



Pocket Reference
A Guide for U.S. Forces
September 2013

Hand Held Detectors

Practical guide for Soldiers
operating in various conditions

Joint Improvised Explosive Device Defeat Organization
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Washington, DC 20310-5000

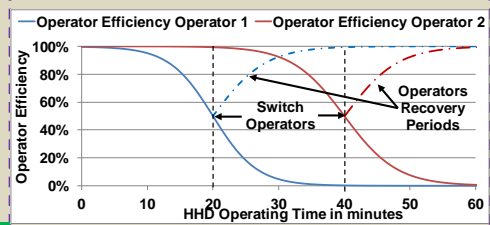


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Soldier Considerations

A Hand Held Detector (HHD) is a **WEAPON SYSTEM**

- It is complex and requires dedicated pre-mission training to be proficient
- Every HHD is different, therefore, learn the capabilities and limitations
- Soldiers operating HHDs are highly susceptible to mental fatigue



- Change operators every 20 minutes during deliberate clearing operations

Soldier Considerations

- Not every Soldier is an effective HHD operator. Commanders should identify knowledgeable and experienced Soldiers to operate HHDs

- HHDs emit audible tones that vary in pitch and volume depending on target type, depth, soil type and electromagnetic environment

- The combat environment is loud, distracting, and chaotic. Include C-IED stress drills into mission prep

- If an IED detonates, assume you are in an active minefield. Expect secondary IEDs (if an IED detonates believe there are secondary IEDs)

- Calibrate the HHD where you Search

Stay On The Cleared Path

C-IED Considerations

- Maintain awareness while operating HHDs. Avoid tunnel vision and rely on all methods for IED detection

- Operators should regularly pause, pick their head up, gain situational awareness, look for other indicators at eye level and above the head

- Each Soldier in the maneuver element must utilize visual detection of IEDs and indicators

- Layer your C-IED efforts to provide the highest mission effectiveness

- Coordinate Maneuver with RCP Reconnaissance & surveillance is the first line of defense. Utilize all available

C-IED Enablers Save Lives

HHD Basics

Calibrate, Calibrate, Calibrate

- De-conflict frequencies and calibrate in your tactical environment

- Maintain proper separation between devices as detectors can interfere with each other

- Maintain a staggered interval with sweep paths overlapping 1/2m

- Monitor battery life as a low battery can cause HHD ineffectiveness

- Stay alert, and admit when you are too fatigued to effectively operate the HHD

Master your HHD Weapon System

HHD Deliberate Clearing

- Vulnerable points, vulnerable areas, require deliberate clearing

Go Slow and Be Deliberate

- Stop and Think
- Execute 5 meter check
- Execute 25 meter check



- Employ a thorough search technique

- Changing from urban to rural, CREW to no CREW, walls, ceilings, foot paths, grape rows, doorways, and gravel all require different settings

Do Not Ignore Warning Signs
Terrain Change = Setting Change

HHD Operations

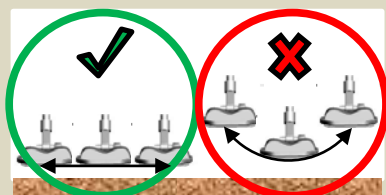
DSP-27

- Keep the detection head in-line with the direction of travel and parallel to the ground (see manual)

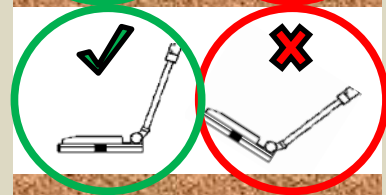
All Other HHDs

- The search head must be level and parallel to the search surface

Front View



Side View



LOSS Sweep Technique

- **L** ➡ Lane coverage (overlap)
- **O** ➡ Operator Stance (offset)
- **S** ➡ Search Head (parallel to ground 2" max above ground)
- **S** ➡ Sweep Speed (1m per second)

Recommended sweep speed – One meter per second



Equipment Performance

General

- An HHD is only as effective as its operator. It requires an effective and efficient Soldier to be successful

HHD Efficiency + Soldier Proficiency



System Performance

Threats

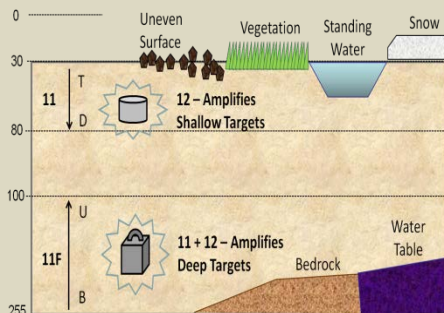
- Each detector is designed against specific device types:

- No Metal
- Low metal
- Ferrous/Non-Ferrous
- High Metal
- Special Devices

Know the capabilities of the HHD

Terrain and Soil

- Where you operate dictates how you operate. Train for different types of soil, depths, building materials and environmental conditions



- The detectors will make different sounds and the intensities of the signals vary depending upon the conditions. Learn these sounds

Master your HHD Weapon System

Clear, Mark, Avoid, Report

- Depending upon mission requirements the commander may need to clear, mark or avoid the IED

- Clear utilizing the 5Cs. An HHD can detect and confirm the IED

- Marking and bypassing IEDs is a command decision based on risk and intelligence value. Utilize high visibility markings, or mark with GPS, send up, and show safe passage

- Minimum marking - a marker must be placed 1m back from the target location

- IEDs in areas not required for military operations and not an immediate threat to joint forces should be permanently marked and avoided

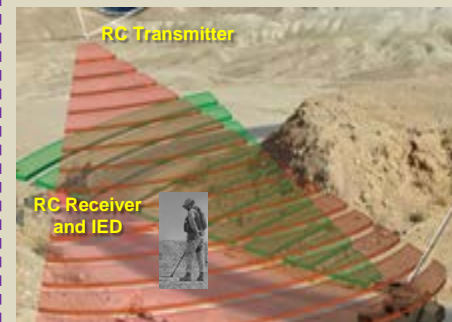
When Possible Call EOD

CREW Basics

- Mounted and Dismounted Counter Radio Controlled Improvised Explosive Device Electronic Warfare (CREW) systems have the potential to interfere with HHDs

- Where you are in relation to the CREW antenna directly affects HHD

- HHDs behave different under CREW



Operating HHD in CREW

Calibrate, Calibrate, Calibrate

- Calibrate HHD inside of the CREW Protection with CREW **ON** and transmitting (Not in Stand By mode). Calibrate to the changing tactical environment

- If interference is suspected, calibrate and execute mitigation techniques

- There are three zones you need to know for your HHD. Do not use the HHD in the system ineffective zone. Calibrate and operate the system as normal in the interference zone. Observe CREW separation.

Mission Risk Factors

- Speed is a mission constraint that commanders must weigh in relation to mission execution

- For high efficiency with HHDs, the forward rate of advance is limited to 1/2 the active search head area or 1/3 of the GPR antenna

Maneuver Risk Factors

When the Unit	The IED Risk Is
Outpaces HHD detection speed	HIGH
Ignores Vulnerable Points	HIGH
Moves Deliberately	LOW
Stays on Clear Path	LOW
Layers C-IED	LOW

Report Observations

- As an HHD operator you are the first line of defense in emerging TTPs and unforeseen issues that arise on the battlefield

- If a system appears to be failing or acting abnormal, report it to CJTF Paladin through EOD

- If you develop a TTP that is effective in your AO, report it to the C-IED working group through your S2

- Report as much pertinent information as you can to EOD and your S2. They will decide what is relevant

Every Soldier is a Sensor

References

- There are several resources OCONUS and CONUS that can provide training, fix problems with equipment, identify new TTPs, User Manuals, replacement parts etc.

USE THEM

CJTF Paladin

<http://paladin.coic-afghan.coic.smil.mil>

JIEDDO

<https://www.jieddo.mil>

ARL

www.arl.army.mil

JKNIFE

<https://jknife.jieddo.mil/SitePages/Default.aspx>

Training Videos

VMR2/VMR2+ Minehound

<https://www.us.army.mil/suite/files/31600351>