

The functioning of the C3/C3A1 is shown in Figure 5. The fusing mechanism has a detonator, a firing pin holder, a cylindrical support, steel balls and a spring which are all contained in an upper and lower body casings. When a person steps on the mine, a force of 8 to 50 kg is applied to the top of the mine. This pushes the charge, the detonator holder and support down against the spring, thereby releasing the two steel balls which fall into the bottom of the casing. This allows the spring to reassert itself and forces the firing pin into the detonator which initiates the main charge. For training purposes, a practice mine C4 is used and is shown in Figure 6.

The size of the mine is small, about 5.1 cm in diameter and 7.6 cm in height. The retrofit of the C3/C3A1 mine with a self destruct or self neutralizing mechanism would require replacing the existing mechanical fuse which is smaller in diameter compared to its height, with an electronic fuse which has a totally different size configuration i.e large in diameter and relatively small in height. The electronic fusing mechanism adaptation would require a redesign of the main charge holder and upper body casing to include a safety and arming device and the lower body casing and the firing mechanism to include either a self destruct or self neutralizing device. All design modifications may lead to only one reusable component of the existing C3/C3A1 mine, which will be the explosive charge. At this time, no passive self deactivation devices are available on the market that would fit the C3/C3A1 mine. More space will have to be allocated if a passive self deactivation device is to be incorporated with a self destruct or self neutralizing device.

It would be possible to design new electronic fuses that are relatively smaller in diameter compared to the height, so that these fuses can be fitted in the configuration of existing anti-personnel mines. However, this will require extensive design and qualification of the new fuses and the retrofitted mine, which may not be an economically practical solution.

Based on the technology available at this time and from economical consideration, it would be more realistic to replace the existing C3/C3A1 anti-personnel mine with a new generation of single impulse pressure fused anti-personnel mine containing a built in self destruct device. Such mines are available on the world market.