring Clip Buttons and aligning the holes until the Rod locks into place.

Next spiral the loop cable around the rod, and plug the loop cable into the socket on the front end of the instrument. The plug and socket are keyed to allow mating with only the correct pin alignment.

### POWER SWITCH/VOLUME

Turn the knob labeled "POWER" clockwise (right) until you hear a "click". This will apply power to your instrument.

Adjust the VOLUME by turning this same control further clockwise to the limit (about 3/4 of a turn). This is the FULL VOLUME position. When you adjust this control you will be adjusting the loudness of either the speaker or whatever is plugged into the headphone jack. Therefore when using headphones be sure to decrease the loudness (volume) to a compatible level by turning the control counter-clockwise (left).

### A NOTE ON HEADPHONES

Greatest sensitivity or penetration is realized when using headphones. You cannot detect well when you cannot hear the audio changes properly. Headphones concentrate the sound and reveal faint audio changes that could not be heard without them. Also, many people have hearing problems that headphones help overcome. They are worth the extra money.

### BATTERY CHECK

To check your batteries, procede as follows:

- (1) Be sure the "POWER" switch is "ON".
- (2) If the instrument is "SOUNDING OFF" turn the knob marked "TUNER" clockwise until it is quiet. You should not have to turn this control more than (5) turns.
- (3) Now, push the small red button on the control panel and observe the meter reading. The meter should read between 40 and 50 for good batteries. If your batteries are weak they may read "GOOD" for two or three

seconds, so be sure to leave the button depressed for five (5) or more seconds. To replace batteries follow the procedure outlined below.

### BATTERIES

To gain access to the battery compartment, hold the instrument as shown in the picture on Page 8. Place your thumb or fingertips on the rear compartment door labeled, "PRESS". Press inward to unlatch the lock and then slide the door down. The door will then be open to allow removal of the battery pack.

Be sure, when replacing batteries in battery holder, to maintain proper battery polarity. If your instrument does not operate after installing new batteries, check each battery polarity carefully. For prolonged periods of detector storage (several weeks or longer) it would be wise to store the battery pack in your refrigerator. Also, it is wise to have an extra battery pack or extra batteries along on outings.

### INITIAL SETUP

Set the controls on your instrument as follows:

- (1) POWER/VOLUME - ON AND MAXIMUM CLOCKWISE.
- (2) TUNER - 10 full rotations CLOCKWISE (there is no stop on this control)
- (3) DISCRIMINATE CONTROL - 10 full rotations (turns) COUNTER-CLOCKWISE.  
(The Discriminate Control is on the side of the meter housing)

### METAL OPERATION

To adjust for NON-FERROUS metals (metals that contain very little or no iron) such as gold, silver, copper, aluminum, bottle caps, tinfoil, etc., follow INITIAL SETUP procedure and then proceed as below:

- (1) TUNER - Counter-clockwise (left) until the sound just starts. This is called the tone threshold. You are now ready to hunt in the METAL/MINERAL MODE of operation by following the directions in the section labeled "HUNTING METHODS AND TECHNIQUES".

To eliminate some of the unwanted items such as BOTTLE CAPS and TINFOIL, proceed to the section labeled "DISCRIMINATION OPERATION".

### MINERAL OPERATION

To adjust for FERROUS (contains iron) OBJECTS, such as iron, steel, black sand deposits for prospecting or if you wanted to clear a driveway of nails,

locate an iron pipe, etc, follow the INITIAL SETUP except in Step (2) the "TUNER" should be turned 10 full turns (rotations) COUNTER-CLOCKWISE. Then proceed as follows:

- (1) Turn the "TUNER" clockwise until the tone just starts (threshold). You are now ready to hunt in the MINERAL MODE of operation by following the directions in the section labeled "HUNTING METHODS AND TECHNIQUES".

#### DISCRIMINATOR OPERATION

To adjust for rejection of many of the unwanted junk items, such as bottle caps, tinfoil, nails, hairpins, etc., follow the "Initial Setup" and then proceed as below:

- (1) Turn the "TUNER" counter-clockwise until the tone just starts (threshold).
- (2) Turn the "TUNER" one more full turn from the threshold (counter-clockwise).
- (3) Now, turn the "DISCRIMINATE" control clockwise until the loud tone is back to the threshold (tone starting point).
- (4) Hold a bottle cap near the center of the loop bottom and notice that the tone goes away, while holding a quarter near this same spot will cause the tone to get louder. For a more precise adjustment continue with Steps (5), (6), and (7).

NOTE: There is a place just off the center of the loop where the bottle cap will cause a sharp tone when held very close (less than one inch) to the loop. This is called a "back reading" and is a normal, but useless, reading. For all practical purposes, you can forget it's there.

- (5) Turn "DISCRIMINATE TUNER" left (reducing discrimination) a very small amount. Readjust MAIN TUNER right for threshold tone. Try a bottle cap again as in Step 4.
- (6) REPEAT Step 5 until you reach a point where tone DOES NOT go away when you bring bottle cap toward loop face. You have now removed discrimination.
- (7) JUST BARELY restore discrimination - turn DISCRIMINATE TUNER right a very small amount and readjust MAIN TUNER for threshold tone.

THE BEACHCOMBER IS "BENCH TUNED" AT THIS POINT. TEST WITH COIN AND BOTTLE CAP TO MAKE SURE COIN CAUSES AN INCREASE IN TONE AND BOTTLE CAP CAUSES A LOSS OF TONE. ANY MORE ADJUSTMENT WILL WAIT UNTIL YOU PUT THE LOOP ON THE GROUND. REPEAT THE TUNING STEPS UNTIL YOU CAN DO A FAIRLY GOOD JOB WITHOUT THIS MANUAL.

NOTE: The NICKEL should give a very good reading to within one inch of the center of the loop.

The BOTTLE CAP should cause a decrease in the sound to within one inch of the center of the loop.

(1) If the BOTTLE CAP causes the tone to get louder, MORE discrimination is needed.

(a) To INCREASE discrimination, turn the DISCRIMINATION control slightly CLOCKWISE and then readjust the "TUNER" for tone threshold.

(2) If the NICKEL is rejected then LESS discrimination is needed.

(a) To DECREASE discrimination, turn the DISCRIMINATION control slightly COUNTER-CLOCKWISE and then readjust the "TUNER" for tone threshold.

CAUTION: If the DISCRIMINATE CONTROL is ever adjusted for TOO MUCH discrimination (too far clockwise), the unit will appear to be DEAD and you will need to go back to the "INITIAL SETUP" procedure.

(3) You may use LESS DISCRIMINATION where only tin foil will be rejected and you will have more sensitivity, or...

(4) You may use MORE DISCRIMINATION where pull tabs will be rejected, but you also will be rejecting nickels and sensitivity will be less.

#### HUNTING METHODS AND TECHNIQUES

If you were to go outside right now and drag a magnet through some loose soil, chances are quite good that it would "grow hair" as particles of magnetic iron collected on its surface. If you are going to use a metal detector in an area like that, you're going to have to cope with the common problem of false signals caused by this "mineralization".

There are at least two ways to test for mineralization. First, lower the loop slowly to the ground after tuning for a metal threshold. Note the height of the loop above the ground when the sound goes away. The closer the loop gets to the ground before the sound disappears, the lower the mineralization. Two to four inches would indicate low to moderate mineralization while eight to ten inches means that it can really be a problem, at least until you learn to handle it. The other method is to tune the detector with the loop on the ground for the metal threshold. The higher you can raise the loop before the sound blares up, the lower the mineralization.

Once you have tuned the detector on the ground and you start sweeping the loop back and forth you will notice that you get a "false signal" every time you pass the loop over a depression or raise the loop to go over a clump of grass. To cope with this, detune the detector by turning the Tuner back into the NULL slightly.

In order to get acquainted with the kinds of sounds produced by various kinds of buried objects, the serious coinshooter plants a "test garden" that serves two functions. First, it enables the operator to get familiar with known objects at known depths and the kinds of sounds that can be expected. Second, it provides a method of checking the performance of the instrument over a period of time, making sure that it is still performing at top efficiency. Bury some coins, tinfoil, bottle caps, and other metal objects at known depths in an area where you can always get to them and will remember where they are. After you have gotten familiar with what you've planted, have someone else plant some of these items where you DON'T know exactly where they are. See if you cannot only find them, but identify them before you dig them up.

NOTE: When you bury coins, do not bury them more than three inches down. This is the limit for a freshly-buried coin (in the ground less than a year); a coin that has been buried for a long time (and is thus more valuable!) causes a chemical "halo effect" in the soil around it and acts like a much larger, and easier to find, target.

#### CAUTION:

The instrument should never be left where the sun, on a hot day, will overheat the instrument. It is best to lay it in the shade when not in use. Excessive heat can damage some of the sensitive electronic parts and the batteries. If the instrument is left in a car on a hot day, it should be covered by a blanket or some other covering to protect it from the direct sun rays and the windows cracked to permit ventilation.

#### SERVICE - WARRANTY - REPLACEMENT BATTERIES

This model contains one battery holder containing 6 AA Batteries. You may order new replacement batteries directly from our plant, if you cannot find them locally or at your dealers.

The new penlight battery system is better in many respects to the old type batteries:

- (1) Longer life
- (2) Readily available
- (3) Superior performance
- (4) Cheaper in replacement. (If one cell fails, you only need to replace the one cell)

Replacements: Any AA penlight batteries.

Alkaline energizers and batteries of this type may be used and give even longer life.

Note: All batteries last longer if used in many short periods, rather than in a couple of long periods of use.

When through operating the instrument, turn the POWER SWITCH to the "OFF" position.

Care should also be taken in excessively cold weather to protect the instrument as well as the batteries from freezing.

If the instrument is to be laid away for any great length of time, the battery pack should be un-snapped and the pack removed from the instrument. This will prevent damage to the instrument in case one or more of the batteries are damaged or in case the power switch is left on or gets turned on accidentally. The damage to the instrument in this case is similar to what occurs in a flashlight, when the battery is discharged and the liquid escapes to damage the case and components.

The instrument has a two (2) year warranty on parts and labor (except on batteries) to the original purchaser, from the date of sale, with a \$4.00 handling charge on all instruments returned for service.

If ever in need of service, ship the instrument insured, by United Parcel Service, prepaid and enclose a letter advising the nature of your troubles. It may be returned to the factory address listed below or to one of our Service Centers listed in the back of this booklet.

CAUTION: Salt water is extremely corrosive. BE SURE TO RINSE THOROUGHLY THE ENTIRE UNIT, ESPECIALLY MOVING PARTS (such as control shafts), AND THEN WIPE DOWN WITH A CLOTH THAT HAS BEEN DAMPENED WITH FRESH WATER.

WHITE'S ELECTRONICS, INC.  
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Sweet Home, Oregon 97386

# BATTERY COMPARTMENT

**Note:** TO PREVENT DAMAGE IN SHIPPING, the batteries have been removed from your instrument and placed in a separate container within the shipping carton. See following diagram for proper installation.

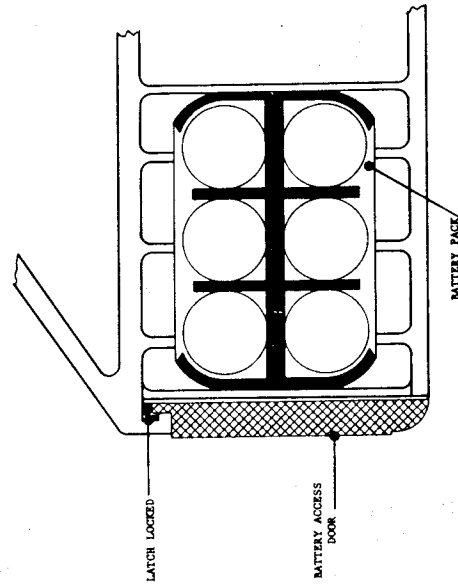


Fig. 1

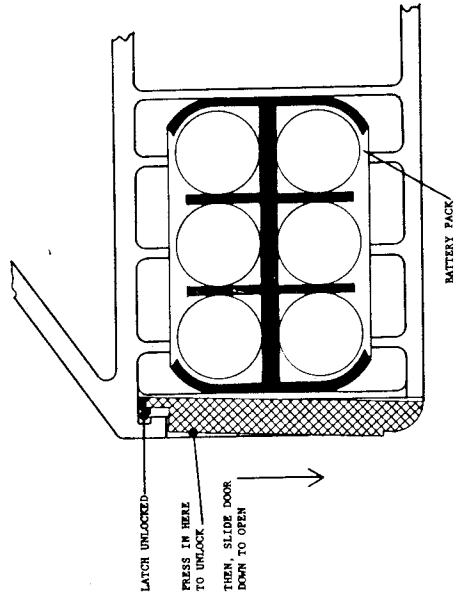


Fig. 2

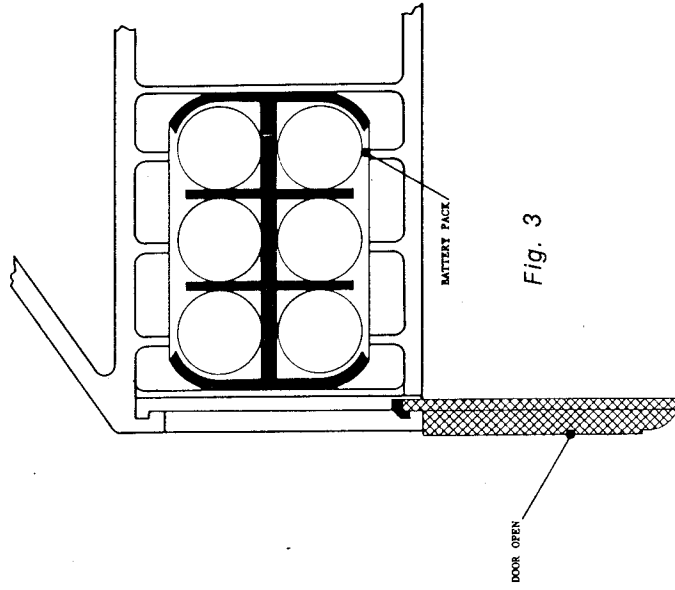
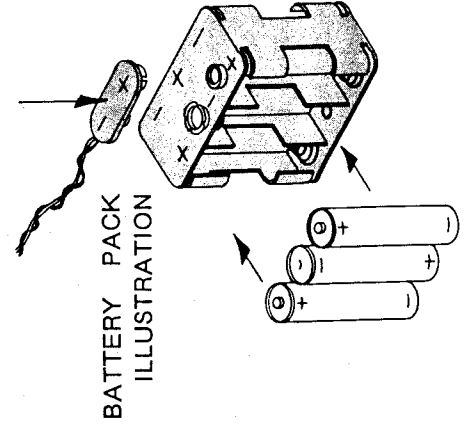
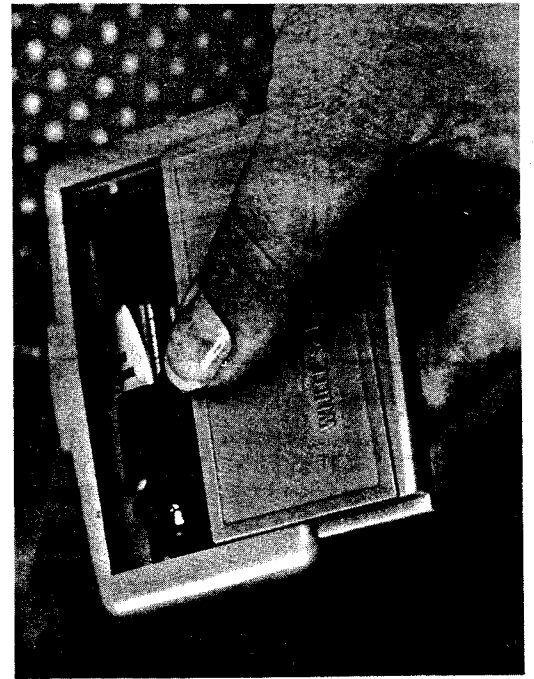


Fig. 3

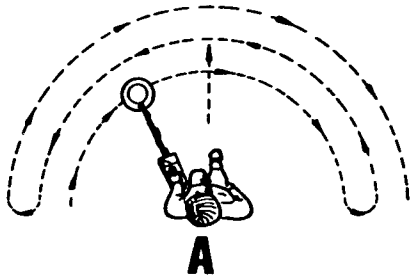


BATTERY PACK ILLUSTRATION

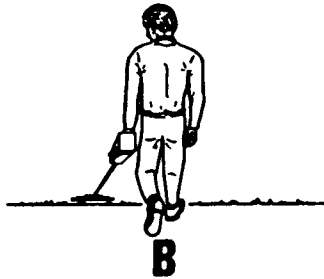
1.5 Volt "AA"  
(Battery Pack Models)  
RAY-O-VAC #15

*When ordering replacement batteries from the factory, please state the instrument model, voltage of batteries and battery number.*

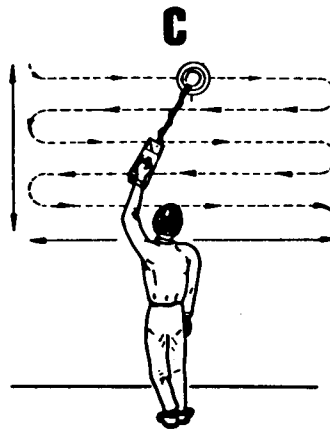
# OPERATING ILLUSTRATIONS



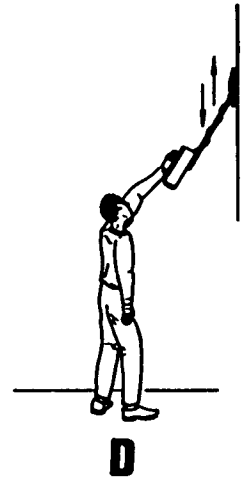
**A**



**B**



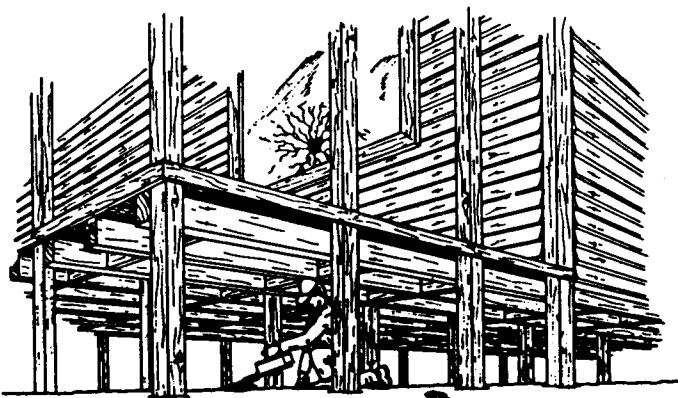
**C**



**D**

As shown in Diagrams A and B, when you are working on the ground, move forward in a straight line, at the same time, moving the loop from side to side across in front of you. The distance between each swath of the loop is determined by the size of the loop you are using. With a 6" loop you would make a 3" step, with 12" loop you would make a 6" step, and so on. Using this method of hunting enables the hunter to cover more ground, more completely, in less time. For tuning your loop, hold it as close to the ground as possible.

Diagrams C and D show you just one more of the many ways the versatile design of the White's instrument can help you either in prospecting or treasure hunting. This diagram demonstrates the extra ability the design gives in reaching to the out-of-the-way places. This system can be used for checking outcroppings, walls, etc.



Remember, a lot of old artifacts and treasure have been found under old buildings, as well as in the attics. When going through an old homestead, never overlook any place or area that could represent a good hiding place. So if you are planning such a trip, follow these simple illustrations and prepare your instrument. At a time like this you don't want to pass up any chances.

# 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.

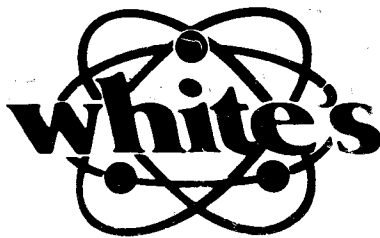
Read your warranty card carefully. It describes completely what is covered and the length of the coverage. If you have any questions don't hesitate to write us. We will be happy to answer any questions you may have.

## 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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