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TITLE: (U) Warsaw Pact Demolition Devices

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SOURCE: (U) 2210-0012, a GE military agency which consistently provides accurate intelligence analysis and assessments.

SUMMARY:

(C) The demolition devices most frequently used by the Warsaw Pact are described and depicted in the attached G2 Technical East Information Report. This includes detailed information on explosive devices, priming devices, explosive initiators, and demolition accessories. An enclosure provides a list of Russian, NATO, and German designations for the explosives.

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G2 TECHNICAL EAST INFORMATION

WARSAW PACT DEMOLITION DEVICES

1. The demolition devices most frequently used by the WP are described in this G2 Report. They are arranged according to army manual 285/100 entitled "Explosive Ordnance Used by the Engineer Forces".

The descriptions are mainly intended for personnel dealing with explosive ordnance disposal (EOD) and engineer troops. The descriptions cover all available details of construction, function and handling.

2. This G2 Report is continuously updated.
3. A G2 Report entitled "Mines of the WP" will later be compiled as a supplement.

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Enclosure 1: Abbreviations and translations for explosives

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ODCSI ULO BONN1.1 Solid Explosive Devices (WP)1.1.1 70 g

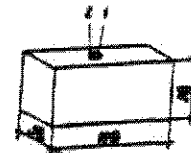
Measurements l/Ø: 70/Ø 30 mm
 Explosive: TNT, pressed
 Number of fuse wells: 1*
 Jacket: twice-paraffined wax paper

200 g

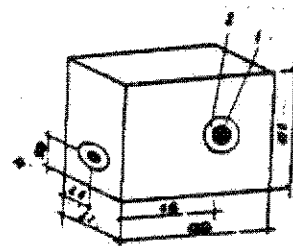
Measurements l/w/h: 100/50/25 mm
 Explosive: TNT, pressed or sprayed
 Number of fuse wells: 1
 Jacket: twice-paraffined wax paper

400 g

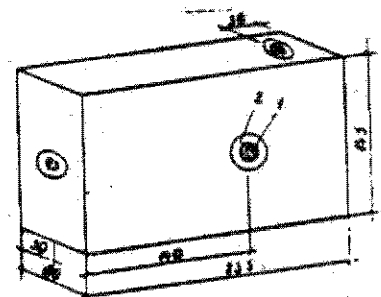
Measurements l/w/h: 100/50/50 mm
 Explosive: TNT, pressed or sprayed
 Number of fuse wells: 1
 Jacket: twice-paraffined wax paper

1,000 g

Measurements l/w/h: 130/106/52 mm
 Explosive: TNT, sprayed
 Number of fuse wells: 2
 Jacket: none

3,000 g

Measurements l/w/h: 235/145/60 mm
 Explosive: TNT, sprayed
 Number of fuse wells: 3
 Jacket: none



*1 = fuse well; 2 = thread

Annotation:

These explosive devices, 70 g to 3,000 g, are standardized in the WP. However, they differ in packing and labels.

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CONFIDENTIAL1.1.2 75 g and 100 g (USSR)Description:

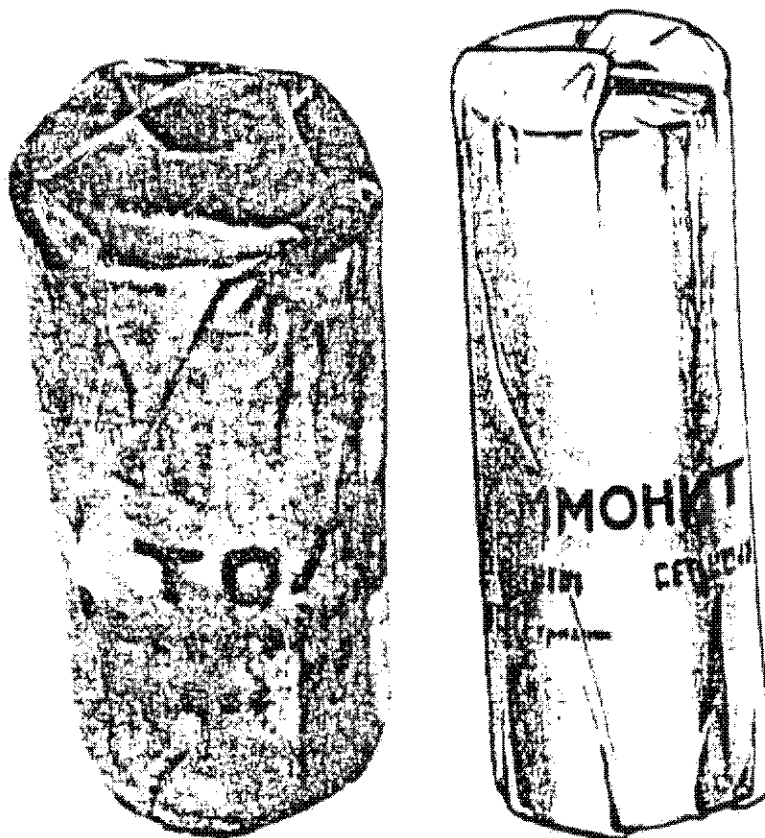
Cylindrical explosive device in waxed or paraffined paper jacked with one fuse well on top for inserting the explosive initiator.

Technical Data:

Weight	Diameter	Length	Explosive
75 g	30 mm	70 mm	TNT
100 g	30 mm	100 mm	Ammonite

Comments

Demolition cartridges are used as main charges in the Soviet AP mines PMD-7, PMD-7t and POMZ-2 and as borehole charges to blow up trees and tree stumps and for other general demolition work.



75 g

100 g

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1.1.3 200 g (USSR)

Description

Brick-shaped explosive device in a paraffined paper jacket with one fuse well attached on the right side for inserting the explosive initiator.

Technical Data

Measurements l/w/h:	100/50/25 mm
Main charge:	200 g
Explosive:	a. TNT, pressed b. trinitrophenol, pressed
Number of fuse wells:	1
Jacket:	wax paper, paraffined (twice)

Comments

200 g explosive device is also used in AP mines PMD-6, PMD-6M, PMD-57 (USSR) and PP-Mi-D (CSSR).



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1.1.4 400 g (USSR)

Description

Brick-shaped explosive device in a paraffined paper jacket with one fuse well on top for insertion of explosive initiator.

Technical Data

Measurements l/w/h : 100/50/50 mm

Main charge: 400 g

Explosive: a. TNT, sulfated and pressed
b. 50% ammonium nitrate mix, 38% TNT, 12% nitroxyolol, pressed.

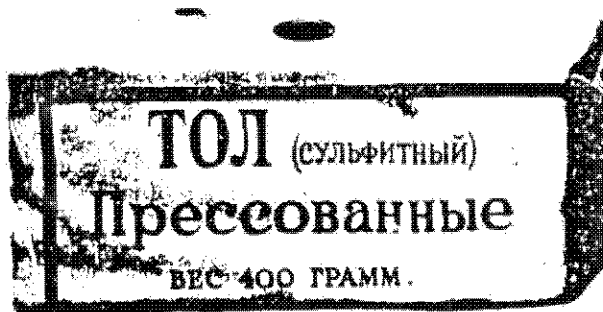
Number of fuse wells: 1

Jacket: Wax paper, paraffined (twice)

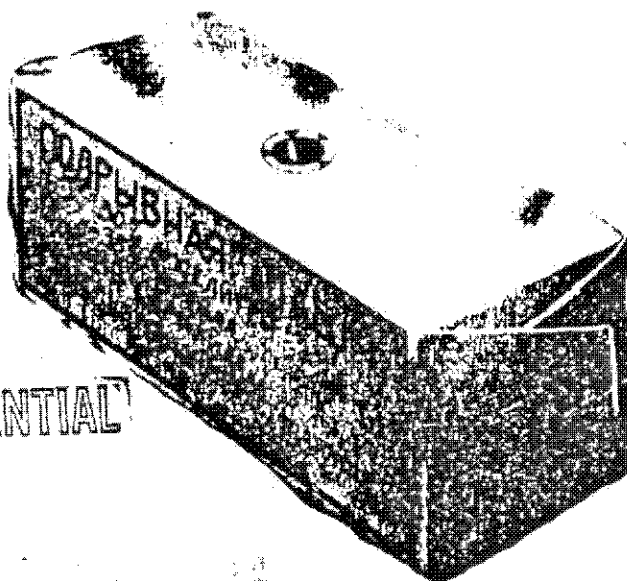
Comments

None.

a)



b)



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1.1.5 70 g, 200 g and 400 g (GDR)

Description

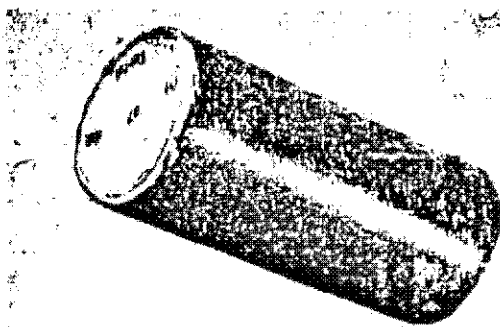
Similar to WP explosive (see 1.1.1), but different jacket. In contrast to the WP standard explosive device, the fuse well is attached to the side.

Technical Data

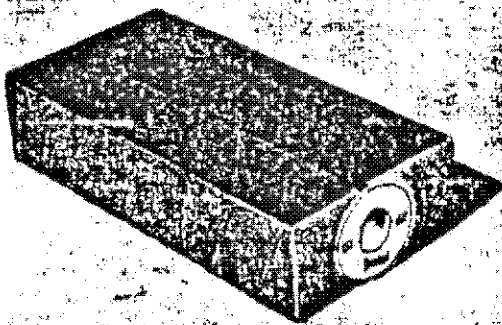
See 1.1.1

Comments

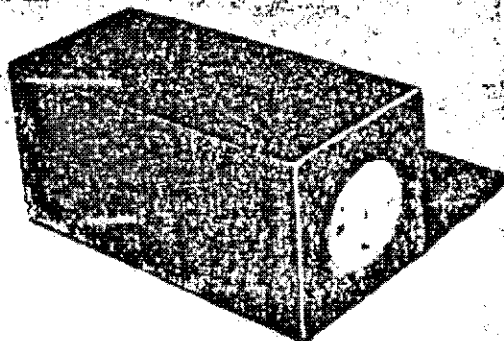
None



70 g



200 g



400 g

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1.1.6 1 kg (GDR)

Description

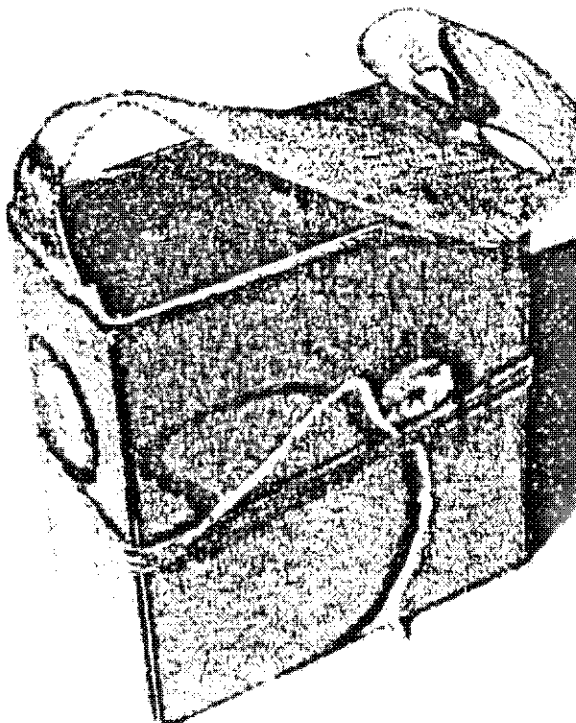
The explosive device consists of a rectangular-shaped cardboard container holding a cast explosive. It is equipped with two fuse wells and one handle.

Technical Data

Measurements L/W/H: 120/100/60 mm
Main charge: 1 kg
Explosive: TNT, cast
Number of fuse wells: 2
Container: black, cardboard

Comments

Suitable for demolition of steel constructions, walls, soil.



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1.1.7 3 kg (GDR)Description

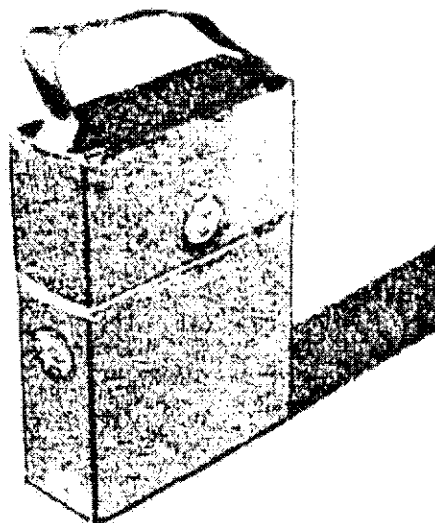
The explosive device consists of a rectangular cardboard container holding the cast explosive material. It is equipped with three fuse wells and one handle.

Technical Data

Measurements L/W/H:	225/115/60 mm
Main charge:	3 kg
Explosive:	TNT, cast
Number of fuse wells:	3
Container	black, cardboard

Comments

Primarily used for demolishing steel and walls. The 3 kg explosive device is capable, for instance, of penetrating a solid wall of 47 cm, if the charge is unstemmed.

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1.1.8 5 kg (GDR)

Description

The cylindrical device consists of cast TNT with one fuse well, and a paraffined cardboard container with a carrying handle.

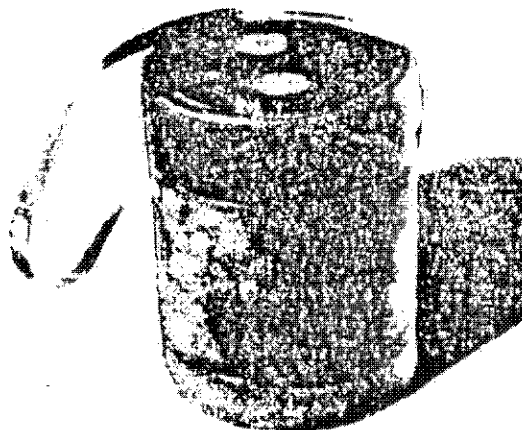
Technical Data

Measurements L/Ø:	200/Ø 140 mm
Main charge w/o fuse:	5 kg
Explosive:	TNT, cast
Number of fuse wells:	1
Container:	black, paraffined cardboard

Comments

Mainly used for soil demolition.

Performance example: Well depth is 1.45 m, funnel Ø 2.90 m.



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IIR 2-196-0021-85
ODCSI ULO BONN1.2 Pack Charges1.2.1 53-6 (USSR)Description

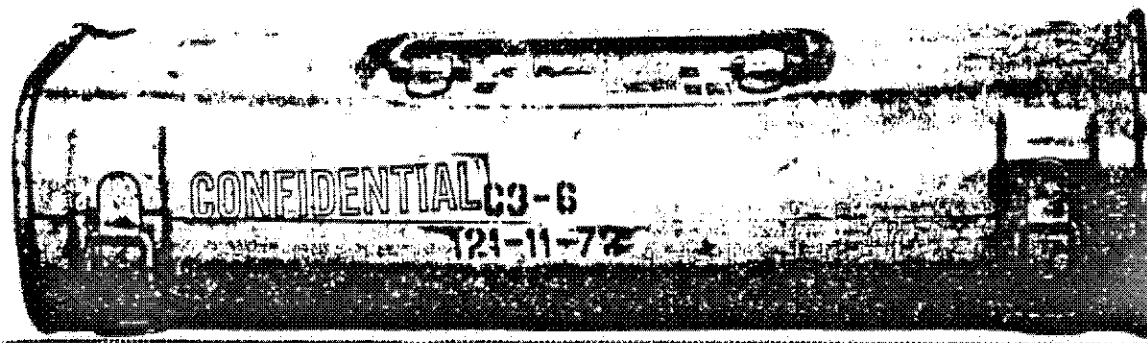
The charge is brick-shaped with longitudinally rounded edges. It is enclosed in a grey metal jacket. Two accommodation holes with different sized diameters are attached at each front side; a handle 16 cm long is attached to the top. Two loops for fastening purposes are affixed on each of the longitudinal sides.

Technical Data

Measurements l/w/h:	393/140/95 mm
Internal thread fuse well:	Ø 10 and Ø 40 mm
Weight:	7.5 kg
Main charge:	aprx. 6.0 kg
Explosive:	50% TNT, 50% hexogene
Number of fuse wells:	2
Jacket:	grey steel

Comments

The pack charge has the original designation (kyrillic) C3-6. Typical fuses and triggering forces are unknown. The MD-5M detonator may be inserted into the 10 mm thread.



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1.2.2 Composed of Several Explosive Devices (GDR)

Description

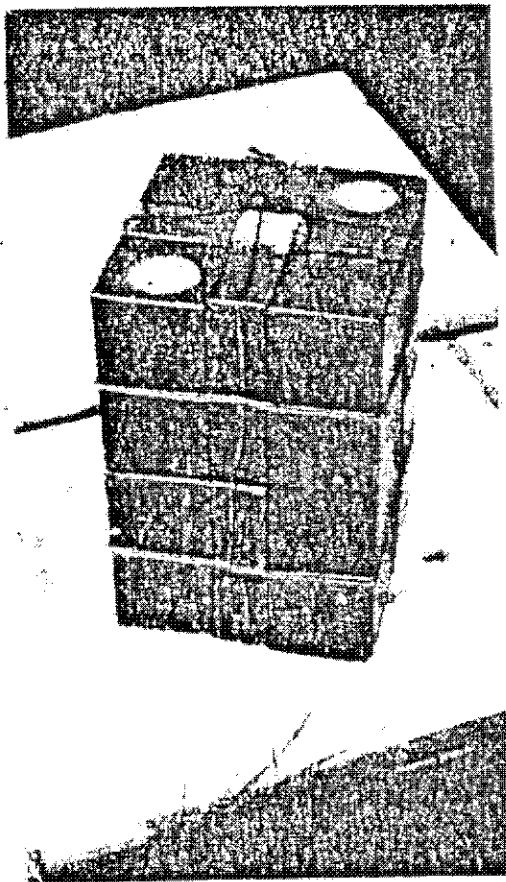
In a makeshift way, this pack charge is composed of several explosive devices (30 of 400 g and 65 of 200 g) and wrapped with wire or cord.

Technical Data

See description of the devices used.

Comments

None



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1.3.1 U2-1 Demolition Pipe (USSR)Description

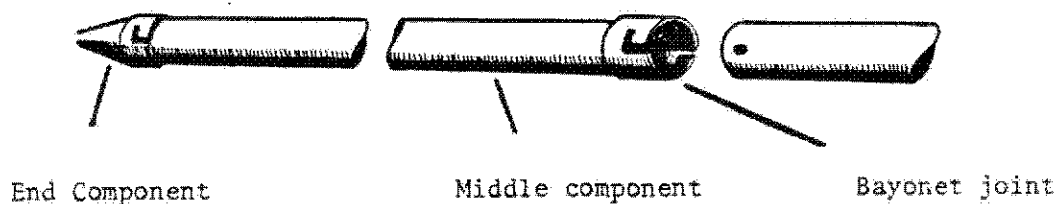
The factory-produced demolition pipes consist of connectable metal pipe components which are filled with explosives. With the help of bayonet joints any number of these pipe components can be connected to form an explosive device. A conical terminating sleeve prevents it from getting hooked up on something, for example in a wire obstacle. Fuse-well threaded caps are affixed on both ends of the demolition pipe components for insertion of one detonator each, which are triggered electrically or by other nonelectrical standard initiators.

Technical Data

Measurements L/Ø:	2,000/53 mm
Weight w/o fuse:	5,000 g
Main charge:	3,000 g
Explosive:	TNT
Number of fuse wells:	2
Container:	Steel pipe
Possible overall length:	70 meters

Comments

Clearing width for mines: 2.5 - 3.0 meters.

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1.3.2 UZ-2 and UZ-3 Demolition Pipe Systems (USSR/GDR)

Description

Two UZ-1 demolition pipes make up the UZ-2 system, and three make up the UZ-3 system. The two or three-stranded row charges are connected by clamping rings.

To protect the row charges from being hit by light infantry weapons, a pyramid-shaped shield may be installed at the head of a row.

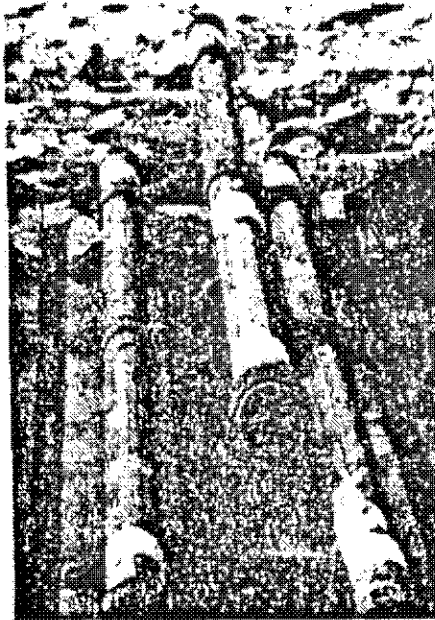
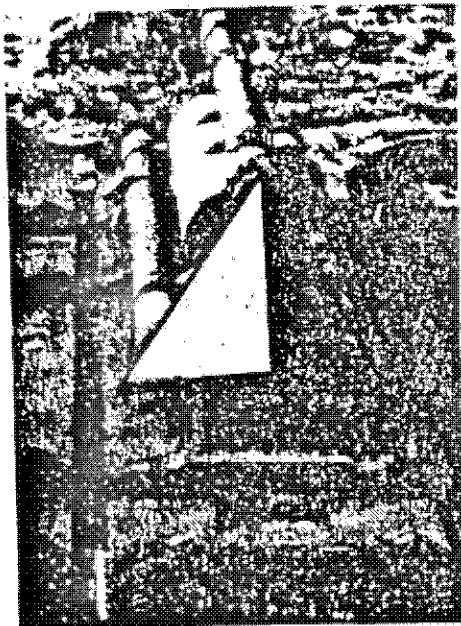
For reasons of stability, the individual pipes can be connected before they are shoved forward. For a maximum length of 80 meters for the two-stranded version and 100 meters for the three-stranded versions.

Technical Details

See UZ-1 demolition pipe No. 1.3.1

Comments

A clearing width of up to 6 meters for mines is assumed for three-strand pipe systems.



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ODCSI ULO BONN1.3.3 TN Demolition Pipe (CSSR)Description

The demolition pipe TN consists of a steel pipe filled with cast TNT. The pipes may be connected by bayonet joints for a maximum length of 100 meters.

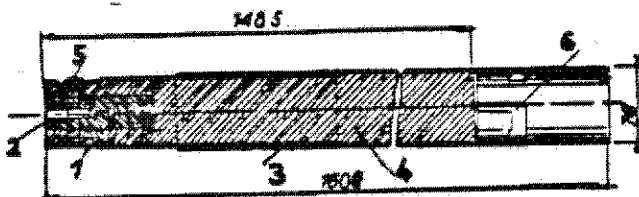
- | | |
|-------------------|------------------|
| 1. Booster charge | 4. Explosive |
| 2. Thread | 5. Bayonet joint |
| 3. Encasement | 6. Bayonet joint |

Technical Data for each pipe Component

Measurements l/Ø:	1 600/Ø 70 mm
Weight without fuse:	12 kg
Main charge:	7.8 kg
Explosive:	TNT, cast
Booster charge:	100 g
Booster explosive:	Penthrite Np 10
Container:	Steel pipe
Number of fuse wells:	1

Comments

None

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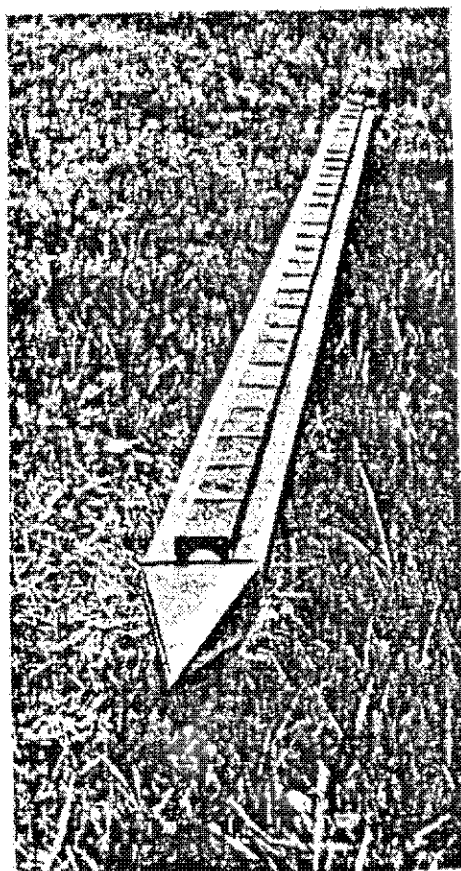
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1.3.4 Improvised Linear Charge (GDR)

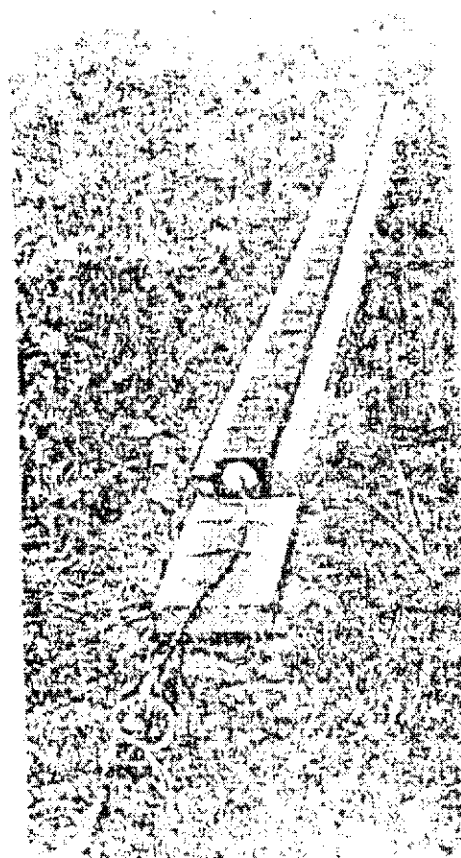
Description

The makeshift linear charge is constructed by assembling and attaching several explosive devices to a wooden pole or stick. Normally the 400 g TNT devices are used for this purpose.

Head portion



rear portion with fuse



Technical Data

See 400 g explosive device (USSR/GDR)

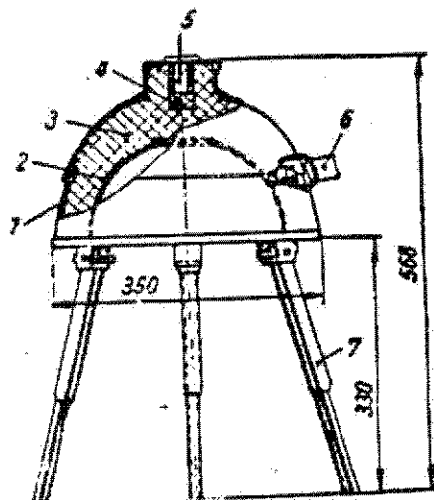
Comments

None

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IIR 2-196-0021-85
ODCSI ULO BONN1.4.1 Shaped Charges (USSR)Description

The KZ-2 charge is placed in a hemispheric steel container. The fuse well is attached on the top. A metal lining intensifies the effects of the shaped charge. The shaped charge may be triggered with electrical or mechanical initiators. The distance to the object is assured by swing-out support legs. A handle is also attached.



1. Outer Metal Casing
2. Inner Metal Lining
3. Explosive Charge
4. Booster Charge
5. Detonator
6. Handle
7. Support Legs

Technical DataMeasurements

height with/without support legs: 568,238 mm
 Diameter: \emptyset 350 mm
 Weight w/o fuse: 14.2 kg
 Main charge: 9 kg
 Explosive: TNT
 Container: Steel
 Penetration: steel/steel concrete: 300/1,300 mm

Comments

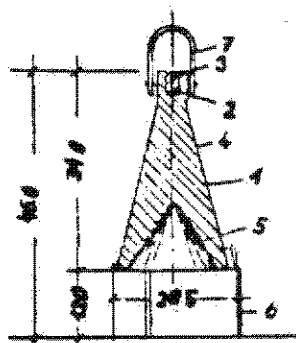
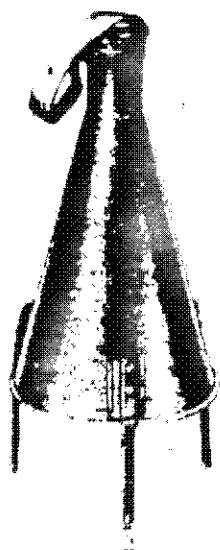
None

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IIR 2-196-0021-85
ODCSI ULO BONN1.4.2 PN-4 (CSSR)Description

The shaped charge PN-4 is placed in a conical steel container with the fuse well attached on the top. A steel lining intensifies the effects of the shaped charge.

The shaped charge may be triggered by electrical or mechanical initiators. The distance to the object is assured by swing-out support legs. A handle is attached on top of the cone.



Sectional drawing of shaped charge PN-4:

- | | |
|--------------------------|---------------------------|
| 1. explosive charge | 4. steel casing |
| 2. booster charge | 5. lining |
| 3. fuse well with thread | 6. swing-out support legs |
| | 7. handle |

Technical DataMeasurements

diameter, bottom:	∅ 205 mm
height with/without legs:	460/340 mm
Weight w/o fuse:	6.4 kg
Main charge:	4.8 kg
Explosive:	50% TNT, 50% cyclonite
Booster charge:	75g
Booster explosive:	Penthrate Np 10, pressed

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1.4.2 PN-4 (CSSR)

Technical Data

Container:	Steel
Number of fuse wells:	1
Penetration:	
steel.steel concrete/soil:	350/1,000/1,500 mm

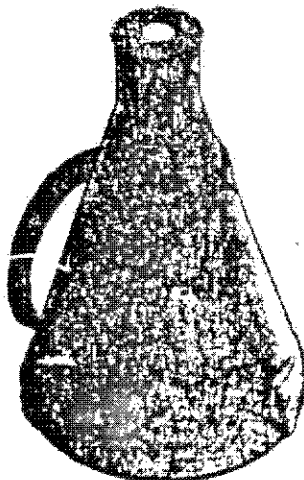
Comments

None

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ODCSI ULO BONN1.4.3 PN-14 (CSSR)Description

The PN-14 shaped charge is constructed the same way as the PN-4 (see 1.4.2). However, it is bigger and more powerful.

Technical DataMeasurements

diameter, bottom;	Ø 320 mm
height with/without legs:	750/500 mm
Weight w/o fuse:	22 kg
Main charge:	17 kg
Explosive:	50% TNT, 50% cyclonite
Booster charge:	75 g
Booster explosive:	Penthrite Np 10
Container:	Steel
Number of fuse wells:	1
Penetration:	
steel/steel concrete/soil:	500,1,500/1,900 mm

Comments

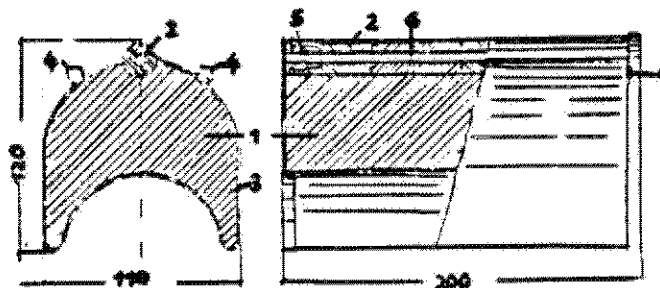
None

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ODCSI ULO BONN1.4.4 UTN-2 Linear Cavity Charge (CSSR)Description

The linear cavity charge is a linear-shaped in a steel container with directed effect. A booster charge is built into the continuous fuse well which is attached on top.

The linear cavity charge may be triggered nonelectrically with the detonator Z, electrically with the detonator Z-1 or with the detonating cord Np I or Np V. In the latter case the detonating cord must be run completely through the fuse well.



Longitudinal and lateral section of linear cavity charge UTN-2

- | | |
|---------------------|-----------|
| 1. Charge | 4. Loops |
| 2. Booster charge | 5. Thread |
| 3. Steel encasement | 6. Well |

Different linear cavity charges (UTN-2) are joined by inserting wire into the loops attached for this purpose.

Technical Data

Measurements l/w/h:	200/110/120 mm
Weight w/o fuse:	2,700 g
Main charge:	1,960 g
Explosive:	50% TNT, 50% cyclonite,
Booster charge:	80 g
Booster explosive:	Penthrate Np 10
Container:	Steel
Number of fuse wells:	1 (continuous)
Penetration:	
steel/steel concrete/walls:	75/75/750 mm

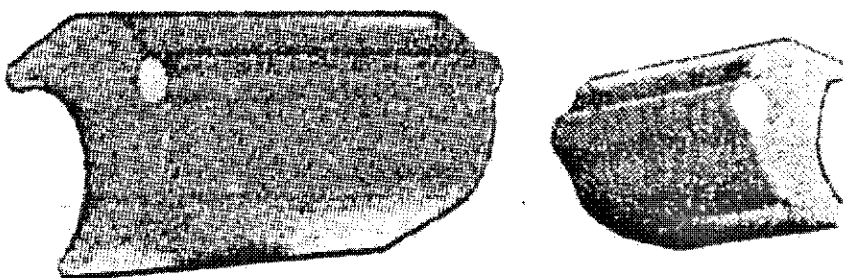
Comments None

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IIR 2-196-0021-85
ODCSI ULO BONN**1.4.5 UTN-600 Linear Cavity Charge (CSSR)****Description**

The linear cavity charge UTN-600 is constructed the same way as UTN-2 (see 1.4.4).

However, it is smaller and less powerful.



UTN-2 (links) und UTN-600

Technical Data

Measurements l/w/h:	100/80/95 mm
Weight w/o fuse:	950 g
Main Charge:	540 g
Explosive:	50% TNT, 50% cyclonite
Booster Charge:	40 g
Booster explosive:	Penthrate Np 10
Container:	Steel
Number of fuse wells:	1 (continuous)
Penetration:	
steel/steel concrete/walls:	50/50/500 mm

Comments

None

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IIR 2-196-0021-85
ODCSI ULO BONN1.5 Bulk Explosives

In the Warsaw Pact bulk explosives are mainly used for ground detonations. An exception to this is a formative explosive substance.

PERMON 3

PERMON 3 is a powdery ammonite explosive with increased water-resistance. It is a soft, powdery, light-red dust and consists of 90% ammonium nitrate, 6% TNT, 4% wax, paraffine, colorants and water-repellant additives. It is packed in waterproof sacks made of polyethilene, each one weighing 25 kgs. Two sacks each are stored in a wooden container.

If PERMON 3 is used instead of TNT, the required amount is explosive material is increased 1.5 - 2 times. The minimum amount for confined charges is 500 g.

Other characteristics:

Density aprx. .995 g/m³

Detonation velocity 3,500 - 5,000 meters/s

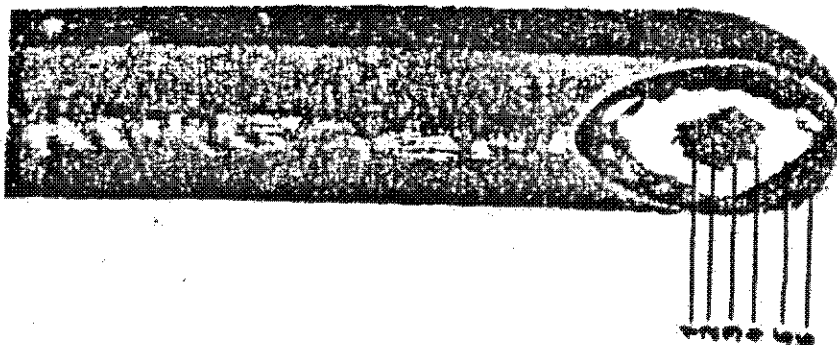
Explosive Substance PlNp10

This plastic explosive is about 50% more effective than TNT. However, its composition is unknown. The plastic substance can be adjusted to the object. Detonator holders are not necessary.

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IIR 2-196-0021-85
ODCSI ULO BONN2. Primine Devices2.1 Safety fuses2.1.1 PVC Fuse (WP)Description

The safety fuse is used for igniting detonators and can also be used in water up to depths of 10 meters. It contains a core of gun-powder with a continuous thread marker. The powder cell is sheathed by a powder tube, two layers of thread and a brown plastic waterproof cover.



- | | |
|-------------------|------------------------|
| 1 - powder core | 4 - inner thread layer |
| 2 - thread marker | 5 - outer thread layer |
| 3 - powder tube | 6 - plastic cover |

Technical Data

Measurements:	Ø 5.8 mm
Powder core:	Gun-powder
Flame velocity:	1 cm/s + 10%
Cover:	Brown, plastic or tar
Reel length:	10 or 50 m

Comments

None

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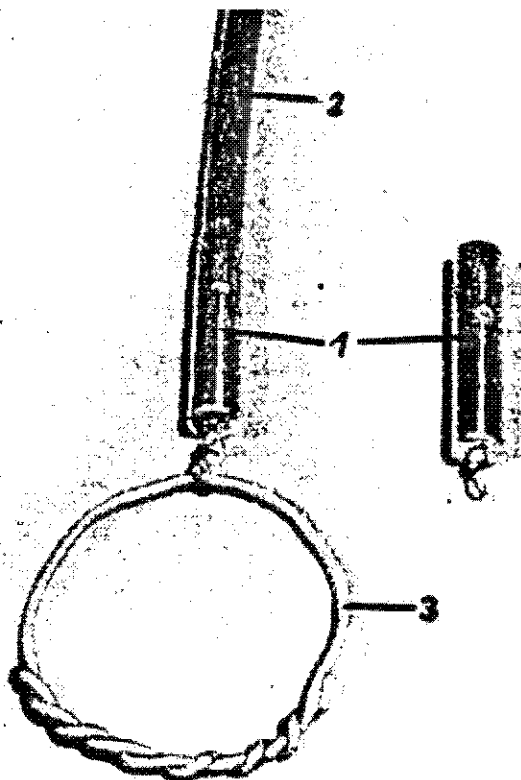
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ODCSI ULO BONN

2.2.1 Fuse Igniter (WP)

Description

The fuse igniter makes ignition easier. Upon pulling the rip cord ring, the ignition hammer will hit the primer whose flame will then ignite the fuse.



1. Fuse Case
2. Fuse
3. Rip Cord Ring

Technical Data

Not available

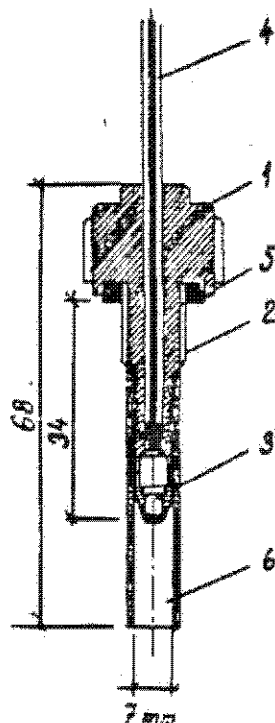
Comments

None

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IIR 2-196-0021-85
ODCSI ULO BONN2.2.2 Electrical Igniter P-2 (CSSR)Description

The electrical igniter is waterproof with out a detonator charge. It serves to ignite the fuse. The case contains an electrical igniting pellet; its ends are connected to the two leg wires.



- 1 - Cap
- 2 - Thread
- 3 - Electrical igniting pellet
- 4 - Conductor
- 5 - Seal made of PVC
- 6 - Flash tube

Technical Data

Measurements 1 \emptyset top/ \emptyset bottom: 68/0 19/ \emptyset 7 mm

Comments

None

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ODCSI ULO BONN

3. Explosive Initiators

3.1 Detonating Cords

3.1.1 General (WP)

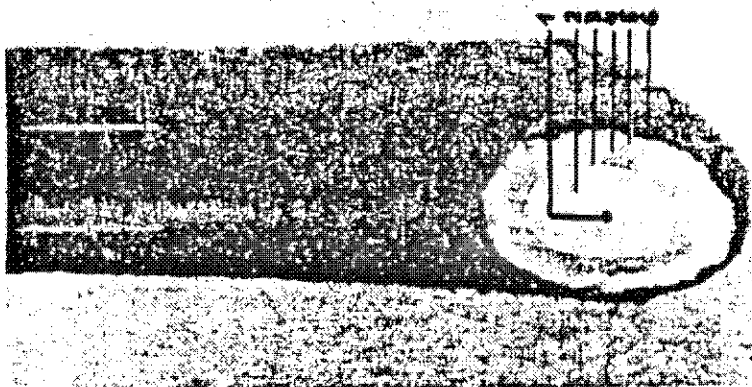
The detonating cord consists of a highly explosive core composed of PETN or RDX in a textile jacket. It is coated with a thin layer of bitumen, which is coated by a second outer layer of textile which again is covered by a layer of waxed rubber or synthetic material. The detonating cord transmits a wave from one point to the other with a velocity of 6,000 to 7,000 meters/s. Even if one end of the detonating cord is lying under water, the cord can still be ignited from the dry end. Although in low temperatures the detonating cord does not lose any of its detonating characteristics, its outer coat becomes stiff and cracks when bent. The detonating cord is used to ignite explosive charges with the detonation transmitted through a detonator. The detonating cord may simultaneously transmit the wave to any number of explosive charges.

Detonating cord used by the WP is usually produced with PETN. Previous types of detonating cord were produced with white, red or green plastic coating. Today all of them are produced with red coating. Soviet detonating cords are marked with the letters "DSh" and following numbers, while the Czechoslovakian versions bear the letters "Np" before their identification numbers.

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IIR 2-196-0021-85
ODCSI ULO BONN3.1.2 Np V (CSSR)Description

The detonating cord transmits the ignition from a detonator to one of several explosive charges. The detonating cord Np V contains a core of PETN inside of a tube made of rayon staple and surrounded by cotton fibers. The outer coat consists of an elastic green synthetic material. Both ends of the detonating cord are protected against humidity by metal caps.



- 1 - Thread Marker
- 2 - Powder Core
- 3 - Powder Tube
- 4 - Inner Thread Layer
- 5 - Outer Thread Layer
- 6 - Synthetic Coating

Technical Data

Measurements, \emptyset :	\emptyset 5.3 mm
Explosive:	PETN
Weight of explosive per meter:	12 g/m
Detonating velocity:	6,700 meters/s
Coating:	Green synthetic material (new product: red)
Length of reel:	100 meters

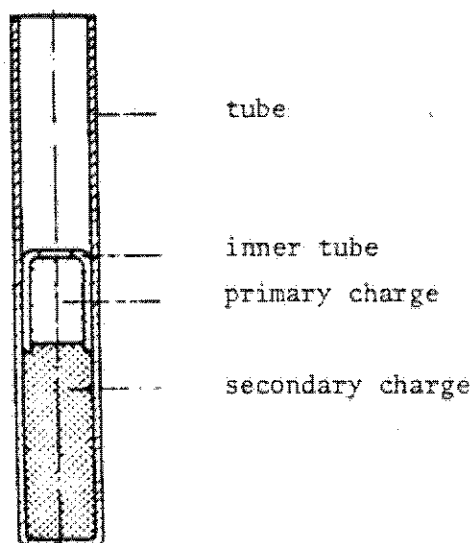
Comments

None

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IIR 2-196-0021-85
ODCSI ULO BONN3.2 Detonators3.2.1 No. 8 (USSR/GDR)Description

The detonator is used to detonate explosive devices and mines. Detonator No. 8 consists of a copper or aluminum tube with primary and secondary charges. The flame of the igniter cord or of a safety fuse will ignite the primary charge which will set off the secondary charge.

Technical Data

Measurements 1/∅ outside/∅ inside:	45/∅ 6.85/∅ 6.30 mm
Primary charge:	400 mg
Primary explosive:	a. Mercury fulminate b. Lead azite
Secondary charge:	600 mg
Secondary explosive:	PETN
Case:	a. copper b. aluminum

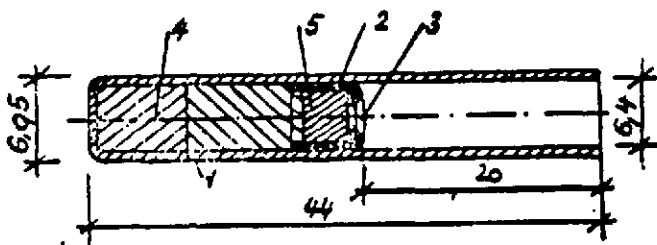
Comments

Detonator No. 8 is a part of detonators MD-2 and MD-SM.

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IIR 2-196-0021-85
ODCSI ULO BONN3.2.2 Z (CSSR)Description

Detonator Z is constructed similar to detonator No. 8, but has different measurements.



- | | |
|-------------------|---------------------|
| 1 - aluminum tube | 4- secondary charge |
| 2 - inner tube | 5 - primary charge |
| 3 - fuse cavity | |

Technical Data

Measurements 1/∅ outside/ ∅ inside:	44/∅ 6.95/∅ 6.40
Primary charge:	300 mg
Primary explosive:	Lead azide
Secondary charge:	800 mg
Secondary explosive :	Penthrite
Case:	Aluminum

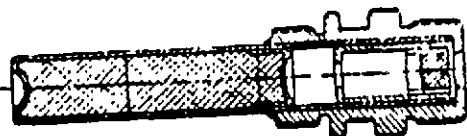
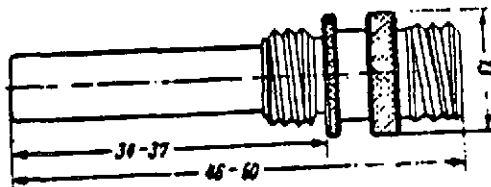
Comments

None

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IIR 2-196-0021-85
QDCSI ULO BONN3.2.3 MD-5M (USSR)Description

Detonator MD-5M consists of a detonator with a primary and a secondary charge and a threaded stud made of synthetic material or metal with an external thread.

Technical Data

Measurements l, max \emptyset :	46-50/ \emptyset 13 mm
Primary Charge:	probably similar
Secondary Charge:	to detonator No. 8
Material:	Synthetic or metal

Comments

The detonator MD-5M is used with various type of fuses.

Other detonators:

MD-2, MD-6, MD-6N, MD-9 and MD-10.

They differ by varying thread fittings.

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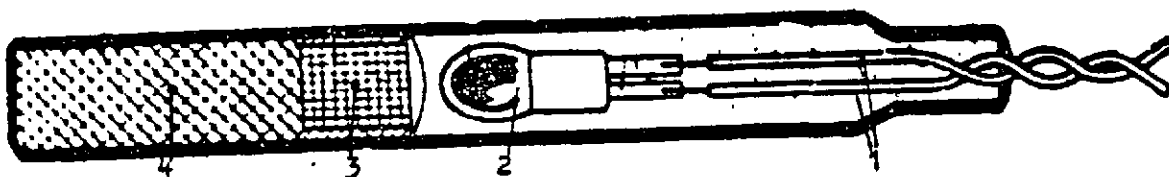
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ODCSI ULO BONN

3.2.4 Electrical Detonator (USSR)

Description

The electrical detonator consists of a cylindrical metal casing which contains a primary and a secondary charge as well as the igniting pellet, which is connected to the two leg wires.



1- insulated leg wires
2- igniting pellet

3- primary charge
4- secondary charge

Technical Data

Measurements l/Ø: 50/Ø 6mm
Material of casing: Metal (perhaps aluminum)
Resistance: 2 Ohm

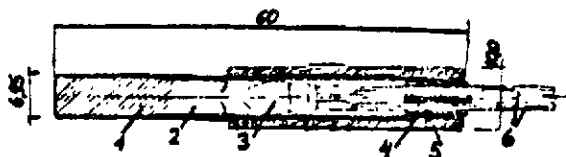
Comments

The electrical detonator can also be constructed independently with a detonator and an electrical igniting pellet.

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IIR 2-196-0021-85
ODCSI ULO BONN3.2.5 Electrical Detonator Z-1 (CSSR)Description

Construction and function are similar to the electrical detonator (see 3.2.4). Electrical Detonator Z-1, however, has different measurements and is equipped with an additional cap holder.



- | | |
|----------------------|-------------------------------|
| 1 - secondary charge | 4 - thread |
| 2 - primary charge | 5 - cap holder |
| 3 - igniting pellet | 6 - ignition cable 1.5 meters |

Technical Data

Measurements l/ϕ min, ϕ : $60/\phi$ 6.95/ ϕ 10.0 mm

Comments

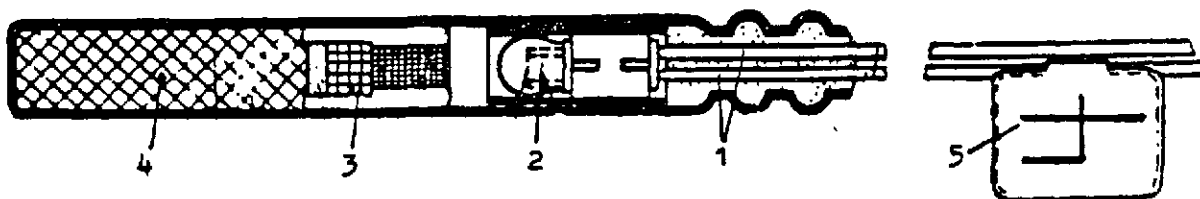
None

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ODCSI ULO BONN**3.2.6 Electrical Detonator with Delayed Action Mechanism (USSR)****Description**

The electrical detonator with delayed action mechanism consists of an electrical detonator and a pyrotechnical charge placed between igniting pellet and primary charge. The fuse is designed for different delay times. For "seconds" fuses, a mixture of potassium permanganate and powdered antimony is used.

The delay time can be seen on a label attached to the fuse wire.



1 - insulated leg wires

4- secondary charge

2 - igniting pellet

5- label indicating the delay time

3 - primary charge

Technical Data

Measurements:

75/∅ 6 mm

Material of casing:

Metal (perhaps aluminum)

Delay time:

2.4 or 6 seconds

Resistance:

2 Ohm

Comments

None

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ODCSI ULO BONN

3.2.7 Electrical Detonator with Delayed Action Mechanism ZeC (CSSR)

Description

For construction and function see 3.2.6. This variant has different measurements and a cap holder.



- | | |
|--------------------|---------------------|
| 1. Igniting pellet | 5. Primary charge |
| 2. Ignition cable | 6. Secondary charge |
| 3. rubber gasket | 7. Cap holder |
| 4. Delay charge | |

Technical Data

Delay times: 5/1.0/1.5/2.0/2.5/3/4 and 5 seconds.

Comments

None

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3.3 Fuses

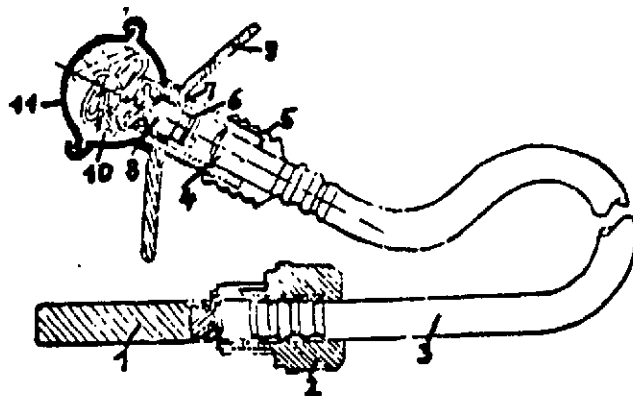
3.3.1 Detonator Fuses

3.3.1.1 CaRoZ-60 Detonator Fuse (CSSR)

Description

The detonator fuse is a pre-fabricated simple igniter lead, used for igniting explosive devices. It consists of a fuse igniter (see 2.2.1), the PVC fuse (see 2.1.1) and detonator Z (see 3.2.2) and it waterproof.

The delay time depends on the length of the fuse (15 cm, 50 cm, 100 cm).



- | | |
|----------------------|----------------------|
| 1 - detonator Z | 7 - fuse |
| 2 - detonator holder | 8 - igniting charge |
| 3 - PVC fuse | 9 - fly nut |
| 4 - delay charge | 10 - piece of thread |
| 5 - connector | 11 - protective cap |
| 6 - friction fuse | |

Technical Data

Delay time: 15s.50s, 100s \pm 10%

Temperature range: - 30°C to + 40°C

Comments

Described as a clockwork fuse in the Czechoslovakian Army (CVA).
CaRoZ-5 Detonator fuse with bule, slow-burning PVC fuse.

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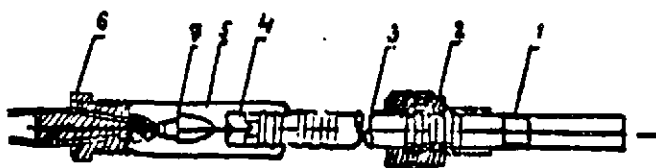
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ODCSI ULO BONN

3.3.1.2 CaRoZ-2.5 Electrical Detonator Fuse (CSSR)

Description

The electrical detonator fuse is composed of a detonator, a safety fuse and an electrical igniting pellet. A flashlight battery is sufficient as power source.



- | | |
|------------------------------------|--------------------------------|
| 1 - detonator Z | 5 - connector |
| 2 - detonator holder | 6 - shipping cap |
| 3 - PVC fuse | 7 - electrical igniting pellet |
| 4 - primer cap (incendiary charge) | |

Technical Data

None

Comments

None

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ODCSI ULO BONN

3.3.2 Pressure Fuses

3.3.2.1 MV-5

Description

The MV-5 pressure fuse is the most frequently used fuse for igniting anti-tank mines.

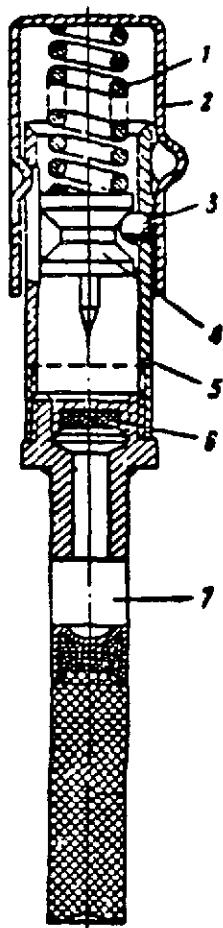
The fuse casing is made of metal; a new variant with the designation MV-5K is constructed of synthetic material.

Pressure exerted on the fuse moves the pressure cap downwards and in this process the spring is tightened.

As soon as the priming energy is reached, the safety pellet will slip into the bulge of the pressure cap. Thereby the plunger will be released, hit the primer cap below, and ignite without delay.

There are no additional safety features.

Shorter detonators are used for particularly flat mines.



- 1 - spring
- 2 - pressure cap
- 3 - safety pellet
- 4 - plunger
- 5 - fuse casing
- 6 - primer cap
- 7 - detonator

Technical Data

Measurements:	43/aprx. 93/Ø 13 mm
1 w/o/1 with detonator/Ø	
Material:	Metal (MV-5K: Synthetic material)
Priming energy:	68 N
Detonator:	MD-2 or MD-6 (shorter)

Comments

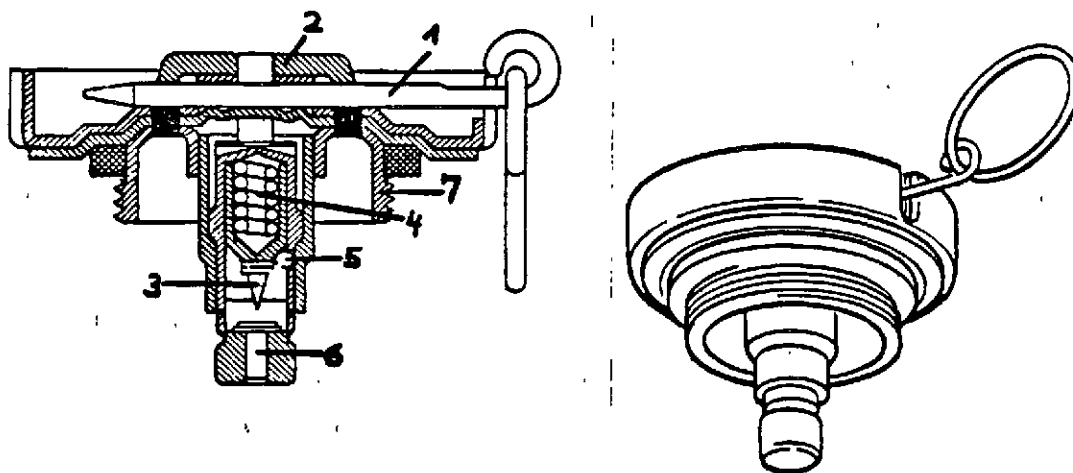
The MV-5 pressure fuse is also used for makeshift mines.

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IIR 2-196-0021-85
ODCSI ULO BONN**3.3.2.2 MVM (USSR)**Description

The safety bar connects the metal case to the plunger shaft. After the safety bar is removed, the spring-loaded plunger shaft, is held by the safety pellet. By exerting pressure on the case cover, the pressure cap will move downwards until the safety pellet slips into the bulge of the pressure cap.

Thus, the plunger is released and the ignition is triggered.



- 1 - safety bar
- 2 - case cover
- 3 - plunger
- 4 - tightened spring

- 5 - safety pellet
- 6 - primer cap
- 7 - thread

Technical Data

Measurements, l w/o/l with detonator/ø:	48/aprx. 98/ø 70 mm
Thread:	M 42 x 1.5
Material:	Metal
Priming energy:	Unknown
Detonator:	MD-6

Comments

Mines equipped with the MVM pressure fuse can be transported and transferred after activation.

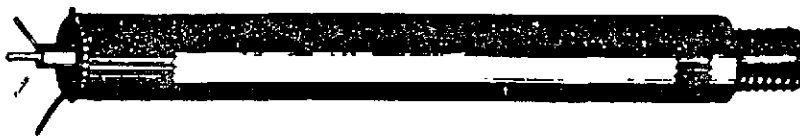
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3.3.2.3 Ro-3 (CSSR)

Description

On the Ro-3 pressure fuse the release pressure can be changed three times. As soon as the safety shear bolt has snapped into one of the three notches for the different release pressures, the fuse is activated. As soon as the release pressure is exceeded, the safety bolt will shear off and thus release the spring-loaded plunger, and the ignition will be triggered without delay.



Technical Data

Measurements l/w/o/l with detonator/Ø:	90/aprx. 140/12 mm
Material:	Metal
Color:	Dark brown
Release energy:	8 - 40N

Comments

Used in anti-infantry mine STOKA-Mi

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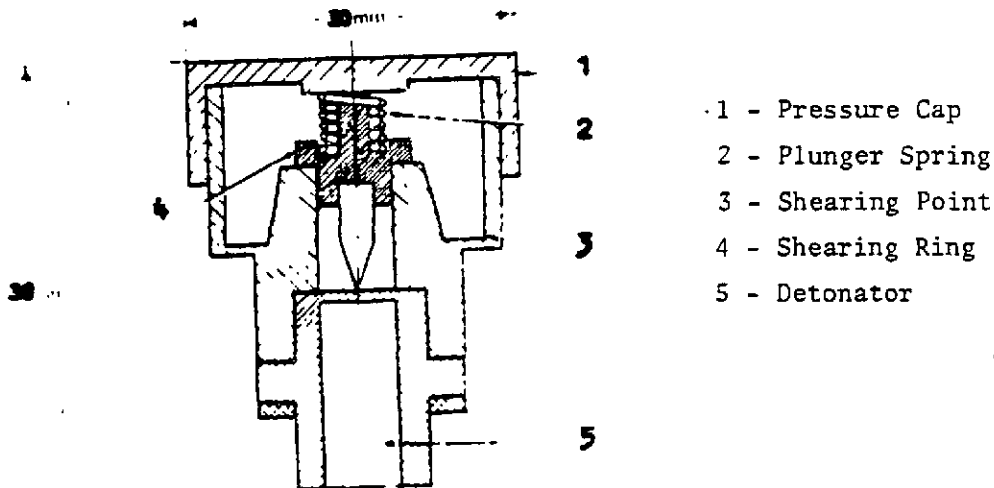
3.3.2.4 RO-7-II (CSSR)

Description

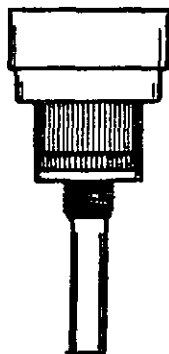
The RO-7-II pressure fuse which sits in a plastic container, consists of only two metal components: a plunger head and spring.

As soon as the release energy is attained, first the shearing point and afterwards the shearing ring will break. Thereby the plunger spring is released, which drives the plunger against the detonator and triggers the ignition.

There are no additional safety features.



- 1 - Pressure Cap
- 2 - Plunger Spring
- 3 - Shearing Point
- 4 - Shearing Ring
- 5 - Detonator



With Detonator



Without Detonator

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3.3.2.4 RO-7-II (CSSR)

Technical Data

Measurements 1 w/o/1.with detonator / Ø:	107/aprx. 157/Ø 17 mm
Material:	Metal
Color:	Dark Brown
Release energy:	36.5 N

Comments

Used for border mines PP-Mi-Sr.

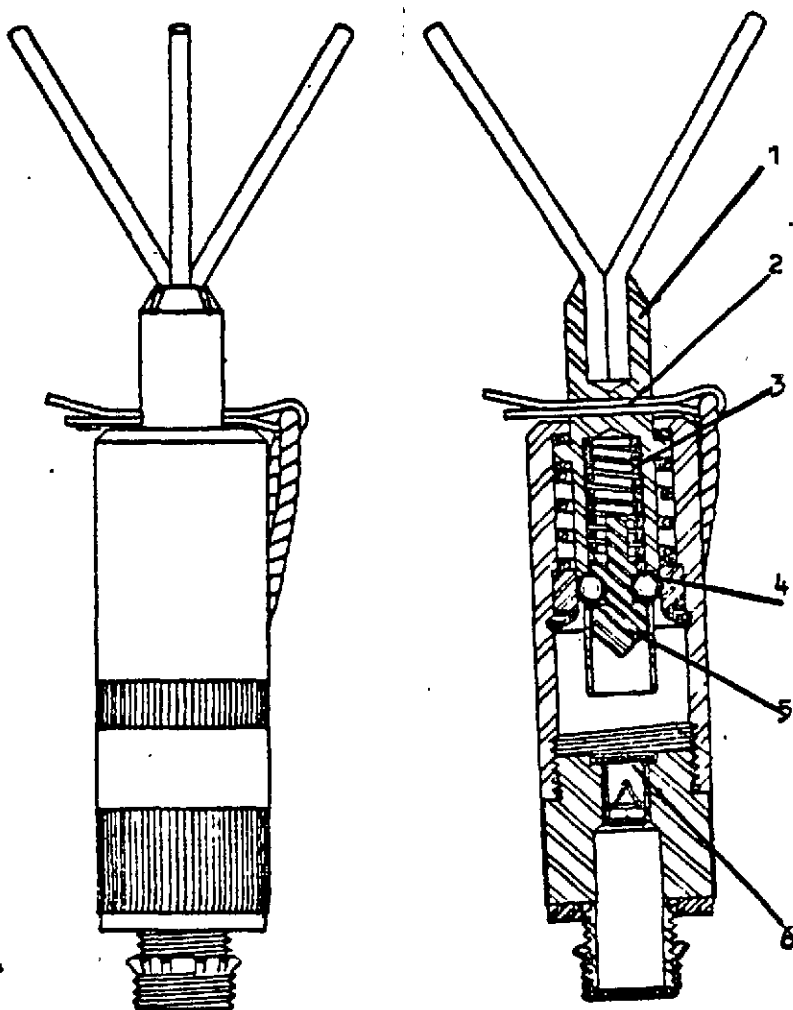
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IIR 2-196-0021-85
ODCSI ULO BONN3.3.2.5 Ro-8 (CSSR)Description

The Ro-8 pressure fuse is activated by a safety splint sitting on top of the fuse case, near the holder of the pressure sensing device. After the safety splint is removed, the plunger is held by safety pellets.

If vertical pressure is exerted on the sensing devices, the holder of these devices will push the safety pellets into the bulges of the fuse case and will thus release the spring-loaded plunger. The plunger will then hit the primer cap and the device ignites.



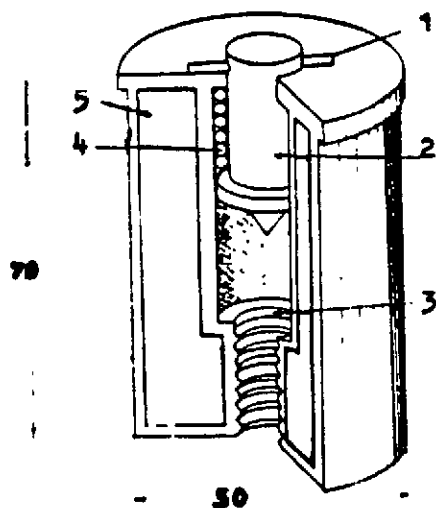
- 1 - holder of sensing devices
- 2 - safety splint
- 3 - preloaded plunger spring
- 4 - safety pellets
- 5 - plunger
- 6 - primer cap

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IIR 2-196-0021-85
ODCSI ULO BONN3.3.2.6 Ro-9 (CSSR)Description

The spring-loaded plunger is held by a shear pin. As soon as the release energy is exceeded, the pin is sheared off. Thereby the loaded plunger is released and the device is ignited through the detonator and booster charge.

There are no additional safety devices.



- 1 - shear pin
- 2 - plunger
- 3 - detonator socket
- 4 - preloaded spring
- 5 - booster charge

Technical Data

Measurements: 70/∅ 50 mm

1 w/o detonator / ∅

Casing: Metal

Release energy: Unknown

Comments

Ro-5 without booster charge, otherwise identical to Ro-9.

Both fuses are used in anti-tank mine PT-Mi-K.

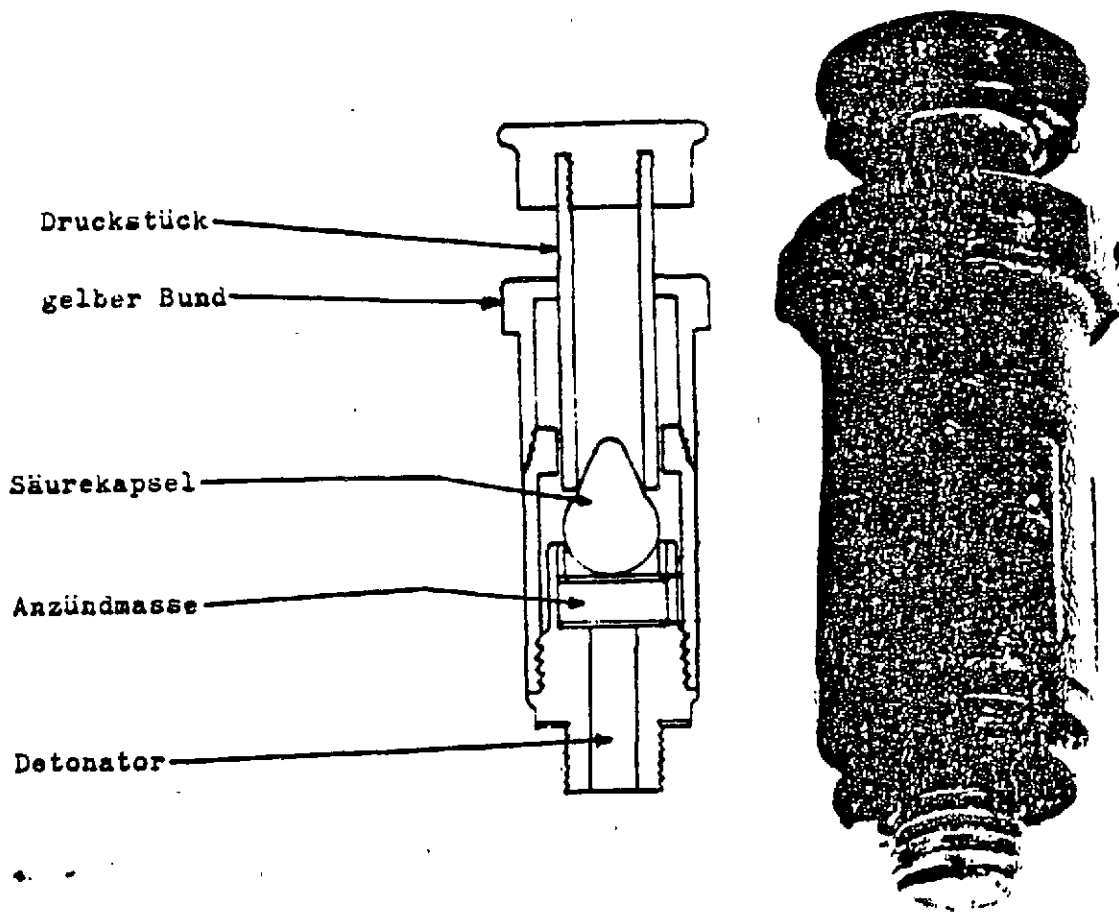
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IIR 2-196-0021-85
ODCSI ULO BONN**3.3.2.7 Chemical Pressure Fuse (GDR)****Description**

The chemical pressure fuse, made of synthetic material and bakelite, is used in the plastic anti-tank mine PM-60 (GDR), if the latter is layed by hand.

As soon as the release energy on the pressure piece is exceeded, the acid capsule will burst and light the primer substance. The latter will transmit the ignition to the detonator.

The removable ring around the pressure piece sitting on top of the case secures the pressure fuse during transport.

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ODCSI ULO BONN

3.3.2.7 Chemical Pressure Fuse (GDR)

Technical Data

Measurements: 69/aprx. 119/Ø 25 mm
1 w/o / 1 with detonator/Ø
Material: Plastic and bakelite
Color: Olive
Identification: Yellow collar

Comments

The outwardly identical mechanical pressure fuse (GDR) is used for mechanical mine-laying.

All parts, except for the plunger spring and the plunger itself, are made of plastic. The device is triggered by safety pellets holding the spring-loaded plunger.

Identification: Red Collar

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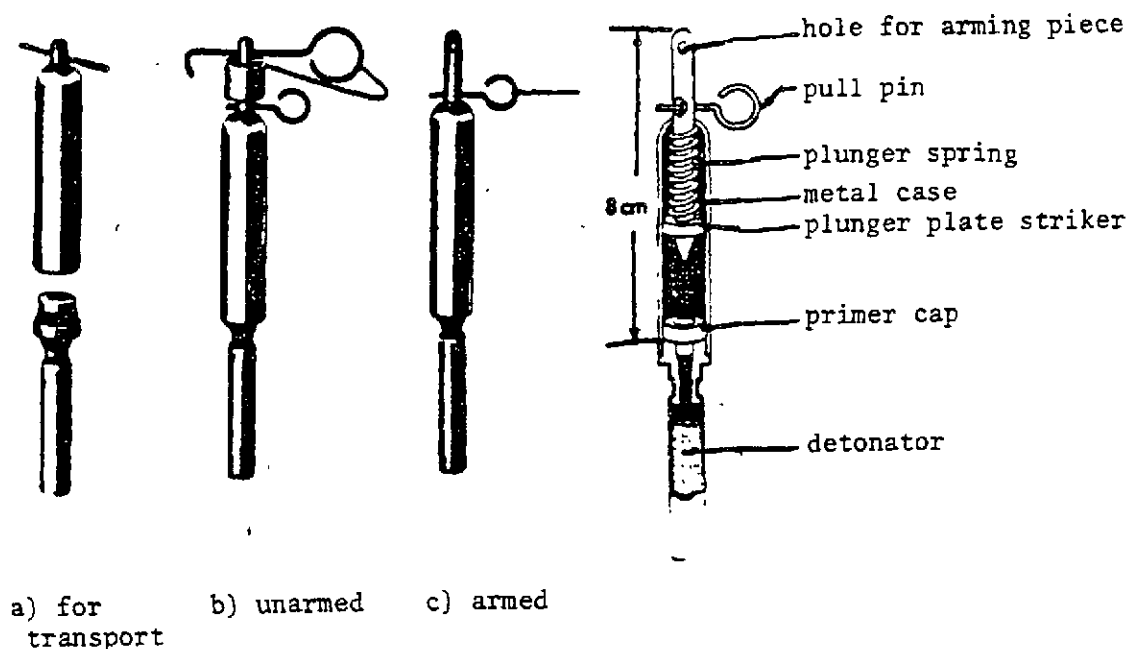
3.3.3 Pull Fuses

3.3.3.1 MUV (USSR)Description

The MUV pull fuse is the most frequently used in Soviet border mines. The fuse may be made of either metal or plastic.

The plunger spring is tightened and the detonator is screwed-in only after transport. A spacer and an arming piece are additionally attached. For activation the device, the spacer and the arming piece are removed.

After the pin is pulled, the preloaded plunger will hit the primer cap and ignite.

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ODCSI ULO BONN

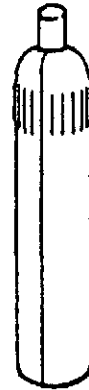
3.3.3.1 MUV (USSR)



TYPE I
Tin Plate



TYPE II
Plastic



TYPE III
Hard Rubber



TYPE IV
Thin Metal Plate

Technical Data

Measurements:

56/aprx. 106/Ø 13 mm

1 w/o 1 with detonator/Ø

Release energy:

10N

Detonators:

MD-2, MD-6 and others

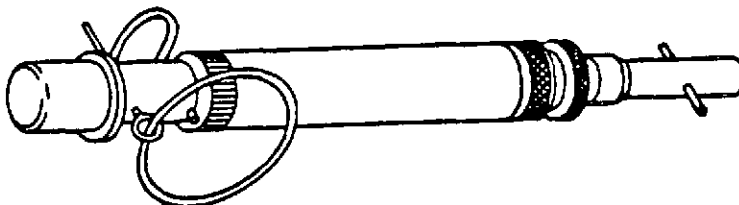
Comments

None

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IIR 2-196-0021-85
ODCSI ULO BONN**3.3.3.2 MUV-2 (USSR)****Description**

The MUV-2 pull fuse is an advanced development of the MUV pull fuse. The MUV-2 functions according to the same principle as the MUV (see 3.3.3.1) but on activation delay is built into the device as an additional safety feature. After it is activated, a thin cutting wire at the end of the plunger cuts a soft metal plate and thus delays the ignition process. This accessory prevents accidental tripping during transfer, concealment and activation.

**Technical Data**

Measurements:	125/aprx. 175/∅ 12.2 mm
1 w/o 1 with detonator/ ∅	
Material:	Metal
Release energy:	10N
Detonator:	MD-2 and others

Comments

Mainly used in border mines POMZ-2M and RMD-6M.

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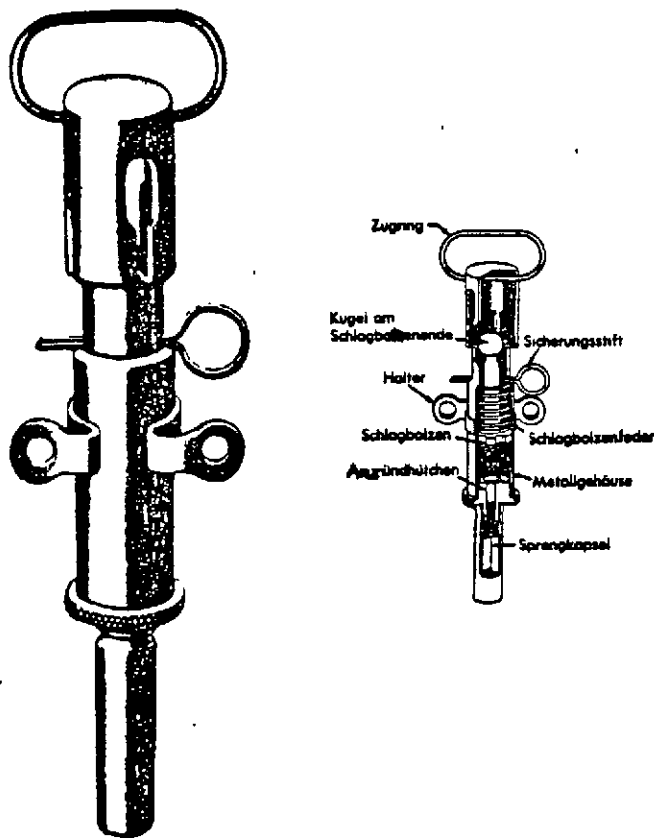
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ODCSI ULO BONN3.3.3.3 VPF (USSR)Description

The VPF pull fuse is composed of three main parts, the fuse container, plunger and trip component. In a dormant condition, the spring-loaded plunger is held by a locking pin.

When activated, the pellet sitting at the end of the plunger is held by the claw-like lower portion of the trip component. As soon as the release energy is exceeded, the pellet is released and the spring-loaded plunger initiates the ignition. The trip component reacts to the energy pulled through the pull rings; side pressure may also initiate the fuse through an extension bar attached to the trip component.

The fuse can be attached to the object with a special holder; it may also be used in water.

The detonator can only be inserted on the operational site.

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ODCSI, ULO BONN

3.3.3.3 VPF (USSR)

Technical Data

Measurements: 75/aprx. 125/Ø 15 mm
L with /L w/o detonator/Ø

Material: Metal

Release energy

- pull: 36 - 64N
- side pressure: 12.5 - 16N

Detonator: MD-2

Comments

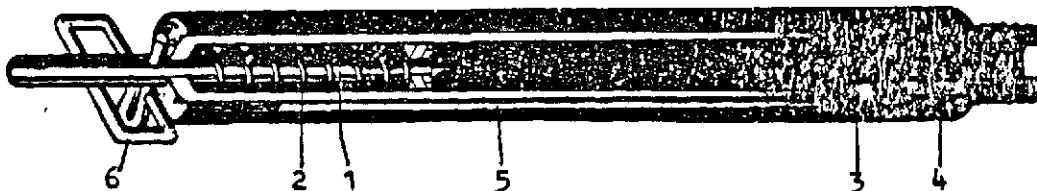
Used in border mines and explosive charges.

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IIR 2-196-0021-85
ODCSI ULO BONN3.3.3.4 RO-1 (CSSR)Description

The pull fuse container is made of plastic; the other components of metal.

The safety bar is also a trip device. Through the loop it can be tripped by pull energy through the loop or by pressure through the bolt pointing upwards. After the safety bar is pulled, the spring-loaded plunger hits the primer cap and thus initiates the ignition.



1 plunger

2 spring

3 primer cap

4 holder for detonator

5 plastic case

6 safety bar / trip device

Technical DataMeasurements:1 w/o/1 with detonator/ \emptyset 88/aprx. 138/ \emptyset 12 mmMaterial

- case:

Plastic

- plunger and other parts:

Metal

+ Release energy:

pull/presure

10N

Comments

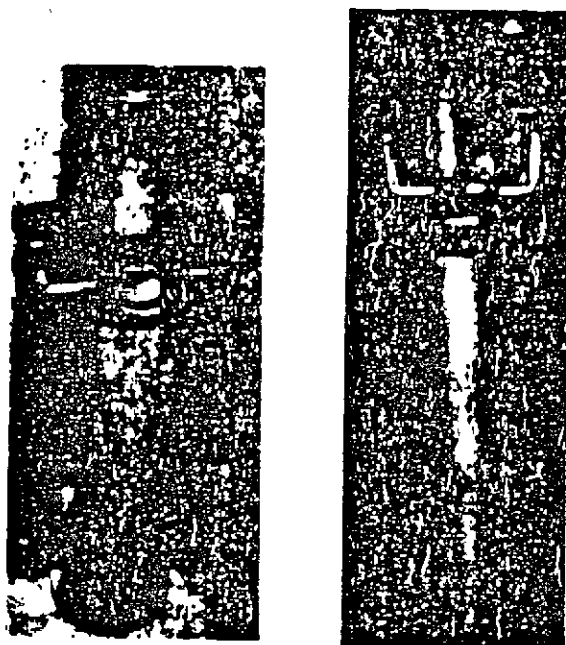
Mainly used in border mines PP-Mi-Sb and PP-Mi-SK, and as catch for anti-tank mine PP-Mi-D.

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IIR 2-196-0021-85
ODCSI ULO BONN3.3.3.5 M-49 (HUN)Description

The M-49 pull fuse is constructed like the MJV pull fuse (see 3.3.3.1), and the case may be made of either metal or plastic.

The plunger rod is activated by the pull pin. After the release energy is exceeded, the pull pin is separated from the plunger rod and the plunger will then initiate the ignition through the primer cap.

Technical Data

Measurements:	62/aprx. 112/∅ 15 mm
1 w/o/1 with detonator/∅	
Material:	Metal or plastic
Release energy:	50N

Comments

Used for M-49 and M-62 border mines.

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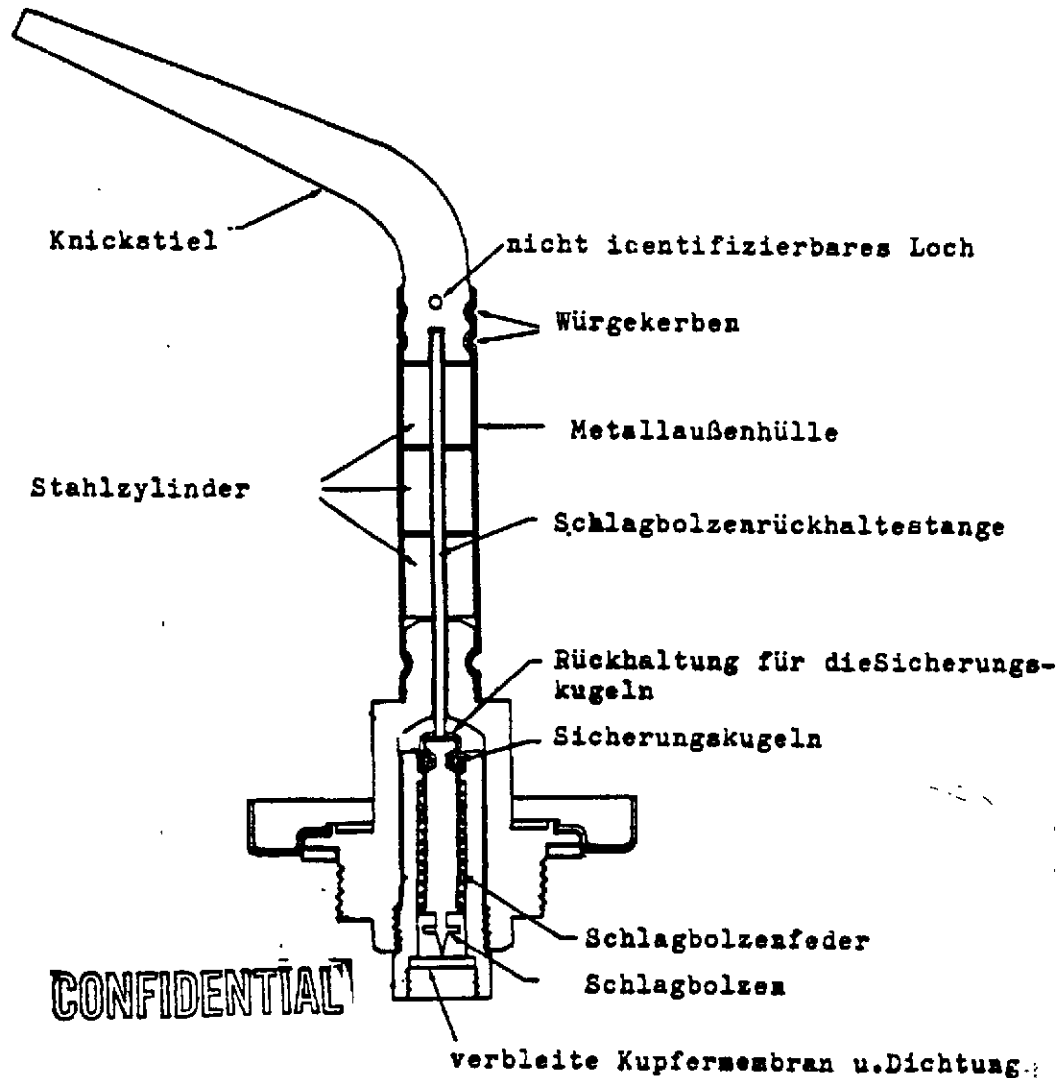
3.3.4 Tilt Fuses

3.3.4.1 MVSh-46 Tilt Fuse (USSR)Description

The MVSh-46 tilt fuse resembles a pull fuse. Through the steel cylinder and the plunger retainer rod the force bearing upon the tilt handle is transformed into a pulling force.

If a force bears upon the tilt handle from any direction, the plunger retainer rod will be lifted together with the retaining device for the safety pellets. In this case the safety pellets will fall into the slot and will release the spring-loaded plunger, which will initiate the ignition.

There are no safety accessories.

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3.3.4.1 MVSh-46 Tilt Fuse (USSR)

Technical Data

Measurements

l without detonator/Ø: 202/Ø 77 mm

weight: 526 g

material: Metal

Comments

Used in TM-46 and TMN-46 anti-tank mines.

The MVSh-57 tilt fuse is constructed similarly to the MVSh-46; used in TM-57 anti-tank mines.

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ODCSI ULO BONN

3.3.5 Delay Fuses

3.3.5.1 UZ-16-T Clockwork Fuse (GDR)

Description

The UZ-16-T clockwork fuse is composed of the following main parts:

- Case with cap
- timer with initiating device
- safety mechanism
- plunger with plunger spring

The delay can be set in 2-hour intervals for up to 16 days. For setting the delay time, the cap is unscrewed, the fuse is removed from the case and the delay time is set. The safety mechanism is activated automatically as soon as the cap is removed. Thus, the fuse is unarmed. This safety mechanism no longer works for delay times of less than 5 hours. After insertion of the fuse into the case and attachment of the cap, the fuse is activated.

The clockwork runs at 150 rpm and moves the tripping disk, which is connected to the adjustable dial. As soon as the slot of the tripping disk catches the tripping lever, the release pin will release the spring-loaded plunger and initiate the ignition through the primer cap.

Activation

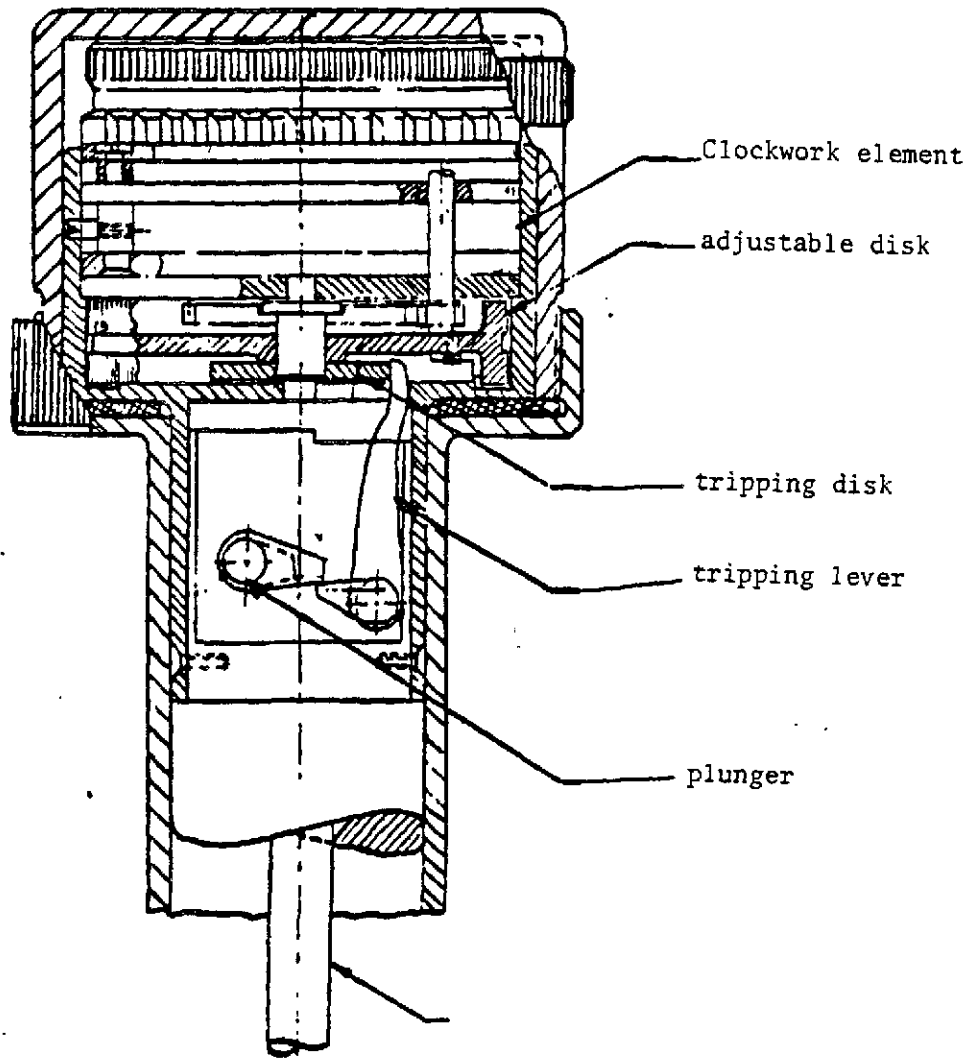
The exact ignition time cannot be set from outside. If the cap of the UZ-16 T is unscrewed, the safety mechanism will be activated and the fuse is secured. However, if the window shows that the ignition will take place in 5 hours, the safety mechanism does not work when the cap is unscrewed. In this case, the release mechanism and the plunger must cautiously be pulled out of the tube. There is no other way to secure the fuse.

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3.3.5.1 UZ-16-T Clockwork fuse (GDR)

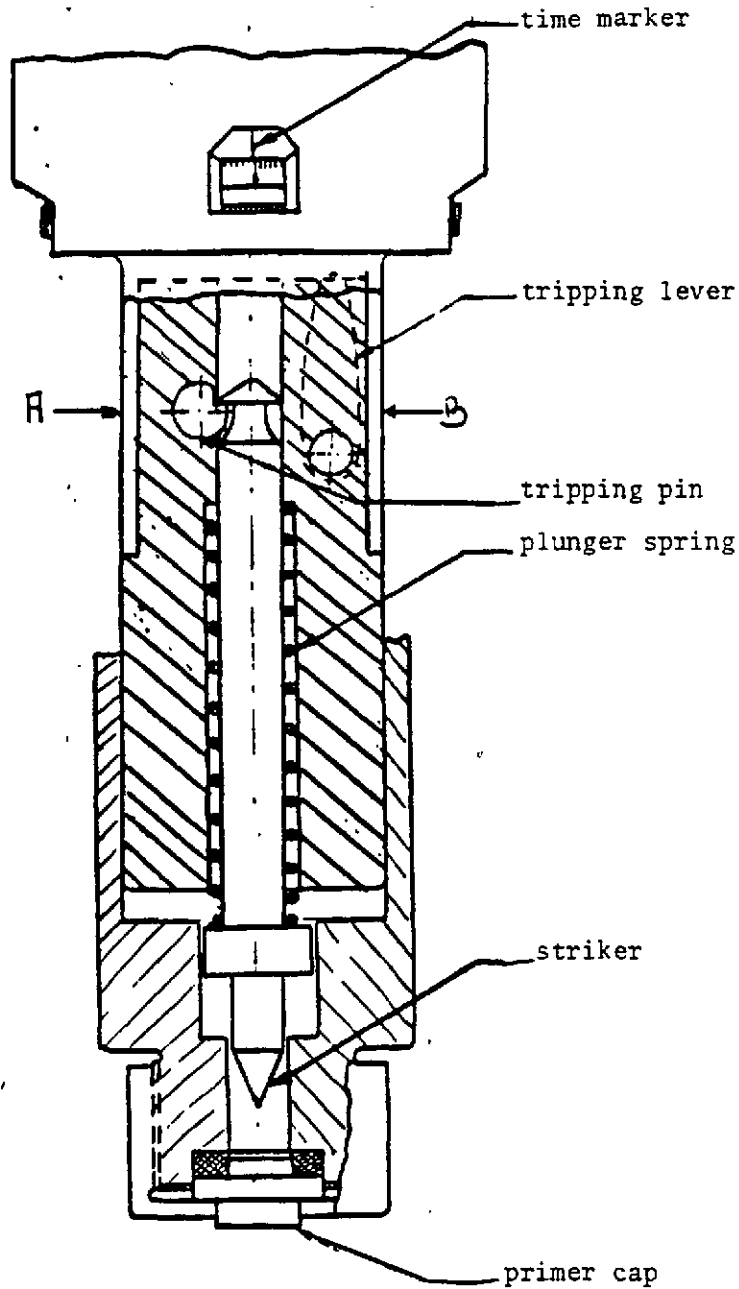


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3.3.5.1 UZ-16-T Clockwork fuse (GDR)

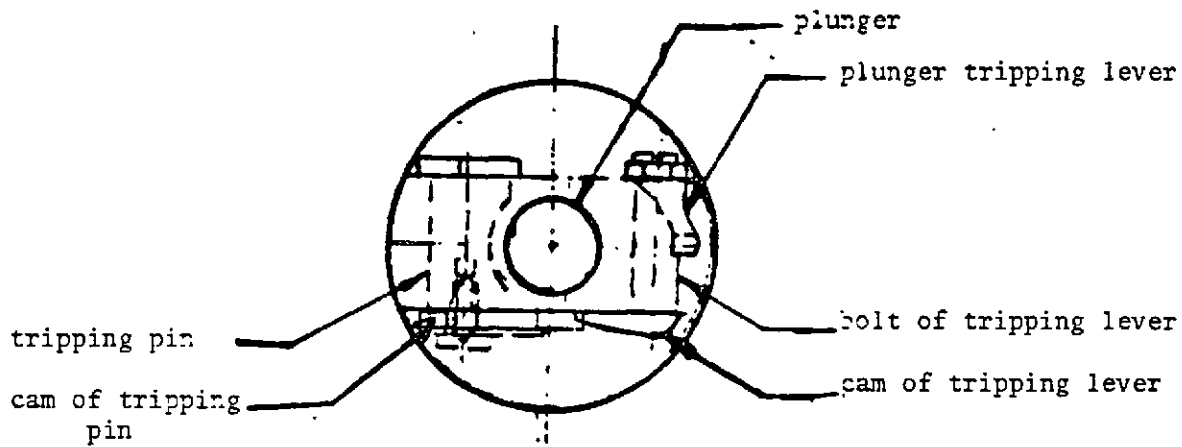


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3.3.5.1 UZ-16-T Clockwork fuse (GDR)

Profile of the Plunger

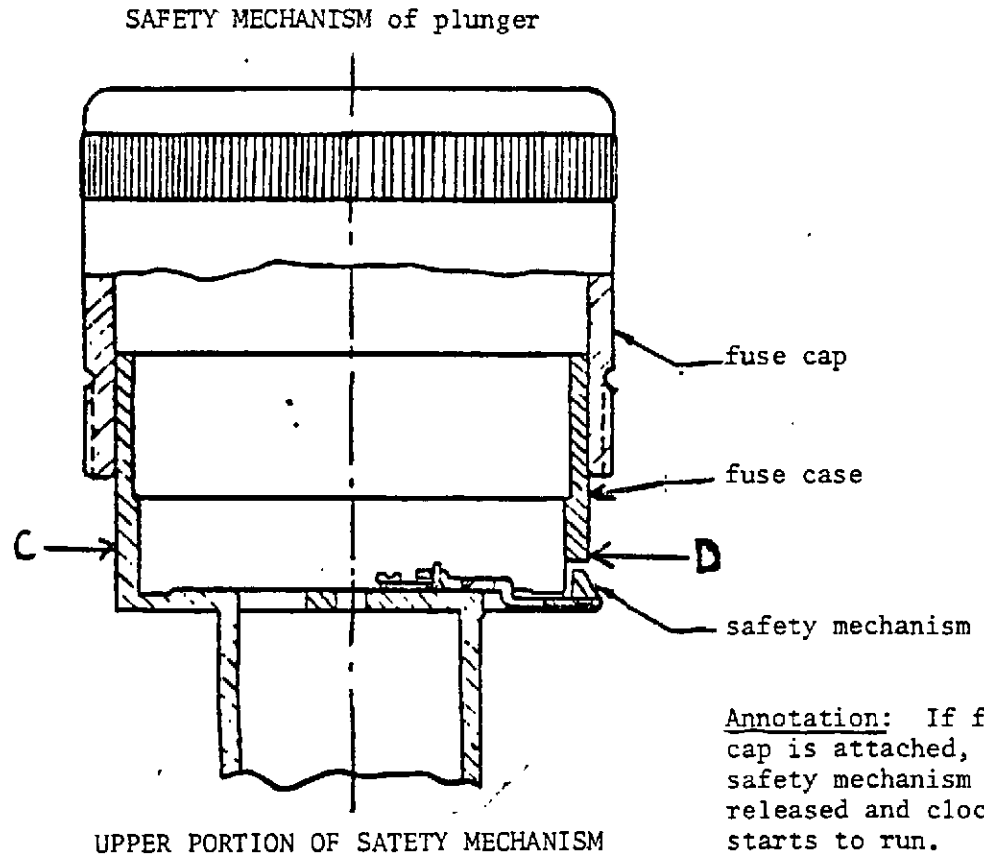


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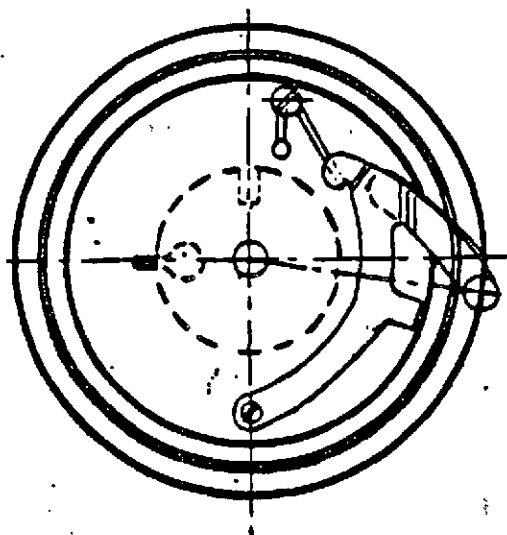
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ODCSI ULO BONN

3.3.5.1 UZ-16-T Clockwork fuse (GDR)



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ODCSI ULO BONN3.3.5.1 UZ-16-T Clockwork fuse (GDR)O b e r t e i lSchnitt C - D**SICHERHEITSMECHANISMUS**Technical Data

Measurements

L without detonator:	aprx. 130 mm
Ø cap / Ø shaft:	Ø 51 / Ø 28 mm
Delay time:	2 hrs - 16 days
Setting intervals:	2 hrs
Material of case:	AL-Mg
Label on upper portion:	UZ 16-T

Comments

For delay times of less than 5 hours the safety mechanism no longer functions.

The fuse can only be secured if it is removed from the case.

The UZ-24-R Clockwork fuse with delay times of up to 24 hours; constructed the same way as UZ-16-T.

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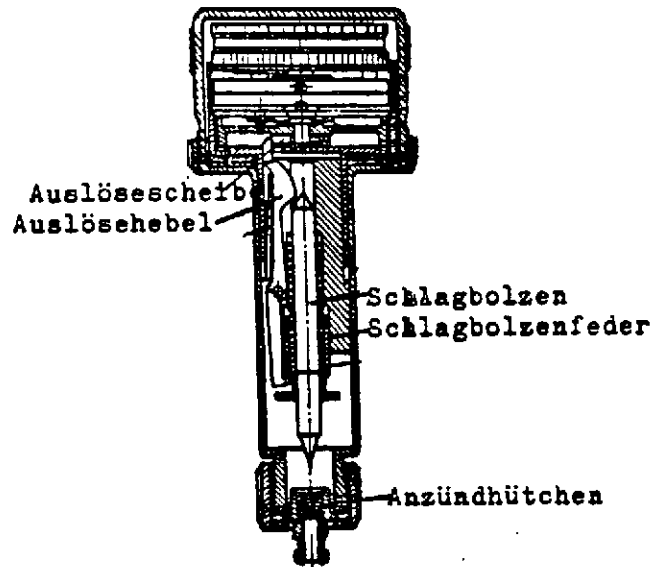
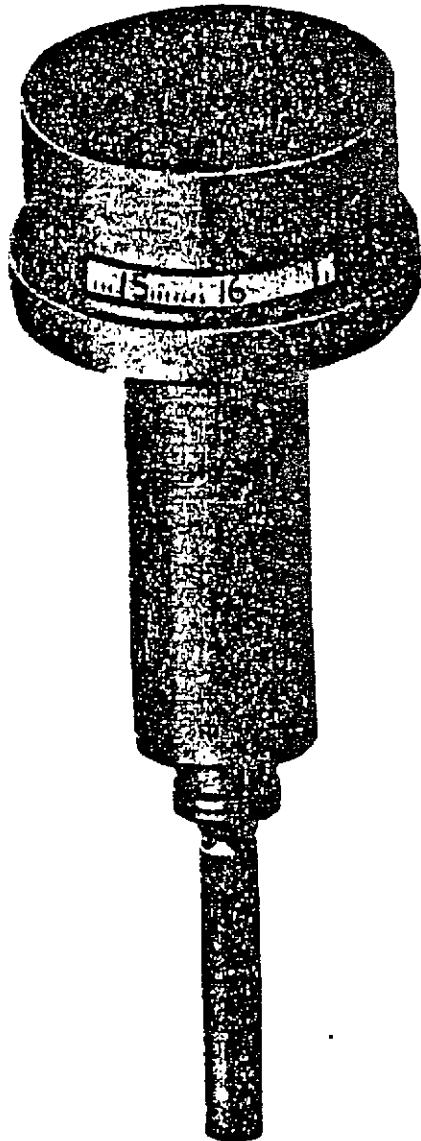
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ODCST ULO BONN

3.3.5.2 ChMV-16 (USSR)

Description

The ChMV-16 clockwork fuse resembles the UZ-16 clockwork fuse (see 3.3.5.1). Therefore function and use are probably identical.



2. Technische Angaben:

- Abmessungen
L ohne Detonator / ϕ

CONFIDENTIAL : 115/ ϕ 50 mm

3. Anmerkung:

keine

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3.3.5.2 ChMV-16 (USSR)

Technical Data

Measurements

L without detonator / \emptyset : 115 / \emptyset 50 mm

Comments

None

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IIR 2-196-0021-85
ODCSI ULO BONN

3.3.5.3 UZ-60-T (CSSR)

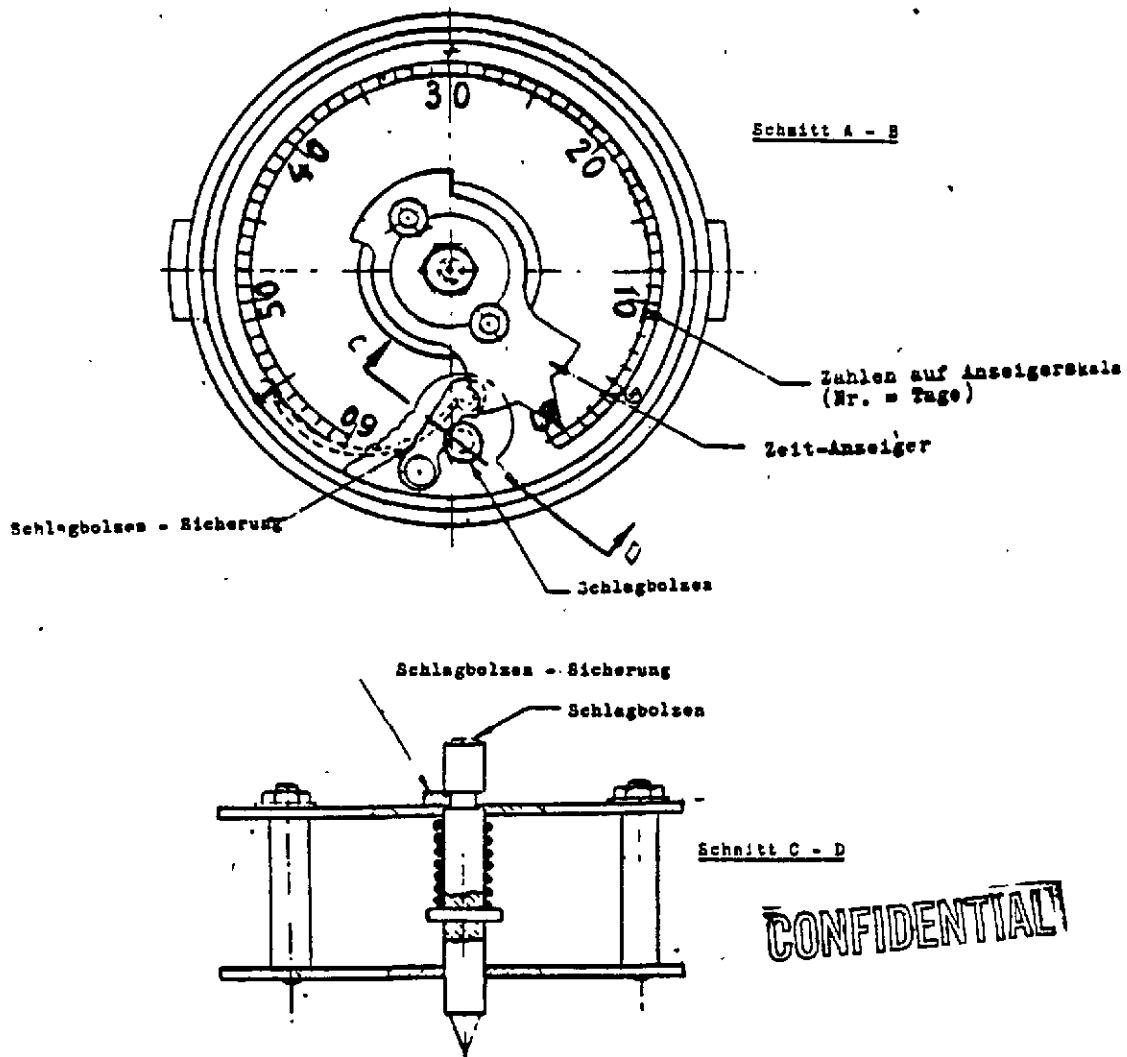
Technical Data

Measurements

L without detonator / Ø:	100/ Ø 105 mm
Delay time:	Up to 60 days
Accuracy of setting:	1/2 day
Clockwork accuracy:	6 hrs in 60 days
label on upper portion:	UZ 60-T

Comments

None



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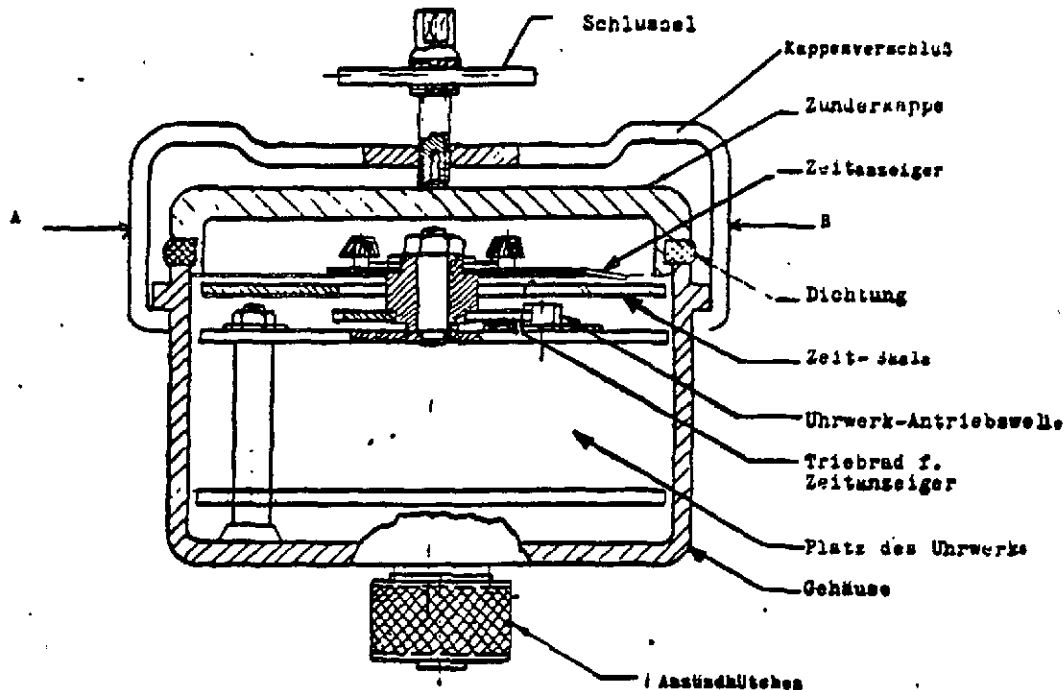
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IIR 2-196-0021-85
ODCSI ULO BONN**3.3.5.3 UZ-60-T (CSSR)**Description

The UZ-60-T clockwork fuse consists of the following main parts:

- Case with cap and cap lock
- Timer with initiating device and securing mechanism
- Plunger

To set the delay time, the key is unscrewed. The timer will be set with the key through an opening in the bottom. After the fuse cap is removed, the desired delay time of up to 60 days, with a maximum accuracy of 12 hours, will be set with the clock hand. The set delay time can still be changed. The key is inserted through the primer cavity in order to push the plunger upwards until the safety mechanism is caught by the plunger. Thus, the plunger spring is tightened.

After the clockwork has reached the set time, the hand presses the safety mechanism out of the slot of the plunger. The spring-loaded plunger strikes the primer cap and thus initiates the ignition.

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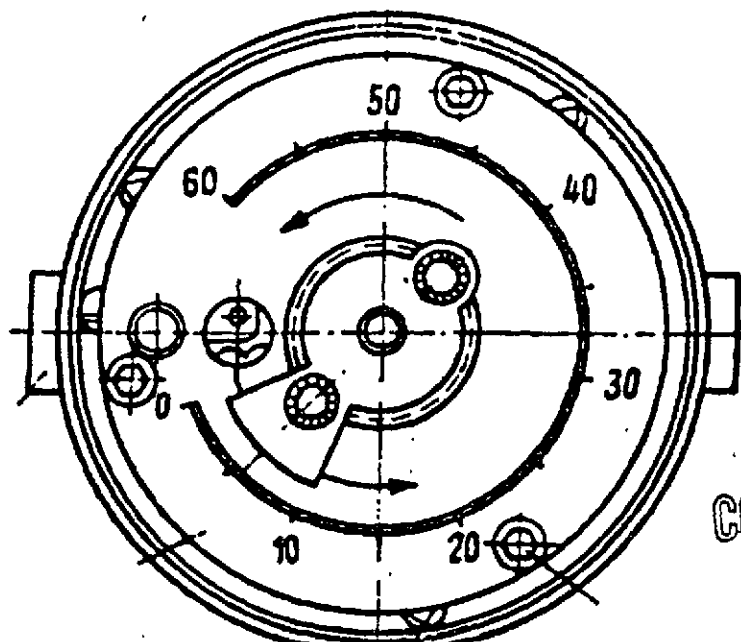
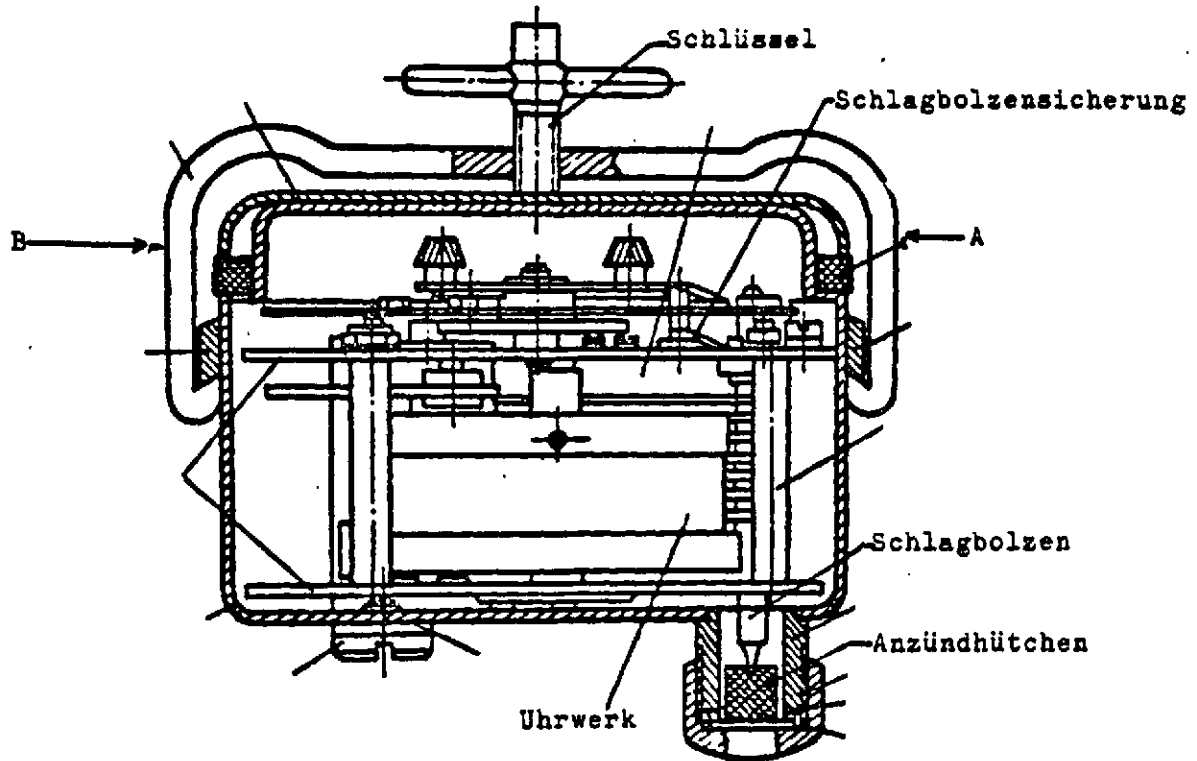
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3.3.5.4 ChVM-60 (USSR)

Description

The ChVM-60 is constructed in a similar way as the UZ-60-T (see 3.3.5.3). Therefore its function and use are probably identical.



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3.3.5.4 ChVM-60(USSR)

Technical Data

Delay time: 60 days

Comments

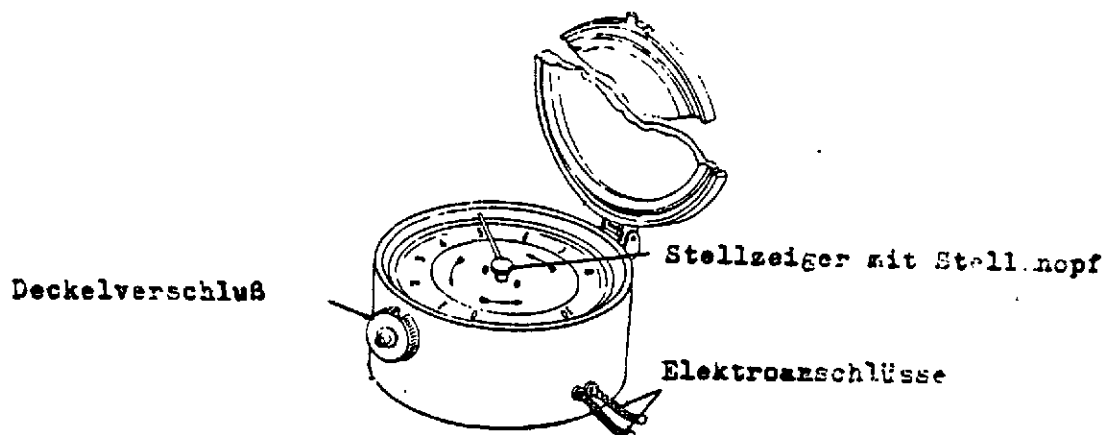
None

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IIR 2-196-0021-85
ODCSI ULO BONN3.3.5.5 ChZ-10 (USSR)Description

The ChZ-10 clockwork fuse is used for the electrical initiation of explosive devices and mines. This hand-set time fuse consists of a mechanical delay placed in a metal container. A time disk and a hand are located directly under the cover. Arrows on the dial indicate the direction in which the hand moves. The hand is used for setting the desired delay time of up to 10 days. A winding stem with key is attached to the bottom of the fuse container.

Two cable to be connected to the electrical explosive circuit protrude from the bottom of the cylindrical container. After expiration of the delay time, the clockwork release lever through the spring-loaded contact closes the circuit and thus initiates the ignition.

Technical Data

Measurements H/Ø:	90 / 127 mm
Delay time:	Up to 10 days
Clockwork accuracy:	4 hrs in 10 days
Container material:	Steel

Comments

None

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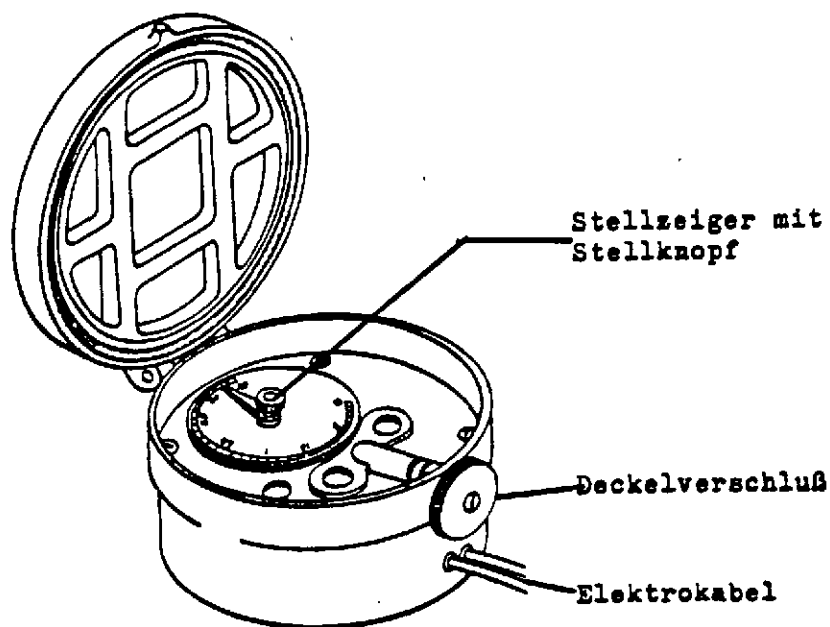
CONFIDENTIAL3.3.5.6 ChZ-35 (USSR)Description

ChZ-35 clockwork fuse is used for the electrical initiation of explosive devices and mines.

The ChZ-35 exists in either a cylindrical or a square shap, but the functioning in both is identical. With six hours' deviation, delay times of up to 35 days can be set with this fuse.

With the help of the set-knob attached to the hand of the clock, the desired delay time can be set. In addition to the dial, the winding stem and its key are located under the cover of the ChZ-35 time fuse clockwork. When the delay time is over, the clockwork release lever over a spring-loaded contacy closes the circuit and it is ignited.

It is possible to deactivate the ChZ-35 by cutting the electrical wires, one after another.

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3.3.5.6 ChZ-35 (USSR)

Technical Data

Round version

- measurements H/∅: 88/∅ 90 mm
- weight: 3.4 kg

Rectangular version

- measurements L/W/H: 88/88/165 mm
- weight: 2.0 kg

Delay time: Up to 35 days

Clockwork accuracy: 6 hours in 35 days

Comments

None

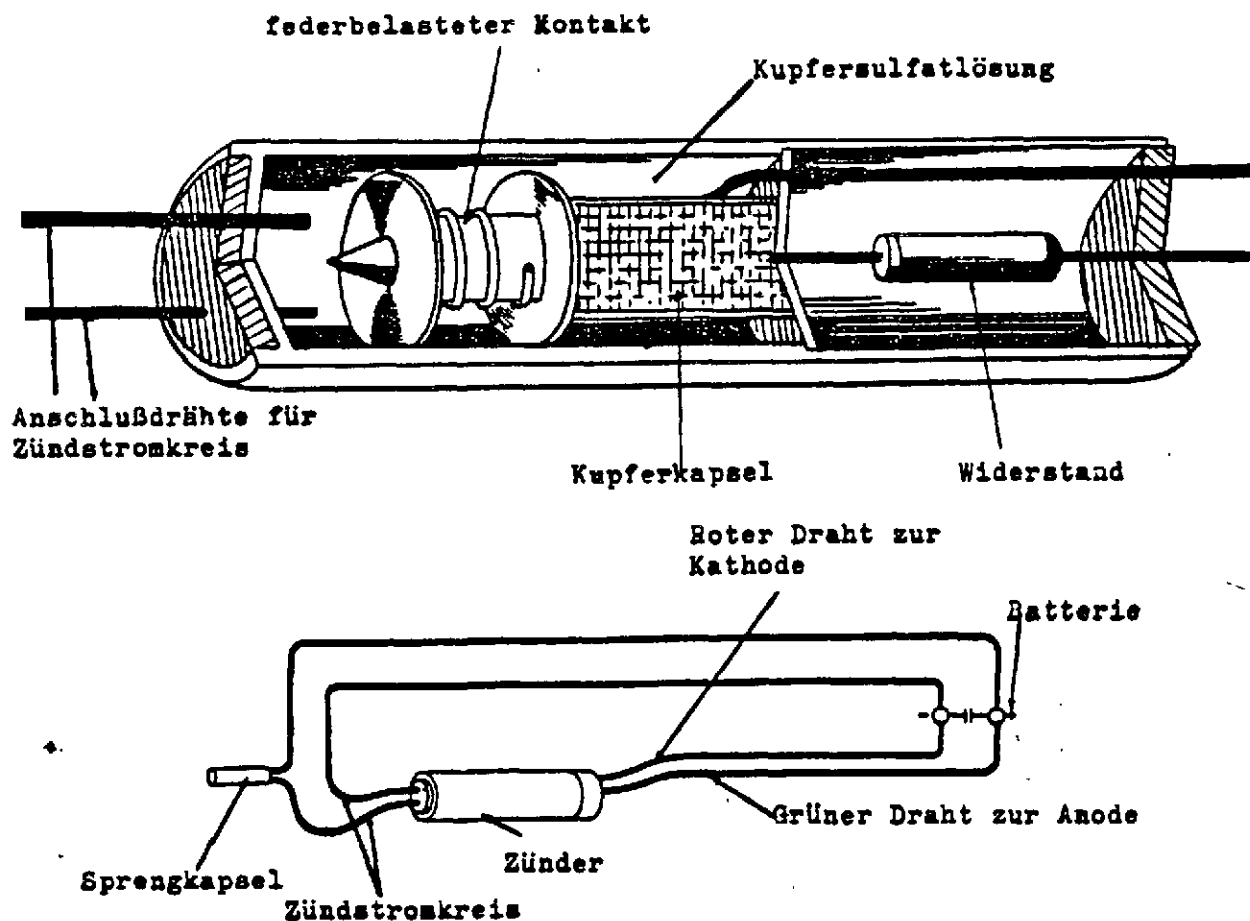
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CONFIDENTIAL**3.3.5.7 EKhP Electro-Chemical Delay Fuse (USSR)**Description

The EKhP electro-chemical delay fuse is mainly used as a delay fuse in detonation circuits in order to increase the safety.

The fuse consists of a spring-loaded contact which is kept open by a copper capsule. If electricity flows between the copper capsule and the surrounding copper sulfate solution, the copper capsule is dissolved and releases the spring-loaded contact. The contact closes the explosive circuit and it ignites.

The delay time depends on the temperature of the environment. At higher temperature it is 10 minutes, at lower temperatures up to 4 hours.

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3.3.5.7 EKhP Electro-Chemical Delay Fuse (USSR)

Technical Data

Measurements L/Ø:	50/Ø 15 mm
Delay time:	10 minutes - 4 hours (depending on temperature)
Jacket:	Tar board

Comments

Identically constructed but larger fuse

- Measurements L/Ø:	127 / Ø 34 mm
- Delay time:	Up to 4 hours

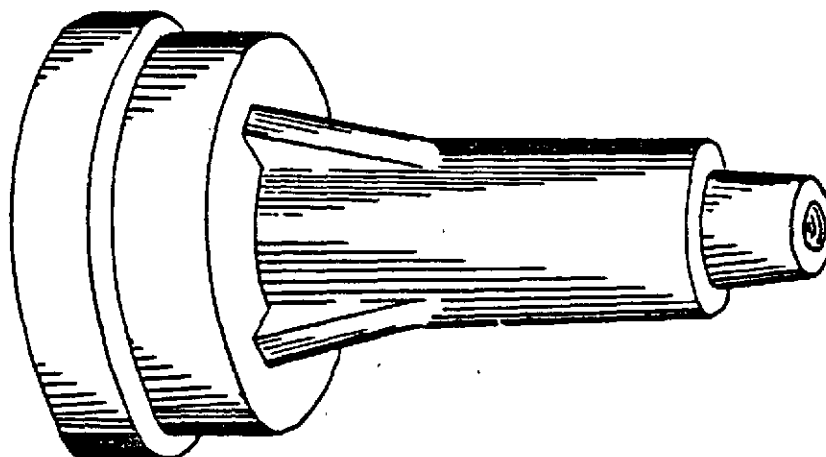
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ODCSI ULO BONN**3.3.5.8 EkhV Electro-Chemical Delay Fuse (USSR)**

The EKhV electro-chemical delay fuse may be inserted into an electrical circuit as well as directly into mines or explosive device.

In the bakelite container, a copper wire holds a spring-loaded plunger. At the same time the plunger serves as contact for the explosive circuit. When exposed to electricity, the surrounding copper sulfate solution will melt the copper wire and the spring-loaded plunger/contact will close the explosive circuit or will initiate the primer cap of the detonator MD-2. A build-in 1.4 V dry battery serves as the power source.

Depending on the environmental temperature, the delay time varies from 1 day to 120 days. There are no safety accessories.

Technical Data

Measurements L/Ø:

165/Ø 64 mm

Material:

Bakelite

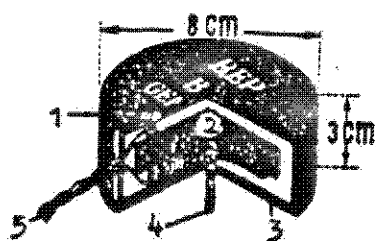
Comments

None

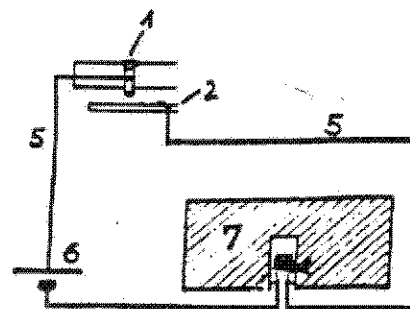
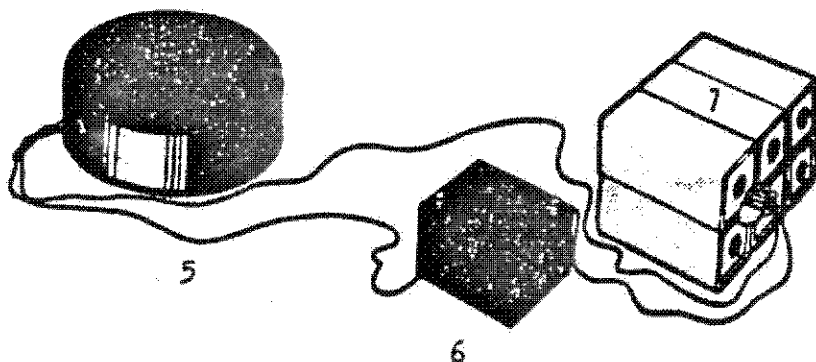
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IIR 2-196-0021-85
ODCSI ULO BONN**3.3.6 Special Fuses****3.3.6.1 VZ-1 Vibration Fuse (USSR)****Description**

The VZ-1 vibration fuse sits in a round cardboard container. Its interior consists of a hollow, thick-rubber disk. In the disk's center, a Y-shaped metal vibrator is suspended horizontally from three horizontally attached fine spiral springs. A contact screw, to which also one of the two leg wires is connected, vertically protrudes into the hollow space through the upper rubber layer. It rests a short distance from the vibrator. The second leg wire is connected to one of the fine springs so that the circuit is broken only by the small space between the vibrator and the head of the contact screw. Both leg wires are connected to an electrical circuit for initiating the explosive charge. With traffic passing nearby, the vibrator begins to shake until it touches the contact screw. This way it closes the circuit and triggers the explosion of the detonator.



- 1 - contact screw
- 2 - vibration piece
- 3 - rubber core
- 4 - vibration springs
- 5 - fuse wires
- 6 - battery
- 7 - explosive charge

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3.3.6.1 VZ-1 Vibration Fuse (USSR)

Technical Data

Measurements L/Ø:	30/ Ø 90 mm
Container Material:	cardboard/rubber
Vibrator Material:	Metal

Comments

The vibration fuse VZ-1 can be used in so many ways that any type of explosive charge or mine can be ignited with it.

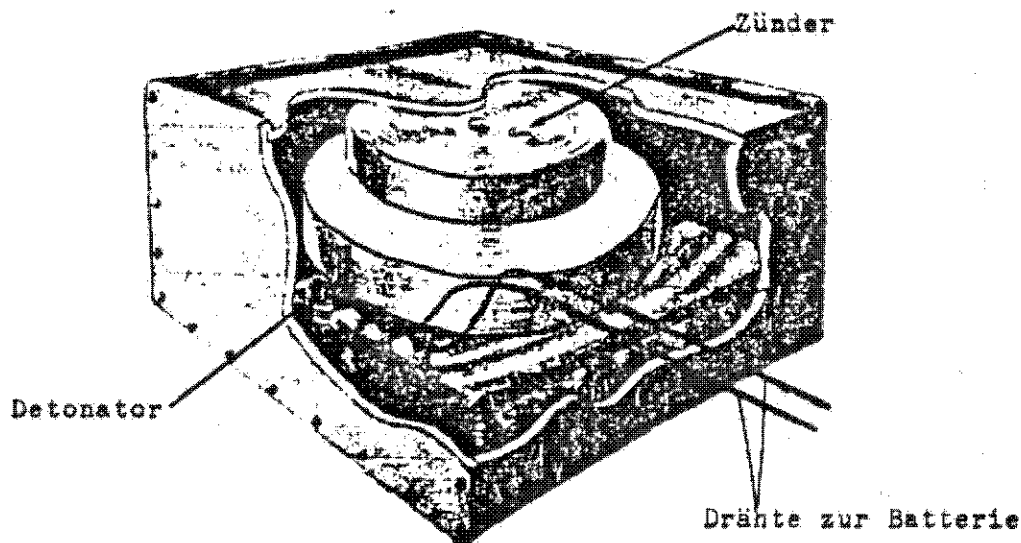
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ODCSI ULO BONN3.3.6.2 ChVZ Vibration Fuse (USSR)Description

This vibration fuse was developed by the Soviets primarily for their DM road mine. However, the ChVZ is also suitable for other explosive charges or improvised mines, and it is most effective on bridges and in difficult terrain where vehicles produce strong vibrations.

The fuse consists of a cylindrical metal container enclosing a clockwork safety mechanism and two (i.e. a vertical and a horizontal) aluminum-coated spiral spring vibration contacts as well as a 4 Volt dry flashlight battery. The clockwork safety mechanism activates the fuse only after 4 minutes have elapsed. Vibrations make the spiral springs shake until one of them touches one of the two contacts. This closes the circuit and the detonator explodes.

Once it has been activated, the ChVZ is tremendously sensitive. And if there is no possibility of cutting the short wires leading to the detonator without moving the fuse or even shaking it slightly, it should never be deactivated manually.



Zünder eingebaut in PzAbwMine DM

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3.3.6.2 ChVZ Vibration Fuse (USSR)

Technical Data

Measurements H/Ø:	45 / Ø 114
Arming voltage:	Minimum of 16 V for 5-10 s
Delay time before activation:	Aprx. 4 min
Container material:	Metal
Label:	Black letters on container (letters unknown)

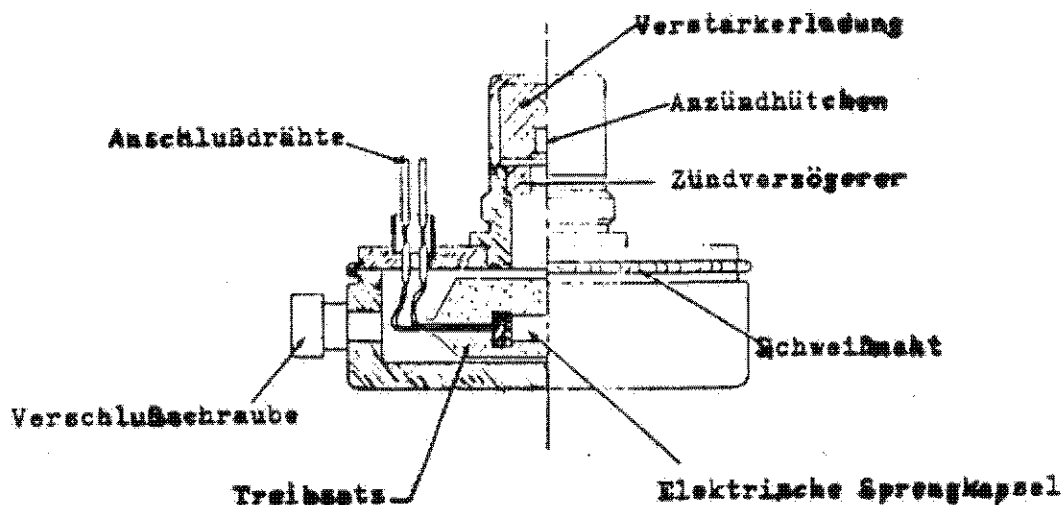
Comments

Used in anti-tank mine DM.

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IIR 2-196-0021-85
QDCSI DLO BONN3.3.6.3 UVK-1 Auto-Fuse (USSR)Description

The UVK 1 auto-fuse was specially developed for the bounding-type OZM mine in border zones. This auto-fuse consists of a cylindrical metal container enclosing the charge, a delay device, a detonator and a booster charge. The device has two holes: One of them is usually closed by a plug into which a mechanical fuse can be inserted. The second opening is provided for the wires of an electrical detonator, in case the fuse is to be electrically initiated. The electrical or mechanical initiation will ignite the charge, which will ignite the delay device. The latter will then burn-through in order to ignite the detonator and thus start the firing sequence.

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3.3.6.3 UVK-1 Auto-Fuse (USSR)

Technical Data

Measurements H/Ø:	92 / Ø 119 mm
Overall weight:	2.55 kg
Material:	Metal

Comments

None

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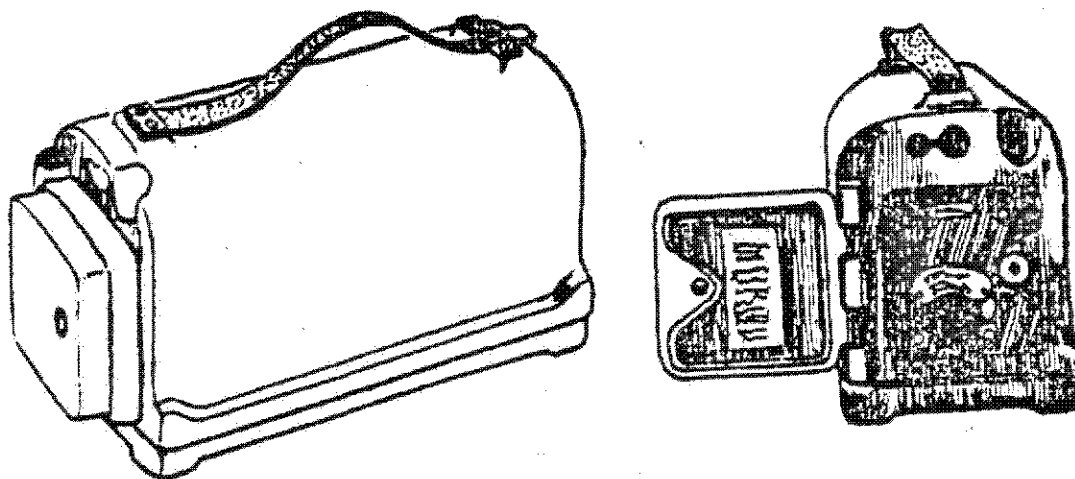
4. Demolition Accessories

4.1 Blasting Machines

4.1.1 PM-1 (USSR)

Description

The blasting machine PM-1 is a low-voltage blasting machine with crank drive.



Technical Data

With the standard igniter cable 100 electrical detonators connected in a series circuit can be ignited over a maximum distance of 2000 meters.

Comments

None

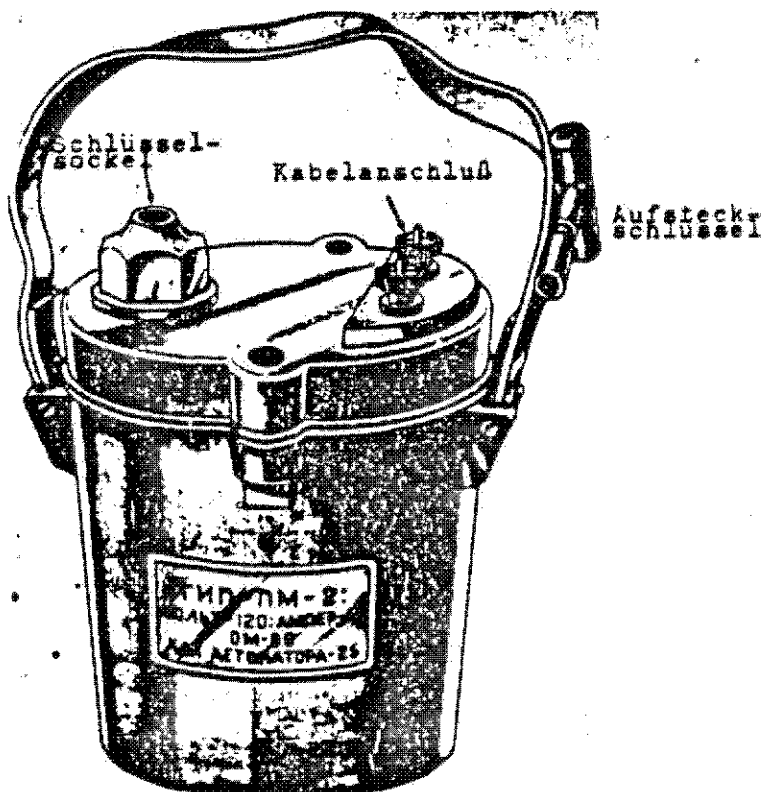
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4.1.2 PM-2 (USSR)

Description

The PM-2 blasting machine is a low-voltage blasting machine with crank drive. The casing is made of aluminum.



Technical Data

With the standard igniter cable, 100 electrical detonators connected in a circuit series can be ignited over a maximum distance of 2,000 meters.

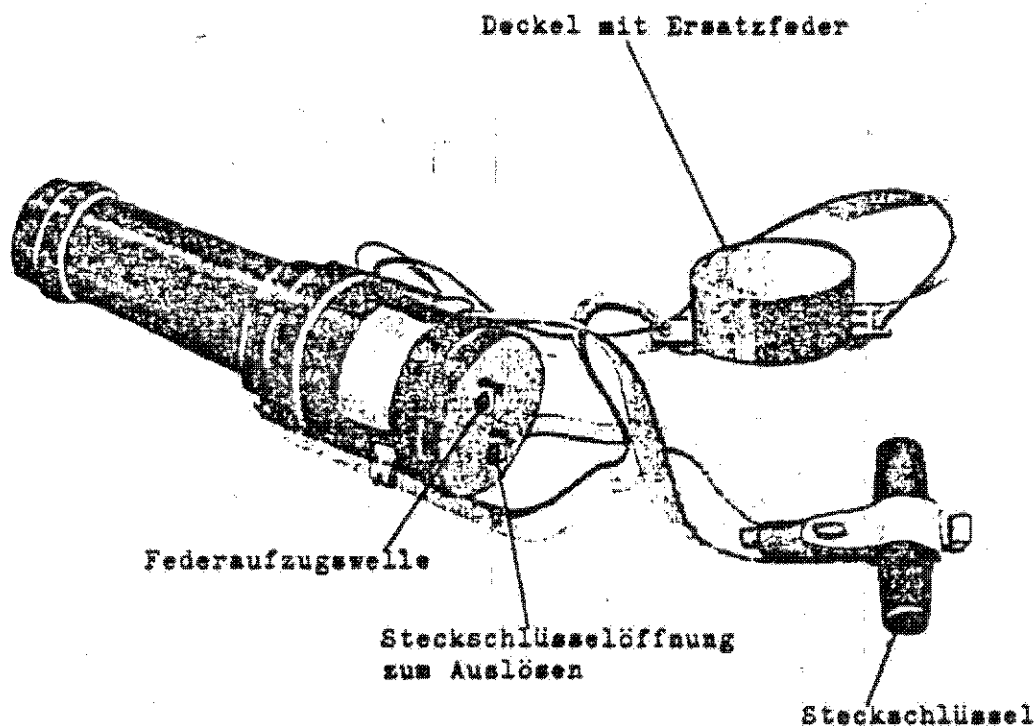
Comments

None

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ODCSI ULO BONN4.1.3 PM-627 (USSR)Description

The PM-627 blasting machine is a blasting machine with spring drive. The metal casing contains a generator-ignition unit, a centrifugal switch and a gear drive. After winding the spring, the ignition is set-off with the plug-in handle.

Technical Data

With the standard igniter cable, 50 electrical detonators connected in a circuit series can be ignited over a maximum distance of 2,000 meters.

Comments

None

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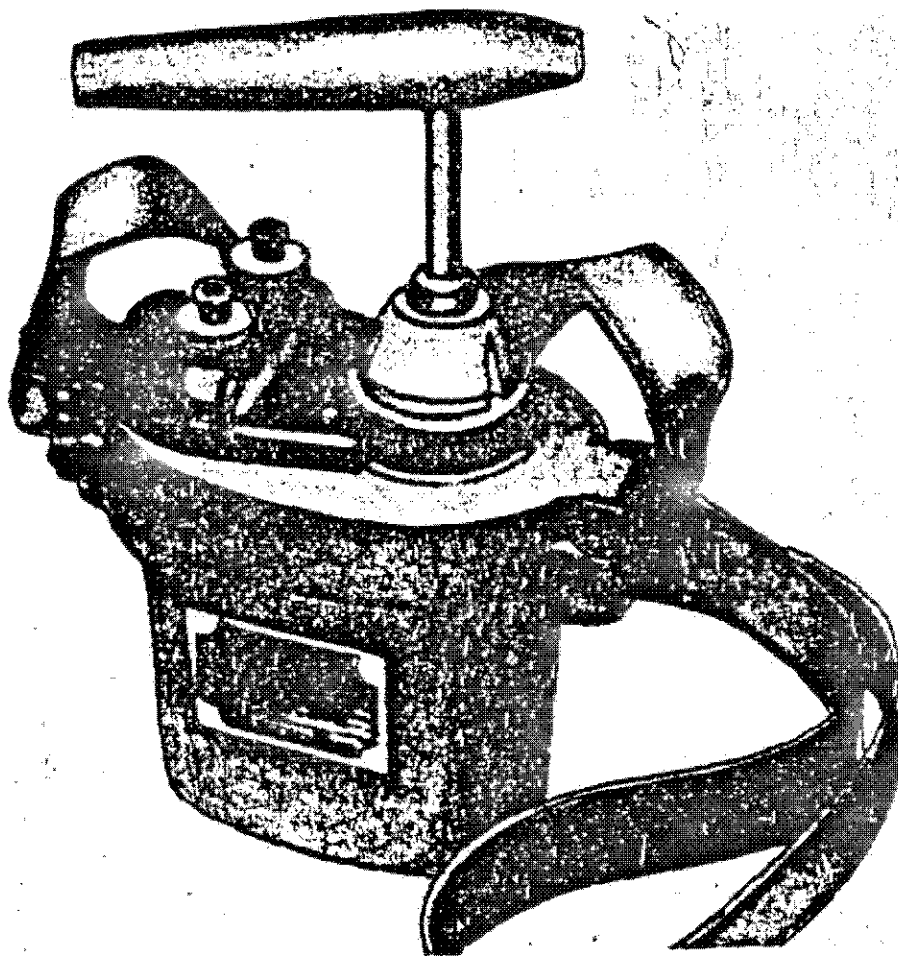
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ODCSI ULO BONN

4.1.4 DEOS-25 (CSSR)

Description

The DEOS-25 blasting machine is low-voltage with a rack-and-pinion drive and a push-type handle.



Technical Data

25 electrical detonators connected in a circuit series can be ignited.

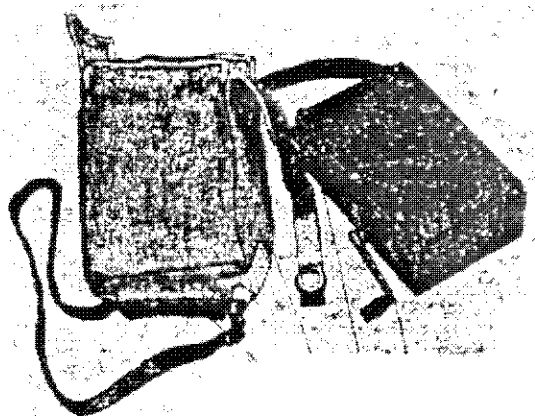
Comments

The DEOS-50 blasting machine is constructed the same way. However, it is more powerful and may ignite up to 50 electrical detonators arranged in a circuit series.

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CONFIDENTIAL4.1.5 RK-1 (CSSR)Description

The RK-1 blasting machine is a capacitor discharge unit placed in a waterproof bakelite container. This blasting machine can be used in temperatures ranging from -40°C to +50°C.

Technical Data

Measurements L/W/H: 300/137/64 mm

Weight: 1.74 kg

Voltage: 1,000 - 1,600 V

Amperage: Max 50 A

Output: 2 Ws at 1,000 V

250 electrical detonators connected in a circuit series can be ignited.

Comments

None

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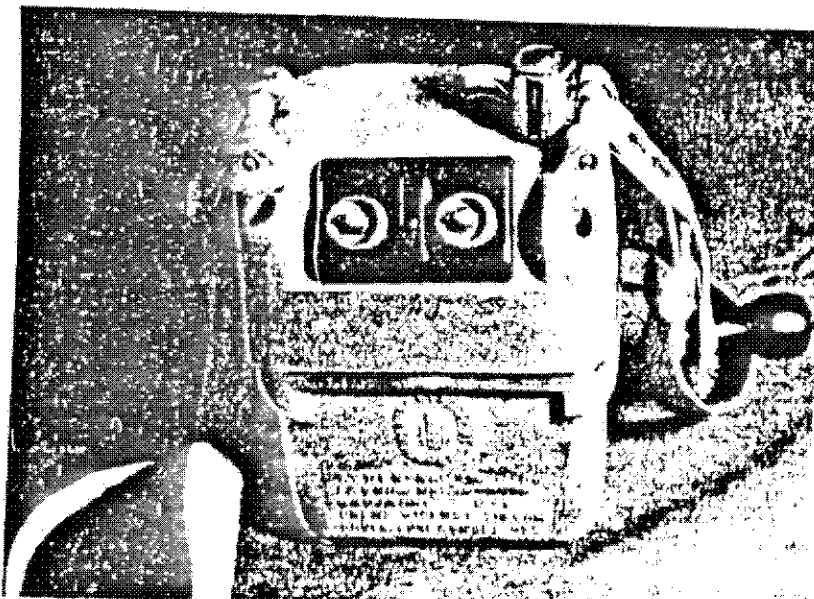
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ODCSI ULO BONN

4.1.6 M-524 (GDR)

Description

The M-524 blasting machine is equipped with a crank drive.



Technical Data

Critical resistance: 510 Ohms
100 electrical detonators connected in a circuit series can be ignited.

Comments

The M-514 blasting machine is constructed the same way, but it is more powerful.

Maximum resistance: 1010 Ohms
200 electrical detonators connected in a circuit series can be ignited.
Other versions with the additional letter "S" are flameproof.

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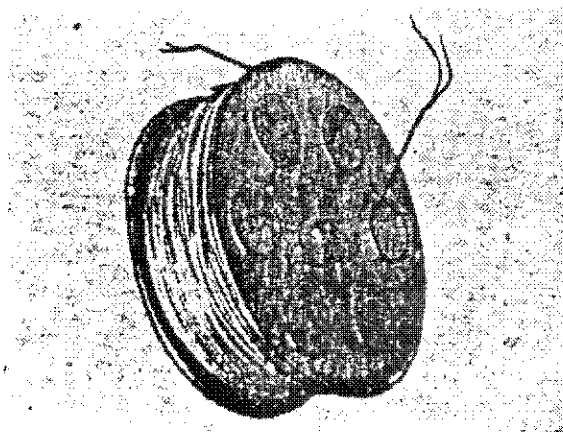
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4.2 Igniter Cables

4.2.1 V-SUA Igniter Cable (CSSR)

Description

The V-SUA igniter lead consists of two-stranded copper cable.



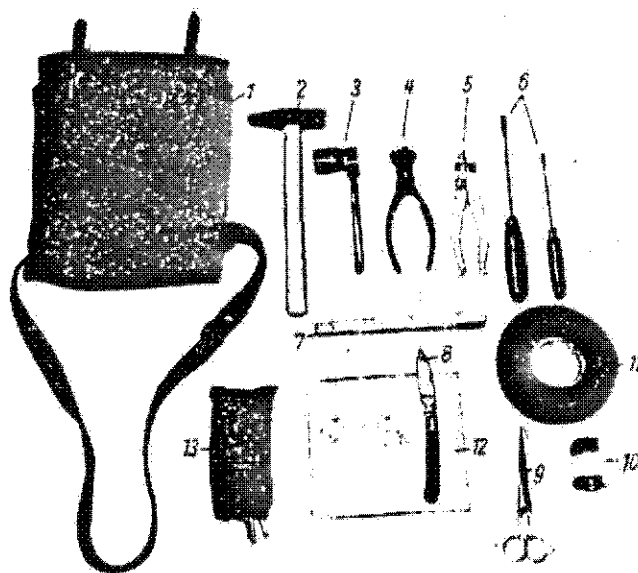
Technical Data

Profile: 2 x 5 mm²
Length per drum: 500 m

Comments

In the Soviet Army, two-stranded wire on 100 M drums is used; single-core cable with 200 m per drum is available as well. Telephone cable is also being used.

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The GDR's demolition equipment package consists of the following parts:

- | | |
|-----------------------|--|
| 1. Canvas bag | 8. Cable jack-knife |
| 2. Small hammer | 9. Scissors |
| 3. Socket wrench | 10. Sealing compound |
| 4. Clamping pliers | 11. Insulation tape |
| 5. Combination pliers | 12. Cutting board |
| 6. Screw driver | 13. Sleeves/quick-connective couplings |
| 7. Folding rule | |

Technical Data

None

Comments

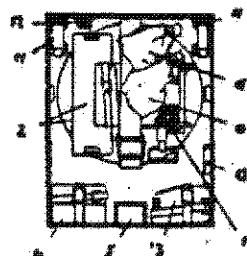
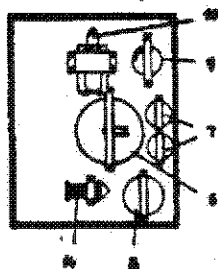
Similar demolition equipment packages are used in the other WP forces as well.

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The demolition equipment package of the Czechoslovakian People's Army (CVA) consists of the following items:

Serial Number	Type of Material
1	V-SUA Cable 500m
2	Cable drum with crank
3	RK-1 Blasting machin
4	VOMET Volt/OHM meter KDX
5	Ohm meter
6	Tracing tape (cloth) 30 m
7	2 x metal measuring tape
8	Insulation tape, 10 m
9	Sealing compound
10	Flashlight
11	Wire-skinning pliers
12	2 x clamping pliers
13	Combination pliers
14	Plumb bob, 20 m
15	Bag with screws and clamps
16	Bag with quick-connective couplings

Technical Data

None

Comments

None

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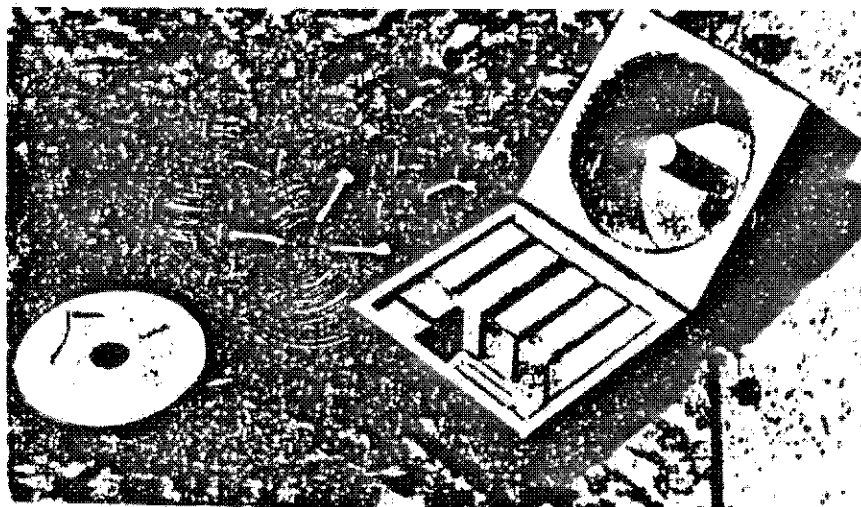
4.3.3 Demolition Equipment Package (GDR)

Description

The demolition equipment package is contained in a wooden box and consists of the following items:

- 50 electrical detonators (in original wooden package)
- 50 non-electrical detonators (in original wooden package)
- 2 reels of detonation cord
- 1 reel of safety fuse

The box is marked by the Roman number "VI" on a white background.



Technical Data

None

Comments

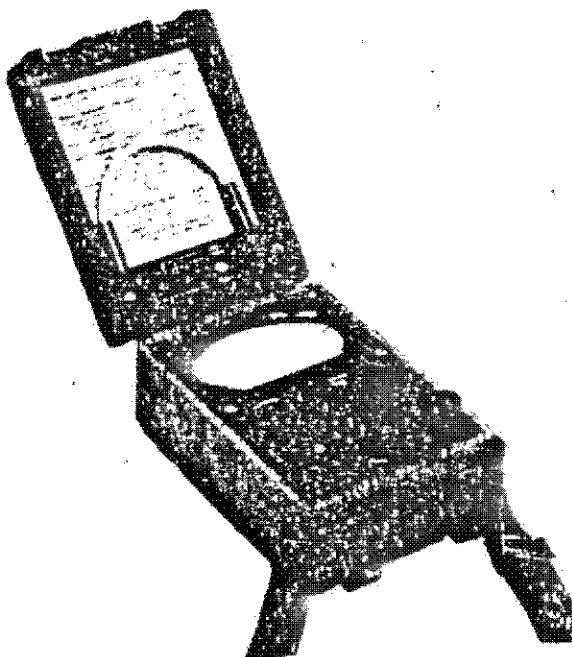
Similar demolition equipment packages are used in the other WP armies as well.

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The VOMET Volt, Ohm meter consists of two devices; the Ohm meter and the Volt meter. The latter sits in the cover of the Ohm meter.

Depending on the blasting machine used a corresponding Volt meter is applied.

Technical Data

Ohm meter

- measuring range: 0 - 5,000 Ohm
- smallest reading: 0.05 Ohm

Volt meter for

- dynamo-electric blasting machines: 100 - 300 V
- capacitor discharge unit: over 1,000 V
- D.C.: 0 - 150 V
- A.C.: 0 - 500 V

Comments

None

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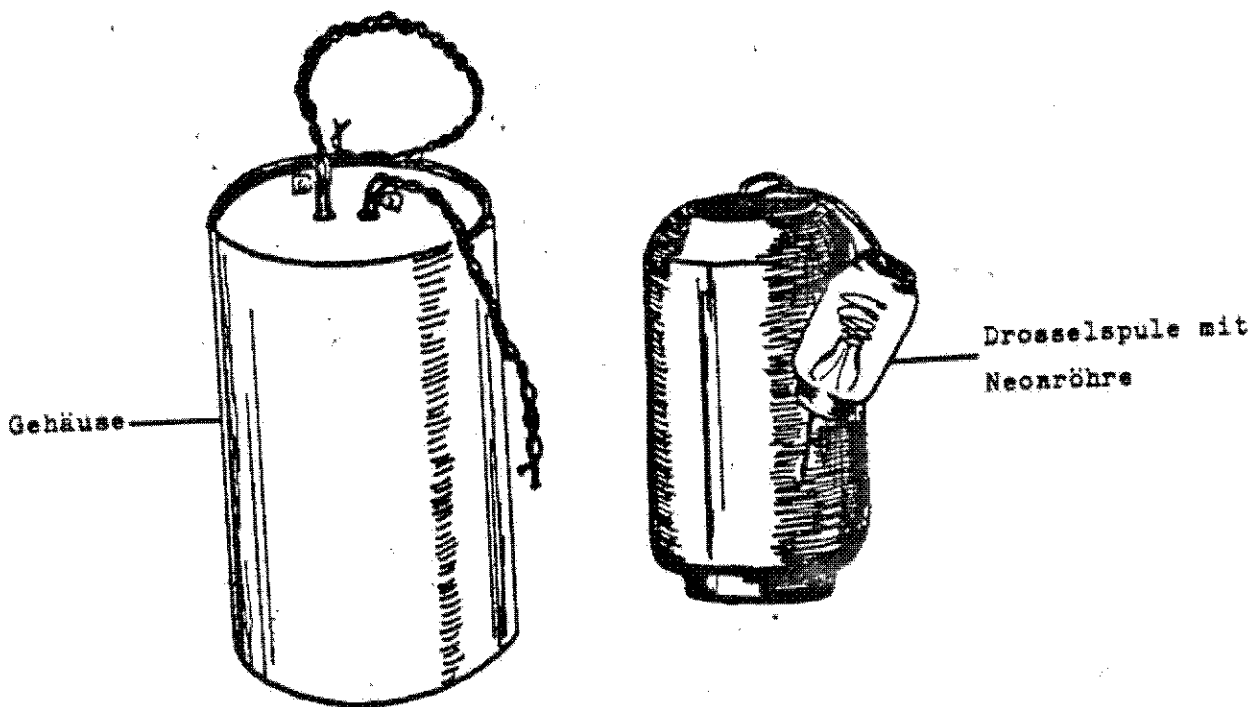
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4.4.2 GZU Lightning Protector (USSR)

Description

The lightning protector GZU is designed to protect igniter circuits of mines and explosive devices against premature ignition by lightning or other types of stray voltage exceeding 60 V.

The lightning protector consists of a cylindrical bitumen-insulated container enclosing a neon tube with a 60 V ignition voltage and an impedance coil with a resistance of 10 Ohm. The lightning protector is built into the ignition circuit.



Technical Data

None

Comments

None

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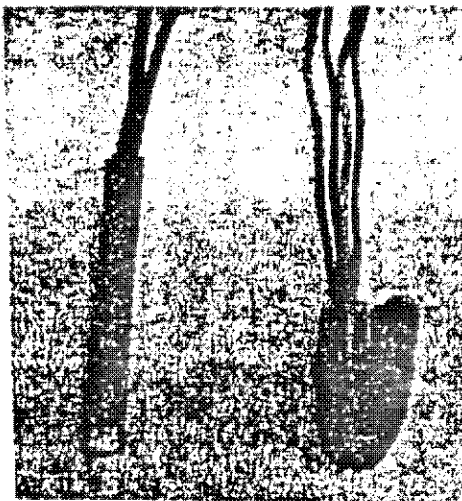
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4.4.3 Quick-Connective Couplings (GDR)

Description

Quick-connective couplings are used to connect firing cables leads to each other or to the igniter cable. The sleeves are made of alloy and insulated on the outside.

The open ends of two cables in the ignition circuit are twisted together and placed in the quick-connective coupling, afterwards it is bent in the middle.



Technical Data

None

Comments

None

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Abkürzungen und Übersetzungen für Sprengstoffe

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<u>Russisch</u>	<u>NAVO-Transkription</u>	<u>Deutsch</u>
АММОЧАД	AMMONAL	Ammonsalpeter
АММОНИТ	AMMONIT	Ammonsalpeter + TNT (Dynammon + TNT)
АМСЕЛИТРИ	ANSELITRY	Ammonsalpetergemisch
ДИНАМОН	DYNAMON	Dynammon
ГРАММ (oder) Г	GRAMM (oder) G	Gramm (Gewichtseinheit)
ГРИЗУТИН	GRIZUTIN	Grisutin (handelsüblich) 12 % TNT (Nitro-glyzerin + Dynammon + TNT)
КСИЛИЛ	KSILLIL	Xylil (Nitroxylol)
МЕЛИНИТ	MELINIT	Trinitrophenol
ПЕТИ	PETIN	Nitropenta + 10% Plastifizierungsmittel
ПОДРЫВНАЯ	PODRYVNAYA	explosiv
ПРЕССОВАННЫЕ	PRESSOVANNYE	gepreßt
С ДОПОЛНИТЕЛЬНЫМ ДЕТОНАТОРОМ	S DOPOLNITEL'NYM DETONATOROM	mit Übertragungsladung
ШАШКА	SHASHKA	Sprengkörper
СУЛЬФИТНЫЙ	SULFITNYY	sulfatiert
ТОЛ	TOL	Trinitrotoluol (TNT)
ТРОТИЛОВАЯ	TROTILOVAYA	TNT-
ВЕС	VES	Gewicht, Masse

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**INTELLIGENCE INFORMATION REPORT
SUPPLEMENTAL DATA**

Individual Items Of This Report Are
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REPORT NO: 2-196-0021-85


PROJECT NO: 9115-00 (G)

COLL MGMT CODES: None

SPECIAL INSTRUCTIONS: DIRC Y N

PREPARED BY: M. M. SCHULTE, GS-07
(name, rank/grade, position) Translator

APPROVED BY: (name, rank/grade, position, signature)



DANIEL W. O'BRIEN, GM-14
ODCSI USAREUR Liaison Officer, Bonn

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