Landmines in Libya

Landmines are an unfortunate part of Libya’s past and present. As such, the author discusses various types of mines that have been found so far, providing a technical overview of each. With his landmine analysis, King warns of the difficulties that lie ahead as deminers begin to address the problem.

by Colin King | Fenie-Insight Ltd. |

Until recently, the primary threat from mines in Libya originated from the Western Desert Campaigns of the Second World War (June 1940–February 1943) and a series of conflicts with Chad between 1978 and 1987. During the recent civil war, it emerged that Libya also has substantial landmine stockpiles, and that both anti-personnel and anti-tank mines had been laid during the hostilities. In addition to the common Cold War legacy weapons found in many countries, there have been some unexpected finds, including landmine types of which little was previously known.

What follows is a brief technical overview of the mines and mine threats recently found in Libya, including some of the questions raised by these findings.

Type 84

Perhaps the most significant recent find is the Chinese Type 84. For many years those working in demining knew about this rocket-dispensed scatterable munition (84 represents the approximate year of introduction), but there were no reports that the mine had ever been deployed and little technical detail was available. Suddenly, in May 2011, these mines were used against the port of Misurata, and for a time a number remained unexploded in the streets before they were cleared.

The Type 84 used in Libya differs slightly from those shown in Chinese sales literature, but key features remain, including a parachute, three folding prongs (designed to stick into the ground on impact) and electronic magnetic influence fuze. Initiation using magnetic influence is particularly relevant given that compatible anti-handling devices have also been seen in Libya. Even more worrying is the prospect that, without the pressure-plate assembly fitted, either of these mines could be initiated by the weight of a person, thereby converting the AT mine into an oversized AP mine.

Belgian M3 and M3A1

The most common mines in Libya appear to be the Belgian M3 and M3A1—around 250,000 are stockpiled in Benghazi alone. Although a relatively simple and basic AT mine, the M3 is notable for its minimal metallic content (which makes it very difficult to detect) and powerful 6 kg charge of TNT, RDX and aluminum.

Unlike the M3, the M3A1 incorporates two auxiliary fuze wells for booby trapping; one in the side and one in the base. This capability is particularly relevant given that compatible anti-handling devices have also been seen in Libya. Even more worrying is the prospect that, without the pressure-plate assembly fitted, either of these mines could be initiated by the weight of a person, thereby converting the AT mine into an oversized AP mine.

Use of the SP suffix was previously unknown, and this is believed to refer to an export version for tropical use. In this variant, sand-colored paint had been sprayed over the olive green used on most Chinese mines; this is clearly visible around the internal voids and wells.

The Chinese Type 72 SP AT mine, with blast-resistant fuze to the left.

The Belgian M3 is a minimum-metal mine with a powerful charge of TNT, RDX and aluminum.

The Chinese Type 72 SP at mine, with blast-resistant fuze to the left.

The Brazilian TAB-1 is a low-metal AP mine, also used to initiate an AT mine of the same designation.

The TAB-1 is a Brazilian AP blast mine that has already been responsible for a number of casualties in Libya. It was also used in Ecuador and Peru, but little was known of its make-up until it was examined recently. Although not a true minimum-metal mine, the metal content of the TAB-1 is low, with the only metallic components being the mild steel firing pin (0.36 g) and the aluminum detonator capsule (estimated at 0.15 g). The main charge is approximately 60 g of Pentolite (PETN/TNT mixture). There is also a small booster pellet, which appears to be PETN, in the base of the fuze. The simple mechanical fuze screws into the central well of the mine body and is actuated by a pressure of approximately 20 kg. There is no safety or arming device. Also noteworthy is that the TAB-1 is used as the initiator for an AT mine (also designated TAB-1). The two tend to be supplied and used together; therefore, there is a distinct possibility that the AT mine may also be present in Libya.

The M3A1 is a variant of the M3 which incorporates two auxiliary fuze wells.

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The Chinese Type 84 is a scatterable AT mine initiated by a magnetic influence fuze.

Type 72 SP

The Chinese Type 72 SP metallic AT mine was featured in numerous videos from Libya, with large stocks held in Benghazi and probably elsewhere. The Type 72 (one of several Chinese mines with this designation) is externally similar to the Russian TM-46, but uses a completely different fuze, which incorporates an effective blast-resistant mechanism. It also has a spring-loaded pressure plate to allow the fuze to re-set after being subjected to overpressure.
uses a pressure fuze to initiate AP fragmentation weapons with significant bounding mine, both of which are the Belgian NR 413 stake mine and NR 442 bounding mine, respectively. The Belgian NR 413 fragmentation mine can be initiated by any of four tripwires. 

Other Mines 

Other mines present in Libya include the Belgian NR 413 stake mine and NR 442 bounding mine, both of which are AP fragmentation weapons with significant ranges.

The NR 442 is normally buried and uses a pressure fuze to initiate a propellant charge; this fuze the mine body out of the ground before detonation occurs at a height of about a meter. The mine contains 2,500 steel fragments that are lethal within 25 m but can cause injury or death at far greater ranges.

The NR 413 is normally mounted on a steel stake and initiated by any of four tripwires. At a time when the tripwire threat in most countries has virtually disappeared, clearance teams in Libya may once again be forced to adopt laborious and time-consuming tripwire search procedures in areas where this mine is suspected.

The NR 109 trip flare, also present in Libya, is easily confused with the NR 413. Despite the similarity of the fuze and body, the components of these two devices have different threads and are not interchangeable.

Two other mines, neither of which was previously associated with Libya, have also been found in Benghazi. Both the Yugoslav TMA-5 and the Czech PT Mi-Ba-III are minimum-metal AT blast mines that can be difficult to detect. These are large mines capable of immobilizing main battle tanks, and would completely destroy any civilian vehicle.

The PT Mi-Ba-III fuze incorporates a cocked striker, meaning that the mechanism is spring-loaded and therefore capable of functioning at any time. The plastic collar retaining the striker is vulnerable to deterioration in hot dry conditions, making this mine extremely dangerous to handle. This mine was believed to have been responsible for a number of casualties during the First Gulf War (1990–1991) and is definitely a blow-in-place item.

Conclusion

The mine threat in Libya could create a significant challenge for deminers, with a combination of unrecorded minefields, difficult detection, the presence of tripwires and the potential deterioration of fuze mechanisms. Demining nongovernmental organizations have already begun clearance operations with the United Nations Mine Action Service Joint Mine Action Coordination Team, working to coordinate operations. In addition to the standard process of survey, minefield delineation and clearance, a major stockpile deconstruction program will also be needed.

Sadly, despite widespread adoption of the AP Mine Ban Convention, mines have once again played a role in modern conflict. They bring with them the dangerous, costly and laborious process of demining, along with the disheartening prospect of long-term socioeconomic impact on the communities where they are found.

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Decades of conflict have left Kabul City, Afghanistan ravaged by war and contaminated with landmines and unexploded ordnance. Despite the great achievements of mine-clearance operations to date, 92 confirmed hazardous areas (which were recorded in a polygon survey) remain within Kabul’s city limits, rendering only approximately six square kilometers (2.32 square miles) available for pasturing, farming and housing. More safe land is urgently needed by a rapidly growing urban population. Thousands of people have lost their lives or become disabled in mine and unexploded-ordnance accidents in the city, and currently approximately two people every month are fatally or seriously injured.

The KCCP is working to clear Kabul City of mines based on a two-phase plan. Phase 1, which is underway, consists of 44 of the confirmed hazardous areas; Phase 2 consists of 48 additional CHAs and will be implemented in early 2012. If the KCCP continues clearance at the current rate of progression, meeting or exceeding their target timeline, and they receive adequate funding for the second phase, they could completely remove all known hazards in Kabul City within an operating period of 18 months.

Kabul City Clearance Project

After decades of conflict in Afghanistan, the Kabul City Clearance Project is addressing the dangers of mine and unexploded ordnance that pose a threat to the safety and livelihood of Kabul’s expanding urban population. KCCP is an 18-month collaborative project that utilizes the resources of Afghan Technical Consultants, a local clearance nongovernmental organization, to implement a mine-clearance plan in 36 impacted communities.

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