FISHER m-SCOPE

1220-X ACCESSORIES

Available at your Fisher dealer for use with your 1220-X.

11" SEARCH COIL: Cover more area faster and deeper.

ZERO BUOYANCY SEARCH COILS: A must for shallow water treasure hunting. 8" and 11".

3¾" SEARCH COIL: Great for high density trash areas and those hard to reach nooks and crannies.

CARRYING CASE: Heavy duty steel reinforced corners, vinyl covered, two key-locks, foam lined and great looking.

BATTERY RECHARGE KIT: With this kit, you may never have to buy batteries for your 1220-X.

COIL COVERS; Protects the bottom of your search coils from wear and damage.

STEREO HEADPHONE: With heavy-duty coil cord and dual volume controls. A must for deep and faint targets.

CASH-TRASH APRON: One large pouch for treasure and another for junk.

VINYL ACCESSORY BAG: Big enough to hold extra coils, headset, etc. Small enough to be handy.

COIN SHOOTING II: Coin shooting tips from the master, H. Glenn Carson.

THE PROSPECTOR'S GUIDE: A layman's 48 page reference for the discovery and indentification of valuable minerals, ore and rocks.

SHOULDER PATCH, VINYL BELT POUCH, BASEBALL CAP: All for the Fisher Treasure Hunter who's proud to be one.

CLIP ON DETECTOR STAND: Small, sturdy and lightweight. Keeps your 1220-X dry and upright when you lay it on the ground.

VINYL CARRING BAG: Protect your investment with this tough, good looking bag. Full length zipper and shoulder strap.

FREQ BOX: Six position frequency switch eliminates interference from other metal detectors.

SERVICE

Your Fisher M-Scope 1220-X is backed by a 5 year Limited Gold Seal Warranty and 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. The terms of the warranty are fully explained on the certificate included in the shipping carton. Should you have any questions or problems, contact:

FISHER RESEARCH LABORATORY
1005 I Street
Los Banos, CA 93635
Ph. (209) 826-3292

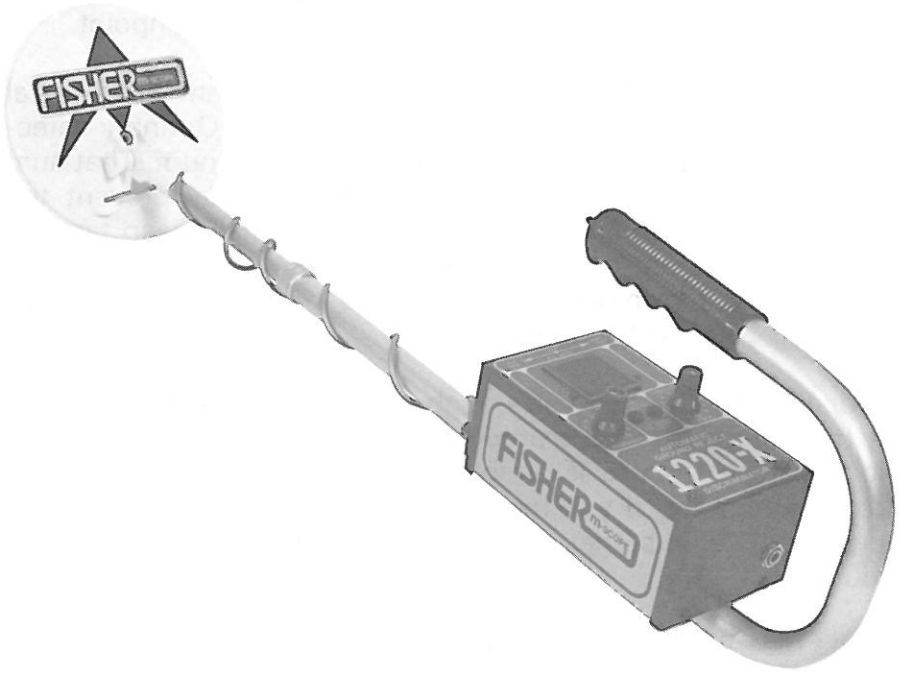
FRL870201F

FISHER m-SCOPE

1220-X

U.S. PATENT 4,514,692

AUTOMATIC
GROUND REJECT DISCRIMINATOR
HIGH PERFORMANCE METAL DETECTOR



OPERATING MANUAL

INTRODUCTION

The 1220-X was designed for the serious treasure hunter more interested in digging buried treasure than fooling with complicated metal detectors. Fisher engineers took the same space age circuitry used in their top of the line 1260-X and eliminated all functions except those essential for high performance metal detection. The result: a two knob, one switch, precision instrument so light and easy to use that anyone can learn it in minutes. Yet not one inch of depth or a single degree of trash rejection was sacrificed.

The 1220-X is a "motion" detector, meaning that the search coil must be kept in motion to detect metal. With ordinary "motion" detectors, the operator must switch to a "normal" (non-motion) mode to pinpoint each target. The motion required for the 1220-X is so slow that it doesn't even have a "normal" mode. In fact, it was designed for maximum performance at any comfortable sweep speed except very fast. On most targets, you'll be able to almost completely stop the search coil in order to pinpoint.

The 1220-X features another important advancement in metal detector technology: It has no "threshold hum". Ordinary detectors must be precisely tuned to a very slight audio hum. That hum can be annoying, difficult to maintain, and may prevent the operator from hearing very faint signals on small, deep targets. The 1220-X patent-pending circuitry allows silent, no-threshold operation at maximum sensitivity. You'll really appreciate this feature if you use headphones.

Your 1220-X is an expensive, high quality instrument engineered by the world's oldest and proudest name in metal detection. Take good care of it, use if often and you're in for some exciting treasure hunting. If you have any questions, suggestions or interesting 1220-X stories, drop us a line. We want to hear from you.

In the meantime . . . . . Good Hunting!

1220-X SPECIFICATIONS

DUAL MODE AUTOMATIC
GROUND REJECT DISCRIMINATOR

VLF OPERATING FREQUENCY	4.2 KHZ
AUDIO OUTPUT FREQUENCY	370 Hz (UNIPOLAR)[1]
SEARCH COIL TYPE	CONCENTRIC/CO-PLANAR WATERPROOF, INTERCHANGEABLE
SEARCH COIL SHIELDING	E.S.I.[2]
SEARCH COIL DIAMETER	8"[3]
GROUND REJECTION	AUTOMATIC
SEARCH MODES	1. VLF-ALL METAL, MOTION 2. VLF-DISCRIMINATION, MOTION
BATTERIES[4]	(8) 1.5V PENLIGHT AA
BATTERY LIFE (CARBON-ZINC)	18-30 HOURS
WEIGHT, APPROX	3.5 LBS.
SPEAKER DIAMETER	2¼"
LENGTH, COLLAPSED	33"
LENGTH, EXTENDED	43"
WARRANTY	5 YEAR GOLD SEAL, LIMITED

NOTES:

1. PULSEGATE UNIPOLAR AUDIO PROCESSING$^{T.M.}$. Exclusive Fisher circuitry which allows the operator to work silently below the "audio threshold" with zero sensitivity loss.
2. E.S.I. - Electro Static Insulated on all inside surfaces.
3. Optional 3-3/4" coaxial search coil for hunting near house foundations, steel reinforced concrete and in very trashy soil.
4. Optional recharge kit includes (8) nicad rechargeable batteries, (2) battery packs, (1) 110V 60 Hz recharger, (1) 12V (negative ground only) auto cigarette lighter recharger and current limiter.

B. 12V AUTO RECHARGER

1. The auto recharger should be used only with a 12 volt negative-ground system.
2. Remove the nicads from the 1220-X control housing and connect the battery connector leads from the current regulator to the nicad battery packs.
3. Insert the small plug from the cigarette lighter recharger into the current regulator.
4. Plug the recharger into the cigarette lighter socket. The cord is long enough to recharge the batteries in the back seat.
5. In many autos you may get a full charge overnight (10-16 hours) while the auto is not in use.
6. In some autos, the available voltage will not be adequate unless the engine is running. Since this may not be practical unless you're taking a long trip, the auto recharger may best be used for **occasional** "booster" charges of partially discharged batteries (see "battery recharging", paragraph 3, page 12).

TREASURE HUNTER'S CODE OF ETHICS

IN MANY COUNTRIES, TREASURE HUNTING IS ILLEGAL OR SEVERELY RESTRICTED. DON'T LET IT HAPPEN IN YOUR COUNTRY! LAWS GOVERNING THE USE OF METAL DETECTORS ARE BECOMING MORE AND MORE COMMON. OVERLY RESTRICTIVE LEGISLATION IS USUALLY THE RESULT OF DESTRUCTION CAUSED BY JUST A FEW CARELESS TREASURE HUNTERS.

1. ALWAYS leave a site cleaner than you found it. Take at least some trash with you or, if you can, take it all!
2. ALWAYS get permission to hunt on private property.
3. 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.
4. ALWAYS obey all laws relating to treasure hunting.
5. ALWAYS return valuable property if you can locate the original owner.
6. 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!

TABLE OF CONTENTS

SETTING UP (See Fig. 1)

The 1220-X comes completely assembled and ready to use. The only adjustment required is the angle of the search coil and the length of the stem.

1. Unpack carefully. Save the carton and inserts, they'll come in handy if you ever have to return the instrument for service.
2. The stem length is adjusted by loosening the slip nut and sliding the lower stem in or out.
   CAUTION: a. Never use a pliers or any thing but your hand to tighten the slip nut.
   b. If you ever have to remove the slip nut, be careful not to lose the nylon lock ring inside.
3. The search coil angle is adjusted by loosening the coil adjustment knobs.
4. Adjust the 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 (to the left of your left foot for left handers). Your arm should be straight and relaxed with the handle grip held firmly but comfortably. Remember, as you increase the shaft length, you also increase the strain on your wrist and arm. The 1220-X is balanced for comfortable searching in a tight semicircle around the front of the operator.
5. You should now be able to move into your "search" position by leaning slightly forward and raising the search coil approximately 2 inches above the ground. Your arm should still be straight and the coil should be parallel to the ground, about 12 inches in front of your foot. The coil angle may have to be slightly readjusted at this point.

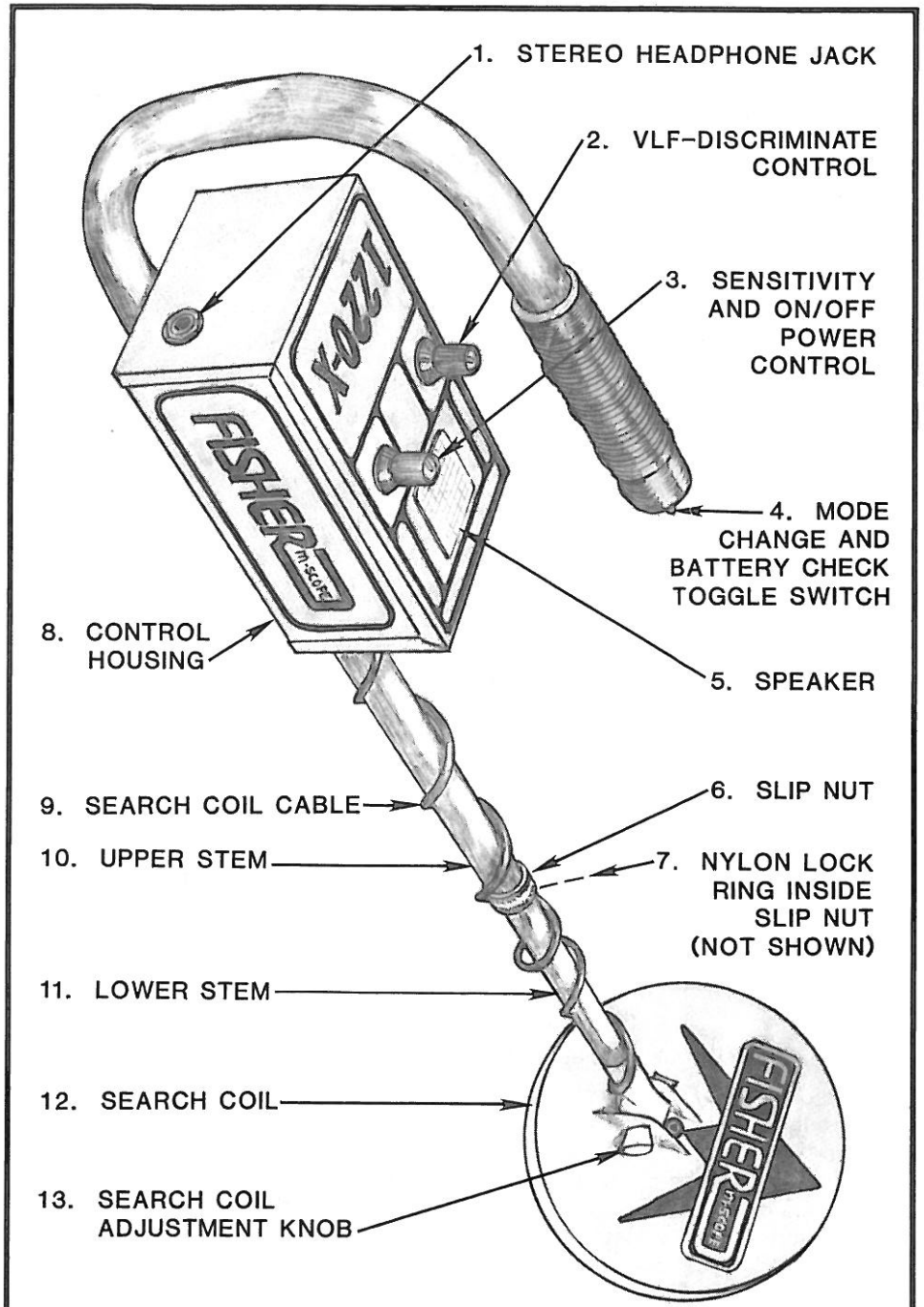


FIG. 1 FISHER m-scope 1220-X

BATTERY REPLACEMENT

1. Eight 1.5 volt size AA batteries are located in the lower front section of the control housing.
2. Remove the battery access panel by pulling the Nylatch fasteners partially out.
3. Gently pull or shake both battery packs out approximately 1 inch.
4. Remove the battery lead connectors.
5. Remove the battery packs from the control housing.
6. Remove the batteries from the battery packs. Check the polarity markings inside the packs and install fresh batteries.
7. Insert the battery packs, connector end out, back into the housing just far enough to reconnect the battery lead connectors.
8. Reconnect the battery connectors. You may wish to secure the battery connectors to the battery packs with a small piece of tape to insure a good tight connection.
9. Gently push the packs all the way into the control housing. Do not crimp or put any strain on the leads.
10. Put the access panel back in place and lock it by pushing the Nylatch fasteners.

BATTERY RECHARGING

1. The complete 1220-X recharge kit (optional) includes (2) battery packs, (8) nicad rechargeable batteries, (1) 110V, 60 Hz wall recharger, (1) 12V negative ground auto cigarette lighter recharger and (1) current regulator.
2. Nicad batteries may take as many as 1,000 recharges but will last only about half as long as standard carbon-zinc batteries before recharging is required.
3. Do not make a habit of giving your partially discharged batteries short "booster" charges. Nicad batteries may develop a "memory" if given repeated short recharges. In other words, if you charge your batteries over and over again for only three hours at a time, the batteries will eventually only hold a three hour charge.
4. Do not charge your batteries for over 24 hours.
   NOTE: The Fisher recharger for the VLF 555 D/B and the VLF 555D Pro should not be used on the 1220-X.
   A. 110V RECHARGER
      1. Remove the nicads from the control housing and connect the battery connector leads from the current limiter to the nicad battery packs.
      2. Insert the small cable plug from the wall recharger into the current limiter.
      3. Plug the recharger into your wall outlet and the batteries will begin recharging immediately. A full charge will take from 16 to 24 hours.

B. SCREWDRIVER METHOD

The screwdriver method of recovery is an excellent choice in areas where knives and/or plugging are not allowed, or in dry lawns where plugging would almost certainly result in brown, dead spots. This method will take more practice, however, the results will be worth the extra effort.

1. Once you have located your target, gently probe the area with your screwdriver or a dull probe until you have pinpointed its exact location.
2. Insert the screwdriver into the ground until it just touches your target.
3. Back the screwdriver out just a quarter of an inch or so.
4. Rotate the screwdriver until you have made a cone shaped hole approximately 2 to 3 inches in diameter at the top.
5. Carefully pry out your target from the bottom of the cone with the screwdriver.
6. Recheck the target area with your 1220-X.
7. Scrape any loose dirt back in the hole. Close it up by inserting the screwdriver into the ground next to the hole and pulling in towards the center. Do this 4 to 5 times around the edge of the hole until it is not longer visible.

OPERATING TIPS FOR THE 1220-X

1. Use a good headphone. You won't miss faint targets, you won't attract unwanted attention and you won't bother others.
2. Practice pinpointing. There's nothing sacred about the methods described in this manual. Many 1220-X users have developed their own pinpointing methods.
3. False signals may be caused by highly mineralized or trashy ground, large or irregular shaped trash and bumping or raising the search coil very fast. A false signal will generally sound suspicious to the experienced treasure hunter. It may be very faint, or very sharp and abrupt with static. Often when you go back over the same spot a false signal will simply disappear. You may reduce the number of false signals you get by lowering the sensitivity level and/or increasing the discrimination level.
4. There is some sensitivity loss at the higher levels of discrimination. The greater the ground mineralization, the higher the sensitivity loss. For example, you may be able to detect a penny 7 inches deep at zero discrimination, but you may be able to detect it no deeper than 5 inches at the pull-tab discrimination point.
5. For best results in wet salt water sand, set the discrimination level just high enough and the sensitivity level just low enough, to eliminate false signals caused by the wet conductive salts.
6. When in doubt about the probable identity of a target, dig it up.
7. Don't give up if the battery check suddenly goes silent right in the middle of a successful hunt. You will probably be able to get at least one more hour of satisfactory operation before your 1220-X finally calls it quits.
8. Use the optional 3¼" coil to zero in on good targets in extremely trashy coil.

CONTROL FUNCTIONS (See Fig. 1)

1. **STEREO HEADPHONE JACK:** Accepts most stereo and mono headphones with ¼" diameter plugs. When used, the speaker is automatically disconnected. A headphone can be very helpful when hunting in noisy areas or detecting faint signals on small, deep targets. CAUTION: Since the 1220-X has a fixed volume setting (loud), always use headphones with individual volume controls adjusted to a comfortable level.
2. **VLF-DISCRIMINATE CONTROL:** A full range discrimination control. All metals are detected at the zero level and most small pieces of metal trash are rejected or ignored at the maximum level of ten.
3. **SENSITIVITY/POWER CONTROL:** Turns the power on and off and controls the sensitivity to targets. A setting of ten represents maximum sensitivity. Lower sensitivity levels may be used when searching for larger and/or shallow targets, pinpointing or especially when working in highly mineralized ground or sand.
4. **MODE CHANGE/BATTERY CHECK SWITCH:** This hand-grip toggle switch has three positions:
   1. **CENTER POSITION** - Maintains the 1220-X in the VLF-ALL METAL mode. In this mode of operation, the 1220-X will detect all metals while ignoring ground minerals.
   2. **LEFT POSITION:** Puts the 1220-X into the VLF-DISCRIMINATE mode. Used in conjunction with VLF-Discriminate control, this mode allows the operator to reject different kinds of trash metal (nails, pull tabs, etc.) while ignoring ground minerals.
   3. **RIGHT POSITION:** Battery check. Fully charged batteries will give a loud signal when the switch is pushed to the right. Weak batteries will give a faint signal and dead or very weak batteries will give no tone. Batteries do not have to be replaced as long as you can hear a tone. This position is spring loaded and the switch will snap back to center when released.

DISCRIMINATION POINTS

By adjusting the VLF-DISCRIMINATE control you will be able to ignore (or "reject") small pieces of metallic trash and ground minerals while detecting valuable targets. The lowest setting at which an object is rejected is referred to as the object's "discrimination point". Discrimination points are determined by such factors as size, shape, depth, type of metal and ground mineralization.

1. Scatter some sample targets such as coins, pull tabs and small pieces of foil on the ground 1 to 2 feet apart.
2. Turn the 1220-X on by turning the SENSITIVITY/POWER CONTROL to about 8.
3. Hold the search coil in the air, away from any metal objects and check the batteries as explained in the CONTROL FUNCTIONS SECTION.
4. Put the MODE CHANGE switch in the center VLF-ALL METAL mode position.

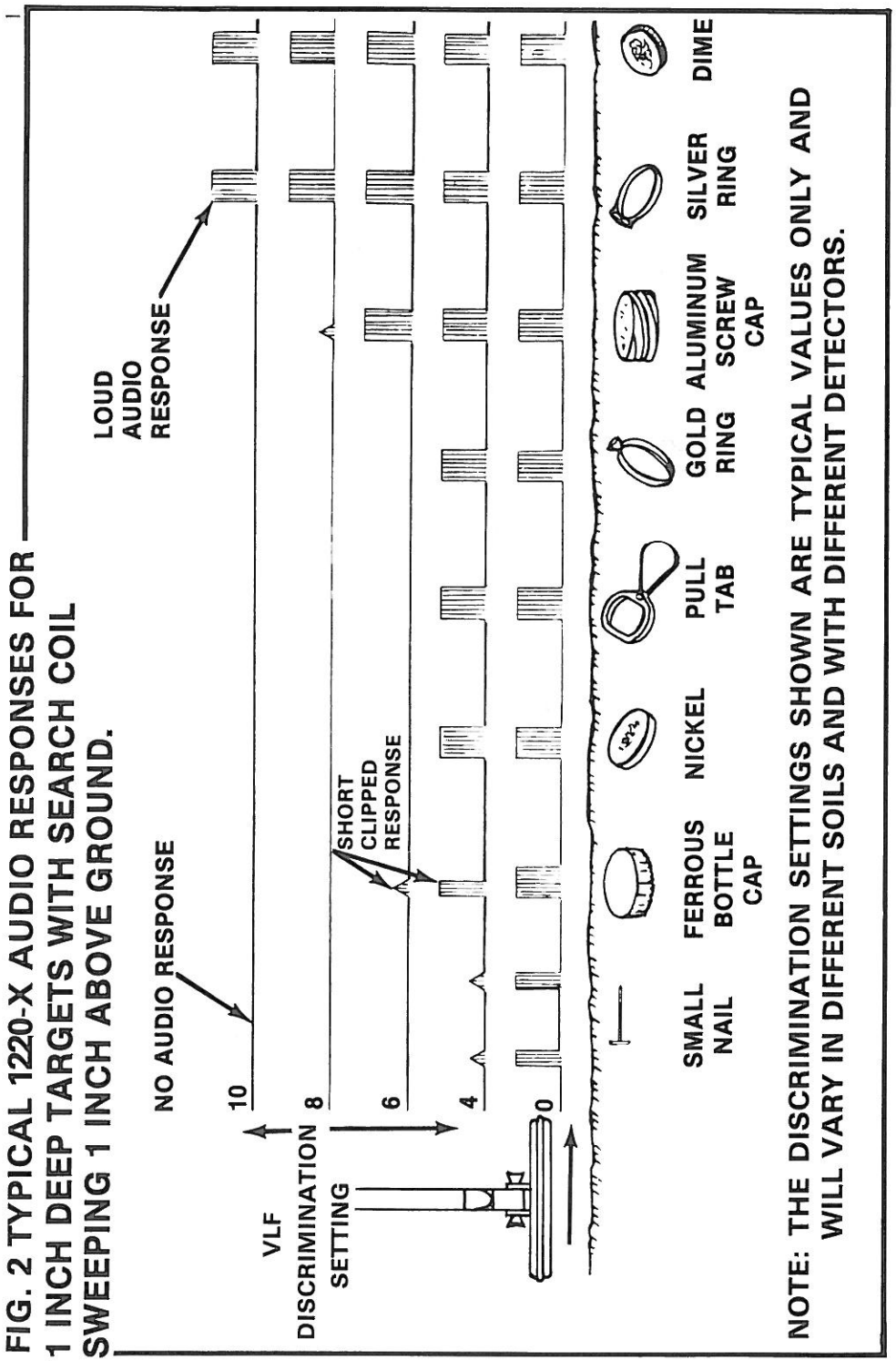


FIG. 2 TYPICAL 1220-X AUDIO RESPONSES FOR 1 INCH DEEP TARGETS WITH SEARCH COIL SWEEPING 1 INCH ABOVE GROUND.

RECOVERY TECHNIQUES

There are almost as many methods of recovery as there are treasure hunters. However, the "plugging" and "screwdriver" methods described here are two of the most popular and successful. WHICHEVER TOOL OR METHOD YOU CHOOSE, REMEMBER THAT RESPONSIBLE TREASURE HUNTERS TAKE PRIDE IN THEIR ABILITY TO LEAVE SOIL AND VEGETATION INTACT AND UNDAMAGED. Your objective is to recover your target quickly and neatly, leaving virtually no trace of your excavation.

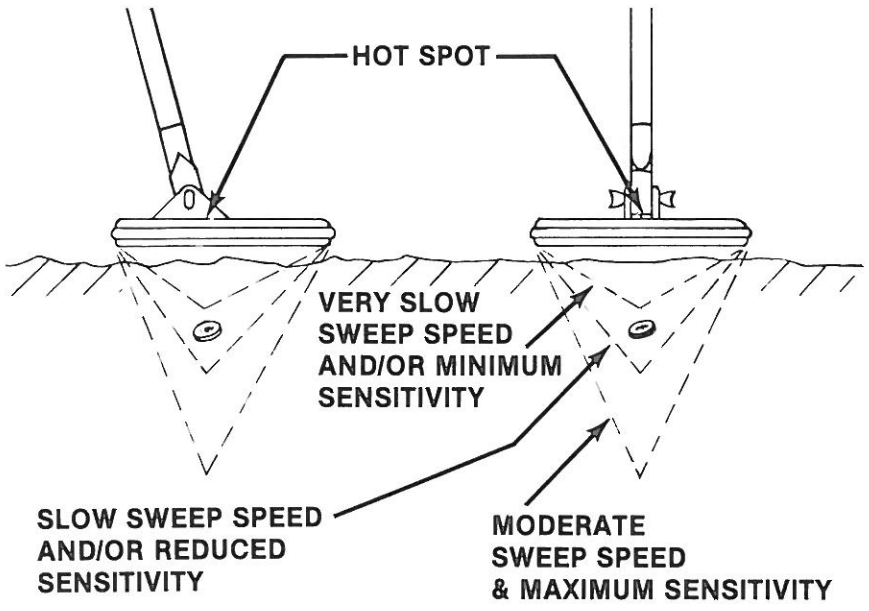
A. PLUGGING METHOD

The method of recovery is not allowed in many areas and should never by used in dry lawns or in very hot weather. A good rule of thumb is . . . "When in doubt, don't plug." It's a good way to recover deep targets however, in moist soil where plugging is allowed and **when done properly.**

1. Once your target has been pinpointed, lay the 1220-X down (still turned on) so that the search coil is within easy reach but not close enough to detect your digging tool.
2. Cut a cone shaped plug about 3 inches in diameter and at least 3 inches deep. NOTE: If you're working in a park or lawn maintained by a power mower, don't cut a cone - the mower may pull it back up. Instead, cut a deep, square, unpointed plug.
3. Remove the plug, being careful not to scatter loose dirt.
4. Examine the plug and the hole for your target.
5. If the target is not readily visible, pass the plug across the front or back of the search coil. If the target is in the plug, you will get an immediate response from the 1220-X.

   NOTE: This procedure will be successful only if:
   a. You have removed any rings, watches, etc.
   b. The VLF-DISCRIMINATE level is low enough to detect your target.
   c. You move the plug as close as possible across the search coil.
6. If the target is in the plug, carefully dissect the plug until you have recovered it. Try not to damage roots or disturb the surface of the plug.
7. If the target is not in the plug, check the loose dirt in and around the hole.
8. If you still haven't found it, dig a couple of inches deeper and wider, if necessary.
9. Recheck the hole and the area around the hole with your 1220-X if you still can't find it.
10. Once you have found the target, check the target area again. Two or more coins are often found in the same spot.
11. Scrape all loose dirt back in the hole, reinsert the plug and press it **firmly** in place with your foot.

FIG. 5 SEARCH COIL DETECTION PATTERN AT DIFFERENT SWEEP SPEEDS AND SENSITIVITY SETTINGS.



8. 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. Reduce the sensitivity level.
   c. Increase the discrimination level.
   d. Rest the coil on the ground and move it back and forth very slowly.
9. For very weak signals try the following:
   a. Move the coil closer to the ground.
   b. Increase the sensitivity level.
   c. Decrease the discrimination level.
   d. Speed up the sweep rate slightly.
10. Figure 5 shows the search coil detection pattern and how it is affected by various sweep speeds and sensitivity levels.

RECOVERY TOOLS

1. A heavy duty, blunt screwdriver is commonly used by expert TH'ers.
2. A sturdy hunting knife with a 5" blade will suffice in most soils. A high quality double edged "survival" knife is an even better (and more expensive) choice since it will be almost impossible to bend or break.

   CAUTION: If you like your fingers, never use a jacknife without a locking blade!
3. A narrow garden trowel will work in loose or wet soil.
4. Several excellent digging tools are made just for the treasure hunter and especially designed sand scoops are available for beachcombing.

5. Hold the search coil about 2 inches above and parallel to the ground. Move it slowly over the samples and note the sharp loud response as you pass over each one. Keep in mind that the 1220-X is a motion detector and responds only when the search coil (or the target) is moving.
6. Switch to the VLF-DISCRIMINATE mode by pushing the MODE CHANGE switch to the left.
7. Set the VLF-DISCRIMINATE control at zero and pass the search coil over the samples once again. You should get the same response that you received in the VLF-ALL METAL mode.
8. Increase the VLF-DISCRIMINATE control to a setting of 3 and again pass over the targets. Repeat this process at settings of 4, 5, 6 and so on to 10. You will note that as you increase the level of discrimination, the 1220-X will reject some targets and continue to respond to others. You have now determined the discrimination points for the rejected objects. For example, the small nail discrimination point may be at 4 and the pull tab discrimination at 6.
9. Some objects such a shallow bottle caps, bent pull tabs or trash less than 2 inches from the coil may be difficult to reject. The 1220-X will instead respond with a strong broken signal which will usually disappear if the search coil is raised slightly. (The strong signal of a good target will just get weaker when the coil is raised.)
10. Some objects will cause soft static or "ticking" when rejected. This is a perfectly normal response indicating that the powerful discrimination circuitry of the 1220-X is doing its job.
11. Large pieces of trash such as beer cans or jar lids may sound like a good target no matter what you do. With a little practice, however, you will be able to tell the difference between a large target and a small coin sized object.
12. Fig. 2 shows some different target responses you may expect at different levels of discrimination. Note that as you increase the discrimination level, you progressively eliminate more targets including some good ones, such as nickels and gold rings.
13. Switch back to the VLF-ALL METAL mode and note that the 1220-X will again respond to all metals, regardless of the VLF-DISCRIMINATE setting.

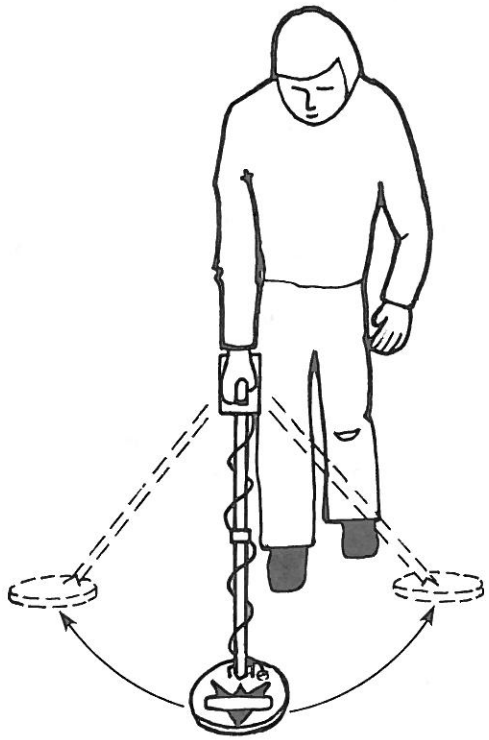
SEARCHING

1. Decide which mode you want to search in: VLF-DISCRIMINATE OR VLF-ALL METAL.
   a. In relatively non-trashy soil, you may wish to search in the VLF-ALL METAL mode with the VLF-DISCRIMINATE control set at a medium level. In this manner, your 1220-X is at its most sensitive and will detect all metal targets within its range. Once an object is detected, you can instantly switch over to the VLF-DISCRIMINATE mode for further identification.

b. In trashy areas, it is generally easier to search in the VLF—DISCRIMINATE mode at some high level of discrimination (at the pull tab discrimination point for example). This way you will detect mostly good targets and can switch over to the VLF-ALL METAL mode for pinpointing. (The all metal mode will produce stronger signals on deep or small targets).

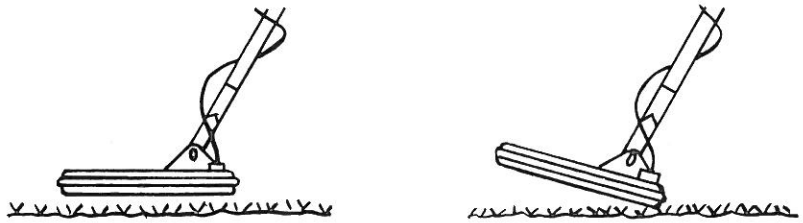
2. Search slowly and systematically, sweeping in a tight semicircle (See Fig. 3).
3. KEEP THE COIL PARALLEL TO, AND AS CLOSE TO THE GROUND AS PRACTICAL (See Fig 4). If you're hunting on a lawn, you can set the coil right on the grass and search.
4. Overlap your sweeps at least 50%.
5. Search in a methodical manner. Pay close attention to where you're going and where you've been.
6. Keep the search coil moving at a comfortable rate.

FIG. 3 SEARCH PATTERN

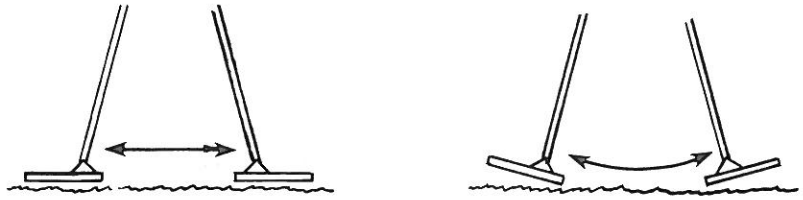


NOTE: IF YOU'VE USED OTHER MOTION DETECTORS, YOU'LL HAVE TO DO SOME UNLEARNING. If you try to sweep as fast as you must for maximum sensitivity with other models, you'll actually lose sensitivity with your 1220-X.

FIG. 4 SEARCHING



RIGHT WRONG



RIGHT WRONG

PINPOINTING

Pinpointing takes practice. The more time you spend with your 1220-X the faster and more accurate you'll become.

1. Once a buried target is indicated by the tell-tale "Beep" of the 1220-X, continue moving the search coil from side-to-side across the target in a narrower and narrower search pattern.
2. When you have narrowed your search pattern 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 loudest response.
4. Move the coil slowly left to right to left one more time, zeroing in on the loudest target response.
5. Stop the coil over the area of loudest response and rest it on the ground.
6. Your target should be below the "Hot Spot" of the search coil which is marked by a bulls-eye, slightly below the center of the coil.
7. 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.