

FISHER m-SCOPE

GOLD BUG ACCESSORIES

6-1/2" ELLIPTICAL SEARCH COIL: For extremely mineralized soil and those hard to reach nooks and crannies.

14" ELLIPTICAL SEARCH COIL: Cover more ground faster and deeper.

COIL COVERS: Protect your search coils from wear and tear.

HEAVY DUTY CARRYING BAG: A tough, good looking bag with shoulder strap.

CARRYING CASE: Lightweight and rugged with a key lock and foam lining.

STEREO HEADPHONES: With heavy-duty coil cord and dual volume controls. Helps you hear those faint, deep targets.

CASH-TRASH APRON: One pouch for treasures, one for junk.

FISHER PHONES: Deluxe ultra-quiet stereo headphones eliminate most outside noise.

RAIN COVER: Vinyl-coated, nylon cover protects the control housing from light rain, fog or dust.

SHOULDER PATCH, VINYL HOLSTER FOR CONTROL HOUSING, VINYL ACCESSORY BAG, BASEBALL CAP: All with the M-Scope logo for the Fisher Treasure Hunter who's proud to be one.

SUCCESSFUL NUGGET HUNTING VOL. 1: How and where to find gold in Australia, Southern California, and Southwestern Arizona. By Pieter Heydelaar.

AMERICA'S LOST TREASURES: Over 650 authenticated treasure sites within the U.S. Also tips on coin hunting, cache hunting and research. By Michael Paul Henson.

ADVANCED NUGGET HUNTING WITH THE FISHER GOLD BUG: 44 pages jam packed with tips and techniques for getting the most out of your Gold Bug. By Pieter Heydelaar and David Johnson.

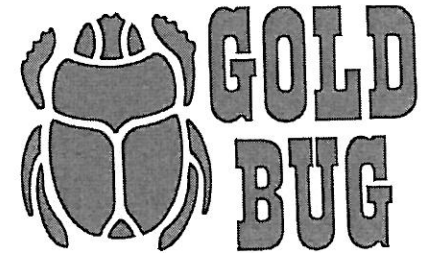
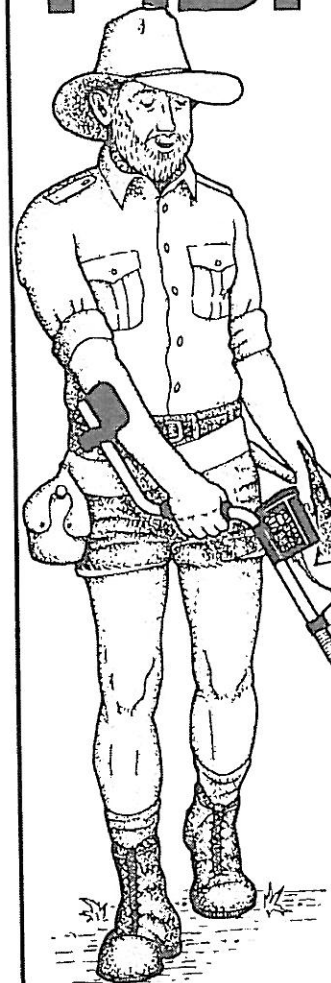
"GOLD FEVER": Four-minute audio cassette about nugget hunting. Sung by Cyril May.

SERVICE

Your Fisher M-Scope Gold Bug is backed by the world's oldest and proudest name in metal detection. Each and every instrument is rigidly tested and carefully inspected during assembly and before shipment. Should you have any questions or problems, contact:

FISHER RESEARCH LABORATORY
200 W. WILLMOTT RD., LOS BANOS, CA 93635, USA
TEL. (209)826-3292, FAX: (209)826-0416

FISHER m-SCOPE



Prospector's
Metal
Detector

OPERATING MANUAL

FISHER RESEARCH LABORATORY

ABOUT YOUR GOLD BUG

The Fisher Gold Bug was conceived, designed, engineered and manufactured for one purpose: to find gold nuggets. And it's done just that for thousands of week-end and professional prospectors. So, if you're after gold, you've got the right detector. Here's why...

Gold Sensitivity: Just about any metal detector will sound off over a large nugget. The problem is, most nuggets are small. The Gold Bug will respond solidly to nuggets not much bigger than the head of a pin.

Ground Rejection. Not only are most nuggets small, they're in highly mineralized soil. Mineralization so strong that it overloads the ground reject circuitry of many detectors and drastically reduces the performance of others. The Gold Bug will penetrate all but the worst of these soils.

Operating Modes: Three completely different all-metal modes: VLF Slow Motion, VLF Auto-Tune and VLF No-Motion. All with manual ground adjust and variable sensitivity for optimum operation in any situation.

Elliptical Search Coils: The standard ten-inch elliptical coil covers more ground with each sweep than a normal eight-inch coil. The optional fourteen-inch elliptical coil covers even more ground and goes a little deeper. And the five-inch elliptical coil is perfect for extremely "hot" ground and tight spots.

Keep in mind that the Gold Bug will respond to all metals, not just gold. It has no "discrimination" or "target identification" circuitry. We've found that any attempt to electronically tune out unwanted targets is a good way to lose those very tiny nuggets.

There's no reason why you can't use your Gold Bug for "coin shooting" in parks, relic hunting in ghost towns or on the beach. True, the Gold Bug was designed for prospecting, but if you're willing to dig up some junk with the good stuff, you'll probably find more and deeper targets than you could with a "trash discriminating" type of metal detector. This is especially true in highly mineralized soil or black sand.

Now the rest is up to you. You've got the right detector but you'll have to decide where to search and then put in a lot of long, hard hours searching. And of course you're going to have to learn your Gold Bug. Read this instruction manual carefully and practice often. Drop us a line if you have any questions, comments or exciting gold nugget stories. In the meantime...

Good Hunting

Fisher Research Laboratory

GOLD BUG SPECIFICATIONS



Length?	55"
Extended	46"
Collapsed	2.9 lbs.
Complete	1.0 lbs.
Control Housing	1.9 lbs.
Handle and Coil	19.2 KHz
VLF Search	Audio Target Response (VCO) ²
Frequency	Operating Modes ... 1. All Metal, Auto Tune with Threshold ⁴
	2. All Metal, Motion, No Threshold ⁴
	3. All Metal, No Motion, with Threshold

Trash Discrimination	No
Manual Ground Adjust	Yes
Manual Threshold Tuning	Yes (Auto Tune & No-Motion Mode)
Search Coil	Type Elliptical, Co-Planar
	Size 10" X 5" ⁵
	Shielding 100% E.S.I. ⁶
	Interchangeable Yes
	Waterproof Yes
	Cable Length 7'
Audio Output	Speaker 2", Mylar, Moisture proof
	Headphone Jack 1/4", 8-16 ohms, stereo/mono

Handle Mount/Hip Mount Convertible	Yes
Built-in Arm Rest & Detector Stand	Yes
Batteries	Type (2) 9V Transistor
	Life-Carbon Zinc 15-20 Hours ²
	Life-Alkaline 35-50 Hours ²
Warranty	5 Year Gold Seal Limited

NOTES

1. Subject to improvement or modification without notice.
 2. Approximate.
 3. Voltage controlled Oscillator. Volume and frequency increase as target is approached. This effect is most pronounced in the No-Motion mode.
 4. The Gold Bug is a "motion" detector in the Auto-Tune and Motion modes. The search coil must be moving at least slightly to detect a target.
 5. 14" elliptical, 6-1/2" elliptical, and 3-3/4" diameter coils optional.
 6. Electro-Static-Insulated to eliminate certain types of false signals.
 7. One year parts and labor plus four years parts only. The length and terms of the warranty will vary outside the U.S. Check with your distributor for details.
- Fisher Research Laboratory does not warrant suitability to specific use. Fisher Research Laboratory shall in no event be liable for any direct, incidental, consequential or indirect damages.

TREASURE HUNTER'S CODE OF ETHICS

Laws governing the use of metal detectors are becoming more and more common. In many countries, the use of metal detectors is illegal or severely restricted. **Don't let it happen in your country!**

1. ALWAYS leave a site cleaner than you found it. If you dig up junk, take at least some of it with you, or if you can, take it all.
2. ALWAYS fill in your holes neatly whether you're in a city park or a remote wilderness. Leave the land as it was before you disturbed it.
3. ALWAYS obey all laws relating to Treasure Hunting.
4. ALWAYS return valuable property if you can locate the original owner.
5. ALWAYS do whatever you can to give the hobby of Treasure Hunting the good image it needs and deserves.

LET'S PRESERVE OUR TREASURED SPORT!

Where to Use Your Metal Detector In the U.S.

National Forest and Federal Lands—Metal detecting is allowed only by special permit acquired from the federal government. Each area has a district office.

Corps of Engineers, Lakes Shorelines and Lands—Permission has been granted only on predisturbed sites, such as beaches and attached swimming areas. New Corps lakes and lands must be okayed by the main office of the Army Corps of Engineers. Each area has a district office.

State Parks and Lands—Some state parks are open to metal detecting, but some are not. Always check with the park ranger before attempting to use your detector.

Bureau of Land Management (BLM) Lands—Some areas are open for metal detecting, and some are not. Always check with the district office.

City or County Park Lands—Most are open to metal detecting unless notice is given by a sign or city ordinance. When in doubt, always check with the city's Parks and Recreation Department.

Public School Grounds—Most are open to metal detecting unless notice is given by a sign, city ordinance, law enforcement official, or school employee. You should always check with the school office first.

Privately owned Lands (Private Property)—Permission required. And it is always best to have that permission in writing.

Historically Marked Lands or Sites—Metal detecting is not allowed. Don't even think about it.

TABLE OF CONTENTS

ABOUT YOUR GOLD BUG.....	2
SETTING UP.....	5
HIPMOUNTING.....	7
CONTROL FUNCTIONS.....	8
OPERATING MODES.....	9
TURN ON PROCEDURE.....	10
GROUND REJECT PROCEDURE.....	11
AUTO-TUNE MODE.....	11
NO-MOTION MODE.....	12
MOTION MODE.....	12
SEARCHING.....	13
PINPOINTING.....	15
AUTO-TUNE AND MOTION MODE.....	15
NO-MOTION MODE.....	16
TARGET RECOVERY.....	16
OPERATING TIPS.....	18
FALSE SIGNALS.....	19
BATTERY REPLACEMENT.....	20
MAINTENANCE.....	21
COIN SHOOTING, BEACHCOMBING & RELIC HUNTING.....	22
TREASURE HUNTER'S CODE OF ETHICS.....	22
SPECIFICATIONS.....	23
ACCESSORIES.....	24
SERVICE.....	24

3. Insert the new batteries. Make sure the contact end goes in first and that you match the polarity markings on the control housing.
4. To close, simply hook the lower edge of the battery door over the inside of the battery compartment and gently push shut.
5. Push the latch up to make sure it has snapped into place.

Battery replacement is simple: just pop the doors open, slide the old batteries out and the new ones in.

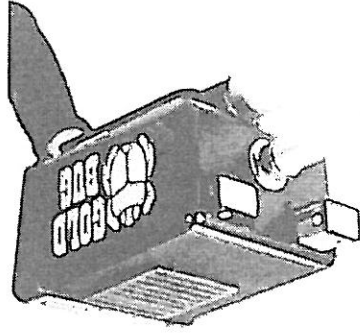


Fig. 8 Battery replacement

MAINTENANCE

- Your Gold Bug doesn't require a lot of care but there are a few things you should do to keep it in peak operating condition.
1. If you're not going to be using it for awhile, take the batteries out. Acid damage caused by leaking batteries can be severe.
 2. Avoid extreme temperatures. Don't leave it inside a closed car sitting in the sun. Even worse, the trunk of a car.
 3. If you "scrub" the search coil on the ground, you'll eventually wear through the bottom. Replacement coils are expensive. Instead, invest in a coil cover. They're cheap.
 4. Put a plastic bag over the control housing if you're hunting in rain, fog or dust.
 5. Keep your Gold Bug dry and clean. Wipe off the lower stem before sliding it into the upper stem and keep the slip nut threads free of sand and dirt.

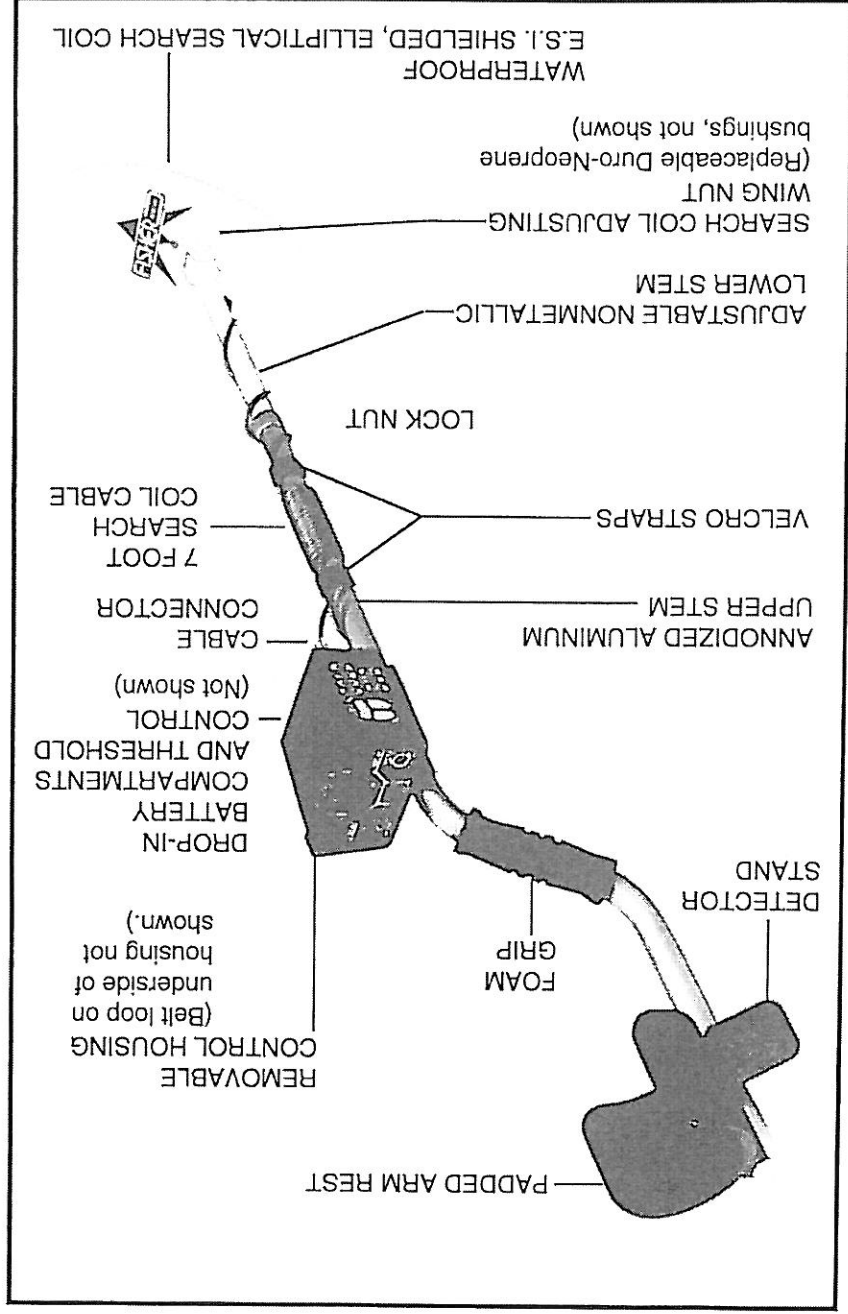


Fig. 1 FISHER M-SCOPE GOLD BUG

SETTING UP

(FIG. 1)

Auto-Tune mode. Ground adjust to a height just high enough to eliminate most false signals and adjust your stem length to sweep at that height.

3. **DISSOLVED SALTS:** On the beach or inland. **SOLUTIONS:** Same as highly mineralized soil.
4. **JUNK:** Nails, pull tabs, beer cans, etc. The Gold Bug was designed for extreme sensitivity to small bits of gold. That meant no trash "discrimination". We've found that even the slightest degree of discrimination will interfere with a detector's ability to detect gold. So the Gold Bug detects all metals. **SOLUTIONS:** Fortunately there's not much junk in nugget country and with practice you'll be able to recognize a lot of it. Nails for example will respond with two beeps across the length of the nail (end to end), but only one beep when the search coil is swept at right angles to the length of the nail. Also, most trash is shallow and comes in bigger sizes than nuggets. Hence it will sound different especially in the Auto Tune Mode. Trash will sound off over a larger area of the coil, the tone will be louder and the pitch will increase more, starting out at a low beep, increasing to a loud squeal.
5. **ELECTRICAL INTERFERENCE:** Caused by radio/TV stations, power lines and other detectors operating at the same frequency. **SOLUTIONS:** Move farther away from the source. Lower sensitivity. Reduce sweep speed. Use Auto-Tune mode. Wrap the search coil cable tightly around the stem. In some buildings electrical interference may be so noticeable that you'll have to lower the sensitivity or go outside just to bench test your Gold Bug.
6. **DIGGING TOOL:** If you're carrying a digging tool in one hand, your Gold Bug may sound off each time you swing the coil beneath it. **SOLUTION:** Hold it behind your back or up above your waist.

BATTERY REPLACEMENT

(Fig. 8)

Two nine volt transistor batteries are located in separate compartments at the rear of the housing. When it's time to replace batteries, always replace both of them.

1. To open, press gently down on the battery door latch. The doors are hinged, do not attempt to completely remove them.
2. Tilt the housing gently and the batteries will slide out.

The Gold Bug comes to you just about ready to use. There are only three steps required: sliding the lower stem into the upper stem, connecting the loop coil to the control housing and adjusting the angle of the search coil. Take a look at page 4 and familiarize yourself with the parts of the Gold Bug before proceeding.

1. Unpack your new Gold Bug carefully. Save the carton and inserts—they may come in handy for future storage or shipment.
2. Take a look inside the locknut on the upper stem. Note the yellow locking pad on the left-hand side and loosen the locknut by rotating it fully counterclockwise.
3. Slip the lower stem into the upper stem, making sure the flat side of the lower stem is aligned with the compression pad inside the locknut of the upper stem. Tighten and loosen the fit by turning the locknut.
4. Adjust the stem length (using the locknut) and the coil angle (using the nylon wing nut) so that the search coil rests flat on the ground about 6 inches in front of, and slightly to the right of, your right foot (to the left of your left foot for left handers.) Your arm should be straight and relaxed with your grip held loosely.

REMEMBER: THE LONGER THE SHAFT, THE MORE YOU WILL HAVE TO BEND YOUR ELBOW AND THE SOONER YOUR ARM WILL GET TIRED. THE GOLD BUG IS BALANCED FOR COMFORTABLE SEARCHING IN A TIGHT SEMICIRCLE AROUND THE FRONT OF THE OPERATOR.

5. With the stem length properly adjusted, wrap the loop cable tightly around the upper stem and secure it with the two Velcro straps. Connect the cable connector to the control housing.
CAUTION: MAKE SURE THE CABLE IS NOT PULLED TIGHT AT THE CONTROL HOUSING AND THAT YOU HAVE ENOUGH SLACK AT THE SEARCH COIL TO ADJUST IT TO ANY ANGLE.
6. With the shaft length and coil angle properly adjusted, you should be able to move into your "search" position (as shown in Figure 2) by leaning forward very slightly and raising your arm (still straight) until the search coil is about 2 inches above the ground and 12 inches in front of your foot. The search coil should be parallel to the ground and may have to be slightly readjusted at this point.
7. If the arm rest is too wide or narrow, you may bend it slightly inward or outward to meet your exact requirements.

3. Bury a small nugget and check it at different depths, sensitivity levels and in each operating mode. Pay close attention to the nugget's response compared to hot rocks, nails and other targets. Take a nugget with you and do the same thing when searching in unfamiliar soil.

4. Practice. The Gold Bug is easy to use and it's highly sensitive to gold. But you still have to learn how to use it. Read this instruction manual thoroughly and use the Gold Bug often. You'll develop your own special techniques for optimum performance in the type of soil you're searching. You may prefer to search in the Motion Mode at half sensitivity whereas another might use the Auto-Tune Mode at maximum sensitivity. Whatever works best for you is right, but you'll have to put in hours of searching to really know what "right" is.

5. Research. Spend some time deciding where to search. The odds are in your favor if you look where gold has already been found. If you know of a spot that's yielded nuggets to other detector users, but been "hunted out", that's Gold Bug territory. Chances are you'll find the small or deep ones they missed.

FALSE SIGNALS

A false signal occurs when something that shouldn't, sounds like a good target. For example the Gold Bug may detect metal in your boots if you swing the search coil too close to your feet. Here's some other sources of false signals and what to do about them.

1. **HOT ROCKS:** Mineralized rocks that respond like metal. **SOLUTIONS:** Most hot rocks seem to be on top of the ground so you can just kick them out of the way and recheck the ground beneath them. The Gold Bug will ignore some hot rocks and certain types of hot rocks have their own distinctive sound which you'll soon learn to recognize. Or you can "tune-out" most hot rocks in the air or on the ground by adjusting the ground reject knob right over the rock. If it's a nugget you won't be able to tune it out unless it's very small. Many strong hot rock signals will disappear rapidly when you lower the sensitivity level, whereas a strong nugget signal will just get weaker.

2. **HIGHLY MINERALIZED SOIL:** Unfortunately, this is where most nuggets are found. Fortunately, the Gold Bug will handle all but the very worst. **SOLUTIONS:** Ground adjust very carefully and often. Lower the sensitivity. Search in the

Straight arm, grip not too tight, search coil close to and parallel to the ground. Remember, as you increase the shaft length, you also increase the strain on your wrist and arm.

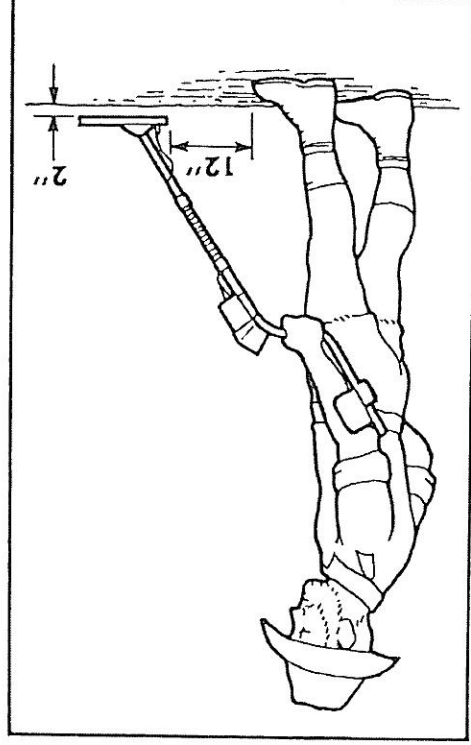


Fig. 2 Search position.

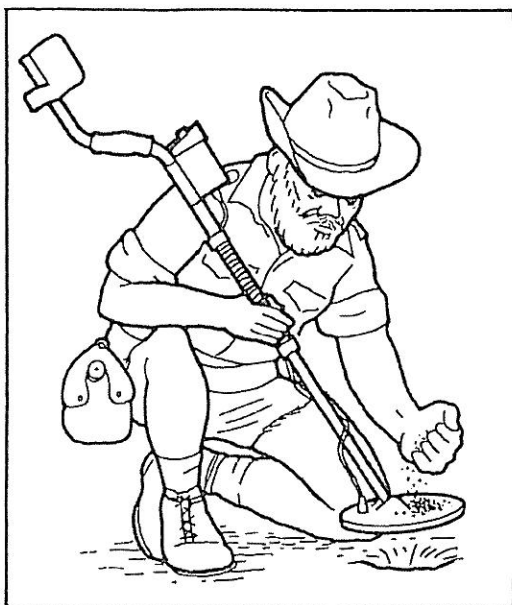


Fig. 7 Target Recovery

3. Grab a handful of dirt with your other hand and slowly let it spill onto the top of the search coil (See Fig. 7).
4. When your target hits the coil the Gold Bug will respond with a short "beep".
5. From there on it's an easy matter to identify your target by moving the dirt around the top of the coil with your fingers. When you move your target, the Gold Bug will sound off again.

CAUTION: Use this method sparingly and carefully. If you wear a hole in the top of your coil it won't be covered by our 5 Year Warranty.

OPERATING TIPS

1. We've already said it but it bears repeating: take your time, overlap your sweeps, keep your coil close to the ground, recheck your ground adjustment often and dig all targets.
2. Use good headphones: Your Gold Bug will detect small, deep nuggets other detectors have missed. But to hear the very faintest target responses, you'll need headphones.

Can't tell the dirt from the gold? Just grab a handful and drop it slowly onto your search coil. When a nugget hits, the Gold Bug will sound off with a short "beep".

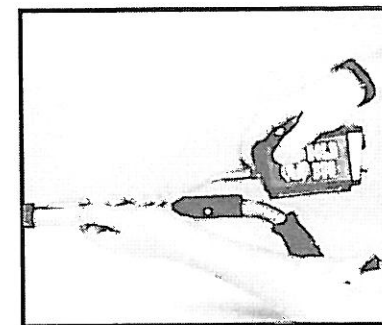
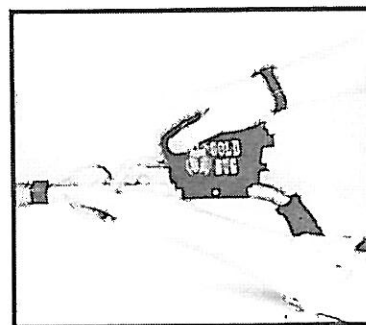


Fig. 3 Hipmounting. Just slide the control housing off the handle and on to your belt.

HIPMOUNTING

(FIG. 3)

Your Gold Bug is light and extremely well balanced however, if you're going to be swinging it for more than a few hours you may want to convert it to a "hipmount".

1. Disconnect the cable from the housing or make sure you have at least 8 inches of slack cable between the housing and upper stem.
2. Grab the control housing and slide it off the handle by pulling it toward the arm rest.
3. Put your belt through the slots on the underside of the housing.
4. Left handers should wear the housing on their right hip and right handers on their left hip.

If you're working in shallow water, you can put the control housing on a float of some kind. Just make sure you put it in a heavy plastic bag first, sealed tightly around the cable.

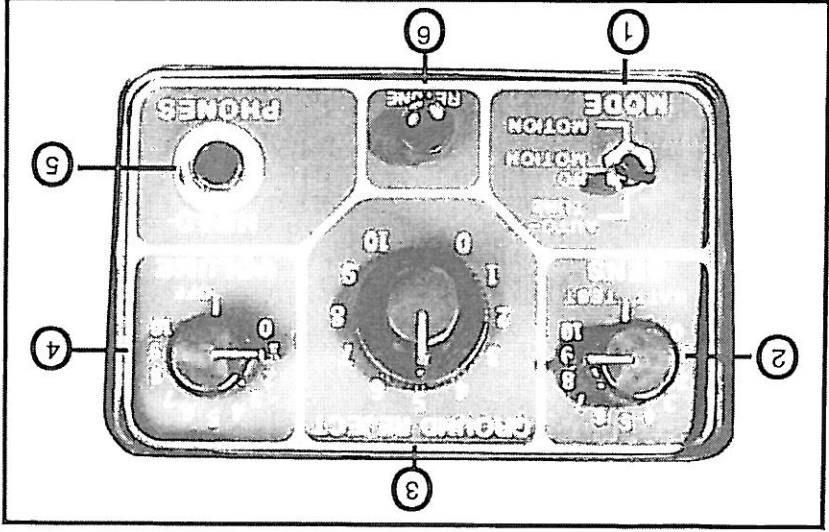


Fig. 4 Control Panel. The control housing is jam-packed with electronics but there's not much on the outside. Controls are clearly marked and easy to adjust but difficult to move accidentally.

CONTROL FUNCTIONS

(Fig. 4)

- MODE:** This thumb activated switch instantly puts your Gold Bug into one of three operating modes: Auto-Tune, No-Motion or Motion. The Auto-Tune and Motion modes are recommended for searching whereas the No-Motion mode is usually used for pinpointing. For a more detailed discussion, see The section titled "OPERATING MODES".
- SENS:** Adjusts sensitivity to targets and ground minerals, the higher the setting, the deeper you'll detect. You'll also detect smaller targets. However the Gold Bug is so sensitive at the maximum setting that you'll also pick up more false signals in mineralized soil or in areas of electrical interference. In the extreme counter-clockwise position this control doubles as a battery test. A loud tone indicates good batteries. A faint tone indicates weak batteries. No tone means that it's time for a change. As a general rule, you'll be able to use your Gold Bug for about an hour after the battery test goes silent.
- GROUND REJECT:** This dual knob control is used to electronically tune the search coil to ignore ground minerals.

- Your objective is to recover your target neatly and quickly, leaving virtually no trace of your excavation. Repeat: No trace of your excavation. If you leave the area looking like a battlefield, blame only yourself if it's been declared off limits to metal detectors when you return.
- Your digging tool should be selected for the type of soil you're in. Most nuggets are found in hard, dry, rocky ground so a small pick axe is first choice for most electronic prospectors. Always carry a small magnet to determine if your target is just a nail or some other ferrous object.
- Once your target has been pinpointed, switch to the Auto-Tune mode and lay the Gold Bug down so that the search coil is within easy reach but not close enough to detect your digging tool.
- If you suspect your target is on the surface, grab a handful of dirt and rocks and pass your hand across the top of the coil (make sure you're not wearing any rings or watches.) If you get a response but can't determine what in your hand is the target, put half the dirt in your other hand and check again. By repeating this process several times you should be able to identify even very small targets.
- If you have to dig for your target, repeat step four with handfuls of dirt as you dig.
- Recheck and repoint the target area with the Gold Bug if you can't find your target. Be sure to recheck the soil you've already removed.
- Once you've recovered your target, check the area once again to make sure you're not leaving a second target behind.
- Scrape all loose dirt back in the hole and move on only after the area appears as it was before you got there.

NOTE:

At maximum sensitivity levels the Gold Bug may actually detect your hand as you pass it over the coil. (This is not the "hand capacitance" effect exhibited by non-shielded coils.) This may be a problem when trying to locate a very tiny nugget, in which case try the following alternate procedure.

- Switch to the Auto-Tune mode.
- Hold the Gold Bug up with one hand so that the search coil is on the ground or parallel to it.

NO-MOTION MODE PINPOINTING

Pinpointing is even more precise in the No-Motion mode. You don't have to keep the search coil moving and the VCO (Voltage Controlled Oscillator) circuitry responds to the target with a more distinct increase in pitch as well as volume. For very faint targets or in extremely mineralized ground you may have to reground adjust the Gold Bug when you switch to the No-Motion mode. For most situations however the following simple procedure is adequate.

1. Place the coil lightly on the ground away from the target area and switch to the No-Motion mode. If you don't immediately hear the faint threshold tone, push and hold the retune button for a couple of seconds and then release it.
2. Raise the search coil about an inch.
 - a. If the threshold tone remains about the same just move the coil back and forth over the target area as you would in either the Motion or Auto-Tune mode. This time however you can stop the coil to determine exactly where the strongest response is.
 - b. If the threshold increases to a loud level when you lift the coil, push and release the retune button, then lower the coil slightly and move back to the target area for pinpointing as in 2.a. above.
 - c. If the threshold fades when you lift the coil, you'll still be able to pinpoint most targets from an inch or so above the ground. If not, lower the coil to the ground again to regain the threshold tone and lightly "scrub" the target area.
3. For quick and accurate pinpointing of very strong signals, push the retune button again close to the center of the target area. This "tunes-out" most of the target so you will receive a response only directly over or very nearly over the target.

TARGET RECOVERY

The moment of truth!

But not so fast...you may have "pinpointed" a target but that doesn't mean that you can reach down and pick up a nugget. Even if it's lying on top of the ground you're going to have to determine which of those pebbles is really a gold nugget. And if you have to dig for it you'll have to determine which handful of dirt is paydirt. But the worst part is that most of your targets won't be gold. They'll be nails, junk, hot rocks, etc. The only way to be

The small knob on top is a single-turn coarse adjust with about twenty fixed positions. The large 16-turn, fine tuning knob is on the bottom. This control works in conjunction with all three operating modes.

4. **VOLUME:** Turns the power on and controls the signal response volume. Normally set at 10 unless you're wearing headphones (strongly recommended) in which case the volume should be lowered to a comfortable level when the Gold Bug is responding to a large or shallow target.
5. **HEADPHONES:** This jack accepts most mono and stereo headphones with 1/4" plugs. When using a headphone with a "Stereo/Mono" switch, put it in the "Stereo" position.
6. **RETUNE:** Retunes the Gold Bug in the No-Motion mode to your preset "threshold" tone (See THRESHOLD Control). When searching in the Motion mode it is necessary to push, hold and release the retune button when the unit is first turned on (not required if it is in the Auto-Tune mode when turned on) and only occasionally thereafter if you leave it in the MOTION mode. Switching to the Auto-Tune position and back has the same effect as pushing the RETUNE button. Frequent use of the RETUNE button is necessary when operating in the No-Motion Mode (especially at high sensitivity levels).
7. **THRESHOLD:** This shaft on the rear of the control housing is purposely small and out of the way so you won't move it accidentally. It is used to tune the "Audio-Threshold" point at which a very faint hum is heard in the Auto-Tune and No-Motion modes. Once it is set, you won't have to reset it very often unless you change SENSITIVITY or GROUND ADJUST points. The THRESHOLD control has no effect on the Motion mode which runs silently without a threshold tone.

OPERATING MODES

The Gold Bug has three operating modes, each with its own advantages and disadvantages in any given situation. However with practice and proper use of the SENSITIVITY and GROUND ADJUST controls, you can use any mode in just about any situation.

1. **MOTION MODE:** In this mode the search coil must be moving, at least slightly, to detect a target. This is the easiest mode to use under moderate soil conditions. There is no threshold tone to worry about so you don't have to use the THRESHOLD

8. As you gain confidence you'll probably want to increase your sensitivity level. That's fine. The Gold Bug is extremely sensitive to very tiny bits of gold at maximum sensitivity. Just a couple notes of caution:
- 1) The higher the sensitivity the more false signals you'll have to live with.
 - 2) You'll have to reset your GROUND REJECT control when you increase sensitivity and you'll have to recheck it more often. You may also have to readjust your THRESHOLD control.

PINPOINTING

AUTO-TUNE AND MOTION MODE PINPOINTING

- Pinpointing in either the Motion or Auto-Tune mode is a little tricky since you'll lose the audio target response if you stop moving the search coil. With practice however, you'll be able to zero in on most targets quickly and accurately.
1. Once a buried target is indicated by the "beep" of the Gold Bug, continue sweeping the search coil from side-to-side in a narrower and narrower search pattern.
 2. When you have narrowed the sweep as much as you can and still hear the target, stop the search coil.
 3. Now move the coil slowly forward and then straight back towards you a couple of times. Stop the coil over the area where you get the strongest response.
 4. Move the coil slowly side to side one more time, stopping at the loudest target response.
 5. Your target should be below the "Hot Spot" of the search coil which is marked by a bulls-eye.
 6. Slowly move the coil aside, keeping your eyes on the spot where the Hot Spot was and quickly mark the target location with your finger or digging tool.
 7. For very strong signals, you may improve your pinpointing accuracy by adding one or more of the following steps.
 - a. Lift the coil until the signal is just barely heard.
 - b. Lower the sensitivity level.
 - c. Rest the coil on the ground and move it back and forth very slowly.
 8. For very weak signals try the following:
 - a. Move the coil closer to the ground.
 - b. Increase the sensitivity level (recheck your ground adjust).
 - c. Speed up the sweep rate slightly.

2. **AUTO-TUNE MODE:** Also a motion mode requiring at least slight coil movement. Target response is smoother than in the Motion mode and, with practice, it's easier to tell the difference between nuggets and hot rocks and there are fewer false ground signals. Since most nuggets are found among hot rocks in extremely mineralized soil this will be the mode of choice for many nugget hunters.
3. **NO-MOTION MODE:** This is the most difficult mode to use. It is more prone to false signals, requires more retuning and must be re-ground adjusted more often than the other modes. However, the search coil does not have to be in motion for target response so it's the preferred mode in tight spots or situations where you just can't keep the coil moving back and forth. Furthermore, the problems of tuning, ground adjust and false signals lessen considerably at lower sensitivity levels or in non-mineralized ground. The No-Motion mode is most often used however for precise pinpointing once a target has been located in one of the other modes.

TURN ON PROCEDURE

1. Set your controls as follows:
 MODE = Auto-Tune
 SENS = 7
 GROUND REJECT = 5

2. Hold the search coil waist high, away from any nearby metal.
 3. Turn the volume on to 10. A short loud squawk is normal so if you're wearing headphones, start the volume at zero and let the audio settle down before increasing it to a comfortable level when the coil is passed over a large or shallow target.
 4. With the coil still in the air, rotate the THRESHOLD control until you hear a very faint hum. This is the Audio-Threshold tone you'll need to maintain for optimum performance in either the AUTO-TUNE or NO-MOTION modes. Once you've set it you won't have to adjust the THRESHOLD control very often.
- NOTE: The Audio-Threshold tone may sound a little scratchy

or more like a buzz than a hum. This is a normal consequence of the extreme sensitivity of the Gold Bug, particularly at high SENS settings or near power lines.

GROUND REJECT PROCEDURE

When your Gold Bug is properly "ground adjusted", it will have only a minimum response to ground minerals when the search coil is raised or lowered. Precise adjustment of the GROUND REJECT control is critical. The higher the ground mineralization or Sensitivity setting, the more critical it is. Each operating mode requires its own ground reject adjustment, however for all practical purposes you need set it only in the mode you'll be searching in. It will be close enough for a quick check or pinpointing in one of the other modes or at worst, require only a quick fine tuning.

AUTO-TUNE MODE GROUND REJECTION

1. With your controls still set as described in the TURN ON procedure, lower the search coil to an inch or two above the ground. One of three things will happen to the threshold tone as the coil is lowered:
 - 1) The tone will get louder and then return to normal as the Auto-Tune circuit takes over. (When you raise the coil, the tone will fade.)
 - 2) The tone will fade and then return to normal. (When you raise the coil the tone will get louder.)
 - 3) The tone will remain the same.
2. If the tone remains the same you're properly tuned.
3. If it gets louder, rotate the small center Ground Adjust knob one or two clicks to the left (counter clockwise) and lower the coil to the ground again from 6 to 10 inches. If the tone still increases, rotate the small knob some more and fine tune with the large outer knob until the Threshold tone remains the same (or changes very little) when the search coil is raised or lowered.
4. If the tone fades when you lower the coil, tune as in Step 3 except rotate the small GROUND REJECT knob to the right (clockwise) and fine tune with the outer knob until raising or lowering the search coil has a minimum effect on the threshold tone.



Fig. 6 Search pattern

NO-MOTION MODE GROUND REJECTION

1. Hold the coil 6 to 10 inches off the ground. Push and hold the RETUNE button a couple of seconds to reset the threshold tone.
2. Lower and raise the coil and tune as in the AUTO-TUNE GROUND REJECTION instructions for a minimal change in the Audio Threshold tone. Note that unlike the Auto-Tune mode, when the tone changes when you lower the coil, it stays changed until you raise it again or until you are properly tuned.
3. If the threshold tone changes when you adjust the GROUND REJECT control, push and hold the RETUNE button a couple of seconds before lowering the coil.
4. As an alternate procedure try placing the coil on the ground, push, hold and release the RETUNE button and lift the coil about 6 inches. If the tone increases put the coil back on the ground and rotate the GROUND REJECT knob to the right (to the left if it decreases), push and release the RETUNE button and lift the coil again. Repeat as necessary. You may find this method easier but you might also lose some depth in highly mineralized soil.

MOTION MODE GROUND REJECTION

1. Tune as you did in the Auto-Tune mode for a minimum response to the ground. This time however you won't have an Audio Threshold Tone to guide you. Instead, the Gold Bug will start out silently but respond with a "beep" as the coil approaches or leaves the ground.
2. You'll have to lower the coil faster than you did in either of the other two modes, making the procedure a little more difficult, particularly in mineralized ground. As an alternate procedure try adjusting the GROUND REJECT control as you sweep the coil back and forth about 2 inches off the ground.

NOTE: In all modes, with just a little practice, you'll soon learn to do the coarse adjusting as you quickly lower and raise the coil. And with a little more practice, you'll be able to fine tune with just one hand, using your thumb as you raise and lower the coil.

SEARCHING

1. We recommend that you start searching in the Auto-Tune mode at a sensitivity level of about 7.
2. Recheck your ground adjustment frequently by raising and lowering the search coil. In many nugget bearing areas, ground mineralization can change drastically in a matter of a few feet.
3. Keep the search coil moving at a comfortable rate. Remember that the Gold Bug is a motion detector and responds only when the search coil (or the target) is moving in the Auto-Tune or Motion modes.
4. Keep the coil parallel to, and as close to the ground as practical (See Fig. 5). This is important for maximum coverage and depth.
5. Overlap your sweeps at least one half the length of the coil. Search in a methodical manner sweeping in a tight semicircle (Fig. 6). Pay close attention to where you're going and where you've been.
7. TAKE YOUR TIME. Also very important. If you walk too fast you can't overlap your sweeps and you'll miss a lot of ground. If you sweep too fast, you'll lose sensitivity and miss small, deep nuggets that would normally be within range of the Gold Bug.

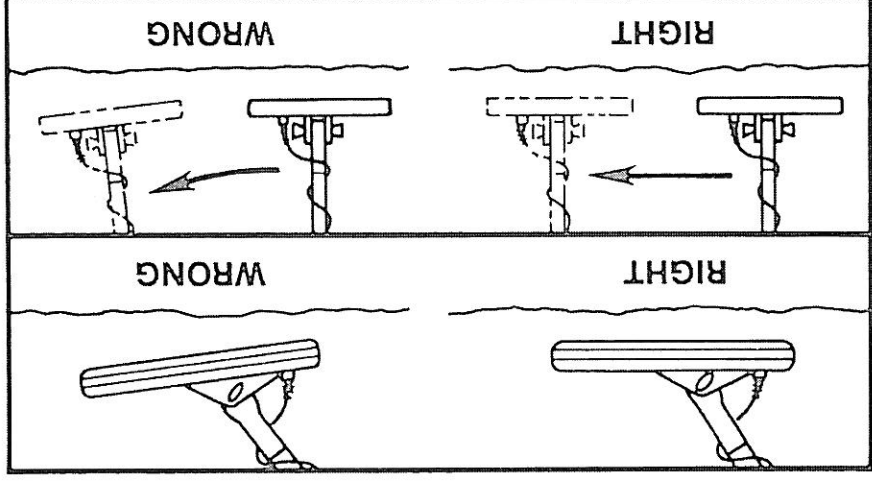


Fig. 5 "Sweeping" the Search Coil. Keep the search coil parallel and close to the ground at all times.