Metal Detector

User Manual

- Read this manual thoroughly before use of the detector.
- Keep this manual in a safe and dry place for future reference.

TS151

Features

- Two detection modes – DISC mode and Pinpoint mode
- DISC mode – discriminates between target categories and ignores unwanted targets.
- Customized discrimination setting – best meets your detection needs.
- Target ID icons – work with a selection cursor to help identify the probable target category.
- Three audio tone pitches – correspond to different target categories.
- Pinpoint mode – locates targets more precisely.
- Target depth indication – shows the approximate depth of buried targets.
- Auto ground balance
- Sensitivity control - adjusts the detection sensitivity.
- Volume control - adjusts the output volume.
- 3.5mm headphones jack – allows connection of headphones.
- Battery level indication – shows the battery level.
- Control panel – features easy-to-press buttons.
- Backlight – allows detection in low-light conditions.
- Large and clear LCD display.
- Waterproof search coil.

Safety Information

➢ Warnings

Any metal detectors may discover underground power lines, explosives or other items which when struck could cause personal injury. When searching for metal objects, adhere to the following guidelines:

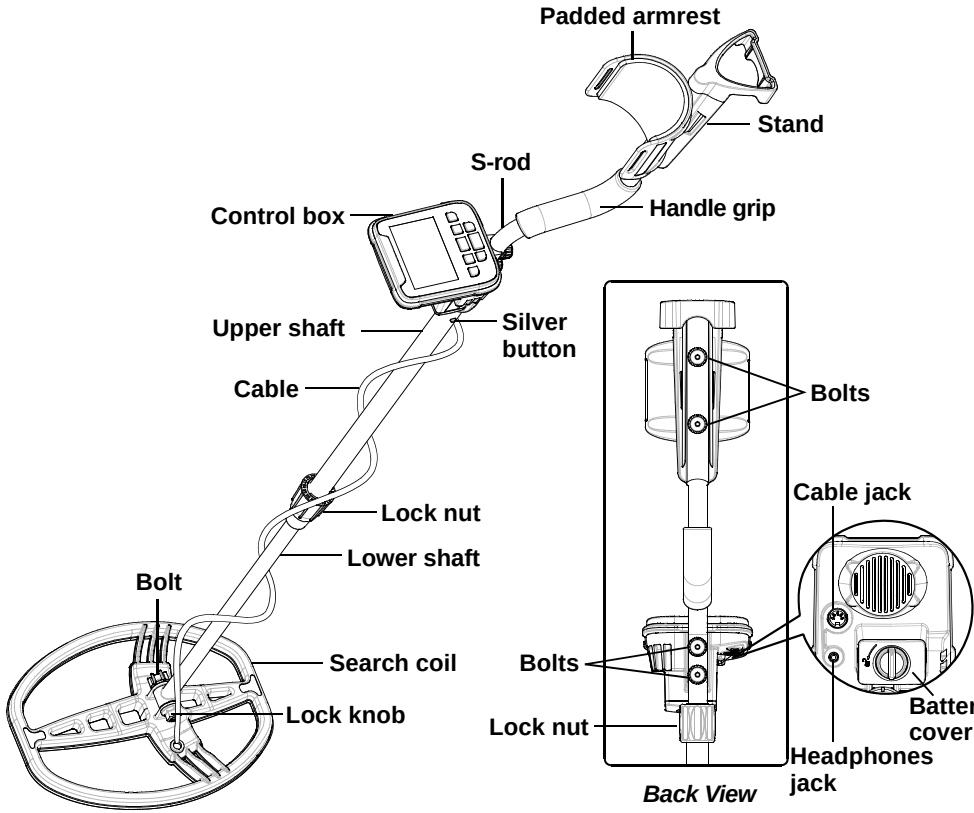
- For safety, do *NOT* go to mine fields or military zone.
- Do *NOT* search in an area where electrical lines or pipes are suspected to be buried.
- Use reasonable caution when digging toward any objects, particularly in areas where you are uncertain of underground condition.
- Do *NOT* strike any lines known to be or suspected to be carrying electrical power.
- Do *NOT* disturb any pipelines, particularly if they could be carrying flammable gas or liquid.

➢ Cautions

To avoid damage to the detector, adhere to the following guidelines:

- Only use and store in normal temperature environments. Extremes in temperature can shorten the life and the effectiveness of electronic devices.
- Keep the detector away from any devices causing electromagnetic interference.
- The control box is not waterproof. Protect the control box from water, and do *NOT* use in rain.
- Do *NOT* use the detector indoors or in a narrow space.
- Do *NOT* lean on the detector when in use as it is not designed to support your weight.
- Do *NOT* tamper with the internal circuit of the detector.
- Handle the detector carefully. Do *NOT* bump, drop or abuse the detector.
- The detector is designed to hunt for underground metal objects. Do *NOT* use this tool for a purpose for which it is not intended.

Parts and Names



Assembly

You don't need any special tools to assemble your detector. After unpacking your package, you may start the following assembling and adjustment:

1. Loosen both lock nuts.
2. Press the silver buttons on the lower end of the S-rod, and insert the S-rod into the upper shaft. Tighten the lock nut after the buttons are clicked into the holes.
3. Put the supplied washers into the slots on both sides of the lower shaft end. Slide the search coil onto the lower shaft, insert the bolt through the holes of the lower shaft and search coil. Hand-tighten the search coil with the lock knob.
4. Insert the lower shaft into the upper shaft and adjust to the most comfortable operating length. Tighten the lock nut to secure the lower shaft.

5. Slide the stand onto the upper end of the S-rod, and insert the armrest into the matching holes. Secure the two pieces with the bolts.
6. Install the control box on the lower part of the S-rod. Use two bolts to secure it in place.
7. Loosely wrap the cable around the shaft and connect it to the cable jack on the back of the control box.

Battery Installation

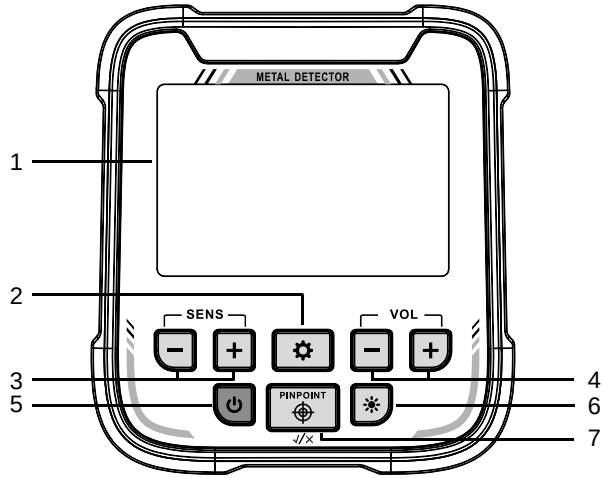
Your detector is powered by four 1.5V AA batteries. To install the batteries:

1. Rotate the knob on the battery cover counterclockwise until it aligns with the unlock symbol, and then remove the battery cover.
2. Take out the battery cartridge and install four fresh batteries, noting the polarity symbols marked inside.
3. Place the battery cartridge back into its compartment in the correct orientation. Note that it is designed to fit only one way; if it does not seat properly, do not force it.
4. Reinstall the battery cover and turn the knob clockwise to secure the battery cover.

Note:

- *Replace the batteries immediately if the battery level icon on the display becomes empty (▭).*
- *Dispose of old batteries promptly and properly.*
- *If you don't plan to use the detector for an extended period, remove the batteries. Batteries may leak chemicals that can destroy electronic parts.*

Control Panel



1. LCD Display

Shows operating information.

2. ⚙ Button

Short press to enter or exit Discrimination Setting mode.

3. SENS Buttons

Short press the SENS(+) or SENS(-) button to increase or decrease the sensitivity level.

4. VOL Buttons

- In DISC mode, short press the VOL(+) or VOL(-) button to increase or decrease the sound volume level.
- In Discrimination Setting mode, short press the VOL(+) or VOL(-) button to move the selection cursor to the right or to the left.

5. ⏻ Button

Short press to switch power ON and long press to switch OFF.

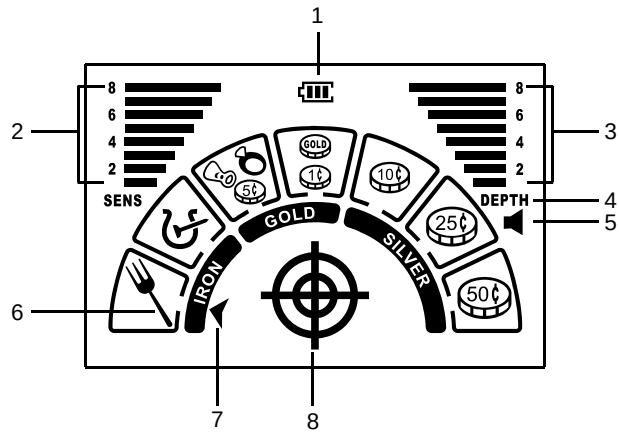
6. ☀ Button

Short press to turn the backlight ON or OFF.

7. PINPOINT / √/× Button

- In DISC mode, short press to enter Pinpoint mode and press once more to exit.
- In Discrimination Setting mode, short press to accept or reject a specific target category.

LCD Display



1. Battery level icon

Shows the present battery level.

2. Sensitivity indicator bars

Shows the current detection sensitivity setting. Eight levels available for sensitivity adjustment.

3. Depth / Volume indicator bars

Shows the approximate depth of buried targets or the tone volume setting. Eight levels available for depth display or volume adjustment.

4. Depth icon

Appears when the indicator bars on the right are displaying the target depth.

5. Volume icon

Appears when the indicator bars on the right are displaying the tone volume level.

6. Target ID icons

Represents different target categories. If a target ID icon frame is not visible, the category is rejected by the detector.

7. Selection cursor

Indicates the target ID icon to be modified or the category of the detected target.

8. Pinpoint icon

Appears when Pinpoint mode is activated.

Operation Instruction

➢ Powering ON or OFF

Press the ⏻ button momentarily to turn the detector ON, with the search coil away from the ground surface and any metal objects. The display shows all segments briefly and after three different audio tones the detector defaults to DISC mode and shows the last used discrimination pattern. For initial use, the detector starts with the discrimination pattern that accepts all target categories.

To turn the detector OFF, press and hold the ⏻ button until the display goes blank.

➢ Adjusting the Sensitivity

In DISC mode, press the SENS(+) button to increase the sensitivity level or the SENS(-) button to decrease. The sensitivity indicator bars will show the current sensitivity setting. There are 8 steps of sensitivity level. The more bars displayed, the higher the sensitivity level.

If the sensitivity is set too high, excessive noise will make it difficult to locate targets due to the noise from either the ground or external electric interference. Too-high sensitivity is noted by false signals. Lowering the sensitivity will improve performance. Increase sensitivity for increased depth when the ground and external conditions allow.

➢ Adjusting the Volume

The detector provides eight volume levels. In DISC mode, press the VOL(+) button to increase the volume level or the VOL(-) button to decrease based on your preference and environmental conditions. The icon 🔈 and the volume indicator bars will be displayed briefly to show the current volume level. The number of indicator bars is proportional to the volume level.

➢ Turning the Backlight ON or OFF

The detector has a backlit display option for use in low-light conditions. Backlight use will reduce battery life but may be necessary in some conditions. During use, you can press the ☀ button to turn the backlight ON or OFF.

➢ Customizing the Discrimination

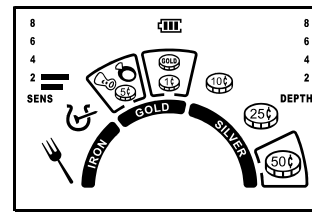
The detector features a Discrimination Setting mode, allowing you to create a personalized discrimination pattern. In this mode, you can set the detector to accept or reject specific target categories. If a target category is set to be rejected, targets within this range will not produce any tone when detected.

To customize a discrimination pattern:

1. Press the ⚙ button to enter Discrimination Setting mode. A flashing selection cursor will appear on the display.
2. Use the VOL(+) and VOL(-) buttons to select a target ID icon you want to modify. The VOL(+) button moves the selection cursor to the right, and the VOL(-) button moves it to the left.
3. Press the √/× button to toggle between accepting and rejecting the selected target category. A visible target ID icon frame means the category is accepted; a hidden frame means it is rejected.
4. Press the ⚙ button again to exit Discrimination Setting mode and save your settings.

The following shows an example of discrimination setting, and it tells us that:

- The fork, iron, 10¢ and quarter categories will not produce any tone when detected.
- All other target categories will produce a tone when detected.



➢ Using DISC Mode

DISC mode allows the detector to both identify buried targets by category and ignore unwanted targets. After your preferred discrimination pattern is set, you can start your detection. When a target is detected, its category will be indicated, and its approximate depth will be shown on the display.

For an accepted target, the detector signals its category both audibly and visually, as described below.

- **Audio signal:** A specific tone pitch is heard, corresponding to the target's metal type. The detector can emit three distinct tone pitches for different metals. Low pitch for iron, medium pitch for gold, and high pitch for silver.
- **Visual signal:** A selection cursor appears on the display, next to the associated target ID icon, to indicate the probable target category.

For a rejected target, a selection cursor appears to indicate the probable category, but the detector no longer produces a tone of any pitch.

Note:

1. *Target identification requires a sufficiently strong metal signal. For deeply buried or very small targets, the detector may not be able to identify.*
2. *Large targets may produce a higher audio pitch than expected.*
3. *Gold and silver may fall into different categories due to their metallic qualities.*
4. *Coins typically produce consistent readings due to their round shape.*
5. *In some cases, the detector may identify the same target in different categories. This may result from several factors, including target orientation, depth, purity of the metal, corrosion, mineralization level of the soil, the angle of search coil, the sweeping method, etc.*

The table below lists common examples of objects, their metal types, tone pitches, and target ID icons.

Metal Type	**Iron**		**Gold**		**Silver**		
Target Example	**Fork**	**Iron nail**	**Ring, pull tab, nickel**	**Gold coin, penny**	**10¢ coin**	**25¢ coin**	**50¢ coin**
Target ID Icon							
Tone Pitch	**Low**		**Medium**		**High**		

Note: *The table is for general reference only. There are a wide variety of metals and no metal target can be identified for certain until unearthed.*

➢ Using Pinpoint Mode

To precisely locate a target, use Pinpoint mode. In this mode, the detector responds to all metal objects.

Press the PINPOINT button to enter Pinpoint mode. The detector displays the icon and emits a continuous hum. Then you can move the search coil slowly towards a target according to the sound volume. The target is located directly under the search coil when the sound is loudest, and the depth indicator bars are displayed to show the approximate depth of the detected target.

Press the PINPOINT button once more, the detector exits Pinpoint mode and returns to DISC mode.

➢ Testing the Detector

Before beginning a search outside, test the detector with samples of metal. Use the following:

- an iron nail
- a U.S. Nickel
- a U.S. Penny
- a U.S. Quarter

Important:

1. Remove any watches, rings, or other metal objects on your fingers and hands.

2. Make sure the detector is away from TVs, computers, or any device that can cause electromagnetic interference.

3. During test, the sample should be in motion.

Operation:

1. Place the detector on a non-metal surface with the search coil roughly perpendicular to this surface. Then power up the detector using the ⏻ button.
2. Use the SENS(+) and SENS(-) buttons to adjust the detection sensitivity to the desired level.
3. Use the VOL(+) and VOL(-) buttons to set the desired tone volume level.
4. Wave each sample across the search coil, maintaining a distance of 2 to 3 inches (5 to 8 cm) and keeping the sample parallel to the search coil.

   • **Testing with DISC mode:**

   Begin with the discrimination pattern that accepts all target categories (indicated by all target ID icon frames being visible). When sweeping any sample across the search coil, its tone pitch should sound, a selection cursor should appear next to its target ID icon, and the depth indicator bars should be shown on the display. Notice the different audio tone pitches and target ID icons for these samples. After all tests are finished, access Discrimination Setting mode to set the detector to reject specific target categories, and repeat the tests. A rejected sample should no longer produce a tone.

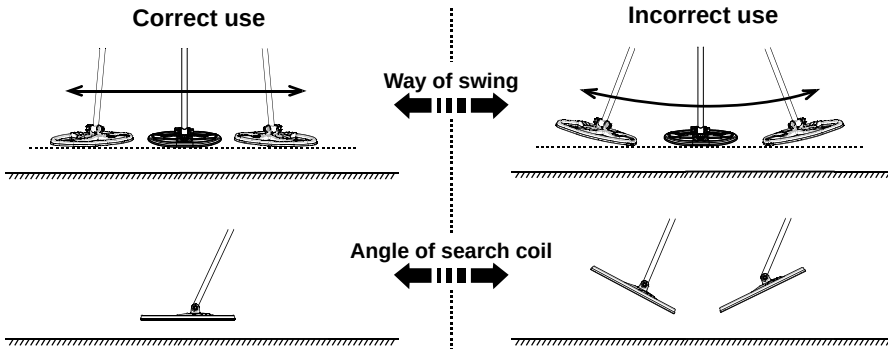
   • **Testing with Pinpoint mode:**

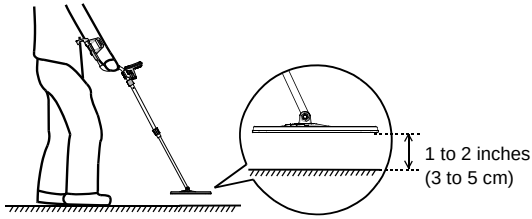
   The sound volume should increase as a sample approaches the search coil, and it should be the loudest when this object passes the search coil center. Additionally, the depth indicator bars should be present on the display.

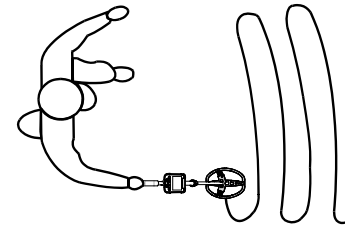
3. Long press the ⏻ button to turn off the detector.

Through the above tests, you can get familiar with the detector and learn how it reacts to different metals.

➢ Sweeping the Search Coil







- Tilting or raising the search coil during the sweep will produce false readings.
- Always keep the search coil parallel to the ground.
- When searching for metal objects, stand in an upright position and stretch your arm. This allows you to search without discomfort.
- The search coil should be positioned at the height of approximately 1 to 2 inches (3 to 5 cm) above the ground.
- Swing the search coil at an appropriate speed from side to side and overlap each swing by at least 50% to ensure areas are not missed.
- Search coil motion is required during the detection process.

Using Headphones

The detector can work with headphones. Insert the headphones' plug into the headphone jack. The speaker will be disabled automatically. Using headphones extends battery life and prevents the sound from bothering bystanders.

Note:

1. For safety, do not use headphones near traffic.

2. To avoid hearing loss, do not use headphones if using it makes you feel uncomfortable.

Factors That Affect The Detection

It is difficult to achieve accurate results for each detection. Sometimes the detection may be restricted by some factors:

- The angle of the target buried in the soil.
- The depth of the target.
- The level of oxidization of the target.
- The size of the target.
- Electromagnetic and electrical interference surrounding the target.
- The mineralization or humidity of the soil.

Technical Specifications

Maximum Detection Distance (in the air)	⩾8 inches (20cm) for a U.S. Quarter
Power Supply	1.5V AA battery, 4 pieces
Low battery indication	The battery level icon becomes empty (▭).
Operating Environment	Temperature: 0°C to 40°C; Relative Humidity: <80%
Storage Environment	Temperature: -10°C to 50°C; Relative Humidity: <80%
Weight	About 1.36 kg (with batteries)

Troubleshooting Guide

Your detector finds nothing at all.

Refer to descriptions and illustrations in ***Sweeping the Search Coil*** *and ensure that:*

- Your swing speed isn't too fast or slow.
- Your search coil is parallel to the ground and at the appropriate distance from the ground.
- Your batteries are high enough.

If you are confident that these factors are not the cause of the issue, try searching in a different location.

Your detector signals without detecting metal.

Sometimes your detector will react to nearby broadcast signals or electrical interference, causing it to give a signal without having detected metal. If this is the case, try searching in a different location.

Your detector makes a false signal.

If your detector is signaling a detection but you're unable to locate a metal object, your search coil may be too close to the ground. Try adjusting the shaft length so that the search coil is slightly higher and resume your search. Electromagnetic interference may be present in the vicinity.

Your detector does not show the correct target category when finding a target.

There might be more than one target in the area you are searching. If the target is heavily oxidized, the detector might not indicate the correct metal type. This is not a malfunction.

Code of Ethics

- Observe all national, state and local laws while detecting.
- Respect private property and do not enter private property without the owner's permission.
- Always refill all holes you dug and leave the site as you found it.
- Be responsible with the treasures you find.
- Never destroy historical or archaeological treasures. If you find items of historical significance, stop digging and call your local historical or archaeological society.

Declaration

1. This manual is subject to change without notice.
2. Our company will not take the other responsibilities for any loss.
3. The contents of this manual cannot be used as the reason to use the detector for any special application.

DISPOSAL OF THIS ARTICLE

Dear Customer,
If you at some point intend to dispose of this article, then please keep in mind that many of its components consist of valuable materials, which can be recycled.

Please do not discharge it in the garbage bin, but check with your local council for recycling facilities in your area.

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