

## *A Study of Retrofitting Landmines*

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The fuse mechanism which will initiate a mine and cause it to explode can take various forms as shown in Figure 1. Some mechanisms require a physical contact between the target and the mine, and others do not as shown in Figure 2. The physical contact can be through pressure exerted on the mine by the target, or by pulling or severing a trip wire. Influence fused anti-tank mines use detection of the target by its magnetic, sound or vibrations signature.

The third generation of mines have electronic fuses with inert indicator, anti-handling facility, programmable laid life, electronic self destruct or self neutralizing capability, countermeasure immunity, remote on and off switching and automatic target selection capability.

A self destruct device in a mine is an automatic functioning mechanism which destroys the mine at the end of its active life. This can be achieved by aligning the detonator with the rest of the explosive train and initiating the detonator and the explosive charge.

A self neutralizing device is an automatically functioning mechanism which renders the mine inoperable and safe for recovery and reuse. This could be achieved by moving the detonator in a misaligned position with respect to the explosive train and initiating the detonator from a firing capacitor. The mine could be reused by refurbishing with a new detonator and reprogramming the sequence.

A passive self deactivation is a mechanism which is independent to the self destruct or self neutralizing device. The passive self deactivation mechanism is designed to automatically render a mine inoperable by means of an irreversible exhaustion of a component that is essential to the operation of the mine. One possible method could be by the battery decay through its shelf life or by accelerating the process through a built in short circuit mechanism.