



## LMAS 09.11 Annex A

# DETECTOR SEARCH

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**Note:**

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## 1. Introduction

- 1.1 This Annex details battle area clearance using metal and UXO detectors, UXO detectors which are normally operated by one or two people carrying the detector.
- 1.2 During battle area clearance detectors shall be used to search the ground for surface or sub-surface ERW, depending on operational requirements.
- 1.3 This Annex should be read in conjunction with LMAS 03.40/1 Detectors and LMAS 09.10/1 Manual Mine Clearance, Annex A Detector Search.

## 2. Detector Testing

Refer to LMAS 03.40/1 Detectors and 09.10/1 Manual Mine Clearance, Annex A Detector Search.

## 3. Marking

- 3.1 Wooden posts or rocks shall be used for temporary marking when conducting battle area clearance to ensure that administration and working areas are obvious and as an aid to safety, however improvised markers such as wooden batons laid on the ground or plastic cones may be authorised for use by the SMACO to be used during operations.
- 3.2 Temporary and improvised markers shall be used to mark the location of detector signals, ERW, and other hazards.
- 3.3 It is the responsibility of the Mine Action Organisation to ensure that the demining site is accurately marked prior, during, and on suspension or completion of battle area clearance operations.
- 3.4 Refer to 10.20/1 Demining Site Marking Systems.

## 4. Detector Search

- 4.1 The Mine Action Organisation shall ensure that the detector search is systematic and controlled, and that the demining lane, box or area is marked in accordance with LMAS 10.20 Demining Worksite Safety, and LMAS 10.20/1 Demining Site Marking Systems.
- 4.2 There may be a requirement to use a base stick (B/S) to demarcate the forward boundary of individual 1 metre wide demining lanes, whereas the base stick is placed on the ground to the front of where the Deminer is working, or may be carried during the search procedure, and placed on the ground when required, i.e. on detecting a signal, removing an obstacle, locating a hazardous item, stopping work.
- 4.3 The Mine Action Organisation's SOP shall clearly describe the detector search procedure for all types (categories) of detectors and marking systems used.
- 4.4 In the absence of sufficient details in the Mine Action Organisation's SOP pertaining to the detector search, reference shall be made to the LMAS 09.11 battle area clearance (and Annexes), and in the absence of sufficient details in LMAS 09.11, reference shall be made to LMAS 09.10/1 Manual Mine Clearance (and Annexes).

## 5. Example of Detector Search and "Opening" a New Demining Lane

Refer to LMAS 09.10/1 Manual Mine Clearance, Annex A Detector Search.

## 6. Example of Detector Search using a UXO (magnetometer) Detector

- 6.1 To ensure a systematic and accurate detector search, individual 1 metre wide demining lanes should be used.
- 6.2 There may be a requirement to use a base stick (B/S) as detailed in 4. Detector Search.
- 6.3 The detector shaft (or similar) is normally held in a vertical position (as possible) with the tip (head) pointing towards the ground, and the detector is swept from side to side.
- 6.4 Starting from a minimum of 10 cm to the left or right side of the clearance lane (depending on which hand the detector is held), the detector head shall be swept across the ground at the maximum search height twice (height depending on pertinent detector performance test results), ensuring that there is an overlap to the sides of a minimum 10 cm and maximum 50 cm.
- 6.5 When used without the B/S; on completion of the sweeps, if there are no pertinent signals, the detector head shall be moved forward a maximum of 10 cm and the search process repeated.
- 6.6 When used in conjunction with the base stick (B/S), the search shall be conducted to a maximum of 50 cm forward and the B/S moved forward a maximum distance 10 cm less than that searched ensuring a sufficient overlap.

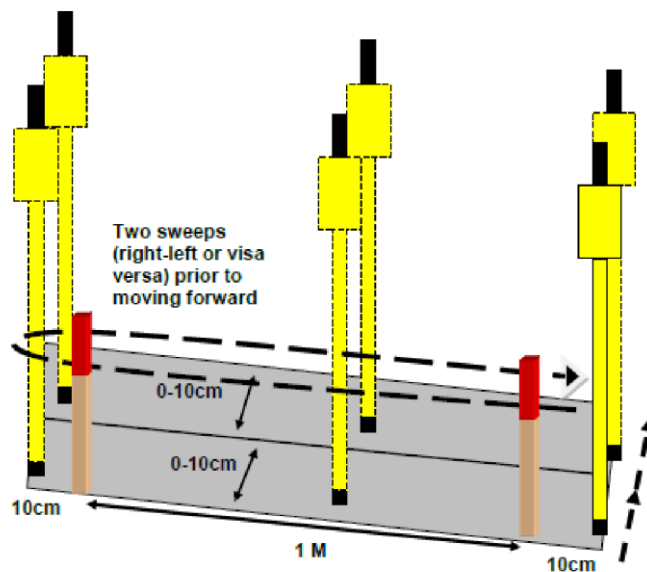


Figure 1: Example - UXO (magnetometer) detector search without base stick

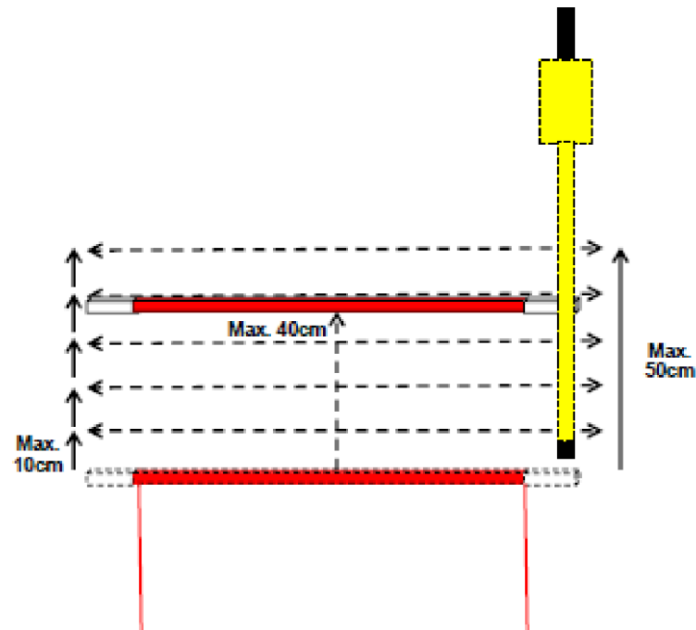


Figure 2: Example - UXO (magnetometer) detector search with base stick

## 7. Example of Detector Search using a UXO (electromagnetic) Detector (Large Loop type)

- The detector is normally operated by one or two people, who are to ensure that the frame (supporting the search coil) is held horizontal and up to the maximum permitted distance from the ground, which should depend on pertinent detector performance test results.
- The person carrying the electronics box and battery container (or similar) should be command of the procedure and issues orders when to start and stop, and controls the walking speed.
- It is however possible to employ an additional Deminer who walks behind or to the side of the detector carrying these
- The decision as to whether personnel shall walk on uncleared ground or not (e.g. stand inside or outside of the support frame) when searching with the detector shall be based on a pertinent risk assessment.

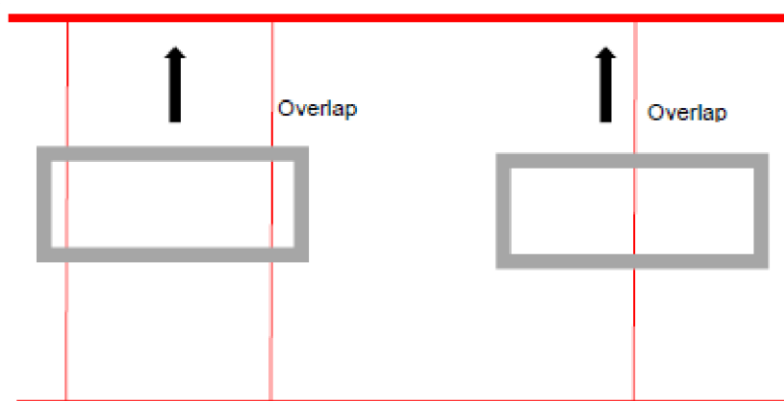


Figure 3: Example - UXO (electromagnetic) large loop detector search