

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

OPERATING INSTRUCTIONS
for
COMET 300

Super Sensitive
Transmitter - Receiver
All Metal Detector

Please follow these instructions carefully, to operate the instrument correctly and practice with it at every opportunity.

INTRODUCTION

We do not believe that you can buy a finer or more sensitive instrument than you have chosen for the use that the instrument is designed for, but remember that 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.

DO NOT EXPECT TO BE AN EXPERT THE FIRST TIME YOU USE IT. THIS COMES WITH PRACTICE AND USE.

GENERAL DESCRIPTION

These instruments are completely transistorized (solid state), giving maximum sensitivity, excellent reliability, and economy in operation. They are designed for coin and treasure hunting and general exploration work.

The audio system is complete, offering both earphone and speaker operation, controlled by a common volume control.

These instruments have an unusually sensitive meter circuit giving good reactions on finds, at maximum depths, as well as testing both battery systems under operating conditions. Batteries must be tested in the "NULL" condition. (No sound is heard.)

These instruments employ the balanced induction principle of operation, the loop being the heart of this system.

Batteries used are penlight, size "AA" 1 1/2 volt cells. Fourteen are required for operation. Six cells in a holder, yielding 9 volts, and eight in the other holder for 12 volts.

The Tuning Control is a smooth vernier drive mechanism, giving precise metal settings.

The Comet Model 300 has a range control with 4 ranges, which adjusts the meter sensitivity.

The instrument incorporates a large Signal Intensity meter for receiving visual signals, as well as for checking the batteries.

The meter Zero Control is used to adjust the Zero reading on the Signal Intensity Meter.

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ROD AND LOOP ASSEMBLY

Note the Rod Mounting Bracket is located on the bottom of the instrument. The Rod has a Retainer Pin in it, (See Figure #1) located in the large end for locking the rod in place, to the bottom of the instrument.

To extend the rod, pull the small rod out of the large, align the loop and then tighten the knurled adjusting ring. Place the loop on the free end of the small rod, removing the thumb nuts from the mounting studs on the loop. Insert them up through the holes in the small end of the rod, install the thumb nuts, finger tight.

Inserting the large end of the rod into the mounting bracket on the bottom of the instrument, depress the retaining pins and align to match mating holes. Lock into place. Spiral the loop cable snugly around the rod.

Plug the loop cable into the socket on the front end of the instrument. This socket and plug are marked with yellow alignment dots. Align these dots and insert the plug. This plug and socket are also keyed to allow mating with only the correct pin arrangement.

The Comet Model 300 is equipped with a 6 inch multi-coil loop.

BATTERY INSTALLATION

Now open the battery compartment by releasing the latches on each side and swinging the door open from the top. Free the battery connectors by removing the tape. Note one white connector and one black. Also, a white battery holder (8 cells), and a black holder (6 cells). The white is 12 volt D.C. and the black is 9 volt D.C. Be sure and match white to white, and black to black. Snap the battery connector onto the battery holder, noting the connector and battery holder are set up to match in only one polarity. Be sure to observe this polarity because damage can be done to the electronics if forced together in error. (See Battery Diagram)

TESTING OF BATTERIES

To test your batteries, turn the POWER SWITCH on and your battery check switch to each Battery Check position in turn and note the readings. Good batteries will read between 30-40 on the meter. When your reading drops to 30 on the meter it is time to replace that set of batteries. This test must be made in the "NULL" condition. (No sound is heard.)

Batteries should be tested prior to your regular hunting ventures and once a day during periods of heavy usage.

The Battery check switch should be in the OFF position except during testing and trouble shooting. IN THE OFF POSITION THE METER FUNCTIONS AS AN INTENSITY METER.

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TUNING INSTRUCTIONS

Turn the Tuner Control to "1". (This is located on the upper left side of the handle, and is numbered from "0" to "100".)

The Meter Zero Control is a 10 turn control, with a digital readout, which has a 0 to 999 adjustable reading. Turn this control to the middle of its tuning range which is approximately 500.

Turn the Range Control to the #1 position. (This control is located on the top on the right side of the handle.)

Be sure the Battery Check is in the "OFF" position. (This control is located just below the Range Control and is used only when checking the batteries)

Turn the Power Switch, (Located below the Meter Zero Control), to the "ON" position.

Slowly turn the large Radio Tuner Control, (just below the meter, and to the left of the handle), to the right (clockwise), until a moderate tone becomes audible.

If the meter is now pointing at zero, adjust the Meter Zero Control, clockwise, (turn to the right), until the meter reads between "0" and "10". If the meter is already reading up the scale, adjust the Meter Zero Control, counter-clockwise, (turn to the left), to bring the meter pointer back down below "10". The instrument is now ready for operation.

The meter readings are a relative indication of the strength of the find. A strong signal could be a large object or an object very close to the surface

The meter readings are not calibrated to give a direct indication of depth, but with practice and experience, it will tell you much about the size, depth and content of the object you have detected.

If less sensitivity on the meter is desired, turn the Range Control Pointer to 2, 3, or 4. The higher the number, the less sensitive the meter will be. Also, by turning the Meter Zero Control counter-clockwise, the operator can bring the meter pointer back to zero and pre-set the level of the signal required to cause a meter response.

NOTES

A. It should be noted that if the operator turns the Radio Tuner too far clockwise, a pronounced oscillation may occur in the audible signal. This indicates the instrument is being highly over-driven. This will, in no way injure the instrument, but may cause battery drain to be excessive. For this reason, the operator should avoid turning to this point.

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B. It should be noted that if the operator turns the Radio Tuner too far, clockwise, the Meter Zero Control may lose its effectiveness. Again, this will not damage the instrument, but simply indicates the instrument is being over-driven. The instrument should at all times be operated at a very low to moderate audible signal.

C. The metering circuit of this instrument is extremely sensitive. This is very useful in detecting minute changes, but at the same time, it multiplies any drift or noise inherent in the loop. The operator must expect more erratic meter movements than would be noticed on the less sensitive instruments. With a little practice, the operator will soon learn to zero out the erroneous readings and take full advantage of the extra sensitivity of this fine instrument.

After these adjustments are made, be sure to hold the loop as steady as possible and as close as you can to the height it was when you adjusted it, for the best and smoothest meter movement and operation.

HUNTING METHODS AND TECHNIQUES

When passing the loop over a non-magnetic conductive metal, such as the metal sample you received with your instrument, the sound will increase in the speaker and a higher reading will be retained as long as the loop is held over the metal object. As soon as the loop passes away from the metal object, the sound will lower in volume, and the meter will lower in reading, and return to approximately the same reading as before the object was detected.

Earphone usage: To use the earphone install its plug into the jack on the instrument. Note this cuts off the speaker giving privacy in listening. You may use the earphone whenever you wish, its special feature being that of giving you a concentrated tone close to your ear, which excludes interfering noises about you.

Tin cans, bottle caps, tin foil, aluminum foil, cartridge cases, coins, silver gold, copper, lead and brass are some of the high conductive metals that will read on the Metal setting.

The instrument is not designed to react to sticks, rags, bones, paper, non-magnetized rocks, nor other non-magnetic objects or non-mineralized objects.

When looking for small metal objects, such as coins, the ability of the instrument to detect them will vary in different areas. The more mineralized the soil, the more difficult it is to detect them, and the less mineralized, the easier. Also the longer the metal object has been buried, usually the easier and deeper it may be detected, as the ground becomes electrically conductive from the metal object over a period of time. In some cases you may detect a very old tin can and after digging it up, still receive a reading over the spot the can was buried in.

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To locate hidden or buried metal objects, slowly and systematically sweep the loop across the area to be checked, being very careful to hold the instrument so that the loop is held at as constant and uniform height as possible with the least up and down variation in relation to the formation or ground you are using the instrument over. When searching for small objects, such as a single coin, the instrument should be tuned in with the loop held as close to the ground as possible. Hold this height as close as you possibly can, and search the ground carefully, usually on the surface, if possible, depending on the surface you are using the instrument over. If the ground is rough, you may have to zero the instrument in higher. For larger objects, one can hold the instrument approximately 1 to 2 inches over the surface to be explored. With each sweep of the instrument you will cover approximately 6 feet by 3 inches. Keep repeating this process until you have explored the entire area. If there is anything under the surface, and it is within detectable range of the instrument, you should be able to find it.

In the short green grass, such as a lawn, it is possible to place the loop on the grass, tune it in, and slide the loop over the grass to locate the smaller objects. The loop automatically is kept at the same height by the grass, so a uniform and more constant meter reading may be maintained, which is important for the very small objects. For large objects, the instrument may be carried at a higher elevation, and it is not so critical to height variation, and will respond to the larger metal objects. To practice, lay some metal objects on a wood floor or on your lawn and move the loop over them, and notice the way the instrument responds.

It is a good policy to slightly adjust the Radio Tuner every 5 to 10 minutes to keep the instrument at its highest peak of sensitivity, when searching for small objects, such as single coins, along beaches, etc., and every 10 to 15 minutes or so for larger objects, if necessary. This adjustment may need to be made more frequently, if there is a change in the mineralization of the ground you are searching.

The volume is increased by turning the Volume Control to the Right, and is decreased by turning it to the Left. The Volume Control does not increase or decrease the sensitivity of the instrument. If adjusting the meter to a reading of 10 on the meter is too much sensitivity to use in some areas, you may adjust Radio Tuner, until the meter pointer returns to Zero, and use it this way, which will be much easier to use in mineralized areas, where the soil has a magnetic content.

The 6" loop is used for locating single small coins or groups of coins and other very small objects. This loop will usually react to a single gold dollar, just under the surface. The gold dollar is approximately one-half the size of a silver ten cent U. S. Coin.

When searching with the 6" loop one covers approximately 7" by 6' of area, on a single slow pass of the loop.

After a slow pass is made, move the loop ahead the width of the loop for the next pass. Repeat this procedure until all of the search area is covered. This is the proper procedure to follow to insure the most finds.

When the instrument is operating properly and the exploring loop passes over a detectable object, a constant sound will at once be heard in the speaker and the meter pointer will swing toward the Right. As soon as the loop passes the metal object, the tone will lower and the meter pointer will swing toward the Left. Also, the larger the object the louder the sound will be and the smaller the object the softer and lower the sound. Native gold, copper, silver and coins are never magnetic and are detectable on the instrument, when a detectable quantity is present, as they are all highly conductive metals. (Tin foil, bottle caps, tin cans, and many other man made objects are also conductive and are detectable.)

When the detectable metal object passes under the exploring loop, and the meter hand swings from Zero to 50 (which is a full scale reading), you may turn the Range Control from the #1 position to the #2 position, and the meter hand will return towards Zero. You may then continue to check over the surface that you are receiving this reading from. Be careful to hold the exploring loop parallel with the surface and as evenly as you can, and maintain the height used for adjusting the Radio Tuner Control as nearly as possible, and do not lower or raise the loop more than necessary in walking. The steadier you hold the loop, the more accurate the reading will be. (Raising and lowering the loop excessively will cause false readings on the meter.) Should the meter hand again go to a full scale reading while checking over the formation or surface that you are receiving the high reading from, turn the Range Control to the #3 position and locate the spot where the reading is the highest. The highest reading that you receive on the least sensitive meter range, would usually be over the center of the object you are detecting. If the meter hand again goes full scale, turn the Range Control to the #4 position, and locate your highest reading on the #4 position, (Should you receive a full scale reading with the Range Control in the #4 position, you may continue searching with the sound from the speaker as your guide to locate the places where the sound is still high, or slightly turn the Tuner control to the Left until the meter reading is on Zero, then continue to search for a still higher reading.

You may notice a slight gradual increase or decrease in meter reading and sound in your instrument as you use it. This is caused from slight changes in ground variations, magnetic soil background changes and atmospheric temperature variations, which are to be disregarded. Should the meter reading slowly drop to, or below the zero, and the tone cease, a slight adjustment of the Radio Tuner, to the Right, will bring the sound and a slight meter reading back or to the Left to reduce the sound and meter reading as desired, or required. (Should the reading suddenly drop along with a drop in sound, over a small spot, this could be a magnetic rock.)

Meter Ranger

This is an Ultra High Sensitivity instrument that may incorporate more sensitivity than you may normally require or need, but its there if you need it.

- The #1 Range is the most sensitive
- #2 Range is less sensitive
- #3 Range is still less sensitive
- #4 Range is the least sensitive.

Due to the exceptionally high sensitivity of the instrument, we believe you may find that it may be more sensitive than most any instrument, even in the #4 position. Due to this fact, you may operate it on the #4 position with just a slight or zero meter reading, if desired. This will require less frequent slight meter adjustments than is usually required when using the #1, #2 or #3 ranges, but the depth of detection will be less.

For the greatest depth of detection use in the #1 position. For new operators, it is sometimes a good policy to use the instrument with the Range Control set on the #4 position, until one becomes familiar with the instruments operation, and can properly handle the higher sensitivity which is incorporated into this unusual instrument.

REPLACEMENT BATTERIES - WARRANTY - SERVICE

This model contains two battery holders containing 14 B-1 Batteries. You may order new replacement batteries direct from our plant, if you cannot find them locally.

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 Mineral-Metal Control to NULL, (where no sound is heard), and be sure to turn the Power Switch OFF.

The instrument has a full two (2) year warranty on parts and labor (except batteries) to the original purchaser.

If ever in need of service, ship the instrument by insured parcel post, freight or stage, 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.

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

The instrument should also be protected from exposure to excessive heat when not in use.

If the instrument is to be laid away for any great length of time, the battery pack should be unsnapped and the pack removed from the instrument and the batteries stored in a dry, cool place, such as on a shelf in a closet. 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.

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

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OPERATOR'S T.R. TIPS
(REVISED)

With the instrument assembled and ready to operate, bury a coin in the ground approximately one inch down and lying flat. Place the instrument so that the loop is on the ground and horizontal. Next, turn the instrument "ON", with it in the Null or "0" position. Start turning the Metal - 0 - Mineral dial, counter-clockwise, until a tone is heard. Now, go back the other way (clockwise) until it just goes quiet.

Now you should be able to move the loop about, without it making any noises, unless it is passing over some metal object. If it is making noises, then you may need to turn it a little more toward the Mineral Setting (clockwise).

Be sure that you are rubbing the loop on the ground, and that you are not lifting the edges as you sweep it across the ground. Now, practice on the coin that you buried.

The further counter-clockwise you can turn the Metal - 0 - Mineral dial, without the instrument giving false readings, the more sensitive it will be.

A demonstration is worth a thousand words - for the best results, see your local dealer and ask for a demonstration.

Sincerely,

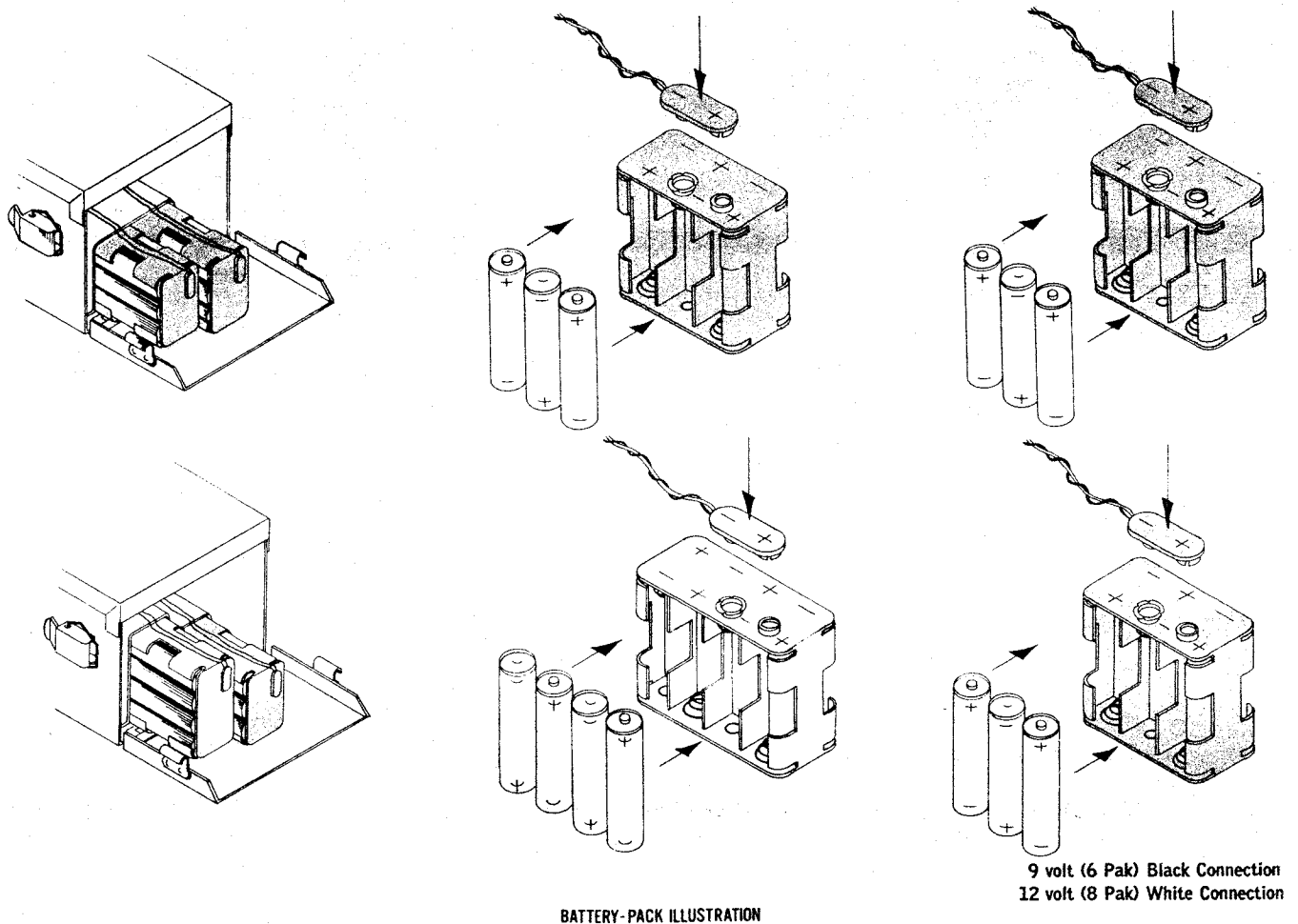
A handwritten signature in cursive script that reads "Gary W. Morris".

Gary W. Morris
Service Department Manager

GWM/et

BATTERY DIAGRAM

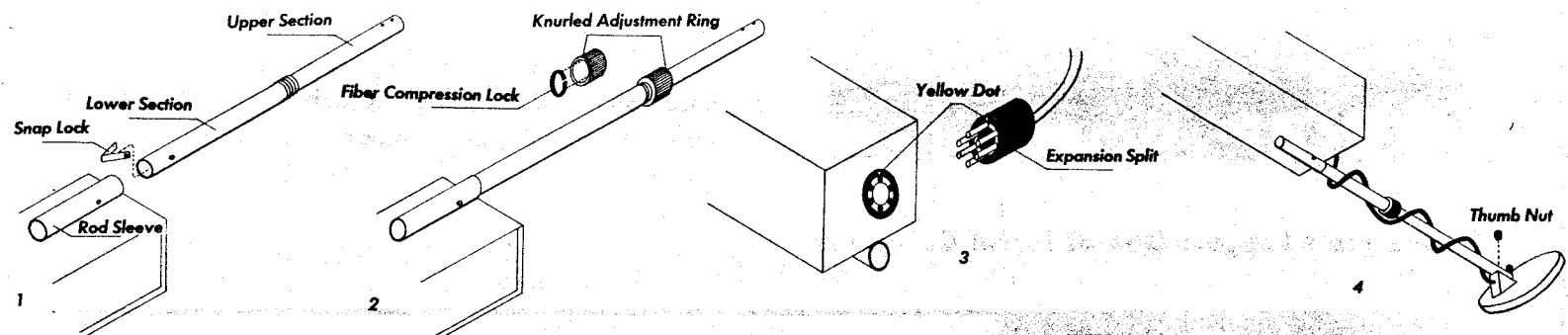
Note: To prevent damage in shipping, the batteries have been removed from your instrument and placed in a separate container within the shipping carton. See following diagram for proper installation.



	EVEREADY	BURGESS	WHITE'S
1.5 Volt "AA" (Battery Pack Models)	1015	910	B-1

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

ROD ASSEMBLY, DRAWINGS



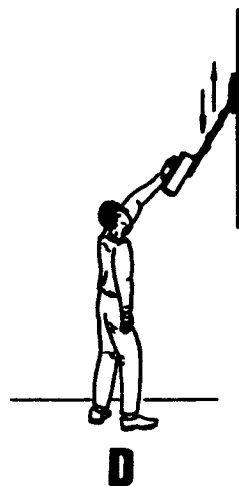
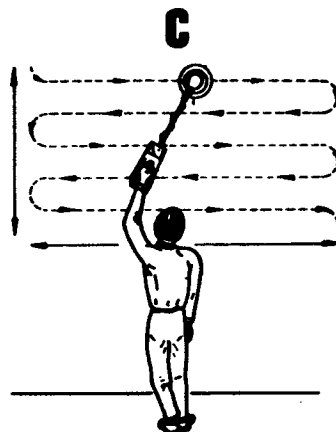
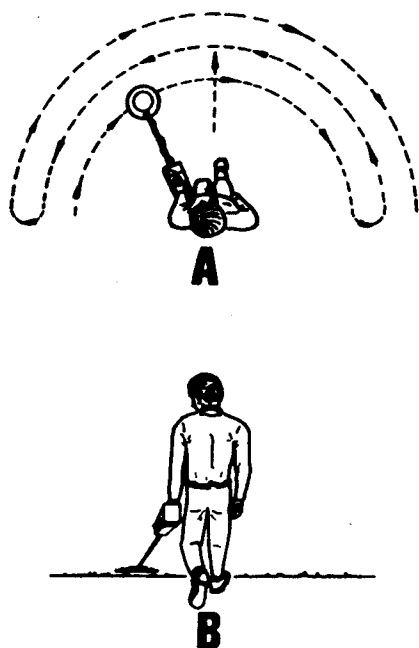
When you receive your instrument with the knurled adjustment rod, it may be necessary to install the snap lock. As illustrated in Figure Number 1. Depress snap lock and insert it in the lower section. Insert the lower section into the rod sleeve.

Figure Number 2 shows the fiber compression lock; make sure it is inside the knurled adjustment ring. Slip the ring over the upper section; adjust rod to desired length and tighten ring as shown.

When attaching the loop cable to the instrument chassis, make sure the yellow dot on the plug matches the one on the instrument. As shown in Figure Number 3 (note: the "Expansion Split", as pictured in Figure Number 3, is to allow assembly and disassembly of the plug cap and is not a manufacturer's defect).

Attach the loop with the thumb nuts as shown in Figure Number 4. Always coil the loop cable as snugly as possible, without pulling or stretching it.

OPERATING ILLUSTRATIONS



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.

2



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.

America's Largest Line of Metal Detectors



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.

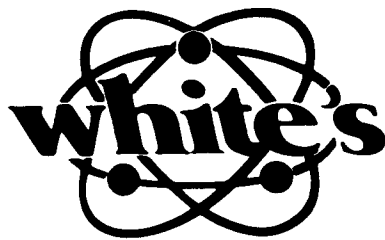
Read your warranty card carefully. It describes completely what is covered and the length of the coverage. If you have any questions don't hesitate to write us. We will be happy to answer any questions you may have.

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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