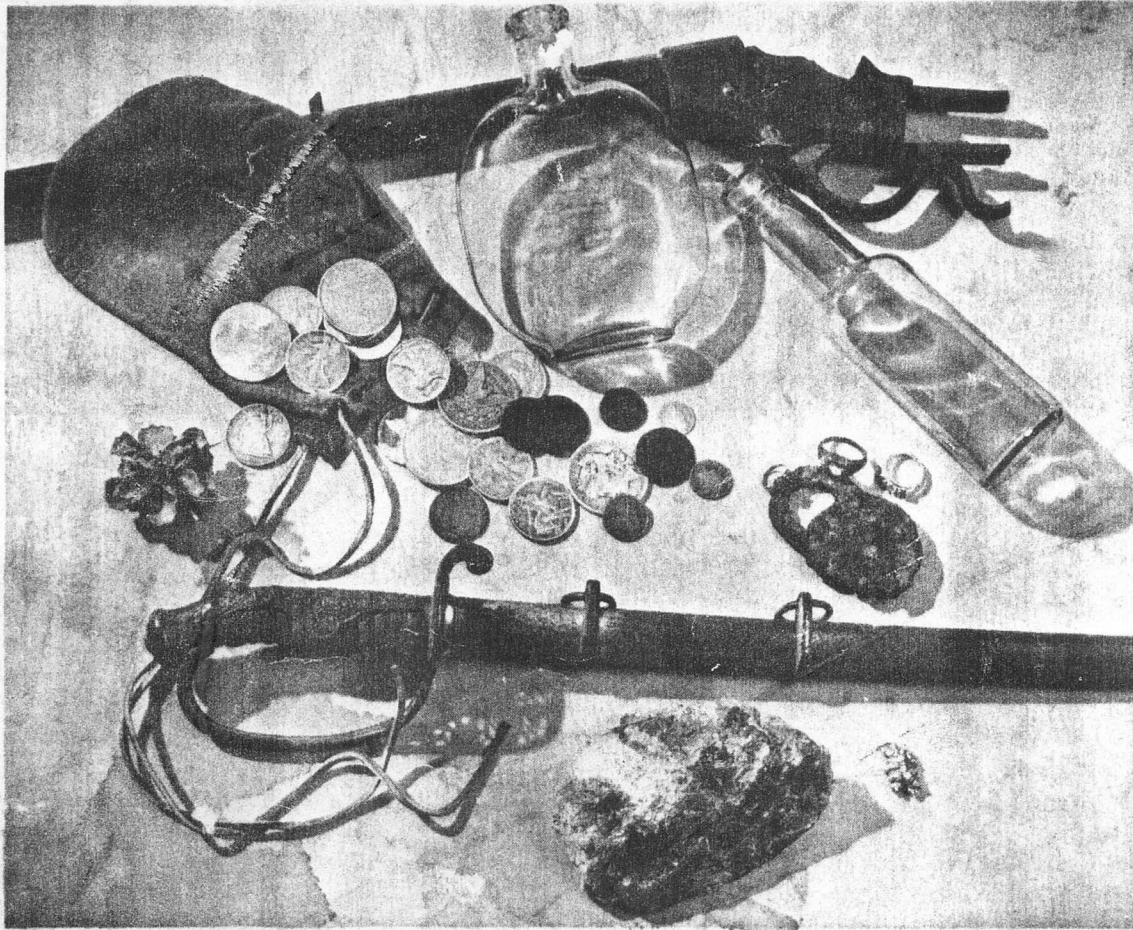


# YUKON METAL-MINERAL DETECTOR INSTRUCTION MANUAL

MODELS 77B, 76B, 71B, 70B, 99B, 94B, 90B, NUGGET, COIN HUSTLER I &



RARE COLLECTABLES BEING FOUND WITH METAL DETECTORS



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## **INTRODUCTION**

Welcome to the fascinating world of Treasure Hunting. The information herein is offered to assist you to use your detector with ease and success. We strongly recommend that you carefully read the following instructions and operating procedures. For your reference and general detector knowledge, additional technical and field information is included.

This manual covers all models in the "Yukon" series. Some of the control descriptions may not apply to your particular model. However, insure that you understand the operating principle of each control on your unit.

We recommend as a starter in field operation, that you practice in your own backyard. You may be surprised at what you find. Skill and confidence will develop after a few short hours of use.

We wish you pleasant treasure hunting and many hours of enjoyment.

## **GENERAL**

### **A. INSTRUMENT CARE**

With the proper care, your instrument should last for many years. Should you use your detector in or around salt water, be sure to rinse thoroughly with fresh water, as outlined in "Field Operation" paragraph "G". Do not use any oils or lubricants on the panel controls. Your warranty may be voided if the instrument electronics or loop assembly are tampered with. Avoid excessive shock or jarring of the instrument. If the instrument is instrument be stored, disconnect and remove all batteries. Do not leave the instrument exposed to extreme temperatures for long periods of time, as this may cause battery damage and leakage, which could cause corrosive damage to the interior of the metal detector. Should the rubber washers on the loop angle adjustment lose their ability to retain the loop in a proper angle, they can be removed and cleaned with paint thinner or other suitable degreasers.

### **B. BATTERY REPLACEMENT & CARE**

The batteries you use in your detector should be selected with care and of long shelf life. COMPASS has incorporated two of the most commonly used batteries into its circuitry solely for the convenience of the customer. These batteries can be found in most any drug store, hardware store, shopping center, etc.. We recommend you use either Ray-O-Vac, Eveready, or a comparable high-quality battery. When

storing your instrument for periods longer than 30 days, batteries should be removed. Batteries can be stored in your refrigerator to help them retain life over a long period of time.

To replace the batteries in the 90 series and "Nugget", the instrument top panel must be removed. On the Coin Hustler series, remove the side pane. The 1-½ V battery packs and the 9V single batteries will have designated letters taped to the battery leads. Make sure these leads are attached to the proper battery, when replaced. When inserting new 1-½ V cells into the battery pack, it is extremely important that the plus and minus polarity coincide with those designated in the battery pack. Failure to do so will cause a malfunction, and the detector will not operate correctly. Should the battery lead clips seem loose fitting, gently squeeze the lead cap together to insure a tight fit.

In the 70 series instruments, the same care in replacing batteries as stated above should be exercised. A battery plate is provided on the side of the instrument. Two nylon snap-lock pins are permanently installed in the battery cover. To remove the cover, press lightly in the center of the cover with your thumb and pull up on the snap pins. To replace the cover, align the pins with retainer holes on instrument housing and press in on pins.

A true reading when checking batteries can be obtained after the instrument has been on for about five minutes. Even a weak battery may show good when instrument is first turned on.

**APPROXIMATELY 20% OF METAL DETECTOR MALFUNCTIONS ARE CAUSED BY EITHER WEAK INCORRECTLY CONNECTED BATTERIES.**

### **C. SERVICE AND REPAIR**

Should service and repair become necessary, either contact the distributor from which the instrument was purchased, or the factory and request service instructions. Normally, service is provided by the factory. If the service is required during the warranty period, there is no charge. Out-of-warranty instruments are serviced on customer authorization, after having been advised of estimated costs. When returning an instrument to the factory, insure it is packed well, preferably in its original carton, prepaid & fully insured. Please include a statement describing defects. Your instrument will be returned C.O.D. for freight charges. Please read your warranty.

## **ASSEMBLY**

**NOTE:** Upon receipt of your instrument, give it a thorough inspection for physical damage, paying particular attention to any area where it appears that the shipping carton was fractured or punctured. If physical damage has occurred, or if any item is missing, do the following:

1. Save the shipping carton and inserts.
2. Call the shipping company and ask that damage inspection be made. If shipment is by parcel post, contact your local postmaster.

### **A. MODELS 77B, 71B, 99B, & 94B**

1. The slotted large end of the telescoping extension shaft is attached to the control unit by sliding the slotted end underneath the knurl knob and bolt. Tighten the knurl knob. This will lock the shaft in

place.

2. On the small end of the telescoping shaft, remove the machine bolt and black knurl knob. Align the hole in the plastic stem of the loop with the bolt hole in the small end of the shaft. Insert the machined bolt through the large hole of the metal shaft and tighten black knurl nut.
3. Before plugging the loop into the control housing, adjust the telescoping rod for proper length to suit your height. Wrap the loop cable around the telescoping rod to eliminate cable slack. Insure the power switch is off. Make the plug connection and secure with lock ring.
4. Adjust loop angle for the loop to be flat on the surface at ground level in front of you as you are standing erect. Tighten the thumb screw the adjustment hand tight to compress the rubber washers. This will secure the loop in the desired angle. Batteries are already installed in your instrument.

## **B. BODY MOUNT - MODELS 76B, 70B & 90B**

1. Connect the loop stem to the lower end of the telescoping loop rod as described in "2" above.
2. Attach the nylon belt to either side of the instrument with snap and "D" ring. Put the instrument around the waist and take up slack on the belt as necessary to insure a snug fit.
3. With the instrument in the OFF position, connect the loop cable plug to the instrument. Make loop adjustment per item "4" above.

## **C. NUGGET**

1. Insert the free end of the small shaft into the large handle shaft.
2. Slide fiber lock washer and knurl lock ring into place and screw part way onto threaded end of large shaft. Adjust loop rods for proper length.
3. Remove machined screws and knurl nuts from drilled end and attach loop. Twist lower shaft to coil excess loop cable around rod. Tighten knurled lock ring.
4. Make loop angle adjustment per item "4" above.

## **FIELD OPERATIONS**

### **A. CHOOSING AN AREA**

The best areas for locating single coins, rings, jewelry, etc., are places where there have been large gatherings of people on a continuous basis over a period of years. The older the site, the better the chances for older coins, etc.. For example, old carnival sites, recreational parks, city parks, swimming holes, play grounds, school grounds, parking strips, etc.. These areas will offer many targets for you to get acquainted with your unit. Many hours of enjoyment can be had just a few short blocks from your home.

This is not to say that you are limited to this type of hunting with your metal detector. Some users are

bottle hunters, nugget snipers, artifact collectors, and just out and out treasure hunters.

NOTE: It is prohibited to use a metal detector in National Parks, within the boundaries of National Monuments, State Parks and designated Historical sites.

If you are not sure of any existing city ordinances in your area, it might be advisable to contact your local officials.

## **B. BODY POSITION AND SWING**

To lessen body fatigue, it is important to adjust the rod stem and the loop angle in such a manner which will allow the operator to stand at a perfectly normal, erect position with the operating arm in a normal extended position at the body side. There is no need to hold the arm at an angle to support the instrument up or have the body in a stooped position. The movement of the instrument from left to right should be accomplished with arm movement and a swinging motion of the body as you walk slowly forward. When using the larger loops, arm fatigue can occur. We recommend you install the "Speed Handle", (an optional accessory), to give more balance and control.

## **C. SWEEP PROCEDURE**

When scanning an area, sweeps should be made in an arc from side to side, in front of the operator; (remember, loop on or as close to the ground as possible). Each sweep should overlap the previous sweep by at least two inches, to insure that you do not miss a target. Sweep speed should 1 foot per second to start. Speed can be increased as skill of identifying signal response increases. Try to be systematic in covering an area in straight lines or traverses to insure you are not missing any spots

## **D. CENTERING ON TARGET**

After contacting a target on a side to side sweep motion, come back to the target several times and stop when the loudest signal is heard. This centered the target with the loop on a left to right plane. Now, move the loop in a forward and backward direction until the signal is at its loudest. You now have two lines crossing the target and it should be directly the center of the loop. Some exercise will be required to get this centering procedure accurate. We recommend you bury several coins at two to three inches deep in your yard and practice centering on target. Targets that are tilted, on an angle under the ground or on edge, will probably be off center; either left or right, but not more than an inch or two.

It is possible to use the meter as an aid in pinpointing small objects (Models 77B, 76B, 71B and 70B). The meter can be used for centering in the same manner as using the speaker. Instead of listening for the loudest tone, you see the highest deflection of meter indication, which should respond with the loudest signal heard in the speaker. At times, the may be so faint that only the slightest movement of needle deflection may be all.

## **E. BASIC TARGET IDENTITY**

As discussed in "Theory of Operation", paragraph "B", "Explanation of Metal and Mineral", a detector can sometimes aid you in distinguishing between different types of metal. It was stated that some types of hard metal cause two opposite reactions, depending upon the angle in which the object introduced into the loop's field. By utilizing this phenomenon, every novice coinhunter can make a preliminary conclusion of target identity simply making a half turn and crossing the object with the loop from a

right angle. If the target seems to have disappeared or split into two targets, then most likely the object is of a hard metal structure and coin or ring. Soft metals, such as coins, rings and jewelry, will equal responses, regardless of the angle of approach.

It is difficult to distinguish between tin foil, pull tabs, bottle caps and coins. The above mentioned simple test most generally applies to an elongated-shaped object such as a nail, bobby pin, knife blade, etc.. Any bottle cap, however, if not too deep, will cause a slight null-out or drop in signal just prior to increased signal in the area of the forward top of the loop. A little practice with this procedure could possibly save digging. For the purpose of practice, it is recommended that a few of these various scraps be gathered together and buried approximately one inch in the ground, but apart from each other, and the operator scan these objects and try to familiarize himself with the variations of tone and signal response.

## **F. PROBING**

### **I. SMALL OBJECTS**

Your probe tool can be a blunted ice pick, long shanked screwdriver, leather awl, or any other long-bladed object that can be pushed into ground easily. Probing is very important because if you do not probe to recover the target properly, a very ugly scar on a coin or hole in the ground will be the result. This does not promote good relations for treasure hunting with city officials. After having centered your target with your free hand, just point to the center of the loop. Slide the to the side and lay the instrument down. Your finger should be pointing the exact spot where the target is (later you will be able to fix you on this spot). Now, probe straight down gently until your probe comes in contact with the target. Once you have made contact, remove the probe. Come back under the target with your probe blade at a 45 degree angle and very carefully pry upward to break the sod and loosen the object. A little more loosening and your probe blade should pop the object to the surface (do not cut plugs). Replace the dirt and sod in its original position, then step on it lightly with your foot. The point here is to recover the coin or object and leave the site as it actually was before you started probing. You will never see where a good coinhunter has been working. Even though his pockets are bulging.

### **2. LARGE OBJECTS**

In non-public areas or out in the hills, a small garden trowel or spade can be used. The same rule of filling holes and removing trash applies.

### **3. WORKING IN WATER**

All of COMPASS loops are waterproofed at the time of manufacture and will operate in fresh and salt water alike. When working in shallow streams, rivers or surfs, the operator must remember that the relation of the loop to the bottom is the same as the loop to ground, when working on land. In other words, the closer the loop is to the bottom when tuning, the more depth that can be obtained. Care must be taken not to submerge the loop rod too deep in the water, for the electronic housing and cable plug system is not waterproofed. Most underwater detection work is in less than 18" of water. Tuning the instrument in water is identical to tuning on land; but due to the difference in temperature, the loop must be placed in the water with the instrument turned OFF and allowed to remain for approximately two minutes for the loop temperature to equalize with the water temperature. After this short duration, the instrument can be turned on and tuned in the normal procedure.

CAUTION: Salt water is highly corrosive. After working in salt water, the loop, loop rod and anything having been submerged must be rinsed with fresh water. It also would be a good idea to wipe down the electronic housing and all other parts with a cloth dampened in fresh water. Especially control shafts and hardware.

## **OPERATION**

### **GENERAL ALL MODELS**

The following two sections ("A" Explanation of Controls and "B" Tuning Procedures) are the most important of the entire Instruction Book. Should the instrument not be tuned properly, a good many targets will be missed.

In general, all of the "Yukon" Series Metal Detectors should be tuned with the loop directly on the surface to be searched as previously stated. A slight variation of elevation between the loop and ground can result in poor tuning. After your instrument has been tuned to ground level, you may notice an abrupt change in tone when the loop is raised. This is normal in moderate to high mineralization.

If you are in rough terrain such as a dry river bed or rocky area, it will then be necessary for you to tune the instrument with the loop slightly above the surface of the ground, but as close to the area to be searched as possible. Once the tuning adjustment has been set for any position on ground or just above ground, the instrument must be operated at that level. If it is desired to change this level or elevation, the instrument must be retuned. Tuning should be done in an area free of metal objects.

## **EXPLANATION OF CONTROLS**

### **1. METAL-MINERAL COARSE TUNING (Models 77B, 76B, 71B & 70B)**

Pre-select METAL or MINERAL operating mode. The control is turned in the direction of the desired operating mode until full tone is heard. control is then backed off until tone stops. The instrument is now preset for the selected mode of operation. Further adjustment of this control should not be necessary.

### **2. METAL-MINERAL FINE TUNING (Models 77B, 76B, 71B & 70B)**

Fine tunes the mode of operation previously selected by COARSE TUNING The FINE TUNING control has a narrower tuning range than the COARSE TUNE and allows the operator to tune the instrument with a finer degree of accuracy. After COARSE TUNING selection, tune the FINE TUNER in the same direction of selection as the COARSE TUNER until a minimum tone is audible in speaker or headset. Do not tune to a loud tone, as you will not hear any change in signal response when over a target. Just a faint whisper of signal is all that is necessary for maximum receiver reception. Several turns may be required for tuning. This control has a 10-turn range.

### **3. METAL-MINERAL (Models 99B, 94B & 90B)**

These particular models do not require the combination COARSE and FINE TUNING feature. Only one control is necessary for selection of METAL MINERAL operating mode. This control has a very wide tuning range between the METAL and MINERAL modes. Therefore, there is as much as three or



four complete revolutions of null (or no sound) area between one mode and the other. Tuning is accomplished by turning the control in the direction of operating mode desired until just a faint whisper of signal is obtained. The operator should familiarize himself with the control by turning through the full METAL-null-MINERAL tuning range several times. As stated in "2" above, do not tune for too loud of signal, just a whisper.

#### **4. METAL ONLY - NUGGET & COIN HUSTLER series**

Incorporate a single control, which functions as power ON/OFF tuning for the METAL mode of operation only. The control is turned toward METAL for the desired tuning tone as stated in "3" above.

#### **5. GROUND CONDITION CONTROL (Models 77B & 76B)**

The GROUND CONDITION adjustment is a receiver intensity control. It allows the instrument's gain to be varied for use in different types mineralized soil conditions. This offers the operator optimum sensitivity under a variety of ground conditions. The control has three tuning are LOW, NORMAL and HIGH. "LOW" to "NORMAL" is used in areas of high mineralization. Use the "NORMAL" setting for moderate soil conditions. "NORMAL" operation is recommended for all operators until completely familiar w the instrument's ability and capabilities. The "HIGH" range can only used in areas of little or no mineralization. In the "HIGH" setting, it will be found that the instrument is difficult to use in highly mineralized soil. In this "HIGH" condition, the receiver is at maximum sensitivity AGAIN, WE URGE NEW OPERATORS TO OPERATE IN THE "LOW" TO "NORMAL" MODE GROUND CONDITION UNTIL YOU ARE SURE OF YOUR OPERATOR SKILLS. The GROUND CONDITION control should be adjusted before operating begins.

#### **6. METER ZERO CONTROL (Models 77B & 76B)**

METER ZERO CONTROL provides the operator with a means of adjusting meter needle anywhere on the scale. The primary function is to zero the meter after COARSE and FINE TUNING to a near Zero position on the scale. The meter should be adjusted to a point where the needle moves in close conjunction with increase of tone.

#### **7. ON-OFF VOLUME CONTROL (All models EXCEPT "Nugget" & "Coin Hustler)**

This control is a power ON-OFF and speaker/headset VOLUME CONTROL combined. Normally, for speaker operation, the VOLUME CONTROL is turned full. Should the operator wish to use headsets, the VOLUME CONTROL must decreased on the 90 series instruments before plugging in headsets. The series instruments will automatically have the volume reduced when the phone jack is plugged in. When turning the instrument OFF, make sure the control is turned to the extreme counter clockwise position. The POWER SWITCH must be on when checking batteries.

#### **8. BATTERY CHECK (Models 77B, 76B, 71B, & 70B)**

With the POWER SWITCH ON, switch through all three battery positions, observe that the meter reads above 100 for all checks. After checking batteries, be sure to turn BATTERY CHECK to OFF. You need not replace a battery til it drops to about 100 on the METER.

### **BATTERY CHECK (Coin Hustler 1)**

Since this model does not have a metered battery check, it is recommended that the batteries be replaced every 25 hours of operation, or when the sound starts to get weak. Weak batteries will cause noticeable drift.

### **BATTERY CHECK (Models 90B, 94B, 99B, Coin Hustler II, Nugget)**

With POWER SWITCH ON, switch through battery positions 9A and 9B located the LIGHT SWITCH (99B). Depress battery check button on the Coin Hustler II, 94B, 90B or Nugget. Observe that the INDICATING LIGHT is illuminated. If the INDICATING LIGHT does not illuminate, the batteries should be replaced. With new batteries, the INDICATING LIGHT will have a bright intensity and will decrease in intensity as used. A very light illumination indicates the batteries are becoming questionable and may need to be replaced or the instrument drifts.

On the 99B, the battery that supplies the INDICATING LIGHT when detecting, is labeled 9C and is checked by scanning over a coin on the surface of the ground to insure that the light illuminates brightly. If the light intensity is too dim for adequate detecting, 9C should be placed. Battery pack 9C will last approximately 40 hours. NOTE: To increase battery life of 9C, operate in the light OFF position unless in actual use. There is no current drain on 9C when the light switch is in the OFF position.

## **9. METER AND INDICATING LIGHT OPERATION**

The METER and INDICATING LIGHT are also intended as an aid for pinpointing a small object, to eliminate damage when probing, or tracing an outline of a larger object. They can also be used as the primary find indicator if the operator prefers the VOLUME CONTROL off for quiet operation. NOTE: For the INDICATING LIGHT to be operational, the light switch must be in the ON position. If poor indication light sensitivity occurs, replace battery pack 9C.

## **10. AUTOMATIC SPEAKER DISABLING SWITCH (Models 77B & 71B)**

A Slide Switch, located on front of instrument on Models 77B & 71B, is used to turn the speaker off automatically when the instrument is laid in horizontal position to eliminate the speaker noise while digging (slide switch in DOWN position). BATTERY POWER IS STILL ON. DO NOT USE AS A POWER SWITCH. When the Slide Switch is in the UP position, the Automatic speaker Disabling Switch is out of the circuit so the instrument can be used in the horizontal position when scanning a wall.

## **11. HEADSET OPERATION**

Headsets are often preferred when working in noisy areas such as crowded parks, near streams, highways, etc.. Some weak signals are more noticeable through the headset.

## **TUNING PROCEDURES (Models 77B, 76B, 71B & 70B)**

1. GROUND CONTROL should be adjusted for existing soil condition, but will usually be in the low to normal position.
2. Insure BATTERY CHECK SWITCH is OFF.

3. Turn the power on with speaker VOLUME on full. (Make necessary volume adjustment for headset operation.)
4. With COARSE TUNER, pre-select METAL or MINERAL operating mode.
5. With FINE TUNER, adjust for a slight tone (not too much) in speaker or headset.
6. Adjust METER CONTROL for near Zero meter reading.
7. In commencing sweeps, if tone is too loud, reduce FINE TUNER for just below a whisper of tone in speaker. FINE TUNER should be checked periodically to compensate for any ground condition changes. (conditions could change from sweep to sweep)

## **TUNING PROCEDURES (Models 99B, 94B & 90B)**

99B ONLY - If it is not desired to use the light as an indication device, insure BATTERY/LIGHT SWITCH is in the OFF position.

1. Turn power ON and increase VOLUME to full. For headset operation, reduce VOLUME before plugging in headset.
2. With METAL-MINERAL TUNING CONTROL, select mode of operation for faint whisper of tone.
3. When beginning sweeps, reduce or increase TUNING CONTROL to maintain a whisper of tone as necessary.
4. Check TUNING CONTROL periodically for any adjustments required for ground condition changes. (conditions could change from sweep to sweep)

## **TUNING PROCEDURES - NUGGET 6 COIN HUSTLER series**

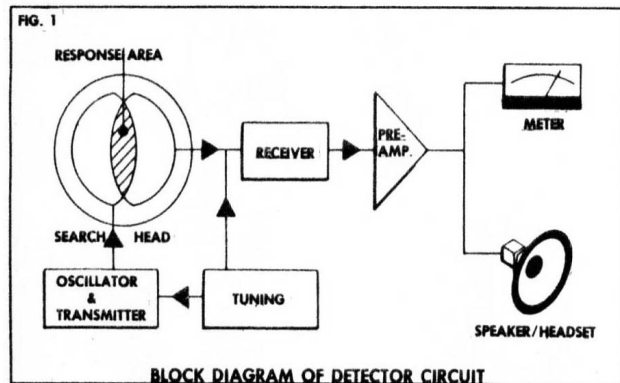
The "Nugget" and "Coin Hustler" series incorporate METAL tuning only.

1. Turn instrument ON and continue turning control until a faint whisper of tone is heard in the speaker. Adjust as necessary during sweeps for minimum speaker tone.

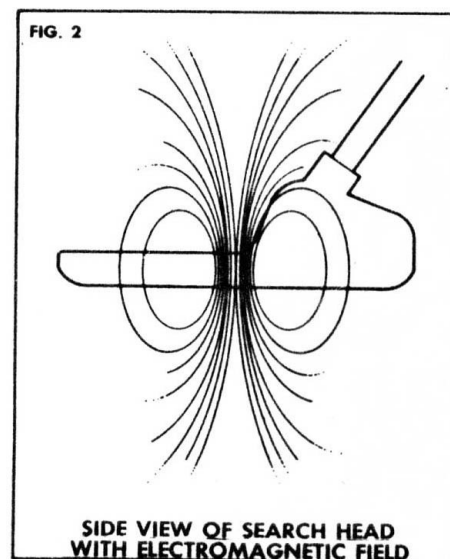
## **THEORY OF OPERATION**

### **A. PRINCIPLE**

Within the electronics housing, there is a transistorized transmitter and receiver circuit coupled to a transmitter and receiver antenna network which is housed in the search head (Fig. 1). When the detector is energized, an electromagnetic field is developed around the transmitting coil (Fig. 2). The receiver coil is inductively balanced to the transmitter coil and receiver reception adjusted by controls on the instrument. When a ferrous or non-ferrous metallic object is introduced into the electromagnetic field, an unbalanced state will result between transmitter and receiver coils (hereafter referred to as the "loop"). The receiver section interprets the unbalanced condition and it is heard in the speaker and/or seen on the meter.



BLOCK DIAGRAM OF DETECTOR CIRCUIT



SIDE VIEW OF SEARCH HEAD WITH ELECTROMAGNETIC FIELD

## B. EXPLANATION OF METAL-MINERAL

In theory, when a metallic object is introduced into the electromagnetic field of the loop, one of two known reactions will occur. This seems to be entirely dependent upon the type of metallic material introduced. Lines of force from the field, which cross a metallic object, will induce a secondary electromagnetic field around the object. This "secondary" field appears to either aid or oppose the main field, depending upon the object's magnetic properties. With two reactions possible (one opposing, one aiding), it stands to reason two different indications are possible in your speaker or on the meter. Therefore, in order to give the operator some reference as to which reaction he is reading, your metal detector has a METAL and MINERAL setting on the TUNING CONTROL. Other designations for this are Plus or Minus, Negative or Positive, Ferrous or Non-Ferrous.

Should your metal detector be tuned for METAL and you receive a signal that increased the tone in your receiver, then in most cases, an object which, as generated an opposing field has come in contact with your loop. This object should be of non-ferrous structure such as gold, silver, copper, platinum, aluminum, lead, zinc, etc.. Other metallic objects which have a ferrous or iron content would first cause a slight decrease in your signal intensity. On the other hand, if the reverse were true and your TUNING CONTROL was set on MINERAL, you would receive an increase in signal on iron and magnetic objects and decrease in signal on non-iron objects.

This reaction to the main loop field by metallic objects is not 100% consistent, in reference to iron or steel. We have found that the angle at which the object is lying in the ground can also affect the response. For example, a knife blade, nail, bobby pin or screwdriver blade will give a negative response when introduced at one angle and a positive response in, n opposite angle. Therefore, the operator must be alert to recognize both responses. By using this phenomenon, an operator can distinguish between a nail and other iron objects and a soft non-metal, such as a ring or coin. (Refer to Field Operation, paragraph E.)

## **WHAT A DETECTOR WILL AND WILL NOT DO**

The metal detector will detect all types of ferrous and non-ferrous metals. The electromagnetic field described in "A" above will penetrate through wood, rock, adobe, ice, snow, soil and non-reinforced concrete and asphalt, just to mention a few. Concrete is difficult to work over, as it is highly mineralized. The metal detector will not detect glass, non-metallic minerals, gems or sulfides. An object must have a conductive property in order for it to cause a reaction to the loop's electromagnetic field.

## **WHY DIFFERENT SIZE LOOPS?**

One standard size loop is not compatible with the different uses or applications a person may want to use his detector for. Some wish to search for small items, such as coins and rings that are close to the surface. Others wish to search for bottle dumps where larger metal objects are associated, but are much deeper. There are those that would prefer to search for small silver, copper, or gold nuggets in streams, rivers or bedrock. All of these applications require a specific size loop.

As stated in "A" above, an electromagnetic field is developed around the loop. This field size is generally in relation to the size of the loop coil. For example, a 3" coil has a small, tight field. A 12" coil has a larger, expanded field. Smaller loops are used to find smaller objects. The larger loops for larger objects. The larger the field, the deeper it will penetrate, but the larger the object must be.

The intensity of the return signal is determined by how close the object is to the field and how many lines of force from the field are cutting the surface of the object. Therefore, a large field created by a large loop would be unlikely to reflect a noticeable return signal from a small nugget. Likewise, a smaller loop's field could not penetrate far enough to contact the large objects that might be deeper. COMPASS provides 3", 5", 8" and 12" loops to cover a variety of applications.

Your COMPASS detector has a capability of detecting coins and other small objects at a depth of 4 to 8 inches with the 8" loop. Larger objects can be detected up to 4 feet with the large loop.

Depth of detection will vary. This is caused by several factors, some of which are interrelated.

Most important of all is the operator's skill and knowledge of this detector. At first, it may seem all you can find are large objects or small objects just below the surface. As experience grows, you begin to find more, deeper. Eventually, you are more keenly aware of the detector's responses and your hearing becomes more accurately attuned to the various signal changes. With this increased skill, targets will be found much deeper, even under adverse ground conditions.

Secondly, there are physical factors that have a very pronounced affect on the field generated by a metal detector loop. Most common is what is referred to as mineralization, or soil condition. It seems that no two areas are alike as far as mineral content in the soil. When we refer to mineralization, we are speaking of salts, iron and magnetic mineral particles that are found in most soils, but in varying degrees of quantity, depending on area. In the Western states and a few Southeastern states, mineralization can be high and this definitely reduces depth penetration. In many other states, mineralization is low and greater depths can be attained. Because of changes in mineralization or high and low spots in the terrain, retuning may be required quite frequently.

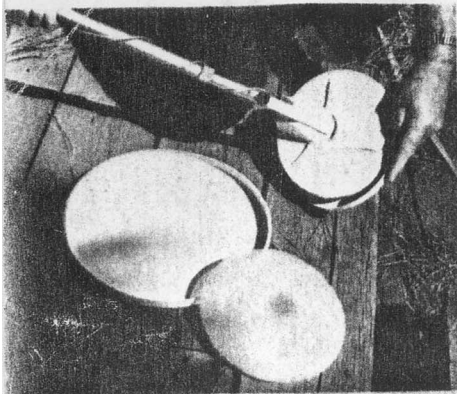
A metal object's size must also be taken into consideration. The larger an object, the deeper it can be detected. On the other hand, a smaller object such as a coin or ring, will usually be limited to depths of between 4 and 8 inches. When speaking of the size of an object, keep in mind that the more object

surface area exposed to the detector field, the easier and deeper it can be detected. An object's flat surface is much easier to detect than the same object's edge. A coin on edge is a good example, and will sometimes produce a split signal, depending on angle of approach.

Along this same line, it has been found that the longer an object has been buried in the ground, the depth of detection is increased. This is primarily due to the fact that acids and salts in the soil cause corrosion on the metal and the soil around the metal absorbs metal oxides, which are also conductive. To the detector, the object appears to be larger than it actually is.

Because of these variable factors, it is most difficult to produce a realistic chart indicating depth of detection for any particular instrument. To summarize and to answer the primary question of "How deep will it go?", depends on the operator's skills, soil conditions, size of the object, and how long the object has been in the ground.

Further detailed information covering metal detector theory and principle can be obtained in "The Electronic Metal Detector Handbook", by E. S. LeGaye. Even though many advancements have been made since the handbook was written several years ago, it contains a wealth of technical information.



## Protect sensitive coils with snap-on covers

Snap-on coil protectors give your loop a second skin—guards against wear from abrasive sand, gravel and sharp rocks. Molded from high impact ABS plastic. Also offered in a dome shape of a flexible plastic, only... designed to slide smoothly over rough and rocky ground. Easy to snap on and just as easy to remove.

**\$3.95** fits 8" loops    **\$4.95** fits 12" loops

# accessories to improve your treasure hunting!

## speed handle for two-hand control

Great for treasure hunts where speed is essential and gives longer periods of operation with minimum fatigue. The speed handle is easily attached to rods of either the body-mount or rod-mount detector. When not in use the speed handle is held fast by a clamp attached to the upper end of the rod.

The speed handle will fit most major brand detectors. In use, wider and faster sweeps can be made in a full 180° arc over terrain of all types—smooth or rough.

**\$11.95**



## Be more perceptive with stereo type headphones

Cover more treasures with sensitive headphones—they'll help you hear those faint "blips" indicating a deeply buried coin. A must when working around busy traffic, windy areas or at the seashore. Softly padded for hours of comfortable use.

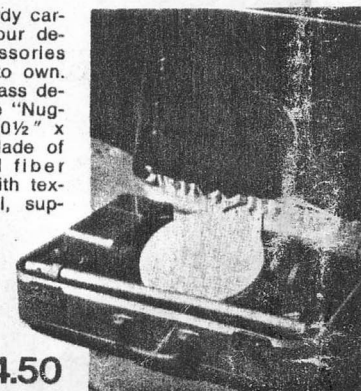
**\$12.50**



## store, carry it safely!

A handsome, sturdy carrying case for your detector and accessories you'll be proud to own. Use for all Compass detectors except the "Nugget". Measures 20½" x 13½" x 5½". Made of sturdy pressed fiber board covered with textured green vinyl, supported by aluminum seat locking latches with keys included. Interior is cushioned with die-cut polyfoam plastic.

**\$24.50**



## stand keeps your detector upright

A new snap-on detector stand easily snaps onto the handle rod on the bottom side of Compass detectors—also fits most other major makes. Keeps the detector in an upright position when it is laid down while the operator digs. Protects the control box and inside of control shafts from damage by dirt and sand. Made of high impact plastic—lasts for years.

**\$19.95**



## treasure books for the curious



ABC's of Gold Panning.....\$3.00  
 Bottles and Relics.....\$5.00  
 Electronic Detector Handbook.\$8.00  
 Treasure Hunting with the Metal Detector.....\$6.75  
 Coin Shooting (How & Where)..\$2.50  
 Treasure Hunter's Yearbook...\$3.95

## speaker disconnect

Automatically turns speaker off when instrument is placed flat. Adaptable to all existing models except body mount. (Standard with 71 and 77B series.)

**\$18.00**

## FIVE-YEAR WARRANTY!

Instruments with defective material or workmanship will be repaired or replaced (at COMPASS' option) within one year from date of purchase at no charge if returned to COMPASS postpaid. After one year and for an additional four years all parts (excluding meters) will be fully warranted. COMPASS ELECTRONICS will repair the instrument for a fixed nominal labor and handling charge of \$15.00 prepaid back to the customer, which includes a 90-day parts and labor warranty.

## Job-rated loop selection

In general, the smaller loop is more sensitive to smaller objects while the larger loops will detect at greater depths with less sensitivity to the smaller objects.

**B-3"**—Ideal for locating small nuggets and ore veins. Non-adjustable. **\$65.50**

**B-5"**—Ideal for coin shooting and locating small nuggets. Non-adjustable. **\$59.50**

**B-8"**—Most popular size for all-around treasure hunting, coin shooting, larger nuggets. Detects deeper and covers more ground than the 5" loop. Adjustable positive lock positioning. **\$59.50**

**B-12"**—The "deep searcher" for maximum depth and ground coverage. Will detect some coins to 12" and large objects to 7". Popular with serious coin shooters as it covers approximately 10" in each sweep! Adjustable positive lock loop positioning. **\$72.50**

# COMPASS

503-357-7117

electronics corp.

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