JEOHUNTER
3D Dual System

USER MANUEL

INDEX

WARNING!

PLEASE DO NOT START ASSEMBLING OR USING BEFORE READING THE WARNINGS SECTION!

WARNINGS!

Some metals that are buried under ground for a long time and rotten like sheet steel and tin (lead, galvanize etc.) May in some cases may give an impression as gold.

Position of metals under the ground influence perception of the device and may cause an effect as gold or precious metal.

1. Since the device is electronic and very sensitive; never assemble and operate before reading the user manual.

2. Do not start searching before making ground settings. It will not be possible that the device operate correctly unless the ground setup is made.

3. Do not use any other detector or a device that emit magnetic waves within 10 m proximity of the device.

4.   Prevent the device from abrupt movements and possible shock.

5. Do not expose the search coil to direct heat; do not exert force during assembly and use.

6. The battery should be decently placed in its casing and care should be taken "+" "-" poles are not connected by a metal pieces.

7. Do not expose the battery to heat.

8. Charge the battery in room temperature.

9. Do not exert pressure on the LCD monitor.

10. Once a month discharge the battery by plugging it to detector and recharge again in case of enduring the battery life.

ACCESSORIES AND COMPONENTS

1. Electronic System Box and Case:

It is the part where the detector sockets, headphone socket joystick feed socket and battery socket are located and where measurement results are evaluated and displayed on the LCD monitor. There is a carrying apparatus for easy transport of this system.

2. Surface Search Coil (210x315 mm):

It is the system in 210x315 mm dimensions, that consists of the search coil that enables the operator to evaluate the results by the aid of LEDs located in the joystick section that is developed for small targets (like coins). This system can only be used in LED mode.

3. General Search Coil (360x440 mm):

It is the system that consists of the search coil for general purposes. There are no LEDs on this system and operator follows the results on a LCD monitor located on the system box. This system can only be used in LCD mode.

4. Deep Search Coil (600x1000 mm) and Carrying Case:

This is the search coil system developed for deep exploration that can be carried by two persons. There is a separate carrying case for this search coil. This system can only operate in LCD mode. When sensitivity is set to 60% it will be possible to carry out exploration easily without affecting from small metal pieces and without any ground setting.

5. Batteries:

14.8 V, 4 Ampere Lithium Polymer rechargeable batteries.
Battery Operating Voltage (Min): 12 V
Battery Operating Voltage (Max): 14.8 V
Battery Current: 4 A
Battery Life: 4-6 hours

6. Battery Charger:

It is a device to charge 14.8 V 4 Ampere Lithium Polymer batteries.
Input: AC 100-240 V / 50-60 Hz / 1A (City mains)
Output: DC 12 – 16.8 V / 400 mA
Charge duration: 10 hours

7. Carrying Case:

It is a case used for transport and storing of the System box, the 210x315 mm Search coil, the 360x440 mm Search coil and accessories.


8. Headphone:

It is the piece that maintains vocal communication between the detector and the operator. Waterproof speaker on the electronic system is turned off when using the headphone to enable only the operator to hear the sound of the detector.

SYSTEM UNIT and JOYSTICK

ELECTRONIC SYSTEM UNIT
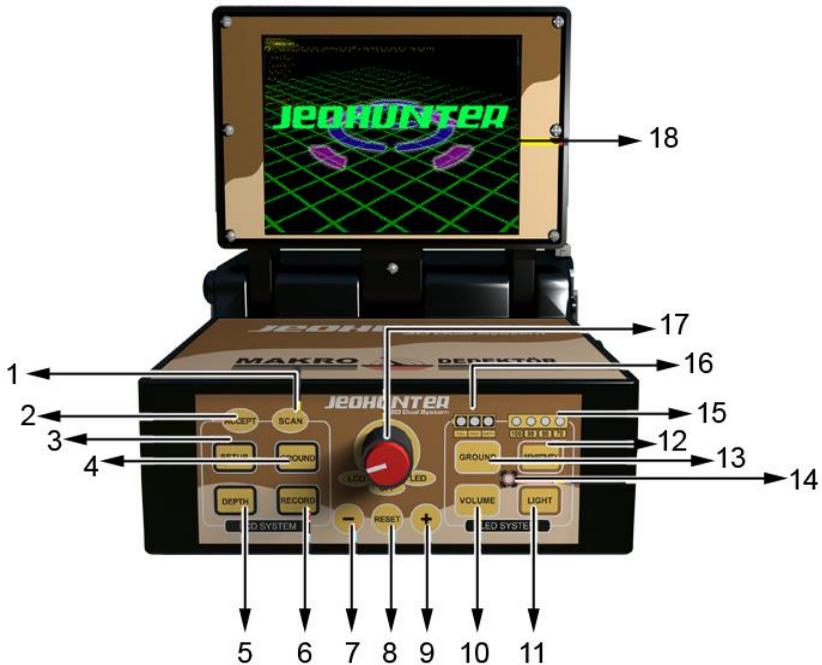
1. **SCAN:** A key that enables analyzing a target when pressed passing over it.

2. **ACCEPT:** The key that approves the related function and enable to switch to the previous menu.

3. **SETTING:** The key that allows switching to the Settings Menu.

4. **GROUND:** The key that allows switching to Ground Setting mode in LCD system mode.

5. **DEPTH:** The key that enables the device to switch to diameter screen and carry out depth analysis.

6. **RECORD:**   The key that enables entry to recording screen in addition to recording the report in report analysis section.

7. **" – " :** The minus key.

8. **RESET:** Resets all detector settings (Default Settings) in reference to recent settings whenever resetting is done.

9. **"+":**   The plus key.

10. **SOUND:** The key that is used to make sound settings in the system.

11. **LIGHT:** The key used for adjusting illumination level in LED system.

12. **SENSITIVITY:** The mode that is used in LED system to make sensitivity settings.

13. **GROUND:**   The transition key to switch to the necessary mode to be able to make ground setting.

14. The LED that indicates it is in one of Sound, LED, Sensitivity, Ground modes and this mode has to be changed in order to start exploring.

15. LEDs that indicate Sensitivity Level in LED mode.

16. LEDs that indicate battery charge level in LED mode.

17. **ON/OFF Switch:**   The switch that is used for selecting between device turn off and system selection.

18. **LCD:** The section that presents data to the operator in LCD system.

JOYSTICK

1. **SCAN:** The key that enable the target to be analyzed when passing over the target.

2. **CAVITY and MINERAL:** "CAVITY and MINERAL" LEDs glow when cavity and mineral is detected during exploration process. Number of glowing lights varies depending on the power of detected signal. All LEDs glow when a powerful signal is detected.

3. **LARGE CAVITY LED:** It is the LED that is warning for cavities. Glowing Large Cavity LED indicates a considerable target.

4. **METAL and MINERAL:** When a metal or mineral is detected in exploration METAL and MINERAL LEDs glow. Number of glowing lights varies depending on the power of detected signal. All LEDs glow when a powerful signal is detected.

5. **LARGE METAL LED:** It is the LED that indicates metals. Glowing Large Metal LED indicates a considerable target.

6. **POWER LED:** It is a warning light that indicates that the device is on.

7. **PRECIOUS LED:** Indicates presence of precious metal.

8. **RESET KEY:**   Resets all detector settings (Default Settings) in reference to recent settings whenever resetting is done.

ASSEMBLY AND CHARGING THE BATTERIES

1. CHARGING THE BATTERIES:

Remove the battery from the system box and connect to the charger. When battery is being charged red LED will lights and when the charging is done green LED will lights. If there is no battery attached to the charger or the attached battery is fully charged the green LED lights. After charging, disconnect the battery from the charger and place it into system box.

*The charging period required for a fully depleted battery to be fully charged is 7 hours.*

2. ASSEMBLY:

Search coil is taken off the carrying case and telescopic extension tube is inserted, piece Nr.1 into piece Nr.2 as shown in the diagram and tighten the sleeve.

The search coil is dismounted from the extension tube when packing in the carrying case. Dismantling is carried out as the reverse of the process described above.

CAUTION: Do not take apart the screws that connect the Connecting piece and Search coil. Take off only the telescopic tube without damaging cable coil and suitably store in the carrying case.

Surface Search Coil   General Search Coil

Battery

System Unit   Deep Search Coil

Headphone
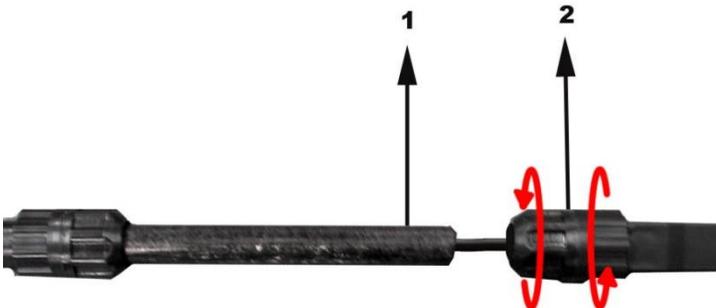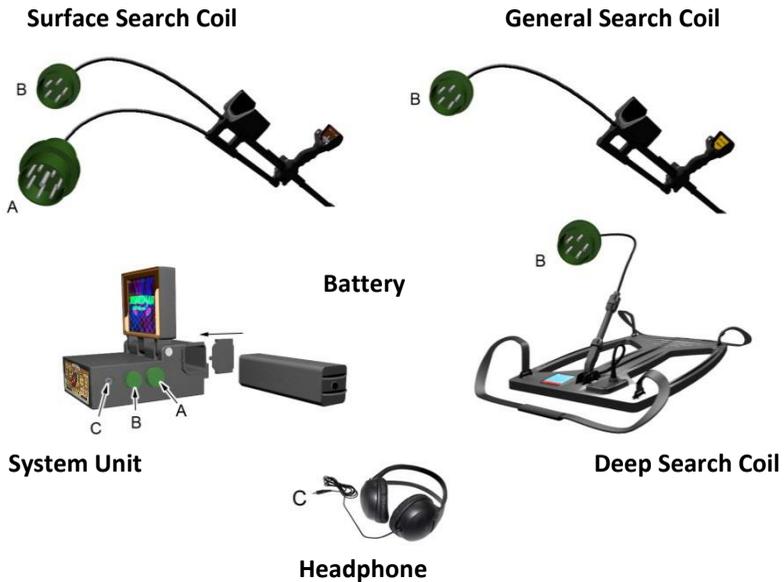
SEARCH COIL CONNECTION

Transmits the data received from search coil to the Electronic system box. The 5 pin "B" plugs shown in the above figure are connected to socket "B" on the system box.

JOYSTICK CONNECTION

Joystick transmits the received data to the Electronic system box. The 8 pin "A" plug shown in the above figure is connected to socket "A" on the system box.

HEADPHONE CONNECTION

Enables signal sound to be switched from external loudspeaker to the headphone. The "C" plug shown in the figure in the previous page is connected to socket "C" on the system box.

BATTERY CONNECTION

The batteries shown in the previous page is located in the direction of the arrow in the system box and battery compartment lid is closed. The battery is so placed that the poles on the battery is in contact with the springs mounted in the battery compartment.

USING WITH LED SYSTEM

PLEASE NOTE: *The LED function of the device can only be used when 210x315 search coil is mounted. Mount the 210x315 search coil as defined in the System box "assembly" section. When search coils other than 210x315 is mounted on the device the operator is warned by audio and visual alarms.*

The device has two separate systems. One of these systems is the **LED system** the other is the **LCD System**. To switch the device to LED System, the commutator switch is adjusted to LED.

When the device is switched to LED it means that the device is enabled for LED and power light on the joystick is lit. When the device is switched on, operator checks battery status by the aid of LEDs that indicate battery charge level.

Checking Battery Charge Status:
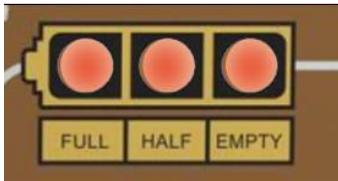
Look at the battery charge indicator on the device. If three lights are on, it means that the battery is fully charged. If two lights are on it means that the battery is half full, if a single light is on it means that the battery charge is low. If there lights are periodically blinking, it means that the battery power is insufficient to operate the device. If no lights are on it means that the battery is depleted. In case the battery is depleted or on low charge turn off the device and charge the battery by connecting to the charger.

Utilization of the LED Switch and Lighting Principles of the LEDs:

"LED" switch is used for adjusting the level of illumination. The device is designed for day and night use. The illumination level may be adjusted to the maximum by using this switch and enable the lights to be visible even under sunlight. At the same time if desired the lights may be turned off completely. Light key is pressed after the device is turned on to adjust the illumination level. When this key is pressed the LED in the middle is lit to indicate that it is in LED mode.

After pressing the Light key the level of illumination is adjusted by pressing "+" and "-" keys. After the illumination level is set "Light" key is pressed again to switch to Explore mode.

ATTENTION: In the LED system if "LIGHT, SOUND, SENSITIVITY, GROUND" sections are selected, the LED in the middle is lit to inform the operator that the device is not in Explore mode but in one of the above mentioned modes. To switch back to Explore mode the key that corresponds to the latest mode is pressed, the light goes off and the Explore mode is active.

- When the device is in the **GROUND** mode "Large Cavity LED" and Large Metal LED" on the Joystick never illuminates.

- When the device is in the **EXPLORE** mode and there is a signal strong enough to light at least two of "Cavity and Mineral" LEDs on the Joystick, "Large Cavity LED" illuminates.

- When the device is in the **EXPLORE** mode and there is a signal strong enough to light at least two of "Metal and Mineral" LEDs on the Joystick, "Large Metal LED" illuminates.

- When the device is in the **EXPLORE** mode and in case a non-ferrous metal is detected two precious LEDs are illuminated on the joystick.

NOTE: When the battery is depleted the three "BATTERY" lights blink and a sound alarm is triggered.

NOTE: When the search coil is out of order or it is not conceived, all four "SENSITIVITY" LEDs blink and a sound alarm is triggered.

Sound Button Usage and Sound Alarm Principles:

"SOUND" button is used to adjust sound level. After the "SOUND" button is pressed sound volume can be decreased and increased by pressing "+" and "-" keys. If desired, the operator can put on the headphones and cancel the sound coming from the system box and direct it only to the headphones.

When the device is in Ground and Explore mode, it warns the operator by producing different tone sounds depending on Cavity and Metal directions.

Using the Reset Button:

When the device is in use some interference may occur due to the environment or unbalanced search coil movement. These interferences cause the device to light up LCD lights and a sound alarm. The effect of these interferences is eliminated by resetting. Resetting is done by pressing the button under the handle of the device. Resetting should not be done when the search coil is over the target! This will cause loss of depth, misinterpretation of received signal and the target become invisible to the device. **Resetting procedure is carried out after the search coil is removed away from the target.**

After each operation do not forget to do resetting! **(Make sure that resetting is not done when over the target).**

Using the SCAN Button:

This button is used to analyze the target in case the "Non-Ferrous" LED is on during you explore. The target that caused the "Non-Ferrous" LED to turn on is re scanned while pressing the "SCAN" button. If the "Non-Ferrous" LED is still on it could be said that your target is a precious metal, if the "Non-Ferrous" LED is off it would mean that your target is not a precious metal, but a steel sort of metal.

Adjusting the Sensitivity Setting:

After the device is turned on "SENSITIVITY" button is pressed and sensitivity mode is selected. The operator is informed about the existing sensitivity level of the device by LEDs that indicate the sensitivity level. The operator may adjust the sensitivity level to the desired degree by using "+" and "-" keys.
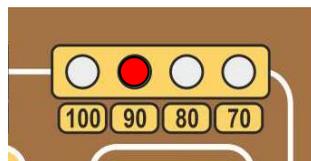
Sensitivity consists of 4 steps:

100: It is the level of sensitivity where the device depth is maximum. When the device is used in this level, even smaller metal pieces are identified in deeper ground easily. Since this step enhances the sensitivity and power of the device it will be more affected from the ground and operation will get harder. For this reason the ground setting should be done as correctly as possible. When adjustment is made from other sensitivity levels to step 100, the ground setting should be done once again.

90: This level has a high perception level. It is preferred in types of ground where step "100" is not used. It has a lower perception depth than step "100" but it affects less from ground composition than step "100". **Ground setting should be made once again when switching to this level from levels "80","70".**

13

80: This level is used in grounds with dense minerals with variable composition. There is low perception of small metal objects in this mode. **Ground setting should be made once again when switching to this level from level "70".**

70: This is the least sensitivity level. In this level the device will be less affected from the ground. Ground adjustment can be easily made but small metal pieces are difficult to detect. **Should be used for detection of large metals or large cavities.**

WHAT IS GROUND SETTING AND HOW IT IS DONE?

In our country land formation and soil composition vary in relation to regions. In some regions the composition may vary frequently (Sand, lime, red earth with dense mineral content, rocky formation, etc.).

These variations in soil composition mislead the detector and cause perception as metal or cavity. Therefore first we have to launch the soil characteristics of the region to the detector's system. Launching these data will block all misleading effects that may come up from the ground; these will be perceived as misleading signals from the ground, and thus eliminated.

Ground setting is one of the most important provisions of exploration. Therefore the operator should be a keen observer and should be able to detect variations in the ground. He has to observe soil compositions continuously to be able to make ground adjustment again in case misleading signals the device will perceive results from variations in soil composition.

Ground setting is made for the device to recognize the soil and not to be affected by it. Thus the device is not affected from metal or cavity reflections of varying soil compositions. If ground setting is not properly done it will cause loss of depth and minerals to be evaluated as metals or cavities. Therefore **ground settings should be made as correctly as possible.**

Considering the general condition of land formation in our country, a ground setting system is established that will eliminate ground effect on the device.

GROUND SETTING PHASES

1. To make ground setting the device is turned on in "LED" mode and "GROUND" button is pressed.

2. Make sure that there are no metal objects or cavities in the ground where ground setting is to be done. If ground setting could not be done in a certain area, try doing the ground balance adjustment in a neighboring area. Ground balance cannot be done above metal or cavity targets. You can keep this issue in mind to validate that a target is a real metal or cavity target and not mineralized soil.

3. The operator lifts the search coil "**40** cm" above ground and after resetting lower the search coil "**3-5** cm" parallel to the ground.
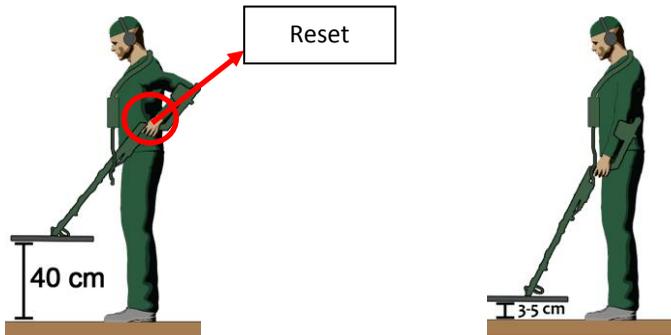
4. If there is no ground effect on the device, none of "Cavity and Mineral" and "Metal and Mineral" lights are turned on. This means the device is suitable for exploring in that area.

5. In case there is ground effect on the device, the "METAL and MINERAL" and CAVITY and MINERAL" lights turn on. If the ground effect is powerful enough to turn two or more lights a sound alarm is also heard. In these circumstances ground setting should be made.

6. " If "METAL and MINERAL" warning is received:

- Lift the search coil of the device 40 cm above ground and press (+) button a couple of times. Perform resetting immediately
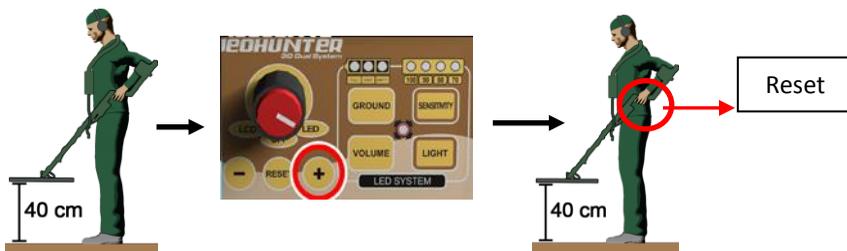
- Lower the search coil again 3-5 cm distance to the ground.

- If the ground effect on the device is eliminated by this procedure none of "Metal and Mineral" lights turn on (Cavity and Mineral lights should also not turn on). This means the device is suitable for exploring in that area.

- If ground effect continues the device will keep turning on "Metal and Mineral" lights and sound alarm.

- In this case lift the search coil of the device 40 cm above ground again and press **"+" button a couple of times more**, perform resetting. Lower the search coil again to the ground to the same distance. If the lights are on and sound alarm continues (after each operation the number of lights will decrease) continue this operation until the effect is eliminated.

7. If "CAVITY and MINERAL" warning is received:

- Lift the detector 40 cm above ground and press **"-" button a couple of times**. Perform resetting immediately.
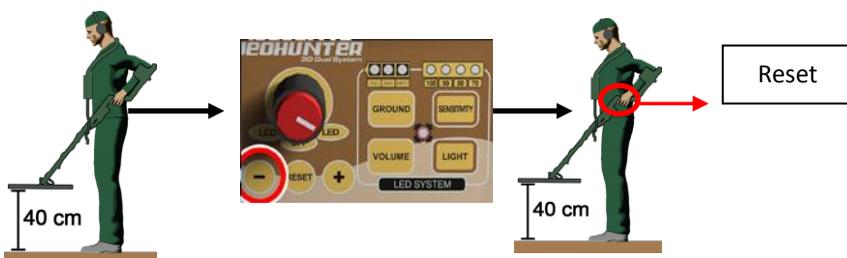
- Lower the search coil again 3-5 cm distance to the ground.

- If the ground effect on the device is eliminated by this procedure none of "Cavity and Mineral" lights turn on (Metal and Mineral lights should also not turn on). This means the device is suitable for exploring in that area.

- If ground effect continues the device will keep turning on "Cavity and Mineral" lights and sound alarm.

- In this case lift the search coil of the device 40 cm above ground again and press " - " button a couple of times, perform resetting. Lower the search coil again to the ground to the same distance. If the lights are on and sound alarm continues (after each operation the number of lights will decrease) continue this operation until the effect is eliminated.
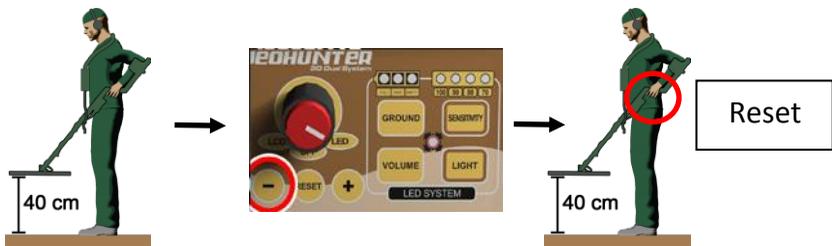
If the ground settings cannot be realized by above described operations, "SENSITIVITY" level of the device should be decreased one step and above mentioned operations are repeated.

NOTE: If there is difficulty in making ground settings in tough ground (having dense mineral content) and the setting could not be made successfully it is possible to carry out exploration when a single light is on "Metal and Mineral" and "Cavity and Mineral" side.

NOTE: Lower gets the sensitivity levels, lower is the sensitivity in detecting metals.

NOTE: Exploration should be carried out in the sensitivity of the region that the adjustment is made.

NOTE: When you pass onto a ground that has a different composition than the region you have made the ground adjustment, the device starts to give signals of cavity and metal. When you start receiving continuous signals from the device ground adjustment should be made again.

PERFORMING SEARCH WITH LED SYSTEM

- After the "GROUND" adjustment is made "GROUND" button is pressed and when the light in the middle goes off the device is ready for exploration.

- The search coil of the device is lifted 40 cm above ground and reset.

- Hold the search coil 8-15 cm above and parallel to the ground. You can explore by moving the search coil slowly with a right to left sweeping motion or by walking straight. Try to detect a target by exploring his way. When the device detects a metal it gives a sound alarm and "METAL and MINERAL" lights turn on the screen according to the power of the signal. When the device detects a cavity it gives a sound alarm and "CAVITY and MINERAL" lights turn on the screen according to the power of the signal.

- If our target is metal or cavity the device gives light and sound signals.

- When an alarm is received from the device over any point; the device is taken away from the target and reset in an area where no signal is received and the search coil is passed over the same target again. If "CAVITY and MINERAL" lights turn on it means that our target is a cavity. If "METAL and MINERAL" lights turn on it means that our target is a metal. Resetting is repeated if necessary and the search coil is passed over the same target again. This last operation is carried out to make sure of the target.

- During exploration if a precious metal is suspected "PRECIOUS" light on the joystick turns on and warns the operator.

- The operator receiving this warning press the "SCAN" button on the joystick and makes a second pass over the target. After this operation if "PRECIOUS" light keeps on, it can be said that the target is a precious metal. This last operation is carried out to make sure of the target.

18

USING THE LCD MODE

NOTE: The LCD system function of the device can only be used when 360x440mm search coil and 600x1000mm search coil is installed. Install the 360x440mm or 600x1000mm search coil to the system box as described in the "assembly" section.

The device has two separate systems. One of these systems is the **LED System**, the other is **LCD System**. To switch the device to LCD System, the commutator switch is adjusted to LCD.

After the device is switched on the operator makes the desired language selection by using "+" and "-" keys and press "ACCEPT" button to finalize the language selection.

When the device is on the LCD mode the screen system is enabled and the device detects the installed search coil and prepares for that search coil. If no search coil is installed on the device a warning is displayed on the screen.

Coil and System Error Warnings:

If there is an error in the search coil or in the system "SEARCH COIL FAULT" or "SYSTEM FAULT" warning lights blink at the bottom of the screen and a sound alarm is heard to warn the operator after the device is switched on. In this case the operator should switch off the device, check the connectors and witch on the device again. If the warning persists authorized service should be called.

Checking Battery Charge Level:

The device switches to "Ground Adjustment" section after it detects the search coil. At the bottom of this section there is an area that indicates battery status and the operator detects battery status by referring to this area. If the battery is depleted or does not have adequate charge switch off the device and charge the batteries installing the charger.
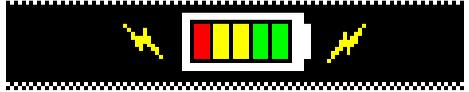
Adjustment of SOUND Level:

"SETUP" button is pressed for adjusting the level of sound of the device in whatever mode is it in.

The current adjusted sound level is displayed as % on the screen.

SOUND	LIGHT	SENSITIVITY	IRON
%70	%70	%70	OFF

Select the "SOUND" mode by pressing "+" and "-" keys as described above. After this mode is selected press the "ACCEPT" button, the sound indicator bar will turn from yellow into green. Adjust the sound level by pressing "+" and "-" keys and press "ACCEPT" button. The green indicator bar turns back into yellow. Now the sound level is adjusted as you desired and you can switch to the previous mode by pressing "SETUP" button.

Adjusting LIGHT Level:

SOUND	LIGHT	SENSITIVITY	IRON
%70	%70	%70	OFF

"SETUP" button is pressed for adjusting the level of light of the device in whatever mode is it in.The current adjusted light level is displayed as % on the screen.

Select the "LIGHT" mode by pressing "+" and "-" keys as described above. After this mode is selected press the "ACCEPT" button, the light indicator bar will turn from yellow into green. Adjust the light level by pressing "+" and "-" keys and press "ACCEPT" button. The green indicator bar turns back into yellow. Now the light level is adjusted as you desired and you can switch to the previous mode by pressing "SETUP" button.

Adjustment of SENSITIVITY Level:

SOUND	LIGHT	SENSITIVITY	IRON
%70	%70	%70	OFF

"SETUP" button is pressed for adjusting the level of sound of the device in whatever mode is it in. The current adjusted sensitivity level is displayed as % on the screen.

Select the "SENSITIVITY" mode by pressing "+" and "-" keys as described above. After this mode is selected press the "ACCEPT" button the sensitivity indicator bar will turn from yellow into green. Adjust the sensitivity level by pressing "+" and "-" keys and press "ACCEPT" button. The green indicator bar turns back into yellow. Now the sensitivity level is adjusted as you desired and you can switch to the previous mode by pressing "SETUP" button.

Adjustment of IRON Mode:

SOUND	LIGHT	SENSITIVITY	IRON
%70	%70	%70	OFF

"SETUP" button is pressed for switching the level of IRON mode of the device on and off in whatever mode is it in. The current IRON mode is displayed as open or closed.

You may find more detailed information about the properties of this mode and how it is used in following sections.

Using the RESET Button:

When the device is in use some interference may occur due to the environment or unbalanced search coil movement. These interferences start to show on the screen and cause the device to give a sound alarm. Resetting can be done by pressing the "RESET" button on the system box. By resetting the effects of interference are eliminated. Resetting should not be done when the search coil is over the target! This will cause loss of depth, misinterpretation of received signal and the target become invisible to the device. **Resetting procedure is carried out after the search coil is removed away from the target.**

HOW GROUND SETTING IS MADE?

When the device is switched on it starts with the "GROUND ADJUST" mode. Ground adjustment should be done before using the device for correct results. During exploration when soil composition has changed and when ground adjustment has to be done again switch to ground mode by pressing the "GROUND" button and re-adjust ground settings after checking existing settings.
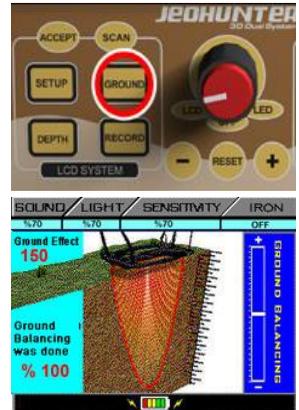
Ground Setting Phases

1. When the device is switched on in "LCD" mode, ground adjustment is displayed automatically.

2. Lift the search coil 40 cm above ground and press the "RESET" button.

3. When in ground mode the effect of ground on the device is displayed on the monitor as "Ground Effect". This effect will change when ground adjustment is made. (NOTE: The search coil must be lifted 40 cm above the ground and the RESET button to be pressed in order to reset previous values, otherwise following results will not be reliable.)

4. Make sure that there are no metal objects or cavities in the ground where ground setting will be made. If ground setting could not be adjusted it will be repeated in a neighboring area.

5. The operator lifts the detector search coil "**40** cm" above the ground and after pressing RESET lowers the search coil "**3-5** cm" parallel to the ground. If the device receiving negative effects the operator lifts the detector and presses the "-" button several times, if the effect is positive the operator presses the "+" button several times and presses reset button, then lowers the search coil to 3-5 cm form the ground. The procedure must be repeated until the ground effect is neutralized. The device is ground balanced when you do not get to hear any signal when lowering the search coil for exploring. After the effect is neutralized the operator raises the detector search coil 8-15 cm above the ground and switches to the explore mode by pressing the "ACCEPT" button. Stabilizing the detector 8-15 cm from the ground will give you reliable search results.

6. If there is no ground effect on the device there is no interaction on the bar that is indicated in the figure and "Ground Setting 100% Completed" expression is displayed. In this case the device is ready for exploring and you may switch to explore mode by pressing the "ACCEPT" button.
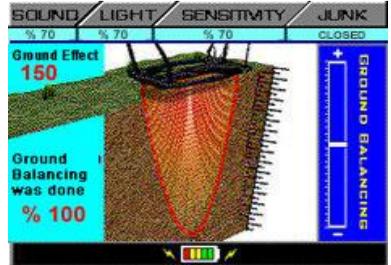
7. In case there is ground effect on the device an interaction is observed in the "GROUND ADJUST" bars that are indicated in the figure. To eliminate this effect press "-" button for "-" effect and press "+" button for "+" effect. Press "-" or "+" buttons until this effect is eliminated and "Ground Setting 100% Completed" expression is displayed.
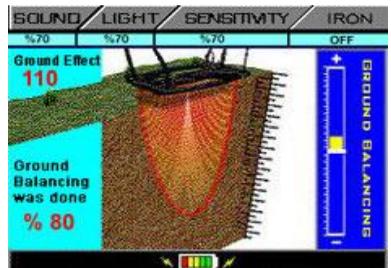
8. After pressing "+" or "-" buttons lift the search coil 40 cm above ground and press the "RESET" button and observe the ground effect by holding the search coil 3-5 cm above ground, if ground effect persists try to eliminate this effect by pressing "+" or "-" buttons.

9. If we are not able to eliminate the ground effect decrease the sensitivity level one step and repeat the above defined operation.

10. After the ground effect is eliminated you may press the "ACCEPT" button and switch to Explore Mode.

23

PERFORMING SEARCH WITH LCD SYSTEM

- After "GROUND" setting is completed "ACCEPT" button is pressed and switched to Explore Mode.


- Hold the search coil 8-15 cm above and parallel to the ground. You can explore by moving the search coil slowly with a right to left sweeping motion or by walking straight. Try to detect a target by exploring this way.


- When the device detects a metal or a cavity it gives a sound alarm and interaction occur on CAVITY, METAL, IRON and VALUABLE bars according to the power of the signal. At the same time the effect of the target can be monitored on the graph above the bars. Metal targets are indicated with upper projecting lines and cavity targets are indicated with lower projecting lines on this graph.
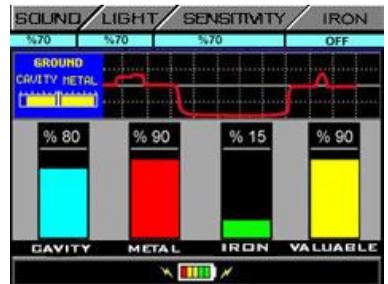

- Ground effect that may be formed together with the target is also displayed on the display. This ground effect is indicated to the operator as "CAVITY" or "METAL"
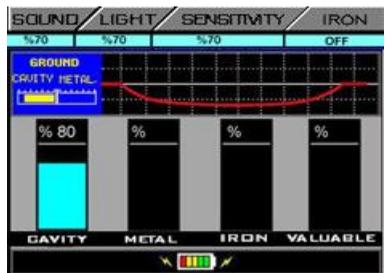
- If the target is a CAVITY, there is a raise on the "CAVITY" bar and decrease in the graph. The intensity of the "CAVITY" bar is indicated as % on top depending on the magnitude of the effect of target.

24

- If the target is valuable metal, there is a raise both on the "METAL" and "VALUABLE" that is expressed in % depending on the magnitude of the effect. The effect of metal can be monitored in the graph on top of the bars.
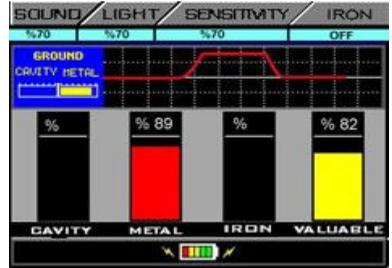
- If the target is worthless metal there is a raise both on the "METAL" "IRON" that is expressed in % depending on the magnitude of the effect.
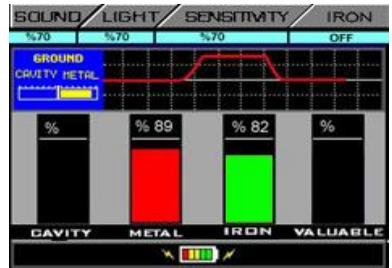
- When an alarm is received from the device over any point; the device is taken away from the target and reset in an area where no signal is received and the search coil is passed over the same target again. If there is increase in the "CAVITY" bar, our target is a cavity. If there is increase in the "METAL" and "VALUABLE" or "IRON" bar, our target is a metal. If required the "RESET" button is pressed and search coil is passed over the target once more. This last operation is done to be sure about the result.

25

READING THE OSCILLOSCOPE

Oscilloscope draws plan view of an underground target. It helps us to pre-understanding the shape, quantity and depth of the target. Also it is a very important system that allows knowing that the source signal is a metal or a mineral source by reading the oscilloscope right.

1- Target is a small metal and close to surface;
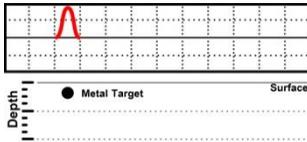
2- Target is a couple of small metals and close to surface;

3- Target is a couple of small metals and slightly deep;

4- Target is a large metal and close to surface;


5- Target is a large metal and deep;
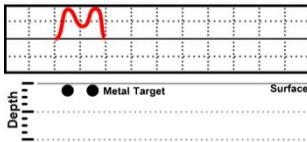

6- Target is a large metal and deeper underground;
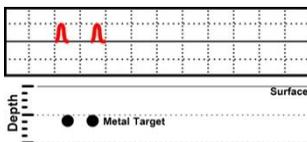
7- Target is a cavity and very close to surface;
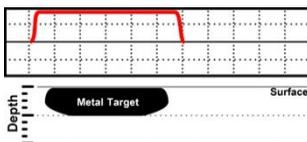

8- Target is a cavity and deep;
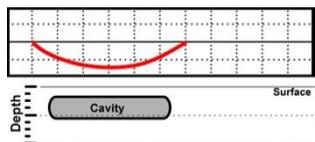
9- Target is a cavity and deeper underground;

Surface

Depth
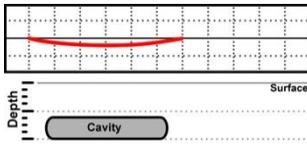
Cavity

10- Target is a metal inside of a cavity;

Surface

Depth

Cavity   Metal
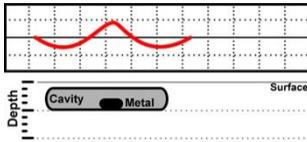
11- If the oscilloscope line draws a **straight line** close to center line, it points that the ground is a high-mineral soil. So, the ground balance needed to be recalibrated.

or
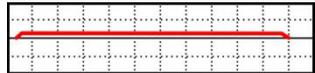
If the signal line increases very sharp and decreases with same velocity there is no need to calculate depth. Because, this shows that the target is very close the surface. Oscilloscope never draws a straight line while it receives signals from true target, it always draws sinuous lines. Oscilloscope line is closer the center line when the target is deep and line is away from the center line when the target is close.

Ferrous Metal Elimination Function:

The device can enable to filter the worthless metals by the device and warn the operator if desired. For this operation "IRON" mode should be off. To switch off this mode press "SETUP" button when in explore or ground modes. Select the "IRON" mode by pressing the "+" key. After selecting this mode press the "ACCEPT" button. Place the frame that turns from yellow to into green on "OFF" and press the "ACCEPT" button again. After this operation press "SETUP" button to switch to the previous mode. Following this step the device will filter worthless metals. To be able to detect worthless metals again this mode should be switched back to "ON" mode by repeating above mentioned operation.

Getting and Analysis report by Analyzing the Target:

To get an analysis report by analyzing the detected target during exploration:

- Press the "RESET" button by removing the search coil off the target after the target is detected.
- Press and hold the "SCAN" button when passing over the target again slowly. At that moment the device analyzes the target.
- Release the "SCAN" button after you pass overt the target.

After this operation the device presents the "ANALYSIS REPORT" to the operator. Type of the metal, magnitude of the target and the ratios of other environmental effects are received.
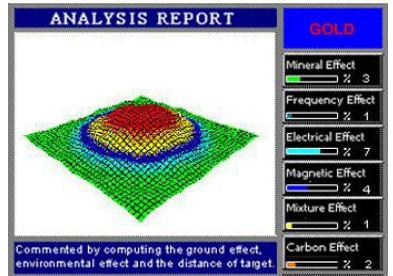
Detection of Target Depth:

For detecting target depth during exploring:
- Press the "DEPTH" key when in explore mode after the target is detected.
- First the dimensions of the target should be determined in depth mode. This operation is explained in detail with operator help menu.
- To enter the help menu form a yellow frame around the "HELP" window by using "+" and "-" keys.
- Press the "ACCEPT" button after forming this frame.
- In this menu it is explained to the in detail how to determine the dimensions of the target.
- To enter the determined width dimension place the yellow frame on "Width" by using "+" and "-" keys. Press the "ACCEPT" button to convert the yellow frame to green.

28
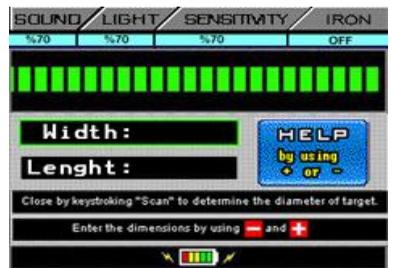
- Enter the "Width" value by using "+" and "-" keys. Press the "ACCEPT" button after entering the width value and convert the frame into yellow.
- To enter the determined length dimension place the yellow frame on "Length" by using "+" and "-" keys. Press the "ACCEPT" button to convert the yellow frame to green.
- Enter the "Length" value by using "+" and "-" keys. Press the "ACCEPT" button after entering the length value.
- Press the "SCAN " button after this operation and pass over the target again and release the "SCAN" button
- After this operation the device presents an "Analysis Report" that indicates whether the target is METAL or CAVITY, entered dimension values and environmental effects.
- Press the "ACCEPT" button to leave this report.
- Switched back to Depth mode and switched to explore mode by pressing the "DEPTH" button.

29
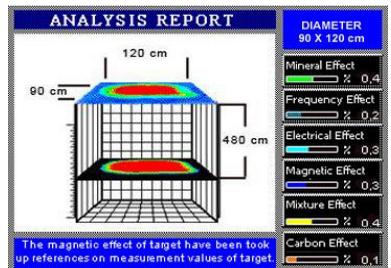
Recording and Examination of Records:

The device can record the analysis reports as directed by the operator.

- Press the "RECORD" button after the report is prepared and save the "Analysis Report"
- Press the "ACCEPT" button after you receive a message on the monitor that recording is completed.
- To examine the records later enter the record menu by pressing the "RECORD" button when in explore mode and you can examine the records by pressing "+" and "-" keys.

- Press the "ACCEPT" button when in the record menu. On top of the monitor there are "Erase record" and "Exit" windows. Use the "+" and "-" keys to activate these windows.
- Press "ACCEPT" button when there is a frame around "Exit" window to exit from the record menu.
- Press the "ACCEPT" button and approve the operation when there is a frame around "Erase record" window to delete a record.
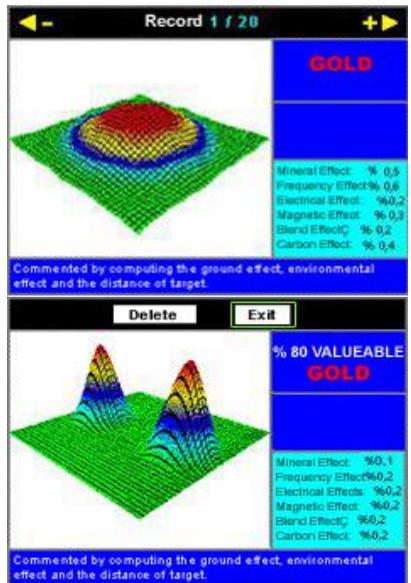
TECHNICAL PROPERTIES

	Surface Search Coil	General Search Coil	Deep Search Coil
Dimensions (mm)	210x315	360 x 440	600 x 1000
Frequency	12.5 kHz (VLF)		
Used Mode	LED	LCD	LCD
Target Diameter (cm)	Depth (cm)		
Coin (16.50 mm)	23	-	-
Coin (20.50 mm)	27	-	-
Coin (26.15 mm)	33	-	-
5x5	50	56	56
10x10	70	75	96
20x20	95	110	154
30x30	113	132	185
40x40	120	154	226
50x50	138	176	260
60x60	155	189	292

The values stated above aren't generated values; they are gathered by trying new metals. As the dimensions of the metals increase, there is an increase in the depth as seen in the ratios stated in the table. If metals remain under the ground for a long time, in pace of that time they establish a magnetic area and these magnetic areas radiates as if there are transmitters. By this means, the receiver of the research antenna ensures detection of the same target in 3-4 times deeper areas.

BATTERY AND CHARGER

Battery	16.8 V, 3.3 A Rechargeable Lithium Polymer Battery
Operating voltage	12 V – 16.8 V
Battery current	3.3 A
Charger	16.8 v 500 mA Lithium Polymer Battery Charger
Input	AC 100-240 v / 50-60 Hz / 180 mA (city mains)
Output	DC 16.8 V / 500 mA

ACCESSORIES

	Condura Plastic totebag for the whole hardware.		Headphones
	Double zippered Condura plastic carriage bag reinforced for deep search coil.		Universal AC charger 100 - 240 Volt, 50 and 60 Hz
	System box leather totebag.		Lithium Polymer Battery
	Automotive charger (Optional)		

Warranty Period: 2 Years

Note: Battery, bags, headphones and charger are not covered by warranty.

JEOHUNTER
3D Dual System

Makro Detector

**Camlik Mah. Muhsin Yazicioglu Cad. No: 18, 34782 Cekmekoy,
ISTANBUL / TURKEY**

**Phone: +90 216 642 1 444 (pbx) / +90 216 642 4 444 (pbx)
Fax: +90 216 641 61 65**

info@makrodetector.com   www.makrodetector.com