

Locate deeply buried coins, relics, and jewelry, even in challenging iron-cluttered areas!

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ACE 400i Owner's Manual

ACE 400i™ Owner's Manual

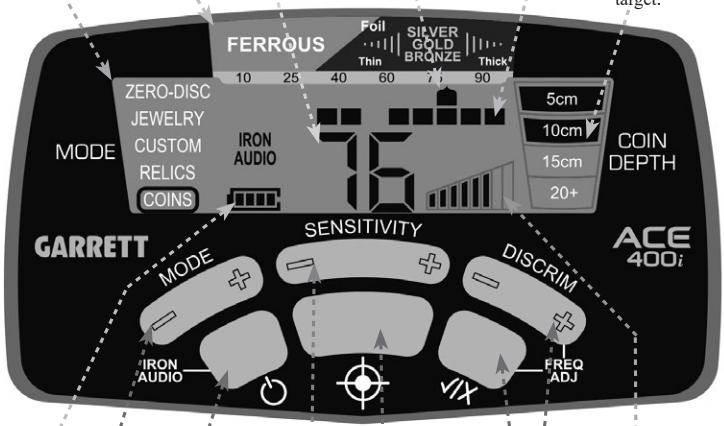
English / Spanish / French / German



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ACE 400i CONTROL PANEL



Target ID Legend
indicates metal types.

Digital Target ID

Target ID Cursor
indicates probable target identity.

Lower Scale
indicates notch discrimination pattern.

Depth Indicator
indicates depth of coin-sized target.

Mode Indicator

Battery Level Indicator

Power ON / OFF:
hold 1 second to turn power on/off.

IRON AUDIO: quick press to turn on or off; use to hear discriminated iron.

MODE Button
selects detection mode (i.e. discrimination pattern).

SENSITIVITY Button
increases or decreases sensitivity.

PINPOINT Button
Press and hold to precisely locate a target.

Sensitivity Setting

DISCRIM and Accept/Reject Buttons
Use DISCRIM (+) or (-) to select a cursor. Then use (✓/X) button to set its discrimination on or off.

Frequency Adjust
While holding down (✓/X) button, use DISCRIM (+) or (-) to increase or decrease frequency setting.

QUICK START GUIDE

1. Power ON. 

Press and release the ON / OFF Power button. The *ACE 400i* powers on in the last mode used, automatically adjusts for ground minerals and is ready to search. The detector operates with four (4) AA batteries which are already installed by Garrett. (Factory default mode is Coins.)

2. Select Mode. 

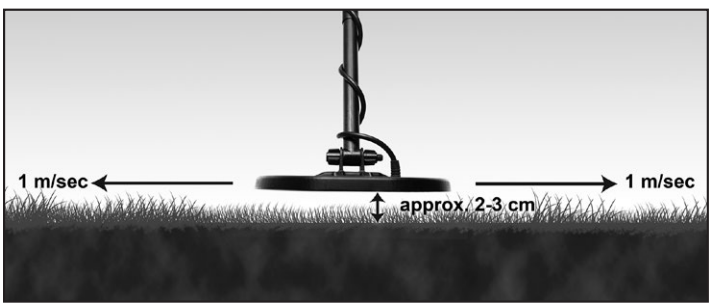
Use the Mode button to select a different detection mode, when desired.

3. Adjust settings.

Adjust Sensitivity or Discrimination settings, if desired.

4. Begin scanning.

Lower the searchcoil to 2 to 3 cm above the ground and scan the coil left and right at approximately 1m/second. The coil must be in motion for target detection, but can remain stationary during Pinpoint.



ACE 400i CONTENTS



Control housing with
S-shaped stem

Batteries
installed

Searchcoil



Coil cover





Nut, bolt,
mounting washers



Quick Start Guide

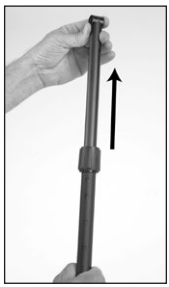
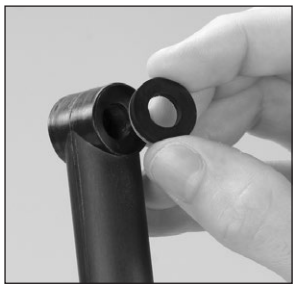


Upper, lower
stem (connected)

If any part is missing, please contact your local dealer.

DETECTOR ASSEMBLY

Loosen lower camlock and extend lower stem. Insert mounting washers, connect searchcoil to stem as shown, and hand-tighten wing nut.

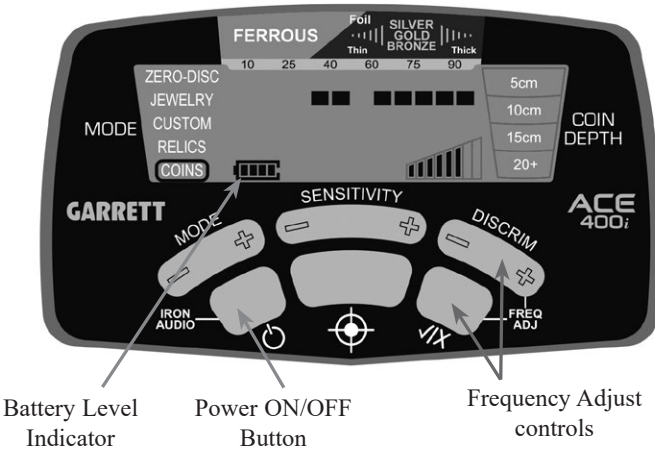
Loosen upper camlock, insert S-stem with control housing, adjust lower stem to comfortable length, and hand-tighten the camlocks. Wrap cable snugly around the stem with the first turn of the cable over the stem.






Note: The arm cuff can be adjusted by removing the screw on the bottom and moving it to the other hole.





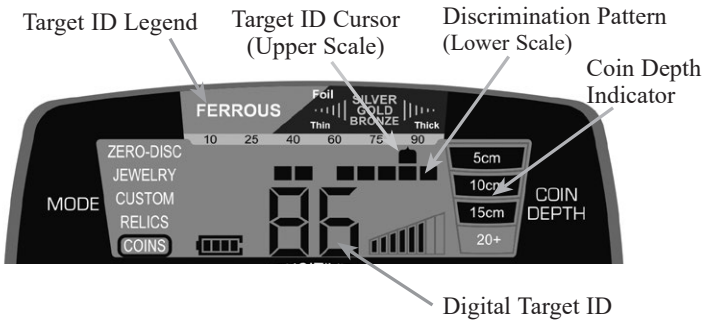
Power ON/OFF—Hold this button for 1 second to turn power ON or OFF.

Factory Reset —To restore factory settings, press and hold the power button for 5 seconds (until the detector produces a fast double beep).

Battery Level Indicator—Shows continuous status of battery life. Replace batteries when 1 segment remains.

Frequency Adjust—While holding down the (✓/X) button, use DISCRIM (+) or (-) to increase or decrease the frequency setting. Choose from four minor frequency adjustments (F1 to F4) in order to minimize interference caused by electrical sources or other metal detectors.

TARGET INFORMATION



Target ID Legend—Works with the Target ID Cursor to indicate a target's probable identity, with Ferrous (iron) targets at the left, non-ferrous targets that are thin or have low conductivity in the middle, and thick or high conductivity targets (e.g. thick silver) at the right.

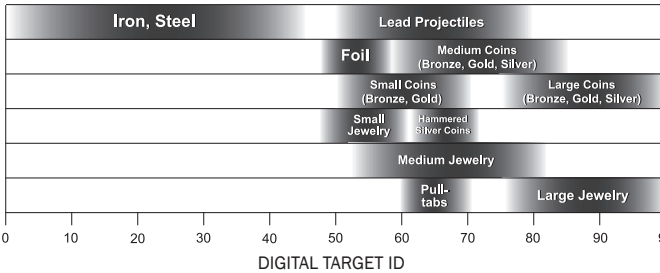
Lower Scale—Displays the current discrimination pattern, with lighted pixels indicating accepted targets and blank pixels indicating rejected targets.

Target ID Cursor (Upper Scale)—Will display for every target, but will produce audio only for targets accepted on the Lower Scale.

Digital Target ID—Provides a value from 0 to 99 to identify targets more precisely than the ID cursor.

Coin Depth Indicator—Shows the depth of a coin, or a similar sized target. Note: targets *larger* than a coin may display shallower than actual depth while targets *smaller* than a coin may display deeper than actual depth.

The sample chart on the following page provides Digital Target ID ranges of some commonly found items.



Target ID can vary widely based upon the target's size and thickness because small, thin pieces of metal cannot conduct electrical current as well as thicker pieces of metal. In addition, mineralized soils can cause Target ID errors, especially for small targets.

Tip: Target ID is most reliable when the target is centered under the searchcoil and the coil is swept flat and at a constant height above the ground.

AUDIO FEATURES

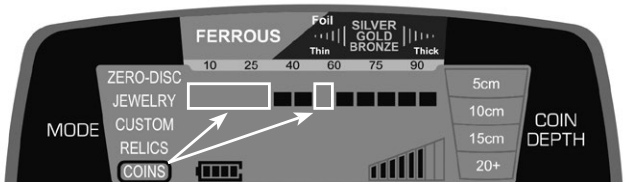
Tone ID—The *ACE 400i* produces three distinct tones based on a target's metal type and conductivity:

- High conductivity targets (Digital ID > 60) produce a unique belltone signal.
- Medium to low conductivity targets (Digital ID of 40–60), produce a medium-pitched signal.
- Ferrous targets (Digital ID < 40) produce a low-pitch signal.

Iron Audio—Allows the user to hear discriminated iron (normally silenced) in order to avoid digging tricky, undesired flat iron items such as bottle caps or steel washers. *(To learn more, see pages 14–15.)*

Headphone Jack—Use any headphones with a 1/4" plug.

SELECTING MODES (Discrimination Patterns)



Example: this is the preset notch discrimination pattern for COINS Mode.

Choose from one of four preset discrimination patterns or use CUSTOM Mode to save a personal pattern.

Use the MODE buttons to scroll through the five modes:

• **ZERO-DISC Mode**–Detects every type of metal. All 12 discrimination pixels are switched on; no metals targets have been notched out (eliminated). Use this mode to find all metal items or when the material of the desired object is unknown. Switch to the Zero-Disc Mode to aid in locating a target when its signal is inconsistent. Such signals could mean a trash target is close to a good target.

• **JEWELRY Mode**–designed to find jewelry such as rings, bracelets, watches, and necklaces, while ignoring most iron trash.

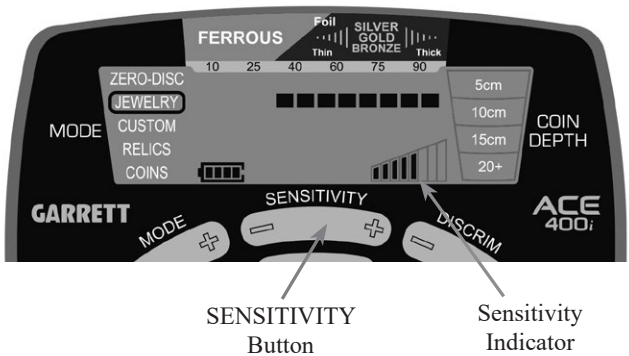
• **CUSTOM Mode**–Can be programmed by the operator and the *ACE 400i* will retain the changes when the detector is switched off. The factory preset for the CUSTOM Mode is the same as the COINS Mode. Begin with this discrimination pattern and then use the DISCRIM and Accept/Reject buttons controls to customize the mode. *(For more information, see pages 11–12.)*

• **RELICS Mode**—designed to eliminate small iron pieces, while detecting good targets in the lower conductivity range, such as lead, brass and bronze.

• **COINS Mode**—designed to find most types of coins and to eliminate common trash items such as iron and foil. Some desirable items that respond the same as foil may be missed. Some digging of junk targets is to be expected, such as aluminum cans.

SENSITIVITY

Use the (+) or (–) SENSITIVITY buttons to step through the eight (8) levels. Use increased sensitivity when searching for very small or very deep targets. Use lower sensitivity levels when the detector is behaving erratically (due to excessive metallic trash, highly mineralized soils, electrical interference or the presence of other metal detectors) and the erratic operation cannot be resolved with discrimination or by changing frequency.



NOTCH DISCRIMINATION

Notch Discrimination—Use the DISCRIM (+) or (–) buttons in conjunction with the ELIM (✓/X) button to eliminate trash objects from detection such as foil or pull-tabs.

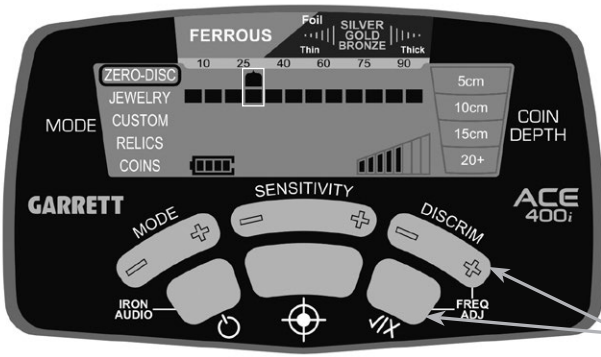
The *ACE 400i* has 12 pixels or "notches" of discrimination, shown on the lower scale. Any combination of these pixels can be switched on or off based upon your preference. There are two primary methods for modifying the Notch Discrimination Pattern to reject a specific type of trash or unwanted item.

For the first method use the (+) or (-) DISCRIM buttons to move the Target ID cursor to the left or right. Next, press the (✓/X) button to eliminate or activate the pixel located on the Lower Scale, directly below the Target ID cursor. *(See illustrations on next page.)*

The second method of modifying the Notch Discrimination pattern uses only the (✓/X) button. When an unwanted target is audibly detected, simply push the (✓/X) button to create a notch at that Target ID Cursor. The next time this item is encountered, it will not produce an audible signal.

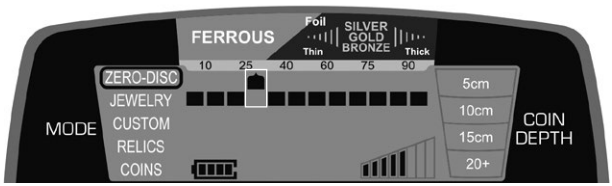
Tip: Notch Discrimination can also be used *to find specific metal items*. For example, if an earring has been lost, scan the matching earring in ZERO-DISC mode and note its Target ID cursor. Then use the DISCRIM and (✓/X) buttons to switch off all the pixels except the one for the earring and an additional pixel on either side to account for some ID variations.

Example: Manual Modification of Notch Discrimination Pattern



Modify pattern with these buttons

Use the NOTCH DISC buttons to position the Target ID Cursor above the pixel you wish to eliminate *(see above illustration)*. Use the ELIM button to delete this pixel from the Lower Scale *(see below)*. This item is now rejected.

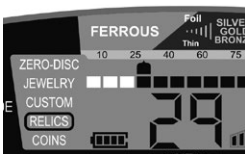


Note: Changes made to the Notch Discrimination pattern while in CUSTOM Mode will be retained when the detector is switched OFF. Changes made to all other modes will return to the factory settings when the detector is switched OFF and back ON.

IRON MASKING

To prevent an iron object from "masking" out the signal of an adjacent good target, use just enough discrimination to barely reject the iron trash (e.g. small nail, as seen in Illustration 1). This will allow you to detect the coin and nail together (see Illustration 2) and not miss/mask a good target.

Illustration 1



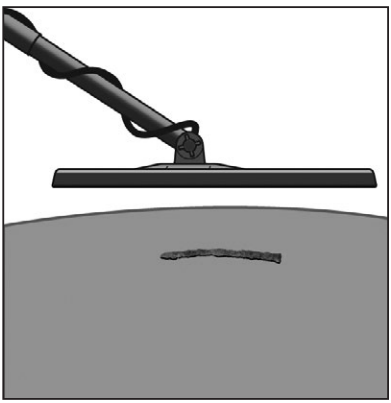
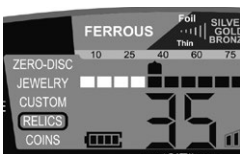
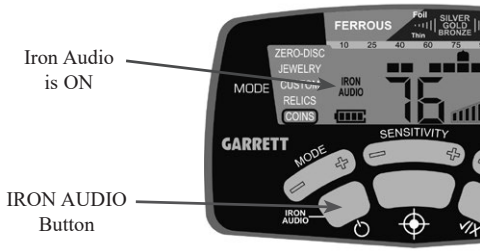


Illustration 2





IRON AUDIO



Press and release the IRON AUDIO button to switch the Iron Audio feature ON/OFF.

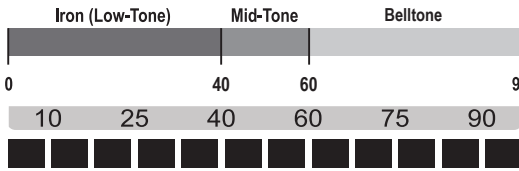
Iron Audio allows the user to hear discriminated iron (normally silenced) in order to avoid being tricked into digging an undesired target. Iron Audio also adjusts the cut-off between low-tone and mid-tone audio *(see illustrations on next page)* to better identify good targets. When Iron Audio is on, iron targets will not only be heard, but they will produce an even more distinctive response with multiple tones. For example, a nail will produce several fast low tones as the searchcoil passes over. A flat iron object like a bottle cap or steel washer will produce a very distinctive Low-High-Low response (see pg. 19 for more information).

If zero discrimination has been applied, the use of Iron Audio will simply eliminate the low tone.

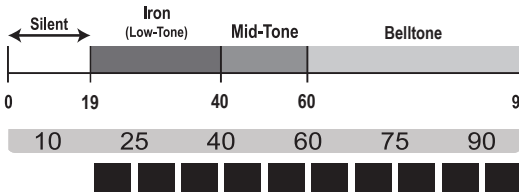
Note: Iron Audio applies only to the notched out pixels to the left of the first accepted pixel within the 5-pixel iron range. If zero discrimination has been applied, the use of Iron Audio will simply eliminate the low tone.

Tip: In areas with a lot of iron, it is recommended to switch off Iron Audio. Otherwise, it may produce far too many signals. If a target is detected with questionable or inconsistent response, switch on Iron Audio to see if it is iron.

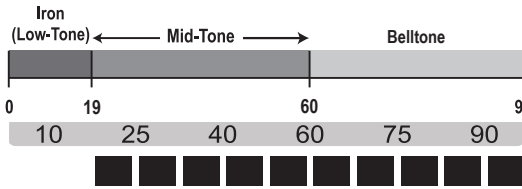
Refer to the illustrations below regarding the use of the Iron Audio feature:



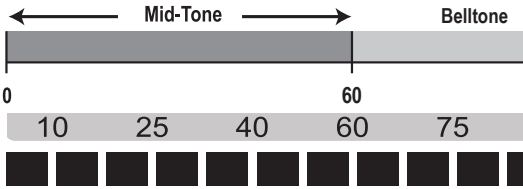
IRON AUDIO **OFF**: Normal division of low, mid and bell tones.



IRON AUDIO **OFF**: With two pixels of Discrimination notched out, all targets below 19 are silent.



IRON AUDIO **ON**: Targets below 19 are now heard as a low tone and targets above 19 will produce a mid or bell tone.



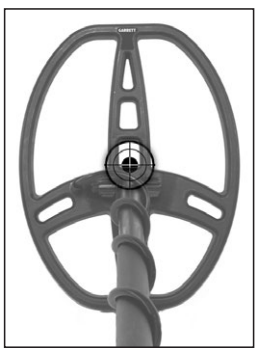
IRON AUDIO **ON**: With zero discrimination utilized and with Iron Audio ON, ACE 400*i*'s low tone is eliminated. The mid-tone extends down to 0.

PINPOINTING

Accurate pinpointing enables fast recovery with the smallest hole possible. To use Pinpoint:

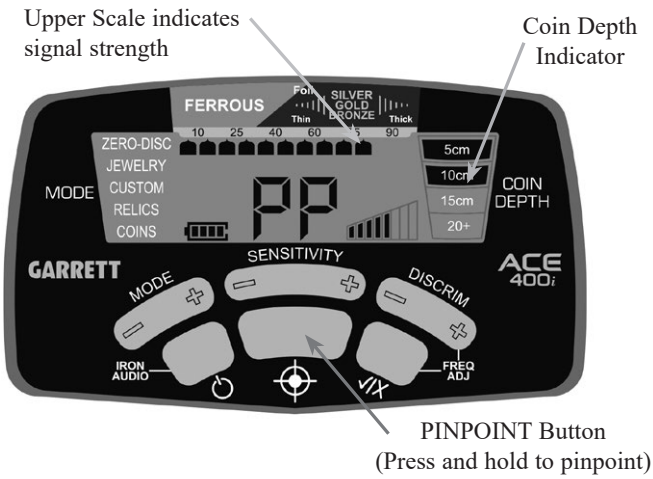
- Position the searchcoil to the side of the target's suspected location at a fixed height above the ground.
- Press and hold the Pinpoint button and slowly sweep the searchcoil over the target area while maintaining the same fixed height above the ground (e.g. 2–3cm).
- Sweep the searchcoil side-to-side and front-to-back in a crosshair pattern to locate the peak signal, indicated by the loudest audio and the greatest number of segments on the Upper Scale.
- The center of the searchcoil is directly over the target with the depth of a coin-sized target shown on the depth scale. The symbol "PP" for pinpoint displays on the LCD while pinpointing.

It is recommended to practice pinpointing in a test plot.





Indicates pinpointing center of the 8.5" x 11" searchcoil.



For the best pinpointing results, maintain a constant height above the ground (e.g. 2–3cm).

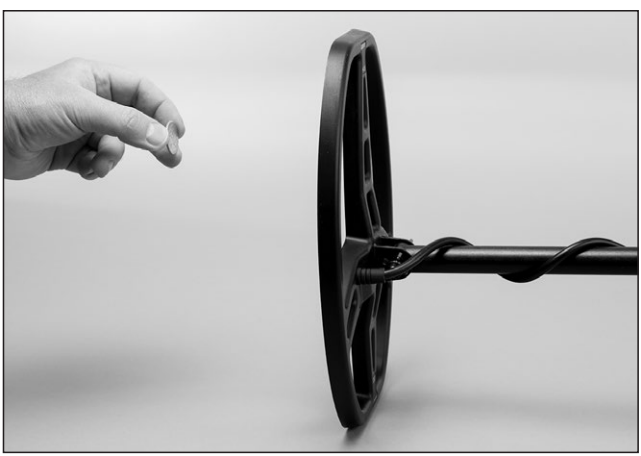


Note: Alternative pinpointing methods using a DD searchcoil are demonstrated on the *ACE 400i* training video, which can be seen at garrett.com.

BENCH TESTS

You should conduct bench tests to become more familiar with your detector's operation. To conduct a bench test:

1. Place the searchcoil on a flat, non-metallic surface that is several feet from other metallic objects.
2. Select the ZERO-DISC mode.
3. Pass various metal objects (coins, bottle caps, nails, etc.) across the searchcoil at a distance of 8 to 10cm. Your metal detector will audibly and visually identify the target.
4. Perform this test in all the modes available on your detector. Observe the sounds as well as the graphics on the LCD that are made in each mode.
5. Record the results of your bench tests and refer to them when hunting in the field.



Once you have determined how your test targets register on the Target ID during bench tests, test them in the soil. Bury your targets at recorded depths to create a "test plot." Note how various targets read based upon whether they are lying in the ground flat or at various angles.

Keep accurate records or surface markers to indicate your test plot targets and their depths. Try testing these targets again in several months after the ground has settled, during periods of extreme drought or after a soaking rain. Take note of any changes in how these targets are detected.

Iron Audio bench test: Flat iron objects like bottle caps or steel washers can appear to be good conductive targets. To better understand the benefits of Iron Audio, use a bottle cap to test the *ACE 400i*.

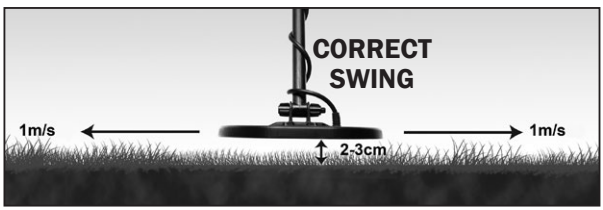
First, set the detector to ZERO-DISC Mode with all notches active and pass the bottle cap across the searchcoil at a distance of 3 to 4 inches. Note that the bottle cap's flat surface usually gives a high Digital Target ID reading with the tone of a "good" target.

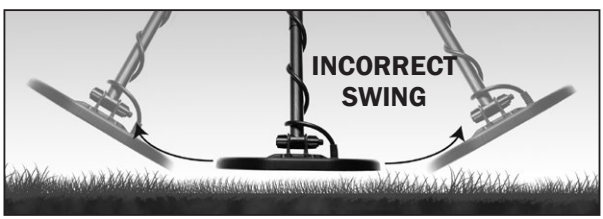
Next, eliminate the first five notches on the left side of the LCD, and switch on the Iron Audio feature. Pass the bottle cap across the coil again and notice the different audio. The clean sound has been replaced with a mixed, chirping tone that has subtle low tones at the beginning and end, indicating a possible junk target. Pass a conductive, coin-sized target across the coil and note its clean high tone in comparison to that of the bottle cap.

Record the results of your bench tests and refer to them when hunting in the field. Knowledge of the Iron Audio feature can reduce the amount of trash targets that are dug.

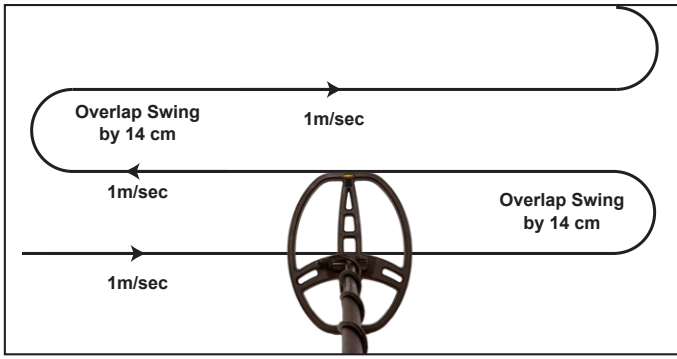
HUNTING TIPS WITH YOUR *ACE 400i*

- If you are new to metal detecting, start searching in areas with sandy and loose soil to make it easier to learn how to use your metal detector, pinpoint and dig targets.
- Keep your searchcoil height about 2–3cm above and parallel to the ground at all times for best detection results.



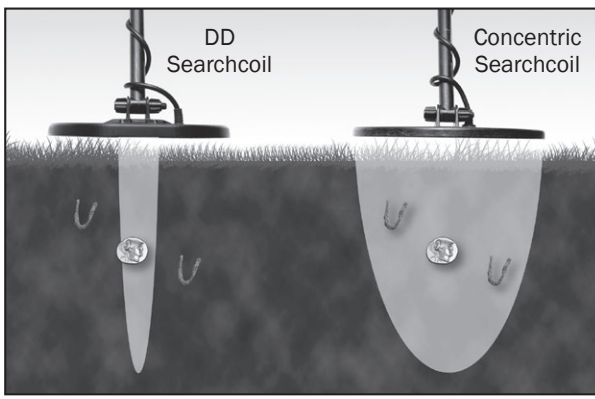


- Swing your searchcoil parallel to plow lines and the water's edge. This will minimize the negative effects caused by uneven ground in plowed fields and varying amounts of moisture near the water. Do not swing the searchcoil perpendicular to plow lines and the water's edge, as this may produce abrupt changes in ground response that can reduce the detector's performance.
- Walk slowly as you scan your searchcoil in a straight line from side to side at a speed of about 1 meter per second. Advance the searchcoil about half the length of the searchcoil at the end of each sweep.



In order to fully search an area, overlap the swings of your searchcoil by half the length of the coil (about 14 cm). Sweep the searchcoil in a straight line or with a slight arc at a sweep speed of about 1m/sec.

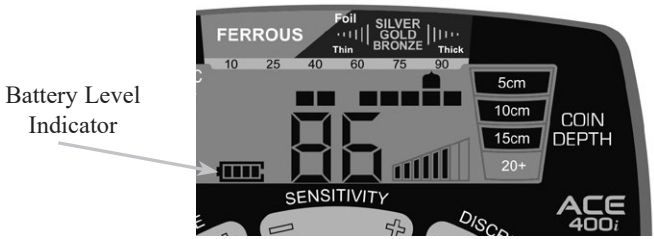
• **Isolating adjacent targets**. The narrow detection field of the *ACE 400i*'s DD searchcoil allows better separation of adjacent targets versus a similar size concentric searchcoil. Use narrow swings of the searchcoil in trashy areas to isolate good targets amongst the trash.



TROUBLESHOOTING GUIDE

SYMPTOM	SOLUTION
No power	1. Ensure batteries are installed in the correct orientation. 2. Replace all old batteries with all new batteries.
Erratic sounds or target ID cursor movement	1. Ensure your searchcoil is securely connected and the coil cable is snugly wound around the stem. 2. If using the detector indoors, be aware that excessive amounts of electrical interference exists, plus excessive amounts of metal can be found in floors and walls. 3. Determine if you are close to other metal detectors or other metal structures such as electrical power lines, wire fences, benches, etc. 4. Adjust frequency 5. Reduce your sensitivity setting.
Intermittent Signals	Intermittent signals typically mean you've found a deeply buried target or one that is positioned at a difficult angle for your detector to read. Scan from different directions to help define the signal. In the case of multiple targets switch to the ZERO-DISC Mode or press the pinpoint button to precisely locate all targets. In trashy areas, use the *Super Sniper*™ or a 5" x 8" DD searchcoil. (NOTE: Iron targets may cause Intermittent Signals. You can identify iron targets in ZERO-DISC Mode) or with the Iron Audio feature.
I'm not finding specific targets	Ensure you are using the correct mode for the type hunting you are doing. If specifically hunting for coins, COINS mode should be your best choice to eliminate other undesirable targets. You may also use the ZERO-DISC mode, which detects all metal targets to ensure desired targets are present.
Target ID Cursor bounces	If your Target ID Cursor bounces erratically, chances are you've found a trash target. However, a Target ID Cursor may bounce if a good target (such as a coin) is not parallel to the searchcoil (e.g. on edge). It may also bounce if there is one or multiple "junk" targets laying next to the good target. Scan from different directions until your Target ID Cursor becomes more stable. NOTE: Large, flat pieces of iron—depending on their orientation in the ground—can read as a good target or can cause erratic Target ID Cursor movement. Use Iron Audio to help identify iron targets.

BATTERY REPLACEMENT



Four bars indicate fully charged batteries. Replace batteries when there is only 1 bar remaining. The detector will maintain full performance until the batteries need to be replaced. NiMH rechargeable batteries may be used, but may have a shorter life per charge. You can expect 20 to 40 hours of operation depending on battery type and quality.

Replace the batteries by sliding the cover off the control housing. Remove batteries when the *ACE 400i* will be stored for longer than 30 days.

Note: 1.5V/cell Lithium batteries can also be used, but the use of 3.7V/cell Lithium batteries will damage the detector.



METAL DETECTING CODE OF ETHICS

The following is a Code of Ethics that many treasure hunters and clubs follow to preserve our exciting sport of metal detecting. We encourage you to do the same:

- I will respect private and public property, all historical and archaeological sites and will do no metal detecting on these lands without proper permission.
- I will keep informed on and obey all local and national legislation relating to the discovery and reporting of found treasures.
- I will aid law enforcement officials whenever possible.
- I will cause no willful damage to property of any kind, including fences, signs and buildings.
- I will always fill the holes I dig.
- I will not destroy property, buildings or the remains of deserted structures.
- I will not leave litter or other discarded junk items lying around.
- I will carry all rubbish and dug targets with me when I leave each search area.
- I will observe the Golden Rule, using good outdoor manners and conducting myself at all times in a manner which will add to the stature and public image of all people engaged in the field of metal detection.

CAUTIONS

When searching for treasure with your Garrett detector, observe these precautions:

- *Never* trespass or hunt on private property without permission.
- National and state parks / monuments and military zones, etc. are absolutely off-limits.
- Avoid areas where pipelines or electric lines may be buried. If found, do not disturb and notify proper authorities.
- Use reasonable caution in digging any target, particularly if you are uncertain of the conditions.
- If you are unsure about using your metal detector in any area, always seek permission from the proper authorities.

CARING FOR YOUR *ACE 400i* DETECTOR

Your Garrett detector is rugged, designed for outdoor use. However, as with all electronic equipment, there are some simple ways you can care for your detector to maintain its high performance.

- Avoid extreme temperatures as much as possible, such as storing the detector in an automobile trunk during the summer or outdoors in sub-freezing weather.
- Keep your detector clean. Disassemble the stem and wipe it, the control housing, and the searchcoil with a damp cloth when necessary.
- Remember that your searchcoil is submersible, but your control housing and connectors are not.
- Protect your control housing from heavy mist, rain and blowing surf.
- When storing for longer than one month, remove the batteries from the detector.
- When changing batteries, use quality alkaline or rechargeable batteries, and replace with all new batteries for optimum performance.

ACE 400i WARRANTY & SERVICE

In the event you encounter problems with your *ACE 400*i detector please read through this Owner's Manual carefully to ensure the detector is not inoperable due to manual adjustments. Press and hold the power button for 5 seconds to return to the recommended factory settings.

You should also make certain you have:

1. Checked your batteries and connectors. Weak batteries are the most common cause of detector "failure."

2. Contacted your dealer for help, particularly if you are not familiar with the *ACE 400i* detector.

Scan the QR code for information on warranty, repair, and product registration.
https://www.garrett.com/sport/warranty-registration

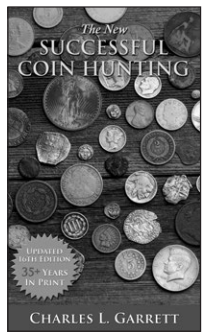


ACE 400i ACCESSORIES

Garrett offers a complete line of accessories that will increase your success and enjoyment of treasure hunting with your new detector.

These products—including optional *ACE* searchcoils, Garrett *Pro-Pointer* pinpointing detectors, and a wide selection of books on treasure hunting—are available from your dealer or by calling Garrett's factory at 1-800-527-4011.





To see Garrett's complete collection of metal detector accessories and books, please visit www.garrett.com and view products within our Hobby/Sport Division.