

Booby Traps and IEDs Ukraine 2022



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Reference: Open source and shared material

1. Grenades

The use of trip wires attached to the safety pin of grenades and also grenades with the safety pin removed and the fly off lever held by a can, Jar, glass or other container is very common and has been used in Ukraine since 2014. Found in wooded area, defensive positions, buildings and an example in a bee hive. Grenades have also been used extensively in an anti-lift role. These pose a huge threat to returning civilians moving into areas once occupied by Russian Federation Forces.

Grenades on Tripwire

Tripwire:



F1, Grenade held in a metal rolled container with a trip wire attached to the safety pin.





Very Common F1 with trip wire on pin.



F1 Grenade on a cupboard door designed when the door is opened the pin will be pulled.

F1 Grenade set up on trip.



Partially buried F1 Hand Grenade set up on pull with a low to the ground trip wire. This could be taught or loose to snag walkers.

Grenades can be used in a number of ways as booby traps attached to items or as anti-lift. Shown in the image below a fly off lever retained in place by the gate, opening the gate would allow the grenade to function

Containers retaining the fly off lever

Glass and ceramic cups



F1 Grenade found the Karkhiv region. The safety pin has been removed and the fly off lever is retained by the glass. The booby trap is designed that the glass would fall and smash allowing the fly off lever to operate when the cupboard door was opened.

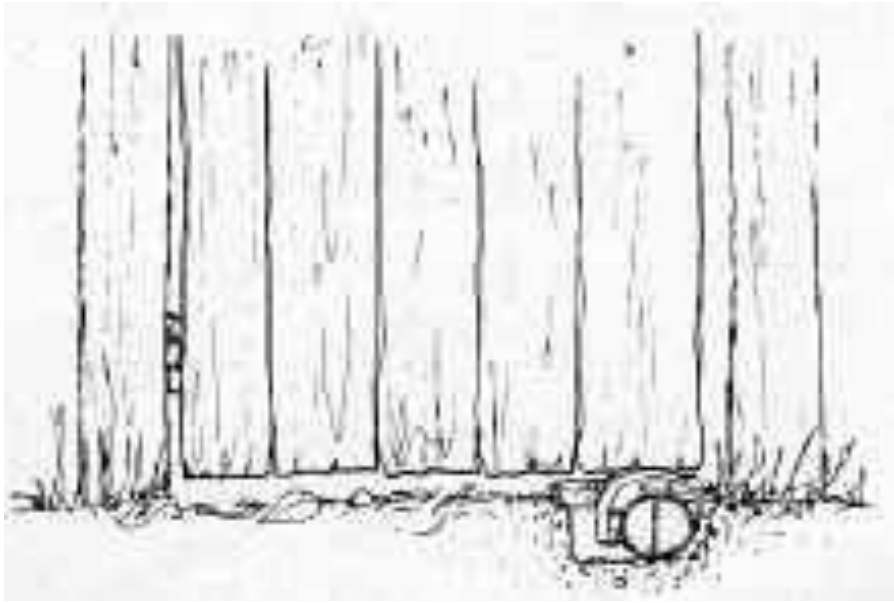


RDG 5 hand grenade in a soap tray of a washing machine. The pin has been removed to allow the fly off lever to function when the tray is pulled.

Anti-Lift



A F1 and RDG 5 Grenade found in a Bee Hive near Kyiv in October 2022. The safety pins have been removed and the fly off lever bent to activate when the lid of the hive was removed to harvest the hunny. This failed to function as intended as it is belived the Russian Federation forces laid this booby tap at the end of Febuary beginning of March. The mecanisims of both greandes had been jammed by the wax produced by the bees.



F1 Grenade being set up for anti-lift.

Fishing hooks.



F1 hand grenade secured in the branches of trees and shrubs, attached to the safety pin a number of fishing lines with hooks attached. The intention to snag on passers by clothing. The victim is unlikely to feel that their clothing has been snagged. The result the pin is pulled as the victim walks on causing the grenade to function as designed.

Electrically initiated IED Grenade.



In Irpin a retired Ukrainian Navy Captain discovered a F1 hand Grenade used as the main charge of an IED. An electric detonator was attached to a charger which was plugged into the house plug socket. Switching on the power to the charger at the socket would have caused the detonator to function exploding the grenade.

Use of Drone Grenade main charges

The use of grenades as main charges for drone dropped improvised explosive devices has been widespread in Ukraine. Utilising both hand and rifle grenades.



RGD 5 grenade used as the main charge, toilet roll holder and crude cardboard fins, presumably a MUV fuze on pressure could be used to initiate it.

VOG Rifle Grenades



VOG 17 Rifle grenade dropped from a drone



VOG 25 Grenades have also been used in similar roles.

M4130 A1 HEDP NATO Rifle Grenades and OG7 as main charge



Drone dropped addapted RKG 3 HEAT Grenade



Improvised RKG 3 HEAT grenade developed by Ukrainian forces in 2014 for delivery from drones

Booby Trap UZRGM fuzes



The standard time delay for this fuze is 3.5 – 4 seconds. However, UZRGM fuze variants are available which gives between zero (i.e., instantaneous) and 13 seconds. These are specifically designed for booby trap use. It is reported that Russians have been leaving zero delay fuzed grenades to catch out Ukrainian soldiers should they use them when found.

2. Mines and booby trapping

Anti-Lift

POMZ

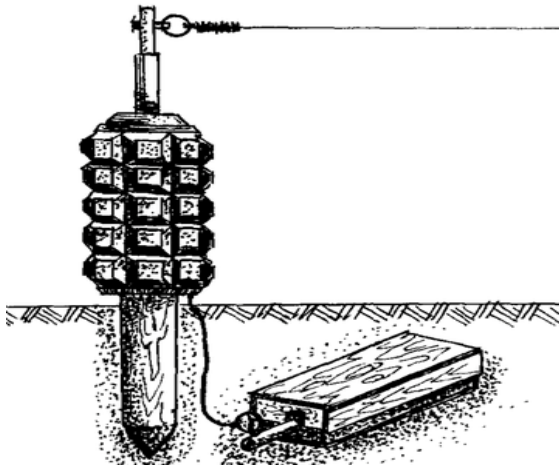


Fig 1

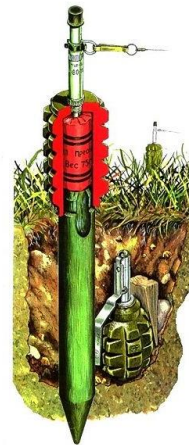


Fig 2

Fig one shows a POMZ- 2 attached to a PMD mine. The trip wire attached to the body of the POMZ designed to pull the pin from the MUV 1 fuze on lifting from the stake. This image is taken from Russian Military doctrine literature. Fig 2 showing a PMR-2 mine from Yugoslavia with a F1 hand grenade at the base of the stake again designed in this case to function on removal of the stake, this also was part of Yugoslav military doctrine.

MS-3:

The MS3 is a pressure-release mine or booby-trap similar in appearance to the PMN anti-personnel mine. the MS-3 has a small nipple centred on top of the black rubber cover. The mechanism of the PMN has been reversed in the MS-3 so that removal of 5 kg (usually an OZM-4, OZM-72 or an AT mine) of pressure will release a spring-loaded firing pin to strike the detonator. The MS-3 has a delay arming feature (lead shear strip) to allow the user time to camouflage the mine and leave. The mine has enough metal content to locate it using metal detectors under most field conditions. Due to the nature of its fuzing, the MS-3 is resistant to the effects of blast overpressure from explosive breaching systems such as the Giant Viper and MICLIC. Height:

65mm, Diameter: 112mm, Explosive charge: 310g TNT. When the weight is removed, the striker is released and the device functions



Seen in the image below the MS3 being set up for anti-lift of a TM 57 Mine in Ukraine.



ML7 and ML8 anti lift switches.



ML7: The Russian ML-7 (МЛ-7), a mechanical, delay-armed, cocked striker, anti-lift firing device adopted by the Soviet armed forces in 1984. It is used to booby-trap landmines and other objects. It is used to boobytrap anti-personnel (AP) landmines. It can be used as an anti-lift device with landmines as small as the PMN-2. It requires between 45 sec to 20 mins to fully arm depending on weather conditions. It requires 300g to hold down the lid, the lid must rise 6 to 8mm to function.

ML8: The Russian ML-8 (МЛ-8), a mechanical, pyrotechnically delay-armed, cocked striker, pressure-release, anti-lift firing device. It is used to boobytrap landmines and other objects as small as the PMN-2 landmine. When used as an anti-handling device the ML-8 is installed under the landmines such as the PMN, PMN-2, PMN-3, PMN-4, MIT-6m, OZM-72, the anti-vehicle series of landmines TM-62 or similar. The ML-8 main body serves to accommodate the explosive charge and the fuze. When the object (greater than 250g) placed on the pressure plate is lifted 6 to 10mm above the ML-8, a spring-actuated rod lifts the pressure plate and releases the striker assembly into the detonator, which initiates the charge. The detonator is positioned over a booster charge consisting of four grams of PETN. It requires 250g to hold down the lid and the lid must rise 6-10mm to function.

ML -8 being removed from under a MON 50 directional mine



ML-8 located under a TM 62 M Mine



U-EN Anti Lift Switch



Russian U-EN (Y-EH), an anti-lift device with a lead shear wire delay for use on landmine and sabotage devices. No Further information available at time of compiling this booklet other than it has been found in Ukraine.

Anti-withdrawal

MON 90.

Found in a MON 90 directional fragmentation mine found in the Kharkiv Oblast as the main casing of the mine showed signs of being open the item is designed to function when the detonator (normal practise to disarm) is removed.



The device is set to function on a wire loop switch making an electrical circuit when the MON fuze is removed.



Pull

OZM 3 mine on a stair way in a block of flats in Bucha, Kyiv Oblast set up with a trip wire,



Pressure

Anti-personnel mine as imitator for Anti-Vehicle mines:



PMN 4 AP mine set on top of a TM 62 M as the initiator. The PMN 4 only requires a pressure of 5 kg like any AP mine this is considerably less than for the example the 150 Kg of the TM 62 M AV mine.

Det-cord linked Pressure activated



TM 62 M mine with a det-cord link to a OF 462 122mm high explosive projectile. Designed to function under the body of mine clearance vehicles.

Anti-Handling

Booby Trapped Fuze:



TM 62 MVZ fuze fitted with a MUV fuze, this fuze is commonly used in the pull mode with booby traps and fragmentation or bounding landmines. It has been set up with the safety pin removed designed that should the fuze be unscrewed from the TM 62 the pin will be removed causing the fuze to function. These have been found on a number of occasions.

3. Improvised Explosive Devices (IED)

Improvised Fragmentation charge.



200 g block of TNT with small arms ammunition as fragmentation. Concealed in a case with a MUV fuze and electrical circuitry.

Improvised Grenades



The devices found in 2014 in Luhansk appear to be improvised grenades constructed using cast iron water heating pipes as an outer casing.

Grooves have been cut into the casing, as evidenced by the lack of rust apparent in these sections, likely in an attempt to improve the fragmentation and a welded hexnut on the top acting as an entrance hole for an igniferous fuze. The fuzes themselves are short and probably give approximately five or so seconds of delay.

Improvised Fragmentation



Improvised fragmentation device utilising explosives with small arms ammunition as fragmentation electrically initiated.

Pressure release blast



Russian ID booklet found with a plastic explosive charge. Designed to function when the book was opened.

Improvised Pull



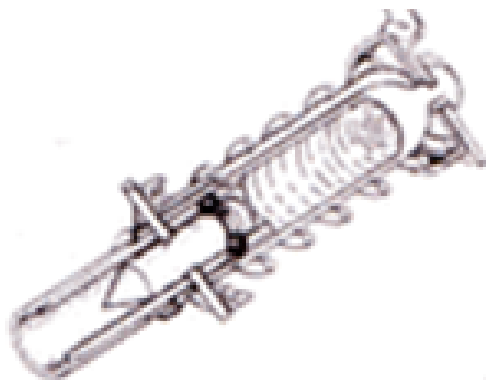
This Ukrainaim milk cartoon was reportedly found in Kherson Oct 22 by a Babuska, when she opened the cartoon reportly given to her by Russain soliders she noticed fishing wire attached to the lid. On investigation a MUV1 fuze was found inside rapped in a small amount of plastic explosive.

Pressure booby trapped rifle magazine



5.45 x 39mm plastic AK variant magazine with a plastic explosive charge and MUV-3 (MYB-3). The MUV-3 fuze is typically actuated by pull, but can be made to function with pressure. The MUV-3 can also be used as a delay fuze by removing both the arming and the actuation pins. Similar to designs used in the Former Republic of Yugoslavia in the 90s. When rounds are removed it allows two ball bearings to drop allowing the firing pin to strike the percussion cap. These have been in use since 2014 and are designed to

catch out Ukrainian soldiers collecting and using military equipment left behind. Note this has the safety pin attached.



Improvised grenade in a children's toy functioned by pull wire on a UZRGM fuze, found in Ivanka northern Ukraine.



4. IED Main charges

120 mm OF-843A high-explosive fragmentation mortar rounds of Russian set up to be functioned by electrical means. These were constructed by the Luhansk Peoples Republic (LPR) and discovered in 2017 in the Luhansk region.



2x 3OF36 and 1x 53-OF-843B 120mm HE mortar bombs wired for use as "daisy chain" IEDs in the hands of Ukrainian special forces



Aircraft FAB 500 T bomb as main charge for 9M 79 Tochka missile



Main body of the missile found in Oct 22

The missile can carry a number of tactical warhead types including 9N123F HE-fragmentation type with 120 kg of explosive with a terminal guidance package (radar and terrain-comparison) yielding a CEP of 30m. Other warheads are the AA60 tactical nuclear, 9N123K carrier with 'smart' sub-munitions, and chemical. The SS-21 Scarab uses two missiles, the 9M79F with the 9N123F fragmentation-HE warhead, and the 9M79K with the 9N123K cluster warhead. This one has been improvised and fitted with a FAB 500 kg aircraft bomb with a conventional AVT-E Nose fuze.





OFAB 500 T 191 Kg explosive charge

Discovery by police of a high-explosive 152 or 122-mm calibre model OF shell used as an IED along a road in Ukraine.

