

# Mole DDS L6 / Ultimate Operation manual



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## INTRODUCTION

DDS L6 Ultimate is a new generation long range locator, which combines extremely powerful and operating device, with which different types of metals, hollow spots and water can be localized and discovered, with eliminator which can specify the exact spot of the object found with the first module.

The principle on which this device is working is “molecular frequency discrimination”. Characteristic feature of this device is that it can check large areas for a small amount of time, for example 3000 decares for an hour. If the device comes across an object from the previously assigned from you frequency, no matter whether it is metal, mineral, water or hollow spot, it can be localized with pretty good precision.

The distance and the depth on which the object is located depend on several components:

- What type of material is buried;
- How long has it been buried and how deep;
- Is the terrain moist;
- Is there running underground water near by.

This technique helps for quick orientation and location of objects, hollow spots and water in a certain direction. If a line of searching is discovered, this signal should be checked, specified, registered and very well examined before digging.

Every person can search with this device doesn't matter how much experience does he/she have. The final result is always positive as long as the weather conditions are good. The device should not be operated when there is too much rain, too much wind or water on the surface.

One of the basic features of the long range locators is that they find not the object itself but its ionic field created by the ions which were formed from the long stay of the object underground, i. e. in order the object to be found it has to have spent some time in the ground. As an example, the following values should be taken into consideration:

-Golden material buried underground creates the necessary amount of ions to be discovered with this device for about 30 to 50 years.

-Silver material – between 20 and 30 years.

- Copper or bronze material – around 20 years.

- Pure iron – between 2 to 3 years.

The more aggressive the soil is, i.e. the more minerals and salts it has, the quicker the necessary ions are formed.

It is almost impossible for an experienced operator to miss a real object with the appropriate weather conditions.

This device picks up signals from object which have already been dug out. Iron ions which have stayed in the soil after the digging out of the metal can easily be detected even after many years. For this purpose the device also contains an eliminator which dissolves the ionic field formed around the objects during their stay in the ground. If the find is already dug out after working with the eliminator, the line of searching disappears, but if the find is there the signal is moved to its correct location.

It is advisable, after the object is discovered, it's location to be checked with powerful metal-searching equipment working with the method of “pulse-induction”, transmitter-receiver (ground radar, magnetometer, etc.). The locator cover great depths and the above mentioned equipment will help you determine the size and the depth of the object, unless it is buried too deep.

When used by an experienced operator, the device DDS L6 Ultimate picks up the frequency vibrations from different objects up to 10000m in distance and from 60 to 80 m depth (for very big objects). The registration of an object depends on: the quantities of the searched object, the moist and the salts in the soil, the time the object has been in the ground, the weather conditions and the experience of the operator working with the device. DDS L6 Ultimate can locate ore veins, long lost treasures, hollow spots, water. It can also serve for locating scraps buried in the ground, for researching virgin gold-bearing areas and etc. The objects can be registered under and through water. Through the two drills, which are stuck in the ground at distance from 60 to 90 cm, an electromagnetic field is transmitted. It is transmitted in all directions. The field is the most powerful where there is least resistance. It spreads through the ground, through the soil moist, in vertical and horizontal direction. As the distance grows the intensity of the fields weakens. If there is an object like the one you are searching in the area of detection, information passes between the drills and the locator, i.e. resonance currents which can be traced and registered. This resonance is between the drills and the object. After it there is no line registered although the field continues further. If the soil is dry or rocky, the currents flow on a curve, tracing the moist soil. The most important thing for the range of the locator is the size of the object. The large objects are located at long distances, as little objects like a bracelet or a coin are located from 100-150 m onward and at depth to 3 m. Another important quantity is the time which the object has spent in the ground as well as the ground's chemical composition.

The longer the object has stayed in the ground the more ions are formed around it. The ions are formed from the electrolytes in the soil decomposing around the object, making it bigger and more discoverable. Old objects which

have stayed in the ground for hundreds of years are easier to locate than objects staying in the ground for 2-3 years. Another factor is the type of the object. The easier it corrodes, the easier it can be found. It is the easiest to find iron because it corrodes the fastest. It is also easy to find copper and its alloys, bronze and brass, silver and others. It is the hardest to discover gold, because the ions around a gold object are too little. Besides, the gold is one of the heaviest metals. For example 5 kg of gold are the size of a fist. The little value it occupies has insignificant chemical activity and this makes it hard to locate. For example 1 l of melted gold is 19,300 kg. Below there is a table with the different types of materials and their density in 1 l melted metal.

Type	Weight in 1 litre
Aluminum	2,700 kg
Iron	7,900 kg
Brass and bronze	8,500 kg
Copper	8,900 kg
Silver	10,500 kg
Gold	19,300 kg
Platinum	21,400 kg

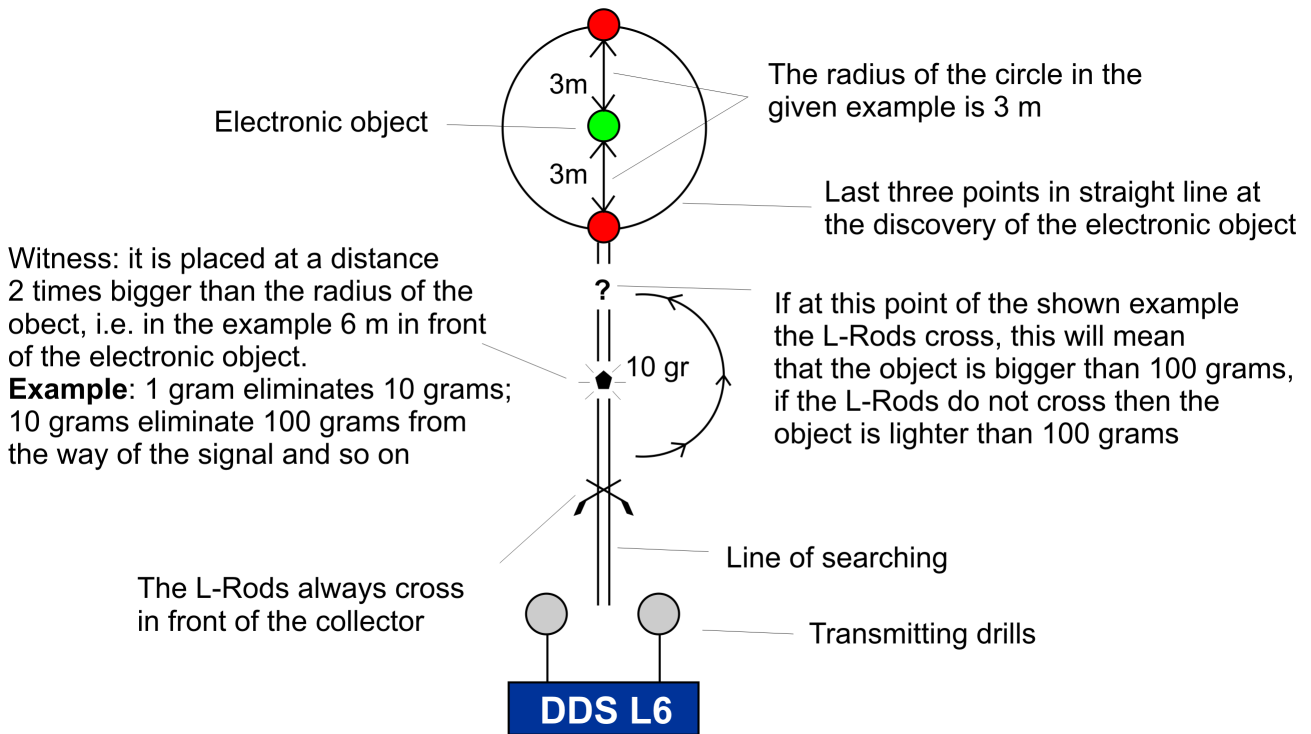
The following deduction can be made from this information: in one 800 ml jar there can be 10-12 kg gold, depending on the size of the coins.

The manner in which the device DDS L6 Ultimate locates objects is very interesting. The operator is holding metal L-Rods which camp in their handles and move very slightly. The L-Rods are connected with conductors to the receiver which has its own power and is carried by the operator at his belt.

The L-Rods are carried bent down a little and parallel to each other. The locator is turned on after the transmitting drills are stuck in the ground. 5-10 minutes later the operator moves anticlockwise, in circles, around the drills at a distance 5 meters. If there is an object in the range, from the type we have tuned up the locator to find, then a line of searching is formed between the resonance currents and the locator. When the operator passes above this line the two L-Rods cross each other. If the operator moves out of the searching line the L-Rods again become parallel to each other. This effect is formed by the capacity and the resistance of the human body with the inductivities of the receiving module and creates broadband vibrating circle. When crossing the searching line this circle resonates and the two L-Rods are electrically attracted. It is possible when scanning bigger areas the device to pick up signals in different directions. In order to specify which signal is of bigger interest for you, you should use a device called collector (for this device you can read further in the manual). This device looks like the drills from the outside but the cylinder is empty and a real amount of the metal we are looking for (for example gold, silver, copper, bronze) is put in it. The collector is stuck in the ground between the transmitting drills and the operator, who is above the searching line. If the antennas open this means that the detected signal is not real or is of very insignificant weight. If the antennas stay crossed the search continues. The collector is a device which eliminates objects ten times its weight.

**Example:** if there are 20 gr. of gold in the collector, you will eliminate objects weighing to 200 grams. If you put 10 grams you will eliminate 10 grams. This helps the operator determine by himself how big the object he had found is.

If you choose several collectors with different amount of gold in them you can determine the weight of the object.



*Our advice is not to use collector because it contact with the ground through a brass drill and this could confuse the proper measurement. We advise to pour about 1 liter of water right above the searching line and then to stick the required amount of the searched metal as described above.*

The most used operating frequencies are:

Type	Frequency
Lead	4,5 kHz
Gold	5,0-5,5 kHz
Aluminum	7,0 kHz
Silver	8,7-8,9 kHz
Bronze	11,3kHz
Copper-Brass	11,7 kHz
Diamonds	12,7 kHz
Iron	17,0-17,8 kHz
Water	10,0 kHz
Hollow spots	2,2-2,7 kHz

In some cases, at a given frequency, you can find another object but this is not a mistake of the locator but a multitude of different objects which were around the found object and that is why it can be find at a different frequency from the one given in the table.

**Example:** You are looking for copper/brass at 11,7 kHz, but you find bronze which should be discovered at 11,3 kHz. The reason why this happens is because of the metals around the brass. That is why you find it at 11,7 kHz, instead at 11,3 kHz, i.e. the combination of metals (alloys) can be found at completely different frequency than the given one.

The many years of experience we have as manufacturers and the information from the numerous clients give us the reason to offer you to



search at all possible frequencies with this locator, because it is impossible for you to know what alloys are there in the hundreds/thousands-year-old metals which you are looking. It is another question if you are looking for example in your yard with a map and on the map it is shown that you are looking for gold put in clay jar. Then you should really look through the frequency spectrum from 5,0 to 5,5 kHz, depending on how many carats is the gold you are looking for.

It will be completely different matter if you are looking for gold in a copper, bronze or iron pot. Then no one could assume in which frequency spectrum this pot could be found, because the size and the volume of the pot are unknown.

## **UNDERSTANDING „ELECTRONIC” OBJECTS**

Bulgaria (**for example**) is located north of the equator and the diversion of the electronic object is towards the equator, i.e. toward south. If necessary use compass or to be more precise, stand over the electronic object, with your back facing south and you will be able to see the direction of the eventual object to the north. If the object is small, buried not too deep and not too long ago, the electronic object in this case is almost over the real one, i.e. the diversion is very small. If some of the circumstances are missing, check with a deep searching metal detector (PI). If this does not give any results, it means that the object is very deep and is beyond the range of the metal detector. In such cases the eliminator for electronic objects is used, which is included in the panel of DDS L6 Ultimate.

The eliminator is used when there is the matter of underground entrances, corridors, hollow spots (usually for objects which have long been

buried or very deeply situated objects). If the real object is hundreds or thousands years old the electronic object can be up to 30 m south of the real object. That is why a thorough examination is needed, so there won't be any empty or in vain drilled holes with the real object not far away from the measuring. It is advisable that you have also a deep searching metal detector besides the eliminator. If you own a deep searching metal detector with 1m or 2 m coils, look north from the electronic object. If you wish to use eliminator, please read further in the manual the way to use it. If the object is not too deeply buried its discovery with a metal detector is very quick but for deeply buried objects or objects that have long been buried the eliminator is the only decision.

It is possible to find electronic objects which after working with the eliminator to disappear (i.e. to be eliminated). In this case you have come across already dug out real object. Its field still exists until it is eliminated electronically. Many of the users of our locator take advantage of the electronic object of proven finds, dug out a long ago, to train themselves. Such object is at a distance 1 to 30 meters from the real one. If you know such a spot do not relieve it with eliminator. It will help you when you go out to work with the locator to check your own condition and whether you are a good operator this day. Try to remember all this when you practice for some time so that you can become a professional seeker.

## CONTROLS, INDICATORS AND MODULS ON THE CONTROL PANEL

Located on the left side of the panel (DDS L6 Ultimate):



1. LCD display 1- display which serves for information regarding the searched material and his operating frequency.

2. Button „**POWER I**”- serves for powering the generator. When it is pressed the display and the LED control “**CONTROL 1**” lights up.
3. Button „**POWER II**”- serves for powering the amplifier. When it is pressed LED controls “**CONTROL 2 и 3**” light up.

If any of the diodes do not work it is possible that there is unplugged end of the storage batteries in the case, burned fuse (FUSE) or there is a problem with the amplifier. When you start “POWER I” and “POWER II”, in order the device to work properly, none of the LED “LOW BATTERY” should be active. If some of them flash during operation you should immediately turn off the device and stop working until you recharge your storage batteries. If there is other problem you should contact us.

4. Potentiometer “**FREQUENCY**”- serves for fine tuning of the frequencies which are chosen by the button “**BAND**” and are subjected to adjustment.
5. Potentiometer “**SENSITIVITY**”- serves for adjustment of the power of broadcasting. The optimal operating values for this control are from 7 to 10, according to the desired distance for work.
6. Light-emitting diodes “**LOW BATTERY 1,2 и 3**”- these are indicators controlling the charge level of the batteries. If some of them flickers during the using of the device you should immediately turn off the device until you charge your storage batteries.
7. Light-emitting diodes “**CONTROL 1,2 и 3**”- light indicators. “**CONTROL 1**” shows that the generator is working properly. “**CONTROL 2 и 3**” shows that the amplifier is working properly.
8. Button “**BAND**”- with this button you can go from one frequency to another as the names of the factory set materials are written on the LCD display 1.

9. Button “**STEP**”- with this button you can change the step of alteration of the frequency (in Hz), which you adjust with the potentiometer “**FREQUENCY**”.
10. Outlets “**PROBE OUT**” (2 pcs.)- These are outlets for the connection of the two drills, which are stuck into the ground.
11. Inputs “**CHARGE 1, CHARGE 2 и CHARGE 3**”- inputs for charging the three storage batteries of the DDS L6 Ultimate. In order the charging to be possible the corresponding jack should be plugged into the “**DDS L6 DC INPUT**”, located at the central part of the panel between the two dividing lines. (These inputs are unusable if you have Automatic Battery Charger in the package)

**Located between the two dividing lines at the central part of the panel:**

1. “**FUSE**” (3 pcs.)- Safety fuses. For every battery there is one safety fuse. If one of them blows up you won't have frequency at the display or the amplifier will stop working. For every safety fuse there is a light-emitting diode at the left side of the panel (**CONTROL 1, 2 и 3**), which lights up if the fuse is working properly. The fuses are 3,15A.
2. Input “**ELIMINATOR DC INPUT**” (5 pins) – serves for the operation of the device and the charging of the battery of the eliminator.
3. Input “**DDS L6 DC INPUT**” (8 pins) – serves for the operation of the device and the charging of the batteries of the batteries of the DDS L6 Ultimate.

### **Located at the right part of the panel:**

1. LCD display 2- information display which shows the constantly changing polarity when the electronic object shifts. When the eliminator is working properly, the numbers at the display go from negative to positive values, as the values do not have certain limits, i.e. they are different each time as the ground has different resistance.
2. Switch "**LCD ON/OFF**"- serves for turning the LCD display on and off.
3. Switch "**POWER**"- serves for turning the eliminator on and off. In order the turning of to be possible, the corresponding jack should be plugged in "**ELIMINATOR DC INPUT**", which is located at the front central part of the panel between the two dividing lines.
4. Light-emitting diodes "**CONTROL**" (2 pcs.) – indicators showing the proper work of the generator. The positive values shown at the display correspond to the red light-emitting diode and the negative – to the green LED.
5. LED "**LOW BAT**"- indication for exhausted battery.
6. Outputs "**PROBE OUT**" (2 pcs.) – these are outputs for connection of the two drills of the eliminator which are stuck into the ground.
7. Input "**CHARGE**"- input for charging the storage battery of the eliminator. In order the charging to be possible the corresponding jack should be plugged into "**ELIMINATOR DC INPUT**", found in the front part of the panel, located between the two diving lines. (Unusable if you have Automatic Battery Charger in the package)



## PROGRAMS FOR SEARCHING

The digital locator DDS L6 Ultimate has 15 built-in programs – 8 of these programs are previously set up for the most common frequencies for searching metals, and 7 from the frequencies are personal and also preliminary set up. In model B of the DDS L6 Ultimate there is additional channel for water, hollow spots and minerals. The operator can change parts of these frequencies with the exception of the frequencies for “lead, aluminium, bronze, copper-brass” and “diamonds”. All other frequencies for “gold, silver” and “iron”, “water, hollow spots and minerals” can be modified within their limits.

**Example:** If you wish to change the frequency for “gold” from 0,005000MHz to 0,005125MHz, turn the encoder “**FREQUENCY**” right, clockwise, until the counter shows the desired frequency. Every step of the encoder is equal to 1Hz. If you turn the encoder faster it will start to jump through 10 or 100 divisions (**PLEASE ROTATE IT SLOWLY**). Another option for changing the frequency is shifting it with “**STEP**”. Press and hold “**STEP**” and under the digits of the scale over the display a cursor appears. Turn the encoder “**FREQUENCY**” left and it will settle under the decimals. Release “**STEP**” after that. From now on every step of the encoder is multiplied by 10Hz. Turn the encoder left and right and make sure that this is so.

If you press and hold “**STEP**” again and move the cursor through the encoder under the hundreds or the thousands then every step of the encoder will be multiplied by 100 or 1000. After you make the rough adjustments press and hold “**STEP**” and return the cursor under the units’ column and release “**STEP**”. Every step is automatically saved after 5 seconds. If you wish to

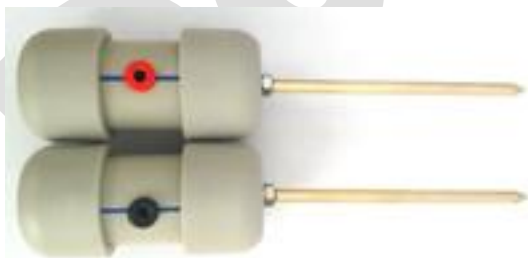
search another object, please press “**BAND**” one time. If you hold “**BAND**” for a longer period the programs will change more quickly.

## PREPARATION FOR WORK

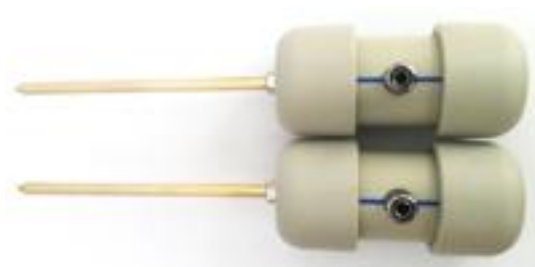
1. Open the case with the device and the one with the accessories.
2. Plug in the two cables coming from the storage batteries from the accessories case to the „**DDS L6 DC INPUT**” and „**ELIMINATOR DC INPUT**”. The 5-pin jack is connected to „**ELIMINATOR DC INPUT**” and the 8-pin to „**DDS L6 DC INPUT**”. Fasten the nuts to the inputs carefully by hand so that they are fastened still but do not over fasten them.
3. Take out the drills from the case and stick them into the ground in front of it. The distance between the drills should be between 60 and 90 cm. If you are looking for smaller objects the drills should be stuck in the ground at a distance around 60 cm from each other. If you are looking for bigger objects there should be around 90 cm between them.

### NOTE:

The drills for DDSL6:



The drills for the Eliminator:



4. Plug in the set of black and red cables from the case with the accessories to the inputs of the drills and to the **PROBE OUT** outputs of the DDS L6 Ultimate, situated at the lower left part of the panel.



**So far you have completed the necessary mechanical actions. In order to use DDS L6 Ultimate in action you should perform the following operations.**

1. Check out whether the potentiometer "**SENSITIVITY**" is in position „0". If not, please put it in position „0".
2. Lift off the safety cap over button "**POWER I**" and press it. Upon pressing it the buttons lights up and right to "**SENSITIVITY**" (**PLEASE ROTATE IT SLOWLY**) the LED "**CONTROL 1**" lights up too. This shows that the device is in perfect working condition. At this moment an LCD is turned on too and it shows the chosen frequency for searching.
3. Press multiple times button "**BAND**", located on the right of the LCD display, until you reach the position of the material you wish to search (you can find the different frequencies above in this manual). The frequencies for the materials are factory-made and cannot be altered with the exception of the positions gold, silver and iron. If you have chosen GOLD at 5 kHz (0,005000MHz), you should continue to the next step.
4. Lift the safety cap of button "**POWER II**" and press it. Upon pressing the button it lights up and right to "**SENSITIVITY**" the LEDs "**CONTROL 2**" and "**CONTROL 3**" will light up.
5. Turn the potentiometer "**SENSITIVITY**" slowly, putting it at position 7 minimum or position 9 or 10 maximum. The bigger the number of the "**SENSITIVITY**" is, the bigger the power of your locator will be.

**Example:** If you wish to search near you, i. e. at a maximum of 400-500 meters you can leave the "**SENSITIVITY**" to around 7, but if you wish to cover bigger areas the power will grow up drastically after position 9 or 10.

So far you have made all the necessary preparatory adjustments for operating the locator.

Please read the following details regarding the distribution of radio waves and their saturation in the ground.

The speed of the radio wave is the same as the speed of light but the saturation in the ground with this type of equipment is 1 meter per second.

**Example:** If you wish to examine the device up to 600 meters ahead it is necessary to wait 600 seconds, which equals 10 minutes. The diagram of the broadcasting of the locator is circular, i.e. in 600 seconds you will saturate area of 1200 meters in diameter (this is area of hundreds of decares).

Next steps for beginning of the search:

1. Take the receiver for the L-Rods (the black plastic box) from the case with the accessories.
2. Open the back lid of the box and put in the available 9V battery in the battery compartment. Close the lid after that.
3. Hook up the receiver to an outer pocket or on your belt using the clip at the back end of the box.
4. Take out the L-Rods which are located in the lid of the case with accessories. To reach them it is necessary to twist the holder at the upper part of the lid.
5. Take the set of black and red cable found in the case of the accessories.
6. Unwind the black and the red cable. Pay attention that the jacks on the receiving box and the lower part of the L-Rods are of the same color (black and red).

7. Connect the black cable to the black jack of the receiver box and the black jack of the L-Rod as well as the red cable to the red jack of the receiver box and the red jack of the L-Rod.
8. Take the black cable and the corresponding L-Rod with your right hand and the red cable and the corresponding L-Rod with your left hand.
9. If ten minutes have passed, following the example for searching from above (saturation radius of 600 m), move away from the case at a distance 5 meters and start turning in a circle, anticlockwise, around the case with the device.
10. Take the L-Rods so, that they are parallel to each other, at chest height, but in such position so the angle of the elbows to be 90 degrees compared to the body.
11. If at a certain moment the L-Rods cross, this means that you have found resonance line, i.e. the line between the locator and the discovered object (which final point you don't know yet).

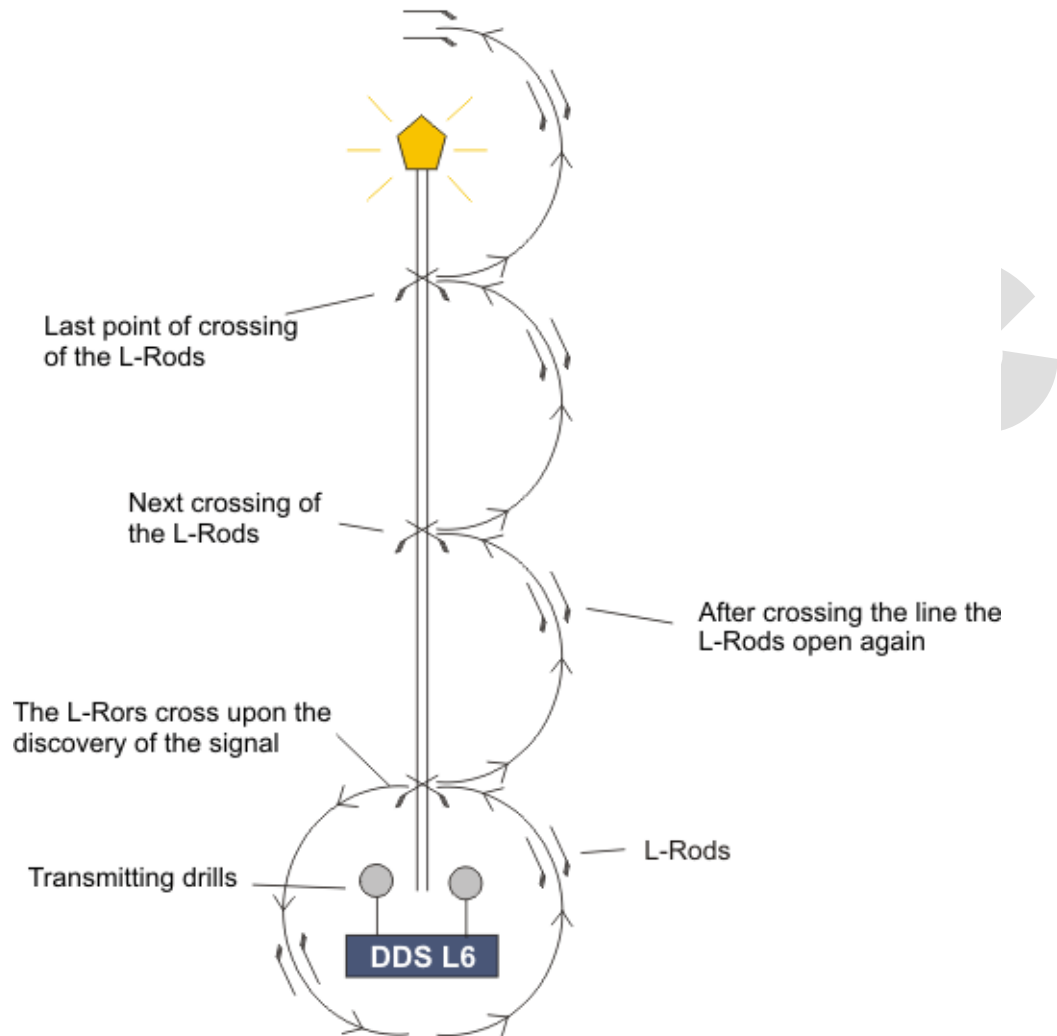
## **WAYS TO TRACE THE SIGNAL AFTER THE RESONANCE LINE HAVE BEEN LOCATED**

After you have located the resonance line, i.e. the L-Rods have crossed; you should follow that signal in order to find the final goal.

In order to do so, please perform the following actions:

1. Mark with a flag the first point where the L-Rods cross.
2. Look at the picture below so that you can understand the principle of searching. The correct movement is the following:

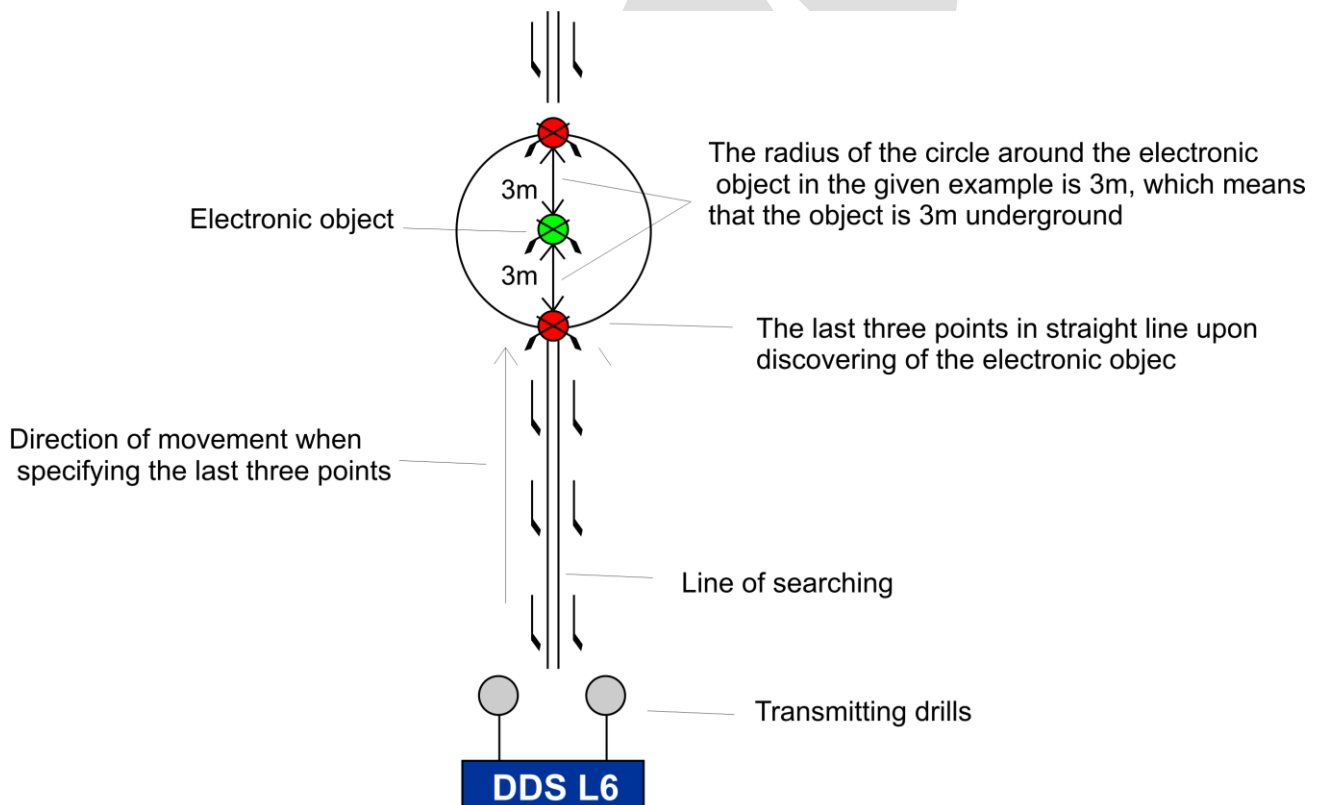
The L-Rods do not cross any more, which means that the point of the electronic object is passed.



First turn anticlockwise around DDS LS in circle with radius 5 meters until you detect the line of the signal

3. Walk back 5 meters from the first flag and move 10 meters aside (in direction of the intersected object) as it is shown on the picture.
4. Walk ahead again, anticlockwise, until the L-Rods cross again. Mark this spot with a flag.
5. Continue to move back and aside through the same intervals marking the crossing points.

6. If the last time you pass, you do not receive a signal from the L-Rods, i.e. they do not cross, this means that you have passed the final point of the searched object.
7. Then turn back at least 2-3 flags at the marked line. Stand backwards to the locator and walk ahead with the L-Rods on this straight line. Now the L-Rods will cross 3 times when you reach the electronic object as the middle point in which they cross will be the real point of the searched **electronic** object. If we take into consideration the distance between the three points and it is, for example, 6 meters, this will mean that the searched objects is at depth 3 meters.



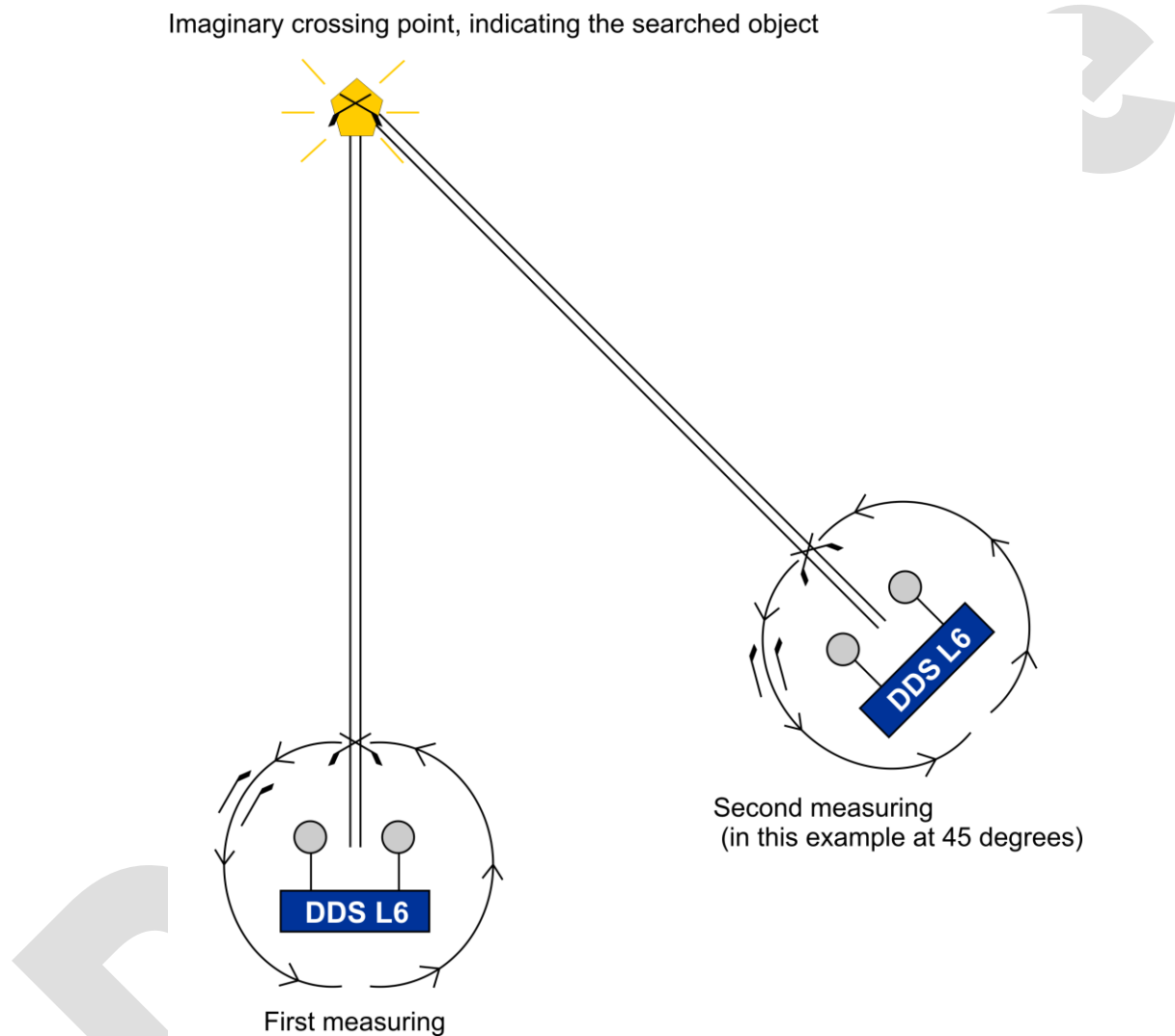
If the searched object is close to the locator as in the example above this is ok, but if the buried object is far away then we operate otherwise. After

we have discovered the line of the electronic object and we have marked for example 200-300 meters with flags and the signal doesn't stop, then it is pointless to continue, so we turn off the device and move it 90 degrees from the established line in order to make triangulation. From one measurement to another there must be period of 15 to 20 minutes, i.e. this time is needed for you to move the device, process the soil with water, set up the device and so on.

#### Steps for making the triangulation:

1. Before moving the device to 90 degrees, please perform the following actions:
2. Turn the "**SENSITIVITY**" in position „0”.
3. Turn off "**POWER II**".
4. Turn off "**POWER I**". Close their caps.
5. Take the drills out of the ground. Pull them upwards and do not twist them, because you can damage them.
6. Pull out the cables for the drills from the side of the DDS L6 Ultimate from outputs "**PROBE OUT**".
7. Twist the cables gently around the drills and put them in their place for transportation.
8. Unscrew the two nuts and pull out the two powering jacks from the panel of DDS L6 Ultimate and pack the cables on their places in the case for the accessories.
9. Pull out the cables from the L-Rods and from the receiving box.
10. Place the L-Rods and the cables in the transport department of the case.

11. Close the case of the DDS L6 Ultimate and the case with the accessories.
12. Take the both cases and move away 50-60 meters at 45 or 90 degrees from the line of the detected object.



13. Open the cases and connect carefully the separate components as it is described in the first example.

14. Take some water and pour 0,5-1lt it at 2 places at a distance from 60 to 90 cm from one another. Stick the drills at each place without twisting them, so you won't damage them.
15. Check whether the potentiometer "**SENSITIVITY**" is in position „0". If not, please put it in position „0".
16. Lift off the safety cap over button "**POWER I**" and press it. Upon pressing it the button lights up and the LED "**CONTROL 1**", right to "**SENSITIVITY**" turns on, showing that the device is operational. At this moment the LCD turns on too, showing the chosen frequency for searching.
17. Press multiple times the button "**BAND**", next to the LCD, until you reach the position of the material you wish to search for (the different frequencies can be found above in the manual). The frequencies for the materials are factory-made and cannot be altered with the exception of the positions gold, silver and iron. If you have chosen GOLD, you should continue to the next step.
18. Lift the safety cap of button "**POWER II**" and press it. Upon pressing the button it lights up and right to "**SENSITIVITY**" the LEDs "**CONTROL 2**" and "**CONTROL 3**" will light up.
6. Turn slowly the potentiometer "**SENSITIVITY**", putting it at position 7 minimum or position 9 or 10 maximum. The bigger the number of the "**SENSITIVITY**" is, the bigger the power of your locator will be.

**Example:** If you wish to search near you, i. e. at a maximum of 400-500 meters you can leave the "**SENSITIVITY**" to around 7, but if you wish to cover bigger areas the power will grow up drastically after position 9 or 10.

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3. Take out the L-Rods with are located in the lid of the case with accessories. To reach them it is necessary to twist the holder at the upper part of the lid.
4. Take the set of black and red cable found in the case of the accessories.
5. Unwind the black and the red cable. Pay attention that the jacks on the receiving box and the lower part of the L-Rods are of the same color (black and red).
6. Connect the black cable to the black jack of the receiver box and the black jack of the L-Rod as well as the red cable to the red jack of the receiver box and the red jack of the L-Rod.
7. Take the black cable and the corresponding L-Rod with your right hand and the red cable and the corresponding L-Rod with your left hand.
8. If 10 minutes have passed following the example for searching from above (for 600 meters radius of saturation), move away from the case at

a distance 5 meters and start walking anticlockwise in circles around the case with the device.

9. Take the L-Rods so, that they are parallel to each other at chest height but in such position so the angle of the elbows to be 90 degrees compared to the body.

If at a certain moment the L-Rods cross, this means that you have found resonance line, i.e. the line between the locator and the discovered object (which final point you don't know yet).

Following the instructions for marking the crossing points of the L-Rods, mark at least 4-5 points moving aside and backwards.

After that look at the flags you have put at your first search and at the flags you have put in your second search and see in your mind where they cross. This crossing point is the possible final point of the object.

Now that you have this third point in your mind, gather the equipment in the order mentioned above in the manual and move it 20 m in front this third point.

Then connect and turn on the equipment in the order mentioned above in the manual and follow the instruction closely until you discover the final point.

**This point is not a real object yet. It is still an electronic object. After you pass above the object and make the last 3 points, the middle of which is the electronic object, you can determine the approximate depth of the object. It is equal to the half of the diameter of the distance between the 3 points.**

After you have done all this you can continue with the using of the eliminator.

## **IMPORTANT:**

1. Do not shorten the L-Rods during work. They are varnished but still, be careful. This does not apply to the handles, which are completely insulated.
2. Do not change the operating frequency without waiting at least 15-20 minutes.
3. Do not change the frequency for the same metal without waiting.  
**Example:** You have looked for gold at 5,20kHz. The frequency could not be changed to 5,5kHz without waiting for the technological time to pass, even though the frequency is still for gold.
4. Never shorten the drills (**PROBE**) while they are in operating mode. The short circuit can damage the whole equipment.
5. Charge the batteries every time before using the locator. After the work day is over charge them again. This is necessary because the charging device is automatic and there should be residual voltage in the accumulator, around 11V, in order for it to work. If you use the batteries too much this voltage will drop under 10V and the panel of the DDS L6 Ultimate will signal with the LED "**LOW BAT**". If you operate the batteries this way at some point you will damage them and the charging device will not be able to charge them. This is a sign that the storage batteries are not useable ever again.
6. You can monitor the condition of the batteries through the three light-emitting diodes placed in the center of DDS L6 Ultimate (under

“**SENSITIVITY**” and “**FREQUENCY**”). If the LEDs “**LOW BAT**” are shining, the batteries must be recharged.

## **USING THE ELIMINATOR**

The eliminator is a device which you will need when searching for buried objects. It helps for returning the electronic object over the real one. In time an electronic field is formed around the objects. The power lines of this field divert to the equator. Countries located at the equator do not have diversions in the electronic field of the real object. For objects located north of the equator the diversion is southwise. In countries located south of the equator the diversion is northwise from the real object. If the operator finds line of a real object and locates the “exact spot”, this means he would have to look north or south depending on the location of the country he is regarding the equator. The eliminator will save a lot of troubles and work on finding the object, because the eliminator will bring back the electronic object over the real one. You can read details regarding the understanding of the electronic objects in the section “**UNDERSTANDING THE ELECTRONIC OBJECTS**” above in the manual.

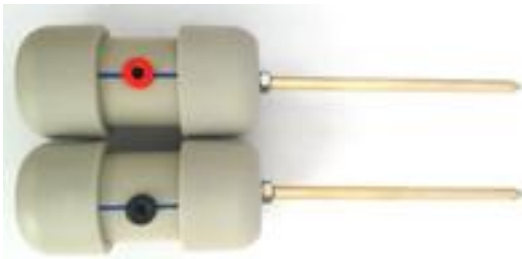
***This example is for use in countries south of the Equator. Deviation of digital object in regions north of the Equator will be to the south. Eliminator is not need when on the Equator, i.e. a digital object is also a real object.***

### Directions for using the eliminator:

1. Before using the eliminator, make sure that the battery of the eliminator is charged. In case the LED "**LOW BAT**" is shining, turn off the device and charge the storage battery.
2. Take out the drills from the case with the accessories.

### **NOTE:**

**The drills for DDSL6:**



**The drills for the Eliminator:**



3. Plug in the set of 2 long black cables from the case with the accessories to the drills' inlets and to the outlets (**PROBE OUT**) of the eliminator, located in the lower right part of the panel.
4. Pour at two spots a liter of water each, so there is better contact between the ground and the drills, and stick the drills in the ground without twisting them. Put the drills as far away from each other as you need.
5. The working with the eliminator depends on how old and big the object is. The older and the bigger the object is, the longer it will take to work with the eliminator. If the object is 60-70 years old it will take the eliminator to move the electronic object over the real one about an hour.

If the object is 300-400 years old the eliminator will have to work few hours.

***The eliminator stays in operation until the end of detection, while DDSL6 turns on every 30 minutes in order to check the movement of digital object to real point. It is important to turn off DDSL6 after the made check.***

6. Turn the eliminator using the “**POWER**” switch. In order this switch to be active the corresponding cable must be plugged in “**ELIMINATOR DC INPUT**”, located at the middle part of the panel between the two dividing lines.
7. After tuning the “**POWER**” on, the two light emitting diodes located under it must light up. They show that the device is operational. If those diodes do not shine there must be some problem with the power or the electronics. In case that happens, please, check if the jacks to the batteries in the case with the accessories are plugged in. In case some of them are unplugged, please plug them in again, being careful not to switch the places of the cables, i.e. to switch the places of „+” and „-”. If the reason is not the wiring of the batteries, please turn off the device immediately and contact us.
8. Turn of the lighting of the screen with the “**LCD ON/OFF**” switch.
9. Check the LED “**LOW BAT**”, which controls the level of voltage of the storage battery of the eliminator. If upon starting the device or after continuous work this LED is activated, please stop working, charge your storage battery and then continue your work.
10. After you have done everything leave the eliminator on as much as needed following the directions from **point 5** above.

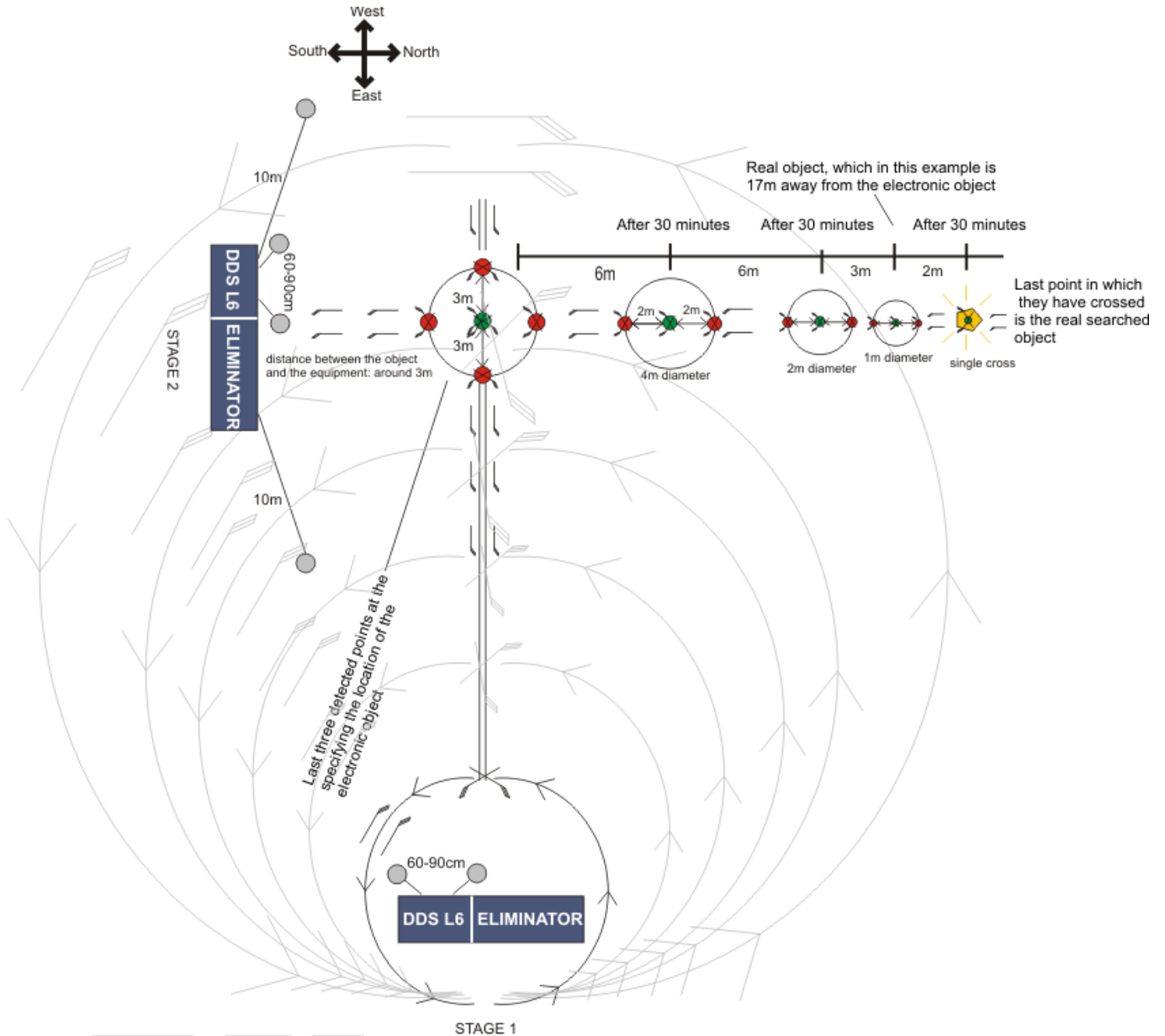
11. Check every half an hour for the shifting of the signal. The signal can move up to 30 meters from the real object and even further if the object was underground for 1000 years or more.

***The eliminator stays in operation until the end of detection, while DDSL6 turns on every 30 minutes in order to check the movement of digital object to real point. It is important to turn off DDSL6 after the made check.***

***This example is for use in countries south of the Equator. Deviation of digital object in regions north of the Equator will be to the south. Eliminator is not need when on the Equator, i.e. a digital object is also a real object.***

The checking up of the DDS L6 Ultimate is performed the following way:

Without turning off the eliminator, turn on the DDS L6 Ultimate following the instructions described above in the manual, wait the required time and start searching from the place of the electronic object to the north. Determine the north direction using compass. The tracing of the spots till reaching the real object can be seen in the picture below:



At the end, for precise positioning of the real object, it is recommended to walk in straight line following the signal line found with the DDS L6 Ultimate. For example, you can see the picture for specifying the last three points for determining the position of the electronic object but in this case you will discover only 1 point, which will be the searched one.

How will the operator find out when the shifting has ended and the electronic object is over the real one?



The operator will find out, because the measuring each half an hour will duplicate the same point, i.e. the last two measurements will be at the same spot. With the eliminator he can find out whether this is a real buried object or the remains of metal ions of already dug up object.

If you have localized the object and this object disappears during the work with the eliminator, this means that you have come across an object which has already been dug up. But if after working with the eliminator the object remains, you can be sure that it is really there and should be dug up.

#### Recommendations:

- Do not short circuit the blades of the two metal drills because you will damage the eliminator.
- Don't work on wet ground.
- When you stick the drills of the eliminator, never twist them, because there is a risk of tearing the inner bonds of the drills.
- If the soil is hard and the drills cannot be stuck in with normal pressure, please use a blade with diameter 4 mm
- When you stick in and pull out the drills from the ground, please use both hands to hold the upper and lower caps of the drill so they won't end up separated. Even though the caps of the drills are extremely well glued together and the blade is well fixed, please mind the above mentioned recommendations for working with the drills.
- If after continuous work the LED "**LOW BAT**" turns on, please charge the storage battery and then continue working.

**Attention:** Do not continue to work when the LED “**LOW BAT**” is shining, because the storage battery will exhaust so much that the charging device will not be able to charge it. If you use the storage batteries properly they can serve you for many years.

## **CHARGING THE BATTERIES**

**IMPORTANT:** Never place metal objects directly over the outlets of the storage batteries in the case with the accessories, because this will cause instant short circuit and will burn down the whole system.

Before using DDS L6 Ultimate check whether the connectors are fastened well to the storage batteries. Do not unplug those cables during transportation because you can switch accidentally their polarity and damage the electronics.

If by some reason the cables (red “+” and black “-“) are unplugged from the battery side, plug them in carefully as you pay attention not to change their place, i.e. their polarity.

**IMPORTANT 2:** Every cable has two ends (black and red) and they must be connected to only one storage battery, i.e. you cannot plug in the black end of the cable to one of the batteries and the red end to another battery (each cable with its two branches must be connected to one battery) It is desirable that you do not unplug those cables so you won't damage the device.

**!!! FOR EUROPE STANDARD (220V) !!!**

To charge the batteries use the automatic chargers from the case with the accessories.

**NOTE: Charging in European sockets is also possible with the AUTOMATIC BATTERY CHARGER (it is designed for DDSL6 charging in 110V sockets but also can work with 220V). If you have purchased your DDSL6 from a distributor in the USA, it has a kit AUTOMATIC BATTERY CHARGER.**

In order the storage batteries to be charged the three main cables coming out from them should be plugged in „**DDS L6 DC INPUT**” and „**ELIMINATOR DC INPUT**”.

Each charger has a switch on its back labeled Battery. This switch should be in position 12V.

For every charging socket there is a charging device, i.e. in there are 4 charging devices in the set.

Plug in the outlets of the four charging devices in “**CHARGE 1**”, “**CHARGE 2**”, “**CHARGE 3**” for DDS L6 Ultimate and “**CHARGE**” for the eliminator.

Plug in the cables for 220V in connection block for 220V.

If everything is connected properly the green LEDs on the charging devices will turn on (please check if this is so).

Left from the green LEDs there are red LEDs. These LEDs will never turn on. Their function is to show us that the storage battery is not connected properly. In this case the charging devices are modified with a jack, so these LEDs are not used.

When the storage batteries are charged, gradually, depending on the level of exhaustion, the green LEDs will turn off, which means that the batteries are fully charged.

**Example:** If you have been charging the batteries for a whole night but in the morning you see that one or two green LEDs are still shining but very feebly, it is not a problem for you to work during the day and then charge the batteries again.

Do not worry if you forget the charging device plugged in for 1, 2 or 3 days. The device is automatic and can maintain the same voltage in the batteries even if not unplugged for years.

We have one recommendation: When you charge the batteries it is recommended that the charging devices are not in the case or over soft fabrics, because this will prevent the cooling of the devices. If possible, please place the charging devices over surfaces which will allow their normal cooling.

If you charge your batteries correctly and the LEDs „**LOW BATTERY**”, never turn on, i.e. you do not overuse the batteries you can use the same set for 3-4 years.

**!!! FOR US STANDARD (110V) !!!**

**NOTE:** The CHARGE jacks on the panel of DDSL6 cannot be used when the locator is used in countries with US socket (110V).

**To charge DDSL6 and Eliminator into US sockets (110V) you should use the automatic battery charger from the tool kit:**

**NOTE:** Charging in European sockets is also possible with the **AUTOMATIC BATTERY CHARGER** (it is designed for DDSL6 charging in 110V sockets but also can work with 220V). If you have purchased your DDSL6 from a distributor in the USA, it has a kit **AUTOMATIC BATTERY CHARGER**.

**Follow these steps when charging storage batteries:**

1. Take the two wire harnesses going out of the four batteries, which are the connectors between the batteries and the control panel of DDSL6, and put them into the DC OUT input of the AUTOMATIC BATTERY CHARGER. These harnesses are designed to be used for control panel and battery charging.
2. Insert the jack of the black adapter in the DC IN input of the AUTOMATIC BATTERY CHARGER.
3. Make sure that the switch on the black adapter is in 24V position.
4. Finally, plug the black adapter cable in the socket (110V).
5. The charging of all four batteries starts automatically.
6. The LED light CHARGING indicates that the battery is charging.

7. The LED light READY indicates that the battery is charged. Then, the charging is terminated automatically and there is no risk the battery or the charger to be damaged even if it is plugged in.

8. When charged, besides the READY LED light indicator, “end.U!” appears on the display to each battery.

9. When all batteries are fully charged, first plug the adaptor out of the socket (110V) and then plug all other cables out.

## **CHARGE mode**

By repeatedly pressing the “MODE” button, submodes change:

1. Voltage, charging current, at any output;
2. Charged capacity and charging duration;
3. Start of charging;
4. Charger status (voltage and consumed current from the power adapter, device temperature and current time/date).

## **PROGRAM mode (using the keyboard)**

By pressing the “ENTER” key, different parameter groups change. To begin value editing, press the “INS” key and then the “ENTER” key to activate any change.

The “NumLock” key cancels any editing.

Parameter groups (adjustment displays):

1. **Real time clock set:** (*Clock set*). Insert date/time.
2. **Temperature limits 1..4** – This is the maximum temperature limit for charging termination of any of the four batteries (only if connected to additional temperature sensors).
3. **Voltage limits 1..4** (*upper limit of battery voltage; when reached charging terminates*). It can be set for each battery.
4. **Scaling factor Icharge 1..4** (*scaling factor for the indication of batteries' charging current during charging*). It can be set for each battery.
5. **Scaling factor Ucharge** (*scaling factor for the indication of batteries' voltage during charging*). Voltage indication can be changed.

**Additional parameters:**

- **Scale UInput** (*scaling factor of the indication of charging voltage*).
- **Scale IInput** (*scaling factor of the indication of charging current*).
- **Device.temp.limit** (*upper limit of charger's temperature; when reached charging terminates*)

**Remark:**

- To change any parameter, insert the following access code: „**3112**”;
- For leaden accumulators <Voltage limits 1..4> **set 14..14,4V!** (*this option is available if charger is used for other types of batteries*).

**NOTE: Please do not change the settings if not necessary. Usually, when working with automatic battery charger, you need to use only the “MODE” button or set the date/time.**

## MAINTENANCE

Please do not use thinners for cleaning the device. To clean it use only wet cloth. Avoid shocks and wetting the two devices.

## WARRANTY CONDITIONS:

The warranty is void in cases of improper use such as:

1. Short circuit between the two drills of the transmitter.
2. Incorrect connection of the poles of the outer storage batteries.
3. Splashing liquids over the device and its accessories.
4. Improper use of the charging devices.
5. Hits and shocks to the device as well as leaving it to direct sunlight for a long time.
6. Dismantling the modules.

### Additional frequencies from field tests:

**Gold** often on – 5400, 5450, 5150

**Caves** – 2250 to 2400 based on soil type, sometimes on 4500

**Water** – 10,000

**Human bones** – 1230 to 1250

***Good luck!***