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Metal Detector

Waterproof Search Coil, Pin-Point Detect, Adjustable Sensitivity, Headphone Jack

Model:

PHMD55

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TERMINOLOGY

The following terms are the common terminologies among the metal detector.

Motion Mode

Continuously moving the search coil is one of the circuit operation modes within the metal detector's built-in detection technologies. You have to move the search coil during detecting -- preferably in a overlapping 'painting' pattern. Generally speaking, motion detection mode can reduce the effect of misleading / unwanted soil mineralization detection, and will have a better discrimination ability for more sought after findings.

Non-Motion Mode

This is your other metal detection option included within the detector's circuitry operation modes. When searching, you need not move the search coil continuously, as long as your hover to locate and zero-in on your finding. When the metal detector locates the object in non-motion mode, the detector cannot discriminate the metal categories -- in other words, the discrimination levels do not function as in motion mode.

Elimination

To eliminate a particular metal while detecting is based on the user's preference. While searching the operator can distinguish the specified metal, based on the metal detector's reaction to the search coil's response (a different sound in tone and/or lighting indication can be differentiated). Please note, not all metal detectors feature a diverse and/or wide array of detection elimination options and differentiation.

Discrimination

The detector creates sounds in different tones and/or gives different display and/or light indications to different metal types. Discrimination also has the somewhat similar ability to also eliminate or 'zero-in' on the location/detection of select metals. This is referred to as “discriminating”. Discrimination is one of the most important features of the metal detector (a different sound in tone and/or lighting indication can be differentiated). Please note, not all metal detectors feature a diverse and/or wide array of detection elimination options and differentiation..

Metals

The common metals are alloys, such as copper, due to the different character composition of different metals, they are most generally divided and grouped by categories like: red copper, brass, bronze, etc. However, the same metals can provide different detection / metal detector indication -- and vice versa, different metals can provide similar detection / metal detector indication. With a same metal, due to the different composition, shape and differences in the degree of oxidation, resulting in electrical conductivity or magnetic permeability are not the same, as in the metal detector, there are more often different responses.

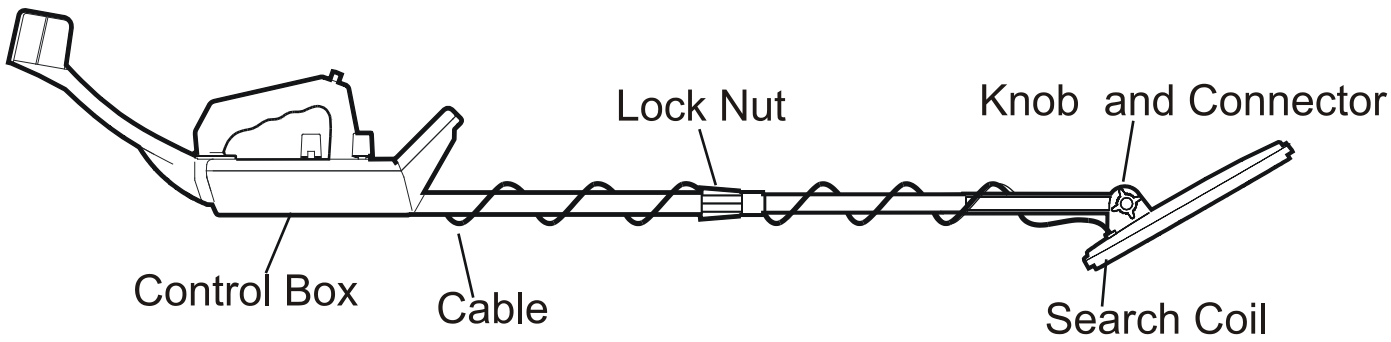
Iron
Iron is a common metal, it’s usually not the dedicated detection target. Undesirable iron objects include iron nails, bolts, old cans, caps, etc. Valuable relics and sought after materials can also be composed of iron, such as old armaments, old armature, etc . So, it may be best to pay attention to everything you detect!

Ferrous Metals
It is the metal which is made of, or containing, iron.

Trash metals
Caps, pull-tabs, s-caps from beverage containers are the most bothersome trash items for treasure hunters while metal detecting, you should wish, to preferably, eliminate them when searching and detection. But some other valuable objects may have a magnetic signature similar to the above trash metals, and will also be eliminated when selecting discriminating levels. Discriminate carefully and once again, it may be best to pay attention to everything you detect!

Pinpoint Targeting
Pinpoint targeting is the process of determining the exact location of a buried metal object. As in the motion detection mode, you need move the search coil continuously when searching and it’s hard to determine the exact location of the buried metals during pinpoint targeting. Using the non-motion detection technology, it allows the search coil to center align with the location of the buried metal and narrow-down a more relevant and exact location of your finding.

Ground Balance
Because the metals and objects are buried in the earth, the mineralization that occurs in the soil will affect the detection ability and signal frequency. The integrated ground balance detector technology will, to the best of it's ability, eliminate or weaken the shielding effect of the mineralized soil. The ground balance system contains an internal ground balance adjustment for regulation of such instances (a different sound in tone and/or lighting indication can be differentiated). Please note, not all metal detectors feature a diverse and/or wide array of detection elimination options and differentiation..

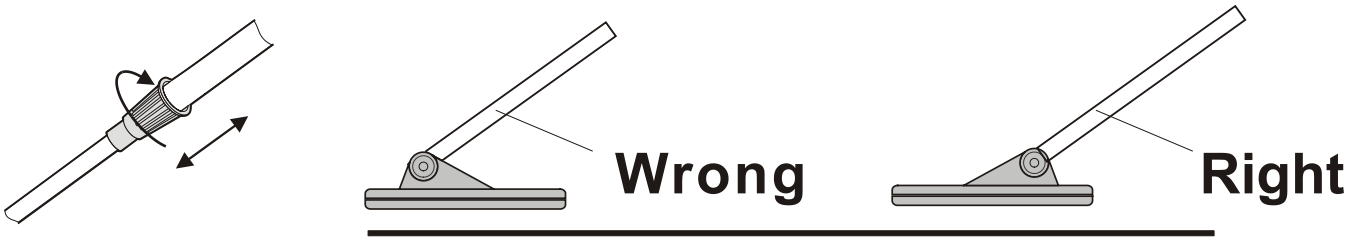


Assembly

To assemble the metal detector does not require any special tools.
Turn clockwise to relax the end of bend-shape tube sleeve, and insert the tube which connect search coil into the sleeve. Adjusting the length, so you can stand comfortably and straighten your arms. Lock the sleeve anti-clockwise when the search coil is from the ground about 1/2 inches.

Assembly

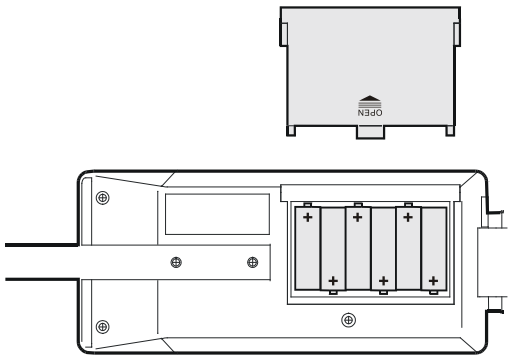
Wind the cable around the aluminum tube arm, keep the elastic moderately tight/loose, so that the cable won't sway or interfere with operation and clothing. Tighten appropriately the two ends nuts, and adjust the search coil location to let the search coil be parallel with the ground. Be careful not to mistake the search coil location.



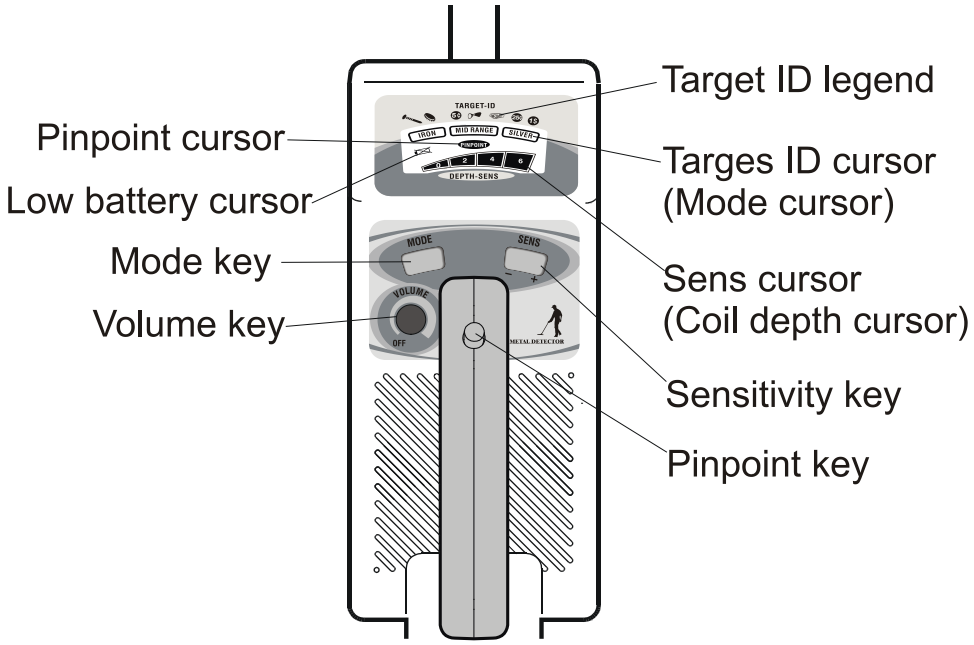
Battery

Please use 6 Alkaline 'AA' batteries.
Slide the cover labeled "OPEN" on the battery tray cover slot in the direction of the arrow, to pull out the battery cover. Then insert the 6 x 'AA' batteries into the compartment as indicated by the polarity symbols marked inside the compartment. Be sure to observe proper polarity when inserting batteries.

Once the batteries are inserted correctly, replace the battery cover.
You will hear a beep tone. Don't mix the new and old batteries.



Control Panel and LCD screen



LCD Digital Display Screen

During detecting, the metal targets are divided into three categories by the target identification cursor.

SILVER - Higher conductivity metals, such as silver, aluminum and copper
(Such as coins: .25cents, 50cents and 1 U.S. dollar coin can be illumined at this point)

MID RANGE - Medium conductivity metals,
(Such as pull-tabs, 5 cents nickel coin,1 cent zinc coin and many other European coins can be illumined at this point. Generally golden rings can be also illumined at this point.)

IRON - Low conductivity metals
(Such as iron and all types of other ferrous metals.)

Depth Sensitivity Indication - 'DEPTH-SENS'

Press the “SENSTIVITY” '+' and '-' keys to adjust the metal detector's sensitivity adjustment. The depth gauge only shows the relative depth of the metal objects, rather than the precise depth.

*Generally, treasure hunters set it to the highest level, if there is much electromagnetic interference around or the soil is highly mineralized, the detector will sound an erratic tone, and if this happens, then you should reduce the detector’s sensitivity.

Press the **PINPOINT** button on the handle, and the PINPOINT cursor will appear on the digital display. The metal detector will now be in the Non-Motion mode, you should be able to locate and pinpoint the metal target beneath the search coil.

*The metal detector also features a low battery indication cursor, this displays and warns you of low battery.

Three kinds of Audible Tones

The detector will sound three frequencies of sounds “low, medium, high” tones. The sensitivity ruler mark is displayed in three different segments, which indicates the current state / activity sensitivity level of the metal detector. (Can can use your own metals and adjust the discrimination levels accordingly to hear the different audible frequency tones created by different metal types). The metal type and / or target indication cursor on the metal detector LCD display screen will be illuminated accordingly.

Target Categories	Indication Tone	TARGET ID Indication
Iron nail	Low tone	IRON is illumined & flickers for 5 seconds
Pull-tabs and 5 cents nickel coin	Medium tone	MID RANGE is illumined & flickers for 5 seconds
25 cents	High tone	SILVER COPPER is illumined & flickers for 5 seconds

(4) Level Discrimination Modes

When powering on the unit, it is automatically set to the ALL METAL mode. Press the “MODE” button, to have the ability to eliminate the metals that you don’t want, keep pressing the button to adjust the modes.

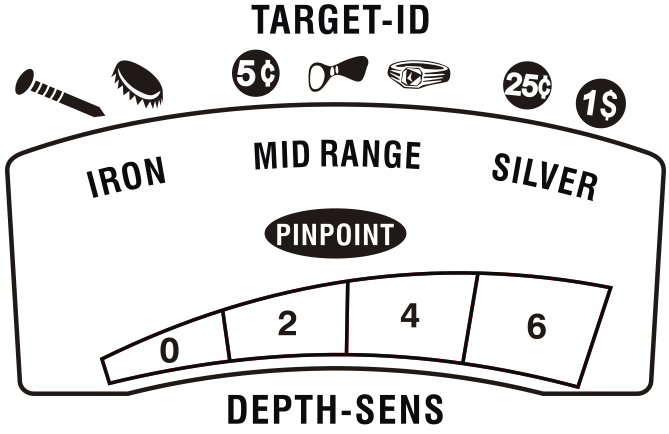
(4) Level Discrimination Modes

(4) Modes	Indication Sound	TARGET ID Indication	The Eliminated Metals
Initial state	High tone	Not illumined	Can’t eliminate any metals
Press “MODE” Until Set	Low tone	Iron is illumined	NOTCH Ⅰ and Iron are eliminated
Press “MODE” Until Set	Medium tone	Mid range is illumined	NOTCH Ⅱ,Pull-tabs and nickel coins are eliminated
Press “MODE” Until Set	Low and medium tones	Iron and Mid range are all illumined	NOTCH Ⅲ, Iron, pull-tabs and nickel coins are eliminated at the same time
Press “MODE” Until Set	High tone	Not illumined	Can’t eliminate any metals and is in ALL METAL mode

The above four modes are all activated in the metal detector motion mode, it means you should move the search coil at a certain speed and 'painting' pattern, in order to detect and discriminate optimally.

PINPOINT Mode

Press and hold down the red “PINPOINT” button on the handle, the detector will switch to non-motion mode, and it no longer has the discrimination ability. Now, the PINPOINT cursor will be displayed and the target identification cursor will be rendered useless. The sensitivity cursor turns into signal strength indication cursor.



Note: The times of the indication tone is in correlation with the sensitivity level, which means when the sensitivity is at the fourth level, the detector should also sound four times.

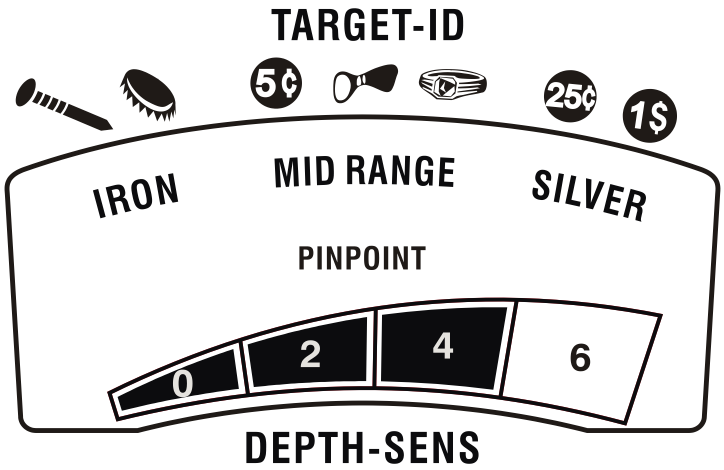
When operating the metal detector, be sure to avoid close proximity with familiar and known metal objects - as you intend to find unknown or hidden metal objects. The metal detector is also prone to interference from electronic device and frequency wave generating technologies. Avoid electro-magnetic interference and keep the unit away from cellphones, smart devices, TVs, computers, etc.

Powering On

Press the POWER ON button, the detector will sound three frequencies of low, medium and high tones, the liquid crystal dsplay shows the discrimination mode and the sensitivity.

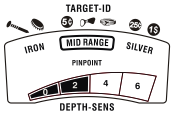
*When the TARGET ID is not illuminated, that indicates the metal detector is in the 'ALL METAL' mode.

*Whichever 'DEPTH-SENS' segment is highlighted, that indicates the metal detector has detected an object within that depth range. The approximate depth will be displayed



All Metal Mode

When turning on the unit, the detector will be in the 'ALL METAL' Mode. This is the general / typical metal detector mode that provides indication of any recognizable and compatible metal object found.

Operation	Indication tone	LCD TARGET ID	LCD DEPTH-SENS	LCD Chart	Note
Turn on	Turn on indication	Nothing displayed	SENS-3 is illuminated		If the height of the metal sample from the search coil is changed, the lighted segment numbers of the LCD depth cursor will be changed correspondingly.
Sweep iron nail	low tone	The IRON is illuminated and flickers	DEPTH-2 is illuminated and flickers		
Sweep 5¢ or pull-tabs	medium tone	MID RANGE is illuminated and flickers	DEPTH-2 is illuminated and flickers		
Sweep 25¢	high tone	SILVER illuminated and flickers	DEPTH-2 is illuminated and flickers		

Eliminate Iron - Elimination:

Operation	Indication	LCD TARGET ID	LCD DEPTH-SENS	LCD Chart	Note
Press MODE button	Three low tones	IRON is lighted	SENS-3 is illuminated		Press the MODE button, the sound times is the same with the sensitivity level, which means when the sensitivity is at the fourth level, the detector will sound four times low tone.
Sweep iron nail	No tone	IRON flickers once	SENS-3 flicker once		
Sweep 5¢ or pull-tabs	medium tone	MID RANGE is illuminated and flickers	DEPTH-2 is illuminated and flicker		
Sweep 25¢	high tone	SILVER is illuminated and flickers	DEPTH-2 is illuminated and flicker		

Eliminate Medium Conductivity Metals - Elimination:

Operation	Indication tone	LCD TARGET ID	LCD DEPTH-SENS	LCD Chart
Press MODE button	Three medium tones	MID RANGE is illuminated	SENS-3 is illuminated	
Sweep iron nail	low tone	IRON is illuminated and flickers	DEPTH-2 is illuminated and flickers	
Sweep 5¢ or pull-tabs	No tone sound	MID RANGE flickers once	SENS-3 flickers once	
Sweep 25¢	high tone	SILVER is illuminated and flickers	DEPTH-2 is illuminated and flickers	

Eliminate the iron and the medium conductivity metals at the same time:

Operation	Indication tone	LCD TARGET ID	LCD DEPTH-SENS	LCD Chart	Note
Press MODE button	It sounds low, medium and high tones (repeats three times)	IRON and MID RANGE are illuminated at the same time	SENS-3 is illuminated		Pres the MODE button again, it will return back to the ALL METAL mode
Sweep iron nail,5¢ and pull-tabs in turn	no tone	IRON and MID RANGE flickers once	SENS-3 flickers once		
Sweep 25¢	high tone	SILVER is illuminated and flickers	DEPTH-2 is illuminated and flickers		

*When detecting objects with the PINPOINT Mode, the closer your search coil center comes to the object, and the closer in distance between the center of the search coil and the sought-after object, the louder audible frequency tone will be heard from the metal detector's speakers.

Basic Operation

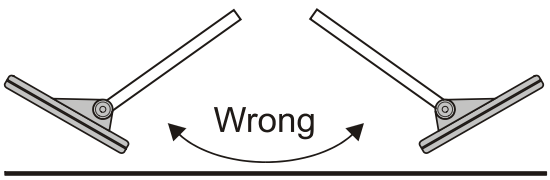
This metal detector is an equipment intended to be used outdoors. Please remember familiar and nearby 'known' metals and electrical equipment will bring interference signals and provide false readings by your metal detector. Field detection can include more complications when detecting. Factors included are the composition of the regional soil, the object type, size, shape and the oxidation degree of the underground metals, and soil, will all affect the detection, discrimination and pinpoint targeting results. This manual and user instruction only describe the general and typical steps / practices of the field detection. The operator should familiarize himself with tested detecting styles, movement and 'tips' when metal detecting. As with everything, accumulating user experience over time will lead to more knowledgeable detection habits, and hopefully improved metal detector results.

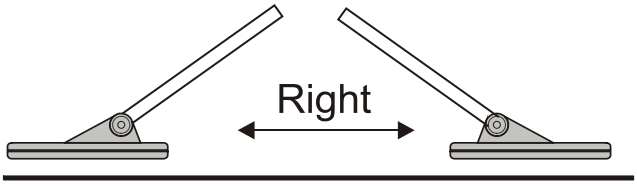
Note: If you are metal detecting with a partner, in order to avoid the interference, please keep at least 10 feet apart -- especially if your partner has a metal detector.

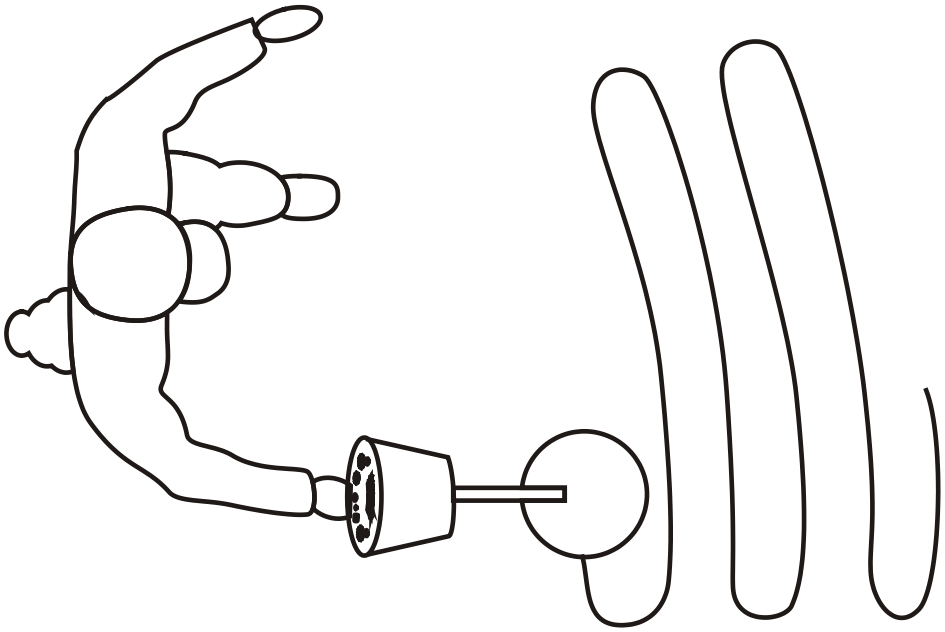
*Once you've set the sensitivity and discrimination mode settings, settings will remain unchanged until you power the unit off.

Motion detection

When detecting using the moving 'Motion Mode', you should sweep the search coil at a constant (fairly slow and steady) speed, and let the search coil remain parallel with the ground floor surface. Preferred height distance of the coil from the ground floor surface is about 1/2 inches (1.5cm) directly above the ground surface.







*For optimum metal detecting performance, never sweep the search coil as if it were a pendulum. Avoid 'angling' the search coil from the detecting ground floor surface.

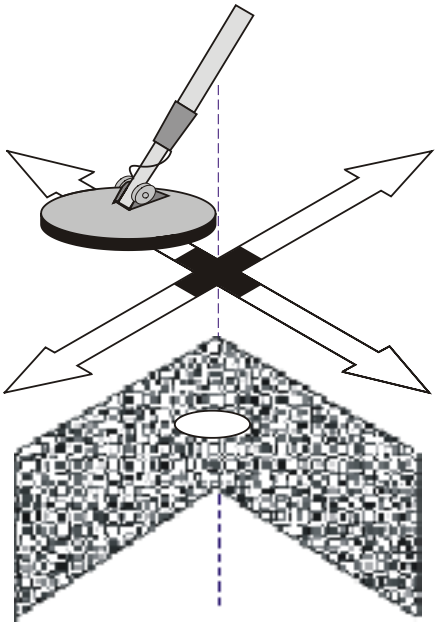
Most worthwhile metal objects will provide a repeatable signal, if the signal will not be repeated when hovering over, it is more than likely trash metals (or possibly over-oxidized materials). When a clear sounding tone is heard, you can get the approximate target type and target depth on the LCD digital display screen.

Some practice and experience may be needed to develop the proper metal detector 'sweeping' style. Just like your fingerprint, your sweeping / metal detector scanning movement will develop over time and will help to optimize your metal detector's performance and your technique in general. If the search coil is swept too slowly, the unearthed objects may not respond or be recognized by the metal detector -- the same goes if you sweep too quickly past the objects. Another re-sweep or 'pass-over' can always help confirm the presence of an existing metal but a unique and ideal sweeping style is what you're after. Proper scanning also involves smooth, even swipes of the search coil, that includes overlapping already partially scanned areas as you

continue moving forward. Take the time to practice and experiment the ideal sweeping speed and style. Learning, experimenting and discovering is all a part of the experience and you will gradually develop metal detecting skills and sought-after habits over time.

Pinpoint your finding

When there is a clear signal to show you the location of the buried target objects, you can make an “X” scan at this zone, generally the bottom of the intersection point is the target object.



Pinpointing and PINPOINT Mode

While searching in the motion mode, you should move the search coil evenly, consistently and persistently. However, if you run into an instance where you cannot determine exactly where to dig, or to narrow down the area, and determine a more exact location of the object, you can refer to the PINPOINT mode.

Press and hold down the red PINPOINT button. The TARGET ID cursor on the LCD is disappear, and the PINPOINT cursor will be lighted. Let the search coil approach the ground and continue your metal detection. Once a possible object is located, press the PINPOINT button again to rescan and confirm the finding, doing so allows the detector to become self-balanced, and the PINPOINT cursor is lighted,the depth cursor is extinguished.

*Automatic power saving and turn-off mode activates and warns you with an audible double-beep warning after every 10 minutes when not in use.

Caution

In areas with heavy traffic, please do not wear earphones while detecting, in case an accident occurs.
Always obtain permission before searching any site.
Keep away from the areas that may have buried electrical or gas lines / cables.
Do not detect in private property, military owned areas or where you do not receive permission to detect.
When digging out the target, use a reasonable digging method that will not damage or cause harm to yourself or any possible object within the surface area.
Try your best as to not destroy the vegetation, cause damage to any animals / insects.
Take care of mother nature!

Troubleshooting

SYMPTOM	SOLUTION
No power, there is no indication on the LCD display, there is no sound when powering on	1.Be sure batteries are installed correctly. 2.Be sure battery cover is closed correctly. 3.Replace the batteries.
Sound heard is an irregular tone, or the target identification cursor chatters / distorts	Make sure there are no electromagnetic interference sources present, such as power lines, cables, electronic fences, etc. Keep away from areas that are prone to cause interference or you can reduce the detector's sensitivity.
The signal is unstable and the position of the target identification cursor is changing	1.Scan at a different angle, in order to determine whether you can get a more stable signal. 2.If the target is buried deeply, you could try to increase the sensitivity or speed up the search coil scanning speed, hovering over the designated area. . 3.Maybe more than one metal targets are buried, you could try to increase the sensitivity or set different discrimination ranges when scanning. 4.Maybe you found a severely oxidated target, or the ground contains some type of magnetic field or mineralized content. Attempt to decrease the sensitivity and continue scanning.
Using PINPOINT mode. when approaching the ground, the unit automatically sounds a tone	1.The soil is magnetic, Press the PINPOINT button again, and reduce the sensitivity -- and scan the area again. 2.There are large metal objects under the ground.

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