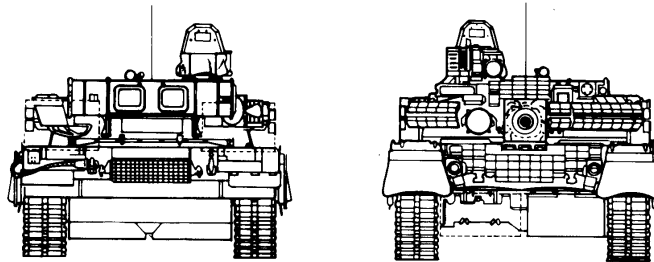
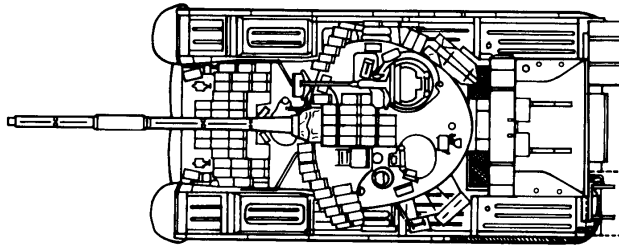


ST100-7



Battle Book



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CHAPTER 1: Structure and Task Organization Principles

| | |
|--|------|
| Operational Art | 1-1 |
| Operational Principles | 1-1 |
| Tactical Principles..... | 1-1 |
| Types of Combat | 1-2 |
| Combined Arms Battle..... | 1-2 |
| Combat Formation..... | 1-3 |
| OPFOR TO&E Structures..... | 1-4 |
| Maneuver Task Organization | 1-5 |
| Fire Support Task Organization | 1-5 |
| Antitank Reserves Task Organization..... | 1-8 |
| Reconnaissance Task Organization..... | 1-9 |
| Engineer Task Organization..... | 1-12 |
| Air Defense Task Organization | 1-12 |

Chapter 2: Organization

| | |
|--|------|
| Army Group | 2-1 |
| Army | 2-2 |
| Mechanized Army..... | 2-2 |
| Tank Army | 2-3 |
| Mechanized and Tank Army (continued) | 2-4 |
| Infantry Army | 2-5 |
| Air Army..... | 2-6 |
| Corps | 2-7 |
| Mechanized Corps..... | 2-7 |
| Tank Corps | 2-8 |
| Division | 2-8 |
| Mechanized Infantry Division | 2-9 |
| Tank Division | 2-9 |
| Motorized Infantry Division | 2-10 |
| Infantry Division | 2-10 |
| Airborne Division | 2-11 |
| Brigade | 2-11 |
| Mechanized Infantry Brigade (IFV)(SEP) | 2-12 |
| Mechanized Infantry Brigade (IFV)(Div) | 2-12 |
| Mechanized Infantry Brigade (APC)(Div) | 2-13 |
| Tank Brigade, MID..... | 2-13 |
| Tank Brigade, TD | 2-14 |
| Motorized Infantry Brigade | 2-15 |
| Infantry Brigade | 2-15 |
| Combat Helicopter Regiment | 2-16 |
| Separate Helicopter Squadron | 2-16 |
| Airborne Brigade (IFV)(Div) | 2-17 |
| Airborne Infantry Brigade (SEP)..... | 2-17 |
| Battalion..... | 2-17 |
| Mechanized Infantry Battalion (APC) | 2-18 |
| Mechanized Infantry Battalion (IFV) | 2-18 |
| Tank Battalion (31-tank) | 2-18 |
| Tank Battalion (SEP BR)..... | 2-19 |
| Motorized Infantry Battalion..... | 2-19 |
| Infantry Battalion..... | 2-19 |
| Company | 2-19 |
| Tank Company | 2-19 |
| Mechanized Infantry Company..... | 2-20 |
| Infantry Company | 2-20 |
| Special-Purpose Forces | 2-21 |
| Special-Purpose Forces Brigade..... | 2-21 |
| Special-Purpose Forces Battalion | 2-21 |

| | |
|--|------|
| Artillery..... | 2-21 |
| Artillery Division | 2-21 |
| 152-mm SP Gun Brigade | 2-22 |
| 220-mm MRL Regiment | 2-22 |
| Heavy Artillery Brigade..... | 2-22 |
| 122-mm MRL Regiment | 2-23 |
| SP Artillery Regiment | 2-23 |
| 152-mm SP Howitzer Battalion | 2-23 |
| 152-mm SP Howitzer Battalion | 2-23 |
| 122-mm SP Howitzer Battalion | 2-23 |
| 122-mm MRL Battalion..... | 2-24 |
| Mortar Battery..... | 2-24 |
| Artillery Reconnaissance Battery | 2-24 |
| Artillery Command Battalion..... | 2-24 |
| Artillery Command Battery | 2-24 |
| Target Acquisition Regiment | 2-25 |
| Target Acquisition Battalion..... | 2-25 |
| Target Acquisition Battery | 2-25 |
| SS-21 SSM Brigade | 2-26 |
| SCUD SSM Brigade | 2-26 |
| 33 | |
| Air Defense | 2-27 |
| SAM Brigade (SA-11)..... | 2-27 |
| SAM Regiment (SA-15)..... | 2-27 |
| SAM Regiment (SA-8)..... | 2-27 |
| 57-mm Antiaircraft | 2-27 |
| Air Defense Battalion MIBR and TBR (Sep) | 2-28 |
| Air Defense Battery MIBR and TBR (Div) | 2-28 |
| Early Warning Battalion..... | 2-28 |
| Early Warning Battery | 2-28 |
| Antitank..... | 2-29 |
| Antitank Regiment | 2-29 |
| Antitank Battalion, AT Regiment | 2-29 |
| Antitank Battalion, MID | 2-29 |
| ATGM Battery..... | 2-29 |
| Reconnaissance and Electronic Combat | 2-30 |
| Drone Squadron | 2-30 |
| Signal Reconnaissance Battalion..... | 2-30 |
| Reconnaissance and Electronic Combat Battalion | 2-30 |
| RPV Squadron..... | 2-30 |
| Reconnaissance Company | 2-31 |
| Long-Range Reconnaissance Company | 2-31 |
| Signals Reconnaissance Company..... | 2-31 |
| Reconnaissance and Electronic Combat Company..... | 2-31 |
| Reconnaissance Company | 2-32 |
| Reconnaissance Platoon (tracked) | 2-32 |
| Reconnaissance Platoon (wheeled)..... | 2-32 |
| Airborne Jamming Aviation Regiment..... | 2-32 |
| Heliborne Jamming Squadron..... | 2-32 |
| Jamming Battalion | 2-33 |
| Jamming Company..... | 2-33 |
| Engineer | 2-34 |
| Engineer Brigade..... | 2-34 |
| Road and Bridge Battalion | 2-34 |
| Obstacle Battalion | 2-35 |
| Obstacle-Clearing Battalion..... | 2-35 |
| Pontoon Bridge Regiment | 2-35 |
| Water Crossing Regiment | 2-35 |

TABLE OF CONTENTS

OPFOR Battle Book ST 100-7

| | |
|--|------|
| Engineer Battalion, MIBR | 2-36 |
| Engineer Battalion, MID & TD | 2-36 |
| Mine Warfare Company | 2-36 |
| Assault Crossing Company | 2-36 |
| Construction Company | 2-37 |
| Road/Bridge Construction Company | 2-37 |
| Pontoon Bridge Company | 2-37 |
| Engineer Company | 2-37 |
| Signal | 2-38 |
| Signal Regiment | 2-38 |
| Signal Battalion | 2-38 |
| Signal Company | 2-38 |
| Chemical | 2-39 |
| Chemical Defense Battalion | 2-39 |
| Chemical Defense Company | 2-39 |
| Chemical Reconnaissance Company | 2-39 |
| Chemical Defense Platoon | 2-39 |
| Logistics | 2-40 |
| Materiel Support Brigade | 2-40 |
| Materiel Support Battalion | 2-40 |
| Maintenance Battalion | 2-40 |
| Medical Battalion | 2-41 |

Chapter 3: Weapons and Equipment

| | |
|--|------|
| Individual and Crew Served Weapons | 3-1 |
| Infantry fighting Vehicles (IFV) | 3-4 |
| Armored Personal Carriers (APC) | 3-6 |
| Tank | 3-8 |
| Mortar | 3-10 |
| Towed Artillery | 3-12 |
| Self-Propelled Artillery | 3-14 |
| Multiple Rocket launchers | 3-16 |
| Surface to Surface Missiles (SSM) | 3-18 |
| Light Antitank Weapon | 3-19 |
| Antitank Guns and Recoilless Weapons | 3-20 |
| Antitank Guided Missiles (ATGM) | 3-21 |
| Anti-Aircraft Guns | 3-22 |
| Surface to Air Missiles | 3-24 |
| Bridges | 3-26 |
| Amphibious Vehicles | 3-28 |
| Earth Movers | 3-29 |
| Mine Layers | 3-30 |
| Mine Clearers | 3-31 |
| Trucks | 3-32 |
| Helicopters | 3-34 |
| Fixed Wing Aircraft | 3-36 |
| Radar | 3-37 |

Chapter 4: Tactical Formations

| | |
|-------------------------------|-----|
| March | 4-1 |
| When to March | 4-1 |
| Types of March | 4-1 |
| March Planning Factors | 4-1 |
| March Security | 4-2 |
| Advance Guard | 4-3 |
| Forward Detachment | 4-3 |
| Division Tactical March | 4-4 |
| Brigade Tactical March | 4-5 |

| | |
|---------------------------------------|-----|
| Prebattle Formation | 4-6 |
| Brigade | 4-6 |
| Battalion..... | 4-7 |
| Company | 4-7 |
| Battle Formation | 4-8 |
| Brigade | 4-8 |
| Battalion..... | 4-8 |
| Line Of Transition To The Attack..... | 4-8 |
| Dismount line | 4-8 |

Chapter 5: The OPFOR in the Offense

| | |
|---|------|
| Forms Of Tactical Maneuver | 5-1 |
| Frontal Attack | 5-1 |
| Close Envelopment | 5-1 |
| Deep Envelopment..... | 5-1 |
| Double Envelopment | 5-2 |
| Organizing For Combat | 5-2 |
| Reconnaissance | 5-2 |
| Forward Detachment..... | 5-2 |
| Echelons | 5-2 |
| Combined Arms Reserve | 5-4 |
| Raiding Detachment | 5-4 |
| Enveloping Detachment | 5-4 |
| Types Of Offensive Action..... | 5-4 |
| Attack Against a Defending Enemy..... | 5-4 |
| Meeting Battle..... | 5-7 |
| Pursuit | 5-11 |
| Missions..... | 5-13 |
| Reconnaissance in the Offense | 5-14 |
| Fire Support..... | 5-15 |
| Antitank..... | 5-17 |
| Engineer | 5-17 |
| Command and Control | 5-19 |
| Nuclear, Biological and Chemical (NBC)..... | 5-20 |
| Air Defense Employment..... | 5-22 |
| Close Air Support | 5-23 |
| River Crossing Operations | 5-23 |
| Airborne Operations | 5-23 |

Chapter 6: OPFOR Defensive Operations

| | |
|--|------|
| Defensive Principles | 6-1 |
| Types of Defense | 6-1 |
| Terrain Considerations in the Defense..... | 6-1 |
| Organization of the Defense..... | 6-2 |
| Forward Detachments | 6-8 |
| Fire Support..... | 6-9 |
| Antitank in the Defense | 6-10 |
| Engineer | 6-12 |
| Air Support..... | 6-13 |
| Counterattack | 6-14 |
| Withdrawal or Disengagement Actions | 6-14 |
| Defending in Special Situations..... | 6-15 |

Chapter 7: OPFOR Operations on Special Terrain

| | |
|---------------------------|-----|
| Combat in Urban Area..... | 7-1 |
| Combat in Mountains..... | 7-2 |
| Combat in Forrest..... | 7-3 |
| Night Combat..... | 7-5 |

CHAPTER 1: OPFOR STRUCTURE AND TASK ORGANIZATION PRINCIPLES

INTRODUCTION

This chapter presents the organizational structures of the opposing forces (OPFOR) used in CGSC. Chapter one provides the CGSC student with the general guidelines and principles the OPFOR employs when selecting and organizing its forces. The organizations and guidelines detailed in this chapter enable the OPFOR to develop the mix of forces required to meet their missions and objectives.

1-1 OPERATIONAL ART.

- Uses maneuver to defeat the BLUFOR.
- Disrupts the BLUFOR's cohesion on a large scale.
- Deprives the BLUFOR of the ability to react effectively to changes in the situation.
- Breaks up the BLUFOR's organization and control of large formations (corps and above).

1-2 OPERATIONAL PRINCIPLES.

The goal of operational art is the physical destruction of the BLUFOR. Several principles of operational art have been developed by the OPFOR to aid in the achievement of this goal:

Mobility
Speed
Initiative
Flexibility
Concentration of the Main Effort
Surprise
Information Warfare
Preservation of Combat Effectiveness
Effective Coordination

1-3 TACTICAL PRINCIPLES.

In OPFOR doctrine, tactics are subordinate to operational art. Success at the operational level is considered the key to victory. OPFOR principles of operational art and tactics are similar. OPFOR **tactical principles** include:

a. Combat Readiness.

- The capability to enter battle and successfully perform assigned missions at any time, in an organized manner, within prescribed time periods.
- Highly intense, quality training under combat-like conditions is critical to OPFOR combat success.

b. Aggressiveness.

- At the tactical level, this principle determines the OPFOR preference for the offense.

c. Decisiveness.

- Determining the methods, operations, and missions that permit maximum results in the shortest time, with the least losses ensures decisiveness.
- Requires initiative and aggressive determined actions by commanders with bold use of unexpected tactics.

d. Coordinated Efforts.

- Commanders combine unit strengths, ensuring efforts are directed to the same objectives and coordinate their missions, axes, deployment lines and timings.

e. Surprise.

- A surprise attack can allow success without an overwhelming superiority of forces.

f. CCD.

- Includes camouflage, concealment, and general deception techniques.

g. Concentration of Main Effort.

- Concentration is not just physically massing troops on the main axis.
- The goal is to concentrate at the decisive point for the shortest possible time.

h. Maneuver.

- Envelopment is the most preferred form of maneuver.
- Maneuver is the swift, organized displacement of troops to important axes and sectors to create a more favorable ratio of forces.
- Maneuver permits seizing and holding the initiative, disrupting the BLUFOR concept, and successfully conducting battle in the changed situation.
- Maneuver by fire is even faster than maneuver by forces. The range and effectiveness of modern weapons make this increasingly more important.

I. Comprehensive Support.

- Combat support includes reconnaissance, defense against weapons of mass destruction and high-precision weapons, camouflage, concealment and deception (CCD), engineer support, chemical support and security.
- Combat service support includes the supply and maintenance of all types of combat systems, equipment, and ammunition

j. Maintaining Combat Capability.

- The ability to maintain combat capability and to restore it quickly, when required, can mean the difference between success and failure.

k. Command and Control.

- Command and Control must be firm and continuous.
- Effective command and control defines the goal of battle and establishes and maintains effective communications.

1-4 TYPES OF COMBAT.

The OPFOR recognizes two types of combat: **offensive** and **defensive**. Traditionally, offensive combat is the only type that can ultimately bring victory. It is, therefore, the most decisive type of combat.

a. Offense. The goal of offense is the BLUFOR's **total defeat** and the capture of important **objectives**. This goal is achieved by destroying BLUFOR NBC and precision strike systems (including support elements), chemical attack weapons, artillery, and maneuver formations by the use of long-range missiles, aircraft, and artillery fire. This enables the swift advance of tank and mechanized infantry (or infantry) units and formations in coordination with aviation and airborne assault forces. These formations defeat the BLUFOR by assaulting his flank and rear, by encirclement, and by splitting his forces and defeating them in detail. See **Chapter 5** for detailed information on the offense.

b. Defense. The defense is a battle with the objective of repelling an attack by BLUFOR, inflicting considerable losses, and holding important terrain, allowing the buildup of forces in other sectors and creating favorable conditions for launching an attack. This objective is achieved by the fire of all available weapon systems; by a wide maneuver of fire; forces, and assets; and by stubborn holding of occupied positions, lines, and objectives in combination with conduct of counterattacks. See **Chapter 6** for detailed information on the defense.

1-5 COMBINED ARMS BATTLE.

The OPFOR defines a **battle** as “an organized armed struggle among units of various sizes and formations of different branches and services of the armed forces”. A battle can occur on the ground, in the air, or on the sea. Ground battle goals are the destruction of BLUFOR tactical formations and the capture, or retention, of important terrain. The essence of the tactical ground battle is **combined arms combat**. In combined arms battles, OPFOR commanders coordinate the actions of tactical units of every branch of the armed forces in terms of mission, place, and time, to achieve the rapid destruction of the BLUFOR. The **characteristics** of modern OPFOR combined arms combat include--

- High maneuverability.
- Decisiveness.
- Nonlinearity.
- Potential use of weapons of mass destruction and high-precision weapons.
- Swift and radical changes in the combat situation.

This means that units of different combat arms and special troops, as well as of aviation, conduct combined arms combat by joint efforts. Different combat forces and assets aligned in combat formations take part in it, including mechanized infantry (or infantry), tank, artillery, air defense, engineer, and chemical protection units. Close, continuous

coordination of mixed forces and assets in a single combat formation permits the OPFOR to perform combat missions successfully. Its combat attributes and capabilities are mutually supporting, ensuring the most effective combination of **strikes, fires and maneuver**.

a. Strike. The OPFOR **strike** is a component part of battle. It consists of a simultaneous engagement of BLUFOR groupings and targets by all available assets and forces. There can be NBC, fire, troop, missile, artillery or air strikes.

An OPFOR troop strike is a **combination of fire and movement** by tank and mechanized infantry (or infantry) units, or by airborne assault forces, to complete the BLUFOR's defeat and take a designated objective. The strike is most typical of the offense. In the defense, it is usually used in a counterattack.

The force of a strike by units is determined above all by their firepower, rate of movement, and surprise in delivering it. Tank and mechanized infantry (or infantry) units with effective artillery and air support and reliable cover by air defense weapons have the greatest force for a strike.

b. Fire. The OPFOR concept of **fire** is the engagement of the BLUFOR by fire using all available weapons. Fire differs in terms of intensity, direction, methods, and types. Fire is the chief factor in achieving success in battle, inflicting damage, which deprives the BLUFOR of combat effectiveness. Fire prepares and accompanies a troop strike, supports its development, and creates necessary conditions for executing a maneuver. In the defense, fire in combination with obstacles determines the possibility of repelling a BLUFOR attack.

The effectiveness of OPFOR weapons, especially with the appearance of high-precision weapons, has led to a significant increase in depth and accuracy of fire delivery, to damage of targets in the shortest time periods, and to an increase in the level of losses. Use of high-precision weapons has significantly increased effectiveness of OPFOR antitank fire.

c. Maneuver. Maneuver is the third component of modern battle. It consists of the organized, concealed, rapid displacement of troops in the course of combat. It allows occupation of a favorable position with respect to the BLUFOR and creates favorable groupings of forces and assets. It also allows the transfer or re-targeting of strikes and fires for maximum effectiveness.

In the defense, the OPFOR maneuvers units to change a position for a more favorable one, cover a threatened axis more reliably, or to reinforce or replace units. Maneuver can also allow the OPFOR to counter a BLUFOR strike, occupy a line of firing positions, or move to a counterattack position. The maneuver of forces, assets, and fire is a constant element of tactics employed in both defense and offense, in all stages of battle.

1-6 COMBAT FORMATION.

Mission requirements and the commander's concept determine the tactical alignment of forces at division and below. The OPFOR term for this is **combat formation**. Combat formation describes how any tactical-level combat element organizes and deploys its forces for combat. Thus, it is the tactical-level equivalent of the operational term **operational formation**.

The combat formation of a division, brigade, or battalion is the grouping created for the conduct of a particular battle. It normally includes a first echelon, a second echelon, a combined arms reserve, and other reserves. For a division or brigade, it would also include an artillery group and perhaps a forward detachment.

When preparing for combat, the OPFOR will have a set amount and mix of military forces from which it will select the appropriate force to accomplish a given mission. These forces are organized according to a table of organization and equipment (TO&E) which provide the basic building blocks within a force structure. They typically include maneuver forces, combat support elements such as artillery, antitank, and combat engineer units, and combat service support elements such as maintenance, transportation, and medical units. These TO&E structures provide the optimal organization for maintaining and managing the equipment and personnel within these units. TO&E organizations are found at the army group level down to the maneuver platoon. The largest TO&E unit is the maneuver division.

However, the OPFOR seldom, if ever, employs its military force as structured in the TO&Es. Instead, the TO&E organizations go through a process, commonly referred to as **task organizing**, that transform the organizations into **combat formations**. Created to perform a specific task, the OPFOR will reorganize these combat formations at any time, either upon completion of the initial task or receipt of a new mission.

The OPFOR determines specific combat formations, with particular attention given to the factors of Mission, Enemy, Troops, Terrain and weather, and the Time (METT-T) available. The combat formation of a division, brigade, or battalion is the grouping created **for the conduct of a particular battle**.

1-7 OPFOR TO&E STRUCTURES.

This section briefly describes the TO&E structures for the OPFOR maneuver divisions and their subordinate brigades and battalions. These units will serve as the basis for combat formation formed by the OPFOR. More detailed organizational charts for these structures are found in **Chapter 2**.

a. Division. Divisions are the basic building blocks of operational commanders. A division's organic assets are sufficient for it to attack or defend on a secondary sector. A typical division consists of four maneuver brigades, its organic combat and service support units. When fighting on the main effort, a division requires additional combat and service support assets. Army commanders may reinforce some divisions at the expense of others. For example, second echelon divisions may detach elements to reinforce a first echelon formation.

(1) Mechanized Infantry Division (MID). A mechanized infantry division typically consists of three mechanized infantry brigades and a tank brigade, with its combat and service support. The mechanized infantry division contains either two IFV-equipped brigades (with a BMP variant) and one BTR-equipped brigade, or vice versa.

(2) Tank Division (TD). A tank division typically consists of three tank brigades and a mechanized infantry brigade. Suited for an **exploitation role** in the offensive, in the defense the tank division deploys in the second echelon of the army or army corps to provide a **counterattack force**. If a tank division has to attack prepared defenses the BMP brigade would probably be in the first echelon. The OPFOR often uses BMP-equipped brigades and battalions for security and forward detachment missions.

b. Brigade. The brigade is the basic tactical and administrative unit in the OPFOR army. The OPFOR does not expect brigades to operate independently of their parent unit without reinforcement, and then only for a limited time.

The deployment of brigades is determined by the echelon structure of the division, usually in either one or two echelons. Two-echelon structures are appropriate when attacking or defending in the main sector of effort, against a BLUFOR deployed in depth. Grouping three brigades in the first echelon and one in the second is the most commonly adopted variant. A "two up and two back" deployment is sometimes found in the defense, on an army's or army corps' most threatened sector.

(1) Mechanized Infantry Brigade (MIBR). A mechanized infantry brigade in a mechanized infantry division consists of three mechanized infantry battalions and one tank battalion. In a tank division, the brigade has only two mechanized infantry battalions and a tank battalion.

Because of its firepower and mobility, mechanized infantry brigades are often found on the division's **main axis** in the attack or its most threatened sector in the defense. They are usually in the **first echelon**, although in the attack a BMP-equipped brigade may be considered for an exploitation role in the second echelon.

The division often selects battalions of a BMP-equipped brigade for special missions, such as forward or raiding detachments. BTR-equipped brigades are more suited to **secondary sectors** or those that favor wheeled vehicles. Heliborne operations often employ infantry from BTR units because of their man-portable antitank weapons. The mechanized infantry brigade (APC) may have a battalion of 122-mm towed howitzers (D-30), instead of this SP howitzer battalion.

(2) Tank Brigade (TBR). A tank brigade in a mechanized infantry division has three tank battalions as its only maneuver elements. In a tank division, each tank brigade has three tank battalions and a BMP-equipped mechanized infantry battalion.

Due to its lack of infantry, the tank brigade is not suitable for use in the first echelon of mechanized infantry divisions when attacking strong defenses. It is better suited in the second echelon, where it can **rapidly exploit success**. A tank brigade might be in the first echelon against a weak defense, where its goal would be to penetrate the defensive line and strike as deeply as possible before the BLUFOR strengthens his position.

In defense, the tank brigade is likely to be in the second echelon because its equipment and organization are better for a counterattack or counter-penetration role, rather than for holding ground. In any of these roles, the tank brigade would normally be reinforced with mechanized infantry forces.

c. Separate Infantry Brigade. The OPFOR also has separate mechanized infantry and tank brigades that are not subordinate to divisions. Compared to a MIBR, the separate brigade has more maneuver battalions plus expanded combat support and combat service support assets. This structure makes them well suited for independent action, for example, army/army corps-lead as a combined arms reserve or forward detachment.

In situations where the OPFOR has not had time to mobilize and deploy a division from its strategic reserve, a separate brigade might have to perform missions normally performed by a division. The combat formation would most likely use **two echelons**. It would have three to four MIBNs, each reinforced with a tank company, in the first echelon and a TBN or TBN (-) in the second echelon, along with any remaining MIBN(s).

d. Battalion. Tactical grouping of OPFOR battalions never involves the exchange of units (cross

attachment) with other battalions, e.g., a mechanized infantry battalion (MIBN) would not exchange a mechanized infantry company for a tank company with a tank battalion (TBN). Battalions are either reinforced with brigade assets or are themselves used as reinforcements. Within the battalion, the commander organizes his force in one or two echelons. He may use his own combat support assets, and any he receives from higher level, to reinforce subordinate companies (especially on his main axis), or he may retain these assets under his own control.

1-8 MANEUVER TASK ORGANIZATION.

This section covers the guiding OPFOR principles for task organizing combat formations. While the emphasis will be at the **division and below**, it is important to consider the impact of army group and army-level assets on the tactical fight. Detailed discussion on OPFOR **offense** is found in Chapter 5, and OPFOR **defense** in Chapter 6.

If, during the course of the battle, the force on the main effort is not achieving the expected result, OPFOR commanders would strip assets away to support a secondary effort that appears to be achieving a greater success.

a. ECHELONMENT.

(1) **Offense.** The development of OPFOR tactical combat formations and echelonment in the offense is greatly **influenced by the depth and the level of preparation of BLUFOR defenses**, and is intended to build combat power continuously on the line of contact. OPFOR commanders at division, brigade, and battalion levels organize their forces either in two echelons or in one echelon with a small combined arms reserve. Within the division, the pattern of echelonment can vary at different levels of command. For example, a division may deploy its brigades in two echelons, while some of the brigades deploy their battalions in one echelon.

Single-Echelon Formation. When attacking unprepared or partially prepared BLUFOR defenses, the OPFOR should organize into a single echelon with a reserve. If the BLUFOR has hurriedly assumed shallow defenses under these conditions, a single echelon may be sufficient to defeat it. The OPFOR will also use a single-echelon formation when attacking on a secondary axis. When using a single echelon, the OPFOR generally designates a *combined arms reserve*, thereby retaining the ability to influence the battle. After committing the reserve, the OPFOR creates another immediately.

Two-Echelon Formation. A two-echelon formation is employed when attacking a prepared defense, or at least partially prepared in depth and on the higher commander's main axis. **The first echelon normally contains the majority (2/3) of the combat power.** In addition to second echelon, he forms a small *combined arms reserve* consisting of approximately one ninth (1/9) of the combat power.

(2) **Defense.** As in the offense, the OPFOR can deploy in **one or two echelons**. Also, within a formation different levels of command may use different echelonment schemes. The formation used will also depend greatly on the nature of the terrain. European-type terrain lends itself to the use of multiple echelons, while more open terrain such as in the desert would see more mobile defense.

Single-Echelon Formation. As with the offense, a single-echelon formation is most **common on secondary axes**. A secondary axis, considered by the OPFOR as less threatened, will typically be given a wider frontage to defend. The combined arms reserve is considered to be sufficient for depth in this case. Single-echelon formations are also adopted when the defender has suffered heavy casualties.

Two-Echelon Formation. A two-echelon formation is employed on the most threatened axis. A narrower frontage (compared to the supporting effort) allows fewer units to defend in the first echelon, with significant forces remaining in depth.

Special Conditions. Two-echelon formations are most common when defending in **cities**, and may even include a reserve. In the **mountains**, defense is organized normally when located on plateaus and wide valleys. In **restricted terrain**, the emphasis is not on echelonment, but on creating and holding strongpoints. The strongpoints, created where possible to be mutually supporting, are integrated with key terrain features and chokepoints such as passes, road junctions, and river crossings.

1-9 FIRE SUPPORT TASK ORGANIZATION.

a. **Decisiveness of Fire Support.** Integrated fire support is a decisive element on the modern battlefield. In the **offense**, it is the principal means of achieving an advantageous force ratio over the BLUFOR. It can blast gaps in defenses; disrupt, immobilize, or destroy BLUFOR groupings in the tactical depth; and repel counterattacks. Fire superiority is a precondition for the success of any attack. The attacker must be able to execute his fire missions while suppressing counterbattery fire. In **defense**, it disrupts BLUFOR preparations for the attack, causes attrition as he approaches the forward edge and repels forces that reach or penetrate the forward edge. Fire superiority is also the

cornerstone of any defense, although often achieved only for a limited time, at the crucial point in the battle.

b. Organization for Combat. The OPFOR concentrates fires on critical points in the offense or disperses them throughout the sector in the defense. This requires artillery that is capable of rapid fire, long range, and mobility. Numerous longer-range tube artillery and MRL battalions from army group, army, corps, and division provide reinforcing fires when required. The OPFOR seeks to achieve the densities of fire necessary without sacrificing the mobility artillery units need to survive.

c. Key Points Concerning Artillery Organization for Combat.

- Temporary groupings.
- Thoroughly integrated fire and maneuver plans.
- Allocation based on missions of subordinate maneuver elements.
- Artillery requirements of main effort forces attacking will be satisfied before any other force is allocated artillery support.
- Not all maneuver units will receive additional artillery.
- Second echelon units are not provided additional artillery until they are committed.
- Offense: intense artillery preparations of short duration.
- Defense: prolonged, high volume artillery fire in depth to break up the BLUFOR's attack.

d. Allocation Procedures. The OPFOR carefully calculates artillery requirements in terms of weapons and rounds needed to produce a required effect on BLUFOR targets. If insufficient artillery or ammunition is available to achieve the necessary result, the OPFOR does not fire less and hope for the best. Rather, if necessary, it engages fewer targets, adjusting the tactical, or even operational, plan. Alternatively, it may prolong preparatory fire to take in more targets.

Combined arms theory calls for artillery support to brigade- and division-size battles that exceed the capabilities of organic artillery resources. To do this, the OPFOR uses organic and allocated artillery to form artillery groups. A higher headquarters allocates artillery to a maneuver force to execute a given operation, for example—

- Army group, army, and corps normally allocate artillery battalions according to the importance of the army, corps, and division missions.
- A division might allocate some of its organic and allocated artillery to leading brigades.
- The army might temporarily allocate second-echelon divisional artillery to first-echelon divisions.

e. Artillery Deployment.

| DISTANCES | MORTARS | GUNS & HOWITZERS | MRL |
|--|-------------------|---|-----------------------------|
| Between weapons | 16 - 60 meters | 20 - 50 meters | 50 - 60 meters |
| Between Batteries | ----- | 500 - 1500 meters | 1000 - 2000 meters |
| From the forward edge of BLUFOR defenses | 500 - 1000 meters | 1 - 4 km (BRAG) 3 - 6 km (DAG) 4 - 8 km (AAG) | 3 - 6 km 4 - 8 km (ARAG) |

Figure 1-1. Tactical Deployment Guidelines

f. Artillery Groups.

- Temporary, mission-oriented groups are a command and organizational structure that ensure **flexibility** in concentrating artillery fire. The commander and staff of the artillery brigade or battalion usually form the core of the group.
- The goal of forming artillery groups is to provide **ample fire support** to the maneuver commander to conduct an operation. Army, corps, division, and brigade artillery groups provide continuous artillery support to maneuver commanders with the required degree of centralized control.
- Artillery groups usually consist of at least two battalions of field guns, howitzers, gun-howitzers, and/or MRLs.
- Artillery groups will **disperse** as much as possible to avoid becoming a target for BLUFOR precision weapons, air attack, and counterfire.

(1) Army Artillery Group (AAG).

- Army group artillery assets distributed to committed armies in proportion to the importance of the assigned task.
- Formed from army and/or army group artillery battalions remaining after the army has allocated artillery to its first echelon divisions.
- Tasks are counterfire and the deep target engagement (precision weapons, headquarters, air

defenses, and reserve).

- An army may form more than one AAG.
- Composed of at least two battalions.
- Normally composed of gun and/or rocket launcher battalions.

(2) Army Rocket Artillery Group (ARAG).

- Formed from army and/or army group MRL brigades.
- Composed of three to seven MRL brigades.
- Normally fires under centralized control in support of the army's main attack axis.

(3) Division Artillery Group (DAG).

- Formed from division artillery regiment and any allocated army/front artillery battalions after the division has allocated artillery to its first echelon brigades.
- More than one DAG may be formed per division.
- Normally has **counterbattery** mission.
- Composed of two to six battalions.
- May have gun, gun-howitzer, howitzer, and rocket launcher battalion.
- Divisional rocket launcher battalion is normally assigned to a DAG.

(4) Brigade Artillery Group (BRAG).

- Formed from the brigade artillery battalion plus at least one other battalion allocated to the regiment from division.
- Only **one BRAG** per brigade.
- Normally provides fires in support of maneuver elements.
- Composed of howitzer or gun-howitzer battalions.
- Has from two to four battalions.

(5) Artillery Support to Maneuver Battalion.

- An artillery battalion or battery may be directly attached to a maneuver battalion. These artillery units will not be part of any artillery group.

f. Artillery Command Relationships.

Attached - The maneuver commander has total control of the unit.

Supporting - The parent artillery organization retains control, but delegates fires to a unit.

g. Target Damage Criteria.

(1) Annihilation.

- Renders unobserved targets combat-ineffective.
- Against a point target, sufficient rounds will be expended to assure a 70 to 90% probability of a kill.
- Against an area target, sufficient rounds will be expended to destroy 50 to 60% of the targets within the group.

(2) Destruction.

- A subset of annihilation.
- Refers to engineer works such as fortifications and bridges.
- Renders targets unfit for further use.

(3) Neutralization.

- Inflicts enough losses on a target to cause it to temporarily lose its combat effectiveness, restrict or prohibit its maneuver or disrupt its C2.
- Sufficient rounds must be expended to destroy 30% of unobserved targets.

(4) Harassment.

- Limited fires designed to apply psychological pressure on the BLUFOR and hinder movement.
- Inhibits maneuver
- Weakens blue combat readiness and lowers morale

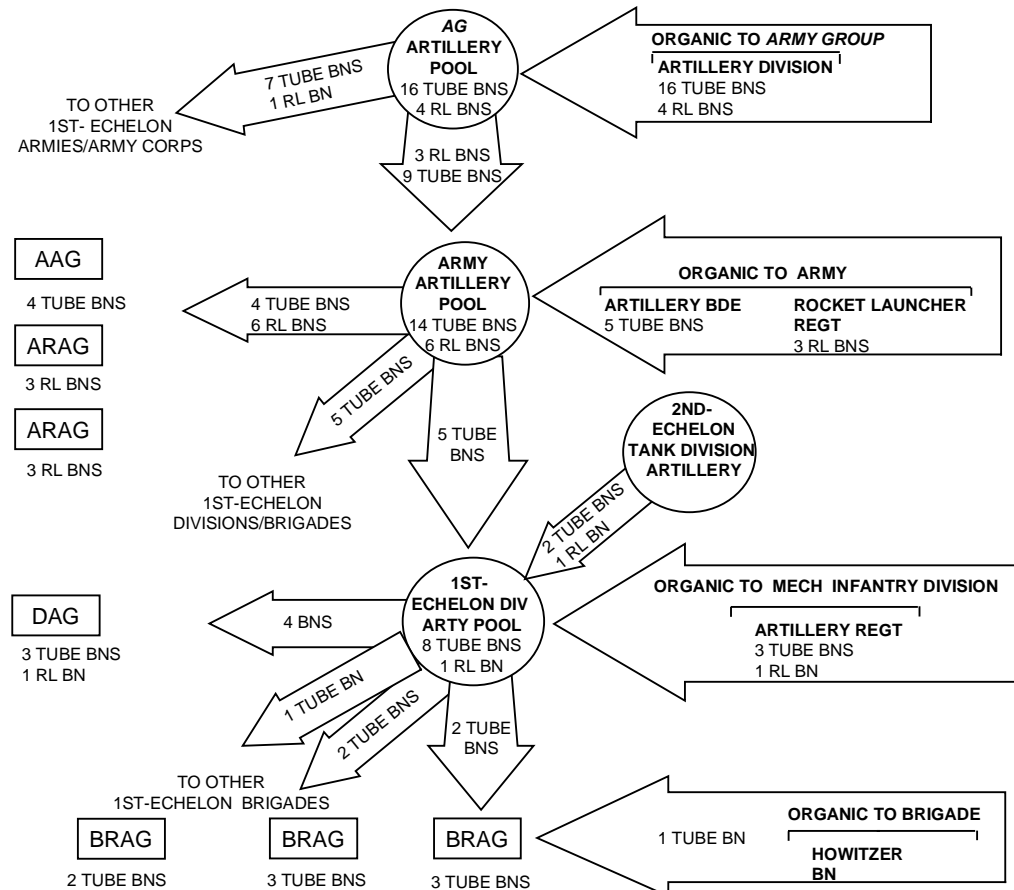


Figure 1-2. Formation of Artillery Groups (Example)

NOTES:

1. The distribution of artillery battalions shown above is only an example. Actual allocation patterns depend on the situation and the mission of the receiving organization.
2. Higher command may allocate an *army group* one or more artillery divisions with 20 battalions of field guns, gun-howitzers, howitzers, and rocket launchers. It may also allocate a high-powered artillery brigade (not shown here).
3. The army in this example is in the *army group's main attack*, and the mechanized infantry division is in the army's main attack.
4. It is not necessary that all 2d-echelon divisions give up artillery assets to reinforce 1st-echelon divisions. This is only an option the army/ corps commander could use.
5. The brigade artillery is part of the BRAG. An artillery battalion or battery in BRAG may also be temporarily subordinated to maneuver battalions for specific missions.

1-10 ANTITANK RESERVES TASK ORGANIZATION.

Antitank reserves comprise units of AT artillery, often reinforced by other means, such as engineers, tank and/or mechanized infantry troops. They are directly subordinate to the combined arms commander, who uses them to reinforce AT defenses on important axes. They are a standard part of both operational and tactical formations down to brigade level. Almost invariably, these reserves work with engineer mobile obstacle detachments that create AT obstacles.

In an army group, there may be one or more AT reserves based on an AT regiment or one or more brigades. The army forms its AT reserve from the AT regiment. At divisional level, the AT battalion fills this role. The addition of other elements depends on the mission and the assessment of the threat.

a. Assets. OPFOR planners believe that AT fire plays a decisive role in repelling BLUFOR armor attacks. The OPFOR divides AT weapons into two categories: general and special.

(1) General Weapons. General AT weapons systems include missiles, aircraft, tanks, and artillery. The purpose of these systems is to destroy a variety of battlefield targets. However, they may also deploy to fire against tanks and other armored vehicles. According to the OPFOR, any artillery-type weapon (over 20-millimeter) should have an AT capability. All conventional artillery up to 152-millimeter has good direct-fire AT capability and carries some armor-defeating ammunition. The 122-millimeter towed and SP howitzers and the 152-millimeter SP howitzer, which have a 360-degree traverse, are particularly effective in this role. Antitank forces often include direct-fire field artillery. Antiaircraft guns can also fire against ground targets.

Guns and howitzers have the sights necessary for direct-fire engagements. Some weapons may reinforce the AT firepower of mechanized infantry strongpoints. However, should BLUFOR armor penetrate, the OPFOR may use artillery units. They can delay and disrupt the attackers and, thus, create favorable conditions for a counterattack and/or counterstrike into the BLUFOR's flank.

(2) Special Weapons. Special AT weapons systems consist of antitank guided missiles (ATGMs), AT guns grenade launchers, and recoilless guns. The OPFOR designs these weapons to destroy tanks and their crews by direct fire. OPFOR antitank forces therefore have a mix of ATGMs and direct-fire weapons (guns and grenade launchers) which serve to compliment each system type's capabilities.

b. Organization. Because neither army group, army, nor corps has a fixed organizational structure, the AT units at these levels also vary. An army or corps might have an AT regiment. While mechanized infantry divisions an organic AT battalion there are no AT guns in tank brigades or at tank division level.

c. Missions. The importance of the AT reserve continues to grow, partly because many armies today are almost totally mechanized; therefore, defense must first and foremost be antitank in nature. It is also partly a function of the growing trend for the defense to occupy broader frontages in order to achieve protection against NBC attack through dispersal. Gaps now routinely exist in the deployment of defending units and formations. These trends have increased the importance of the AT reserve in ensuring stability in defense and in maintaining the momentum of an offensive in the face of counterattack.

d. Deployment. For planning purposes, AT units can be assigned the following sector widths:

- A division AT battalion, from 3.5 to 5 kilometers.
- An army AT regiment, from 8 to 10 kilometers.
- An army group AT regiment, from 20 to 25 kilometers.

Where the commander holds a reserve, and how far from the line of contact (or head of tactical march column), depends on the operational or tactical situation. As a generalization the AT reserve deploys between the first and second echelon. Both in the offense and defense it is usual to designate two, three, or even more alternate lines of commitment on each axis depending on the assessment of likely BLUFOR actions. In the defense, the OPFOR places great stress on the surprise use of AT reserves.

1-11 RECONNAISSANCE TASK ORGANIZATION.

The OPFOR considers reconnaissance the most important element of combat support. All commanders and staffs organize reconnaissance to acquire information about the BLUFOR's weapons; force disposition and intentions; and terrain and weather in the area of impending combat. This information is crucial to the planning process for command and control systems.

a. Principles. The OPFOR uses the following principles to guide its reconnaissance activities: focus, continuity; aggressiveness; timeliness; camouflage, concealment, and deception; accuracy; and reliability. These overlapping concepts require reconnaissance units to integrate all these principles.

b. Characteristics.

- *Flexibility.* The OPFOR must be able to switch priorities from one target to another without degrading the overall mission.
- *Sustainability.* It must be able to sustain itself wherever it is operating, without relying on others for transport, subsistence, and so on.
- *Security.* A reconnaissance asset should be as secure as possible during operations. This means operating in a manner that conceals activities and areas of interest at all times. Reconnaissance activity should not reveal the parent unit's plan of action. The OPFOR does not expect to conceal its reconnaissance activities entirely, but will attempt to mask the scale, specific objectives, and area of concentration of main reconnaissance efforts.

- **Communications.** Reconnaissance elements must have reliable communications. An intelligence organization may successfully gather all necessary information but if it cannot transmit this information to the user (such as the commander or an artillery unit), the entire effort is useless.
- **Reserves.** All levels should maintain a reconnaissance reserve to take on unforeseen tasks or redeem failure on key missions.

c. Priorities. Reconnaissance activities must support the information requirements of the commander. Therefore, priorities vary at different levels of command:

(1) Army Group. The army group conducts reconnaissance to locate the most critical BLUFOR targets including the following:

- Precision weapons.
- NBC systems.
- Air defenses.
- Intelligence-gathering assets.
- Higher headquarters and communications centers.
- General support artillery groups.
- Operational-strategic groupings and their movements.

(2) Army or Corps. The army or corps repeats these priorities and also seeks the following:

- Contents of airfields and army aviation forward operating bases.
- Precision weapons and NBC systems.
- Major concentration areas of reserves.
- Unit boundaries.
- Location and extent of defended areas.
- The BLUFOR's combat capabilities and intentions.

(3) Division. Divisions repeat army priorities and add local threats including the following:

- Location of direct support artillery and mortars and attack helicopters.
- Disposition of tanks and medium- and long-range antitank systems.
- Deployment of air defense weapons.
- Location of brigade and battalion command posts.
- Nature and extent of natural and manmade obstacles.
- Locations of field defenses.

d. Operational Assets. Operational reconnaissance units support army-group, army, and corps commanders. Operational reconnaissance elements usually collect information throughout the entire depth of the BLUFOR's corps area. See *Figure 1-3* for a graphic depiction of the effective ranges of various reconnaissance measures available to an army group. Armies and corps conduct operational reconnaissance using their own resources, plus those of their subordinate divisions and brigades.

(1) Army or Corps. At the mechanized- or tank- army or corps level, the Chief of Reconnaissance (COR) heads the reconnaissance department (intelligence staff). This department coordinates operational reconnaissance in the same manner as the army group's reconnaissance directorate described above.

(2) Forward Detachments. Armies, division, and even brigades employ forward detachments as the situation dictates. Maneuver forces configured as forward detachments have reconnaissance as one of their missions. These detachments transmit information on the size, type, and disposition of BLUFOR forces, BLUFOR obstacles, route conditions, and river crossing sites.

(3) Special-Purpose Forces. An army may have a SPF battalion; it can deploy from 10 to 15 teams.

(4) UAVs. At army level, drones and RPVs also serve as aerial reconnaissance assets. An army may have a drone squadron. Drones normally fly at low altitude and subsonic speeds. RPVs and drones fly a set course.

(5) Electronic Assets. An army normally has a signals reconnaissance battalion. Also known as a radio and radar intercept and DF battalion. Some armies have a full signals reconnaissance brigade.

(6) Artillery Assets. An army-level artillery brigade has an organic artillery reconnaissance battalion or battery. An army's rocket launcher brigade also has an artillery reconnaissance battery. Surface-to-surface missile units do not have reconnaissance assets, but rely on external intelligence support.

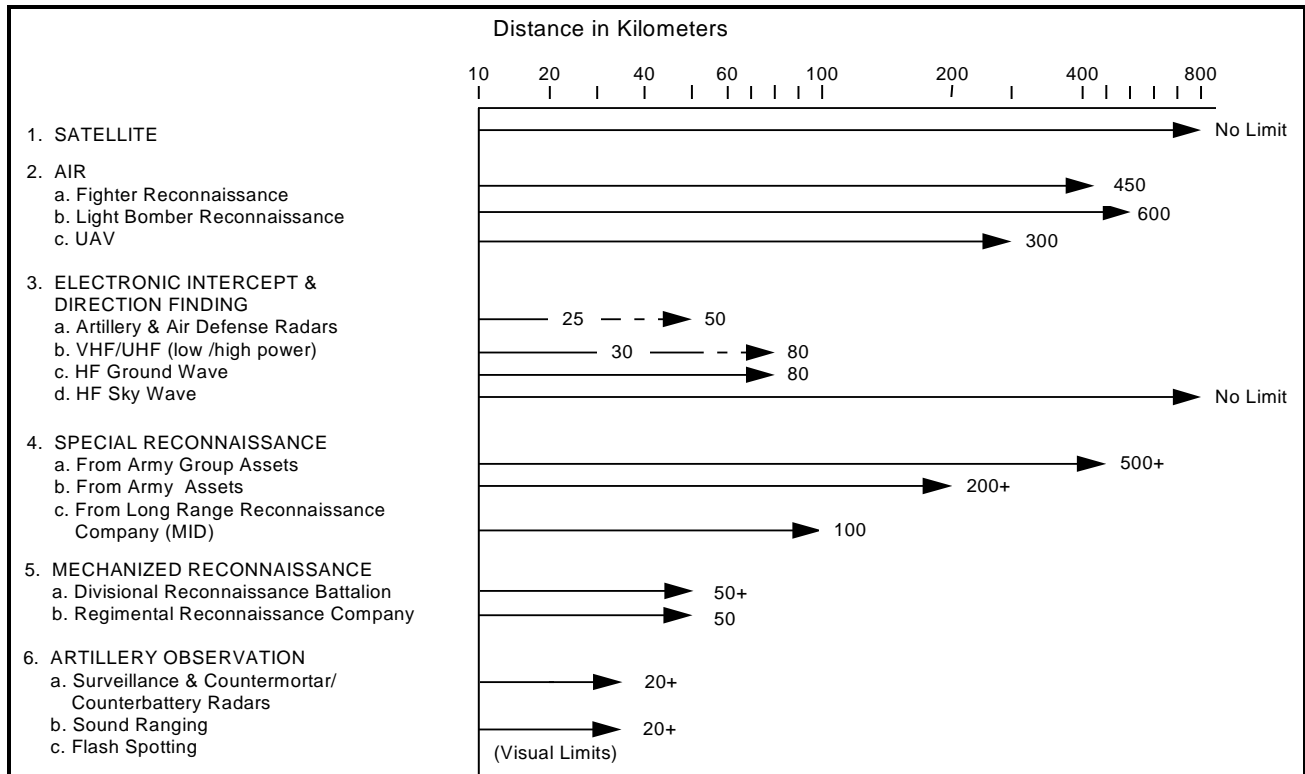


Figure 1-3. Effective ranges of reconnaissance means.

e. Ground Forces Tactical Reconnaissance. Reconnaissance is a combined arms responsibility. Thus, ordinary mechanized infantry and tank units perform two functions; they perform their own close reconnaissance tasks with organic resources, and they provide reconnaissance detachments of up to reinforced battalion strength. Leading units may also conduct reconnaissance by combat, attacking the BLUFOR to determine his strength and disposition.

(1) Disposition. Special brigade reconnaissance troops carry out reconnaissance, operating from up to **25 to 30** kilometers forward of the OPFOR line of contact (or even more in faster-developing NBC operations). They might operate out to a maximum distance of **50** kilometers. Division-level reconnaissance troops also operate out to approximately **50** kilometers. The commander might insert the airborne qualified long-range reconnaissance company up to **100** kilometers deep without its vehicles. Task-oriented reconnaissance groups, reinforced by engineer and NBC reconnaissance and, often, by mechanized infantry and tank elements, also move forward. Generally, these groups endeavor to avoid combat in fulfilling their tasks, although they may direct artillery fire or air strikes.

(2) Missions:

- Locating, identifying, and reporting BLUFOR NBC delivery means, headquarters, communications centers, troop concentrations, and movements of BLUFOR units.
- Determining the strength and dispositions of the BLUFOR's defenses and locating his boundaries.
- Providing topographical information concerning routes to, or bypasses around, BLUFOR positions as well as concerning lateral routes.
- Identifying the extent and depth of minefields and the types of mine employed (assessing obstacles and possible crossing points).
- Establishing the extent of zones of contamination.
- Identifying potential communications facilities and other sites for use by their own forces.

1-12 ENGINEER TASK ORGANIZATION.

As with artillery, **OPFOR engineer units normally do not deploy as they are structured by TO&E**. Instead, engineers assets are grouped together to perform specific missions and functions, and are dissolved when no longer required. In this way route-clearing assets perform one function, while others perform demolition, minelaying, or obstacle construction, prepare defensive fighting positions, or set up water purification sites. Additional non-engineer assets, such as chemical, tank or mechanized infantry troops, may be attached to these groupings whenever the OPFOR decides the situation warrants their inclusion.

a. Engineer Reconnaissance Patrol.

- Specialized engineer reconnaissance formation.
- Normally squad to platoon size.
- Equipment depends upon mission.
- **Missions** include collecting information on roads, obstacles, water obstacles and water supplies.

b. Movement Support Detachment (MSD).

- Ad hoc grouping formed from division and brigade engineer units.
- Missions include:
 - Route reconnaissance
 - Mineclearing
 - Repair/reinforcement of bridges
 - Creation of tracked vehicle routes
 - Construction of bypasses
 - Route marking
- Division can form up to **three** MSDs.
- Brigade can form **one** MSD normally composed of an engineer platoon, one or two dozers and up to three tanks with blades or plows.
- MSD is normally organized in **three elements**:
 - Reconnaissance and obstacle-clearing group
 - One or two road/bridge construction and repair groups
 - Route marking group
- Divisional MSDs operate on main routes while brigade MSDs operate on secondary routes.
- In the march, MSDs normally move behind the combat reconnaissance patrols (CRPs).
- In the defense, MSDs are used to maintain LOCs.

c. Mobile Obstacle Detachment (MOD).

- Ad hoc grouping formed from division and brigade engineer units.
- **Mission:** Deny key terrain to the BLUFOR, particularly those avenues of approach that are most suited for tanks.
- Composition:
 - A divisional MOD normally consists of mechanical minelaying elements equipped with GMZs.
 - A brigade MOD normally consists of one minelaying platoon of three PRP-3. It is sometimes reinforced with a mechanized infantry platoon.
- Normally **operate with antitank reserves** to provide flank protection and to repel counterattacks.
- In the march, it normally travels between the advance guard and the main body.
- In the defense, it is positioned to block any penetrations that might occur.

1-13 AIR DEFENSE TASK ORGANIZATION.

The OPFOR unit's mission and location determines the amount of air defense coverage, regardless of what has been actually attached to that unit. As with artillery and antitank assets, the OPFOR allocates the majority of **air defense units to support maneuver units conducting the main effort**. For example, in general order of priority, the division air defense regiment provides air defense coverage to the division command post, main axis maneuver units, division artillery group, second echelon and minor axis units, and the logistics tail. Therefore, **the first echelon of the main effort or a battalion operating as an FSE or advance guard's coverage will be substantially different from a second echelon force**. For example, the vast majority of brigade air defense assets are allocated to the first echelon, leaving the second echelon dependent upon protection provided by the division SAM regiment.

a. Deployment of Systems.**(1) SA-7/14/16/18.**

- A squad (one vehicle with three launcher teams) from the MIBN AD platoon is normally assigned to each MIC. It is usually deployed within 20-30 m of the company commander.
- Brigade and divisional HQS have dedicated SA-7/14/16/18 squads for self-protection as do SA-6/8/15 batteries.
- The OPFOR may use these systems to establish air defense ambushes or as roving units to cover gaps or less likely air avenues.

(2) 2S6/ZSU-23-4.

- Normally employed in pairs with systems located within several hundred meters of each other.
- If two pairs are employed together they are separated by 1000 to 2000 m.
- A section or platoon normally supports advance guards and forward detachments.
- In the assault, sections normally support first echelon battalions, moving directly behind the first echelon companies.
- In the defense, sections again are used to support first echelon battalions. They are normally located within a battalion's defensive area.
- These systems may also be used to establish air defense ambushes or as roving units to cover gaps or less likely air avenues.

(3) SA-9/13.

- Provide area coverage to the brigade.
- Normally operate as a platoon (four systems).
- On the march, the platoon moves with the brigade main body.
- Probable missions in the offense include protection of the brigade main CP and supporting artillery.
- In the defense, the platoon locates in the brigade defensive area positioned where it can provide coverage of the brigade CP and artillery battalion/BRAG.

(4) SA-6/8/15.

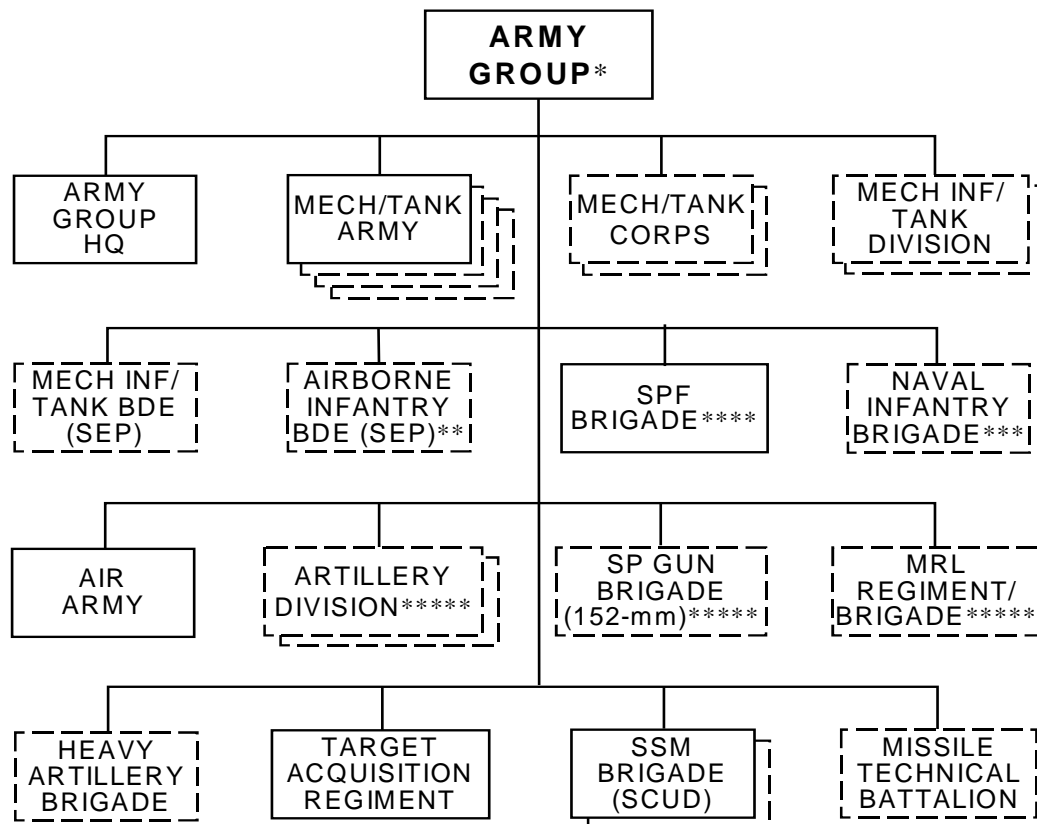
- Typical employment is to have one battery support each first echelon brigade with the remaining batteries providing area protection to the rest of the division.

CHAPTER 2: ORGANIZATION

This chapter presents the command structure and equipment allocation of the OPFOR. The organization charts are a guideline and may be changed for a specific CGSC course. In case of discrepancies, consult your instructor for guidance.

The army group is the largest operational-level grouping. The OPFOR General Staff activates and organizes such forces to conduct major ground maneuver components of a strategic operation within a theater. An army group has no fixed organization. Its composition is a function of its mission in the context of the strategic mission. Most of the ground maneuver divisions assigned to an army group are subordinate to armies or corps. However, some divisions and separate brigades may remain independent of an army or corps and directly subordinate to the army group. The numbers of armies, corps, divisions, and separate brigades can vary widely from one army group to another. In addition to these ground maneuver forces, an army group normally has an air army.

Army Group



* There is no fixed organization for an army group. A typical army group may contain one to four mechanized or tank armies. In lieu of some of these armies, it may have one or two mechanized or tank corps. However, some army groups may only have the smaller corps organizations. Some may also include separate mechanized infantry or tank brigades or mechanized infantry or tank divisions that are not part of a corps or an army.

** Airborne forces are not organic to an army group. However, a separate airborne infantry brigade may be under operational control of an army group. Higher command may allocate additional forces from an airborne division to support an army group in a given operation; these are normally brigade-size elements.

*** Higher command may allocate a naval infantry brigade to support an army group in a given operation.

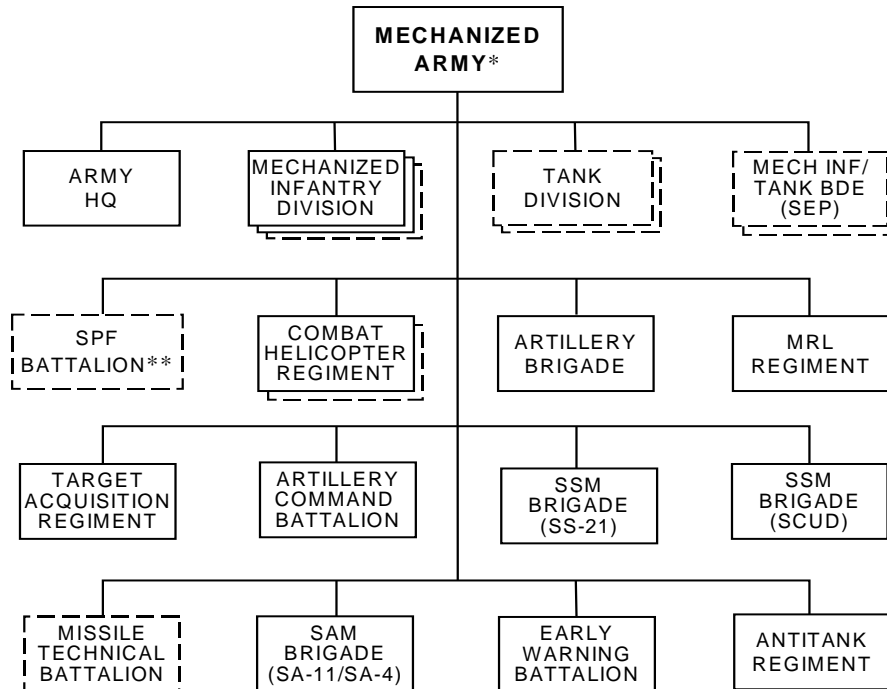
**** The Main Intelligence Directorate of the General Staff controls all special-purpose forces (SPF). It normally allocates an SPF brigade to support the operations of an army group.

***** Some army groups could have an artillery division, or perhaps two of them. If an army group has no more than one artillery division, it may also have a separate SP gun brigade and/or a separate MRL regiment or brigade.

ARMY

The army is the largest standing combined arms formation. Armies are capable of independent operations, but normally fight as part of an army group. In the latter case, an army typically receives combat support and combat service support assets from the parent army group. Allocation of such assets depends on the role of a particular army in the army group plan. There are two basic types of ground maneuver armies: the mechanized army and the tank army. Neither type has a fixed structure; the exact size and composition depend on the army's mission, the situation, and the area of operations.

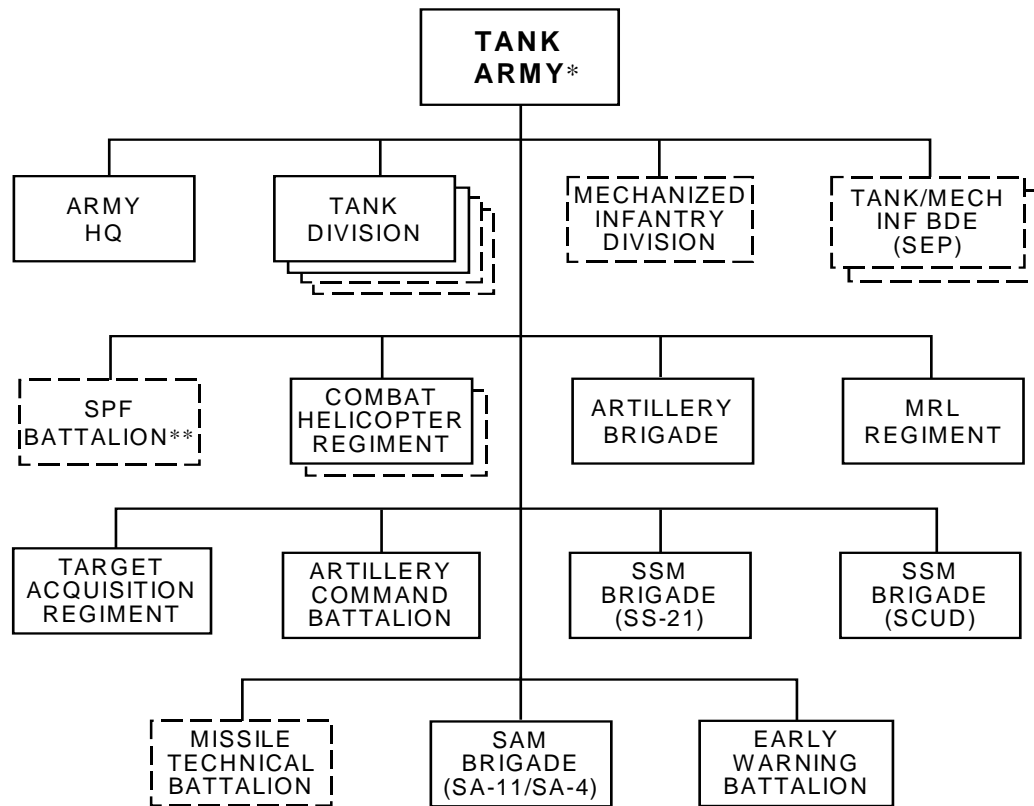
Mechanized Army



* A typical mechanized army has two to five divisions, with four being the most common. These generally include at least two mechanized infantry divisions and one tank division. In lieu of one or two of these divisions, the army may have one or two separate mechanized infantry or tank brigades.

** The Main Intelligence Directorate of the General Staff controls all special-purpose forces (SPF). It may allocate up to a battalion of SPF to support the operations of an army.

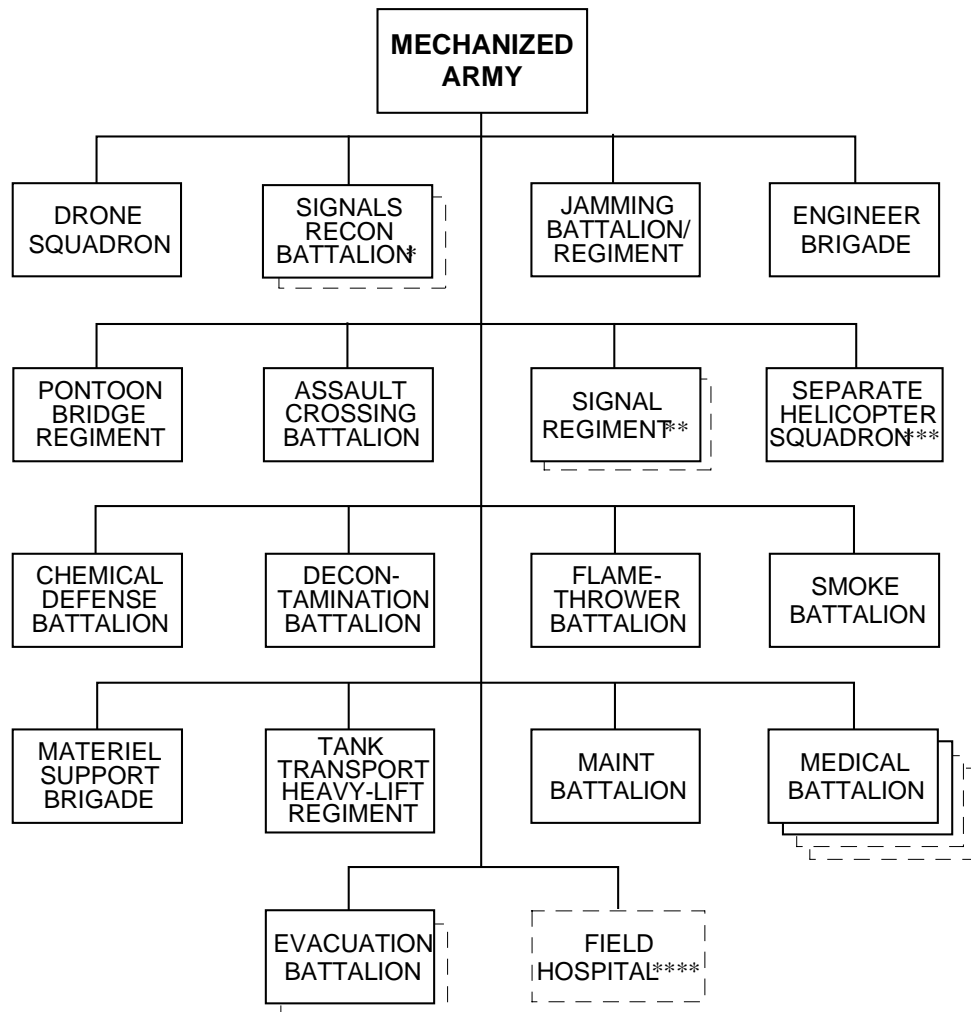
Tank Army



* A typical tank army has two to five divisions, with four being the most common. These generally include at least two tank divisions and no more than one mechanized infantry division. In lieu of one or two of these divisions, the army may have one or two separate tank or mechanized infantry brigades.

** The Main Intelligence Directorate of the General Staff controls all special-purpose forces (SPF). It may allocate up to a battalion of SPF to support the operations of an army.

Mechanized Army or Tank Army (continued)



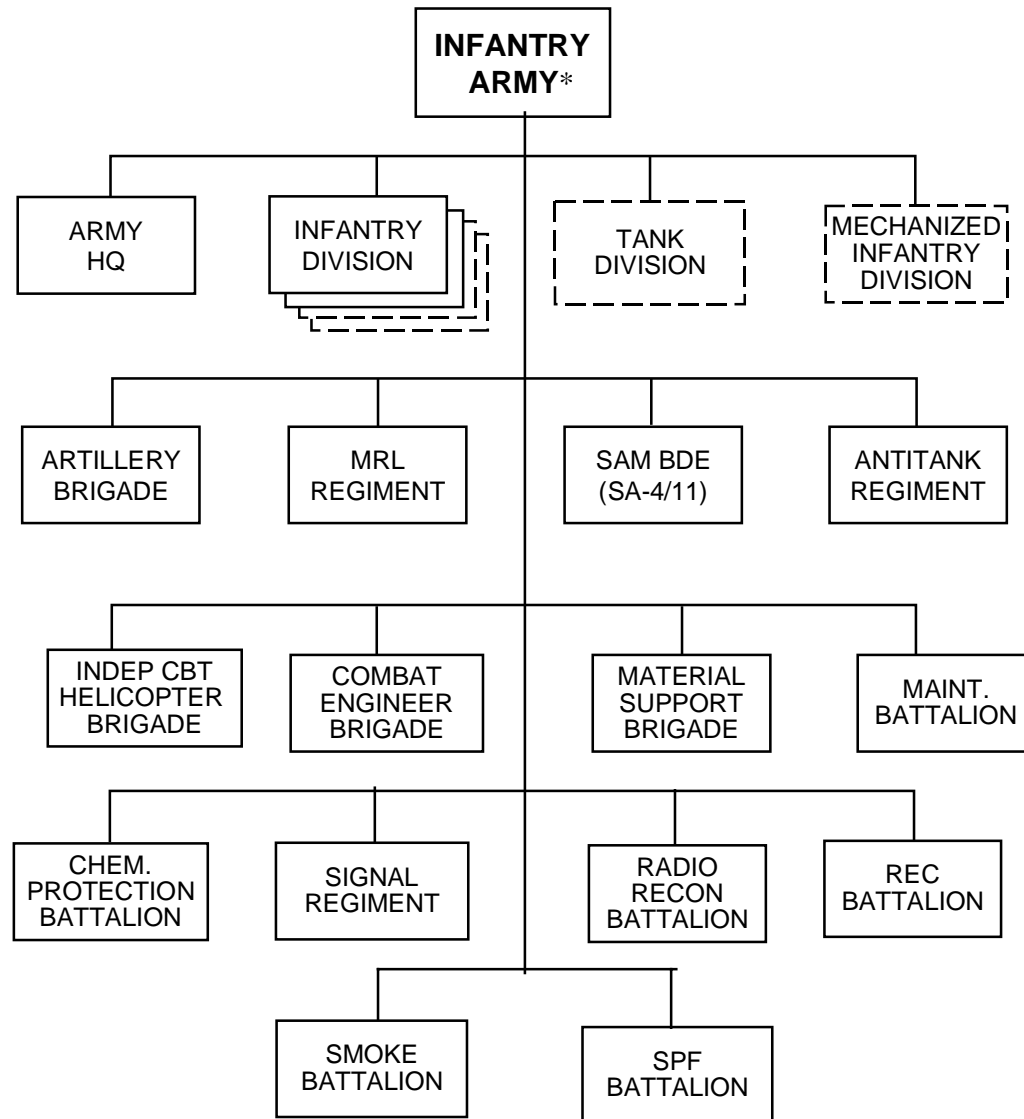
* Instead of one or two signals reconnaissance battalions, an army may have a signals reconnaissance regiment.

** In lieu of a signal regiment, an army may get its communications support from separate battalions. These may include a signal battalion and/or a radio relay battalion.

*** Some armies may have a mixed aviation squadron instead of a separate helicopter squadron.

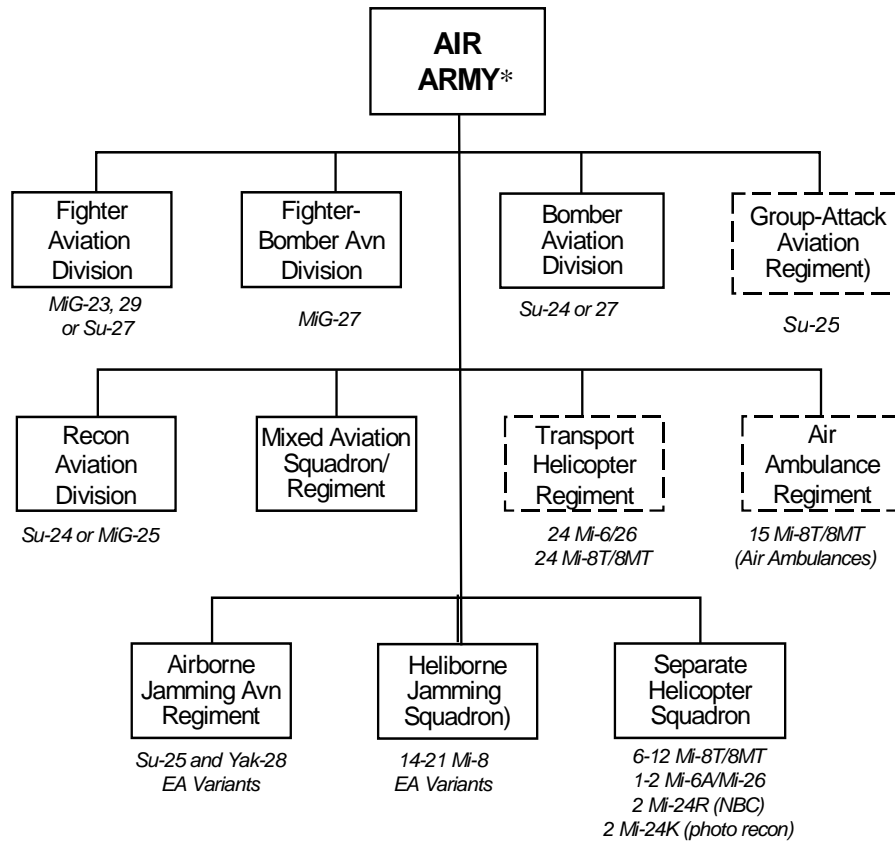
**** The field hospital is an army group asset allocated to some armies.

Infantry Army



A typical Infantry Army has four divisions. Organizations vary from four ID, to three ID and one MID, to two ID plus one MID and one TD. The last is the most common form.

Air Army



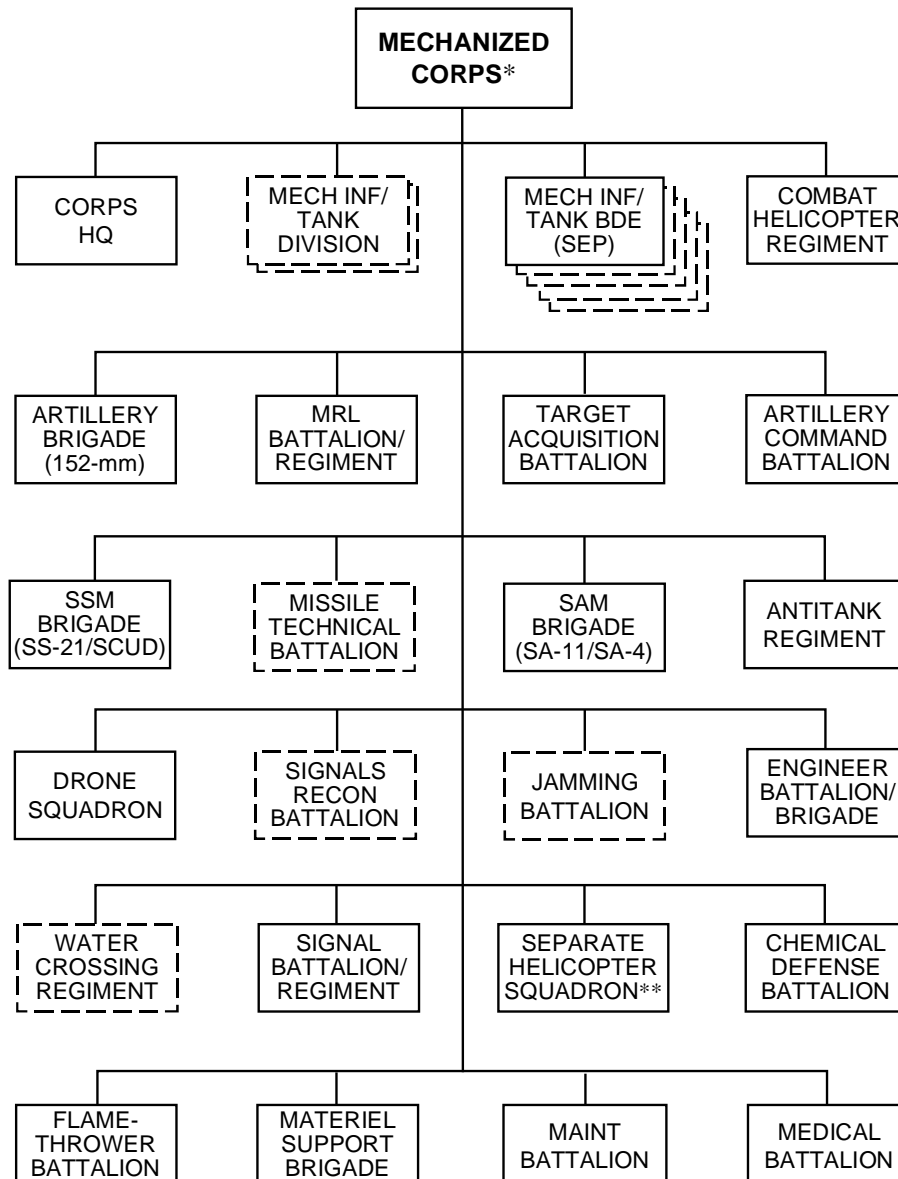
* An air army has no fixed organization and may tailor its structure to meet specific needs of the ground forces within the supported army group. The numbers of aircraft can vary greatly, even down to the squadron level. Units with *aviation* (AVN) in their name generally consist of fixed-wing aircraft.

The Air Ambulance Regiment normally has about 15 Mi-8T/HIP C or Mi-8MT (Mi-17)/HIP H medium helicopters equipped as air ambulances.

CORPS

The corps is the smallest formation fully organized and equipped to conduct operational maneuver. It is smaller and more maneuverable than an army. As with the army, the corps normally fights as part of an army group and may receive assets allocated from that level. A corps can also conduct independent operations that require less combat power than an army. The main maneuver elements of a corps are more likely to be separate brigades, rather than divisions. There are two basic types of corps: the mechanized corps and the tank corps. Again, there is no fixed structure.

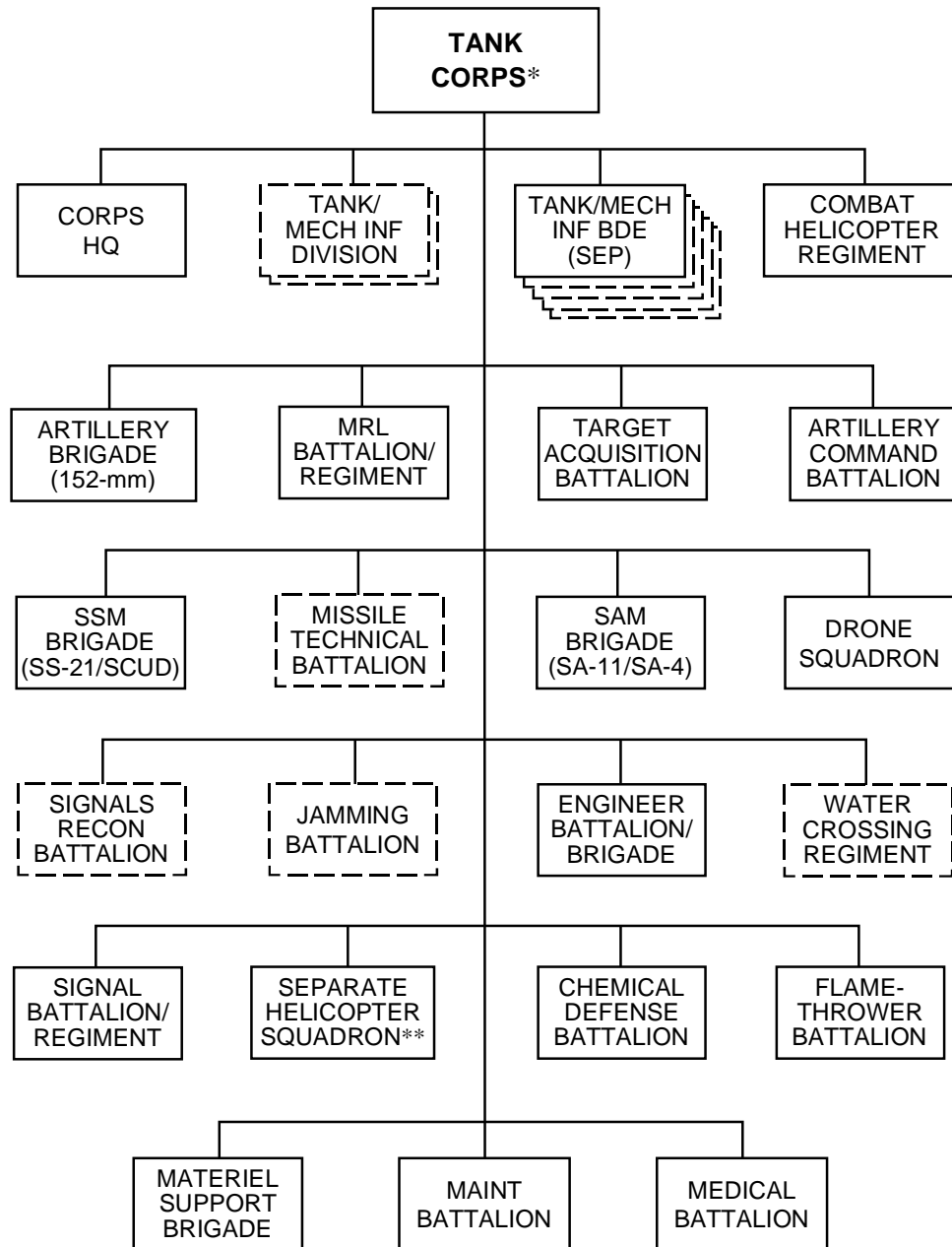
Mechanized Corps



* A typical mechanized corps has one or two divisions and perhaps one or two separate mechanized infantry or tank brigades. The divisions are most likely to be mechanized infantry divisions. It is also possible that some corps could consist entirely of separate brigades rather than divisions. In this case, there could be three to five separate brigades. These are most likely to be separate mechanized infantry brigades.

** Some corps may have a mixed aviation squadron instead of a separate helicopter squadron.

Tank Corps



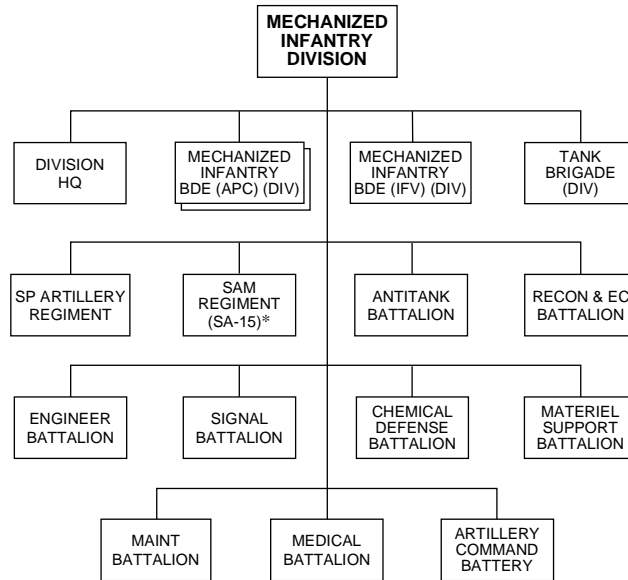
* A typical tank corps has one or two divisions and perhaps one or two separate tank or mechanized infantry brigades. The divisions are most likely to be tank divisions. It is also possible that some corps could consist entirely of separate brigades rather than divisions. In this case, there could be three to five separate brigades. These are the most likely to be separate tank brigades.

** Some corps may have a mixed aviation squadron instead of a separate helicopter squadron.

DIVISION

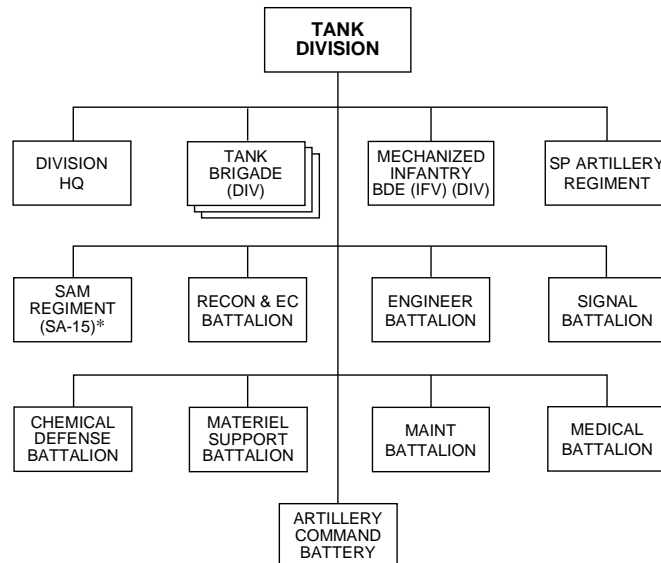
The ground forces have three basic types of maneuver division: the mechanized infantry division, the tank division, and the motorized infantry division. The divisions are combined arms organizations. A mechanized infantry organization has one tank brigade along with its mechanized infantry brigades. The latter may comprise two IFV-equipped brigades and one APC-equipped brigade or vice versa. A tank division has one IFV-equipped mechanized infantry brigade along with its three tank brigades. Combat support and combat service support units are basically the same for all mechanized infantry and tank divisions. The only differences are variations in the compositions of the self-propelled artillery regiment and maintenance battalion, and the fact that the tank division has no antitank battalion.

Mechanized Infantry Division (IFV)



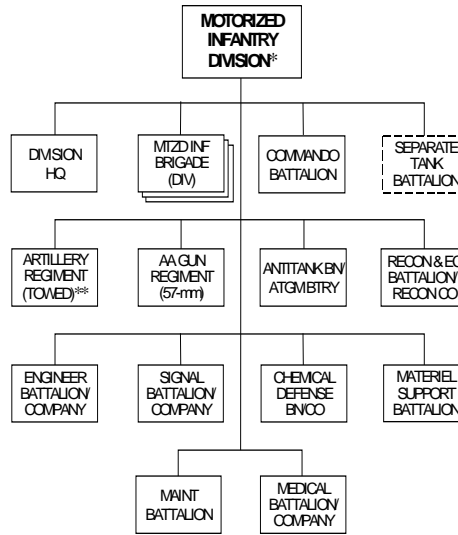
* Instead of the SA-15 SAM regiment, the tank division may have a SAM regiment equipped with the SA-6 or SA-8 or a 57-mm AA gun regiment.

Tank Division



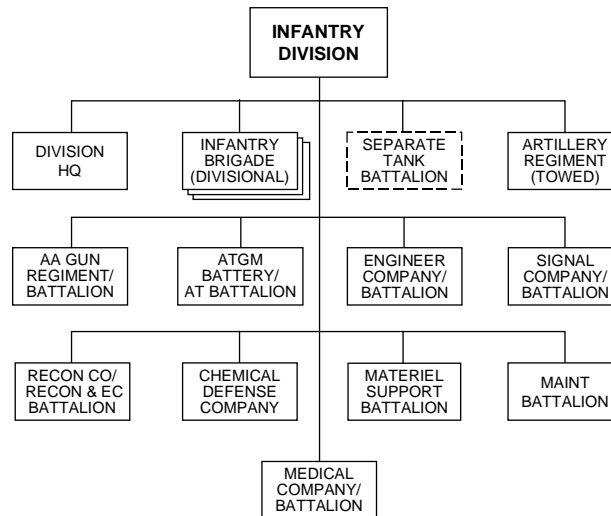
* Instead of the SA-15 SAM regiment, the tank division may have a SAM regiment equipped with the SA-8 or SA-6 or a 57-mm AA gun regiment.

Motorized Infantry Division



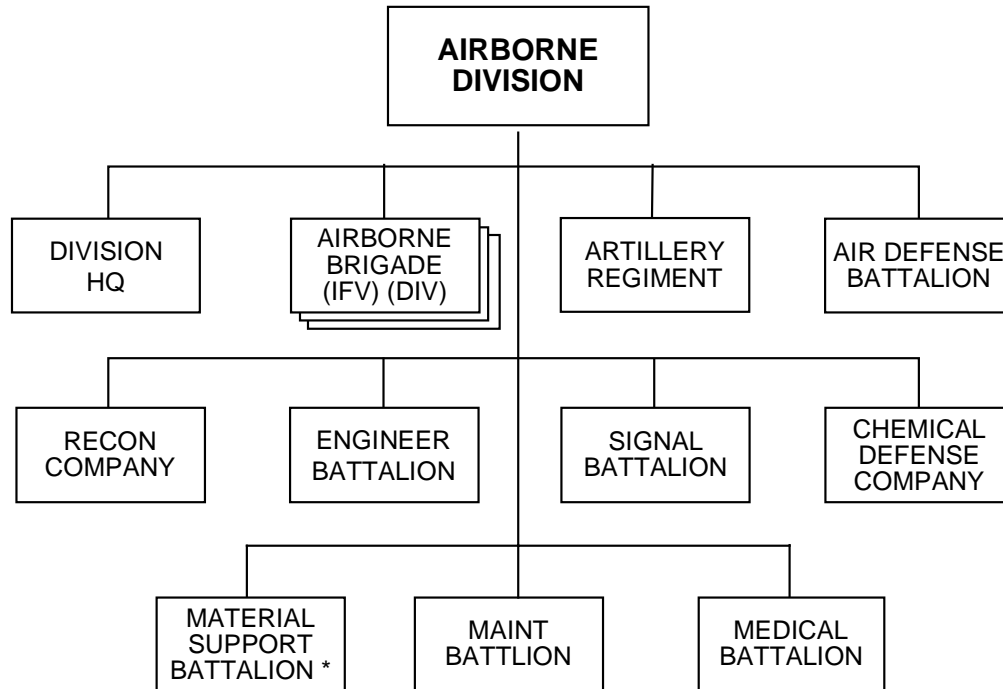
1. The basic maneuver units in this division are three motorized infantry brigades (divisional). These divisional brigades differ structurally from their separate counterparts normally found within military districts. In addition to its motorized infantry brigades, this division may or may not have a separate tank battalion.
2. Most motorized infantry divisions have an ATGM battery and company-sized engineer, signal, reconnaissance, and medical units. However, some better-equipped motorized infantry divisions may have battalion-sized antitank, engineer, signal, reconnaissance (and EC), and medical units.
3. Motorized infantry divisions are more common than mechanized or infantry divisions.

Infantry Division



1. The basic maneuver units in this division are infantry brigades (divisional). Divisional brigades differ structurally from their separate counterparts normally found within districts. In rare cases, an infantry division may include a separate tank battalion.
2. Most infantry divisions have company-sized engineer, signal, reconnaissance, and medical units. However, some better-equipped infantry divisions may have battalion-sized units of these types.
3. Infantry divisions are less common than motorized infantry divisions.

Airborne Division



* This battalion also performs the parachute rigging function for the division elements other than the airborne brigades. The brigades each have their own parachute rigging and resupply company.

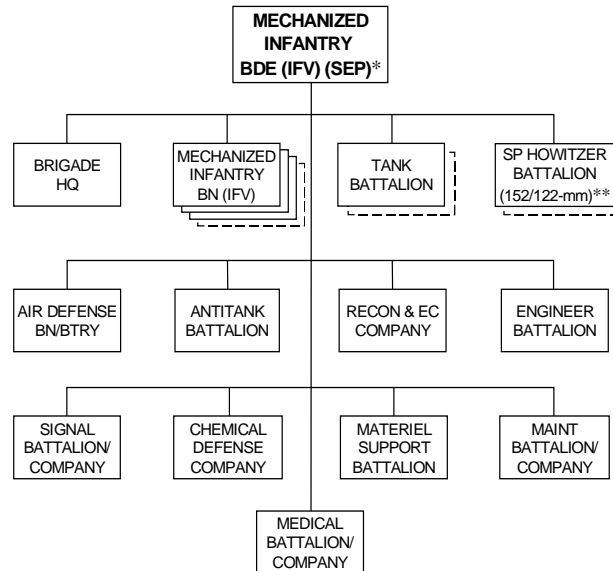
BRIGADE

The basic maneuver unit is the brigade, consisting of maneuver battalions and a wide array of combat support and combat service support elements. In contrast, a separate or independent* brigade is not a part of a division. Instead, it is directly subordinate to a corps, an army, or army group. Besides having more maneuver battalions, a separate brigade has some of the combat support and combat service support assets normally found at division level. The separate brigade needs these support assets to fight more independently, without relying on support from a parent division.

An armor- and mechanized-based OPFOR consists primarily of mechanized infantry units. The mechanized infantry brigade has two basic types: one equipped with infantry fighting vehicles (IFVs) and one equipped with (armored personnel carriers (APCs). The are also tank brigades. Each of these three types of maneuver brigade has separate and divisional versions. Also, even an armor- and mechanized-based OPFOR may have some truck-mounted motorized infantry.

The terms separate and independent are interchangeable and do not reflect a difference in organization.

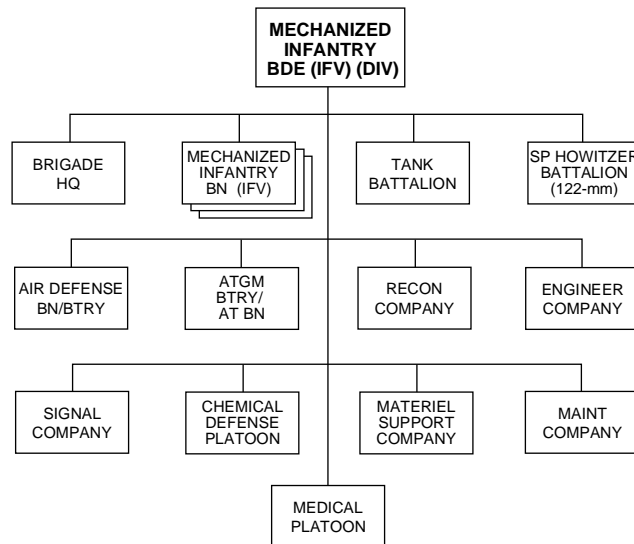
Mechanized Infantry Brigade (IFV) (Sep)



* A separate mechanized infantry brigade most likely has four mechanized infantry battalions and one 51-tank tank battalion. However, the mix might be three mechanized infantry battalions and two 31-tank tank battalions.

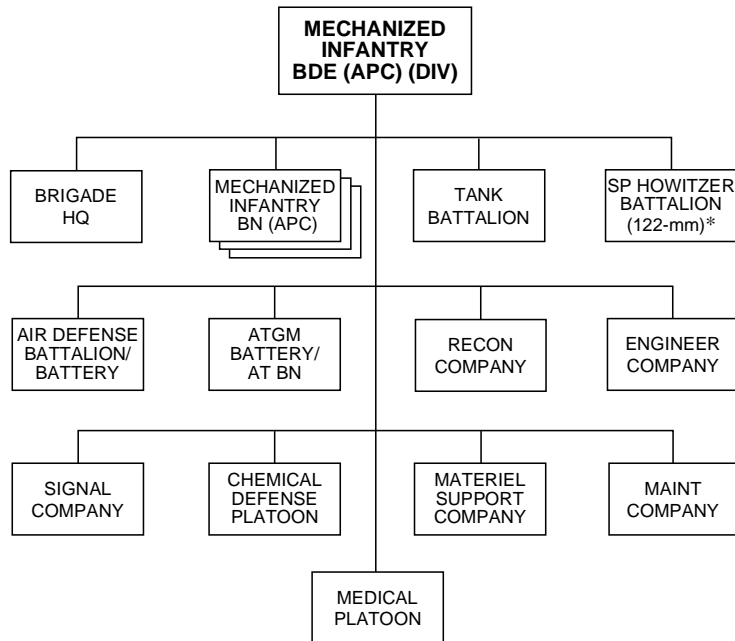
** When there is a single SP howitzer battalion, it may be either 122-mm or 152-mm, with 152-mm most likely. When there are two battalions, there may be one 122-mm and one 152-mm or, more likely, both 152-mm.

Mechanized Infantry Brigade (IFV) (Div), MID & TD



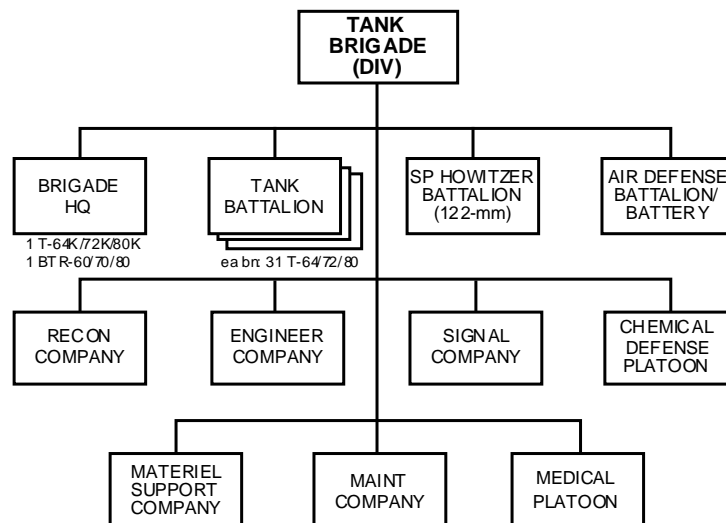
The MIBR (IFV) in the TD has only 2 MIBNs.

Mechanized Infantry Brigade (APC) (Div), MID

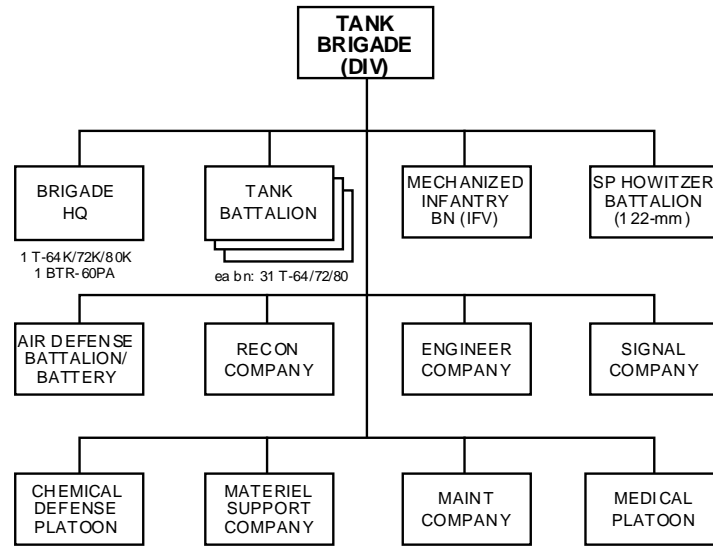


* The mechanized infantry brigade (APC) may have a battalion of 122-mm towed howitzers instead of this SP howitzer battalion.

Tank Brigade (Div), MID

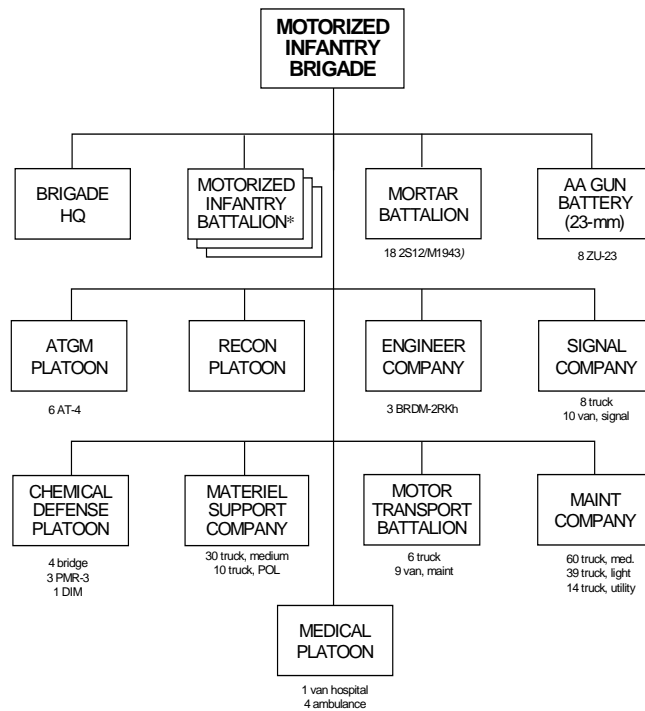


The Tank Brigade of a MID has no organic, subordinate Mechanized Infantry Battalion.

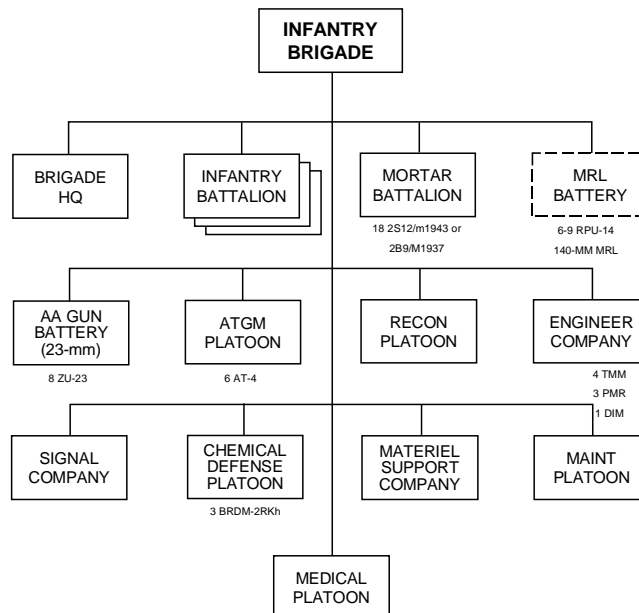
Tank Brigade (Div), TD

The Tank Brigade of a MID has a organic, subordinate Mechanized Infantry Battalion.

| Weapons Systems Totals | MIBR (APC) | MIBR (IFV) | TBR (MID) | TBR (TD) | MIBR (sep.) |
|------------------------|------------|------------|-----------|----------|-------------|
| T-64/72/80 | 31 | 31 | 94 | 94 | 51 |
| BMP-1/2/3BRM-1K | 14 | 151 | 16 | 51 | 179 |
| BTR-60/70/80 | 146 | - | 3 | 1 | 3 |
| BTR (R-145BM) | 19 | 10 | 8 | 22 | 22 |
| BRDM-2/2U | 8 | 8 | 4 | 4 | 4 |
| ACRV SERIES | 8 | 8 | 8 | 8 | 16 |
| 2S1 | 18 | 18 | 18 | 18 | 0 |
| 2S3/2S19 | 0 | 0 | 0 | 0 | 36 |
| Mortar (2B9/2S12) | 18 | 18 | 0 | 6 | 24 |
| SA-13 | 6 | 6 | 6 | 6 | 6 |
| 2S6 | 6 | 6 | 6 | 6 | 6 |
| SA-16/18 | 48 | 48 | 21 | 30 | 63 |
| SA-15 | 0 | 0 | 0 | 0 | 8 |
| 9P148 w/AT-5 | 9 | 9 | 0 | 0 | 12 |
| AT-4 | 18 | 18 | 0 | 6 | 24 |
| AT-7 | 27 | 0 | 0 | 0 | 0 |
| MT-12/2A45M | 0 | 0 | 0 | 0 | 12 |
| RPG-7V | 152 | 146 | 36 | 71 | - |
| SPG-9 | 9 | 0 | 0 | 0 | 0 |
| RPK-74 | 102 | 102 | 21 | 48 | - |
| AGS-17 | 18 | 18 | 0 | 6 | 24 |

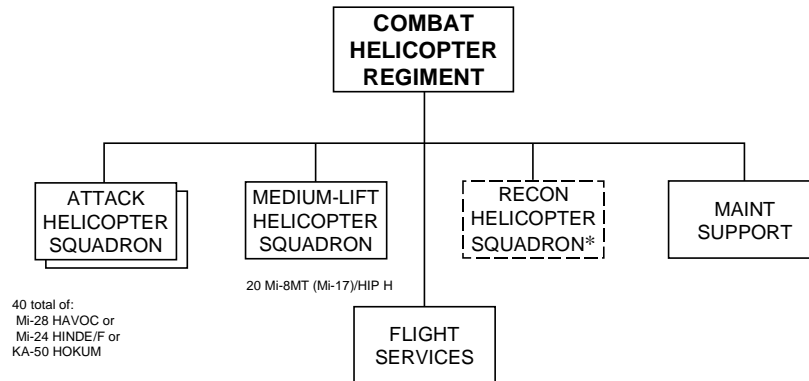
Motorized Infantry Brigade (Divisional)

* In some motorized infantry brigades, one of these infantry battalions may be mechanized rather than motorized.

Infantry Brigade (Divisional)

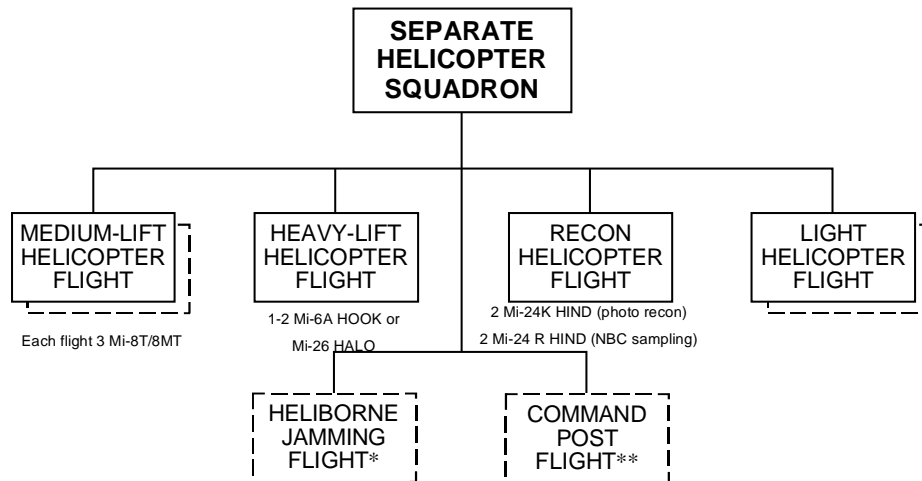
The MRL battery is not present in all infantry brigades.

Combat Helicopter Regiment, Army or Corps



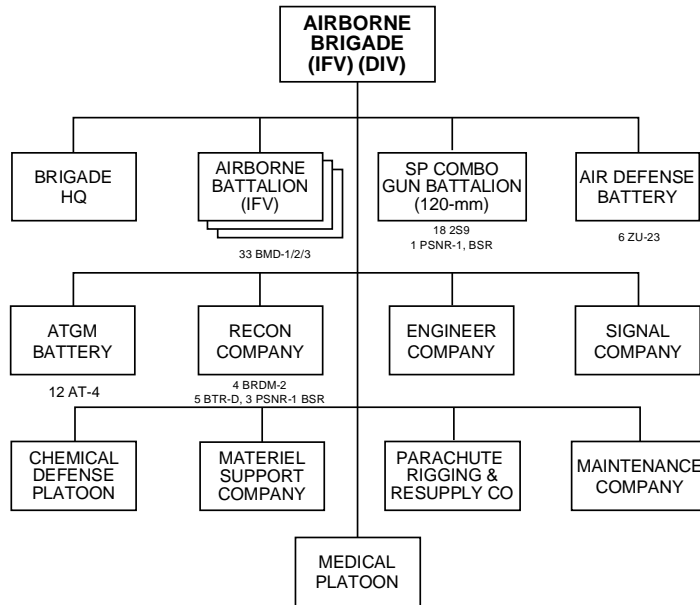
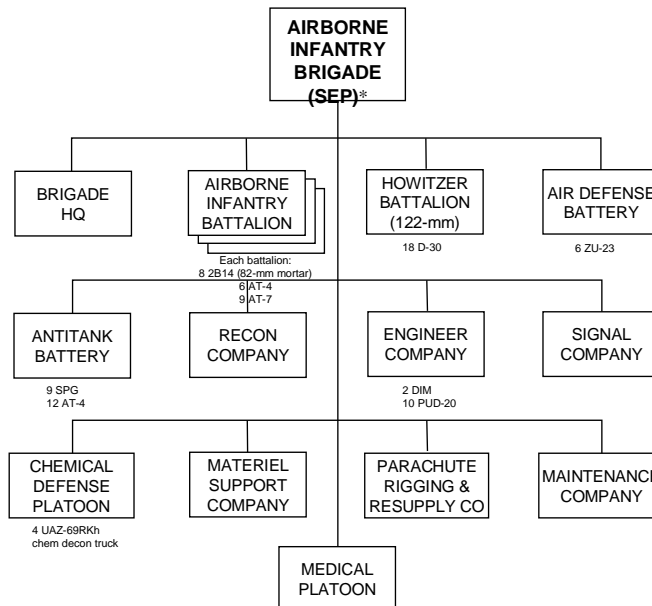
* Some combat helicopter regiments may also include six Mi-24R/HIND G1 NBC-sampling helicopters and six Mi-24K/HIND G2 photoreconnaissance helicopters.

Separate Helicopter Squadron, Army



*Some separate helicopter squadrons may also have two or three Mi-8SMV/HIP J and two or three Mi-8PPA/HIP K or Mi-8MT (Mi-17P)/HIP H jamming helicopters.

** Some squadrons may also have one or two Mi-8VKP airborne command post helicopters.

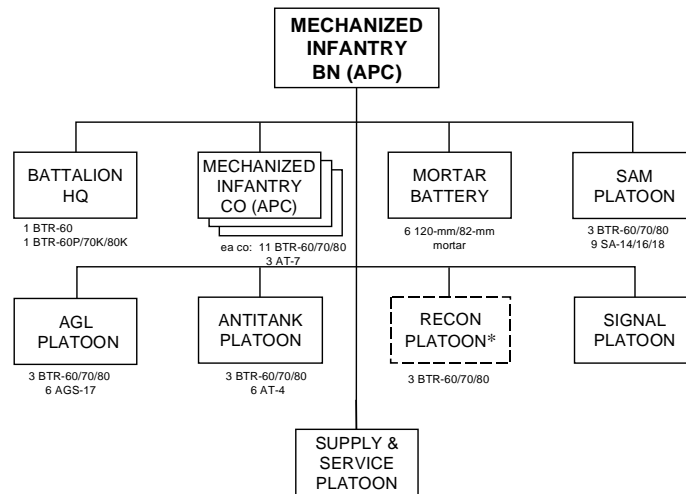
Airborne Brigade (IFV) (Div), Airborne Div**Airborne Infantry Brigade (Sep)**

- Air transport support units required for deployment may be allocated to the brigade from military transport aviation assets. Either transport aircraft or heavy-lift helicopters could air-land the brigade or insert the airborne infantry battalions by parachute.

BATTALION

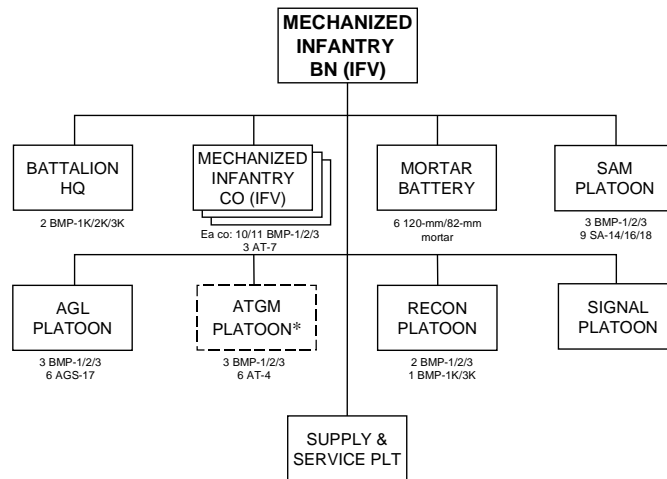
There are two basic types of mechanized infantry battalion: those equipped with tracked infantry vehicles (IFVs) and those equipped with wheeled armored personnel carriers (APCs). Tank battalions of divisional tank brigades have a standard 31-tank structure. In a divisional mechanized infantry brigade, the tank battalion may have the 31-tank structure or a variant with 40 tanks. Tank battalions in separate mechanized infantry and tank brigades typically have a 51-tank structure, but 31- and 41-tank variants are possible. There is also a 44-tank variant that may occur in either divisional or separate mechanized infantry and tank brigades or as separate tank battalion in a motorized infantry division.

Mechanized Infantry Battalion (APC)



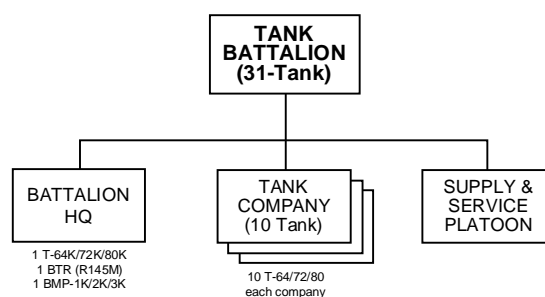
Some APC-equipped mechanized infantry battalions do not have a reconnaissance platoon.

Mechanized Infantry Battalion (IFV)

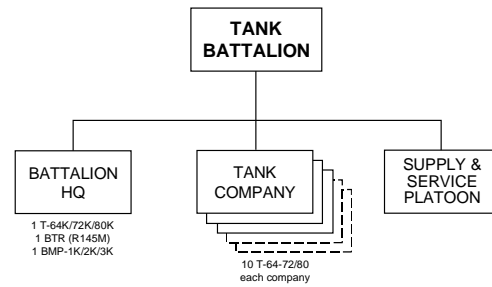


Many IFV-equipped mechanized infantry battalions do not have an ATGM platoon. Therefore, the battalion's equipment totals shown here do not include that platoon. The ATGM platoon is more likely to appear when the battalion is part of a separate brigade.

Tank Battalion (31-Tank Standard), MIBR and TBR

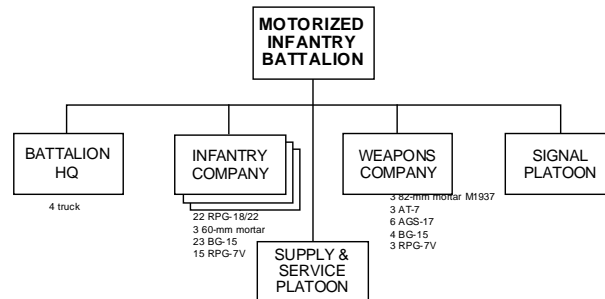


Tank Battalion, MIBR (Sep) and TBR (Sep)



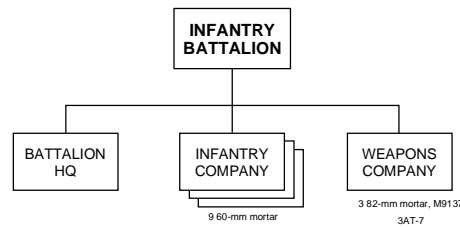
Motorized Infantry Battalion, Mtzd Inf Bde (Sep and Div)

A motorized infantry battalion does not have organic transport assets to move its infantry companies and weapons company. Rather, it relies on the brigade-level motor transport battalion to provide trucks for movement over longer distances. Movement of all



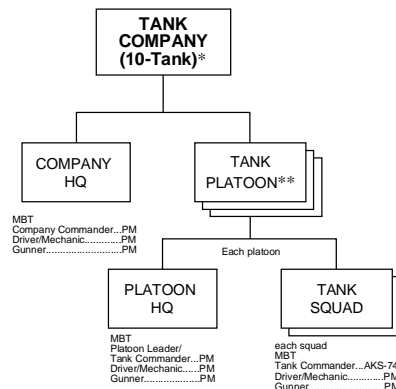
3 infantry companies requires a total of 18 medium trucks. A weapons company requires 3 utility trucks and 12 light trucks. Some motorized infantry battalions may have a mortar battery with nine 82-mm mortars instead of a mortar platoon in the weapons company. In that case, there would probably be no 60-mm mortars in the infantry companies.

Infantry Battalion, Inf Bde (Sep, Div, and Militia) or MD



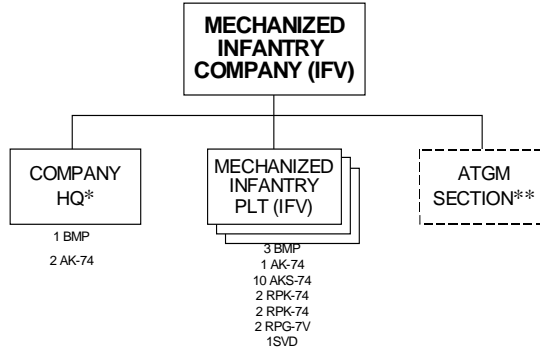
Some infantry battalions may have a mortar battery with nine 82-mm mortars instead of a mortar platoon in the weapons company. In that case, there would probably be no 60-mm mortars in the infantry companies.

Tank Company (10-Tank Standard), TBN, MIBR (IFV or APC) & TBR

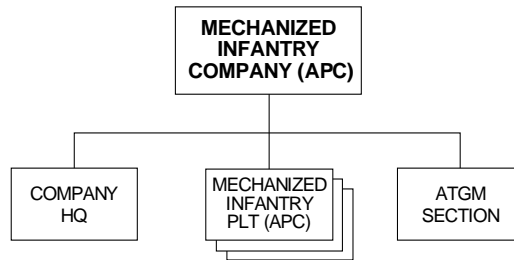


In companies equipped with tanked (such as T-55/62) without automatic loaders, each tank has one additional crewmember, a loader. The loader carries a PM pistol. One tank in each platoon mounts a mine-clearing plow.

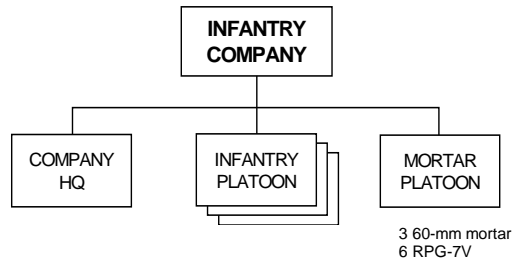
Mechanized Infantry Company (IFV), MIBN (IFV)



Mechanized Infantry Company (APC), MIBN (APC)



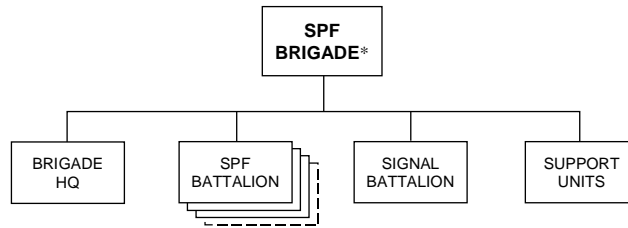
Infantry Company, Mtzd Inf Bn and Inf Bn



| System | MIC (BTR) | MIC (BMP) | TC | IC |
|----------------|-----------|-----------|----|----|
| MBT T-64/72/80 | 0 | 0 | 10 | 0 |
| BMP-1/2/3 | 0 | 10/11 | 0 | 0 |
| BTR-60/70/80 | 11 | 0 | 0 | 0 |
| AK-74 | 53 | 50 | 0 | 82 |
| AKS-74 | 0 | 0 | 6 | 0 |
| RPK-74 | 9 | 9 | 0 | 18 |
| SVD | 3 | 3 | 0 | 3 |
| RPG-7V | 9 | 9 | 0 | 15 |
| RPG-18/22 | 0 | 0 | 0 | 22 |
| AT-7 | 3 | 0/3 | 0 | 0 |

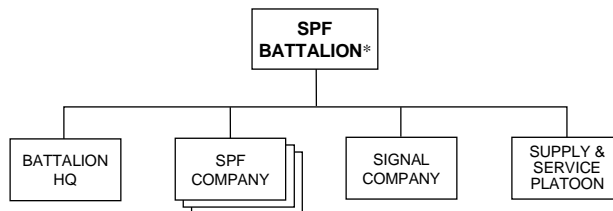
Special-Purpose Forces

Special-Purpose Forces Brigade, Army Group



* The SPF brigade structure is not fixed. This chart represents a typical brigade, which may deploy about 80 to 100 SPF teams. The number of teams deployed generally depends on the team size required for specific missions.

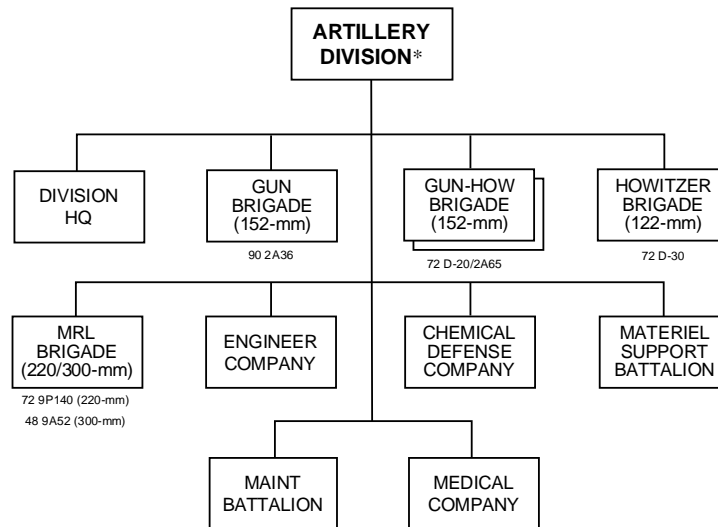
Special-Purpose Forces Battalion, Army or SPF Bde



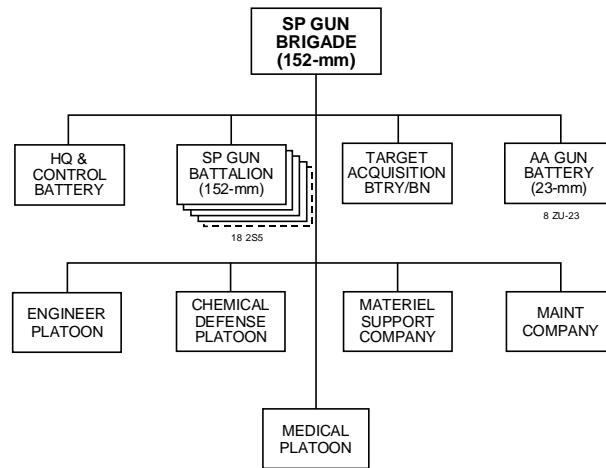
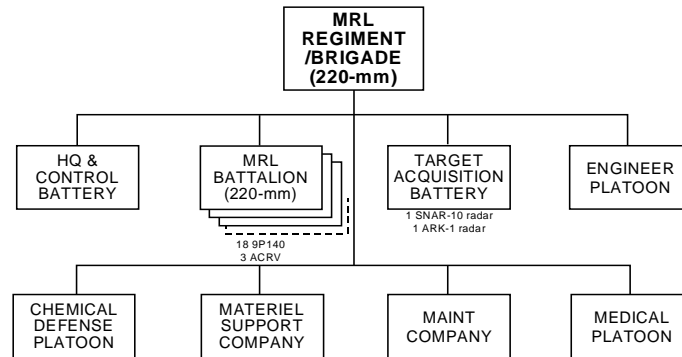
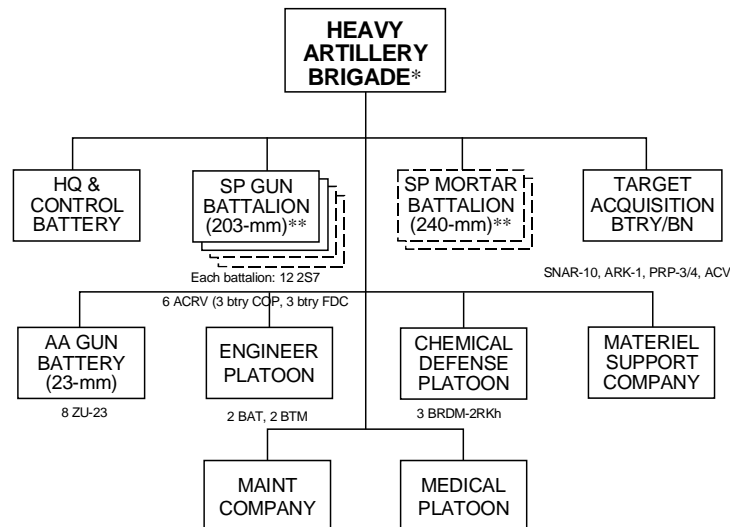
* The battalion does not have a fixed structure. The size of a SPF company in an army-level battalion differs greatly from the company size in a battalion of an SPF brigade. The total number of teams an army-level SPF battalion can deploy varies from 9 to 15. However, an SPF battalion in an SPF brigade can deploy from 27 to 30 teams. The number of teams deployed generally depends on the team size required for specific missions.

Artillery

Artillery Division, Army Group



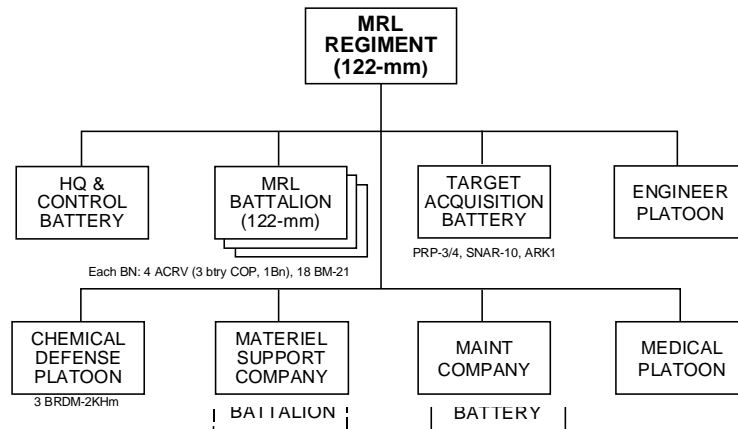
* In **most** artillery divisions, howitzer, gun-howitzer, and gun brigades consist of four 18-tube battalions and a target acquisition battery. In other artillery divisions, these brigades could have four 24-tube battalions.

152-mm SP Gun Brigade (4x18-Tube Battalion) Army, (5x18-Tube Battalion) Army Group**220-mm Multiple Rocket Launcher Regiment/Brigade, at Army or Corps or Army Group****Heavy Artillery Brigade, Army Group**

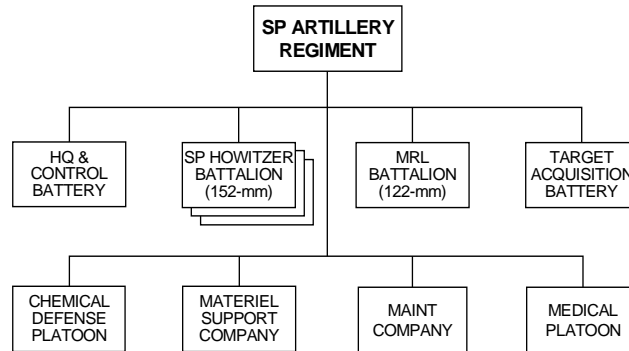
* This brigade is not part of the army group's artillery division. It is not actually organic to the army group. However, higher command may allocate a heavy artillery brigade to an army group.

** The heavy artillery brigade always has four battalions of heavy artillery. It may have all four of its battalions equipped with 203-mm SP guns. Alternatively, it may have two battalions of SP guns and two battalions of 240-mm SP mortars.

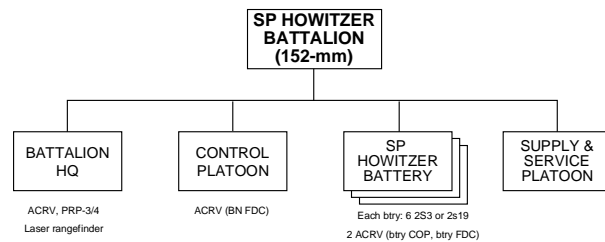
122-mm Multiple Rocket Launcher Regiment, Army or Corps



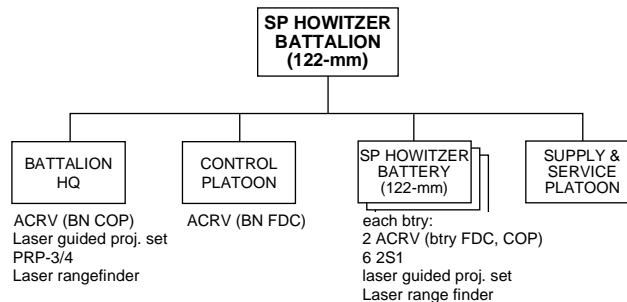
Self-Propelled Artillery Regiment, MID and TD



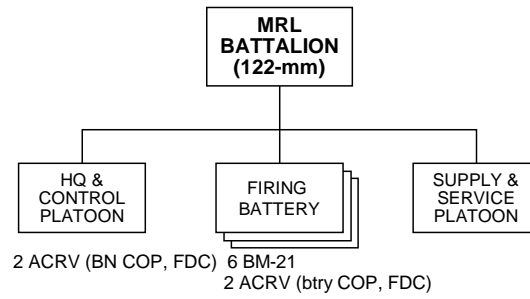
152-mm SP Howitzer Bn, SP Arty Regt or MIBR (Sep) & TBR (Sep)



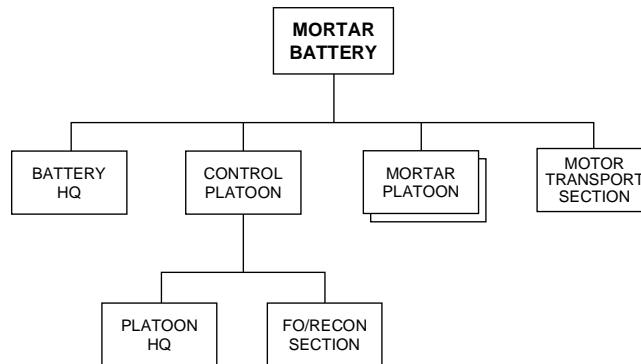
122-mm Self-Propelled Howitzer Battalion, MIBR and TBR



122-mm MRL Bn, SP Arty Regt or 122-mm MRL Regt or Corps

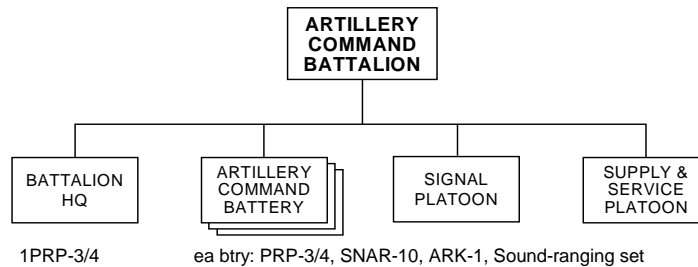


Mortar Battery, MIBN (IFV or APC)

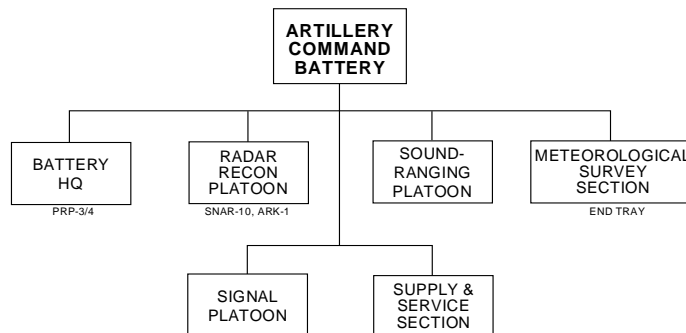


Each mortar battery has 6 120-mm 2S12/M1943 or 6 82-mm 2B9 automatic mortars.

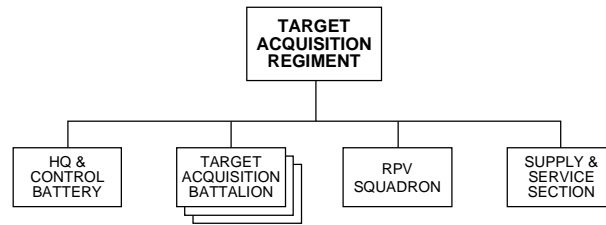
Artillery Command Battalion, Army or Corps



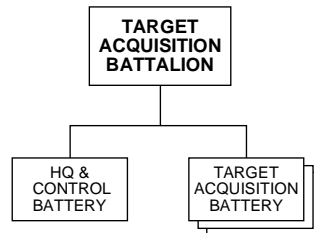
Artillery Command Battery, MID and TD or Arty Command Bn



Target Acquisition Regiment, Army or Army Group

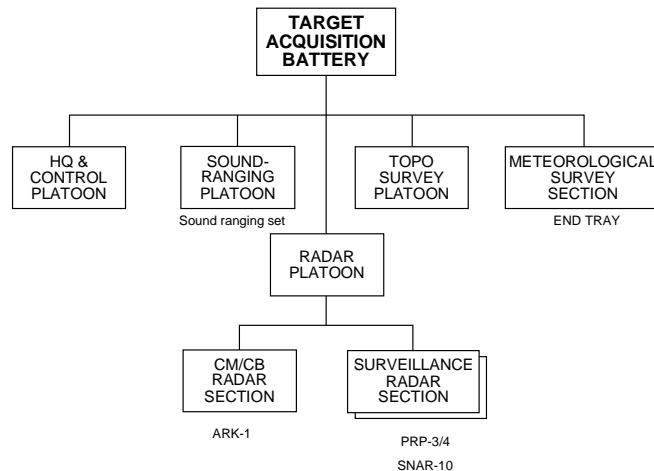


Target Acquisition Battalion, 152-mm SP Gun Bde or 152-mm Gun Bde or 152-mm Gun-How Bde or 152-mm Arty Bde or 122-mm How Bde or Heavy Arty Bde or MRL Bde or Corps or Tgt Acq Regt



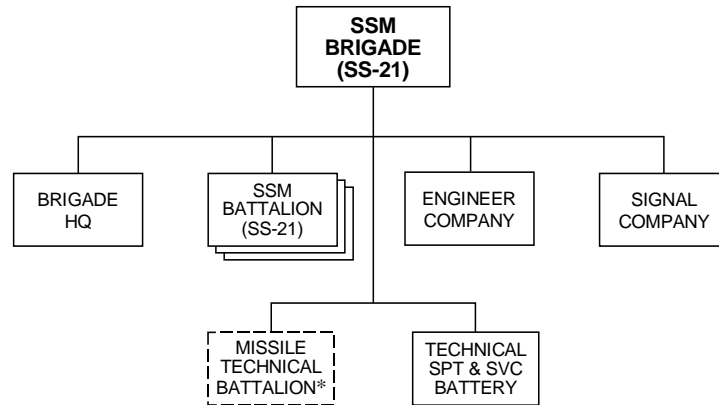
Each battalion also has 2 ACV BTR (R-145BM), and BRDM-2RKhM

Target Acquisition Battery, 152-mm SP Gun Bde or 152-mm Gun Bde or 152-mm Gun-How Bde or 152-mm Arty Bde or 122-mm How Bde or Heavy Arty Bde or MRL Regt or MRL Bde or Tgt Acq Bn



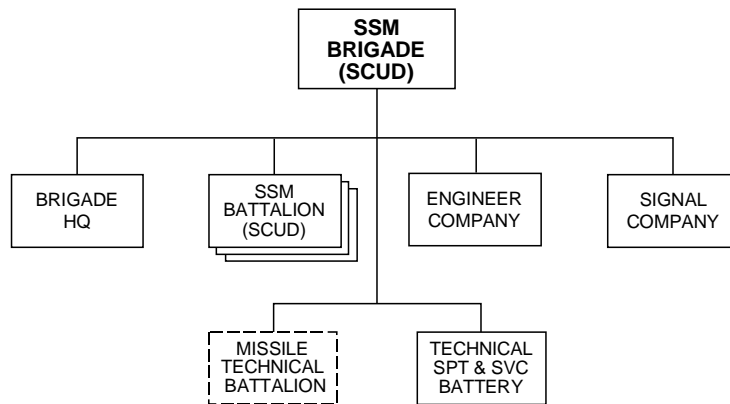
Each battery also has 1 ACV BTR (R-145BM).

SSM Brigade (SS-21), Army or Corps



18 TELs per brigade

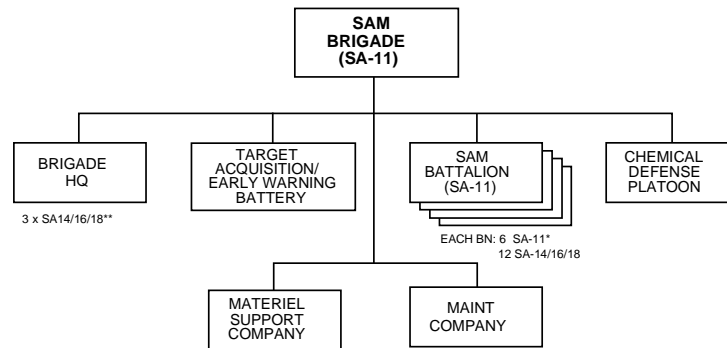
SSM Brigade (SCUD), Army or Corps



12 TELs per brigade.

Air Defense

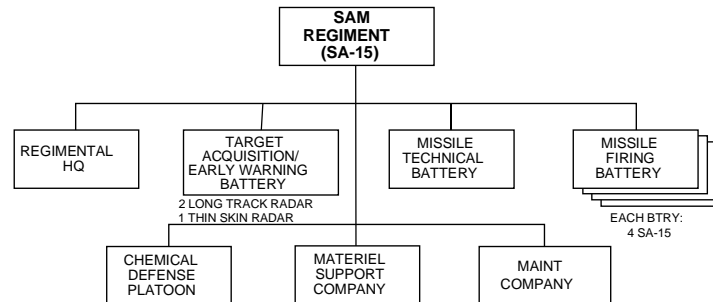
SAM Brigade (SA-11), Army or Corps



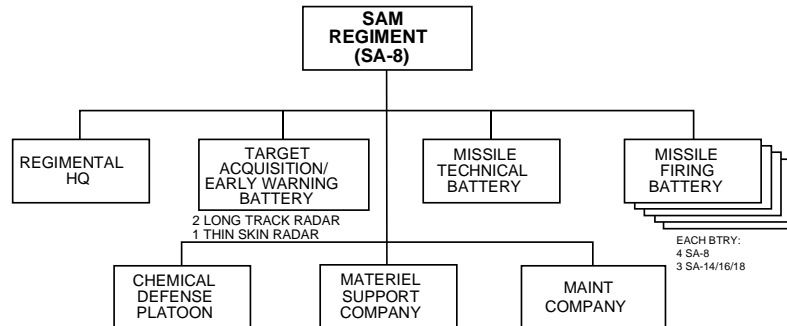
* This system includes the FIRE DOME fire control radar.

**The brigade HQ may have an AA gun section with 2 ZU-23mm AA guns instead of shoulder fired SAMs.

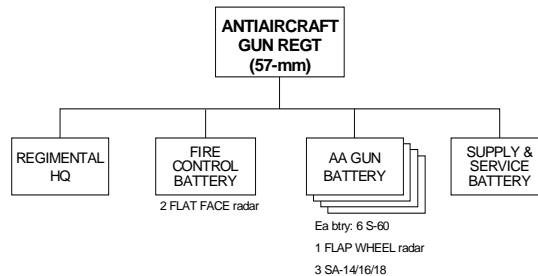
SAM Regiment (SA-15), MID and TD



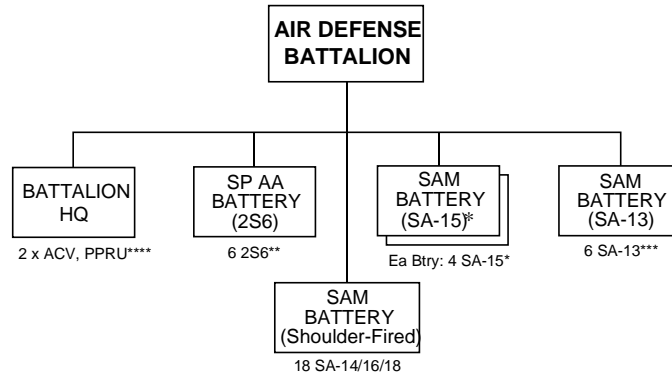
SAM Regiment (SA-8), MID and TD



57-mm Antiaircraft Gun Regiment, MID and TD



Air Defense Battalion, MIBR (Sep) and TBR (Sep)



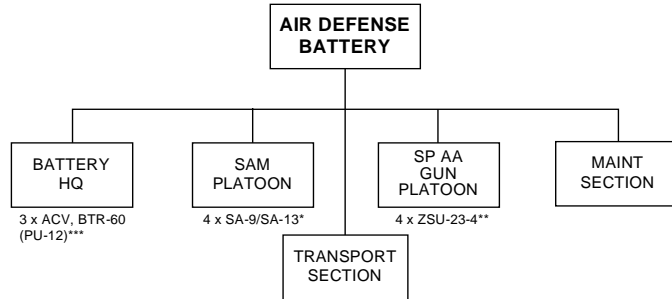
*In some separate mechanized infantry brigades, the air defense battalion may have SA-8-equipped SAM batteries rather than the SA-15 batteries shown here. The SA-15 includes the SCRUM HALF fire control/TA radar.

**This system includes SA-19/GRISON SAM launchers and HOT SHOT target acquisition and fire control radars.

***This system includes the DOG EAR target acquisition and fire control radar.

****This system includes ranging radar.

Air Defense Battery, MIBR (Div) and TBR (Div)

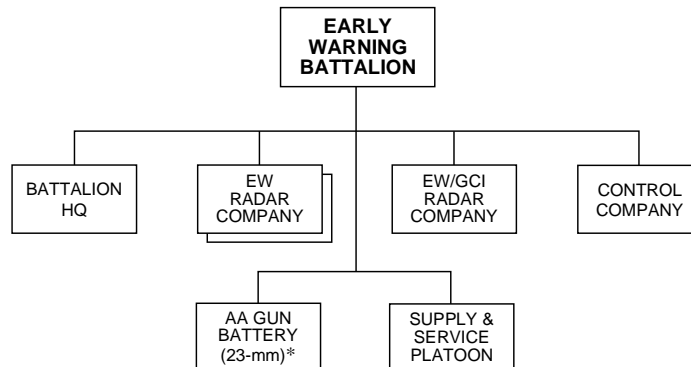


*The SA-13 system includes a ranging radar.

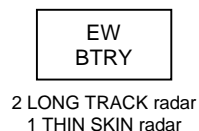
**This system includes the GUN DISH fire control radar. In lieu of the ZSU-23-4, some batteries may have the 30-mm SP AA system 2S6, which includes SA-19/GRISON SAM launchers and HOT SHOT target acquisition and fire control radars.

***If the battery has tracked SA-13 and/or 2S6 systems, the ACV may be the tracked PPRU, which includes DOG EAR TA radar.

Early Warning Battalion, Army, Army Group

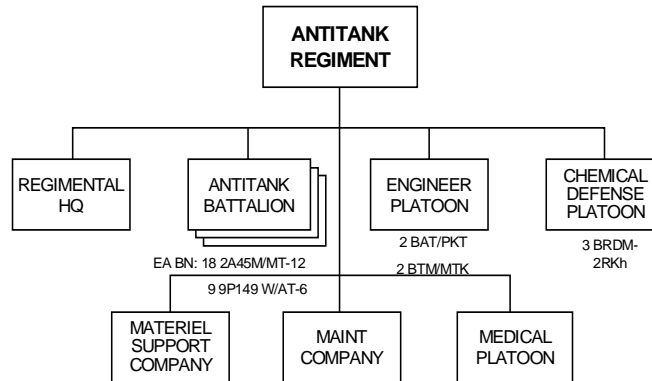


Early Warning Battery, SAM Bde, Army, or Air Defense Regt, MID and TD

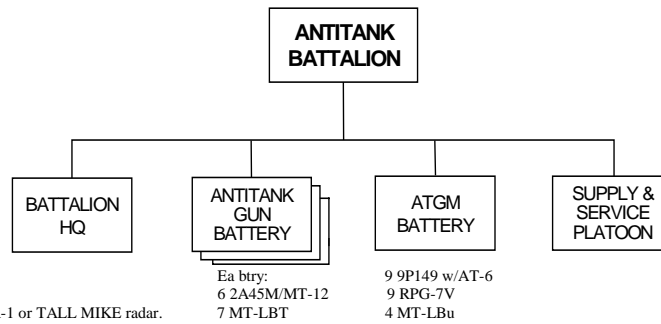


Antitank

Antitank Regiment, Mechanized Army

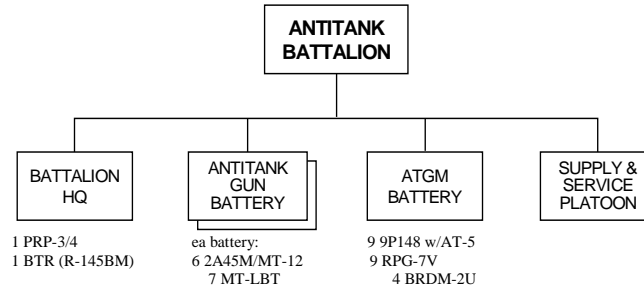


Antitank Battalion, AT Regt, Mechanized Army, or AT Bde



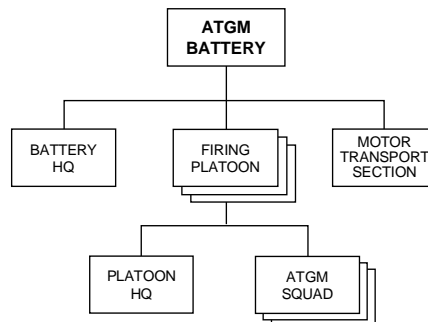
Each battery and Bn HQ has a PSNR-1 or TALL MIKE radar.

Antitank Battalion, MID



Each battery has a PSNR-1 or TALL MIKE radar.

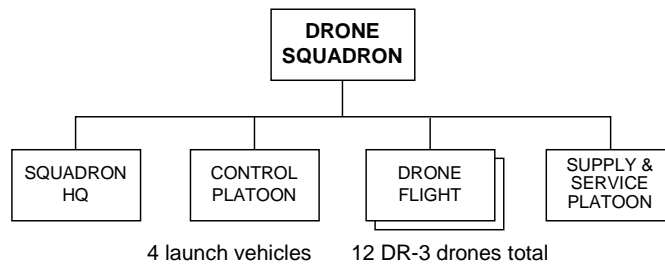
ATGM Battery, MIBR (Div) or AT Bn, MIBR (Div) or MID



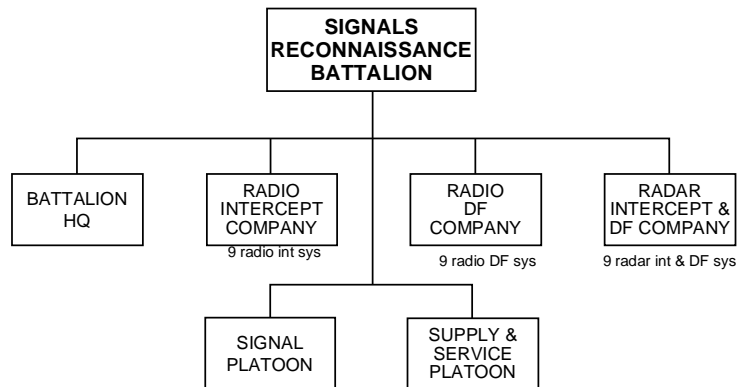
The ATGM battery has 9 9P148 with AT-5 and 1 PSNR-1/TALL MIKE radar.

Reconnaissance and Electronic Combat

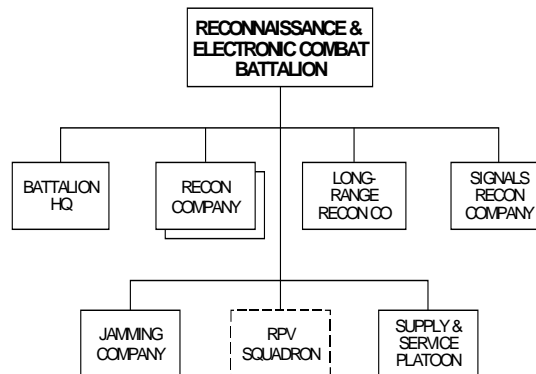
Drone Squadron, Army or Corps



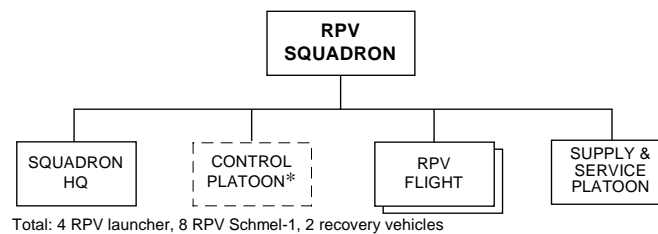
Signals Reconnaissance Battalion, Army or Corps or Army Group or Signals Recon Regt



Reconnaissance and Electronic Combat Battalion, MID and TD

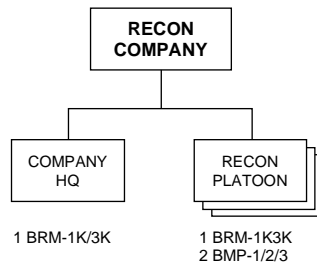


RPV Squadron, Recon and EC Bn or Tgt Acq Regt

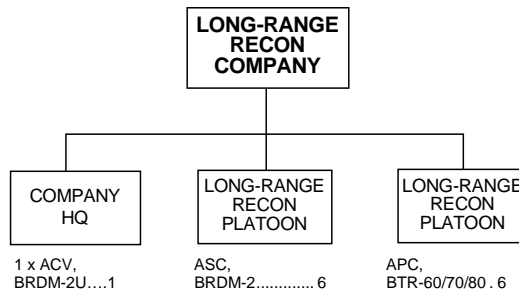


The launch vehicle for the Shmel-1 also serves as the ground control station. The employment of an alternate short-range RPV may require the use of an additional control element and vehicles.

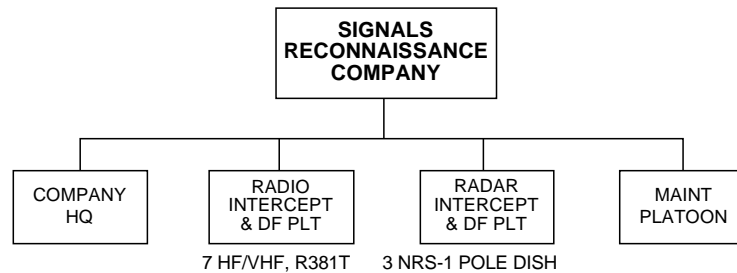
Reconnaissance Company, Recon and EC Bn



Long-Range Reconnaissance Company, Recon and EC Bn

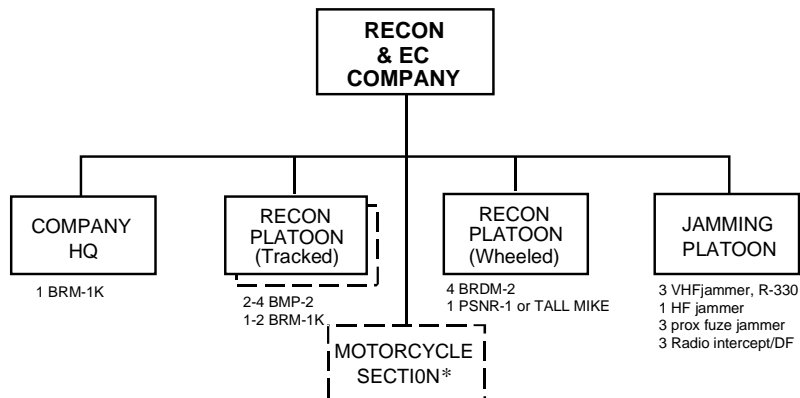


Signals Reconnaissance Company, Recon and EC Bn

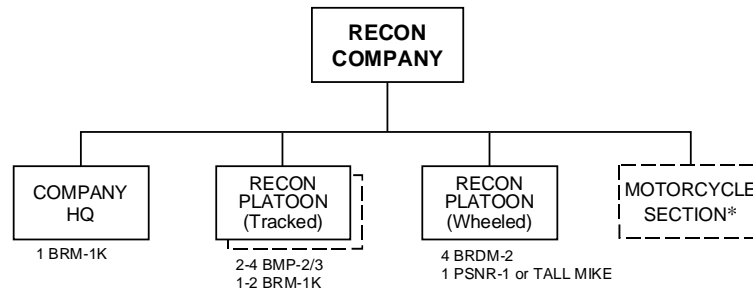


Some units may have older van-mounted radio intercept and DF systems rather than the R-381T on modified MT-LBu APC chassis.

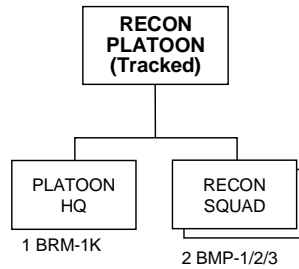
Reconnaissance and Electronic Combat Co, MIBR (Sep) and TBR (Sep)



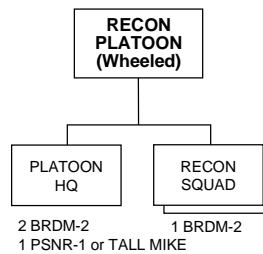
Reconnaissance Company, MIBR (Div) and TBR (Div)



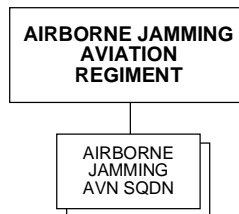
Reconnaissance Platoon (Tracked), Recon Co or Recon and EC Co



Recon Plt (Wheeled), Recon Co, MIBR and TBR, or Recon and EC Co

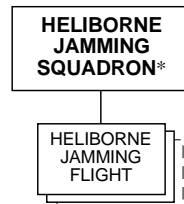


Airborne Jamming Aviation Regiment, Air Army



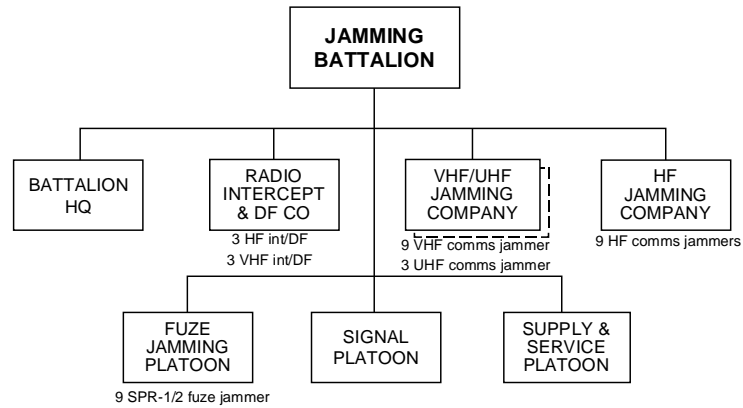
This regiment may have a squadron of Su-24 FENCER jamming variants and a squadron of Yak-28 BREWER E jamming variants. Each squadron normally has 12 aircraft.

Heliborne Jamming Squadron, Air Army

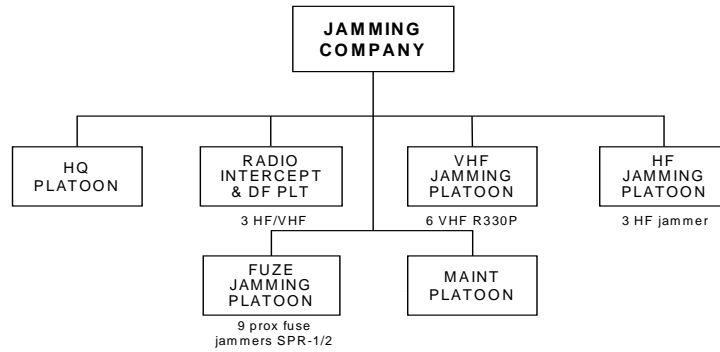


* This squadron may have one or two Mi-8T/HIP C/E or Mi-8MT(Mi-17)/HIP H medium helicopters and 14 to 21 jamming variants of the types Mi-8SMV/HIP J, or Mi-8PPA/HIP K, or Mi-8MT(Mi-17P)/HIP H.

Jamming Battalion, Army or Corps or Army Group or Jamming Regt

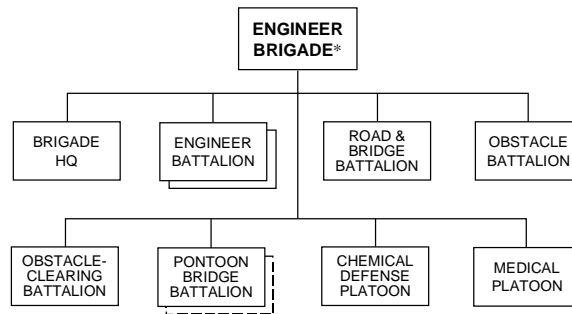


Jamming Company, Recon and EC Bn



Engineer

Engineer Brigade, Army or Corps or Army Group



- Some engineer brigades may have a second pontoon bridge battalion. However, the equipment totals here include only one such battalion. In addition to the standard types of battalion shown here, some engineer brigades at army or army group levels could include one or more of the following types: an engineer construction battalion, a fabrication battalion, a water supply battalion, and possibly a camouflage, concealment, and deception battalion.
- Some units may have PMR towed minelayers instead of the GMZ armored tracked minelayers.
-

Engineer Brigade Principal Items of Equipment

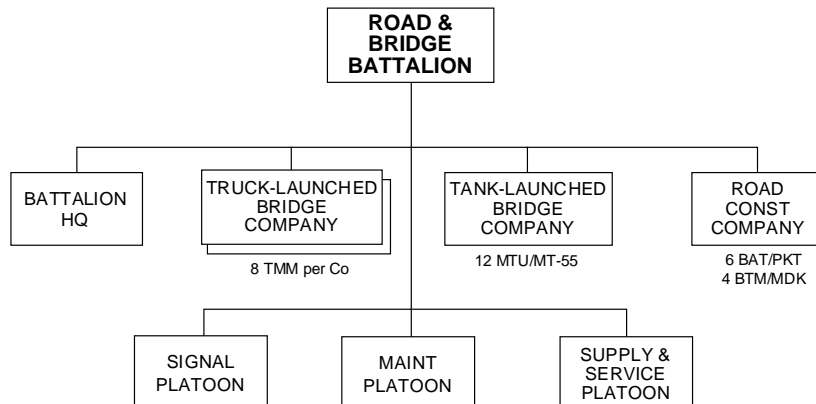
| ARMORED VEHICLES | | | |
|--------------------|--------------------------------|----|---------------------------------|
| 12 | APC, BTR-60/70/80 | 8 | Bridge, PMP Ramp** |
| 5 | ACV, BRDM-2U | 24 | Powerboat** |
| 2 | ACV, BTR (R-145BM) | 32 | Bridge, Truck-Launched |
| 3 | Chem Recon Veh, BRDM-2RKh/RKhM | 20 | Bridge, Tank-Launched |
| 12 | Armored Recovery Vehicle | 24 | Tracked Amphibian, K-61/PTS |
| WEAPONS | | 12 | Tracked Ferry, GSP/PMM-2 *** |
| 40/42 | ATRL, RPG-22/26* | 20 | Assault Boat |
| 36 | SAM, Shoulder-Fired | 12 | Trailer, Amphibious, PKP |
| ENGINEER EQUIPMENT | | 25 | Route-Clearing Vehicle, BAT/PKT |
| 13 | Mineclearer, MTK/MTK-2 | 4 | Truck, Sawmill |
| 15 | Mine Detector, DIM | 4 | Trailer, Saw |
| 33 | Minelayer, PMR/GMZ | 4 | Truck, Water Purification |
| 0/6 | Minelayer, UMZ* | 4 | Concrete Mixer |
| 7 | Armored Engineer Tractor, IMR | 7 | Tractor |
| 15 | Engineer Recon Vehicle, IRM | 4 | Piledriver Set, KMS |
| 64 | Bridge, PMP Center** | 21 | Ditching Machine, BTM/MDK |
| | | 9 | Grader |

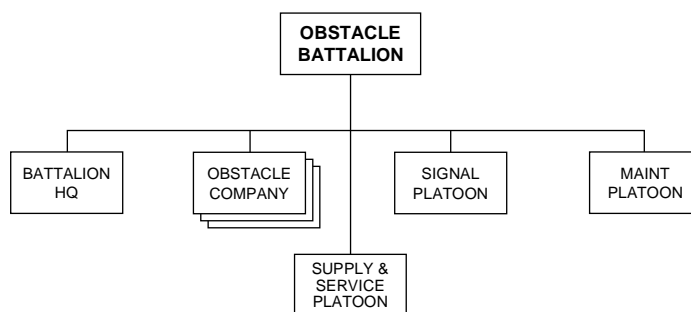
* Totals listed with multiple numbers (such as 16/18) reflect the numbers of that particular piece of equipment when engineer battalions do or do not have the UMZ minelayer, respectively.

** The PMM-2 amphibious bridge/ferry system may replace the PMP pontoon bridge. With the PMM-2, there is no need for powerboats.

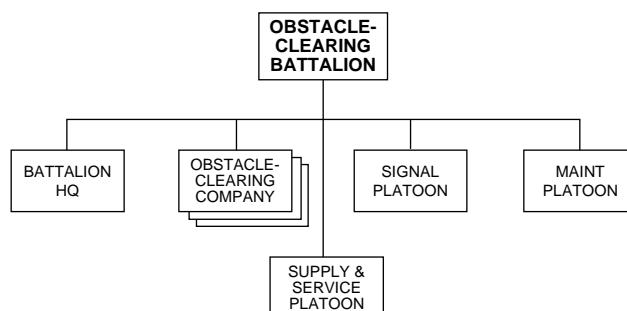
*** With the PMM-2, there are a total of 16 ferries rather than 12.

Road and Bridge Battalion, Engr Bde

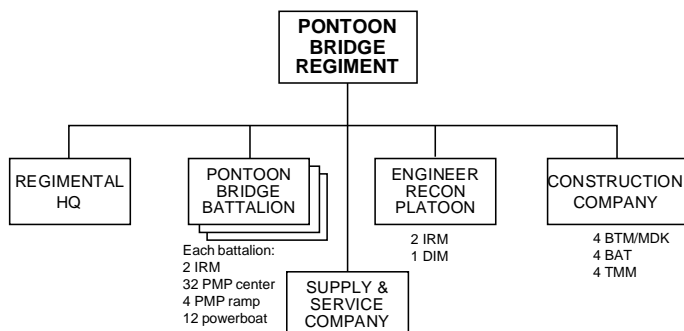
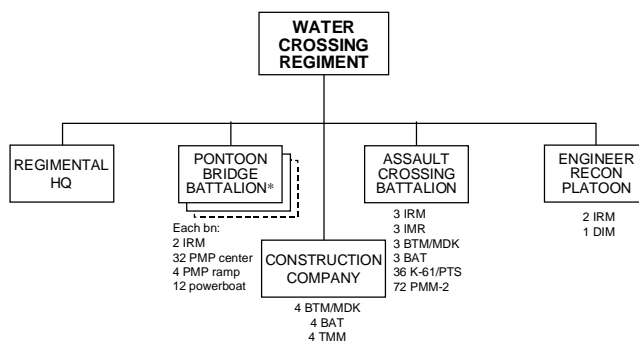


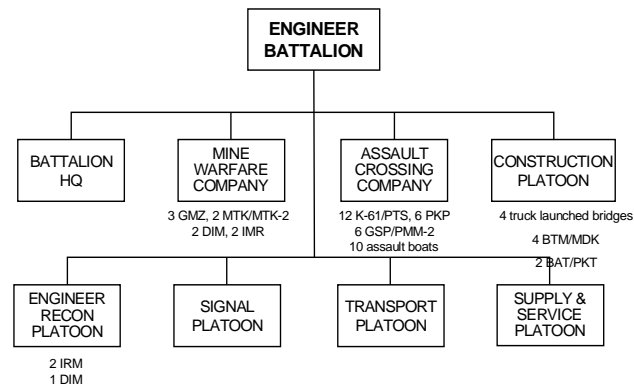
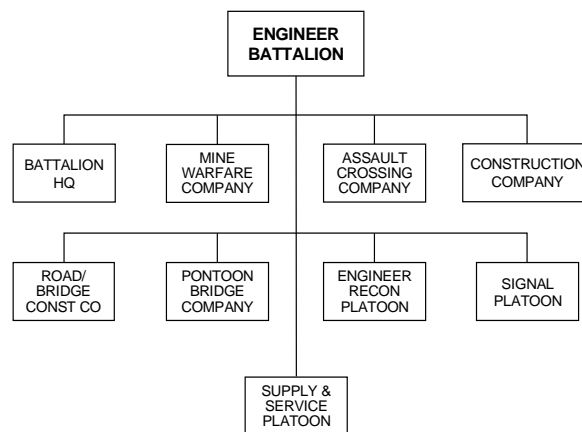
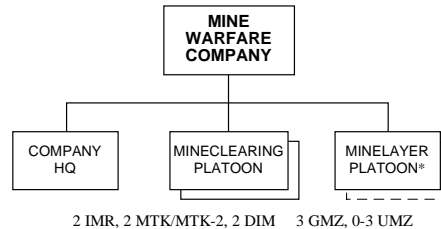
Obstacle Battalion, Engr Bde

Each Obstacle Company has 3 IRM, 9 PMR/GMZ minelayers, and 3 BTM/MDK.

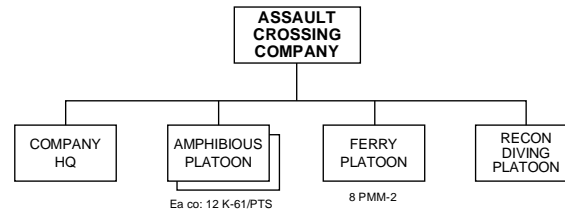
Obstacle-Clearing Battalion, Engr Bde

Each Obstacle-Clearing Company has an IMR, 3 DIM, 3 MTK/MTK-2 and a BAT.

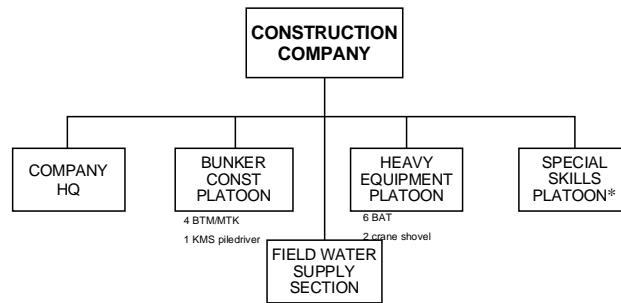
Pontoon Bridge Regiment, Army or Army Group**Water Crossing Regiment, Corps**

Engineer Battalion, MIBR (Sep)**Engineer Battalion, MID and TD or Engr Bde or Corps****Mine Warfare Company, Engr Bn**

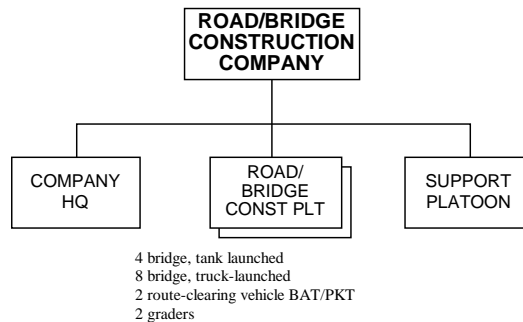
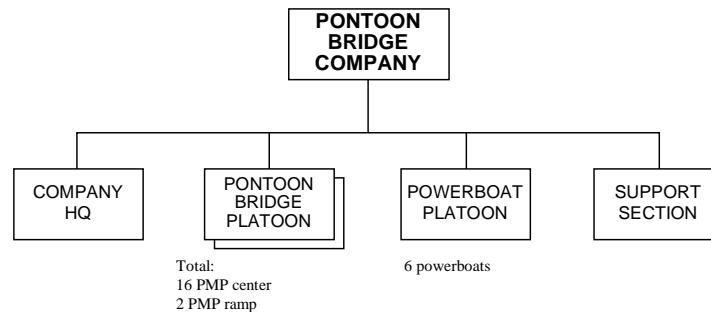
In the engineer battalion of a mechanized infantry or tank division, this company may have a second minelayer platoon equipped with the truck-mounted UMZ. This is in addition to the GMZ-equipped minelayer platoon already present in this company in a separate mechanized or tank brigade and at division level.

Assault Crossing Company, Engr Bn

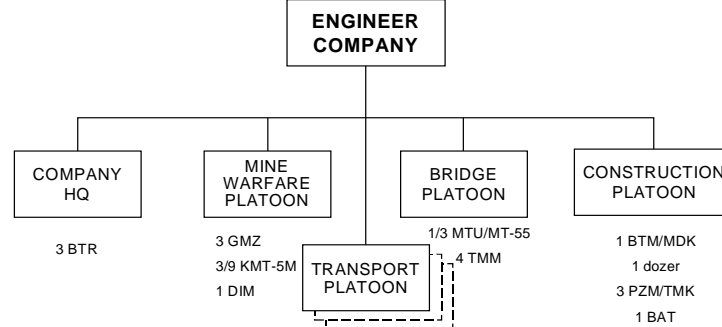
* Two GSP heavy amphibious ferry vehicles make up one ferry. Thus the assault crossing company actually has 12 half-ferries. With the newer PMM-2 system, 8 PMM-2 vehicles can form 8 ferries.

Construction Company, Engr Bn

* The special skills platoon contains engineers that perform work such as electrical, plumbing, and carpentry.

Road/Bridge Construction Company, Engr Bn**Pontoon Bridge Company, Engr Bn or Pontoon Bridge Bn**

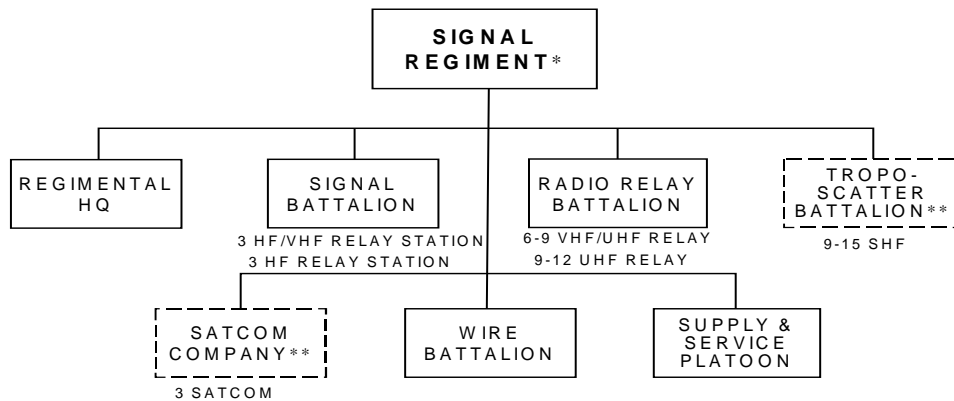
A full PMP bridge set consists of 32 center and 4 ramp sections. The half-set can make a bridge(119 m of 60-t or 191 m of 20-t) or several rafts. The PPM-2 amphibious bridge/ferry system may replace the PMP pontoon bridge.

Engineer Company, MIBR (Div) and TBR (Div)

Totals listed with multiple numbers (such as 1/3) reflect the numbers of the piece of equipment in the engineer company of a mechanized infantry brigade of tank brigade, respectively. Some units may have PMR towed minelayers instead of GMZ armored tracked minelayers. Trucks normally tow PMR minelayers.

Signal

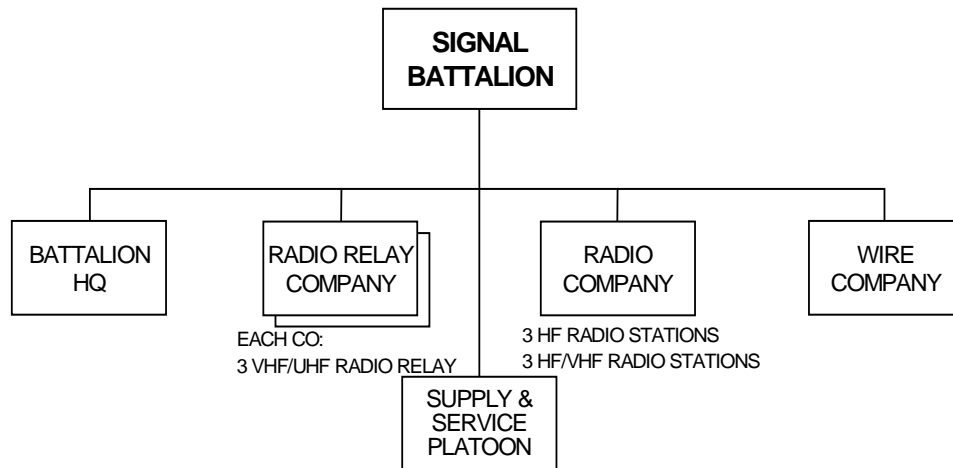
Signal Regiment, Army or Corps or Army Group _____



*An army, corps, or army group headquarters normally task-organizes the assets of the signal regiment's subordinate units to support its formation of forward, main, alternate, and rear command and control posts (CPs).

**The troposcatter battalion and satellite communications (SATCOM) company are organic only in a signal regiment at army group level. At army or corps level, these units or stations from them are present only if allocated from the parent army group.

Signal Battalion, Army or Corps or Army Group or Signal Regt or Signal Bde _____



Signal Company, MIBR (IFV or APC) and TBR, MID and TD _____

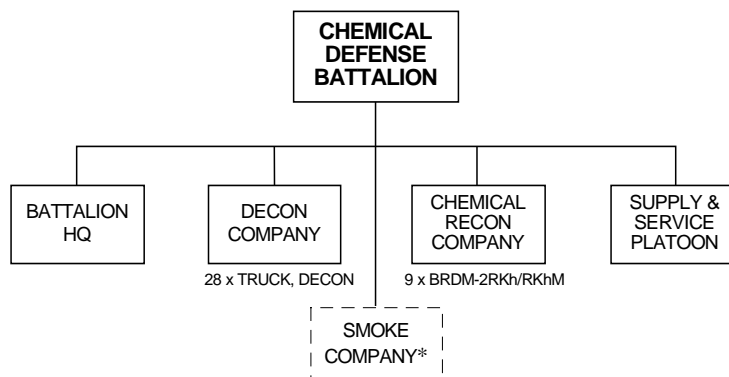


5*/0** ACV, BMP1KSh
3*/8** ACV, BTR (R-145BM)
5 Truck, Utility
2 Radio Relay, VHF/UHF

- MIBR (IFV) and TBR
- ** MIBR (APC)

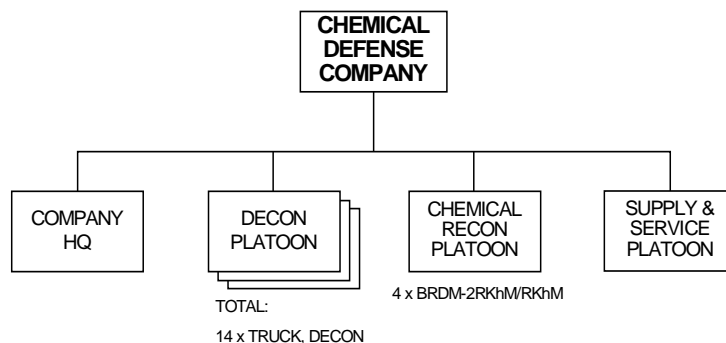
Chemical

Chemical Defense Battalion, Army Group, Corps, MID and TD

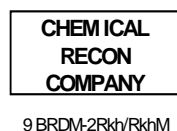


* The smoke company will not be present if the division's parent army or corps has a smoke battalion.

Chemical Defense Company, MIBR (Ind/Sep)

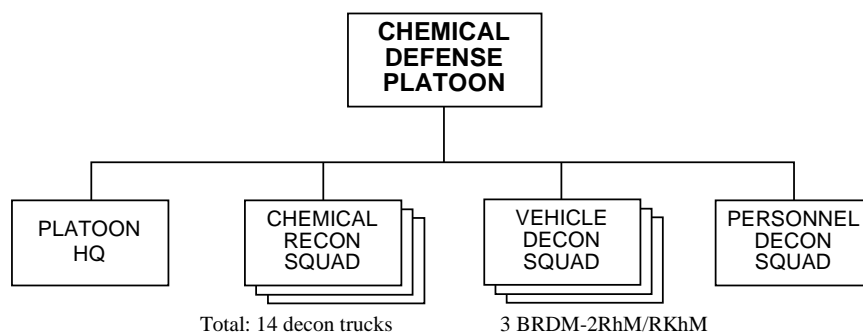


Chem Recon Co, Chem Defense Bn, MID and TD or Army Corps or Army



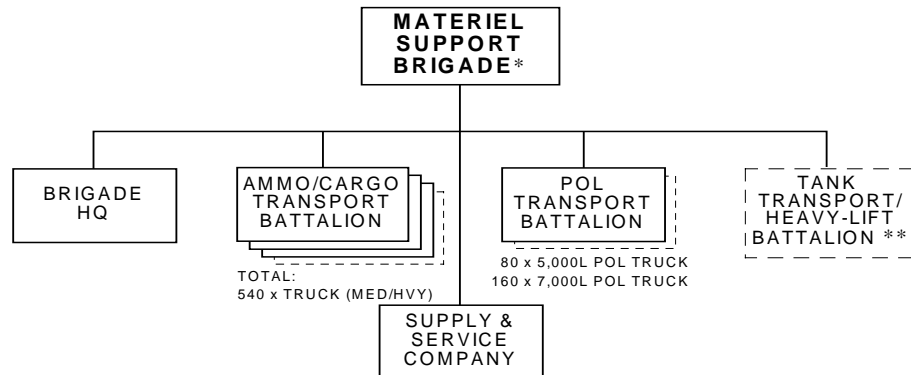
9 BRDM-2RKh/RKhM

Chemical Defense Platoon, MIBR and TBR or Arty Regiment or SAM Regiment, MID and TD



Logistics

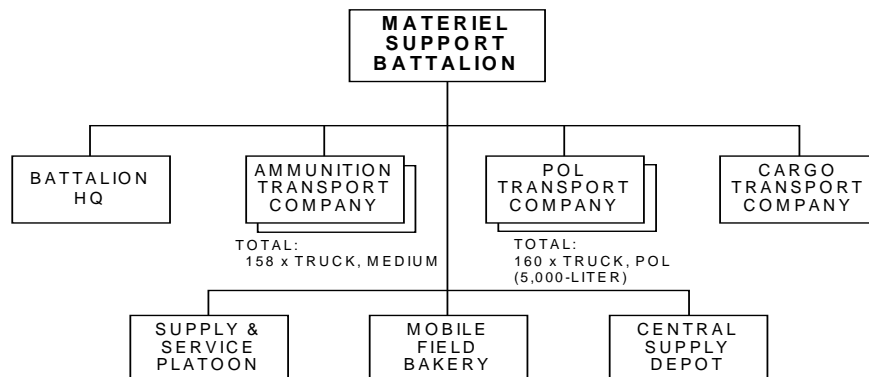
Materiel Support Brigade, Army or Corps or Army Group



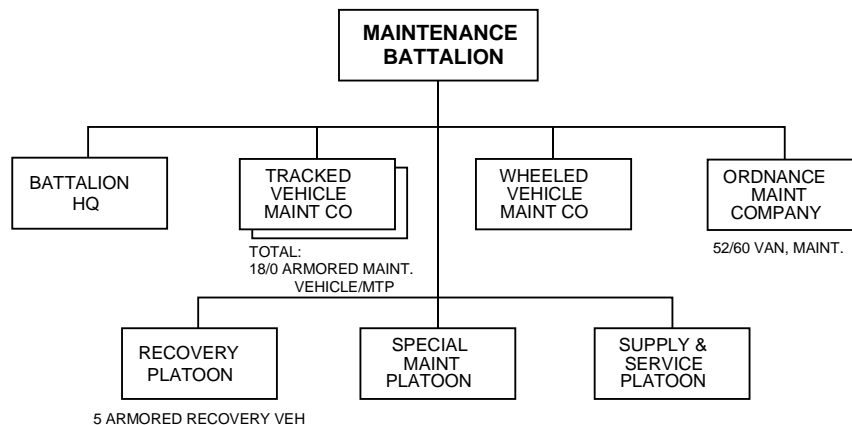
* The numbers of ammunition/cargo transport and POL transport battalions can vary depending on the number of subordinate armies, corps, divisions, and/or separate brigades supported. The equipment totals here reflect three possible variants of the brigade structure. Variant 1 shows the smallest possible organization, with three ammunition/cargo transport battalions and one POL transport battalion. Variant 2 shows a medium-strength brigade with three ammunition/cargo transport battalions and two POL transport battalions. Variant 3 shows the largest possible brigade structure, with four ammunition/cargo transport battalions and two POL transport battalions.

** The General Staff may allocate an entire tank transport/heavy-lift regiment to an army group. Such a regiment has three or four battalions equipped with heavy equipment transporters (HETs). The army group may allocate the entire regiment to a subordinate army when the mission dictates. Alternatively, the army group may allocate a tank transport/heavy-lift battalion to a subordinate army or corps. In the latter case, the army or corps normally attaches the battalion to its organic materiel support brigade.

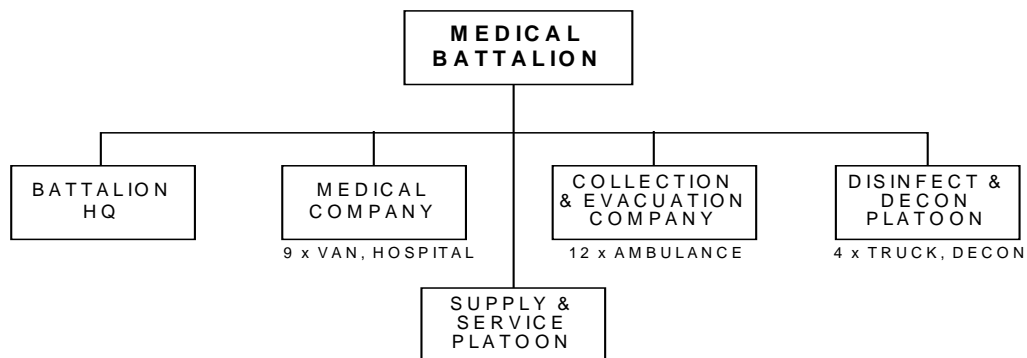
Materiel Support Battalion, MID and TD or MIBR (Sep) and TBR (Sep)



Maintenance Battalion, MID and TD or MIBR (Sep) and TBR (Sep) or Corps or Army



Medical Battalion, MID and TD or MIBR (Sep) and TBR (Sep) or Corps _____



Chapter 3: Weapons and Equipment



9-mm PM Pistol



5.45-mm AK-74 Assault rifle



5.45-mm RPK-74 Light MG

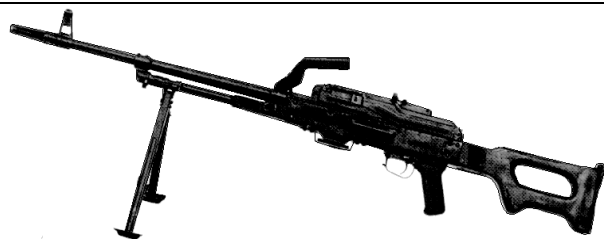


5.45-mm AKS-74U Shortened assault rifle



7.62-mm SVD Sniper rifle

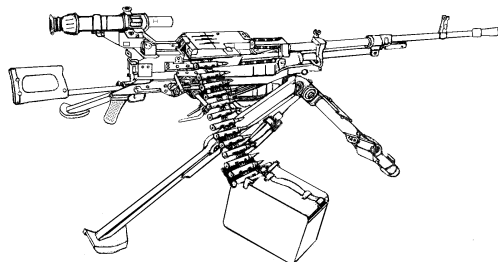
| Small Arms | 9-mm PM pistol | 5.45-mm AK-74 assault rifle | 5.45-mm RPK-74 light MG | 5.45-mm AKS-74U (AKR) Shortened Assault Rifle | 7.62-mm SVD Sniper Rifle |
|-------------------------------------|--------------------|---|---|---|---|
| fire mode | semiautomatic | Selective semi- or fully automatic | Selective semi- or fully automatic | Selective semi- or fully automatic | semiautomatic |
| rate of fire/practical/cyclic (rpm) | 35 | 100/600 | 150/600 | 150/600 | 30 |
| combat load | 16 (two magazines) | 300 | 300 | | 40 |
| ammunition type | 9x18-mm Ball | 5.45x39-mm Ball Tracer Incendiary-T Armor-piercing | 5.45x39-mm Ball Tracer Incendiary-T Armor-piercing | 5.45x39-mm Ball Tracer Incendiary-T Armor-piercing | 7.62x54R-mm Ball 7.62x54R-mm Heavy ball Tracer Sniper bullet Enhanced penetration Armor-piercing-T |
| range, effective/max aimed (m) | 25/25 | 500/800 | 800/1000 | 300/500 | 1300 w scope, 800 w/o /1300 |
| weight, loaded/empty (kg) | 0.73/0.81 | 3.95/3.4 | 5/4.6 | 3.0/2.7 | 4.5/4.3 |
| length (mm) | 160 | 937 | 1070 | 730, 490mm w/stock folded | 1230 |
| remarks | double-action | II night sight available | II night sight available | II night sight available | II night sight available |



PKM General-Purpose MG



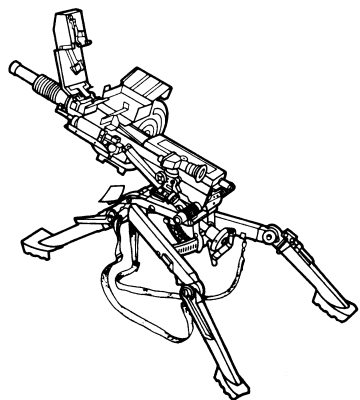
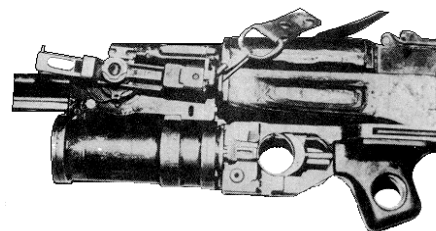
DShK/DSHKM Heavy Anti-aircraft MG



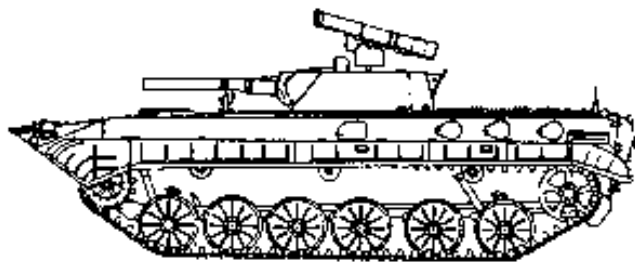
NSV Heavy MG

*Where two variants are noted / means ground/vehicle mounts.

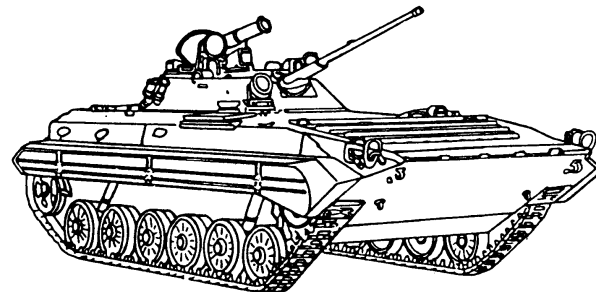
| Machine Gun | RPK-74 Light | PKM/PKT GP | DShK Heavy | NSV / NSVT Heavy | KPVT Heavy |
|-------------------------------|--|---|---|--|--|
| caliber (mm) | 5.45 | 7.62 | 12.7 | 12.7 | 14.5 |
| fire mode | selective | automatic | automatic | automatic | automatic |
| rate of fire, cyclic (rpm) | 600 | 650 | 600 | 680-800 | 600 |
| rate of fire, practical (rpm) | 150 | 250 | 80-100 | 100/210 | 150 |
| combat load | 300, 2325 on BMD-3 | 2000 on vehicles | 500 on tanks | 300/300-500 on tanks | 500 for vehicle main gun |
| feed | 40-rnd box or 30-rnd magazine | joinable 25-rnd non-disintegrating belts | nondisintegrating metallic belt | belts in 50-rnd or 200-rnd boxes | varies |
| ammunition type | 5.45x39-mm rimless Ball, Ball-T, Inc-T, AP | 7.62x54R-mm, Ball, Heavy Ball Ball-T, API, API-T, Inc | 12.7x108-mm API, API-T, IT, Duplex, APDS, HEI | 12.7x108-mm API, API-T, IT, Ball tandem, APDS, HEI | 14.7x114-mm API, API-T, HE-T, I-T |
| range, effective, | 500 | 1000/1500-2000 | 1000/1500-2000 | 2000 | 2000 |
| range, effective, AA | | | 1000/1500, 1600 API | 1000/1600 | 1400-2000 |
| range, maximum aimed (m) | 1000 | 2000 | 2000 | 2000 | 2000 |
| armor penetration (mm) | | 8-mm @ 500m Ball | 20-mm @ 500 m API 13.2-mm @ 1000 m | 20-mm @ 500 m API 13.2-mm @ 1000 m | 30-mm @ 500 m API-T 20-mm @ 1000 m |
| weight, loaded (kg) | 5 | 13.3/18.66 | 157.5 | 43 w/tripod | |
| weight, unloaded (kg) | 4.6 | 8.4/10.80 | 35.6 | 25 w/o tripod | 49.1 |
| length (mm) | 1070 | 1160/1080 | 1560 | 1560/1900 w/tripod | 2000 |
| remarks | II night sights available | II night sights available | II night sights available | II night sights available | Version of KPV used on vehicles II night sights available |

**AGS-17 Automatic Grenade Launcher****BG-15/GP-25/GP-30 Under-Barrel Grenade Launcher**

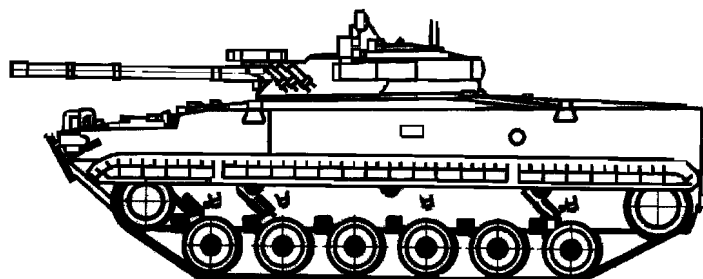
| Grenade Launchers | AGS-17 | BG-15/GP-25/GP-30 |
|--------------------------------------|-------------------------------------|---|
| caliber (mm) | 30 | 40 |
| platform | tripod, vehicle or helicopter | Under-barrel grenade launcher. |
| fire mode | selective, semi- or fully automatic | single shot |
| rate of fire, practical/cyclic (rpm) | 60-100/100-400 | 4-5 |
| elevation (degrees) | +7 to 87 | NA |
| traverse (degrees) | 30 | NA |
| range, effective/maximum aimed (m) | 700 direct fire, 1200 indirect/1730 | 10-400/400 |
| Combat load | 87 | 10 |
| feed | 29-round belt in drum magazine | muzzle loaded |
| ammunition type | Frag-HE, Self destruct Frag-HE | Frag-HE, Bounding Frag-HE |
| weight, loaded/empty (kg) | 45.05/30.71 | 1.79/1.5 |
| length (mm) | 1280 | 323 |
| crew | 3 | 1 |
| remarks | 15-m lethal area of burst | Bounding Frag-HE strikes the ground and "bounds" up 0.5-1.5 m before exploding. |



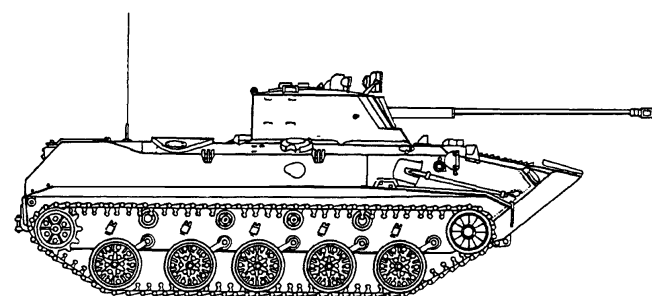
BMP-1P Infantry Fighting Vehicle



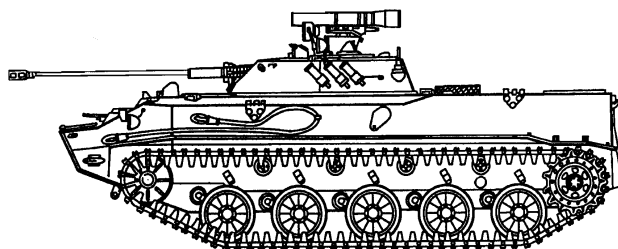
BMP-2 IFV



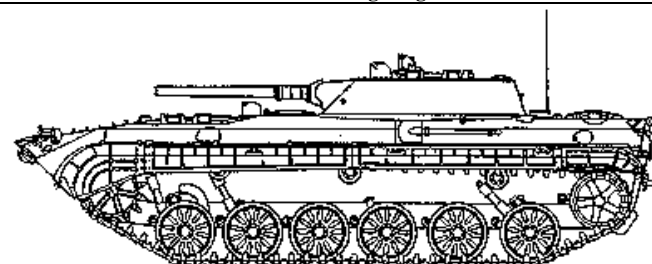
BMP-3 IFV



BMD-2 Airborne Fighting Vehicle

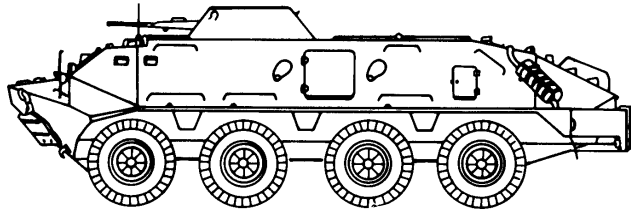


BMD-3 Airborne Fighting Vehicle

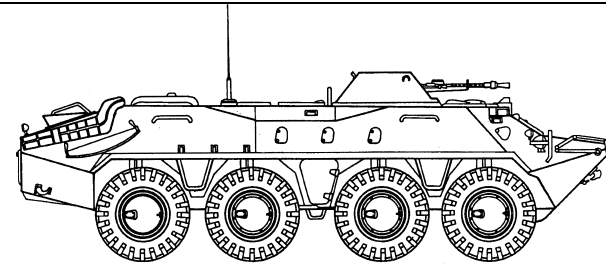


BRM-1/BRM-1K Armored Reconnaissance Command Vehicle

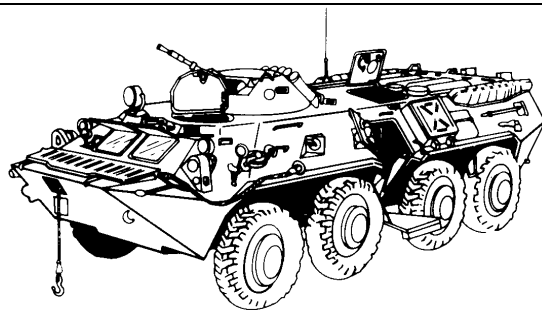
| IFVs/Reconnaissance Vehicles | BMP-1P IFV | BMP-2 IFV | BMP-3 IFV | BMD-2 AFV | BMD-3 AFV | BRM-1/1K |
|--------------------------------------|------------------------------------|--|--|-------------------------------------|---|---|
| main armament (caliber, model) | 73-mm 2A28 gun | 30-mm 2A42 gun | 100-mm 2A70 | 30-mm 2A42 gun | 30-mm 2A42 gun | 73-mm 2A38 gun |
| stabilized gun | no | yes | yes | | | |
| elevation/traverse (degrees) | -4 to 33/360 | -5 to 75/360 | -5 to 60/360 | -5 to 60/360 | -5 to 75/360 | -4 to 30/360 |
| rate of fire (rpm) sustained/maximum | 7-8 | 300/550 | 10/15 | 240/600 | 240/600 | 7-8 |
| basic load | 40 | 500 | 40 | 300 | 500 | 20 |
| ammunition type | HEAT-FS, HE | Frag-HE, HEI-T, APDS-T | Frag-HE, HE | Frag-HE, HEI-T, APDS-T | AP-T,Frag-T,HEI | HEAT-FS, FE-Frag |
| range, max effective/max aimed (m) | 800-1000/1300 HEAT 1300/1300 HE | 2000/2500 APDS 2500-4000/4000 Frag-HE | 4000/5000 Frag-HE 5200/5200 Focused | 2000/2500 APDS 4000/4000 Frag-HE | 2000/2500 APDS 4000/4000 Frag-HE | 800-1000/1300 HEAT 1300/1300 HE |
| penetration (mm) | 335->400 HEAT | 18 @1000m AP, 25-55 APDS | All IFVs | 18 @1000m, 25-55 APDS | 18 @1000m AP, 25-55 APDS | 335->400 HEAT |
| auxiliary Armament | AT-5A/B ATGM | AT-5A/B ATGM | AT-10 ATGM | AT-5A/B ATGM | AT-5A/B ATGM | |
| rate of launch (missiles per min) | 1-3 based on range | 1-3 based on range | 2-3 based on range | 1-3 based on range | 1-3 based on range | |
| basic load | 4 | 5 | 8 | 3 | 4-6 | |
| ammunition type | HEAT, Tandem HEAT | HEAT, Tandem HEAT | HEAT, Tandem HEAT | HEAT, Tandem HEAT | HEAT, Tandem HEAT | |
| range, effective (m) | 4000 | 4000 | 4000 | 4000 | 4000 | |
| penetration (mm @ m range) | 650/925 tandem | 650/925 tandem | 650/700 tandem | 650/925 tandem | 650/925 tandem | |
| auxiliary Armament | | | 30-mm 2A72 gun | | 30-mm AG-17 grenade launcher | |
| rate of fire, cyclic/practical (rpm) | | | 350/350 | | 60-100/100-400 | |
| basic load | | | 500 | | 290 | |
| ammunition type | | | Frag-HE, HEI-T, APDS-T | | Frag-HE, Self destruct Frag-HE | |
| range, effective/max aimed (m) | | | | | 700 direct, 1200 indirect/1730 | |
| auxiliary Armament | 7.62-mm PKT MG | 7.62-mm PKT MG | 3 x 7.62-mm PKT MG | 2x7.62-mm PKT MG | 7.62-mm PKT MG | 7.62-mm PKT MG |
| rate of fire, cyclic/practical (rpm) | 650/250 | 650/250 | 650/250 | 650/250 | 650/250 | 650/250 |
| basic load | 2000 | 2000 | 6000 | 2940 | 2000 | 2000 |
| range, effective/max aimed (m) | 1000/1300 | 1000/2000 | 1000/1000-2000 | 1000/2000 | 1000/2000 | 1000/2000 |
| vehicle characteristics | | | 3 x 2000 | | | |
| night sights | | | | | | |
| commander | IR/II | IR/II | Thermal | IR/II | IR/II | IR/II |
| gunner | IR/II | IR/II, thermal available | Thermal | IR/II | IR/II | IR/II |
| driver | IR/II | IR/II | IR/II | IR/II | IR/II | IR/II |
| speed, road/off-road/x-country (kph) | 65/40-45/ | 65/45/35 | 70/45/35 | 60/35 | 70/45/10 | 70/7/10 |
| range, road (km) | 600 | 600 | 600 | 500 | 500 | 500 |
| trench crossing (width x height m) | 2.5x0.7 | 2.5x0.7 | 2.2x0.8 | 1.2x0.6 | 1.5x0.8 | 2.2x0.8 |
| grade x side slope (degrees) | 35x17 | 35x17 | 60x17 | 32x18 | 35x25 | |
| ground clearance (mm) | 390 | 420 | 190 to 510 | 100 to 450 adjustable | 100-530 adjustable | 425 |
| fording (m)/swim speed (kph) | swim 7 | swim 7 | swim 10 | swim 9-10 | swim 10 | swim |
| armor, hull/turret (mm) | 16-19/19-33 | 16-19/19-33 | 19/19-35 | 16 | 16 | 10 |
| weight (mt) | 13.3 | 14.3 | 18.7 | 8.0 | 12.9 | 12.5 |
| dimensions (LxWxH m) | 6.74x2.94x2.15 | 6.72x3.15x2.45 | 7.2x3.2x2.6 | 5.5x2.7x1.615 | 6.1x3.134x2.25 | 6.75x2.97x1.98 |
| crew | 3 + 8 | 3 + 7 | 3 + 7 | 2 + 5 | 2 + 5 | 6 |
| night Gunner Sights | IR/II sight range 800-1000 m. | IR/II range 1000 m. SANOET-I thermal sight range 2600 m | Thermal sight 2600 m. Early models had II | IR/II range 1000 m. | Bow mount for squad RPK-74 light MG. IR/II range 1000 m. | TALL MIKE radar on -1K cmd variant. IR/II range 1000 m. |



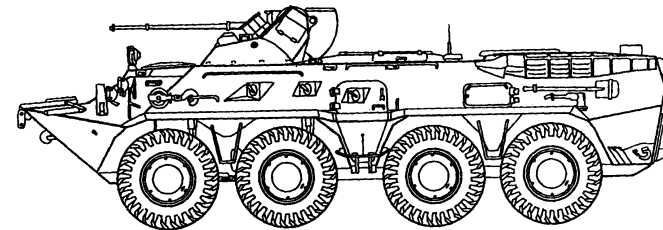
BTR-60PB Armored Personnel Carrier



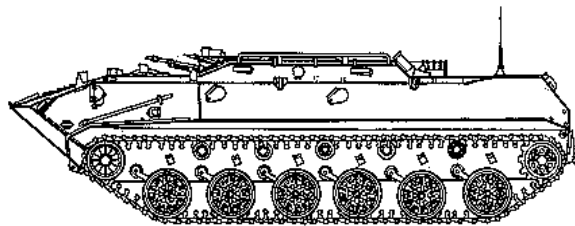
BTR-70 APC



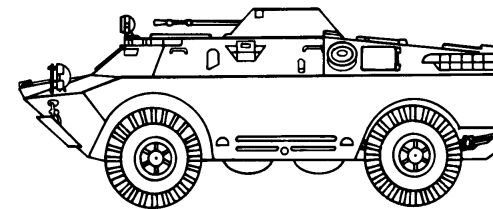
BTR-80 APC



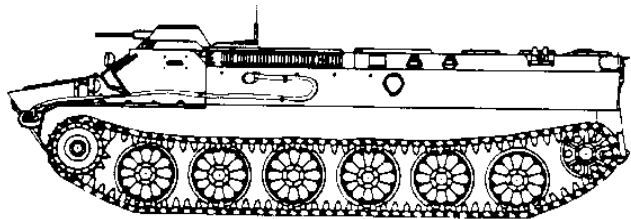
BTR-80A APC



BTR-D APC

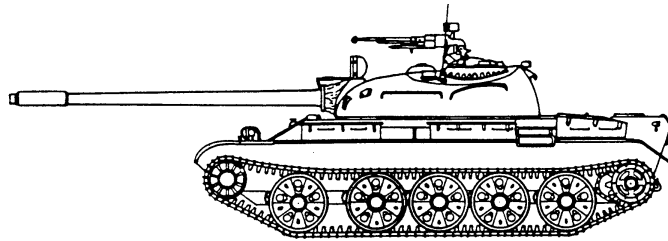


BRDM-2 Armored Scout Car

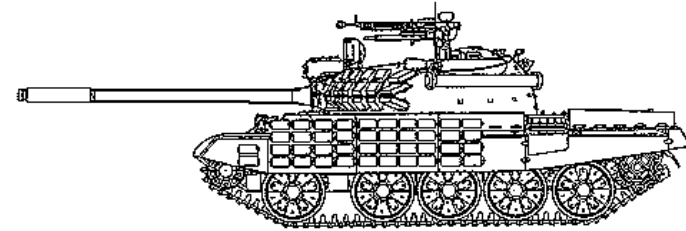


MTLB

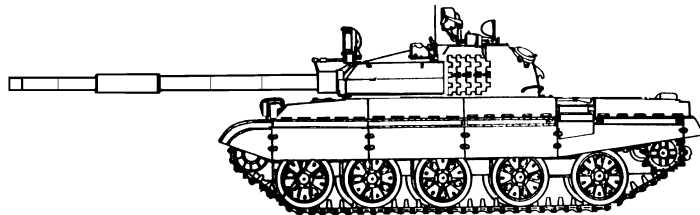
| APCs/Armored Scout Cars | BTR-60PB APC | BTR-70 APC | BTR-80 APC | BTR-80A APC | BTR-D APC | BRDM-2 | MTLB |
|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---|---------------------------------------|--|
| main armament (caliber, model) | 14.5-mm KPVT MG | 14.5-mm KPVT MG | 14.5-mm KPVT MG | 30-mm 2A42 gun | 2x7.62 PKT MG | 14.5-mm KPVT MG | 7.62 PKT MG |
| stabilized gun | no | no | no | no | no | no | no |
| elevation/traverse (degrees) | -5 to 30/360 | -5 to 30/360 | -5 to 30/360 | -5 to 75/360 | | -5 to 30/360 | -5 to 35 |
| rate of fire (rpm) sustained/maximum | 150/600 | 150/600 | 150/600 | 300/550 | 250/650 | 150/600 | 250/650 |
| basic load | 500 | 500 | 500 | | 2000 | 500 | 2000 |
| ammunition type | API, API-T, HE-T, I-T | API, API-T, HE-T, I-T | API, API-T, HE-T, I-T | Frag-HE, HEI-T, APDS-T | Ball, Heavy Ball Ball-T, API, API-T, Inc | API, API-T, HE-T, I-T | Ball, Heavy Ball Ball-T, API, API-T, Inc |
| range, max effective/max aimed (m) | 2000/2000 ground 1400/2000 air | 2000/2000 ground 1400/2000 air | 2000/2000 ground 1400/2000 air | 2000/2500 APDS-T 2500-4000/4000 HE | 1000/1500 | 2000/2000 ground 1400/2000 air | 1000/1500 |
| penetration (mm @ m range) | 30-mm @ 500 m API-T 20-mm @ 1000 m | 30-mm @ 500 m API-T 20-mm @ 1000 m | 30-mm @ 500 m API-T 20-mm @ 1000 m | 18 @ 1000m AP, 25- 55 APDS | 8 @ 500 m Ball | 30-mm @ 500 m API-T 20-mm @ 1000 m | 8 @ 500 m Ball |
| auxiliary Armament | 7.62-mm PKT MG | 7.62-mm PKT MG | 7.62-mm PKT MG | 7.62-mm PKT MG | | 7.62-mm PKT MG | |
| rate of fire, cyclic/practical (rpm) | 650/250 | 650/250 | 650/250 | 650/250 | | 650/250 | |
| basic load | 2000 | 2000 | 2000 | 2000 | | 2000 | |
| range, effective/max aimed (m) | 1000/2000 | 1000/2000 | 1000/2000 | 1000/2000 | | 1000/1500 | |
| penetration (mm @ m range) | 8 @ 500 m | 8 @ 500 m | 8 @ 500 m | 8 @ 500 m | | 8 @ 500 m | |
| vehicle characteristics | | | | | | | |
| night sights | | | | | | | |
| commander | IR/II | IR/II | IR/II | | | IR/II | IR/II |
| gunner | | | | IR/II | | | |
| driver | IR/II | IR/II | IR/II | IR/II | | IR/II | IR/II |
| speed, road/off-road (kph) | 80/? | 80/45 | 85/60 | 90/45 | 61/35 | 95/? | 62/30 |
| range, road (km) | 500 | 450 | 600 | 800 | 500 | 750 | 500 |
| trench crossing (width x height m) | 2x0.4 | 2x0.5 | 2x0.5 | 2x0.5 | | 1.25-1.6x0.4 | 2.7x.7 |
| grade x side slope (degrees) | 30x25 | | 30x25 | 30x25 | | 30x25 | 60x |
| ground clearance (mm) | 470 | 475 | 475 | 475 | 100-450 adjusts | 430 | 415 |
| fording (m) | swim 10 | swim | swim 10 | swim 10 | swim 10 | swim 10 | swim 5-6 |
| armor, hull/turret (mm) | 7-11/7 | 7-10/7 | 7-10/7 | 7-10/7 | 16/ | 14/7 | 7/7-14 |
| weight (mt) | 10.3 | 11.5 | 13.6 | 14.6 | 6.7 | 7 | 11.9 |
| dimensions (LxWxH m) | 7.22x2.82x2.3 | 7.54x2.8x2.24 | 7.55x2.95x2.41 | 7.65x2.9x2.8 | 5.88x2.63x1.67 | 5.75x2.275x2.31 | 6.35x2.85x1.87 |
| crew | 2 + 8 | 2 + 8 | 2 + 8 | 2 + 8 | 1 + 12 | 4 | 2 + 11 |
| remarks | | | | | Abn Asst has APC carriers w/AGS-17 grenade launcher and 5 AT-4 ATGMs. | | |



T-55



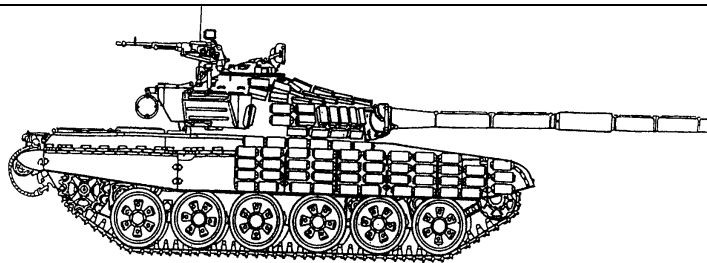
T-55AMV



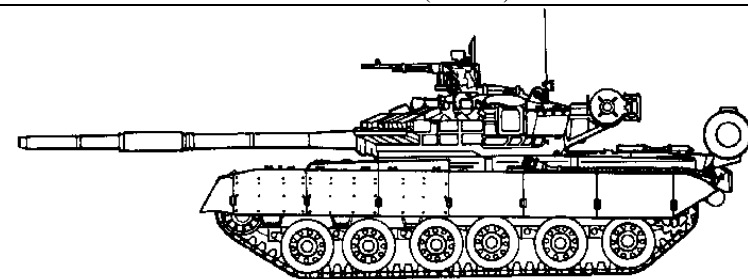
T-62M



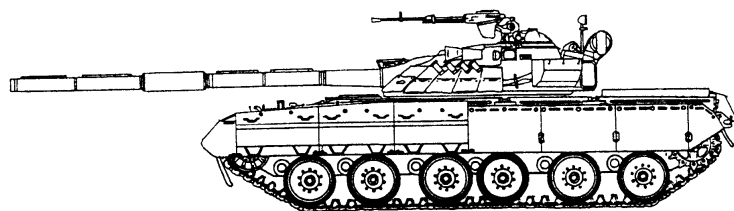
T-64B with ERA (T-64BV)



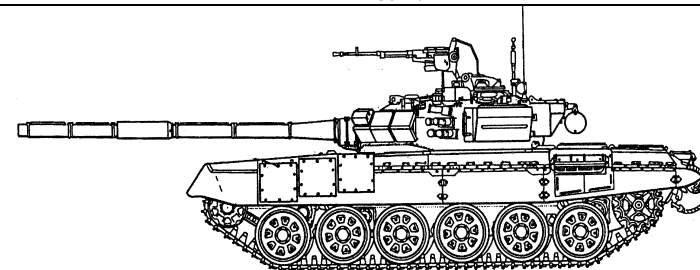
T-72BV



T-80BV

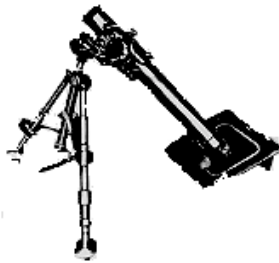


T-80U

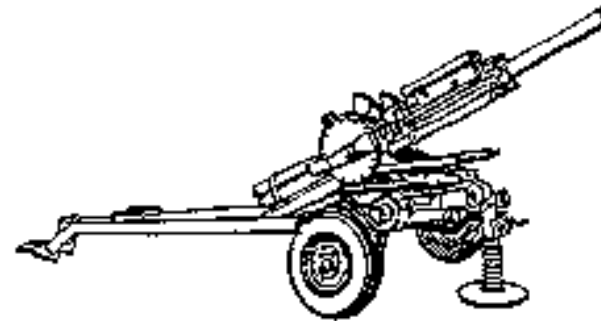


T-90

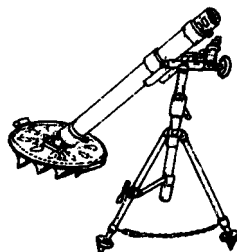
| Medium Tanks | T-55 | T-62M | T-64BV | T-72BV | T-80BV | T-80U | T-90 |
|--|---|---|---|---|---|---|---|
| main armament | 100-mm D10-T2S gun | 115-mm 2A20 gun | 125-mm 2A46-2 gun | 125-mm 2A46M gun | 125-mm 2A46-2 gun | 125-mm 2A46M-1 gun | 125-mm 2A46M-2 gun |
| stabilized | 1- plane | 2 planes | 2 planes | 2 planes | 2 planes | 2 planes | 2 planes |
| Rate of fire (rpm) | 5-7 | 3-5 | 6-8, 2 manual | 4-6, 2 manual | 6-8, 2 manual | 7-8, 2 manual | 7-8, 2 manual |
| fire control | TNP-165A day sight TSh-2-22 telescope | Volna FCS TShSM-41U telescope | 1G42 day sight | 1A40-1 FCS 1K13-49 ATGM/night | 1A33 FCS 1G42 day sight | 1A42 FCS 1G46 day sight | 1A45T FCS 1G46 day sight |
| elevation (degrees) | -4 to 17 | -5 to 18 | -6 to 18 | -6 to 14 | | -4 to 18 | -4 to 18 |
| basic load/in auto loader | 43 | 40 | 37/24 | 45/22 | 45 | 45/28 | 43 |
| ammunition type | APFSDS-T, HEAT, Frag-HE | APFSDS-T, HEAT, Frag-HE, AT-10 ATGM | APFSDS-T, HEAT, Frag-HE, AT-8 ATGM | APFSDS-T, HEAT, Frag-HE, AT-11A/B ATGM | APFSDS-T, HEAT, Frag-HE, AT-8 ATGM | APFSDS-T, HEAT, Frag-HE, AT-11A/B ATGM | APFSDS-T, HEAT, Frag-HE, AT-11A/B ATGM |
| range, max effective/ max aimed (m) | 1500-2500/2500 APFSDS-T 1000/2500 HEAT 2200/4000 Frag-HE | 1500-2000+/3000 APFSDS 1200/1500 HEAT 2000/4000 Frag-HE 4000/4000 ATGM | 3000/3000 APFSDS 2500/3000 HEAT 4000 AT-8 ATGM 4000/4000 Frag-HE | 3000/3000 APFSDS 2500/3000 HEAT 4000 AT-11A/B ATGM 4000/4000 Frag-HE | 3000/3000 APFSDS 2500/3000 HEAT 4000 AT-8 ATGM 4000/4000 Frag-HE | 3000/3000 APFSDS 2500/3000 HEAT 5000 AT-11A/B ATGM 4000/4000 Frag-HE | 3000/3000 APFSDS 2500/3000 HEAT 5000 AT-11A/B ATGM 4000/4000 Frag-HE |
| Penetration (mm) | 200-418 APFSDS-T 380 HEAT | 237-520@1000 APFSDS-T 495 HEAT 650-700 AT-12 | 590-630@ 2000 m APFSDS 650-750 HEAT 700 ATGM | 590-630@ 2000 m APFSDS 650-750 HEAT 870 ATGM (800+ERA) | 590-630@ 2000 m APFSDS 650-750 HEAT 700 ATGM | 590-630@ 2000 m APFSDS 650-750 HEAT 870 ATGM (800 + ERA) | 590-630@ 2000 m APFSDS 650-750 HEAT 870 ATGM (800 + ERA) |
| auxiliary armament | 12.7-mm DShKM MG | | 12.7-mm AA NSV T MG | 12.7-mm AA NSV T MG | 12.7-mm AA NSV T MG | 12.7-mm AA NSV T MG | 12.7-mm AA NSV T MG |
| rate of fire, cyclic/ practical (rpm) | 600/80-100 | | 800/210 | 800/210 | 800/210 | 800/210 | 800/210 |
| basic load | 500 | | 300 | 300 | 500 | 500 | 300 |
| range, ground/AA | 1500/2000 | | 2000/1600 | 2000/1600 | 2000/1600 | 2000/1600 | 2000/1600 |
| auxiliary armament | 7.62-mm PKT MG | 7.62-mm PKT MG | 7.62-mm PKT MG | 7.62-mm PKT MG | 7.62-mm PKT MG | 7.62-mm PKT MG | 7.62-mm PKT MG |
| rate of fire, cyclic/ practical (rpm) | 800/250 | 800/250 | 650/250 | 650/250 | 650/250 | 650/250 | 650/250 |
| basic load | 1250 | 2500 | 1250 | 2000 | 1250 | 1250 | 2000 |
| range, max effective/ max aimed (m) | 800/2000 | 800/2000 | 1000/2000 | 1000/2000 | 1000/2000 | 1000/2000 | 1000/2000 |
| vehicle characteristics | | | | | | | |
| range finder | Stadiametric | laser 4000 m | 1G42 laser 4000 m | TPD-K1M laser 4000 m | 1G42 laser 4000 m | laser 5000 m | laser 5000 m |
| night sights | | | | | | | |
| commander | TKN-1 IR/II | IR/II | TKN-3V IR/II | TKN-3V IR/II | TKN-3V IR/II | TKN-4S IR/II 1300 active/850 passive OR AGAT FLIR | PNK-4S IR/II OR TKN-4SAGAT FLIR |
| gunner | TPN-1M-22 IR/II 800 m | 1K13-1 IR/II 800 m | TPN1-49-23 IR/II 1300 m active/800 passive | 1K13-49 1300 m active/850 passive | TPN3-49-23 IR/II 1300 m active/800 passive | Buran-PA 1500 active/1200 passive OR AGAVA-1 FLIR 2600 m | Buran-PA 1500 active/1200 passive OR AGAVA-2 FLIR 2600 m |
| driver | IR/II | IR/II | IR/II | IR/II | IR/II | IR/II | IR/II |
| weight (mt) | 36 | 41.5 | 40.3 | 44.5 | 44.5 | 46.0 | 46.5 |
| dimensions (LxWxH m) | 6.2/3.26/2.27 | 6.63/3.52/2.4 | 6.45/3.41/2.17 | 6.91/3.58/2.19 | 6.98/3.58/2.2 | 7.01/3.60/2.20 | 6.86/3.37/2.23 |
| Speed, road/off-road (kph) | 50/25 | 45/35 | 60/35-45 | 60/45 | 70/48 | 70/48 | 60/43 |
| range, road (km) | 500 | 650 | 500 | 500, 900 w/tanks | 370, 500 w/external tanks | 335, 440 w/external tanks | 500, 650 w/external tanks |
| trench crossing (m) | 2.7 | 2.85 | 2.85 | 2.77 | 2.85 | 2.85 | 2.8 |
| vertical step (m) | 0.9 | 0.8 | 0.8 | 0.9 | 1.0 | 1.0 | 1.0 |
| grade (degrees) | 60 | 30 | 30 | 30 | 32 | 32 | 30 |
| ground clearance (mm) | 425 | 350 | 450 | 400 | 451 | 431 | 490 |
| Forcing (m) | 1.4, 5.0 snorkel | 1.4, 5.5 snorkel | 1.8, 5.0 snorkel | 1.2, 5.5 snorkel | 1.5, 5.0 snorkel/12 BROD-M | 1.5, 5.0 snorkel/12 BROD-M | 1.2, 5.0 snorkel |
| armor, hull (mm) | 200 | 102-200 | 410 APFSDS/1000 HEAT | 520 APFSDS/1020 HEAT | 500 APFSDS/1060 HEAT | 700 APFSDS/1060 HEAT | 720 APFSDS/1020 HEAT |
| turret | 200 | 330 | 410 APFSDS/950 HEAT | 530 APFSDS/1300+ HEAT | 420 APFSDS/990 HEAT | 620 APFSDS/1000 HEAT | 730 APFSDS/1300+ HEAT |
| NBC protection | Yes | Yes | Yes | Yes | yes | yes | yes |
| crew | 4 | 4 | 3 | 3 | 3 | 3 | 3 |
| remarks | T-55AMV can fire AT-10 ATGM. | Upgrade: ATGM, FCS, bra armor, no 12.7-mm MG | Kontakt ERA adds 0 mm for APFSDS/500 mm for HEAT | Kontakt ERA adds 0 mm for APFSDS/500 mm for HEAT | Kontakt ERA adds 0 mm for APFSDS/500 mm for HEAT | New ERA adds 200 mm for APFSDS/500 mm for HEAT | New ERA adds 200 mm for APFSDS/500 mm for HEAT |



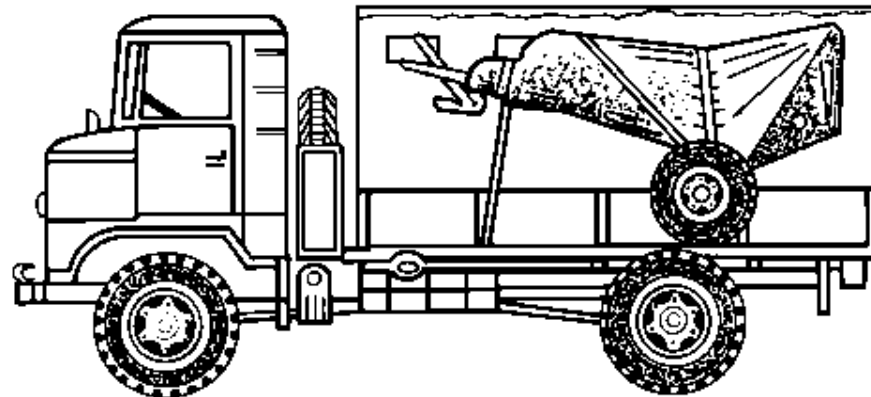
60-mm M-57 Manportable Mortar



82-mm 2B9/Vasilek Automatic Mortar

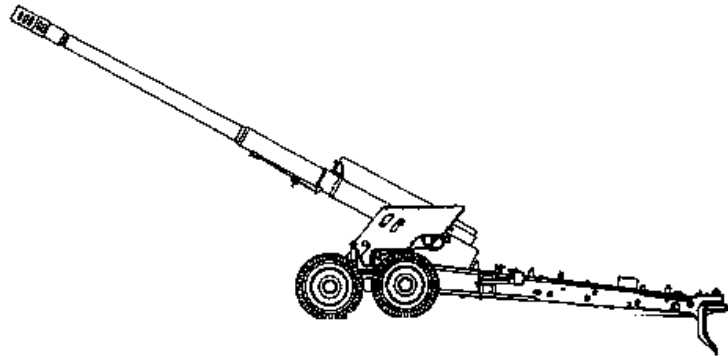


82-mm 2B14-1 Podnos Mortar

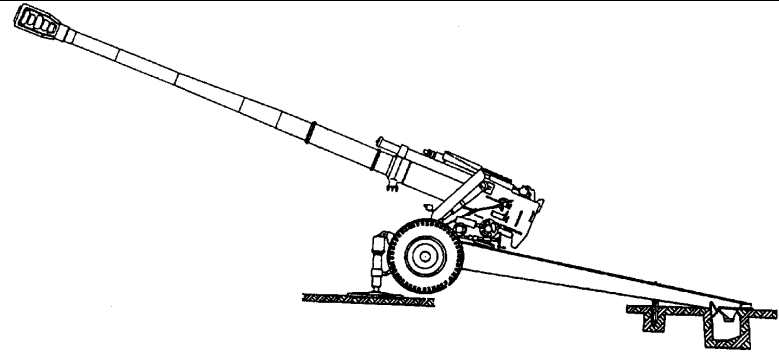


2B11/2S12 Portee Mortar

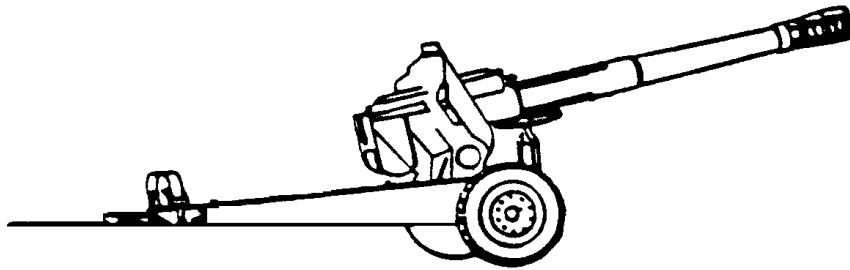
| Mortar | 60-mm M-57 | 82-mm 2B9 automatic | 82-mm 2B14-1 Podnos | 120-mm 2B11/2S12 | 120-mm M1943 |
|-------------------------------------|-----------------------------|--|---|---|--|
| range, conventional (km) | 75-2500 | 4270 | 4270 | 7000 | 5700 |
| extended range | | | | 9000 | 7000 |
| ammunition types | HE Illumination Smoke | Frag-HE HEAT Smoke Incendiary Illumination Chemical | Frag-HE Illumination smoke | Frag-HE Smoke Incendiary Illumination Chemical DPICM-ER DPICM HEAT | HE Frag-HE Smoke Illumination Incendiary Chemical |
| rate of fire (rpm) maximum | 30 | 120 | 24 | 15 | 9 |
| sustained | | 300 first hour | | 4 est | 4 |
| elevation (degrees) | 40 to 85 | -1 to 85 | 45 to 85 | 45 to 80 | 45 to 80 |
| traverse (degrees left/right) | | 30/30 | 4/4 | 5.26/5.26 moving bipod | 4/4 total |
| mount type | bipod and baseplate | split-trail carriage, w/emplacement jack | | baseplate & tripod or GAZ-66 truck | baseplate & tripod |
| basic load | | 226 | | 48 | |
| emplacement/displacement time (min) | | 1.5 | | 3/3 est | 5/3 |
| weight (kg) | 19.4 | 635 | | 3640 | 522 travel |
| crew | 2 | 4 | 4 | 5 | 6 |
| remarks | | The 2B9 is a breech-loaded, recoil-operated mortar using a 4-round clip. | Muzzle-loaded, smoothbore, man-packed mortar. | | Not shown |



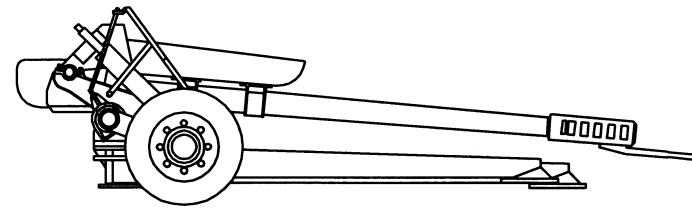
2A36 Field Gun



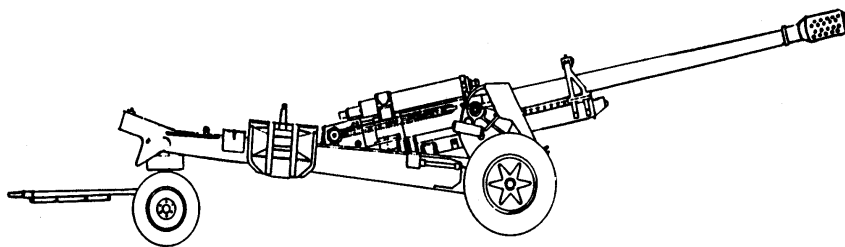
2A65 Howitzer



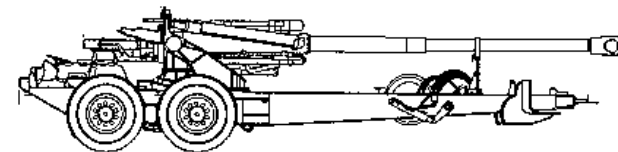
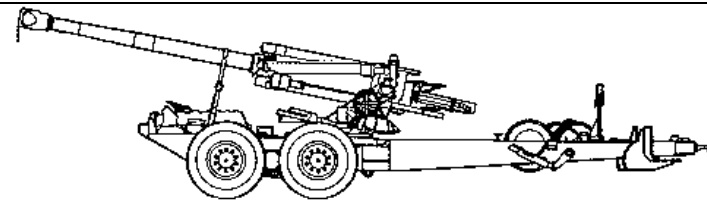
D-20 Gun-Howitzer



D-30 Howitzer

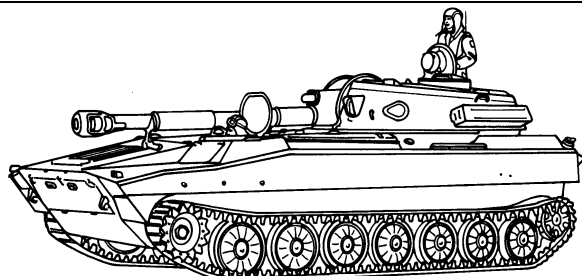


M-46 Gun

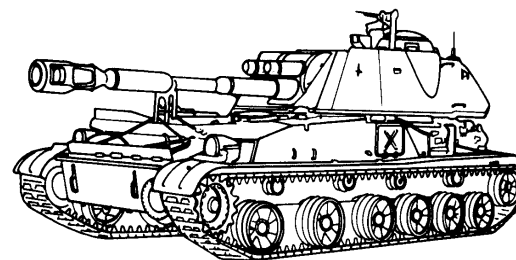


G5

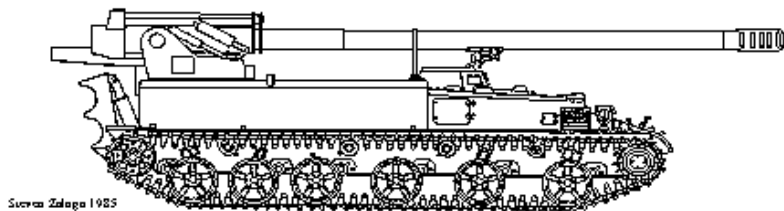
| Towed Artillery | 152-mm 2A36 Field Gun | 152-mm 2A65 Howitzer | 152-mm D-20 Gun-Howitzer | 122-mm D-30 Howitzer | 130-mm M-46 Gun | 155-mm G5 (SA) |
|-------------------------------|--|---|---|---|---|---|
| range, conventional (km) | 28.4 | 24.7 | 17.4 | 15.3 | 22.5 | 30 |
| extended range | 30.5 | 28.5 | 24.4 | 21.9 | 38 | 39 |
| direct fire | 1000 | 1000 | 1000 | 1000 | 1.14 | 3000 |
| rate of fire (rpm), burst | 6 | 8 | 6 | 8 | 8 | 3 |
| sustained | 4 | 4 | 1 | 4 | 5 | 2 |
| ammunition type | HE HE-BB Frag-HE ICM APT concrete piercing, chemical nuclear Krasnopol semi-active laser-guided | Frag-HE ICM Illumination Krasnopol Santimeter Smoke VHF jammer Chemical nuclear | Frag-HE HEAT-SS Smoke Chemical Nuclear Illumination Flechette Mines Incendiary CP RAP incendiary | Frag-HE HEAT-FS Kitolov-2M Chemical Illumination Smoke Frag-HE-RAP Flechette incendiary | Frag-HE APC-T Smoke Illumination chemical | Frag-HE smoke, illumination Leaflet submunitions |
| elevation (degrees) | -2.5 to 57 | -4 to 70 | -5 to 45 | -7 to 70 | -2.5 to 45 | -3 to 75 |
| traverse (degrees left/right) | 25/25 | 27/27 | 29/29 | 360 | 25/25 | 41/41 |
| emplace/displace time (min) | 5/7 | 3 | 2.5/2.5 | 1.5/3.5 | 6/7 | 2/1 |
| speed towing, road (kph) | 70 | 80 | 60 | 60 | 50 | 90 |
| off road | 20 | 20 | 30 | 25 | 20 | 50 |
| prime mover | | Ural-4320 | AT-S track, MTLB-T, Ural-375, Ural-4320 | MTLB-T, ZIL-131, ZIL-157, Ural-375D | AT-P tractor, AT-S track, ATS-59 tractor, M-1972 medium artillery tractor | 10-ton vehicle |
| weight (kg) | 9800 | 7000 | 5700 | 3210 | 8450 | 13750 |
| length (m), travel position | 12.7 | 12.7 | 8.1 | 5.4 | 11.73 | 12.1 |
| width (m) | 2.7 | 2.5 | 2.35 | 1.9 | 2.45 | 3.3 |
| height (m) | 2.7 | 2.95 | 2.52 | 1.6 | 2.55 | 2.3 |
| crew | 8 | 5 | 8 | 5 | 8 | 8 |
| remarks | ICM round penetration is 100-mm. | | | HEAT round penetration is 460 mm. | Variants: Type 59 & 59-1 of China, M59-1M of Egypt | in service in Iran, Iraq, south Africa, Qatar |



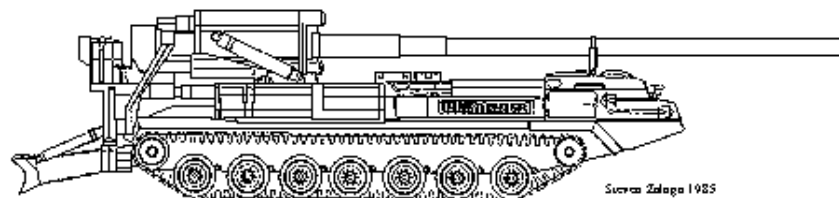
2S1 Howitzer



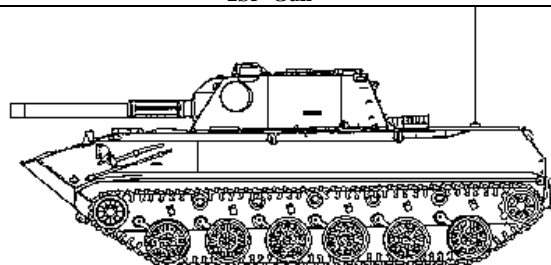
2S3 Howitzer



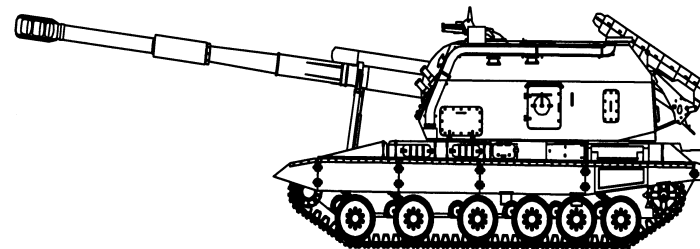
2S5 Gun



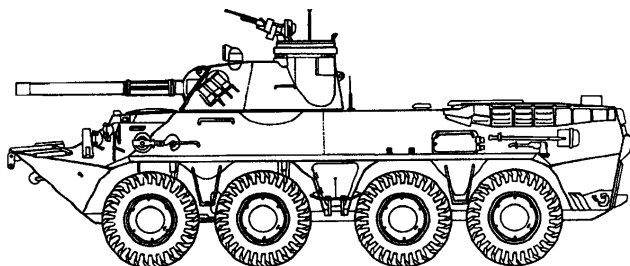
2S7 Gun



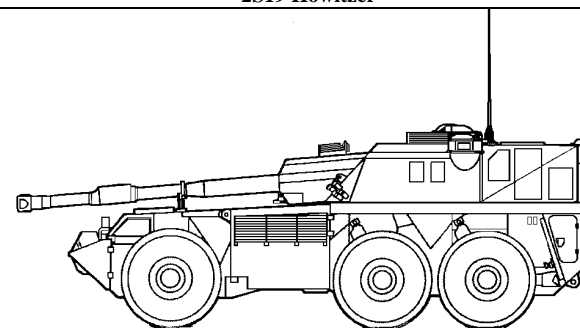
2S9 Combination Gun



2S19 Howitzer

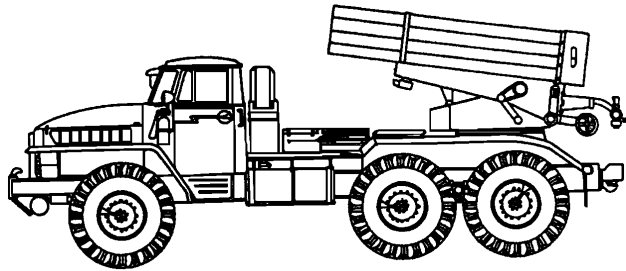


2S23 Nona-SVK

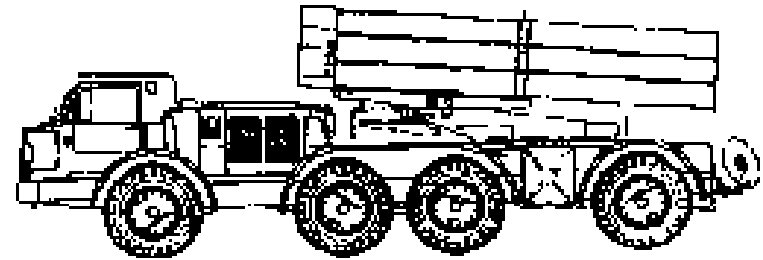


G6

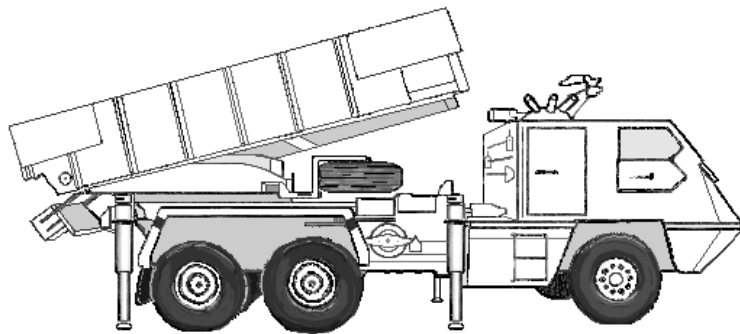
| Self-Propelled Artillery | 122-mm 2S1 Howitzer | 152-mm 2S3 Howitzer | 152-mm 2S5 Gun | 203-mm 2S7 Gun | 120-mm 2S9 Combination Gun | 152-mm 2S19 Howitzer | 120-mm 2S23 Combination Gun | 155-mm G6 (SA) |
|-----------------------------|---|---|---|---|--|--|--|---|
| range, conventional (km) | 15.3 | 17.4 | 28.5 | 37.5 | 8.85 | 24.7 | 8.85 | 30 |
| extended range | 21.9 | 24.4 | 50 | 47.5 | 13 | 29 | 13 | 39 |
| direct fire (m) | 1000 | 1000 | 1000 | | 800 | 1000 | 1000 | 3000 |
| ammunition type | DPICM-ER DPICM HEAT smoke Frag-HE Frag-HE-RAP illumination incendiary chemical Flechette Kitolov semi-active laser-guided expendable jammer | Frag-HE HEAT-FS Frag-HE-RA DPICM DPICM-BB APT Illumination Smoke 0.2 kt nuclear chemical incendiary Flechette AT mine AP mine TV recon Jammer Krasnapol | APT chemical concrete piercing HE Frag-HE ICM Flechette Illumination Smoke Krasnapol & Santimeter semi- active laser-guided nuclear | concrete piercing HE Frag-HE HE-RAP DPICM | Frag-HE Frag-HE-RAP Frag-HE laser guided HEAT-FS Illumination Smoke Incendiary Chemical Flechette | Frag-HE DPICM DPICM-BB HEAT-FS Frag-HE-BB AT mine AP mine Krasnapol Jammer Incendiary Smoke TV recon Flechette chemical | Frag-HE (3VOF49) Frag-HE-mtr Frag-HE-RAP-Mtr DPICM how Frag-HE laser- guided how HE-RAP how HEAT-FS Frag-HE how Illumination mtr Smoke (WP) mtr Incendiary mtr Chemical mtr Flechette how | Frag-HE Smoke Illumination Leaflet submunitions |
| elevation (degrees) | -3 to 70 | -4 to 60 | -2 to 57 | 0 to 60 | -4 to 80 | -4 to 68 | -4 to 80 | -5 to 75 |
| traverse (degrees left/rt) | 360 | 360 | 15/15 | 15/15 | 360 | 360 | 35/35 | 40/40 |
| rate of fire (rpm) max | 6 | 4 | 6 | 2 | 10 | 8 | 10 | 3 |
| rof (rpm) sustained | 1-2 | 1 | 1-2 | .5 | 4 | 2 | 4 | 1 |
| basic load | 45 | 46 | 30 | 8 | 40 | 50 | 30 | 45 |
| emplace/displace time (min) | 2/1 | 3/3 | 2/1 | 6/10 | | 1-2/1-2 | 1/1 est | 1/.5 |
| weight (mt) | 15.7 | 27.5 | 28.2 | 46 | 8.0 | 42 | 14.5 | 48 |
| speed, road (kph) | 60 | 60 | 63 | 50 | 60 | 60 | 80 | 85 |
| off road | 30 | 25 | 25 | 30 | 35 | 25 | 60 | 30 |
| swim (kph) | 4.5 | NA | 4.5 | NA | 9 | NA | 10 | NA |
| road range | 500 | 450 | 500 | 500 | 500 | 500 | 600 | 700 |
| fording | Amphibious | 1.0 | 1.05 | 1.5 | amphibious | 1.5 | amphibious | 1.0 |
| crew | 4 | 4 | 5 | 7 | 4 | 5 | 4 | 6 |
| remarks | | Self-entrenching. Load time 46 seconds. 7.62-mm PKT MG. | Self-entrenching. | Self-entrenching. | | Self-entrenching in 40 to 60 minutes. 12.7-mm NSVT MG. | BTR-80 chassis | |



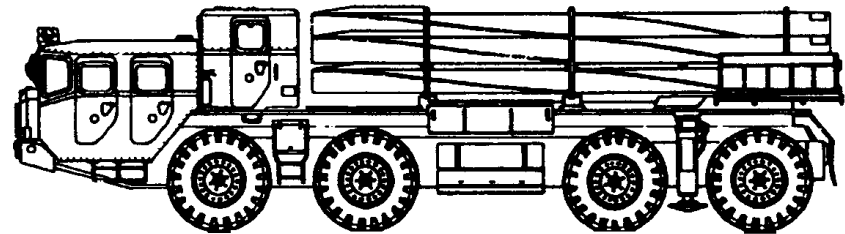
BM-21



9P140



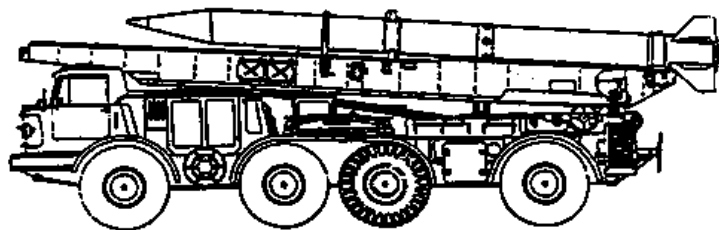
ASTROS II



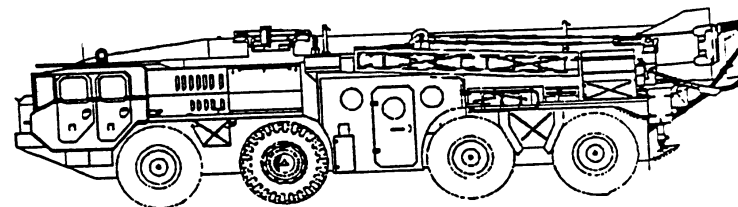
9A52-S SMERCH-M

| Multiple Rocket Launchers | 122-mm BM-21 | 220-mm 9P140 Uragan | 300-mm 9A52-S SMERCH-M | ASTROS II 127-mm, 180-mm or 300-mm |
|-----------------------------|---|---|--|--|
| range, maximum (km) | 32.7 | 35 | 70 | 127-mm SS-30 30 km 180-mm SS-40 35-km 300-mm SS-60 60 km 300-mm SS-80 90 km |
| salvo time (sec) | 20 | 20 | 38 | |
| reload time (min) | 10 | 15-20 | 36 | |
| warhead types | Frag-HE, ICM w/AP or AT mines, illumination, jammer, smoke | Frag-HE, ICM w/ AT&AP bomblets, AT&AP mines, FAE | Frag-HE, chemical, 72 AP mines, 5 AT mines, FAE | DPICM, HE-incendiary, AT mines, AP mines, runway denial |
| emplace/displace time (min) | 3/2 | 3/3 | 3/3 | |
| weight (m) | 13.7 | 20 | 43.7 | 20 |
| length (m) | 7.35 | 9.3 | 12.1 | 8 |
| width (m) | 2.4 | 2.8 | 3.05 | 2.4 |
| height (m) | 3.09 | 3.2 | 3.05 | 2.6 |
| speed, road (kph) | 75 | 65 | 60 | 70 |
| road range (km) | 450 | 500 | 850 | |
| crew | 5 | 4 | 4 | 3 |
| remarks | 40 tubes | 16 tubes | 12 tubes. | * |

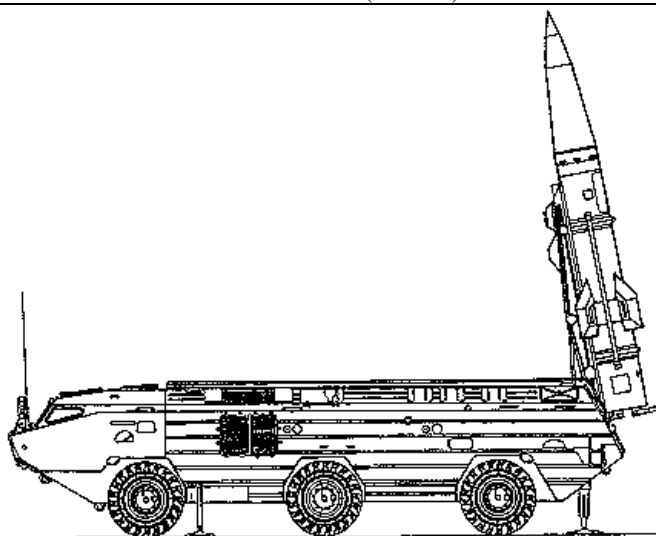
* The Astros can fire three different canisterized wraps around rocket, 127-mm SS-30, 180-mm SS-40, 300-mm SS-60, and 300-mm SS-80.



9P113 LUNA-M (FROG-7)

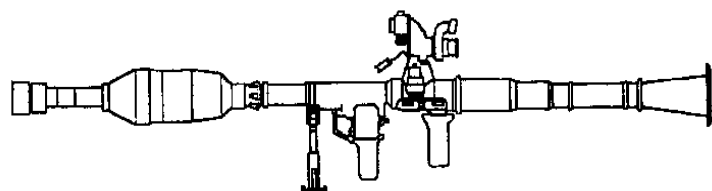


SS-1c SCUD



SS-21 Mod3/SCARAB 9P129-1M Tochka-U

| Surface to Surface Missiles (SSM) | 9P113 LUNA-M (FROG-7) | SS-1c SCUD | SS-21 |
|-----------------------------------|---|--|--------------|
| warhead type | HE, DPICM submunitions, chemical, nuclear | HE, chemical (thickened VX), 5-80 kt nuclear | Up to 482 kg |
| range (km) | 20-70 | 300 | 20-120 |
| CEP (m) | 400 | 1000 | 15 |
| reaction time (min) | | 60 | 20 |
| reload time (min) | Varies | varies | 40 to refire |



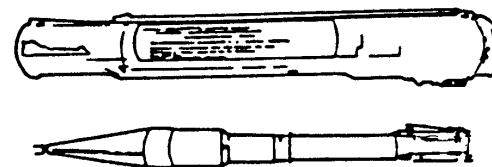
RPG-7V ATGL with TBG-7V Thermobaric Grenade



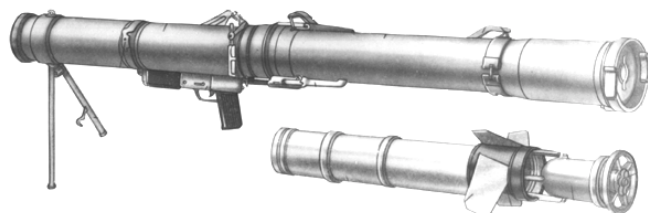
RPG-7V ATGL



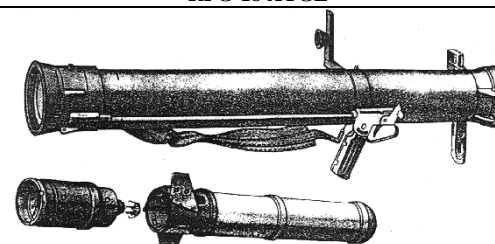
RPG-16D



RPG-18 ATGL

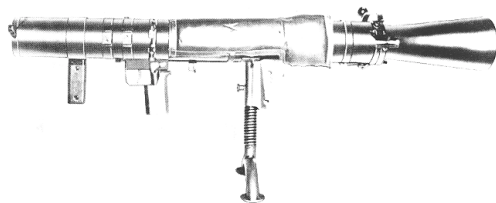


RPO Infantry Rocket Flame Weapon

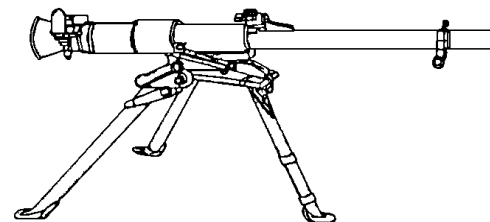


RPO-A Infantry Rocket Flame Weapon

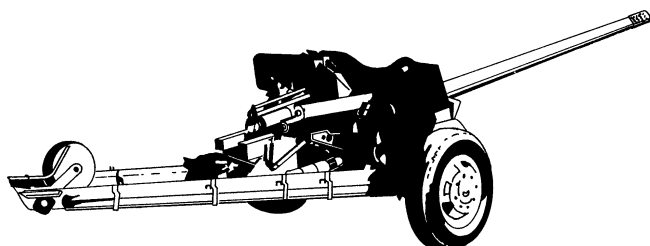
| AT Grenade launcher | RPG-7V | | | | | | RPG-16D | RPG-18 | RPG-22 | RPO-A |
|------------------------------|---------|---------|-------------|-------|-------------|-----------|---------|--------|---------|---|
| Launcher | | | | | | | | | | |
| tube caliber (mm) | 40 | | | | | | 58.3 | 64 | 72 | 93 |
| length (mm) | 953 | | | | | | 1100 | 1050 | 750/850 | 920 |
| weight (kg) | 7.9 | | | | | | 10.3 | 2.7 | 2.8 | 11 |
| crew | 2 | | | | | | 2 | 1 | 1 | 1 |
| rate of fire (rpm) | 6 | | | | | | 4-6 | NA | NA | 2 |
| unit of fire | 5 | | | | | | 5 | 5 | 5 | 2 per carton |
| Projectile | PG-7VS | PG-7VM | PG-VR | PG-VL | TBG-7V | OG-7V/7VM | PG-16 | | | RPO-A |
| Range, moving/stationary tgt | 300/500 | 300/500 | 200 | 300 | 200 | 950/1000 | 500 | 200 | 250 | 200 direct fire 600 effective 850 with sights |
| velocity (mps) | | 140 | | 112 | | 145/152 | 130 | 115 | 133 | 125 |
| armor penetration (mm) | 330 | 330 | 750+ | 600 | | | 375 | 360 | 390 | |
| warhead type | HEAT | HEAT | tandem HEAT | HEAT | Thermobaric | Frag-HE | HEAT | HEAT | HEAT | thermobaric |
| warhead caliber (mm) | 85 | 72 | 105 | 93 | | 40 | 58.3 | 64 | 72 | 93 |
| length (mm) | | 950 | 1306 | 980 | | 569/595 | 600 | 670 | 618 | |
| weight (kg) | 2.2 | 2 | 4.5 | 2.6 | 4.5 | 1.7 | 3 | 1.4 | 1.48 | 2.3 |



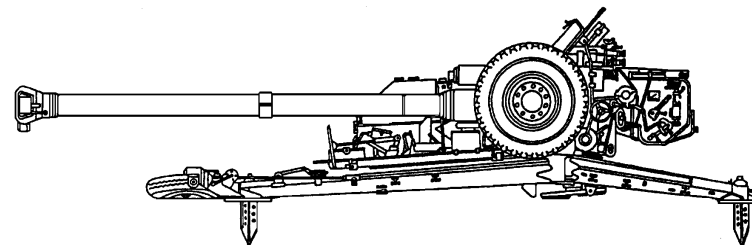
84-mm Carl Gustaf M2 Recoilless Rifle



SPG-9 Recoilless Gun



100-mm MT-12 AT Gun



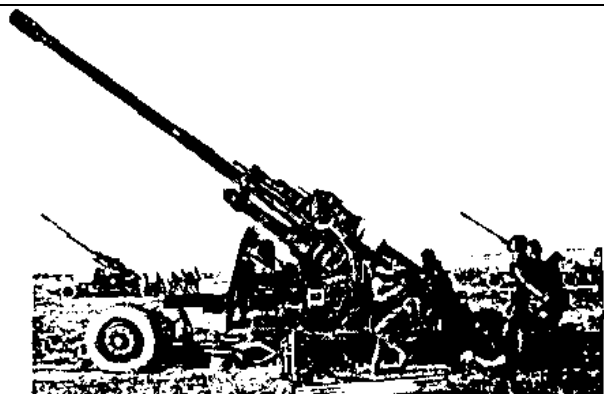
125-mm 2A45M AT Gun

| AT Guns & Rifles | 84-mm Carl Gustaf Recoilless Rifle | 73-mm SPG-9 Recoilless Gun | 100-mm MT-12 AT Gun | 125-mm 2A45M AT Gun |
|--|---|---|--|--|
| dimensions L x W x H (m) | 1.02 length | 2.11 x 0.99 x 0.8 travel | 9.65 x 2.3 x 1.6 travel | 7.12 x 2/3 x 2.09 travel |
| weight (kg) | 14.2 | 47.5 | 3100 | 6500 |
| crew | 1 or 2 | 3 | 6 | 7 |
| rate of fire, maximum (rpm) | | | 15 indirect fire | |
| sustained | 6 | 6 | 6-8 | 6-8 |
| fire control | 3x DVO, used with laser range finder LRF computer sight and II available | 4x DVO, II, IR, LRF computer sight available | 5x DF/indirect fire sights, II night sights. Automated FCS, FLIR sights available Radar-directed FCS available | 5x DF/indirect fire sights, II night sights. Automated FCS, FLIR sights available Radar-directed FCS available |
| elevation (degrees) | | -3 to 7 | -7 to 20 | -6 to +25 |
| traverse (degrees left/right) | | 15/15 | 360/360 | 360/360 |
| emplace/displace time (min) | | 1 | 2 - 3 | 1.5/2.0 |
| combat load | 5 | 12 | 20 on prime mover w/crew, 80 reload | 60 supply reload |
| ammunition types (range / penetration) | HEAT tandem, HEAT-RA, HEDP, HE, illumination, smoke | HEAT-RA, HE-RA | HEAT-FS, Frag-HE, APFSDS-T, AT-10 HEAT/Kan tandem ATGM | HEAT-FS, Frag-HE, APFSDS-T, AT-11 HEAT/ Invar tandem ATGM |
| HEAT | 500 m/500+ mm tandem | | 2500 m/380 mm | 2,500 m/650-800 mm |
| HEAT-RA | 700 m/400 mm | 1,000 m/400 mm | | |
| HEDP | 1000 m personnel, 500 vehicles, 300 moving vehicles/ 150+ mm | | NA | |
| HE/Frag-HE | HE 1100 m, personnel and soft targets | HE-RA 1300 m | Frag-HE 3000 m | Frag-HE 5000 m |
| APFSDS-T | | | 2500-3000 m/418 mm @ 2000 m | 3000 m/590-630 mm |
| ATGM | | | 5,000/ 650, 700 tandem | 5000 m/ 700-870 ATGM (800 + ERA) |
| range, indirect fire | 1100 | 1300 | 8,200 | 8200 |

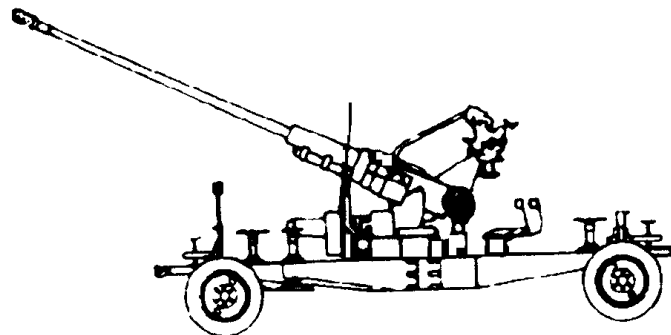
| Antitank Guided Missiles (ATGMs) | AT-3c SAGGER 9K111 Malyutka | AT-4a/b SPIGOT 9K111/9K111M | AT-5, -5b SPANDREL 9K133/9K133m | AT-6, -6b, -6c SPIRAL 9K114 Shturm | AT-7 SAXHORN 9K115 Metis/ | AT-8 SONGSTER 9K112 Kobra | AT-9 9K120 Ataka |
|-------------------------------------|--------------------------------|--------------------------------|------------------------------------|---------------------------------------|------------------------------|------------------------------|---------------------|
|-------------------------------------|--------------------------------|--------------------------------|------------------------------------|---------------------------------------|------------------------------|------------------------------|---------------------|

| | | Fagot/Factoria | Konkurs/Konkurs-M | | AT-13 9K115-2 Metis-M | | |
|-----------------------------------|---|---|---|---|--|---|---|
| launching platform | suitcase launcher, UAZ-469, 9P122/BRDM-1, 9P133/BRDM-2, M-80, BOV-1, BMD-1, Gazelle, BMP-1, Mi-2 HOPLITE, HIP | 9P135 tripod, 9P148/BRDM-2, VTT-323 (NK) | 9P135M tripod, BMD-1P/2/3, BMP-1P/-2, UAZ-469, BTR-RD, 9P148/BRDM-2, Gazelle, Mi-2 HOPLITE, HIP, Mi-24 HIND | Mi-24E HIND, Ka- 29 HELIX, Mi-28 HAVOC 9P149/MT-LB (AT-6 only) | 9P151 firing post (tripod and shoulder), UAZ-469 | T-64B/ T-64BV, T-80B/ T-80BK/T-80BV (gun launch) | Mi-24E HIND, Ka- 29 HELIX, Mi-28 HAVOC 9P149/MT-LB, |
| guidance/command link | wire MCLOS, AT veh/heli SACLOS | wire SACLOS | wire SACLOS | RF SACLOS | wire SACLOS | RF (30GHz) SACLOS | RF SACLOS |
| total weight (kg) | 42-44 | 35.5 | 47.7-49 | 46.5 missile | 16.8, 24 Metis-M | 25 | 48.3 missile |
| day/night sights (night range, m) | 8x day sight 1800 FLIR * | 4x day sight 2500-3600 FLIR * | 4x day sight 3600 FLIR* | optical day sight, TV II, FLIR* | day sight 2000+ FLIR* | day sight only | optical day sight or TV II, FLIR* |
| basic load | 3-4 tripod | 4 tripod, 8 near vehicle up to 20 on 9P148 | 4 tripod, 8 near vehicle up to 15 on 9P148 | 12 on 9P149 12 HIND, 16 HAVOC | 4 tripod | 6 per tank | 12 on 9P149 12 HIND, 16 HAVOC |
| warheads | HEAT/ tandem HEAT Malyutka-2 | HEAT | HEAT/ tandem HEAT | HEAT, HE tandem HEAT -6b/-6c | HEAT/tandem HEAT, thermobaric -M | HEAT | HEAT Tandem, thermobaric |
| range (m) | 500-3000 | 70-2000/ 2500 Factoria | 75-4000 | 400-5000 AT-6 -6000, 7000 -6b/6c | 40-1000, 80-1500 Metis-M | 100-4000 | 400-6000 heli 400-5000 grd |
| flight time to max. range (sec) | 23-26 | 11 | 20/19 | 13.3, 16, 18.6 14.5 grd | 6.2 8.4 Metis-M | 10 | 15.0 heli 12.5 ground |
| penetration (mm) | AT-3a/c 400 AT-3c 500 Malyutka-2 800 | 480/550 Factoria | 650/925 | 750, 950, 950/ 800 behind ERA | 500, 1000/800 Metis-M | 800/ | 950/800 behind ERA |
| remarks * upgrade available | other copies and variants | Can also launch AT-5/-5b to 4000 m. Users may employ a mix. | | | | | antihelicopter ATGM available |

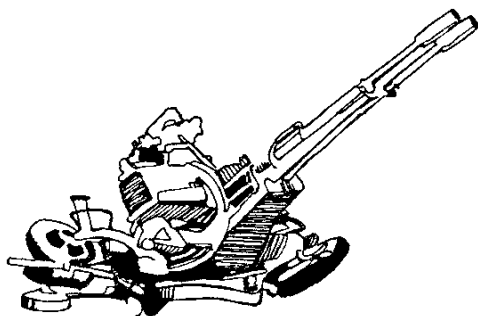
| Antitank Guided Missiles (ATGMs) | AT-10 STABBER 9K116-1/9K116 Bastion/Kastet/Kan Basnya/Sheksna | AT-11a SNIPER 9K119, Svir/AT-11b 9K119M, Invar | AT-14 Kornet | AT-16 9K121 VIKhR | Milan 1, 2, 3 (Europe) | Tow, ITOW, TOW-2, -2a, -2b (US) | HOT 1, 2, 3 (Europe) |
|---|--|---|--|--|---|--|--|
| launching platform | T-55AMV, T-55AMB2, MT-12, BMP-3, T-62M (gun launch) | T-72B, T-72S, T-72BV, T-72BM, T-80U, T-84 T-90, 2A45M AT gun (gun launch) | tripod, UAZ-469 "jeep", Kornet-E ATGM Launch Veh/BMP-3 | Ka-50 HOKUM, Su-25T FROGFOOT | tripod, compact turret, Marder 1A3, Spartan APC, VBL APC, Panhard, jeep | tripod, M2 Bradley IFV, M3 CFV, M901, HMMWV, LAV-AT, UH-1J | VAB, AMX-10 launch veh, Panhard, VCR, Gazelle and BO-105 helicopters, jeep |
| guidance & command link | laser beam rider SACLOS | laser beam rider SACLOS | laser beam rider SACLOS | laser beam rider SACLOS, lock on before launch | 1&2: SACLOS wire -3 SACLOS IR | SACLOS wire | SACLOS wire |
| total weight (kg) | 23-30.5 by system | 24.3/28 | 60/ 27 missile | 45 missile | 31.2-31.6 w/FLIR | 22.6-28.1 missile | 32 missile |
| sights | vehicle day sight | gun/vehicle day sight | day sight 3000 FLIR | TV, IR autotracker FLIR* | 7x day sight 2000 Mira FLIR | 13x day sight 3000+ FLIR | vehicle sights Castor FLIR* |
| basic load | 4 MT-12, 5-6 tanks 8 BMP-3 | 8 | 4 tripod | 12 | 1 2-man crew 2 3-man crew | 12 M901, 7M2A2, 12 M3 CFV | 18 on AMX-10 HOT |
| warheads | HEAT/ tandem HEAT Kan | HEAT/tandem HEAT | tandem HEAT, thermobaric | tandem HEAT | HEAT, tandem HEAT -2, -3 | HEAT, tandem HEAT ITOW, -2, -2A, EFP | HEAT HOT tandem HEAT -2, -3 |
| range(m) | 100-4000 -5000 MT-12 | 100-4000/-5000 2A45M, T-80U, T-90 | 100-5500 | 1000-10,000 | 20-2000/ 20-1920 -2, -3 | 65-3750 200-3750 TOW-2b | 75-4000 |
| time to max range (sec) | 15 | 11.7/15 | 22 | 23, 8000 m | 12.5 | 21 | 17.3 |
| penetration | 650/700 Kan (can replace others) | 800/700 behind ERA, -b 870/800 behind ERA | 1200/950 | 1050 | 600 Milan 880 -2, -3 | 600, 800, 900, 900+ 100+ top-attack | 800 900 -2, 1000 -3 |
| remarks * upgrade available | Fired from the halt | Fired from the halt | | Maximum airborne-target speed 800 kph. | | Tow 2b is fly over, top attack explosive-formed penetrator (EFP) | |



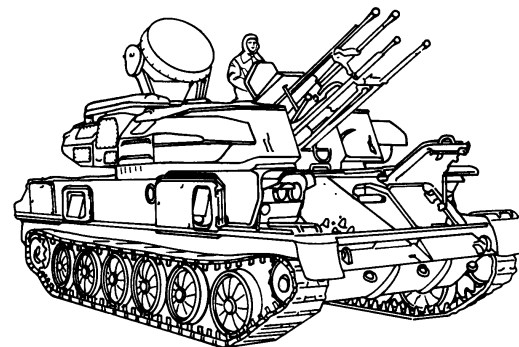
100-mm Towed KS-19 M2 Anti-aircraft Gun



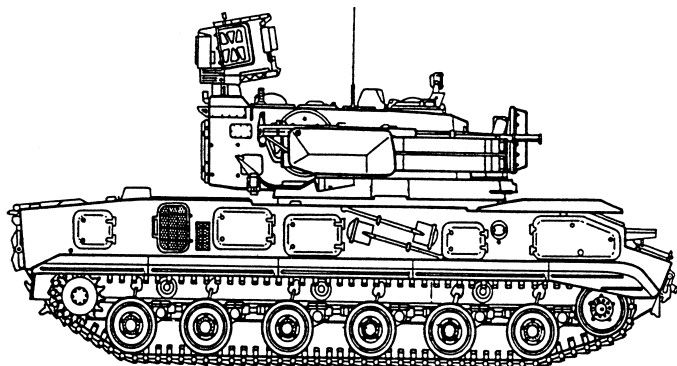
57-mm Towed S-60 AA Gun



23-mm ZU-23 Towed AA Gun

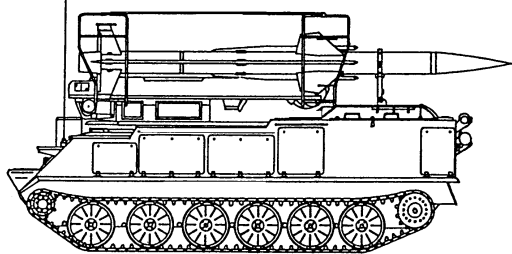


23-mm ZSU-23-4 SP AA Gun

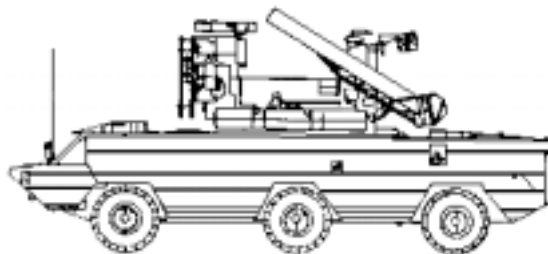


30-mm 2S6M SP AA Gun/Missile System

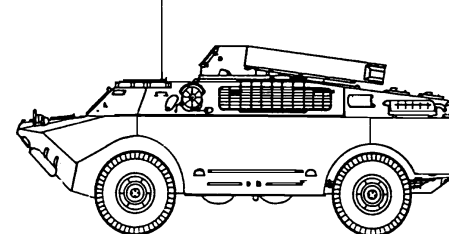
| Air Defense Guns and Gun/Missile Systems | 100-mm KS-19 M2 | 57-mm S-60 | 23-mm ZU-23 | 23-mm ZSU-23-4 | 30-mm 2S6M |
|--|---|--|--|---|---|
| number of guns | 1 | 1 | 2 | 4 | 4 |
| prime mover | AT-S or AT-T artillery tractor | Ural -375D, Ural 4320, or other medium tactical truck | GAZ-66 light truck, MTLB-T, BMD-2 | SP tracked vehicle | SP tracked |
| crew | 15 | 7 | 5 | 4 | 4 |
| weight (mt) | 11.0 | 4.5 | 0.95 | 20.5 | 34.0 |
| length (m) | 9.3 | 8.5/8.84 travel/firing | 4.57/4.6 travel/firing | 6.5 | 7.93 |
| width (m) | 2.32 | 2.08/6.9 travel/firing | 1.83/2.4 travel/firing | 3.1 | 3.24 |
| height (m) | 2.2 | 2.37/6.02 travel/firing | 1.87/1.28 travel/firing | 2.6 radar down/3.75 radar up | 3.36 radar down/4.02 radar up |
| emplacement time (min) | 7 | 1/3-20 with radar | 15-20 sec | fire on move | guns fire on move |
| displacement time (min) | 6 | 2/5-15 with radar | 35-40 sec | fire on move | guns fire on move |
| off-carriage/onboard radar(s) | SON-9, SON-9a/FIRE CAN fire control radar (off-carriage) | SON-9, SON-9a, or FLAP WHEEL FC radar (off-carriage) | | GUN DISH: 20 km detection, 10 km automatic tracking | HOT SHOT surveillance 18-20 km 1RL144 target tracking 16 km |
| fire control | PUAZO fire director, PO-1M telescope, PG panoramic D-49 rangefinder | PUAZO fire director, AZP-57 DF telescope, D-49 rangefinder | KV-L 1x reflex sight direct fire telescope | RPK optical-mechanical computing sight | 1A29M stabilized 8x optical sight IFF |
| elevation (degrees) | -3 to 89 | -4 to + 87 | -10 to 90 | -4 to 85 | -10 to 87 |
| traverse (degrees) | 360 | 360 | 360 | turret 360 | 360 turret |
| rate of fire, cyclic/practical (rpm) | NA/10-15 | 105-120/70 | 1600-2000/400 | 3200-4000 | 4800/ |
| reaction time (sec) | 30 | 4.5 | 5-7 | 12-18 | 6-12 |
| range, AA range (m) | 4000 | 4000 | 2500 | 2,500 | 4000 |
| with radar | 12,600 | 6000 | | | 4000 |
| vertical maximum | 14,600 | 7400 self-destruct fuze/8800 | 1500 | 3500 self-destruct fuze/5100 | 3000 |
| ground targets | | | 2000 | 2000 | 4000 |
| unit of fire | 100 | 200 | 2400 | | |
| basic load on vehicle | NA | 16 on gun | NA | 2000 | 1904/8 missiles |
| ammunition types | AP-T, APC-T, Frag-HE | Frag- HE-T APC-T | HE-I HEI-T API-T | HE-I HEI-T API-T | AP-T HE-I Frag-T |
| armor penetration (mm) | 200m@ 500, 185 @1000m, 0° | 96 APC-T at 1000 m | 25 @ 500 m, 20 @ 1000m, 0° | 25 @ 500 m, 20 @ 1000m, 0° | 25 @ 1500m, 60° |
| remarks | | | | TKH-ITC cmdr night sight | SA-19 missile SEE SAMs page 2S6 must halt to launch. 2S6 can track targets with 5 modes, including optical SACLOS. |



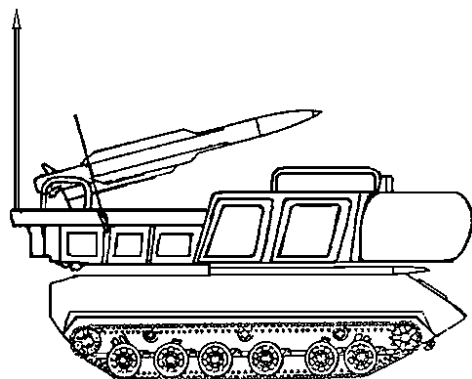
SA-6 GAINFUL



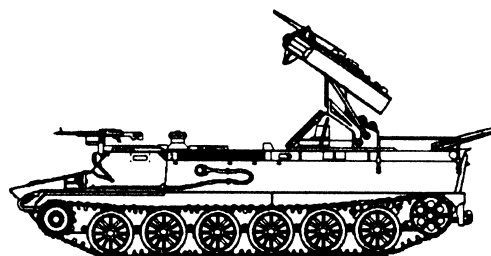
SA-8b GECKO



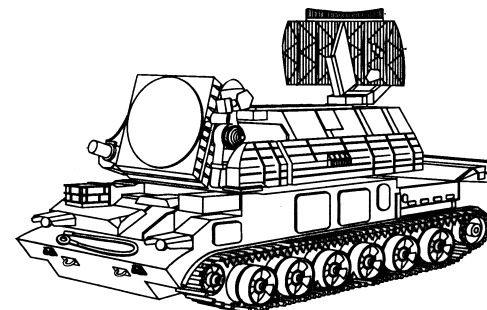
SA-9b GASKIN



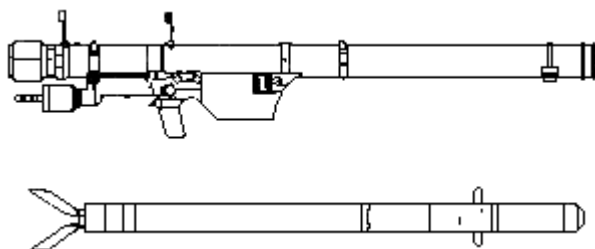
SA-11 GADFLY



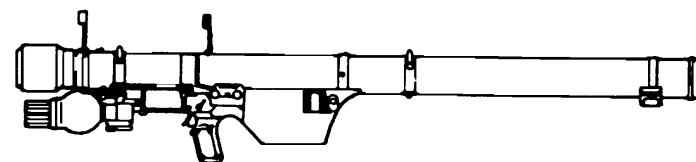
SA-13 GOPHER



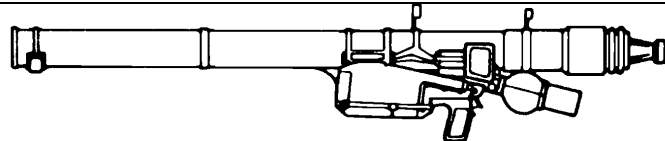
SA-15 GAUNTLET



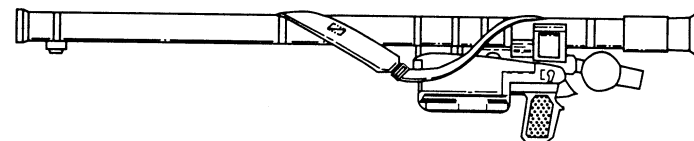
SA-7b GRAIL



SA-14 GREMLIN

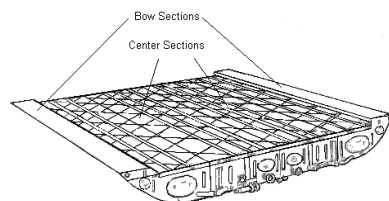
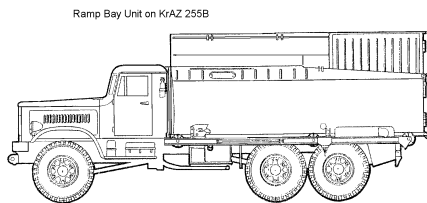


SA-16 GIMLET

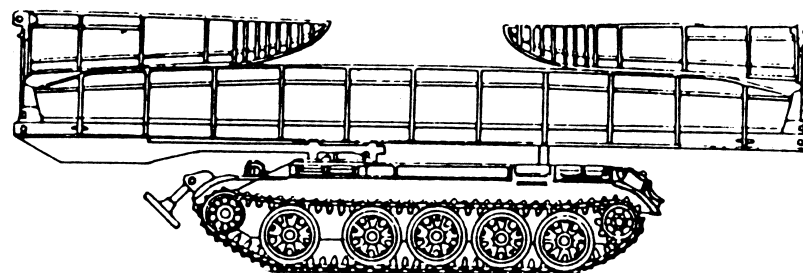


SA-18 GROUSE

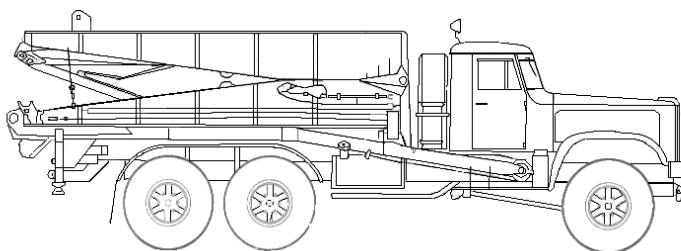
| Surface to Air Missiles (SAMs) | SA-6 GAINFUL | SA-7b GRAIL | SA-8b GECKO | SA-9b GASKIN | SA-11 GADFLY (BUK-M1) | SA-13 GOPHER | SA-14 GREMLIN | SA-15 GAUNTLET | SA-16 GIMLET | SA-18 GROUSE | SA-19 |
|--------------------------------|--|--|--|---|---|---|-------------------|---|--|-------------------|---|
| range, slant range (m) | 4000-25,000 | 500-5500 | 200-15,000 | 800-5000-7000 | 3000-35000 at 100m* | 800-5000-7000 | 600-6000 | 100-12,000 | 600-4500-5200 | 500-6000 | 2500-8000 fast -10,000 heli |
| altitude, (m) | 50-15,000 | 18-4500 | 10-12,000 | 10-3500 | 15-22000 | 10-3500 | 50-6000 | 10-6000 | 10-3500* | 10-3500 | 15-3500 |
| basic load | 3 | 1 | 6 | 6 | 8 | 8 | 1 | 8 | 1 | 1 | 8 |
| launch rails | 3 | 1 | 6 | 4 | 4 | 8 | 1 | 8 | 1 | 1 | 8 |
| reload time (min) | | 6-10 sec | 5 | 5 | 13 | 3 | 25 sec | 10 | 2.5 sec | 10 sec | 16 |
| fire control | EO sights, radar semiactive homing RF prox fuze | Passive medium IR guidance | LLTV /optical Radar command line-of-sight (CLOS) | Passive IR homing | TV optical tracker Missile inertial guidance and radar semiactive homing RF intelligent fuze | EO IR sights* IR homing, cooled seeker, dual frequency | passive IR homing | TV, 20 km range Radar CLOS RF prox fuze | passive 2-color IR homing | passive IR homing | Radar, optical sight, radar CLOS/ SACLOS |
| radar (s) | STRAIGHT FLUSH (FIRE DOME SA-16b) target acq LONG TRACK surveillance, THIN SKIN height finding | None | LAND ROLL target acquisition 20-30 Monopulse for target tracking 20-25 | FLAT BOX Passive radio DF, 30 km 360° coverage (on 1 TEL per platoon) | SPOON REST early warning radar SNOW DRIFT target acquisition Detection 85 km FIRE DOME fire control radar | SNAP SHOT ranging 10 km * DOG EAR target acq 80 km detection 35 km tracking | none | EO TV 20 km range H-band Doppler target acq radar K-band phased array tracking, | none | none | HOT SHOT surveillance range 18-20 km 1RL144 target tracking range 16 km |
| emplace/displace time (min) | up to 5/INA | 5-10 sec reaction | | | 5/5, 20 sec after move | .67/<1 | 14 sec reaction | 5/5 | | 6-7 sec reaction | 6-12 sec reaction |
| support vehicles | Each battery has two reload vehicles, each with three missiles All radars are off-TEL | None | Two BAZ-5937 resupply/transloaders carrying 18 missiles, each for a battery of 4 TELARs. | | 9S470M1 command post, can track up to 15 targets, assigning six in battery. Battery can guide 12 missiles at 6 targets at a time 3 9T229 missile transporters/ btry | 9V915M maintenance 9V839M test vehicle DOG EAR on MT-LBu | | Rangir battery command post | none | none | 2F77M resupply 1R10-1M repair/maint truck MTO-ATG-M1 maint shop 9B921 auto test station |
| chassis | modified PT-76 tracked | None | BAZ-5937 6x6 wheeled | Modified BRDM-2 4x4 wheeled chassis | GM-569 SP tracked | MT-LB | none | tracked GM-355 | none | none | GM-352M tracked vehicle |
| speed, road | 45 | | 80 | 100 | 65 | 61.5 | | 65 | | | 65 |
| water | NA | | 8 | 10 | NA | 6 | | NA | | | NA |
| road range (kg) | 250 | | 500 | 750 | 500 | 500 | | 500 | | | 500 |
| crew | 3 | 1 | 3 | 3 | 4 | 3 | 1 | 3 | 1 | 1 | 4 |
| remarks | Targets are low to medium altitude aircraft. | manportable air-defense system (MANPADS) | TEL can assign 2 missiles/target | | Range is 100,000 with target at 1-25 km altitude. TEL carries 4 missiles on transport cradle | FLAT BOX B passive radio DF 30 km FLIR available | MANPADS | Can engage 2 targets at once | max altitude: 2000 fast approach 3000 show approach 2500 fast recede | | |



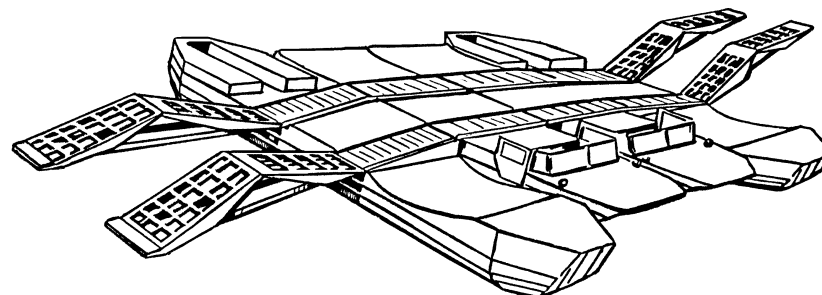
PMP Heavy Folding Bridge



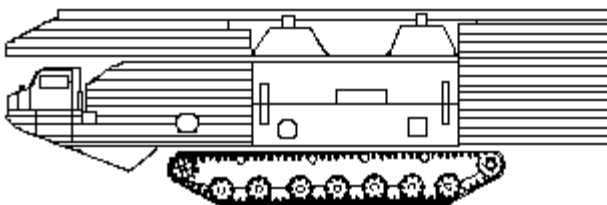
MTU-20 Armored Vehicle Launched Bridge (AVLB)



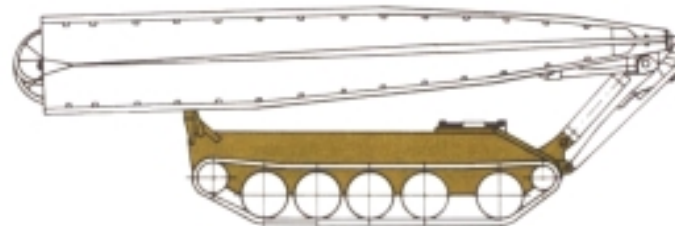
TMM-6 Truck Mounted Scissors Bridge



GSP Heavy Amphibious Ferry



PMM-2 Ferry

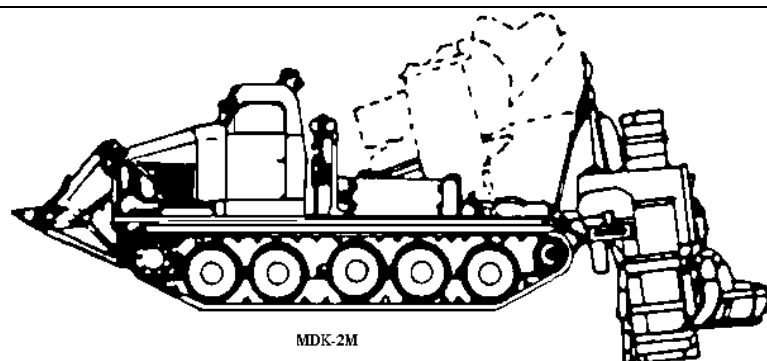


MT-55A

| Bridges | PMP Heavy Folding | MTU-20 AVLB | TMM-6 | GSP Ferry | PMM-2 Ferry | MT-55A |
|----------------------|--------------------------|--------------------|---|------------------|--------------------|----------------|
| assembly data | bridge bay/ ramp bay | | | | | 2 folded ramps |
| spans in set | 32 pontoons+4 ramps | 1 | 4 | 2 | 1/ ferry | 1 |
| length of span (m) | see table below | 18 | 10.5, 5.2 folded | 12.63 each | 3.5 est | 9 |
| length of bridge (m) | see table below | 20 | 68 | 20 | 13.5 est | 18 |
| roadway width (m) | see table below | 3.3 | 4 | 3.54 | | 3 est |
| capacity (mt) | see table below | 50 | 60 | 50 | 50 | 50 |
| assembly time (min) | see table below | 5 | 20-60 day, 30-80 night | 3-5 | | 2 |
| working party | see table below | 2 | 12 | 6 | | crew of 2 |
| remarks | | | Can span up to 100 m with only TMM-6, 125 m combined with MTUs. | | | |

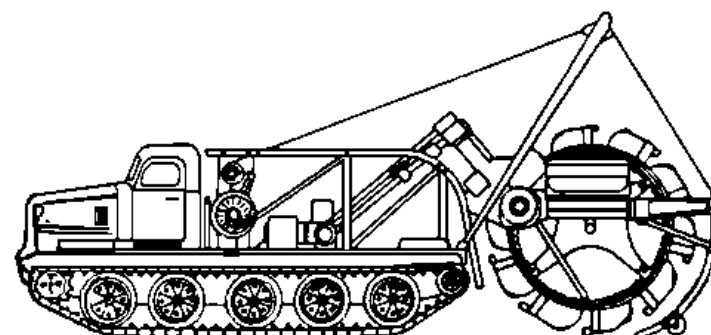
| PMP raft assembly data | 40-ton | 60-ton | 80-ton | 110-ton | 170-ton |
|-------------------------------|---------------|---------------|---------------|----------------|----------------|
| spans in set (pontoons) | 2 | 3 | 4 | 5 | 8 |
| length (m) | 13.5 | 20.3 | 27 | 39.3 | 59.6 |
| roadway width (m) | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 |
| assembly time (min) | 8 | 10 | 12 | 15 | 20 est. |
| working party | 6 | 9 | 12 | 18 | 27 est. |

| Amphibious Vehicles | K-61 | PTS-M | PKP | PTS-2 |
|----------------------------|--|-----------------------|------------|--------------|
| weight, empty (kg) | 9500 | 15000 | 3600 | |
| loaded, land | 12500 | 22500 | 8600 | |
| loaded, water | 14500 | 30000 | 8600 | |
| payload, land | 3000 | 7500 | 5000 | 12000 |
| water | 5000 | 15000 | 5000 | 12000 |
| troops | 70 | 50 | NA | 70 |
| cargo bay dimensions (m) | 5.4 X 2.8 | | | |
| length (m) | 9.1 | 11.5 | 10.3 | 11.5 |
| width (m) | 3.1 | 3.5 | 2.82 | 3.3 |
| height (m) | 2.1 | 3.4 | 2.2 | |
| speed, land (kph) | 36 | 40 | towed | |
| water (kph) | 10 | 15 | towed | |
| cruising range, land (km) | 170 | 42.5 | towed | |
| slope, empty (degrees) | 42 | 30 | towed | |
| loaded (degrees) | 15 | 10 | | |
| step (m) | 0.65 | 0.65 | | |
| trench (m) | 3 | 2.5 | | |
| crew | 2 | 2 | NA | 2 |
| remarks | 12 K-61s can transport a battalion of artillery with prime movers. | Can carry 12 litters. | | |

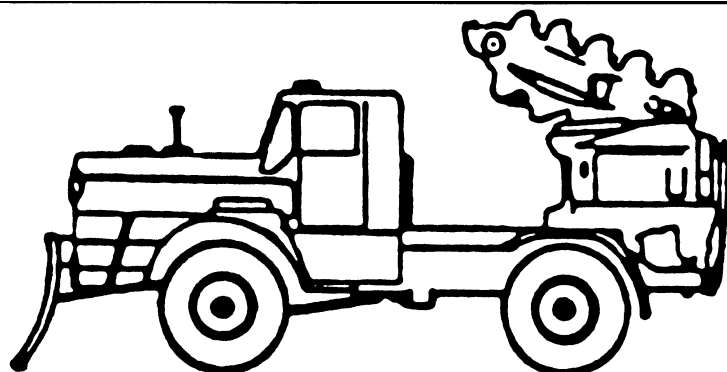


MDK-2M

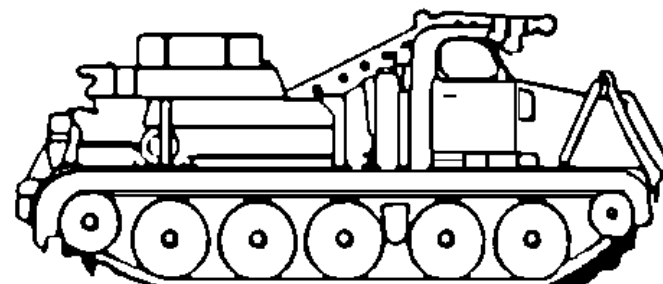
MDK-2M ditcher



BTM-3 ditcher

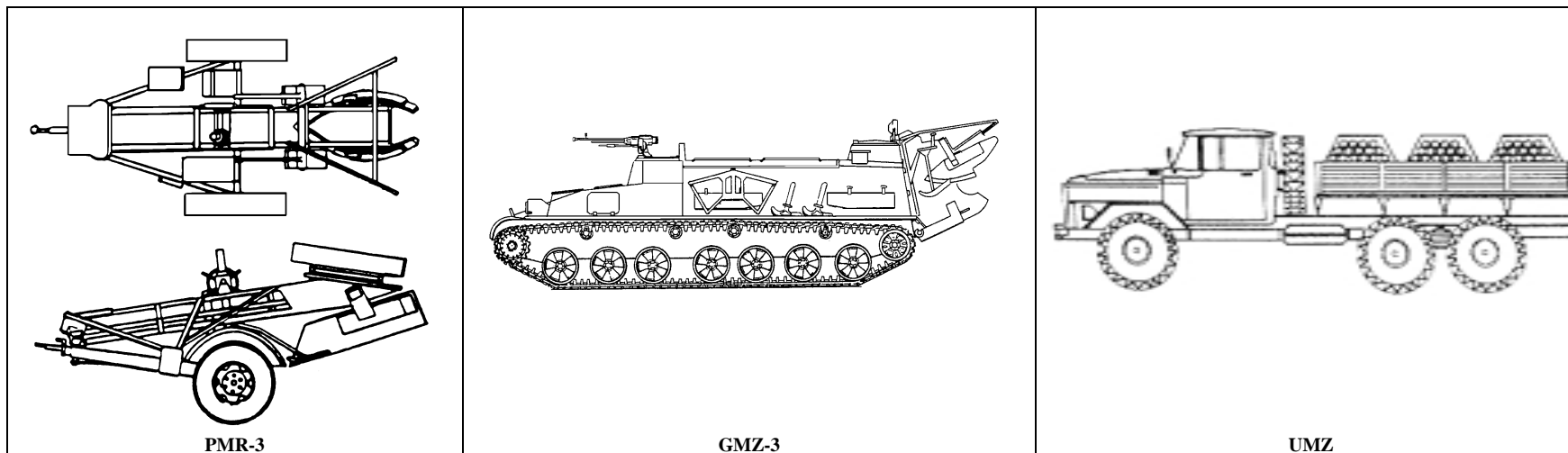


PZM-2 ditcher

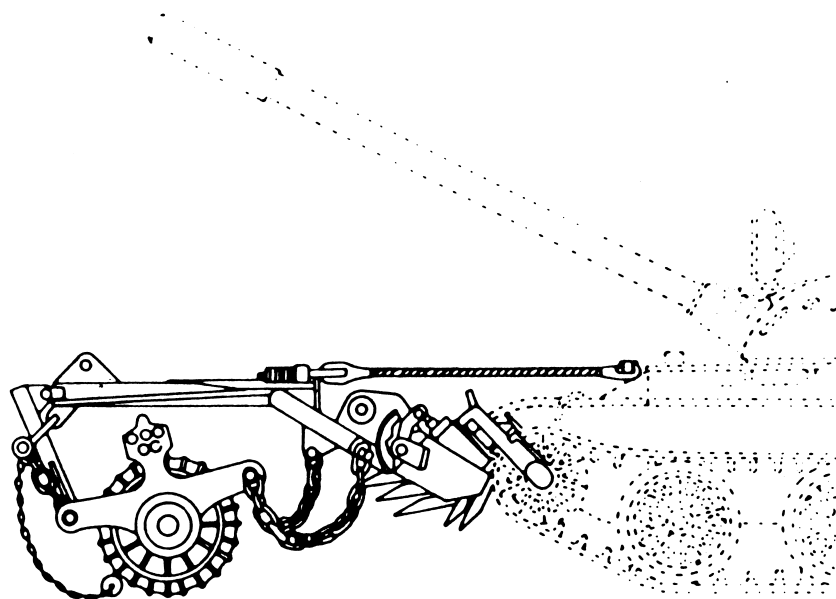


BAT-M route clearer

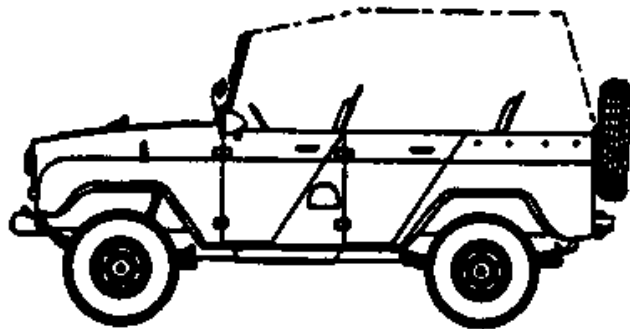
| Earth Movers | MDK-2M ditcher | MDK-3 ditcher | BTM-3 ditcher | PZM-2 ditcher | BAT-2 route clearer |
|---------------------------------------|--|--|---------------|---------------|---|
| digging capacity (m ³ /hr) | 120-300 | 400-500 | 540 | 80-250 | 250, 400 clearing |
| working speed (m/hr) | 200-800 | | 220-600 | 208 | 2.3-6.8 |
| vehicle fighting positions per hour | 7 | 12 | 14 | NA | 6 |
| digging depth (m), single pass | 0.8 | 1.7 | 1.5 | 1.5 | NA |
| maximum | 4.5 | 3 | | 1.5 | NA |
| digging width (m), single pass | 4 | 4 | 0.6 | 1.1 | NA |
| maximum | NA | NA | NA | 3.5 | NA |
| range (km) | 500 | | 500 | | 500 |
| weight (mt) | 28 | | 26.7 | | 37.5 |
| crew | 2 | | 2 | | 2 + 8 |
| protection | NBC filtration system, but susceptible to small arms fire. | NBC filtration system, bulletproof windows and armor | | | NBC filtration system, bulletproof windows and armor. |
| remarks | | Not shown. Similar in appearance to MDK-2M. | | | 2 mt crane with 7.3 m reach. 25 mt winch with 100 m of cable. |



| Minelayer | PMR-3 | GMZ-3 | UMZ |
|-------------------|--|--|--|
| mine capacity | 120 w BTR-152 200 w ZIL 131 350 w URAL-375D | 208 | 11,520 PFM-1 or 720 POM-2 AP mines or 180 PTM-3 AT mines |
| types | TM-44, TM-46, TM-57, TM-62 series, TM-72, TMD-B | TM-46, TM-57, TM-62 series, TMD-B, MV4-62, MVP-62, MVN-80 | PFM-1, -1/S, POM-1, POM-2S, PTM-1S (PGMDM), PTM-3 |
| work rate (kph) | 2-3 burying, 4-10 surface laid | 6 burying, 16 surface laid | 5 minutes from traveling to firing. |
| mine spacing (m) | 3 to 4 | 5 or 10 | variable |
| burial depth (mm) | up to 200 | 120 ground, 500 snow | 30-120 |
| road speed (kph) | | 50 | 80 |
| weight (mt) | 1.3 | 28.5 | 8.3, 10 loaded |
| length (m) | 5.6 | 8.62 | 7.1 |
| width | 2 | 3.25 | 3 |
| height | 2.7 | 2.7 | 2.5 |
| crew | 6 | 3 | 2 |
| remarks | | Self-entrenching. Container reload time 15-20 minutes. Engine smoke generator. Auxiliary weapon is 7.62-mm PKT MG. | 6 launchers with 30 launch tubes each on the bed of a ZIL-131 truck. 1, 2 or 3 row minefields are laid by positioning the canisters. 1-row field is 600-5000 m long. 3-row field is 150-1,500 m. |

**KMT-5M**

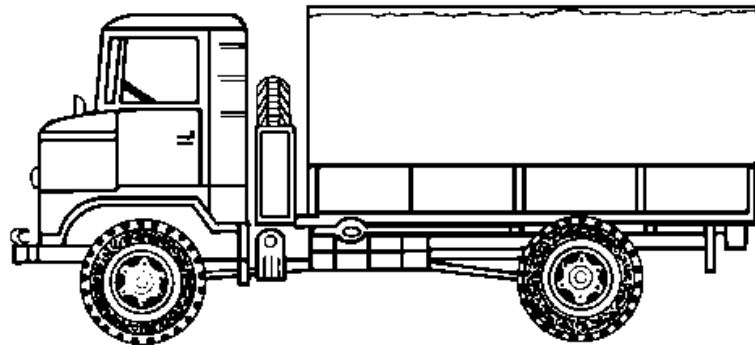
| Mine Clearers | KMT-4 | KMT-5M | KMT-6M | KMT-7 |
|---------------------------------|--|--|--|--------------------------------|
| operating speed (kph) | 6-12 | 6-12 | 6-12 | |
| cleared lane width (mm) | | 810 X 2 | | |
| depth of clearance (mm) | 100 | 100 | 100 | |
| installation/removal time (min) | 15-20/5-10 | 30-45/8-13 | 15-20/5-10 | |
| weight (ton) | | 7.5 | | |
| weight on one wheel (ton) | | 0.5 | | |
| platforms | T-54, T-55, T-62 | T-54, T-55, T-62, T-64 | T-54, T-55, T-62 | |
| remarks | Three plows may be carried on a ZIL-131 3.5-t truck. | The KMT-5 is a KMT-4 minclearing plow with a new roller set. Each vehicle gets one plow and one roller, but both cannot be used at once. 1 roller carried by KrAZ-255B 7.5t truck. | Three plows may be carried on a ZIL-131 3.5-t truck. | The replacement for the KMT-5. |



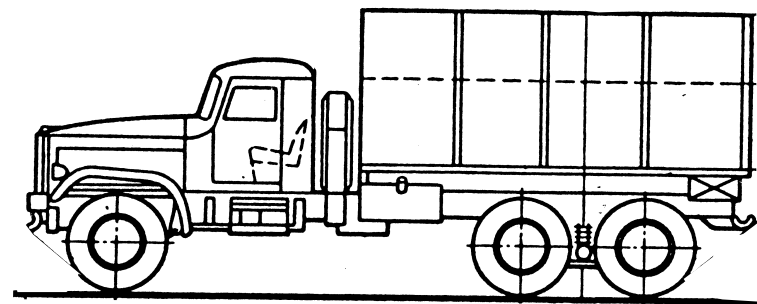
UAZ-469 light

No line drawing available.

UAZ-452 0.8t



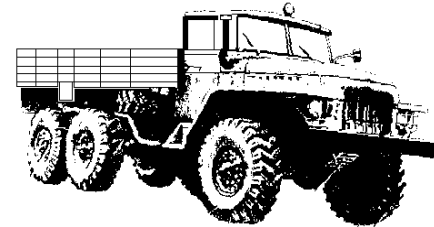
GAZ-66 2t



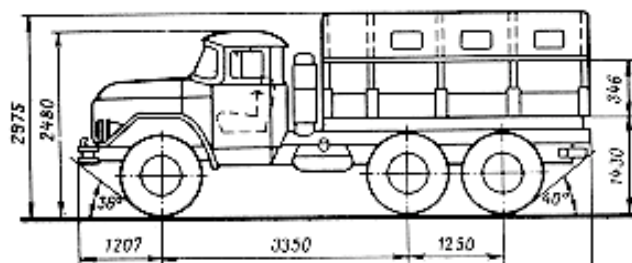
ZIL-151 2.5t



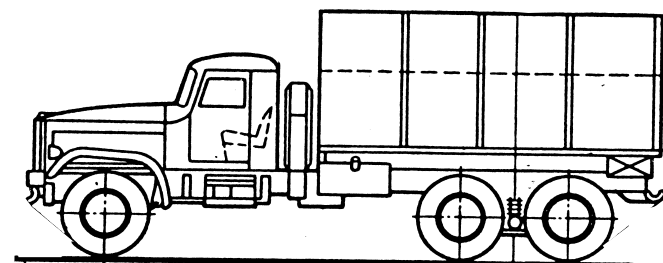
ZIL-157 4.5t



URAL-375 4.5t

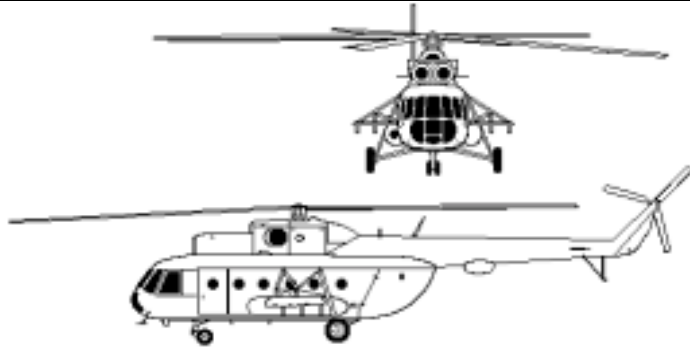
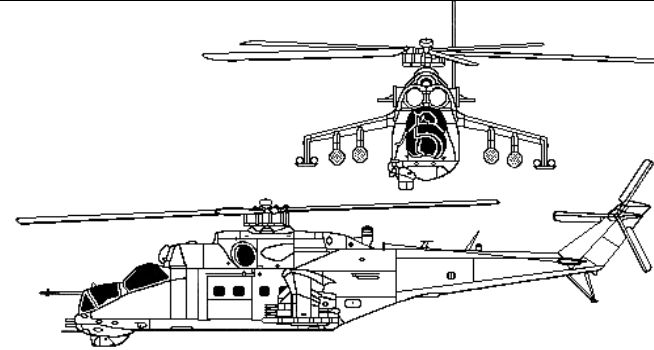
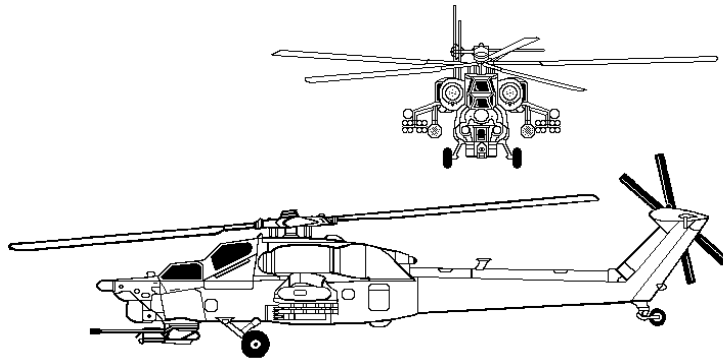
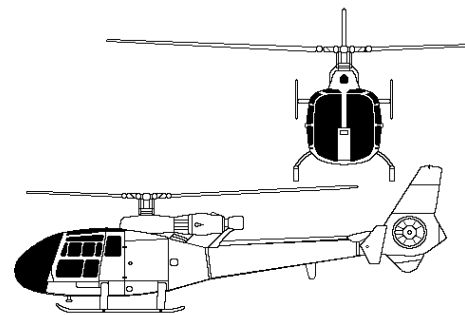
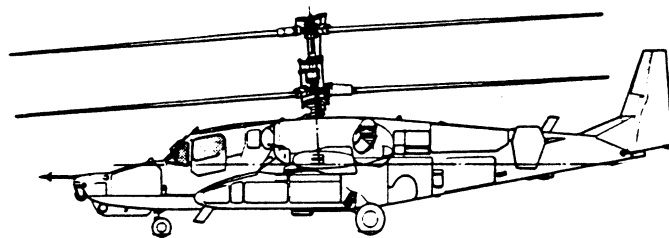
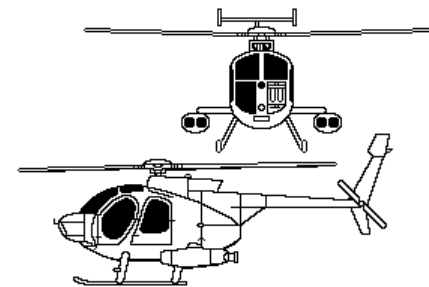


ZIL-131 3.5t

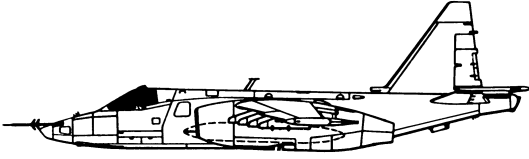
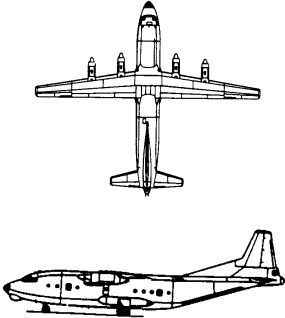
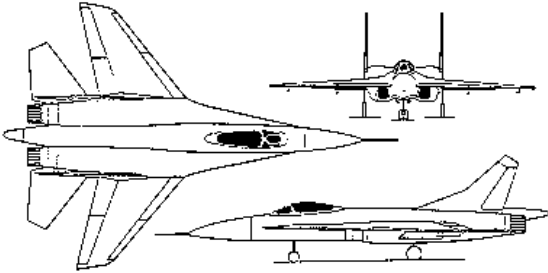


KRaz-255 7t

| Trucks | UAZ-469 light | UAZ-452 0.8t | GAZ-66 2t | ZIL-151 2.5t | ZIL-157 4.5t | URAL-375 4.5t | ZIL-131 3.5t | KRaZ-255 7t |
|---|----------------------|---------------------|------------------|---------------------|---------------------|----------------------|---|----------------------------------|
| payload, truck + towed (mt) | | 0.8 | 2 | 2.5 | 4.5 | 4.5 | 5+5 road, 3.5+4 off road | 7.5+30 road 10 towed off road |
| speed (kph) | 120 | 95 | 95 | 65 | 65 | 75 | 80 | 70 |
| range (km) | 460 | 430 | 875 | 650 | 510 | 750 | 850 | 850 |
| drive formula | | 4X4 | 4X4 | 6X6 | 6X6 | 6X6 | 6X6 | 6X6 |
| ground clearance (mm) | 300 | | | | | | 333 | 360 |
| ford (m) | 0.7 | | | | | | 1.4 | 1 |
| grade (degrees) | 31 | | | | | | 31 | 30 |
| cone index, truck (fine/coarse grained) | 22/26 | | | | | | 18/16 | |
| cone index, truck & trailer (fine/coarse grained) | | | | | | | 24/39 | |
| weight (mt) | 2.29 | 2.6 | 5.8 | 5.6 | 10.5 | 13.2 | 6.46 | 19.7 |
| loaded area (m) | | | | | | | 3.6x2.322x0.346 | 4.56 x 2.5 |
| Dimensions L x W x H (m) | | | | | | | 7.04x2.5x2.48 | 8.7x2.8x3 |
| remarks | | | | | | | Cab controlled tire inflation system. 70-m cable winch 4500-kg pull. | |

**Mi-8/Mi-17 HIP****Mi-24 HIND****Mi-28 HAVOC****Gazelle****Ka-50 HOKUM****MD-500 Defender**

| Rotary Wing Aircraft | Mi-8 HIP | Mi-17 HIP H | Mi-24 HIND D/E/F | Mi-28N HAVOC | Gazelle SA-341 (Fr) | Ka-50 HOKUM | MD 500 (US) | UH-1H (US) | BO-105 (GE) | Lynx (UK) |
|----------------------------------|---|--|--|--|-------------------------------------|---|--|-------------------|------------------------------|-------------------------------------|
| | | | | | | | | Not Shown | Not Shown | Not Shown |
| mission | utility, transport | utility, transport | Attack, close support | Attack, close support | Light attack utility | Attack, close support | general purpose, light attack | Utility | general purpose light attack | general purpose attack |
| gun | 12.7-mm or 2x7.62-mm 23-mm gun pods | 12.7-mm or 2x7.62-mm 23-mm gun pods | 30-mm HIND F 4-bbl 12.7-mm HIND D/E | 23-mm gun pods 30-mm | 2 x 20-mm 12.7 or 2x7.62-mm gun pod | 2A42 30-mm cannon 2x23-mm gun | 12.7 or 6x7.62-mm gun pod 7.62-mm | 7.62-mm | 12.7 or 7.62-mm gun pod | 2 x 20-mm 12.7 or 2x7.62-mm gun pod |
| ATGM | 4-6 AT-2c, AT-3c | 4-6 AT-2c, AT-3c | 4-12 AT-2c HIND D AT-6b, c, Ataka HIND E/F | 16 AT-6b,c Ataka | AT-3, HOT or AS-11/AS-12 | 12 AT-16 Vikhr | TOW Hellfire | | HOT TOW | 2xHOT, 2xHellfire, or 2xTOW |
| rockets | 57-mm 80-mm | 57-mm 80-mm | 57-mm or 80-mm | 57-mm 80-mm | 57-mm, 68-mm, 2.75" | 80-mm | 70-mm, 2.75" | | SNIA 50-mm 68-mm/70-mm | 68-mm/70-mm |
| bombs | 250-kg, 500-kg | 250-kg, 500-kg | 250-kg, 500-kg | 500 kg | | 250-kg, 500 kg | | | | |
| AAM | | | | 2x AA-16 2x AA-18 | Matra Mistral, SA-7 | AA-11 Archer | Stinger | | Stinger | 2xAAM pod |
| take-off weight (kg), normal | 11,100 | 11,100 | 11,100 | | 2000 | 9800 | 1361 | 4100 | 2380 | 2578 |
| maximum, hovering take-off | 12,000 | 13,000 | 12,000 | 10,400 | | 10,800 | 1610 | 4309 | 2400 | 4535 |
| service ceiling (m) | 3500 | 5000 | 5500 | | 4100 | 7000 | 4635 | 3840 | 4203 | 3538 |
| speed maximum at sea level (kph) | 230 | 260 | 335 | 300 | 280 | 310 | 221 | 229 | 241 | 260 |
| range, normal payload (km) | 460 | 495 | 480 | 470 1100 w/drop tanks | 710 | 455 | 540 | 465 | 318 | 540 |
| ferry | 950 | 950 | 1050 | | | | 1342 | | | 1342 |
| crew | 3 | 3 | 2 | 2+1 | 1 or 2 | 1 | 2 | 2 | 2 | 2 |
| passengers | 24 | 24 | 8 | | 2 | | 2 | 11 | 3 | 10 |
| remarks | Troops can fire personal weapons through windows. 4 external hard points. | Improved version of Mi-8MT, upgraded engines, 6 external hard points | | This system is not operationally fielded in any armed force. | | Armored cockpit withstands 23-mm fire and windscreen withstands 12.7-mm fire. | MK19 or 75 40-mm automatic grenade launcher may be used. | Not shown. | Not shown. | Not shown. |

| | | | | | | | | | |
|---|-------------------------------|--|--|---|---------------------|--|---|--|--|
|  | | |  | | |  | | | |
| SU-25 FROGFOOT | | | An-12/CUB | | | Su-27 Flanker B | | | |
| Combat Aircraft | An-12 CUB | SU-25 FROGFOOT | SU-27 Flanker B | Mirage 2000 (FR) | F5E/RF5 (US) | A4 (US) | E2C (US) | C130 (US) | P3 (US) |
| Mission | Medium Transport Aircraft | CAS | Fighter/interceptor, fighter bomber variant | Interceptor Fighter Multirole | Attack | Attack | Early warning | | ASW/ maritime patrol |
| Gun(s) | NR-23 23-mm in tail turret | GSh-30-2 30-mm (250 rounds), AO-17a 30-mm pods | GSh-301 30-mm cannon | 2xDEFA 544 or 2x 30-mm pods | 2 x 20-mm | 2 x 20-mm Mk 12 | | | |
| ATGMs | | 16x AT-16 or Ataka, Su-25T | | | | * | | | |
| Rockets | | 57-mm S-5 pod, 80-mm S-8 pod (up to 8 pods) | 80-mm S-8 or 120-mm S-25 | 68-mm MATRA LR F4 or 100-mm | | * | | | 2.75" LAU-68A/69A |
| Air-to-Surface Missiles | | AS-7, AS-10, AS-11, AS-14, AS-17 | | ARMAT, EXOCET, AS, BOL, MATRA 530 D or F, | | * | | | HARPOON |
| Air-to-Air Missiles | | AA-2, AA-8 AA-10 | R-27, R-73, AA-10, AA-11 | MATRA or MAGIC | AIM-9 Sidewinder | AIM-9 Sidewinder * | | | AIM-9 Sidewinder |
| Bombs | | 100-kg, 350-kg, 500-kg (up to 4000 kg) | 100-kg, 250-kg, 500-kg | 18 x 250 kg | < 7000 lbs. | | | | Mk 46, 50, 54, 82, mines and depth bombs |
| speed, max at altitude/sea level/attack | 775/585 | ?/970/690 kph | 2500/1345 | 2.2/2.1 mach | 1.6 mach | 0.9 mach/ 1163 kph | 626 kph | 602 kph | |
| combat radius (km) | 1500-1800 | 495 | 1125 1950 w/tanks | 1650 | | 575 | | 1900 | 2494 |
| payload, cargo (kg) | 7980-16,070 | | | | | | | 19052 kg | |
| payload, combat-equipped troops | 60 | | | | | | | 92 | |
| payload, paratroops | 90 | | | | | | | 64 | |
| Remarks | Can operate from dirt strips. | SU-25M: antitank SU-25UB: trainer Ceiling 10,000 m 4344 kg max payload 6.5 g limit | | All weather Ceiling 16,460 m -9 to 13.5 g limit 9 hardpoints Not shown. | Not shown. | Ceiling 12200 m, 4 pylons for bombs, rockets, ASMs & gun pods Not shown. | Ceiling 11275 m, Tracks 2000 targets Not shown. | Ceiling 10,006 m Not shown. Can carry 74 stretchers. | 13 pax Not shown. |

RADAR

| BATTLEFIELD SURVEILLANCE RADAR | CARRIER | FREQUENCY | RANGE (KM) | |
|---|-------------------------|------------------|-------------------------|-----------------------|
| | | | <u>PERSONNEL</u> | <u>VEHICLE</u> |
| BIG FRED | MTLB (M1975) | 34.55-35.25 Ghz | 12-15 | 20+ |
| BUZZ STAND | PSNR-1 (MAN-PORTABLE) | 9.66 Ghz | 5 | 10 |
| SMALL FRED | PRP-3/4 (BMP-1 VARIANT) | 36.2-37 GHz | 7-12 | 20+ |
| TALL MIKE | BRM-1k (BMP-1 VARIANT) | 9 Ghz | 3 | 12 |

| <u>AIR DEFENSE RADAR</u> | <u>ASSOCIATED SYSTEM</u> | <u>ROLE</u> | <u>RANGE (KM)</u> | |
|-------------------------------------|---------------------------------|--------------------|-------------------------------------|------------------------|
| | | | <u>TYPE</u> | <u>DISTANCE</u> |
| BILL BOARD | SA-12 | surveillance | | 10-250 |
| FIRE DOME | SA-11 | fire control | guidance altitude | 3-32 15-22 |
| GUN DISH | ZSU-23-4 | fire control | | 20 |
| HAT BOX | SA-13 | range | | INA |
| HOT SHOT | 2S6 / SA-19 | fire control | acquisition tracking | 18 13 |
| LAND ROLL | SA-8 | fire control | acquisition guidance tracking | 30 12+ 20-25 |
| LONG TRACK | SA-6 / SA-8 | acquisition | | 150+ |
| LOW BLOW | SA-3 / SA-4 | acquisition | | 110 |
| PAT HAND | SA-4 | fire contrl | | INA |
| SCRUM HALF | SA-15 | fire control | acquisition | 25 |
| SNOW DRIFT | SA-11 | fire control | acquisition tracking | 23-85 20-70 |
| SPOON REST | SA-11 | acquisition | | INA |
| STRAIGHT FLUSH | SA-6 | fire control | acquisition tracking altitude | 60-90 28-75 10 |
| THIN SKIN | SA-6 / SA-8 | height finder | | 250 |

| <u>COUNTERMORTAR COUNTERBATTERY RADAR</u> | <u>ROLE</u> | <u>RANGE</u> | | <u>REMARKS</u> |
|--|------------------------------|-------------------------------------|---|--|
| | | <u>TYPE</u> | <u>DISTANCE with accuracy (km)</u> | |
| AN/TPQ-36 (US) | Countermortar/Counterbattery | Mortar Artillery MLRS | 12 12 24 | Location is completely automatic and coordinates of weapon determined before round lands. Normal 90° sector can be modified to 360° for insurgency operations. |
| AN/TPQ-37 (US) | Countermortar/Counterbattery | Mortar Artillery MLRS | 30 30 50 | AN/TPQ-36 & -37 complement each other to provide artillery counterfire against mortars and close-in artillery. Together they are known as the Firefinder system. |
| Zoopark-1 1L219 | Countermortar/Counterbattery | Mortars Howitzers MLRS TBM | 81 mm mortar 12 120 mm mortar 15 105 mm howitzer 8 155mm howitzer 10 122 mm rocket 12 220 mm rocket 20 theater missile 35 | High-technology Russian system features air traffic control capability, GPS, high-mobility tracked chassis, and operation form a prime-propulsion-driven generator. |
| ARK-1M Rys | Countermortar/Counterbattery | Mortars Howitzers MLRS TBM | 13 8 25 30 | Primarily used to locate tube artillery, mortars and multiple rocket launchers. The system also calculates impact errors of OPFOR rounds and provides automatic correction parameters. |

SIGNALS INTELLIGENCE AND DIRECTION-FINDING SYSTEMS.

| SYSTEM | SIGNALS | INTERCEPT RANGE |
|------------------------|----------------|------------------------|
| Intercept Receiver | VHF-UHF | 40 km (LOS) |
| Radio Direction Finder | VHF-UHF | 40 km (LOS) |
| | HF groundwave | 80 km |
| | HF skywave | unlimited |
| Radar Direction Finder | | 25 km |

CHAPTER 4: TACTICAL FORMATIONS

INTRODUCTION.

An attacking OPFOR can deploy into three types of tactical formations - **march**, **prebattle**, or **battle** - depending on its mission and the combat situation. The OPFOR employs a standard drill for deployment into battle. The drill proceeds from **march formation**, through **prebattle formation**, into **battle formation**. The sequence of deployment and the distances of the lines of deployment from the BLUFOR are determined by tactical considerations.

4-1 MARCH.

The OPFOR prefers to remain in column or march formation as long as possible for the sake of speed. It resorts to lateral deployment only by necessity, such as when combat is imminent. Until combat is imminent, the maneuvering force is in some type of tactical march formation.

The OPFOR march is:

- The organized column movement of troops along roads and cross-country routes to a designated area or line.
- The most common method of OPFOR unit and subunit movement.

a. A unit conducts a march when:

- Moving from a rear assembly area to a forward assembly area or attack position.
- Leaving an assembly area to launch an attack from the march.
- Moving forward in anticipation of a meeting battle.
- Conducting a pursuit.
- Conducting a passage of lines.
- Transferring laterally to a new area or large formation.

These formations and drills allow a rapid transition into combat while maintaining maximum **security**, **speed**, and **firepower**.

b. Types of March.

- **Administrative:** contact with the enemy is not likely.
- **Tactical:** contact with enemy ground forces is likely. They are organized to ensure the march formation is ready to enter battle with little notice.

c. March Planning Factors.

(1) Route Allocation Norms:

- Division:
 - Receives either a march zone (**15-30 km wide**) or two to three march routes.
 - March columns are **80-100 km deep** from the lead march security elements to the tail.
- Brigade:
 - Receives one or two march routes.
 - First-echelon brigade requires over **40 km of road space**.
 - Second-echelon brigade, with less march security deployed, needs 20-30 km.
- Battalion: one march route.
- Each route is separated by **3 to 4 km**.
- Figure 4-1 shows typical OPFOR tactical march intervals.

| ELEMENTS INVOLVED | NORMAL INTERVALS | VARIATIONS |
|-----------------------|------------------|---|
| Vehicles in a company | 25-50 m | Increased at high speeds, in contaminated or rugged terrain, or on icy roads. May decrease at night, or |

| | | |
|-------------------------------------|----------|---|
| | | increase (to 100-150 m) when threatened by air or high-precision weapons. |
| Companies in a battalion | 25-50 m | Up to 300 m or more under threat from NBC, aviation, or high-precision weapons. |
| Battalions on the same route | 3-5 km | Can vary as contact becomes imminent. |
| Brigades on the same route | 5-10 km | |
| Brigade rear services & main force | 3-5 km | |
| Division rear services & main force | 15-20 km | |

Figure 4-1. Typical OPFOR tactical march intervals.

| Paved Roads | | | Dry, Dirt Roads | | Muddy, Hilly, Urban Roads | |
|--------------|----------|----------|-----------------|----------|---------------------------|---------|
| Column Types | Day | Night | Day | Night | Day | Night |
| Motorized | 30 to 40 | 25 to 30 | 20 to 25 | 18 to 20 | 10 to 15 | 8 to 10 |
| Mixed | 20 to 30 | 14 to 20 | 15 to 20 | 12 to 15 | 10 to 12 | 8 to 12 |

Figure 4-2. Average Rates of March (km per hour).

| Column Types | Paved Roads | Dry, Dirt Roads | Muddy, Hilly, Urban Roads |
|--------------|-------------|-----------------|---------------------------|
| Motorized | 250-350 | 180-300 | 80-180 |
| Mixed | 200-350 | 120-240 | 80-140 |

Figure 4-3. Daily march distances (km).

(1) Order of March.

- The main body of the combat force employs reconnaissance and forward security forces in most situations.
- The reconnaissance forces move far ahead of the security force and try to avoid contact while sending back intelligence to the main body commander.
- The security force is responsible for ensuring the unhindered movement of the main body. It may engage enemy forces.
- An engineer movement support detachment (*See Chapter 5*) often moves either ahead of or behind this security force and supports the movement of the main body.
- Attached and organic artillery elements move well forward in the column, occasionally traveling ahead of the tanks and infantry combat vehicles.
- Air defense, engineer, AT, and chemical reconnaissance elements are dispersed throughout the march column.

d. **March Security.** March security elements may be classified as **advance guard, rearguard, security elements (forward, flank and rear)** and **patrols**. *Figure 4-4* shows these elements in relation to the main body.

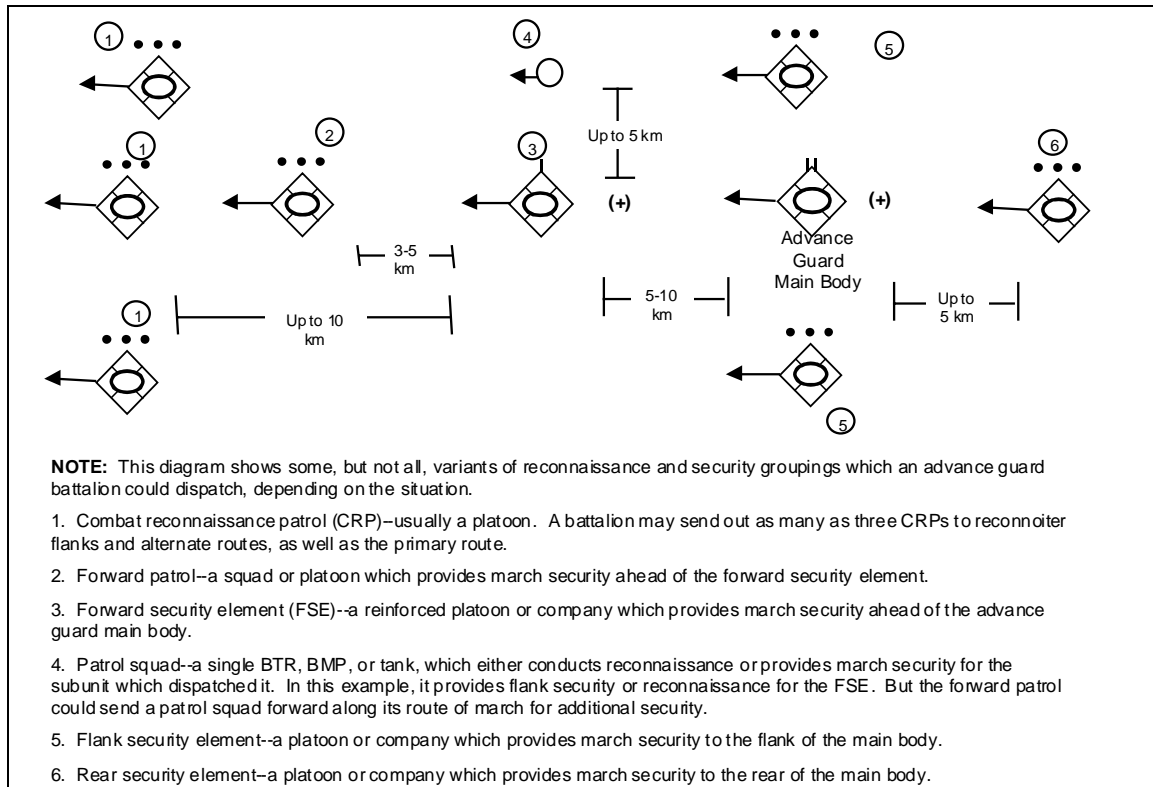


Figure 4-4. Elements of march security.

e. Advance Guard (AG).

- Consists of reinforced mechanized infantry battalions (MIBNs) from the first-echelon brigades.
- Mission: to ensure the security of the main axis.
- A reinforced battalion may be sent out on each brigade route during an advance to contact.
- A reinforced battalion as an advance guard is likely during a penetration or pursuit. (Usually MIBNs for this role, but can be tank battalions).
- When there is little chance of enemy contact, divisions may use only a battalion as an advance guard.
- The preferred employment on contact is to envelop the position, forcing the defender to pull back and to attempt to destroy the withdrawing force on the move.
- The advance guard tries to move about one hour (20 to 25 km) ahead of the main body, but this may be reduced if resistance or obstacles are encountered.

f. Forward Detachment (FD).

- The purpose of the FD is to speed the advance of the division.
- Normally, a reinforced battalion from a division's second-echelon brigade.
- Missions:
 - To seize critical terrain objectives such as river crossing sites.
 - To disrupt the enemy's covering forces to facilitate the division's advance.
 - To conduct raids against important enemy sites: NBC weapons systems, artillery positions, and CPs.
- Will try to avoid battle before it reaches its objective and before it moves off the main routes of the divisional columns.

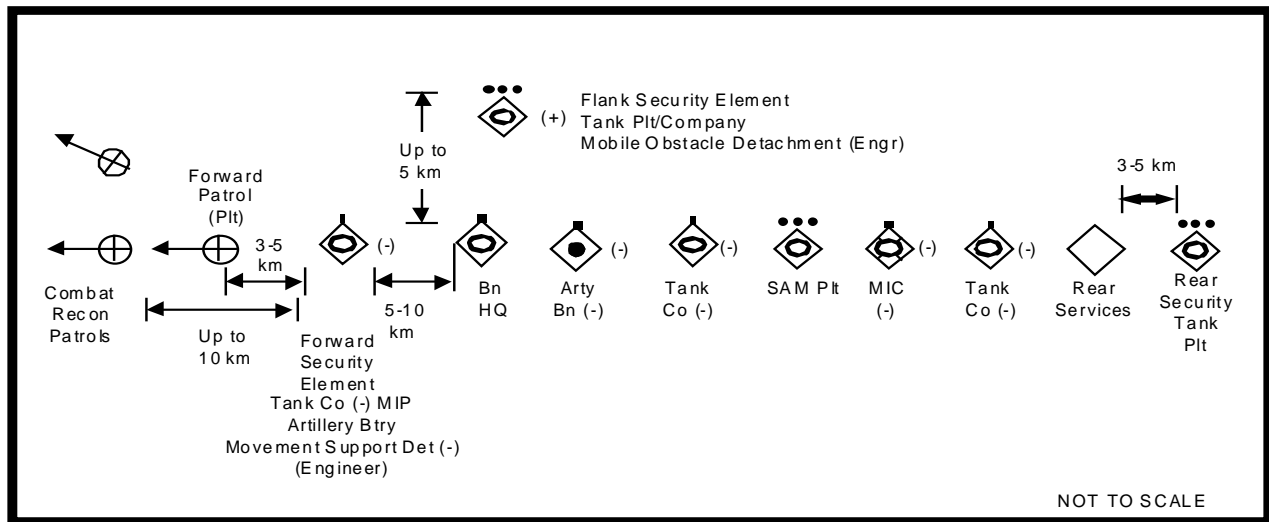


Figure 4-5. March formation reinforced TBN acting as advance guard or forward detachment.

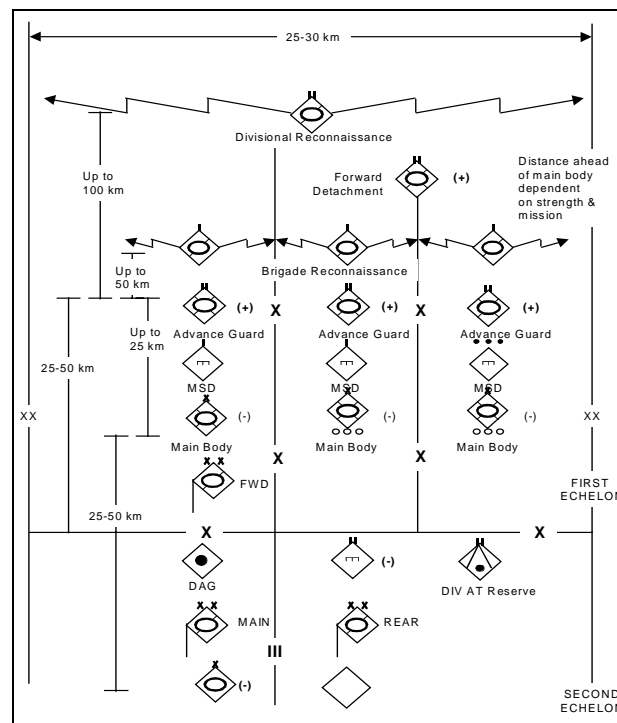


Figure 4-6. Disposition of a mechanized infantry division in a tactical march formation.

g. Division Tactical March.

- The basic formation for achieving maximum rates of advance or maneuver in the attack, mechanized infantry or tank divisions use similar march formation.
- Division reconnaissance and REC battalion can proceed in front of the division's movement out to a range of **100 km**.
- Ground reconnaissance elements concentrate on the major axes of advance and the most likely enemy concentrations.

- The division commander may dispatch a forward detachment for independent missions forward of the lead brigade's advance guards.
- There is no actual divisional advance guard; the lead brigade on each of the routes used by the division forms an advance guard.
- A mechanized infantry division's tactical march is shown in *Figure 4-6*.

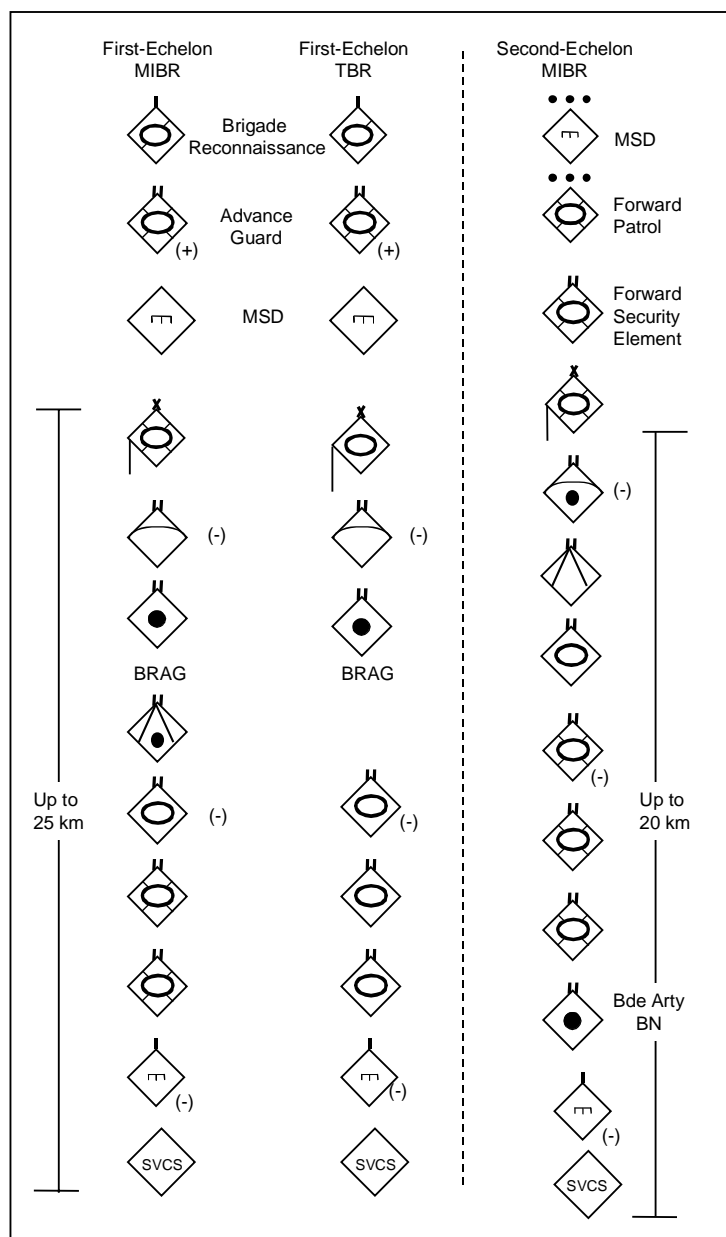


Figure 4-7. Brigades in tactical march formation.

h. Brigade Tactical March.

Mechanized infantry and tank brigades have march formations similar to a division. These formations provide reconnaissance and early warning to the brigade commander. Reconnaissance elements from the advance guard, in increasingly larger formations, will encounter the enemy or obstacles well before the main body, allowing each successive commander to minimize losses in a surprise encounter by meeting the enemy with the smallest possible force. This also permits the maneuver of follow-on forces. If necessary, a brigade may send out a forward detachment to

accomplish missions similar to those of the divisional forward detachment. An illustration of a brigade, with an advance guard, in tactical march formation is shown in *Figure 4-7*. More detail is provided in *Figure 4.8*.

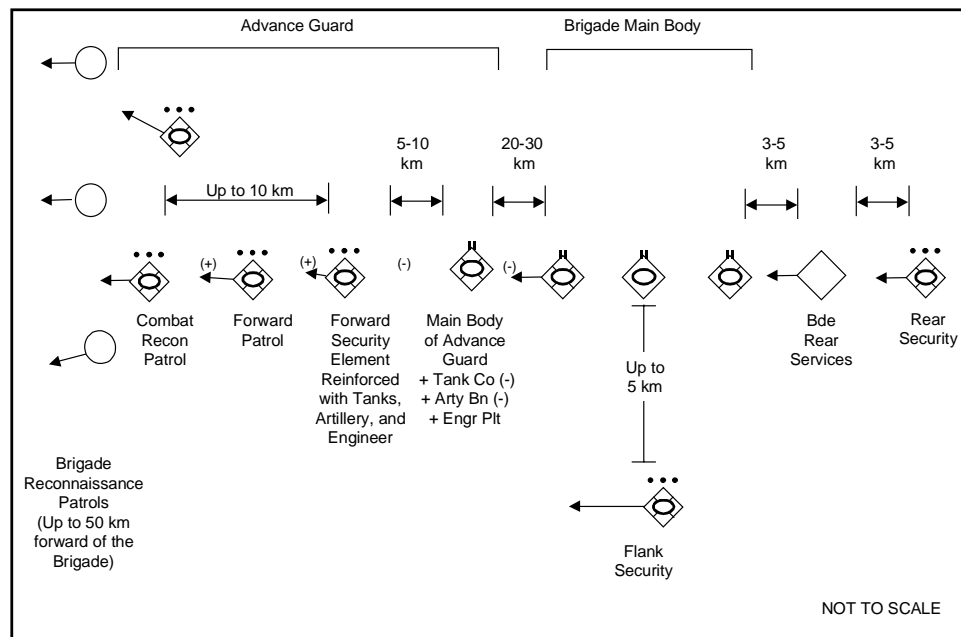


Figure 4-8. Advance Guard in a tactical march.

4-2 PREBATTLE.

When nearing the BLUFOR's defensive line, the OPFOR uses prebattle formation as a **transition** between the march and battle formations. Prebattle formation focuses on **speed, dispersion, flexibility, and firepower** in an anticipated direction. When entering prebattle formation, the OPFOR deploys into **successively smaller unit columns**. These multiple columns increase forward combat power until forces reach the attack line and assume battle formation. In prebattle formation, the columns have greater lateral dispersion, but less depth than in the march formation.

The OPFOR uses prebattle formation when:

- Approaching the battlefield.
- Developing the attack into the depth of the battle area.
- Pursuing the BLUFOR.
- Attacking a defending enemy whose defenses are weak or effectively suppressed.
- Crossing NBC-contaminated zones rapidly.
- Crossing areas with natural or artificial obstacles.

Forces in prebattle formation either deploy into battle formation or return to march formation, depending on the tactical situation. A force might remain in this formation for a lengthy period of time. It normally would pass through some form of prebattle formation when moving from the march into full deployment for an attack.

a. Brigade. The **brigade** assumes a prebattle formation by deploying from a single brigade column of battalions in its main body into individual battalion columns.

- The number of battalion columns depends on the tactical situation and the choice of echelonment that the situation dictates.
- Deployment into battalion columns should begin beyond the range of the bulk of the BLUFOR's artillery, at a line approximately **12 to 15 km** from the BLUFOR forward edge.
- The artillery preparation of the attack is usually timed to begin as the attacking force reaches this line.

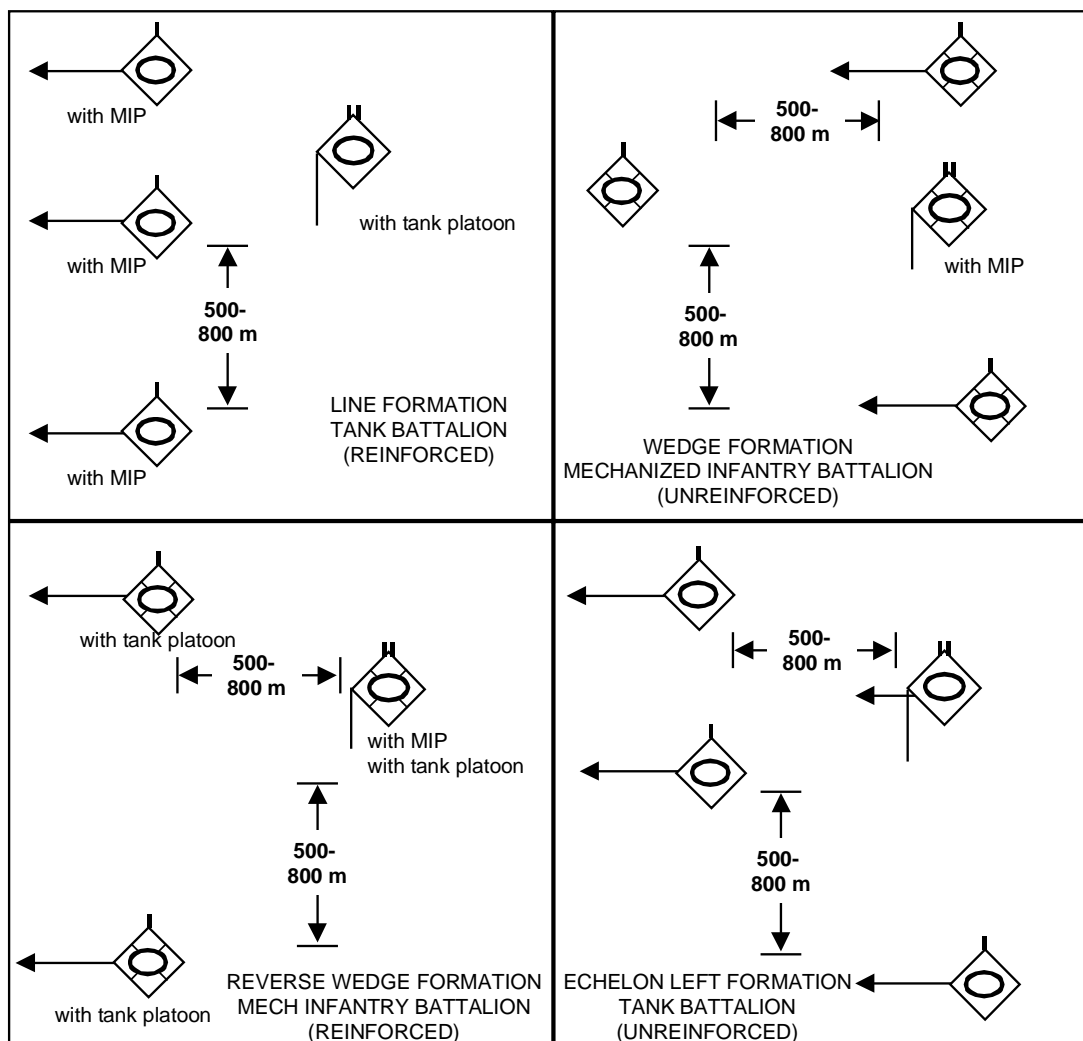


Figure 4-

9. Battalion prebattle formations.

b. Battalion. A battalion assumes prebattle formation by deploying from a single battalion column of companies into individual company columns. *Figure 4-9* illustrates variations of battalion prebattle formations.

- Within the **battalion prebattle formation**, each company moves in march column.
- In relation to one another, the company columns may be configured in a line, in a forward or reverse wedge, or echelon left or right.

c. Company. The line of deployment into company columns is set outside the maximum range of the defender's antitank weapons, tanks, and other direct fire systems. This is usually **4 to 6 km** from the BLUFOR's forward edge, depending on the terrain.

- The **company prebattle formation** is the final stage of deployment before battle formation.
- A company in prebattle formation does not laterally deploy beyond platoon columns.
- The intervals between company and platoon columns in prebattle formation should allow full deployment of the elements into battle formation without further lateral expansion of the entire formation.
- The deployment line into **platoon columns** is ideally located in terrain that screens the deployment, particularly from the defenders' short-range antitank weapons. It would normally be **2-3 km** from the BLUFOR forward edge.

- Unlike higher-level organizations, the company does not necessarily have to use a prebattle formation. It can go directly from the march into battle formation, if the situation requires.

4-3 BATTLE FORMATION.

The OPFOR uses battle formation (attack formation) when encountering **strong BLUFOR resistance** during:

- The meeting battle.
- The attack against a defending enemy.
- The pursuit.
- The counterattack.

a. Brigade. Only those elements expecting contact with the enemy deploy into battle formations. Therefore, an OPFOR maneuver **brigade** reaches battle formation when its first-echelon battalions deploy on line. Its second-echelon battalions remain in march or prebattle formation until they are actually committed. Maneuver brigades are reinforced with several combat and combat support elements prior to contact with the BLUFOR. These reinforcing assets deploy to become part of the supported maneuver brigades' formations.

b. Battalion. An OPFOR maneuver **battalion** reaches battle formation when its first-echelon companies deploy on line. Its second-echelon companies remain in march or prebattle formation until they are actually committed. Maneuver battalions are reinforced with several combat and combat support elements prior to contact with the BLUFOR. Reinforcement usually takes place in assembly areas or before reaching the start line for the march. These reinforcing assets deploy to become part of the supported maneuver battalion's battle formation. (*See Figures 4-10 & 4-11*).

c. Line of transition to the attack.

- The line by which the attackers deploy into battle formation, with platoons on line and tanks in front of the infantry vehicles.
- Its location depends on the preparation of the BLUFOR defense and the degree of destruction inflicted by OPFOR artillery.
- The line should be outside the range of BLUFOR short to medium range antitank weapons and small arms and permit a rapid advance into the BLUFOR positions.
- It is usually at least 600 meters from the BLUFOR forward edge, but farther forward than the supporting BRAG.

d. Dismount line.

- Never more than 1,000 meters from the forward edge of BLUFOR units, **it should be as close to the BLUFOR positions as the terrain allows.**
- Usually 300 to 400 meters from BLUFOR defenses. If troops dismount, they follow as closely as possible behind the tanks. The BTRs or BMPs follow 100 to 200 meters behind the infantry, providing supporting fire.

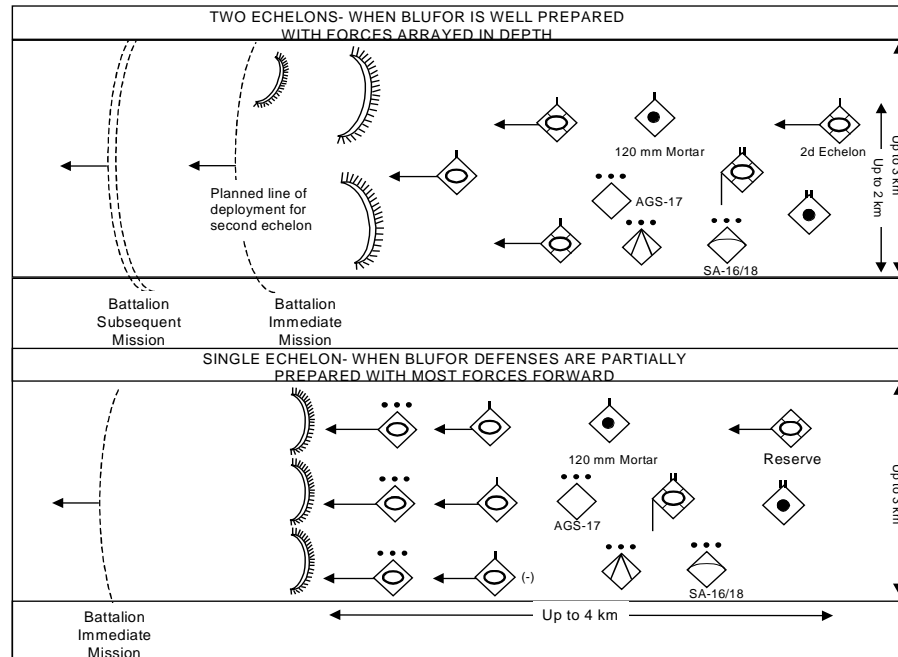


Figure 4-10. Battalion battle formations (reinforced MIBN).

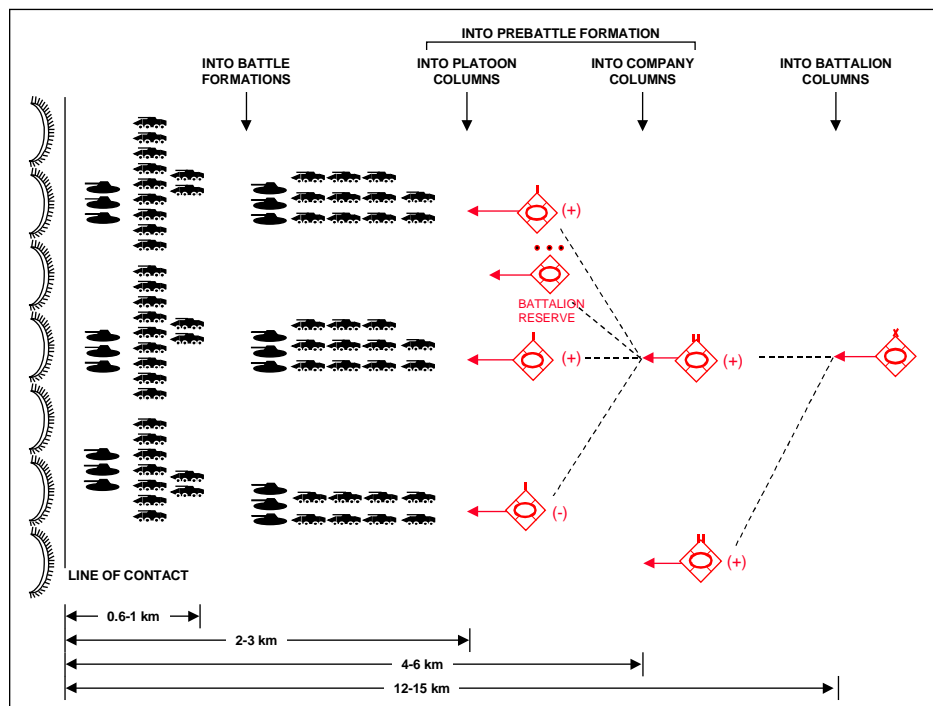


Figure 4-11: Prebattle and Battle Formation Deployment Lines.

CHAPTER 5: THE OPFOR IN THE OFFENSE

INTRODUCTION.

This chapter provides you the necessary tactics for the OPFOR to successfully conduct an offense. It does not cover all aspects of the OPFOR's offensive principles, planning and execution. However, it does provide the critical concepts the OPFOR follows when planning such operations.

5-1 FORMS OF TACTICAL MANEUVER.

Maneuver is a basic component of combat. **It is an organized movement during combat that puts the OPFOR in a more advantageous position than the BLUFOR.** The OPFOR uses maneuver to seize and hold the initiative and defeat the BLUFOR. The most common forms of OPFOR maneuver are **frontal, close, deep, and double envelopment.**

a. Frontal Attack. The frontal attack is directed against the BLUFOR's frontline forces. Its goal is to penetrate BLUFOR defenses along single or multiple axes. Its success depends on superiority of forces and firepower. An OPFOR unit conducting a frontal attack attempts to create openings for subsequent exploitation. **The frontal attack, by itself, is the least preferred form of maneuver.** Normally, it is used in combination with a close or deep envelopment. A frontal attack may be appropriate when the OPFOR has the element of surprise, and may be used to fix BLUFOR defenses while other OPFOR units maneuver to attack from the flank.

b. Close Envelopment. A close envelopment is a flanking maneuver that strikes BLUFOR units in their flank or rear at a relatively shallow depth. The goal of the close envelopment is to **attack the BLUFOR from the flank, avoiding a frontal attack.** Forces conducting the close envelopment and those conducting a simultaneous frontal attack need to coordinate fire support. (See Figure 5-1.)

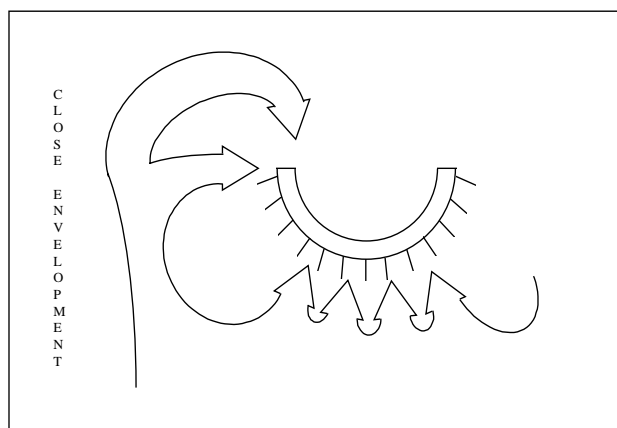


Figure 5-1. Close envelopment combined with frontal attack.

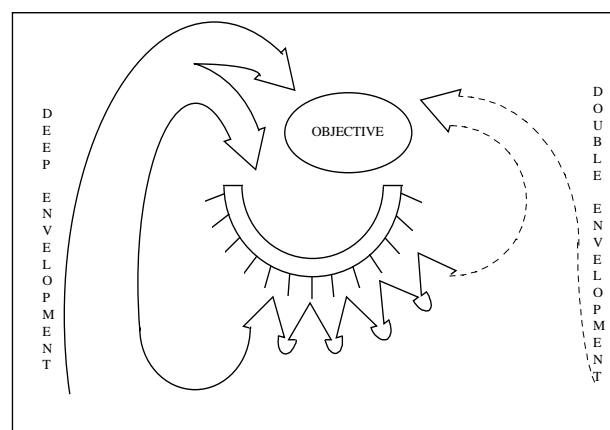


Figure 5-2. Deep envelopment combined with frontal attack.

c. Deep Envelopment. A deep envelopment is a **flanking maneuver executed at a greater depth.** The goal of deep envelopment is either to attack the BLUFOR from the rear or to seize key-blocking positions thereby preventing the BLUFOR's withdrawal and ensuring its destruction. The deep envelopment is conducted in tactical coordination with the forces advancing from the front. (See Figure 5-2.) **Forces assigned to conduct a deep envelopment receive additional fire support.**

In an attack against a defending BLUFOR, a battalion or brigade-sized **forward detachment** could conduct a deep envelopment for a brigade or division; the forward detachment would be inserted through a gap in forward BLUFOR defenses after first-echelon forces in the main attack achieve a penetration. The depth of a deep envelopment for a mechanized infantry or tank battalion can be more than **15 km**. A brigade may conduct a deep envelopment to a

depth of up to **50 km**. That depth can be significantly greater in a meeting battle or in a pursuit of the BLUFOR. The OPFOR may also employ **heliborne forces** for the deep envelopment.

d. Double Envelopment. The OPFOR prefers a **double envelopment**, which can be a combination of two deep envelopments, two close envelopments, or a deep and a close envelopment. It expects to achieve the most success with a deep envelopment of both flanks, encircling the BLUFOR rear. Combining envelopments creates favorable conditions for attacking the BLUFOR's flanks and rear. The OPFOR's goal is to **encircle** BLUFOR groupings, **split** them, and then **destroy** them. Heliborne assault troops can also land simultaneously in the BLUFOR rear, assisting in the accomplishment of a double envelopment. Forces carrying out close, deep, or double envelopments ordinarily maneuver in a march or prebattle formation when BLUFOR resistance is light enough not to require the use of battle formation. The enveloping force can transition from march to prebattle to battle formation as the situation dictates.

5-2 ORGANIZING FOR COMBAT.

The OPFOR organizes for combat by assigning units to function as elements of combat formations. The combat formation corresponds to the situation and facilitates mission accomplishment. It should ensure--

- Successful destruction of the BLUFOR.
- Achievement of the assigned mission.
- A combination of fire, movement, and maneuver in the course of the attack.
- Continuous command and control.

The following paragraphs list several of the key variables involved in OPFOR organization for combat. There is overlap with other chapters, but this information is included to provide better understanding of organizing for combat.

a. Reconnaissance. Maneuver divisions have an organic reconnaissance and electronic warfare battalion, while each maneuver brigade has an organic reconnaissance company. Mechanized infantry battalions (MIBN) have an organic reconnaissance platoon. The location of the reconnaissance objectives and the BLUFOR disposition determine how far in front of their parent organization these OPFOR reconnaissance assets move. In an **attack against a defending BLUFOR**, they would typically reconnoiter the BLUFOR whose destruction is the parent organization's immediate mission; then they would move on toward the depth of the subsequent mission. In the **march**, their purpose is to provide the maximum warning of the BLUFOR, in terms of time and distance and to establish the strength and disposition. They also identify terrain features that could slow the OPFOR rate of advance or hinder the accomplishment of the parent organization's mission.

b. Forward Detachment. A forward detachment is a combined arms force based on a reinforced maneuver brigade or battalion. Forward detachments ensure the unhindered advance of the division or brigade. Divisions commonly establish a brigade-sized forward detachment, or more than one battalion-sized forward detachment, to maneuver ahead of the lead brigades of an advancing division. Although any maneuver brigade can be assigned as a forward detachment, the **OPFOR prefers to use BTR-equipped units as forward detachments** (and advance guards), thus keeping the higher combat power of BMP and tank brigades for the main force. If the situation requires, a battalion or brigade from another unit/formation (e.g., from a second-echelon brigade/division or an adjacent division) may be temporarily attached as a forward detachment.

In the **march**, the forward detachment normally moves ahead of or parallel to the march security elements (advanced guard) of the lead brigades but behind the division's reconnaissance patrols. However, it could also move parallel to the advance guard.

There is no set distance between the forward detachment and the main body. A brigade-based division forward detachment moves **2 to 4 hours** ahead of the parent division's main body; in European terrain conditions, this may translate to a distance of up to **80 km**. A battalion-based division or brigade forward detachment moves **1 to 2 hours** ahead of the parent organization's main body; this translates to **20 to 40 km**.

c. Echelons. The echelonment of combat formations in the offense is based upon the depth and preparedness of BLUFOR defenses, and is intended to build combat power continuously on the line of contact. The OPFOR typically organize forces either in two echelons or in one echelon with a combined arms reserve. In normal terrain, companies and platoons always attack in a single echelon, without a reserve.

When **attacking unprepared or partially prepared BLUFOR defenses**, the OPFOR typically attacks in a single echelon with a reserve. Against more fully prepared defenses, the OPFOR is likely to use a two-echelon formation and a small reserve. Within the division, the pattern of echelonment can vary at each level of command. A division might deploy its brigades in two echelons, while some of the brigades might deploy their battalions in one echelon. The

OPFOR does not consider a three-echelon combat formation to be normal, but sometimes use it when advancing in the mountains, when maneuver is restricted in an advance along a narrow valley.

When **attacking defenses that are weak, lacking in depth, or not well prepared**, divisions, brigades, and battalions normally deploy in a **single echelon** with a small combined arms reserve. They would also use a single-echelon formation when attacking on a secondary axis. When using a single-echelon formation, the commander must keep a combined arms reserve; thus, he retains the ability to influence the battle. **If he commits his reserve, he must create another one immediately.** If the BLUFOR has hurriedly assumed shallow defenses, he will not have a well-prepared defense in depth or strong reserves; and under these conditions, a single echelon may be sufficient to defeat him.

A two-echelon combat formation is typically employed when attacking a defense prepared or at least partially prepared in depth and on the higher commander's main axis. The **first echelon** normally contains the majority of the combat power. Its mission is to destroy the BLUFOR's forward defenses and achieve the immediate mission of the formation/unit/subunit.

At the same time, the OPFOR issue missions to first-echelon forces, he assigns the **second-echelon** force a mission, a route of advance, and a likely line and time for its commitment. During commitment, the second echelon normally passes through gaps or at flanks to avoid passage of lines and intermingling of forces. Specific second-echelon missions can include:

- Conducting a pursuit.
- Destroying bypassed BLUFOR elements.
- Defeating a counterattack.
- Achieving the subsequent mission.
- Completing the missions of successful first-echelon forces that have been rendered combat-ineffective.

Once the second echelon is committed, a combined arms reserve from elements of the first echelon is formed if one had not designated previously. The remainder of the first echelon continues its attack to the degree that it is still able.

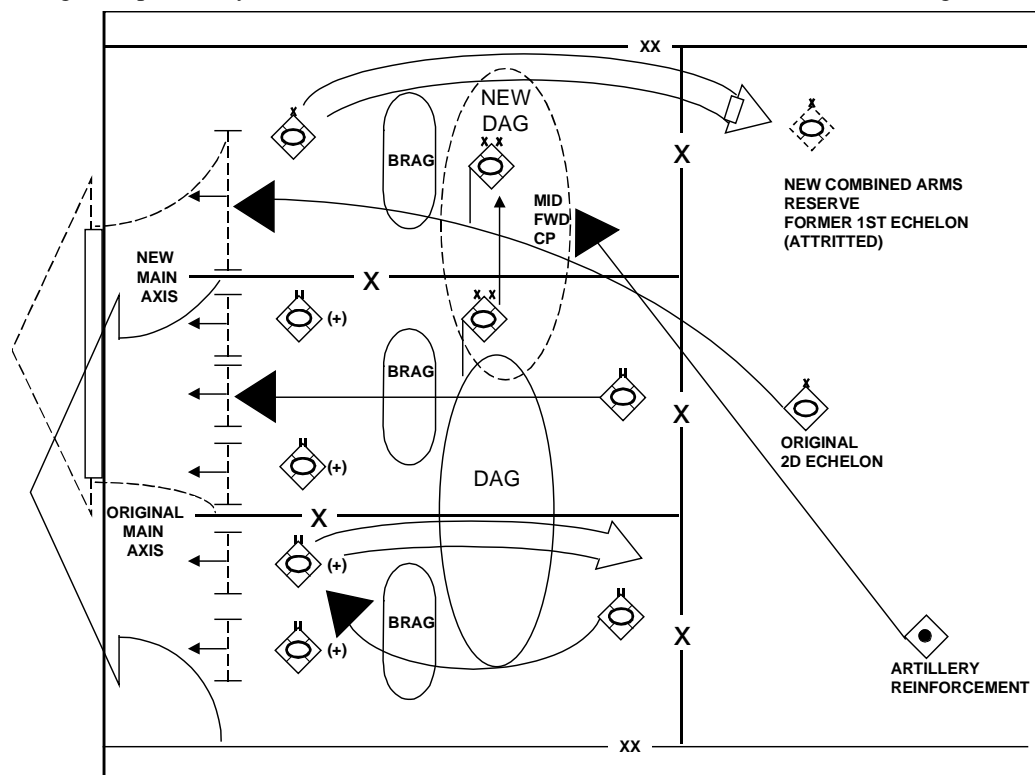


Figure 5-3. Commitment of second-echelon forces.

Although the OPFOR pre-plans deployment lines and time for committing the second echelon, he retains flexibility in implementing them, depending on the progress of the battle. It is important to remember that **a second echelon is an application of additional force, not reinforcement of the first echelon.** However, the second echelon

could be a replacement for a first-echelon force that has been successful, but at the cost of its own combat effectiveness. The second echelon's attack may be on an axis different from the one originally planned. (*Figure 5-3 illustrates one example of the commitment of second-echelon forces.*)

d. Combined Arms Reserve. Divisions, brigades, and battalions can form a combined arms reserve (usually two levels smaller in size, e.g., battalion has a platoon reserve), but only if attacking in a single echelon. The combined arms reserve is small. It is a **contingency force** used to meet unanticipated events and to deal with tasks such as exploiting unexpected success, repelling counterattacks, and covering the flanks of the parent organization.

e. Raiding Detachment. At the tactical level, a raiding detachment is a highly mobile combined-arms unit, usually a reinforced battalion. Reinforced companies and platoons can also conduct raids. The primary mission of a raiding detachment is to destroy or capture important military targets. Such objectives can include an artillery battalion, tactical missile batteries, elements of a reconnaissance-strike complex, a fire support helicopter forward base, a supply base/depot, or a river-crossing site. Its secondary missions can include seizing important terrain and blocking BLUFOR reserves.

f. Enveloping Detachment. Within maneuver battalions and companies, the OPFOR may use an **armored group** as a smaller-scale **enveloping group**. The armored group is a temporary grouping of 4 to 5 tanks, BMPs, BTRs, or any combination of such vehicles. In this role, BMPs or BTRs would deploy without their normally assigned infantry squad on board and fight away from their dismounted troops. The armored group can thus act on an independent axis to attack the BLUFOR flank or establish a blocking force to his rear. It has significant direct-fire capability and serves as a mobile reserve attack force for the battalion or company commander.

5-3 TYPES OF OFFENSIVE ACTION.

The OPFOR will employ three basic types of tactical offensive actions: **attack against a defending enemy**, **meeting battle**, and **pursuit**.

a. Attack Against a Defending Enemy. The **basic form** of offensive combat and the **preferred** OPFOR method of attacking a defending BLUFOR:

- Occurs when the BLUFOR is occupying known defensive positions.
- Can occur in a variety of situations: envelopments, supporting attacks, penetrations of the BLUFOR defense, and exploitation.
- An **attack from a position in direct contact** is most often used when transitioning over to the offense from the defense.
- *Figure 5-4* illustrates the difference between the two methods.

(1) Assembly Areas.

- When attacking from the march, a division would normally occupy an assembly area of between **300 to 600 sq. km** located **60 to 75 km** from the BLUFOR's forward positions.
- Brigades could occupy assembly areas as close as **20 to 30 km**.
- Forces depart assembly areas in march formation and deploy into prebattle and, if necessary, battle formation at designated lines.

(2) Operations Against an BLUFOR Covering Force Area.

- Goal: to prevent having the main body deploy from march formation prior to reaching the designated deployment lines.
- Against a **weak covering force**:
 - Forward detachments of 1st echelon divisions, with strong artillery and air support, responsible for destroying BLUFOR covering force.
 - Main bodies of divisions follow in tactical march column, ready to exploit the forward detachment success.
 - Deployment of lead divisions depends on degree of BLUFOR resistance.
- Against a **strong covering force**:
 - OPFOR would deploy main bodies of 1st echelon divisions from the outset.
 - Use forward detachments and air landings to cut off BLUFOR withdrawals and seize entries into the tactical zone.
 - Divisions may send forward detachments to seize key terrain in the covering force area.

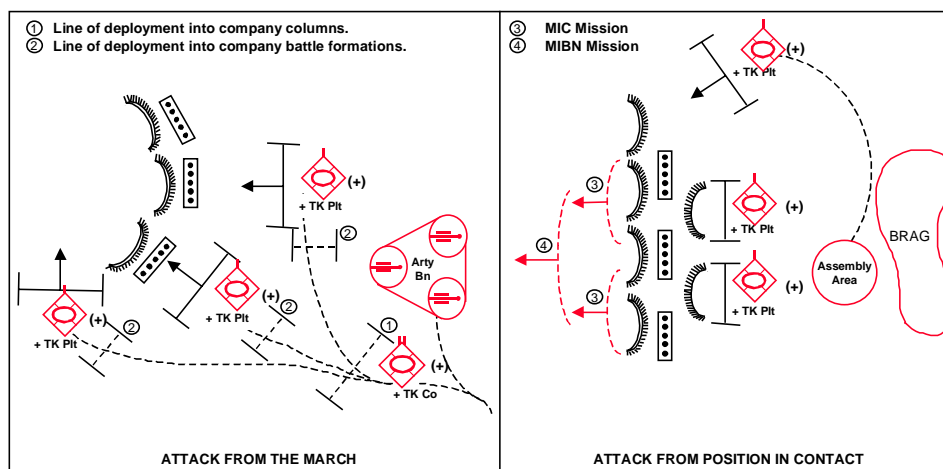


Figure 5-4. Attack against a defending BLUFOR.

(3) **Attack zones and strike sectors.** Figure 5-5 lists average widths of attack zones (frontages) and strike sectors (penetration sectors/sectors of main effort) at the tactical level. The OPFOR's goal is to achieve **overwhelming superiority in the strike sector**. A minimum of 5:1 is desired but more is better.

| | Div | Bde | Bn | Co | Plt |
|---------------------------------------|------------|------------|-----------|-----------|------------|
| Zone of Attack (km) | 5-25 | 3-8 | 2-3 | .5-.8 | .1-.2 |
| Main Attack Axis (km) | 6-10 | 2-4 | 1-2 | NA | NA |
| Distance Between Echelons (km) | 15-30 | 5-15 | 1-3 | NA | NA |

Figure 5-5. Typical Attack Zones and Strike Sector Widths.

NOTE: These distances are doctrinal and may vary significantly depending upon the situation.

(4) Force Disposition.

(a) MID and TD.

- In attacking a well-prepared defense, a division will normally attack on a narrower frontage (as narrow as 10 km) with a stronger second echelon (two brigades rather than one).
- A division attacking on an army's supporting axis will normally have a wider frontage than one attacking on the main attack axis.
- Division elements will normally deploy as listed in Figure 5-6.

| | |
|---|---|
| Division 1 st Echelon | Concentrated to attack on main and supporting axes. |
| Div. 2 nd Echelon or Combined Arms Reserve | Moves by bounds 15-30 km behind the first echelon until committed. |
| Brigade Artillery Groups | 1-4 km from the forward edge. |
| Divisional Artillery Groups | 3-6 km from the forward edge. |
| Army Artillery Groups | 3-8 km from the forward edge. |
| Army Rocket Artillery Group | 4-8 km from the forward edge. |
| Divisional Antitank Reserves | Between the 1 st & 2 nd echelons on the main attack axis or on a threatened flank. |
| Division Main CP | Up to 15 km from the forward edge. |
| Division Forward CP | Up to 5 km from the forward edge. |
| Division Rear Area Control Post | Up to 30 km from the forward edge and located near the rear services elements. |
| Brigade Main CPs | Up to 5 km from the forward edge. |
| Logistics Units | The divisional medical post, together with repair and evacuation elements, moves behind the first echelon. The rest of the divisional logistical units will be some 5-10 km behind the 2 nd echelon. |

Figure 5-6. Deployment Depths.

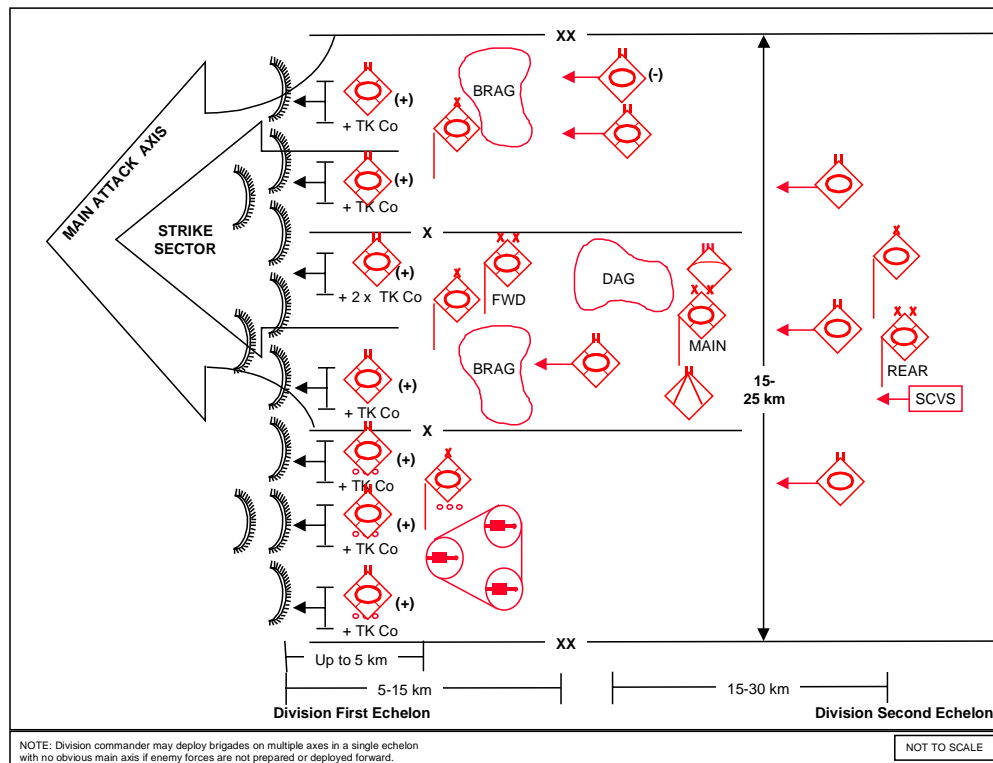


Figure 5-7. MID Attack Against a Partially Prepared Defense (Variant).

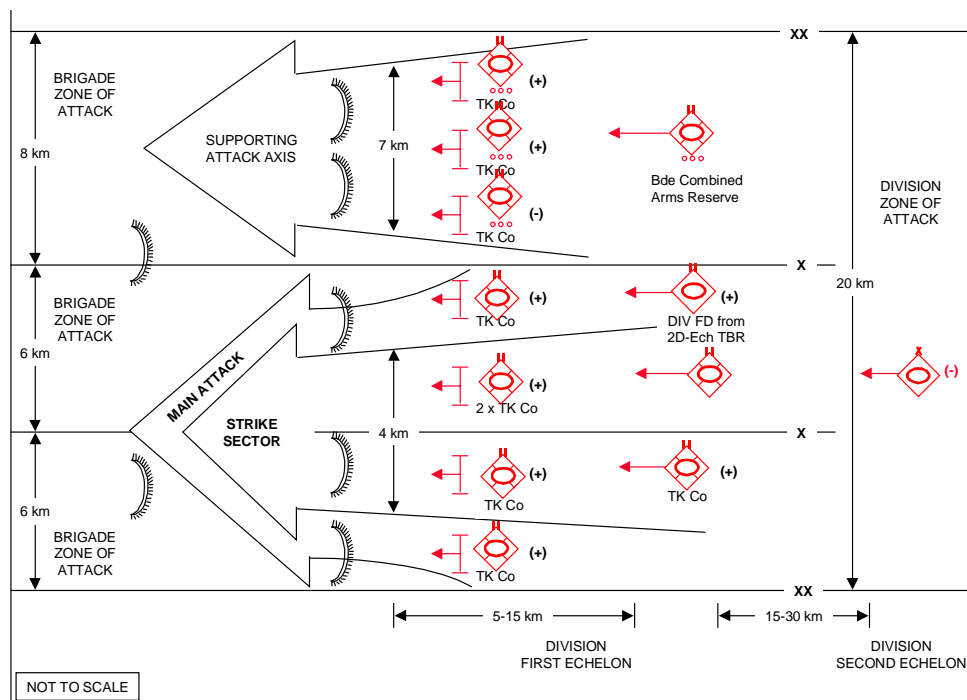


Figure 5-8. MID Attack Against a Partially Prepared Defense (Variant).

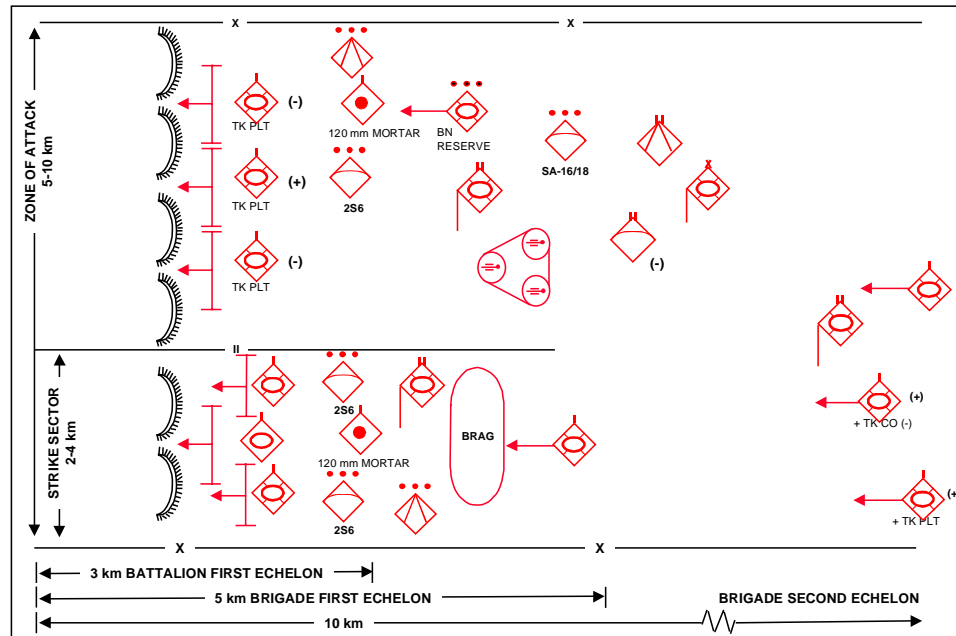


Figure 5-9. MIBR Attack Against a Partially Prepared Defense (Variant)

MIBN and TBN

- Battalion may attack using either one or two echelons.
- When attacking in one echelon, it will normally have a small combined arms reserve (platoon sized).
- A tank company attached to a MIBN normally operates intact.
- Does not have the organic combat support or combat service support required for independent action, except when deployed as a security or enveloping detachment, an **advance guard**, a raiding detachment, a **forward detachment**, or a heliborne or amphibious landing force.

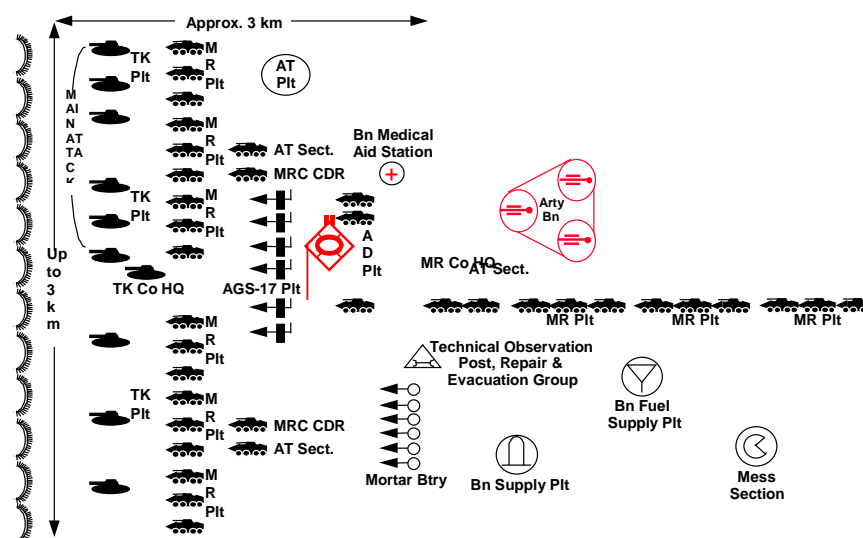


Figure 5-10. MIBN Attack Against a Partially Prepared Defense (Variant)

b. Meeting Battle.

- The **basic form of offense** used to meet and destroy BLUFOR tactical reserves.
- Goals: to destroy the BLUFOR and to continue developing the offensive.

- The side that seizes the initiative first through rapid deployment into battle or prebattle formations and through delivery of indirect and direct fires is most likely to win, even in the face of a superior BLUFOR.
- *Figure 5-11* illustrates the circumstances under which a meeting battle may occur.
- *Figure 5-12* describes Phases of a Meeting Battle.
- *Figure 5-13* illustrates possible outcomes of advance guard action in meeting battle.

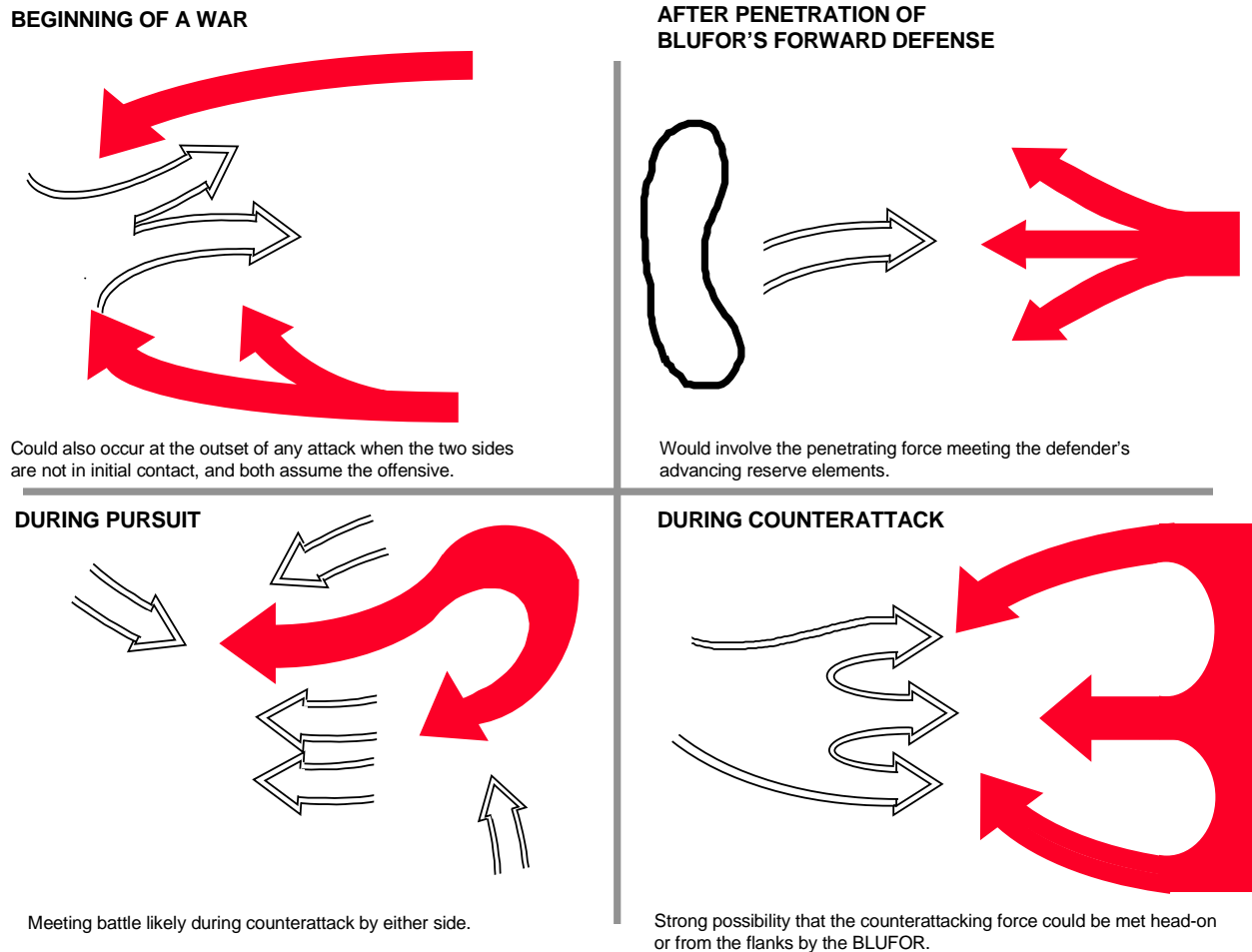


Figure 5-11. Circumstances under which a meeting battle may occur.

(1) **OPFOR battalion in the meeting battle.** A mechanized infantry or tank battalion is most likely to become involved in a meeting battle when acting as the **advance guard** of a brigade. This is also true of a battalion acting independently as a **forward detachment** of a division or brigade. When performing such a role, a mechanized infantry battalion is normally reinforced with tank, artillery, and engineer troops and possibly with antitank, air defense, or chemical protection elements. A tank battalion would be similarly reinforced, but with mechanized infantry rather than tank or antitank elements. *Figure 5-14*, illustrates advance guard actions.

(2) **OPFOR company in the meeting battle.** OPFOR maneuver companies fight meeting battles and defending enemies in the same manner. A mechanized infantry or tank company normally fights as part of a battalion. However, it can also act independently as a **forward security element** of an advance guard or a forward detachment. A company in such a role can receive reinforcements from NBC reconnaissance, artillery, and a unit of the other maneuver arm (tank or mechanized infantry).

| Phase | Element in March | Basic Task | Actions on Contact |
|-----------------------------|-----------------------------------|--|---|
| Initial Phase | Reconnaissance Patrols and Groups | Obtain data on BLUFOR disposition and terrain along main routes of advance. | <ul style="list-style-type: none"> Disengage when possible. Report and/or continuously monitor the situation. Bypass BLUFOR, continue to penetrate BLUFOR positions, particularly nuclear-capable and high-precision weapon systems. In favorable conditions (or out of necessity), may attack advancing units, take prisoners, disorganize/disrupt BLUFOR, and destroy BLUFOR NBC and high-precision weapons and C³I systems. |
| | Forward Detachment | Seize key terrain to facilitate the advance of the main body. May conduct raids en route to objective against key targets (NBC and high-precision weapon systems, C ³ I centers) | <ul style="list-style-type: none"> Avoids contact as much as possible, moving rapidly to its objective. If necessary, conducts meeting battles like a battalion acting as an advance guard. |
| | Advance Guard | Move along route of main body to ensure uninterrupted advance of main body, overcoming BLUFOR security/reconnaissance forces and obstacles. | <ul style="list-style-type: none"> Reports BLUFOR contact/disruption. FSE deploys and attempts to overcome BLUFOR based on information from CRP(s). If the FSE is not able to overcome the BLUFOR, it assumes a defensive overwatch position to support maneuver of main body of advance guard. Main body of advance guard attempts a close envelopment or double envelopment to defeat the BLUFOR unless his force is overwhelming in size. If successful, units reform and resume march or initiate pursuit. If unsuccessful, units hold positions/block BLUFOR/continue attacking to support the subsequent maneuver and attack of the main body of the parent unit. |
| Actions of Main Body | Main Body | Deploy rapidly for the attack and defeat of the BLUFOR, generally from the flanks. | <ul style="list-style-type: none"> Based on information from forward elements, commander maneuvers his forces and attempts to envelop. Units march rapidly to assigned sectors and deploy in prebattle/battle formations as needed to assault BLUFOR. |
| Conclusion | Main Body | Develop the attack into the depths of the BLUFOR rear. | <ul style="list-style-type: none"> If BLUFOR withdraws, it initiates pursuit. If it decisively defeats the BLUFOR, it resumes direction of march and overall mission. If it does not defeat the BLUFOR, it continues to develop the attack and holds positions aggressively until higher headquarters can conduct its maneuver. If it is unsuccessful, it may go over to the defense in the course of the offense. |

Figure 5-12. Phases of meeting battle.

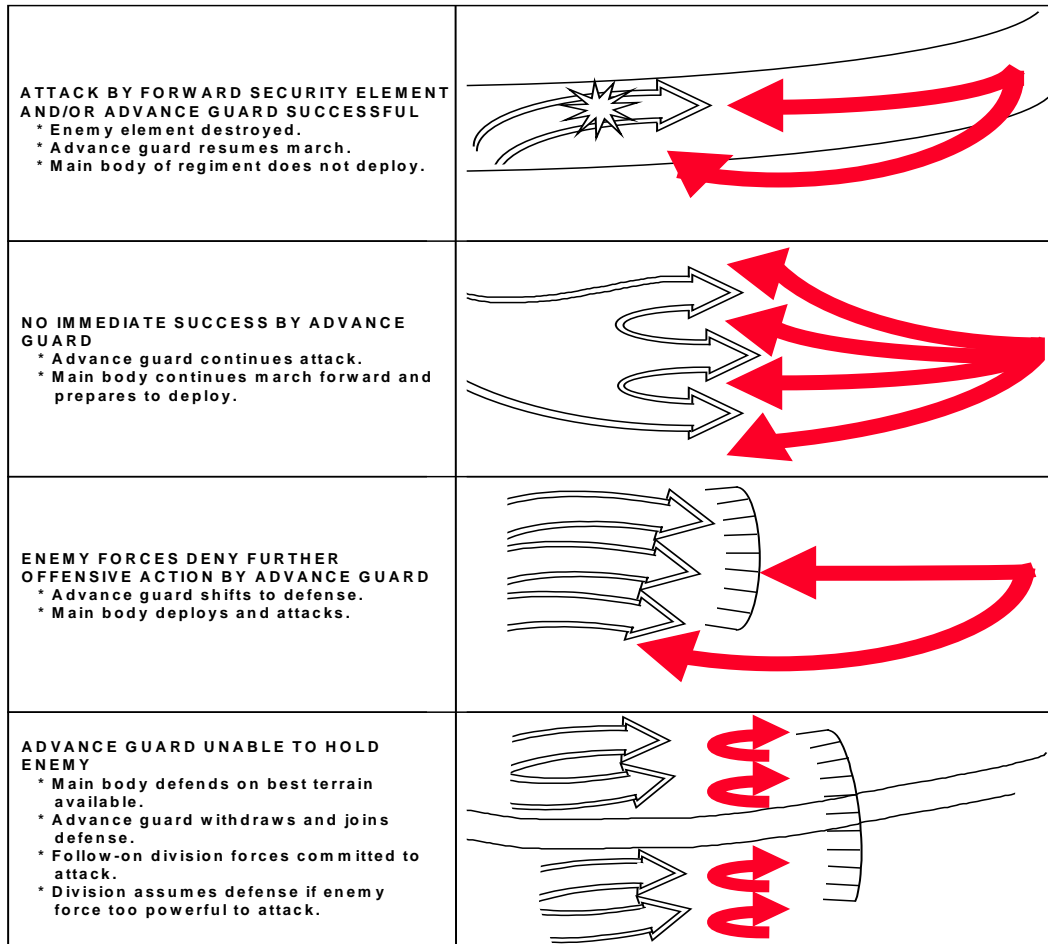


Figure 5-13. Possible outcomes of advance guard action in meeting battle.

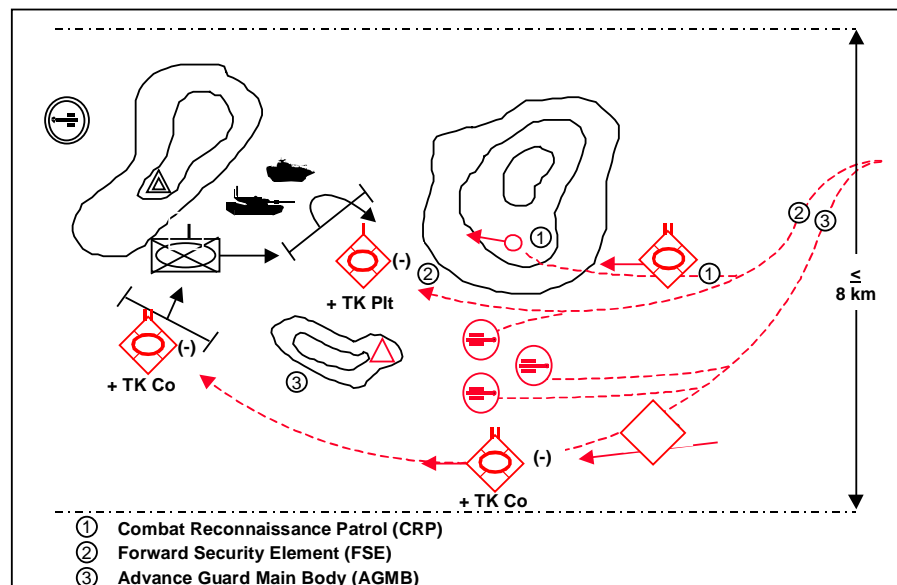


Figure 5-14. Advance Guard Actions

COMBAT RECONNAISSANCE PATROL (CRP) / FORWARD PATROL

Upon contact, actions of the CRP/Forward patrol are:

- Report contact to the advanced guard commander.
- Attempt to penetrate to the BLUFOR main force, bypassing his advance elements.
- Perform chemical and engineer reconnaissance.
- Collect all information on the BLUFOR that will expedite the commander's decision.

Build-up of Firepower (CRP/Forward Patrol)

Time: **0 minutes**
 Forces Committed: **3 BTRs**

FORWARD SECURITY ELEMENT (FSE)

Actions of the FSE, moving in column behind the CRP(s) by up to 10 kilometers, are:

- Advance at maximum speed.
- Engage the BLUFOR with all weapons.
- Develop the fight.
- Seize and hold a position until arrival of the advanced guard main body.

Build-up of Firepower (FSE)

Time: **+20 minutes**
 Forces now committed: **11 BTRs**
3 Tanks
6 Mortars
6 Howitzers, 122mm

ADVANCE GUARD MAIN BODY (AGMB)

At the time of initial contact, the advance guard main body is moving in march column 5 to 10 kilometers behind the FSE. The commander:

- Defines the plan for the engagement.
- Issues orders to the commanders of the CRP and FSE.
- Moves forward, with the artillery commander, at maximum speed to an observation point.
- Issues orders for the deployment of the advance guard main body.
- Launches the attack

Build-up of Firepower (Advance Guard)

| | | |
|-----------------------|----------------------------|--------------------------------------|
| Time: | +60 minutes | |
| Forces now committed: | 50 BTRs | 2 Antiaircraft Guns |
| | 10 Tanks | 6 AT-4s and 9 AT-7s |
| | 6 Mortars | 3 recoilless guns, 73mm |
| | 18 Howitzers, 122mm | 6 Automatic Grenade Launchers |

c. Pursuit. The OPFOR defines pursuit as a type of offensive conducted against a withdrawing BLUFOR. The goal of a pursuit is to complete the destruction of, or capture the BLUFOR.

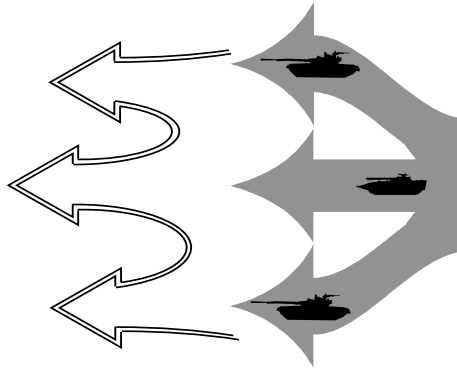
(1) The three forms of pursuit are shown in *Figure 5-15*.

(2) Characteristics of the Pursuit:

- Centralized planning.
- Decentralized execution.
- Artillery allocated to maneuver battalions.
- Extensive use of forward detachments (both heliborne and ground) to seize key terrain to block the BLUFOR's withdrawal routes.
- Heavy emphasis on reconnaissance.

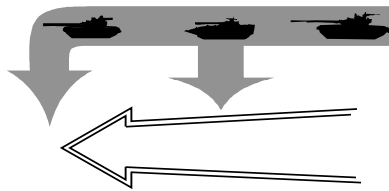
FRONTAL PURSUIT:
Used at initial enemy
withdrawal to:

- * Pressure the enemy.
- * Limit maneuverability.
- * Delay withdrawal.
- * Force enemy to deploy.



PARALLEL PURSUIT:
High speed pursuit to:

- * Permit flank attack.
- * Cut off withdrawal routes.



**COMBINATION
FRONTAL AND
PARALLEL PURSUIT:**
Combines both methods of
pursuit to maintain high rate
of advance with continual
force to hinder disengagement
and cut withdrawal routes.

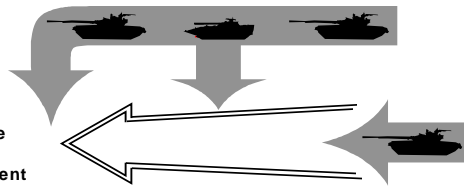


Figure 5-15. Forms of Pursuit.

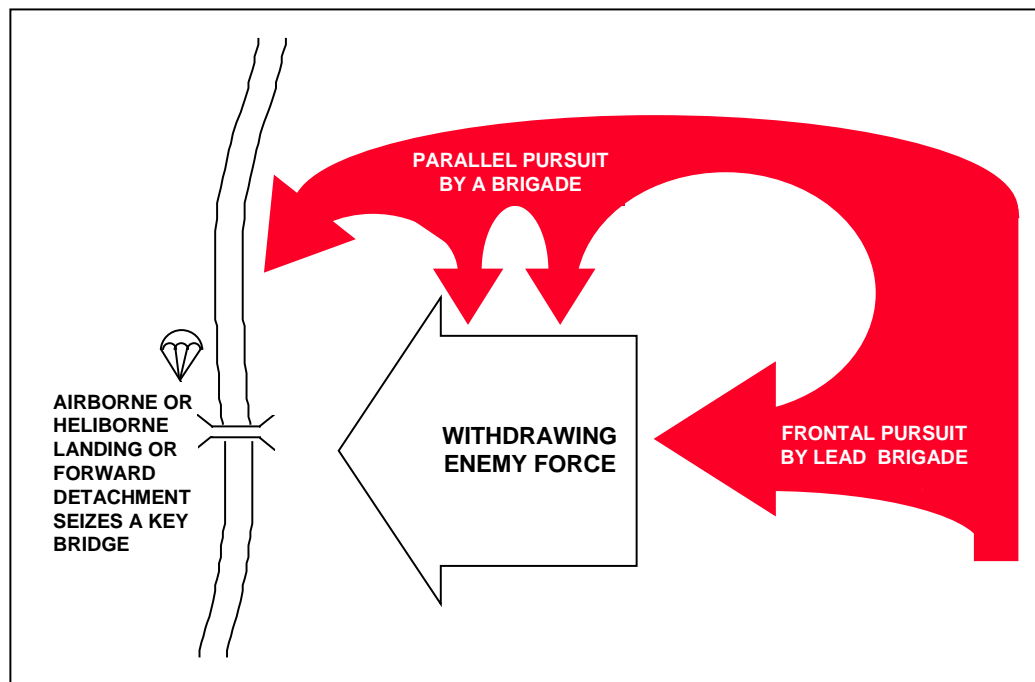


Figure 5-16. Example of a Pursuit.

Note: The OPFOR are represented by the shaded arrows.

5-4 MISSIONS.

During an attack against a defending enemy, units will be assigned a mission (objective).

a. Missions contain two elements:

- The destruction of the BLUFOR with a zone.
- The seizure of an assigned line.

b. Two Types of Missions:

- Immediate: Usually involves the destruction of the BLUFOR's main force and the seizure of a line from which to begin exploitation.
- Subsequent: Results in the complete destruction of the BLUFOR and the seizure of a line deep in the BLUFOR's rear.
- Each unit's subsequent mission corresponds to its next higher headquarters' immediate mission.

c. Mission Depth. (See Figure 5-17) Depends on:

- The relative strength of friendly and BLUFOR forces.
- The operational functions of the friendly and BLUFOR (e.g. conducting a supporting attack as opposed to conducting the main attack or having a mission to screen rather than to defend).
- The terrain.
- Most importantly, the **level of preparation of the BLUFOR's defense**. The more prepared the BLUFOR's defense, the shallower the depth of the mission. The less prepared, the deeper the mission.

d. Mission factors.

- Forward detachments may receive terrain-oriented missions, such as river crossing sites or mountain passes.
- The line of a unit's immediate mission is normally the planned employment line for the second echelon.
- After the commitment of the second echelon, both the first and second echelons continue to advance to the subsequent mission.
- Brigades and battalions may be given a direction of advance to follow after accomplishing their subsequent missions.
- Units do not normally stop to consolidate after accomplishing their missions. The advance is to continue without interruption.
- OPFOR units normally do not stop on objectives or mission lines and consolidate; they continue the attack deeper into the BLUFOR rear.

| OPFOR First Echelon | IMMEDIATE | SUBSEQUENT | |
|---------------------------|---------------------------|--|---------------------------|
| | Destroy/Take Positions of | Complete Destruction of | Destroy/Take Positions of |
| DIVISION (Day 2-4) | Rear of Division | Rear of Division | Corps |
| DIVISION (Day 1) | Reserve Bde of Division | Reserve Bde of Division | Rear of Division |
| BRIGADE | Rear of 1st-Echelon Bde | Rear of 1st-Echelon Brigade | Reserve Bde of Division |
| BATTALION | Rear of 1st-Echelon Bn | Rear of 1st-Echelon Bn | Rear of 1st-Echelon Bde |
| COMPANY | Rear of 1st-Echelon Co | Direction of Advance (Toward Bn Immediate Mission) | |
| PLATOON | Rear of 1st-Echelon Plt | Direction of Advance (Toward Co Immediate Mission) | |

Figure 5-17. Mission Depths Against a Partially Prepared Defense.

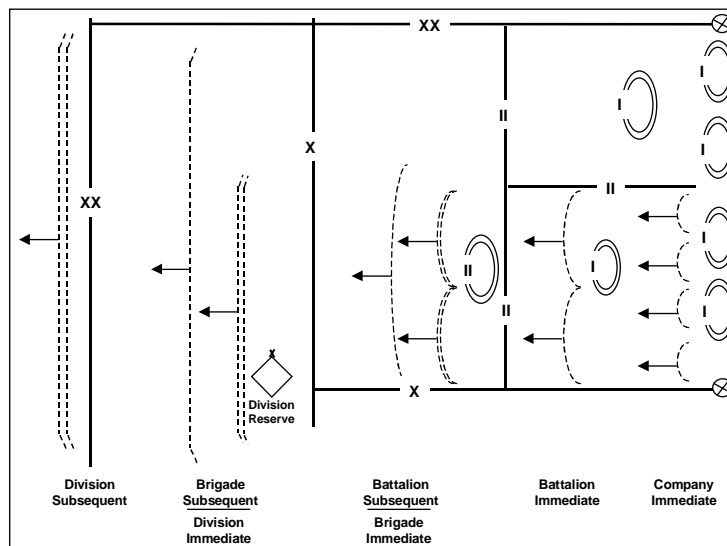


Figure 5-18. Missions Against a Partially Prepared Defense.

5-5 RECONNAISSANCE IN THE OFFENSE.

The OPFOR considers reconnaissance the most important element of combat support. All commanders and staffs organize reconnaissance to acquire information about the BLUFOR's weapons of mass destruction; force disposition and intentions; and terrain and weather in the area of impending combat. This information is crucial to the planning process for command and control systems. Reconnaissance can decisively influence the outcome of a battle, operation, or campaign. See *Section 1-11* for Reconnaissance Task organization.

a. Army Group reconnaissance:

- Locate the most critical targets, to include:
 - NBC and high-precision weapons.
 - Intelligence gathering assets
 - Higher headquarters and communications centers.
 - General support artillery groups.
 - Operational-strategic groupings and their movements.

b. Army reconnaissance:

- Missions:
 - Contents of airfields and army aviation forward operating bases.
 - Major concentrations of reserves.
 - Unit boundaries.
 - Location and extent of defended areas.
 - The BLUFOR's combat capabilities and intentions.

c. Division reconnaissance:

- Operate out to approximately **50** kilometers.
- Airborne qualified long-range reconnaissance company up to **100** kilometers deep without vehicles.
- Missions:
 - Locating, identifying, and reporting BLUFOR NBC and high precision weapon delivery means, headquarters, communications centers, troop concentrations, and movements of BLUFOR units.
 - Determining the strength and dispositions of the BLUFOR's defenses and locating his boundaries.
 - Providing topographical information concerning routes to, or bypasses around, BLUFOR positions as well as concerning lateral routes.
 - Identifying the extent and depth of minefields and the types of mine employed (assessing obstacles and possible crossing points).

- Establishing the extent of zones of contamination.
- Identifying potential communications facilities and other sites for use by their own forces.

d. **Special brigade reconnaissance** troops carry out reconnaissance, operating from up to **25 to 30** kilometers forward of the OPFOR line of contact. They might operate out to a maximum distance of 50 kilometers.

5-6 FIRE SUPPORT.

In highly mobile, fluid battles, a significant proportion of the available artillery may be decentralized to lower commanders. With organic artillery and additional assets allocated from higher levels, commanders form army artillery groups (AAGs), army rocket artillery group (ARAG), division artillery groups (DAGs) and brigade artillery groups (BRAGs). Individual maneuver battalions can also receive up to a battalion of artillery in an attached or supporting role.

a. Phases of Offensive Fire Support.

- (1) **Phase I - Fire Support of a Force's Movement Forward.**
 - Long-range fires to protect a force moving from its assembly area to its line of deployment into prebattle formation.
 - Targeted against most dangerous BLUFOR long-range weapons capable of striking the unit.
 - Could begin more than an hour before the support force reaches the forward edge of the BLUFOR's defense.
- (2) **Phase II - Fire Preparation.**
 - Seeks to annihilate or neutralize BLUFOR weapons systems, C2, and troop formations.
 - Immediately precedes the attack.
 - Nature of the BLUFOR defense and the quantity and type of fire support available determine the length and organization of the preparation. May last **50 minutes or more**. Could be much shorter if the BLUFOR is weak and/or is occupying unprepared positions.
 - Initiation of phase linked to the supported maneuver formation deploying to prebattle formation.
- (3) **Phase III - Fire Support of the Attack.**
 - Starts immediately after the end of the preparation (no more than **2-4 min**) and continues until the BLUFOR's first tactical echelon has been over run.
 - Seeks to annihilate or neutralize BLUFOR troops and weapon systems directly in front of the attacking forces.
- (4) **Phase IV - Fire Accompaniment.**
 - Supports advance of attacking forces into the depth of the BLUFOR defense.
 - Supports commitment of second-echelon forces.
 - BLUFOR reserves are a priority target.

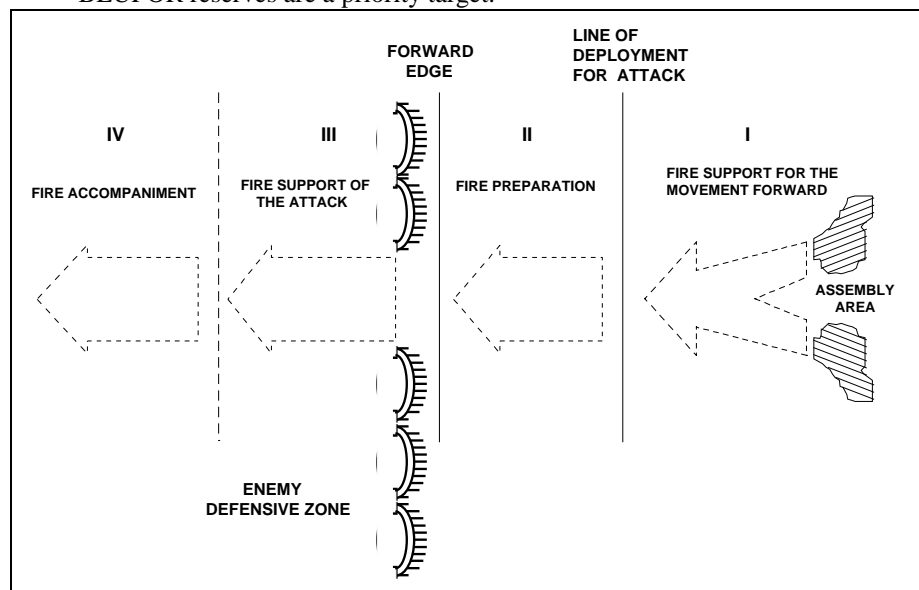


Figure 5-19. Offensive Phases of Fire Support.

b. Artillery Norms.

- (1) **Density Norms.** These figures represent fires massed and not to the positioning of artillery units.
- Attack of a well-prepared defense on the main axis: **60 to 120 tubes** of artillery per km of frontage in the main axis.
 - Attack of an unprepared defense on the main axis: **60-80 tubes per km.**
 - Attack of a supporting axis: **40 tubes per km.**
- (2) **Ammunition Expenditure Norms.**
- *Figure 5-20* is a sample of the ammunition expenditures required to produce a desired effect on a particular target using standard HE rounds.
 - Similar tables exist for a wide variety of situations and targets. They are used for fire support planning.

| TARGET | REQUIRED EFFECT | Rifled Barrel | | | | | | | Mortars | | | | Rocket Artillery | | |
|--|-----------------------------|------------------------|-----|-----|-----|-----|-----|-----|---------|-----|-----|-----|------------------|-----|-----|
| | | Caliber in Millimeters | | | | | | | | | | | | | |
| | | 76 | 85 | 100 | 122 | 130 | 152 | 203 | 82 | 120 | 160 | 240 | | | |
| Missile Launcher | Target Annihilation | 800 | 720 | 540 | 300 | 280 | 200 | 70 | | | 140 | 60 | 510 | 360 | 200 |
| Bty (plt) of armored SP arty (mortar) | Target Neutralization | 1000 | 900 | 720 | 450 | 360 | 270 | 120 | | 450 | 220 | 120 | 560 | 400 | 240 |
| Bty (plt) of unarmored towed arty dug-in (mortar) | Target Neutralization | 540 | 480 | 360 | 240 | 220 | 180 | 100 | 400 | 240 | 160 | 100 | 400 | 320 | 180 |
| Bty (plt) of unarmored towed arty in open (mortar) | Target Neutralization | 250 | 220 | 150 | 90 | 80 | 60 | 30 | 180 | 90 | 40 | 20 | 150 | 120 | 60 |
| SAM Bty | Target Neutralization | 250 | 240 | 200 | 150 | 150 | 100 | 60 | | | | | | 200 | 100 |
| Signal & RADAR vans in open | Target Neutralization | 420 | 360 | 280 | 180 | 180 | 120 | 60 | 350 | 180 | 80 | 40 | 300 | 340 | 120 |
| Dug-in troops & weapons in prepared strongpoint | Neutralization of 1 hectare | 480 | 450 | 320 | 200 | 200 | 150 | 60 | | 200 | 100 | 50 | 320 | 240 | 100 |
| Dug-in troops & weapons in hastily prepared position | Neutralization of 1 hectare | 400 | 350 | 250 | 150 | 150 | 110 | 45 | 300 | 140 | 85 | 45 | 240 | 180 | 80 |
| Troops & weapons in assembly area in open | Neutralization of 1 hectare | 50 | 45 | 30 | 20 | 20 | 15 | 5 | 35 | 10 | 8 | 4 | 10 | 8 | 5 |
| CP in dug-out shelter with overhead cover | Neutralization of 1 hectare | 480 | 450 | 320 | 200 | 200 | 150 | 60 | | 200 | 100 | 50 | 320 | 240 | 100 |
| CP in open or vehicle | Neutralization of 1 hectare | 120 | 100 | 80 | 50 | 50 | 40 | 15 | | 25 | 20 | 10 | 30 | 20 | 15 |
| ATGM or AT gun in open | Target Neutralization | 250 | 240 | 180 | 140 | 140 | 100 | 90 | 240 | 140 | 80 | 35 | | | |

Figure 5-20. Sample Ammunition Expenditure Norms.

Notes:

1. Reduce expenditure by 25% when engaging with observed fire or adjusting from a known point.
2. Increase expenditure by 10% when range to target is greater than 10 km.
3. To achieve expenditure norms for annihilation multiply rounds required for suppression by three.

c. Types of Offensive Fire.

(1) **Fire Assault**

- Characterized by surprise and a high density of fires.
- Seeks to annihilate the targets.
- Normally the predominate form used during the preparation phase.
- Usually do not exceed **15-20 minutes**.
- More than one fire assault may be conducted during the preparation phase.
- Conducted against both point and area targets.
- Normally involves all or most of the artillery allocated to a division or army.

(2) **Controlling Fires.**

- Conducted against a target during the interval between fire assaults.
- Denies the BLUFOR the freedom to conduct combat activity or to escape before next fire assault.
- Normally conducted by a single battery.

(3) **Fire Concentration.**

- Conducted against BLUFOR troop concentrations, strongpoints, artillery batteries, C2 facilities and other such targets.
- May be conducted by several batteries or battalions.
- All weapons fire at once on the center of the target area.
- (4) **Massed Fires.**
 - Conducted by all or most of a unit's artillery with the goal of destroying a target in the shortest possible time.
 - May take the form of one large fire concentration or several concentrations fired simultaneously.
- (5) **Successive Fire Concentrations.**
 - Conducted when the supported maneuver unit has begun its final assault.
 - Provides for the successive neutralization or annihilation of specific targets or target groupings.
 - May be done in the defense to support counterattacks.
 - First line of concentration in on the BLUFOR's forward positions. Subsequent lines are 300 to 1000 m apart through the depth of the BLUFOR's position.
 - Fires are shifted on the order of the maneuver commander.
- (6) **Rolling Barrage.**
 - Similar to successive fire concentration in its conduct but evenly distributes fires across the width of the attack axis than concentrating them on selected targets.
 - Phase lines are **400 to 800 m** apart. Intermediate lines are 100 to 200 m apart. Fire duration on phase lines is **at least 5 minutes**. On intermediate lines, duration is 1 or 2 minutes.
 - Normally, a rolling barrage is conducted through the depth of the BLUFOR's first echelon battalion.
 - Because of the high ammunition expenditure required, the rolling barrage is not commonly used. May be used to support the penetration of a well-prepared defense or the crossing of a water obstacle.

5-7 ANTITANK.

The OPFOR can employ the **antitank (AT) reserve** as a blocking force against a BLUFOR counterattack during the offense, and it also can cover threatened areas and open flanks. It can be reinforced with engineer assets, usually in the form of a **mobile obstacle detachment (MOD)**.

Missions that commanders may assign to an AT reserve include, in the offensive (or meeting engagement)—

- Repelling counterattacks.
- Protecting the flanks of a unit or a gap in deployment.
- Covering the commitment of a second echelon.
- Consolidating on captured lines.
- Gaining time for the mounting of a counteroffensive.
- Sealing off encircled forces.

5-8 ENGINEER.

a. Engineer Reconnaissance Patrol (ERP)

- Typical missions include collecting information on roads, obstacles, water obstacles and water supplies.

b. Movement Support Detachment (MSD)

- Ad hoc grouping formed from division and brigade engineer units.
- Missions include:
 - Route reconnaissance
 - Mineclearing
 - Repair/reinforcement of bridges
 - Creation of tracked vehicle routes
 - Construction of bypasses
 - Route marking

- Division:
 - Can form up to three MSDs.
 - Each may have one or two of the following types of equipment: DIM, BAT, IMR, Tanks with KMT-4/6 or 5M, Tanks with BTU, MTU-20/MT-55, TMM, or Truck mounted crane.
 - Operates on main routes.
 - Brigade:
 - Can form one MSD normally composed of an engineer platoon, one or two dozers and up to three tanks with blades or plows.
 - Operates on secondary routes.
 - MSD is normally organized in three elements:
 - Reconnaissance and obstacle-clearing group
 - One or two road/bridge construction and repair groups
 - Route marking group
 - In the march, MSDs normally move behind the CRPs.
- c. **Mobile Obstacle Detachment (MOD)**
- Ad hoc grouping formed from division and brigade engineer units.
 - Mission: **Deny key terrain** to the BLUFOR, particularly those avenues of approach that are most suited for tanks. (Figure 5-21)
 - Composition:
 - A divisional MOD normally consists of mechanical minelaying elements equipped with GMZs.
 - A brigade MOD normally consists of one minelaying platoon of three PRP-3. It is sometimes reinforced with a motorized rifle platoon.
 - MODs normally **operate with antitank reserves** to provide flank protection and to repel counterattacks.
 - In the march, it normally travels between the advance guard and the main body.

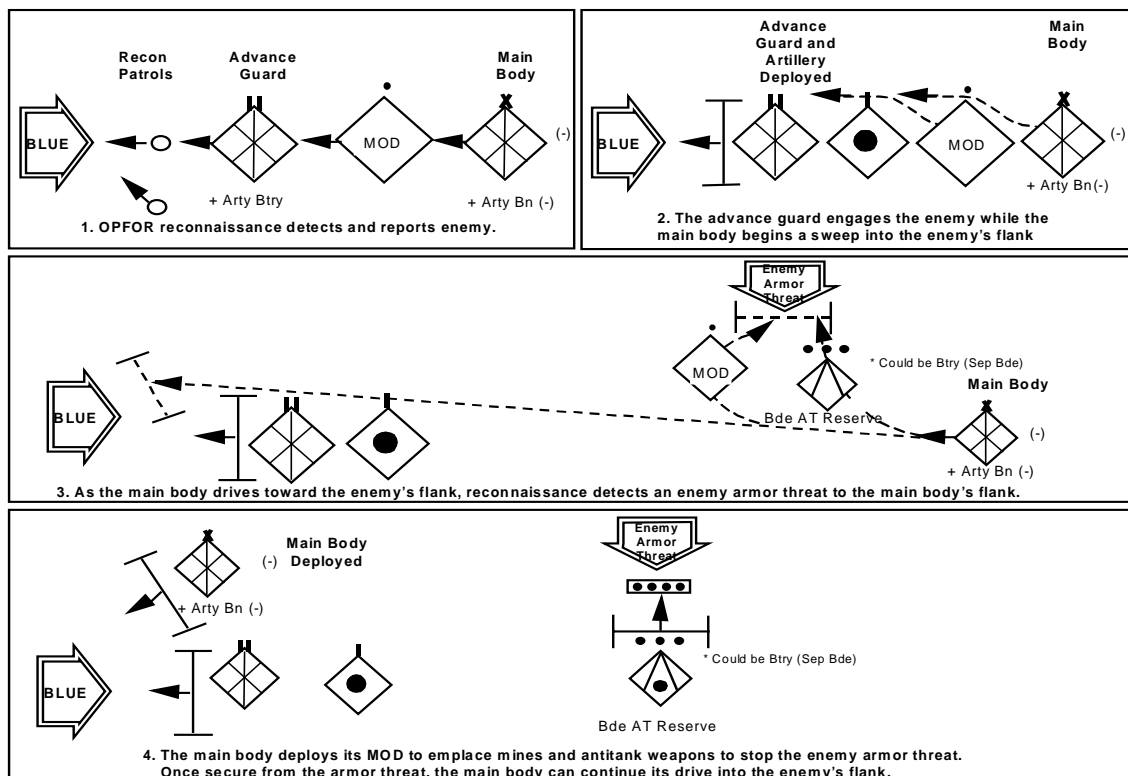


Figure 5-21. MOD in a Meeting Battle.

d. Mineclearing

- During marches, the MSD is responsible for mine clearing on the routes.
- During assaults, the maneuver unit is responsible.
 - Normal breaching method is to use mine plows/rollers.
 - Plow/roller tanks may tow a line charge behind them to detonate once they are through the minefield in order to clear the full width of the lane.
- Normally there is one plow tank per tank platoon and one roller-plow tank per company. *Figure 5-22* illustrates a tank battalion attacking through a minefield.
- Number of lanes cleared is dependent on terrain and mission:
 - Battalion on main attack axis: 6-8 lanes.
 - Battalion on supporting axis: As few as 2.

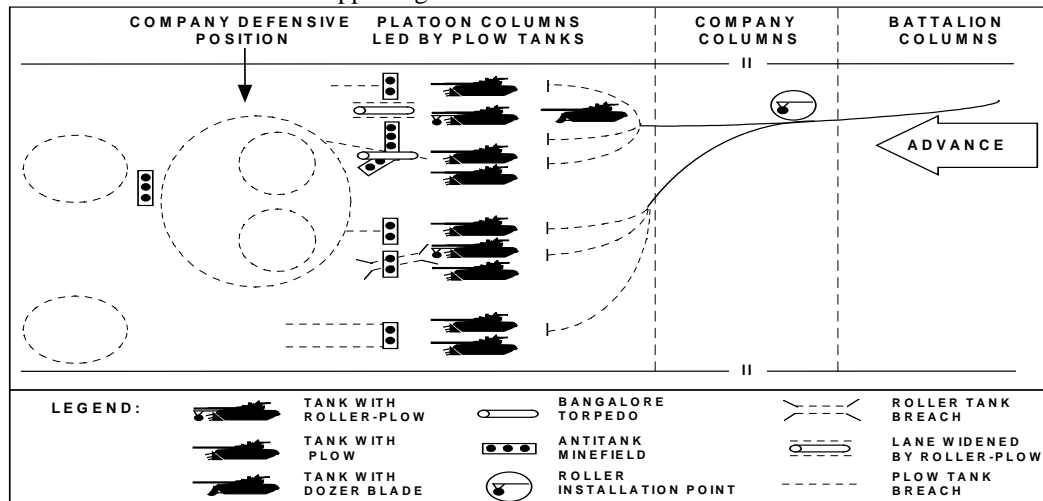


Figure 5-22. Tank Battalion Attacks through a Minefield.

5-9 COMMAND AND CONTROL.

a. Maneuver Command and Control Posts.

(1) Division.

- Forward Command Post
 - Normal location of the division commander.
 - Commander is usually accompanied by the operations officer and the chief of missile troops and artillery
 - Is normally located **2 to 5 km** behind the FLOT in the attack.
 - 100% mobile.
- Main Command Post
 - Under the control of the chief of staff.
 - Located **10 to 15 km** behind the FLOT.
 - 100% mobile.
- Rear Command Post
 - Headed by the deputy commander for the rear.
 - Located **25-35 km** behind the FLOT.
- Alternate Command Posts
 - Established as required.

(2) Brigade.

- Main Command Post.
 - Normal location of brigade commander.
 - Also location of chief of staff, plus the commanders of the brigade's engineer and chemical protection units.

- Supporting artillery commanders normally co-locate with this CP.
 - Consists of several armored vehicles.
 - Relocates **4 to 6 times each day**.
 - Located up to **5 km** behind the FLOT.
- Rear Control Post.
 - Headed by the deputy commander for rear services.
 - Consists of 1 or 2 vehicles.
 - Located up to 10 km behind the FLOT.
- (3) **Battalion.**
 - Command Observation Post
 - Only CP at battalion level.
 - Consists of 3 or 4 vehicles.
 - Located within **2 to 3 km** of FLOT.
- b. **Tactical Communications.**
 - (1) **Division.**
 - HF and VHF radio (Primary communication means)
 - VHF and UHF multichannel radio relay
 - SHF troposcatter systems
 - Wire
 - Messenger
 - Visual and Audio
 - (2) **Brigade and Below.**
 - HF and VHF radio (Primary communication means)
 - Wire
 - Messenger
 - Visual and Audio
- c. **Procedures.**
 - (1) Radio silence is normally observed when defending and when in or departing assembly areas.
 - (2) In an attack against a defending enemy, radio silence is lifted when the artillery preparation begins.
 - (3) In a meeting battle, radio silence is lifted upon contact with the BLUFOR.
 - (4) Few secure nets exist below brigade level.

5-10 NBC.

- a. **Chemical.**
 - (1) **Available Agents.**
 - Nerve - GB, GD and V
 - Blood - AC
 - Blister - HO, HN, L, HL and CX
 - Incapacitant
 - Irritant - DA, DM, CM, CS and PS.
 - (2) **Delivery Means.**
 - All tube artillery systems 122mm and larger
 - Most mortars
 - All MRL systems
 - FROG, SCUD and SS-21 SSM
 - Antipersonnel landmines
 - Aircraft (bombs and spray)
 - (3) **Employment.**
 - Offense Likely targets:
 - Troops in defensive positions astride attack axes

- NBC delivery systems
- Troop concentrations
- CPs
- Bypassed pockets of resistance
- Non-persistent agents would be used on planned attack axes.
- Persistent agents would be used deep and on the flanks.

b. Nuclear

(1) **Delivery means.**

- All tube artillery systems 152mm and larger.
- 240mm mortar.
- FROG, SCUD and SS-21.
- Various aircraft.

(2) **Likely targets:**

- NBC delivery means.
- CPs of divisions and higher formations.
- Prepared defensive positions.
- Reserve and troop concentrations.
- Supply installations.
- Communication centers.
- Key air defense sites.

c. Flame.

(1) A **flamethrower battalion** is normally assigned to each army. Little is known about its internal structure or how much equipment it has.

(2) **Equipment Capabilities.**

- *LPO-50*: Light infantry flamethrower.
 - Man-portable.
 - Range: 50-70 m.
- *TPO-50M*: Heavy infantry flamethrower.
 - Mounted on two-wheel cart.
 - Range: 180 m.
- *RPO*: Shoulder fired flamethrower.
 - Fires rocket propelled round containing 4 liters of napalm.
 - Range: 180-200 m.
- *RPO-A*: Shoulder fired flamethrower.
 - Fires a 2 liter round out to 400 m.
- *TO-55*: Flamethrower tank.
 - Variant of T-55.
 - Flamethrower nozzle is mounted beside the main gun and does not interfere with its use.
 - Fuel Capacity: 460 liters.
 - Range: 200 m.

d. Smoke.

(1) **Equipment Capabilities.**

- TDA-M: Smoke Generator.
- GAZ-66 truck variant.
 - Contains sufficient fog oil for four hours of continuous operations.
 - Under favorable conditions, one vehicle can create a smoke screen 800-1000 m long and 100 m wide.
- VEES - Vehicle Engine Exhaust Smoke System
- Various smoke pots, drums, barrels and grenades.
- Artillery smoke rounds

(1) **Blinding.**

- Positioned on BLUFOR weapon systems and observers.
- Delivered by artillery and mortars.

- Positioned on or directly in front of friendly troops.

- Delivered by smoke generating vehicle, VEESS, smoke pot, grenade, drum and barrel.

- Intended to protect electro-optical devices from the effects of laser radiation or to shield from the effects of the flash and thermal radiation of a nuclear detonation.

- Positioned in front of, around or above friendly forces.

- Intended to deceive the BLUFOR as to the actual location and activity of friendly forces.

- Positioning depends on the situation.

- Used to mark BLUFOR positions or, occasionally, friendly avenues of approach.

Priorities in deploying air defense assets are usually to protect command posts, then artillery groupings and first-echelon forces.



5-12 CLOSE AIR SUPPORT.

a. Air Support Missions.

- *On Call*: Preplanned target but executed on order of the supported commander.
- *Pre-Planned*: Executed according to detailed plan.
- *Immediate*: Unplanned missions flown in response to request of ground commander.

b. Phases of Air Support.

- I - Support for movement forward
- II - Air Preparation
- III - Air Support
- IV - Air Accompaniment

c. Key Points.

- Attack helicopters will provide most of the close air support.
- Air support plan will be fully coordinated with the fire support plan.
- Forward air controllers are normally found at brigade level and only in those brigades scheduled to receive air support.
- Battalions will have FACs only if the battalion has a particularly important or difficult mission such as acting as a forward detachment.
- In the offense, air support will normally be massed on the main axis.
- An operational commander normally withholds part of his assets in order to be able to respond to immediate missions that may arise during the course of an operation.

5-13 RIVER CROSSING OPERATIONS.

a. Methods.

- (1) **Crossing a River**: Contact is not expected and an administrative crossing is possible.
- (2) **Forcing a River** (Assault crossing): Contact with the BLUFOR is expected and an assault crossing will be necessary.

- Assault crossings may be done in one of two ways:
 - From the march (preferred method)
 - From positions in direct contact
- Assault crossing is done by unit using organic assets.
 - Crossing is preceded by reconnaissance.
 - BTRs/BMPs lead assault covered by artillery, smoke and direct fire.
 - Heliborne forces may be used to seize a bridgehead.
- After mechanized infantry or heliborne troop establishes bridgehead, tanks cross the obstacle via ferry, fording or snorkeling.
- Ferry sites and bridges are established for use by non-amphibious vehicles and follow-on elements.

b. Brigade.

- Typical brigade crossing sector: 10 km wide.
- A MIBR is expected to be able to cross its combat elements over a 200-m wide river (2 m/sec current) in **2 to 3 hours**.

c. Division:

- Typical divisional crossing sector: 20 to 30 km wide.
- A MID is expected to be able to cross its combat elements over a 200 m wide river (2 m/sec current) in **5 to 6 hours**.

5-14 AIRBORNE OPERATIONS.

a. Key Concepts.

- Rapid deployment over great distances.
- Virtually all-weather employment.

- Self-sufficient and air-droppable.
- Trained to fight across the range of military operations.
- Battalion-sized operations most common.
- Land in unopposed areas, then move to objective, defend until linkup occurs.
- Usually employed by the army commander.
- b. **Support to the Offense.**
 - Seize vital ground, bridgeheads, defiles.
 - Destroy higher level C2, political as well as military.
 - Block routes used by reserves or withdrawing forces.
 - Destruction of logistics installations, especially fuel and ammunition.
 - Disrupt transportation infrastructure.
- c. **Conduct of Airborne Operations.**
 - Requires air superiority, even if achieved only temporarily locally.
 - Favorable combat ratios in the landing zones and objective area are essential.
 - A battalion can be lifted in a single lift.
 - If an entire brigade is needed, airborne elements would have to be shuttled:
 - first battalion seizes the airfield.
 - follow-on forces would then be air-landed.
 - Speed and Surprise are critical.
 - Supported by air and missile strikes, and artillery.
- d. **Once on the ground:**
 - Consolidate and conduct reconnaissance.
 - Move to objective in pre-battle formation.
 - Position air defense, artillery, and engineers to support the attack on the final objective.
 - Assume battle formation within 1000-200 meters of the objective.
 - Attack in one echelon against a weak BLUFOR, two echelons against a strong BLUFOR.
 - Once the objective is secure, establish 360-degree defense using unit strongpoints.
 - Either await linkup or fight back to friendly lines.
- e. **Drop Zone Selection.**
 - Typical battalion DZ is 3 km by 4 km.
 - Typical company DZ is 1 km by 1 to 1.5 km.
 - As close to final objective as possible, but no more than 20 km.

CHAPTER 6: OPFOR DEFENSIVE OPERATIONS

INTRODUCTION.

This chapter provides you with the tactics necessary for the OPFOR to successfully conduct a defense. This chapter does not cover all aspects of the OPFOR's defensive principles, planning and execution. However, it does provide the critical concepts the OPFOR follows when planning such operations.

6-1 DEFENSIVE PRINCIPLES.

OPFOR **defensive goals** include repelling attacks by the BLUFOR, inflicting maximum losses, holding important terrain and objectives and creating the necessary conditions to transition to the offense. The OPFOR employs the following principles when conducting a defense.

- Proper use of terrain
- All around protection
- Mutually supporting fires
- Proper use of reserves
- Camouflage and concealment

The time to conduct a defensive action and the type of defense the OPFOR executes is dependent upon the primary mission of the OPFOR unit, the unit(s) on the battlefield and its current location in relation to the BLUFOR. Typically, the OPFOR will assume the defense to:

- Consolidate tactical gains
- Await additional resources
- Protect a flank
- Stop a BLUFOR counterattack
- Regroup
- Free up resources for other operations
- Hold key terrain
- Await logistical support

The OPFOR may, at anytime, conduct a defensive operation. However, the actions of the BLUFOR dictate a shift to the defense. Depending on the proximity of the BLUFOR and the nature of the battle, an OPFOR unit can shift to a defense before battle occurs or during battle, under conditions of direct contact or without contact.

6-2 TYPES OF DEFENSE.

a. Defense in Direct Contact. The OPFOR transition to the defense in direct contact occurs most often during an attack. It can also occur when the OPFOR is repelling counterattacks, consolidating captured lines and securing flanks of attacking troops, or with an unsuccessful outcome of a meeting battle. The OPFOR's main defensive area will be in direct range of the BLUFOR.

b. Defense Out of Direct Contact. The OPFOR can assume a defense before the battle begins, while out of direct contact with the BLUFOR. The main difference between defense in contact and defense out of contact is the absence of a security zone in the former. Under the latter condition, the transition to a defense is made to cover areas of possible contact, to repel a possible BLUFOR attack or support the deployment of additional forces.

In a defense out of contact it is important to carefully evaluate the terrain, both in front of the forward edge of the defense and in the depth of the defense. Terrain should be selected to provide the most advantageous position for strongpoints, organizing a system of fire and good cover and concealment.

6-3 TERRAIN CONSIDERATIONS IN THE DEFENSE.

METT-T considerations are critical to the success of any OPFOR defense. The OPFOR must examine the BLUFOR situation, since the BLUFOR and his weapons systems influence the mix of weapons the OPFOR must use and the preparation needed. Whenever possible, OPFOR units select positions to take advantage of the terrain's protective features. The OPFOR selects defensive positions behind natural obstacles (mountains, trees, and thick vegetation) or in man-made terrain features that provide cover and concealment and a good field of view of the approaching opponent.

Establishing the defense when in contact with the BLUFOR limits the OPFOR's ability to prepare a good fighting position and provide cover and concealment from BLUFOR fire and observation. If the terrain permits, the

OPFOR should use a **reverse slope defense**. Part of the force remains in contact with the BLUFOR on the forward slope, while the remainder of the force prepares the position on the reverse slope.

The **advantages** of a reverse slope defense include:

- Limiting or preventing BLUFOR's observation of the defensive position.
- Attacking forces are not able to receive direct fire support from following forces.
- BLUFOR's long-range antitank (AT) fires are not effective.
- Attacking force silhouettes itself crossing the crest of the hill.
- Engineers can conduct their work out of direct fire and observation from the BLUFOR.

The **disadvantage** of a reverse slope defense is that weapon systems cannot exploit their maximum range. When possible, the OPFOR would use both a forward and a reverse slope defense to take maximum advantage of the terrain.

6-4 ORGANIZATION OF THE DEFENSE.

a. Reconnaissance. Divisional, brigade, and battalion reconnaissance elements will be located in and forward of the security zone (if established) or forward of the main defensive area.

b. Combat Security Outposts. First-echelon brigades on main avenues often form **combat security outposts**, and each forward battalion can establish such an outpost. A combat security outpost for a battalion is normally a reinforced platoon. This platoon occupies a position 2 to 3 km forward of the main defenses. *Figure 6-1* lists the conditions under which different types of security forces deploy.

(1) Missions.

- to delay, inflict losses on, and to deceive the BLUFOR about the true location of the main defenses.
- Form strongpoints forward of the main defenses. They take over the mission to delay the BLUFOR's main effort when the divisional forward detachment shifts to a secondary axis.
- Forces the BLUFOR to deploy in a position short of the main defensive belt, believing it actually is the main defensive belt.

Artillery units firing in support of the combat security outpost may have to occupy temporary firing positions farther forward than normal, even in front of the forward edge. The combat security outposts described above should not be confused with company or battalion-sized elements placed into forward positions by second-echelon brigades and/or divisions when required by the situation. These forces, too, have a mission similar to that of the forward detachments in the security zone.

| Mission | Deployed When Defending | | Command Level | | | Distance in Front of Forward Edge of Main Defense |
|-------------------------------------|-------------------------|----------------|----------------------------------|-----------------|--------------------------|---|
| | In Contact | Out of Contact | Directed By | Deploying Force | Fighting the Battle | |
| Forward Detachment in Security Zone | No | Yes | Army/ Army Corps/ Division | Division | Battalion | 15 to 50 km |
| Forward Position | Yes | Yes | Division | Brigade | Company/ Company Plus | 4 to 6 km |
| Combat Security Outpost | No | Yes | Brigade | Battalion | Platoon/ Platoon Plus | 2 to 3 km |

Figure 6-1. Types of combat security forces.

- (2) If the BLUFOR threatens to bypass or overrun the combat security outpost, the brigade commander may order it to withdraw to its position in the main defensive belt. Cover for its withdrawal can include planned fire from brigade assets, fire from the outpost's platoon and fire from tanks in ambush. The withdrawal plan provides the combat security outposts passages through the main defensive belt's obstacle system.

c. Security Zone.

- Found only in the defense out of direct contact.
- Established by order of the operational (army/army group) commander.
- Is up to 50 km deep (Army) or 15 km (Division).
- Forces in the security zone will attempt to:
 - Delay the attacking force.
 - Deceive the BLUFOR as to the location of the main Defensive area.
 - Force the BLUFOR to deploy in attack formation early.
 - Inflict maximum damage on the BLUFOR.
- Is occupied primarily by forward detachments. Artillery and AT elements may also be located in the security zone.

d. Main Defensive Area.

- Mission is to prevent BLUFOR penetrations.
- Is based on defense in depth.
- Its basic element is the **battalion defensive area**, composed of company strongpoints.
 - All weapon systems and vehicles are dug in as time permits.
 - Fire sacks are used to destroy BLUFOR forces either immediately forward of or within the main defensive area.
 - Counterattacks are planned for at battalion and above.
 - Disposition of forces within the main defensive area is situation dependent. Forces may be repositioned during defensive operations to meet the BLUFOR's main effort and disrupt his concept of battle.
 - No major differences between the main defensive area of a defense in direct contact and one out of direct contact.

An army of from two to four divisions will defend a sector from 100 to 150 kilometers wide and 100 to 150 kilometers or more deep on an important axis. Much depends on the relative strengths of the sides and on the terrain in the sector. An example is that in mountainous, desert, or arctic regions an army might hold a wider sector. While the army is on a greatly threatened key axis in normal terrain, it might defend a narrower sector. (See figures 6-2 for "rules of thumb" on unit frontages, 6-3 for an example of MID defense, 6-4 & 6-5 for MIBR in defense, 6-6 for MIB in defense and 6-7 for MIC in defense.)

| Mechanized Unit | Frontage | Gaps Between Elements | Depth |
|-----------------|-------------|-----------------------|-------------|
| Division | 20-30 km | NA | 10-20 km |
| Brigade | 10-15 km | NA | 7-10 km |
| Battalion | 3-5 km | Up to 1500 m | 1.5-2.5 km |
| Company | 1-1.5 km | Up to 300 m | Up to 1 km |
| Platoon | Up to 500 m | Up to 15 m | Up to 200 m |
| Squad | Up to 150 m | | N/A |

Figure 6-2. OPFOR unit frontages.

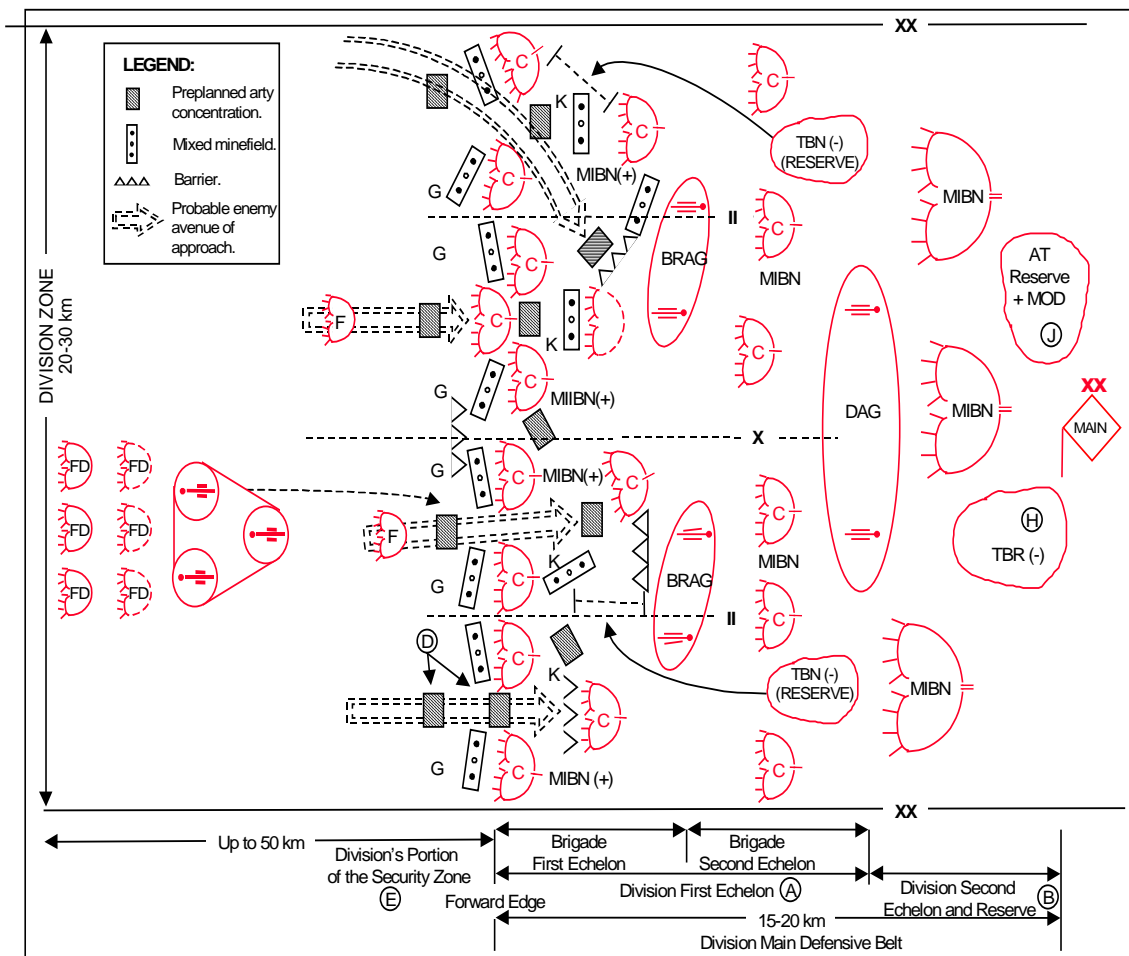


Figure 6-3 MID in the Defense (Variant)

1. The division main defensive belt is organized into **two echelons**. The first-echelon brigades form along a defensive line and comprise the main defensive belt (A). Their mission is to stop the BLUFOR in front of their forward edge. The division allocates 1/2 to 3/4 of its combat power to its first echelon. The division's second echelon (B), 1/4 to 1/2 of available strength has the mission to destroy or repel any penetration of the main belt.
2. The defense in both echelons is built upon **company-sized strongpoints (C)** unified into battalion defensive areas. Strongpoints are planned for all-around defense and sited so deliberate, pre-registered gaps (D) exist between them.
3. Divisions form a **security zone (E)** in front of their main defensive belt when assuming the defense out of direct contact. Reinforced battalions taken from second-echelon brigades are designated as forward detachments; these establish a series of reinforced company-sized strongpoints sited on BLUFOR main avenues of approach. These security zone strongpoints are to delay, disrupt, and destroy advancing BLUFOR units. First-echelon brigades may establish a forward position (F) 4-6 km from the main defensive belt. This company-sized position imitates the main defense, causes the BLUFOR to conduct premature artillery preparations, and aids the disengagement of the forward detachment. Brigades and battalions deploy combat security outposts (platoon strength) (G) in the security zone forward of their sectors.
4. The division can form a combined arms reserve (H), not more than 1/9 of its total combat power, as the commander's contingency forces. An MID holds its AT battalion, combined with an engineer mobile obstacle detachment as an AT reserve (J) to block penetrations of the first echelon and support the counterattack with fire.
5. The fire plan is based on antitank fires and integrates ATGM, AT gun, tank, BMP, attack helicopter, and indirect and direct artillery fires on accessible terrain in front of and between first-echelon strongpoints and into fire sacks (K) throughout the defensive sector.

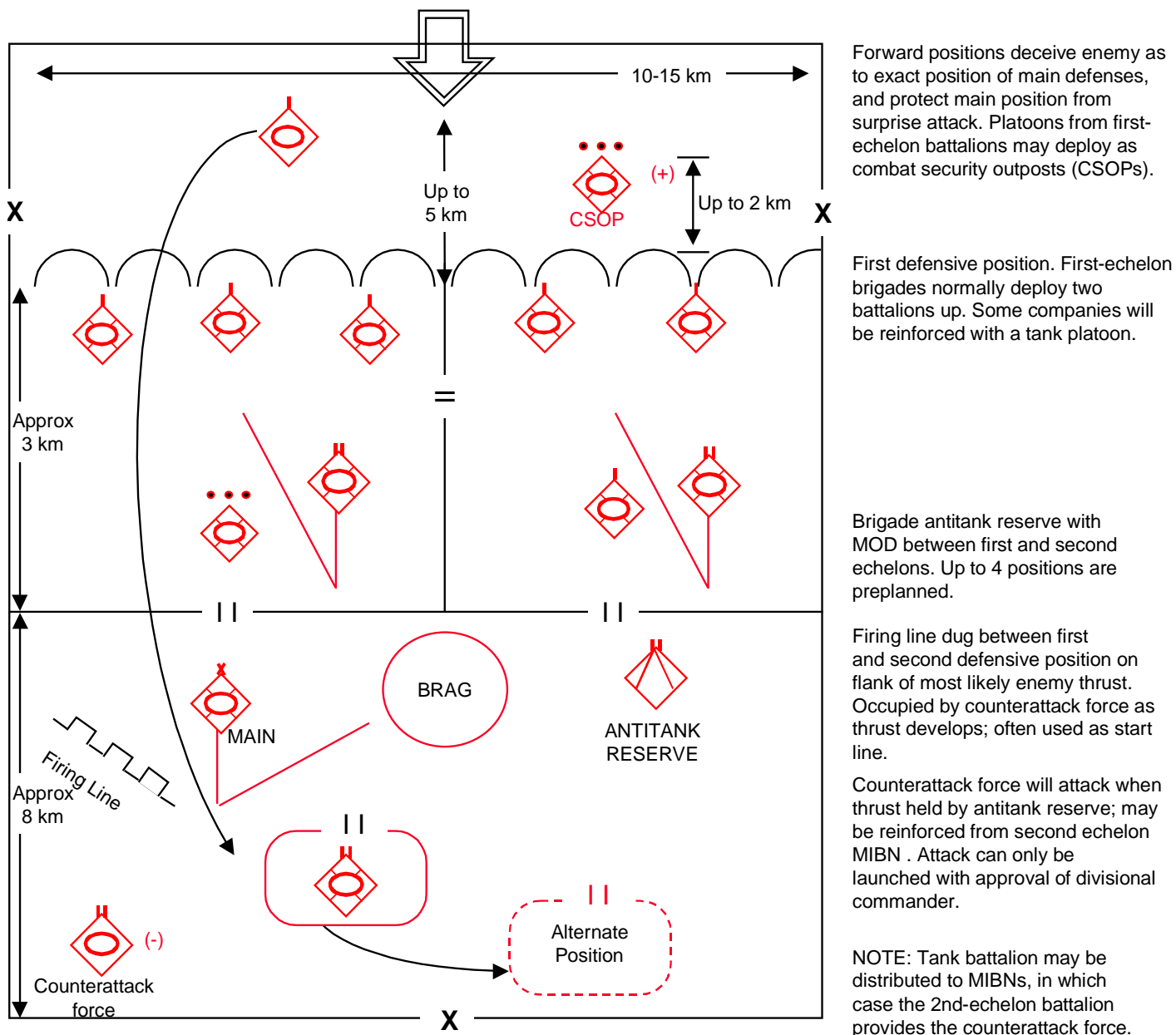
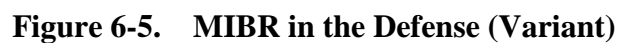


Figure 6-4. MIBR in the Defense (Variant)



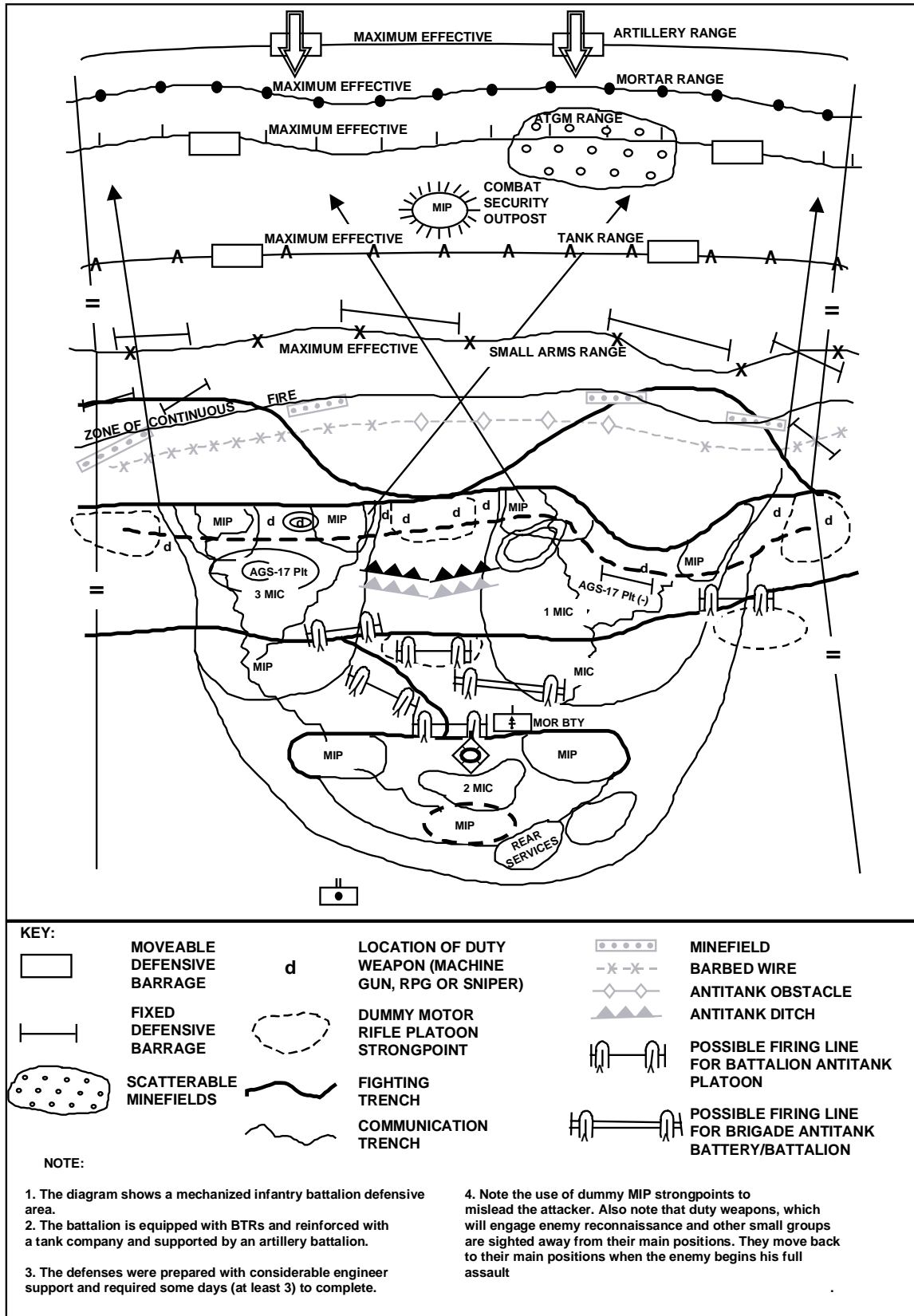


Figure 6-6 Mechanized Infantry Battalion in the Defense (variant)

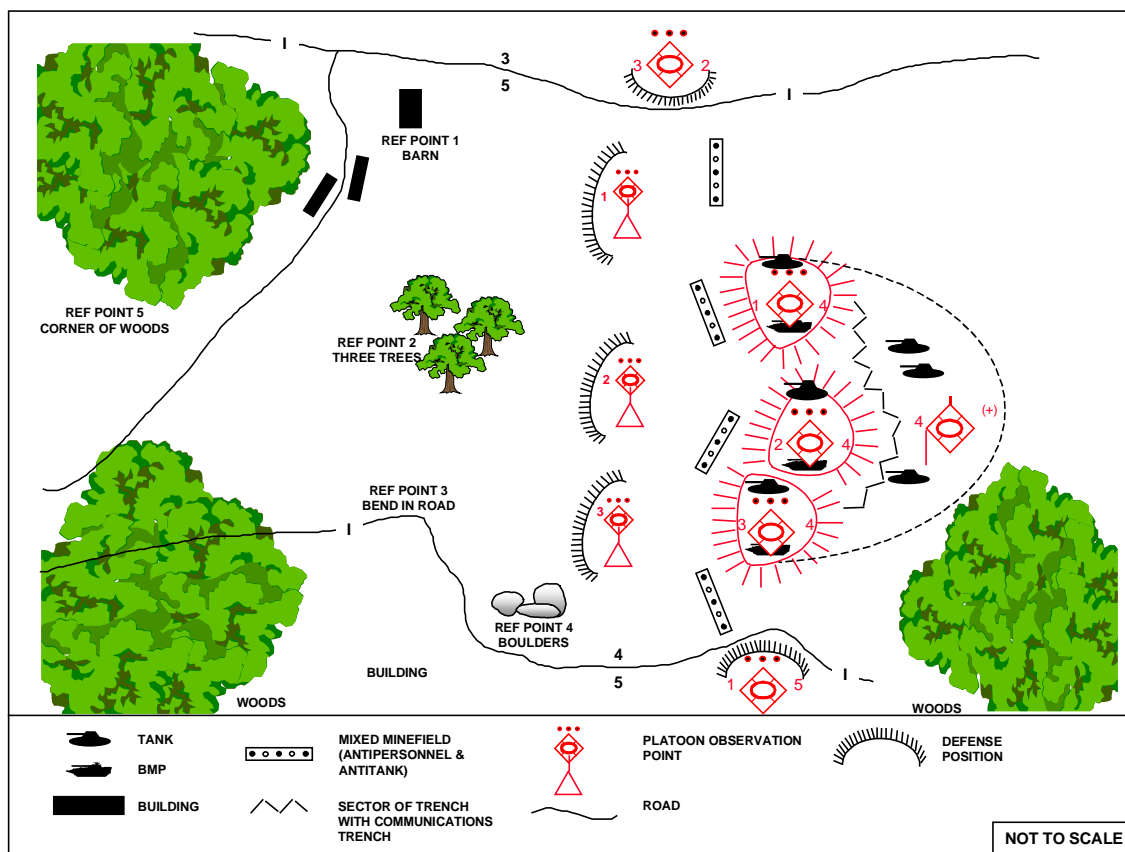


Figure 6-7. Mechanized Infantry Company (MIC) in the Defense

6-5 FORWARD DETACHMENTS.

When assuming the defense out of contact with the BLUFOR, an OPFOR division fights its assigned portion of the security zone. This zone may extend 15 to 50 km forward of the main defensive belt. Forward detachments can be employed in the security zone, along with reconnaissance patrols from the divisional reconnaissance and EC battalion. In the defense, the forward detachment has the mission of delaying, disrupting, or destroying the advancing BLUFOR. A division may employ one or two forward detachments, up to reinforced battalions in size. Forces for the forward detachment come from the division's second echelon.

A forward detachment in the division's portion of the security zone establishes a series of defensive positions sited on BLUFOR main avenues of approach. If the terrain permits, the forward detachment commander positions his companies on a major avenue to provide mutual support. Because they must cover a broad frontage, he usually deploys the battalion in a single echelon with a strong combined arms reserve of up to a company. If there are multiple avenues of approach, he may have to divide the forward detachment to cover them with individual reinforced company positions. He covers gaps or intervening terrain between the company positions with obstacles, reconnaissance patrols, and fires.

The forward detachment prepares several successive positions, as the terrain and space allow. These positions and the avenues they control receive extensive engineer preparation, including emplacement of obstacles and minefields. Of course, the division commander has to consider the tradeoff in allocating engineer effort. If he allocates more resources to the security zone, then he delays the BLUFOR longer, and gets more time to prepare the main defensive belt. On the other hand, if the commander limits the engineer effort in the security zone, he frees assets to prepare the main defensive belt more quickly or extensively.

A forward detachment's initial position is the one at the far edge of the security zone. If possible, it is on a favorable natural line; that is, a natural obstacle or defensible terrain. Subsequent positions to the rear are far enough apart to preclude the BLUFOR from engaging one and then another without displacing his indirect fire weapons. They are close enough to allow the forward detachment to maintain coordinated, continuous fires on the BLUFOR while moving from one to another.

The final position the forward detachment may occupy in the security zone is the **forward position**, about 4 to 6-km forward of the main defensive belt. Depending on the pressure the forward detachment is receiving from the attacking BLUFOR, it may occupy a prepared forward position, or it may pass through the forward position. In the latter case, companies from first-echelon brigades occupying the forward positions may cover its disengagement and rearward passage of lines. The forward position deceives the BLUFOR about the location of the forward edge of the main defensive area. It receives extensive engineer preparation to assist in this deception.

The separation of the forward detachment's positions from the division's main defensive belt requires the division commander to place artillery and air defense units in the security zone to support the forward detachment's mission. These forces also occupy prepared and camouflaged positions.

The forward detachment engages the advancing BLUFOR at long range, initially with the supporting indirect fire assets. It then engages him with direct fire systems as he closes. It may launch local counterattacks if the situation dictates. The object is to strip away the BLUFOR's reconnaissance and force him to deploy to attack the position and to expend indirect fires; this can slow and disorganize his advance. Normally, the forward detachment relocates to a subsequent position rather than become decisively engaged or bypassed. By repeating these actions, the detachment may be able to exhaust and disorganize the BLUFOR before he reaches the main defensive belt. This keeps the BLUFOR from penetrating the defense and makes him vulnerable to counterattacks.

The division commander expects the forward detachment to defend aggressively. He retains control over its successive redeployment. Without his specific permission, this forward detachment cannot relocate. The commander may need to gain time to permit the establishment of the main defensive belt. If needed, he can require the forward detachment to continue defending its position, even if this means it becomes decisively engaged or encircled.

If the battle in the security zone is not successful in destroying or halting the attacking BLUFOR, the forward detachment occupies a forward position as a last measure before returning to its parent second-echelon brigade. The OPFOR expects that, even if all goes well, the forward detachment would take losses and would not be at full capability. The forward detachment moves off the BLUFOR main avenue of approach and occupies a forward position in a less-threatened, secondary sector. The BLUFOR, advancing along his main avenue, can still encounter forward positions. These positions are occupied by companies or battalions from the second-echelon brigades and/or combat security outposts of the first-echelon brigades instead of the forward detachment.

6-6 FIRE SUPPORT.

Fire support covers all combat support provided to ground forces by missiles, artillery and aviation. The term "artillery" includes SSMs, MRLs, Guns/Howitzers and mortars 120-mm and larger antitank artillery.

a. Types of Fire. The OPFOR plans artillery defensive fires – primarily barrier fires -- to **disrupt** the BLUFOR attack.

(1) Barrier Fire. Barrier fire is a continuous curtain of defensive fire across the approach of the attacking BLUFOR. Although normally used in the defense, it also has applications in offensive operations against BLUFOR counterattacks. Barrier fire is useful with fire concentrations, massed fires, and directly aimed fire from tanks and guns. The **types of barrier fire** are:

- **Standing Barrier Fire.**

- Uses a **single line of concentration** to disrupt a BLUFOR attack. The OPFOR plans standing barrier fires well in advance.
- Projects artillery fires from likely avenues of tank approach. A ground observation point observes these fires planned in front of, and to the flanks of, the defensive positions.
- All the artillery in a formation, except rocket artillery, fires the standing barrier fire.
- Begins when BLUFOR tanks and infantry approach the planned line of fire concentration. The fires continue at rapid fire until they cut off BLUFOR infantry from their tanks and halt their attack.
- If the BLUFOR maneuvers around the fire concentration line, the fires shift to the rolling barrier fire approach.

- **Rolling Barrier Fire.**

- Lands on **several lines of concentration**. Each line lies successively closer to OPFOR defending troops.

- Lines of concentration for the rolling barrier fire should impact on terrain that a ground observation point can see. Distances between lines of fire concentration will be 400 to 600 meters or more.
- The final line of concentration closest to friendly troops will be 700 to 1000 meters from forward defensive positions.

b. Phases of Fire Support. The OPFOR constructs a **system of fire** bringing all available fires on the BLUFOR as it approaches. The system provides continuous fire at the forward edge, and the flanks, and within the defensive position. In addition, it should allow rapid concentration of fire against the most threatened axis. The goal is **to engage the attacking BLUFOR with an overwhelming intensity of fire** as it approaches the forward edge of the defense. An effective system of fire begins with artillery concentrations and barrages on likely axes, choke points and deployment lines. There are **four phases** of OPFOR fire support in the defense.

(1) Fire Interdiction of Advancing BLUFOR. Typically begins when the BLUFOR moves into battalion columns. Fire interdiction of advancing BLUFOR troops occurs when the BLUFOR deploys into battalion columns. It continues until the BLUFOR reach their line of departure. Attached or supporting artillery units can occupy temporary fire positions beyond the forward edge of defense. Fixed-wing aviation and long-range artillery carry out fire on distant approaches. Where possible, BLUFOR units are destroyed as they move up, but if target intelligence is inadequate, disruption and delay is inflicted by all available assets.

If the defense is adopted while in contact with the BLUFOR, this phase concentrates on the BLUFOR's second echelon. Throughout the period before the BLUFOR's attack, attention is paid to denying the BLUFOR good target intelligence for his preparation. As much artillery as possible remains silent until needed to repel a major attack. Batteries used before the main BLUFOR attack will fire from temporary fire positions or be used as roving batteries to confuse BLUFOR intelligence.

(2) FIRE to repel the BLUFOR attack. The most important phase in the defense consists of short, intense bursts of fire. This is the most important phase of defensive artillery fire. The phase begins when the BLUFOR crosses the line of departure and ends when he enters the first defensive positions. Fires create a zone of continuous fire in front of the defense. Fire to stop the BLUFOR attack coordinates artillery fire with antitank weapons and all weapons of the maneuver units.

OPFOR artillery tries to break up attacks and split armor from the infantry with planned linear and box concentrations in front of the forward edge positions, and minefields in gaps between strongpoints, and eventually in depth. Guns and multiple rocket launchers start to engage the BLUFOR 15 to 25 km from the line of contact and howitzers will fire when the BLUFOR is within 10 to 15 km. Short but intense fire strikes, no more than fifteen to twenty minutes in duration are fired, followed by displacement to alternate fire positions to avoid counter-battery fire.

(3) FIRE support to defending troops. Fire support of defending troops occurs when artillery units attack BLUFOR that have penetrated the defensive positions of first-echelon maneuver battalions. Its goal is to create fire pockets that destroy the BLUFOR, preventing him from developing the attack. Some batteries may enter preselected direct fire positions. The defender fires against individual targets.

The artillery supports defensive positions in depth, tries to separate BLUFOR infantry from armor and fighting troops from their logistic support. If necessary, artillery may even be used in the direct fire role against armored breakthroughs. The artillery plays a key role in creating suitable conditions for the launching of a counterattack

(4) Fire destruction of the BLUFOR during counterattack. Its goals are to recover lost positions, to destroy the penetrating BLUFOR, and to capture a line to launch offensive operations. This phase has three subphases for artillery support:

- Support for the forward movement of troops.
- Preparation of the counterattack.
- Support of the counterattack.

A successful counterattack requires a stabilized line of contact. This line allows enough time for the second-echelon forces to advance and deploy for the counterattack.

6-7 ANTITANK FIRE IN THE DEFENSE (see also chapter 1 page 1-8 Antitank Reserves).

In the defense, AT units have these **missions**—

- Destroy BLUFOR tanks and APCs forward of the first echelon.
- Destroy tanks and APCs that have penetrated the first defensive echelon.
- Cover gaps in the defense, support the counterattack.

The OPFOR views antitank fires as a critical component to success of a defense. Attack helicopters mounting rockets and ATGMs provide additional AT capabilities and can be used as a quick reaction reserve AT force. ATGM positions are at least 100 meters apart. The normal frontage for the ATGM unit is up to 500 meters for a platoon and 1500 meters for a battery. One or two alternate firing positions are also designated for each ATGM team to allow for maneuver during the conduct of the defense. The normal distance between tanks and antitank weapons in defensive positions is about 100 to 150 meters. On open terrain, 200 to 250 meters may separate tanks in defensive positions.

In the defense, ATGMs have an engagement zone that extends out to 3 km or more from the forward edge. Tanks firing from defilade positions first engage attacking tanks 2 to 3 km in front of the defensive positions. The engagement zone for AT guns extends out to about 1,500 meters. Mounted AT grenade launcher or hand-held grenade launcher weapons can engage BLUFOR armor at ranges less than 1,000 meters.

Fixed-wing aviation, helicopters, and massed artillery may fire against detected armor concentrations in assembly areas. Aircraft, especially ATGM-equipped attack helicopters, are the most effective weapons to engage moving armor forces at greater ranges. Mine laying helicopters may lay hasty AT minefields. The long-range rocket launcher can fire rockets with scatterable-mine warheads deep into the BLUFOR's forward defensive positions and along his axes of advance.

Given the range of artillery, the goal is to **concentrate fires on key sectors to break up the advancing BLUFOR attack**. For example, the OPFOR should plan artillery fire to separate attacking BLUFOR infantry from their tanks approximately 700 to 1,000 meters from the forward edge. Protective fires are targeted within 300 to 400 meters of the forward edge, with concentrations to halt the advance of BLUFOR that have penetrated the defenses. Priority targets for the OPFOR units include tanks and other armored vehicles. Antitank weapons engage BLUFOR tanks at an effective range up to 5 km in front of the forward defenses.

a. Principles of antitank defense. The OPFOR can use AT fires to help channel BLUFOR armor into an open area with limited cover and concealment. Minefields are used in conjunction with AT assets to channel BLUFOR tank movements.

The OPFOR will establish zones of antitank fire. These zones will typically be in front of the forward defensive positions, on the flanks, and between platoon strong points where antitank fires are concentrated during a BLUFOR attack. The most distant boundary of the zone of antitank fire depends on the terrain and the maximum effective range of the weapons systems being employed. The following table provides an example of ATGM ranges. More detail is found in the Equipment Chapter page 3-21.

| ATGMs | RANGE (max./min. meters) | GUIDANCE |
|-------|-----------------------------|----------|
| AT-3c | 3000/500 | SACLOS |
| AT-4b | 3500/75 | SACLOS |
| AT-5b | 4000/75 | SACLOS |
| AT-6b | 5000/400 | SACLOS |
| AT-7 | 1000/50 | SACLOS |
| AT-8 | 4000/100 | SACLOS |
| AT-10 | 5000/100 | LBR |
| AT-11 | 5000/100 | LBR |
| AT-12 | 5000/100 | LBR |
| AT-14 | 5500/100 | LBR |
| AT-16 | 10,000/1000 | LBR |

Figure 6-8. ATGM ranges.

b. Kill Zones (fire sacks). The OPFOR will establish one or more **kill zones** or **fire sacks** to support strongpoints. A fire sack is an area either forward of the front line of the strongpoint or in the depth of the defense, where a high density of preplanned flanking and frontal fires are placed on the BLUFOR by all available fire means. These fires are designed to produce high casualties among the attacking BLUFOR in a short period of time.

Fire sacks are built to lead the BLUFOR into the area, through the use of natural terrain obstacles as well as minefields, man-made obstacles, and terrain changes. Once in the sack, the BLUFOR is cut off and surrounded by OPFOR units. The obstacles on the edges of the fire sack will serve to contain the BLUFOR, preventing escape. The defenses in the fire sack are well camouflaged and include the use of dummy weapons and positions.

A **typical OPFOR fire sack** can be up to 1,000 meters in depth, with a frontage of 900 to 1,000 meters when created ahead of the forward edge or 500 to 800 meters when created within the strongpoint. Fire sacks may be created by a maneuver of fire, weapons, and units during a defensive battle. They may be either within the main defenses or forward of them in a security zone, but are always contained physically within the defensive positions.

6-8 ENGINEER.

a. Engineer support in the defense involves:

- Supporting the battle and transition to the offense
- Providing reconnaissance of the BLUFOR and terrain
- Repelling BLUFOR attacks in front of forward edge
- Repelling counterattacks or penetrations into defensive sector
- Supporting second-echelon counterattack
- Reinforcing lines taken in counterattack

b. Engineer preparation. The OPFOR divides preparation of the defense into three stages. Obstacles, both natural and manmade, play an important role in the defense.

(1) First Stage. Barbed wire and other obstacles are emplaced in front of the position and fields of view and fire are cleared. Pits or trenches are prepared at the primary position of each fighting vehicle, crew-served weapon, and individual infantryman. Command observation posts and medical posts are dug in. The OPFOR normally allows **5 to 6 hours** for this work.

(2) Second Stage. During the second stage of preparation of the position, fighting vehicles and weapons systems are provided with alternate fire positions. Trenches are linked until they run continuously across the battalion frontage. Communication trenches are prepared. The OPFOR allows an additional **5 to 6 hours** for this phase.

(3) Further Preparation. Further preparation of the position includes improvement of existing trenches and positions, laying further obstacles and preparation of firing lines and routes for antitank reserves and second echelons. Communication trenches may be improved for use as fighting trenches. Dummy positions are prepared in intervals between strongpoints.

c. Minefields and obstacles. Defensive positions are supplemented with minefields and non-explosive obstacles such as antitank ditches and wire. Minefields are placed to channel BLUFOR armor into the kill zones, which can contain more mines, tank traps, and trenches. Obstacles are also placed to hold the BLUFOR in the fire sack. Ideally, these obstacles are placed at about **2/3** of the effective range of the systems that will be covering them. Minefield dimensions are typically configured 300 x 60 meters. Mine outlay can reach 1000 antitank or more per kilometer of frontage on major avenues of approach.

Natural or manmade obstacles will be used to slow, canalize or disrupt the advancement of the BLUFOR. Excellent natural obstacles include lakes, rivers, marshes, ravines, densely forested areas and escarpments. The OPFOR may create additional manmade obstacles such as minefields, antitank ditches, wire entanglements and abatis to further hinder the attacking BLUFOR.

The OPFOR will also use mines and obstacles to protect the flanks of its position. Typically, minefields and obstacles are covered with direct and indirect fires. The level of sophistication of the engineer preparation will depend on the time available and on the engineer resources of each OPFOR unit. Some examples of obstacle emplacement times are shown in *Figure 6-9*.

| | Tech Construction Plt with BAT-2 | Tech Construction Plt w/ DI | Mine Warfare Plt |
|--------------------------|-------------------------------------|--------------------------------|------------------|
| 8-tree Abatis | N/A | 40-50 man-hours | N/A |
| Concertina Fence | N/A | N/A | N/A |
| Log Crib Rectangle | N/A | 100-200 man-hours | N/A |
| Hasty minefield 0-300 | N/A | N/A | 20 min. |
| Prepared Minefield 0-500 | N/A | N/A | 60 min. |
| Tank ditch 100x4 m | 20-25 hours | N/A | N/A |
| Tank ditch 200x4 m | 40-50 hours | N/A | N/A |
| Tank ditch 300x4 m | 60-75 hours | N/A | N/A |

Figure 6-9. OPFOR Obstacle emplacement times.

b. Engineer Reconnaissance. Engineer troops assist in reconnaissance and preparation of the defense by determining the protective and camouflage features of the terrain and aiding in selection of positions for command posts and strongpoints. Engineers determine road and bridge conditions in the defensive area, availability of local materials for construction of positions, and the status of the water supply. Engineer elements observe BLUFOR preparations for the attack and determine the character and extent of BLUFOR engineer activity. Emphasis is on observing BLUFOR engineer reconnaissance activity and obstacle-clearing elements, BLUFOR route preparation through or around obstacles, and the composition and character of BLUFOR engineer and maneuver elements in the forward areas.

During actual defensive combat, engineer observation posts monitor BLUFOR engineer activity, evaluate zones of destruction, and report areas where the BLUFOR is breaching defensive obstacles. At least one of the posts provides detailed photography of the area of interest. The posts forward all information to the combined arms commander and the chief of engineer service. When the OPFOR forces are on the defensive, engineer reconnaissance elements continue to reconnoiter terrain and the BLUFOR situation to determine routes best suited for a return to offensive action.

The reconnaissance patrol will not normally be given a mission to conduct defensive operations. On rare occasions where the reconnaissance patrol is involved in contact with a superior BLUFOR and cannot extract itself, it may have to take up a defensive position until assistance arrives or it can disengage itself. The reconnaissance patrol will move its vehicles into the best covered and concealed positions available, dismount the scouts, and defend itself against actual or possible BLUFOR, usually in a 360-degree defense.

6-9 AIR SUPPORT.

a. Helicopters. Rotary-wing assets will typically be used by a defending OPFOR to stop an advancing BLUFOR. Attack helicopters will serve in this role. They are entered into the defense at the point where the attacking BLUFOR is deploying into platoon columns (2 to 3 km). If the BLUFOR gains territory in the OPFOR defensive area, the attack helicopters are used as an antitank reserve. They may also be used to strike any assault landing forces that enter into the rear of the OPFOR defense.

Helicopters are located in a deployment location where they can be brought into action quickly, but out of range of the BLUFOR (25km+). Once the BLUFOR attacks, the helicopter flight is called to action and lifts from its deployment location. Helicopters will advance at the lowest possible altitude (20-30 m) using terrain masking to hide movement.

Once they reach the front line, the helicopters will raise up to a search altitude 35-70 m over level terrain and 100-245 m over rolling terrain. The search will be conducted from behind some natural concealment such as woods or hills. The OPFOR prefers to keep attack helicopters within the safety net of friendly air defense systems. Typically, two attack helicopters will be used per flight. Flight speeds can reach 200 kph. OPFOR attack helicopter missile systems have ranges from 5 to 10 km that allow for maximum standoff distances.

In the defense, **targets** for attack helicopters include:

- Tanks and IFVs in attack formations.
- Artillery in firing positions.
- Helicopters at forward jumping-off locations.
- First-echelon command posts.
- Brigade reserves.

When the BLUFOR target is located, the helicopter will fire (if within range) or maneuver to a position closer to where the target can be reached. When firing the helicopters must aim and fire and withdraw with the following restrictions:

- MI-24 with the AT-6 must be guided to the target.
- MI-24 the gunner must keep his sight on the target until the missile strikes (approx. 11 seconds at max. range of 5,000 m).
- KA-50 has a fire and forget missile.

If the attacking BLUFOR gains a foothold in the OPFOR's defensive position, helicopters will be used as AT reserves and will be brought forward in flights of 2 to 4 to fire on the BLUFOR.

b. Fixed-wing Aircraft. In the defense, OPFOR ground attack aircraft are deployed deep with ATGMs after the BLUFOR had deploys into platoon columns. The ground attack aircraft will also target the BLUFOR brigade follow on forces. The ground attack fixed-wing aircraft used in the support of an OPFOR defense will be used to interdict advancing BLUFOR (initially done to a depth of 12-15 km forward of the front lines).

Targets for the fixed-wing aircraft include:

- Tank and mechanized infantry lines of deployment.
- Artillery firing positions.
- First-echelon battalion and brigade command posts.
- Brigade reserves.

Other targets are left for the attack helicopters. The attack aircraft will initially attack the battalion and company deployment lines (12-15 km and 5-6 km deep). Ground attack aircraft are organized in flights of 2, 4, or 8 aircraft.

6-10 COUNTERATTACK.

A successful counterattack requires the same force ratios as an ordinary attack. The OPFOR constantly emphasizes that the defense is a temporary form of combat, making the transition to the offense easier. The OPFOR may opt to 1) execute a counterattack when the BLUFOR's attack stalls or, 2) restore the defense should the BLUFOR succeed in breaching defensive positions. The OPFOR will develop a counterattack with the second-echelon or reserve forces. Tanks normally spearhead the counterattacks, following an intense air and artillery preparation, and with the support of fires of adjacent units.

a. Features. The main features of OPFOR counterattacks are as follows:

- The BLUFOR's attack must have been halted or, at the very least, the momentum of the attack must have been slowed. Antitank reserves and mobile obstacle detachments can be used to achieve this.
- The BLUFOR must be unable to commit a reserve into the penetration, either because it has already been committed, or because it has been neutralized by long range artillery fire.

b. Ambushes. Ambushes are a feature of any OPFOR defense. In size, they vary from individual weapon systems to a platoon and are generally formed from second-echelon units. Tanks, BMPs, antitank weapons, and helicopters are all used for ambushes. They are sited on likely axes of approach, on flanks and in gaps and between first- and second-echelon positions. The goal of the ambush is to reduce the BLUFOR's strength before he reaches the main position and to slow his advance.

6-11 WITHDRAWAL OR DISENGAGEMENT ACTIONS.

A withdrawal or disengagement by the OPFOR takes place due to unfavorable conditions following an offensive, while in a defense, or during a meeting engagement when it is determined that the BLUFOR has gained the tactical advantage.

a. Features of a Withdrawal.

- OPFOR mechanized and armor companies will most often execute a withdrawal as a part of a battalion. The company may be the battalion rear guard or part of main body, but it can also act independently.
- The OPFOR will execute a withdrawal based on the losses sustained by the OPFOR. For example, a company will need to sustain a minimum of **20%** in losses in the defense or **30%** in the offense.
- Typically the withdrawal will take place at night or under obscure weather conditions to provide cover for the moving force. However, BLUFOR pressure is the critical trigger to execute a withdrawal.

b. Types of Withdrawal.

(1) Forced. The forced withdrawal is done under overwhelming BLUFOR pressure, or when the holding of a defensive position is no longer possible.

(2) Deliberate. The deliberate withdrawal is conducted when the commander realizes that his forces are in an unfavorable situation. Before the BLUFOR is able to take advantage of this, he will move to a more favorable position. This type of withdrawal can also be done with the idea of reinforcing a sector that has been weakened, or to lead the BLUFOR into a fire sack.

c. Engineer Support in the Withdrawal. Prior to a deliberate withdrawal, engineers will establish minefields in front of the new defensive positions. Engineers will mark corridors through which the withdrawing troops may move. If the OPFOR expects BLUFOR contact, the engineers may place minefields after the withdrawal is completed.

d. Covering Force in a Withdrawal. The OPFOR will designate covering force, withdraw routes, collection points, final assembly area and time of the withdrawal. The covering force has the mission to deceive the BLUFOR and to cover the initial withdrawal of the main body. A covering force is composed of units deployed along the forward edge of the defensive area, typically reinforced platoons from each of the forward-deployed companies.

(1) If the company is designated to be the rear security for the battalion or brigade: The company will have been a second-echelon company of the battalion or a company in the second-echelon battalion of the brigade,

therefore, it will not be in direct contact with the BLUFOR at the time the withdrawal begins. Its mission is to prevent the breakthrough of the BLUFOR during the withdrawal of the main body of the battalion or brigade. The OPFOR should reinforce the company with a mechanized infantry platoon, an engineer platoon, and an artillery battery.

(2) If the **company is attacked** by the BLUFOR during the execution of the withdrawal and the covering force or rear security company cannot contain them, the OPFOR will go into a temporary defensive position and begin to execute a defense. The company must be prepared to respond to BLUFOR fire.

(3) If the **company is going to withdraw as a part of the battalion** the company commander designates a covering force. This force is made up of one platoon from the first echelon of the defense and one squad of mechanized infantry (if available).

The OPFOR will designate all withdrawal routes for the remaining elements from their current positions to the platoon collection point. The platoon collection point is located to the rear of the second echelon platoon and it is an area where the company commander can place all of his subordinate elements, minus the covering force, into a company formation and move as a company to the new line of deployment or assembly area.

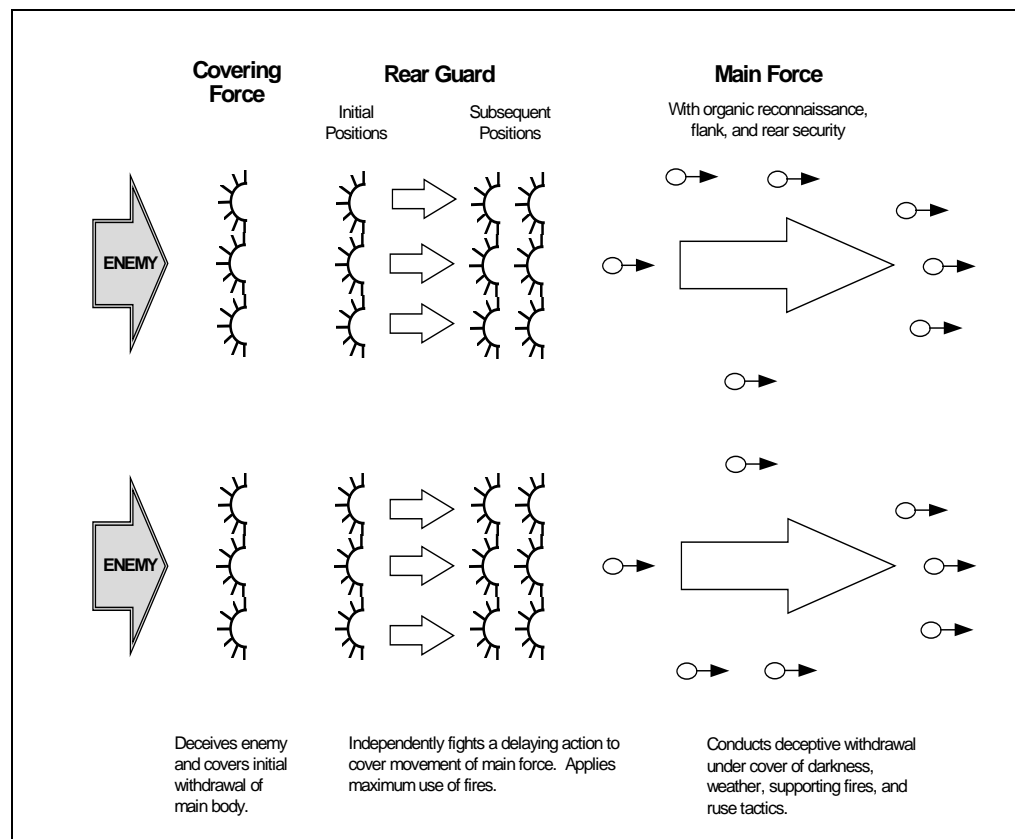


Figure 6-10. OPFOR withdrawal.

6-12 DEFENDING IN SPECIAL SITUATIONS.

a. Cities. When defending in cities or other built-up areas, a battalion's or company's combat formation can be in one or two echelons. Two-echelon formations are the most common. The combat formation may include a reserve (even in a two-echelon formation) and armored groups to provide mobile firepower and ambushes. Battalions can form assault groups in their second echelon, identical in strength and structure to those used in the attack. These are used to recover any key buildings captured by the BLUFOR.

The forward edge of the defense is established on the outskirts of the town, or out in the country if it is required to hold dominating ground. A security zone is often organized outside the town. The mechanized infantry battalion and mechanized infantry company are the basic building blocks of the defense, and they receive strong reinforcements.

Tanks and most of the supporting artillery are given to mechanized infantry elements to provide direct fire from strongpoints, covering any reasonable field of fire.

Antitank weapons are positioned to cover road junctions and to fire along streets. Engineer assets are incorporated down to company level to assist in fortifying buildings, creating obstacles and improving routes between strongpoints. Strongpoints are expected to continue to resist even when encircled; additional reserves of ammunition and other supplies can be pre-positioned to provide a considerable measure of tactical independence.

b. Mountains. In mountain areas, the defender can hold a wider frontage than in normal terrain, but also faces extra difficulties in organizing his defenses. In particular, the lack of roads restricts maneuver, and the defense is based on separate strongpoints established to hold vital ground such as commanding heights, passes, road junctions and river crossings. On plateaus and in wide valleys the defense is organized normally.

A two-echelon defense is standard in mountain areas, although in sectors unsuitable for armored movement the defense may be organized in one echelon, with a reserve. A minimum of resources is allocated to terrain unsuitable for any movement. Strongpoints are organized for all-around defense. Reconnaissance patrols, obstacles, demolitions, and ambushes cover the intervals between them.

The OPFOR makes effective use of ambushes in mountain operations, not only in gaps between positions, but in front of them and in depth. Holding the ground dominating the approaches, with part of the defending force deployed in the pass itself covers mountain passes. Obstacles and mines are laid on the road through the pass and covered by crossing fire. Crossing fire from either side covers narrow canyons.

If the BLUFOR succeeds in penetrating the defense, the OPFOR expects strongpoints to continue their resistance on the flanks, even if totally encircled. Counterattacks are attempted, even with small forces, using prepared routes and attacking from higher ground whenever possible. The OPFOR considers that mountain areas favor attempts by the defender to strike into the BLUFOR's depth. Special-purpose forces, raiding and other detachments are infiltrated into BLUFOR-held areas by ground or helicopter.

c. Deserts. Deserts offer mixed terrain, with areas capable of supporting high rates of movement interspersed with soft sand, and dunes that restrict movement. Defense sectors are often wider than usual. The OPFOR practice is to cover the most likely axes with battalion defensive areas and company strongpoints, organized for all-around defense, and accept greater intervals than usual between them. Strong second echelons or reserves are held to counterattack or reinforce threatened sectors. The improvement of maneuver routes is a vital engineer task in desert warfare.

The openness of desert terrain offers longer fields of view and fire. Reconnaissance is organized in greater depth than normal and direct fire weapons are effective at longer ranges, making it possible to increase unit frontages. High-precision weapons are more effective in such terrain, and special attention must be paid to camouflage and concealment.

Defenses are organized in greater depth in the desert. Distances between echelons are greater and forces more dispersed. Reserves, mainly tank-heavy, are held in greater depth than usual and may be employed to counter BLUFOR enveloping movements. Mechanized infantry unit frontages in the forward area are similar to those in the normal defense. Mechanized infantry companies normally organize in a single echelon. Divisions and brigades may defend independently. Mined sectors and areas of limited trafficability may be lightly defended; only mobile patrols or outposts may cover them.

Fortification work is much more difficult in deserts. Soft sand needs reinforcement, and there is generally a shortage of local material to use in preparing defenses. Strong winds blowing sand and dust mean that great care is required to keep all equipment and weapons serviceable. Laying mines is difficult in many sectors, and even when minefields are laid, they must be inspected regularly to check to see that they have not been exposed by the wind.

d. Northern Regions. As is often the case in defense in special conditions, a sector in a northern area can be held with weaker forces than on normal terrain. Wider frontages are achieved by accepting larger intervals between platoon and company strongpoints. Strongpoints are positioned to cover roads, dominant high ground, defiles, and river crossings. Obstacles, patrols, and ambushes cover gaps. Strongpoints are made as logistically self-sufficient as possible, so they can continue to operate, even if cut-off by the BLUFOR or the climate. Fortifications may have to be built above ground level, but where snow cover is deep enough, trench systems are dug.

CHAPTER 7: OPFOR OPERATIONS ON SPECIAL TERRAIN

7-1 Combat in Urban Areas.

Combat in urban areas includes all military actions planned and conducted on a terrain complex where manmade construction impacts on the tactical options available to the OPFOR commander. The OPFOR considers military activities in urban areas to be only those missions conducted in populated cities, towns, and villages. Although motorized infantry units can conduct combat in urban areas, the OPFOR prefers to task-organize mechanized infantry battalions to serve as the baseline assault organization. Normally combat support units reinforcing the **assault battalions** must come from higher. This is especially true if the baseline is a motorized infantry battalion.

a. Effects. Fighting in built-up areas differs in several important respects from field combat. First, the fighting quickly becomes a series of small-scale battles at squad to company level, which often means that there is little central control. Second, the restricted space reduces the unit's ability to maneuver and limits observation and fields of fire. Third, the destruction and obstacles in urban areas make it very difficult to maintain rapid rates of advance. Fourth, effective reconnaissance of an urban area is often difficult to achieve, thus necessitating reconnaissance by fire.

b. Characteristics. Combat in cities, towns, and villages has a number of unique characteristics:

- A **surprise attack** from the march, based on detailed reconnaissance, is the preferred form of attack.
- Day and night attacks maintain **constant pressure** on the defender.
- Rapid exploitation of initial success by the immediate follow-up of preparation fires, and the use of heavy weapons in the direct fire role by task organized assault groups within the confines of the built-up area.
- If initial attacks fail to make progress, the OPFOR launches attacks from positions in direct contact.
- A series of small battles along streets, building-to-building, and room-to-room.
- Smoke, darkness, and **limited visibility** conditions conceal movement.
- Limited observation and fire.
- Difficult maneuvering of forces and means.
- Constant **close contact** with the BLUFOR.
- Generation of rubble, fire, and explosions.

c. Offense. In urban area combat, the **infantry battalion** is designated as an assault detachment. This designation occurs when the battalion receives the mission to overcome a BLUFOR strongpoint. The detachment is a task-organized infantry battalion, mechanized or motorized, and the group is a task-organized company. A battalion designated as an assault detachment can be reinforced by a tank company, an artillery battalion, an engineer company, antitank weapons, and air defense weapons. The assault detachment normally has two to three assault groups (reinforced infantry companies) and a reinforced platoon-sized reserve. Battalion reserves go directly to the assault groups due to the focus on small-unit actions in the attack. Up to 50 percent of available artillery is attached to assault groups and used in the direct fire role including the use of large-caliber guns. Engineer units accompany advance guard units as they approach built-up areas to clear obstacles and reconnoiter.

The OPFOR uses two methods to **seize a town**. The least favorable method is to plan and conduct a **frontal attack** against a defending BLUFOR to break through the defense on the approaches to the town. The preferred method is to seize the town **from the march**. The group frontage can be 200 to 300 meters. A brigade could be responsible for 2 to 3 km, though its attack frontage would be less.

d. Defense. A division normally defends urban terrain when employed as a part of the expeditionary army. It may also defend along a main avenue of approach into the military district. The threat recognizes that is the nature of defensive combat in villages and towns to fight a series of separate battles. In defensive as in offensive urban area combat, the base element is the motorized infantry, or mechanized **battalion**. The infantry battalion commander takes direct command of the units allocated to him, e.g., artillery, tank, and engineers. As in the offense, the burden of combat in built-up areas falls on infantry soldiers, supported by other arms. Artillery remains decentralized for the direct fire role. Far fewer troops are necessary to defend a town than to seize one. A company can defend a sector up to 600 meters wide and can create strongpoints in key buildings manned by platoons. Defense combat techniques are the same as those used in the offensive. Defense of a town requires more engineer support. The OPFOR uses patrols and ambushes extensively.

An infantry **battalion** normally conducts **defensive actions** in built-up areas as part of a brigade.

Reinforced to meet the tactical situation, the battalion deploys to stop BLUFOR attacks on main or secondary approaches to the village or town. The battalion is in either the brigade first or second echelon of defense. As a first-echelon unit, its mission is to prevent penetration of the built-up area. As the second-echelon unit, its task is to contain BLUFOR penetrations and restore first-echelon positions.

7-2 Combat in Mountains.

The OPFOR regards mountains as obstacles to be breached with attacks. As in other environments, the OPFOR defends to gain time. This allows it to concentrate forces for the offense or economize forces allowing it to mount an offense elsewhere. The principles of offense and defense, with some modifications, are applicable to this environment. Although the OPFOR believes that mechanized infantry units must be capable of fighting in mountainous terrain, it intends to use infantry-heavy forces most often.

a. March. Vehicles maintain a 100- to 150- meter interval while conducting a march. The limited routes and likelihood of ambushes make reconnaissance critical for combat success. During the march in mountainous terrain, the mission of combat reconnaissance patrols and the advance guard become paramount. Low mountains and hills may cut the rate of march in half, even without the additionally slowing effect of BLUFOR action, poor weather, or natural obstacles. Steep slopes reduce movement rates approximately 50 percent. For example, the dismounted rate of march decreases from the normal 4 to 5 kilometers per hour down to 2 to 3 kilometers. The carrying capacity of transport vehicles reduces by an average of 20 to 25 percent. Fuel consumption increases by as much as 75 percent on snow-covered mountain roads. The increased altitude reduces engine power.

b. Offense. The goals of mountain offensive actions are to control passes, road junctions, built-up areas, and adjacent high ground. The OPFOR emphasizes the use of combined arms forces, including tanks and artillery, in the mountains. The terrain isolates forces from each other and narrows the zone of advance. This dictates that units at battalion level and below conduct the majority of combat. The OPFOR attempts to get tanks into the least accessible areas because of their utility in the fire support role. It also uses artillery in the direct fire role. Mortars provide extra high-angle artillery support and are ideal for mountain operations. Because of the difficulty in passing one echelon through another and in shifting axes in constricted terrain, units from division down often advance in one echelon. However, in an advance along a narrow valley, the OPFOR may sometimes even use a three-echelon formation. The OPFOR maintains strong reserves in this environment.

Zones of advance tend to be much wider in mountains, though actual attack frontages and strike sectors within them are much the same as on flat terrain. Attack frontages depend on the terrain. Because there are rarely sufficient routes and space for deployment, attacks from the march are uncommon. Most attacks are from positions in direct contact, despite the loss of surprise and momentum. Dismounted mechanized or motorized infantry troops lead the attack, not tanks. The OPFOR uses a sizable proportion of the assigned artillery in the direct fire role. Infantry battalions often attack independently, in separate zones, because of the limited number of routes in mountainous terrain. Battalion commanders receive missions lasting longer than usual and can receive attachment of artillery, mortars, tanks, and engineer units. The amount and type of attachments vary depending on the infantry battalion's mission.

The OPFOR emphasizes infiltration into the BLUFOR rear during mountainous combat. Infiltration is valuable during the offense and defense. The OPFOR employs it in support of deception, and intelligence collection, or to posture a unit for an attack, as an example, an infantry battalion will infiltrate the night before an attack. Infiltration moves forces through an BLUFOR-held area to a position of advantage in the BLUFOR's rear. From there, the force uses other forms of maneuver to attack its assigned objective. Infiltration differs from a penetration. In the penetration, the OPFOR exerts maximum combat power to pass through a BLUFOR defense. In an infiltration, infiltrating units seek to avoid BLUFOR defenses and pass through gaps in the defense. Units then form for the attack.

c. Defense. The OPFOR defense stresses thorough reconnaissance, well-organized outposts, continuous flank security, and swift counterattacks by the second echelon. Constant observation and patrolling detect and prevent envelopments. A two-echelon defense is standard in mountain areas. In sectors unsuitable for movement, the defense organizes in one echelon, with a reserve, and for only receives limited resources. The defense organizes to cover all possible areas of attack. Mutually supporting platoon and company strongpoints are essential with gaps covered by patrols. Strongpoints use forward- and reverse-slope positions and locate for 360-degree defense. The strongpoints hold even if surrounded. The OPFOR considers mountain passes as the tactical key to an entire mountain range. Therefore, it assigns the largest part of the force to defend them. In defending a pass, the OPFOR occupy the heights that dominate the pass as well as key spurs on the approaches to it.

In mountainous terrain, battalions establish their defenses on broader frontages than on regular terrain, intersecting the most easily accessible axes of BLUFOR advance. The OPFOR defends plateaus and wide valleys the same way it defends under normal conditions. Tank avenues of approach receive emphasis. Tanks, antitank guns, and ATGMs locate in company strongpoints that are defending road junctions, exits from valleys, defiles, edges of forests, and mountain river crossings. Their firing positions enable them to hit the BLUFOR at maximum range.

d. Armor. In the mountains, the OPFOR uses tanks as mobile armored artillery or in the double envelopment role. The tank holds the defending force while the infantry troops envelop on both sides. The OPFOR uses tanks extensively in groups of two or three to reinforce an enveloping detachment consisting of an infantry platoon, a squad of engineers, and an antitank platoon. In support of night attacks, tanks approach the objective under the cover of darkness and deliver fire during the assault. The OPFOR may allocate elements of a tank battalion to mechanized and motorized infantry battalions. OPFOR commanders attempt to get their tanks into areas where the BLUFOR would not expect them. In the defense the OPFOR may employ tanks forward in infantry strongpoints. Tanks may precede infantry but more often support ground attacks by fire. The commander may attach tanks down to what would normally be very low levels, with one tank per infantry platoon if possible.

e. Artillery. The OPFOR frequently decentralizes fire support to support maneuver forces on independent axes. It fires its artillery by batteries or even platoons. Artillery and mortars locate forward, with the flat-trajectory weapons on the flanks. This positioning supports extended and uneven frontages and covers gaps and dead space. Artillery uses direct fire at maximum range as often as possible. The OPFOR may employ 160-mm mortars instead of the 122-mm howitzer, because of the mortar's higher angle of fire and greater mobility due to decreased weight. The 76-mm mountain gun is an outstanding mountain artillery piece.

f. Engineer Support. Engineer support in the mountains requires a greater than normal range of assets and is more extensive and difficult to perform than over more normal terrain. The OPFOR reinforces engineer units involved in mountainous combat more heavily than comparable engineer elements in normal combat conditions. They can therefore accomplish a larger volume of work. Objectives may not be as deep for units at battalion level and below as they would be under normal conditions. In mountainous areas, the OPFOR expects to achieve only one-third the normal rate of advance. However, depending on the circumstances, the rate of advance may be higher than the expected one-third rate.

7-3 Combat in Forests.

The term *forest* includes all densely forested areas, for example, forests, grasslands, jungles, and swamps. The forest, especially in mountainous terrain, has a leveling effect on the relative capabilities of opponents, since it sharply limits the employment of armor, heavy artillery, and vehicles and also restricts aerial observation. Under such conditions, the OPFOR makes extensive use of--

- Natural cover.
- Infiltration.
- Ambushes.
- Raids.
- Deception.
- Speed of movement.
- Continuous reconnaissance.
- Well-coordinated planning.

Forest conditions make it difficult to use large units and also complicate commanders' control over their own and subordinate units. Forests cover thirty percent of the world's landmass. There are two basic types of forests: tropical rain forests, and deciduous.

a. Characteristics. The OPFOR characterizes fighting in forested or swampy terrain by the following factors:

- Difficulties in observation, orientation and the adjustment of artillery fire.
- The complexity of command and control (C^2).
- Difficulty in using antitank wire-guided missiles (ATGMs).
- Abundance of natural obstacles easily and quickly improved.
- The possibility of forest fires.

b. Principles. When fighting in forests commanders apply the following principles:

- Maintain the offensive; defend only to gain time. The OPFOR defense is a temporary measure, adopted only when necessary. This does not imply, however, that the OPFOR defense consists of half

measures or that it is unskilled in defense techniques. It carefully and cleverly prepares its defenses.

- Embrace the BLUFOR; stay close to reduce the effects of BLUFOR firepower.
- Infiltrate at every opportunity.
- Fighting during periods of limited visibility.
- Use surprise tactics: raids, ambushes, and patrols.
- Use of camouflage, obstacles, mines, boobytraps, and survival measures (bunkers and tunnels) extensively.
- Remove intelligence indicators from the battlefield. The OPFOR goes to great lengths to leave little or no information relating to its intentions, order of battle, strength, or unit dispositions.

c. March. The organization of the march column is important in thick woods, because it is usually very difficult to implement changes during the course of combat. Movement is generally on poor roads with limited opportunity for detours. There is great likelihood of blockage, due either to BLUFOR action or to vehicle breakdown. Flank security, assisted by mobile obstacle detachments, attempts to block BLUFOR counterattacks from the flanks.

Platoons and companies use available roads and trails. The roads and trails may have considerable distance between them. The units advance on narrow frontages to fix the defense, while the main body attempts to envelop the position.

The march in the forests differs from normal combat in that--

- It enhances the role of reconnaissance and flank protection. The OPFOR reinforces its reconnaissance troops with mechanized or motorized infantry troops. Each battalion is responsible for its own protection against ambushes or surprise. Flank security elements move closer than normal to the column. They travel on a route parallel to the main body.
- Forward detachments assume a greater importance, both to forestall the creation of a defensive line and to cover the deployment of the main body. The concealment offered by the forest facilitates their use.
- Movement support detachments have to be stronger than in open warfare.
- Commanders move well forward so that they can make rapid decisions on the basis of personal observation of the ground and BLUFOR.
- Route marking and traffic control assume increased importance.

The OPFOR prefers to use mechanized and motorized infantry when fighting in the forest. Whenever possible, it reinforces units with combat engineers and artillery. It prefers direct-fire artillery in the woods, since that is usually more appropriate than indirect fire. Often, as in combat in urban areas, the OPFOR forms assault battalions and groups (companies). It reinforces each with tanks, artillery, and mortars for direct and indirect fires, air defense, and combat engineers.

d. Offense. Forests may sit astride important axes of advance. As potential redoubts, the BLUFOR may fortify and defend them. As is the case in build-up areas, the OPFOR prefers to bypass such an area and isolate the defenders. If, however, an axis through a forest is likely to surprise the BLUFOR and catch him off balance, the OPFOR may select it as the best means of overcoming a strong defense. When obliged to attack under these conditions, the OPFOR plans the attack thoroughly, using time to conduct a thorough reconnaissance. The OPFOR tries to exploit the fragmented front in forested areas by using a combination of **penetrations** and **envelopments**. Offensive actions in forests combine tactics to fix the defender with enveloping movements executed to either bypass the BLUFOR or attack him from the rear.

Even if entire units do not advance through large wooded areas, the OPFOR frequently uses the forests to conceal the **infiltration** of reinforced battalion- or larger-sized units. It also uses large wooded areas to hide airborne or air assault troops that it inserted into the BLUFOR rear to serve as raiding units. The OPFOR is a master at infiltrating units up to brigade level. However, the normal size for an infiltration force is a company or below.

The OPFOR executes attacks in forests with battalion- or company-sized forces. It uses the normal crisscross pattern of trails and natural breaks found in forests. It organizes its advance on a wider frontage than normal, and on multiple axes using as many routes as possible to overextend and confuse the defense and conceal the main axis. Battalion and companies attack on each axis. Strike sectors are quite narrow (50 meters for a platoon), but distances between available approaches may widen the overall attack zone of the company. Platoons are normally 150 to 200 meters apart, but may separate by as much as 500 meters.

e. Defense. The forest is a significant obstacle to an advancing BLUFOR and may not be passable even for state-of-the-art combat equipment. There are not enough roads, which forces the BLUFOR to advance along accessible axes. On the other hand, the forest facilitates prepared defenses and camouflage, concealment, and deception.

The OPFOR does not hold the edge of the forest in strength because it is vulnerable to BLUFOR artillery and air attack. Depending on the nature of the forest, it places its forward edge ahead of the treeline or 50 to 100 meters or more into the depth of the forest. Soldiers clear terrain to improve fields of observation and fire. The OPFOR organizes its defense in depth and bases it on a series of company strongpoints, employing all-round defense, and on key obstacles.

Engineers and soldiers fortify company- and platoon-level strongpoints and camouflage them very well. The OPFOR patrols gaps between the strongpoints and possible bypasses denied by obstacles and ambushes. Engineers prepare the emplacements, shelters, trenches, and communication trenches for strongpoints on terrain with a low groundwater level. In sectors where there is no need to dig communication trenches, signs or marks on trees denote movement routes to the rear. As a result of limited visibility, it is common to fight close-range battles. The OPFOR uses small unit ambushes and surprise.

The OPFOR stresses active defense. It does not passively wait for attacks to develop. Continuous reconnaissance reveals the BLUFOR's intentions. This enables OPFOR artillery and air attacks to disrupt and delay BLUFOR preparations. The defenders thoroughly reconnoiter concealed routes for counterattacks. If necessary, the engineers improve them. Battalions and higher maintain reserves for counterattacks. The OPFOR avoids large reserves in favor of numerous small reserves positioned near the forward edge. These reserves remain available at short notice.

In the counterattack, speed and the ability to react are more important than size. The defending force immediately counterattacks, even in small groups, when the attacker penetrates a position. Patrols infiltrate into the BLUFOR rear to ambush and attack BLUFOR C².

Should the BLUFOR achieve a penetration, the OPFOR commander is unlikely to withdraw his forces completely from the area. Instead, he reorganizes battalions and companies and establishes new strongpoints or concealed areas to launch raids. Remnants of OPFOR units will continue to harass and disrupt BLUFOR rear communications until they destroy them.

7-4 Night Combat.

In the OPFOR view, night cannot be a reason for decreasing activity. On the contrary, they use the dark of night to achieve surprise, to increase the rate of advance, and to win time. The OPFOR considers darkness to be more of an advantage and an opportunity than a reason for interruption of combat.

Combat at night is normally an extension of combat actions during the day. The battle may be carried on into the night to retain the initiative with a high offensive tempo.

a. Characteristics. The OPFOR characterizes fighting at night by the following factors:

- Darkness favors the performance of marches and maneuvers
- Easier to concentrate men and material
- Hampers enemy use of most weapons, airborne troops, and aviation
- Provides favorable conditions for achieving surprise
- Can fulfill their mission with smaller losses in personnel and equipment
- More difficult to orient
- Effectiveness of aimed fire is reduced
- Reconnaissance and target selection is more difficult

b. March. Regardless of their difficulty, night marches are a necessity. Their preparation, organization, security, and execution require a great deal of attention. The successful execution of a night march depends to a large degree on the general maintenance, organization, concealment, and rapid movement of all units.

- Greater emphasis on planning and security than day marches.
- Intervals between vehicles are shorter.
- Security elements are closer to the main body.
- Reconnaissance is conducted before and during the night march.
- No long halts
- Darkness must be used to the maximum extent of movement.
- Strict light and noise discipline are maintained.

c. Offense. A night attack may be the continuation of daytime combat, or it may be the start of a new attack. A continuation of a daytime attack must be carried through without a break so that the enemy will not have time to bring up his reserve or to regroup.

- Night attacks are often launched 2-3 hours before dawn to permit daylight exploitation of success.
- To achieve surprise, a night attack may be launched without artillery fires.
- A night counterattack is usually conducted in one echelon to simplify control.
- In an attack from positions in direct contact, illuminated markers designate lanes through mine fields and obstacles.
- In an attack from the march, units attack on an azimuth. Lines of deployment from the march to prebattle formations and to attack formations may be designated by ground markers, signal lights or flares.
- Complicated maneuvers are avoided. The most common attack formation is the line formation.
- Mechanized Infantry units normally attack dismounted.
- Intervals between units and vehicles may be reduced.
- Each artillery battalion normally designates one platoon for illumination missions.
- Artillery illumination may be either continuous or periodic. In continuous illumination, a round is fired every 20 to 30 seconds to turn "night into day."

c. Defense. Night creates many difficulties for the attacking forces but offers considerable advantages to the defender. Darkness reduces the effectiveness of an attacker's reconnaissance, observation, and aimed fires. Darkness also provides the defender with better concealment than the attacker.

- Requires a comprehensive defense operation order.
- Additional observation posts are established if required.
- Illumination plays a critical part of the defense at night.
- An illumination plan will include:
 - Illuminating the area forward of the main defensive area.
 - Blinding the enemy.
 - Support to counterattacks.
- Illumination may be provided by artillery, mortars and flares.
- Defense plan may include establishing ambushes and using patrols to cover gaps between strongpoints.

AA - antiaircraft
AAG - army artillery group
abn - airborne
ACRV - artillery command and reconnaissance vehicle
ACV - armored command vehicle
AD - air defense
ADC - Air Defense Command
aer surv - aerial surveillance
AGL - automatic grenade launcher
AGMB - advance guard main body
ammo - ammunition
APC - armored personnel carrier
ARAG - army rocket artillery group
arty - artillery
ASC - armored scout car
asst - assistant
AT - antitank
ATGL - antitank grenade launcher
ATGM - antitank guided missile
ATRL - antitank rocket launcher
auto - automatic
avn - aviation

bde - brigade
BLUFOR – Blue Force
bn - battalion
BRAG - brigade artillery group
btry - battery

CCD – Camouflage, Concealment & Deception
cdr - commander
chem - chemical
CM/CB - countermortar/counterbattery
co - company
const - construction
COP - command observation post
CRP - combat reconnaissance patrol

DAG - division artillery group
decon - decontamination
DF - direction-finding
div - division or divisional
DMI - Directorate of Military Intelligence

EC - electronic combat
ES - electronic support
engr - engineer

FDC - fire direction center

FROG - free rocket over ground

FSE - forward security element

GP - general-purpose

gun-how - gun-howitzer

HF - high-frequency

HMG - heavy machinegun

HQ - headquarters

hvy - heavy

IC – infantry company

IFV - infantry fighting vehicle

inf - infantry

intcp - intercept

km - kilometer

LASER – Light Amplification by Stimulated Emission of Radiation

LBR – LASER Beam Rider

lchr - launcher

LMG - light machinegun

LOC – Line of Communication

maint - maintenance

mat spt - maintenance support

MD - military district

mech inf - mechanized infantry

med - medical or medium

met - meteorological

METT-T – Mission, Enemy, Troops, Terrain and weather - Time

MG - machinegun

MHZ - megahertz

MIBR – Mechanized Infantry Brigade

MIBN – Mechanized Infantry Battalion

MID – Mechanized Infantry Division

MOD – Mobile Obstacle Detachment

mm - millimeter

MRL - multiple rocket launcher

msl - missile

MSD – Movement Support Division

mtzd inf - motorized infantry

NBC - nuclear, biological, and chemical

OPFOR - Opposing Force

photo-recon - photographic reconnaissance

plt - platoon

POL - petroleum, oil, and lubricants

prep - preparation

recon - reconnaissance

recon & EC - reconnaissance and
electronic combat

regt - regiment

RPV - remotely-piloted vehicle

R/T - radio telephone

SACLOS – SemiAutomatic Line Of Sight

SAM - surface-to-air missile

sect -section

sep - separate

SP - self-propelled

SPF - special-purpose forces

spt - support

sqd - squad

sqdn - squadron

SSM - surface-to-surface missile

svc - service

TBN – Tank Battalion

TBR – Tank Brigade

TD – Tank Division

tech - technical

TEL - transporter-erector-launcher

TELAR - transporter-erector-launcher and radar

tgt acq - target acquisition

TO&E – Table of Organization and Equipment

UHF - ultrahigh-frequency

veh - vehicle

VHF - very-high-frequency

warn - warning

wpn - weapon