





Amigo OPERATOR INSTRUCTION MANUAL

GENERAL DESCRIPTION

The Amigo is a Transmitter-receiver (TR) Metal Detector, operating in the very low frequency (VLF) portion of the RF spectrum. The detector utilizes the natural phenomena of the phase delay of all targets to provide mineral-free or ground compensated response, or to provide discriminate capability.

The design of the Amigo was implemented not only to provide excellent sensitivity, but to provide a unit which is easy to use for both the beginner and the expert treasure hunter.

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

Assembly of the Amigo is very easy, and requires no special tools. The only assembly required is to mount the searchcoil to the end of the lower stem and install the lower stem and lock assembly to the upper stem.

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 tooth 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. WWind the searchcoil cable around the pole by depressing the spring buttons and turning the lower stem around several times as necessary.

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 loosening the knurled locknut and extending or collapsing the stem length until the unit can be held about an inch off the ground while standing erect. Adjust the angle of the searchcoil, so that the coil is parallel to the ground. Tighten the searchcoil thumbnut and stem locknut by hand to maintain this setting.

CONTROLS

The function of the front panel controls of the Amigo are as follows, beginning in the upper right hand corner, and proceeding in a clockwise direction.

1. **Power Switch.** This three position rotary switch is used to turn the unit power on and off, and to test the condition of the batteries. The unit will still operate when in the batt test position, but the meter will indicate the relative strength of the batteries instead of responding to signal intensity. The battery test should be performed after the detector has been on for about 10 minutes, and with a moderate to heavy amount of sound. A meter reading of .6 or higher indicates the battery strength is adequate for proper operation. If the meter reading is below .6, replace the batteries.
2. **Tuning.** This control is used to tune the detector to its most sensitive setting, regardless of which mode is used. Since the target response of a TR detector is an increase in sound level, the ideal setting for maximum depth is so that the detector is just beginning to make sound. This "threshold" setting should be maintained at all times, as operating the detector completely silent means a deep target may have insufficient response to drive the detector out of the quiet region and into "threshold". When adjustments are made to this control, be sure to keep the handle mounted pushbutton switch depressed.
3. **Mode Control.** This control is used to adjust the Amigo's response to various metallic targets and mineralization

3. **Mode Control.** This control is used to adjust the Amigo's response to various metallic targets and mineralization present in the ground. When the control is rotated CCW into the area marked GND REJ, the unit can be adjusted to completely ignore the mineralization of the ground, and will yield a positive response for all metallic targets. This mode is operation gives the best depth in most types of mineralized soil. As the control is rotated clockwise, the unit will reject more and more of the typical metallic trash items, but iwll be affected by the mineralization of the ground.
4. **Sensitivity.** This control is considered an absolute necessity by most experienced treasure hunters, and is probably the most misused and misunderstood control for many TH'ers. Its function is to control the sensitivity of the detector to any metal or mineral target that will give a response to the searchcoil. Its purpose is to allow you to always get the maximum detection depth from your detector. This control should be set only as high as will allow you to maintain "Threshold" as you sweep the detector. In the GND REJ mode, the control should be set at maximum because the mineralization is ignored by the detector if properly adjusted. When used in the discriminate modes, the mineralization will always affect the detector, and in heavily mineralized ground you will achieve better depth by reducing the sensitivity. This is analogous to driving your car in heavy fog. On high beats its hard to see anything because of the reflected light, but low beams allow you to see deeper into the fog. In the same manner, reducing the sensitivity will allow your Amigo to "see" deeper into heavily mineralized ground when discriminating. The tuning instructions will tell you how to adjust this control.
5. **Push Button Tuner.** This switch is located in the end of the handle, and is used to retune the detector to the selected "Threshold" whenever necessary. Be sure to hold this button in whenever the threshold is changed with the tuning control.

NOTE: The Amigo is not equipped with a volume control. This should not pose any problem when operated using the internal speaker. Since the target response of a T/R detector is an increase in sound intensity, the best performance is obtained by using the machine with the volume at maximum. The Amigo has the volume level fixed at the point which will give you the greatest sensitivity. When the unit is used with headphones, an internal limiting resistor sets the volume at the most sensitive point, but some people may wish to reduce the set volume. To do this, simply use a headset with built in volume controls, which are available at most dealers.

TUNING

A. **Ground reject (all metal) mode.**
1. Turn sensitivity control to max.
2. Turn mode control to center of area marked GND REJ.
3. Turn power switch to on.
4. Hold the push button tuner switch in, and adjust the tuning control for the "threshold" (the point where sound just begins).
5. Hold the coil about one foot above the ground and release the push button.
6. Lower the searchcoil to the ground and observe if the sound increases or decreases.
7. Raise the coil back to about a foot above the ground, and turn the mode control slightly clockwise if the sound increased as the coil was lowered, or slightly counterclockwise if the sound disappeared as the coil was lowered.
8. Depress the push button briefly to re-establish the "Threshold".
9. Repeat steps 6, 7, & 8 until there is no change in the threshold as the coil is lowered.

Note: If the mode control is turned up past the nail region, and the detector still increases as the coil is lowered, you are over a target. Move to a clear spot and repeat the procedure.

10. Put a small dot on the face of your detector with India Ink, paint, or a felt tip pen, corresponding to the knob pointing when properly ground compensated. Tis will help you find the ground reject point easily the next time you adjust your machine.

Note: If the mode control is adjusted too low, the response to coins and jewelry may be lost completely.

B. **Discriminate Mode.**
1. Turn sensitivity control to mid-range (pointer straight up).
2. Turn mode control to desired discrimination level.
3. Turn power switch to on.
4. Hold the push button tuner switch in, and adjust the tuning control for "threshold".
5. Lower the searchcoil to about one inch above the ground, and release the push button.
6. Raise and lower the searchcoil slightly, and note the tuning changes. If a slight upward movement causes a full scale meter deflection and maximum audio, the ground is heavily mineralized, and may require a lower sensitivity setting. If the detector can tolerate an upward movement of several inches before pegging the meter and audio, the ground is lightly mineralized and the Sensitivity knob can probably be adjusted higher.
7. Adjust the Sensitivity control to the highest setting that will allow you to sweep the detector from side to side and still maintain the threshold. Attempting to operate the detector in Discriminate Mode at maximum sensitivity in heavily mineralized ground will always result in a loss of performance.
8. Hold the searchcoil at the height that you plan to use it, and depress the pushbutton tuning switch. Release the pushbutton and swing the detector, keeping the searchcoil heigh above the ground as constant as you can.

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. The Amigo does not need to be hurried, so go at a pace that doesn't wear you out.

Keep the detector tuned so that it is just beginning to buzz. In Normal Mode the detector ignores the ground, if properly adjusted, so this is easy to do. In Discriminate, the ground will affect the detector, so you should sweep the detector at a constant height above the ground (about 1 inch). Irregularities in the ground, as well as in your sweep height will cause variations in the tuning. These changes will usually be much slower than the abrupt signal caused by the coil passing over a good target. A little practice with a coin buried about 1 inch will enable you to pick out the target sound readily, as compared to the background variations. Turning the Sensitivity down will make it easier to maintain threshold. Always operate in Discriminate with the Sensitivity control set only as high as will allow you to operate in the unit at threshold.

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.

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To pinpoint or locate a target which doesn't peg the meter and audio, simply move the coil around to find the point where the loudest audio and highest meter reading is given. The target will be right below the center of the coil. if the target response is so strong it pegs the meter and audio, simply push the tuning button momentarily over the strongest signal. This will tune out most of the response to the target and the detector will go totally quiet if it is moved away from the target. It may be necessary to retune a couple of times to almost totally tune out the target, but you will eventually arrive at a tuning level that will not saturate or peg the meter and audio when you are directly over the target.

In the Discriminate Mode, the tuning will not be affected by changing the DISC LEVEL control setting, so it is fairly easy to identify the target by increasing the DISC LEVEL control as the coil is passed repeatedly over the target, until the target response goes away. Being familiar with your detector and where typical junk items are rejected can save you much needless digging.

To properly utilize this identification feature, you will need to be tuned to threshold at the same height as you are passing over the target so the ground minerals do not alias the readings. Automatic tuning is helpful here, as the auto tune circuitry will continuously keep your detector tuned to threshold. You will only need to sweep the coil a few inches across the target to get the proper response, unlike "motion" machines which may he to swing several feet for proper response.

One thing to remember, though, is that in Discriminate Mode, it is best not to use any higher Discriminate 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 other good finds too. Set the DISC LEVEL only high enough to suit the conditions where you are searching.

For relic hunting or for coinshooting in areas that are free of trash, the GND REJ Mode of operation will normally give best results, since the detector is easy to use with maximum sensitivity. It may be desirable to operate with reduced sensitivity in the GND REJ Mode at times, however. For example, to prevent having to dig large, deep holes in a well kept park lawn.

BATTERY REPLACEMENT

The Amigo is equipped with an internal battery check circuit so you can always know you're getting top performance from your detector. The batteries should be tested after the detector has been operated for about ten minutes, and while the detector is making a loud noise, so the batteries are properly loaded. To force the audio on, simply hold the searchcoil near a large metal object while checking the batteries, or depress the tuning button and turn the Tuning control fully clockwise.

If the meter reads less than .6, the batteries should be replaced to ensure best performance.

To change the batteries, depress the chrome buttons on each side of the detector, and slide the battery cover off the back of the chassis. The batteries are contained in a plastic holder just behind the cover.

Remove the battery pack from the detector, and then remove the batteries from the pack. Replace the new penlight batteries into the pack, observing the polarity indicators that are embossed in each battery compartment of the battery pack.

Replace the pack into the holder, and replace the battery cover by depressing the chrome buttons as the cover is slid back into the chassis.

Your Amigo will also operate from a 9 volt transistor battery, although at reduced life and speaker volume. A slot is provided in the foam battery pack holder for a 9 volt battery. The 9 volt will provide excellent sensitivity if headphones are used, or you may want to carry one as backup incase your penlights go bad in an out of the way location.

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, or from entering the upper stem, where it could damage the push button or leak into the chassis. 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.

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 Amigo 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.

The 7 inch coplanar searchcoil furnished with the amigo is optimized for coinhunting, but will work as well as most 8 inch coils for relic hunting. The serious relic hunters will probably want to consider the larger coils available for the Amigo. They offer increased depth for relics.

HAPPY HUNTING, and thank you for purchasing a TESORO.

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