

# A Commander's Best Friend — Engineer Mine Detection Dogs on the Battlefield

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Two combat engineer Soldiers look on as a mine detection dog takes a break from clearance operations to get a drink of water. (U.S. Army photo by a 67th Engineer Detachment Soldier.)

**T**here is a significant mine threat in numerous countries where U.S. forces may deploy for operations in support of national strategy. Because current mine-contamination levels are unconfirmed, the threat to U.S. troop movement can be significant. Proven safe routes can change overnight, requiring the use of combat engineer resources to clear and proof these routes and accesses to critical locations. Somalia, Bosnia, Kosovo, Afghanistan and Iraq are a few of the high-profile places where the U.S. Army has deployed in high-risk mined areas, or areas containing the new threat of improvised explosive devices (IEDs). This article addresses how mine detection dogs (MDDs) enhance the U.S. mine clearance capability and why they are a necessary tool for our deployed forces.

For 6 decades, U.S. law enforcement and military working dog (MWD) training has been continuously refined to produce a highly sophisticated and versatile extension of Soldier and law enforcement agent senses. Even the most complex and sensitive machines are unable to duplicate the operational effectiveness of a properly trained MDD or MWD. The Army first used dogs for mine detection in World War II, when the 228th Engineer Mine Detection Co. deployed about 100 dogs in Algeria and Italy. During the Vietnam War, the Army and the U.S. Marine Corps used dogs for mine detection, tunnel detection and tracking.

During the 1970s and 1980s, several Army laboratories conducted technical studies to test dogs' abilities to perform

mine detection under various conditions. A 1977 study by Nolan and Gravite, *Mine Detecting Canines*, concluded that mine/booby-trap detecting canines represent highly adaptable, sensitive and specific detection systems. The report also conceded that MDDs are reasonably durable and readily reproducible. In 2002, the Army contracted for MDDs to work in Afghanistan, where the dogs cleared areas, proofed the work by mine clearing armor-protected (MCAP) D7 bulldozers and cleared mined soil berms created by MCAP clearance operations. In 2003, the Army began to establish its own MDD detachment within the Engineer Regiment.

Dogs are used for mine detection because they provide a fast and efficient

detection capability that can save lives. They also can reduce the risk involved with mine clearance during combat or peacekeeping operations. They have excellent mobility and utility over ground that is not accessible to vehicles and other mechanical clearance/detection equipment. MDDs provide a detection capability without touching the device itself, and MDDs will not initiate magnetically influenced fuzes.

MDDs must not be seen as a fail-safe panacea. However, it is accepted that they have a high-detection rate and that they offer rapid mine/explosive vapor detection. Additionally, MDDs provide a faster mine-detection capability than current magnetic-anomaly detection equipment and manual probing techniques. MDDs are an

additional tool to enhance mine-clearance operation productivity and to help ensure Soldier safety. MDDs are not a stand-alone system for conducting mine-clearance operations.

Specific tasks that MDD teams — each consisting of an MDD and its handler — are capable of performing include assisting units with locating minefields in area surveys and performing field and road surveys and casualty evacuation. MDDs can recognize mines by the explosive's distinct odor or other explosive device components, including the metal and plastic casings surrounding the explosive. MDDs will sit when they discover a scent that they have been trained to locate. They are operationally suitable when used to supplement other preventive measures that are taken to locate and/or avoid mines, IEDs and surprise firing devices.

Engineers conducting traditional mine-detection tasks benefit from the use of MDDs, which reduce the time spent on a search and can be used to search for mines in open areas, fields, woods and along embankments. MDDs are also an excellent tool to “route-proof” along roads and railways. An MDD team can be used in a minefield extraction role to search a path to a given location, such as a crashed vehicle or aircraft, or in support of area searches and route-proofing.

MDD teams can be employed in different ways. Engineer and explosive ordnance disposal assets can be tasked to dispose of unexploded ordnance when contamination exists on main supply routes. Using MDDs to determine whether a mine threat exists can significantly reduce the closure time and any delays that may be imposed. Examples include:



Two 67th Engineer Detachment Soldiers and MDD Adam conduct a reconnaissance with a humanitarian deminer on Bagram Airbase in Afghanistan. (U.S. Army photo by a 67th Engineer Detachment Soldier.)

- *Vehicle accidents.* When a vehicle or aircraft has left the roadway during an accident, there is the potential that it has entered a mined area. Current tools are slow and may impose delays in situations involving casualties that require immediate evacuation. MDDs provide a fast detection capability, allowing any mines between a known clear area and the vehicle/casualty to be marked and avoided.
- *Route-proofing.* Current route-proofing procedures use mechanical means, such as rollers and detectors. MDDs provide a significantly faster detection capability, allowing routes to be proofed in a faster, more efficient manner and with greater accuracy.
- *Building and roadblock clearance.* MDDs can reduce the time required

An MDD handler sends Adam out to search for landmines and unexploded ordnance on Bagram Airbase in Afghanistan. The dog's superior olfactory senses will help it ferret out an explosive device's distinct odor, including the metallic and plastic casings surrounding the explosive that mechanical sensors may miss. (U.S. Army photo by a 67th Engineer Detachment Soldier.)

for formal proofing and clearance when it is necessary to obtain access to buildings or get through roadblocks that may contain mined rubble.

- *Area identification.* MDDs lend speed to identifying areas with and without mines and allow commanders flexibility in mobility.
- *Quality assurance/proofing.* MDDs perform this role away from enemy contact and in relatively secure environments.

In these circumstances, the detection/proofing capability is conducted using MDDs in a low-risk environment. Because MDD assets are limited in the Army, they should be protected from direct/indirect fire. Where casualties result from vehicle accidents or mine strikes, MDD operations can be conducted under fire or during a high threat to aid the quick removal of casualties.

To obtain the maximum value from the services of trained MDD teams, it is essential to have a sound understanding of their capabilities, limitations and conditions for employment. MDDs must be considered as additional, specialized detection tools and should only be used after a careful analysis of the situation, the climatic conditions and the terrain.





Two MDDs conduct mine clearance operations in Afghanistan. Working multiple dogs simultaneously is an effective technique for clearing large tracts of land during combat and peacekeeping operations. (U.S. Army photo by a 67th Engineer Detachment Soldier.)

MDD detection and warning capabilities stem from the combination of their training and superior scenting abilities. MDDs realize their fullest potential when conditions permit them to use their superior olfactory senses.

The actual continuous working time and number of tasks that MDDs can perform depends on the ability and character of each dog. MDDs work on a short lead or a long line under the handler's direct control. MDDs will search for, and indicate to their handlers, the presence of all mines on which they have been trained. MDDs are mobile and easily transported, are able to work in various conditions and terrain and increase task completion speed and efficiency.

Commanders are encouraged to request MDD teams before entering areas where the probability of encountering minefields or booby traps is high. Once MDD teams are assigned to support a mission and the handlers are briefed, commanders should obtain the handlers' recommendations for the

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MDD teams' most effective employment and best working positions and route selections, consistent with the factors that influence the dogs' detection capabilities.

Commanders should integrate MDD teams fully into the mission and include them in preparatory inspections and rehearsals. This will help ensure that the handlers understand the mission's breadth and scope. Commanders must designate security elements, if required, to overwatch MDD teams as they perform their duties.

MDDs are normally attached on a mission basis. Before assignment to any operation, the dog handler leader (a specified handler who is in charge of multiple MDD teams) is carefully briefed on the planned mission as far in advance as possible.

Once an MDD team deploys to a theater, the MDD must be given time to acclimatize. The time period required will

largely depend on the degree of climatic change. MDDs should not be used on a live operation until 4 weeks after arrival in theater. Additionally, transferring a dog suddenly from one climate to another, such as from an air-conditioned room or vehicle to a

hot environment, is detrimental to its capability. The MDD handler has the definitive say on whether his MDD is capable of working in particular climatic conditions.

An MDD takes 6 months to train and is already fully trained before deployment. At the end of an MDD's training period, the handler is fully acquainted with the dog's aptitudes, moods and behaviors under various conditions. However, to prevent skill fade, MDD teams should undergo regular refresher training while in theater. MDDs will maintain their value as detecting tools only if they receive constant proficiency training.

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