JOINT IED DEFEAT ORGANIZATION (JIEDDO)

JOINT CENTER OF EXCELLENCE (JCOE)

Attack the Network – Defeat the Device – Train the Force

Dismounted C-IED Smart-Book

SECURITY

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- Treat all Protecively Marked information (documents, CD's, computers, etc….) appropreately.

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NOTES

DISMOUNTED C-IED INTRODUCTION

1. A dismounted operation enhances your interaction with the local populace and enables you to gain intelligence in your Area of Operations (AO) with Tactical Questioning (T/Q). This type of operation does not go without risk as you are more vulnerable when maneuvering within the AO without armored vehicular protection. Many lessons learned have been put into the Dismounted Smart-Book to be used as a reference and to help mitigate the threat to dismounted patrols. This smart book demonstrates successful best practices used to support dismounted operations in a tactical environment.

2. The tactical employment of equipment is vital to counter the IED threat during dismounted patrols. Having a firm understanding of the tactical employment of Hand Held Detection (HHD) equipment will give the dismounts the advantage when being faced with IED threats. The advantage of dismounted operations increases freedom of movement without being restricted to terrain and danger areas like roads, tracks and footpaths. You must make the targeting process a challenge for the insurgent. Keeping the enemy as a reconnaissance element as opposed to an attacking element is the effect dismounted patrols can have. This can be achieved by NEVER traveling the previous route of each patrol.

3. The key to the success of dismounted operations requires a thorough threat assessment of your area of operations. If you think like an insurgent when conducting dismounted patrols, it will aid you in making critical decisions when moving across the battlefield. For a threat to be viable there must be intent, capability and a suitable location, in terms of time and space, for an offensive action to take place. This is shown in Figure 1.

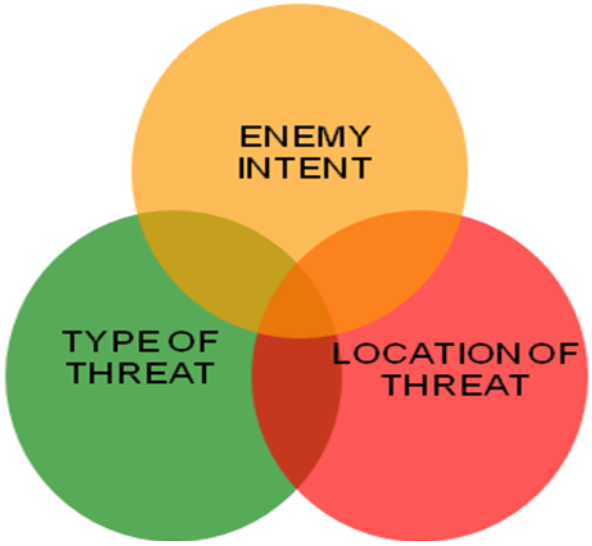


Figure1. Threat Assessment

4. The enemy can adapt their TTP's very quickly to counter the coalition dismounted patrols TTP's. Coalition forces make the enemy targeting process easy when they continue to set patterns and do not vary their routes and fail to conduct individual threat assessments.

5. **Training.** The ability to patrol dismounted requires a significant amount of planning. The rehearsal of individual and collective tasks contributes to a successful dismounted patrol. There are several phases that must be addressed prior to conducting dismounted operations:

a. **Planning**. Conduct basic map reconnaissance, analyise all previous patrol routes, intergrate Intelgence Surveilance and Reconiasance assets into your mission. Gather the latest inteligance reports from your CoIST and S2, so you can make an asseessment of the types of threats you can encounter on patrol.

b. **Equipment.** This is individual training on all the key components that make up the variety of dismounted IED Detection equipment. Understanding the equipments capability and tactical employment will provide the patrol with the necessary tools and skills necessary to be confident and competent. The operation and tactical employment of all dismounted IED Defeat equipment available must be mastered to counter IED threats with the correct steps.

c. **Collective dismounted Tactical Training.** This will focus on how to tactically employ HHD equipment in a realistic environment to include:

1) Dismounted Operations planning

2) AO Threat Assessment

3) Danger Areas Vulnerable points/Area assessments

4) Ground Sign Awareness

Having a firm understanding of the above will aid in the tactical employment of dismounted equipment.

6. **Infantry Tactics**. The principals of patrolling will not change. The integration of additional IED Defeat/Detection equipment to encounter the obstacles faced on a patrol will change your elements load plan and formation. Having a firm understanding of the enemy will lead to early detection of the threat and facilitate the decision making process, while deciding how to react or counter the threat presented.

GROUND SIGN AWARENESS

- During the patrol, threat assessments continue to change with the environment. When you have identified every vulnerable point/area in your battle space you can plan and develop successful dismounted patrols and mitigate risk. You must identify all potential indicators/precursors of IED emplacements on your route. Identifying these indicators/precursors left behind by the enemy will enhance your threat assessment and targeting process.

IF IT LOOKS OUT OF PLACE, IT WAS PROBABLY PUT THERE FOR A REASON – TO TARGET YOU!

Using this acronym "**CAGE**" will help you focus on the potential threat you are trying to identify.

C – CHANNELED

A – AIMING MARKERS

G – GROUND SIGN

E – ENVIORENMENT ATMOSPHERICS

Absence of the Normal
Presence of the Abnormal

- **Disturbance.** When an IED has been emplaced by digging in the area, it causes a disturbance to the natural pattern of the earth. When the disturbance occurs there are usually noticeable signs existing in the texture of the ground and soil near the IED emplacement; the site will not match with its surrounding area. The soil over the IED may reveal a small mound over the location, or the area may have footprints surrounding freshly turned earth.

- **Discardables.** Items the enemy may intentionally or unintentionally leave behind at the emplacement site of an IED. Common articles left behind at IED emplacement sites are cigarette butts, wire ends, and bits of tape. The enemy may also leave behind metal fragments or expended brass in order to confuse sweepers and give false hits with the metal detector.

- The enemy has been known to leave “souvenir” type items that may be connected to an anti-tamper device. Items left behind include helmets, rifle magazines, weapons, and ammunition cans.

- **Color change.** When the enemy emplaces an IED in the ground, the soil from the hole may differ in color from the surrounding area due to the difference in moisture content below the surface. Insurgents have been known to pour water or urinate on the top of IED holes in order to pack soil back into the hole. Certain chemicals contained in Home Made Explosives (HME) can leak from their containers causing a discoloration in the surrounding soil and vegetation. This is evident when insurgents reuse cooking oil containers for HME charges. Since oil is buoyant in water, the oil that leaks from the container will rise to the surface causing discoloration to the soil.

- **Regularity.** Straight lines rarely exist nature. When the enemy tries to conceal an IED some things appear out of place compared to nature's emplacement of soil, rocks, and vegetation. When the enemy buries or tries to conceal command wire, pull lines, or trip lines there is often a distinct line that would not naturally occur on the surface of the ground. Distinct lines are not limited to a linear shape. Also look for un-natural lines that may be in circular, rectangular, or square shapes which may reveal the outlines of mines or pressure plates.

- **Flattening.** Flattening occurs after a hole is filled back in. Air trapped between particles of dirt escapes over time and the top of the filled area collapses to an area lower than that of the surrounding area. Examples of flattening are evident after it rains and after extended periods of time.

- **Transference.** Transference occurs when the IED emplacer takes soil, or any other material, from one area to conceal the IED at a separate location. Often times the transferred material will not naturally blend with the surrounding area. Examples of transference can be large rocks where only small rocks have been observed, dead brush in an area with green vegetation, or large dirt clods in an area where there is only moon dust.

- **Markers.** The enemy frequently uses markers for multiple purposes. Some may be used as aiming stakes, while other may be used to warn locals about the presence of IEDs along a certain path or route. Examples of aiming stakes may be discarded engineer stakes, telephone poles, corners of compound walls, or stacked rocks.

- The enemy has also been known to mark safe or unsafe routes, depending on the area, with a line of rocks across the road. Other examples of indicators may include painted rocks, discarded chemical lights, or out of place branches. Additionally, the enemy has split rocks or sticks in half, pointing the two halves in a safe direction from the IED.

- Friendly markings can be either deliberate or hasty. Deliberate markings include paint and engineer tape, while hasty markings can include bottle caps, chemlights, and baby powder. When marking at night or during periods of low light, use Infra Red (IR) chemlights or shaving cream in conjunction with night vision devices.

RECOMMENDATIONS.

- Treat every area of your patrol as if it contains possible IED indicators. Areas where security halts and link ups were conducted, as well as places used for cover or over watch on previous patrols are frequently targeted with IED's. Remember the enemy is constantly watching your patrol. Try to avoid areas that have been previously used; if you have no other option, ensure dismounts are looking for ground signs to confirm that the presence of an explosive threat exist.

- Do not be solely dependent on enabling equipment such as the metal detectors, which may have failure or lead to "tunnel vision**." Visual detection still remains the number one method for identifying the presence of an IED.**

- The use of optics organic to individual units (binoculars, ACOG, spotting scopes, etc.) can view suspected indicators from a distance.

- Consider anything out of the ordinary to be suspicious until proven otherwise. Items to consider are rock or brush piles, wire, colored cord, abandoned weapons or equipment, and shapes or colors that are not natural to the environment you are patrolling in.

GROUND SIGN LINK TO IED EMPLACEMENT

- To conceal an IED inevitably will leave an element of ground sign. This can be in the form of foot print or the signature left behind from concealment. The indicator doesn't necessarily have to be on the ground. Markers and indicators can be left to warn others of the presence of an IED so the environment plays a key part into the likely location.

- Below is a roadway cut out that that shows the link between emplacement of an IED and the ground sign left behind. Figure 2 shows the type of typical devices found in theater; figure 3 shows a typical outline of ground sign.

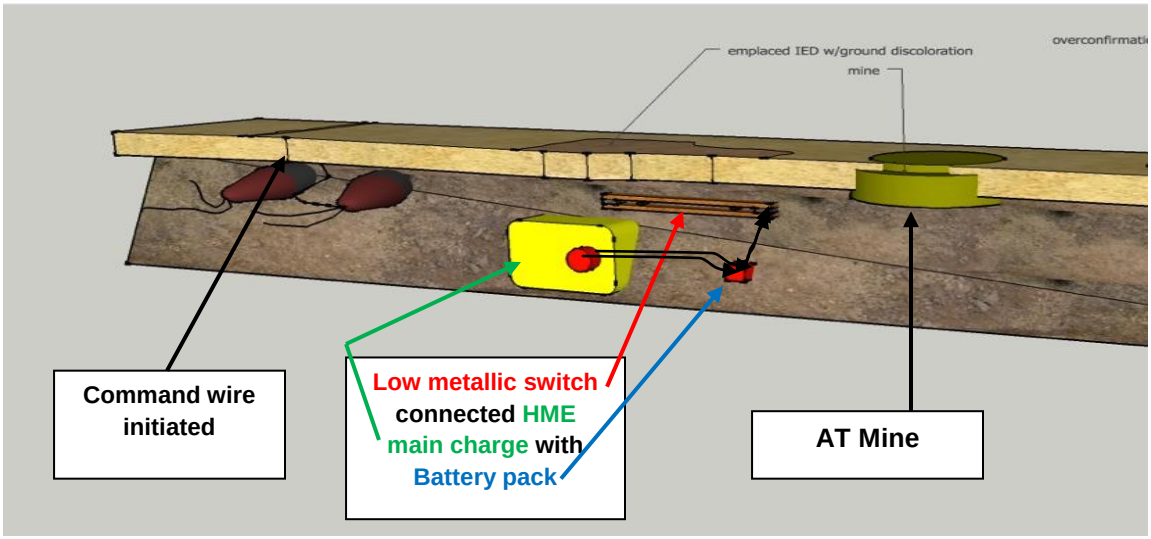


Figure 2. Common types of IED'S/Land Service Ammunition (LSA) found on a roadway.

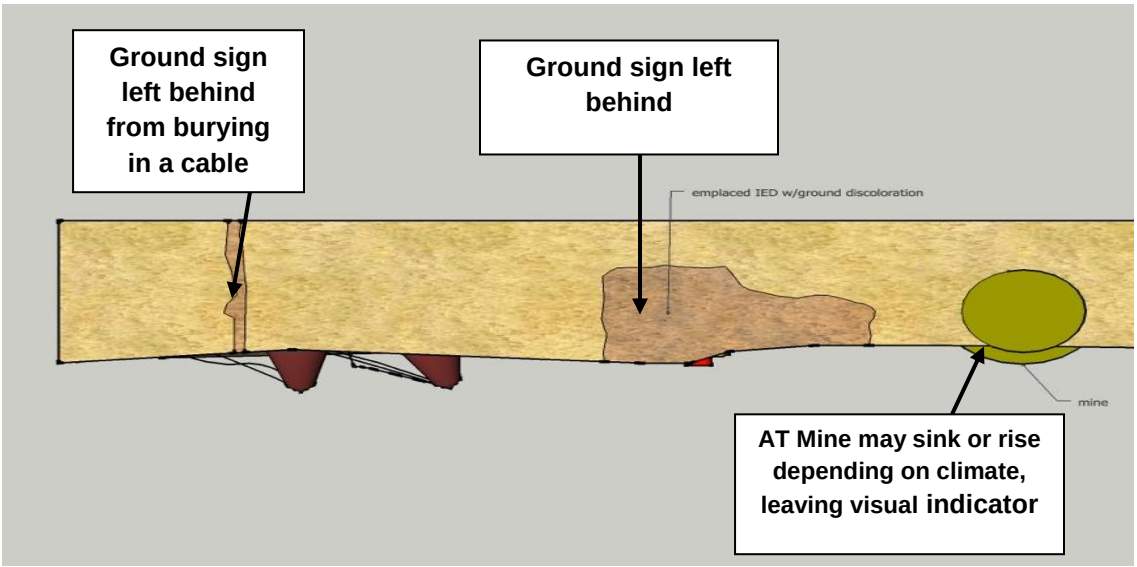
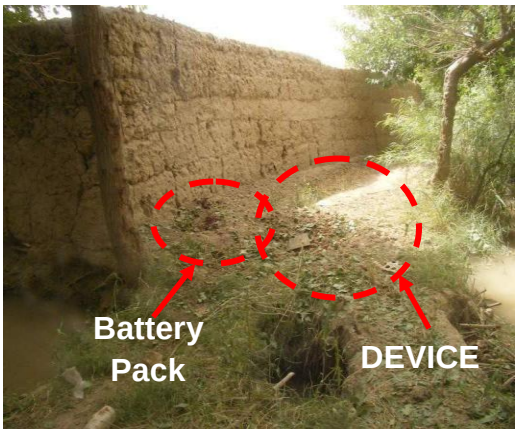


Figure 3. Ground sign left from emplacement

- Below are some basic examples of ground sign that show the presence of IED emplacement. When dismounted you will clearly see ground sign and the links with VP's and emplacement.



Ground Sign

⟷

Link to Emplacement

IED: Depressed soil from IED emplacement. The IED was placed by insurgents due to frequent use by friendly forces.

Ground Sign: Flattening is the general leveling or depression, identified by the immediate surrounding area.

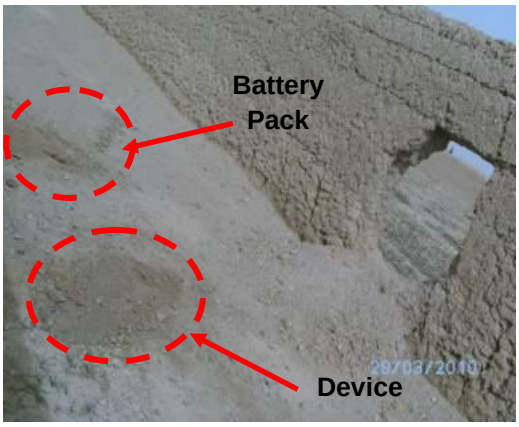
Ground Sign

⟷

Link to Emplacement

IED: Area of compressed ground and foot prints with loose disturbed surface and placed on a tire track.

Ground Sign: A Foot print left behind is an indicator. Shapes not normally found in nature

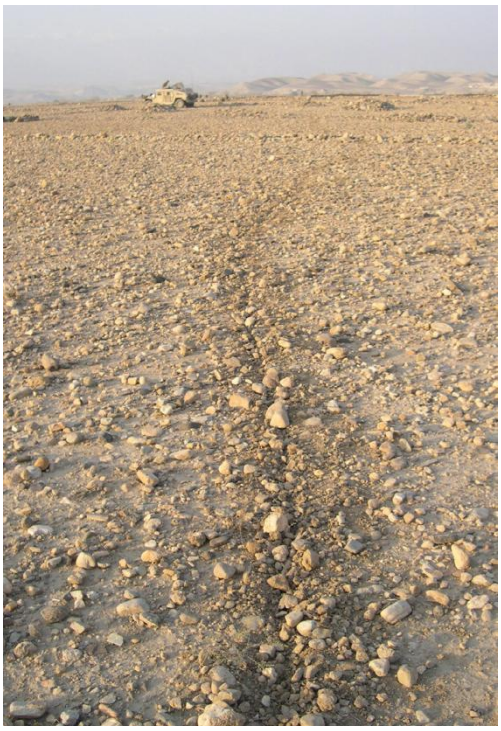


Ground Sign

Link to Emplacement

IED: Obvious ground sign placed next to a gap in a compound wall frequently used by troops.

GROUND SIGN: Transfer is the transit of different materials from one environment to another. The difference of material transferred when excavating makes obvious signatures/indicators.



Ground Sign

Link to Emplacement

IED: Obvious ground sign concealing an IED Command Wire.

GROUND SIGN: Irregularity with its surrounding area.

VULNERABLE POINTS (VP)/VULNERABLE AREAS (VA)/DANGER AREAS

- The ability to target a dismounted patrol with an IED requires an element of luck for the enemy. VPs are places where it is particularly advantageous for the enemy to position an IED because the terrain restricts the maneuver of the patrol through an area that has no other crossing point or way around. Individuals must observe 360 degrees from their position, then look for indicators as devices have been found in walls and trees at or above head level. Below are some examples of VP/VA that allow the enemy to target dismounted patrols through choke points, slow down points, channeling and frequently used areas by Friendly Forces (FF). Below are some examples of VP's:

    - **Wadi Crossings**. Anywhere a track crosses a wadi, vehicles are canalized with limited maneuverability. While IEDs can be placed in avenues of approach or anywhere else within the wadi, the narrowest point is the area of highest threat.

    - **Track Junctions**. Traffic, both vehicular and on foot, concentrates at track junctions and often has limited options to negotiate the turn; both are easily targeted by burying a device either in the track or to the side.

- **Culverts and Bridges**. Much like wadis, culverts and bridges are ideal places to hide a device; the target is channeled into crossing where there is the opportunity to place a large device underneath; this is equally applicable for footbridges over irrigation ditches - and the approaches to them.

- **Mouse holes**. Devices and trip wires can be laid where holes have been created in walls to allow compound access. These are typically placed on the inside of the compound where the first individual through the hole places his foot on the inside.

- **Previous Positions**. Anywhere the insurgent has placed a device in the past, or positions previously used by ISAF and/or ANSF.

- **Support by Fire Positions and positions of cover**. Insurgents watch our TTPs and will seek to exploit them. They have noted how we use certain locations as places of cover and/or from which to provide fire support. Examples are corners of walls/compounds, ditches, mounds, ridgelines, compound roofs. They will seek to target access to these locations, e.g. bottom of stairs to a compound roof.

- **Vulnerable Areas**. Vulnerable Areas (VA) are those areas where pattern setting allows the insurgent to predict with a degree of certainty that troops will use them again. These are:

  - **Linear Features**. Linear features encompass a whole host of physical features: tracks, irrigation ditches, compound walls, sides of fields, wadis, alleyways etc. If you are following a feature to assist with navigation, or have been channeled (walking around the edge of a field to preserve a farmer's crop for example), then Insurgents could have emplaced a device to target troops.

- **Previously Used Desert Tracks and Patrol Routes**. As the weather starts to settle down during the summer, tracks made by previous ISAF and ANSF patrols provide a good indicator where they are likely to go again.

- **Frequently Used Positions**. Over watch positions are regularly targeted, especially where they are few and far between or provide a good view of the ground.

- **Long Open Stretches of Road**. Anywhere that the INS can see Coalition Forces approaching from a distance should be considered a VA, especially for those elements of ANSF that do not possess ECM (FP), given the threat of RCIED devices.

- **Compound Interiors**. The interior of abandoned compounds beyond the entrance must also be considered a VA. Devices could be placed anywhere that FF are likely to go after entry, such as viewpoints covering the next bound, loopholes, the roof as well as steps or stairs onto the roof, or another mouse-hole.

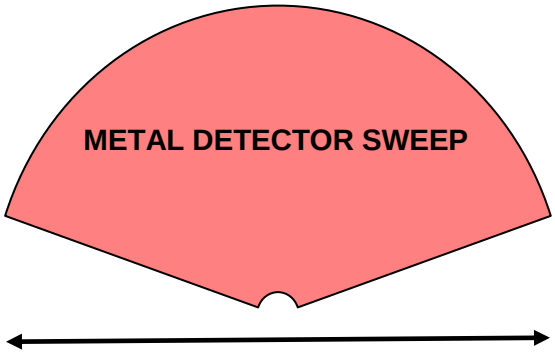
- **Canalized Routes**. Canalized routes are areas where patrols are channeled by natural or manmade features such as gaps between dense vegetation and the base of steep terrain.

- Understanding the basic principles of VP & VA will help you make a threat assessment during dismounted operations. Taking into account the atmospherics, location and the enemy's intent will guide you toward making tactical decisions that will keep the enemy a reconnaissance element, as opposed to an attacking force. Use of your C-IED equipment to counter the threat at known VP & VA will enhance freedom of movement across the battlefield.

- Planning your route to avoid obvious VPs & VAs reduces threats before leaving your Patrol Base. Use maps and previous patrol debriefs to avoid obvious high threat locations. When conducting dismounted patrols, you must have guidance from the Cdr if you are to **mark a known or suspected IED** or **avoid and find a safe route around**, or **secure the area and send the 9 line IED report**. This will all be dependent on your mission and tactical situation.

DISMOUNTED PATROL SPACING AND COVERAGE

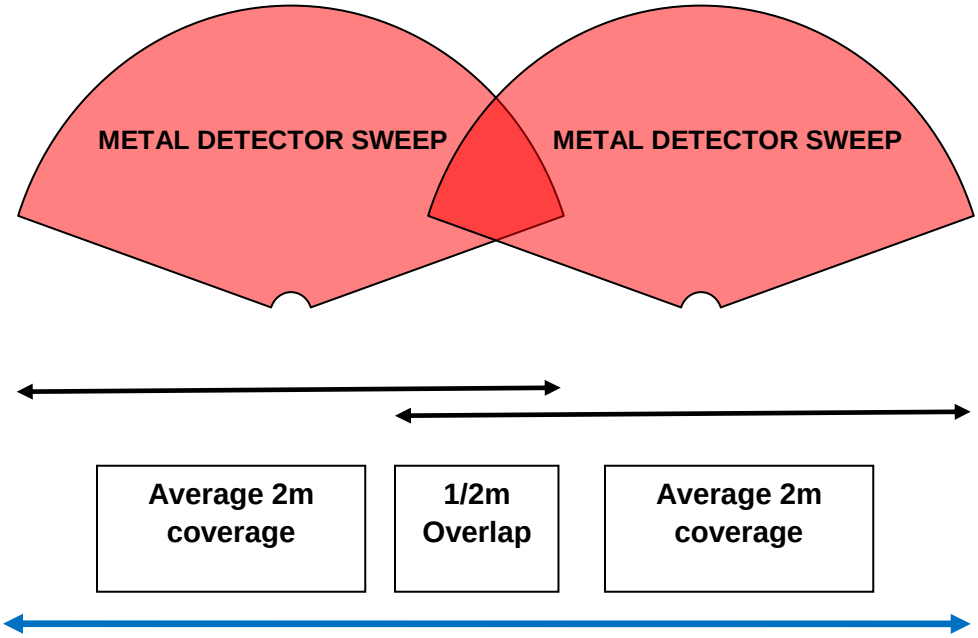
SINGLE PERSON



Average 2m coverage

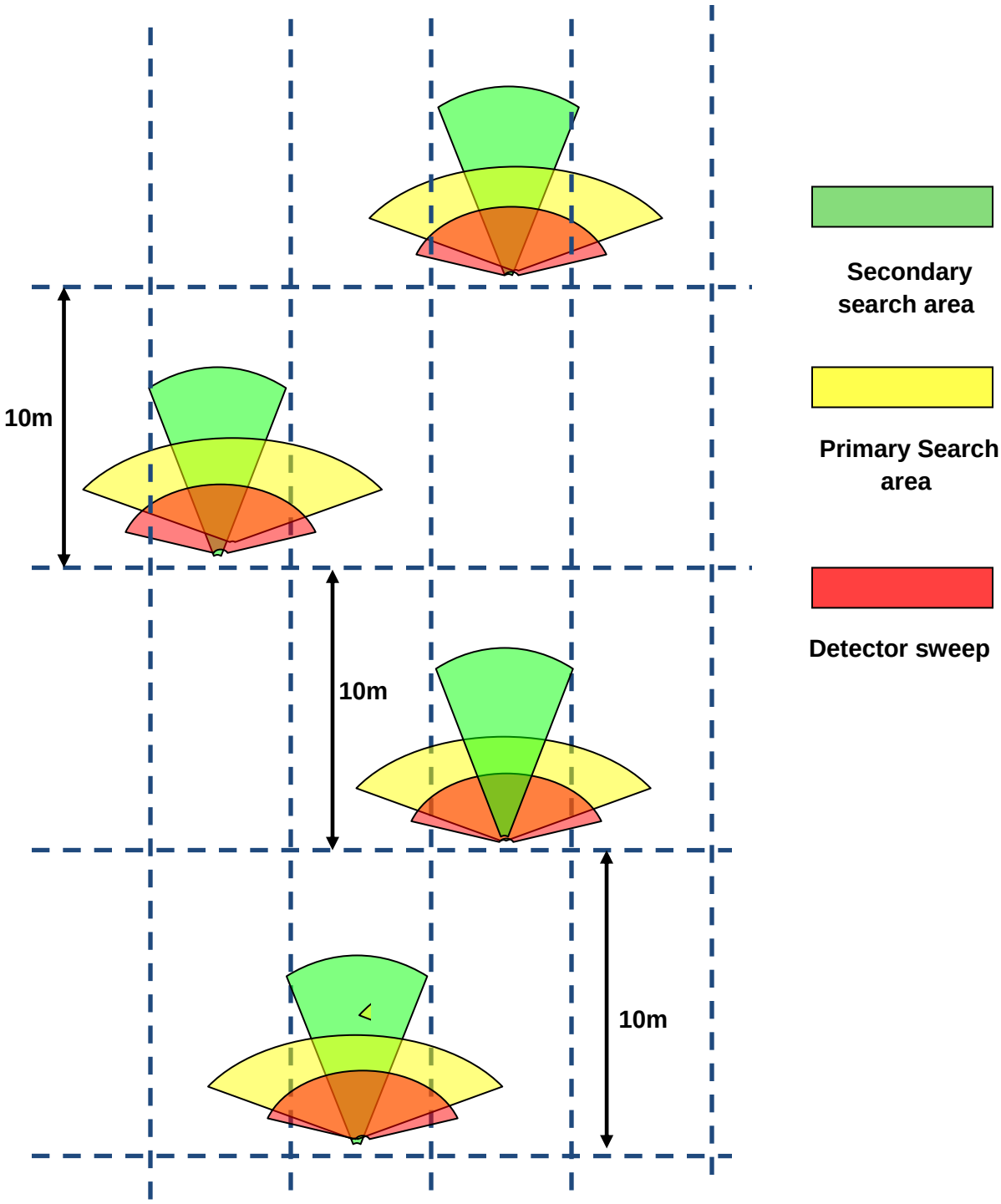
Metal Detector sweep to detect VOIED's, Mines and Military Ordinance (MILORD) main charges

TWO PERSON SWEEP



Effective search area 3 meters

OVERLAP


10m
10m
10m
Secondary search area
Primary Search area
Detector sweep

PRINCIPLES OF Op BARMA

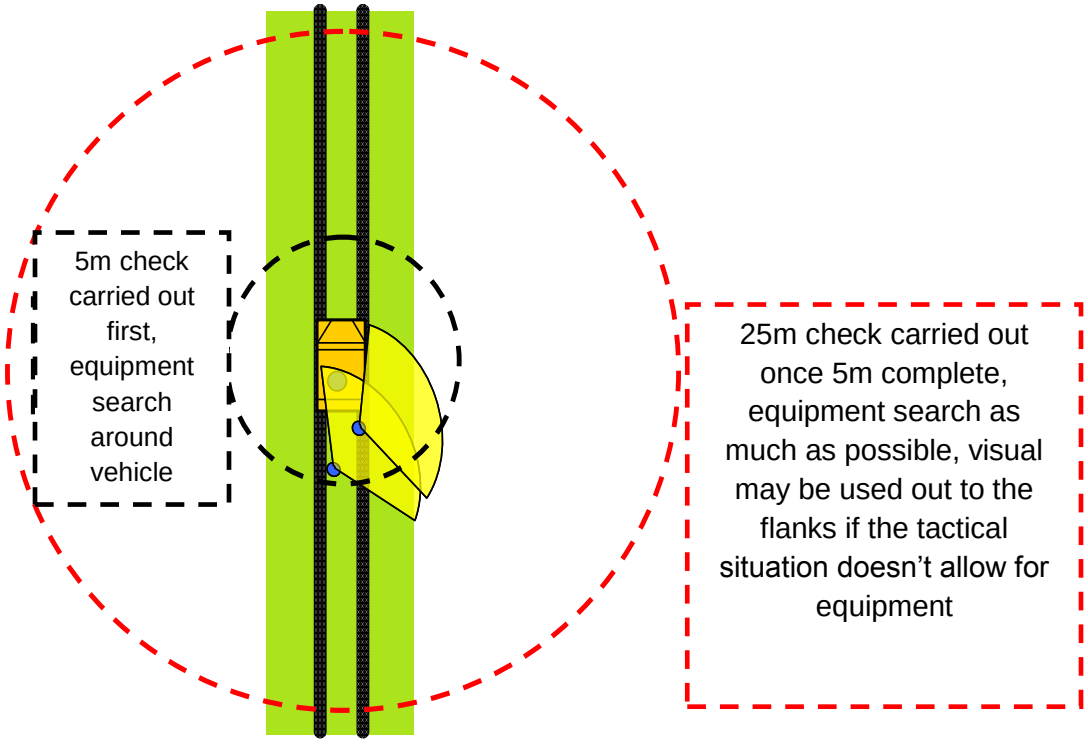
1. **5 and 25s**. As soon as a Call Sign halts, the immediate surrounding area must be secured and searched by 5 and 25m checks. Wire laid for a CWIED, poorly camouflaged IED components, and ground sign may all be discovered when the area is investigated by a thorough visual search. Once an area or route has been cleared and rigorously marked, personnel and vehicles need to stick to it.

a. 2 men dismount from the rear of the vehicle and carry out search.

b. 5m check is carried out in the immediate vicinity of the vehicle using search equipment, while ensuring a thorough visual search is carried out under the vehicle.

c. Once the 5m check is done, a 25m check is then carried out; ideally this is an equipment search out to a radius of 25m, however depending on the tactical situation it may be an equipment search to 25m on the road and visual to 25m of the route.

d. This drill does not only apply to vehicle moves - any time you take a knee while on Patrol you should be carrying out your own 5m checks. If stationary for a longer period, 25m checks should be conducted whenever possible.



2. **Spacing and Depth**. The best mitigation from an explosion is standoff and dispersion of the patrolling formation. The further apart personnel are from each other at the moment of detonation, the fewer casualties will be taken. Commanders should try, wherever possible, to achieve depth by patrolling with more than one maneuver unit. This will not only make the patrol more resilient to attack, but will also put doubt in the mind of the INS as to where all elements of the patrol are - therefore potentially deny him the opportunity to attack. Base and organic Intelligence Surveillance Target Acquisition and Reconnaissance (ISTAR) can also provide depth to a patrol by providing early warning and situational awareness.

3. **Mutual Support**. There are a variety of threats that have to be countered and one procedure should not be favored over another. Personnel conducting Op BARMA should, therefore, have the appropriate level of intimate protection to allow them to look for devices, while being protected against Small Arms Fire (SAF).

4. **Evolution**. The procedure should be evolved according to the threat in a specific AO or at a given time in order to provide the best assurance while remaining protected from other threats.

5. **Deception**. Deception during Op BARMA should be encouraged at a very junior level and key JNCOs within patrols, with a particular understanding of how the threat and the procedure interact and evolve, should be identified to add deception to each VA/VP check. Consider conducting Op BARMA in areas other than those deemed to be VP/VAs to aid low level deception.

6. **Variations**. Each Unit should develop and change their TTPs; this will have the benefit of ensuring the procedure across their AO is harder for the enemy to counter.

7. **ECM**. All Op BARMA must be conducted under ECM coverage as per SOPs. All dismounts are to remain within the ECM bubble of protection of either a vehicle or man portable equipment.

8. **IED Dogs**. The IED dog is a specialist dog trained for one specific role, that of searching for and indicating the presence of weapons, explosives and equipment. The dog can be used to search in both the urban and rural environments. If available, the IED Dog can be placed at the front of Op BARMA, however the handler must be behind the lead Metal Detector (MD) man.

9. Actions on prior to starting Op BARMA:

a. Stop short before approaching a VP/VA. (50m min where possible – varying this distance to aid deception).

b. Conduct 5 and 25m checks.

c. Dominate the ground and put top cover up from the vehicles.

d. Form up VP 360 party (see page 29) if threat of Command Pull IED (CPIED), CWIED or remote Control IED (RCIED)

e. Manpack the ECM equipment (As per SOP).

f. Conduct VP 360 clearing 'high threat' side first.

g. Once VP 360 complete, continue to Op BARMA as necessary along remainder of VP/VA.

10. **Walking vehicles through a Vulnerable Point (VP) – 4 MAN PROCEDURE**. See Figure 4.

11. Prior to starting the clearance, the lead vehicle should reverse a minimum of one vehicle length back from the point of halt. Op BARMA should then begin from the end of the vehicle's tracks in order to ensure clearance from the precise point that the vehicle stopped.

12. With the Low Metallic Content (LMC) threat ever increasing, the 4 man Op BARMA procedure is the best way to detect and defeat these devices.

a. **Lead Men:**

(1) Position yourself on the side of the route away from the obvious tire tracks.

(2) First, examine the route out to 5m in front, looking for ground signs relating to all types of IEDs, including devices that may have been placed above ground level such as in trees or on top of walls.

(3) Second, scan the berms on the other side of the road and then your side of the road out to 10m to identify local markings, aiming markers, CWs or RC antennae.

(4) Third, remember your own personal protection and move forward in 5m bounds. Utilize Mine Detectors (MD) to sweep for VOIEDs, battery packs, mines or MILORD main charges.

(5) Consider trip wires at various heights, including antenna at all heights.

b. **Road Men**.

(1) Walk on the outside of obvious tire tracks, keeping 10m between searchers.

(2) First, visually scan the route 5m ahead to identify evidence of disturbed earth & buried devices.

(3) Second, scan the berms out to 10m to identify local markings, aiming markers, CWs or RC antennae.

(4) Third, move forward in 5m bounds using MDs to find any VOIEDs, mines or MILORD main charges. They are likely to be in wheel ruts or near the centre of the route.

c. The following must be taken into consideration before conducting a four man Op BARMA drill:

(1) The searched route must overlap; each individual's sector should physically overlap by 0.5m. This will give an approx 6m wide safe lane.

(2) The spacing of searchers is to be balanced between protection from explosion, overlapping search areas and remaining within the ECM protection.

(3) An excepted compromise is shown in the figure 4. The lead searchers maintain a min of 5m between each other, affording the following searchers 10m spacing. This ensures that MD searched areas overlap.

(4) The commander must know the largest vehicle width in his patrol to ensure that area is searched.

d. **Limit of Exploitation**. Determined by the ground commander, but should be a minimum of 50m beyond the limit of the VP where possible

ACTIONS ON CHECK LIST

Walking Vehicles through a Vulnerable Point

4 Man Drill

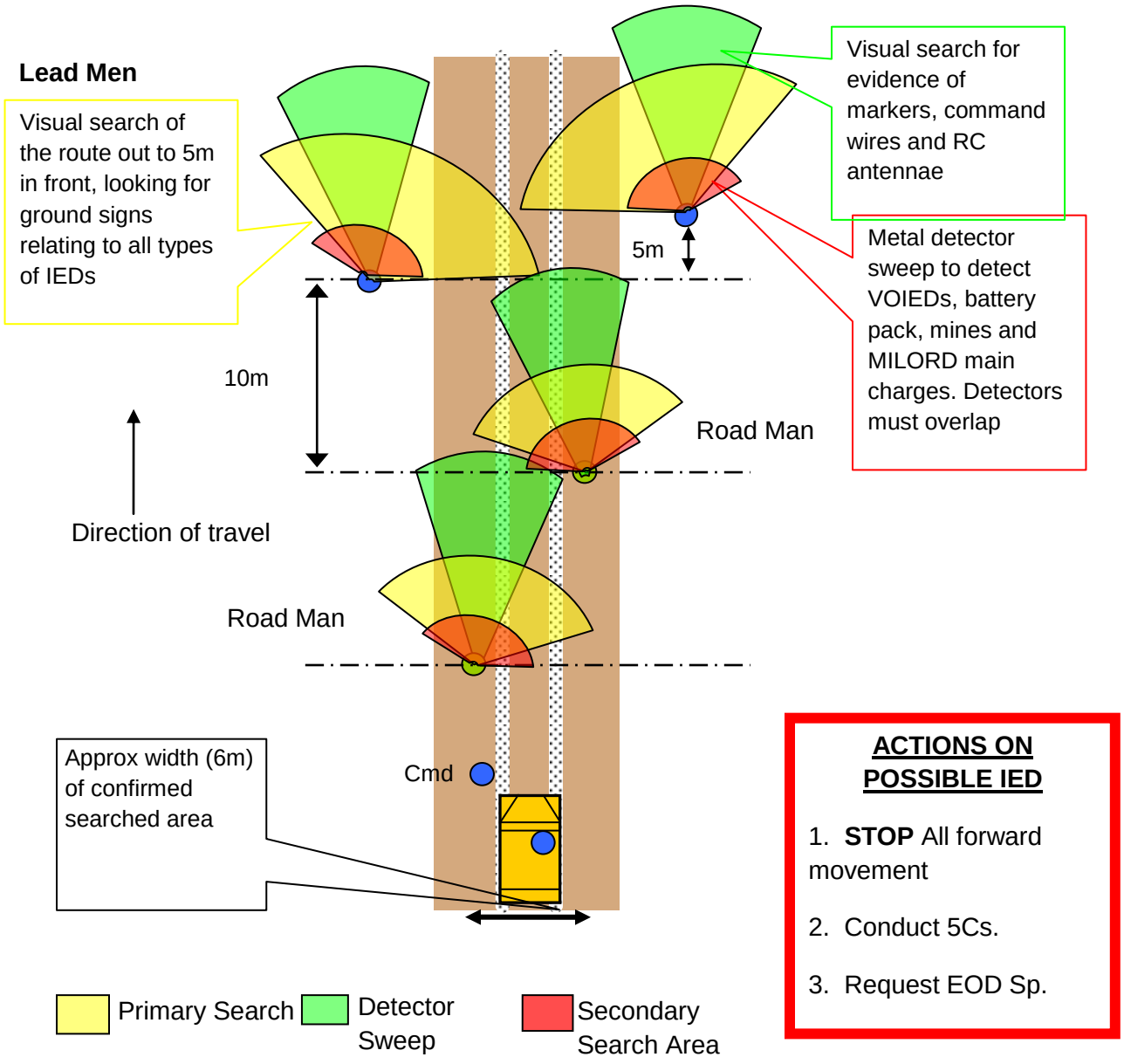
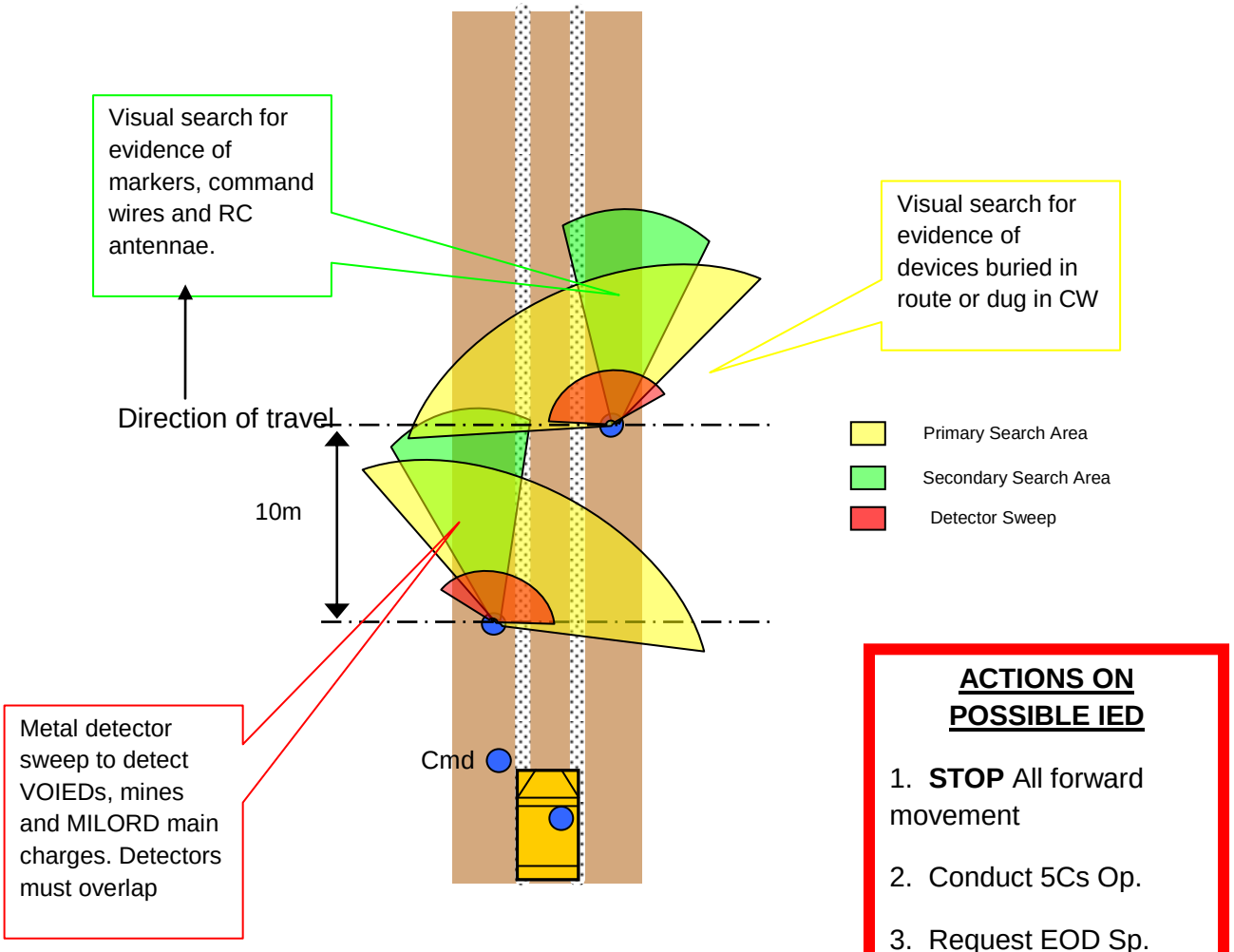


Figure 4. Walking Vehicles through a VP – 4 Man Procedure

ACTIONS ON CHECK LIST

Walking Vehicles through a Vulnerable Point

2 Man Drill



ACTIONS ON POSSIBLE IED

1. **STOP** All forward movement
2. Conduct 5Cs Op.
3. Request EOD Sp.

VP 360°

1. If the VP 360 is to be conducted, it **MUST** be done before the Op BARMA procedure is used. The VP 360 check is conducted when there is a high threat of CPIED, CWIED or RC and is conducted using 5 men to ensure full ECM coverage. This also allows the ground Commander the opportunity to get eyes on the suspect area, and to assess the situation before deploying C/S forward to conduct Op BARMA. Check for:

a. Possible Firing Points.

b. Surface laid/rapidly laid CWIEDs and CPIEDs.

c. Suspicious activity and individuals who might be scouting the patrol or moving to a Firing Point (FP).

d. Look into the VA/VP for potential aiming markers or other signs of IED activity.

2. **Actions on prior to starting VP 360 Check**.

a. Stop Short before approaching a VP/VA. (50m/min).

b. Conduct 5 and 25m checks.

c. Dominate the ground and put top cover up from the vehicles.

d. Form up VP 360 party (if threat of CPIED or CWIED).

e. Manpack the ECM equipment (As per SOP).

f. Conduct VP 360 clearing 'high threat' side first. This is the commander's decision based on the S2 picture, tactical situation and experience.

g. Front Man marks turns with a marker.

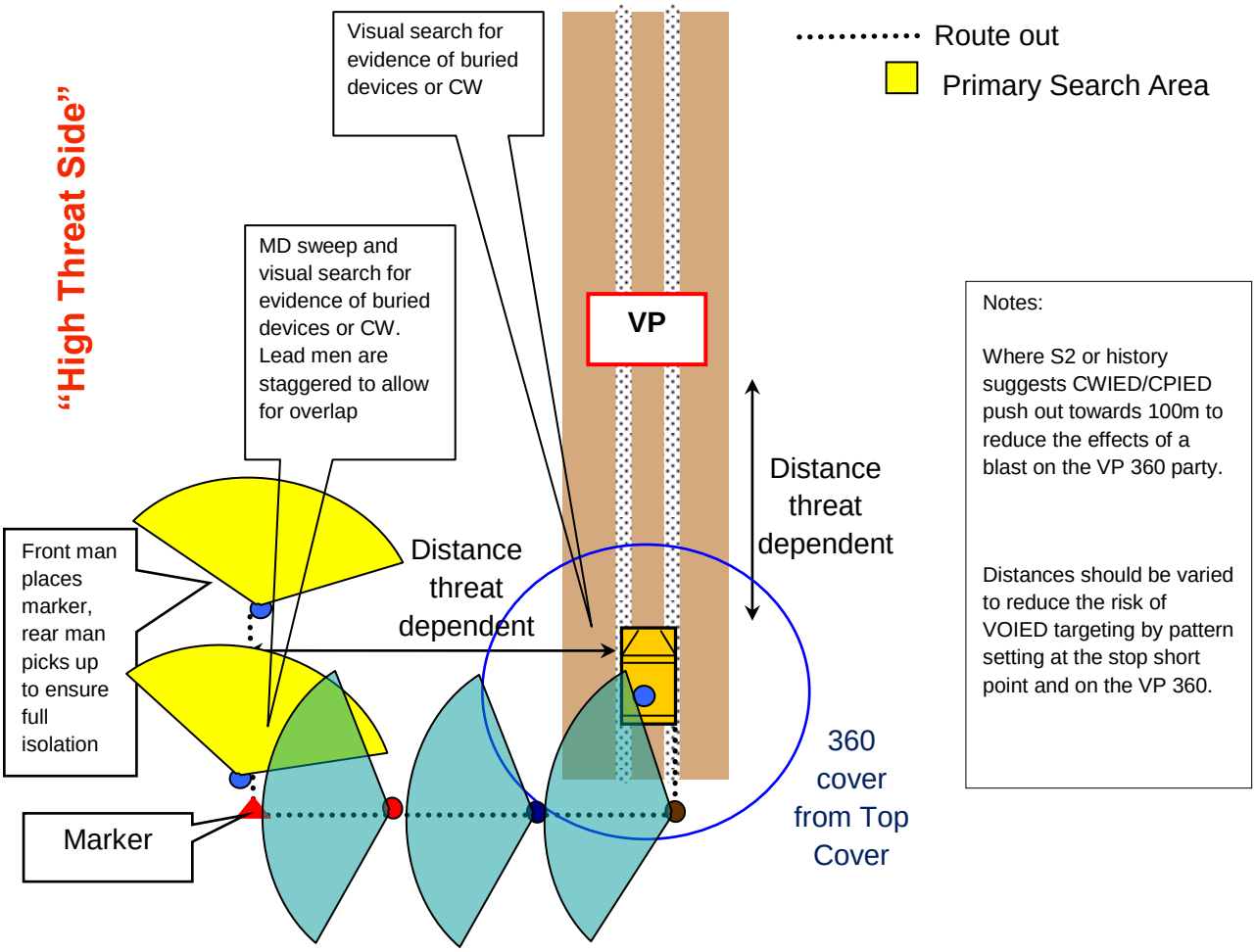
h. Front man searches safe route using MD and marks accordingly (including turns) with markers.

i. Second man also carries MD and a hook, used to check drainage ditches and water courses for sub surface Command Wires (CW).

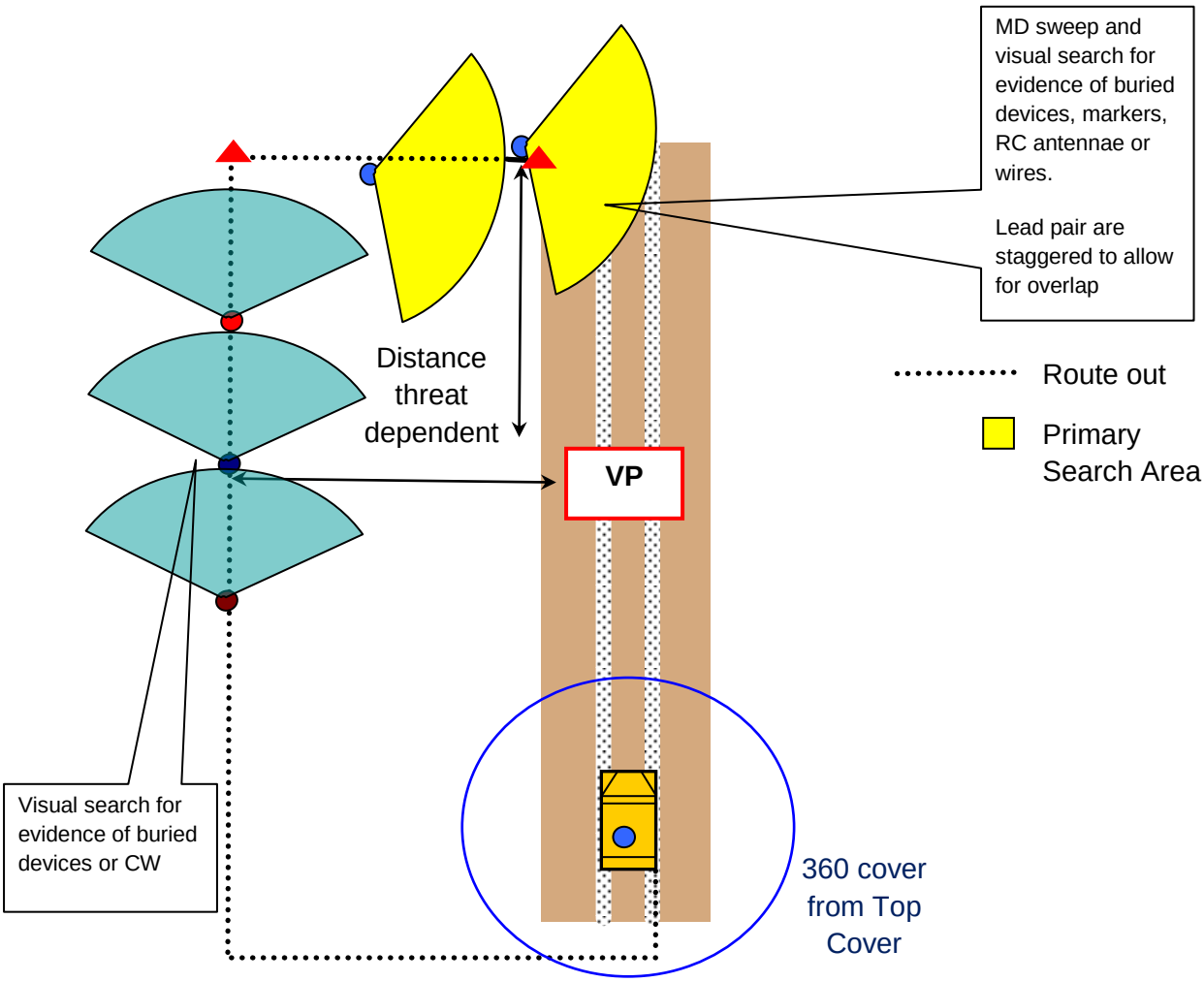
j. Rear man picks up or destroys markers

3. **Hooking**. Hooking is only to be carried out when the bottom of a watercourse, canal or drainage ditch cannot be visibly seen. It is only to be carried out by the second man who must ensure that any hooking is away from the direction of the suspected firing point - not the contact point as this could initiate the device. This is not a quick fix, or to replace a comprehensive visual search being carried out. ***It is imperative that where there is a risk of Command Pull, hooking is not to be carried out.***

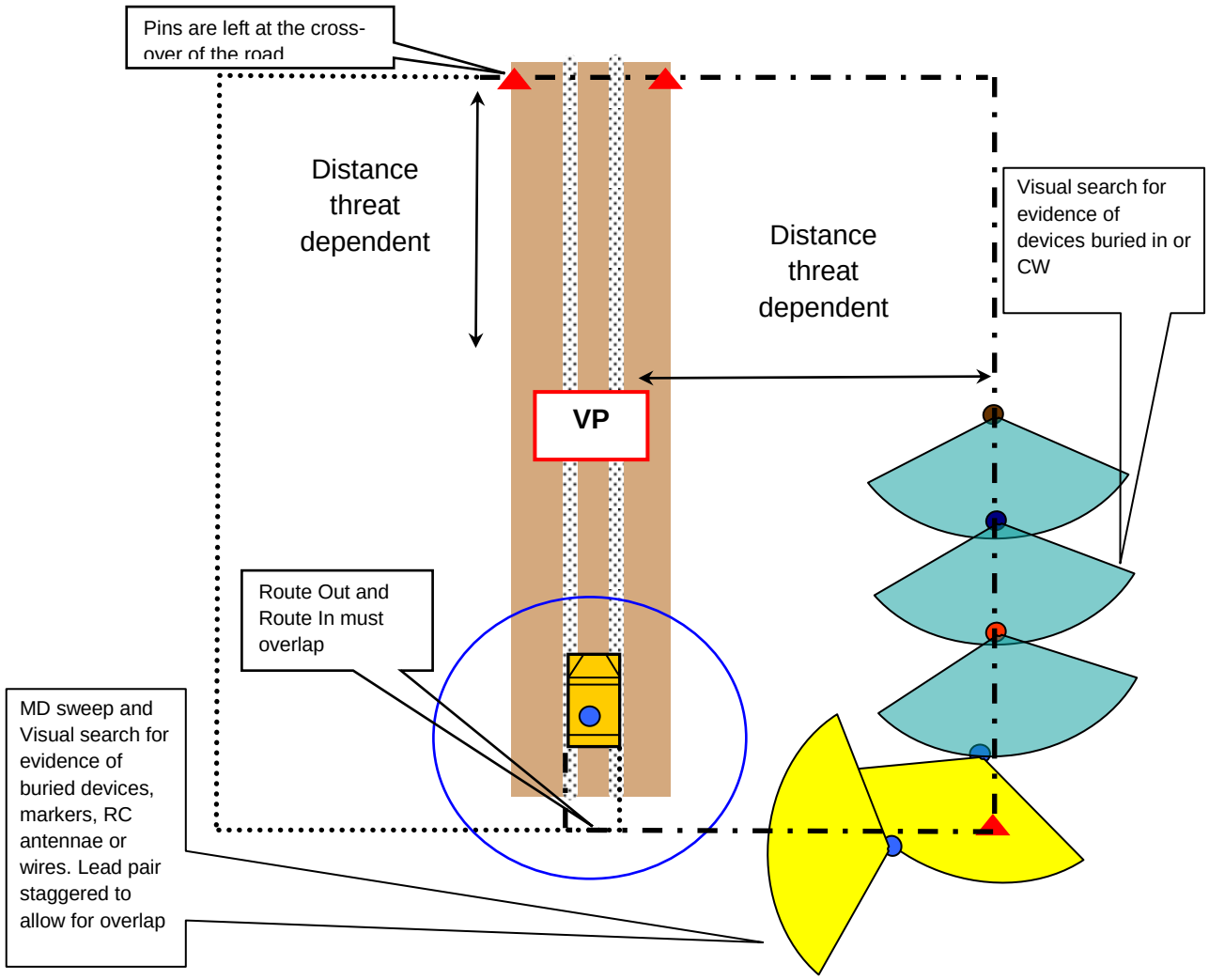
Phase 1:


"High Threat Side"
Visual search for evidence of buried devices or CW
MD sweep and visual search for evidence of buried devices or CW. Lead men are staggered to allow for overlap
Front man places marker, rear man picks up to ensure full isolation
Marker
VP
Distance threat dependent
Distance threat dependent
360 cover from Top Cover
Route out
Primary Search Area
Notes:
Where S2 or history suggests CWIED/CPIED push out towards 100m to reduce the effects of a blast on the VP 360 party.
Distances should be varied to reduce the risk of VOIED targeting by pattern setting at the stop short point and on the VP 360.

Phase 2:


MD sweep and visual search for evidence of buried devices, markers, RC antennae or wires.
Lead pair are staggered to allow for overlap
Route out
Primary Search Area
Distance threat dependent
VP
Visual search for evidence of buried devices or CW
360 cover from Top Cover

Phase 3:


Pins are left at the cross-over of the road
Distance threat dependent
Distance threat dependent
Visual search for evidence of devices buried in or CW
VP
Route Out and Route In must overlap
MD sweep and Visual search for evidence of buried devices, markers, RC antennae or wires. Lead pair staggered to allow for overlap

Op BARMA 360 using GOLDIE

1. Op BARMA 360 using GOLDIE will be the default setting. Hooking can still be used as an alternate technique should GOLDIE break or not be available. The process for using GOLDIE to isolate a VP is as follows:

a. Form up VP 360 party.

b. The front man utilizes MD, and is responsible for searching a safe path for remainder of team. He must ensure he clearly marks the safe lane. He is also responsible for looking for surface laid CWs and CP devices.

c. The second man is the Team Commander; he is responsible for the selection of the route and maintains standards of both the lead man and GOLDIE operator. He will carry a set of ECM. As the 2nd man, he also provides cover for the MD man.

d. The third man is the GOLDIE man and is responsible for detection of buried targets. If he does detect a target, confirmation is to be conducted.

e. 10m spacing on VP 360

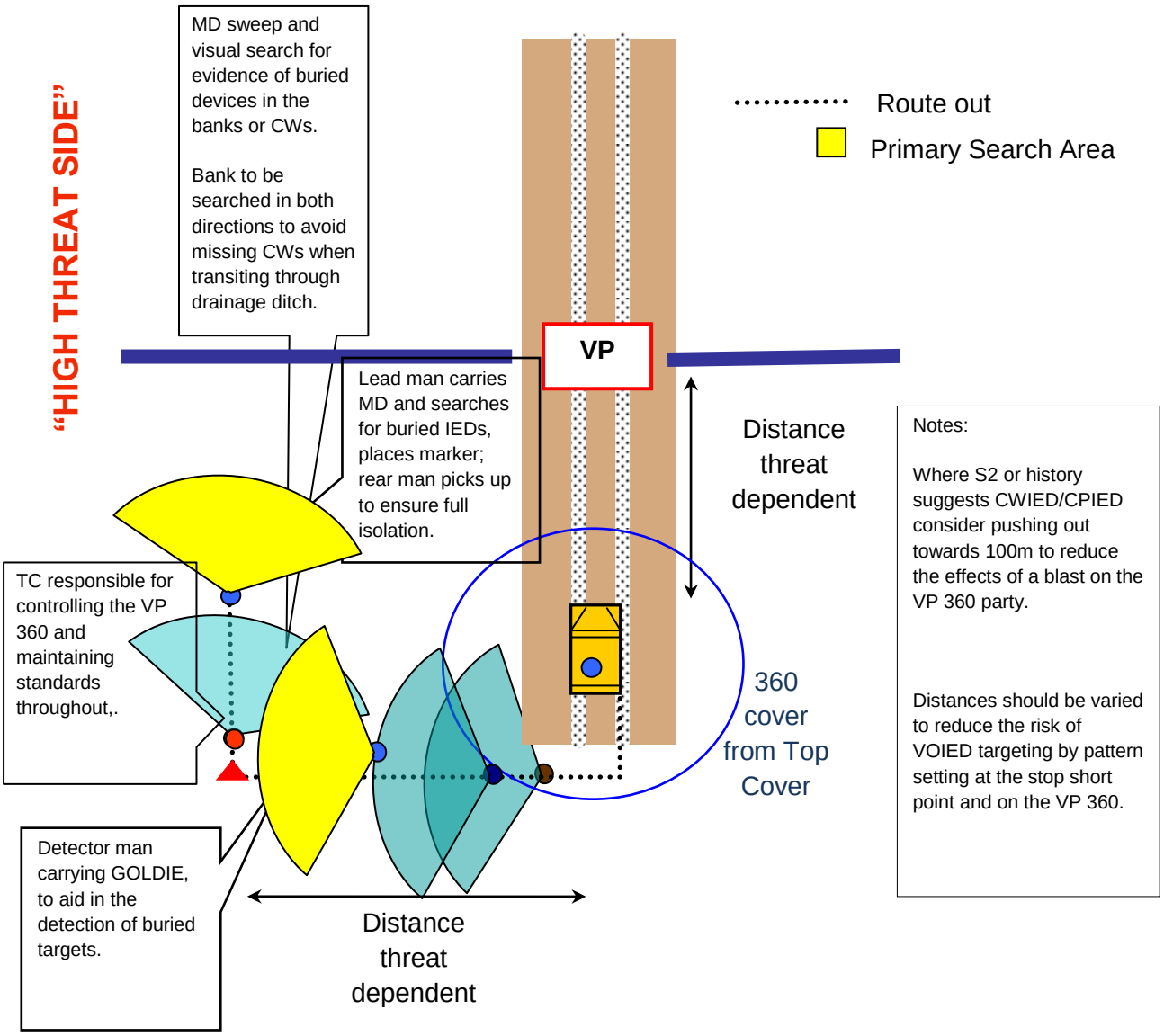
f. Carry out VP 360 starting on the “High Threat” side first.

g. The front man marks the turns with a marker.

h. The rear man picks up markers.

i. Communications back to the control point is to be maintained at all times.

2. This procedure shall be modified by the ground commander depending upon threat, ground and tactical situation.


"HIGH THREAT SIDE"
MD sweep and visual search for evidence of buried devices in the banks or CWs.
Bank to be searched in both directions to avoid missing CWs when transiting through drainage ditch.
Route out
Primary Search Area
VP
Lead man carries MD and searches for buried IEDs, places marker; rear man picks up to ensure full isolation.
Distance threat dependent
TC responsible for controlling the VP 360 and maintaining standards throughout,.
360 cover from Top Cover
Detector man carrying GOLDIE, to aid in the detection of buried targets.
Distance threat dependent
Notes:
Where S2 or history suggests CWIED/CPIED consider pushing out towards 100m to reduce the effects of a blast on the VP 360 party.
Distances should be varied to reduce the risk of VOIED targeting by pattern setting at the stop short point and on the VP 360.

V-SWEEP & VP 360 CHECK TTP's OF VULNERABLE POINTS/AREAS (USMC SUCCESSFUL TTP)

V Sweep

1. Capabilities

a. V Sweeps are well suited for clearing vulnerable areas and vulnerable points. This formation is excellent for spotting firing points, command wires, command pull lines, identifying trigger men, and locating ground signs.

b. Allows troops to get eyes on vulnerable areas and vulnerable points from the left and the right of the danger area, while maintaining a safe distance.

2. Limitations

a. The V sweep has reduced effectiveness in areas of reduced visibility and areas where mobility is limited (heavy foliage, urban areas, narrow passes, wide canals).

b. It can also be limited by a lack of personnel and/or equipment.

3. Formation Responsibilities

a. The patrol leader is responsible for maintaining correct dispersion and alignment of the sweep elements. The patrol leader must pay close attention to the road sweepers ensuring the search heads of their detectors overlap; this ensures complete coverage of the road way. He can do this by having the innermost sweepers hold their detectors out and the outermost sweepers hold their detectors in; thereby visually checking the overlap. There must be at least two sweepers to conduct this type of sweep, but it is ideal to have four sweepers in order to have complete coverage of the road. This can be limited by lack of personnel, lack of equipment, and ECM coverage from vehicles.

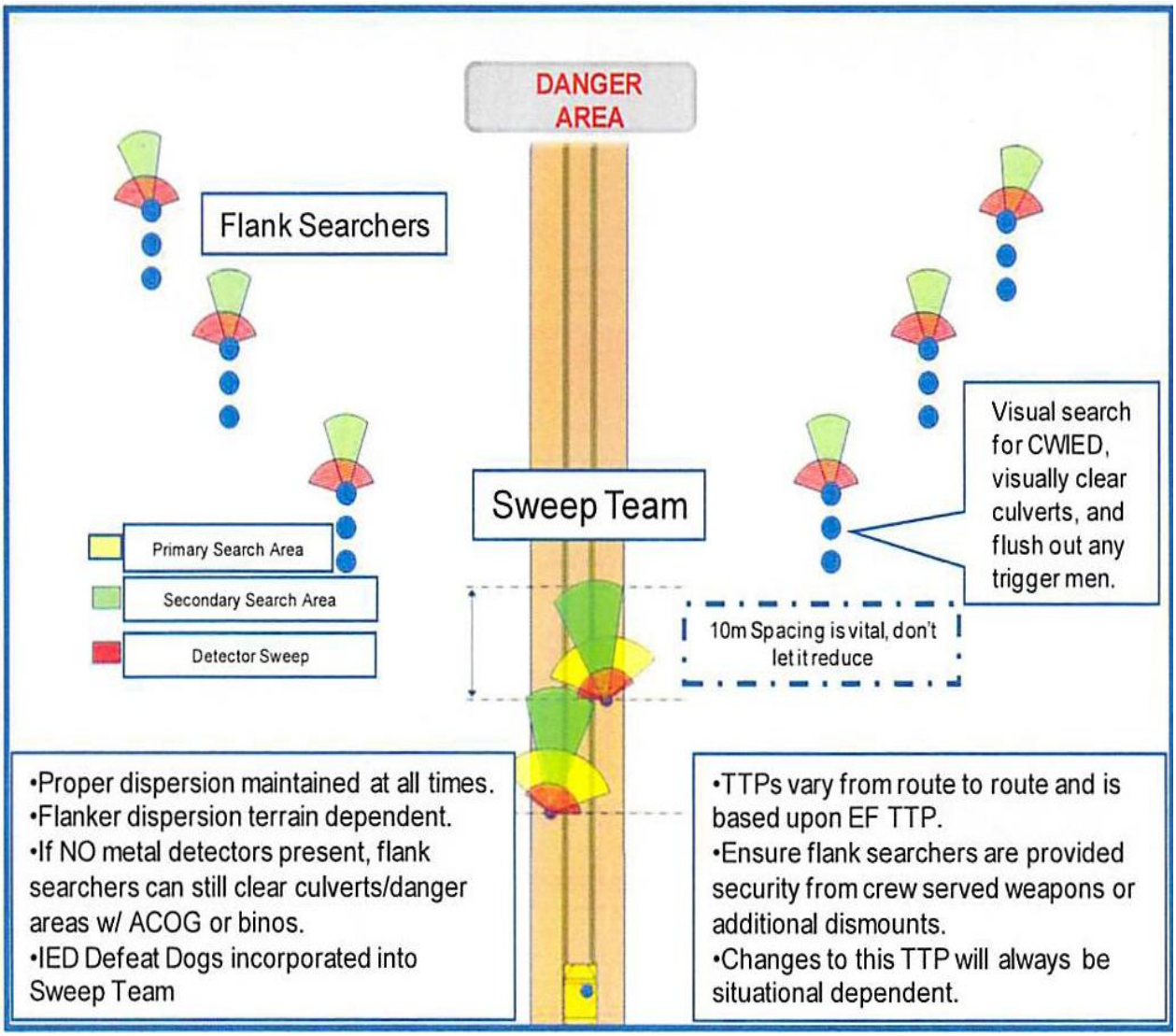
b. Hunter-Killer (HK) teams ideally are composed of fire team sized elements traveling in a ranger file. The team will ideally be composed of a lead sweeper, followed by a security, and then two personnel carrying ECM manpacks. The HK team should be made up at a minimum of a sweeper with a metal detector and a security man who may carry an ECM. Additional personnel can include IDD teams or extra security. One team will be positioned on either side of a VA/VP, as far out as the terrain will allow them to keep line of sight on the VA/VP and patrol leader. The HK teams should be the first team to move out after the patrol leader is set in position to control the teams. They will move out, in a ranger file, perpendicularly to the patrol's direction of travel at least 50-100 meters if the terrain allows. Once they have pushed out as far as they can, they will make a 90 degree turn and move out in the original direction of travel. They are responsible for looking for firing points and trigger men, ground signs, command wires, and pull lines in the area from the intermediate team to outside of the formation as far as they can see.

c. Intermediate teams position themselves halfway between the HK teams and the road team. The intermediate team should step off when the HK team reaches the point of their 90 degree turn. They will move out in a ranger file down the path cleared by the HK team and turn to move out in the original direction of travel. They are responsible for the area between themselves and the road team. They will have the best view of the VA/VP from a distance through their weapon system's optics. Team makeup is the same as the HK team.

d. The four man road sweep team consists of two sweepers that are positioned at the edges of the road. Their primary responsibility is to sweep for possible offset power sources, pressure plates, switches, and main charges. Their secondary responsibility is to search for visual evidence of devices buried in the road, buried command wire, RC antennas, or markers. Teams can be up to 20 meters from vehicles, but must remain inside of the vehicle's ECM coverage. The other two sweepers are positioned on the road. Their responsibility is to conduct a methodical search of the center of the road.

e. When the commanders intent of a planned dismounted patrol has been met, use this procedure to return back to the vehicles. The lead sweeper from each HK team will sweep a path to the rear of the ranger file he is leading. Everyone else will about face and follow the sweeper back in the same path back to the vehicle. The same steps will be followed for intermediate teams and any road sweepers.

f. If conducting purely dismounted patrols, ensure there are enough manpack ECMs to adequately cover all personnel making up HK, intermediate, and road teams.

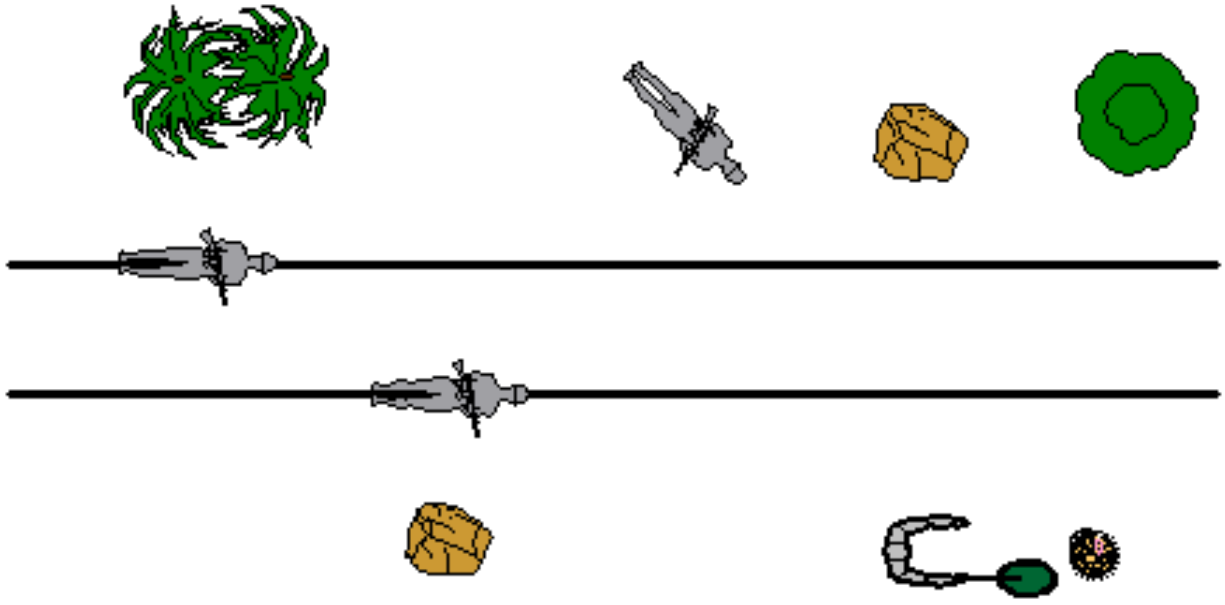


- Used on approach to danger area
- Minimum 10m dispersion between metal detectors to avoid interference
- Sweep team should maintain enough distance from lead vehicle and each other to avoid becoming casualties if vehicle or dismount strikes an IED

CONFIRMATION DRILL

1. The confirmation drill is used to confirm if a threat exists from an MD reading. The confirmation drill is **NOT** to confirm the presence of an IED. This can lead to over confirmation and being targeted by Pressure Release means of initiation.

2. The first action when an alarm from a detector has activated is to STOP moving and warn the remainder of the team that confirmation of a reading is going to be carried out. No confirmation is to be carried out until the Commander has ordered the remainder of the team to lay down facing towards the searcher about to confirm, with their heads down and hands resting under their head. The area where the team lays must be on searched ground.

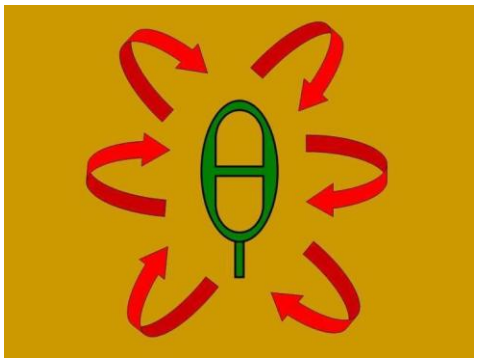


Position of team when lying down.

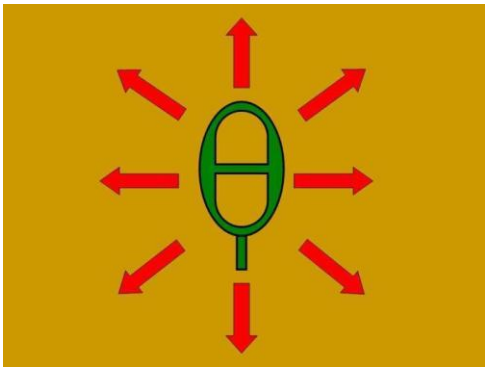
3. Once the team is lying down the searcher can confirm if a threat exists. The searcher will need to find Highest Reading Point (HRP) of the suspect reading. This is found by passing the detector over the suspect reading until they find the HRP. Once this has been established, the searcher will need to establish the edges of the reading. This can be achieved using one of two methods:

1. Threat edge determination methods:

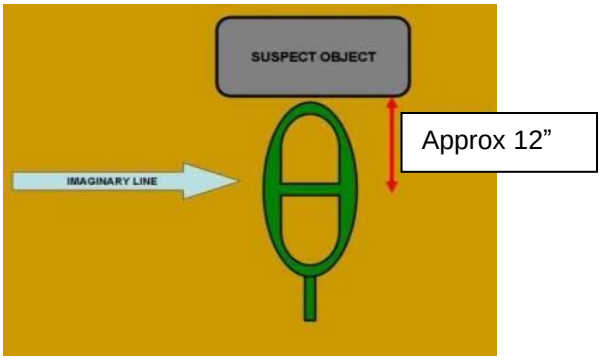
a. **Method One – Clover Leaf Method.** The Clover Leaf method involves the searcher moving the detector search head in a Clover motion around the edge of the reading. The reading will increase and decrease as the search head is moved around the reading.



b. **Method Two – Starburst Method.** The Starburst method involves the searcher passing the search head over the suspect reading in a manner which resembles a starburst.



4. Once the edges have been defined, the searcher will hold the metal detector search head so the front edge is in line with the closest edge of the suspect reading.



Placement of search head.

5. The searcher will then imagine a line under the middle bar of the search head (Approx 12”). This will be the start point of the confirmation search.

6. Remove soil down approx 1-1/2”, remove soil towards the suspect object. If the ground is soft, use fingers or a paint brush to gently remove the soil by bringing it closer to the searcher. If the ground is hard, you could use the handle of the paint brush.

7. While removing the soil remember the threat of Pressure Release; if there are rocks or stones don’t lift out the way. Gently remove soil from the side, if you see anything you deem a threat STOP and shout “FIND”. Continue toward the suspect object if nothing seen.

8. If you lose focus on the HRP, stop removing soil and adopt a kneeling position. Use Metal Detector to re-confirm HRP and edges of suspect object.

9. When you encounter something that you deem suspicious, STOP and shout “FIND”. Mark the area by using the removed soil or chem lights. Do Not over confirm the suspicious item.

10. The Commander will extract the remaining Op BARMA team down a searched route; the searcher will be the last man and will withdraw along a searched route.

11. When all back at a safe distance, or at the vehicle, a 9 line will be sent.

GOLDIE Confirmation drill

12. When conducting a VP 360, if the GOLDIE receives an alarm warning the operator of a potential target, the confirmation must be conducted as follows:

a. Mark the suspect target location.

b. Step back and search in a circle attempting to confirm the target in two additional places.

c. Attempt to identify any potential firing points and contact points by looking at the direction the suspected target is travelling.

d. Go back to the original find and gently dig down at 45° to attempt to visually identify the target.

a. If confirmed, mark as per unit SOPs, return to the ICP and submit a 9 Line.

SAFE LANE AND IMPROVISED EXPLOSIVE DEVICE MARKING

1. Improvised Explosive Devices (IED) constitute the greatest threat to forces operating on the ground. It is essential that once areas have been cleared, or devices found, that a clear system of marking is used to prevent casualties.

2. Marking systems used in a particular AO need to be briefed as part of tactical inductions and handovers. This will ensure all personnel have an understanding of how to correctly mark IEDs and safe lanes.

Reasons for marking

3. The marking system utilized will be decided according to operational tempo, situational awareness, threat to life and availability of equipment. The reasons for marking are:

a. **Mark to Inform**. This is when a marking system is employed to inform troops on the ground, follow-on agencies or Locals. It is a more detailed and visual means of marking and is primarily used for marking of safe lanes and IEDs.

b. **Mark to Avoid**. This does not necessarily require any visible marking system; however, at a minimum it should be recorded electronically. It may also include a visible marking system to inform of a safe route around danger or hazards.

4. In addition to marking the safe lane or IED, information must be passed up the chain of command on what, where and why a hazard has been marked.

Marking of safe lanes

5. A number of incidents have occurred resulting in casualties where personnel or vehicles have strayed outside of searched areas. The following points should be adhered to in order to minimize further casualties:

a. The lead searcher must mark the safe route. This will avoid confusion as to which area has been searched, ensuring safe passage for the remainder of the team moving along the route.

b. Markers, where possible, are to be picked up by the last person or vehicle moving along the safe route. They must however, ensure they do not leave the safe route themselves. This will ensure minimum confusion with any subsequent or other patrol in the area.

c. There should be clear markers for safe lanes and suspect danger areas. Everyone in the patrol must understand the system being used. The markers must be clear to personnel who may have to move back along the cleared route.

d. Lanes should be marked on both sides unless they are avoiding an obvious linear feature, when only one side needs to be marked. When placing markers they should be a maximum of 10m apart.

e. Regularly used routes are to be marked with temporary markers and not overt paint. This is to avoid confusion on subsequent use of the route.

f. Patrols should adopt a standard marking system that best suits the terrain of their AO. Although this will set patterns, the risk will be mitigated by following the procedures laid down in this document.

g. TiGR or alternative GPS technology is to be utilized with every patrol. This will keep a detailed patrol trace that will help avoid pattern setting. This technology can be utilized for both Mark to Inform and Mark to Avoid.

Marking for IED finds

6. When Marking to Inform or Marking to Avoid, a 10 figure grid reference should be taken as part of the patrol trace and data logger. This will assist in follow up operations if marking to Avoid and will aid when submitting a 9 liner EOD report.

7. Whatever aids to marking are used; each patrol should aim to produce marks that are:

a. Semi permanent/removable.

b. Identifiable day and night.

c. Lightweight and easily carried.

d. Understood by Locals.

8. IEDs may be marked in 2 ways:

a. **Detailed Marking**. Detailed Marking should be used whenever possible to give both ground troops and follow up agencies a detailed picture of the area around a possible IED. It should be marked as follows:

(1) Possible IEDs should be marked with mine marking cones or red markers 1m back from the device on a safe path.

(2) Alternatively spray-paint mark approximately 1m back from possible IED. Straight-line marking limit of advance followed by arrow pointing at area of device:

(3) The safe lane should be marked back to the ICP, marked on both sides and approximately 1-2m wide.

b. **Minimal Marking**. In extremis, where there is a shortage of kit to mark a device, a marker must be placed 1m back from a device.

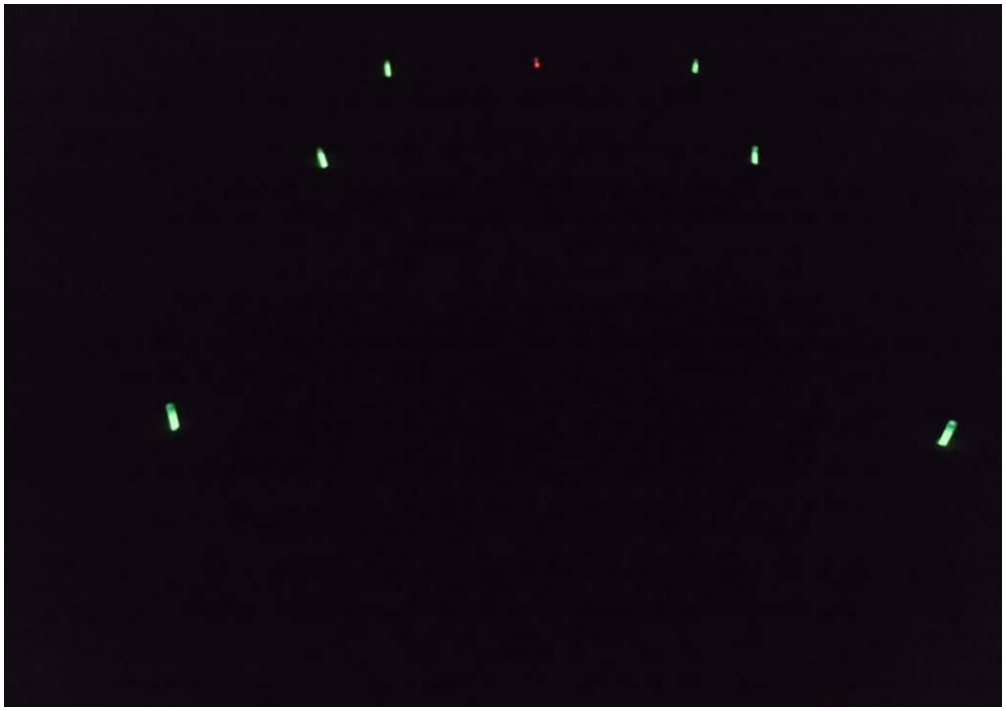
Aids to marking

9. Many different methods of marking are being utilized. Listed below are examples of some of the aids to marking currently being employed:

- White plastic markers found in search kits:

- Spray paint, including Ultra Violet and Infra Red:

- Chemical lights:



- Use mine tape for marking in areas of high vegetation so a safe lane can be clearly seen by the team and other agencies
- The methods listed above are not a definitive list and the appropriate method for the task should be adopted.

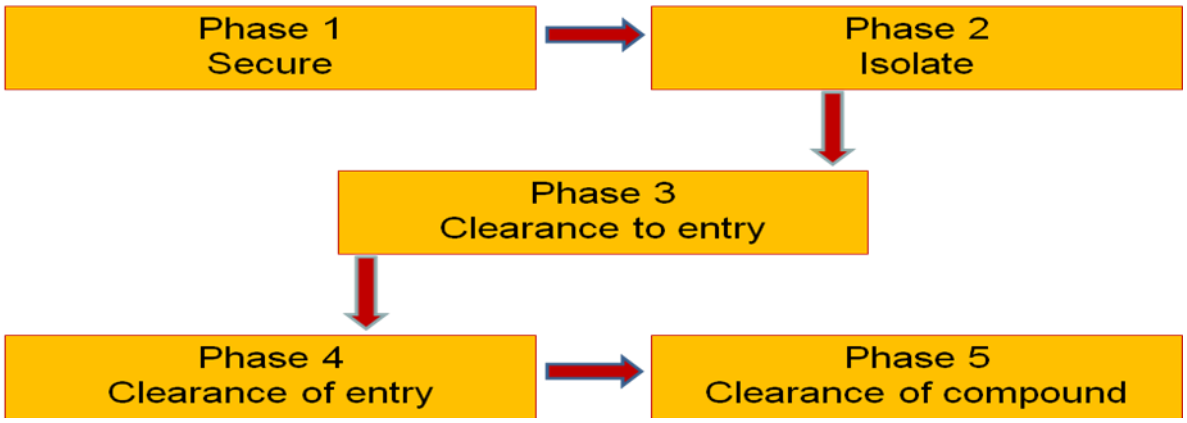
10. The methods listed above are not a definitive list, and the appropriate method for the task should be adopted.

Op KALA (Compound entrance technique)

General

1. Op KALA is an operational name given to the entry and clearance of compounds. The method of entry will be dictated by the type of operation being conducted. Assets, time available, intelligence and type of compound are all other considerations to take into account.

2. The operation is conducted in 5 stages:



3. Repeat clearance procedure above for each building and room entered within a compound. ECM is to be carried by clearance team element to maximize spacing and reduce overall threat. Consider using IED dogs for the Secure and Isolation phases, as well as for the search of cordon positions and launch points. Figure 5 shows likely Vulnerable Points for fire positions before accessing compounds

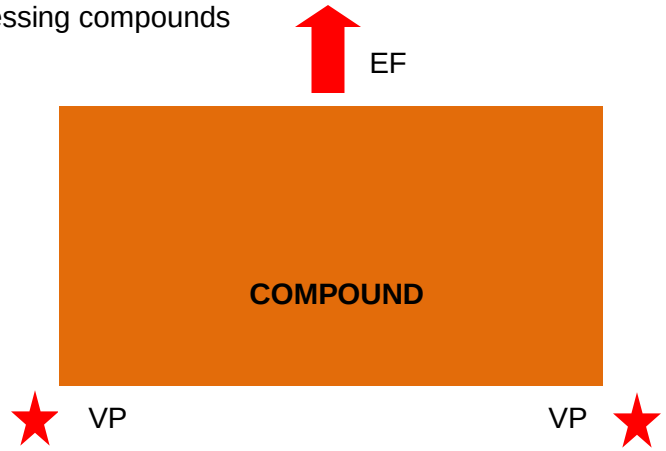


Figure 5. IED placement in potential fire positions

Enemy TTPs. Every individual conducting compound clearance must be aware of how INS could target friendly forces during the planning and rehearsals of the operation. Troops could be targeted in one or more of the following ways:

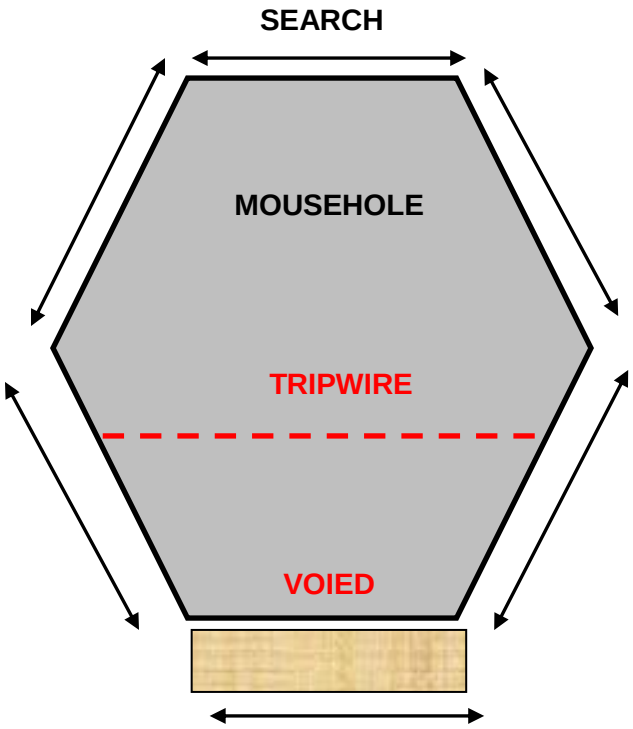
a. Small Arms Fire.
b. RPGs.
c. Grenades

d. IEDs in:

(1) Obvious approach routes - Choke points and VPs.
(2) Ladder locations - positioning.
(3) Walls - Highest and lowest points, breaks in walls and mouse holes.
(4) Door Way/Entrance Points.
(5) Roof Top/FSG Positions.

PROCEDURE:

- Conduct visual search of the route to the entry point from point of safety.
- Conduct physical clearance of the route to the entry point keeping 10m between first pair.
- Visually scan the route 5m ahead to identify evidence of disturbed earth and buried devices
- Use MD to find any VOIED, mines or MILORD main charges.
- Visually scan out to 10m to locate local markers, CW's & RC antennae. Look above head height as well.
- Move forward in 5m bounds.
- Cover man to remain behind the lead searchers
- Clear the entry point: Figure 4
    - Visual check (Consider threat from inside-including dogs)
    - Trip wire feel
    - Physical check – 3D sweep using metal detector
    - Finger tip/touch search (if time permits)



CONSIDER:

- IED's placed within the compound wall.
- Avoiding the compound – Is the entry mission critical?
- Avoid obvious approaches.
- Use of ladders for entry points
- Use of Thermal Imagery to identify surface laid devices at night.

Do Not Use 'Silly string' as part of the trip wire check as it can initiate super sensitive switches! Ultra Violet flashlights, laser light can be used to help show up trip wires and manmade objects (Det cord, CW)

ACTIONS ON POSSIBLE IED

1. **STOP All forward movement**
2. **Conduct 5 C's Op.**
3. **Request EOD support**
4. **Mark and leave if EOD support unavailable**

PREPARATION FOR DISMOUNTED PATROL OPERATIONS

1. **Preparation.** Mission Preparations are activities conducted by the patrolling unit during the planning phase of the operation including, but not limited to, the following: plan refinement, rehearsals, coordination, inspections, and movement.

2. **Pre-Combat Checks/Inspections (PCC/PCI).** PCC are detailed final checks that units conduct immediately before, during and after the execution of training and combat operations. The objective of the PCI is to confirm the proper personnel, equipment, and special equipment are present and functioning properly. This is also a time when brief backs are conducted wiht the patrol to explain in detail how the plan of the operation is to be conducted, and what actions to take on contact. The PCC/PCI is essential in that it checks: Each individual's equipment necessary for mission accomplishment; each individual understands the mission, task & purpose, the commander's intent, and each individual understands how their task contributes to the mission. The following are recommended subject areas that a unit should include in their PCC/PCI SOP as a minimum:

- Uniform and Gear
- Communications Devices
- Weapon Systems
- Special Equipment (IEDD Equipment, CREW Devices, IED detections dogs, Marking material (s)
- Mission Knowledge (Suspected VP/VA IED locations, Patrol Member responsibilities during Combat Patrol, and Insurgent IED TTPs used in AO of Combat Patrol to be conducted).
- **Patrol Rehearsals**: A rehearsal is a session in which a unit practices battle drills and actions of special teams to improve the reaction time of any situation encountered during execution of the patrol. Rehearsing key combat actions (actions at suspected VP/VAs) before execution allows participants to become familiar with the operation, and to translate the relatively dry recitation of the tactical plan into a physical and visual impression. This impression helps them understand their role and responsibilities when executing the operation from start to finish. The execution of individual and collective tasks during the rehearsal leaves a lasting mental picture of the sequence of key actions within the operation. The following are three rehearsal techniques to consider using during the preparation phase for combat patrols:
- **Terrain Model Rehearsal** – This rehearsal technique takes less time and fewer resources than the Full Dress Rehearsal and the Reduced Force Rehearsal. The Leader decides on the level of leader, Marine or Soldier involvement, then has a

scale terrain model of the Area of Operations constructed. An accurate terrain model with suspected VP/VAs can help subordinates visualize the battle and their Commanders' intentions for the operation.

- **Reduced Force Rehearsal** – Circumstances may prohibit a rehearsal with all members of the unit. Unit leaders and other key individuals may perform a Reduced Force Rehearsal, while most of their subordinates continue to prepare for the operation. Often, smaller scale replicas of terrain or buildings substitute for the actual AO. Leaders not only explain their plans, but also walk through their actions or move replicas across the rehearsal area or sand table. An accurate Reduced Force Rehearsal area with suspected VP/VAs can help subordinates visualize the battle and their Commanders' intentions for the operation.

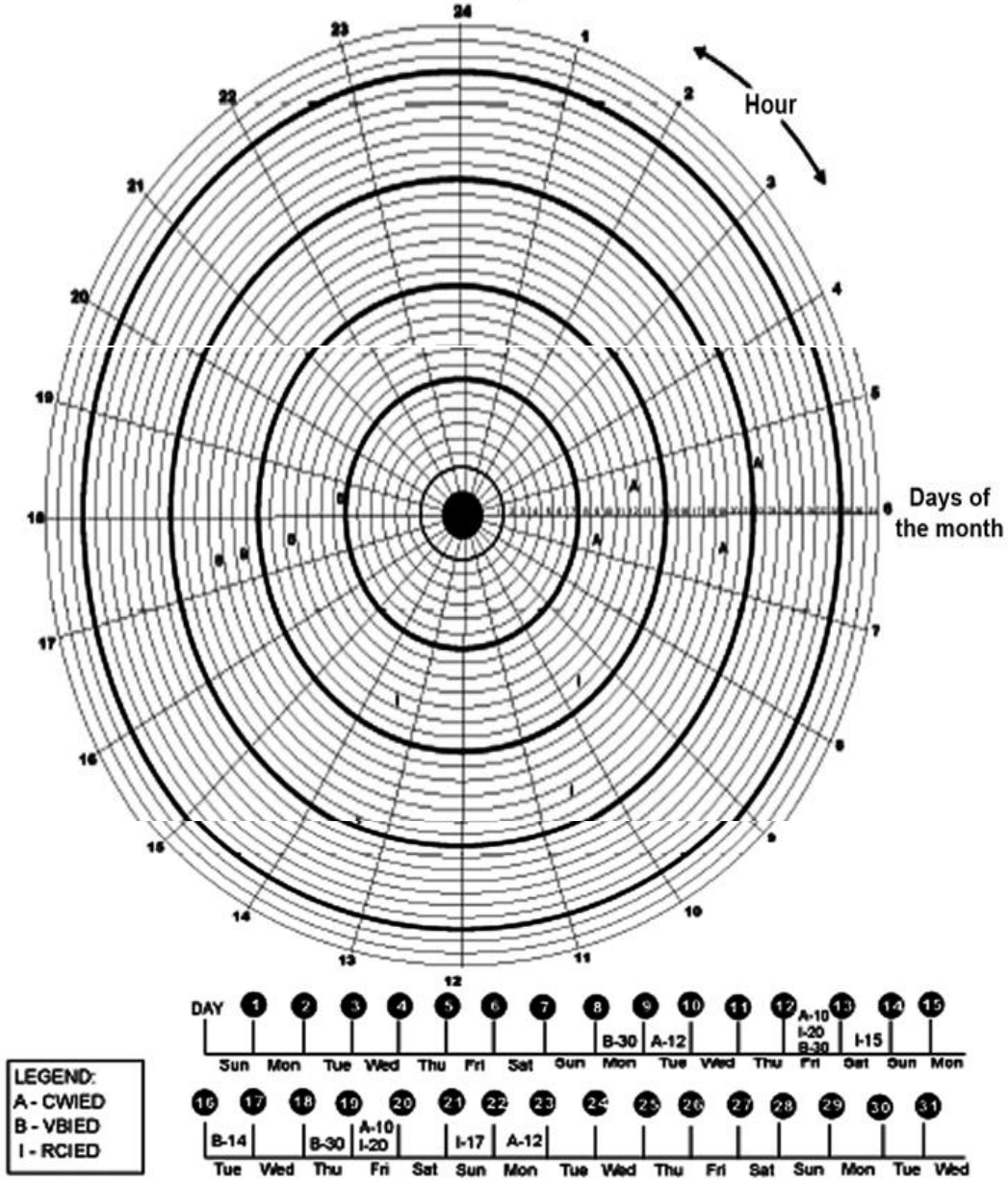
- **Full Dress Rehearsal –** The full dress rehearsal produces the most detailed understanding of the mission. It involves all personnel with IEDD equipment that will be used in the Squad or Platoon conducting the operation. If possible, units should conduct full dress rehearsal under the same conditions, weather, time of day, terrain, etc., as the unit will encounter during the actual operation. An accurate Full Force Rehearsal area with suspected VP/VAs can help subordinates visualize the battle and their Commanders' intentions for the operation.

- **The patrol Leader should use the patrol overlay developed during the planning phase of the operation to assist in preparing for the rehearsal technique selected for the unit's rehearsal.**

- **Patrol Time Pattern Analysis**. A pattern analysis plot sheet can be used to determine friendly patrol patterns within an AO. The rings show days of the month; the segments show the hours of the day. As shown in the plot sheet's legend, the chart can depict the actual time of day of the patrol. The patrol leader can use this information to analyze previous patrols and IED incidents to ensure they don't set patterns and understand where the danger areas are.

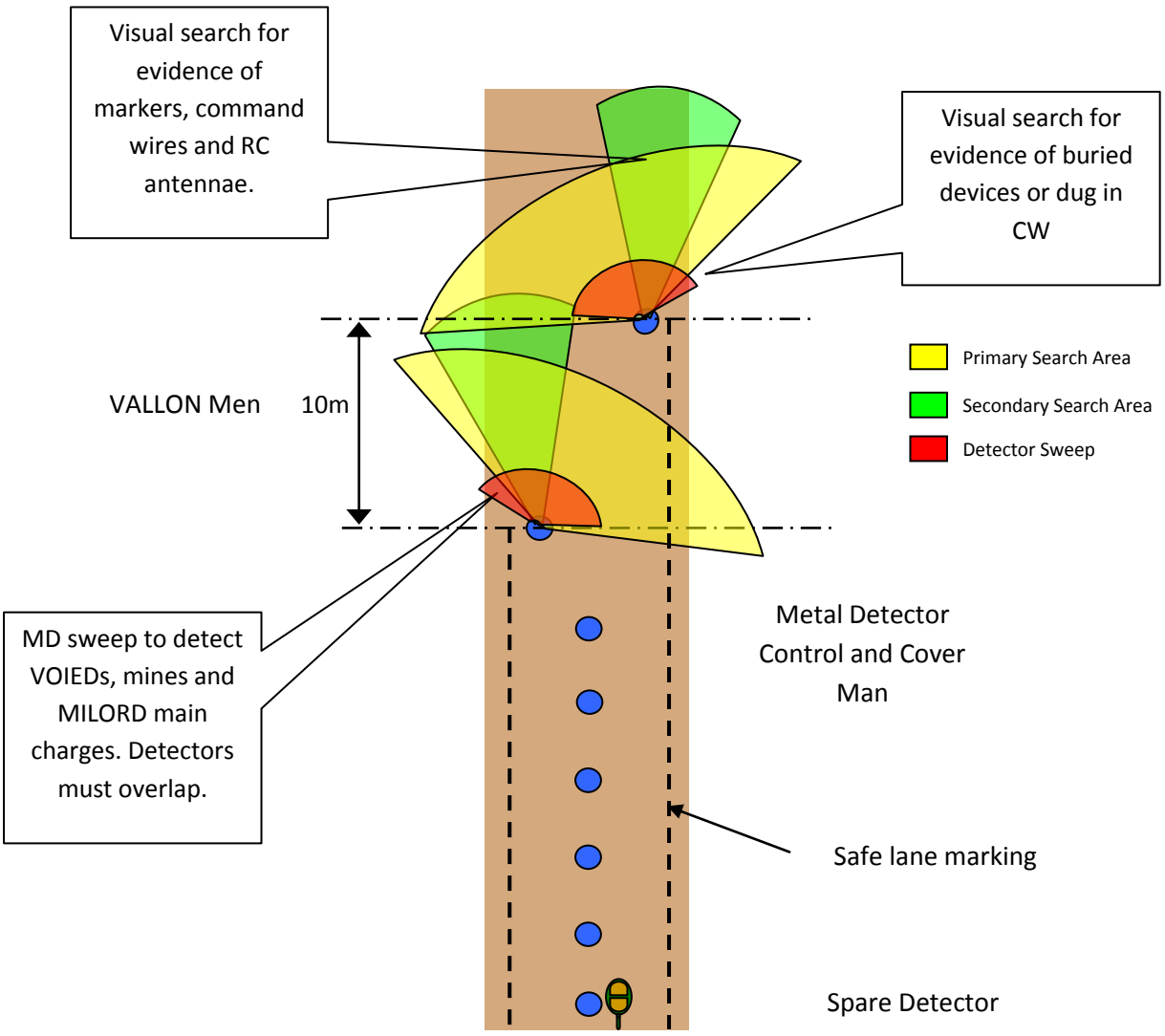
Activity and Area: McDonough Schuyler Province (Bde AO)
Known Coverage Caps: Clochester, Quincy
Month and Year: 1 April 2009

24 hour matrix by month



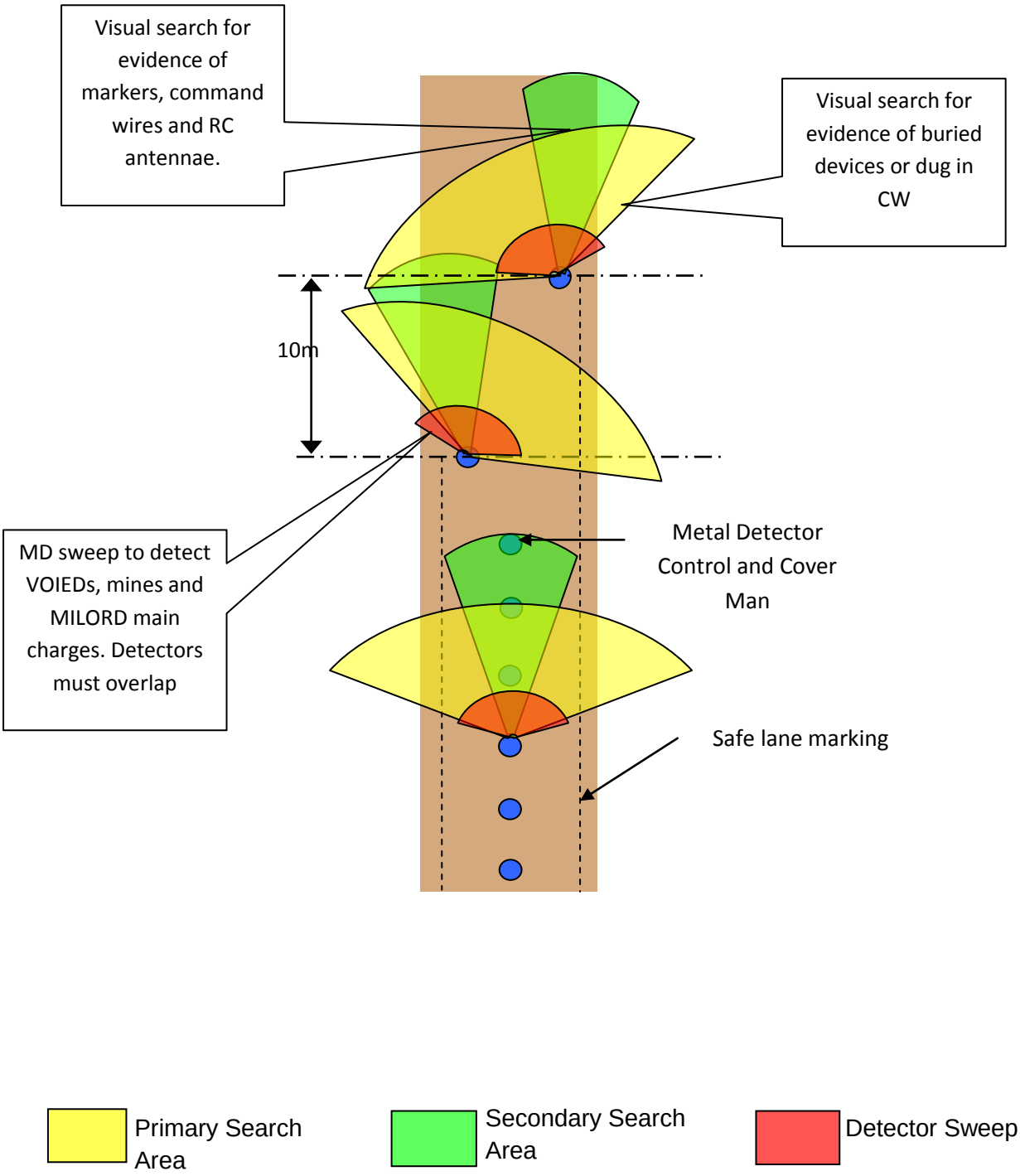
DISMOUNTED PATROLLING

- If patrolling in an area with an increased IED threat, the Commander should deploy two Detector men at the head of the patrol. They should be staggered (10m) and overlap sweeps. The MD Control and Cover Man monitors the overlap, and if necessary provides cover.
- A spare MD should be carried at the rear of the patrol to provide redundancy, enable the patrol to change direction rapidly, and present the Commander with options during an incident, such as a casualty extraction.



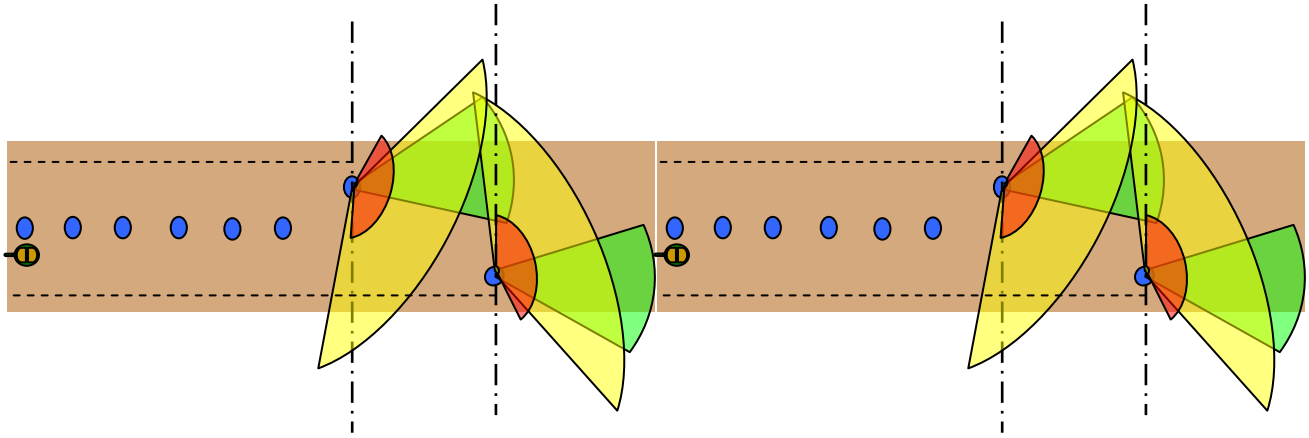
RECOMMENDED PATROL SCHEME OF MANEUVER IN OBSCURED GROUND

- In areas where the ground is particularly difficult or Safe Lane Markers are obscured, a spare MD can be utilized to offer greater assurance.



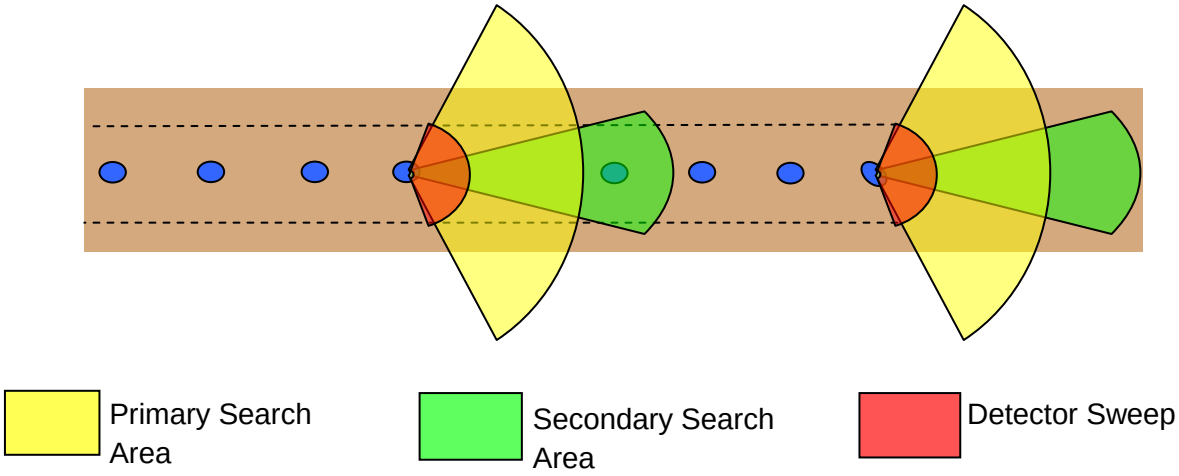
RECOMMENDED PATROL SCHEME OF MANEUVER – MORE THAN ONE SECTION / MULTIPLE PATROLLING TOGETHER

- In a larger patrol where more than one section/multiple is on the ground, each team should deploy MDs. This raises assurance and gives the Commander options for mutual support and depth.



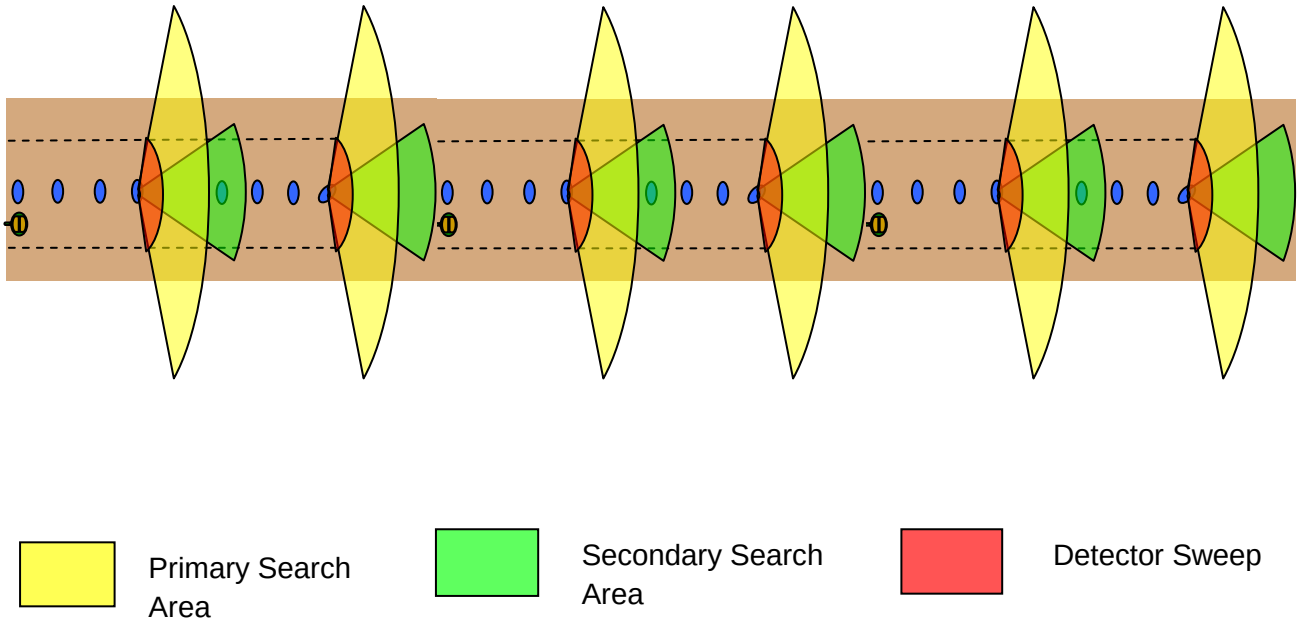
RECOMMENDED PATROL SCHEME OF MANEUVER – PATROL FORCED INTO SINGLE FILE

- In areas where the ground forces the patrol into single file, it should first be considered if the patrol can avoid the area entirely or if VP 360 drills are possible. Where not, the gap between MDs should be a maximum of three men.
- It is recommended that the lead man marks the safe lane.
- In larger sections/multiples the spare MDs can be used to ensure coverage.



RECOMMENDED PATROL SCHEME OF MANEUVER – MORE THAN ONE SECTION / MULTIPLE IN SINGLE FILE

- In a larger patrol where more than one section/multiple is on the ground in single file, each team should deploy their MDs. This raises assurance and gives the Commander options for mutual support and depth.



RECOMMENDATIONS FOR THE USE OF COVER MEN

- If an additional threat, such as SAF, is deemed significant by the Commander, he can push forward cover men for the MD operators. He must balance the risk of having two men in close proximity in the event of an explosion with that of the additional threat.
- Ideally the MD men should have their weapons slung behind; this enables them to concentrate on ground sign, safe lane marking and operating the detector.

RECOVERY FROM DISMOUNTED PATROL OPERATIONS

- Once the patrol has returned to base, the Commander must conduct a debrief, ensuring all intelligence, evidence and information collected during the patrol is turned over to the S2 section for analysis. The patrol must also conduct an after-action review of the entire mission from start to finish; they must record what operations were executed correctly and what could have been done better. This information must be passed on so that others can learn from the operation. Finally, patrol leaders must conduct a recovery inspection to account for and clean all assigned and special equipment in order to be ready for the next operation.

- **Internal Patrol Debriefing**

Suggested timelines:

- Submit report to the company within 2 hours
- Report received by the battalion S2 within 4 hours.
- Submit sworn statements/administrative requirements within 24 hours.
- Download Handheld Interagency Identity Detection Equipment data into the Biometrics Automated Toolset.

The patrol debrief includes:

- Specifics on “5 W’s” (who, what, when, where, why, and how).
- Photos or sketches.
- Answers to priority intelligence requirements (PIRs)/information requirements.
- Actionable intelligence.
- Recap of route.
- Reports of enemy contact.
- Engagements conducted:
- Who engaged the enemy?
- Any concerns?
- Any U.S. promises made as a result of the engagement?
- Tips or actionable intelligence.
- Noteworthy observations (propaganda, graffiti, etc.).
- Changes in atmospherics. Atmospherics comprise an assessment tool used by leaders to gain a greater understanding of the overall dynamics of the community. Elements of atmospherics include changes detected in the following:
- People’s attitudes toward coalition forces
    - Local infrastructure
    - Civil leadership
    - Local organization
    - Civil institutions

- Potential informant and tactical human intelligence team sources. Events frequently occur during a patrol that will require more documentation than may be submitted in a simple post-patrol report. The post-patrol report should contain, at a minimum, a list of those events and the documentation requirements, serving as a reminder to both patrol leaders and staff sections of pending administrative actions.

EXAMPLE PATROL DEBRIEFING FORM:

Unit (Sqd/Plt/Co):	Patrol Leader:
Date of Mission:	Debrief Number (S2 Only):
Depart Time:	Return Time:
Mission:	
☐ Dismounted Patrol in TOWN OF: _____	GRID: _____
☐ Mounted Patrol in TOWNS OF: __	
GRIDS: _____	
☐ Fixed guard/checkpoint at: _____	
☐ Respond to: _____	
☐ Other:	
☐ Attitude of General Population Towards CF/ISF (Select One): **Favorable / Neutral / Unfavorable**	

Describe key locations visited during patrol (town, ethnic minority neighborhood, school, market, religious bldgs., etc.)

LOCATION	GRID	OBSERVATIONS, TRENDS (e.g. BETTER OR WORSE?)	DIGITAL PHOTO #

PERSONNEL ENCOUNTERED

List important/interesting persons encountered. Describe what they said/did that was significant in the **PATROL NARRATIVE.**

NAME (LAST/First)	SEX	ETHNICITY	HOMETOWN	TAG # (if detained)	DESCRIPTION (or digital photo #)

VEHICLE ENCOUNTERED

List passengers in **PERSONNEL ENCOUNTERED** (above). Discuss significant vehicles in the **PATROL NARRATIVE.**

SSENGERS (LAST/First)	COLOR	MAKE	MODEL	LIC NO.	LOCATION	DIGITAL PHOT

CAPTURED EQUIPMENT

Explain circumstances leading to capture of equipment in the **PATROL NARRATIVE.**

QUANTITY	ITEM DESCRIPTION	TAG NUMBER	SERIAL NUMBER	DIGITAL PHOTO #

EXAMPLE PATROL DEBRIEFING FORM CONT.

PIRs/IRs ANSWERED

Provide information pertaining to Priority Information Requirements (PIRs) or Information Requirements (IRs). List PIR or IR #.

PIR/IR # ANSWERED

PATROL NARRATIVE

Describe the important events of patrol. Include 5 W's (**who**, **what**, **when**, **where**, and **why**). Provide **Digital Photo #**.

What to report when you don't know what to report:

- Local population's reactions/ attitudes
- Upcoming events
- Conditions of schools/clinics
- Status of electric power
- Condition of crops/harvest
- Map corrections
- New construction/material
- New military weapons/ vehicles/tactics/capabilities
- minefields/IEDs
- Billboards/poster/leaflets
- New damage or vandalism
- What's new and on sale in shops
- Black market activity
- Upcoming market days
- Number of houses in town
- Stretches of bad road
- Buses and who is in them
- New antennas or wires
- NGO presence/stickers
- Possible gang/criminal activity
- Local address system (street names and numbers)

ATTACHMENTS

List attachments or enclosures to this debrief. Example: sketch, disk with digital photos, captured documents, political rally poster, confiscated weapon, etc. Ensure that any attached item is described in the **PATROL NARRATIVE** above.

- **After Action Review: Lessons Learned for future missions**
    - Review mission statement.
    - Review patrol plan and scheme of maneuver.
    - Summarize key events that occurred during patrol (in chronological order).
    - Discuss key issues that arose during the patrol.
    - Identify “sustains and improves.”
    - Plan course of action to redress shortfalls.

- **Equipment Refit: Preparing for future missions**
    - Weapons
    - Sights
    - IED Detection Equipment
    - Communications
    - Deficiencies identified
    - Parts installed
    - Parts on order
    - Inventory:
    -
        - Safety equipment, Basic issue items
        - Personnel protective equipment TA-50
        - Shortages identified
        - Shortages replaced

    - Counter Radio-Controlled Improvised Explosive Device Electronic Warfare (CREW) systems:
        - Download data
        - Electronic warfare officer inspection

    - Communication: Long-range communications check with station in sector
    - Timeline:
    -
        - Establish an internal refit timeline.
        - Issue warning order for next mission

MINES

MINEFIELDS ARE USUALLY FOUND at existing confrontation lines, borders, old military positions, strategic areas, unmade roads and tracks, and disused buildings. Ensure you know the drills to avoid, survive and extract!

MINEFIELD SIGNS AND LOCAL MARKERS

Painted rocks; Red pointing to danger and white pointing to the safe area.

Pile of rocks marking dangerous areas

Marked UXO using local or available signs/materials

Anything **UNUSUAL** that may indicate a danger.

COMBAT INDICATORS			
Local Behavior	**Ground Sign**	**Blast Signature**	**Mine Debris**
Not Using fields	Flattening	Scorching	Parts of Mines
Not using routes	Regularity	Craters	Packaging
Not using animals	Discoloration	Strike Marks	Tripwires

MINE ENCOUNTER DRILL

Remember mines are often used as IED components

STOP Stop moving

WARN Issue warning to others nearby “STOP MINES”

REPORT Report by radio “MINES/MINESTRIKE, WAIT OUT”.

ASSESS Plan of action**:**

- Stay put or self extract?
- What other mine indicators can be seen?
- Location of nearest hard standing?
- EOD or Engr assistance available?
- CASEVAC available/required?
- Are other agencies required?
- Enemy action?
- Casualties?

REPORT:

- Your exact location (10 fig grid)
- Details of incident
- Details of any casualties
- Assistance required
- RV details (10 fig grid)
- Future intentions

ACT Stay still and wait for assistance

OR

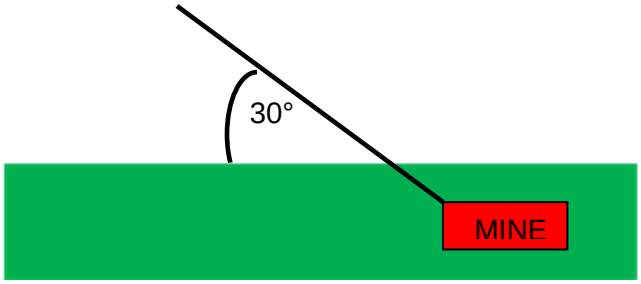
If extracting from mined area then **LOOK FEEL** and **PROBE** to safety. If you can use an MD, then **LOOK FEEL** and **METAL DETECT** to safety.

LOOK – FEEL – PROBE

LOOK – for any visible signs of mine action or combat indicators. If required blow away any sand

FEEL – for any protruding fuses or mine components

PROBE – every 25mm across a 0.6m lane at 30° angle to the horizontal, and if ground permits to a depth of 75mm.



Probing Angle

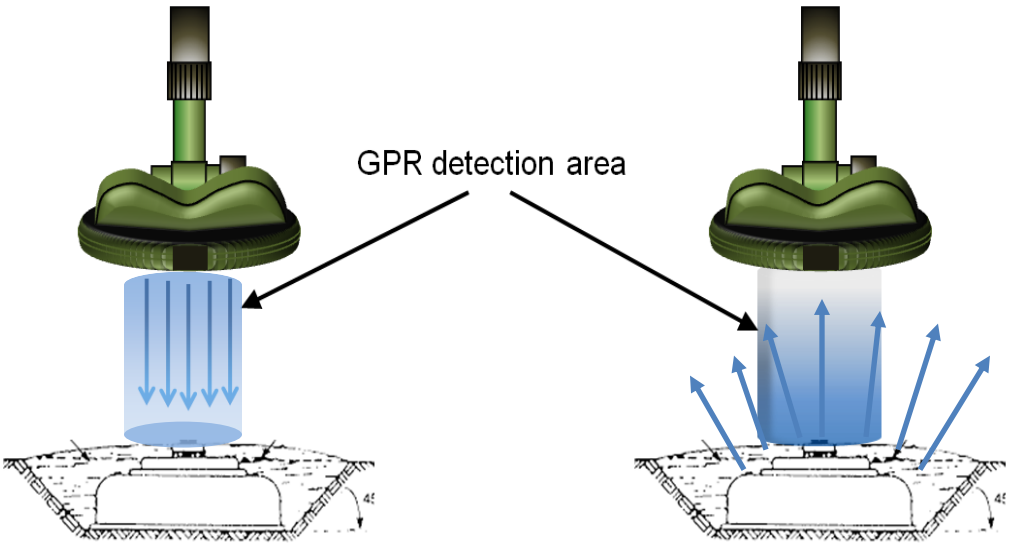
VALLON Minehound – Duel Sensor Mine Detector (VMR2)

- **Technical Principle of Operation**
  - VMR2 uses a dual-sensor detector with integrated (MD) and (GPR)
  - MD and GPR can be used independently or coupled
  - The acoustic signal differ from the GPR and MD
    - GPR low frequency tone / MD high frequency

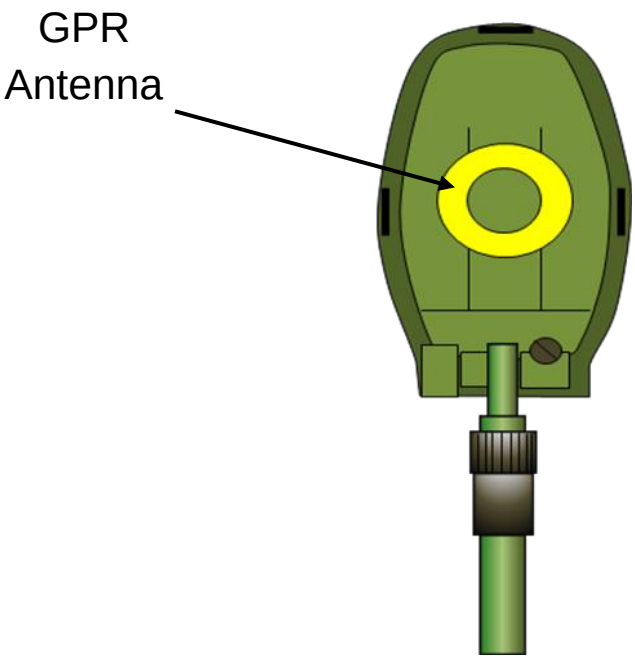
Weight with Li-Poly batteries	**9.26 lbs**
Weight with D-size batteries	**11.46 lbs**
Standard batteries	**Lithium-polymer cells**
Length fully extended	**54.33 in**
Search head length	**12.40 in x 6.89 in**

GROUND PENETRATING RADAR

- Tiny fragments are not detected by GPR
- Only objects with the size of an anti-personnel mine or larger will register
- The search area is smaller for the GPR than the MD search area

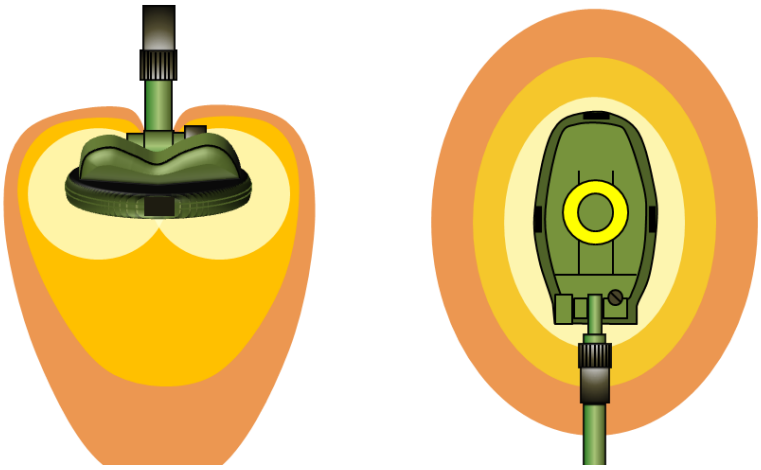


- The GPR antenna is located in the center of the search head with in the metal detector coil
- GPR includes processor and transmitter that control the emitted signal
- The reflected energy is analyzed and communicated to the operator via an audio and LED



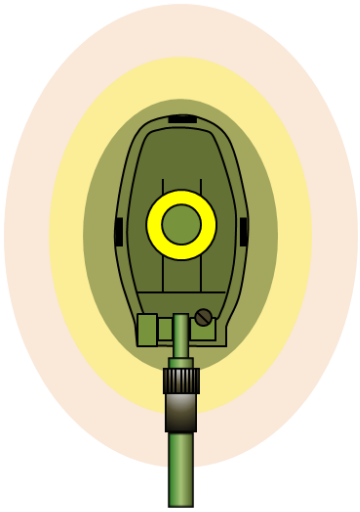
METAL DETECTION

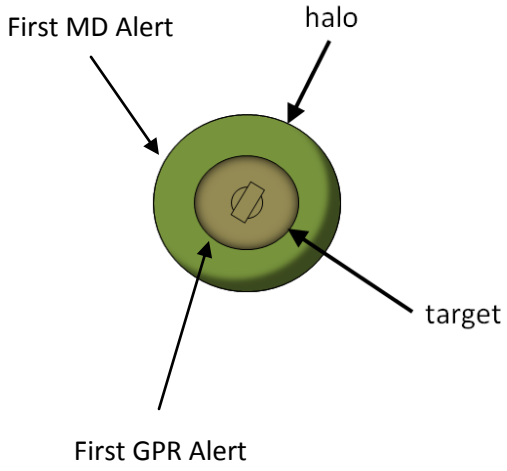
- The detector coil is located in the search head around the radar antennas
- The entire search head surface has the same detection sensitivity



TARGET ALERTS

- The MD subsystem will alert on the target's "halo", while the GPR will alert on the target's edges

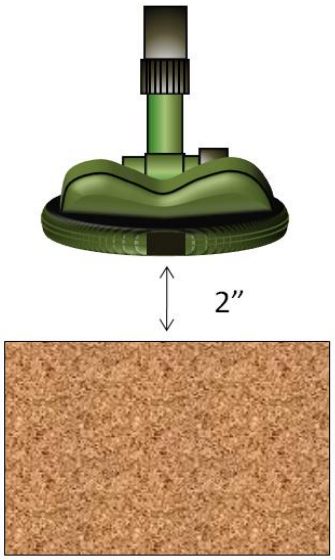




SWEEP TECHNIQUES

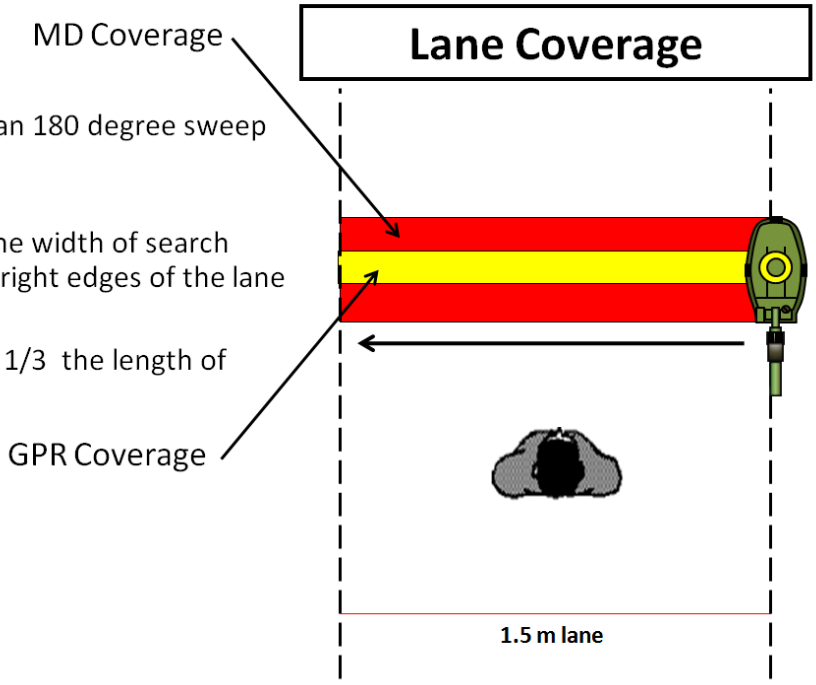
Search Head Position

- Search head must be parallel to ground
- No more than two inches above the ground
- The closer to the ground the better
- Follow contour of the ground
- Avoid “cupping” on sides



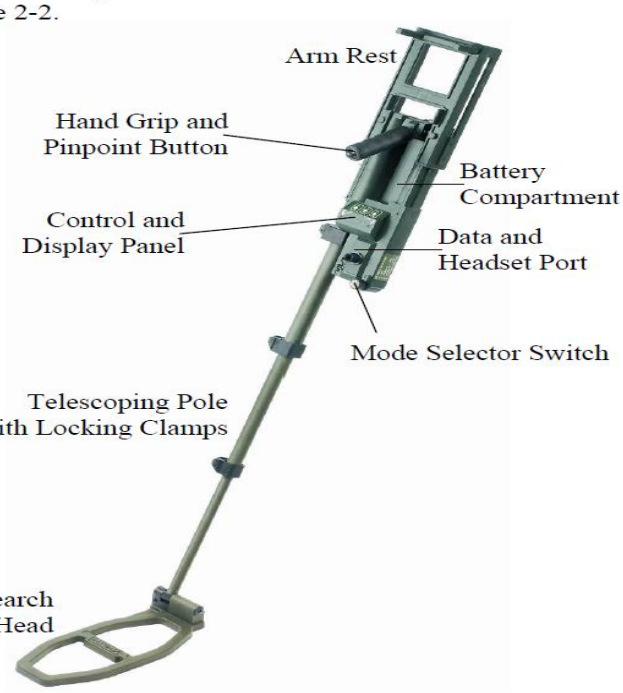
Lane Coverage

- Operator will conduct an 180 degree sweep from left to right
- Cover at least ½ half the width of search head over the left and right edges of the lane
- Forward no more than 1/3 the length of search head.



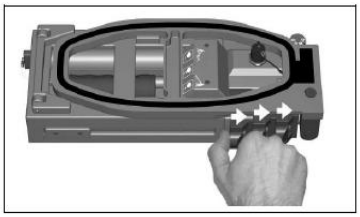
VALLON VMC-1

The main components of the Gizmo Detector Unit are shown in Figure 2-2.

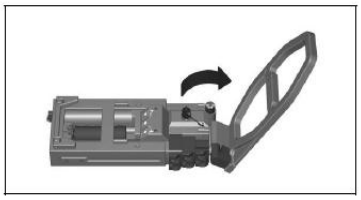


GIZMO DETECTOR UNIT MAIN COMPONENTS

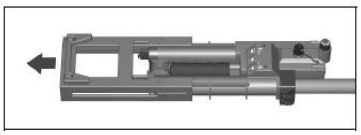
1. Open 3 locks of the telescoping pole.



2. Rotate search head forward and down.

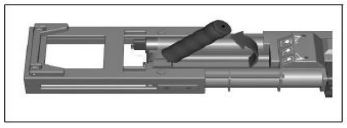


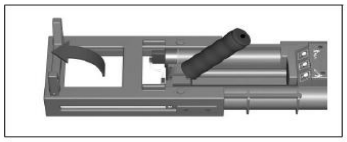
3. Slide out the arm rest.



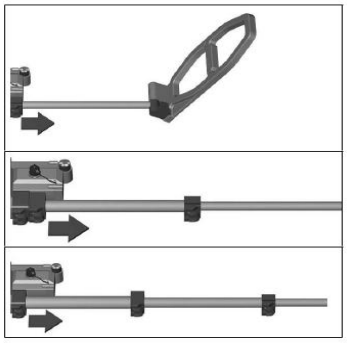
4. Rotate the Hand grip up until it clicks in place

5. Flip the arm rest belt up





6. Extend the telescoping pole to the desired longhand lock it.



SET UP

POWER UP

The Gizmo Detector Unit is powered-up by turning the Mode Selector Switch from the Off position (figure 3-11) to any of the three other positions (figure 3-12).

Figure 3-11. Mode Selector Switch in Off position.

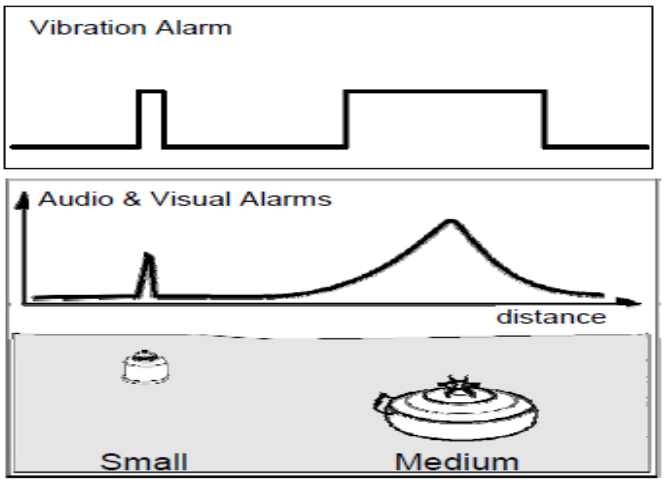
(a) (b) (c)

Figure 3-12. Mode Selector Switch in: (a) Normal Soil Mode position, (b) Mineral Soil Mode position, and (c) Volume Control Mode position.

Each time the Gizmo is powered-up into either the Normal Soil or the Mineral Soil Mode, the Gizmo will perform a Battery Status Check and a Built-In Test (BIT) (see Section 3.6).

ALERT MODES AND CORROSPONDING CONTROL PANEL BUTTON (S)

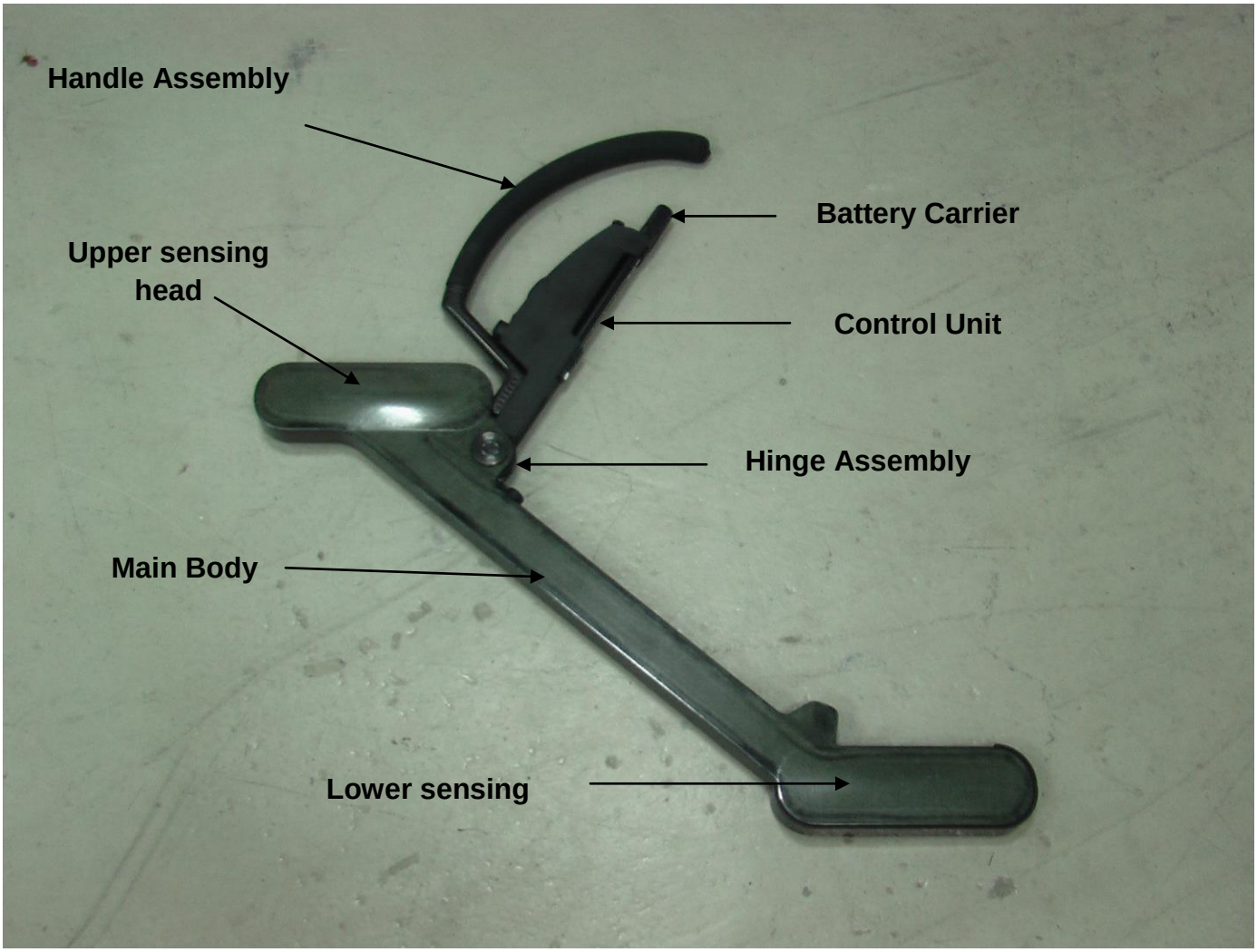
−	Vibration Only
C	Audio Only
+	Visual Only
− and C	Vibration and Audio
− and +	Vibration and Visual
C and +	Audio and Visual
− and C and +	Vibration, Audio, and Visual



VISUAL ALARM SIGNALS

DETECTOR SPECIAL PURPOSE NO 27 - GOLDIE

PARTS



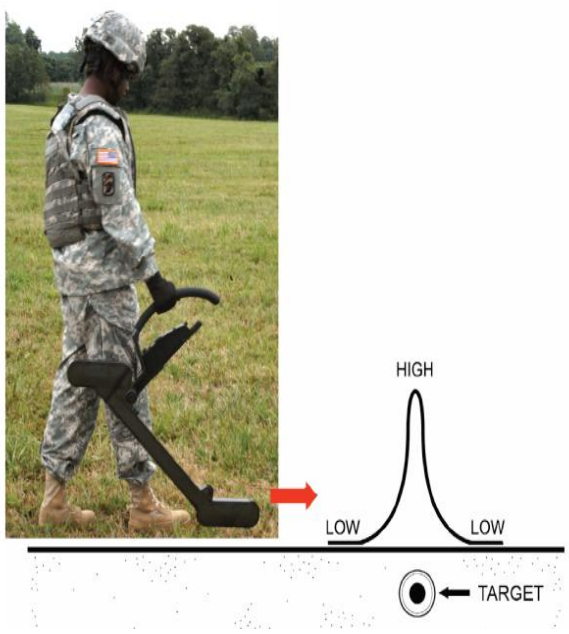
TECHNICAL DATA

Transit Case Dimensions: 47” x 17” x 7”
Complete System Weight: 29 lbs.
DSP No. 27 Weight: 7.5 lbs.
Power Source: 4x AA Batteries
Battery Life: 6 hours continuous operation

CLOSED

OPEN

OPERATION MODE

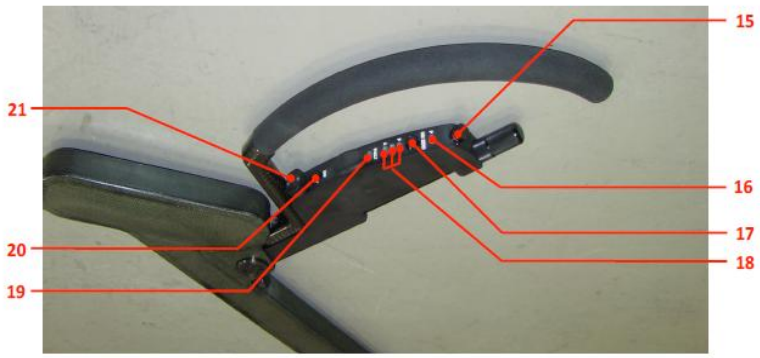


Audio alert from target detection

System Start up

To power ON the system and verify its functionality, complete the following steps.

1. Ensure that the steps in Section 4.1 to prepare the DSP No. 27 system for operation have been completed.
2. Refer to Figure 11 for clarification of button and LED location.



15 Earpiece Socket
16 ON/P (Positive) LED
17 ON/Zero Button
18 Traffic Light LEDs
19 Fault LED
20 OFF Button
21 Speaker

3. Wait at least 3 seconds after installing the battery carrier prior to turning the DSP. No 27 ON.
4. Press and hold the ON/ZERO button for two seconds until the LEDs on the control panel begin to illuminate. The DSP No. 27 will then begin a short self-test routine.
5. Each LED will illuminate in turn for 1 second and a series of tones will be heard as each LED lights.
6. All LEDs will then be switched OFF, then ON, and then OFF again indicating that the system self-test is completed.
7. If the DSP No. 27 does not follow the routine indicated above, refer to the troubleshooting section of this manual for assistance.
8. After the self-test described above, the ON/P LED and one of the Traffic Light LEDs should be illuminated indicating that the DSP No. 27 has passed the self-test and is ready for use.

Note: With a new set of batteries, the DSP No. 27 should operate for approximately 6 hours prior to the low battery warning.

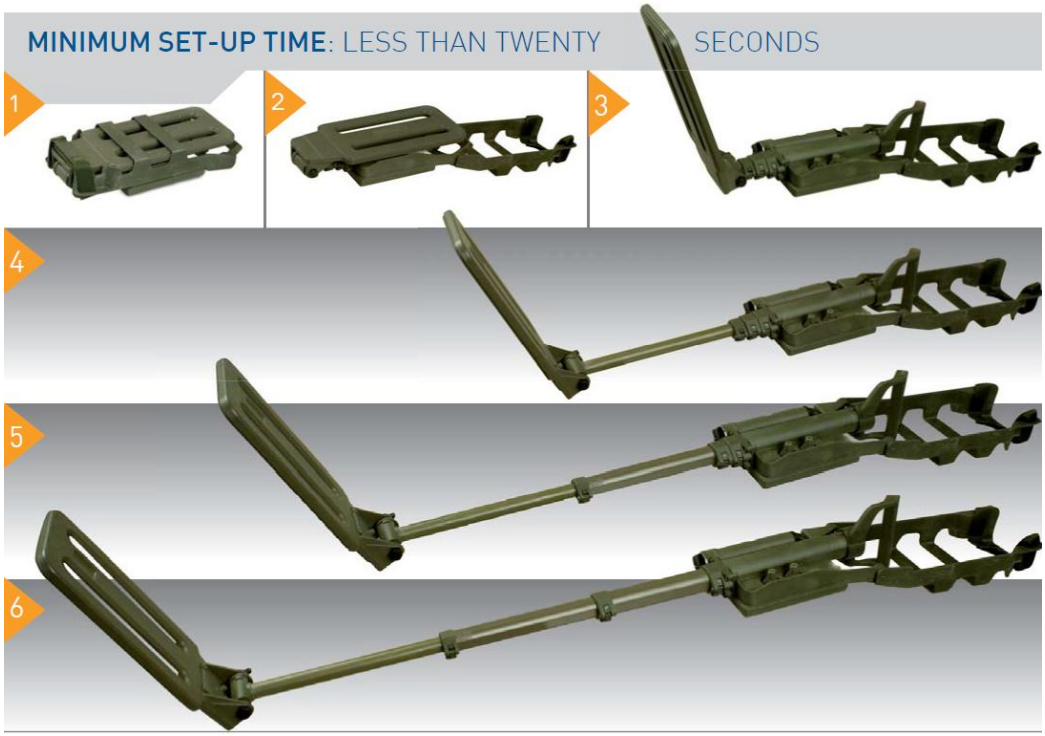
CEIA CMD METAL DETECTOR

- Light weight detection to maximize comfort during us
- Extremely robust and reliable
- Self diagnosis system with audible signal in the case of malfunction or low battery
- Built in battery charger (selected lots)

- Detection of ferrous and non-ferrous metals
- Very high sensitivity
- Automated soil compensation
- High precision pin-pointing of the target
- Static and dynamic detection independent of the speed
- Extremely compact, light weight construction

Capabilities

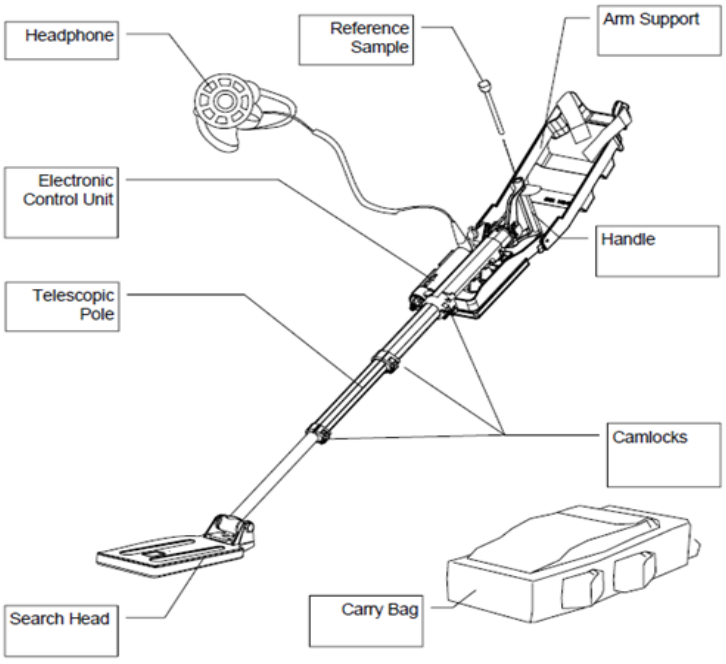
Set up



LIMITATIONS

- Metal detector only (not well suited to find low metallic to non-metallic objects). *Note* Enemy TTPs in theater are the use of low metallic or non-metallic objects in the design of pressure plate IEDs
- If using multiple detectors on the same channel, then you must have at least 18 meter dispersion between detectors
- If operations are suspended and the detector is switched off, the ground compensation procedure must be repeated
- Cannot manually change channels. Dependent on last number in serial number

- For optimal use, two 1m x 1m sterile box must be built for your ground compensation procedure to be completed. One box will be completely sterile while the second box will consist of a specific target buried in the middle to check the detection capabilities of the detector
- Heat decreases capabilities and performance.
- Battery life in extreme heat is reduced to half
- Plan for redundancy, detectors after long periods of operations will over heat
- Type "C" batteries
- Search head to Electronic Control Unit signal transmission is delayed



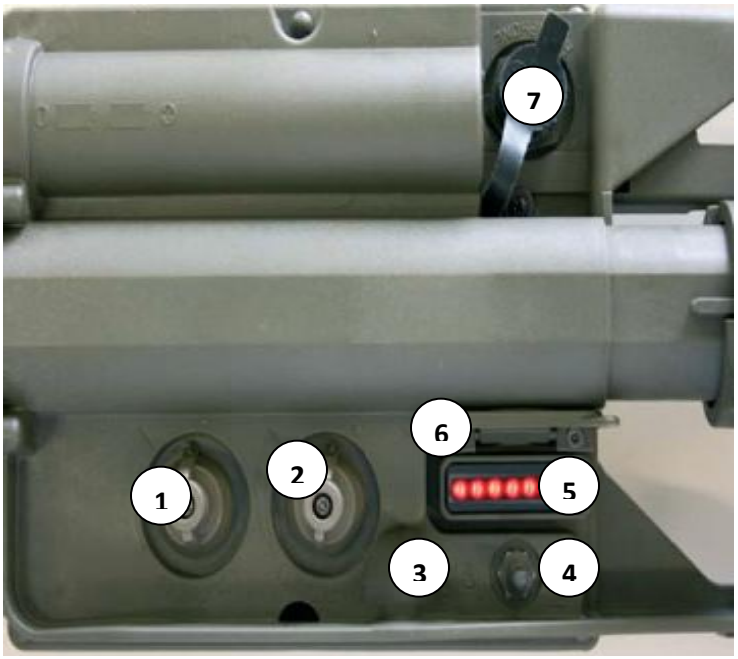
CEIA CMD Metal Detector

1. Headphone
2. Electronic Control Unit
3. Telescopic Pole
4. Search Head
5. Carry Bag
6. Camlocks
7. Handle
8. Arm Support
9. Reference Sample

11

Parts

CONTROL UNIT



1 - Volume adjustment

2 - Sensitivity adjustment

3 - Built-in speaker

4 - Main switch and spring actuated reset switch

5 - luminous bar indicator of signal intensity

6 - snap-down cover to mask the led bar indicator

7 - headphone connector - RS-232 interface

TECHNICAL DATA

Weight	**4.67 lbs**
Compact Length	**16 inches**
Extended Length	**50 inches**
Battery Type	**2 x C Cell**
Battery Life	**2 - 6 hours**
Set-up Time	**< 45 seconds**
Water Resistant	**Up to 2 meters**
Temp Range	**-51 to 158 degree**

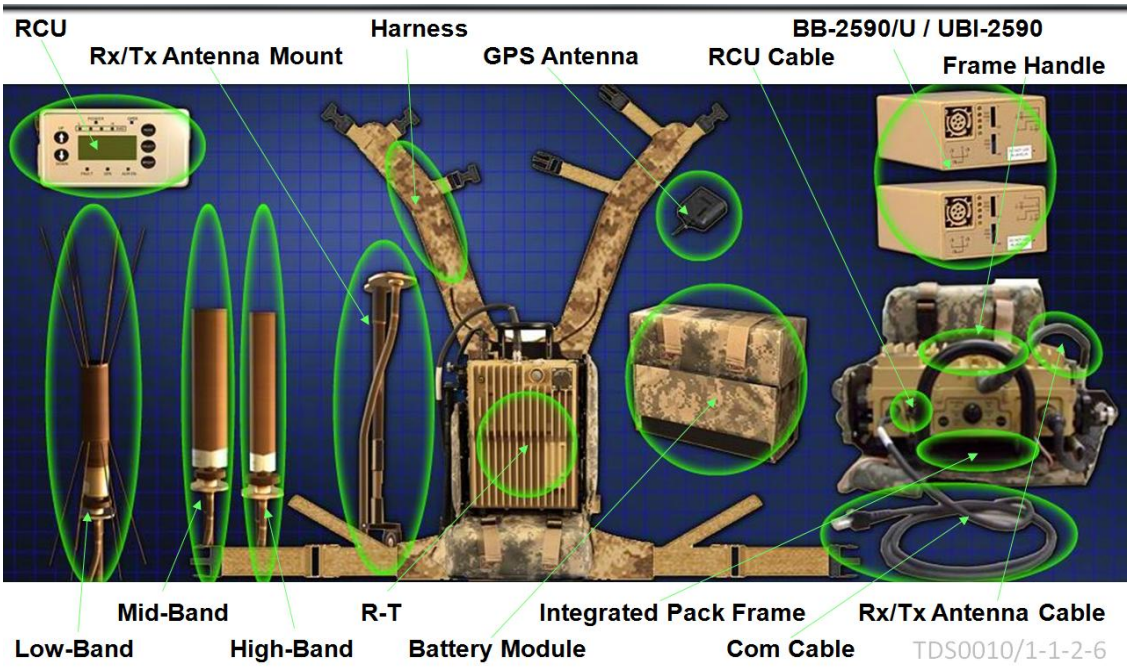
***Higher Temperatures will reduce battery life**

THOR III

Overview-

- Provides the user in the field with a dismounted RCIED jammer
- Designed to counter an array of frequency-diverse threats
- Composed of three units:
  - High-Band
  - Mid-Band
  - Low-Band
- Expandable, active and reactive, scanning-receiver-based jammer with multiple jamming signal sources
- Counters multiple simultaneous RCIED threats

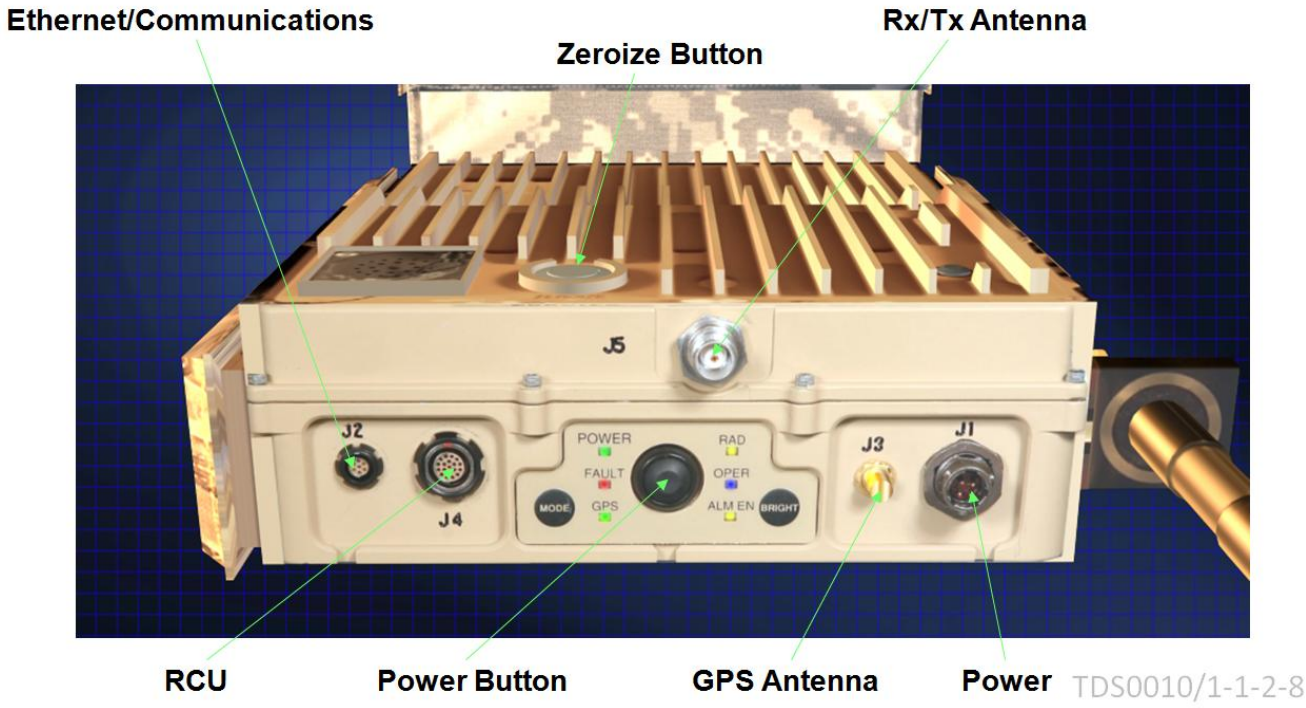
UNIT COMPONENTS



RECEIVER-TRANSMITTER –(R-T)

The three Thor III R-Ts (Low-Band, Mid-Band, and High-Band) are visually identical on the outside. Each is mounted on an integrated/pack frame and connects to the battery module, GPS antenna assembly, RCU, and Rx/Tx antennas.

CONTROLS, INDICATORS AND CABLE CONNECTOR PORTS



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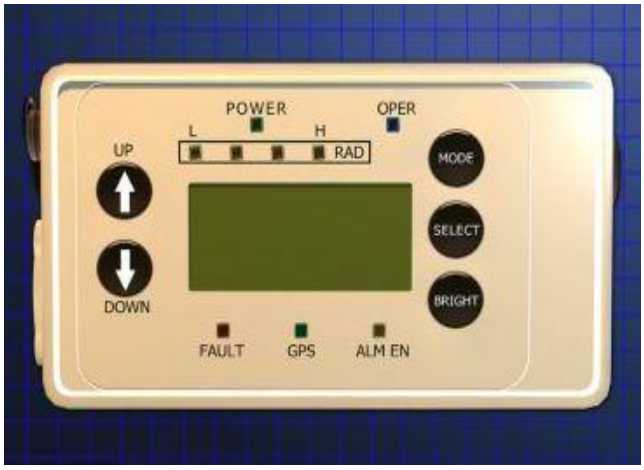
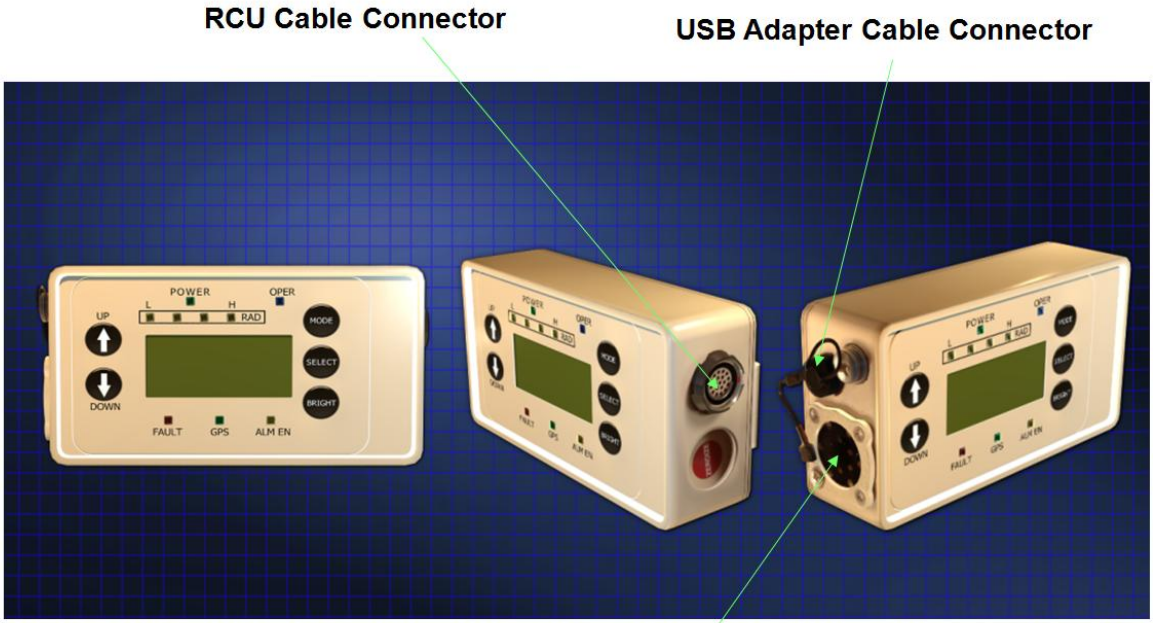
REMOTE CONTROL UNIT

The RCU is the operator's principal means of operating the Thor III unit. Its controls and indicators duplicate those on the R-T front panel (except for the power switch, because the RCU does not have one). In addition, the RCU adds the functionality of a vibrating alert function and message display screen.





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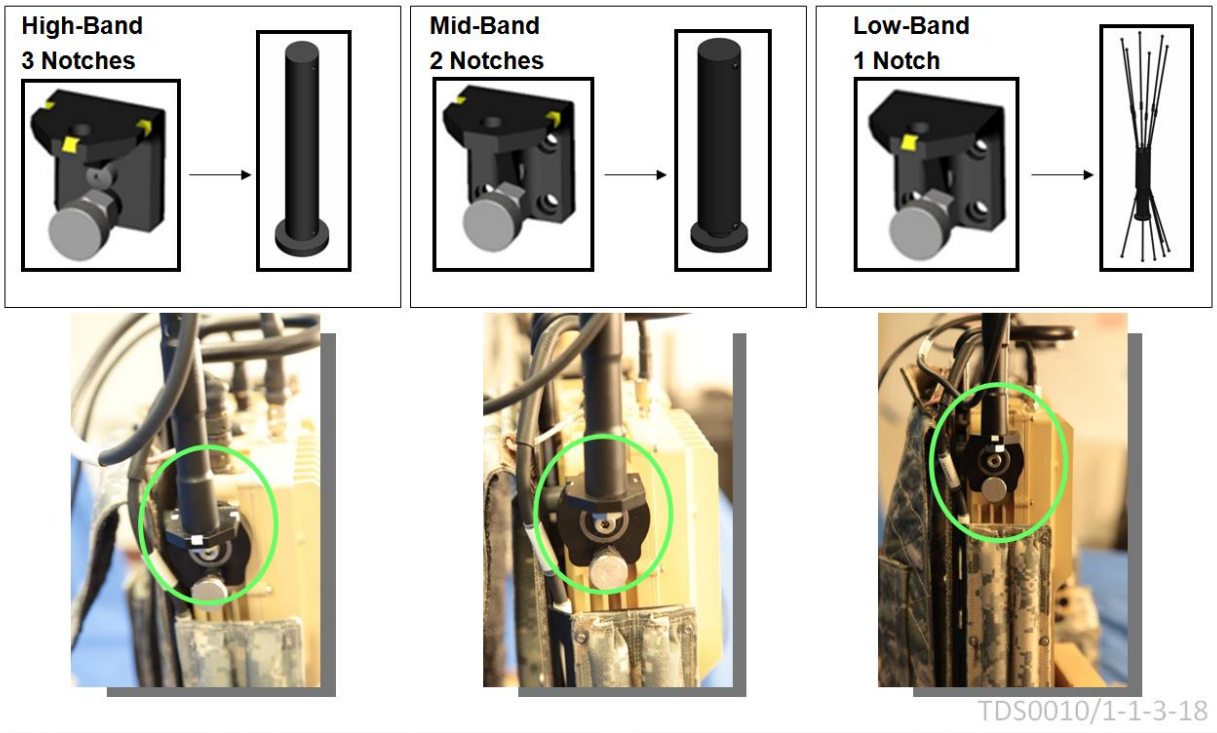
ANTENNA MATCHING



REPOSITIONING ANTENNA

- Pull the plunger on the antenna mount
- Rotate the antenna close to the desired locking position (being careful not to snag any cables)
- When in the desired locking position, release the plunger
- Adjust the antenna until it locks into position
  - If the antenna is not locking, rotate the plunger until the antenna reseats itself

BATTERY INSTALATION

1. Disconnect the two quick release locks on the top of the battery module; Open the front cover
2. Ensure there are no foreign objects inside the compartment
3. Align the connector on the battery with the backplane of the battery module
4. Gently press the battery into position
5. Install the second battery utilizing the same procedure

PRE OPERATIONAL CHECKS

ITEM NO.	LOCATION OF ITEM TO CHECK	PROCEDURE
1	R-T	Visually and physically inspect for the following: •Unit and all controls and indicators are free from obvious damage •Unit is clear of dust, dirt, mud; clean with damp cloth or compressed air as necessary and available
2	External Cables	Visually and physically inspect for the following: •Cables are clean; wipe with a wet or dry rag, as necessary •Cables are attached securely to connectors and free from obvious damage •Cables are routed and fastened in such a manner as not to interfere with operator's movement
3	R-T Front Panel Connectors	Visually and physically inspect for the following: •Connector exterior surfaces are clean; wipe with a wet or dry rag, as necessary •Connector interior surfaces are clean; wipe with cotton swab dipped in alcohol, if available •Connectors are free from obvious damage
4	Integrated Pack Frame and Harness	Visually and physically inspect for the following: •Straps and clasps are intact •Velcro seal for GPS is clean
5	RCU	Visually and physically inspect for the following: •Unit and all controls and indicators are free from obvious damage •Unit is clear of dust, dirt, mud; clean with damp cloth or compressed air as necessary and available
6	Battery Compartment and Batteries	Before Use: Inspect battery life meter on casing to ensure batteries are fully charged Before Use: Ensure proper batteries are being used Inspect battery connector to ensure it is free from obvious damage, dirt, and debris

ACRONYMS

AO……Area of Operations

HHD……..……..Hand Held Detect

IED…….……..… Improvised Explosive Device

LSA……...…Land Service Ammunition

CPIED…….……..…Command Pull IED

CWIED…….…….....Command Wire IED

RCIED…… Remote Control IED

ECM……..…Electronic Counter Measures

LMC……....Low Metallic Content

ICP…….Incident Control Point

MILORD…….….Military Ordnance

TTP's……..... Tactics Techniques and Procedures

HRP……..…Highest Reading Point

HME……...Home Made Explosives

IR……..…Infra Red

LN…… Local National

FF…….…..Friendly Forces

ANSF…….... Afghan National Security Forces

ISAF……..International Security Assistance Force

ISTAR…….Intelligence, Surveillance, Target Acquisition, and Reconnaissance

FP……..Firing Point

SAF……..Small Arms Fire