

The logo features a white triangle above the word "delta" in a bold, lowercase sans-serif font. Below "delta" are three white circles, and at the bottom, the words "METAL DETECTOR" are written in a smaller, all-caps sans-serif font.

delta

4000

METAL DETECTOR

OWNER'S MANUAL

If you do not have prior experience with a metal detector, we strongly recommend that you:

- 1) Adjust the Sensitivity to a low setting in the event of false signals.**

Always begin use at a reduced sensitivity level; this device is designed to work "into-the-noise", so expect chatter at high sensitivity.

- 2) Do not use indoors.** This detector is for outdoor use only. Many household appliances emit electromagnetic energy, which can interfere with the detector. If conducting an indoor demonstration, turn the sensitivity down and keep the search coil away from appliances such as computers, televisions and microwave ovens. If your detector beeps erratically, turn off appliances and lights.

Also keep the search coil away from objects containing metal, such as floors and walls.

- 3) Use a 9-volt ALKALINE battery only.**
Do not use Heavy Duty Batteries.



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TERMINOLOGY

The following terms are used throughout the manual, and are standard terminology among detectorists.

ELIMINATION

Reference to a metal being "eliminated" means that the detector will not emit a tone, nor light up an indicator, when a specified object passes through the coil's detection field.

DISCRIMINATION

When the detector emits different tones for different types of metals, and when the detector "eliminates" certain metals, we refer to this as the detector "discriminating" among different types of metals.

Discrimination is an important feature of professional metal detectors. Discrimination allows the user to ignore trash and otherwise undesirable objects.

RELIC

A relic is an object of interest by reason of its age or its association with the past. Many relics are made of iron, but can also be made of bronze or precious metals.

IRON

Iron is a common, low-grade metal that is an undesirable target in certain metal detecting applications. Examples of undesirable iron objects are old cans, pipes, bolts, and nails.

Sometimes, the desired target is made of iron. Property markers, for instance, contain iron. Valuable relics can also be composed of iron; cannon balls, old armaments, and parts of old structures and vehicles can also be composed of iron.

FERROUS

Metals which are made of, or contain, iron.

PINPOINTING

Pinpointing is the process of finding the exact location of a buried object. Long-buried metals can appear exactly like the surrounding soil, and can therefore be very hard to isolate from the soil.

PULL-TABS

Discarded pull-tabs from beverage containers are the most bothersome trash items for treasure hunters. They come in many different shapes and sizes. Pull-tabs can be eliminated from detection, but some other valuable objects can have a magnetic signature similar to pull-tabs, and will also be eliminated when discriminating out pull-tabs.

GROUND BALANCE

Ground Balancing is the ability of the detector to ignore, or "see through," the earth's naturally occurring minerals, and only sound a tone when a metal object is detected. This detector incorporates proprietary circuitry to eliminate false signals from severe ground conditions

ASSEMBLY

Assembly is easy and requires no tools.

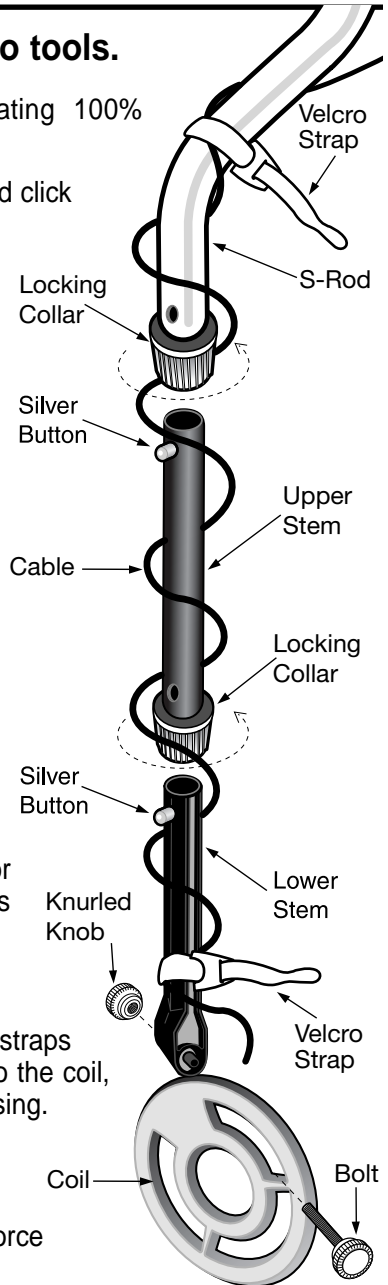
- 1 Loosen both Locking Collars by rotating 100% counterclockwise
- 2 Insert the Upper Stem into the S-Rod and click Silver Button into hole
- 3 Position the lower stem with the silver button toward the back. Using the bolt and knurled knob, attach the search coil to the lower stem.
- 4 Press the button on the upper end of the lower stem, and slide the lower stem into the upper stem.

Adjust the stem to a length that lets you maintain a comfortable upright posture, with your arm relaxed at your side, and the search coil parallel to the ground in front of you.

- 5 Wind the cable securely around the stems.
- 6 Insert the plug into the matching connector on the back of the detector body. Be sure that the key-way and pins line up correctly.
- 7 Tighten both locking collars.
- 8 Secure the cable with the 2 velcro straps provided, one on the lower stem close to the coil, one on the upper stem, close to the housing.

Caution: Do not force the plug in. Excess force will cause damage.
To disconnect the cable, pull on the plug.

Do not pull on the cable.



ASSEMBLY

Adjusting the Arm Rest

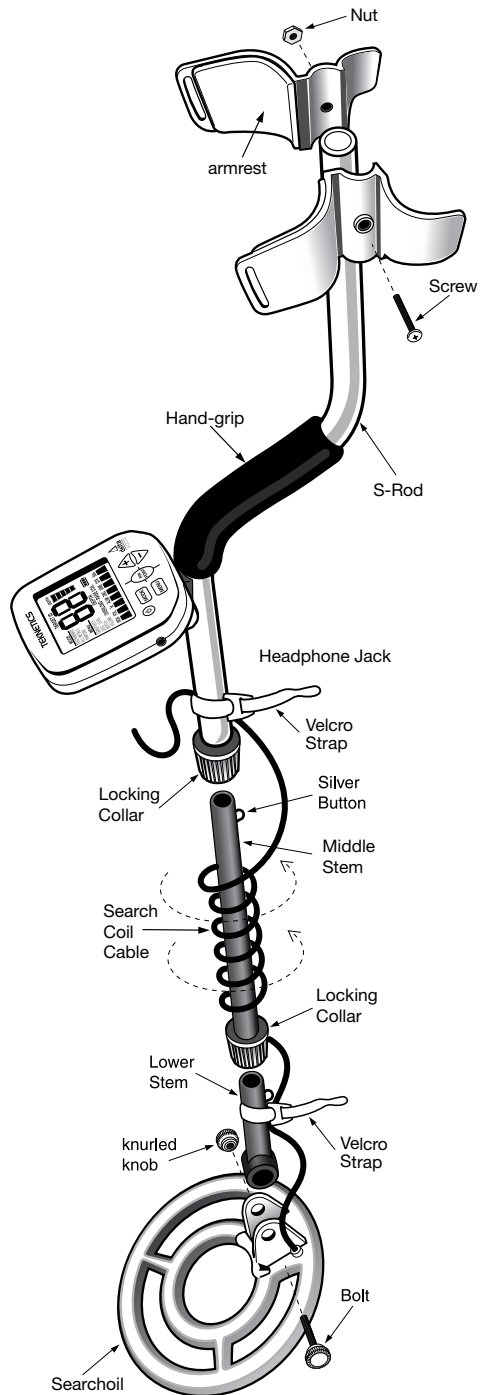
The arm rest may be moved forward or backwards by removing the single screw and nut, and then repositioning the 2-piece arm rest. Users with shorter arms may find the arm rest more comfortable in the forward position. In order to move the arm rest backwards, the plastic plug must be removed from the aluminum tube.

Arm Rest Strap

(optional accessory)

The strap is available for purchase as a separate accessory. Some users prefer to use the strap when swing the detector vigorously, in order to hold the detector secure against the arm.

The detector can also be used without the strap, with no compromise to detector balance and stability under most conditions.



BATTERIES

The detector requires a single 9-volt **ALKALINE** battery (battery not included). **Do not use ordinary zinc carbon batteries.**

Rechargeable batteries can also be used. If you wish to use rechargeable batteries, we recommend using a Nickel Metal Hydride rechargeable battery.

The battery compartment is located on the back side of the housing. Slide the battery door to the side and remove it to expose the battery compartment.

BATTERY LIFE

Expect 20 to 25 hours of life from a 9-volt alkaline battery. Rechargeable batteries provide about 8 hours of usage per charge.

SPEAKER VOLUME AND BATTERY CHARGE

You may notice the speaker volume drop while one battery segment is illuminated. With only the battery outline visible, low speaker volume will be very apparent.

BATTERY INDICATOR

The 3-segment battery indicator has 3 stages of indication. These indications are accurate for a 9-volt alkaline battery.

Segments Illuminated

3 -segments
2 -segments
1 -segment

Battery Voltage

more than 8.9 volts
more than 7.9 volts
less than 6.9 volts

After all segments disappear, expect the detector to shut off within 10 minutes.

A rechargeable battery will usually illuminate 2 or 3 segments throughout most of its useful charge. But as soon as it drains to the 1-segment level, it will then discharge very rapidly.

QUICK-START DEMONSTRATION


I. Supplies Needed

- a Nail
- a Zinc Penny (dated after 1982)
- a Nickel
- a Quarter

II. Position the Detector

- Place the detector on a table, with the searchcoil hanging over the edge. Or better, have a friend hold the detector, with the searchcoil off the ground.
- Keep the searchcoil away from walls, floors, and metal objects.
- Remove watches, rings, and jewelry.
- Turn off lights or appliances, whose electromagnetic emissions may cause interference.
- Pivot the searchcoil back.

III. Power Up

Press .

IV. Wave each object over the searchcoil.

- Notice a different tone for each object:

No Tone: Nail (in default setting iron is not detected)

Medium Tone: Zinc Penny & Nickel

High Tone: Quarter

- Motion is required.

Objects must be in motion over the searchcoil to be detected in this mode.

V. Press once to enter the DISC. LEVEL program.

Then press  four times.

VI. Wave the nickel and zinc penny

- Neither coin is detected.

VII. Press the to toggle down to NOTCH. Then press three times

- "5¢" reappears on the display

VIII. Wave the Nickel.

- The nickel is now again detected.
- The nickel has been "notched in."

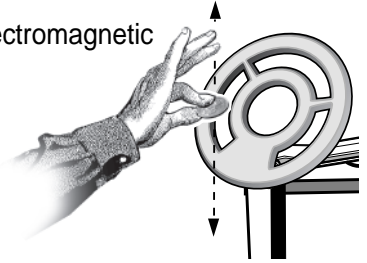
IX. Press to toggle down to ALL-METALS

X. Pass the quarter over the searchcoil.

- Move the quarter closer to and farther away from the searchcoil. Notice the change in pitch and volume.

IX. Press and hold

- Hold the quarter motionless over the searchcoil.
- Notice that motion is NOT required.
- Move the quarter closer, then farther away from the coil. Notice the changing depth reading.



THE BASICS OF METAL DETECTING

A hobby metal detector is intended for locating buried metal objects. When searching for metals, underground or on the surface, you have the following challenges and objectives:

1. Ignoring signals caused by ground minerals.
2. Ignoring signals caused by metal objects that you do not want to find, like pull-tabs.
3. Identifying a buried metal object before you dig it up.
4. Estimating the size and depth of objects, to facilitate digging them up.
5. Eliminating the effects of electromagnetic interference from other electronic devices.

Your Delta metal detector is designed with these things in mind.

1. Ground Minerals

All soils contain minerals. Signals from ground minerals can interfere with the signals from metal objects you want to find. All soils differ, and can differ greatly, in the type and amount of ground minerals present. The Delta has a preset ground elimination setting. No user adjustment are required.

2. Trash

If searching for coins, which will induce higher tone sounds, you want to ignore items like aluminum foil, nails, and pull-tabs. These undesirable items induce lower tones. You can listen to the sounds of all objects detected, and decide on what you want to dig up. Or you can eliminate unwanted metals from detection by using the DISCRIMINATION feature.

3. Identifying Buried Objects

When searching in the DISCRIMINATION mode, different objects induce different tones (high, medium, low) and are classified on the display screen in different categories from left to right. A 2-digit numerical reading is also provided in the middle of the display for more precise target identification. The DISCRIMINATION mode requires motion: sweep the coil over the metal object.

THE BASICS continued

4. Size and Depth of Buried Objects

When using the detector in the motion DISCRIMINATION mode, the relative depth of an object is displayed on the right of the display in a 5-segment format. A more accurate depth reading is available in a no-motion mode, using PINPOINT mode. Pinpoint displays target depth in inches. Pinpoint does not require the coil to be in motion to detect metals. The ability to hold the searchcoil motionless over the target also aids in tracing an outline of the buried object, or in pinpointing the exact location of the object using techniques described in the pinpointing section.

5. Electromagnetic Interference (EMI)

The searchcoil produces a magnetic field and then detects changes in that magnetic field caused by the presence of metal objects. This magnetic field that the detector creates is also susceptible to the electromagnetic energy produced by other electronic devices. Power lines, microwave ovens, lighting fixtures, TVs, computers, motors, etc.... all produce EMI which can interfere with the detector and cause it to beep when no metal is present, and sometimes to beep erratically.

The SENSITIVITY control lets you reduce the strength of this magnetic field, and therefore lessen its susceptibility to EMI. You may want to operate at maximum strength, but the presence of EMI may make this impossible, so if you experience erratic behavior or “false” signals, **reduce the sensitivity.**


USING HEADPHONES

Using headphones (not supplied) improves battery life, and prevents the sounds from annoying bystanders.

It also allows you to hear subtle changes in the sound more clearly, particularly if searching in a noisy location. For safety reasons, do not use headphones near traffic or where other dangers are present. This device is to be used with interconnecting cables/headphone cables shorter than three meters.

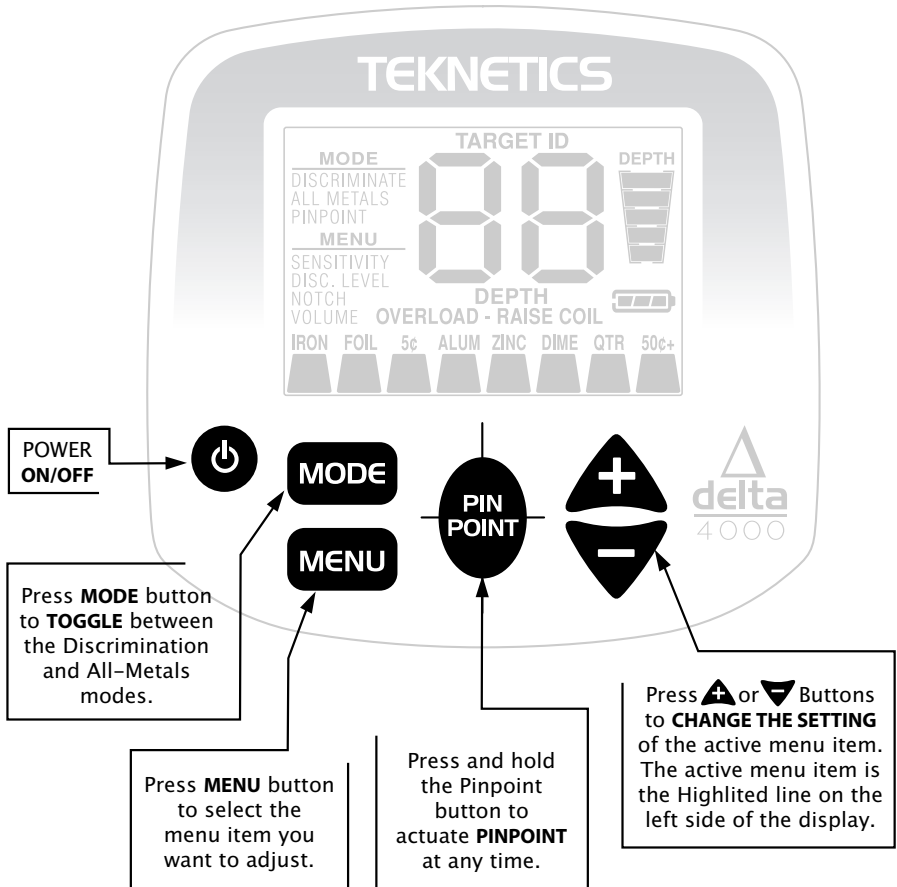
OPERATION and CONTROLS

POWERING UP

Press 

- The detector always starts in the DISCRIMINATION mode. Motion is required.
- Default sensitivity is at about 70% of maximum, (08).
- All target categories except iron are illuminated, meaning that all metal objects will be detected except iron.



HOW TO WORK THE CONTROLS



OPERATION and CONTROLS *cont.*

MENU SELECTIONS

1. SENSITIVITY

Use  and  to increase or decrease sensitivity while the SENSITIVITY line is highlighted.

Maximum sensitivity setting is 12.

Minimum sensitivity setting is 4.

If the detector beeps erratically or beeps when there are no metal objects being detected, **reduce the sensitivity.**

The searchcoil produces a magnetic field and then detects changes in that magnetic field caused by the presence of metal objects. This magnetic field that the detector creates is also susceptible to the electromagnetic energy produced by other electronic devices. Power lines, microwave ovens, lighting fixtures, TVs, computers, motors, etc.... all produce EMI which can interfere with the detector and cause it to beep when no metal is present, and sometimes to beep erratically.

HOW DEEP WILL IT GO?

The Delta Metal Detector will detect a coin-sized object, like a quarter, to a distance of about 11" from the searchcoil at maximum sensitivity. Large metal objects can be detected to a depth of several feet. Detectability is directly related to the size of the metal object -- the larger the object, the deeper it can be detected.



Accuracy of target identification is also related to distance from the coil. Beyond a distance of 8", the accuracy of target identification begins to diminish.


Discrimination and All Metals modes have independent sensitivity settings. First highlight the mode, then adjust the sensitivity level for that mode.



OPERATION and CONTROLS *cont.*


MENU SELECTIONS *continued*

2. DISC. LEVEL



Use  and  to increase or decrease DISCRIMINATION level.

Each time you press , a target category is eliminated from detection. Elimination occurs from left to right. When a category description (for example "IRON") disappears from the display, then targets classified in that category will not be detected.



Pressing  reverses the discrimination process. With each press of , a category description will reappear, indicating that targets classified in that category will again be detected.

Discrimination is a cumulative elimination system. Targets can be eliminated from left to right on the scale, with each additional press of , resulting in more objects being eliminated from detection.



3. NOTCH



Use  and  to notch target categories IN or OUT while the NOTCH line is highlighted.

Whereas the discrimination feature eliminates all categories sequentially from detection, the NOTCH control allows you to selectively include or exclude target categories from detection.

With each press of  or , the notched category moves across the display screen. As you move the position of the notched category, you are *changing the detection status of the selected category.*

- If a target category was previously eliminated (word not visible) then notching that category will return it to detection.
- If a target category was previously retained (word is visible) then notching that category will remove it from detection.

Only one target category at a time can be selected for notching. To notch multiple categories in or out, wait for the icon to stop flashing and then press  or  again to select the next notch.

Each time you press  to select notch, followed by , the notch program will begin by changing the status of the IRON segment

OPERATION and CONTROLS *cont.*

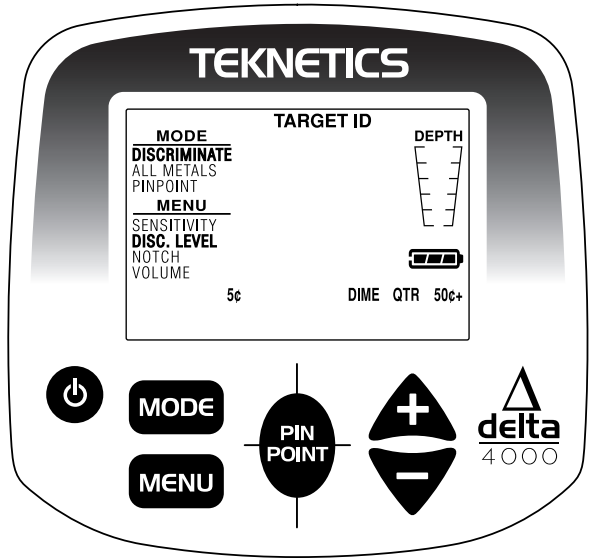
MENU SELECTIONS *continued*

NOTCH *continued*



At any time, the display screen indicates the current category notches or discrimination settings. Any category whose description is not visible will not be detected.

For example, the following settings tell us that:

- The nickel, dime, quarter and 50¢ categories will be detected.
- All other categories of targets (iron, foil, alum and zinc) will not be detected.



4. VOLUME

While the VOLUME line is highlighted, use  and  to change the speaker volume.

The default volume setting is 8. Maximum is 10.

Minimum is 0 (volume off). At levels 1, 2 and 3, high tones will be inaudible or barely audible.



The speaker volume will diminish as battery voltage drops. For maximum speaker volume, use 1 or 2 tones, as the low and bass tones generate the loudest sounds.

Volume can be set while in either the DISCRIMINATION or ALL METALS modes, but only one setting applies to both modes. Volume in the two modes cannot be set independently.

OPERATION and CONTROLS *cont.*


MODE SELECTIONS *continued*

3. PINPOINT


Enter PINPOINT from either Disc or All Metals mode. Press and hold  to activate pinpoint. Pinpoint detection is only active for as long as you keep  depressed.

Pinpoint is used to find the exact location of a target which was previously located and identified using the discrimination mode. As this mode does not require motion over the target, the user can move the coil more slowly and then narrow the detection field when near the target.

How to Pinpoint

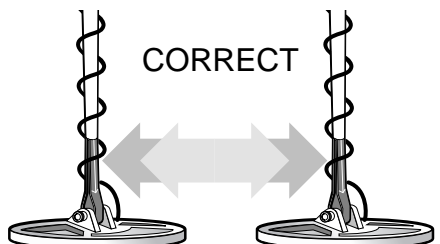
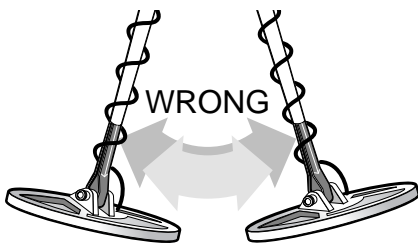
Position the searchcoil an inch or two (2.5-5cm) above the ground, and to the side of the target. Then press and hold . Now move the searchcoil slowly across the target, and the sound will communicate the target's location. As you sweep from side to side, and hear no sound at the ends of the sweep, the target is located in the middle of that zone, where the sound is loudest. If the sound is loud over a wide area, the buried object is large. Use Pinpoint to trace an outline of such large objects.

Narrow It Down

To further narrow the field of detection, position the searchcoil near the center of the response pattern (but not at the exact center), release , and then quickly press-and-hold it again. Now you will only hear a response when the searchcoil is right over the top of the target. Repeat this procedure to narrow the zone even further. Each time you repeat the procedure, the field of detection will narrow further.

Consider Purchasing a Pinpointer

When you kneel down to unearth an object, you may find it frustrating as the object can appear exactly like the surrounding soil. You may hold the object in your hand, and find it necessary to pass a handful of dirt over the searchcoil to see if it contains metal. An easier way is to use a handheld pinpointer. It is a probe-like device which is poked into the ground, making close up pinpointing a snap, reducing digging time, and minimizing the size of the holes you will dig. Teknetics offers a robust and inexpensive pinpointer designed for this purpose.



TARGET IDENTIFICATION

In DISCRIMINATION mode, targets are identified both audibly and visually as follows:

1. Different pitch tones for different types of metals
2. A 2-digit target I.D.
3. An illuminated icon within the target category best describing it

AUDIO TARGET IDENTIFICATION:

Tones identify targets as follows:

LOW TONE


Ferrous objects, such as iron and steel, like nails and tin cans.
Smallest-sized gold objects and some steel bottle caps

MEDIUM TONE

Foil, pull-tabs (some new style), nickels, steel bottle caps.
Newer pennies (post-1982 are minted from zinc)
Larger gold pieces, small brass objects, and most bottle screw caps.
Most recent-vintage non-US coins.
Pull-tabs (old style, some new style)

HIGH TONE

Silver and copper coins, large brass objects
Older pennies (pre-1982 were minted from copper)
Dimes, quarters, half-dollars, silver dollars
Susan B. Anthony and Sacajawea dollar coins
Flattened aluminum cans (with a stronger signal than a coin)

LOW TONE	MEDIUM TONE	HIGH TONE
 <p data-bbox="118 1425 324 1450">Nails & Small Gold</p>	 <p data-bbox="394 1398 682 1471">Pull Tabs, Nickels, Smaller & Larger Gold, Zinc Pennies (Post 1982), Many screw caps</p>	 <p data-bbox="740 1398 985 1450">Copper, Silver & Brass Copper Pennies (Pre 1982)</p>

Audio Target Identification (ATI) classifies metals into three categories.

TARGET IDENTIFICATION *continued*

2-Digit Target Identification

The 2-digit value in the middle of the screen provides a specific target value to help identify buried targets more accurately. With practice in the field, you will learn to associate target values with specific objects. Coins are more likely to yield the same value with each pass of the coil due to their concentric shape. The presence of multiple targets will yield multiple tones. Trash objects are more likely to yield a different number on each pass. The angle of the coil relative to an object may also influence target identification. If waving coins over the searchcoil for practice, wave with the flat side parallel to the searchcoil; this is the position you will most often find coins buried in the ground.

2-Digit TARGET IDENTIFICATION Values

Category	Numeric Value Range	Some Common Objects	Typical Values for Common Objects
Iron	10 - 39		
Foil	40 - 55		
Nickel	56 - 60	US Nickel	58
Alum	61 - 75		
Zinc	75 - 79	US Zinc Penny (after 1982)	76
Dime	80 - 85	US Dime US Copper Penny (pre-1982)	82 81 - 82
Quarter	86 - 90	US Quarter	87
50¢+	91 - 99	US Half-Dollar US Silver Dollar	89 94-96

DEPTH AND TARGET DISPLAY

READING THE DISPLAY

The Liquid Crystal Display (LCD) shows the PROBABLE identification of the targeted metal, as well as the PROBABLE depth of the target.

The detector will register a consistent target identification, upon each sweep of the coil, when a buried target has been located and identified. If, upon repeated passes over the same spot, the target identification reads inconsistently, the target is probably a trash item, or oxidized metal. With practice, you will learn to unearth only the repeatable signals.

The segment identifications are highly accurate, when detecting the objects described on the label. However, if an object registers in a given category for an unknown buried object, you could be detecting a metallic object other than the object described on the label, but with the same metallic signature. Also, the greater the distance between the target and the coil, the less accurate the target identification.

GOLD TARGETS Gold objects will register on the left side of the LCD scale.

Gold flakes will register under iron.

Small gold items will register under foil or 5¢.

Medium-sized gold items will register between nickel and or alum.

Large gold items will register under Zinc.

SILVER TARGETS: Silver objects will register to the right of the scale, under dime or higher.

IRON: All sizes of iron objects will register on the far-left side of the scale. This could indicate a worthless item such as a nail, or a more valuable historic iron relic.

FOIL: Aluminum foil, such as a gum wrapper, will register as foil. A small broken piece of pull tab may also register here.

5¢: Most newer pull-tabs from beverage cans, the type intended to stay attached to the can, will register here. Many gold rings will also register here.

ALUM: Older pull tabs, which always detached completely from the can, register here. Many medium size gold ring also register here.

ZINC: Newer US pennies (post-1982), and Canadian \$1 and \$2 coins register here. Many non-US coins of recent vintage will also register here.

DIME: Dimes and older copper pennies (pre-1982) register here.

50¢+: Silver Dollars, Half-Dollars and Quarters, very large iron objects, like a sewer lid, will register here.

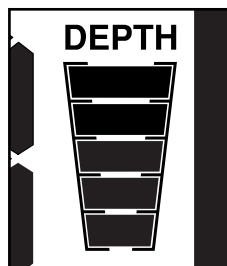
Caution: The target indications are visual references. Many other types of metal can fall under any one of these categories. While the detector will eliminate or indicate the presence of most common trash items, it is impossible to accurately classify ALL buried objects.

5-SEGMENT DEPTH INDICATOR:

The Depth Indicator is accurate for coin-sized objects. It indicates the depth of the target, in inches as follows:

Segments Illuminated

Top Segment	=	0 to 2" deep.
Top 2 Segments	=	2" to 3" deep.
Top 3 Segments	=	4" to 5" deep.
Top 4 Segments	=	6" to 7" deep.
All Segments	=	8"+ deep.



Large and irregularly-shaped objects will yield less reliable depth readings

When passing over an object, the indicators will light up and stay illuminated for three seconds. If the depth indication varies with each sweep, try sweeping at different angles; there may be more than one target present. With practice, you will learn the difference between accurate readings, multiple targets, and highly erratic readings which evidence trash or irregularly shaped objects.

TROUBLE SHOOTING

TROUBLE SHOOTING GUIDE		
SYMPTOM	CAUSE	SOLUTION
Detector chatters or beeps erratically	<ul style="list-style-type: none"> • Using detector indoors • Using detector near power lines • Using 2 detectors in close proximity • Highly oxidized buried object • Environmental electromagnetic interference 	<ul style="list-style-type: none"> • Use detector outdoors only • Move away from power lines • Keep 2 detectors at least 20' apart • Only dig up repeatable signals • Reduce sensitivity until erratic signals cease
Constant low tone or constant repeating tones	<ul style="list-style-type: none"> • Discharged battery • Wrong type of battery 	<ul style="list-style-type: none"> • Replace battery • Use only 9V alkaline battery or rechargeable
LCD does not lock on to one target ID or detector emits multiple tones	<ul style="list-style-type: none"> • Multiple targets present • Highly oxidized target • Sensitivity set too high 	<ul style="list-style-type: none"> • Move coil slowly at different angles • Reduce sensitivity
No power, no sounds	<ul style="list-style-type: none"> • Dead battery • Cord not connected securely 	<ul style="list-style-type: none"> • Replace battery • Check connections

TREASURE HUNTER'S CODE OF ETHICS:

- Always check Federal, State, County and local laws before searching.
- Respect private property and do not enter private property without the owner's permission.
- Take care to refill all holes and try not to leave any damage.
- Remove and dispose of any and all trash and litter found.
- Appreciate and protect our inheritance of natural resources, wildlife and private property.
- Act as an ambassador for the hobby, use thoughtfulness, consideration and courtesy at all times.
- Never destroy historical or archaeological treasures.
- All treasure hunters may be judged by the example you set; always conduct yourself with courtesy and consideration of others

5-YEAR LIMITED WARRANTY

The **Delta** metal detector is warranted against defects in materials and workmanship under normal use for five years from the date of purchase to the original owner.

Damage due to neglect, accidental damage, or misuse of this product is not covered under this warranty. Decisions regarding abuse or misuse of the detector are made solely at the discretion of the manufacturer.

Proof of Purchase is required to make a claim under this warranty.

Liability under this Warranty is limited to replacing or repairing, at our option, the metal detector returned, shipping cost prepaid to First Texas Products. Shipping cost to First Texas Products is the responsibility of the consumer.

NOTE TO FOREIGN COUNTRY CUSTOMERS

This warranty may vary in other countries, check with your distributor for details. Factory warranty follows the channel of distribution.

Warranty does not cover shipping costs.

To return your detector for service, please first contact First Texas for a Return Authorization (RA) Number. Reference the RA number on your package and return the detector within 15 days of calling to:

First Texas Products L.L.C.

1465-H Henry Brennan Dr.

El Paso, TX 79936

Phone: 1-800-413-4131

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Warranty coverage does not include the cost of transporting the detector back to an owner who is located outside of the United States of America.