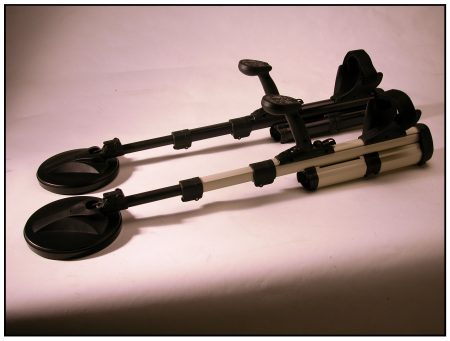


WHY PURCHASE
A MINELAB METAL MINE DETECTOR?

"Overall this was the best detector (F1A4) I have personally used and would happily use this detector again and recommend its use to other people. The deminers and team leaders who used the detector were of the same opinion and were extremely impressed with its performance and results" Armor Group Kosovo 1999

"I am pleased to report that the 22d Marine Expeditionary Unit (Special Operations Capable) is completing their tour of duty in Afghanistan. The 22d MEU(SOC) included the Marines that you trained on the use of the F3 in January 2004. They found the Minelab F3 metal detector to be invaluable in their search for hidden Taliban and anti-coalition weapons and ammunition. Thank you for providing such a well-manufactured and capable detector. One of the Marine Corps battalions actually displaced all of the …… detectors with F3s for their deployment." USMC 2004

INTRODUCTION

Minelab metal mine detectors can be found in service in more than 55 countries around the world. Ideal for use in both military and humanitarian demining operations, Minelab detectors continue to be purchased by NGOs, commercial demining companies, the United Nations and individual nation state militaries.

As with any commercially available product, a customer must strive to ensure the best value for money is being obtained. This fundamental requirement becomes even more critical in those circumstances where donor funds are used in a procurement process.

AIM

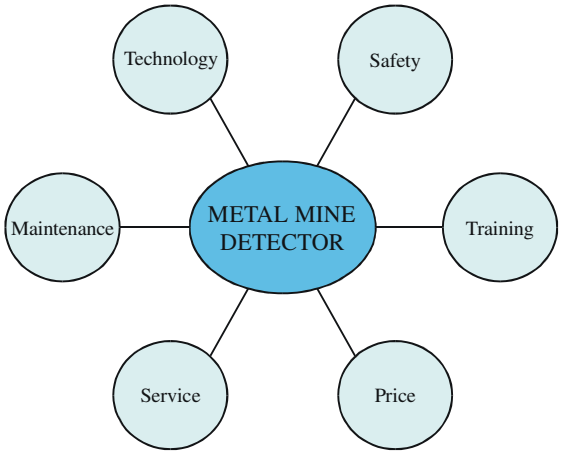
The aim of this paper is to assist any potential purchaser to make an informed judgement when considering procurement of a Minelab metal mine detector. The paper will use selected quotes from various authorities, agencies and customers to

support Minelab's view that its detectors continue to represent excellent value for money.

PROCUREMENT CONSIDERATIONS

As depicted in the diagram, the decision to purchase mine detectors should take into account:

- Technology
- Maintenance
- Service
- Safety
- Training
- Price



Although the "procurement considerations" are useful when analysed individually, it would be wrong to afford each consideration the same amount of importance or priority. For example, a detector that is extremely easy to maintain but lacks the sensitivity to detect minimum metal mines is of little use overall. It therefore becomes the judgement of a procurement staff to determine the importance of each consideration.

The following narrative examines Minelab detectors against each of the procurement considerations.

Technology

- With the introduction of the minimum metal mine (plastic mine), a vital capability of a mine detector is to be able to detect very small amounts of metal. Although the physics of metal detection does not vary greatly between detectors, difficulty is often encountered when mines are laid in mineralised soils. In this instance the conductivity of the soil can produce false alarms and mask the presence of a mine.

Shall be capable of detecting a Type 72A AP mine to a depth of 150mm in typical Australian laterite – EXCEEDS requirement (Australian Army acceptance tests)

We were finding 20mm to 75mm to 81mm mortars. Everything was within 4 feet of the surface. Magnetometry was no good because of the high mineral content in the soil. – (Bombs Away – March 2002)

100% of the targets in all lanes were detected by the Minelab. The Minelab obviously has a better detection rate than the …. in loam and magnetic soils (US Fort Leaonardwood 1997)

In conventional detectors, to overcome the false alarm caused by mineralised soil, the only option is to reduce the sensitivity of the detector through use of a sensitivity control. At best, this procedure makes the detection of a minimum metal mines more difficult and, at worst results in mines being undetected.

I was informed that team 5 is re-clearing the area cleared with a …. last year. So far {using the Minelab} they have found 4 Type 72 A (UN Contractor Report Iraq 2000)

With its patented Multi Period Sensing (MPS) technology, Minelab detectors maintain maximum sensitivity regardless of the soil type.

Minelab was the only detector that could detect ALL mines down to 150mm (UNDP Afghanistan Trial 2000)

- The sensitivity of a detector can also be affected by moisture on the surface of the search head (coil). In many cases, once a coil is wet or is used in shallow water, its sensitivity dramatically reduces. Minelab detectors use an enclosed waterproof coil that suffers no degradation in sensitivity when wet.

Unlike the current CMAC fleet of detectors the Minelab does not lose performance when it is being used in wet conditions. When used in wet conditions the mean average depth of detection increases by 8.33%. This is a positive feature as other detectors lose depth of detection due to moisture on the detecting head. (CMAC Trial Report 1998)

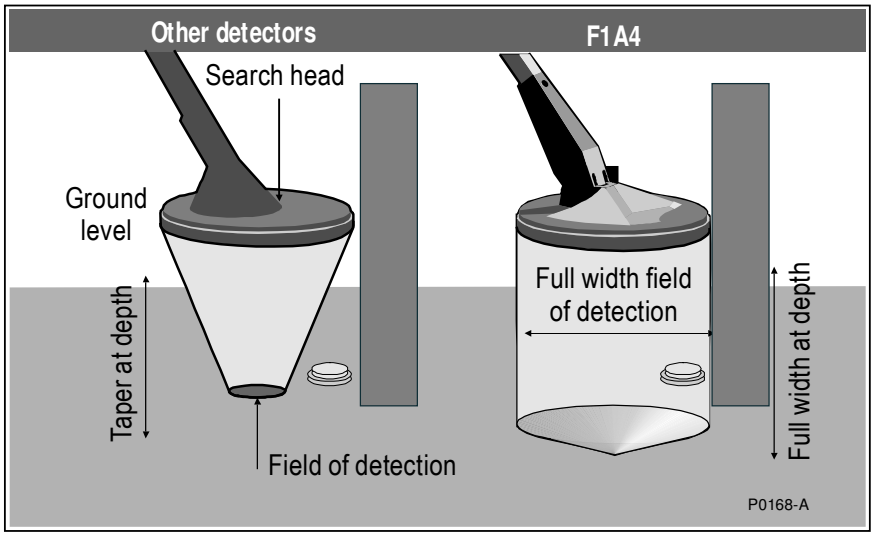
- The sensitivity of a detector can also be adversely affected due to the close proximity of overhead power lines (110/220/240 V 50/60 Hz). To eliminate this problem, Minelab detectors incorporate a "Noise Cancel" function in the electronics. When Noise Cancel is initiated, the electronics automatically scans the surrounding environment searching over 4,000 iterations of frequency until the source of interference is detected. Once completed, the detector will select an alternative operating frequency to reduce or eliminate the original interference.

Ability to detect Type 72A directly under 200KV lines – target detected at 20cm (UNADP 1999)

Safety

By its very nature, demining places individuals into hazardous circumstances. Standing Operating Procedures introduce controlled procedures to minimise risk. Equally, a detector should include design features that help reduce the overall risk that a deminer may face during routine work practice.

- Minelab metal mine detectors use mono-loop coils instead of the conventional Double D coil or concentric transmit and receive coils. The effect of this is to create the same level of sensitivity across the entire surface area of the coil. In contrast, many conventional detectors produce a "cone of detection" meaning that the area covered at the surface is not the same as covered at depth.



Minelab has detection that covers the entire width of the search head. This means that deminers have less chance of missing mines while they are demining (CMAC Trial Report 1998)

- Another advantage of the mono-loop coil is the "edge-to-edge detection" that permits easy pin pointing of targets. Also, against obstacles such as fences, the edge-to-edge capability ensures a target will not be missed at depth.

All operators felt very confident in the detector and the method of edge detection. They get more target information, enabling them to describe target shape, size and in some cases, type of metal (UN Contractor Report 2000)

- Another safety feature is obtained from the design of the battery pack. As the batteries begin to lose voltage, circuitry in the battery pack maintains the supplied voltage to the electronics at a constant level. This ensures maximum sensitivity is maintained. When battery voltage is reduced to such an extent that this can no longer be achieved, the operator is immediately notified via "battery low" flashing lights and/or audio warning tone. At this point, the batteries must be replaced.

Unfortunately, some other brands of detector lose sensitivity as the battery voltage decreases. Minelab views this as a significant safety hazard for operators.

- Minelab's philosophy on safety includes a constant Threshold Tone that an operator can hear during operation. If the tone cannot be heard, the detector should not be used under any circumstances. The Test Piece also confirms the detector is working correctly and sensitivity is maintained.

If an operator disconnects the cable from the control box when it is turned on, a very loud squealing noise will alert the operator that something is wrong. The same would occur if the cable severed internally, or a short circuit occurred in the coil during use.

However, if the cable was broken during transit and connected to the control box and then switched on, two things would happen. Firstly, the Threshold Tone would sound different which would be immediately noticeable to a trained operator. Secondly, the Test Piece procedure would fail outright.

- Unlike many detectors, Minelab detectors provides a varied tone depending on the conductivity of the metal being detected. With correct training and experience it is possible for a deminer to learn more about a potential target. Additionally, the varied tonal response provides an additional safety feature in that it improves an operator's ability to distinguish between multiple targets.

> ***The audible signal was very clear and provided good variation of noise when passing even the buried TS-50s. This feature gained immediate approval of the Rwandans, as they quickly learned to tell the difference in the signals of shrapnel and the TS-50 (US DOD 1997)***

Training

Minelab views training as an important component of any purchase. Although Minelab detectors are simple to use, training emphasises the advantages to be gained from the correct use of Minelab technology.

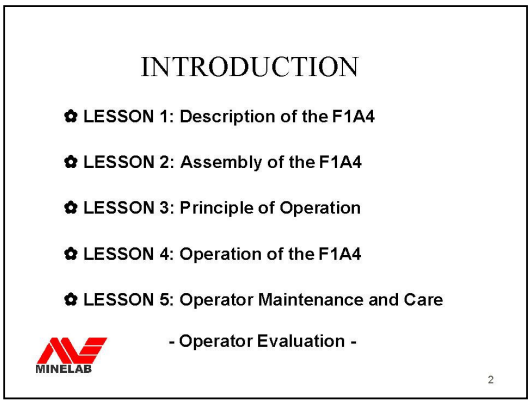
> ***I trained 6 locals from the Federated States of Micronesia. These guys had no prior experience. In one hour these guys could put the unit together and do the ops checks, no problem. After the first day they were superstars. These guys have a very limited education. (Bombs Away – 2002)***

Minelab provides comprehensive operator and technician training using its accredited and experienced instructors. All Minelab trainers are qualified instructors and are well versed in adult education techniques.

All training materials are provided free of charge to satisfy continuation training as required. Training packages are designed to be flexible for use in either the class room environment with modern audio/visual facilities, or in the field.

> ***100% of the deminers would feel confident {using the Minelab} in a live minefield (UNDP Afghanistan Trial 2000)***

For quantity purchases of detectors, training is included at no charge to the customer. Also, as part of normal customer service, Minelab strives to visit clients on a rotational basis every 3-4 months to assist in maintaining training standards for operators and technicians. These routine visits are at no charge to the customer. Additionally, Minelab can provide training advice and support from its other company locations in the US and Ireland.



Minelab's product development includes continual analysis of training needs to ensure transfers of training are kept to a minimum. This approach reduces the possibility of increased training liability should a customer decide to supplement and/or replace an existing fleet with new product release from Minelab.

Maintenance

Minelab is an ISO 9001:2000 Quality Endorsed Company. All Minelab products are developed under tightly maintained quality controls and undergo continuous improvement. Quality Assurance checks during manufacture and packing ensure that the designed quality is achieved.

Minelab detectors are made from quality materials designed to ensure maintenance is kept to a minimum. Minelab's three-tiered level of maintenance provides a comprehensive and responsive support structure regardless of location around the world.

> ***The overall detector is well made up and very robust. During the 3 months use the detector never failed to operate. Each component of the detector is well thought out and parts that are easily damaged on other detectors are well protected. The search head also comes with a replaceable head protector (skid plate), which will prolong its life and reduce expensive repairs and lost time (Armor Group Kosovo 1999)***

Minelab monitors the location and quantity of its detectors around the world and establishes warranty repair and service centres on an as required basis. Spares stock at warranty repair centres and at Minelab are maintained at a level to ensure prompt supply should the need arise.

Maintenance of detector fleets requires no expensive special tools.

Service

Minelab prides itself on its commitment to pre and post sales service. Within Minelab's Countermine Division, dedicated staff are always available to provide responses to customer enquiries. All customer needs, no matter how minor, are afforded top priority with comprehensive responses being provided within a 24-hour period.

> ***Thank you for your efficient way of doing business with UNOPS (UNOPS - September 2000)***
>
> ***We in the Office of Humanitarian Demining Programs truly appreciate Minelab's exceptional support to global humanitarian demining efforts (US Department of State – December 2000)***

Minelab has established a communications network that maintains constant contact with its key demining staff regardless of their travel location. In this way, all internal departmental levels of input can be accessed where necessary when responding to a customer's enquiry.

> ***Thanks, excellent service (Canadian Army – November 2000)***

With the Countermine Division's 2001 expansion into Minelab's US and Ireland locations, Minelab's service has been further enhanced.

> ***Excellent co-operation from your side (UNADP Mozambique – November 2000)***
>
> ***Many thanks for your prompt attention regarding the yokes (GTL Australia – December 2000)***

As part of Minelab's ISO 9001:2000 accreditation, it maintains configuration management records for all detectors sold. This information is always available to customers if required so that any future modifications can be properly documented. Similarly, periodic technical instructions on operation and maintenance will automatically be issued.

Price

An important final consideration is price. As mentioned in the Introduction, the aim for any customer should be to obtain the best value for money. Minelab's market research indicates that its detectors are very competitively priced in comparison to other vendors.

Additionally, those clients given "preferred customer" status are extended further cost savings.

Mindful of the running costs, Minelab strives to reduce a customer's fleet maintenance expense by offering spares at reasonable prices. Minelab believes the cost of its spares is very low in comparison to its competitors.

ENDORSEMENT OF MINELAB

Minelab has rapidly gained a worldwide reputation for excellence in metal detection technology. As a direct result of the proven performance Minelab's technology, the exclusive US contractor responsible to the US Department of Defense for the Handheld Standoff Mine Detection System (HSTAMIDS) approached Minelab to assist in R&D.

The HSTAMIDS project (due for completion in 2004) seeks to replace the existing fleet of US Army hand held detectors with state of the art dual sensor (ground penetration radar and metal detection) technology. Over the past three years, Minelab has continued to develop its metal detection technology as part of its contribution to this high profile project.

In having been selected amongst its competitors to provide metal detection technology to the HSTAMIDS project, Minelab has received an important endorsement of its capabilities. Moreover, it cements Minelab's commitment to the future development of metal detection for use in both military and humanitarian demining.

CONCLUSION

This paper aims to provide objective information to assist procurement staff to make informed judgement when considering the purchase Minelab metal mine detectors. It is hoped that when all the "procurement considerations" are taken into account, it will be concluded that Minelab continues to represent excellent value for money.

Minelab International Ireland

Minelab Electronics Australia

Minelab USA