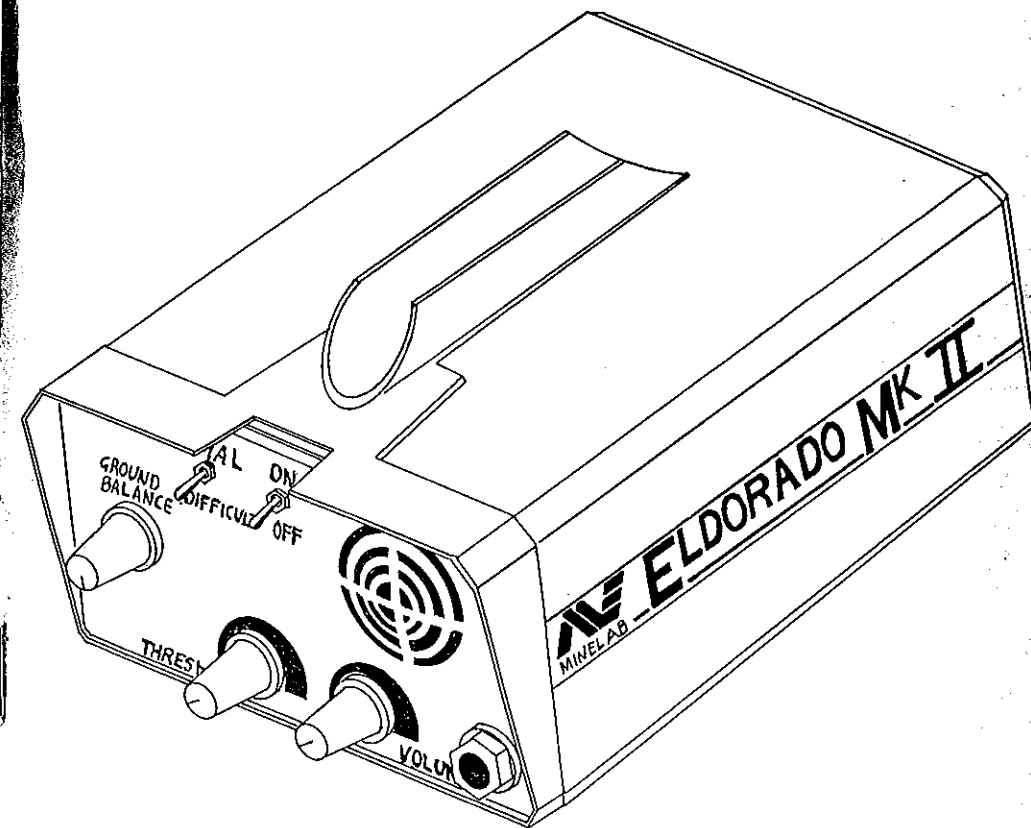


ELDORADO MK II

INSTRUCTION MANUAL



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Please Note:

In most states you are required to hold a miner's right. For further information, contact your local supplier or Mines Department.

Assembly Procedure

1. Unpack the detector and check that the following parts are Included: Instruction Manual, Warranty Card, Control Box, Main Shaft, Arm-rest, search Coil and Cable, Lower Shaft. Keep the packing carton in case you need to repack the unit at any time in the future.
2. Fill in the warranty card and post it.

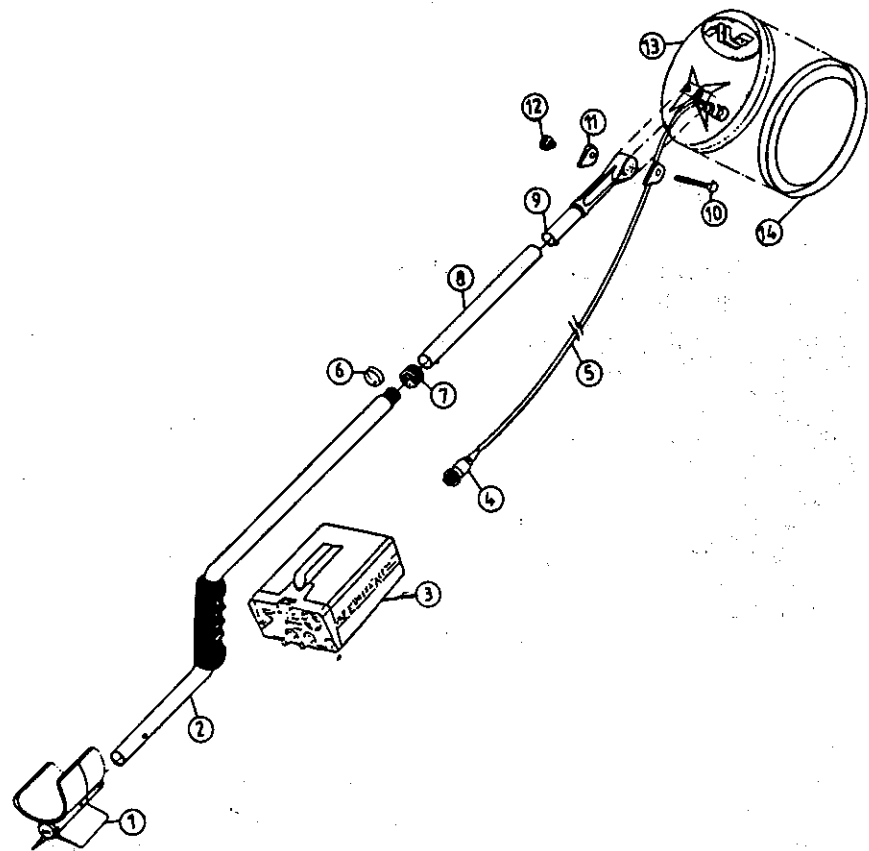
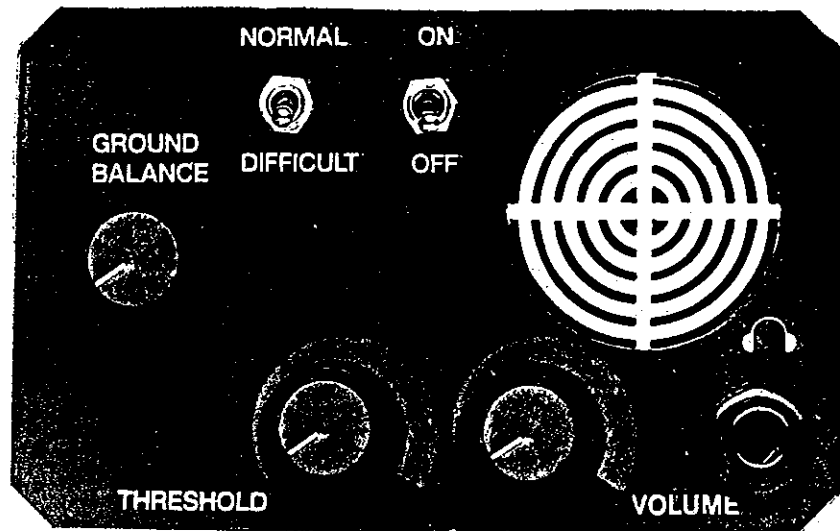


Figure 1. Eldorado Mark II Assembly Diagram

3. Slide the Lower Shaft (8) containing the Search Coil and cable into the Main Shaft (2) to a convenient length and make sure it clicks into place. Tighten the locking nut (7) by hand to make the connection firm.
4. Slide the Arm-rest (1) (with support fins towards the rear) over the back of the Main Shaft (2) so that it "clicks" firmly at a convenient position. You can tighten or loosen it about the forearm by bending the fins. (you can buy an optional Velcro Armstrap to provide extra firmness during operation).
5. Attach the Control Box (3) to the Main Shaft (2) at a distance from the handle grip for you to operate the RESET switch. Ensure that the surfaces at the connection are free from grit. (Do not twist the control box when removing it - grip it firmly and pull it straight off in line with the shaft.)
6. Wind the Cable (5) from the Search Coil (13) around the shaft fairly tightly (but without strain) and connect and screw the Cable plug (4) to the socket on Control Box (3). Experienced operators recommend that you use heavy-duty insulating tape to secure the Cable to the Shaft to prevent unnecessary movement and snagging on objects.
7. Install the batteries (see the section on batteries) and you are ready to start searching.
8. You should use high quality headphones for serious searching. The loudspeaker is less sensitive and without headphones your ears are not protected from stray noises.

CONTROL PANEL



EXPLANATION OF CONTROLS

VOLUME/ON/OFF CONTROL

The detector is OFF when the knob is turned completely anti-clockwise. On turning the knob, you should feel a slight resistance and hear a click: this signifies that the machine is in the ON position. When used in the field, the operator will achieve the unit's best performance with the knob set to maximum volume - that is, with the knob turned fully clockwise.

DIFFICULT/NORMAL TOGGLE SWITCH

This toggle switch should always be set on the NORMAL position for good or clear ground. The DIFFICULT setting should be selected for "difficult" ground concentrated in ironstone or mineralisation. By selecting DIFFICULT some "depth" will be lost.

THRESHOLD

With the volume control set fully clockwise, and the detector head held away from any metal object or the ground, turn the threshold knob until a soft buzzing sound can be heard. (In this respect, the threshold control behaves like a volume control- that is turn it clockwise for a louder response: anti-clockwise for a softer sound). The control should be set just a slight turn of the knob past the point at which the tone is just audible, but not a level where prolonged use would be irritating.

GROUND BALANCE

The ground balance is a ten-turn control - that is it requires ten full turns to go from one extreme to the other. If you raise and lower the detector head (held flat) just above the ground NOT containing metal objects and the sound level of the tone changes with your movement, then the detector is out of balance and requires adjustment.

Ground balance is achieved when raising or lowering the head just above the ground results in minimum variation of the sound level. You need to vary the control according to the Ground Balance Table.

As you get nearer to the correct setting, you will find that the audio response to raising and lowering of the head becomes less pronounced, and you will need to make finer adjustments with the control knob. (You may need to make further fine adjustments as you detect across an area). The head should be raised about 10cm (4") and lowered to about 2 or 3 cm (1") above the ground. Inexperienced persons should raise and lower the detector head at a slow rate to ensure that ground balancing is done correctly. If a detector is not ground balanced properly it will not give the operator the best performance.

In ground containing high ironstone concentrations, you may hear a different, loud and continuous tone as the head is brought closer to the ground. This indicates that the ground is highly mineralised. You should then operate the detector by either raising the head slightly or the Difficult/Normal Toggle Switch should be switched to Difficult. Experienced operators will find that it is easier to ground balance by continuously moving the head up and down and varying the ground balancing control at the same time.

GROUND BALANCE TABLE:

YOUR ACTION	WITH THIS ACTION TONE GETS	TURN GROUND BALANCE KNOB
Lower head	Louder	Anticlockwise
	Softer	Clockwise
Raise head	Louder	Clockwise
	Softer	Anticlockwise

HEADPHONE SOCKET

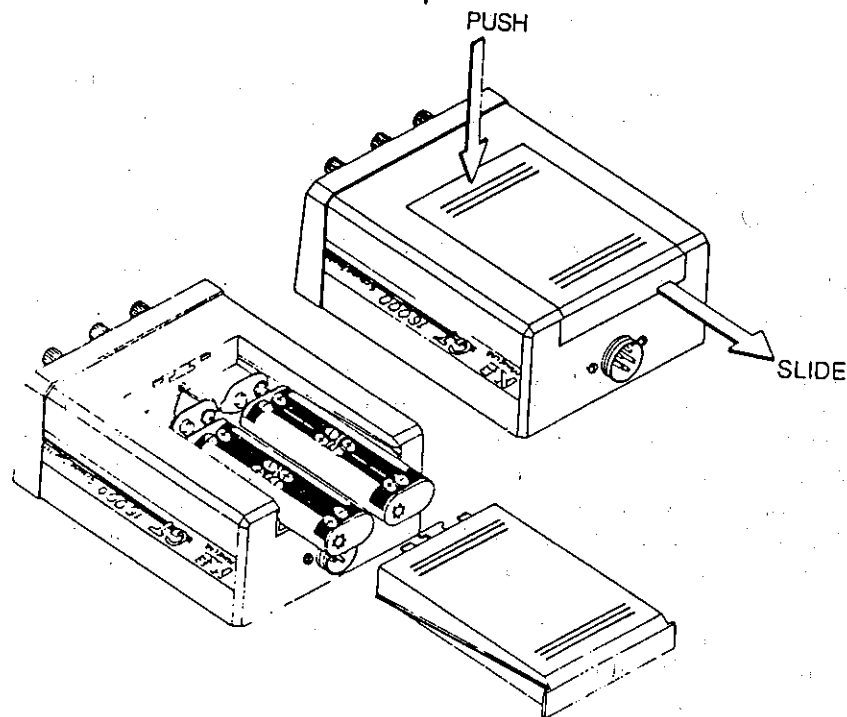
Headphones used should have an impedance of 8 ohms or greater. Mono or stereo headphones may be used. When the headphone jack is inserted into the socket, the loudspeaker is disconnected. You can tune the threshold to a lower audio level and outside noises, such as the wind, will be less distracting. As the loud speaker draws more current, using headphones will conserve battery life.

OPERATING INSTRUCTIONS

1. Check the cable and connectors for breakages or loose connections. Adjust the shaft to a comfortable length and rotate the coil angle so that it lies parallel to the surface which you are going to detect.
2. Check that the batteries are properly installed (see batteries section for more details).
3. If using headphones (not supplied) insert them fully into the Headphone Socket on the bottom right hand corner of the detector control box.
4. Switch the Difficult/Normal toggle switch on the top left of control panel to Normal.
5. Turn the threshold knob fully anti-clockwise.
6. Turn the Volume control fully clockwise.
7. With the detector held waist height and the coil facing away from all metal objects, switch the On/Off Toggle Switch to the on position.
8. Place the Headphones (if used) over your ears. Then adjust the Threshold knob until a soft, comfortable audio level is obtained, one which will be pleasant to work with for a prolonged period. For best results the audio level should be set just above the quiet tone of the Threshold setting.
9. To ground balance, continually raise and lower the coil between 3 and 10 cm. (1" and 4") above the ground while adjusting the Ground Balance control, to obtain a constant signal without any highs or lows. If the sound builds up on the downward stroke, turn the control knob slowly anti-clockwise. If the sound builds up on the upward stroke, then adjust the control knob slowly clockwise. Continue adjusting until the best balance is achieved.
10. If detecting on "hot" or mineralised ground, firstly switch the toggle switch from Normal to Difficult, then ground balance as explained previously.

THE BATTERY REPLACEMENT PROCEDURE IS AS FOLLOWS:

1. Turn the detector off.
2. The battery compartment is located at the bottom of the Control Box. To remove the battery lid, press down on the end of lid nearest the front panel and slide it out.
3. Take out the two battery packs, taking care not to damage the connecting wires.
4. Remove the batteries from the packs and replace them with new ones. Be certain to replace them in their correct positions. Diagrams showing polarity are on the packs. **Incorrect polarity will damage the detector.**
5. Carefully replace the loaded battery packs and slide the lid shut until it "clicks" into place.



Battery removal and installation.

DETECTION TIPS

The eldorado Mk 2 will return its best performance when it is ground balanced to approximately 2.5cm. (1") above the ground and kept at that search height. If the coil is swung slowly it will give the operator a chance to practice maintaining constant coil height at the extremity of each swing. Variation of coil height at the end of each swing is a common problem for the beginner.

It is good practice to familiarise yourself with any new brand of detector. The best way to do this is to dig up all objects detected, as this will help you become familiar with the signals that different objects give, and improve your knowledge of ground noises. With Eldorado's coil configuration you can achieve greater coverage within a shorter span of time than that allowed by a conventional detector. The wider scan coil and the longer shaft on the Eldorado will enable you to cover more ground using a comfortable two metre swing.

After making an appraisal of the target's position, best results will be gained by removing the top 3 - 5 cms. (1" - 2") of soil for approximately a 14cm. (6") radius of the target point and by flattening out the removed soil to one side of the cleared area. By passing the coil over the flattened soil, your detector will signal if the object is small and contained in the top layer. It can be found more readily by this method than by digging a large hole. If it is not in the flattened soil, continue to dig and follow the same procedure. Do not leave sharp edges around the hole perimeter, because the detector could give a false reading on the edges of the hole. If the object is still not located repeat the above procedure. It is better to go slowly because otherwise the object may be lost by spreading it too far from the area being worked, or if it is a small find, you may end burying it even deeper than it was when first detected.

When the object has been removed from the hole, lay the detector down with the coil on its side, close to the hole. Gather a handful of soil at a time and pass it across the coil. The handful containing the object will emit a clear signal. Then halve the material into two hands and pass one at a time across the coil to further eliminate waste soil. This procedure is continued until object can be seen in the hand.

Detect again over the hole to make sure there are no other objects to be found(it wouldn't be the first time that gold nuggets have been found one under the other).

Remember, fill in all holes you have dug, they are dangerous, unsightly and enviromentally unacceptable.

(Make sure that you don't wear anything metallic below your elbow on the arm you use in the procedure describede above).

GROUND NOISES

There is nothing more annoying than getting a signal and digging but finding nothing. This can confuse the inexperienced operator and even destroy his confidence. It will take time and practice until you can learn which signal to pay attention to or to ignore.

Typically mineralised ground can make a detector respond with an indication that there might be an object reasonably deep beneath the surface. The sound could be rather broad and not very loud, or sometimes crisp and reasonably sharp.

Charcoal can sound loud at times and rather like a metallic object when close to the surface. Again, experience will teach you how to read the ground efficiently and gather understanding of the detector's response to the ground. Charcoal is usually created by farmers burning off tree stumps or by bush fires. The growth is burnt below ground level, so it is not always obvious what the sounds are until you have actually dug up the causes of the noises a few times. These burns could be broad or could run in a straight line, quite deceptive at times!

Other noises which most effect detectors are "hot" rocks. These are rocks which have very strong audio signals, just like metallic objects. Some are strong and others are weak. Some detectors have problems tuning the strong ones out, but with Eldorado Mk2 you can virtually tune them right out by simply ground balancing over the rock.

Many of the nugget bearing areas are the result of broken down reefs containing quartz and ironstone. Experienced prospectors learn to "read the ground" and look for tell-tale signs indicating potential gold bearing fields.

It is a fascinating and exciting hobby to learn some of the skills and apply them in your search for gold.

The modern metal detector has given today's prospector enormous advantages over the prospector of old. The ground can be rapidly scanned until a small piece of gold is found and then a study of the area made in order to decide where other nuggets are likely to be located. It is then best to make a systematic search of the area as indicated by the accompanying drawings.

The prospector of old and infact until very recent times, had to rely on seeing the gold lying on the surface of the ground, or alternatively pan for gold in selected areas. In some parts of Australia where water is scarce, panning was not possible and it is particularly likely there are undiscovered fields in these areas.

The main problem encountered while using metal detectors is the presence of heavy concentrations of ironstone. This is particularly the case in some of the richest known fields in Australia. It appears that gold nuggets and ironstone often go together, and in fact many gold nuggets have ironstone embedded in them or are encased in ironstone and others show strong ironstone staining. Some of these fields have only been superficially worked because of the interference to the detector by the ironstone. Usually only the most persistant professional is prepared to spend the time and energy necessary to learn to cope with these conditions, and then only partially.

It is in these areas that the Eldorado Mk 2 will open up many oppertunities. The ease of operation means that the amateur can prospect these potentially rich fields with depth of penetration and clarity of signal never before possible.

Many thousands of square kilometres of Australia are of this type of ground with much of it potentially gold bearing.

CLAY DOMES

A common occurrence in nugget bearing country is soil mineralisation which is commonly known as "clay domes". These are regions of rather broad sound which would come from a deep large nugget.

The following procedure will quickly establish whether or not the sound comes from clay or a metal object. Remove about 4cms of soil in a broad 30cm diameter circle with no sharp edges. This will allow the detector head to approach the "object" by about 4cms. Now with the head in the lowered position over the hole attempt to ground balance the signal. If ground balance can be achieved then this source of sound is probably clay, since it is not possible to ground balance a metal object which has been brought closer to the head.

In addition, the signal from a metal object is greatly enhanced when the object is brought even slightly closer to the head, whereas the clay, because it is not concentrated, does not produce a greatly enhanced signal even when the head can be lowered. Be careful that the edges of the shallow hole are not producing spurious signals. The technique requires practice and experience but it is essential to develop a good technique to avoid digging large quantities of deep holes unnecessarily.

SEARCHING FOR GOLD

The modern metal detector is not able to sense the presence of fine alluvial gold. It is therefore necessary to search out areas where "coarse gold" is known to have been found, or other areas where it is likely to occur.

The term "coarse gold" refers to gold ranging in size from a grain of wheat to many grams and in some cases hundreds of grams.

Fortunately, many fields of this type occur in all mainland States of Australia. Miners in the last century were required to register the weight and size of all nuggets found, and many maps were readily available which disclosed this information. There are probably many other discovered sites, however, which were never disclosed and undoubtedly many others which are yet to be discovered.

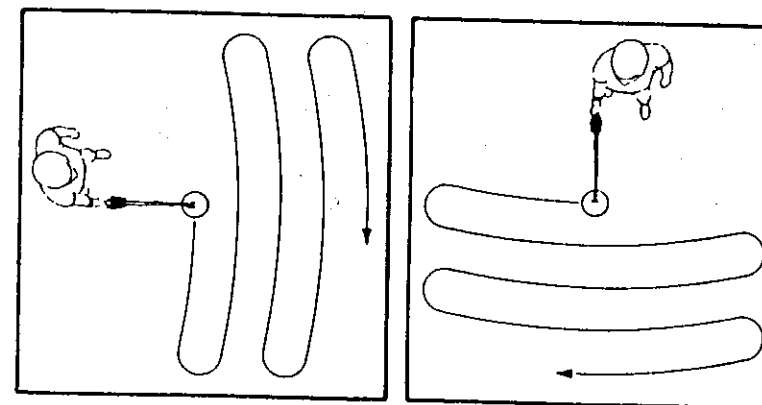
OUR RECOMMENDED TECHNIQUE

It is important to scan an area with a broad sweep of the detector head, keeping it at a constant height above the ground (approximately 2-3 cm. depending on the ground conditions and obstacles such as rocks, pieces of wood and leaves).

Each sweep of the head should slightly overlap the previous sweep. However, unlike most other search coils the Eldorado Mk 2 head is sensitive across its full width and therefore only a slight overlap is required.

As indicated in the two accompanying figures, if a nugget of gold has been found there are likely to be others and a thorough search of the area from two different directions is recommended. This is because ground noise can vary depending on the direction the head passes across the ground.

In one direction ground noises may mask out the sound of a nugget, whereas in another direction the sound may be readily discernible.



PROPER CARE OF YOUR DETECTOR

* Taking proper care of your detector is mostly common sense. The Eldorado Mk 2 consists of high-quality electronic circuitry which should be given considerable respect.

* At all times, avoid dropping the detector and also be very careful when swinging the coil to avoid sharp objects protruding from the ground. A skid plate is recommended (they are far cheaper to replace than a coil).

* If temperatures are very high do not leave the detector in the hot sun longer than necessary. Covering the detector from the direct sunlight will help protect it.

* It is not advisable to use the detector in the rain unless it is a very light drizzle. The Eldorado Mk 2 is water-resistant **not water-proof**.

* Should the coil be used in salt water, it must be washed with fresh water. You can use a mild detergent to clean it, then fresh water rinse, then dry with a soft cloth (always avoid subjecting the control box to excessive moisture).

* Lubricants should not be used on any part of the detector's control box, especially the electronic control knobs.

* Batteries should not be left in the device when the detector is not being used in case the batteries leak and create a corrosion problem within the electronics compartment. If a battery leak takes place, the electronic components could corrode (this would void the warranty through user negligence).

Happy Hunting !

PROSPECTORS NOTES & LOCATIONS