





The name that means Treasure

Eldorado OPERATOR INSTRUCTION MANUAL

CONGRATULATIONS!

Your new TESORO Metal Detector was designed to provide you with many happy hours of enjoyment in the most rewarding hobby I can think of – treasure hunting. Ahead of you lie fascinating and exciting experiences as you step into the past – uncovering artifacts lost by past generations. I wish we could share these experiences with you, and we wish you the best of success.

Your TESORO Metal Detector is capable of meeting your needs in any conceivable treasure hunting situation. As with any detector, operating skill and familiarity with this instrument are probably the limiting factors in determining how successful you will be. We recommend that you read this manual and understand fully before attempting to use the instrument in the field. As you become more familiar with your detector through practice, your rate of success will increase dramatically.

The TESORO Metal Detector is a precision electronic instrument, which will last for years if properly cared for. Treat it right and it won't let you down.

Good Hunting! Jack Gifford

GENERAL DESCRIPTION

The Eldorado is a Transmitter-Receiver (TR) detector which operates in the Very Low Frequency (VLF) portion of the RF spectrum. It provides true mineral free operation in both the All Metal an Discriminate modes. The Discriminate mode is motion based, but the amount of motion required is so slight that pinpointing is easily accomplished in this mode. The All Metal mode is not a motion based type, and so is excellent for searching as well as pinpointing.

The Eldorado was designed to provide a true All Purpose type of detector. It is sensitive to small gold particles, is powerful enough to serve as a relic and cache hunter, and is plenty fast enough for competition hunting. It is equipped with a Wide Scan 8 1/2" coil, although other coil sizes and types are available.

The Eldorado can be assembled as a pole mounted arm rest unit, or as a body mount unit. It can be converted easily without tools.

As with any detector, the familiarity of the user with the instrument will have a great deal to do with how successful the treasure hunter is. We recommend that you read and understand this manual fully before attempting to use the instrument in the field.

Be sure to fill out and mail your warranty registration card to validate your warranty.

ASSEMBLY

The Eldorado can be assembled in either of two configurations or easily converted from one to the other. The electronic control housing can be mounted on the arm rest pole, or by use of the extender cable, can be body mounted. Installation of the lower pole and coil is the same for either configuration.

1. Depress the two buttons on the upper end of the lower stem, and slide it into the upper stem. Push the lower stem up so that the buttons click into the third set of holes from the end of the upper stem.
2. Insert the pole tip between the mounting ears of the searchcoil, after removing the screw and thumb nut. Align the holes in the pole tip and those in the mounting ears.
3. Insert the coil mounting screw through the coil and pole tip. Be sure the internal lockwasher is on the screw head side. The screw head should be on the side of the searchcoil where the cable comes out.
4. Install the thumb nut on the screw and tighten by hand.
5. Wind the searchcoil cable around the pole. The connector will either be installed in the control housing or into the extender cable, depending on the configuration desired.

BODY MOUNT

1. Install the coil cable connector into the mating end of the extender cable. Tighten the connector by hand.
2. Hold the connectors against the pole, and clip the cable to the pole just above the connectors

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3. Install the extender cable into the mating connector on the bottom of the control housing. Tighten the connector by hand.
4. The control housing is equipped with a belt loop, but also includes two large holes in the upper chassis which can accommodate the spring clips of most readily available web straps.

NOTE: The extender cable will last much longer in the body mount configuration if some care is taken to spread the necessary flexing over a large area, rather than making a sharp bend away from the pole at the cable clip which would concentrate the flexing in a small area.

POLE MOUNT

1. Remove the knurled nut form the threaded stud on the bottom of the housing between the earphone jack and the coil connector.
2. Slide the belt bracket into the mounting clip on the top of the pole. It will probably be necessary to push up slightly on the belt bracket to help it over the bracket mounting screws. Make sure the threaded stud goes through the hole in the vertical foot at the end of the mounting bracket. Install the knurled nut on the stud and tighten by hand.
3. Install the coil connector into the mating connector on the control housing. Tighten by hand.
4. Store the extender cable and cable clip so they will be available if you desire to convert the unit to a body mount.

CONVERSION

Obviously, converting the detector from body mount configuration to pole mount is simply a matter of removing the extender cable and clip, installing the control housing on the mounting bracket, and reconnecting the coil connector to the control housing. Reverse the procedure to convert from pole to body mount.

If the detector is always going to be used as a body mount, the mounting bracket can be removed from the pole.

ADJUSTMENT

The searchcoil angle and stem length should be adjusted so that the unit is not uncomfortable or tiring after long periods of use. The stem length is adjusted by depressing the spring buttons and extending or shortening the pole till they click into the holes that give you the most comfortable setting. The coil should be about one inch above the ground while standing erect. Adjust the angle of the searchcoil, so that the coil is parallel to the ground. Tighten the searchcoil thumb nut by hand to maintain this setting.

The arm rest on the rear of the handle can be moved forward by removing the screws and nuts, and reinstalling the assembly into the most forward set of holes.

Specifications

Operating Frequency	10 kHz
Searchcoil Type	Wide Scan
Searchcoil Size	8 1/2" Diameter
Cable Length	Approx. 3’
Audio Frequency	Approx. 600 Hz
Audio Output	2 1/4" speaker
Headphone Compatibility	1/4" stereo earphone jack
Weight (may vary slightly)	3 1/2 lbs.
Battery Requirement	12 volts DC (8 AA penlight batteries)
Battery Life (typical)	20 to 40 hours
Optimum Temperature Range	30° to 100° F
Optimum Humidity	0 to 75% R.H.
Operating Modes	All Metal
	Discriminate

TESORO Electronics, Inc., reserves the right to modify or improve the design without further notice.

CONTROLS

The control panel of the Eldorado is recessed into the chassis base, and a switch guard is installed across the open side. This protects the controls from being accidently mistuned by being hit with your arm, clothing, cables, etc., when the unit is used in the body mount configuration.

1. **ON/OFF, BATTERY TEST, SENSITIVITY CONTROL.** This control is used to turn the detector on and off, and to adjust the gain of the electronics. Turning the knob complete counterclockwise until it clicks disconnects the batteries from the circuit. The power off position is marked with the orange colored word "OFF".

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The sensitivity of the detector is at minimum at the counterclockwise position, and rises to maximum as the control is rotated clockwise. Since the detector is mineral free when properly adjusted, it will only be necessary to operate at reduced sensitivity when the mineralization changes intensely, such as in a "hot rock" location.

2. **GROUND ADJUST.** This control is used to adjust the detector's phase reference so that sampling occurs as the ground or mineral signal is at zero amplitude. This control is a ten turn device. It is probably the most critical setting to make, so study the manual section on how to adjust it and learn to do it properly.
3. **THRESHOLD ADJUST.** This control adjusts the detector to its most sensitive point in the All Metal mode, the point where sound just begins. This also sets the operating level for audio response to deep targets.
4. **DISCRIMINATE LEVEL.** This control is used to adjust the detector's response to unwanted metallic trash when used in the Discriminate mode. At the lowest setting "0", the detector will eliminate most iron objects, but will still respond in a positive manner to light foil, bottle caps, pull tabs and most other metallic items. As the knob setting is increased, response to more of these metallic trash items is reversed so that these objects give no response.
5. **TUNING MODE SWITCH.** This three position switch controls the tuning of the detector. The AUTO position allows the electronics to maintain the threshold, but the tuning is not fast enough to overcome the target response as long as the searchcoil is moving slightly. The NORMAL position allows no automatic returning, and is used for most general hunting in All Metal. The RETUNE position is spring loaded, and pushing the toggle to this side for a second or two lets the electronics retune to threshold.
6. **SEARCH MODE SWITCH.** This toggle switch selects whether the detector operates in the All Metal or the Discriminate mode.
7. **BATTERY TEST.** Pushing this switch gives an audio indication of the remaining battery power. A strong battery pack will give a strong audio output, and as the batteries age, the response will get weaker. When there is no response, it's time to install new batteries.
8. **DISCRIMINATE SENSITIVITY.** This control is adjusted at the factory for the best response in the Disc Mode, and should only be changed when necessary. If the Disc mode is too noisy and sputtery, turn the control clockwise until the noise stops. To gain access to this trimmer, remove the battery pack from the detector, and adjust it with a small screwdriver. The trimmer is on the end of the printed circuit board.

The figure below gives the control settings where some of the commonly found trash items can be rejected.

TUNING

No detector, regardless of how powerful it is, can provide optimum depth if it is improperly tuned. In fact, the more powerful a detector is, the more critical the tuning becomes. Less powerful units are more tolerant of operator maladjustment, but are not capable of the depth of a properly tuned high power detector such as the Eldorado.

The achieve maximum performance from your Eldorado, be sure to properly adjust the GROUND ADJUST and TUNING controls in the All Metal mode. The settings of these controls will also affect the detector's performance in the Disc mode, so be sure to adjust them properly, even if you only plan to operate in the detector in the Disc mode.

A. **ALL METAL MODE TUNING.**

1. Turn the On/Off Sensitivity control fully clockwise to maximum sensitivity. Set the Tuning Switch to the AUTO position, and put the Search Mode switch in All Metal.
2. Adjust the Threshold control to just slightly above the beginning of sound. Do this step with the searchcoil about a foot above the ground.
3. Lower the searchcoil from one foot to one inch above the ground, and listen to what the audio output does as the coil approaches the ground.

Note: Since the tuning mode is automatic the coil must be lowered fairly fast so that the auto tuning doesn't tune out the ground effect.

4. If the sound **increases**, turn the Ground Adjust control counterclockwise, and repeat lowering the searchcoil from one foot to one inch above the ground.

If the sound **decreases**, turn the Ground Adjust control clockwise, and repeat lowering the searchcoil from one foot to one inch above the ground.

5. The Ground Adjust control is properly adjusted when no sound change occurs as the coil is lowered to the ground.
6. Setting the ground adjust can also be accomplished in the Normal Tuning mode, however the Tuning switch must be depressed into the Retune position after any adjustment of the Ground Adjust control to re-establish the threshold hum.

B. **DISCRIMINATE MODE TUNING.**

Tuning the Eldorado for use in the discriminate mode requires that the All Metal Mode tuning procedure be properly accomplished, as the Ground Adjust control provides for mineral free operation in both the All Metal and Disc modes. Also, the threshold setting of the Tuning control determines the minimum sound level for deep targets in the Discriminate mode. Too little threshold, and depth will be lost. Too much threshold, and the detector may become erratic.

After the All Metal mode procedure is accomplished, the only settings necessary for operate in Discriminate mode is to set the Disc Level control to the desired amount of trash rejection, and to set the Disc Sensitivity control to the maximum setting that will allow smooth operation.

SELECTING THE PROPER MODE OF OPERATION

The Eldorado offers two basic modes of operation, the All Metal mode and the Discriminate mode. Both modes are mineral free if the unit is properly adjusted. The All Metal mode is the industry standard "VLF" type which does not require motion of the searchcoil for proper operation. This mode, while requiring an initial ground adjust setting and sound threshold, offers two very important advantages, these being the ability to pinpoint without motion, and to provide exact ground cancelling. The Discriminate mode is based on motion of the searchcoil, but requires very little motion, and offers the

advantage of completely silent operation.

Nugget Hunting requires using the All Metal mode, since the response to small gold items is so close to iron. Auto tuning is generally not necessary, but is available if needed. Keep the Sensitivity control set as high as possible while still allowing you to operate the detector smoothly. Since gold is found naturally in areas which will most likely include hot rocks, black sand, and other intense minerals, it may be necessary to lower the Sensitivity control to minimum when hunting such areas. It may also require readjusting the Ground Adjust control to help compensate for the added minerals.

The Wide Scan coil supplied as standard on the Eldorado is much less affected by bad soil and hot rocks than the 7 inch concentric coil, although it does lose some ability to detect tiny gold objects. If you are searching for nuggets in an area that is free of hot rocks, the 7 inch concentric coil might be an excellent coil to use.

Relic or Cache Hunting also generally calls for using the All Metal mode, but the Discriminate mode can be used to eliminate the response to iron targets. Much relic hunting is done in woods and brush too thick to properly utilize the motion based Discriminate mode. It usually is possible to search in the All Metal mode, and when a target is found, switch to Disc to check the target response.

Competition and Coinshooting can be accomplished in either mode, depending upon the amount of trash at the site. Coil type and size are also of concern to these hunters. Generally, most targets are buried very shallow at competition hunts, so operating at reduced Sensitivity settings will yield better stability. When coinshooting, a higher setting of Sensitivity will help pick up the deeper targets, as long as the detector is still stable.

FIELD USE

The detector should be held in a position that is comfortable for you. Swing the detector from side to side in about a three foot arc, overlapping succeeding strokes well. This motion is called a “sweep.” The Eldorado was designed to get maximum depth without the frantic pace required of earlier motion detectors, so go at a pace that is comfortable for you. In fact, trying to hunt too fast in Discriminate may even cause a loss of depth in heavily mineralized locations.

It would be helpful to bury some coins and trash metal junk items in an area that you know is clear of other metal objects, and then try the unit in its various modes. Check the area in All Metal Mode first to be sure its clear of trash then bury the targets at least a foot apart, and from 2 to 6 inches deep to start. Make a map of the test bed to be sure you know what each target is and how deep it is. Practice on these targets to familiarize yourself with your detector’s target response. This will also help you learn the proper sweep rate for best Disc operation.

In All Metal mode operation, keep the detector tuned so that it is just lightly buzzing. This is easy to do because the ground minerals do not affect the All Metal mode if properly adjusted. Regardless of which mode you are using, try to keep your searchcoil height constant and close to the ground. Most people tend to raise the coil at the end of a sweep, much like a pendulum, especially if they are hurrying. Try to avoid this, as any increase in height will cause a corresponding loss of depth.

In areas with well kept lawns, the easiest way to maintain a constant searchcoil height is to allow the coil to rest on the grass as you sweep from side to side. In rough and rocky areas it is best not to “scrub” the coil on the ground, as the rocks will act like abrasives, and wear away the coil bottom (an optional coil scuff cover will protect against this.) Sweep the coil as close to the ground as possible without touching. Hitting the ground or rocks may cause a false signal much like a desired target would. Sweeping the coil too high above the ground results in a loss of depth.

When operating in the Discriminate Mode, some “false signals” may be caused by heavy concentrations of trash metal objects, by very large trash items, or by electrical interference. These signals will sound different than good target signals because they are generally short, choppy sounds. At the end of your sweep, as you the reverse the coil direction, the detector is most susceptible to trash induced noise. There are two ways to tell whether these sounds are good deep signals or trash “noise.” The first is by repeatability. Trash induced noises will not be regular as you sweep the coil over the suspected target several times, whereas a good target response will be repeatable. The second method is to switch to All Metal Mode and check the target response sound. If the response is weak, it may well be a deep, good target; but if the response is very strong, it is probably trash. Note that a coin close to the surface can give a double beep sound, but it is regular and repeatable. Raising the coil an inch or two will restore the single beep on surface targets.

If there is any doubt whether a target is good or not, DIG IT. For this same reason, in the discriminate mode it is best not to use any higher Disc Level setting than necessary. Nickels and most small rings are rejected when the Disc Level is set to reject pull tabs on all TR Discriminators. If you don't dig any junk at all, you are surely passing up a lot of good finds, too. Set the Disc Level only high enough to suit the conditions where you are searching.

PINPOINTING

The sweep speed of the Eldorado is low enough to allow pinpointing in the Discriminate mode, but will require a little more practice. Move the coil slowly from side-to-side and then from front-to-back over the target. Raising the coil slightly and slowing the sweep speed will narrow down the detection area enough that it's easy to tell where the coil center is at the instant of sound.

Another easy method is to sweep the coil from side to side across the target in very short sweeps, as you slowly move forward and backward across the target. Slow down the sweep rate and shorten the sweeps until you just barely get a response at one spot. The target will be directly below the coil center at this response time.

The easiest way to pinpoint for most people will be to switch to the All Metal mode, since no motion is required. To pinpoint a target that doesn't saturate the audio, just move the coil forward and back, and side-to-side until you get the strongest sound. The target will be directly below the coil center. If the audio saturates over a large area, simply push the tuning mode switch to the retune position momentarily over the area to detune the detector. This will narrow its field of response to allow you to once again seek the area of strongest response. It may be necessary to retune more then once with this technique.

http://www.lyricsfreak.com/b/bad+religion/sorrow_20012040.html

Always obtain permission from the person in charge before hunting on private property, schoolyards, parks, churches, or state parks. Even when relic hunting in the woods, NEER LEAVE A HOLE!, or damage anything on the property.

PROTECT YOUR HOBBY - FILL ALL HOLES

BATTERY REPLACEMENT

Your Eldorado is equipped with a manual battery test circuit so that you can always be sure you are getting top performance from it. The batteries should be checked after the detector has been on for about 10 minutes, and then periodically as you are using it for long periods. To activate the battery test circuit, simply push the BATT TEST switch. The detector should beep loudly if the batteries are fresh. As they grow weak, so will the sound in the BATT TEST position. When the sound becomes just a buzz, or isn't there anymore, it's time to replace the batteries.

To replace the batteries, remove the control housing from the pole, and pull the large knobs on the battery door on the front of the unit. The entire door will pop out. Remove the battery pack from the detector, and then remove the batteries from the pack. Place the new penlight batteries into the pack, being sure that you observe the polarity indicators on the inside of the packs. Slide the pack back into the detector, making sure that the battery clip lead is connected to the pack. Install the battery door back onto the detector making sure the plungers are still pulled out. The door should fit over the screw heads and be completely flush with the front panel. Then push the plungers back in to lock the door in place.

Should you desire to do so, rechargeable Nickel-Cadmium batteries can be substituted for standard penlight cells. Individual AA size cells are readily available at most electronic supply stores, as well as the charges for them, and they can be inserted into the standard holder used in your detector. The initial battery check reading will be slightly lower, but will not drop as much with use, until the batteries are completely discharged.

GENERAL CARE AND USE

If the detector is to be stored for a long period of time, it is best to remove the battery pack from the detector. This will prevent internal damage to the detector if the batteries should leak.

The searchcoil is waterproof and may be submerged in either fresh or salt water. Caution should be exercised to prevent water from entering the chassis, where it could damage the electronic circuitry. After the coil is used in salt water, the coil and lower stem assembly should be rinsed well with fresh water to prevent corrosion of the metal parts. When used in the body mount configuration, you should not allow the cable connectors to be submerged. Several waterproof adapters are available through your dealer which will allow you to waterproof the connection between the searchcoil and the extender cable connectors.

There are several good books to help the beginner learn how to use the detector, where to search and how to recover a target without damaging the environment. A good coin shooter can recover a lot of finds and leave the area looking as though he had never been there. Above all, always fill your holes when you have recovered the target.

TESORO Metal Detectors are sold through independent dealers, who are almost always treasure hunters themselves. They can provide you with you much needed information about how to use your detector, how to probe, plug and dig in your locale, and answer most of your questions about treasure hunting in general.

The use of earphones will benefit you in two ways. Most earphones will very effectively block out most of the ambient noise, such as traffic noise and wind noise, which will enable you to better hear the fainter signals caused by the deeper targets. Obviously, the older, more valuable coins will probably be deeper than the ones which were lost last week, so you should take advantage of anything that will help you hear the weaker signals. Secondly, using earphones will greatly extend the battery life, since it takes much less power to operate them. The Eldorado is not equipped with a volume control, but does have a limiting circuit in the earphone jack. If less volume is desired with earphones, you may want to use earphones with a built in volume control. Any good 8 to 16 ohm set with 1/4 inch stereo jack will do.

HAPPY HUNTING, and thank you for purchasing a TESORO.

WARRANTY SERVICE

Your Tesoro metal detector is covered by a **Limited Lifetime Warranty**, the terms of which are listed below. If your metal detector should require service, you may return it to the Tesoro factory, or tone of the factory authorized service centers. Contact the factory for the name and address of the nearest service center.

If you have any questions, don't hesitate to contact the factory.

LIMITED LIFETIME WARRANTY

This warranty gives you specific legal rights, and you may have other rights which vary from state to state.

This instrument is warranted to be free of defects in material and workmanship as long as it is owned by the original consumer purchaser. This warranty is not transferable, and is valid only if the warranty registration card has been completed and mailed within 10 days of purchase.

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During the first two years, TESORO will, at its option, repair or replace any instrument covered by this warranty, without charge, except for transportation charges, at its factory in Prescott, Arizona, or at one of its authorized repair centers. After two years from date of purchase, TESORO will replace defective parts at no charge except a nominal labor change and transportation charges.

This warranty excludes batteries, damage caused by leaky batteries, cable breakage due to flexing on body mount units, and wear of the searchcoil housing. Also excluded are instruments which have been abused, altered, or repaired by an unauthorized party.

If warrant service should be necessary, contact the factory for nearest repair center.

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