1. CONTENTS

2. INTRODUCTION

Congratulations on purchasing The Musketeer. This metal detector has been designed with the relic hunter in mind. The main features include: **light weight, quick shut down** between targets, **simplified controls** for operation and **substantial depth** capabilities.

The Musketeer is designed to locate valuable metal objects in high trash areas. These conditions are commonly encountered by relic hunters in places that have been inhabited for long periods or by armies using the areas for campgrounds or battlefields.

The Musketeer has been designed to serve the needs of both the speed hunter and the slow motion hunter as the unit may be moved at a "rapid hunt pace" or at a much more "leisurely" pace while enjoying the quick shut down between targets in either mode - without sacrificing depth capabilities. You will be surprised at how well The Musketeer's depth capabilities will challenge other fixed ground balance units currently on the market!

The Musketeer's operating frequency has been set at 5 kHz. This frequency has been chosen for its high level of sensitivity to large ferrous targets such as steel trunks or guns, while be able to accurately discriminate against iron trash. The Musketeer will also detect all gold, silver and other non-ferrous items.

With The Musketeer Minelab has set out to provide you with a high performance, easily operated, lightweight detector which is available at a realistic price. To be a successful relic hunter you must understand your detector as fully as possible; research your intended hunt area and respect the environment while you are hunting. We at Minelab are confident that The Musketeer will provide you with hours of enjoyment for all types of hunting; whether on the beach, in the country, or in a competition hunt.

If you have any questions, comments or criticisms we would like to hear from you. Please contact your local Authorised Minelab Dealer or write to us direct.

We wish you every success in your treasure hunting.

> Minelab Electronics Pty. Limited
> Box 35
> Stepney
> South Australia 5067.

3. UNPACKING AND MECHANICAL SET UP

3.1. CONTENTS

Unpack your detector and ensure that the following parts are included:
Armrest, Grey upper shaft, Grey intermediate shaft, Grey lower shaft, Treasuresearch coil, Musketeer control box, Battery holders, Instruction manual and Warranty card.
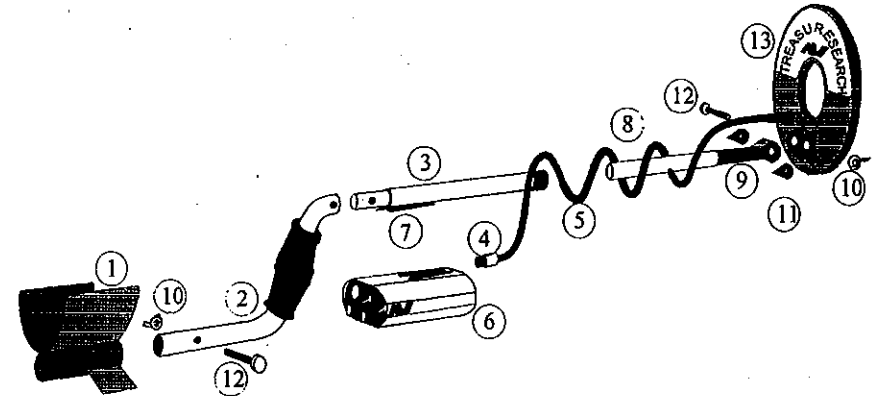

Figure 1. Musketeer Assembly Diagram.

Fill in the warranty card and mail it, within 14 days.

Remove the Nylon Bolt and Wingnut from the Armrest.

Slide the arm rest (1) (with support fins towards the rear) over the back of the Grey upper shaft (2) so that holes in the armrest line up with the holes in the Grey upper shaft at a comfortable position for the length of your arm.

Push the Nylon Bolt (12) through the aligned holes in the Armrest and shaft. Tighten the Wingnut (10) by hand to hold the armrest firmly in place.

Slide Grey intermediate shaft (3) into Grey upper shaft (2), until it "clicks" in place, so that the Receiving bracket (7) is positioned as per the diagram.

Remove the Nylon Bolt (12) and Wingnut (10) from the Coil end of the Grey Lower Shaft (8), ensure that the two Teardrop Washers (11) remain in the recess of the black plastic moulding (9).

Push the black moulded part, containing the two teardrop washers, of the Lower Grey Shaft between the shaft mounting brackets on the coil, ensure the spring clip (14) at the other end of the shaft is facing away from the center of the coil. Line up

the holes in the black moulded part with the holes in the shaft mounting brackets on the coil.

Push the Nylon Bolt (12) through the shaft mounting bracket and black moulding from the cable side of the coil, tighten the Nylon Wingnut (10) by hand so that coil is held firm. Do not over tighten!

Slide the Grey lower shaft assembly (8) into the Grey intermediate shaft (3) until the clip snaps into place at a convenient length for your height.

Attach the control box (6) to the Grey intermediate shaft (3) by sliding the wedge clip on the control box into the Receiving bracket (7) on the main shaft. Push it firmly in until it is secure.

Wind the cable from the Treasuresearch coil (13) around the shaft fairly tightly (but without strain) and connect and screw the Cable plug (4) to the socket on the control box.

Install the batteries and you are ready to start searching.

3.2. BATTERIES

The Musketeer is powered by 8 'AA' Alkaline batteries. The battery holders are accessible through the back of the control box by simply loosening the knurled nuts at the rear of the unit. Withdraw the battery holders and fit your alkaline batteries.
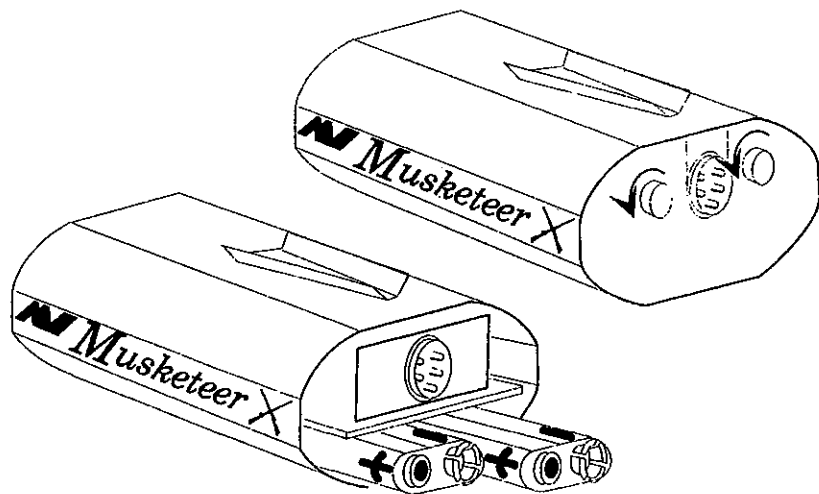
High quality alkaline batteries should be used instead of standard carbon batteries. Alkaline batteries will operate The Musketeer for about 40 hours. Use of headphones will extend the battery life.

When the batteries are reaching the point at which they will no longer operate "The Musketeer", a short tone will be heard from the speaker (or headphones) approximately every 30 seconds. When this tone is heard, there will be approximately 15 to 20 minutes of life left in the batteries. It is recommended that the batteries be replaced as soon as possible to avoid missing any targets.

4. THE CONTROLS
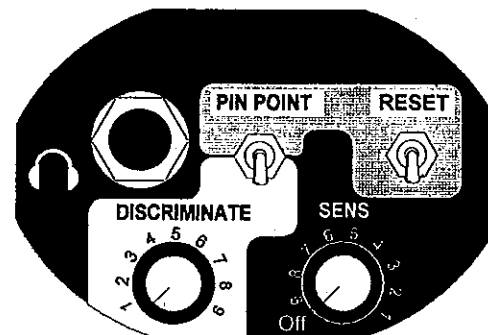
4.1. SENSITIVITY CONTROL & ON / OFF SWITCH
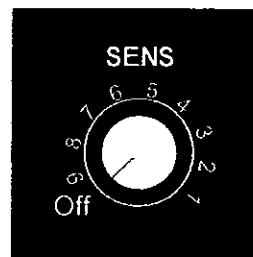
This knob is located in the lower right hand corner of the Control Box. It allows the unit to be turned on and off as well as controlling the sensitivity. This control is often thought of in terms of a depth control and it is to a point, but it also makes the unit more sensitive to interference caused by such things as ground chemistry "mineralisation" or electrical fields.

In most cases this control should be set in the furthest anti-clockwise position (9) without actually turning the unit off. If interference is received in the form of popping or chattering it is advisable to turn the knob clockwise just enough to remove the interference.

4.2. MODE SWITCH (DISCRIMINATION / PIN POINT)
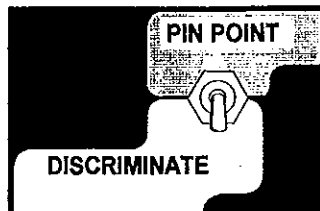
The Mode Switch is located in the center of the control panel. This switch selects either Discriminate or Pin- point mode.

In the Discriminate Mode the Discriminator Control is active and can be adjusted so that The Musketeer will accept or ignore certain metal objects, as described in the Discriminate section.
This is the "hunt" mode, the coil must be moving over the ground to detect a target, if you stop the coil over a target the sound will "disappear".

In Pin-Point mode the Discriminator Control has no effect and The Musketeer will respond in the same way to all types of metal, this is why it is sometimes referred to as "All Metal Mode". The coil need not be moving to maintain a target sound; if the Coil is held stationary over a target the sound will remain.

The Pin-Point mode is also useful if you are searching for Ferrous targets. In Pin-Point Mode the Reset Switch is used to help accurately determine the location of the target center. This is useful to reduce the amount of digging required to recover the target you have located.

4.3. DISCRIMINATION CONTROL
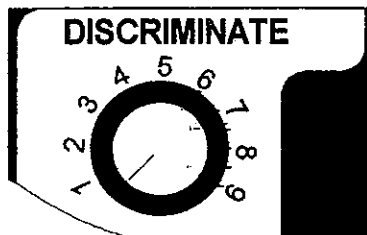
The Discrimination control is located at the bottom left of the control panel. This control is used to determine the type of targets which will cause the detector to "beep".

Metal objects fall into two broad categories: Ferrous and Non-Ferrous. A magnet can be used to determine if a metal is Ferrous or Non-Ferrous; Ferrous metals will be attracted to a magnet and Non-Ferrous will not. The Musketeer can also distinguish Ferrous from Non-Ferrous.

If the Discriminate control is set to"1", Ferrous metals will be "rejected" and the machine will not produce a "beep" (large Ferrous objects may produce short "pops" or "clicks"); however all Non-Ferrous will give a "beep" or be "accepted". Typical Ferrous objects encountered by treasure hunters are: nails, screws, washers, and bits of wire etc. They are generally not considered valuable and it is very useful for the detector to be able to reject these objects. The objects which cause The Musketeer to give a "beep" will be Non-Ferrous; this includes such things as: aluminium foil, most jewellery, pulltabs, coins, bottle tops, gold, silver etc.

Not all of these Non-Ferrous objects are considered valuable. It would be useful if the detector could be adjusted to reject some of the less valuable Non-Ferrous objects while still locating the more valuable targets. The Musketeer can!

By turning the discriminator control clockwise, some Non-Ferrous objects can be rejected. The Musketeer uses the electrical conductivity of the object to determine when to give a "beep". The further clockwise the Discriminator control has to be turned to reject the object the more conductive it is. The following diagram shows some common objects and where the Discriminator control has to be set to reject them
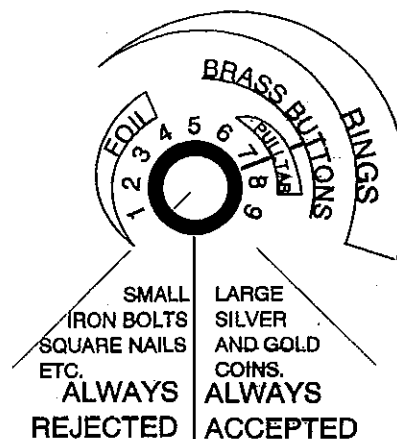

As you can see from the diagram, some items such as Gold rings cover a large area of the Discriminator control. This is because fine rings are less conductive than heavier rings. So if you set the Discriminator control to reject pull tabs you will also reject some fine rings and other jewellery.

It is all relative to what you want to hunt for. For example; if you are hunting for fine white gold rings you may also find foil. If you do not want to dig old bottle caps but dig brass buttons, the discrimination is set higher (approximately at number 7), but most fine white gold rings, foil, and some yellow gold rings are being rejected also.

How much trash are you willing to dig up to get a gold coin? If none is your preference, then turn your discrimination up to full clockwise and your trash ratio will be really low, but also you will not find most gold rings, Nickles or brass buttons. You will find silver and larger gold coins. You will not find most $1 gold or some small silver coins. Someone behind you who is willing to dig a little more trash will find these because they have set their discrimination control lower.

4.4. RESET SWITCH
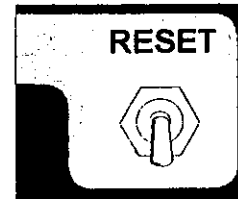
The Reset or "Retune"Switch is located at the center right of the control panel. It is spring loaded and will flip back to its normal position when you let it go. This control is used in Pin-Point mode to assist in accurate target location. See Pin-Pointing on page 10.

4.5. AUDIO OUTPUT

The audio output of the Musketeer is available either through a loudspeaker or via a 1/4" stereo headphone jack. When the headphones are plugged in, the loudspeaker is disconnected. Headphones are recommended for serious treasure hunting as they are more sensitive than the loudspeaker and shield you ears from external noises which can be distracting. Using headphones will also increase the battery life .

Headphones used should be of low impedance. The socket will accept most stereo headphones with a 1/4" jack. If the headphones have a "Stereo / Mono" switch set it to "Stereo". NOTE: If using headphones with volume controls, set the volume to aviod excessivly loud signals from large targets.

5. OPERATING INSTRUCTIONS

We suggest you first take some time to become familiar with how the Musketeer responds to various metal objects.

Gather a collection of different metal objects such as : A Rusted nail, pull tab, Brass Button, aluminium foil and some different types of relics, i.e. Bullets Buckles etc.

Take the unit outside away from known electrical devices or metal objects and support The Musketeer so that objects can be moved past the coil easily.

Ensure the Mode Switch is in Discriminate.

Turn the Discriminate Control to "1".

Turn the Sensitivity Control to "9". If excessive interference is encountered turn the Sensitivity Control clockwise until it disappears.

One at a time pass the test objects across the Coil. The Musketeer should "beep" on the Non-Ferrous ones, but not on most Ferrous objects. Large Ferrous objects may produce short "pops" ,"clicks" or even "beeps". To reject these items you may need to turn the discriminator knob up to 2,3 or even 4.

Now turn the Discriminate control progressively clockwise in steps and pass the objects over the Coil and see when certain objects are rejected. Refer to Diagram of Discriminator on page 6 as a guide.

By experimenting with different settings of the Discriminate Control you will see where to set The Musketeer to accept or reject the targets you wish to hunt for.

Now for some treasure hunting.

Take the Musketeer to the site you wish to hunt.

Holding the unit at waist level flick the Mode Switch to "DISCRIMINATE".

Turn your Discrimination knob to your preferred setting. Remember - this is a trash to treasure ratio so select it based on how much trash you are willing to dig to find your first good item. You can always turn it up or down during use.

Now turn on the Sensitivity control to number 9. Remember it is suggested that you hunt with maximum sensitivity as much as possible for the area without random signals occurring. This control can be altered during hunting if you encounter more random signals in one area than another.

Lower the search coil to the ground and lift it enough to take the weight off the coil, but maintain contact with the ground. Now swing The Musketeer from side to side keeping the coil level and parallel to the ground surface throughout the swing.

You are now ready to start hunting! Take your **Musketeer** to your site and begin hunting. Listen to the reaction to each target noting the depth and condition of the ground as you recover it. Carry a small note pad and take notes. Then later when you can't hunt review those notes. By the time you fill the note pad with your experiences and the target responses under different circumstances and settings, you will better know your detector.

As you use your detector more you may notice that your trash ratio will drop even though you may not be increasing the discrimination. This is because you have become more tuned to the targets and know how **The Musketeer** reacts. Good luck **RELIC HUNTER!**

6. HUNTING TIPS

The Musketeer will perform at its best when the Treasuresearch Coil is kept in contact with the ground. If you are not yet an experienced operator, you should practise maintaining constant coil height at the extremity of each swing; maintaining contact with the ground will make this easier. This is important as variation in coil height at the end of each swing can cause confusing sounds and will reduce detection depth.

It is strongly recommended to have the optional coil cover installed on the Treasuresearch coil. If you are rubbing the coil on the ground, in time the plastic casing will wear away without damaging the coil and can then be replaced when necessary.
Note: Each sweep of the coil should overlap the last one. This will ensure good ground coverage.
Keeping the Treasuresearch coil in contact with the ground will increase detection depth and response to small objects.

Pin-Pointing

When the approximate location of the target has been determined in Discriminate mode, switch to Pin-Point. Hold the coil about one foot above the ground covering the target. Press and release the Reset Switch. Then move the coil slowly over the target. The audio tone will increase in volume while moving towards the target and decrease in volume as you pass it. The tone will be loudest when the Coil is directly over the target.

Quite often the detector will be producing its maximum volume for a broad area over the target. This generally indicates that the target is near the surface or is quite large. To successfully Pin-Point these targets, press and release the Reset switch when the volume becomes loud, then move the coil closer to the target. If the Musketeer produces a very loud response again repeat the process until a short audio signal is obtained. The target will be directly under the Coil when the signal is at it's loudest. The open center of the Treasuresearch Coil makes it easy to mark the ground directly above the target to aid recovery.

7. ENVIRONMENTAL CONCERNS

Firstly it should be pointed out that treasure hunting with a metal detector is the most environmentally friendly way to recover coins, rings and other treasure items. However it is important to leave an area that you have searched in at least the same condition as you found it in.

All holes that have been dug must be refilled properly. Not only is it environmentally unacceptable to not fill in your holes, it is dangerous as well. There are special tools to enable you to withdraw targets easily from grassed areas without digging large holes.

Take any junk that you find or produce, such as flat batteries, away with you to dispose of properly. Leaving an area "scarred" can result in action being taken to prevent the use of metal detectors and spoiling this fascinating hobby for others as well as yourself. This has already happened in many productive areas which are now lost to the detector operator.

8. DETECTOR CARE AND TROUBLE-SHOOTING

8.1. Proper Care of Your Detector

The Musketeer is a high quality electronic instrument, finely engineered and packaged in a durable housing. Taking proper care is mostly common sense.

Do not leave batteries in the Control Box when the detector is not in use for a period exceeding two weeks. Damage caused by leaking batteries would be severe and would void the warranty through user negligence.

If temperatures are very high , do not leave the detector in the sun for longer than necessary. Covering it from direct sunlight will help protect it. Try to avoid leaving it in a closed trunk or the car sitting in the sunlight.

The Treasuresearch Coil housing will wear through if you scrub the ground with it while searching. We recommend that you use an easily replaceable coil cover to protect it, and replace it before it wears out.

Whilst the Control Box has been designed to be water resistant it is not waterproof. Avoid wetting it unnecessarily. Never allow the box to come into contact with petrol or other oil based liquids.

Keep the unit clean and dry and avoid getting sand and grit into the shafts or the tightening nuts. Do not use solvents to clean the detector. Use a damp cloth with mild soap detergent.

8.2. Trouble-shooting

If your detector is not performing satisfactorily please check the following:

Batteries. Many detector problems are caused by flat or faulty batteries. Ensure that you only use Alkaline batteries and that they are replaced when the warning signal is indicated through the headphones or speaker.

Cables. Ensure the Coil cable is in good condition and not subject to undue stress. The coil connector at the base of the cable must be done up firmly.

9. WARRANTY AND SERVICE

There is a two year parts and labour warranty on **The Musketeer.** Refer to your Warranty Card for details. The Treasuresearch Coil is warranted for one year. Refer to your supplier or Minelab for service, either in or out of warranty.

Note: This warranty is not transferable, nor is it valid unless the enclosed warranty registration card is returned to Minelab Electronics Pty Ltd or an authorised Minelab Electronics Pty Ltd regional distributor within 14 days of the original purchase.

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

10. SPECIFICATIONS

Length	Extended	54"
	Unassembled	18"
Weight	Complete (excluding batteries)	2.8 lb
	Control Box (" ")	0.8lb
	Shaft and Treasuresearch coil	1.9lb
Configuration		Shaftmount
	Arm Rest & Detector Stand	Yes
Frequency		5kHz
Search Modes		Discriminate, Motion
		Pin point, Non-Motion
Controls	Sensitivity Control & On / Off	1 Turn
	Discriminate	1 Turn
	Mode Switch	Toggle Switch
	Reset Switch	Spring loaded Toggle Switch
Loudspeaker	Moisture resistant	1.4" Ø
Headphone Jack	Stereo	
Batteries	'AA' Alkaline Batteries	8
	Duration	30 - 40 hrs
	Battery Low Alert	High pitched "beep" for 1/2 sec. every 30 sec.when becoming low.

Treasuresearch Coil		
	Type	Oval
	Windings	Concentric
	Size	9" x 7"
	Weight	0.7lb
Warranty	Control Box -	2 years parts and labour, limited
	Treasuresearch Coil -	1 year parts and labour, limited

12