

Teknetics Turbo

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Teknetics Turbo Operations Manual

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TREASURE HUNTER'S CODE OF ETHICS

1. Respect the rights and property of others.
2. Observe all laws, whether national, state, or local. Aid law enforcement officials whenever possible.
3. Never destroy priceless historical or archaeological treasures.
4. Leave the land and vegetation as it was. Fill in all holes.
5. Remove all trash and litter when you leave.
6. All treasure hunters may be judged by the example you set. Always obtain permission before searching any site. Be extremely careful with your probing, picking up and discarding of trash, and ALWAYS COVER YOUR HOLES.

ASSEMBLY

Carefully unpack your new detector and check to see that you have all the parts shown in Fig. 1.

ASSEMBLY: Assemble the detector by placing the search coil and lower rod assemblies into the upper rod and control housing assemblies as shown in Fig.1. Wrap the coil cable as shown and connect to the coil socket as shown.

NOTE: Prior to use, you will need to install the units batteries - refer to the section on

BATTERIES.

BATTERIES

Your new detector can be powered by either of two battery systems. One system (the primary set) consists of two 6 cell penlight (AA) packs. You will need 12 'AA' size cells to fill the two battery packs. These packs should be connected to the longer of the two battery leads on each side of the control housing (see Fig. 3). The second system (back up set) consists of two 9 volt transistor batteries, we recommend the alkaline type. The transistor batteries must be connected to the shorter battery leads on each side (see Fig. 3).

BATTERY CONDITION

Battery life is automatically monitored by the Turbo's circuits. When the primary batteries are about to run too low, the audio will come on with a continuous tone (pinpoint & disc modes) or a pulsed tone (notch mode) that cannot be tuned out. When this happens, simply switch the POWER toggle to the "back up" position and continue hunting. Then, at the first available opportunity, replace the cells in the primary pack.

NOTE: The same warning tone will happen if the back up batteries are too low to properly power the unit.

CONTROLS

1. POWER: Turns the unit ON and OFF. Selects 4 primary or "back up" batteries to power the unit.
2. SPEED: Selects "fast" sweep and pinpoint or "slow" sweep and pinpoint.
3. DISC/NOTCH: Variable control adjusts discrimination or notch setting.
4. FREQUENCY: Rotary switch that adjusts the unit's operating frequency.
5. MODE: Selects the pinpointing mode (all metal) or the motion mode (disc and notch).
6. CONNECTOR: Search coil cable connection.
7. DISC - NOTCH: Selects standard discrimination or variable notch rejection.
8. STABILITY: Variable control used to reduce erratic operation.
9. HEADPHONE: 1/4" stereo type headphone jack. Note - unit has no internal speaker.

SPECIAL FEATURES

DUAL TONE NOTCHING: This detector is equipped with a unique target identification system that functions in the notch mode of operation. If a target is below the notched area it responds with a "low" tone. If the target is above the notched area it responds with a "high" tone (see Fig. 5).

OPERATION

Your new detector has been designed with simplicity and optimum performance in mind. There are several "automatic" features that will aid the operator in maintaining top performance from this unit. In fact, the most troublesome controls found on standard detectors, the ones that if not properly adjusted will result in greatly reduced performance, have been automated on this unit.

Operation for standard hunting:

1. Be sure fresh batteries are properly installed (refer to section on batteries) and the unit is properly assembled.
2. Plug your headphones into the "headphone jack".
3. Place the pinpointing/mode toggle to the down position (GB disc mode).
4. Set speed to "slow".
5. Set disc/notch control to "2".
6. Set frequency to "out". . .
7. Set disc - notch toggle to "disc".
8. Set stability to mid range.
9. Turn power toggle to "primary". The unit will now be "on" and all controls set for beginning search conditions.
10. Sweep the search coil over the search area as shown in Fig. 6. Most good objects will respond with a "good" repeatable signal tone. Rejected bad objects generally do not respond or will give only a broken or unrepeatable tone. This detector relies on motion to activate the GR Disc. Mode.
11. Pinpointing the target: When a target is located, generally with a side-to-side sweep, the exact location may be determined by also passing the coil in a forward and back sweep as shown in Fig. 7.

By using the "electronic pinpointing" mode the detector will automatically reduce the target signal strength, thereby, making it much easier to pinpoint.

DETAILED CONTROL FUNCTIONS

1. Fig. 8 POWER TOGGLE: This is a three position switch that has two "ON" settings. The center position is "OFF" and removes all power from the circuits. The "primary" position turns the unit "ON" by applying power from the two 9 volt penlight 'AA' cell packs. These packs are connected to the longer of the two battery leads on each side of the control housing. The "back up" position also turns the unit "ON", however, the power is now applied from the two 9 volt transistor batteries. The unit should normally be operated from the "primary" batteries and the "back up" batteries kept as a fresh set. If, during a competitive hunt, the primary batteries should suddenly fail (indicated by a loud or pulsing non-tunable tone) simply switch to the back up batteries and continue hunting without interruption.

Fig.9 SPEED TOGGLE: This is a two position toggle switch. The "fast" position is primarily for competitive hunting. This setting quickens the unit's response time so good targets are not missed at the faster competitive sweep speeds. In addition, the SPEED electronic pinpoint (all metal) mode is S much faster at narrowing the target signal down for quicker recoveries.

The "slow" setting provides normal slow sweep search in the disc/ notch mode and normal all metal pinpointing characteristics.

3. Fig. 10 DISC/NOTCH: This is a variable control that serves a dual purpose. When the disc - notch toggle (#7) is set to "disc", the control acts as a standard variable discriminator. As the control is rotated from 1 to 9, iron, foil, nickels, pull tabs, screw caps, pennies, and dimes will be rejected in that order (see Fig 11 A) . It is often desirable to eliminate some

pull tabs without also rejecting nickels since many types of gold rings are also rejected alone with the nickel.

This can be done by setting the disc - notch toggle to "notch". The disc/notch variable control now functions as a variable notch rejection window. The notch can then be adjusted to reject or "notch out" selected types of pull tabs or other trash. When using the notch feature more iron and small foil will be automatically rejected by the discrimination circuit (see Fig 11B). To set the notch, use a pull tab of the type to be rejected. Adjust the notch control to the point (around 4 or 5) at which the tab is notched out (no response). Now check a nickel to be sure it is still accepted. Note that some pull tabs or tab pieces have nearly the same detection properties as nickels and some gold rings. These items can not be separated.

SPECIAL NOTE: This unit uses a dual tone notch system that automatically identifies whether a target is above or below the notch. A low tone signifies that the target is below the notch and a high tone signifies that the target is above the notch (see Fig. 12).

4. Fig 13 **FREQUENCY SWITCH:** This is a six (6) position rotary switch. It allows you to adjust the Turbo's operating frequency almost 400 cycles away from its normal 6.59 kilocycles operating frequency. This will substantially reduce and even eliminate most electrical interference from sources like power lines and other nearby detectors. This is especially useful in competitive events where interference between units can cause almost constant falsing. To use, simply change the switch setting to a point at which the interference is reduced the most.

5. Fig 14 **MODE TOGGLE:** This is a three position toggle that has two stationary and one momentary positions. The momentary position (up) instantly retunes the all metals pinpoint mode.

The center setting is the all metals pinpoint mode. This mode automatically narrows the target signal for easier pinpointing. When the speed toggle is set to "fast", the pinpoint mode narrows the target signal much faster for quicker recovery of the target. The down position of the toggle is the normal setting for searching in the motion disc/notch mode. This is a silent search motion mode.

6. Fig. 15 **SEARCH COIL CONNECTOR:** This is a 5 pin connector for the cable from the search coil. It also gives the ability to use different size coils with the detector. Fig. 15

7. Fig. 16 **DISC - NOTCH TOGGLE:** This is a two position toggle switch. When set to "disc", the unit will function as a standard discriminator in conjunction with the variable control (#3) "disc/notch". The variable control #3 can then be adjusted to eliminate most nonferrous trash. In the "notch" position the "disc/notch" control now varies the position of the notch. Most iron and small foil is automatically ignored. Control #3 can then be adjusted to reject, or "notch out", a selected narrow band of trash.

8. Fig. 17 **STABILITY CONTROL:** This is a variable control that, when correctly set, provides the greatest stability and depth available for the prevailing search conditions. There are some conditions that can cause the response of the detector to be erratic as you are using it.

Normally you will not hear any sound from the detector until you pass the search coil over a good target. However, a multitude of closely spaced trash targets can cause the detector to emit choppy, sputtering sounds. CB radios, broadcasting antennas, intense mineralization

changes, and other nearby detectors can also cause the detector to emit false signals. The false 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 adjusting the control for more stability will help. To optimize detection depth to the prevailing hunt conditions, adjust the stability control as follows: Rotate the control toward "less" until falsing begins to occur. Then back slightly toward "more" until most of the falsing just begins to stop.

9. HEADPHONE JACK: This is a 1/4" stereo type jack. Headphones must be used with this unit, preferably 4 to 16 ohm with built in volume control. This unit does not have an internal speaker.

FIELD OPERATION

The detector should be held in a position that is comfortable to you. Sweep the search coil from side to side in about a two foot arc as you keep the coil level and within about 1 to 2 inches of the ground. When using the Turbo in the slow speed setting it does not need to be hurried, so go at a pace that doesn't wear you out.

Fig. 18 Sweep in a slightly overlapping pattern as shown. Use as you would any normal detector

--the search signals should 'peak' as the target center is passed. Try to keep the search coil parallel to the ground at all times and avoid lifting the coil off the ground at the end of each swing. This will prevent loss of detection of some deeper targets, since you are putting more distance between the coil and the target

For competitive events when fast sweeps and quick pinpointing is necessary, use the "fast" setting of the speed toggle. Generally, you should sweep the search coil as close to the ground as possible without actually touching or rubbing the ground. Hitting the ground or rocks may cause a false signal much like a desired target would sound. Sweeping the coil too high above the ground will result in a loss of depth. When operating the detector some false signals may occur at the end of your swing. At the point where the coil reversed direction, the detector is most susceptible to trash induced noise. There are ways to tell whether these noises are deep, "good" targets or just trash. The first is repeatability. Trash induced signals will normally not be repeatable, as you swing the coil over the suspected target several times, whereas a good target response will be repeatable. You can also switch to the pinpoint mode and check the target response. If the response is weak it may well be a deep, "good" target, but if it is very strong then it is probably trash. If the trash in an area is so much that you are getting a lot of choppy sounds and false signals, you may get better results by slowing down your sweep rate and using shorter sweep arcs. It is also helpful to hunt the area twice, the second time at right angle to the first time. This will allow detection of some targets that were hidden by trash the first time due to sweep direction. If there is any doubt whether a target is "good" or "bad" - DIG IT! If you do not dig any junk at all, you are surely passing up "good" finds too.

DETECTION TIPS

1 . This detector relies on motion to activate both the GB disc. and ATI notch circuitry. The following is an example of how this works:

2. Interpreting different types of responses: With ATI notch you can tell a great deal about a target just by the sound of the audio tone. As an example, when notching out certain pull tabs, you can expect the following results:

3. Sometimes targets close together will cause a confusing signal - try sweeping from different angles to help isolate the targets.

Pinpointing the target: Good pinpointing is important as it helps to avoid damage to the object and to the ground. During a competitive hunt, good pinpointing is especially important for quick target retrieval.

"X"ing as shown helps to pinpoint the target:

Your detector can tell you many things about a particular target that can be helpful in determining whether or not to "dig". Learn to make use of all the information available.

EXAMPLE: The sound response can tell a lot - a coin usually gives a good solid sound regardless of sweep direction, trash does not. When checking a target, listen to the "size" of the sound in the pinpoint mode. A large target, like a sprinkler head, produces sound over a much greater area than does a single coin.

Accuracy: Although your detector is very accurate, it is not perfect and certain items may give responses that are easily misinterpreted. An example of this would be a deeply buried aluminum can that sounds like a shallower coin would.

Halo effect: Some nails, nuts, bolts, and other iron objects such as old bottle caps often oxidize a lot and the halo around these objects can make it very hard for the detector's circuitry to ignore or reject them.

Hot rocks: With any "motion" type detector you may find some targets that sound "good" in the disc/notch mode but when you try to pinpoint the signal, you find the target "disappears". This is because you have located what TH'ers call "hot rocks". These "hot rocks" are actually less conductive than the ground over which you are searching.

GLOSSARY OF TERMS

1. G.B. - Abbreviated term for "ground balance".
2. DISC - Abbreviated term for "discrimination".
3. A.T. I. - Abbreviated term for audio target identification.

MINERALIZATION - Refers to soils containing ferric oxides or magnetic particles. HALO EFFECT - Certain metal, when buried for long periods, oxidize and leech into the surrounding soil. This results in a "metallic halo" around the buried object. TARGET - Refers to any object sensed (detected) by the detector.

SWEEP - The action of moving the search coil over the ground when attempting to locate metal.

DETECTOR CARE & SERVICE

Metal detectors are sensitive electronic instruments. Although it does not have to be babied, reasonable care must be taken to help ensure a long trouble-free life for your detector.

KEEP IT CLEAN . . . The search coil and rod are waterproof. They can be cleaned with fresh water and a mild cleanser. The case can be wiped clean with a damp cloth. Check the batteries often for leakage and never leave them stored in the unit for prolonged periods of time.

KEEP IT COOL . . . Never store your detector in an extremely hot environment, such as an

automobile back window in the summer. The prolonged heat can cause damage to the unit and many of its parts.

KEEP IT SAFE . . . Never transport your detector in such a manner that will subject it to extreme vibration or shock. The unit may be cushioned by wrapping it in a blanket or by putting it in a carrying bag or case designed for the purpose.

ADDITIONAL PRECAUTIONS . . . Avoid dropping your detector. Avoid sharp blows to the search coil, also.

The following service tips may help if trouble is encountered:

1. The detector will not operate (dead):

- a) Check the batteries
- b) Check controls for intermittent operation.
- c) Check the search coil connections.

2. Erratic operation:

- a) Check the batteries and their connections.
- b) Check for loosely wrapped coil cable and bad connections.
- c) Adjust "stability" control and/or "frequency" switch.

3. Constant oscillating tone:

- a) Low batteries if operating in the notch mode.
- b) Adjust "stability" control and/or "frequency" switch.

This effect can be caused by external electrical sources such as power lines, CB radios, or other nearby detectors.

4. No sensitivity and/or poor accuracy:

- a) The disc/notch mode requires motion to produce sufficient signal.
- b) Heavy or "bad" mineralization can reduce the depth and accuracy of the unit.
- c) Check the battery condition.

SPECIFICATIONS

Features

Operating frequency ..6590 cycles

Audio412 & 1648 cycles

Search coil7 1/4" waterproof bi-planar concentric adjustable arm saver type

Batteries12 penlight 'AA' primary and 2 9 volt transistor back up

Controlspower, mode/pinpoint, disc/notch, speed, stability, frequency, disc - notch

.....dual tone notch, dual battery system, and high speed search and pinpoint

Optimum temperature range ..33 degrees to 100 degrees F.

Optimum humidity range0% to 75%

