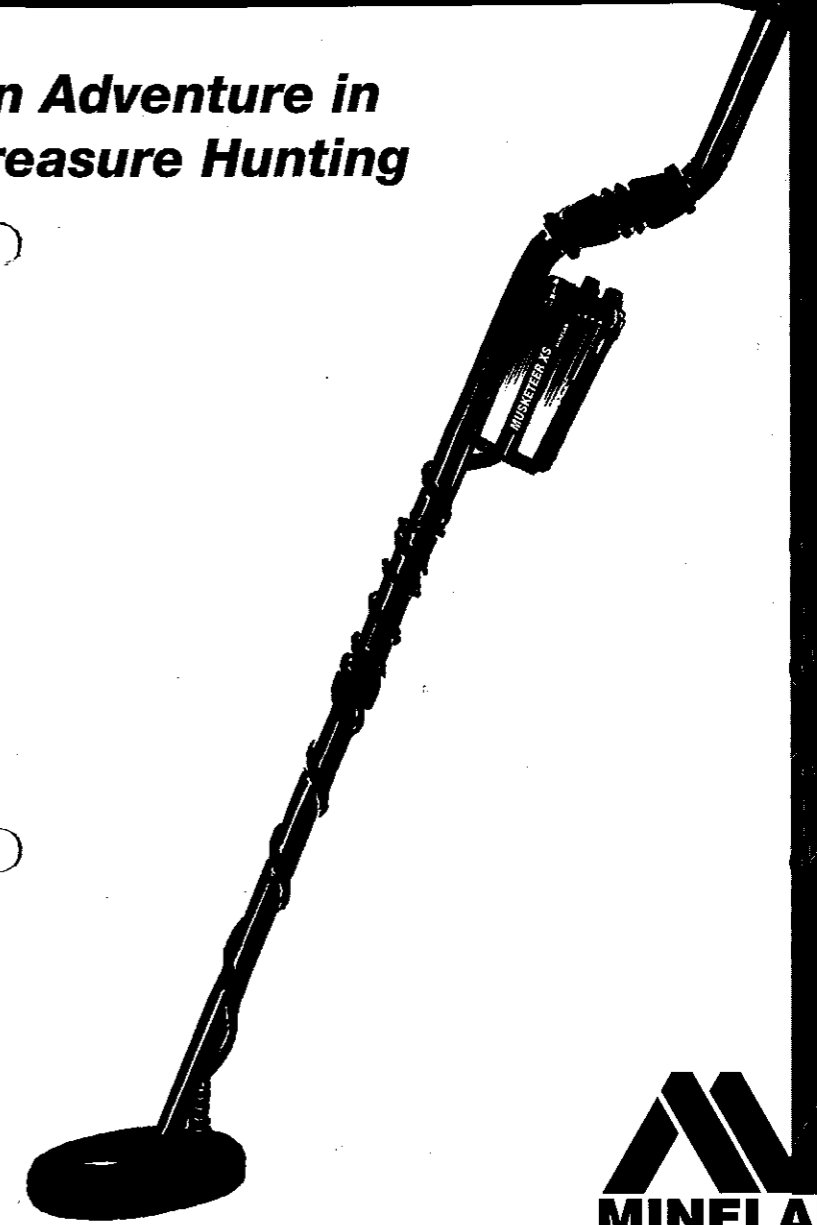


The Minelab Musketeer XS TreasureSearcher

*An Adventure in
Treasure Hunting*



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**THE MINELAB MUSKETEER XS
TREASURE SEARCHER
AN ADVENTURE IN TREASURE HUNTING**

Instruction Manual



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Introduction

Congratulations on purchasing the Minelab Musketeer XS TreasureSearcher. This metal detector has been designed for general-purpose treasure hunting. The main features include, lightweight, quick shut down between targets, simplified controls for operation and substantial depth capabilities.

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

The Musketeer XS has been designed to serve the needs of both the speed hunter and the slow motion hunter. 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 just how well the Musketeer XS' depth capabilities will challenge units currently on the market!

The Musketeer XS' operating frequency has been set at 5kHz. This frequency has been chosen for its high level of sensitivity to various size targets while still being able to accurately discriminate against iron trash.

- With the Musketeer XS, 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 treasure hunter you must completely understand your detector's features and operation; research your intended hunt area and respect the environment while you are hunting. We at Minelab are confident that the Musketeer XS will provide you with hours of enjoyment for all types of hunting; whether it is on the beach, in the country, or in a competition hunt.

If you have any questions or comments 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.

List of Parts

The box in which the Musketeer XS is shipped should contain the following items. When you first receive your Musketeer XS, please check that all of these items are in the box:

- Musketeer XS control box
- 8" Round TreasureSearcher coil
- 3 piece shaft assembly
- Black armrest
- 2 alkaline battery holders
- Black PCB Nicad to alkaline battery adapter
- Warranty card

Accessories

The following items are available for you to purchase. Some of these items can be used to enhance the operation and performance of your detector. For further information on these products call your Minelab dealer.

- 11" Round Super Search Coil
- Drop-In Nicad battery pack
- Mains Nicad battery charger
- 12V Nicad battery vehicle charger
- Blue hipmount bag
- Blue Minelab Cap
- Blue Minelab Poloshirt

Assembling the Minelab Musketeer XS

Please follow these simple instructions to assemble your new Musketeer XS. Refer to the drawings to identify parts and how they are positioned. If you have any difficulties, please call your dealer for further instructions.

ARMREST/UPPER SHAFT ASSEMBLY

- Remove the black nylon bolt and nut (2) from the armrest (1).
- With the armrest's larger fins pointing in the same direction as the foam handgrip (4), slide the armrest (1) onto the end of the black upper shaft (3).
- Push the nylon bolt (2) through the holes and tighten the wing nut by hand.

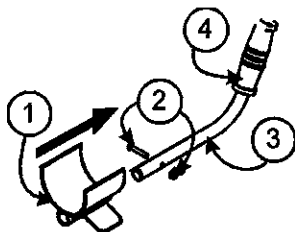


Figure 1—The armrest and upper shaft assembly

INTERMEDIATE SHAFT ASSEMBLY

- Slide the intermediate shaft (7) into the upper shaft (3). The black "V" clip (6) must be facing down along the foam handgrip section of the upper shaft (see figures 3 & 4).
- Ensure that the two pieces click together and do not come apart easily.

LOWER SHAFT ASSEMBLY

- Remove the tape on the lower fibreglass tube (9) that is holding the black teardrop washers (10) in place.

NB: Make sure the washers do not fall out after removing the tape.

- Remove the black nylon nut, washer and bolt (11) from the coil (12).
- With the teardrop washers in place, push the lower tube (9) into the bracket on the coil so that the holes line up.

NB: Ensure that the black nylon spring clip near the top of the fibreglass tube is pointing toward the rear of the coil.

- Push the black nylon bolt (11) through the holes in the bracket on the coil from the cable entry side, then place the spacer and wing nut on the other end of the bolt and tighten it by hand.

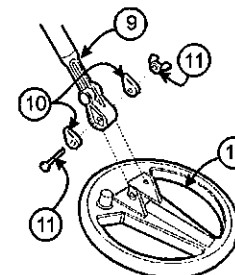


Figure 2—The coil and lower shaft assembly

COMPLETING THE SHAFT ASSEMBLY

- Slide the lower shaft assembly (9) into the intermediate shaft (7). Note that the black plastic locking nut (8) may need to be loosened to get the lower shaft assembly in place.
- Set the length of the shaft by locking the black nylon spring clip into one of the holes provided, then tighten the plastic locking ring by hand.

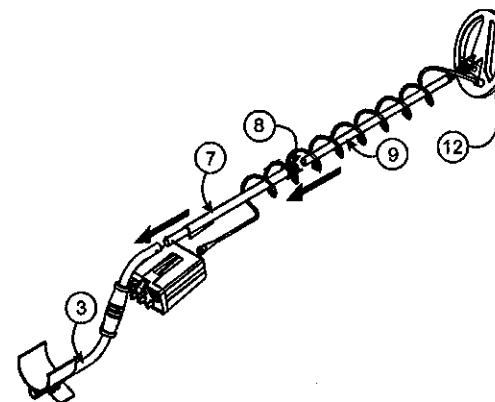


Figure 3—Completing the shaft assembly

SHAFT MOUNT

- a) Check that there are charged batteries in the control box (13).
- b) Position the control box (13) into the shaft "V" clip (6) then push down hard toward the coil until the control box "clicks" into place and cannot be easily removed.
- c) Begin winding the coil cable firmly around the shaft. Wind between 25 and 28 turns of the cable until it reaches the control box.

NB: Leave enough slack at the bottom of the cable near the coil to adjust the coil position without straining the coil cable.

- d) Connect the cable connector (5) to the plug on the rear of the control box.

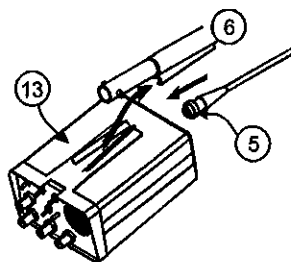


Figure 4 — Mounting the control box on the shaft

HIPMOUNT

Hipmounting is an alternative to mounting the detector on the shaft. Hipmounting significantly reduces the strain on your arm, enabling you to search for longer periods of time without undue fatigue.

To hipmount the detector you will be required to purchase the blue hipmount bag from your dealer.

- a) Check that there are charged batteries in the control box (13).
- b) With its control panel facing outward, put the control box into the hipmount bag.
- c) Either thread the bag onto your belt or suspend it from the bag strap.

- d) Wind the coil cable firmly around the shaft. Wind 5-10 turns of the cable around the shaft.

NB: Leave enough slack at the bottom of the cable near the coil to adjust the coil position without straining the coil cable.

- e) Thread the coil cable through the belt hole in the bag twice. This prevents strain being placed upon the cable and connector.
- f) Connect the cable connector (5) to the plug on the rear of the control box.

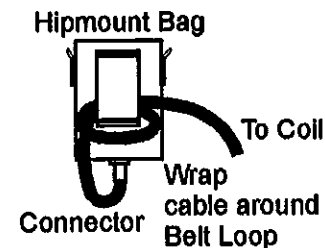


Figure 5—Hipmounting the control box

Batteries

The Musketeer XS is supplied with two alkaline battery holders and a Black PCB Nicad to alkaline battery adapter. In addition to using standard alkaline batteries, you can purchase a rechargeable drop-in Nicad battery pack and battery charger.

INSTALLATION OF ALKALINE BATTERIES

Ensure that the detector is switched "Off" before opening the battery compartment.

- a) Place 8 "AA" cell alkaline batteries into the supplied holders (16). Make sure that they are aligned as indicated in the holders.
- b) Clip the battery holders onto the alkaline adapter (17).
- c) Open the battery compartment lid (14) by pushing firmly down and sliding it from the rear of the control box (13).
- d) Install the assembled battery holders and adapter into the control box.
- e) Replace the lid by sliding it back over the compartment.

High quality alkaline batteries should be used instead of standard carbon batteries. Alkaline batteries will operate the Musketeer XS for about 40 hours. Use of headphones will extend this battery life.

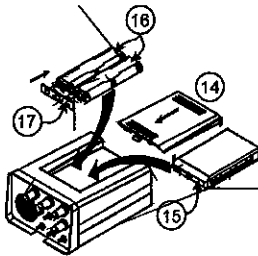


Figure 6—Installing the batteries

INSTALLATION OF NICAD BATTERY PACK

- Open the battery compartment (14) on the control box (13).
- Put the battery pack (15) into the battery compartment in the control box (13). Ensure that the holes in the pack are aligned with the spring connectors of the compartment.
- Replace the lid by sliding it back over the compartment.

LOW BATTERY WARNING AND NICAD RECHARGING

When the batteries are reaching the point at which they will no longer operate the Musketeer XS, a distinct sharp “pip” will sound 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.

The Nicad battery charger can be recharged using either a mains powered charger or a 12V charger that can be plugged into the cigarette lighter of your vehicle. (Only vehicles with a negative Earth can be used.)

The Controls

This section gives detailed descriptions of the controls of the Musketeer XS and their functionality. Although these can be a little difficult to grasp at first, having such knowledge means that you will be able to achieve the best performance with your detector. As you gain experience with your detector it may be useful to refer back to this section.

THE CONTROL PANEL

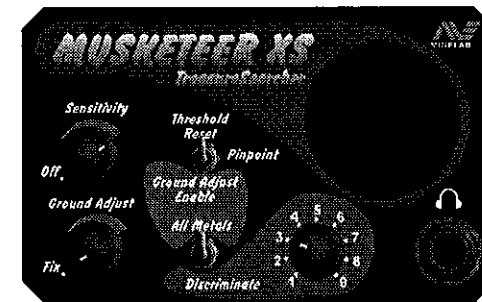


Figure 7—The Minelab Musketeer XS Control Panel

SENSITIVITY CONTROL AND ON/OFF SWITCH



This knob is located in the middle left hand side 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 to maximum, the most clockwise position. If interference is received in the form of popping or chattering it is advisable to turn the knob anti-clockwise just enough to remove the interference.

Note: If detecting in areas of extreme mineralization or electrical interference you may have to reduce the level of sensitivity by turning the control in an anti-clockwise direction.

GROUND ADJUST CONTROL



This control allows you to adjust the ground balance of the Musketeer XS in order to compensate for changes in the level of ground mineralization.

At the most counter-clockwise position of this control it switches into the "Fix" position. When in this position, the Musketeer XS is a fixed ground balance detector and requires no ground control adjustment.

If while detecting in this setting the level of ground mineralization becomes very high, the Musketeer XS will produce "ground noises" or false signals.

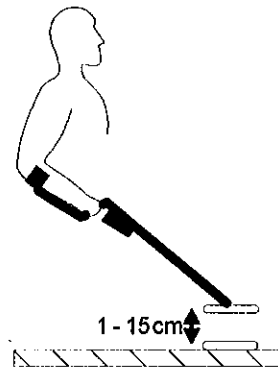
To reduce these ground noises, it will be necessary to switch the detector out of the "Fix" position and manually adjust the ground balance.

The ground balance can be adjusted in either "Discriminate" mode or in "All Metals" mode when in the "Ground Adjust Enable" position.

Note: You cannot effectively ground balance the Musketeer XS while in the "pinpoint" position. Turning the Ground Adjust control while in this position will cause the detector to become very erratic.

Raise and lower the search coil approximately 1–15cm above the ground whilst listening for changes in the sound. Turn the Ground Adjust control in an anti-clockwise direction if in the "Discriminate" mode, or clockwise direction if in the "All Metals" mode, while continuing to raise and lower the coil, until the background sound just disappears.

In areas of extreme mineralization, you may not be able to completely "balance out" the effects of ground mineralization. In this case, set the Ground Adjust control to the position where the sound varies the least as the coil is raised and lowered and then reduce the level of sensitivity to compensate for the excess mineralization.



While detecting, changes in the ground mineralization will occur causing the detector to produce "ground noises". It will then be necessary for you to re-adjust the ground balance using the procedure described previously.

It is important to note that the more accurately you ground balance the detector, the deeper you will detect and the more objects you will find.

DISCRIMINATE/ALL METALS SWITCH



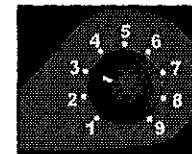
The Mode Switch is located in the center of the control panel. This switch selects either Discriminate or All Metals.

In the Discriminate Mode, the Discriminate Control is active and can be adjusted so that the Musketeer XS accepts or ignores certain metal objects, as described in the Discriminate section. In this "hunt" mode, the coil must be moving over the ground to detect a target, if you stop moving the coil when over a target the signal will "disappear".

In the All Metals mode, the Discriminate Control has no effect and the Musketeer XS will respond in the same way to all types of metal. The coil need not be moving to maintain a target sound, if the coil is held stationary over a target the sound will remain. This is ideal for target pinpointing.

The All Metals mode is also useful if you are searching for Ferrous targets. In this 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.

DISCRIMINATE CONTROL



The Discriminate control is located at the bottom right of the control panel. This control is used when in the Discriminate mode to "discriminate" or "ignore" unwanted metal targets.

Metal objects fall into two broad categories: Ferrous and Non-Ferrous. A magnet can be used to determine if an object is a Ferrous or Non-Ferrous metal; Ferrous metals will be attracted to the magnet while Non-Ferrous metals will not.

When in the discriminate mode, the Musketeer XS will discriminate Ferrous objects, and only provide a signal from a Non-Ferrous object.

If the Discriminate control is set to "1", Ferrous metals will be "ignored" and the machine will not produce a "signal beep" (large Ferrous objects may produce short "pops" or "clicks"); however Non-Ferrous objects will give a "signal beep" or be "accepted".

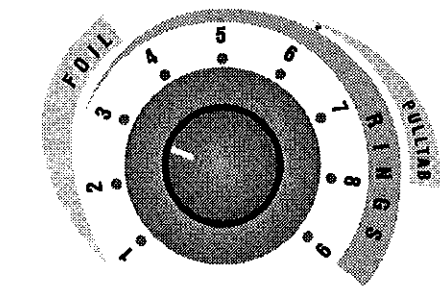
Typical Ferrous objects encountered by treasure hunters are: nails, screws, washers and bits of wire etc. These objects are generally not considered to be of value, so it is a distinct advantage to be able to ignore these objects while detecting.

The objects that will cause the Musketeer XS to produce a "signal beep" will be Non-Ferrous metals; this includes such items as: aluminium foil, most jewellery, pulltabs, coins, bottle tops, gold, silver, brass etc.

Not all of these Non-Ferrous objects are considered valuable. Therefore, by using the discriminate control, the Musketeer XS can be adjusted to ignore some of the less valuable Non-Ferrous objects while still locating the more valuable targets.

By turning the discriminate control clockwise, Non-Ferrous objects of increasing conductivity will be ignored. The Musketeer XS uses the electrical conductivity of the object to determine the type of metal detected and based upon the Discriminate control setting will either ignore or accept the object.

The following diagram shows some common objects and where the Discriminate control has to be set to ignore them.



*Small iron
bolts square nails etc.*
ALWAYS REJECTED

*Large silver
and gold coins*
ALWAYS ACCEPTED

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

The setting of the Discriminate control is relative to the types of objects that you wish to hunt for and the amount of trash that you are prepared to detect.

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, copper coins, the Discriminate control is set higher (approximately at number 7), but most fine white gold rings, foil, and some yellow gold rings will also be ignored.

How much trash are you willing to dig up to get a gold coin? If your preference is none, then turn your Discriminate control to the full clockwise position and your trash ratio will be very low, however you will not find most gold rings, nickels or brass buttons.

You will find silver and larger gold coins. You will not find some gold or some small silver coins.

And always remember that another person detecting behind you who is willing to dig a little more trash will find these items that you have passed over.

ALL METALS MODE SWITCHES



GROUND ADJUST ENABLE SETTING

This position is used for ground balancing while detecting in the All Metals mode. While in this position, use the ground adjust control to balance the Musketeer XS to the level of mineralization in the ground.

The ground balancing procedure is the same as described earlier while in the Discriminate mode.

PINPOINT

The Pinpoint feature works only while the Musketeer XS is in the All Metals mode.

While in this position, the Musketeer XS is a “non-motion” detector or in other words, you do not have to be moving the coil to detect an object.

The advantage of this feature is that it enables you to exactly pinpoint the location of a target before digging the hole. This will save you time in recovering the target and is also very “environmentally friendly”.

Sometimes while in this mode the pitch of the background sound becomes very loud and erratic. When this occurs you will need to flick and hold for 2 seconds the “Threshold Reset” switch to “retune” the Musketeer XS.

THRESHOLD RESET SWITCH

The Threshold Reset or “Retune” switch is located at the center of the control panel. It is spring loaded and will flip back to its normal position when you let it go.

This control is only operational while the Musketeer XS is in the All Metals mode and is used in combination with the Pinpoint position as described above, to assist in accurate target location.

In addition to “retuning” the background signal, the Musketeer XS can be ground balanced when in the Threshold Reset position, but as it is a spring loaded switch it is much easier to do in the Ground Adjust Enable position.

AUDIO OUTPUT



The audio output of the Minelab Musketeer XS is available through either an in-built 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 to slight target signals than the loudspeaker and shield your ears from external noises which can be distracting. The use of headphones will also increase battery life.

Headphones used should be of a 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”.

Operating Instructions

SETTING UP THE MINELAB MUSKETEER XS

a) Discriminate Mode

- Set the All Metals / Discriminate Mode switch to the “Discriminate” position.
- Turn the Ground Adjust control to the “Fix” position.
- Turn the Musketeer XS “On” by turning the Sensitivity control in a clockwise direction. Turn this control to the most clockwise or “maximum” setting.
- Raise and lower the coil approximately 1-15cm above the ground listening carefully. If the pitch of the background sound changes, the level of mineralization in the ground is too great to operate the Musketeer XS in the “Fix” position. If this is the case, turn the Ground Adjust control to the most clockwise position and begin the ground balance procedure described earlier.
- Select the level of “discrimination” you wish to have by setting the Discriminate control.
- You are now ready to hunt.



b) All Metal Mode

- Set the All Metals/Discriminate Mode switch to the “All Metals” position.
- Switch to the “Ground Adjust Enable” position
- Turn the Ground Adjust control to the “Fix” position.
- Turn the Musketeer XS “On” by turning the Sensitivity control in a clockwise direction. Turn this control to the most clockwise or “maximum” setting.
- Raise and lower the coil approximately 1-15cm above the ground listening carefully. If the pitch of the background sound changes the level of mineralization in the ground is too great to operate the Musketeer XS in the “Fix” position. If this is the case, begin the ground balance procedure described earlier.


- Once ground balanced, switch to the "Pinpoint" mode.
- You are now ready to hunt.

PRACTISING THE CONTROLS


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

1. 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. 
2. Take the unit outside away from known electrical devices or metal objects and support the Musketeer XS so that objects can be moved past the coil easily.
3. Ensure the Mode Switch is in Discriminate.
4. Turn the Discriminate Control to "1".
5. Turn the Sensitivity Control to "maximum". If excessive interference is encountered turn the Sensitivity Control anti-clockwise until it disappears.
6. One at a time, pass the test objects across the Coil. The Musketeer XS 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.
7. Now turn the Discriminate control progressively clockwise in steps and pass the objects over the Coil and see when certain objects are rejected. 
8. By experimenting with different settings of the Discriminate Control you will see where to set the Musketeer XS to accept or reject the targets you wish to hunt for.

Now for some treasure hunting.

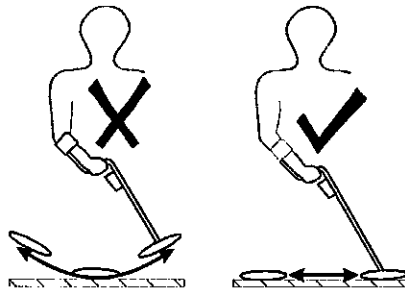
1. Take the Musketeer XS to the site you wish to hunt.
2. Holding the unit at waist level flick the Mode Switch to "Discriminate".
3. Turn your Discrimination knob to your preferred setting. Remember this is a trash to treasure ratio so select it based on how much trash you are willing to dig to find your first good item. You can always turn it up or down during use. 
4. Now turn on the Sensitivity control to "maximum". Remember it is suggested that you hunt with maximum sensitivity as often 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.
5. 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 XS from side to side keeping the coil parallel to the ground's surface throughout the swing.

You are now ready to start hunting! Take your Musketeer XS 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 XS responds. 

Treasure Hunting Tips

The Musketeer XS will perform at its best when the TreasureSearcher Coil is kept in contact with the ground. If you are not yet an experienced operator, you should practise maintaining a 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.



Note: Each sweep of the coil should overlap the last one. This will ensure good ground coverage.

Keeping the TreasureSearcher coil in contact with the ground will increase detection depth and response to small objects.

PINPOINTING

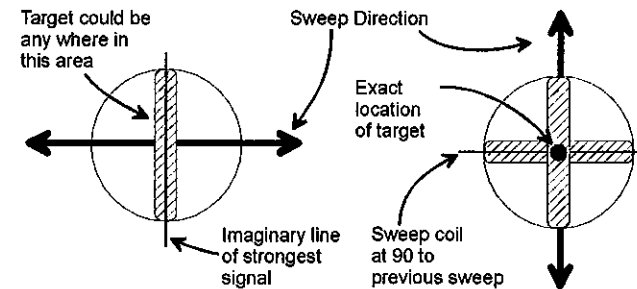
When the approximate location of the target has been determined in the Discriminate mode, switch to All Metals "Pinpoint" position. Hold the coil about one foot above the ground covering the target. Press and release the Threshold Reset Switch. Then move the coil slowly over the target. The audio tone 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 Pinpoint these targets, press and release the Threshold Reset switch when the volume becomes loud, then move the coil closer to the

target. If the Musketeer XS 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 its loudest. The open design of the TreasureSearcher coil makes it easy to mark the ground directly about the target to aid recovery.



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.

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

Take away and dispose of properly any junk that you find or produce, such as nails, tin cans or flat batteries. 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.

Detector Care and Trouble Shooting

PROPER CARE OF YOUR DETECTOR

The Musketeer XS 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.
- **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.

TROUBLE-SHOOTING

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

- **Batteries.**
Flat or faulty batteries cause many detector problems. 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 firmly tightened.

Warranty and Service

There is a two-year parts and labour warranty for the electronic control box of the Musketeer XS. Refer to your Warranty Card for further details. The TreasureSearcher 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".

Specifications

These specifications are subject to change without notice.

Length	Extended	1350mm (53")
	Unextended	840mm (33")
Weight	Control Box (Exc. Batteries)	560gm
	Shaft and 8" TreasureSearcher Coil	1610gm
	Packed	2300gm
Batteries	Alkaline Cells	Eight 1.5V "AA"
	Nicad Battery Pack	12V, 600 mA/Hr
Coil	8" Round "Double D" waterproof	
Headphones	Impedance	8 Ω
	Jack - Stereo/Mono	1/4"
Frequency	Transmission, sine	5kHz
Ground Rejection	Manual Ground Adjust	1 turn pot
Search Modes	Discriminate, All Metals, Pinpoint	
Controls	Sensitivity, On/Off	Pot and switch
	Ground Adjust	Pot and switch
	Discriminate	Pot. 1 turn
	All Metals/Discriminate	Switch 2 Pos.
Warranty	Pinpoint	Switch 3 Pos.
	Control Box	2 years
Patents	Coil	1 Year
	US 4894618, US 4890064, CAN 1260146, AUS 595835, others pending.	