

# BLISSTOOL

## BLISSTOOL LTC42



### USER GUIDE

VERSION EN200809220112

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## 1. INTRODUCTION

BLISSTOOL LTC42 is a contemporary professional metal detector, designed to be used on any type of terrains. It features perfect depth and discrimination and is outstanding for its high quality, easy user's adjustment and minimal maintenance need. That makes it appropriate for both the experienced seekers and the beginners in the field.

It is equipped with a recharging 12V/2.5Ah NiMH battery, ensuring up to 48 hours continuous work with a single charge. Both the solid light aluminum detachable carrier construction and the watertight 28-cm Double D search coil add to the device's mobility.

BLISSTOOL LTC42 features an adjustable audio threshold, automatic ground balance and improved discrimination that ensures:

- *Adjustable NOTCH Filter*, used to determine the detection/rejection level of contemporary non-ferrous pollutants (aluminum, bottle/jar covers, foil, silver-paper);
- *Adjustable Discriminator*, used to determine the detection/rejection level of ferrous metals (iron objects, heavily corroded iron).

## 2. FEATURES

- VLF-IB technology with 8KHz working frequency
- System for eliminating the ground interference
- Resistance in areas with heavy mineralized ground
- Discrimination by the movement of the search coil
- 28 cm Double D search coil, BLISSTOOL DD28SC1 type
- Adjustable iron objects rejection level
- Adjustable contemporary pollutants rejection level
- Adjustable audio threshold
- Adjustable audio volume control
- Stereo headphones outlet
- 12V/2.5Ah built-in recharging battery
- Single charge operating time: up to 48 working hours
- Low battery indicator
- Consumption: min:35mA, max:100mA
- Automatic battery charger BLISSTOOL DA12250
- Detachable and adjustable carrier construction
- Weight in assembled mode (ready for work): 2 kg
- A 3-year guarantee

## 3. TECHNOLOGIES

- adjustable audio threshold for fine adjustment of the device's sensitivity;
- adjustable discriminator, used to determine the detection/rejection level of ferrous metals (iron objects, heavily corroded iron);
- adjustable NOTCH Filter, used to determine the detection/rejection level of contemporary non-ferrous pollutants (aluminum, bottle/jar covers, foil, silver-paper);
- automatic ground balance, used to eliminate the ground interference, coming from the soil alloys and pollutants;
- automatic compensator, used to eliminate the influence of the environmental

temperature alterations.

#### 4. STANDARD KIT

1. Metal detector BLISSTOOL LTC42 with 28 cm Double D search coil BLISSTOOL DD28SC1 and 12V/2.5Ah built-in recharging battery
2. Automatic battery charger BLISSTOOL DA12250
3. User guide
4. Transport and storage box
5. A 3-year guarantee

#### 5. ACCESSORIES

1. Transport and storage rucksack
2. Stereo headphones

#### 6. DEVICE CONSTRUCTION

BLISSTOOL LTC42 consists of the following basic elements:

1. Carrier rod
2. Fixating ring
3. Electronic control module with control and indication appliances
4. Handle
5. Armrest
6. Power supply module
7. Intermediate connecting rod
8. Metal bolt and nut
9. Lower connecting rod
10. Plastic bolt and nut
11. Search coil

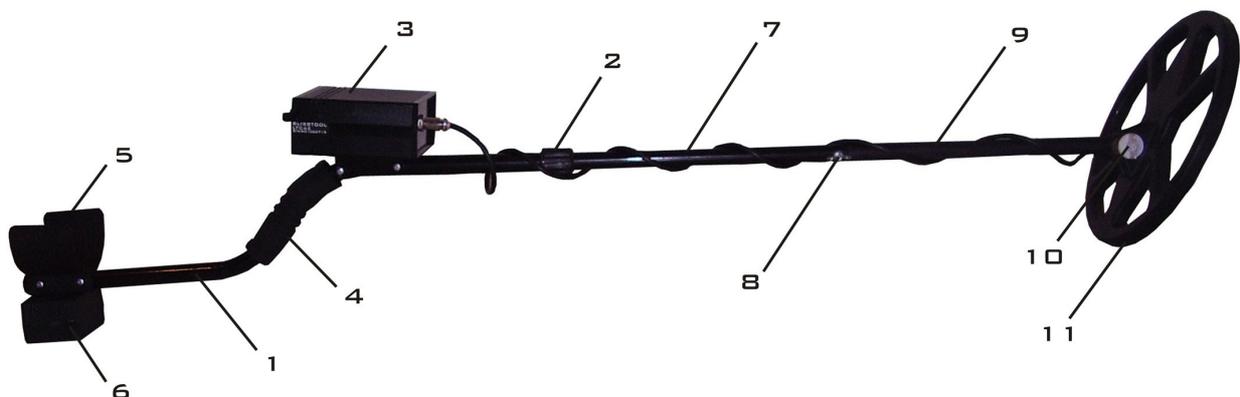


Fig.1 / Metal detector BLISSTOOL LTC42 – construction

For easy assembling and disassembling of the device, in the standard kit:

- the carrier rod, the fixating ring, the electronic control module, the handle, the armrest and the power supply module are combined in a single non-assembling component;
- the metal bolt and nut are 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 / Metal detector BLISSTOOL LTC42 – components**

The search coil could be repeatedly mounted and dismantled from the lower connecting rod via the plastic bolt and nut. It is highly recommended that they should not be tightly fastened, to ensure that first - the thread could not be damaged and second - the search coil position could be easily changed during the search or when folded for carrying and transporting.

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

The electronic control module consists of a plastic box with room for the metal detector's electronics. The control and indication appliances lie on the front and the back panel of the box.

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

For better stability, the armrest is made from aluminum.

The power supply module consists of a plastic box with room for the recharging 12V/2.5Ah battery. A connector lies on the front panel of the box and is used for plugging in the battery charger jack (the battery charger is included in the standard kit), so that the charging of the battery could be carried out when needed.

The intermediate connecting rod is made from aluminum. At its upper end it is connected by the fixating ring to the carrier rod – it fits into it, while at its lower end it is connected to the lower connecting rod.

The lower connecting rod is made from wood, so that it does not interfere with the normal working mode of the metal detector. The upper end is thinner and has an aperture to be attached to the intermediate connecting rod via the metal bolt and nut. The lower end has a bigger aperture, so that the search coil could be attached.

The search coil is connected to the lower connecting rod via the plastic bolt and nut. The search coil has a connecting screened cable ending in a jack that is plugged in the connector that lies on the back panel of the electronic control module.

## 7. DEVICE ASSEMBLING AND DISASSEMBLING

The metal detector BLISSTOOL LTC42 is assembled in the following sequence:

**1.** The lower connecting rod is attached to the lower part of intermediate connecting rod via the metal bolt and nut.

For that purpose, the lower connecting rod is driven into the lower part of the intermediate connecting rod until the two apertures has matched and formed a channel. The bolt is placed into the channel, pressed with a thumb while the metal wing nut is tightly fastened with the other hand.

**2.** The upper part of the intermediate connecting rod is attached to the carrier rod via the fixating 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 fixating 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 height;
- the fixating 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 screened cable of the search coil is winded uniformly up the lower and intermediate connecting rods and the end jack of the cable is plugged in and tightened on the connector that lies on the back panel of the electronic control module.

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.

The coil cable ends with a jack and there is a single correct position for it so that it could be plugged in the coil connector, which lies on the back panel of the electronic control module. In this position, the "hollow" cursor of the jack falls in with "flange" cursor of the connector, and when inserted, the jack enters the connector into a depth of around 10 mm. After the jack is plugged in, it is screwed to the connector 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 jack could lead to damaging the metal detector.

The plugging in and out of the jack is done while the metal detector is switched off (VOLUME/POWER knob is turned in "OFF" position (Fig.3)).

The disassembling of the device is carried in a reversed order.

## 8. CONTROL, ADJUSTMENT AND INDICATION APPLIANCES

The control, adjustment and indication appliances lie on the front (Fig.3) and the back panel of the electronic control module.

Description of the particular appliances:

### 1. **VOLUME/POWER** knob:

- It serves for both switching on/switching off the metal detector and adjusting the audio volume control. The chosen position from the knob scale (usually between the 3rd and the 5th level) should correspond to pleasant sounds made by the metal detector, i.e. that are neither loud, nor quiet.

### 2. **THRESHOLD** knob:

- It serves for assigning the necessary audio threshold. It is adjusted with no metal objects around the metal detector's search coil and depends on the terrain. The best depth for finding metal objects is achieved, when the THRESHOLD knob is turned in a position, corresponding to a quiet "buzzing" sound made by the metal detector in working mode (makes recurring sound). This mode is suitable for experienced seekers. The beginners should work at lower levels.

### 3. **NOTCH LEVEL** knob:

- It serves for adjusting the detection/rejection level of the contemporary non-ferrous pollutants (aluminum, bottle/jar covers, foil, silver-paper) and determines the metal detector's responses when detecting an iron.

For levels between "0" and "2", the metal detector detects both non-ferrous and ferrous metals, and when detecting ferrous metal (iron) it makes double recurring sound, while when detecting non-ferrous metal – single non-pausing sound. The device detects the contemporary non-ferrous pollutants (aluminum, bottle/jar covers, foil, silver-paper) at a varied degree when turned to levels from "6" to "10" and rejects them fully when turned to level "10" (either detects them when they are shallowly buried or does not detect them at all).

### 4. **DISCR LEVEL** knob:

- It serves for adjusting the detection/rejection level of iron, usually when NOTCH LEVEL knob is turned to levels from "6" to "10" and for adjusting the depth of discrimination (the maximum depth to which the metal detector distinguish the metals).

In "0" position, the metal detector makes unaltered sound for all metals, i.e. it does not distinguish them.

When the level is turned to a higher position, the metal detector starts to distinguish the metals, and each successive level betters the discrimination, i.e. at level "10", the metal detector rejects the iron at an utmost degree and has the maximum depth of discrimination.

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

For levels from "5" to "10", the metal detector rejects the iron objects at a different level, i.e. when detecting iron or tin-foil object it is making either no sound or a quiet pop sound.

The most practical working mode, when searching for non-ferrous metals, are the levels from "6" to "8". When detecting unstable (whether its corresponding to a real object) signal - usually for heavily corroded iron or iron with alloys, the level could be turned to "10" in order to get more accurate signal discrimination. The surface sweeping of the particular terrain could contribute to the further improvement of the detecting, because it results in shortening the distance to the buried detected object.

### 5. **Loudspeaker**:

- It serves for producing a sound when an object is detected. 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 control module.

## 6. PHONES jack:

- If necessary, the stereo headphones with 3.5mm jack could be plugged in the PHONES jack. When the headphones are plugged in, the loudspeaker is switched off automatically and the metal detector's sound could be heard only in the headphones.

## 7. BAT LOW light indicator:

- It indicates the current charge of the battery. The indicator lights up when the battery is exhausted. It is recommended that the metal detector should not be used in this mode, as it would not work properly. The charging of the battery should be carried according to the description in 11.



Fig.3 / Control, adjustment and indication appliances of BLISSTOOL LTC42

## 9. DEVICE ADJUSTMENT AND PREPARATION FOR WORK

The metal detector is ready for use when the battery is charged (the BAT LOW indicator is not lit up).

Before the initial usage, please charge the battery for minimum of 8 hours, by using the automatic battery charger available in the standard kit, according to the description in 11.

The built-in battery ensures up to 48 working hours without recharging.

After the metal detector is assembled according to the description in 7, it can be turned on via turning the VOLUME/POWER knob from left (position OFF) to right.

This knob also serves for adjusting the desired audio volume control.

The discrimination level and depth of discrimination (for distinguishing the metals) is adjusted by both the NOTCH LEVEL and DISCR LEVEL knob according to the description in 8.

If the aim is detecting all metals (ferrous and non-ferrous), the NOTCH LEVEL has to be turned to levels between "0" and "4", while the DISCR LEVEL has to be turned to level "0".

In cases when the aim is ignoring of ferrous metals (detecting only non-ferrous metals), the DISCR LEVEL has to be turned to levels between "8" and "10", while the NOTCH LEVEL has to be turned to levels between "6" and "10". At higher levels, the heavily corroded iron is ignored at an utmost degree.

And lastly, the THRESHOLD knob adjusts the audio threshold to the desired level.

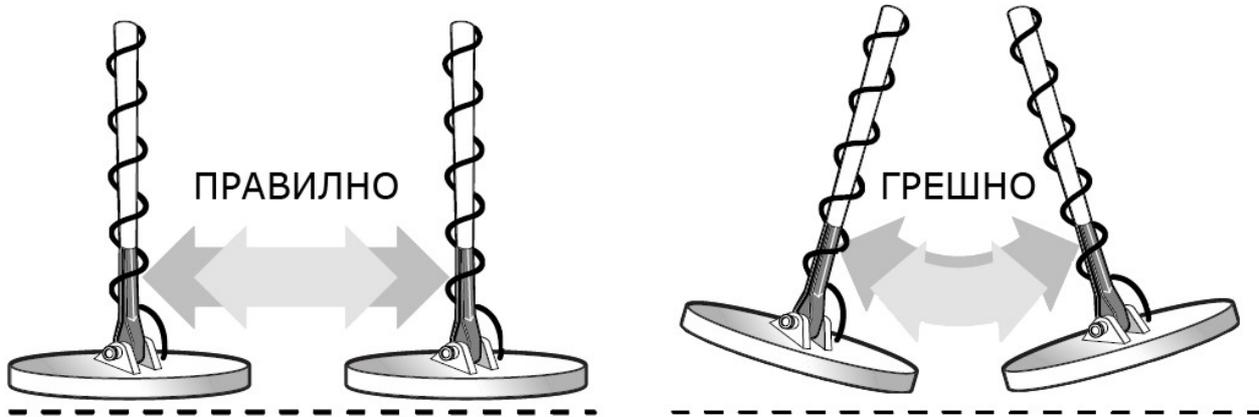
With this, the metal detector is adjusted and ready for work.

## 10. SEARCH METHOD

The metal detector searches while being moved, i.e. it reacts to a metal object buried in the ground only when the search coil is swung above it.

Searching for metal objects is actually 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 more lifted the coil, the less deeply the search.



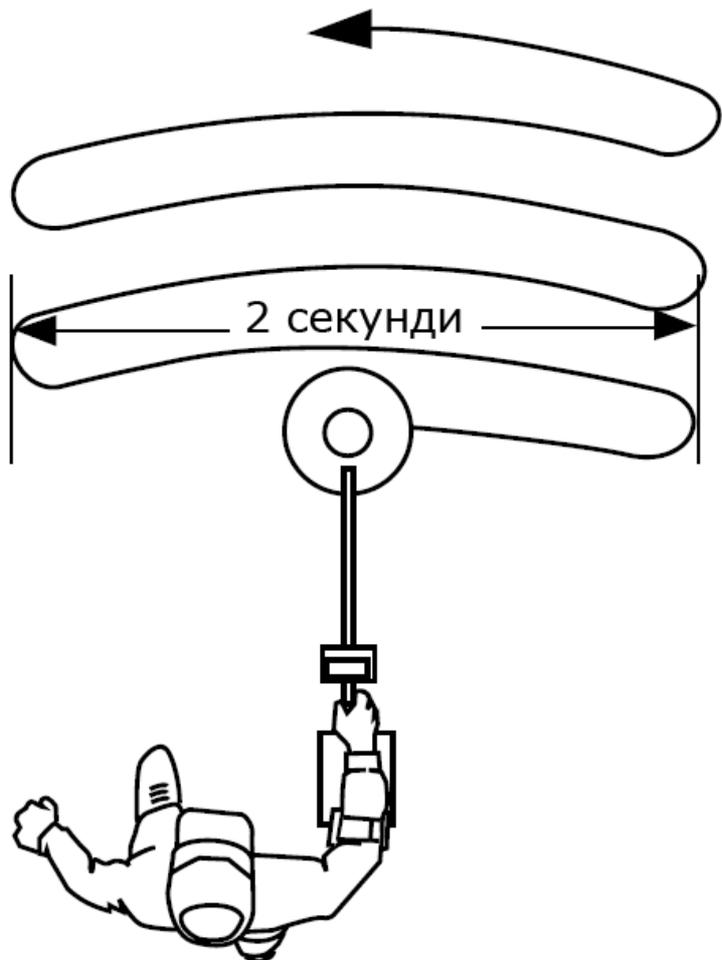
The search consists of a uniform and slow swinging of the coil one side to another, while the user holds the metal detector's handle and uses the armrest for support.

Too fast or too slow moving of the coil could result in shortening the search depth, 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 coil one side to another while the user is moving forward.

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

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



The precise location of the detected object 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.

## 11. BATTERY CHARGING

The metal detector BLISSTOOL LTC42 has 12V/2.5Ah NiMH battery that is placed inside the power supply module. The battery has around 500 charging/discharging cycles (battery "life"), after which its capacitance drops sharply and must be replaced with a new battery.

The battery charging has to be done only by the automatic battery charger BLISSTOOL DA12250 (~220/12V, 250mA) that is included in the standard kit.

The specified battery charger is designed to ensure the quality and safety during the battery charging process.

To charge the battery, plug in the battery charger jack into the connector that lies on the front panel of the power supply module. Then the battery charger contact-plug is plugged into the ~220V circuit.

The charging continues from 3 to 12 hours, depending on the battery level of discharge.

It is not required to keep a close watch on the charging process, as the charger is automatic and after the battery charging is finished it switches to a stand-by mode, which protects the battery from over-charging.

The green light indicator lits up when the battery charger is plugged in ~220V circuit, which indicates that the charger is working properly.

The charging process and the charging stages are indicated with the different light intensity of the red light indicator – when the battery is discharged, it is either out or is dimly lit up, while during the charging process the intensity is increased, resulting in a bright intensity when fully charged.

After the charging process has been finished, the battery charger should be switched off following the reversed order: plugging off the ~220V circuit by pulling out the power supply contact-plug from the wall-plug, then the battery charger jack is plugged off.

During charging, the metal detector should be switched off. Switching on the detector while being charged could cause serious damage to the electronic control module or to decrease the detector's search quality.

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

## **12. PRACTICAL RECOMMENDATIONS**

One of the most important components of the metal detector is the search coil, which to a great extent determines the device's sensitivity.

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

When necessary, the search coil, the electronic control module box and the power supply module box could be cleaned with wet cloth. Do not use detergents as they may damage the plastic parts or the inscription on the front panel of the electronic control module.

The electronic control module and the search coil are very sensitive towards sudden environmental temperature alterations. When there is a sudden temperature change, the user should wait usually 25-30 minutes before switching on the metal detector.

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

The usage of the metal detector in a rainy day may result in 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 electronic control module box and the power supply module box.

The electronic control module and the power supply module are not watertight and a serious damage would be caused to the metal detector, if water gets inside them.

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 electronic control module box and the power supply module box. If this is necessary, please contact us, using the contact information, given in 15, so that we could provide the appropriate technical support.

### **13. TECHNICAL MAINTENANCE AND SERVICE SUPPORT DURING GUARANTEE**

The metal detector BLISSTOOL LTC42 has a 3-year guarantee for the quality of the produced components and in case of any factory flaws.

The warranty excludes the battery 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 electric control module; opening the power supply module; wearing, force opening or damaging of the carrier construction, the search coil, the cable or the jack for the coil; incorrect plugging of the search coil; damaging the detector due to connecting to incompatible search coils, batteries, battery chargers and headphones).

To be a subject of a repair under guarantee, a device 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 that the transport of the device should be carried out in its original purchase box (included in the standard kit), since it is optimized for a safe storage and transport.

The serial number and the purchase date, written on the guarantee certificate, verify the guarantee.

For further details and information regarding the technical maintenance and service support both for devices with current or expired guarantee, please contact us by using the contact information, given in 15.

### **14. LEGISLATION**

The possession of a metal detector is completely legal, as long as you comply with the existing legislation. That is why we recommend you to avoid searching in a private property, national parks and archaeological reserves.

### **15. CONTACT INFORMATION**

#### **BLISSTOOL**

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