

Appendix A

Soviet Obstacle Warfare

This appendix discusses some of the tactics, techniques, and procedures used by the Soviet army in obstacle employment. The information presented applies to most Soviet-style armies and their surrogates. This appendix is intended to complement the information presented in other field manuals (FMs) on Soviet tactics obstacle warfare. Commanders should use this information to give added realism to unclassified staff and combined arms team training. Obstacle employment norms may change with the factors of METT-T for a given area of operations. Therefore, preoperational training on templating, intelligence, reconnaissance, and reduction procedures must be based on the best information available before deployment.

MINEFIELDS

Soviet formations contain considerable organic obstacle-emplacement capability. Soviet rapid-mining capability presents a serious challenge to friendly

maneuver. *Figure A-1* summarizes mechanical minelayer assets organic to Soviet regiments and divisions.

To rapidly lay mines and place obstacles during offensive operations, the Soviets form a special team called the POZ, also called the Soviet mobile obstacle detachment, from regimental and divisional assets. The POZ places AT mines on the most likely avenues for armored attacks or counterattacks. Additionally, they are equipped to crater roads or destroy bridges along these routes. POZs are positioned on the flanks of a march formation for rapid deployment and are normally in close proximity to the AT reserves. During the march they reconnoiter avenues into the flanks and identify the most likely avenues for tank movement. At secured objectives, the POZ reinforces existing obstacles and places new obstacles to help defeat any counterattack.

The combined arms commander orders the organization of the POZ and determines its composition based on the combat situation and the available troops. The engineer

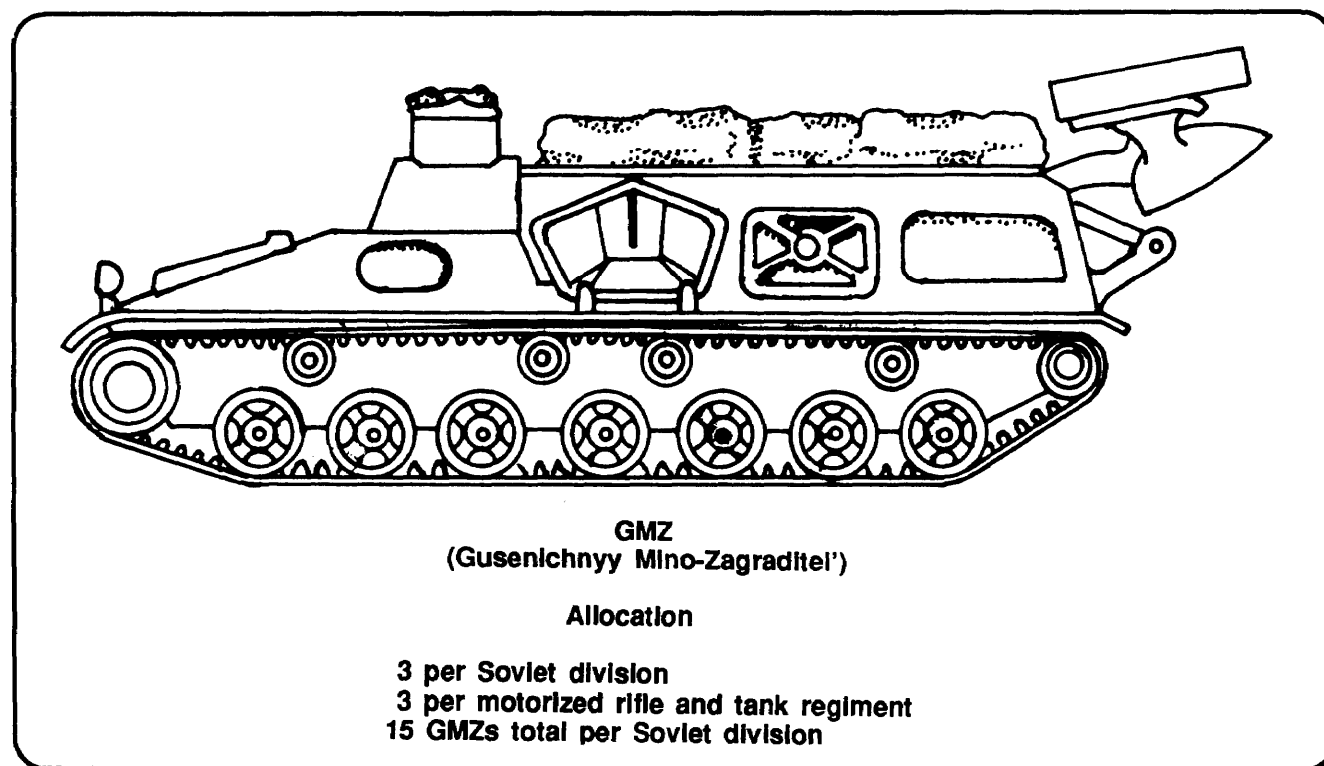


Figure A-1. Soviet armored tracked minelayer (GMZ).

elements in a division POZ come from the divisional engineer battalion and consist of three armored tracked minelayers (Gusenichnyy Mino-Zagraditel' (GMZ)). This platoon-sized element will have two to three trucks carrying mines for immediate resupply. For the regimental POZ, the regimental engineer company can provide a platoon-sized unit which is equipped with two or three GMZs. This platoon would travel in their BTR-50/60 and have 600 AT mines and 200 kilograms of explosives available.

The GMZ dispenses mines at a predetermined spacing of 4 to 6 meters. Minelaying helicopters support the POZ, with the HIP or HIND-D helicopters carrying two to three dispenser pods of AP or AT mines. Artillery-fired SM could also support the POZ. Three GMZs can lay a 1,200-meter three-row minefield containing 624 mines in 26 minutes (doctrinally this minefield would be broken into several minefield, each 200 to 300 meters long).

The Soviets use obstacles extensively throughout the depth of their defense. Training at the National Training Center (NTC) has repeatedly shown that their tactics are well chosen. Shallow obstacles are breached quickly and easily. For example, a shallow minefield with one row of mines is essentially breached after one or two mines in the row are blown. The Soviets' rapidly placed minefield consists of three or four 200-to 300-meter-long rows spaced 20 to 40 meters apart with mines spaced 4 to 6 meters apart. As a rule, the minefield covers the depth of a football field. *Table A-1* gives more details on the dimensions of the standard Soviet AT and AP minefield. Terrain and tactical situations dictate actual dimensions and distances of minefield. *Figure A-2, page A4*, shows a rapidly placed minefield. The Soviets typically use such a minefield when in a hasty defense (offense is temporarily stalled). *Figure A-3, page A-4*, and *Figure A-4, page A-5*, show standard antitrack and antihull minefield. *Figure A-5, page A-5*, shows a standard AP minefield.

The Soviets can also be expected to emplace what they call "mixed minefield," which are not the same as US mixed minefield. They normally emplace three rows of AT mines, then several rows of AP mines. The AT and AP mines ARE NOT mixed in the same row. *Figure A-6, page A-6*, illustrates a mixed minefield reinforcing an AT ditch.

Soviet engineers use two fundamental drills to emplace mines. When emplacing armed mines, the drill uses a crew of five sappers. The first crew member (the senior man and operator) is in the minelayer seat monitoring the operation of the minelayer and the motion of the mines in the guide chute; he sets the mine spacing and controls the actions of the GMZ. The second, third, and fourth members are in the GMZ. The second and third members take mines out of the containers and place them in the intake chute at intervals between the guide tray's drive chain. The GMZ driver steers the vehicle along the indicated route at the established speed.

When emplacing unarmed mines, there are two or three additional sappers assigned to arm the mines. After emplacing the mines, one sapper trails the minelayer, marks emplaced mines with pennants, and partially places the camouflage over the mines. The other two sappers then arm the mines.

AP minefield emplacement is similar to AT minefield emplacement except that special precautions are taken. Soviet doctrine allows only surface laying of PMN mines from minelayers. POMZ-2M mines are emplaced with the truck and tray technique (PPMP). Extra effort is required to assemble, emplace, and deploy the trip wire and camouflage the POMZ-2M mine.

Using three GMZ-tracked minelayers, a Soviet POZ can emplace 1,200 meters of a three-row AT, surface-laid minefield containing 900 AT mines in 15 minutes (see *Figure A-7, page A-6*). This does not include a 12- to 15-minute reload or travel time. Both travel and reload times increase during limited visibility.

ANTITANK DITCHES

Soviet regiments and divisions have considerable earth-moving capability. *Table A-2, page A-7*, lists basic Soviet earth-moving equipment. The BTM trench digger is primarily used to dig infantry into trenched fighting positions. The MDK is primarily used to dig vehicular fighting positions. The BTU tank dozer blade for the T54, T55, and T62 tanks and IMR blades are used to breach obstacles; they are not well suited for AT ditching and survivability work. The BAT-2 tracked dozer and the MDK-3 create AT obstacles and dig field fortifications. The T72 and later model tanks are equipped with self-entrenching blades for digging positions only. Because the minefield can be more rapidly emplaced and recovered, the Soviets use minefield more often than AT ditches in obstacle systems. The Soviets have the capability to dig extensive AT ditches; however, survivability positions must be completed first.

SOVIET DEFENSIVE OBSTACLE EMPLOYMENT CONCEPTS

If Soviet forces have to go into a defense, they will do so quickly and in a very organized manner. With the amount of engineer equipment available and with integral blades on their tanks, they can dig themselves in and emplace protective obstacles in less than a day. Once the obstacles are emplaced, their general priorities are protection to the flanks, the seams between units, and the fronts of positions. Tactical obstacles are used to shape fire sacks. The first priority for use of nonexplosive obstacles is to protect the force. With protection complete, nonexplosive obstacles are then used forward in the fire sacks. Wire obstacles are used to protect flanks and to support explosive obstacles.

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Table A-1. Normal parameters for Soviet minefields.

Antitank Minefield	
Front (situation dependent)	200 to 300 meters
Depth	60 to 120 meters
Distance Between Rows	20 to 40 meters
Number of Rows	3 to 4 rows
Distance Between Mines	4 to 6 meters for antitrack mines 9 to 12 meters for antihull mines
Outlay, Normal	550 to 750 antitrack mines/kilometer 300 to 400 antihull mines/kilometer
Outlay, Increased Effect	1000+ antitrack mines/kilometer 500+ antihull mines/kilometer
Probability of Destruction	0.57 for antitrack mines (750/kilometer) 0.85 for antihull mines (400/kilometer)
Antipersonnel Minefield	
Front	30 to 300 meters
Depth	10 to 150 meters
Distance Between Rows	5+ meters for blast mines 25 to 50 meters for fragmentation mines
Number of Rows	2 to 4 rows
Distance Between Mines	1 meter for blast mines 50 meters or twice the lethal radius of fragmentation for fragmentation mines
Outlay, Normal	2,000 to 3,000 for HE/blast mines (2,000/kilometer) 100 to 300 for fragmentation mines
Outlay, Increased Effect	2 to 3 times normal outlay
Probability of Destruction	0.15 to 0.2 for HE/blast mines (2,000/kilometer) 0.1 to 0.15 for fragmentation mines (100/kilometer)

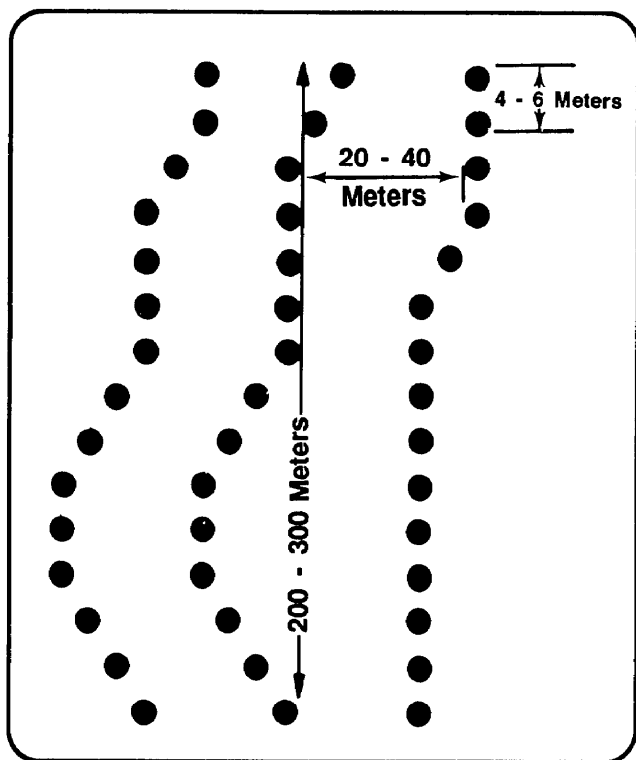


Figure A-2. Soviet rapid minefield.

The MRC commander's obstacle concern is for self-protection. The protective obstacles will be placed 50 to 500 meters from the defensive fighting positions.

The MRB commander's obstacle concern is for the flanks of subunits and the MRB and to shape the fire sacks. Obstacles are placed at one-half the effective range of the AT weapons systems covering them.

The COP commander's obstacle concern is to appear as the MRB's main defense by delaying and disrupting the attacker and turning them into the MRB's fire sack. This is the first place an attacker will see obstacles. Tactical obstacles are placed at two-thirds the effective range of the COP's AT weapons and assist in their withdrawal to the main defense.

The type and complexity of an obstacle depends on the installing unit. Maneuver and artillery soldiers install simple single-system minefield that are usually protective in nature. Engineer soldiers install complex obstacles that CAN include antihandling devices. Engineer obstacle placement is usually equipment-intensive. Soviet engineer effort generally concentrates on tactical obstacles unless maneuver soldiers are unable to employ the necessary protective obstacles.

The Soviets continue to improve the obstacles supporting their positions by marking the friendly side of obstacles,

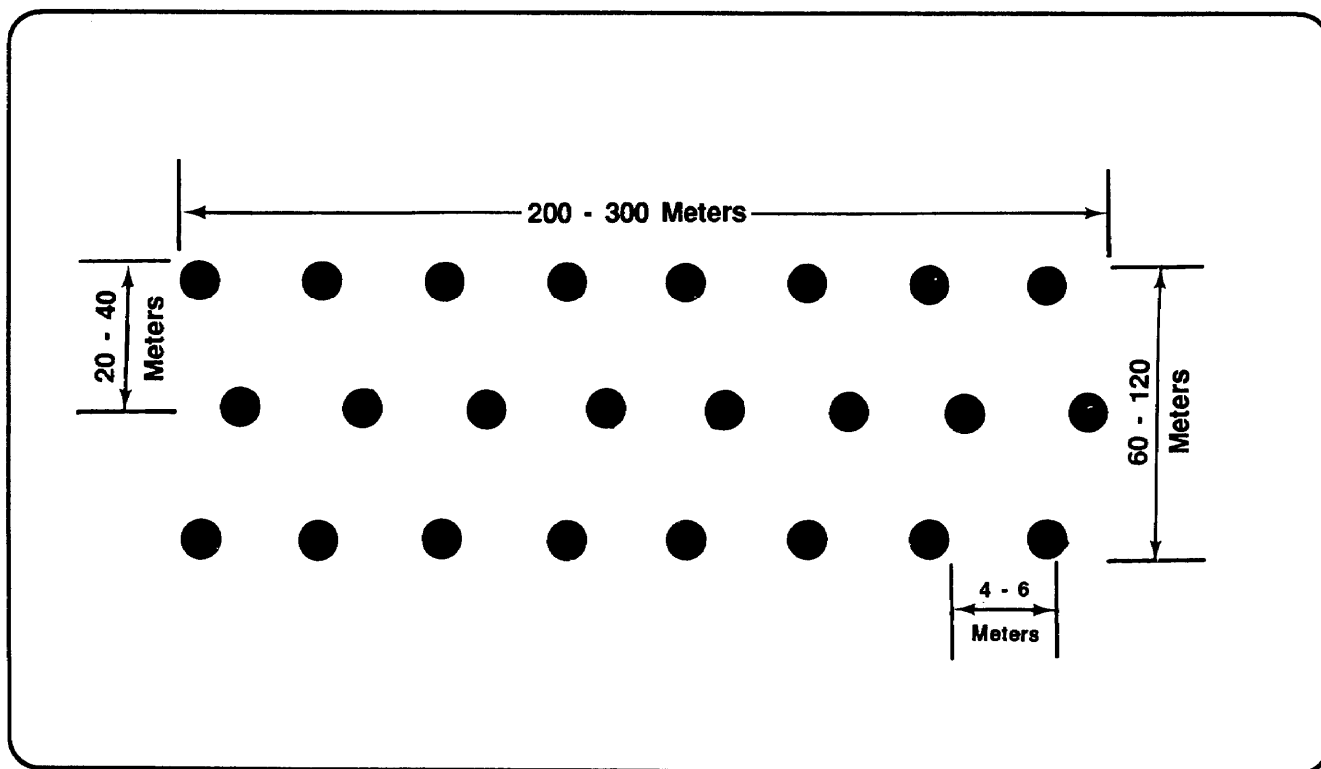


Figure A-3. Soviet antitrack minefield.

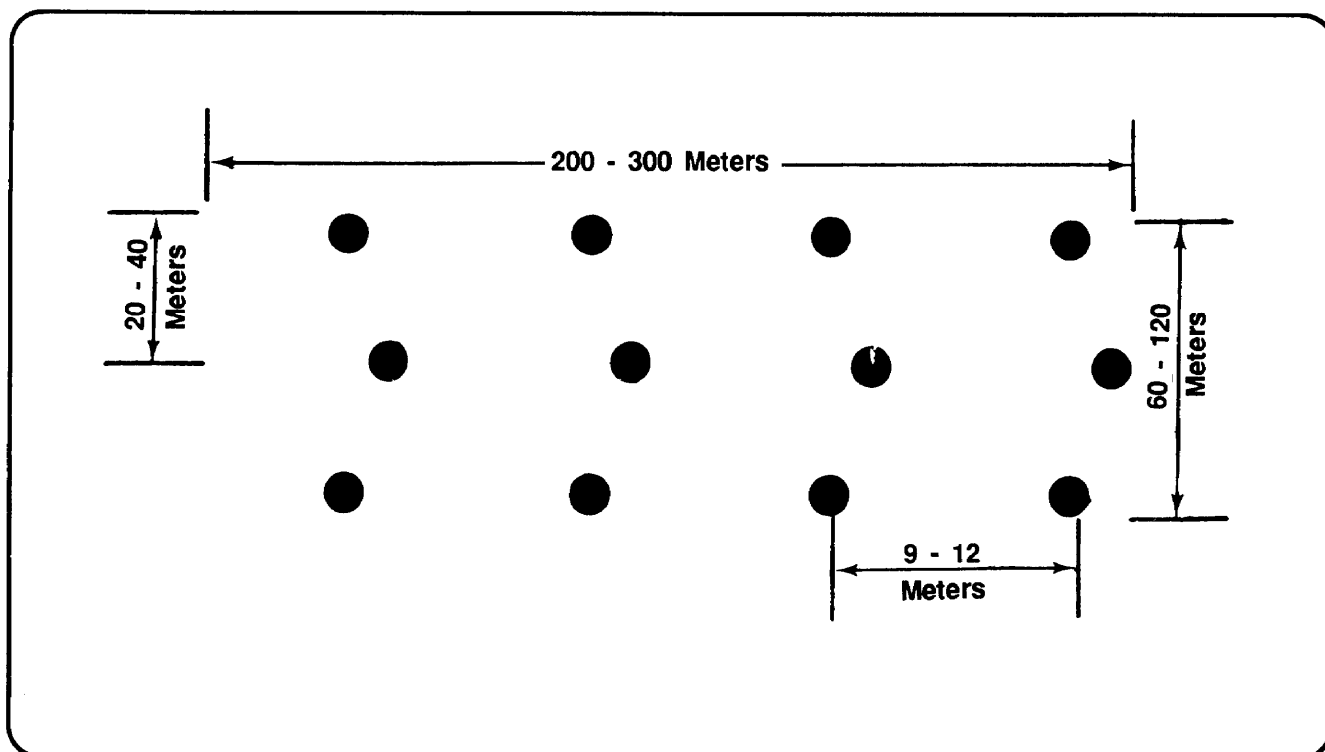


Figure A-4. Soviet antihull minefield.

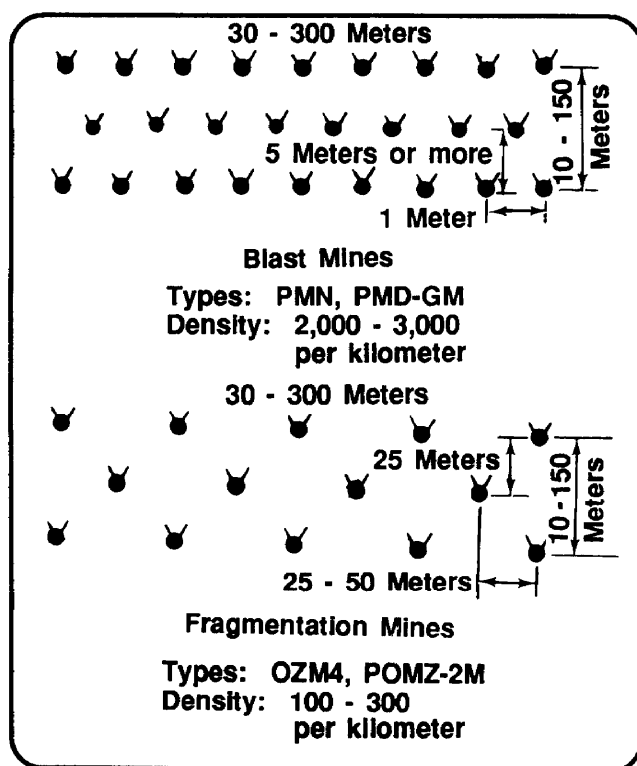


Figure A-5. Soviet antipersonnel minefield.

burying mines, and adding antihandling devices. They will also emplace deceptive positions and obstacles.

TACTICAL USE OF SOVIET OBSTACLE EMPLOYMENT NORMS

The Soviet army has established norms and priorities of work for obstacle employment which are the foundation of Soviet defensive preparations and are rigidly adhered to by Soviet commanders. Understanding these norms is an invaluable tool for an attacking force. They enable the commander and his staff to identify the strengths and weaknesses of an enemy defense. Table A-3, page A-8, shows possible enemy obstacle activities and their tactical significance to an attacker; analysis is based on the Soviet obstacle employment norms.

In short, understanding Soviet obstacle norms enables the commander and staff engineer to focus reconnaissance efforts, analyze hard intelligence reports, and make decisions about their own plans. How to integrate OBSTINTEL into the planning process and collection effort is covered in Appendix B.

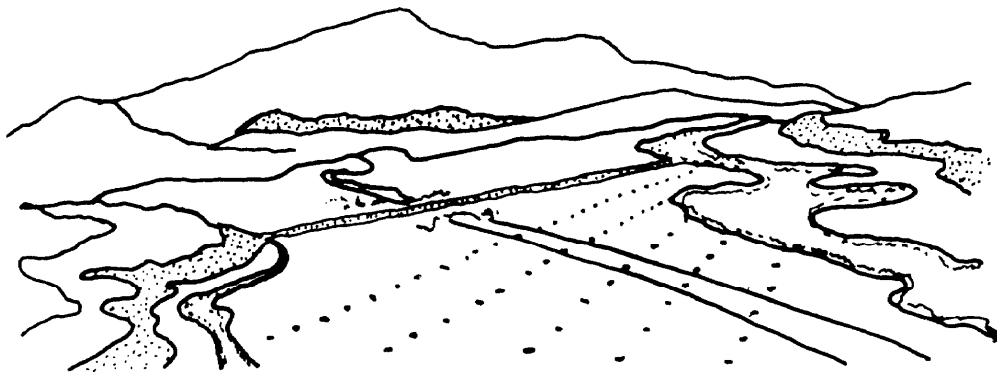


Figure A-6. Soviet mixed minefield reinforcing an antitank ditch.

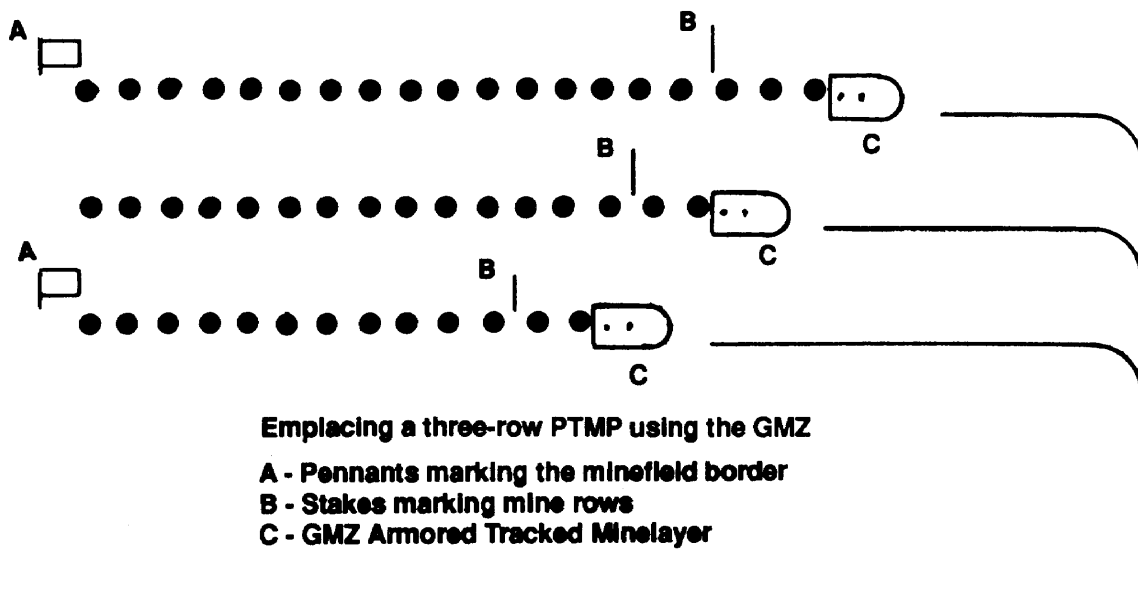


Figure A-7. Soviet POZ mining technique.

Table A-2. Soviet earth-moving capability.

Type	Mission	Capability	TR	MRR	TD	MRD
¹ BTM-3	Trench Ditching	1 meter wide by 1.5 meters deep 240 to 500 cubic meters per hour	1	1	4 '8	4 '8
¹ MDK-3	Ditching/AT Ditch	4.0 meters wide by 4.4 meters deep 120 to 300 cubic meters per hour or 12 hull defilade positions per hour	1	1	4 '8	4 '8
BTU	Tank Dozer Blade	Mobility or fighting position 150-250 cubic meters per hour	3	3	0 '12	0 '12
BAT-2	Tracked Dozer	Mobility/Counter mobility/ Survivability 35 to 50 meters of AT ditch per hour	1	1	8 '12	8 '12
PZM-2	Trench Digging	Mobility/Counter mobility/ Survivability 3.5 meters wide by 1.5 meters deep 60 meters of AT ditch per hour	3	3	0 '12	0 '12
IMR	Engineer Tractor	Mobility/Survivability Blade: 3.5 cubic meters Bucket: 0.15 cubic meters	1	1	2 '6	2 '6

¹Denotes totals for the division¹Units may have the BTM-3 or the MDK-3

Table A-3. Tactical significance of Soviet obstacle activities.

Observed Enemy Obstacle Activity	Tactical Significance
Protective obstacle activity.	The enemy shifts to a hasty defense.
Protective obstacle effort on unit's flanks and on the seams between adjacent units.	The enemy is working on its first priority; defense preparations have just begun.
Protective obstacle effort along the forward edge of dismounted and vehicle fighting positions.	This is the last phase of protective obstacle effort; priority of work will soon shift to emplacing tactical obstacles.
Troops emplacing protective mines in strips perpendicular to their positions or trench line.	The minefield is being emplaced by maneuver troops (infantry, armor, and artillery); presence of trip wires and antihandling devices is unlikely. AP mines will be the blast type and pressure detonated. The enemy commander determines his defense is currently unthreatened and has decreased security to allow maneuver soldiers to emplace protective mines.
Troops emplacing protective mines in strips parallel to their positions or trench line.	The minefield is being emplaced by engineers and the presence of trip wires and antihandling devices is more likely. AP mines may be fragmentary or blast type and either pressure or trip wire detonated.
Protective and tactical obstacle emplacement conducted concurrently.	The enemy is preparing a deliberate defense and is unable to resume the offense for some time. Protective obstacles are being emplaced by maneuver troops while engineers are emplacing the tactical effort.
Tactical obstacle effort.	This helps confirm the location, orientation, and type of weapons used by combat forces in the enemy's main defensive belt. Tactical obstacles are emplaced at approximately one-half the range of weapons in the main defensive belt.
Tactical obstacle effort activities located well beyond one-half the range of weapons in the main defensive belt (assume the location of main defensive belt is confirmed).	Observed obstacles may be specifically covered by the antitank guided missile (ATGM) reserve whose location will be 3000 meters from the obstacle. The observed obstacle may support the COP who will emplace obstacles at two-thirds of their weapons range trying to deceive the attacker on the location of the main defensive belt.
Obstacle activity observed beyond the expected enemy engineer capability.	The enemy force may have received extensive engineer reinforcement from its higher headquarters indicating the main effort. Enemy force is making extensive use of decoy minefields and may be using decoy positions.
Employment of minefield marking systems.	This indicates the enemy's side of the minefield (friendly side from the defender's perspective).