

Ω omega 8000 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; increase sensitivity only after you have become familiar with the detector.
- 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.

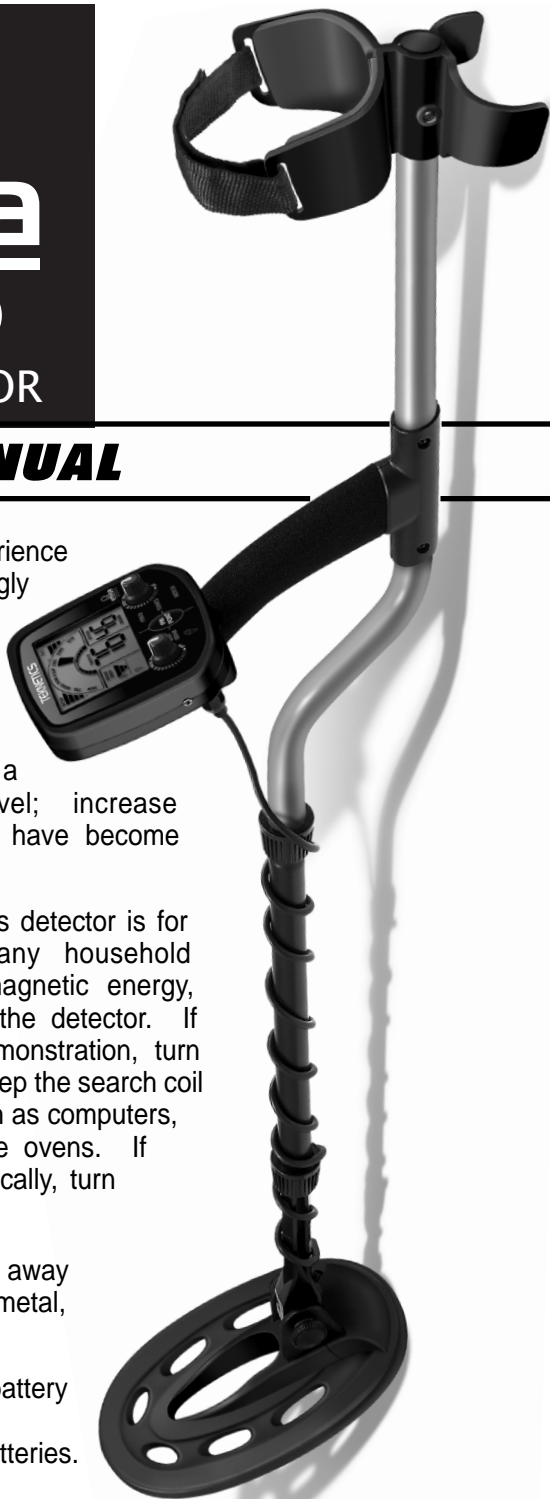


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TERMINOLOGY

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

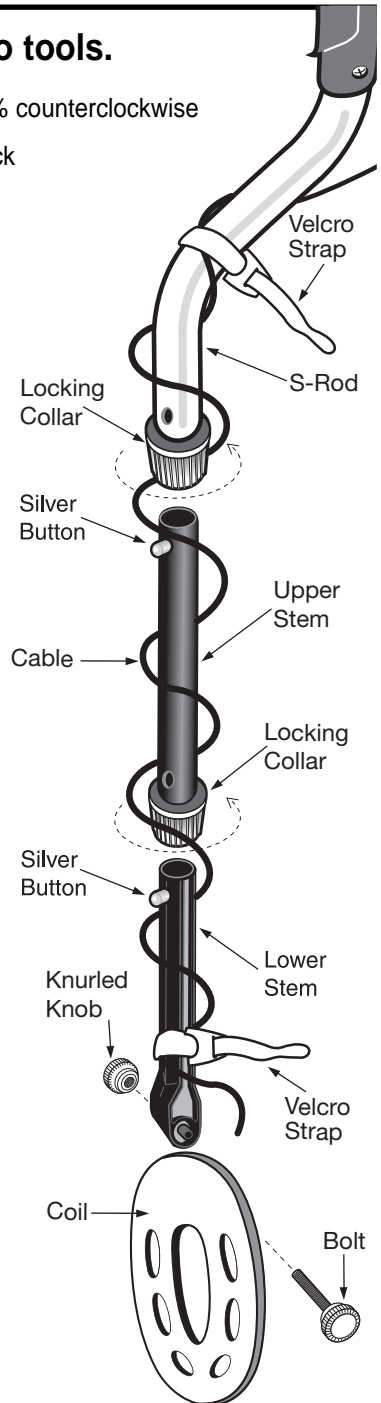
ASSEMBLY

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 Push cable into connector on back of housing. Do not twist the cable or plug. Turn knurled cap nut only. Use minimal finger pressure to start the threads. Do not cross-thread. When the cap nut is fully engaged over the threaded connector, give it a very firm turn to make sure that it is very tight. When the cap nut is fully engaged over the threaded connector, the cap nut may not cover all of the threads.
- 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. Leave just enough slack in the cable, at the coil end, to be able to rotate the searchcoil a small amount about the bolt. After full assembly and upon first use in the field, check this adjustment. It is very important to keep the cable secure against the stem, especially at high sensitivity, as movement in the cable may cause false signals.



ASSEMBLY

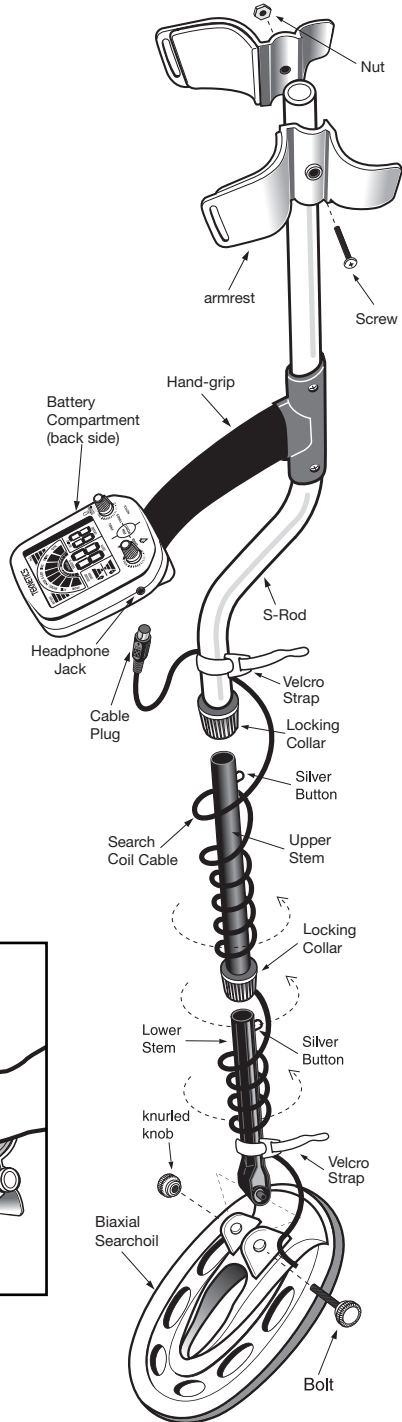
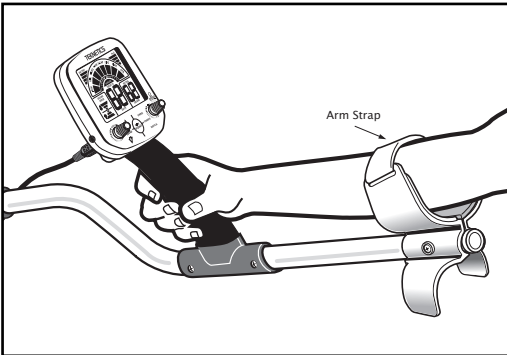
Adjusting the Arm Rest

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

The strap is provided for your convenience. 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

A 4-segment battery indicator at the top-left of the display indicates the battery condition.

The detector requires a single 9-volt **ALKALINE** battery (battery not included).

Do not use ordinary zinc carbon batteries.

Do not use “Heavy Duty” 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 about 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 one segment flashing, low speaker volume will be very apparent.

For loudest speaker volume, select 1 or 2 tones under the # OF TONES menu selection.

BATTERY INDICATOR

The 4-segment battery indicator has 3 stages of indication.

These indications are accurate for a 9-volt alkaline battery.

Segments Illuminated

4 -segments

3 -segments

2 -segments

1 -segment flashing

Battery Voltage

more than 8.5 volts

more than 7.5 volts

more than 6.8 volts

more than 6.4 volts

After the 1st segment begins flashing, expect the detector to shut off within 10 minutes.

A rechargeable battery will usually illuminate three to four 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

- a. Place the detector on a table, with the searchcoil hanging over the edge.

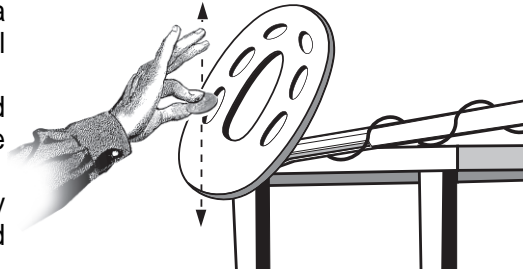
Or better, have a friend hold the detector, with the searchcoil off the ground.

- b. Keep the searchcoil away from walls, floors, and metal objects.

- c. Remove watches, rings, and jewelry.

- d. Turn off lights or appliances, whose electromagnetic emissions may cause interference.

- e. Pivot the searchcoil back.



- III. Click on detector with the left knob. Set it at the 12:00 position for this demonstration.



- IV. Click the right knob to the lowest Disc setting



V. Wave each object over the searchcoil.

- a. Notice a different tone for each object:

Bas Tone: Nail
Low Tone: Nickle and Zinc Penny
High Tone: Quarter

- b. Motion is required.

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


- VI. Rotate the DISC (right) knob until the word "IRON" disappears from the screen. Make sure that the word "FOIL" is still illuminated.

VII. Wave the nail over the searchcoil.

- a. The nail will not be detected
b. The nail has been "discriminated out."

Quick-Start Demo continued on next page

QUICK-START *continued*

- VIII.** Rotate the DISC knob until the words IRON, FOIL, NICKEL, P-TAB, S-CAP and ZINC all disappear.
- IX. Wave the nickel**
- a. The nickel will not be detected.
- X. Press the NOTCH touchpad on the front panel three times.**
The word “NICKEL” will start flashing. Wait until the flashing stops. “NICKEL” will be illuminated.
- XI. Wave the Nickel.**
- a. The nickel is now again detected.
 - b. The nickel has been “notched in.”
- XII.** Rotate the right knob 100% counterclockwise and click on into AT mode
Pass the quarter over the searchcoil. Vary the distance from the searchcoil on each pass. Notice the changing pitch and volume.
- XIII. Press-and-hold** 
- a. Notice that motion is not required.
A motionless object induces a sound.
 - b. Notice the single monotone hum. The PINPOINT mode produces only this single sound, regardless of the type of metal detected.
 - c. Move the quarter closer to and farther away from the searchcoil.
Notice the changing depth-display values. The 2-digit depth reading indicates the distance, in inches, away from the searchcoil.

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 Omega 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. You therefore want to “calibrate” the detector to the specific ground conditions where you are hunting. The detector incorporates both automated and manual ground-balancing features which will eliminate false signals from most types of soils. If you want to maximize the detector’s target identification accuracy and depth of detection, use the GROUND GRAB function to calibrate the detector to the ground where you are searching. See the section on GROUND GRAB for details.

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, bass) 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 in the center of the display with the SIGNAL strength indicator. A more accurate depth reading is available in a no-motion mode, using PINPOINT. These modes display target depth in inches. This no-motion mode 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.**

Use with headphones (not included)

This detector is equipped with both a 1/8” and 1/4” headphone jack. Any headphones with a stereo plug will work; headphones with a mono plug will not work. Using headphones improves battery life, and also 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

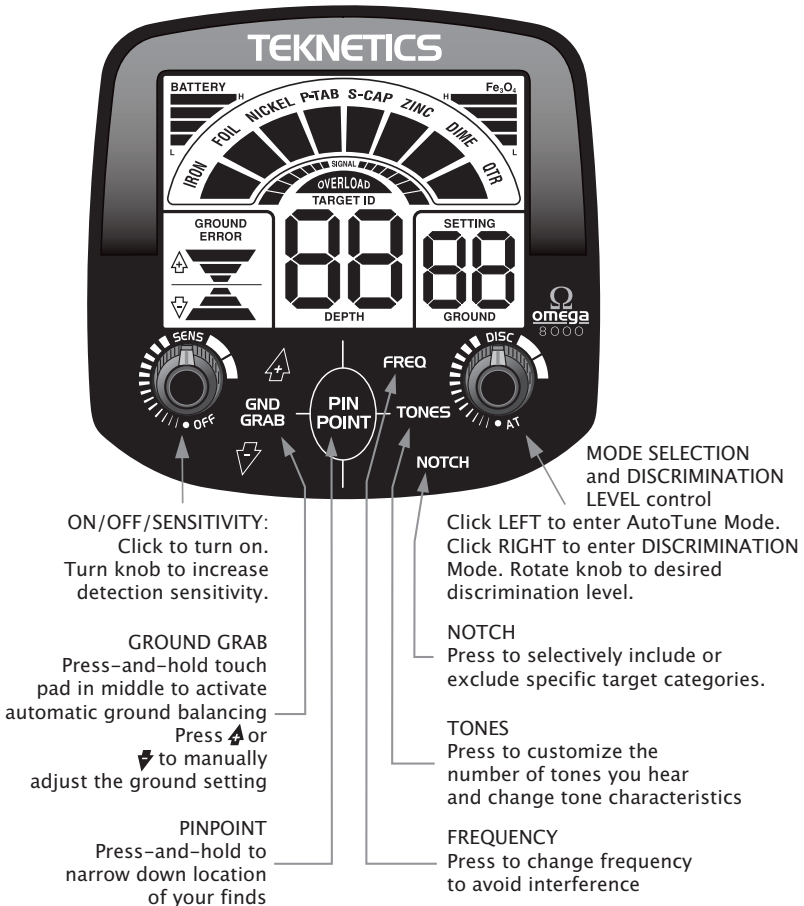
POWERING UP

Click the left knob to turn the detector ON.

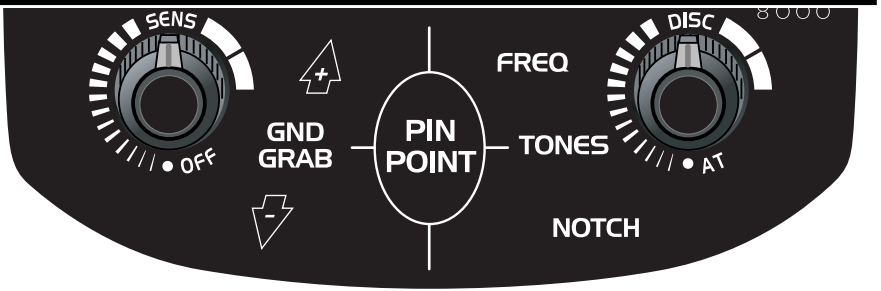
After clicking the knob on, continued clockwise rotation will increase sensitivity.

We suggest keeping the sensitivity below 70 until you become familiar with the detector's operation.

HOW TO WORK THE CONTROLS



CONTROL PANEL



CONTROL KNOBS ARE AS FOLLOWS:

1. SENSITIVITY:

- Click right to turn on. Click left to turn off.
- Turning the knob clockwise increases the detector's sensitivity; the higher the sensitivity, the deeper targets will be detected, and the more likely the detector will be to detect very small targets.
- As you turn the knob, notice that the SETTING value at the bottom-right of the screen will display your current sensitivity setting.
- The sensitivity has two ranges. From 0 to 70, the sensitivity increases on a linear scale. Above 71, the sensitivity threshold level starts changing. At values greater than 70, some internal circuit noise will be noticed. The higher the number, the higher this background "static" will be. Many seasoned detectorists prefer to operate at high sensitivity level, with the accompanying noise. They call this "working into the noise" When some background level of noise is audible, small changes in the volume and tone will denote the presence of buried metal.

2. DISC / AT AUTOTUNE

- Click counterclockwise to the AT icon to enter the AutoTune mode.
- This is the detector's most sensitive mode of operation.
- It is a motion mode of operation; the coil must be in motion to detect metal.
- Autotune mode induces a hum whose pitch and volume vary with the size of the target. Larger targets and targets moving closer to the searchcoil will increase the tone's pitch and its volume.

DISCRIMINATION

- After clicking on, the knob's rotation controls the detector's discrimination setting. Left in the far counterclockwise position, without clicking the knob off, turns the discrimination function off; all metal targets will be detected.
- Rotating the knob clockwise increases the level of discrimination.
- Notice that as you rotate the knob, the SETTING values at the bottom-right of the screen will change. At the same time, target icons across the top of the screen will disappear to indicate that entire target categories have been eliminated

CONTROL PANEL *cont.*

TOUCHPAD CONTROLS ARE AS FOLLOWS:

GND GRAB: Ground Grab.



The control allows you to set the detector's internal ground setting equal to the phase of the ground you are searching over.

See the section on Ground Balancing for a more thorough explanation of this feature and the reason for using it.

Press-and-hold the GND GRAB touch pad to invoke automatic ground balancing. This will "grab" the ground value.

In order to determine the most accurate ground value, pump the coil up and down over the ground while standing in one place over a patch of ground free of metal.

- 1: Start with the coil 6" above the ground; lower it to about 1" from the ground.
2. Continue this pumping motion until all of the bars in the "GROUND ERROR" window disappear.
- 3: At the point where the GROUND value at the bottom right of the screen stop changing, the detector has correctly measured the ground's phase.
- 4: Immediately release the control pad to set the detector's internal ground setting value equal to the last GROUND value displayed.

If you wish to manually change the detector's internal ground setting, press the  or  touchpads. Note that each 10 presses of these touchpads will change the displayed setting by only 1 number. The detector actually has 1,000 different ground settings to choose from, but uses only 2 digits to display the number. Reasons for this manual ground balancing feature are explained in the Ground Balancing section of the manual.

FREQ: Frequency Selection

Use this control if detector behaves erratically and you suspect electromagnetic interference from some other electronic device. This control will change the detector's operating frequency. Press until you find one of the frequencies which minimizes the interference.

Choices are:

- ① - default frequency
- ② - 1st alternate frequency
- ③ - 2nd alternate frequency

Changing frequency may require you to change the ground balance setting. See section on ground balancing.

CONTROL PANEL *cont.*

TOUCHPAD CONTROLS *continued*

TONES: Number of Tones Selection

In Discrimination mode, the OMEGA indicates target type by audio tone. The TONES button allows the user to select one of four different ways to group target types by tone.

Your selection depends on personal preference and search objectives. For example, coin shooters usually select d3 or d4. Relic hunters might select d1 or d2, depending on search area conditions.

In Auto-Tune mode, the TONES button allows the user to vary the pitch of the base tone.

See page 18 for a detailed description of the tones provided for each selection.

NOTCH: Selective Target Inclusion or Exclusion

The purpose of the NOTCH function is to change the detection status of a target category.

- If a category was not eliminated from detection before being “notched,” then notching the category will eliminate it from detection.
- If a category was eliminated from detection before being “notched,” (i.e. the category’s icon was not illuminated), then notching the category will return the category to detection.

Upon each press of NOTCH, a target icon will flash.

Each subsequent press will move the flashing icon to the right.

The following target categories can be notched in or out:

Iron, Foil, Nickel, Tab, S-Cap, Zinc

After the Zinc category, pressing NOTCH will exit the NOTCH function.

To select a category for notching, press NOTCH until the desired icon flashes. After a few seconds, the flashing will time out and the current target category will be notched.

Practice pressing NOTCH a few times and its function will become obvious. The NOTCH feature is not available in Auto Tune Mode.

CONTROL SETTING DISPLAY

The setting for each control is displayed as a 2-digit number on the bottom right of the screen. Each time you turn a control knob, or press **FREQ** or **TONES**, the setting for that control is immediately displayed below the word “SETTING.”

This 2-digit display value will revert back to the Ground Balance setting after a control is not adjusted for a few seconds.

When the **SETTING** value represents the Ground Balance setting, “GROUND” will be displayed under the number.

GROUND BALANCING

WHAT IS GROUND BALANCING?

Why do I need to Ground Balance?

All soils contain minerals. Signals from ground minerals are often tens or hundreds of times as strong as the signal from a buried metal object. The magnetism of iron minerals, found in nearly all soils, causes one type of interfering signal. Dissolved mineral salts, found in some soils, are electrically conductive, causing another type of interfering signal.

Ground Balancing is the process by which the metal detector cancels the unwanted signals coming from the ground minerals while still detecting the signals from buried metal objects. This is accomplished by matching the detector's ground balance setting to the phase of the ground signal.

When the detector is calibrated to the soil, the result will be deeper target detection, quieter operation, and more accurate target identification.

How to Ground Balance your detector:

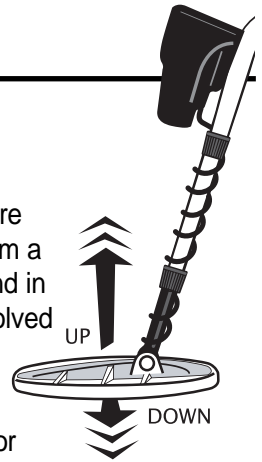
Ground Balancing procedure with the "Gnd Grab" touchpad.

1. Turn the detector on and select AT (Auto-Tune) mode.
2. Sweep searchcoil across ground to find a clear patch of ground with no metal present.
3. Rotate SENS knob to point where you hear a slight background hum.
4. Press and hold the GND GRAB touch pad, and pump coil over clean ground. (Note: pump coil from within 1" of ground to 6"- 8" above ground)
5. When the ground value "settles down" to only one or two numbers in variation, release the GND GRAB touch pad while still pumping the coil. Note that the Audio Response to the ground changed and "Evened Out" when you released the button. Also note that the Ground setting changed. After balancing, you can hunt in Auto-Tune... or return to Disc Mode.

The most accurate GROUND value is the value displayed when "pumping" the coil over the ground in an area free of metal.

Understanding ground conditions assists the user in setting up the machine, knowing when to readjust ground balance, and in understanding the responses of the machine while searching. This detector provides two kinds of ground data: **1.** the amount of mineralization (the greater the amount of mineralization, the greater the loss of detection depth & ID accuracy; this loss is more pronounced in Discrimination Mode) **2.** the type of mineralization (which affects mostly where the ground balance should be set).

Ground Balancing continued on next page



GROUND BALANCING -Technical Info

Fe₃O₄ BARGRAPH

The Fe₃O₄ 4-segment bargraph indicates the amount of ground mineralization, independent of type, expressed as an equivalent volume concentration of magnetite (Fe₃O₄). It updates every second. It is sensitive to motion and will give the most accurate readings if you “pump” the search coil up and down several times over the ground. The presence of metal or “hot rocks” will cause the readings to be inaccurate. If you stop moving the search coil, the bargraph will go blank.

INDICATION	% Fe₃O₄	SUSCEPTIBILITY
4 Bars -High	0.4 - 1.6	1,000 - 4,000
3 Bars -Medium	0.1 - 0.4	250 - 1,000
2 Bars -Low	0.025 - 0.1	60 - 250
1 Bars -Very Low	0.006 - .025	15 - 60
none - -	less than .006	less than 15

Magnetic susceptibility is expressed in micro-cgs units. In a salt water environment in the absence of iron minerals, the bargraph indicates relative electrical conductivity.

In soils with greater than 4,000 micro-cgs units magnetic susceptibility, the signal from the soil may saturate (“overload”) the circuits. This will not harm the detector but the machine will not be usable in that condition. The solution is to hold the search coil several inches above the soil surface so it isn’t “seeing as much dirt”. By listening and watching you will know how high you need to hold the search coil in order to avoid overload.

The highest magnetic susceptibilities are usually found in soils developed over igneous rocks, in alluvial “black sand” streaks on beaches, and in red clay soils of humid climates.

The lowest magnetic susceptibilities are usually found in white beach sands of tropical and subtropical regions, and soils developed over limestone.

Ground Error



The bottom left-hand corner of the display contains a graphic which indicates if your detector’s ground balance setting needs to be adjusted.

The Omega has a tracking system which continuously analyzes the *phase* of the ground you are searching.

It then compares this *ground phase value* with the detector’s internal Ground Setting indicated on the bottom right of the display.

* If the detector’s internal Ground Setting is equal to the actual phase of the ground, the detector is properly ground balanced and the Ground Error window is clear.



GROUND ERROR *cont.*

- * When the detector's internal Ground Setting is higher than the actual phase of the ground, the bars on the *top* of the graph will be illuminated. The bigger the error is, the more bars will show up.
- * When the detector's internal Ground Setting is lower than the actual phase of the ground, the bars on the *bottom* of the graph will be illuminated. The bigger the error is, the more bars will show up.
- * If the Ground Error *exceeds the level of three bars*,  or  will appear, indicating that the maximum error has been reached, and action must be taken to adjust the Ground Setting.



To maintain maximum detector performance, keep the Ground Error to a minimum by adjusting the Ground Setting.

Before making an adjustment, it is best to verify the Ground Error as follows:

1. Place the detector into AutoTune Mode.
2. Pump the searchcoil up and down over a *patch of ground free of metal*, repeatedly moving the coil to within 2" of the ground and lifting it up about 6" over the ground.





If bars appear at the top of the graph, **adjust** the Ground Setting by pressing the  until all of the bars disappear. If bars appear at the bottom of the graph, **adjust** the Ground Setting by pressing the  until all of the bars disappear.

While in AutoTune Mode, pumping the searchcoil over the ground, you will also hear audible evidence of an out-of-adjustment Ground Setting. If the Ground Setting is too low, there will be a difference in the sound as the searchcoil **is moving away** from the ground. It will sound like you are pulling the sound out of the ground. **If the Grown setting is too high, it will sound like you are pushing the sound into the ground.**

- If the sound is louder as you raise the searchcoil, press  to increase the ground balance setting.
- If the sound is louder as you lower the searchcoil, press  reduce the ground balance setting.

GROUND ERROR *cont.*

GROUND ADJUSTMENT CHART

If bars appear	or in autotune pumping coil sounds like	then
AT TOP 	PUSHING SOUND OUT OF GROUND	PRESS  TO ADJUST
AT BOTTOM 	PULLING SOUND INTO GROUND	PRESS  TO ADJUST
NO BARS	SAME SOUND WHEN RAISING AND LOWERING	NO ADJUSTMENT NECESSARY

AUDIO TARGET IDENTIFICATION SYSTEM

Different types of metals will induce different types of sounds, depending on your TONES setting.

There are 4 choices in DISCRIMINATION MODE:

- d1.** Medium-to-high pitch tone, varying in proportion to target signal strength. Large shallow objects will produce a squeal. The variable audio pitch provides you more information about the detected object. Volume and Pitch increase with increase in signal strength.
- d2.** Iron produces a bass tone regardless signal strength. Volume varies in proportion to signal strength. Non-ferrous targets respond as in d1.
- d3.** Three different audio tones.
 Bass Tone: Iron
 Low Tone: Foil, 5¢, Tab and Zinc
 High Tone: Dime, Qtr
- d4.** Four Different audio tones
 Bass Tone: Iron
 Low Tone: Foil, Tab, and Zinc
 Medium Tone: 5¢
 High Tone: Dime, Qtr

The default setting is d3.

To choose from the above selections, press the TONES touch pad. Each press of the TONES touch pad cycles to the next selection.

There are 4 choices in ALL-METALS MODE
 A1, A2, A3, A4 - pitch varies with each setting.

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, in inches.

The detector will normally register a repeating, unchanging target identification 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, oxidized metal, or too deep to be classified accurately. With practice, you will learn to unearth only the more repeatable signals.

The segment identifications are highly accurate when detecting the objects described on the screen. However, if you register in a given category for an unknown buried object, you could be detecting a metallic object other than the object described on the screen, 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 is categorized depending on its size. The smaller the gold object, the further to the left it will register.

Small gold items will register under Iron or Foil.

Medium-sized gold items will usually register under Nickel or P-Tab.

Large gold items will usually register under Tab or Zinc.

SILVER TARGETS: Silver objects will normally register to the right of the scale, under Dime or Qtr depending on the size of the object. The larger the object, the farther to the right it will register.

IRON: Most iron objects will fall into the Iron category. Very large iron objects like a manhole cover will usually fall into the Qtr category.

NICKEL: Nickels and most newer pull-tabs will register here.

P-TAB: Older pull-tabs and ring-pulls from beverage cans usually will register here. Many gold rings will also register here.

ZINC: Newer pennies (post-1982) will register here. Many non-U.S. coins will also register here.

S-CAP: Screw caps from glass bottles will register here. Large gold rings, like a class ring, could also register here.

DIME: Dimes and pre-1982 copper pennies 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.

DEPTH AND TARGET DISPLAY

Reading the display continued

DEPTH INDICATOR:

The Depth Indicator is calibrated for coin-sized objects. It indicates the probable depth of the target, in inches.

While holding the PinPoint touch pad, and passing over a metal object "DEPTH" will appear under to the two-digit number in the middle of the screen.

TWO DIGIT TARGET INDICATOR

In discrimination mode the Two-digit

target indicator, in the middle of the LCD display, 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 the probable identification of buried objects. The target value can vary each time the coil passes over the target, depending upon the angle of the object and the distance from the coil.

As a starting point, refer to the table below.

TARGET Readout

The table below lists some common approximate target value equivalents. With experience in the field, you will recognize many types of metal objects by their numeric value.

TYPICAL VALUE	POSSIBLE OBJECTS
10-40	Iron
56-57	Nickel,
60-62	Pull-Tab (old style)
62-65	Pull-Tab (new style),
66-72	Screw Cap
76-78	Zinc Penny
82-83	Dime & Copper Cent
86-87	Quarter
90-91	Half Dollar
94-95	Silver Dollar

SEARCH TECHNIQUES (in DISC mode)

Target Verification

After detecting a target, do the following:

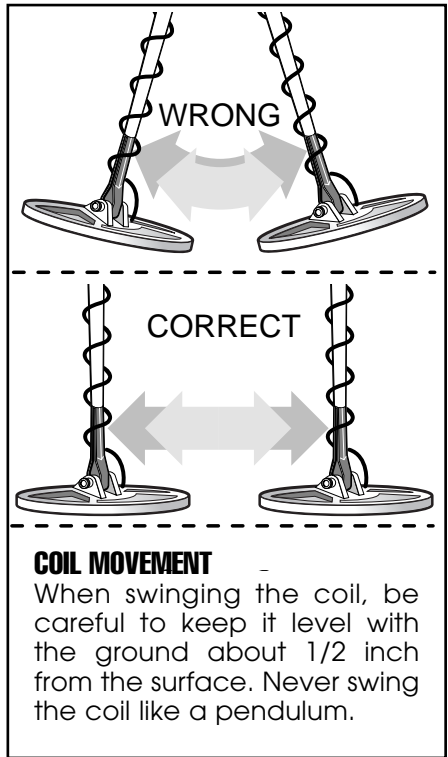
1. Walk around the target in a circle.
2. While circling the target, continue sweeping the search coil across the target.
3. Sweep once every 30° or 40° of the circle.

If the tone does not change and the target ID value is consistent as you circle the target, you can be highly confident of the target's identification.

If the tone or target ID changes as you circle the target, you may have multiple targets or an irregularly shaped object.

If the tone completely disappears at different angles, the target may be trash or a low-value metal.

If you are new to the hobby, dig all targets. With practice in the field, you will soon identify audible and visual target feedback with certain types of metal objects.



When swinging the coil, be careful to keep it level with the ground about 1/2 inch from the surface. Never swing the coil like a pendulum.

Pinpointing process in motion modes:

1. Sweep over target in narrowing side-to-side pattern.
2. Take visual note of spot on ground where "beep" occurs.
3. Step 90° to the side of the target.
4. Sweep coil over same area, at 90° to 1st sweep pattern.
5. This pinpoints the target location with an "X".

TARGET PINPOINTING *(in PINPOINT mode)*

After you have identified a target using a motion mode of detection, press-and-hold the PINPOINT pad to identify the target's exact location. This technique can yield more information about the target's shape and size and also find its exact location to facilitate extraction.

Pinpoint as follows:

1. Position the search coil just barely off the ground, and to the side of the target.
2. Now move the search coil slowly across the target, and you can locate it by the sound. The target is located directly under where the sound is loudest.

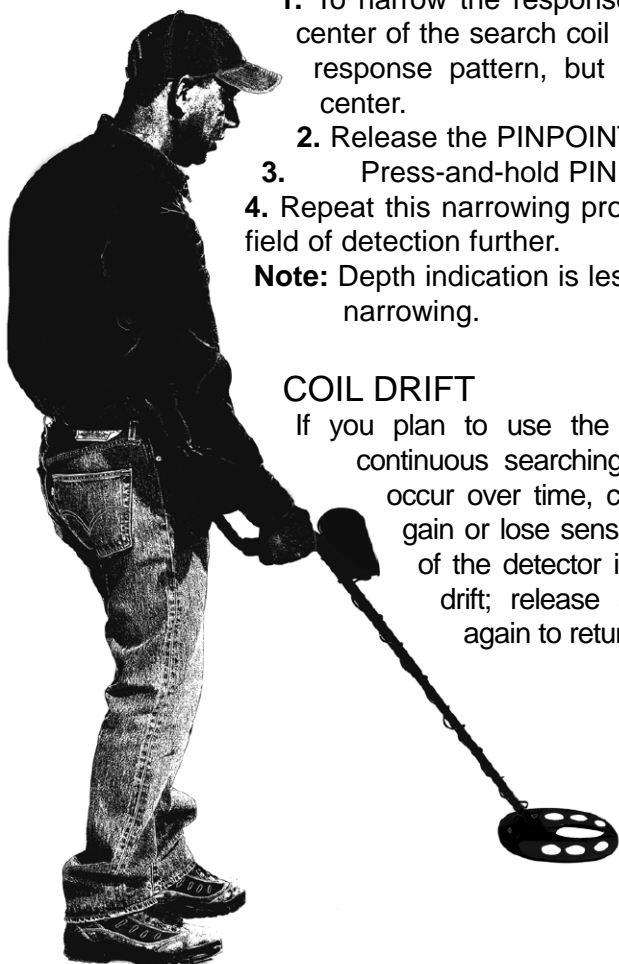
Narrow It Down:

1. To narrow the response further, position the center of the search coil near the center of the response pattern, but not directly over the center.
2. Release the PINPOINT touch pad.
3. Press-and-hold PINPOINT pad again.
4. Repeat this narrowing procedure to narrow the field of detection further.

Note: Depth indication is less accurate after narrowing.

COIL DRIFT

If you plan to use the PINPOINT mode for continuous searching, realize that drift will occur over time, causing the detector to gain or lose sensitivity. Periodic retuning of the detector is required to minimize drift; release and press PINPOINT again to retune.



NOTES

UNIT SPECIFICATIONS:

Mechanical: S-rod with electronics housing on rod, 3-piece breakdown construction, nonmetallic telescoping lower rod, adjustable position arm rest

Weight: 2 lbs 14 oz with battery installed

Standard search coil: 10 inch (25 cm) open-frame elliptical concentric, waterproof

Batteries: single 9 volt rectangular alkaline

Operating principle: VLF induction balance

Operating frequency: nominal 7.8 kHz, microprocessor controlled

Basic sensitivity: 2.5×10^9 root Hertz (detectivity)

Lag coefficient: 92 milliseconds

Reactive overload: 5,000 micro-cgs (with standard search coil)

Resistive overload: 600 micro-cgs (with standard search coil)

Ground balance range: from ferrite to salt water inclusive

Discrimination ground suppression: combination of 2nd and 3rd order methods

Target ID ground suppression: 3rd order

Battery life: 20+ hours on good quality alkaline

Operating temp range: 14 to 122 degrees F (-10 to +50 C)

Operating humidity range: 0 - 90% noncondensing

TREASURE HUNTER'S CODE OF ETHICS:

1. Respect the rights and property of others.
2. Observe all laws, whether national, state or local.
3. Never destroy historical or archaeological treasures.
4. Leave the land and vegetation as it was. Fill in the holes.
5. All treasure hunters may be judged by the example you set. Always obtain permission before searching any site. Be extremely careful while probing, picking up, or discarding trash items. And ALWAYS COVER YOUR HOLES!

