

Deluxe Nugget Master

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 the

DELUXE NUGGETMASTER

This instrument is very sensitive and has flexible methods of operations which varies in different areas due to the mineralization of these areas, the type of formation the instrument is operated in and several other factors.

One should choose the best method of operation for the area to be prospected for the most suitable results.

This instrument is not a deep detecting type of instrument as it is not designed for this work, but it is a shallow detector for detecting small detectable mineral or metal objects relatively close to the surface. The depth of detection will vary in different areas due to the mineralization in the soil, the size of the object, the kind of overburden, the type of formation, the size of the object being detected, its associated minerals and several other factors. The detectable depth will vary anywhere from a few inches to several feet, depending on these conditions and the size of the loop used, due to this fact the instrument is not usually bothered with damp soils, muds, clays, rocks, roots, and various other things that many times give erroneous readings. The instrument is designed to detect only detectable minerals and metals and a reading will not be secured on a rock unless it has a detectable mineral or metal content.

The instrument comes complete with three exploring loops which are matched for this particular model. There is a 12" loop, which is the general prospecting loop and is used for locating fairly large objects of either detectable metals or minerals and this is the loop that the instrument is usually adjusted for before it leaves the factory. The 12" loop is used for detecting moderately sized objects from approximately the size of a dollar on up to large sizes. There is the 3½" loop which is used for detecting very tiny objects that are too small to be detected with the larger loops, such as small coins, rings, gold nuggets, small pieces of mineral float, etc.. The large 18" loop connects to the exploring rod in place of the 12" loop and this is used for detecting larger objects at more depth. In general the smaller the loop the smaller the object that may be detected but the shorter is the detectable range of the loop. The larger the loop the deeper the object that may be detected but the larger the object must be. Large objects such as buried treasures and mineral veins that may be beyond the detectable range of the 12" loop may many times be located by using the 18" loop. For buried treasures approximately the size of a one pound coffee can or larger one would normally use the 18" loop.

In searching along gravel bars and in gravels, sands, etc. for very small objects, the 3½" loop is the one most suitable to use as usually these small objects will not be detectable with the 12" loop or the 18" loop especially if it is in highly mineralized areas. River banks, gravel bars, etc. usually have a very high concentration of minerals in the gravels and sands. One can tell very quickly if an area is mineralized. If an area is mineralized, after the instrument is adjusted for operation for the normal prospecting height which is used to prospect with, and then by slowly raising and lowering the instrument with the exploring loop attached to the bottom, if you get an increase and decrease in reading or increase and decrease in sound as the loop is raised and lowered approximately two or three feet from the prospecting height, then this is a sure sign of mineralization. If there is no variation in the reading or in the sound then you are over

a non-mineralized area or zone. In highly mineralized areas over gravel bars, etc. one usually cannot use the instrument in the automatic position due to the fact that the operator will not be able to carry the instrument steady enough to maintain constant and accurate readings without reducing the sensitivity of the instrument and reducing its detectable range. Under these conditions one should use either the mineral or metal meter alone for these areas. If operating in a highly mineralized area the proper way would be to select the lower mineral meter alone and adjust the instrument for a zero reading and you are then zeroing out the mineralized reading of the area and you will not receive a reading on the lower meter until you are over a more mineralized section or a greater mineralized object, a mineralized pocket or vein. When looking for treasures you will select the upper metal meter and turn the lower MI-AUTO-ME-AUTO switch to the ME position, which is the metal position and you adjust the upper meter as described in the operating instructions and then the instrument will not usually react to anything but a metal object and will then be read only on the UPPER meter. When so adjusted there will be no sound or reading until the exploring loop passes over a detectable metal object.

Due to the flexibility of the instrument the various mineralized areas, etc. one should not expect to learn everything in one day and experience comes with the operation of the instrument only over various areas and formations.

To put the instrument into operation proceed as follows:

1. Plug the slotted loop rod into the oval opening in the bottom of the instrument. You will notice that there is a pin in this opening that will fit the rod. The rod should be inserted so that this pin will slip into the slot ~~#####~~ it will lock this rod into place. Insert the 12" loop in the bottom of the rod and tighten the two black retaining caps snugly so the loop does not move on the rod. Spiral the connecting cord with the black plug around the rod and plug it into the socket in the bottom of the instrument.
2. Turn the VERNIER ZERO control, which has dial markings from 0 to 100, to #50 so that #50 is at the TOP of the dial.
3. Turn the speaker control to the extreme right (clockwise position) if it is not already in this position.
4. Turn the RANGE control to #4.
5. Turn the 'MINERAL-METAL' switch, which is located just above the VERNIER ZERO dial, to the ~~###~~ zero mark.
6. Turn the 'OFF-CN' power control to the 'CN' position.
7. By turning the 'MINERAL-METAL' switch, above the VERNIER ZERO control, slightly to the LEFT and slightly to the right you will hear a slow motor-boating sound. Turn this control between these two sounds until there is no sound, and this is called the null point or dead spot where no sound is heard.
8. Turn the MI-AUTO-ME-AUTO switch to either one of the automatic (AUTO) positions, then slowly adjust the meter zero screw until both meter hands read zero. Replace the chrome cap on meter zero control.
9. Turn the RANGE CONTROL back to the #1 position.

To set the instrument up for prospecting for treasures and metal objects, turn the MI-AUTO-ME-AUTO switch to the ME (metal) position, which is located below the VERNIER ZERO dial. - Turn the 'MINERAL-METAL' control to the right to the metal side and listen for the slow motor-boating sound. The farther you turn this control to the right the faster will be the sound. One should use the instrument with the SLOWER sound, as the slower the sound the more sensitive is the instrument, and the faster the sound the less sensitive the instrument becomes. Take the instrument by the handle and while standing in a comfortable position such as you will use in prospecting and with the exploring loop a few inches above the surface to be prospected slowly turn this 'MINERAL-METAL' zero control until the motor-boating sound is slow while slowly raising and lowering the instrument two or three inches from the prospecting height that you will carry it, until the motor-boating sound is very slow, then turn the VERNIER ZERO control to the left until the motor-boating sound just stops and no sound is heard while you are walking along over the surface that you are prospecting. The meter hand on the metal indicating meter will then read zero and no sound will be heard until the loop is passed over a detectable metal object and then the motor-boating sound will again be heard and the meter hand will swing to the right. One should be very careful in using the instrument so as to maintain the proper height of the exploring loop in relation to the ground in which the instrument was adjusted. If one lowers the loop closer to the ground or raises it farther away from the ground than it was adjusted for it can give a sound in the speaker and a reading on the instrument, so care should be used in maintaining the most uniform height as possible while prospecting.

When prospecting and the meter hand goes to the extreme RIGHT one should pass the loop away from over the spot that is giving the reading and see if the reading drops back to zero. Then pass the loop back over it again and if the reading again comes back and the sound is again heard then you are detecting something directly under this loop. The range control may then be turned from the #1 position to the #2 position and see if the meter hand drops back towards zero. If it does not then turn the range control to the #3 position and then slowly pass the loop over the spot that you are receiving the reading from being careful not to lower or raise the loop while this is being done and note the meter reading. If the meter hand again goes to the extreme right turn the range control to the #4 position and locate the exact spot that the reading is the highest, this will be directly over the center of the object. By carefully watching the meter reading you can usually determine the approximate size of the object being detected for as soon as the edge of the exploring loop passes the edge and away from the object the reading will start dropping back towards zero, and while you are directly over the center of the object, the reading will be the highest. By passing the loop over the object from the left to the right and to the top and lower side will usually outline the size.

The range control should then be turned back to the #1 position for further prospecting.

To use the instrument for the automatic detection of metals and minerals should you desire to prospect for minerals and metals at the same time and be looking mainly for metals you may set the instrument up as follows:

Turn the VERNIER ZERO control to #50 - Turn the ME-AUTO switch from the ME position to the RIGHT to the AUTO position. - Turn the RANGE control from

the #1 position to the #2 position. - Turn the 'OFF-ON' power switch to the 'ON' position and then while holding the instrument by the handle in a comfortable normal prospecting position slowly turn the MINERAL-O-METAL control, which is located above the VERNIER ZERO control slowly to the RIGHT until the motorboating sound starts, then slowly adjust the VERNIER ZERO control until you receive a reading on the UPPER metal meter between 10 and 25 while slowly raising and lowering the instrument approximately three or four inches, such as you would normally move it up and down in normal walking. - Carefully adjust the VERNIER control so that the meter hand will not fall below zero and will give an average reading of between 10 and 25. You will not be able to use the range control on the #1 position as the instrument will be too sensitive in order for you to prospect with it in the automatic position as you cannot hold the instrument steady enough to maintain an accurate reading on the metal indicating meter, in mineralized areas.

In the automatic position it is very important that the instrument be carried as steadily and evenly as possible with the least possible up and down movement of the instrument. Normally, the instrument may be used with the range control in the #2 position, however, if you are over a highly mineralized area where the reading may be erratic with too much variation while moving about, you may change the Range control over to the #3 position and re-adjust the instrument for your average reading between 10 and 25 being careful to adjust the instrument so that in normal walking the meter hand will not fall down below zero, it should not fall down below 5 or 10 for as soon as this meter hand drops below zero the mineral meter hand will register and give an indication.

When the instrument is set up to prospect in this position and the exploring loop passes over a detectable metal object you will receive a higher reading on the UPPER metal meter and an increase in sound in the speaker. Should you pass over a detectable mineral such as a piece of float or a sample or encounter a mineralized vein the metal indicating meter hand will drop to zero and the sound will die out in the speaker and the lower mineral indicating meter will swing towards the RIGHT side of the scale. As long as the exploring loop is held over the detectable mineral there will not be any sound in the speaker or a decrease in the sound, depending on the size of the object and the richness of the ore, and the mineral indicating meter hand will show a reading. As soon as the exploring loop has passed this detectable mineral the mineral meter hand will again drop back to zero and the metal meter hand will resume its normal reading such as the instrument was adjusted for and the sound in the speaker will resume. Should you believe this to be a vein you may set the instrument up for detecting minerals so that the instruments speaker will operate when detecting minerals and the lower mineral meter will also indicate the rich and lean spots and pockets and also indicate large and small mineralized objects, as follows: Turn the MI-AUTO-ME-AUTO switch to the extreme left to the MI or mineral position. Turn the VERNIER ZERO control to 50 and turn the MINERAL-O-METAL control, which is located just above the VERNIER ZERO control slightly to the LEFT to the point of null or 'no signal' and then continue to the LEFT until a slow motorboating sound is heard in the speaker. Slowly turn the VERNIER ZERO control to the RIGHT until the mineral indicating meter hand drops to zero while holding the instrument in the normal prospecting height and check this mineralized zone. You will notice that the instruments speaker will not die out over this mineralized vein or zone but the sound will increase with the increase in the richness of the ore and a higher reading will be secured on the mineral indicating meter, which is the lower meter of the instrument. Passing over the rich portions of the vein and should the meter hand swing to the extreme LEFT you may turn the range control from the #2 position to the #3 position. The richer the ore the faster and louder will be the sound in the speaker and the higher will be the reading on the mineral indicating meter. Should the meter hand again go to the extreme right on the mineral meter you may turn the range control from

the #3 position to the #4 position, which is the instruments less sensitive metering position and this is the position where the richest ore or the largest bodies of ore give the reading.

By tracing the direction that you receive the highest reading in the #3 or #4 position you can trace the veins and locate the high-grade pockets or richest portions of the vein, as these will be the spots where the mineral meter will read the highest in the least sensitive positions and the sound in the speaker will increase faster and louder when the loop is passed over these particular higher mineralized spots.

The #1 position of the Range control is the most sensitive position and is the position to start prospecting with. The #2 position is approximately half as sensitive as the #1. The #3 position is approximately $1/3$ as sensitive as #1 and the #4 position of the Range control is approximately $1/4$ as sensitive, so the very richest of the ores will read on the #4, the little leaner ores will read on #3, the lower grades on #2, and the smallest and leanest on #1. Also the larger the body of ore the higher it will read on the #4 or #3 position, depending on the size and richness. The reason the instrument is changed over from the automatic position to the mineral indicating position when a mineral is indicated is so that you may use the speaker and meter together to detect the minerals, so as to be able to use the Range control to determine the richness and leanness and the tracing of the veins of minerals. In this position the speaker will sound and the meter will read higher on an increase in mineralization and the speaker will not die out as in the AUTO position. (Be sure that the MINERAL-O-METAL upper switch, located above the VERNIER ZERO control, is turned to the mineral position.)

Should you wish to set the instrument up for the automatic detection of both minerals and metals you may turn the VERNIER ZERO control to #50 position. Turn the MI-AUTO-ME-AUTO switch from the MI position to the AUTOMATIC position which is one position to the right of the MI position and to the left of the ME position. Do not turn it to the automatic position which is to the right of the ME position. Turn the Range control to the #2 position and with the 'MINERAL-O-METAL' control, which is located just above the VERNIER ZERO control, adjusted to the mineral side of the null or dead spot located by the large zero, take the instrument by the handle and slowly lower and raise the instrument as you adjust the VERNIER ZERO control (while raising and lowering the instrument three or four inches as one normally would in walking) until the meter reading on the lower meter hovers between 10 and 25 and so the mineral meter hand does not fall back to zero in normal walking and the motorboating sound will be heard constantly in the speaker. You should be able to walk along carefully and hold this meter reading between 10 and 25, occasionally it may vary a little below 10 or a little above 25 but this is permissible as long as the meter hand does not fall below approximately 5 or 10. Should the variation be too much a slight adjustment of the VERNIER ZERO control as one moves along is usually all that is necessary. However, should you be in a highly mineralized area and you find it difficult to hold the reading on the lower mineral meter you may turn the Range control to the #3 position and again slightly adjust the instruments VERNIER ZERO control to give you your average reading. In this position the instrument is not nearly as sensitive as when using the mineral or metal meter alone, but it will react to both detectable minerals and metals as follows: Passing the exploring loop over a detectable mineral object the sound will increase in the speaker and the mineral meter will read higher on the scale, but as the instruments Range control is set for less sensitive positions it will not react nearly as much on smaller objects as when the Range control is set on the more sensitive position and the single meter is used alone. As soon as the exploring loop is passed over a detectable metal object the sound in the speaker will decrease

or cease and the mineral meter hand will swing to zero and the metal indicating meter hand, which is the upper meter, will show a meter reading. The sound in the speaker will cease as long as the exploring loop is over a detectable metal object and just as soon as the exploring loop is passed away from the metal object the sound will again increase or resume in the speaker and the metal indicating meter hand will again return to zero and the normal mineral meter hand will again register the reading which the instrument was adjusted for.

To set the instrument up for prospecting for minerals alone resume the settings as just stated, such as turning the VERNIER ZERO control to the #50, the MI-AUTO-ME-AUTO control to the extreme LEFT to the MI position which activates the lower mineral indicating meter alone. Turn the MINERAL-O-METAL control, which is located just above the VERNIER ZERO control slightly to the LEFT of the null until the motorboating sound resumes slowly. Turn the Range control to #1 and then holding the instrument in the normal comfortable prospecting position and while slowly raising and lowering the instrument three or four inches as one normally would in walking, adjust the VERNIER ZERO control to the right until the motorboating sound ceases and no sound is heard in the speaker and no reading is indicated on the mineral indicating meter. Just as soon as a detectable mineral object is present under the exploring loop the speaker sound will again be heard and the mineral indicating meter hand will swing to the RIGHT. Should you receive a full scale reading on the mineral meter you may turn the range control from the #1 position, which is the most sensitive position, to the #2 position and the meter hand will swing back towards zero unless the object is large or rich enough to hold the meter reading higher on the scale. If it is, then turn the range control from the #2 position to the #3 position which is a less sensitive position and the meter hand should swing back towards the LEFT of the scale. If the object being detected is a vein you may determine its width by crossing the vein and watching the high reading; the first original reading that you received in the #1 position would be the edge of the vein and the center of the vein would normally be the reading that you would receive on the #2, #3 or #4 positions depending on the richness or the size of the vein. Normally, the larger and richer the vein the higher the reading. Just as soon as this vein is crossed and the exploring loop passes off of the far side of the vein the sound in the speaker will die out and the meter hand will return to zero on the lower mineral meter. By marking the spots with a monument of rock where you first receive the reading and the spot where the reading ceased, it will give you an idea of the size of this vein, you may then determine the direction that the vein runs by following the direction that you will receive the highest reading in the less sensitive positions. The #4 is the least sensitive and the #1 is the most sensitive. The #1 and #2 are usually too sensitive for vein tracing unless the vein is very small. By following the direction of the highest reading on the #3 or #4 you can determine the direction a vein runs and also note the highest reading spots in the vein where the meter reading will read the highest on the least sensitive positions and also the loudest sounds in the speaker, as the speaker will increase in sound over the highest mineralized pockets, kidneys or mineral concentrations, and the sound will lower and the meter reading will drop in the leaner spots. By carefully marking these spots one can many times determine the high grade and high reading pockets that may occur in these deposits. When there is nothing visible to the naked eye and this greatly increases the chances for successful exploration of these veins when no other method may be available. There is a hazard to bear in mind when checking a highly mineralized vein and that is - should an extremely high detectable metal content occur in this vein such as a high concentration of gold, native silver, or native copper, this could have a counter-acting reading against the high reading of the mineral meter, when the loop is passed over this vein, if the ore is predominate and richer than the mineral in that particular spot. In this case,

as soon as the exploring loop is passed over this particular spot the mineral meter reading would lower and the sound would weaken or die out in the speaker similar to that which would occur over a barren spot in the vein. A pocket like this would most likely be unusual but it could occur and the reason that the sound will weaken or die out and the mineral indicating meter would lower or drop to zero is because the metal content of the vein is stronger and richer than the mineral and is predominate in the vein and will give this counteracting effect. These spots should also be very carefully marked and they should be investigated. This is something that the prospector would not normally expect and is another reason why this instrument is so designed to locate these deposits that were before possibly undetectable.

Should you wish to use the range control over the metal objects you may set the control back for the metal indicating position, that is the MI-AUTO-ME-AUTO control must be turned to the ME position, the VERNIER ZERO control to the #50 position and the 'METAL-MINERAL' control, which is located above the VERNIER ZERO control is turned from the Mineral side past the point of null to the metal side until the motorboating sound starts slowly and then zeroed with the VERNIER ZERO control until the sound stops and a zero reading on the metal meter with the range control in the #1 position. These adjustments should be made away from the spot where you receive your metal reading and then pass the loop over this spot and if you get a full scale reading, turn your range control back to your less sensitive position, which is #2, and you may again check this spot, then to the #3 position or #4 position if necessary and the highest readings in the least sensitive positions will be secured when the loop is over the center of the object.

In checking placer ground to locate the highest concentration of minerals one should always set out with the instrument set up for detecting minerals and the range control should be on the #1 position and the instrument carefully adjusted for a zero reading on the lower mineral indicating meter and not sound in the speaker. The higher mineralized the area is the more evenly and carefully the instrument must be carried as to the up and down movement of the loop, as the higher the mineralization, the more sensitive the instrument is to this up and down movement such as would occur in normal walking. As soon as the mineralization or concentration of mineral increases in the soil the sound will again start in the speaker and the lower mineral indicating meter hand will swing towards the RIGHT. Occasionally there will be a very slight mineral indication on the meter and the speaker may sound off, which would be of no value and in this case a slight adjustment of the VERNIER ZERO control will again return the meter hand to zero and the sound in the speaker will cease. Slight temperature changes will sometimes cause this as well as very light mineralization changes. As your mineral increases, such as over a pocket the sound will abruptly increase and the meter hand will swing very quickly to the extreme right, and when this occurs you may turn the range control from the #1 position to the #2 position and continue prospecting looking for the spot where the sound will increase still further and the meter hand will again swing over to the RIGHT, should this occur you may turn the range control to #3 which is still a less sensitive position of the metering circuit and continue prospecting. If the meter hand again swings to the RIGHT turn the range control to the #4 position and locate the spots where the reading is the highest. The #4 position is the least sensitive setting of the meter for the larger and richer mineralization.

In case you should locate a spot where the meter hand again swings to the extreme RIGHT and the Range control is already in the #4 position and no more ranges are available you may use the speaker alone and locate any spots where the sound increases still greater and these spots will usually contain the highest concentration of minerals, and as soon as you pass away from the high grade pockets containing

the highest concentrations the sound will decrease and the meter readings will also decrease. The larger the pocket the higher the sound and the higher the reading over the larger area. The smaller the pocket the smaller the area that you receive the highest readings over.

NOTICE - In placer areas it is possible to receive a lower than normal reading and lower sound in the speaker over a very high grade and very shallow gold pocket, when the instrument is adjusted for mineral detection, while the loop is held over the pocket. If the gold content is high enough so that it is predominate over the mineral content this pocket can cause the sound to die out in the speaker completely and the mineral meter hand to fall to zero. These unusual reading spots should be carefully investigated. (Rusty, metal objects can also give this effect.) It is a good policy to always investigate any unusual reading on either Mineral or Metal.

If you have ever used a geiger or scintillation counter you are probably familiar with the Range control by where the most sensitive range is first used to start prospecting and as you find radio-active minerals the less sensitive ranges are used to take your readings on from the vein to locate the high grade ore. The range control of this instrument acts very similar and it is possible for one to locate the high reading pockets or rich mineralization in a vein by using this range control similar to the way it is done with a geiger counter on radio-active minerals. While this instrument does not detect any radio-activity it reacts to the mineral or metal contents and also many of your radio-active rare earth minerals as well as some of the Uranium deposits may be detected with this instrument, due to the fact that it does react to many of the minerals or metals themselves that may be in these deposits, so not only may the instrument be used for locating the presence of treasures and minerals and metals but also can detect the presence of some of the radio-active deposits that contain the detectable minerals or metals along with the other valuable ores associated with it. One should use the samples which accompanies the instrument for practice to become familiar with the operation of the equipment and he should not expect to learn all there is about the instrument in just a few minutes due to the fact that the equipment is so flexible and so advanced and has so many features that you will find out other things about the equipment in ways that it may be used and ways to operate it in different areas, and as one becomes accustomed to its operation better results may be obtained and the greater number of uses the instrument may be put to. While the instrument is very sensitive it is also very ruggedly built but should not be subjected to undue jars and jolts, as this is a very sensitive electronic instrument and undue shocks and jars can cause a shifting of elements inside of the electronic tubes which could develop into an erratic or improper operation.

The large meters on the instrument have plastic covers, and the reason plastic covers are used is that they are much harder to break than regular glass and should a piece of rock strike this glass it is unlikely to break it, however it could scratch it. Should the meter cover become dusty they should not be rubbed, they should be first lightly dusted off and then with a soft damp cloth they should be lightly wiped so as not to scratch the surface. It is always a good policy that when using a rock hammer in breaking off a sample of outcropping that the instrument is set away on the opposite side from the direction of the blows with the hammer, so as not to strike rocks in the direction that the instrument is located.

TO TEST THE BATTERIES IN THE INSTRUMENT:

Turn the Power switch to the 'ON' position. Turn the Battery Check switch to the 1.5 position and read the battery voltage on the dial of the meter. Whenever the

METER reading drops to 25 on the dial, replace the $1\frac{1}{2}$ volt battery. There are two positions for the $1\frac{1}{2}$ volt batteries. First turn the switch to the 1.5, take your reading and then turn the Battery Check switch to the next 1.5 and take your reading. This tests all of the $1\frac{1}{2}$ volt batteries in the instrument.

The next position is for testing the single $67\frac{1}{2}$ volt B battery. When the meter reading drops to 25 replace the battery with a new fresh one.

When the instrument is OFF be certain that the 'OFF-ON' power switch is turned to the 'OFF' position, as if it is left on it can discharge the batteries and when batteries are discharged they act like a short circuit and it can rupture the zinc case around the batteries and permit fluid to seep out and damage the case as well as the components of the instrument. Be certain the Battery Check switch is always turned back to the 'OFF' position as soon as batteries are checked.

In prospecting for minerals it is highly recommended that the OREMASTER 3-WAY SUPER LIGHT be used in conjunction with this instrument. Due to the fact that the SUPER LIGHT can, in many cases, identify many of the minerals that are detected with the NUGGETMASTER. In a placer gold deposit, by shining the 3-WAY SUPER LIGHT on the concentrates in the gold pan, you may determine the size of the zircon crystals that will normally be found in the deposit.

If these crystals are heavy and large, you may be closer to the source of the origination of the gold deposit.

If the Zircon crystals are very small and fine, you may be much farther away from the original formation that this gold was in. The coarser the Zircon, the coarser you would expect to find the gold, as it may not have migrated so far.

Normally, the closer you approach the original source of the gold the larger the crystals would be. The Zircon crystals will turn a beautiful orange color when using the 3-WAY SUPER LIGHT, and the short wave light is projected on them.

When using the NUGGETMASTER, be sure to let the instrument warm up from two to three minutes to stabilize the voltage and frequency before the instrument is used for prospecting. This will give you a more steady and reliable reading.

In case your NUGGETMASTER needs service, always return the instrument directly to WHITE'S ELECTRONICS. Our repairmen are properly equipped to service these instruments efficiently and accurately. Should the instrument be in need of service it is not usually necessary to return the probe or the aluminum tubing.

GOOD LUCK PROSPECTOR. WE WISH YOU VERY HAPPY PROSPECTING

AND TREASURE HUNTING.

W H I T E ' S E L E C T R O N I C S R E S E A R C H L A B O R A T O R Y

1218 Main Street
Sweet Home, Oregon

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.

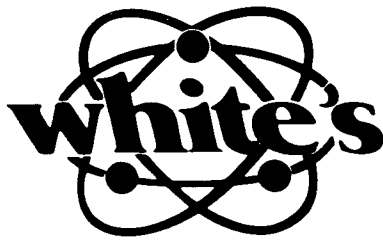
Read your warranty card carefully. It describes completely what is covered and the length of the coverage. If you have any questions don't hesitate to write us. We will be happy to answer any questions you may have.

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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