





The name that means Treasure

Bandido II 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 Bandido II is a Transmitter-Receiver (TR) type of detector that operates in the Very Low Frequency (VLF) portion of the Radio Frequency (RF) spectrum. It provides true mineral free operation in both the All Metal and 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 Bandido II was designed to be 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 an 8" concentric coil, although other coil sizes and types are available.

The Bandido II 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 Bandido II 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 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. Be sure the rubber friction washers are in peace.
3. Insert the coil mounting screw through the coil and pole tip. 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 as shown, leaving just enough flex to permit angel adjustment of the searchcoil.

POLE MOUNT

1. The control housing is already mounted on the pole, as shipped from the factory, so all that is necessary is to insert the searchcoil connector into the control housing connector, and tighten finger tight.

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2. Use the two velcro straps to hold the cable tight against the pole.

BODY MOUNT

1. To use the detector as a body mount, simply remove the control housing from the upper pole by depressing the spring nuts in the plastic mounting piece, and slide the control housing off the pole.
2. Insert the searchcoil connector into the control housing connector and then finger tighten.
3. Use the two velcro straps to clamp the searchcoil cable. It will be best for you to sometimes move the straps so that the wear on the cable is spread over a large area.

CONVERSION

Obviously, converting the unit from body to pole mount or vice versa, is simply putting the control housing back on the pole, or removing it from the pole. Be sure to keep the searchcoil cable wound tight enough around the pole that it doesn't flap right over searchcoil housing. The Bandido II is strong enough to see the tiny cable wires moving, and can give you false signals if the cable is too loose.

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	Concentric
Searchcoil Size	8" diameter
Cable Length	Approx. 3’
Audio Frequency	Approx. 625 Hz
Audio Output	1 1/2" speaker
Headphone Compatibility	1/4" stereo earphone jack
Weight (may vary slightly)	3 lbs.
Battery Requirement	9 volts DC 2 ea. 9V alkaline batteries
Battery Life (typical)	15 to 30 hours
Optimum Temperature Range	30° to 100° F
Optimum Humidity	0 to 75% R.H.
Operating Modes	All Metal
	Discriminate
Tuning Modes	Auto Tune
	Normal Tune

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

CONTROLS

The Bandido II has five controls on its front panel, and a threshold adjust on its rear panel. The front panel controls are all readily adjusted with the index finger of the hand holding the detector.

1. **THESHOLD CONTROL.** This control is placed on the back panel of the detector, since it requires very little usage. Once the control is adjusted to the desired threshold, it will not require frequent resetting.
2. **TUNE SELECT.** This toggle switch allows the detector to be operated with fast auto tuning when the toggle is placed in the Auto Tune position or with no auto tune when placed in the Normal Tune position. Auto Tune quickly retunes the detector to it's established threshold automatically following a target response. Fast auto tune can cause an overshoot signal on hot rocks plus it keeps the instrument from drifting. Normal Tune will hold a target's signal without returning for as long as the searchcoil is held directly over the target. Some drift may occur, but is quickly remedied by pushing the mode switch to Retune momentarily. Normal Tune is used for All Metals pinpointing, identifying target size, line tracing, and ore sampling.
3. **GROUND ADJUST CONTROL.** This control adjusts the All Metal mode sampling so that the Bandido II ignores the

normal ground mineralization. This control is a ten turn device, and it is sometimes difficult to feel when the end of the turn range is reached. The setting of this control is the most critical adjustment to do, but it is a very simple adjustment to make. Study the manual section on TUNING to be sure you learn how to properly adjust this control.

4. **ON/OFF, BATTERY TEST, SENSITIVITY CONTROL.** The primary function of this control is to reduce the detectors sensitivity to those influences that could make the operation more difficult for you. This control also is used to turn the power on and off. Turning the knob completely counterclockwise until it clicks disconnects the batteries from the circuit. When the knob is first turned on (clockwise), the detector will automatically test its batteries, and give you an audible indication of their connection. **NOTE: This test should be performed with the Mode Switch in the Discriminate position.** Fresh batteries will cause a loud audio response which will gradually decay into silence over a period of about 4 or 5 seconds. As the batteries age and become weaker, the initial audio response will be weaker, and will decay quicker. When the response is just a short buzz instead of a long beep, or when there is no audio response, it's time for new batteries. It is recommended to always use alkaline batteries.

Many things can cause the response of the detector to become erratic as you are using it. Normally you will not hear any sound from the detector unless you pass the coil over a good target. Very large targets or a multitude of closely spaced smaller rejected trash targets can cause the detector to emit choppy sputtering sounds. CB radios, radio and TV broadcasting antennas, intense mineralization changes, and other sources of electrical noise can also cause the detector to emit false signals. These signals will generally sound "chopped" and will not be repeatable so you will not have any trouble recognizing them. They can be distracting, though, and turning down the sensitivity control will help reduce them. This will also cause a small loss of target sensitivity, so always run the sensitivity control as high as you can, while still getting smooth operation.

5. **MODE CONTROL.** This toggle switch is used to select the All Metal mode of operation or the Discriminate mode. In the Discriminate mode, the detectors response to unwanted trash can be controlled to eliminate digging much of the common metallic trash items found in likely hunting spots. The detector may beep briefly when the switch is changed, but is ready for operating in the selected mode instantly. In All Metal, the detector will find not only the highly conductive nonferrous metals, but will also find the ferrous metals. This mode will be ideal for relic hunting or ghost town searching, since many desirable artifacts (such as guns) are made of iron and steal.

NOTE: The All Metal mode may or may not have auto tuning to help narrow the detector's response to the target when you are pinpointing. It will depend on which tuning mode the Tune Select toggle is in. To manually retune the unit to threshold for either mode, just push the mode switch up to the Retune position momentarily.

6. **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.
7.

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 misadjustment, but are not capable of the depth of a properly tuned high power detector such as the Bandido II. To achieve maximum performance from your Bandido II 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 Discrim mode, so be sure to adjust them properly, even if you only plan to operate the detector in the Discrim mode. Improper tuning (ground adjustment) not only reduces performance, but may cause false and erroneous ghosting signals as well.

TUNING IN THE ALL METAL MODE

NOTE: Make sure there are no metallic objects under or near the search coil when tuning. To do this turn the detector on and use the All Metal mode, then follow proper tuning procedures once you are sure the area is metal free.

1. AUTO TUNING
   A. Put the Tune Select switch in the Auto Tune position.
   B. Put the Mode Switch in the All Metal position.
   C. While holding the search coil about a foot in the air turn the detector on. Wait for the battery check to complete its cycle then turn the Sensitivity control to near maximum.
   D. Adjust the Threshold control until you achieve a faint audio sound signal. If the audio level of the threshold has changed while adjusting, momentarily lift the Mode Switch to Retune then listen to make certain the Threshold maintains a barely audible level. Keep the searchcoil elevated throughout this process.
   E. Quickly lower the searchcoil to about one or two inches above the ground, immediately after retuning, then begin pumping the search

coil up and down with about a four to six inch stroke.

F. While pumping the search coil turn the Ground Adjust until no change in the threshold sound is obtained. If there is no change in the threshold sound you are properly tuned. If the sound decreases as the searchcoil is lowered turn the Ground Adjust clockwise; if the sound increases as the searchcoil is lowered turn the Ground Adjust clockwise; if the sound increases as the searchcoil is lowered turn the Ground Adjust counter clockwise. Continued this procedure until no audio change in the threshold is achieved.

2. NORMAL TUNING

A. Put the Tune Select switch in the Normal Tune position.

B. Put the Mode Switch in the All Metal position.

C. While holding the searchcoil about a foot in the air turn the detector on. Wait for the battery check to complete its cycle then turn the Sensitivity control to near maximum.

D. Adjust the Threshold control until you achieve a faint audio sound signal. If the audio level of the threshold has changed while adjusting, momentarily lift the Mode Switch to Retune then listen to make certain the threshold maintains a barely audible level. Keep the searchcoil elevated throughout this process.

E. Retune then quickly lower the searchcoil to about one to two inches above the ground and listen for an audio change in the threshold. If there is no change in the threshold sound, you are properly tuned.

F. If the threshold sound increases as the searchcoil nears the ground, turn the Ground Adjust about one half turn counter clockwise, after lifting the searchcoil back into the air. Push Retune momentarily then quickly lower the searchcoil towards the ground again.

G. If the threshold sound decreases as the searchcoil nears the ground, turn the Ground Adjust about one half turn clockwise, after lifting the searchcoil back into the air. Push Retune momentarily then quickly lower the searchcoil towards the ground again.

H. Repeat the above steps readjusting the Ground Adjust control as indicated by the change in the threshold as the coil approaches the ground.

I. When the audio change in the threshold reverses itself, as you are making adjustments, then move the Ground Adjust control back in small increments, until there is no change as the searchcoil is lowered toward the ground. Remember to always momentarily hold the Mode Switch into the Retune position each time just before you lower the searchcoil toward the ground again.

TUNING IN THE DISCRIMINATE MODE

Tuning the Bandido II 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 operating in both the All Metal and Discrim 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 operation in Discriminate mode is to set the Disc Level control to the desired amount of trash rejection, and to set the Sensitivity control the maximum setting that will allow smooth operation.

THRESHOLD

The Threshold control is used to adjust the audio level of the threshold up or down; it is not a volume control for the detector itself. The threshold establishes an audible reference point for tuning the detector to ground balance it.

SELECTING THE PROPER MODE OF OPERATION

The Bandido II 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 of sound threshold, offers two very important advantages, these being the ability to pin-point without motion, and to provide exact ground canceling. 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.

We feel that for most nugget shooting use, All Metal Auto Tune will provide the best performance. Since most gold nuggets are quite small, you need to be sure that your detector is tuned to threshold at all times to avoid missing any of these little nuggets. Hot Rocks will cause a momentary silence as the coil is swept over them, with a loud overshoot when the coil clears them. The sound is so different from a good target sound, that it is very easily recognized. The only problem with just ignoring these sounds are that a small nugget may be hiding beneath the hot rock. Adjusting the ground Adjust control in the clockwise direction until the hot rocks are almost neutralized will help detect small gold nuggets but the ground will read as a positive signal, so you will have to be very careful to keep your coil height constant.

Remember that the auto tuning in the All Metal mode will cause a nulling of the threshold sound if you pass the searchcoil over a very strong metallic target.

Beach hunting on salt water beaches requires slightly different settings from other types of hunting. The dry sand area should be no problem, but once you encounter wet sand or enter the surf you may need to make some adjustments. Salt, especially wet salt, is highly conductive and may cause the detector to emit false signals. To help overcome the salt's effects set the Ground Adjust so that the threshold gives a very slight audio increase as the searchcoil is lowered to the ground. This will help keep the detector from sounding off over footprints, sand ripples and holes. It may be necessary to turn the sensitivity down considerably or to raise the Disc Level slightly in order to smooth out the instrument. Surf hunting in salt water may require using the Disc Mode due to the conductive salt water causing electronic responses as the washes directly over the searchcoil, emitting false signals.

The Discriminate mode will allow you to control the detector's response to most of the common metallic trash items found in most schools, parks, and beaches. This mode is generally used for coin-shotting such areas in order to avoid having to dig most of this common trash. The Discriminate Level control is used to adjust the response to these trash items. Each detector can vary somewhat due to the manufacturing tolerances, so you should experiment with your detector and become familiar with the rejection levels for these trash items with your detector.

Earlier motion detectors that are operated with the "Threshold" sound would give the user a definite indication of metallic trash by either nulling completely or by generating short, choppy sounds. Since the Discriminate mode operates without threshold sound, there is no nulling to indicate that the area is extremely trashy. When searching in the Discriminate mode, we recommend that you periodically switch to All Metal and check the area you are searching to get an idea of how much trash is really there. In extremely heavy trash areas, it may be desirable to switch to a smaller search coil, even through doing so will cause a loss of depth. The smaller coil will allow you a better chance of finding coins between the close pieces of

trash.

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 Bandido II 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 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 speed for best operation.

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 from the ground will cause a corresponding loss of depth.

In All Metal mode operation, keep the detector tuned so that there is just a slight buzzing of a sound. 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 1) heavy concentrations of trash metal objects, 2) very large trash metal objects, or 3) 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 a higher DISC LEVEL setting than necessary. Nickels and most smaller rings are rejected when the DISC LEVEL is set to reject pull tabs on any metal detector that is a TR Discriminator like the Badido II. If you don’t dig any junk at all, you are surely passing up a lot of good finds as well. Set the DISC LEVEL only high enough to suit the conditions where you are searching.

PINPOINTING A TARGET

The sweep speed of the Bandido II is slow enough to allow pin-pointing 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 the 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/Normal Tune mode, since no motion is required. To pin-point 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 than once with this technique.

RECOMMENDED RECOVERY METHODS

PROTECT YOUR HOBBY - FILL ALL HOLES

BATTERY REPLACEMENT

The Bandido II has an automatic battery test sequence with each initial power tun on. To check the batteries, simply turn the Bandido II of for about five seconds, and then turn it back on. The battery test circuit will engage for about 3 to 5 seconds, with the audio output loudness indicating the remaining battery strength. As the batteries age, this tone will get quieter, and when you hear only a brief buzz or not output at all, it's time to replace the batteries.

When you hear only a chirp, buzz or not output at all, it's time to replace the batteries.

To replace the batteries, pull the large knobs on the battery door on the rear of the unit. The entire door will pop out. Remove the batteries from the detector, and then remove the leads. Replace the new batteries into the detector, observing the polarity indicators on the clip leads. Install the battery door back onto the chassis, and push th nylon fasteners into the holes on the chassis, making sure that the plungers are still pulled out. Then push the plungers back in to lock the door in place.

We recommend when you replace the batteries, that you change both at the same time, and that you always use good quality alkaline batteries.

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.

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 detector 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 or 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.

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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