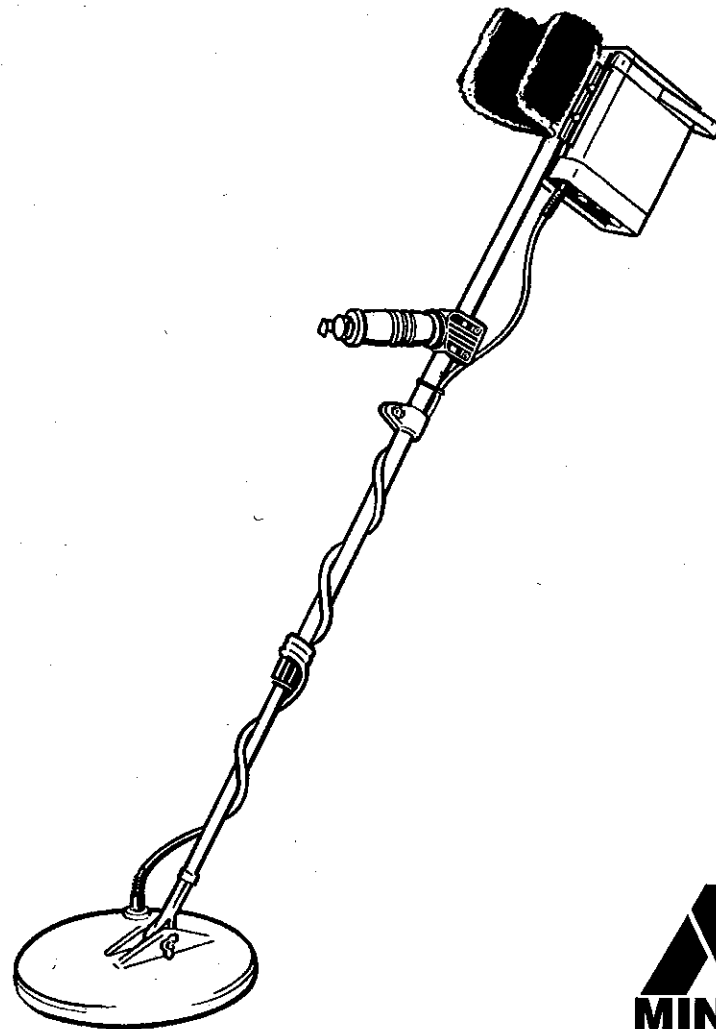


The Minelab *SD 2100e*

With MPS Technology



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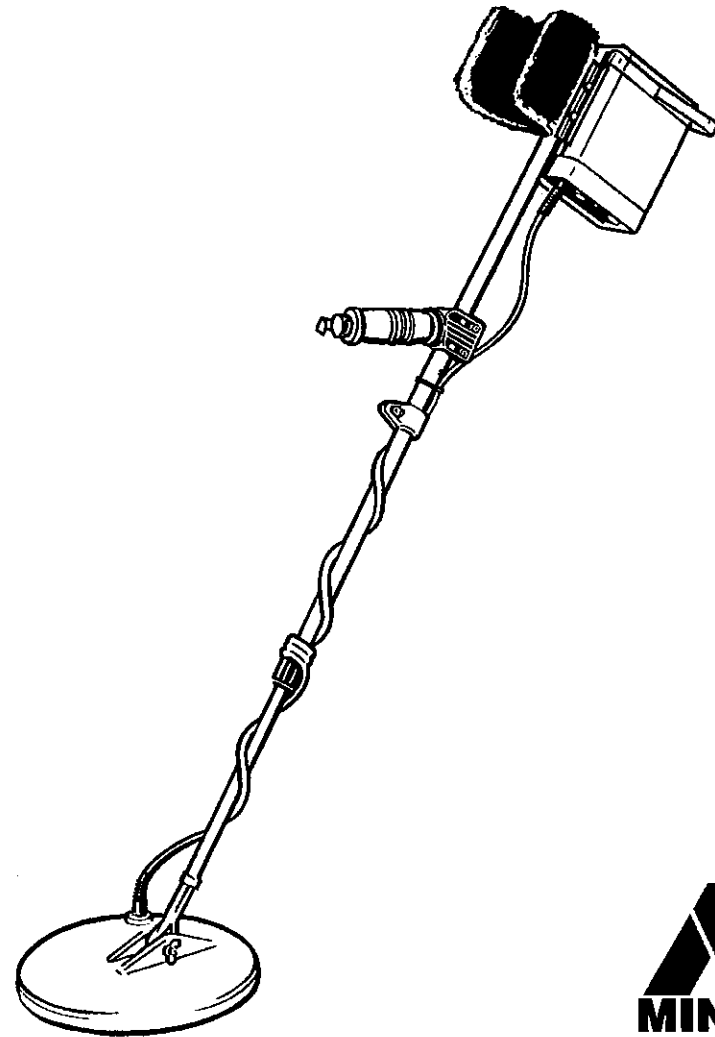
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The Minelab *SD 2100e*

With MPS Technology



M
MINELAB

INSTRUCTION MANUAL

WARNING

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Version 1 August 1998

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1. Introduction

Thank you for purchasing the Minelab **SD 2100e**.

You will find this detector to be one of the finest available for the detection of metallic objects in highly mineralised environments. This detector can 'see' deeper than any other conventional detector available on the market today, and its simplicity of operation means it is easy for both beginner and professional alike. Its superior ability at cancelling mineralisation not only invites the discovery of new sources of precious metals, but also reopens old fields where 'hot ground' has shielded many nuggets from the prying 'eyes' of prospectors.

Minelab has studied the role that mineralisation plays in obscuring nuggets and has developed the new *Multi Period Sensing* (MPS) technology which enables detection of metallic targets, both large and small, even in the hottest ground. Furthermore, its improved ground balancing requires minimal adjustment during operation and is stable over a wide range of mineralised grounds.

Minelab is confident that you will find this detector a pleasure to use, with its stable and effective ground balancing, superior depth capability and sensitivity.

2. Specification

NOTE: In the interest of product improvement, Minelab reserves the right to make changes to this specification without notice.

Length	Maximum	1.3 m
	Minimum	1.1 m
Weight	Complete (excl. battery)	2.4 kg
Configuration	Shaftmount	Yes
	Hipmount	No
Transmission	Multi Period Sensing	
Ground Rejection	Dual ground balance	
Search Mode	Motion	
Controls	<i>On/Off</i>	2 Pos. Switch
	<i>Threshold</i>	1 Turn
	<i>Balance 1</i>	10 Turn
	<i>Balance 2</i>	10 Turn
	<i>Search</i>	3 Pos. Switch
	<i>Tone</i>	1 Turn
	<i>Tune</i>	15 Turn
Audio O/P	Loudspeaker	No
	¼" Headphone jack	Stereo or Mono
Batteries	6 Volt	4.5 A/Hr gel cell
	Duration	Greater than 16 hrs
Search Coil	Windings	Double D
11" Round	Weight	720 g
	(Other search coils are available as accessories.)	
Patents	Patents apply	

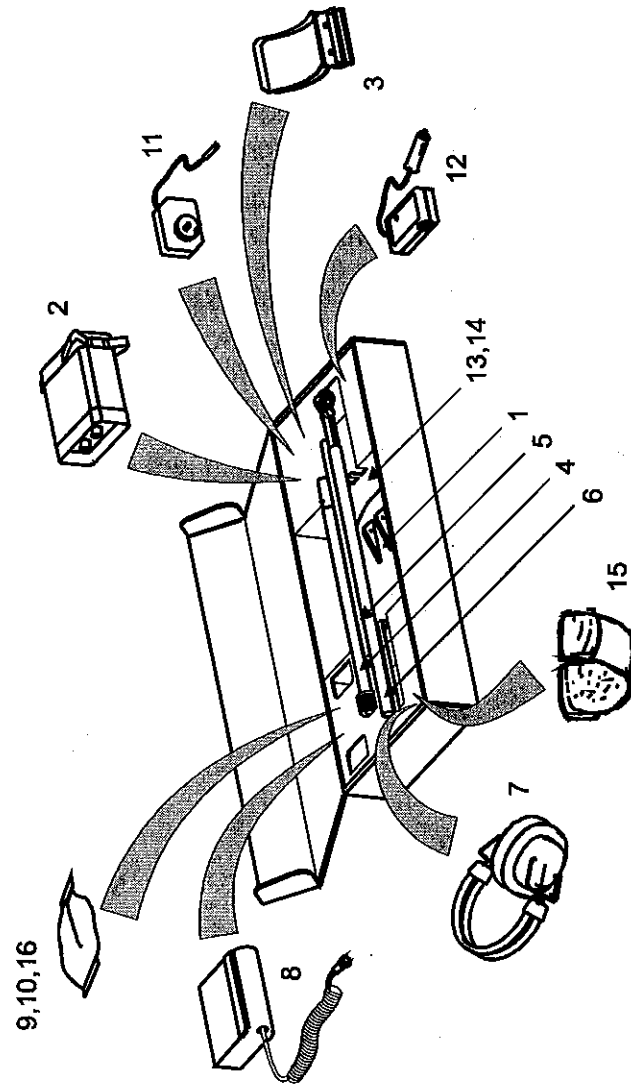


Figure 1 – *SD 2100e* shipping container and parts assembly

3. List of Parts

The *SD 2100e* is packed in a single box containing the detector and an 11" *Double D Coil*. The following parts are included (see Figure 1):

1. 11" *Double D Coil* with *Skid plate*
2. *SD 2100e Control box*
3. *Armrest* (2 parts)
4. *Upper shaft*
5. *Intermediate shaft*
6. *Fibreglass Lower shaft*
7. *Headphones*
8. *Battery and cable assembly*
9. *Nylon bolts* (quantity 3)
10. *Nylon wing-nuts* (quantity 3)
11. *Mains battery charger*
12. *Vehicle battery charger*
13. *Warranty card*
14. *Instruction manual*
15. *Armrest cover*
16. *Velcro cable straps* (quantity 3)

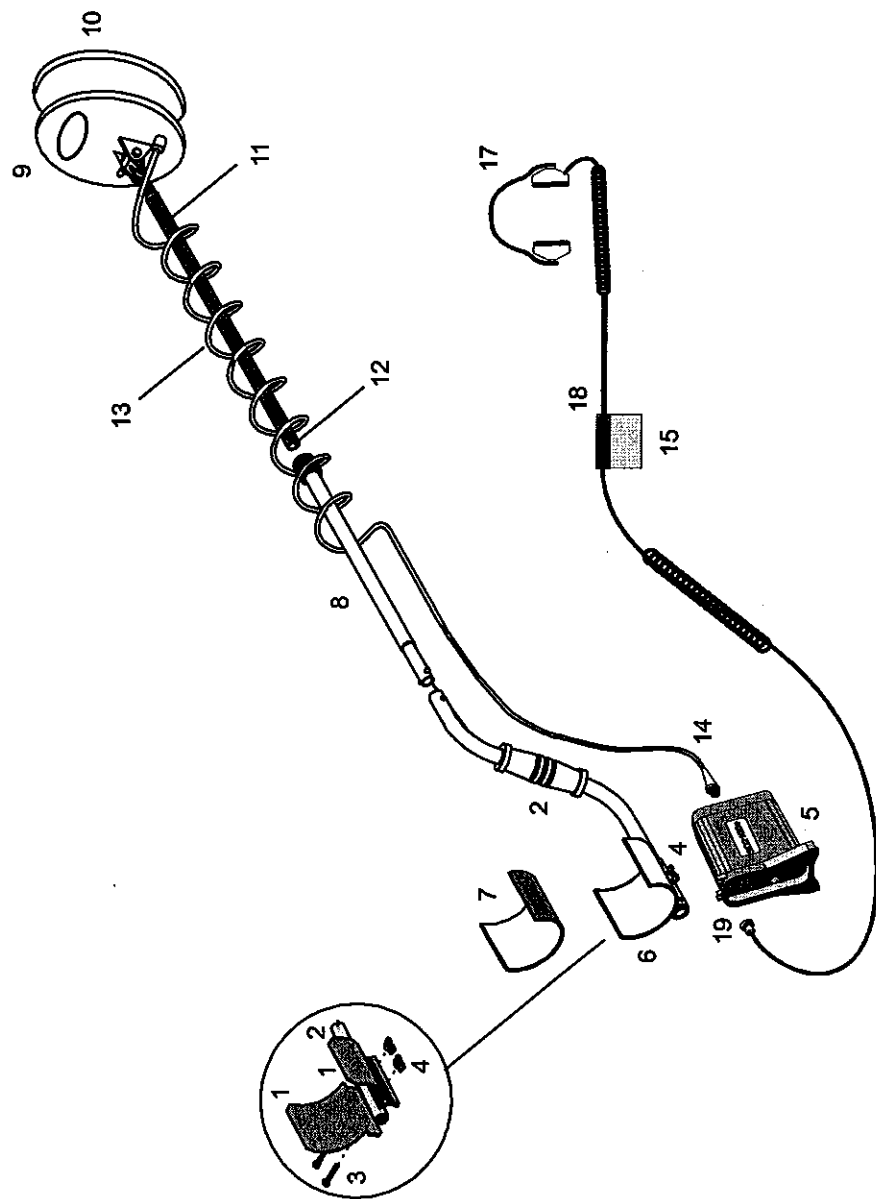


Figure 2 – SD 2100e components assembly

4. Unpacking and Assembly

- a) Place the two *Armrest* halves (1) on either side of the *Upper shaft* (2) and ensure that the bolt holes line up. Make sure that the hand grip is in the upright position.
- b) Slide two Nylon bolts (3) through the holes and screw Nylon wing-nuts (4) onto the bolts with a couple of turns. (See insert, Figure 2.)
- c) With the detector stand at the rear, slide the 'T' section on top of the *Control box* (5) into the assembled *Armrest* (6). Tighten the Nylon wing-nuts (4) by hand.
- d) Push the *Armrest cover* (7) over the assembled *Armrest* (6).
- e) Slide the *Intermediate shaft* (8) into the end of the *Upper shaft* (2) and snap it into place.
- f) Ensure that the 11" *Coil* (9) has a *Skid plate* (10) fitted.
- g) Ensure that the coil pivot end of the fibreglass tube has two teardrop rubber washers installed. They should always be full thickness and should be replaced regularly as they wear out.
- h) Push the fibreglass (11) tube into the mounting bracket on the *Coil* and ensure that the spring clip (12) faces the rear of the *Coil*.
- i) Align the holes in the coil mounting bracket and the pivot end of the fibreglass tube. Push the Nylon bolt through the holes and fit the Nylon wing-nut which should be tightened by hand. **DO NOT** over-tighten as the coil housing may be damaged.
- j) Adjust the shaft length and coil angle for a comfortable position. Minelab recommends that the shaft length be set to give a comfortable sweep length of approximately 2 metres. (See Section 8 for more details on detecting techniques.)

- k) Wind the coil cable (13) around the shaft and plug the coil connector (14) into the coil socket on the *Control box*. Ensure that the cable is firmly attached to the shaft without strain and cannot move around, especially near the *Coil*. Fasten the cable to the shaft with the supplied Velcro straps. Leave enough slack at the bottom of the cable near the *Coil* to allow the coil angle to be adjusted without placing strain on the coil cable. If the cable is able to move around, especially near the *Coil*, it will be 'seen' by the detector and cause random noises, which can be very confusing.

NOTE: Always ensure that the *On/Off* switch on the *Control box* is turned *Off* before connecting or disconnecting the *Coil*.

- l) Fit the *Battery* (15) into the battery pouch (16). (See Figure 3.)
- m) Plug the *Headphones* (17) into the socket (18) in the cap of the battery pack.
- n) Put on the battery pack. Ensure that the *On/Off* switch on the *Control box* is set to *Off*. Plug the connector (19) on the battery pack cable into the power connector on the *Control box*. This cable connects the *Battery* to the detector.

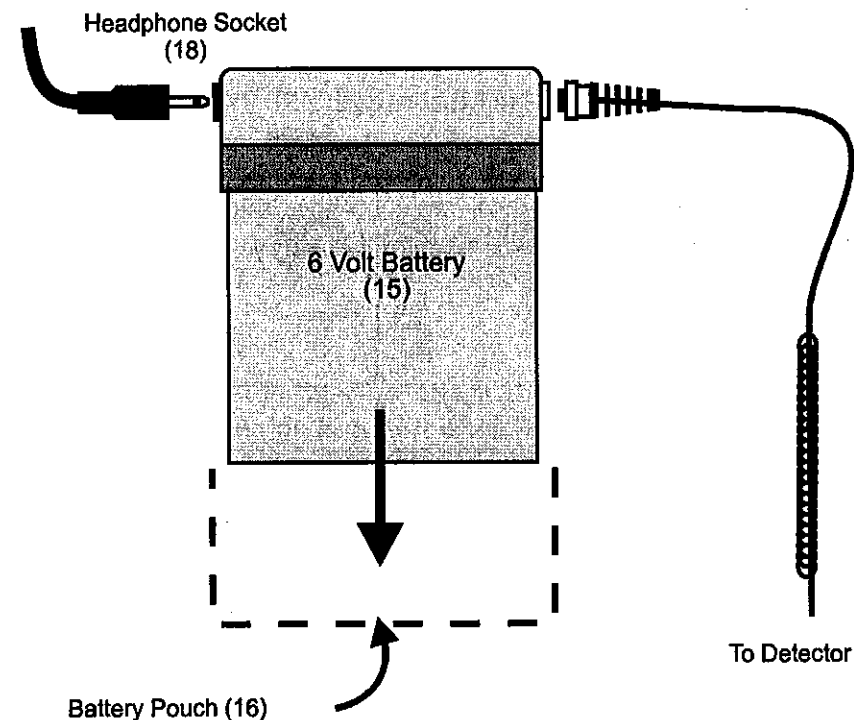


Figure 3 – SD 2100e battery assembly

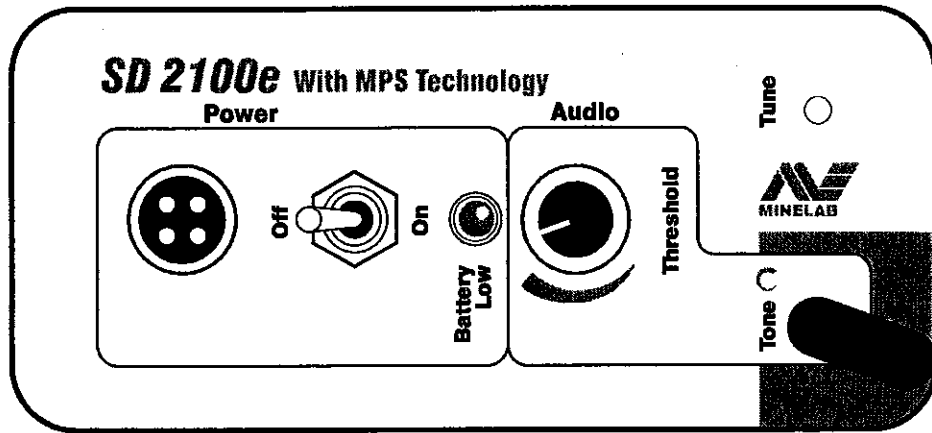


Figure 4 – Rear panel controls

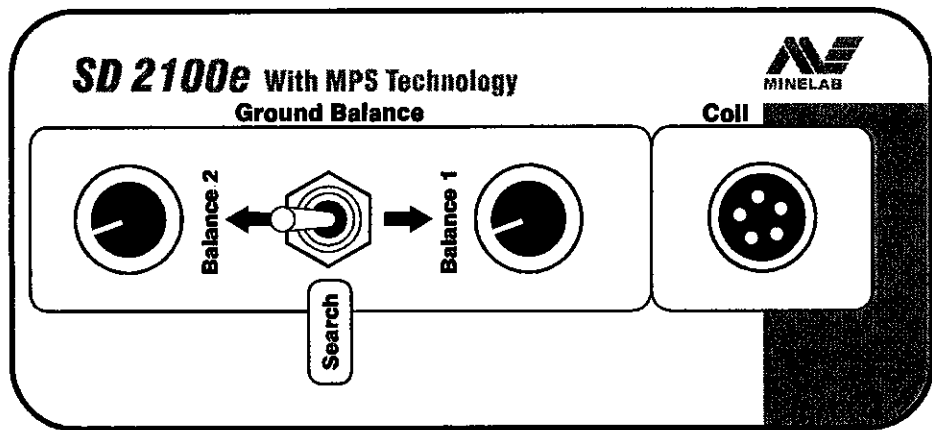


Figure 5 – Front panel controls

5. Control Box

5.1 Rear Panel Controls

Power switch

The *On/Off* switch controls the power supply from the *Battery* to the *Control box*. Always switch the *Control box Off* before connecting or disconnecting the *Coil* or battery pack, and when not in use.

Threshold

The *Threshold* control is used to adjust the loudness of background sound. Minelab recommends a soft audible headphone signal that is comfortable to listen to for extended periods.

Tone

The pitch of the background threshold tone can be adjusted using the *Tone* control to suit an individual's hearing. The *Tone* control is inside the box and covered with a rubber plug. Lift and hold back the rubber plug to access the *Tone* control. Use the supplied screwdriver to adjust the *Tone* control. This control can be adjusted up three-quarters of a turn.

Tune

The *Tune* control is used to lower the effects of electromagnetic interference from sources such as power lines, radio transmitters and other metal detectors. The *Tune* control is a screw extension pot, and the supplied screwdriver is used to adjust it.

5.2 Front Panel Controls

Search Switch

Ground Balance mode (*Balance 1* and *Balance 2*)

To get the best results from your **SD 2100e** it is important to know how different ground conditions affect the detecting process.

The ground is made up of many different chemicals, minerals, salts, etc. Some of these (which are often referred to as 'ground mineralisation') will produce a response known as a 'ground noise' from the detector.

The **SD 2100e** has the ability to cancel out the effects of ground mineralisation so that it minimises ground noise, while still retaining maximum sensitivity to metal targets.

Cancelling out the effects of ground mineralisation is referred to as 'ground balancing'. This ensures that welcome signals from objects such as gold are not confused with unwelcome ground noise.

The *Balance 1* and *Balance 2* controls should be adjusted with the *Search* switch in their corresponding positions. If the effects of ground mineralisation are not balanced, signals from metal objects will be very hard to distinguish from ground noise.

6. Operation

The **SD 2100e** does not have an external speaker. All sound is heard through the *Headphones*, which plug into the headphone socket in the top of the battery pack.

6.1 Quick Start Instructions

These instructions can be followed by operators who are familiar with the workings and general terminology of detectors. If you are new to detecting, you are advised to proceed to the detailed Operating Instructions in Section 6.2.

- a) Switch the *On/Off* switch to *On*.
- b) Set the *Threshold* control so that the threshold level is just audible.
- c) Move the *Coil* around until interference noise is at its loudest. With the *Coil* in this position, and using the supplied screwdriver, adjust the *Tune* control to reduce the interference.
- d) Set the *Tone* control to produce a pitch which suits your hearing.
- e) Select *Balance 1* with the *Search* switch and ground balance the *Balance 1* control knob.
- f) Select *Balance 2* with the *Search* switch and ground balance the *Balance 2* control knob.

NOTE: Ground balance the detector by listening to the pitch of the tone as well as its volume. The **SD 2100e** will always make the volume increase, not reduce like other detectors do. The pitch of the threshold will both increase and decrease.

- g) Select the central *Search* position and start searching.

Minelab recommends that you take the time to read this manual thoroughly to get the most out of your new **SD 2100e.**

6.2 Operating Instructions

6.2.1 Detector Sounds

Threshold: This is the background sound produced by the detector. The loudness of the background sound is set with the *Threshold* control. Set this so that you can just hear it. The pitch of the threshold sound can be set to your preference using the *Tone* control. The threshold tone of the **SD 2100e** will not drop below the level set with the *Threshold* control.

Object signal: This is an abrupt change of the threshold tone, volume, and pitch. If the pitch drops first, then rises as the *Coil* is passed over a target, this generally indicates a small target. If the pitch rises first then falls as the *Coil* is passed over a target, this generally indicates a large target.

Ground noise: These irregular noises are difficult or impossible to pinpoint when moving the *Coil* over the ground. They are caused by changing chemistry or 'mineralisation' of the ground. Ground noise can be minimised by the correct setting of ground balance controls (see page 18).

6.2.2 Turn the **SD 2100e** On

Hold the *Coil* away from the ground and any metal objects and switch the *On/Off* switch to *On*.

6.2.3 Set the Threshold Control

The *Threshold* control should be set so that the background tone is barely audible. Small surface objects, as well as large deep objects, will produce very small changes in the threshold tone. It is important to set the *Threshold* control correctly to ensure that these targets are heard. Minelab suggests that you experiment with known targets to assist in setting the *Threshold* and other controls to suit your hearing.

6.2.4 Set the Tone Control

Carefully adjust the *Tone* control until the background threshold tone is at a comfortable pitch for your hearing. Note that interpretation of the detection signals involves understanding the difference between the rising and falling pitch of the threshold tone. Take time to experiment with known targets. Generally, high pitch tones are more fatiguing but better for identifying the faintest signals.

6.2.5 Set the Tune Control

With the **SD 2100e** switched *On* and the *Threshold* control and *Tone* control both set:

- a) Hold the *Coil* vertical to the ground and at waist height, then move the *Coil* slowly through a half circle.
- b) Listen for an increase in interference as you move the *Coil*. When the interference is loudest, place the detector on the ground in this position, with the *Coil* still vertical to the ground.
- c) With the supplied screwdriver, adjust the *Tune* control to minimise the effect of the interference. The *Tune* control should be adjusted at a speed of approximately one turn per 2 seconds.
- d) In some cases it may not be possible to remove the interference completely, but the effect will be greatly reduced.
- e) Once this control has been set for the location you are searching, it should not require readjustment unless conditions change or new interference is introduced, such as other detectors operating in the vicinity.

6.2.6 Ground Balancing

It is important to ground balance the **SD 2100e** to the local conditions before commencing a search. For best results, ground balance to the 'noisiest' area of the ground you wish to search.

Assuming that the detector is operating with the *Threshold* and *Tone* both set, adjust the *Balance* controls using the following procedure:

- a) Set the *Search* switch to the *Balance 1* setting. Move the *Coil* up and down between 2 cm and 10 cm above the ground, taking about two seconds for each complete up-and-down movement. As the *Coil* moves up and down, the volume and pitch of the threshold tone will change if the detector is not ground balanced.

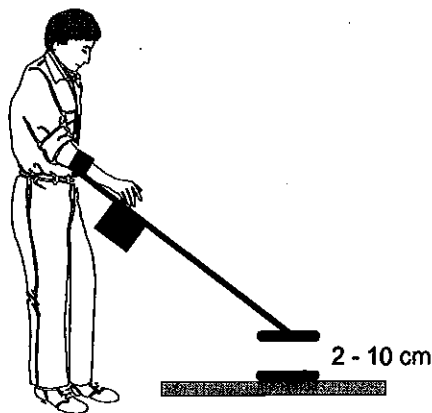


Figure 6 – Ground Balancing

- b) Adjust the *Balance 1* control so that no variation in volume or pitch is heard as the *Coil* is moved up and down. The greater the change in the volume or pitch of the threshold tone as the *Coil* is moved above the ground the further out of adjustment are the balance controls.

- c) When the detector is balanced with the *Search* switch in the *Balance 1* position, switch to *Balance 2* and, using the *Balance 2* control knob, repeat the process as described above.
- d) When the detector has been balanced in both positions, switch to *Search* and again raise and lower the *Coil* a couple of times. There should be very minimal to no deviation in the threshold as the *Coil* is moved. The detector is now said to be 'balanced' or 'ground balanced'.
- e) In almost all circumstances the *Search* switch should be set to the central *Search* position when detecting. There are very few circumstances in which there is any value in changing this setting.

The function of the *Search* switch is to select which of the 'channels' the detector uses to generate signals. Each 'channel' has a sensitivity to its own range of target types and sizes and complements the other 'channel'. When set to *Search*, the detector uses the best 'channel' for a particular target to generate the signal.

In extreme circumstances, operating with the *Search* switch in the *Balance 1* position can help to reduce ground noise from very noisy ground. It can sometimes stabilise the *Threshold* which will assist in hearing faint targets in such conditions. However, when operating in *Balance 1*, there will be some gold nuggets which may not give a signal.

If 'ground noise' becomes excessive while searching, simply ground balance the detector again using the technique described above. In ground with low mineralisation, 'ground noise' will also be minimal and the *Balance* controls will need very little adjustment.

7. Auxiliary Parts

7.1 Battery

The 6 Volt rechargeable *Battery* supplied with your **SD 2100e** can be used for approximately 6 to 8 hours after being fully charged. When the battery charge drops to a low level, the detector will indicate that the *Battery* needs to be recharged by flashing the *Battery Low* light. The detector may become unstable when the charge drops to a low level.

CAUTION

Only use 6 Volt batteries as recommended by Minelab.

Never use a 12 Volt battery as this will damage the detector. This damage is not covered by warranty.

7.2 Battery Chargers

Two different kinds of battery chargers (Mains and 12 Volt Vehicle) are supplied with the **SD 2100e** to facilitate charging the *Battery* under various conditions. The supplied *Battery*, unlike NiCads, **DO NOT** suffer from memory problems and may be recharged at any time during its discharge cycle. It is very important to fully charge the *Battery* before storage. **DO NOT** leave a *Battery* fully discharged for longer than one day as this could cause permanent damage.

7.2.1 Charging the Battery

- Turn the **SD 2100e** *Off* before disconnecting the *Battery*.
- Disconnect the battery cable from the *Control box* and plug into the appropriate charger. While it is being charged, the *Battery* must be kept in an upright position.

7.2.2 Mains Charger

- The supplied mains charger will charge the *Battery* from the local mains (AC) power.
- Follow the 'Charging the Battery' instructions (see Section 7.2.1 above). Plug the battery lead into the charger, then plug the mains charger into a mains outlet. Switch the mains outlet on. Check the charger nameplate; it will be rated at 1,000 m/hr or 500 m/hr. The 1,000 m/hr charger will recharge at a rate of approximately ½ hour for each hour of past use, while the 500 m/hr charger will recharge at a rate of 1 hour for each hour of past use.

CAUTION

When using the mains charger:

DO NOT leave partially discharged batteries charging overnight, and

DO NOT leave the mains charger on for extended periods of time as reduced battery life can result.

7.2.3 Vehicle Battery Charger

- The vehicle battery charger supplied with the **SD 2100e** will charge the detector battery from the cigarette lighter socket of a motor vehicle.
- Plug the vehicle battery charger into the cigarette lighter socket and turn the vehicle ignition switch to 'Accessories' to supply 12V power to the cigarette lighter socket. This voltage is reduced by the vehicle battery charger to 6V output to charge the detector battery.

- If the battery voltage of the vehicle drops below 11 Volts the charger will stop charging. This prevents the battery charger from flattening the vehicle battery. Make sure that the vehicle battery is in good condition before camping in remote areas.
- Run the vehicle engine above idle speed for at least 30 minutes each day to keep the vehicle battery charged.

CAUTION

The charger is designed for use with vehicles which have a negative earth electrical system (i.e. most cars made after 1970). If you plug the charger into a vehicle with a positive earth system, the fuse in the cigarette lighter socket will blow and the LED will not light.

8. Detecting Techniques

8.1 Searching

The *SD 2100e* is a 'motion' detector, which means that it must be moving in relation to a target in order to detect it. **DO NOT** set your shaft length too short. If the *Coil* is too close to your body it may detect your pick, the *Battery*, or any other metal that you may be carrying.

NOTE: **DO NOT** wear steel cap boots or shoes with metal eyelets when detecting.

If you find that you are getting false signals as you sweep the *Coil*, check that they are not produced by any metal that you are carrying. Move the *Coil* closer and further away from your body to determine if the signals are coming from items such as your pick or the *Battery*. If the signals are from these items you must increase the distance between them and the *Coil*.

The *Coil* should be swept over the ground in a side-to-side sweeping motion. As the operator moves slowly forward, the search pattern resembles a snaking path. To ensure that the ground is thoroughly searched, it is advisable to approach the area from three directions as shown in Figure 7.

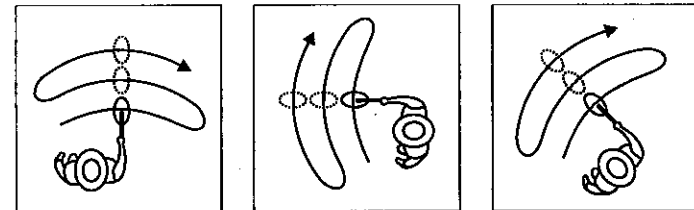


Figure 7-- Motion detection procedure

While sweeping the *Coil* it is important to keep it parallel to, and at a constant height from, the ground at all times. The easiest way to achieve this is to have the *Coil* lightly brushing the ground. Be aware of any tendency to raise the *Coil* at the ends of each sweep as this will reduce the detection depth (see Figure 8).

Each sweep should overlap the area covered by the previous sweep. This will ensure a full coverage of the searched area. Be aware of the search pattern of the *Coil* and overlap your sweeps to take this into account.

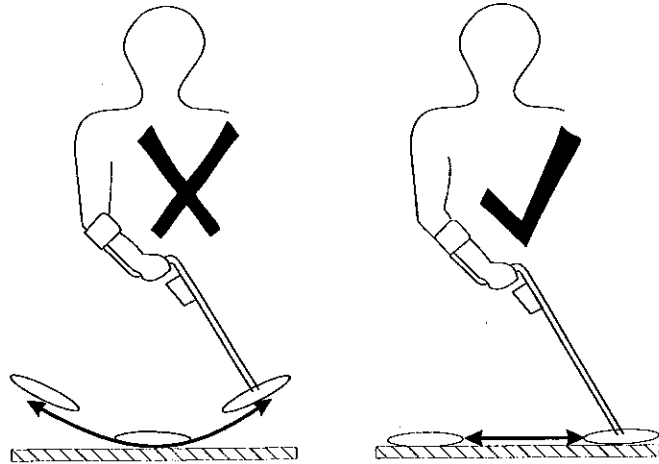


Figure 8 – Parallel sweep procedure

8.2 Prospecting Tips

The *SD 2100e* has superior ground balancing features and it is possible to find quite large objects near the surface in well-worked areas simply because other detectors have been unable to cope with the high degree of mineralisation. In light of this, you should not ignore what can seem to be 'unlikely' responses. In other words, dig all signals, even in 'thrashed' areas.

Very large variations in the mineralisation of an area can produce a signal in the detector. Typically, in the Victorian goldfields you might get a response from a concentration of orange/reddish 'dyke' material or clay. Similarly, in the loamy conditions of Western Australia a pocket of dark orange/reddish clay or rock may produce a sudden signal variation.

It is not recommended that you try to ground balance the detector on top of a signal, in an attempt to cancel a questionable response, as this can also cancel weak signals from very deep targets. If in doubt, scrape away some soil above the suspect signal. If the signal gets stronger, it is a target, so dig it!

If the ground is extremely variable and causes the detector to be very noisy, you may try operating with the *Search* switch set to the *Balance 1* position. This will reduce noises caused by the varying mineralisation, but some nuggets may not be detected. The full range of nuggets are only detected when the *Search* switch is set to the central *Search* position, not in *Balance 1* or *Balance 2*.

Charcoal can sound loud at times and rather like a metallic object when close to the surface. Charcoal is usually created by bushfires or by farmers burning off tree stumps. The charcoal may be below the ground level and it is not always obvious until you have actually dug up and located the cause of these noises a few times. Once the charcoal is removed from the ground the signal will vanish.

8.3 Hints for Maximum Gold Recovery

- Keep the *Coil* as close to the ground as possible.
- Listen very carefully. This is more important than concentrating on looking.
- SLOW DOWN! *DO NOT* rush — take your time.

8.4 Identifying Target Signals

Metallic targets will usually give a 'solid'-sounding response when the *Coil* is swept across the object from any direction. Ground noises usually give a broad irregular response when the *Coil* is swept from different directions, whereas responses from a metallic target are generally narrow, sharp and mostly symmetrical.

If you are not sure whether the sound is ground noise or a target, you need to determine the validity of the signal. Scrape a shallow hole about 7 cm to 10 cm deep over the suspected target.

Sweep the *Coil* over the hole at the original ground level; **DO NOT** dip the *Coil* into the hole. If the signal has decreased in volume and area it is ground noise. If the signal remains the same or increases, it is a metallic target. If you are still not sure, make the hole deeper and repeat the process.

Be aware that this technique is not entirely reliable and should be used only after you have learned to interpret the various signals. The 'Halo Effect', which builds up around a buried metal object, makes the object appear to be larger to the *SD 2100e* than it actually is. The 'Halo Effect' will be reduced once the soil has been moved. This may cause the strength of the object signal to reduce, which may then be mistaken for ground noise.

An example of this is when a small target, detected at a substantial depth with the *SD 2100e*, may be barely or not even detectable once recovered from the ground, even if reburied. It is not recommended that you try to eliminate what might appear to be a faint, isolated ground noise by balancing the *SD 2100e*, as you might be balancing out the response from a deeply buried metallic target.

8.5 Pinpointing

In order to save time in the recovery of an object and to reduce the size of the hole required to extract it from the ground, it is necessary to pinpoint the exact location of the object. The technique described here will be particularly useful with the *Double D Coil*, but will also work with a *Monoloop Coil*.

When a likely object is detected, sweep the general area with the *Coil*, taking note of where the strongest signal is received. Raise and lower the *Coil* to one side of the target to make sure you are still ground balanced. If necessary balance the detector again, then recheck the signal. If the ground balance is accurate you may begin the pinpointing procedure. Decrease the length of the sweep and it should be possible to draw an imaginary line in the ground where the strongest signal is located (see Figure 9). Now, move around the target and sweep the *Coil* at 90 degrees to the initial direction. Repeat the process of drawing an imaginary line. Where the two imaginary lines cross is where the object is located.

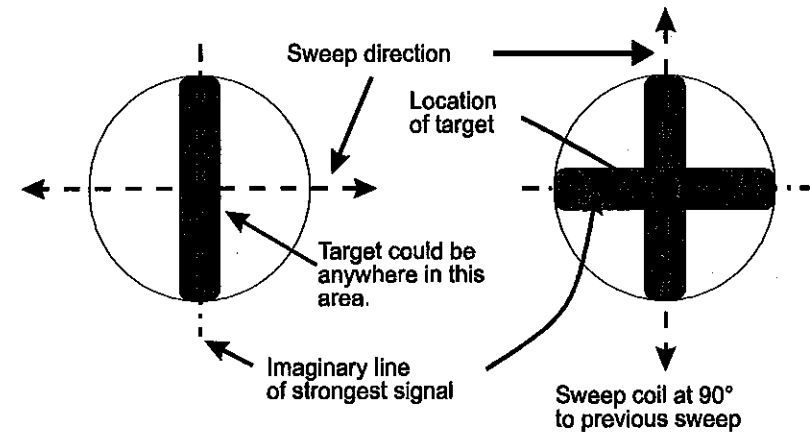


Figure 9 – Pinpointing procedure

If using a *Monoloop Coil*, small shallow nuggets will give a signal near the rim of the *Coil*. An alternative pinpointing technique for *Monoloop Coils* is to turn the detector *Coil* on its side and move the *Coil* while it is vertical across where you suspect the target to be. This may assist in pinpointing as shown in Figure 10.

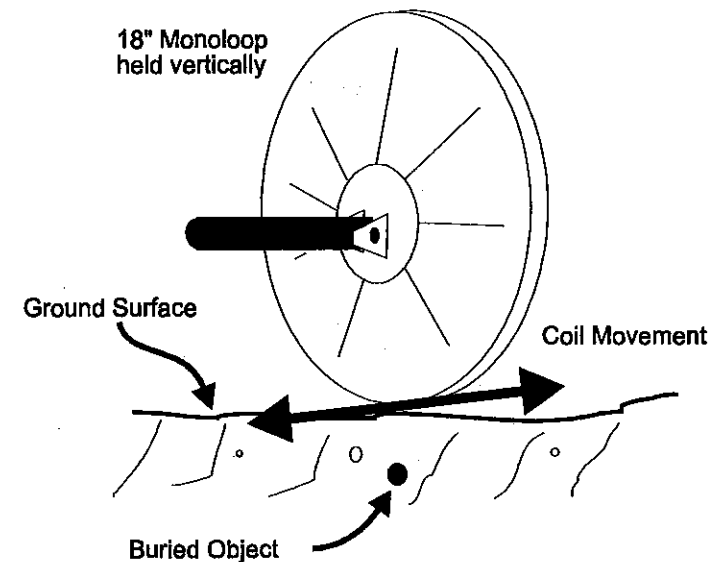


Figure 10 – Alternative Pinpointing

8.6 Digging the Target

Once you have established the location of the target it is necessary to dig a small hole to recover it. In order to preserve the environment, it is essential to make the hole as small as possible and always replace any soil and grass that you have removed. Carry at least one of the following digging tools with you when searching. The best tools are:

- a small, strong, digging spade
- a pick
- a shovel
- a crowbar (for very deep objects in hard ground).

Before digging, clear the area of loose surface material and check that the sound is still there. If it is not, the target must be among the surface material.

If the signal is still there, dig down 5 cm to 10 cm. If the target is not visible, sweep over the hole. If the signal has gone then it must be in the pile just dug. Make sure that there are no objects buried in the soil beneath the pile.

Take care when you dig because damaging a nugget can reduce its value. Minelab suggests you start digging about 10 cm in front of the target to reduce the chance of damage. Pile the diggings carefully as it might be necessary to search them systematically later. They must also be replaced, just as they were dug, once your search ends.

If it becomes evident that the target is in the removed soil pile, sweep the *Coil* over the pile and pinpoint where it lies in the dirt. Progressively halve the pile containing the target. If the target is still difficult to find, lay the detector down with the *Coil* flat on the ground. Take a handful of the diggings and pass them over the *Coil*. If there is no signal, place the handful carefully away from the pile and repeat with another handful. Of course, your hands and wrists must be free of any metallic jewellery and watches. Once the object has been recovered it is a good idea to sweep the hole again to ensure that there are no other targets to be detected.

When you have found an object in a particular hole, search the surrounding area very carefully as it is very likely that there are more objects nearby. If you hear a target, keep searching until you find it. It is there and it might be valuable.

NOTE: Always refill the hole you have dug, and leave the area as you found it.

8.6.1 Digging Deep Targets

The **SD 2100e** has unparalleled depth capabilities which will surprise experienced and new prospectors alike. If the target appears to be buried deeply, it will help to use the following technique:

- Use the cross-sweeping method to locate the target as accurately as you can. Scrape a hole about 10 cm deep and large enough to take the *Coil*. Keep testing the target location as you dig deeper and deeper. Be careful that the target is not in the wall of the hole and you dig past it.
- If using a *Monoloop Coil*, turn the detector *Coil* onto its edge, making it vertical, and probe various sections of the hole, listening for the loudest reading.

8.7 Salty Environments

The **SD 2100e** will find objects at great depth in salty environments, but interfering signals caused by the saturated salt or highly concentrated salt can not be completely 'balanced out'. The 11" *Double D Coil* will give the best results in salty conditions.

9. Maintenance

The **SD 2100e** is a high quality electronic instrument which is finely engineered and housed in a durable container. Taking care of it is common sense.

- It is **vitaly important** to keep all the connectors dry and clean.
- **DO NOT** expose the detector to high temperatures, or leave it in the sun longer than necessary. Shading it will help protect it. Avoid leaving it in a closed vehicle, especially in the sun.
- The search coil housing will wear through if you scrub the ground with it while searching. Minelab recommends that you use a replaceable *Skid plate* on the *Coils* to protect them.
- Extra protection can be gained by covering the perimeter of the *Coil* with a silk tape such as Leukosilk® (which is available from chemists). Using other tapes, such as insulation tape, can result in a loss of performance.
- The *Control box* is not waterproof, even though it has been designed to be water-resistant. Avoid getting it wet.
- The *Coil* is not waterproof. Although it is water resistant and can be used in the rain and in wet vegetation, etc., it should not be immersed in water.
- The *Control box* and *Coil* must not come into contact with petrol or other oil-based liquids.
- If any part of the detector comes into contact with corrosive substances, including salt or salt water, it must be washed with fresh water. Keep the unit dry and clean. **DO NOT** use solvents to clean the detector — use a damp cloth with mild soap detergent.

10. Troubleshooting

Use the following table to check for problems which you can diagnose:

Fault	Suggestion
No sound	Turn <i>Threshold</i> control fully clockwise. Check cable connections. Check <i>Headphones</i> . Check <i>Battery</i> .
Threshold tone but no object detection	Check coil connection. Try testing different coils.
Random noises	Charge <i>Battery</i> .
<i>Battery</i> will not charge from vehicle battery	Check for power to cigarette lighter socket. Check 10 amp fuse in plug.
<i>Battery</i> not holding charge	Try alternative charger. Test power lead.
Very noisy threshold	Check for interference. Try in a new location.
Random noises similar to target	Check for thunderstorm build-up.

If you need to return your detector to Minelab for service, please supply as many details as possible about the fault. This will enable our service engineers to rectify the fault quickly and efficiently. Return the detector in a cardboard box for protection.

DO NOT forget to supply your name, address, telephone number, purchase date and serial number when sending in detector parts for repair.

11. Warranty

There is a two-year parts and labour warranty on the **SD 2100e Control box**. Refer to your Warranty card for details.

Search coils are warranted for one year against malfunction.

In all instances, refer to your supplier or Minelab for service, either in or out of warranty.

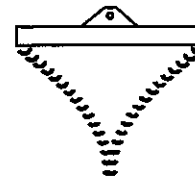
NOTE: This warranty is not transferable or valid unless the enclosed warranty registration card is returned to Minelab Electronics Pty. Limited or an authorised regional distributor within 14 days of the date of the original purchase, for the purpose of recording the purchase date, which is the actual commencement of the warranty.

The Minelab warranty does not cover damage caused by accident, misuse, neglect, alteration, modification, or unauthorised service. For specific details of the Minelab warranty please refer to the Product Warranty card.

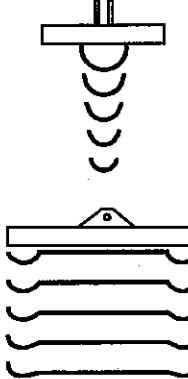
Please note it is the responsibility of the owner to pay transport costs for the detector to and from Minelab for repair.

12. Accessories

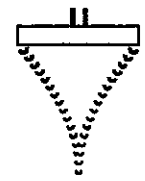
18" Monoloop



11" Double D



8" Monoloop



Lines indicate areas of maximum sensitivity

Figure 11 – Coil search patterns

12.1 Search Coils

CAUTION

DO NOT PLUG ANY SD SERIES COILS INTO ANY OTHER DETECTOR!

This action can damage other detectors and such damage is not covered by warranty.

The **SD 2100e** is supplied with the 11" *Double D* as its standard *Coil*. Three other coils are available as accessories for use on the **SD 2100e** — the 18", 11", and 8" *Monoloop Coils*.

Monoloop Coils tend to give slightly stronger or more sensitive signals than the *Double D Coil*. However, *Monoloop Coils* are also a little more 'noisy' if the ground is heavily mineralised.

Larger diameter coils tend to give better ground coverage and deeper depth than smaller coils. However, a smaller coil tends to have increased sensitivity to tiny targets than larger coils.

There is, therefore, a definite advantage and purpose for each of the range of coil types and sizes.

Each *Monoloop Coil* consists of only one coil of wire and gives a detection pattern similar to a concentric coil. Each *Double D Coil* contains two D-shaped coils of wire, which overlap and produce a 'blade' like detection pattern (see Figure 11).

The following table summarises the characteristics of each coil:

Coil	In 'Average' Mineralisation	Highly Variable Mineralisation (in 'hot rocks')	In High Salt Content
8" <i>Monoloop</i>	Greatest depth on small nuggets	Can be adversely affected by some variable mineralisation	Good
11" <i>Double D (Standard Issue)</i>	Good, but 8" or 18" <i>Monoloops</i> are recommended	Good	Good
18" <i>Monoloop</i>	Greatest depth on large and medium-sized nuggets	Can be adversely affected by some variable mineralisation	Poor

12.2 Batteries

As well as the supplied 4.5 A/hr battery, Minelab has available a larger, longer-life battery — a 10 A/Hr, which gives approximately 16 hours' running time per charge.

12.3 Corporate Clothing

Minelab has available a range of functional, good quality clothing such as caps, T-shirts, and jackets. Ask your local dealer for details.

AN IMPORTANT MESSAGE FROM MINELAB

The **SD** Series Metal Detectors are by far the most efficient gold prospecting and treasure hunting tools that Minelab has ever developed. Minelab asks **YOU**, as a responsible detector operator, to take all due care regarding the environment.

Minelab cannot stress enough the importance of being responsible when recovering targets. Backfill every hole you dig.

If care and consideration are taken during and after the removal of targets, especially with respect to the backfilling of holes, this should ensure the continued access to areas for prospecting and treasure hunting. It will also ensure that the pristine condition of our beautiful bushland, forests, and dry land areas is maintained with a minimum of impact.

Minelab is working with you towards preserving our natural environment so that the benefits of gold prospecting and treasure hunting can continue to be enjoyed in the years to come.

Every prospector and treasure hunter around the world and the staff of Minelab thank you for your continued efforts to protect the environment.

DO THE RIGHT THING, FILL IN YOUR HOLES!