

BLISSTOOL

BLISSTOOL LTC64



USER GUIDE

VERSION EN201008241500

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1. FEATURES

- Base Technologies:
 - Induction Balance (IB)
 - Very Low Frequency (VLF)
 - SuperB Depth = Super BLISSTOOL Depth (SBD) ^{new}
- One of the best deep detecting metal detectors in the world
- Base operating frequency: version 1: 8.5KHz; version 2: 8KHz ^{new}
- Adjustable operating frequency (+-60Hz) ^{new}
- Operating mode: motion
- Sound discrimination of the metals
- Designed to work on all types of terrains
- Resistance and in highly mineralized and strewn with ceramics terrains
- 28cm (11") DD search coil
- Built-in LiPo battery 11.1V, 2200mAh with high quality and long life ^{new}
- Automatic LiPo battery charger ^{new}
- Manual and Automatic ground balance mode
- Coarse and fine settings in manual ground balance mode ^{new}
- Switch with three auto ground zones
- High detection speed
- High recovery speed
- Adjustable silencer of the background sound ^{new}
- Adjustable audio threshold
- Adjustable audio volume control
- Discriminator with three independent modes of discrimination ^{new}
- Adjustable detection/rejection level of iron, tin-foil and low-grade non-ferrous metals (usually pollutants)
- Adjustable depth of discrimination
- LED low battery indicator
- 6.35mm (1/4") Stereo headphones outlet ^{new}
- Single charge operating time: up to 30 working hours
- Consumption: min: 35mA, max: 100mA
- Detachable and adjustable carrier construction made from duraluminum and carbon
- Robust and comfortable handle and armrest
- Electronic block from light and robust box made from ABS and duraluminum
- Electronic block located under the armrest ^{new}
- Electronics fully shielded against electromagnetic interference
- Double shielded against electromagnetic interference cable for the search coil
- Connectors for the search coil with gold-plated pins ^{new}
- Connectors for battery charging with gold-plated pins ^{new}
- Weight in a complete and ready to use condition: 1.75kg ^{new}
- RoHS compliant
- Developed and manufactured in Bulgaria
- 3 Year Worldwide Warranty

2. INTRODUCTION

Metal detectors BLISSTOOL LTC64 and BLISSTOOL LTC64X are representatives of the new generation BLISSTOOL metal detectors from series LTC.

BLISSTOOL LTC64 and BLISSTOOL LTC64X are extended and improved version of the model BLISSTOOL LTC48X, so that entirely replaces and supplemented it. Their improvements, compared to BLISSTOOL LTC48X are in any direction, including: design, electronics, depth of detection, discrimination, stability and sensitivity, setting, indication and maintenance bodies.

In BLISSTOOL LTC64 and BLISSTOOL LTC64X, was implemented the first fully completed version of the BLISSTOOL technology SuperB Depth = Super BLISSTOOL Depth (SBD), whose basis was implemented in BLISSTOOL LTC48X, it provides excellent depth of detection, and has already developed and improved in BLISSTOOL LTC64 and BLISSTOOL LTC64X.

The difference between BLISSTOOL LTC64 and BLISSTOOL LTC64X is, that BLISSTOOL LTC64X is extended version of BLISSTOOL LTC64, as BLISSTOOL LTC64X contains GAIN and TONE potentiometers, which in BLISSTOOL LTC64 are not available. GAIN potentiometer is used to adjust the input AC amplification of the signal from the detected object, and through TONE potentiometer the user can adjust the frequency of the output sound of the metal detector as desired and adjust the most audible and pleasant sound to him. The presence of the GAIN potentiometer for BLISSTOOL LTC64X provide the user with fine-tune of the behavior of the metal detector, which generally permits BLISSTOOL LTC64X to achieve greater depth of detection, especially in terrains with, from low to medium mineralization, and opportunity to increase the stability of the metal detector in high mineralized terrains and terrains with a high content of ore.

All other features of BLISSTOOL LTC64 and BLISSTOOL LTC64X are identical.

3. PRESENTATION

BLISSTOOL LTC64 is a modern professional metal detector, designed to work on all types of terrains, including highly mineralized terrains, terrains with a high content of ore and highly contaminated terrains. Has perfect depth and discrimination and is outstanding for its high quality, easy user's adjustment and minimal maintenance need. This makes it equally suitable for beginners and experienced searchers.

As a concept, BLISSTOOL LTC64 is designed:

- to have excellent depth of detection in all conditions!;
- to be used on any type of terrains;
- to can change its behavior: whether to be "noisy" or completely "silent"; ^{new}
- to have expanded opportunities for setting of the discrimination and ground balance; ^{new}
- to successfully detect coin placed into ceramics;
- to successfully detect coins in highly mineralized terrains;
- to have good depth of detection, not only to copper but also to silver and gold objects;
- to have high detection speed and high recovery speed and at the same time to have good stability. ^{new}

Real, metal detector BLISSTOOL LTC64 is one of the best deep detecting metal detectors in the world, especially when it comes to metal detectors type induction balance with 28cm (11") DD search coil.

BLISSTOOL LTC64 is made of high quality, RoHS compliant and fully shielded against electromagnetic interference electronics, and high quality components such as: light and robust detachable carrier construction made of duraluminum and carbon; electronic block contained in a light and robust box made from ABS and duraluminum; 28cm (11") DD waterproof search coil, double shielded against electromagnetic interference cable for the search coil; connectors for the search coil with gold-plated pins; connectors for battery charging with gold-plated pins. All this ensures its smooth operation regardless of the temperature changes and the other environmental characteristics, and durability lined with a 3 year worldwide warranty.

Its electronics and rechargeable battery, are installed in the electronic block located under the armrest. This design allows for improved mass balance to handle, and allows for continuous

use without significant user fatigue. In a complete, ready to use condition, BLISSTOOL LTC64 is weighing 1.75kg.

Standard, BLISSTOOL LTC64 is equipped with a LiPo battery 11.1V, 2200mAh, which is characterized by high quality, low weight and long life. In order to recharge it, in the metal detector standard package is included an automatic LiPo battery charger.

BLISSTOOL LTC64 is available in two versions: standard version (version 1) with base operating frequency 8.5KHz and version adapted for heavy field conditions (version 2) with base operating frequency 8KHz.

Its operating frequency, by potentiometer FREQUENCY, can be adjusted (+-60Hz), to avoid external interferences such as: interference from other close working metal detector with the same or similar operating frequency; and powerful industrial interferences.

Given its professional character, BLISSTOOL LTC64 has many options for adjust to the realization of its universality and getting the most of its opportunities. If the user is a beginner and do not understand for what serve the appropriate potentiometer or switch, it is sufficient to maintain it in the recommended, in the user guide, level, whereby relatively easy to make the metal detector in the regime close to optimal, but later, when the user gain experience in working with the metal detector, to optimize its behavior to a specific terrains by fine adjustment of the respective potentiometers and switches.

Its behavior can be fully configured according to the wishes of the user and the characteristics of the terrain. BLISSTOOL LTC64 can be "noisy" or completely "silent." Particular behavior is set by appropriate adjustment of the metal detector, notably through appropriate adjustment of the potentiometers which largely determine its sensitivity: potentiometer THRESHOLD which serving for setup of the sound threshold; potentiometer SILENCER which serving for setup of degree of suppression of the background sound.

BLISSTOOL LTC64 has high detection speed and high recovery speed. This ensures its stability regardless of the speed of search and allows the efficient detection of deeper objects located near to the iron.

It features manual and automatic ground balance mode, as in automatic mode is available additional switch with three auto ground zones for soils with low, medium and high mineralization. These preset zones make use of the metal detector easily and effectively.

Its discrimination is adjusts by: DISCRIMINATOR switch that provides three independent modes of discrimination and allow optimization of its behavior, and potentiometers DISCR LEVEL and DISCR DEPTH, which enable: set of detection/rejection level of iron, tin-foil and low-grade non-ferrous metals (usually pollutants) and set the depth of discrimination. All this allows to achieve optimum setting of the metal detector at contaminated terrains, terrains with hot rocks and mineralized terrains, and are a prerequisite for even better results.

Its audio discrimination, thanks to the perfect human abilities through their hearing to perceive and analyze in detail the sound signals, is the ideal solution for instant detection, analysis and recognition even and of the weakest signals by deeply buried objects.

Before using your BLISSTOOL LTC64 for the first time, we recommend you to read detailed this user guide, in order to optimally use all its capabilities.

4. VERSIONS

BLISSTOOL LTC64 is available in two versions:

- **version 1 (LTC64 version 1, LTC64 v1);**
- **version 2 (LTC64 version 2, LTC64 v2).**

BLISSTOOL LTC64 version is marked on the electronic block, against the model of the metal detector.

LTC64 v1 is the standard version, LTC64 v2 is a version specially adapted for heavy field conditions.

LTC64 v1 differs from LTC64 v2 on this that **LTC64 v2 is optimized to work on:**

- highly contaminated terrains;
- highly mineralized terrains;
- terrains with a high content of ore.

Of the above described terrains, LTC64 v1 also works, but LTC64 v2 is additional optimized for such terrains.

For this purpose, compared with LTC64 v1, **LTC64 v2 contain the following optimizations:**

[1] Discrimination optimized for highly contaminated with iron, steel and other ancient and contemporary pollutants terrains:

- improved rejection of small heavily corroded iron and steel, small pieces of wire, heavily corroded pieces of sheet metal, small iron nails and steel nails, tack, slag and other ancient and contemporary pollutants;
- increased range of the discrimination level set by potentiometer DISCR LEVEL.

[2] Behavior optimized for working on highly mineralized terrains and terrains with a high content of ore. The ground and ground-specific background of such terrains, which makes the detector "noisy", are ignored in a better extent.

Furthermore:

- **The basic operating frequency of LTC64 v1 is 8.5KHz;**
- **The basic operating frequency of LTC64 v2 is 8KHz.**

Which version is right for you to judge yourself according to your specific needs.

Our additional guide recommendations and clarification for you are:

1/ In terms of the depth of detection:

- In practice, when properly adjusted, the depth of detection in both versions is excellent!;

2 / In terms of stability:

- LTC64 v2 is more stable than LTC64 v1;

3/ In terms of the mineralization of the terrain:

- If you will use your metal detector of any type of terrains, but mostly on terrains with low to medium mineralization, of your best work will do LTC64 v1;
- If you will use your metal detector of any type of terrains, but mostly on terrains with medium to high mineralization, of your best work will do LTC64 v2;

4/ In terms of the contamination of the terrain:

- If you will use your metal detector of any type of terrains, but mostly of clean terrains, on your best work will do LTC64 v1;
- If you will use your metal detector of any type of terrains, but especially of contaminated terrains, from your best work will do LTC64 v2;

5/ In terms of universality:

- If you will use your metal detector of any type of terrains, whose mineralization and

contamination are very diverse and often change from one extreme to the other (from terrains with low mineralization to terrains with high mineralization, and from clean terrains to highly contaminated terrains), of your best work will do LTC64 v2, since it is more universal than LTC64 v1.

All other features are the same for both versions.

**BLISSTOOL
LTC64 v1**

**SUPERB
DEPTH**

**BLISSTOOL
LTC64 v2**

5. STANDARD PACKAGE

- 1.** Metal detector BLISSTOOL LTC64 with 28cm (11") DD search coil BLISSTOOL DD28SC2 and LiPo battery 11.1V, 2200mAh
- 2.** Automatic LiPo battery charger
- 3.** User guide
- 4.** Warranty card
- 5.** Invoice
- 6.** Transport and storage box
- 7.** 3 Year Worldwide Warranty

6. OPTIONAL ACCESSORIES

6.1. ARMY BACKPACKS (KITBAG)

The army backpacks is a soft backpack type bag in which can transport metal detector BLISSTOOL LTC64.

The army backpacks carried as a rucksack on your back.

BLISSTOOL LTC64 be placed in the army backpacks after disassembling. For this purpose, its detachable carrier construction is divided into its three major parts through the unscrewed of the small and large fixing ring.

Dimensions in unfolded state: rectangle with a width of 46 cm and a height of 68 cm.



6.2. ADAPTER TO CHARGE FROM CAR BLISSTOOL CL12V2

BLISSTOOL CL12V2 is an adapter that allows the built LiPo battery of BLISSTOOL LTC64 to be charged by power from the car using a standard 12V car cigarette lighter connector.

To this end:

1/ The input of BLISSTOOL CL12V2 must be included into a standard 12V car cigarette lighter connector, available in each car, and its output includes to the input of the automatic LiPo battery charger, available in the standard package of BLISSTOOL LTC64, which provided its the necessary power to charge a LiPo battery;

2/ The output of automatic LiPo battery charger, through available in the standard package of BLISSTOOL LTC64, cable adapter, must be included into the connector CHARGE available on the back panel of the electronic block of BLISSTOOL LTC64.



Through the use of BLISSTOOL CL12V2, is eliminated the need to use of standard ~220V/DC12V power adapter, used for charging of the LiPo battery through ~220V network, and are achieve greater autonomy at work with BLISSTOOL LTC64.

In some models cars, to ensure the power supply through 12V car cigarette lighter connector, the cars need to be "of contact". In the presence of power, the green LED of BLISSTOOL CL12V2 lights permanently.

BLISSTOOL CL12V2 has a cable with 2 meters length, which allows in charge, the automatic LiPo battery charger and the metal detector to be located in a safe and comfortable place in the car. The charging can be done and during working car engine and during movement of the car.

6.3. STEREO HEADPHONES

- PHILIPS SHP1900 B
- PLEOMAX PHS-2000 B

7. STRUCTURE OF THE METAL DETECTOR

BLISSTOOL LTC64 consists of the following basic elements:

1. Electronic block with setting, indication and maintenance bodies
2. Armrest
3. Carrier rod
4. Handle
5. Large fixing ring
6. Intermediate connecting rod
7. Small fixing ring
8. Lower connecting rod
9. Plastic bolt and nut
10. Search coil

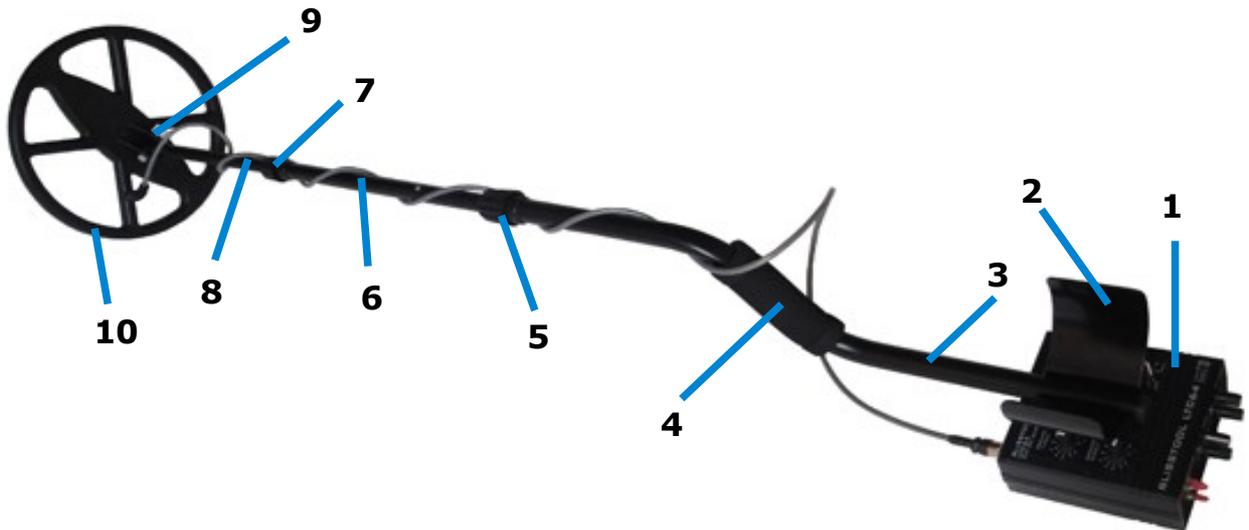


Fig.1 / Construction of metal detector BLISSTOOL LTC64

For easy assembling and disassembling of the metal detector, in the standard package:

- the carrier rod with the large fixing ring, the electronic block, the handle and the armrest are combined in a single component;
- the small fixing ring is mounted on the intermediate connecting rod;
- the lower connecting rod and the search coil are assembled together with the plastic bolt and nut.



Fig.2 / Components of metal detector BLISSTOOL LTC64

The carrier rod is made from duraluminum pipe. The large fixing ring that is mounted on its lower end is used for connecting the pipe with the intermediate connecting rod.

The handle is part of the carrier rod and is coated with soft and solid foam.

For better stability, the armrest is made from duraluminum.

Under the armrest is mounted the electronic block. It consists of a plastic box with duraluminum panels, in which are mounted the electronics and the LiPo battery of the metal detector. On the front panel, back panel and the lid of the electronic block are mounted the setting, indication and maintenance bodies.

The intermediate connecting rod is made from duraluminum pipe. At its upper end it is connected by the large fixing ring to the carrier rod – it fits into it, while at its lower end it is connected to the lower connecting rod by the small fixing ring.

The lower connecting rod is made from carbon, so that it does not interfere with the normal working mode of the metal detector. At its upper end it is connected by the small fixing ring to the intermediate connecting rod – it fits into it, while at its lower part ends with a plastic nozzle by which is connected to the search coil.

To not affect the intermediate connecting rod on the work of the metal detector, because it is made from duraluminum, ie metal, it is recommended that the lower connecting rod to be inserted in the intermediate connecting rod to a situation in which remain at least 20-30 centimeters away from the top of the search coil to the small fixing ring.

To quickly and easily set the desired total length of the carrier construction, the intermediate connecting rod has openings at different levels, in one of which, according to the wishes of the user, are inserts the fixed mechanism type bud, available on the lower connecting rod.

The search coil is connected to the plastic nozzle of lower connecting rod via the plastic bolt and nut. Between the ears of the search coil and the plastic nozzle of the lower connecting rod, put the included in the standard package emollient and fixed rubber type washer, which prevent the ears of the search coil from deformation and breakage when tightening. Thus, the search coil can be installed and removed repeatedly from the lower connecting rod.

The search coil, via the connector of the connecting shielded cable, is connecting to the connector COIL mounted on the back panel of the electronic block.

If necessary to change the position of the search coil to the lower connecting rod (change the working angle during working with the metal detector or folding to carry and transport), is necessary to loose coupling fixing by a plastic bolt and nut and after the new setting, it can be tight to be fix the search coil in the new position.

The changing of the working angle in tight situation can lead to breakage of the ears of the search coil, deformation of the ears and the search coil or a fatal frustration of the search coil and changes of its parameters.

When changing the working angle of the search coil to the lower connecting rod, must be monitored for the presence of an advance of the bottom of the connecting shielded cable of the search coil to keep it stretched too much as this can cause damage its.

Recommended always to provide a small advance of the connecting shielded cable of the search coil in its lower part, just above the nozzle during which it comes out of the search coil.

In order to eliminate false signals and prevent injury, it is advisable, the connecting shielded cable of the search coil, to be fixed to the carrier construction of the metal detector. The fixing of the cable takes place: in its upper part (fixed to the carrier rod above the handle) and in its lower part (fixed to the lower connecting rod).

For fixing the bottom of the connecting shielded cable of the search coil, is used included in the standard package fixing patches type velcro.

8. ASSEMBLING AND DISASSEMBLING OF THE METAL DETECTOR

The metal detector BLISSTOOL LTC64 is assembled in the following sequence:

1. The upper part of the lower connecting rod is attached to the lower part of intermediate connecting rod via the small fixing ring, and adjusted at the appropriate length.

It is recommended that the mounting of the lower connecting rod to the intermediate connecting rod should be carried out, following the sequence below:

- the small fixing ring has to be unscrewed loose from the intermediate connecting rod and put on the lower connecting rod;
- the lower connecting rod is inserted in the intermediate connecting rod at the appropriate length;
- the small fixing ring is tightened until it is fixed.

2. The upper part of the intermediate connecting rod is attached to the carrier rod via the large fixing ring, and adjusted at the appropriate height.

It is recommended that the mounting of the intermediate connecting rod to the carrier rod should be carried out, following the sequence below:

- the large fixing ring has to be unscrewed loose from the carrier rod and put on the intermediate connecting rod;
- the intermediate connecting rod is inserted in the carrier rod at the appropriate length;
- the large fixing ring is tightened until it is fixed.

3. The search coil has to be adjusted horizontally against the ground surface, while the user is in an upright (working) position and is holding the metal detector by the handle.

This adjustment is possible, if the plastic bolt and nut used for assembling the search coil with the lower connecting rod are not tightly fastened.

4. The connecting shielded cable of the search coil is wined evenly and spirally up the lower and intermediate connecting rods and the end connector of the cable is plugged in and tightened on the connector COIL that lies on the back panel of the electronic block.

The cable, at its lower end near the search coil, has to be slightly loose, so that it is not damaged when the search coil has been bent against the lower connecting rod, for example when the device is folded for carrying and transporting.

Additional, the cable can be fixed through patches type velcro included in the standard package.

The coil cable ends with a connector and there is a single correct position for it so that it could be plugged in the connector COIL, which lies on the back panel of the electronic block. In this position, the hollow cursor of the cable connector falls in with flange cursor of the connector COIL, and when inserted, the cable connector enters into the connector COIL at a depth of around 10 mm. After the cable connector is plugged in, it is screwed to the connector COIL by the means of the available metal stopping nut, used as a shield.

The incorrect insertion and/or the application of a brute force while incorrectly inserting the connector of the search coil could lead to damaging of the metal detector.

The plugging in and out of the cable connector is done while the metal detector is switched off (VOLUME potentiometer is turned in "OFF" position (Fig.3)).

The disassembling of the metal detector is carried in a reversed order.

9. SETTING, INDICATION AND MAINTENANCE BODIES

The setting, indication and maintenance bodies are mounted on the front panel, back panel and on the lid of the electronic block (Fig.3) of BLISSTOOL LTC64.

Setting, indication and maintenance bodies of BLISSTOOL LTC64

On the front panel of the electronic block:

- VOLUME potentiometer
- FREQUENCY potentiometer ^{new}
- DISCR LEVEL potentiometer
- DISCR DEPTH potentiometer
- GROUND MODE switch
- AUTO ZONES switch
- DISCRIMINATOR switch ^{new}

On the back panel of the electronic block:

- COIL connector
- CHARGE connector
- Loudspeaker
- BAT LOW LED
- PHONES connector

On the lid of the electronic block:

- THRESHOLD potentiometer
- SILENCER potentiometer ^{new}
- GROUND RUDELY potentiometer ^{new}
- GROUND FINELY potentiometer ^{new}

To optimally use the capabilities of your BLISSTOOL LTC64, we recommend that you explore in detail all its bodies, using as a basis, a detailed description of them available below.

Given its professional character, BLISSTOOL LTC64 has many options for adjust to the realization of its universality and getting the most of its opportunities.

If the user is a beginner and do not understand for what serve the appropriate potentiometer or switch, it is sufficient to maintain it in the recommended, in the user guide, level, whereby relatively easy to make the metal detector in the regime close to optimal, but later, when the user gain experience in working with the metal detector, to optimize its behavior to a specific terrains by fine adjustment of the respective potentiometers and switches.

Description of the various bodies:

9.1. VOLUME POTENTIOMETER



The VOLUME potentiometer serves as the on/off the metal detector (level "OFF") and to regulate the audio volume (levels from "1" to "MAX").

For optimal performance, should be placed at the level at which the the sound produced by the metal detector is a pleasant for listening, ie is not very loud, nor quiet.

The recommended levels for VOLUME potentiometer are from level „3“ to level „8“.

The use of the metal detector at higher levels of VOLUME potentiometer, provides better audibility of the sound produced by the metal detector, but at the same time increasing the consumption of power from the LiPo battery of the metal detector and wear it for a short time.

9.2. FREQUENCY POTENTIOMETER



The FREQUENCY potentiometer serves to change the operating frequency of the metal detector in range $\pm 60\text{Hz}$, in order to avoid external interferences such as: interference from other close working metal detector with the same or similar operating frequency; and powerful industrial interferences.

The presence of external interferences is expressed as: onset of instability of the audio threshold of the metal detector, marked and continuous increase in its instability, or total collapse of the audio threshold.

The recommended level for FREQUENCY potentiometer is level „MAX“, or levels close to level „MAX“.

In the level "MAX" of the FREQUENCY potentiometer, the system for frequency adjustment is off and the metal detector operate at its base operating frequency.

In the occurrence of instability in the audio threshold, with a character as described above, in order to smooth the audio threshold and stabilization of the metal detector, is required by FREQUENCY potentiometer to change the operating frequency of the metal detector.

The change in the operating frequency of the metal detector is done by adjusting the FREQUENCY potentiometer to any of the levels at level „9“ to level „MIN“. Choose that level at which the audio threshold of the metal detector regains its stability.

Because their primary function, the setting of the FREQUENCY potentiometer affect to the other settings of the metal detector and especially on its ground balance. It is desirable for this setting to be done before the rest of the metal detector settings, or after any change of the FREQUENCY potentiometer, to be done complete setup of the metal detector.

9.3. GROUND MODE SWITCH



The GROUND MODE switch serves for switching between the two working modes of the metal detector:

MAN: Manual ground balance

AUTO: Automatic ground balance

The recommended positions for GROUND MODE switch are: position „AUTO“ for beginners and position „MAN“ for experienced users.

Manual ground balance mode and Automatic ground balance mode relate to the chosen technology for eliminating the ground (terrain) interference on the metal detector's work.

The ground (terrain) interference usually causes instability of the metal detector and false signal registration (during the search while the search coil is moving, the metal detector is making sounds without real to has detected metal object).

When working with a manual ground balance mode (GROUND MODE switch turned to the „MAN“ position), the ground interference is eliminated by manual adjustment of the metal detector by the user, by following the procedure given in the description of the GROUND RUDELY and GROUND FINELY potentiometers, available below.

Manual ground balance mode is appropriate for terrains with homogeneous soil, where the metal detector would reach its full potential by a fine manual adjustment.

When working with an automatic ground balance mode (GROUND MODE switch turned to the „AUTO“ position), the metal detector's electronics automatically eliminates the ground interference and there is no further need for manual balance adjusting by the GROUND RUDELY and GROUND FINELY potentiometers from the user, and it is not important in what levels are set these potentiometers.

Automatic ground balance mode is appropriate for terrains with a heterogeneous soil.

In order to optimize and achieve the best possible balance, the automatic ground balance mode is divided into three ground zones with a small area of correlation. They are selected by

an AUTO ZONES switch as described below.

9.4. AUTO ZONES SWITCH



The AUTO ZONES switch serves to set one of the three available automatic ground zones at work in automatic ground balance working mode.

The individual zones are numbered as zones „1“, „2“ and „3“, which corresponds to the following soil type:

- Zone „1“: soils with black and/or negative mineralization;
- Zone „2“: not mineralized or weakly mineralized soils;
- Zone „3“: soils with a color and/or positive mineralization.

The recommended position of switch AUTO ZONES is the "3" (recommended position for beginners).

In most cases:

- Zone „1“ is suitable for: terrains strewn with ceramic containing impurities of ferrous metals; terrains dotted with stone plates with negative mineralization; soil, sand, stones and rocks with black and/or negative mineralization;

- Zone „2“ is suitable for: not mineralized or weakly mineralized soils; loose soils with low density; „light“ soils; clean terrains;

- Zone „3“ is suitable for: soil, sand, stones and rocks with color and/or positive mineralization; highly mineralized terrains and terrains with a high content of ore, terrains with a high content of hot rocks, terrains with high content of rusty black metals such as, but not limited to: small heavily corroded iron and steel, small pieces of wire, heavily corroded pieces of sheet metal, small iron nails and steel nails, tack, slag and other ancient and contemporary pollutants.

To determine which of the three zones eliminates the best influence of soil is necessary:

- to be chosen the auto ground balance mode (GROUND MODE switch turned to „AUTO“ position);

- the DISCR LEVEL potentiometer to be set at a level „0“;

- the THRESHOLD potentiometer to be set at a level, just before the level where the metal detector starts slightly zoom sound made (issued torn sound, buzzing, whiz) or one or two levels before the level of zoom (recommended for beginners searchers).

Then is done vertical (up-down) movement of the search coil ranging from 2-3 cm to 20-25 cm above the terrain and simultaneously AUTO ZONES switch, is switches alternately between the three available positions (zones).

Most appropriate for use is the zone, where in the described manner of movement of the search coil, the metal detector does not beeps or issue possible weak sound, or at least the pre-set audio threshold level did not change significantly.

In mineralized terrains, if has a strong responsive signal from the terrain and selection of most appropriate auto ground zone is difficult or the user has small practical experience, is recommended the THRESHOLD potentiometer to return with one or two levels back at the level where the metal detector starts to slightly zoom, then proceeding to the described above method of choice of zone. In addition, in order to reduce the response signal from the ground, can be set in advance desired level of discrimination (DISCR LEVEL potentiometer from level „0“ is placed in the desired operating level) and then performed the described above choice of zone.

Described above, vertical movement of the search coil, to the choice of most appropriate auto ground zone, should be carried at a place, with no metal objects near to the search coil, ie the piece of land on which moves the search coil should not contain metal objects.

Otherwise, they would interfere the selection process of zone, therefore can not be selected most appropriate auto ground zone. Whether the terrain is clean, is easily established, when

the search coil is moved horizontally above the terrain, ie without changing its distance towards the ground. When there are no metal objects, the predefined from the THRESHOLD potentiometer sound would not be changed.

After the choosing of auto ground zone has been finished, the GROUND MODE switch remains in „AUTO“ position (auto ground balance), while the DISCR LEVEL and THRESHOLD potentiometers are turned to the desired from the user levels.

When changing the terrain with another, significantly different from the previous (changing the soil characteristics), to the metal detector remain stable, necessary as described above, again to assess which is most suitable in the case auto ground zone.

9.5. GROUND RUDELY POTENTIOMETER



The GROUND RUDELY potentiometer serves as a coarse (base, fast) setting of the ground balance in a manual ground balance working mode, ie for a base eliminate of the ground effect at work in a manual ground balance working mode.

The GROUND RUDELY potentiometer is used in combination with GROUND FINELY potentiometer.

The recommended levels for GROUND RUDELY potentiometer are from level „5“ to about level „8“.

For manual adjustment of the ground balance is needed:

- to be chosen the manual ground balance mode (GROUND MODE switch turned to MANⁿ position);
- the DISCR LEVEL potentiometer to be set at a level „0“;
- the THRESHOLD potentiometer to be turned at a level, just before the level where the metal detector starts slightly zoom sound made (issued torn sound, buzzing, whiz) or one or two levels before the level of zoom (recommended for beginners searchers);
- the GROUND FINELY potentiometer, to be set at a middle position, ie at a level „5“.

Then is done vertical (up-down) movement of the search coil ranging from 2-3 cm to 20-25 cm above the terrain, simultaneously with turning the GROUND RUDELY potentiometer. At some levels of the GROUND RUDELY potentiometer, the sound is louder when the search coil is near the ground, while at others the sound is louder when the search coil is high above the ground.

The balancing is actually finding the level (position) of the GROUND RUDELY potentiometer, in which in the described manner of movement of the search coil, the metal detector does not beeps or issue possible weak sound, or at least the pre-set audio threshold level did not change significantly.

After the base balancing by GROUND RUDELY potentiometer, if necessary, the metal detector can be further fine balancing by GROUND FINELY potentiometer and described above vertically (up and down) movement of the search coil.

In mineralized terrains, if has a strong responsive signal from the terrain and the manual balancing is difficult or the user has small practical experience, is recommended the THRESHOLD potentiometer to return with one or two levels back at the level where the metal detector starts to slightly zoom, then proceeding to the descriptions above balancing. In addition, in order to reduce the response signal from the ground, can be set in advance desired level of discrimination (DISCR LEVEL potentiometer from level „0“ is placed in the desired operating level) and then performed the described above balancing of the metal detector.

The balancing should be carried at a place, with no metal objects near to the search coil, ie the piece of land on which is being done the described vertical movement of the search coil, should not contain metal objects.

Otherwise, they would interfere the balancing process and the metal detector can not be balanced or will be balanced incorrectly. Whether the terrain is clean, is easily established, if the GROUND RUDELY potentiometer is turned to a middle position and the search coil is moved horizontally above the terrain, ie without changing its distance towards the ground. When there are no metal objects, the predefined from the THRESHOLD potentiometer sound would

not be changed. One other possibility is the chosen balancing terrain to be searched for metal objects in advance while using the automatic ground balance mode (GROUND MODE switch turned to „AUTO“ position).

After the balancing has been finished, the GROUND MODE switch remains in „MAN“ position (manual ground balance), while the DISCR LEVEL and THRESHOLD potentiometers are set to the desired from the user levels.

When changing the terrain with another, significantly different from the previous (changing the soil characteristics), the metal detector should be balanced again following the above-described way, so that it remains stable.

In most cases, when changing the terrain with another, or change in the characteristics of the terrain, should be made only adjustment of the ground balance by GROUND FINELY potentiometer.

9.6. GROUND FINELY POTENTIOMETER



The GROUND FINELY potentiometer serves as a further fine (precise) setting of the ground balance in a manual ground balance working mode, ie for a fine and complete eliminate of the ground effect at work in a manual ground balance working mode.

The GROUND FINELY potentiometer is used in combination with GROUND RUDELY potentiometer.

The recommended level for GROUND FINELY potentiometer is level „5“.

GROUND FINELY potentiometer is used for adjustment of an already set at base level by GROUND RUDELY potentiometer, ground balance, in manual ground balance mode.

Additional information on the process of balancing in manual ground balance mode has in the description of a GROUND RUDELY potentiometer available above.

9.7. THRESHOLD POTENTIOMETER



The THRESHOLD potentiometer serves to define the desired from the user audio threshold and sensitivity of the metal detector.

It is adjusted at absence of metal objects around the search coil of the metal detector and depends on the terrain.

The recommended levels for THRESHOLD potentiometer are from level „4“ to about level „6“.

The best depth for finding metal objects is achieved, when the THRESHOLD potentiometer is turned in a position, corresponding to a quiet zoom sound made by the metal detector in working mode (issued torn sound, buzzing, whiz).

Quiet zoom sound mode is suitable for experienced seekers. The beginners should work at lower levels.

When working in manual ground balance mode, is necessary the final audio threshold level to be set only after the metal detector is balanced.

The maximal audio threshold corresponding to a stable metal detector condition depends on the terrain's characteristics, the metal detector balancing (in manual ground balance mode) and the user search speed.

The proper adjustment of THRESHOLD potentiometer (setting lower levels) is one of the options by which BLISSTOOL LTC64 can be turned into a completely silent (quiet) metal detector.

9.8. SILENCER POTENTIOMETER



The SILENCER potentiometer serves for setting of the degree of suppression of the background sound.

The recommended levels for SILENCER potentiometer are from level „OFF“ to about level „5“.

The background sound is a set from defined by THRESHOLD potentiometer audio threshold of the metal detector and imported external noises (the base signal on the ground and other external interferences).

In most cases, the volume of the background sound is equal to the volume of the audio threshold, but its inequality due to imported external noises.

In the level „OFF“ of SILENCER potentiometer, the silencer is turned off and the volume of the background sound is equal to the volume of the sound produced by the metal detector at detection of a metal object.

At levels, from level „1“ to level „FULL“, of a SILENCER potentiometer, the silencer is turned on and with each next level is increased the difference between the volume of the background sound and the volume of the sound produced by the metal detector at detection of a metal object.

With the silencer turned on (from level „1“ to level „FULL“ of the SILENCER potentiometer), the volume of the background sound (audio threshold + interference) can be adjusted so that could hardly be heard by the user, while the volume of the sound produced by the metal detector at detection of a metal object to be several times greater, so that when a metal object is detected is obtained „eruption“ of the sound produced by the metal detector.

On the higher level is set the silencer, the more noticeable is the „eruption“ of the sound produced by the metal detector at detection of a metal object.

With the increase of the silencer, not to overdo, since any increase improves the stability of the metal detector, but at the same time makes it less sensitive to weak signals from deep buried metal objects.

Real, the SILENCER potentiometer reveals many opportunities to change the behavior of the metal detector, in order to optimize it.

In terrains with low mineralization and absence of external noise, it is advisable to operate at lower levels of SILENCER potentiometer.

In highly mineralized terrains and in terrains with a high content of ore, SILENCER potentiometer should be set at higher levels, for ignoring at a greater degree of the base signal from the terrain and maintain of the stability of the metal detector.

With the silencer turned on, BLISSTOOL LTC64 can be configured to work with maximum adjusted audio threshold set by THRESHOLD potentiometer, ie with maximum sensitivity and thus the maximum depth of detection, and still be stable.

Furthermore, by examining the detected metal object at different levels of SILENCER potentiometer, can be obtained basic idea of how deep it is.

The proper adjustment of SILENCER potentiometer (setting higher levels) is one of the options by which BLISSTOOL LTC64 can be turned into a completely silent (quiet) metal detector.

9.9. DISCRIMINATOR SWITCH



The DISCRIMINATOR switch serves to define one of the three independent modes of discrimination.

The various modes are conditional numbered as: „I“, „II“ and „III“.

In the same position of DISCR LEVEL and DISCR DEPTH potentiometers, the discrimination is strongest in the mode „I“, with average value is in mode „II“, and the lowest is in the mode „III“.

The recommended position of DISCRIMINATOR switch is mode „III“.

It is recommended that work on possible higher mode of DISCRIMINATOR switch.

At a clean terrains with low or medium mineralization, it is recommended to work in mode „III“.

In contaminated terrains, terrains with hot rocks, highly mineralized terrains and in terrains with a high content of ore, can work in mode "II" or in mode „I“.

Mode „I“ and mode „II“ are appropriate and to avoid the hole effect of terrains with damp or wet soil, usually clay.

When is detected metal object, the consistent switching in different modes of the DISCRIMINATOR switch, allows examination of the detected object at different levels of discrimination and at other behavior of the metal detector.

Thus, relatively easily, and without the need to set different levels of discrimination by DISCR LEVEL potentiometer, may become more complete idea for the detected object.

Work in lower discrimination mode, set by the DISCRIMINATOR switch, is recommended only in extreme necessity.

Work in lower than the real required mode of discrimination, set by the DISCRIMINATOR switch, in combination with set at higher levels DISCR LEVEL and DISCR DEPTH potentiometers, may lead to rejection of weak color signals from small or deeply buried non-ferrous metals.

9.10. DISCR LEVEL POTENTIOMETER



The DISCR LEVEL potentiometer serves for adjusting the detection/rejection level of iron, tin-foil and low-grade non-ferrous metals (usually pollutants), and for baseline exclusion of the discrimination (All metals mode) when it is set to level „0“.

The recommended levels for DISCR LEVEL potentiometer are:

- For LTC64 v2: from „3“ to „6“.

- For LTC64 v1: from „4“ to „8“.

In level "0" the discrimination is excluded, ie the metal detector produced same sound for all metals, ie it does not distinguish them and does not rejected them. That is why at this level is recommended to carry out precision choice of auto ground zone and/or manual balancing of the metal detector, with the aim of achieving the maximal balance for a particular terrain.

For a complete exclusion of the discrimination, may further described below DISCR DEPTH potentiometer also to be set at level "0".

When increasing the level of the DISCR LEVEL potentiometer, the metal detector starts to distinguish the metals, and at each successive level betters the discrimination, ie the metal detector rejected to a greater extent iron, tin-foil and low-grade non-ferrous metals.

When detecting non-ferrous metals (copper, bronze, silver, gold) it produced deep-toned, non-pausing sound, while for the ferrous metals (iron) the sound is pausing (recurring).

At levels from „4“ to „10“, the metal detector rejects at a different level iron objects, tin-foil and low-grade non-ferrous metals, ie when detecting them it is making either no sound or a quiet pop sound.

When detecting vibratory (dubious) signal, usually for heavily corroded iron, iron with alloys or deeply buried object, to discriminate more accurately the signal, the level of discrimination set by DISCR LEVEL potentiometer can be increased further, or the metal detectors to be switched

to a lower mode of discrimination through the DISCRIMINATOR switch. For better detection and discrimination can help mild cleaning of that surface, to reduce the depth of which is buried the detected object.

9.11. DISCR DEPTH POTENTIOMETER



The DISCR DEPTH potentiometer serves for adjusting the depth of discrimination (the maximum depth to which the metal detector distinguish the metals).

The recommended levels for DISCR DEPTH potentiometer are from level „7“ to about level „9“.

In position „0“, the depth of discrimination is practically equal to 0 cm, ie the metal detector produced the same sound (single solid signal) for all metals and consequently do not distinguish and reject them.

With increasing the level, the depth of discrimination begins to grow, and increasing from the minimum 0 cm to a peak of about 30-40 cm, while each successive level the depth of discrimination is greater, ie at a level „10“, the depth of discrimination is most and at this level the metal detector distinguish the metal at greater depth. As a result, on detection of non-ferrous metals (copper, bronze, silver, gold) can hear a deep-toned, continuous non-pausing sound, but for ferrous metals (iron) the sound is pausing (recurring). The specific behavior depends and on the current settings of DISCRIMINATOR switch and of DISCR LEVEL potentiometer.

Should not be working with more than the required depth of discrimination set by DISCR DEPTH potentiometer. Otherwise, will be losing some of the greatest possible depth of detection!

For practical use, in light and clean terrains, when searching for non-ferrous metals, are recommended operating at levels from „5“ to „7“. In contaminated terrains, terrains with hot rocks and mineralized terrains are recommended work at levels between „8“ and „10“. These levels may be used in cases where targets the maximum depth of discrimination.

In the terrains strewn with ceramics and/or mineralized stone plates, it is desirable to work with smaller levels of DISCR DEPTH potentiometer to more effective detection of non-ferrous metals located to the individual pieces from ceramics and/or mineralized stone plates.

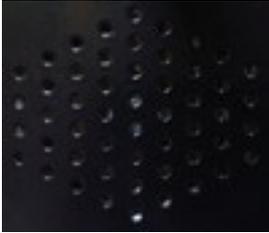
In this case, is desirable the metal detector to be advance tuned and balanced to the specific ceramics and/or stone plate, as described in 9.3, 9.4, 9.5 and 9.6 ways (manual and automatic ground balance).

In the discrimination mode, intentional interception through the same signal at different levels of DISCR DEPTH potentiometer can be made estimations about the type of the detected metal (ferrous or non-ferrous), the depth of the detected metal (mainly for ferrous metals), the quality of detected metal (low or high) and the size of the detected metal (small or large), or at least to gain additional data for the detected signal in order to judge it worth to be excavated (uncovered):

- If the detected signal is from high quality and/or large non-ferrous metal and/or shallow buried non-ferrous metal, then with increasing the levels of DISCR DEPTH potentiometer from level „0“ to about level „6“, the sound produced by the metal detector will not change or will be changed slightly;
- If the detected signal is from low quality and/or small non-ferrous metal and/or deeply buried non-ferrous metal, then with increasing the levels of DISCR DEPTH potentiometer from level „0“ to about level „7“, the sound produced by the metal detector will significantly change as will be blunt and/or will occur the first signs of rejection;
- If the detected signal is from ferrous metal (iron), then with increasing the levels of DISCR DEPTH potentiometer from level „0“ to about level „10“, at high levels will lead to the emergence of the typical for ferrous metals double pulled sound and/or to the level of total rejection, or at least pop of the signal. The actual level at which rejection begins (the pop) is in direct proportion dependence on the depth of which is buried the ferrous metal.

The behavior of the metal detector in the above described situations are largely determined and on the current settings of DISCRIMINATOR switch and of DISCR LEVEL potentiometer.

9.12. LOUDSPEAKER



The Loudspeaker serves for producing a sound when the metal detector detect an object. The sound is deep-toned and non-pausing for non-ferrous metals and recurring (repeating) for ferrous metals (iron).

The loudspeaker lies on the back panel of the electronic block.

9.13. PHONES CONNECTOR



The PHONES connector serves for plug to metal detector, if necessary, stereo headphones with 6.35mm (1/4") stereo jack. When the headphones are plugged in, the loudspeaker is switched off automatically and the metal detector's sound is heard only in the headphones.

ATTENTION: *To protect your hearing, it is desirable before turning stereo headphones to BLISSTOOL LTC64, to reduce the volume of the metal detector by VOLUME potentiometer, as put it between levels „2“ and „3“.*

The use of stereo headphones with set high volume of the sound by the VOLUME potentiometer can seriously damage your hearing!

The use of stereo headphones while using the metal detector has many advantages:

- the stereo headphones block outside noise such as wind and traffic and allow you to hear better, even the weakest signals from deeply buried metal objects;
- through their use, the sound of your metal detector will not interfere with other searchers around you;
- their use, provides reduced power consumption from the LiPo battery of the metal detector, leading to an extension of its life.

When leaving of the metal detector on the ground, care must be taken during the PHONES connector in its electronic block to not enter sand, dust or moisture.

9.14. COIL CONNECTOR



The COIL connector serves for connection of the search coil of the metal detector to its electronic block.

For quality work of the metal detector, connector COIL and the connector of the search coil which includes in it, must be kept from dust, dirt, moistening and wetting.

9.15. BAT LOW LED



The BAT LOW LED shows the available charge in the LiPo battery. When this LED lights up, it is a signal for low battery.

In very low battery, from the loudspeaker of the metal detector began to hear periodic pulled sounds and the metal detector stops working or not working correctly.

The charging of the LiPo battery is carried out according to the description in 12.

9.16. CHARGE CONNECTOR



The CHARGE connector serves for connection of the automatic LiPo battery charger to the built-in LiPo battery of the metal detector. The connection is carried by cable adapter, available in the standard package of BLISSTOOL LTC64.

The charging of the LiPo battery is carried out according to the description in 12.



Fig.3 / Setting, indication and maintenance bodies of BLISSTOOL LTC64

10. SETTING UP OF THE METAL DETECTOR AND PREPARATION FOR WORK

The metal detector is ready for use when the LiPo battery is charged and undamaged (the BAT LOW LED is not lit up).

Before initial use, please charge the LiPo battery at least 4 hours (from 4 to 12 hours), by the automatic LiPo battery charger available in the standard package, as described in 12. The LiPo battery reaches full capacity and respectively toughness, after at least about 5 cycles of charge-discharge.

To optimally use the capabilities of your BLISSTOOL LTC64, we recommend that you explore in detail all its setting, indication and maintenance bodies by using the detailed description of them available in 9.

After the metal detector is assembled according to the description in 8, it can be turned on via turning from left (level „OFF“) to right of the VOLUME potentiometer. With this potentiometer is set and the desired audio volume (levels from „1“ to „MAX“).

Before initial use of BLISSTOOL LTC64, for the beginners users we recommend to set all its switches and potentiometers of the recommended for these levels (positions), available as described in 9.

The choice of manual or automatic mode to eliminate the influence of the ground is done by GROUND MODE switch described in 9.3 and the optimal way of tuning and balance, according to the selected mode, are made according to the description available in 9.3, 9.4, 9.5 and 9.6.

The setting of the desired degree of discrimination (distinction of the metals) is made by DISCR LEVEL potentiometer as description in 9.10. The depth of discrimination is set by DISCR DEPTH potentiometer as description in 9.11. In 9.9 describes the DISCRIMINATOR switch.

If the target is detection of any type of metals is necessary DISCR LEVEL potentiometer to be set at level „0“. For the complete exclusion of the discrimination, DISCR DEPTH potentiometer can also be set at „0“.

In the case of ignoring of the ferrous metals (detection only of non-ferrous metals), ie this is mode of discrimination, is necessary DISCR LEVEL and DISCR DEPTH potentiometers to be set at least of the recommended levels present in their descriptions in 9.10 and 9.11.

The stability and the sensitivity of BLISSTOOL LTC64 is set by FREQUENCY, THRESHOLD and SILENCER potentiometers. They should also be set at least of the recommended levels, available in the description in the points, respectively: 9.17, 9.2, 9.7, 9.8 and 9.18.

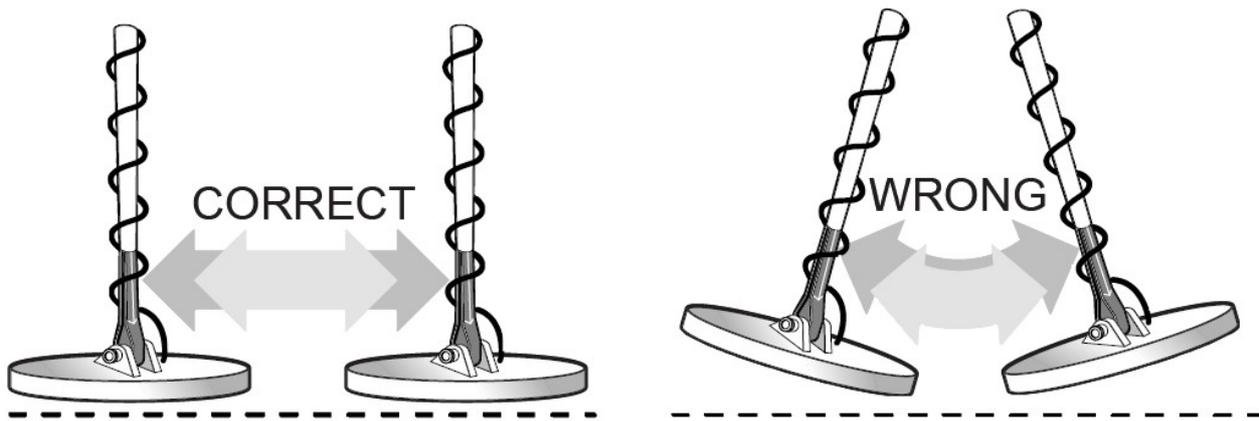
After implementing of the above described steps, the metal detector will be set up and ready for use.

11. METHOD OF SEARCH WITH THE METAL DETECTOR

The metal detector BLISSTOOL LTC64 works in motion mode, ie it reacts to a metal object buried in the ground only when the search coil is swung above it.

The searching of metal objects is actually by moving the search coil above the ground surface.

While doing this, the search coil has to be held parallel towards the ground surface and at a minimum distance above it. The raising reduces the search depth.



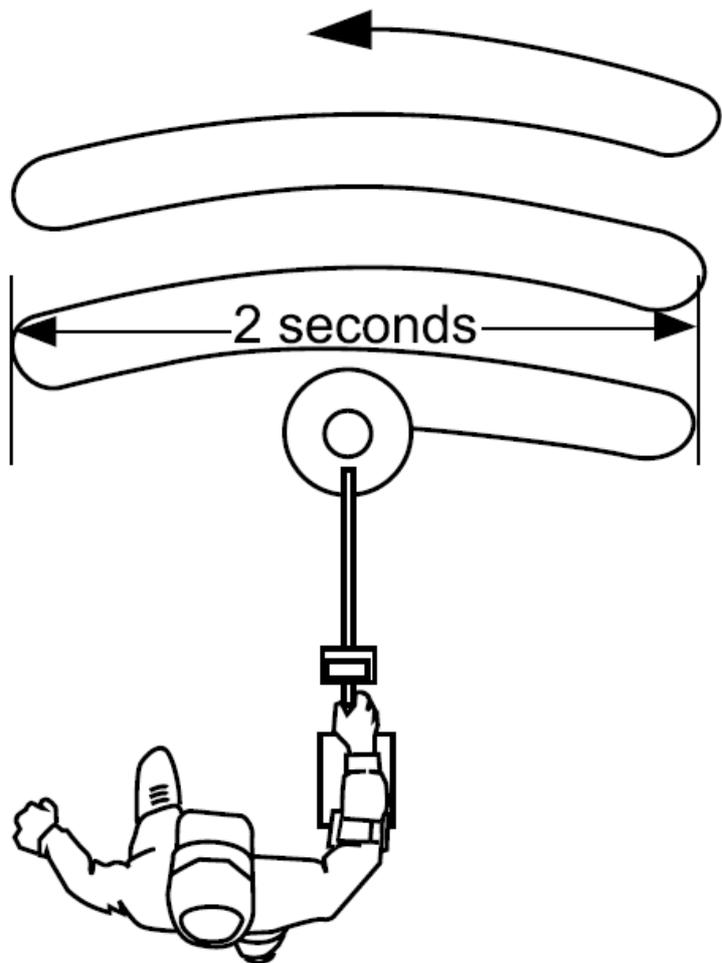
The search consists of a uniform and slow swinging of the coil one side to another, while the user holds the metal detector's handle and uses the armrest for support.

Too fast or too slow moving of the search coil could result in shortening of the depth of detection, especially for deeply buried or small objects.

The search coil path during the search resembles a zigzag movement, which is a result from the uniform and slow swinging of the search coil one side to another while the user is moving forward.

The swing's breadth and the user's speed are chosen from the user, according to the terrain, the sloping and the size of the terrain to be searched.

During swinging the user should avoid hitting the search coil in the available objects on the terrain (stones, roots and parts from tree and shrubs, uneven ground).



The precise location of the detected object (centering of the signal), is determined by moving the search coil in two perpendicular axes, while the user stands still or turns round for detecting the signal from different sides.

To gain an idea for the depth of which is the detected object, the search coil gradually lifted in the air above the ground and monitor height to which the metal detector still detect the object. This, together with specific particular sound (power, duration, purity), is sufficient in most cases to determine whether it is a shallow or deep object, respectively large or small object. For this purpose, helps the already described above centering of the signal to study the area of detection: whether it is narrow or wide.

12. BATTERY. BATTERY CHARGING

Standard, BLISSTOOL LTC64 is equipped with a LiPo battery 11.1V, 2200mAh, which is characterized by high quality, low weight and long life. To recharge it, in the standard package of the metal detector is included automatic LiPo battery charger.

The LiPo battery is located in the electronic block located under the armrest.

The LiPo batteries has about 800 cycles of charge-discharge (battery life), after which its capacitance drops sharply and must be replaced with a new.

The built-in rechargeable LiPo battery, does not need any further maintenance besides being charged.

NOTE: The charge of the LiPo battery should only through the automatic LiPo battery charger available in the standard package. It is optimized for quality and safe charging of the LiPo battery. The use of other chargers may cause rupture or ignition of the LiPo battery and the metal detectors, and/or fire in the room in which they are!

During charging, the metal detector should be switched off. Its switching on while being charged could cause serious damage to the electronic block or to decrease its quality.

For charging of the LiPo battery is needed:

1/ To be assured power of the automatic LiPo battery charger. For the purpose, of its input must be included one of the three devices described below:

- the available in the standard package of BLISSTOOL LTC64, ~220V/DC12V power adapter, which must be connected to the ~220V network;
- the available in the standard package of BLISSTOOL LTC64, adapter DC jack / connectors type "crocodile", which must be connected to charged battery with a rated voltage of 12V;

Warning: The red connector must be connected to pole „+“ and the black connector must be connected to the pole „-“;

- the purchased as an additional accessory for BLISSTOOL LTC64, adapter to charge from car BLISSTOOL CL12V2 (described in 6.2), whose input should be connected to standard connector 12V car cigarette lighter, available in each car.

2/ The output of the automatic LiPo battery charger, through available in the standard package of BLISSTOOL LTC64, cable adapter, to be connected to the connector CHARGE.

The connector CHARGE is available on the back panel of the electronic block of BLISSTOOL LTC64.

The charging continues from 2 to 12 hours, depending on the level of discharge of the LiPo battery. It is not necessary to follow the process of charge, as the charger is automatic and then charge of the battery it goes into trickle charge mode, which protects the battery from over-charging.

The automatic LiPo battery charger is available in two versions. Detailed information on the importance of its indicators has in its user guide.

If the LED indicators A, B and C of the automatic LiPo battery charger, in off condition, are with colors white or yellow:

- During the charge, indicators A, B and C light in red;
- After completing the process of charge, indicators A, B and C light in green.

If the LED indicators A, B and C of the automatic LiPo battery charger, in off condition, are with colors red for A, red for B and green for C:

- During the charge, indicators A and B light in red, and C not light;
- After completing the process of charge, A light in red, B not light, and C light with green color.

13. PRACTICAL ADVICES

The metal detector BLISSTOOL LTC64 is designed to find metal objects buried in the ground. It does not work well in residential areas and rich urban environment because it is highly sensitive electronic device and is troubled by surrounding electric devices, systems with electricity and metal objects (metal parts of the structure of the property, equipment and furnishings of the property). Therefore, when working in residential areas, the metal detector may be unstable, nervous, to give false signals. Typically in such conditions can not be demonstrated and measured its maximum parameters. If you want to measure the maximum parameters of your metal detector, do the test in terrain outside the settlement, ie where you will search for buried metal objects. There, the metal detector has maximum appropriate behavior and parameters.

When working with the metal detector near another metal detector, they can interfere with each other. This is inevitable in cases where the metal detectors operate on the same or similar operating frequency. Such are the metal detectors from the same brand and model, but not limited, because at the same operating frequency able to work and other than their metal detectors. Disturbance is expressed in the issuing of periodicals, evenly and pulled sounds from the metal detector.

You can limit or completely eliminate this interference by appropriate adjustment of FREQUENCY potentiometer, as described in 9.2.

If during work with the metal detector, you on the call via mobile phone or your mobile phone rings, is possible the metal detector to be troubled by it. Usually the metal detector does not interfere with mobile phone in standby mode, except where the terrain on which you are, a mobile operator's signal is weak or lost. In this case, even in standby mode, your mobile phone periodically tries to connect to the nearest mobile cell of the used by you mobile operator, with the result that it can cause a periodic disturbance of the metal detector.

One of the most important components of the metal detector is the search coil, which to a great extend determines its sensitivity.

When the metal detector is carried, for example in a rucksack or a traveling bag, an exceptional care should be taken to avoid the bending of the coil cable near the nozzle at the base of the search coil, because that may result in tearing the cable connecting cores and damaging of the search coil and the metal detector.

When necessary, the search coil and the box of the electronic block, can be cleaned with wet cloth. Do not use detergents, as they may damage the plastic parts or the inscription on the front panel, back panel and on the lid of the electronic block.

The electronic block and the search coil are very sensitive towards sudden environmental temperature alterations. When there is a sudden temperature change, the user should wait usually 20-30 minutes before switching on the metal detector.

The power on of non air-conditioned and non tempered metal detector can cause its damage.

Signs of non tempering are: frustration, inability to regulate or evenness of the sound threshold; a general lack of sound. In the presence of at least one of these signs, to prevent injury, it is necessary metal detector immediately be power off and left off a few minutes to temper and/or air conditioning (in high humidity, the transition from warm to cold and vice versa).

While working with the metal detector, the search coil should be protected from damage (hit).

The usage of the metal detector during rain may result its damage.

The metal detector could be safely and properly used, if there is morning dew (because of the watertight search coil). An extensive care should be taken, if the detector is put on the ground, especially on a wet grass, as the water should not be allowed to get inside the box of the electronic block (as in connector PHONES). The electronic block is not watertight and a serious damage would be caused to the metal detector, if water gets inside it.

If you are searching in areas, where ammunitions or other explosive substances may be detected, be extremely careful when excavating, because we do not carry the responsibility for your actions and behavior.

Do not open the box of the electronic block, because otherwise you will lose the warranty of your metal detector. If this is necessary, please contact us, using the contact information, given in 17, to ensure adequate support and service.

14. WARRANTY SUPPORT AND SERVICE

The metal detector BLISSTOOL LTC64 has a 3 Year Worldwide Warranty for the quality of the produced components and in case of any factory flaws.

If open the electronic block and/or breach the integrity of the seals placed on the lid of the electronic block, the warranty is not valid.

The warranty excludes the battery and the battery charger, and is not valid for mechanical damages of the respective components and for damages done by an incorrect usage or unauthorized access and repair (opening the electronic block; wearing, force opening or damaging of the carrier construction, the search coil, the cable or the connector for the coil; incorrect plugging of the search coil; damaging due to connecting of incompatible search coils, batteries, battery chargers and headphones).

To be a subject of a repair under warranty, the metal detector should be delivered to any of our authorized service support offices. The customer must pay all delivery and transport expenses.

In order to protect the metal detector from a damage, it is desirable its transportation to carry out in its original purchase box (included in the standard package), since it is optimized for a safe storage and transport.

The serial number and the purchase date, written on the warranty card, verify the warranty.

For further details and information about warranty and after warranty support and service, please contact us, by using the contact information, given in 17.

15. LEGISLATION

The possession of a metal detector is completely legal as long as they comply with existing legislative framework. For this purpose, please check the specific laws that relate to metal detecting in your country.

16. BLISSTOOL

BLISSTOOL is a Bulgarian manufacturer of professional metal detectors and metal detecting accessories.

BLISSTOOL produces one of the best deep detecting metal detectors in the world.

All BLISSTOOL metal detectors are developed, tested and manufactured in Bulgaria, in close cooperation with professional treasure hunters, and have a 3 Year Worldwide Warranty for the quality of the produced components and in case of any factory flaws.

The BLISSTOOL team has years of experience in metal detecting and design of metal detectors. BLISSTOOL thoroughly test each metal detector before send it to the final customer and are confident in the quality of our products.

BLISSTOOL offer professional products at an affordable price.

17. CONTACT INFORMATION

BLISSTOOL

web site: www.blisstool.com

Email: info@blisstool.com

GSM: +359883450667

Skype: blisstool



BLISSTOOL LTC64 is RoHS compliant

When RoHS compliant symbol is marked on your product means that it is compatible with European Directive 2002/95/EC (RoHS, Restriction of Hazardous Substances Directive).

With this directive, the EU recommended limiting the use and incorporation of harmful materials, such as lead, in the manufacture of electrical and electronic products.

In order RoHS compliance, in the electronics of BLISSTOOL LTC64 are used high quality electronic components, unleaded tino for soldering and pcb board with a final coating nickel-gold. These green technologies ensure of your metal detector high quality and a long life. For comparison, the standard and cheaper technology that is not RoHS compliant, includes the use of tino with a high content of lead and pcb board with a final coating tin-lead.



BLISSTOOL LTC64 falls under the WEEE directive

When this crossed-out wheeled bin symbol is attached to a product it means the product is covered by the European Directive 2002/96/EC (WEEE, Waste Electrical and Electronic Equipment).

This EU directive governs matters relating to the collection, storage and recycling of waste from electrical and electronic products.

BLISSTOOL LTC64 is designed and manufactured with high quality materials and components, which can be recycled and reused.

Please inform yourself about the local separate collection system for electrical and electronic products.

Please act according to your local rules and do not dispose of your old products with your normal household waste. The correct disposal of your old product will help prevent potential negative consequences for the environment and human health.

In order to improve the product, BLISSTOOL reserves the right to make changes without notice.

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