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FISHER M-SCOPE®

Gold Bug 2

Prospector's Metal Detector

Operating Manual

FISHER RESEARCH LABORATORY

CONTENTS

ABOUT YOUR DETECTOR

The Fisher Gold Bug, the predecessor to the Gold Bug-2, was designed and engineered by Fisher engineers from the ground up for the sole purpose of finding gold nuggets small gold nuggets, large gold nuggets, deep gold nuggets and gold nuggets in highly mineralized soil. Almost overnight, the Gold Bug became the standard against which all other gold-hunting detectors were compared.

The next generation Gold Bug, the Gold Bug-2, is not meant to be a replacement for the original Gold Bug. Your Gold Bug-2 offers many of the successful features of the Gold Bug as well as some new features, making it a distinctly different detector, but still designed for the sole purpose of finding gold nuggets.

The first and foremost of these new features is the operating frequency of the Gold Bug-2 – 71 kHz. This ultra-high operating frequency is extremely sensitive to small gold nuggets, and it also offers a side benefit. Because the Gold Bug-2 operates at a different frequency, it can be operated near an original Gold Bug without interference.

Also, a new mineralization switch on the Gold Bug-2 can be set for high, normal and low mineralization ground conditions. When set for high mineralization, this new circuitry allows prospectors to hunt in areas previously off-limits due to high ground mineralization or numerous hot rocks. Although the original Gold Bug is known for finding small nuggets in highly mineralized soil, the Gold Bug-2 will set new standards for both size and depth under many soil conditions.

Iron discrimination is another new feature. In the IRON DISC mode, you can identify hot rocks and small trash items like iron nails and other ferrous trash before digging them. Use this mode in extremely trashy areas to check a target for its iron content.

An audio boost mode, another new feature of the Gold Bug-2, makes it easier to find smaller nuggets at greater depths. Already a successful and proven feature of the Fisher QuickSilver line of land and underwater detectors, the audio boost mode

automatically increases the volume of any faint signal, such as a small or deep gold nugget. It does this without increasing the volume of larger, shallower targets.

Here are some other features of the Gold Bug-2:

- Dust and moisture resistant control box.
- Removable control housing that mounts on your hip and reduces the weight on your arm.
- Drop-in battery compartments for easy battery replacement.
- An elliptical, 10-inch, shielded search coil that's lighter, covers more ground and gets into tighter places than a circular coil.
- Optional 6.5- and 14-inch elliptical search coils.
- Lightweight design, only 2.9 lbs. with cushioned arm rest and foam-grip handle.
- Built-in detector stand.
- Dual-knob, coarse/fine, manual ground-adjust control.
- Double-locking, fiberglass-reinforced, nylon lower stem.
- Quartz-crystal locked electronics.
- Built-in Fisher quality backed by 70 years of engineering excellence.

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-2, 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 . . .

Happy Hunting!
Fisher Research Laboratory

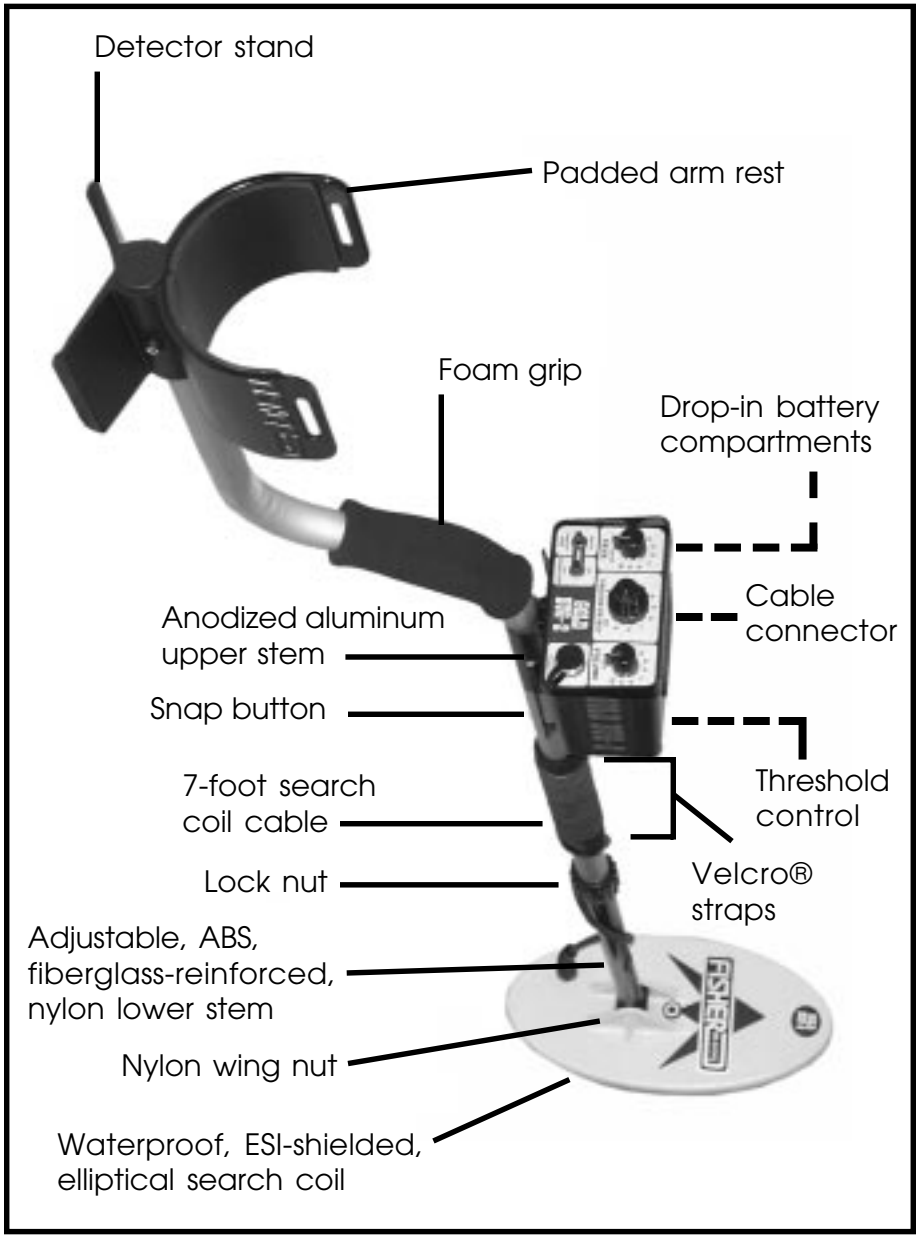

Figure 1. Gold bug-2

SETTING UP

The Gold Bug-2 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 3 and familiarize yourself with the parts of the Gold Bug-2 before proceeding.

1. Unpack your new Gold Bug-2 carefully. Save the carton and inserts – they may come in handy for future storage or shipment.
2. Slip the lower stem into the upper stem (see previous page for Gold Bug-2 diagram).
3. Adjust the stem length and coil angle 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 (for left handers, to the left of your left foot). 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-2 IS BALANCED FOR COMFORTABLE SEARCHING IN A TIGHT SEMICIRCLE IN FRONT OF THE OPERATOR.*

Figure 2.

Adjust the stem length and coil angle resting the search coil flat on the ground and about 6 inches in front of your right foot (left foot for left-handers).

4. Tighten the lock nut and the nylon wing nut on the search coil.
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 AT ANY ANGLE.*

6. With the shaft length and coil angle properly adjusted, you should be able to move into your "search" position (as shown on page 4) 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.

HIPMOUNTING

Your Gold Bug-2 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 "hipmount" it by removing the control box and strapping it to your waist. Follow this procedure:

Figure 3.
The Gold Bug-2 control housing can be hipmounted to reduce weight on the stem and create nearly effortless hunting. Belt loops are provided on the underside of the control housing.

1. Disconnect the cable from the control housing and unwind all but the last 12 inches or so from the stem. Secure the lower end of the cable with a velcro strap at least 12 inches up from the coil. ***CAUTION****: MAKE SURE THAT YOU HAVE ENOUGH SLACK AT THE SEARCH COIL*

2. Slide the control housing off the handle by holding the hand grip with one hand and pulling the housing toward you with the other hand.

3. Reconnect the cable to the control housing. ***NOTE****: It is especially important that the cable connector be installed tightly to prevent false signals during hipmount use. Never tightened with anything but your hands.*

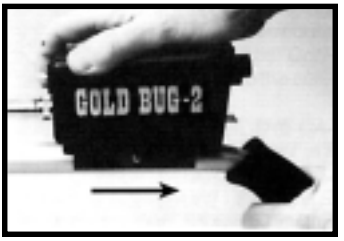

Figure 4.
To remove the control housing from the stem, grasp the top of the control box firmly and pull it directly toward the arm rest while holding the Gold Bug-2 handle.

4. Put your belt through the slots on the underside of the housing.
5. Left handers should wear the housing on their right hip and right handers on their left hip.

***NOTE**: if you're working in shallow water, you may want to strap the control housing on your chest in a heavy plastic bag, and seal it tightly around the cable.*

CONTROL PANEL

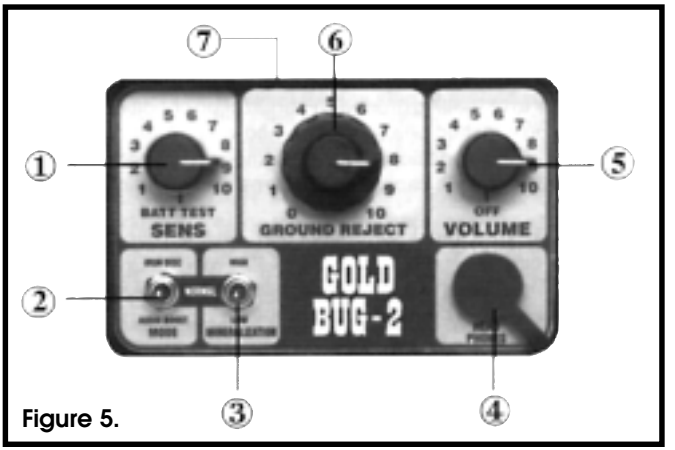

Figure 5.

1. **SENS:** This knob adjusts the Gold Bug-2's sensitivity to targets, and it doubles as a battery tester. By increasing the sensitivity, you can detect smaller and deeper targets, however, you'll also pick up more false signals in mineralized soil or in areas of electrical interference. The sensitivity control can also be decreased to cut down on "ground chatter" and/or electrical interference. Settings less than 5 should

not be used unless you have already tried switching to a higher mineralization setting. In the extreme counterclockwise position, the SENS control doubles as a battery tester. A loud tone indicates good batteries, and a faint tone tells you it's time to change the batteries.

2. **MODE:** This is a three-position toggle switch that can be set to IRON DISC, NORMAL or AUDIO BOOST. (See the next section, "Mode and Mineralization Switches," for details.)
3. **MINERALIZATION:** This three-position toggle switch has settings for varying levels of ground mineralization: HIGH, NORMAL and LOW. (See next section, "Mode and Mineralization Switches," for details.)
4. **HEADPHONES:** This jack accepts most stereo and mono headphones with 1/4-inch plugs. When using headphones with a stereo/mono switch, put the stereo/mono switch in the stereo position. Although your Gold Bug-2 is equipped with a dust and moisture resistant speaker, we recommend that you always wear headphones while hunting to maximize the number of targets you hear. Furthermore, we recommend our Fisher Phones, which enhance faint-target response by blocking out unwanted external noises, such as wind and vehicle sounds. To plug in your headphones, unplug the detachable seal and plug in your headphone jack. When not using headphones, be sure to keep the seal plugged into the HEADPHONES jack to keep dust and moisture out of the control housing.
5. **VOLUME:** This knob turns the power on and adjusts the signal-response volume. If you're wearing headphones with independent volume controls, set your Gold Bug-2 VOLUME control to 10 and decrease the volume of your earphone controls to a comfortable level. This will ensure the hottest-possible signal from your Gold Bug-2.

6. **GROUND REJECT:** This dual-knob control is used to electronically tune the search coil to prevailing ground-mineralization conditions. The small knob on top only makes one revolution and is used for coarse adjustments. It has 25 fixed positions. The large knob on the bottom is for fine-tune adjustments and is capable of 16 turns and an infinite number of positions.
7. **THRESHOLD:** This metal shaft is located on the rear of the control housing. It's purposely small and out of the way to avoid accidental adjustment. The threshold control adjusts the level of your threshold tone, which is set to a continuous, faint tone.

MODE AND MINERALIZATION SWITCHES

The mode switch on your Gold Bug-2 offers three different operating modes: IRON DISC, NORMAL and AUDIO BOOST. Each mode offers its own advantages and disadvantages in any given situation. It's up to you to find the right setting for each of the ground conditions you encounter.

Regardless of the MODE or MINERALIZATION settings, your Gold Bug-2 always operates in a motion mode, meaning the search coil must be in motion to detect a target.

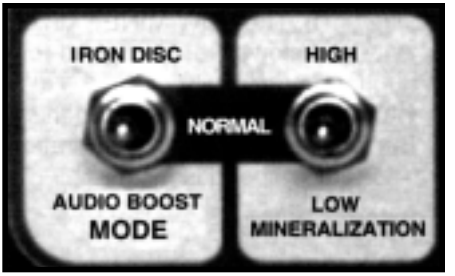

Figure 6.
The two toggle switches on your Gold Bug-2 enable you to search in just about any kind of ground condition. The trick is learning which combination of settings is right for each ground condition.

The MINERALIZATION switch adjusts your Gold Bug-2 for ground conditions. It does this by decreasing or increasing the sensitivity (or gain) of your Gold Bug-2. Unlike the SENSITIVITY control, the MINERALIZATION switch also affects the retune speed, which is the amount of time it takes for your Gold Bug-2 to automatically retune itself after the search coil has passed over a target. A fast retune speed means a quick response to targets.

The following is a brief description of the MODE and MINERALIZATION settings.

1. **NORMAL MODE:** This is an all-metals, autotune search mode used for most nugget-hunting conditions. The sensitivity is normal and the retune speed is fast.
2. **AUDIO BOOST MODE:** In this mode, your Gold Bug-2 automatically amplifies faint target sounds. At volume levels above 7, faint target sounds continue to get louder while loud, shallow target sounds remain constant.
3. **IRON DISC MODE:** This mode ignores hot rocks and small ferrous objects. It also features a very sharp target response. An independent mode, the IRON DISC mode is unaffected by the settings of the MINERALIZATION, GROUND REJECT and THRESHOLD controls.
4. **NORMAL MINERALIZATION:** With the MINERALIZATION toggle switch in the NORMAL position, the sensitivity of your Gold Bug-2 is optimum for most gold-bearing soils. The retune speed is fast.
5. **LOW MINERALIZATION:** This setting is used for ideal conditions – areas with few hot rocks, little black sand, low ground mineralization and little trash. The LOW MINERALIZATION setting provides better sensitivity and slower retune speed for better response to smaller, deeper nuggets.
6. **HIGH MINERALIZATION:** In this position, the sensitivity of your Gold Bug-2 is reduced to allow operation in areas of extreme mineralization. The retune speed is fast.

MODE AND MINERALIZATION SWITCH SELECTION

The chart below shows how your Gold Bug-2's sensitivity and ability to operate in mineralized soil is affected by each combination of MINERALIZATION and MODE toggle-switch settings.

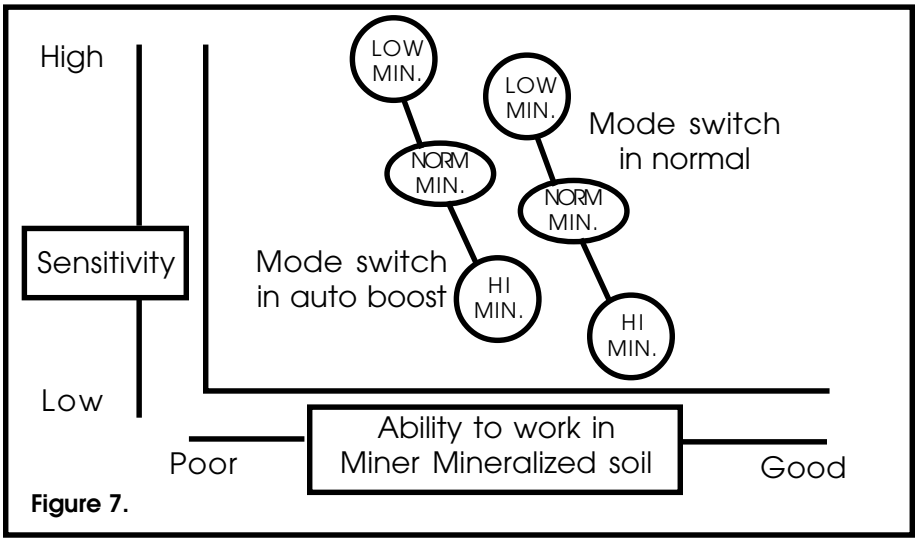

Figure 7.

In either the AUDIO BOOST or NORMAL MODE, the Gold Bug-2's sensitivity decreases as you increase MINERALIZATION settings from LOW to HIGH.

MINERALIZATION SWITCH

In general, you should start searching with the MINERALIZATION switch set to LOW. If you are getting too much "ground chatter" even after adjusting the GROUND REJECT in the LOW MINERALIZATION mode, try reducing the sensitivity slightly or set the MINERALIZATION switch to NORMAL. If that doesn't do the trick, set the MINERALIZATION to HIGH and readjust the GROUND REJECT control. If there is still to much "ground chatter," reduce the SENSITIVITY .

In the LOW MINERALIZATION setting, the search-coil response (retune speed) is slow and the circuit gain (amplification) is high. In the NORMAL MINERALIZATION setting, search-coil response is quick and the circuit gain is reduced slightly. In the HIGH setting, response is quick and the gain is further reduced.

Moist, alkali soil conditions will usually require use of the NORMAL or HIGH MINERALIZATION settings. Heavy, black sand

conditions will usually require the HIGH MINERALIZATION setting.

IRON DISCRIMINATION MODE

Don't search in the IRON DISC mode unless the area is heavily littered with iron trash. This mode is better used by hunting in the NORMAL or AUDIO BOOST modes and switching to the IRON DISC mode only to identify a strong target response. Don't trust the IRON DISC mode to correctly I.D. weak target sounds. Targets already dug can also be checked for their gold content by using the IRON DISC mode. Swing the object past the search coil, holding it in your fingers or in a plastic scoop. If it is a "hot rock" or small ferrous object, there will be no sound. Some iron objects chirp or click. If it is nonferrous metal such as gold, your Gold Bug-2 will give a solid "beep."

Unlike the AUDIO BOOST and NORMAL modes, the IRON DISC mode is unaffected by the SENSITIVITY control and threshold settings. Also, unlike the other modes, the IRON DISC mode operates without an audible threshold hum.

> ***NOTE:*** *Some faint static and occasional chatter is normal in this mode. If you are running your sensitivity too high for ground conditions (heavy mineralization, trash and or hot rocks) you may experience a constant, loud chatter as you sweep.*

AUDIO BOOST MODE

In this mode, weak signals are louder than in the NORMAL mode, but maximum loudness of strong signals is the same. The primary purpose of the AUDIO BOOST mode is to help you hear weak signals when there is interfering noise from wind, mining equipment, vehicles, etc. Also, if you prefer using the speaker (most people use headphones), you may prefer the AUDIO BOOST mode even in quiet conditions.

Hunting in the AUDIO BOOST mode is best when the area has few trash items, hot rocks and low ground mineralization. In areas with many false signals, the AUDIO BOOST mode will amplify them as well as signals from gold nuggets. The AUDIO BOOST mode can also be used to recheck a disappearing signal, or to check a faint signal to see if it sounds like a hot rock in AUDIO BOOST.

TURN ON PROCEDURE

Figure 8.
The threshold signal is a soft background tone heard when operating the Gold Bug-2, is set by adjusting a metal stem at the rear of the control housing.

1. Set your controls as follows:
MODE: NORMAL
MINERALIZATION: LOW
SENS: 10
GROUND REJECT: 10
VOLUME: OFF

NOTE: *You will probably find that most of your searching will be done with the MODE and MINERALIZATION switches set to NORMAL and the SENSITIVITY control set at something less than 10. If you're working in unfamiliar ground, however, we recommend that you try starting at the maximum sensitivity and LOW MINERALIZATION settings.*

2. Hold the search coil waist high, away from any nearby metal.

3. Turn the VOLUME control to 10. A short, loud squawk is normal at turn-on, so if you're wearing headphones, start the volume at 0 and let the audio settle down before you increase it to a level that's comfortable when the coil is passed over a large or shallow target.

NOTE: *If your headset has volume controls, set the volume control on your Bug to "10" and your headset volume to zero. Then adjust your headset volume controls to a comfortable level when the coil is passed over a large or shallow target.*

4. With the search coil still in the air, rotate the THRESHOLD control on the back of the control housing until you hear a very faint, continuous signal. This is the audio threshold tone you'll need to hear while hunting to maintain optimum performance from your Gold Bug-2.

GROUND REJECT PROCEDURE

When your Gold Bug-2 is properly tuned or "ground balanced," 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 to your success. The lower the MINERALIZATION or the higher the SENSITIVITY settings, the more important it is to maintain proper ground rejection.

Figure 9.

The GROUND REJECT control consists of a coarse-adjustment knob on top of a fine-adjustment knob.

If you change the MINERALIZATION setting, you may have to retune your Gold Bug-2 slightly to maintain optimum performance. However, the GROUND REJECT setting should be close enough for pinpointing or for a quick check in one of the other modes. At worst, a change in modes will require only a quick fine tuning.

To tune your Gold Bug-2, follow these steps:

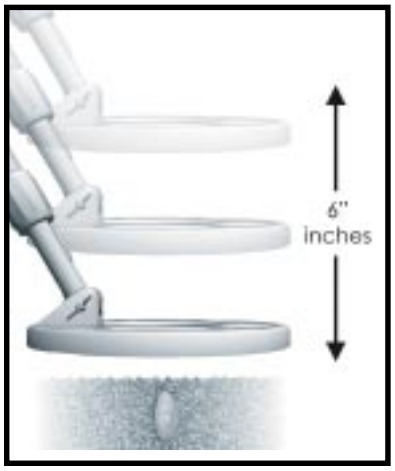

Figure 10.

Tune your Gold Bug-2 by bobbing the search coil up and down while adjusting the GROUND REJECT control.

1. With your controls still set as described in the "Turn On Procedure" (See page 12), hold the search coil parallel to and about 6 inches above the ground.
2. Lower the coil to within an inch or two of the ground and quickly raise it. Note that the threshold tone becomes louder as you lower the coil, disappears when you raised it and finally returns to normal when you hold it 6 inches above ground.
3. Your objective now is to adjust

the GROUND REJECT control so that there is no change or at least only a small change in the threshold hum as you bob the coil up and down. Start by clicking the small, center knob back to about 8.

4. Bob the search coil up and down once again. One of three things will happen to your threshold hum:
   1) The tone will continue to get louder as you lower the coil and disappear when you raise it.
   2) The tone will disappear as you lower the coil and sound off as you raise it.
   3) The tone will remain the same or change only slightly.

5. If the tone remains unchanged or changes only slightly, you are probably "Ground Balanced." You can fine tune, if required, with the larger knob.

6. If the tone gets louder going down and fades coming up, continue rotating the small knob counterclockwise until the tone change is minimal when you bob the coil. Fine tune with the large knob.

7. If the tone fades going down and increases when the coil is raised, rotate the small knob clockwise until the tone change is minimal, then fine tune with the large knob.

8. With practice, you will learn to click the small knob counterclockwise as you bob the coil. Listen for the change in the tone to switch from the down stroke to the up stroke. Then, while continuing to bob the coil, rotate the large knob clockwise until the tone becomes even or until you hear only a slight change on both the up stroke and the down stroke.

9. If you are having trouble ground balancing, try one or more of the following:
   1) Move to another spot in case you're over a piece of buried metal.
   2) Reduce your SENSITIVITY setting.
   3) Change your MINERALIZATION setting from LOW to NORMAL or from NORMAL to HIGH.

SEARCHING

1. Keep the search coil moving at a comfortable rate. Remember that the Gold Bug-2 is a motion detector and responds only when the search coil (or the target) is moving.

2. Keep the search coil parallel to and as close to the ground as possible. This is important for maximum coverage and depth.

Figure 11.
The Gold Bug-2 is built for balanced searching in a tight semicircle around the front of the operator.

3. Overlap your sweeps at least one half the length of the search coil.

4. Search in a methodical manner and sweep your search coil in a tight semicircle. Pay close attention to where you're going and where you've been.

5. Take your time. If you walk too fast, you won'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 normally would be within the range of your Gold Bug-2.

6. Recheck the ground adjustment frequently by raising and lowering the search coil and listening for changes in the threshold volume. In some nugget-bearing areas, ground mineralization can change drastically within a matter of feet, so check it often.

7. Try backing off the sensitivity control if you hear too much ground chatter and false signals. If you find you must decrease the SENSITIVITY control below 5, it's probably a good idea to change the MINERALIZATION setting to NORMAL and set the SENSITIVITY control back to 10. You also might have to retune the GROUND REJECT control slightly. Remember, when you switch from LOW to NORMAL

MINERALIZATION, you also slightly decrease the sensitivity of your Gold Bug-2, and the retune speed increases slightly. This increase in the retune speed helps your Gold Bug-2 ignore abrupt changes in ground mineralization and hot rocks, but it also results in a slight decrease in sensitivity.

8. If, after switching to NORMAL MINERALIZATION, you continue to hear ground chatter and false signals, back off on the SENSITIVITY control again. Still having problems? You must be in an area of extremely high mineralization. The only way to hunt this area is in the HIGH MINERALIZATION setting with the MODE switch in NORMAL. As in the other MINERALIZATION settings, back off on the SENSITIVITY control and readjust the GROUND REJECT control as needed.

9. Avoid hunting in the IRON DISC mode unless the area is so littered with ferrous trash that it's impossible to hunt in any other way. The IRON DISC mode will cause your Gold Bug-2 to ignore ferrous objects and hot rocks, but it may also cause you to miss small gold nuggets. We recommend that you hunt in either the NORMAL or AUDIO BOOST modes, and switch to the IRON DISC mode to check a target that has already been dug. Targets often come out of the ground covered with dirt, and it's impossible to tell if they're

Figure 12.
Keep the bottom of your search coil parallel to the ground while sweeping it in a tight semicircle.

ferrous or gold. The IRON DISC mode, however, will ignore most hot rocks and small a ferrous objects while responding to gold and other nonferrous objects.

10. You can also use the IRON DISC mode to identify many buried targets that produce a good, strong signal. Once you have zeroed in on a target, switch to IRON DISC and pass the coil over it. If you still get a response, dig it.

NOTE: *Keep in mind that the IRON DISC mode is not 100-percent accurate. Small and/or deep nuggets giving faint target responses will often be ignored in the IRON DISC mode. Conversely, large iron objects, like a railroad spike, may produce a good signal in the IRON DISC mode. Remember, when in doubt, dig!*

PINPOINTING

Always use the same procedure to pinpoint with the Gold Bug-2, regardless of control settings. With a little practice you'll be able to zero in on most targets quickly and accurately. Use this procedure:

1. Once a buried target is indicated by the "beep" of the Gold Bug-2, continue sweeping the search coil from side-to-side, narrowing the 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 search coil forward and then straight back toward you a couple of times. Stop the search coil over the area where you get the strongest response.
4. Move the search 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 with a bull's 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:
   1) Lift the coil until the signal is just barely heard.
   2) Lower the sensitivity level.
   3) Rest the coil on the ground and move it back and forth very slowly.

8. For very weak signals, try the following:
   1) Switch to the AUDIO BOOST mode.
   2) Move the coil closer to the ground.
   3) Increase the sensitivity level. Recheck your ground adjustment.
   4) Speed up the sweep rate slightly.

TARGET RECOVERY

The moment of truth!

But not so fast . . . take your time. You may have pinpointed a target, but that doesn't mean 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 really is a gold nugget. And if you have to dig for it, you'll have to determine which handful of dirt is pay dirt. But the worst part is that most of your targets won't be gold. They'll be nails, bullets, junk, hot rocks, etc. The only way to be absolutely sure is to dig them up.

1. 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.

2. 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. A ferrous object will stick to the magnet, whereas a gold nugget will not.

3. Once your target has been pinpointed by crisscrossing the target area with your search coil, lay your Gold Bug-2 so that the search coil is within easy reach but not close enough to detect your digging tool as you dig.
4. If the target sounds large (a loud, sharp sound), grab a handful of dirt that you suspect holds the target and pass your hand in front of the search coil. If you don't hear a signal, discard the dirt and pick up another, repeating the process until you hear a signal. If the target is large, you can probably find it by searching your hand.

NOTE: *Because of the extreme sensitivity of the Gold Bug-2 search coil, the electrical charge of your hand may be picked up as a target. Sounds incredible, but it's true. Therefore, if you pinpoint a target and it sounds small, don't try to identify it by passing a handful of dirt in front of the search coil. The signal you hear may be your hand. Instead, use the sprinkle method. Test the sensitivity of your Gold Bug-2 to your hand by waving your empty hand in front of the search coil. If it's a large target, you may use your hand. The loud signal from a large target will mask any signal produced by your hand.*

You can find an elusive target in a handful of dirt by pouring it on top of your Gold Bug-2 search coil. If the first handful doesn't produce a target, pinpoint your target again and grab another, sprinkle it on the search coil, and repeat the process until you've identified your target (hopefully a gold nugget). Remember, many gold nuggets look just like a brown clump of dirt until you get them home and wash them off. Only your Gold Bug-2 knows the difference in the field.

5. If the target sounds small (faint and soft), sprinkle some of the target dirt on top of the Gold Bug-2 search coil. If you get a response, you can set aside the rest of the dirt in your hand and concentrate on the dirt on your coil. If you get no response from your coil, sprinkle more dirt on the coil until you hear a signal. By repeating this process several times you should be able to identify even a very small target.

CAUTION: *Use the sprinkle method sparingly and carefully. If you wear a hole in the top of your search coil, it won't be covered*

6. Recheck your target area to make sure you're not leaving a second target behind.

7. Scrape all loose dirt back in the hole and move on only after the area appears as it was before you got there.

FALSE SIGNALS

A false signal occures when something that shouldn't sound like a good target sounds like one. For example, the Gold Bug-2 may detect metal in your boots if you swing your search coil too close to your feet. Here's some other sources of false signals, and here's 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-2 will ignore some hot rocks. Certain other types of hot rocks have their own distinctive sound, which you'll 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. Of course, the best way to check a possible hot rock is to flip your mode switch into "IRON DISC."

2. **Highly Mineralized Soil:** Unfortunately, this is where most nuggets are found. The Gold Bug-2 will handle all but the very worst soil.
   Solutions: Switch to the HIGH mineralization setting. Ground adjust very carefully and often. Lower the sensitivity. 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 a wet ocean beach or moist inland soil.
   Solutions: Same as highly mineralized soil.

4. **Junk:** Nails, pull tabs, beer cans, etc. The Gold Bug-2 was designed for extreme sensitivity to small bits of gold. That means it's also extremely sensitive to small bits of ferrous metal.

Solution: Hunt in the NORMAL MODE, but use the IRON DISC Mode to check targets to see if they're ferrous. 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 and increasing to a loud signal.

5. **Digging Tool:** If you're carrying a digging tool in one hand, your Gold Bug-2 may sound off each time you swing the coil beneath it.
   Solution: Hold the digging tool behind your back or up above your waist.

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.
2. Use good headphones: Your Gold Bug-2 will detect small, deep nuggets other detectors have missed. But to hear the very faintest targets, you'll need headphones.
3. Bury a small nugget and check it at different depths, sensitivity levels and in each mineralization and mode setting. Pay close attention to the nugget's response compared to the response of hot rocks, nails and other targets. Take a small nugget with you and do the same thing when searching in unfamiliar soil.
4. Practice. The Gold Bug-2 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 your Gold Bug-2 often. You'll develop your own special techniques for optimum performance in the type of soil you're searching. 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 more 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 has been "hunted out," that's Gold Bug-2 territory. Chances are you'll find the small or deep ones they missed.

COIN SHOOTING, BEACH AND RELIC HUNTING

There's no reason why you can't use your Gold Bug-2 for "coin-shooting" in parks, relic hunting old town sites or hunting on the beach. True, the Gold Bug-2 was designed for prospecting, but it's also suitable for Treasure Hunting. Like most coin-shooting and relic hunting machines, the Gold Bug-2's iron discrimination mode can be used to filter out trash targets in areas where relics and coins are normally found.

BATTERY REPLACEMENT

Two 9V transistor batteries are located in separate compartments at the rear of the Gold Bug-2 control housing. We recommend using name-brand alkaline batteries, which usually give 25-35 hours of life. Lithium batteries may last twice as long but cost more than twice as much. Nickel cadmium rechargeables give out after about 7 hours. Carbon-zinc batteries may last half as long as alkalines, at best.

1. To replace the batteries, open the battery compartment by gently pressing down on the battery door latches. The doors are tethered with short, nylon string. Do not attempt to completely remove them.
2. Tilt the housing gently, and the batteries will slide out.
3. Insert the new batteries. Make sure the contact end goes in first and 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 it shut.
5. Push the latch up to make sure it has snapped in place.

Figure 13.

Your Gold Bug-2 operates on two 9V batteries that drop into compartments at the rear of the control housing. Snapping the door latch in place makes the battery connection.

MAINTENANCE

Your Gold Bug-2 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 cause 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 an inexpensive coil cover.
4. Although the Gold Bug-2 control housing is moisture and dust resistant, it's a good idea to put a plastic bag or the optional "rain cover" over the control housing if you're hunting in the rain.
5. Keep your Gold Bug-2 dry and clean. Wipe off the lower stem before sliding it into the upper stem, and keep the lock nut free of sand and dirt.

TREASURE HUNTERS' CODE OF ETHICS

LETS PRESERVE OUR TREASURED SPORT!

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 this happen in your area.

ALWAYS get permission to hunt on private property.
ALWAYS leave a site cleaner than you found it. Take at least some trash with you or, if you can, take it all.
ALWAYS fill in your holes neatly whether you're in a city park or remote wildernessness. Leave the land as it was before you disturbed it.
ALWAYS obey all laws relating to Treasure Hunting.
ALWAYS return valuable property if you can locate the original owner.
ALWAYS do whatever you can to give the hobby of Treasure Hunting the good image it needs and deserves.

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 is required and it is always best to have the permission in writing.

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

SPECIFICATIONS ①

Length ②	Extended	53"
	Collapsed	40"
Weight ②	Complete	2.9 lbs.
	Control Housing	1.0 lbs.
	Handle and Coil	1.9 lbs.
Frequency	LF Search	71.01 kHz
	Response	(VCO)③
Operating Modes	1. All-metal Autotune (Normal)④	
	2. All-metal Autotune (Audio Boost)④	
	3. Iron Discrimination ④	
Mineralization Settings	1. High Mineral (attenuated, fast autotune)	
	2. Normal Mineral (fast autotune)	
	3. Low Mineral (gain boosted, slow autotune)	
Ground Adjustment	Manual,16-turn, vernier dual-shaft, precision potentiometer	
Control Housing	Dust, Moisture Resistant	Yes
Audio Output	Speaker	2" Moisture Resistant
	Headphone Jack	1/4" stereo/mono
Manual Threshold Tuning	Located on rear of housing, effective in all-metal, autotune modes	
Search Coil	Type	Elliptical, Co-Planar
	Size	10" X 5" standard, other sizes available
	Shielding	100% ESI Coverage ⑤
	Interchangeable	Yes
	Waterproof	Yes
	Cable Length	7 feet
Handle Mount / Hip Mount Convertible		Yes
Built-in Arm Rest and Detector Stand		Yes

Batteries	Type	(2) 9V Transistor
	Life-Carbon Zinc ②	10-20 hours
	Life-Alkaline ②	25-35 hours
	Nicads ②	5-10 hours

Notes:

1. Subject to improvement or modification without notice.

2. Approximate.

3. Voltage Controlled Oscillator. Volume and frequency increase as target is approached.

4. The Gold Bug-2 is a "motion" detector. The search coil must be moving at least slightly to detect a target.

5. Electro-Static Insulated to eliminate certain types of false signals.

FISHER M-SCOPE®

QUALITY

Fisher detectors are renowned for their quality.
Each instrument is hand crafted with pride in the Fisher tradition.

PERFORMANCE

Fisher detectors are durable, dependable, and search deeper.

REPUTATION

Fisher produced the first patented metal detector in 1931. For over 70 years, the Fisher logo has been a mark of excellence.

SERVICE

Fisher is committed to providing their valued customers, with superior service. Each and every instrument is rigidly tested and carefully inspected during assembly and before shipment.
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