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THE IRAQI ARMY

Organization and Tactics

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THE IRAQI ARMY

Organization and Tactics

Prepared by:
The S2, 177th Armored Brigade
and the Operations Group of the National Training Center

Preface

The Iraqi invasion of Kuwait on 2 August 1990 generated an intense interest in the organization and capabilities of the armed forces of Iraq. However, two difficulties immediately became apparent in the consolidation and dissemination of information about Iraq. First, no single source reference detailed all the known information about the armed forces of Iraq. Second, Iraq represented a viable third-world "threat," about which very little unclassified data was available.

The large body of information available, mainly classified, concerning Iraqi military operations from the Iran-Iraq war may not be useful in drawing direct parallels to future Iraqi operations.

For example, the Iraqis used infantry units (divisions, brigades, and battalions) reinforced with tanks. These light forces often conducted limited offensive operations, movements to contact, etc.

In the future, given a different enemy, on different terrain, Iraqi mechanized infantry and armored division operations would likely take on a Soviet style and pace. Infantry divisions and brigades would rarely conduct attacks or movements to contact in a desert environment.

Consequently, a joint intelligence work group under the direction of the National Training Center (NTC) Threat Manager developed this tactical handbook on the Iraqi armed forces using the FM series 100-2, *The Soviet Army*, as the foundation for its content and organization, for use at the NTC as a third-world threat model.

The group consisted primarily of intelligence personnel of both the 177th Armored Brigade and NTC Operations Group. The NTC SSO and the Training Detachment, Foreign Materiel Intelligence Battalion provided technical assistance. The Combined Arms Center Threats Directorate and the entire intelligence community, particularly the US Army Intelligence and Threat Analysis Center, made significant contributions to the final draft.

The NTC wishes to especially thank the Defense Intelligence Agency for its responsive support and assistance in the research and production of this handbook.

While many people contributed to the initial draft of this handbook, the NTC Threat Manager (The S2, 177th Armored Brigade) edited this final draft. He is solely responsible for decisions concerning inclusion of information in its content.

For additional information, call the 177th Armored Brigade ASPS AV 470-5122/4837 (STU-III), or write: Commander, 177th Armored Brigade, ATTN: AFZJ-AB-I, Fort Irwin, CA 92310-5031.

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CHAPTER 1

IRAQI GROUND FORCES

1. IRAQI ARMED FORCES STRUCTURE

British military influence in the Middle East prior to and immediately after the Second World War is well documented. Similar historical impact can be found in the nations of the Far East and the Pacific Rim as many nations derived principles of national government and military organization from those of the British Empire as the colonial period drew to a close. The states of India, Pakistan, Israel, and others can be seen today as examples of this lingering British impact on what have become otherwise independent and completely sovereign nations. This historical background explains some of what would otherwise seem unexpected in a nation viewed in light of the present situation.

The Iraqi armed forces were originally organized along the lines of the British General Staff model. This organization governs land operations ranging from the lowest unit, the squad, up to the largest standing unit, the corps.

Soviet influence, combined with experience derived from the 1980-1988 Iran-Iraq war, have forced modification of the original British model in both organization and doctrine. Expediency and the wide range of equipment, organization, and training levels among units necessitate variations among units. Although a variety of unit organizations and equipment exists, this chapter will address a standard model for each type of organization.

2 GENERAL HEADQUARTERS

The General Headquarters (GHQ) is the highest military echelon. Controlled by the army, it integrates army, air force, navy, and popular army operations. While the GHQ is primarily a staff element, it can deploy a forward command post to the front. GHQ

controls both regular army corps and a corps-level strategic reserve designated the Republican Guard Forces Command (RGFC) (see Figure 1).

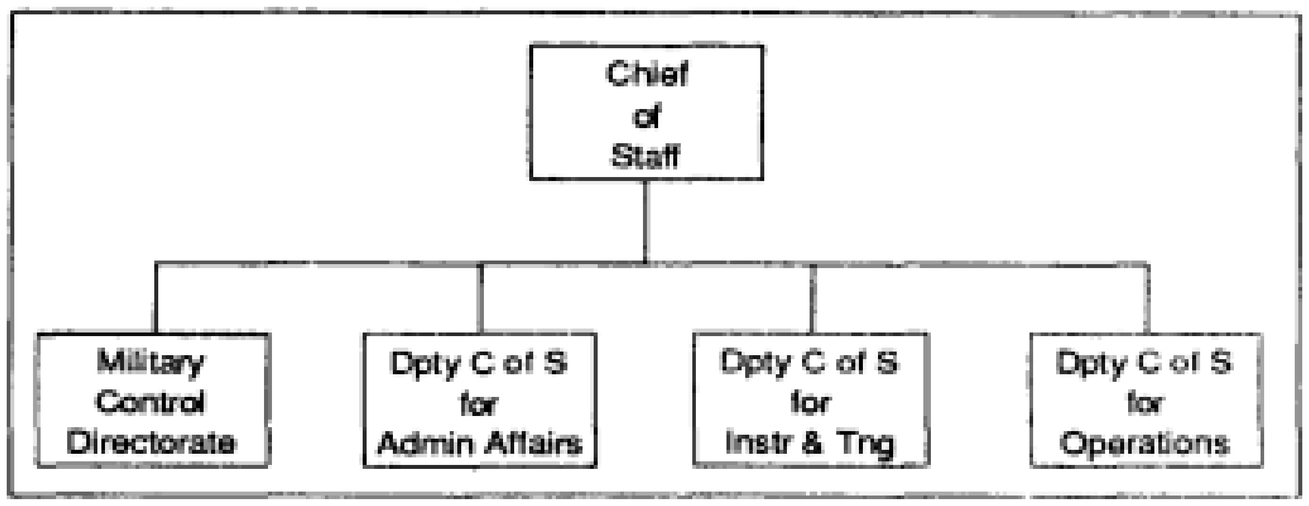


Figure 1 Iraqi General Headquarters Organization

3. THE REGULAR ARMY CORPS

The corps is the operational headquarters for the Iraqi army. There is no intermediate headquarters between corps and GHQ. Regular army corps have territorial areas of operation. The RGFC, a mobile command conducting operations wherever directed, will be dealt with separately below. Iraqi corps bear the responsibility for administration and logistics as well as combat operations. The corps frequently has operational control over as many as 10 divisions. The burden of support operations and the command and control of additional elements often force corps to send out a forward command post.

4. THE CORPS STAFF

The commander is responsible for all things done or not done by his corps. He gives guidance for and approves operational plans and orders. He directs the corps combat operations. The Internal Security and Morale Officer is directly subordinate to the commander (as the armed forces branch representative of the Ba'ath Party), and works very closely with the political officer. The political officer, who is not assigned to the corps, monitors corps adherence to the party line.

The corps chief of staff coordinates all staff sections. In some corps, he is designated as the corps deputy commander.

The General Staff Officer 1 (GSO1) for Operations conducts operational planning, including collection and analysis of intelligence. The GSO1 for Administration and Logistics handles operational planning in those fields, and during combat operations, commands the rear administrative area.

Additionally, there are special staff who command or supervise each of the combat, combat support, and combat service support organizations, both attached and organic. They provide technical input for operational plans.

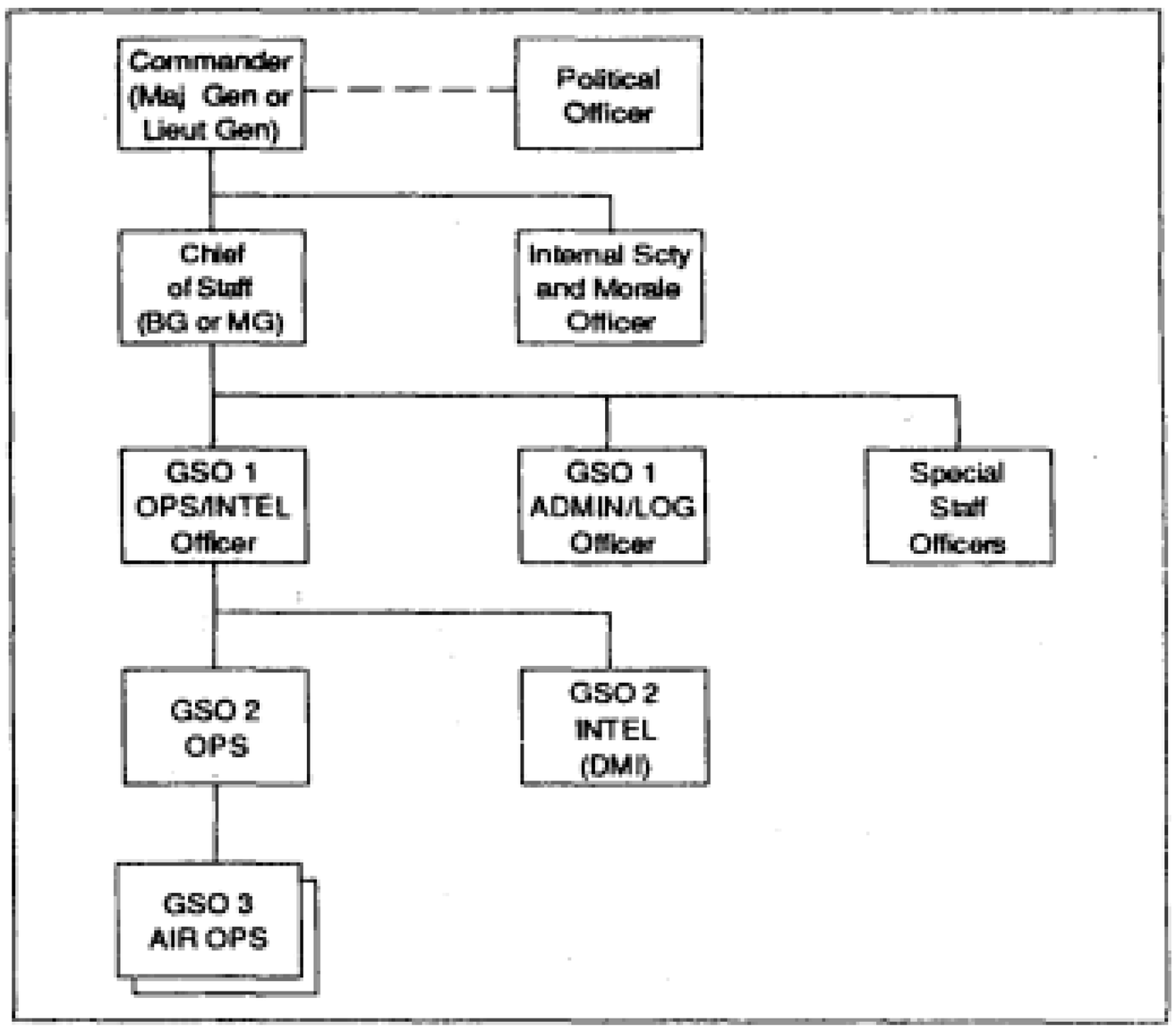


Figure 2 Iraqi Corps Staff Organization

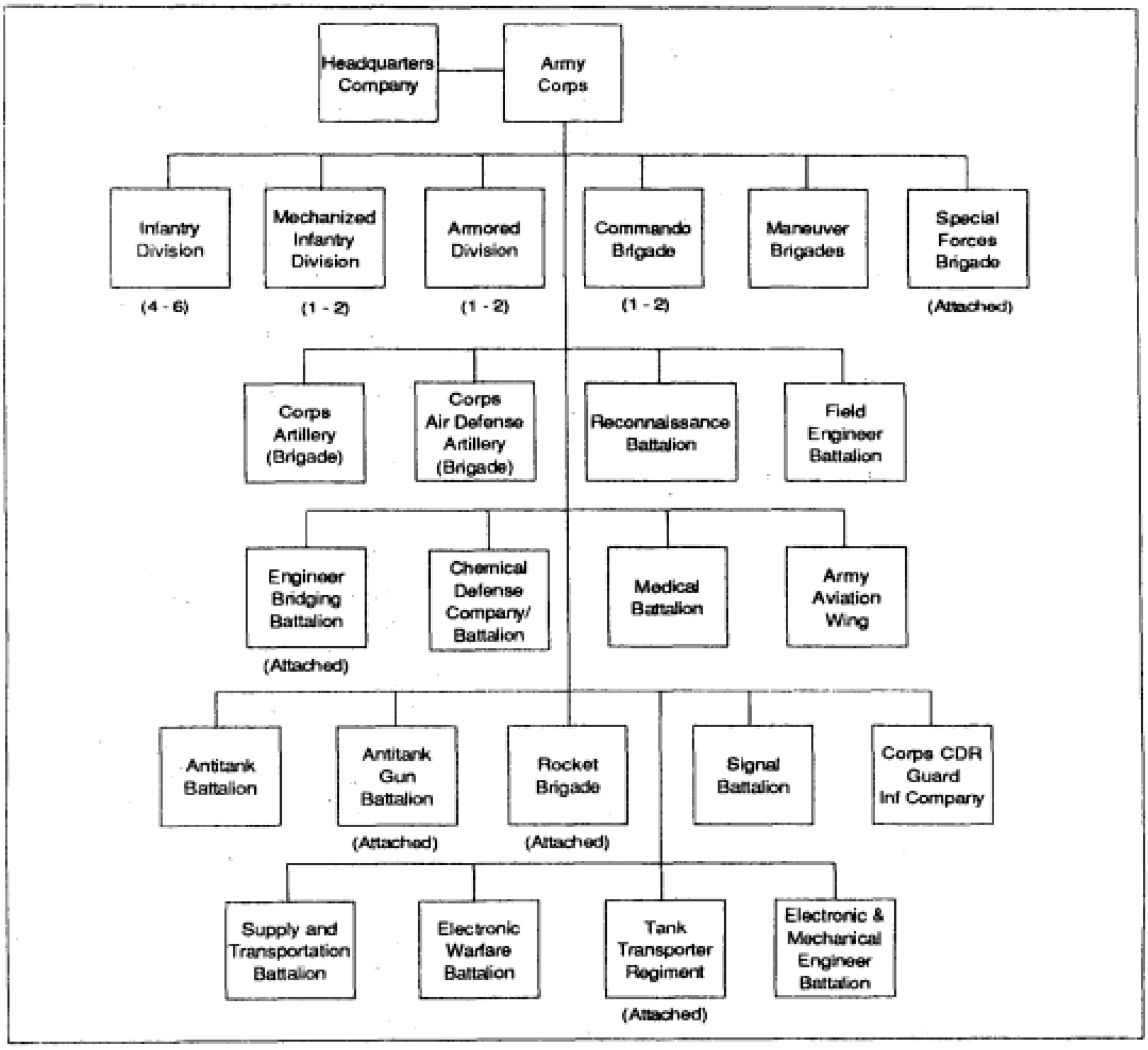


FIgure 3 Example of an Iraqi Army Corps Organization

5. THE CORPS ORGANIZATION

The regular army corps may control, at one time, from 5-7 divisions. This could be a mix of up to six infantry divisions, one to two mechanized infantry divisions, and one to two armored divisions. Other units organic to the corps include brigade size or larger artillery and air defense artillery units, a reconnaissance battalion, one or two commando brigades, a field engineer battalion, an army aviation wing, an antitank battalion, a signal battalion, electronic warfare battalion, a chemical defense company/battalion, a supply and transportation battalion, a corps commander guard infantry company, a medical battalion, and an electronic & mechanical engineer battalion. Attached to the corps from GHQ can be an engineer bridging battalion, an antitank gun battalion, a rocket brigade, a special forces brigade, and a tank transporter regiment (see Figure 3).

Corps Artillery (Brigade)

Each of the corps' artillery battalions (typically three) has 18 122-mm towed howitzers, though in some cases there are 130-mm, 152-mm, or 155-mm also. The battalions fire conventional and chemical rounds. The howitzers are towed by IFA (East German), Tatra (Czechoslovakian) or ZIL and URAL (Soviet) trucks. Artillery crews carry Tokarev or Makarov pistols. Other enlisted men in the brigade carry Soviet AK rifles.

The mission is to provide artillery support to front line units, destroy enemy targets, harass the enemy, illuminate areas of operation, locate enemy through tracking of incoming rounds, and perform surveying. In addition to the brigade size artillery unit, the corps can receive additional artillery assets for specific purposes.

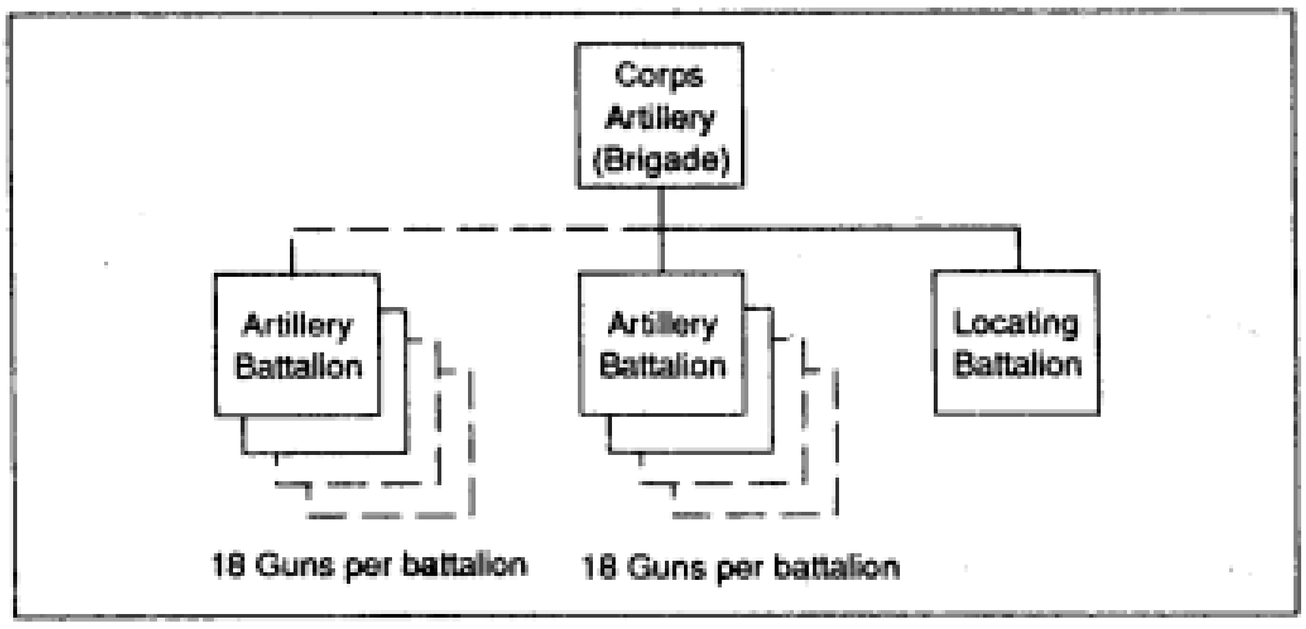


Figure 4 Corps Artillery (Brigade)

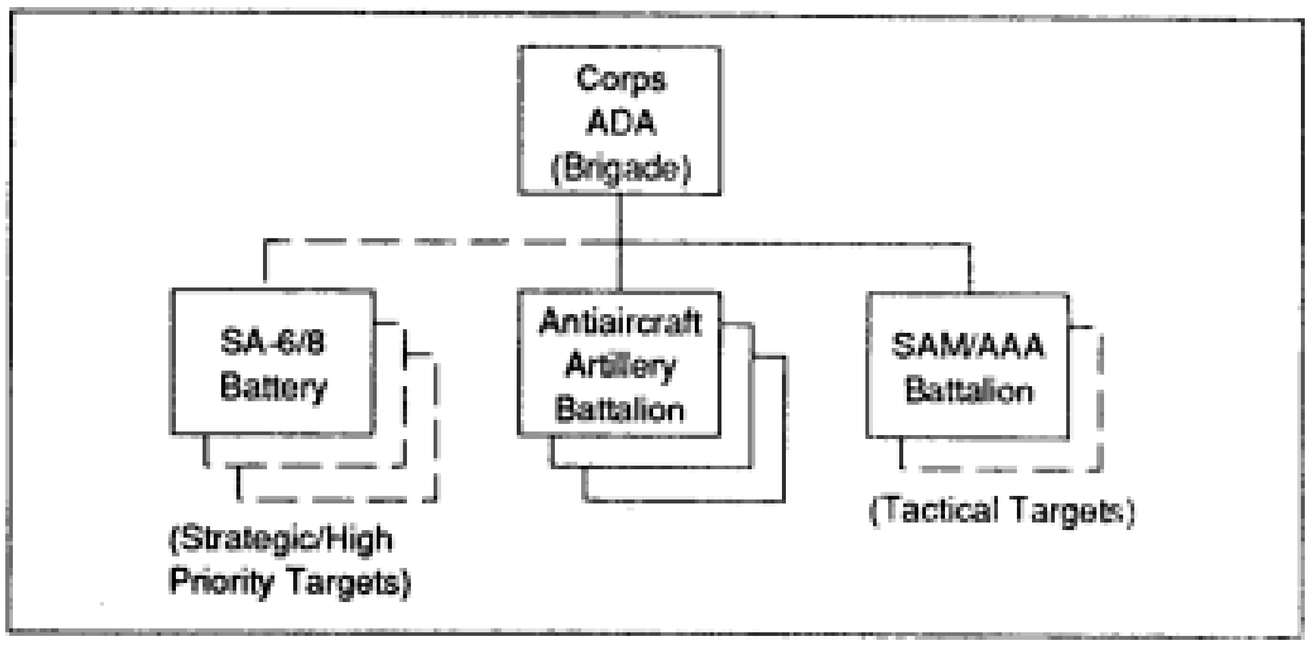


Figure 5 Corps Air Defense Artillery (Brigade)

Corps Air Defense Artillery (Brigade)

Air defense artillery assets assigned to corps depend upon the mission and makeup of the Iraqi corps. Iraqi corps probably have a brigade size air defense artillery (ADA) unit for protection of the corps headquarters and logistics areas. This unit is probably composed of one to three battalions of the 57-mm S-60 with 18 S-60s per battalion.

The ADA unit may also contain the 37-mm M1939, or the ZSU-23-4 in place of, or in addition to, the S-60s. The Iraqis have demonstrated a high degree of flexibility in employing ADA assets at corps and below. For example, corps may be assigned SA-6/8 units from GHQ for defense of high priority sites and/or units.

Additional surface to air missile (SAM) and antiaircraft artillery (AAA) assets may also be assigned to corps to augment ADA coverage of corps level facilities, or to increase ADA support for subordinate maneuver and support units. SA-2/3 may also be deployed in corps areas to protect key radar targets but remain under control of the air defense sector commander and are not subordinated to the Army (see Chapter 9).

Reconnaissance Battalion, Corps

The reconnaissance battalion consists of two companies, each equipped with 18 BRDM-2 (6 in each platoon) and 5 BTR-50 command vehicles. This unit may also contain a long range reconnaissance element for the conduct of extended patrols behind front lines. Some corps-level reconnaissance battalions, like divisional battalions, may be equipped with French AML M3-VTTs or Yugoslav M-60 APCs.

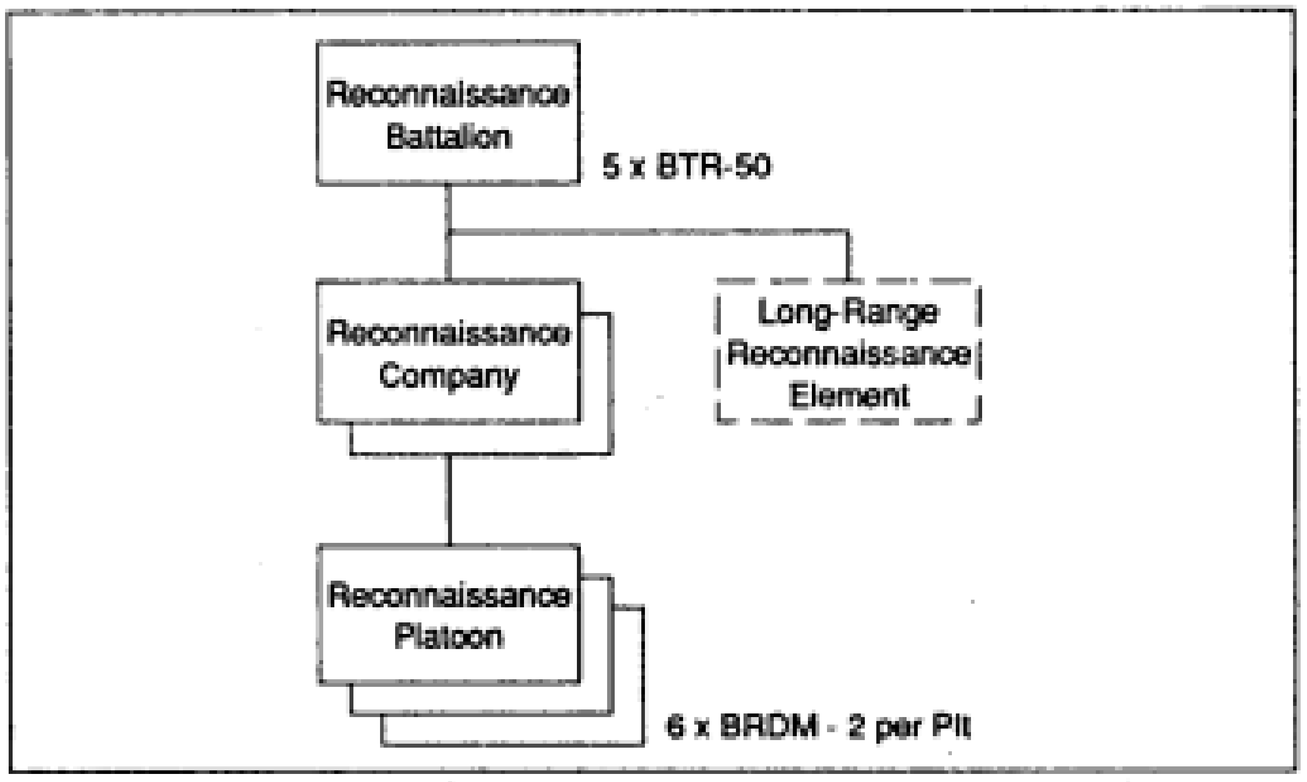


Figure 6 Reconnaissance Battalion, Corps

Field Engineer Battalion, Corps

The field engineer battalion is equipped with an unknown number of EVA and ZIL trucks with barbed wire-laying equipment, graders, and GAZ-69 and -63 transport vehicles. The battalion's mission includes constructing obstacles, conducting engineer reconnaissance, constructing defensive positions, clearing enemy obstacles, building roads, and supporting bridging units in bridging operations. GHQ sometimes assumes control of the field engineer battalions to gain greater centralization of the overall engineer effort. GHQ moves these battalions around the area of operations based on its analysis of the situation.

Engineer Bridging Battalion, Corps

The engineer bridging battalion is equipped with MTU-20 scissor bridge vehicles, pontoon bridge vehicles, and GSP ferries. It is often tasked with building bridges.

Chemical Defense Company/Battalion, Corps

The chemical defense company/battalion at corps is equipped with personnel decontamination trucks containing showers, equipment decontamination trucks with hoses, and chemical reconnaissance equipment on GAZ-66 vehicles. Also available are a number of tents for decontamination, and laundry equipment to decontaminate personal clothing.

The unit's mission is to decontaminate personnel and equipment, establish chemical-free areas, perform chemical reconnaissance, and train soldiers in personal protective measures. The unit can

also be given the mission to use flamethrowers to clear an area, possibly indicating that these units may also have a flame warfare capability.

Medical Battalion, Corps

This unit is equipped with ambulances and vehicles set up as field hospitals. Helicopters for evacuation are provided by the aviation wing.

Army Aviation Wing, Corps

The army aviation wing is usually organized with three to six (usually five) attack, assault, or transport squadrons, equipped with HIP C/H, HIND A/D, Alouette III, and/or Gazelle. They may also have BO-105 or Hughes 500. The wing's mission is to conduct aerial reconnaissance and attack enemy tanks and fortifications. It also provides medical evacuation, transportation, aerial illumination for ground operations, and aerial observation for artillery. The wing may also have a fixed-wing light aircraft squadron of PC-7s and/or Tucanos.

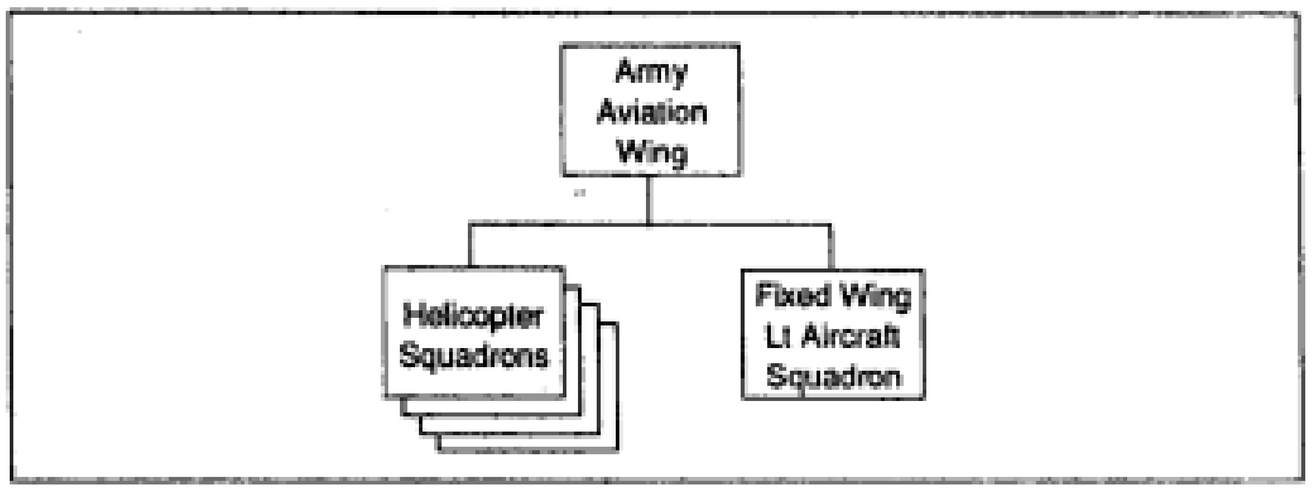


Figure 7 Army Aviation Wing, Corps

Antitank Battalion, Corps

The mission of this unit is to support infantry against tank attacks. Typical pre-1980 antitank battalions had up to 40 BRDM-Sagger in five companies. Some battalions are now equipped with the French VCR/TH with HOT missiles. Each company has two trucks and three jeeps.

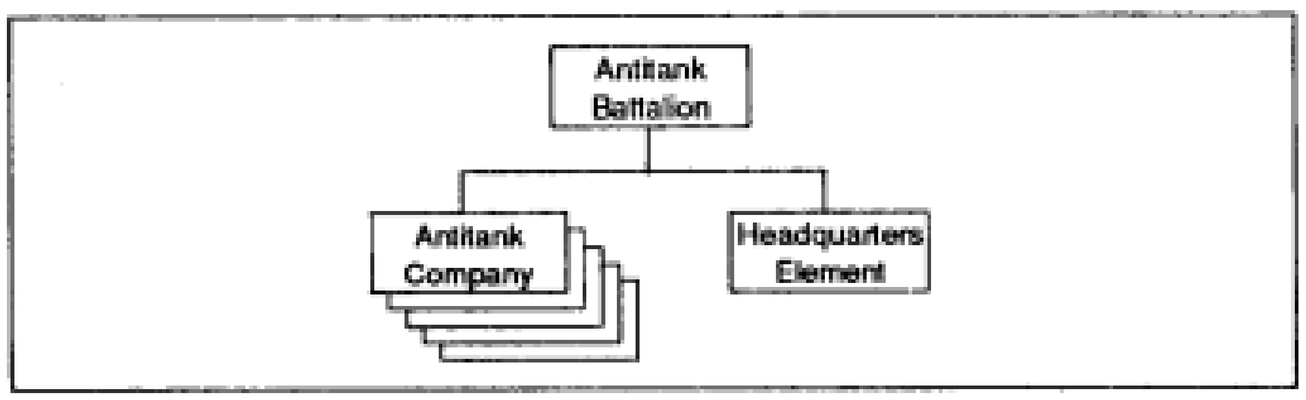


Figure 8 Antitank Battalion, Corps

Rocket Brigade, Corps

Iraqi rocket brigades use Soviet made FROG rockets, and may be augmented by MRL systems. The unit's mission is to destroy installations in the enemy rear. Both conventional and chemical warheads may be available.

Brigades probably consist of 18 transporter-erector-launchers (TELs) organized into 3 battalions, with three batteries in each battalion and two TELs in each battery. Brigades or battalions may be allocated to support corps.

System	Airframe	Max Range	Launchers
FROG-7	FROG-7	70 km	ZIL-135
LAYTH 90	FROG-7	90 km	ZIL-135

Iraq has three operational SRBM systems consisting of the Soviet SCUD-B and two Iraqi modified SCUDS: the AL-HUSSEIN and the AL-ABBAS. All systems may be capable of delivering chemical warheads. Iraq has demonstrated a range capability of approximately 600(+) kilometers with the AL-HUSSEIN or AL-ABBAS, but the missiles are less accurate than the original SCUD-B. The missiles may be launched from the Soviet MAZ-543 TEL, or Iraqi made ELs. Iraqi SCUDs are probably under the control of the GHQ artillery directorate.

System (SRBM)	Airframe	Max Range	Launchers
SCUD B	SCUD	300 km	MAZ-543 TEL
AL-HUSSEIN	SCUD	600 km	MAZ-543; AL WALEED EL
AL-ABBAS	SCUD	600 km	MAZ-543; AL WALEED EL

The payload and warhead mass for the SCUD-B are 1000 kg and 800 kg respectively.

Signal Battalion, Corps

The signal battalion provides communications for the corps using landline wherever possible, radio as a secondary means, and couriers when other means are unavailable. It is probably similar to the division signal battalion. The landline company is also responsible for communications centers.

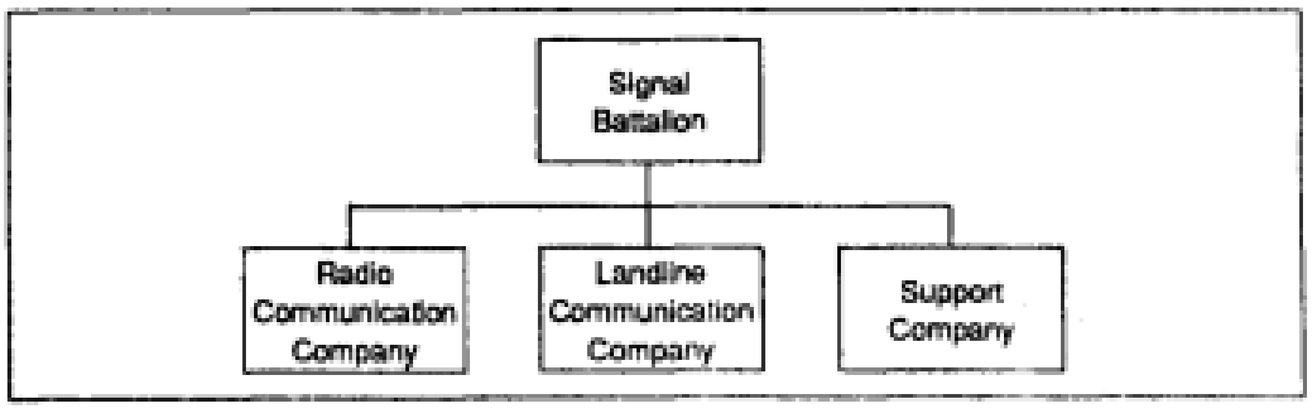


Figure 9 Signal Battalion, Corps

Corps Commander Guard Infantry Company

This unit provides personal security for the corps commander and staff.

Headquarters Company, Corps

This company provides logistics, administrative, and maintenance support to corps headquarters, and security for the headquarters area.

Electronic Warfare Battalion, Corps

This unit collects signals intelligence, jams enemy communications, provides signal security for corps communications, and locates enemy signal units using direction-finding equipment.

Specific order of battle for EW battalions vary by mission. A typical EW (communications and jamming) battalion looks like Figure 10. Systems are a mix of Soviet and Western equipment. The Iraqis have installed some EW equipment on helicopters and aircraft.

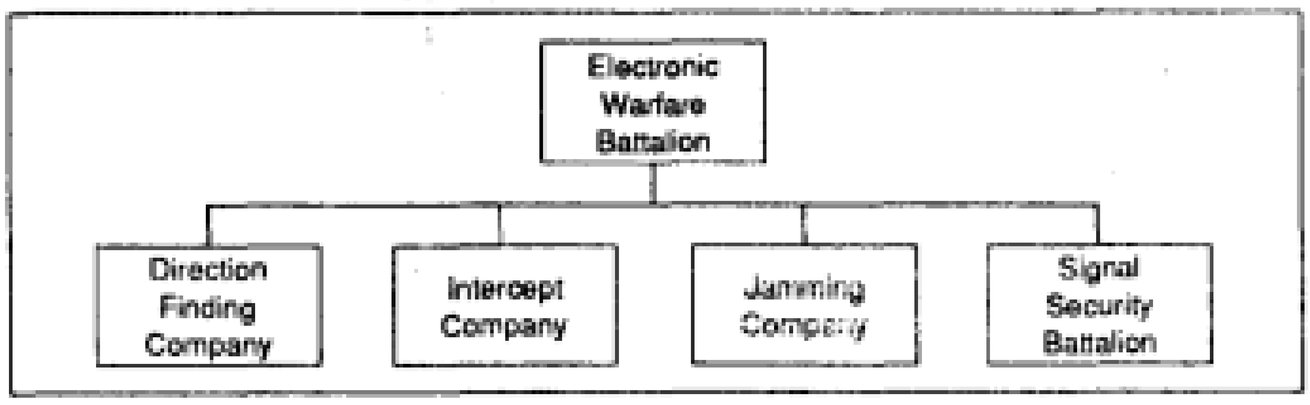


Figure 10 Electronic Warfare Battalion (Communications and Jamming) Organization

Commando Brigade, Corps

The commando brigade provides rear area security, acts as a reserve force, and performs special duties such as clearing marshes. All corps have one to two commando brigades.

Special Forces Brigade, Corps

Although special forces brigades are normally GHQ units, they are sometimes placed under operational control of corps.

6. THE REGULAR ARMY DIVISION

The Iraqi regular army has three basic types of divisions: armored, mechanized, and infantry. The basic organizational structure of each type of division is similar. They consist of three maneuver brigades, divisional artillery, and various combat support and service support units (see Figure 11). Typically, a mechanized division has two mechanized brigades and an armored brigade, while an armored division has two armored brigades and one mechanized brigade. The infantry division has three infantry brigades and a single organic tank battalion.

Divisions have not been limited to their "authorized" organization. Divisions have been known to have 6 to 8 maneuver brigades under their control at any one time, depending on tactical requirements and the perceived threat in sector. A division's designation (e.g. armor or mech) does not necessarily mean that this is how it is internally organized.

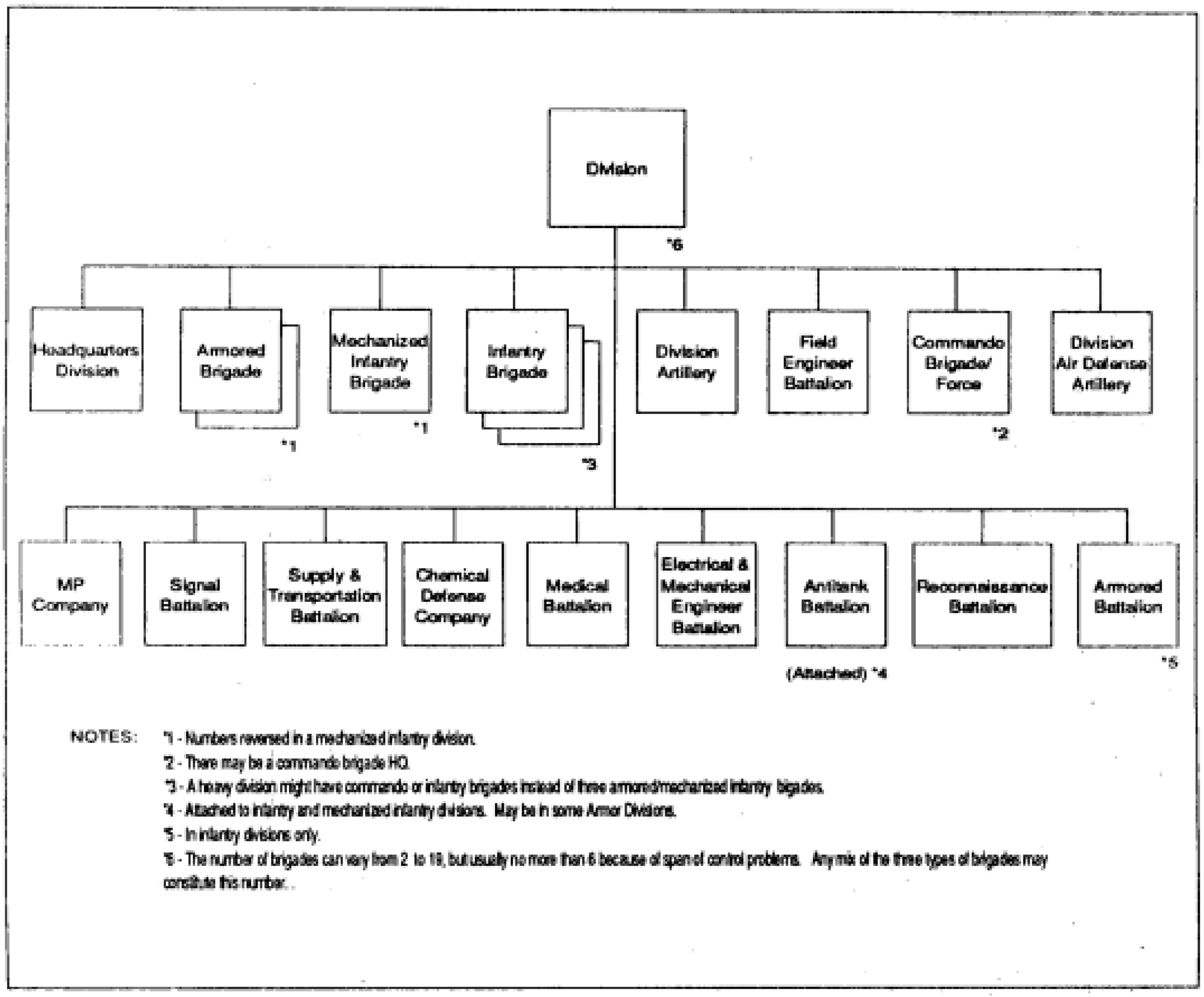


Figure 11 Typical Iraqi Division Organization

Division Artillery

Each of the three (or four) division artillery battalions has three batteries, a maintenance company, and a service company. Each battery has two firing platoons. In an infantry division, the artillery is towed; in an armored division, it is usually self propelled; in a mechanized division it is towed and self propelled. A towed battalion has East German, Czechoslovakian, or Soviet prime movers. Artillery gun crewmen are armed with pistols, and the rest with rifles.

During operations, a variety of additional artillery units can be attached to the division. Three battalions will provide direct support, one to each brigade in the division. The fourth provides general support to the division under the control of the division artillery staff. Light artillery batteries are part of division artillery. Normal organization is one battery per division, but more may be assigned. Most are equipped with twelve 120-mm mortars, but others have MRLs such as the 107-mm Type 63. These batteries may be employed in a dedicated role with a maneuver brigade. Heavier caliber mortars may be found in independent batteries subordinate to higher headquarters.

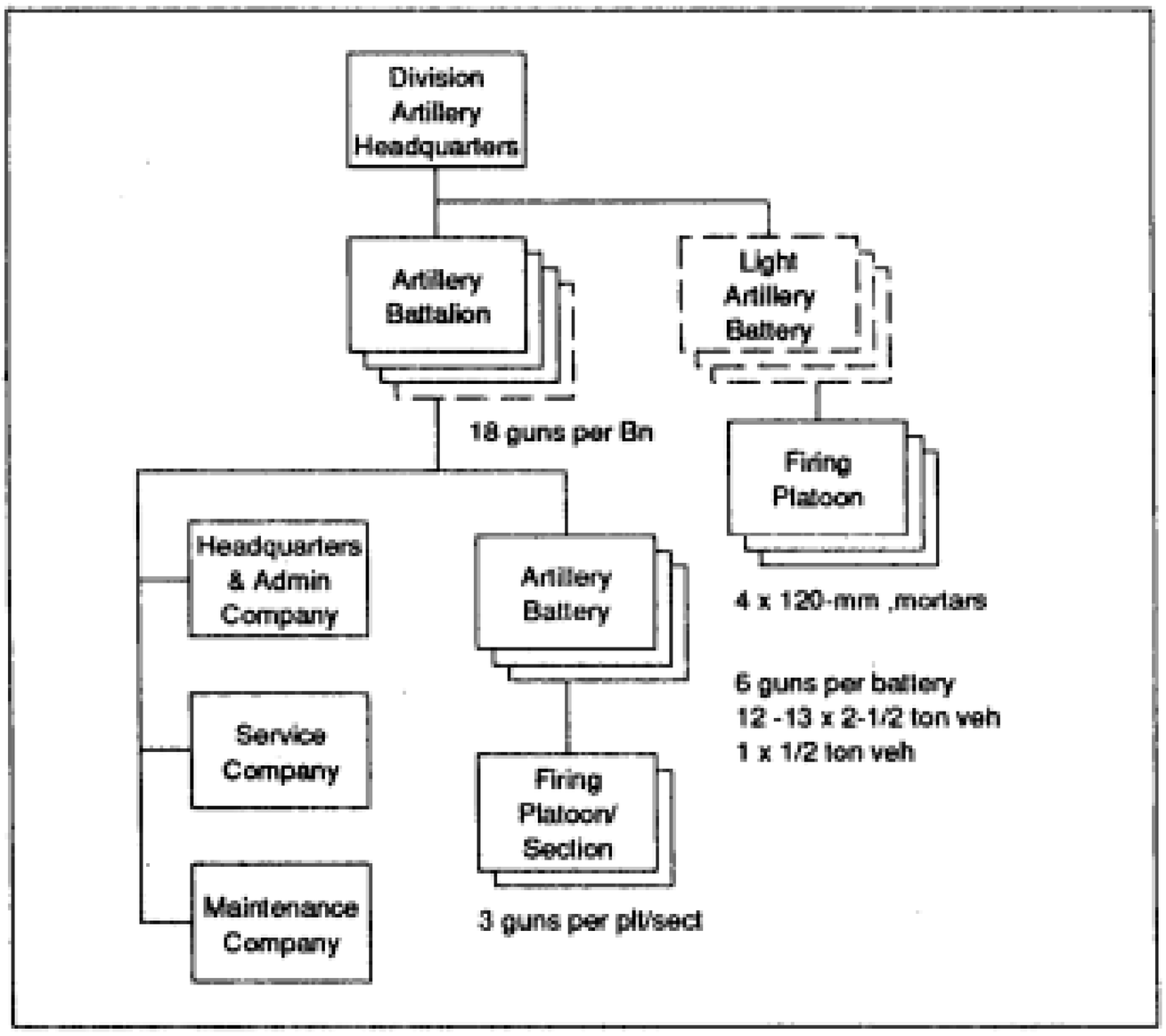


Figure 12 Division Artillery Organization

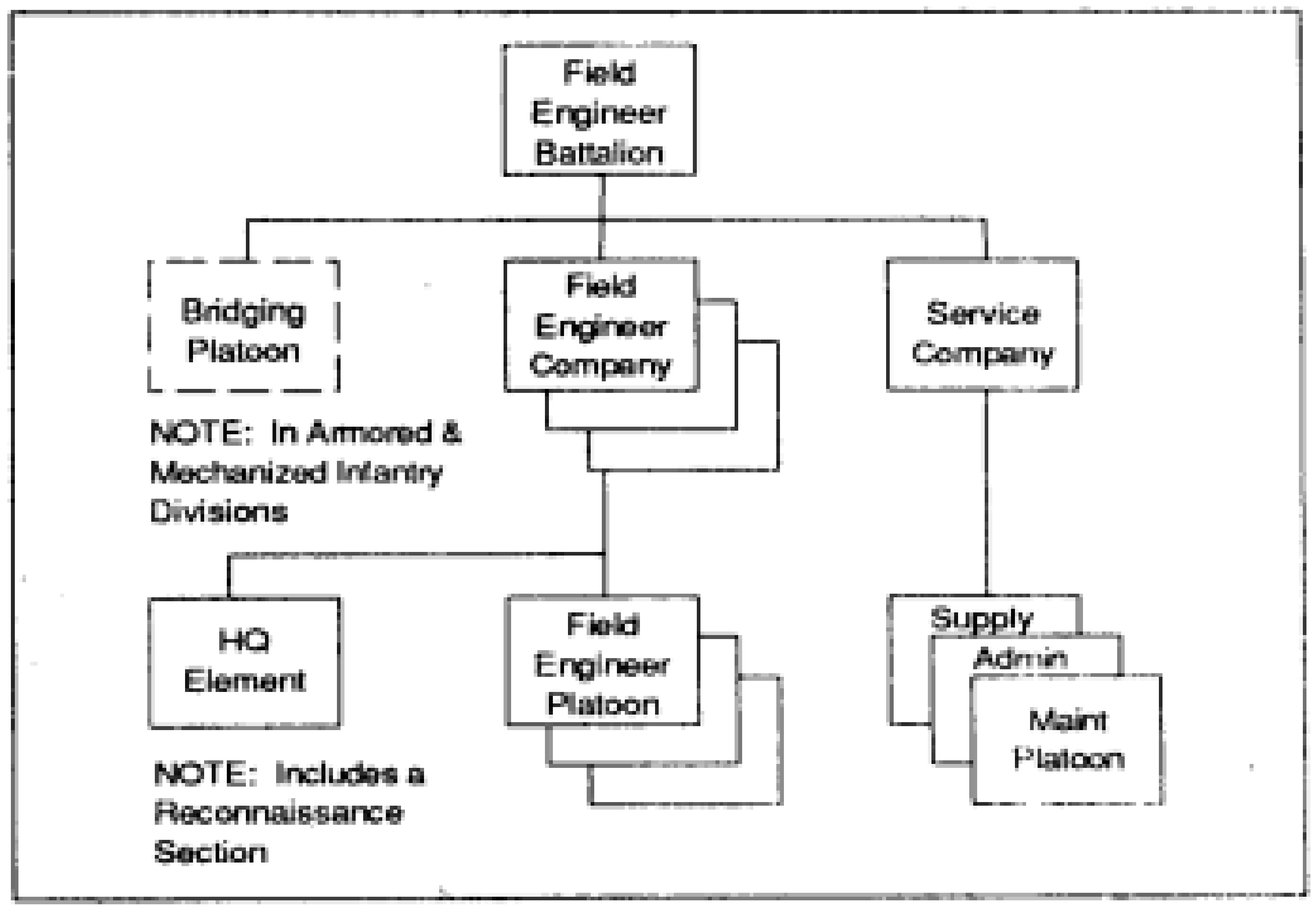


Figure 13 Field Engineer Battalion, Division

Field Engineer Battalion, Division

The battalion is composed of three engineer companies and a service company. The engineer battalion of an armored/mechanized division also has a bridging tank platoon. The service company consists of a supply platoon, an administrative platoon, and a maintenance platoon.

The engineer companies are normally attached to maneuver brigades. The battalion is equipped with a number of EVA, ZIL, and GAZ trucks. The ZILs are equipped with barbed wire layers and graders. The responsibilities of the battalion include construction of obstacles and defensive positions, and engineer reconnaissance. The unit also clears enemy obstacles, builds roads, provides bridging support, and assists the chemical defense company in decontamination operations.

Division Air Defense

Iraqi divisions may have non-standard air defense organizations, due to the wide variety of AAA and SAM systems in the Iraqi inventory, the subordination and type of division, and division missions. Figures 14, 15 and 16 depict divisional organic air defense organizations. Additional air defense assets are often attached to division from GHQ and corps depending on the situation.

Armored Division Air Defense

Figure 14 depicts an assessment of air defense resources in an armored division. Principal air defense units found in this type of division include AAA battalions, SA-9 battalions, and a single SPAA battalion. Armored divisions may have one to three AAA battalions, each with 18 guns. Fire control radars are tied in to the gun systems.

Armored divisions also have one to three SA-9 battalions. These battalions have a unique organization consisting of nine SA-9s and nine ZSU-23-4s. The SPAA battalion has either nine ZSU-23-4s or nine BTR-50 mounted AAA guns of varying calibers. Some heavy divisions, possibly RGFC-subordinated, may substitute SA-13s for SA-9s. Also, SA-6 units have been associated with Republican Guards and some regular army heavy divisions.

SA-7/14/16s would likely be organic to the division, depending on availability of these systems. Normally there would be 81 per division, organized in 27 three-man teams. This is normally sufficient for 3 three-man teams per maneuver battalion.

Early warning platoons equipped with Soviet manufactured radars may be attached to armored divisions. Early warning information is relayed to the air liaison officer located at the Interceptor Operations Center (IOC) in each air defense sector. If the air liaison officer at the IOC does not provide early warning information to maneuver divisions in his air defense sector, units located in his sector may not receive advance warning.

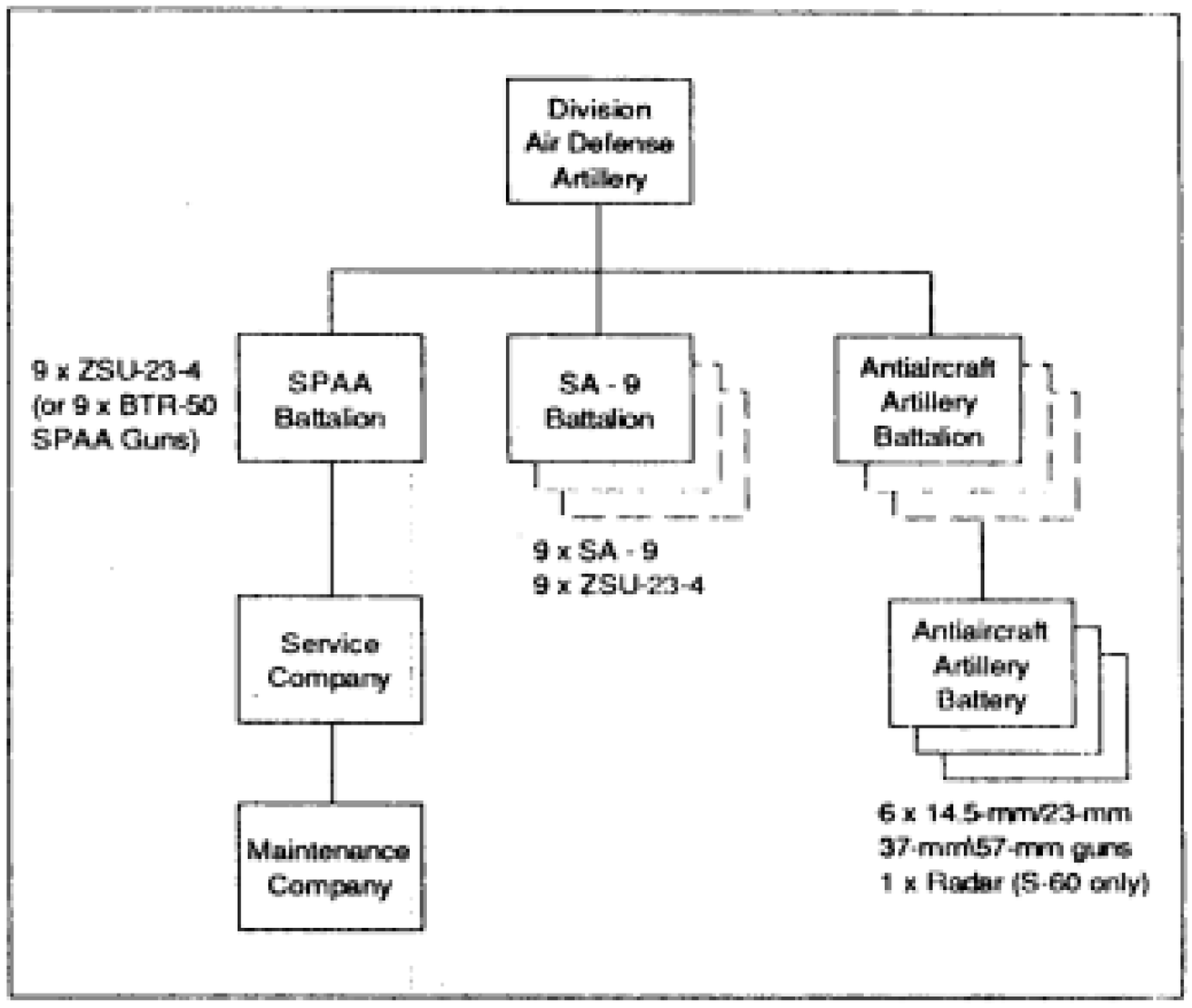


Figure 14 Armored Division Air Defense

Mechanized Infantry Division Air Defense

Mechanized divisions (Figure 15) appear to have about the same air defense unit composition as an armored division. The mechanized division has a AAA battalion with the standard 18-gun organization and a separate SPAA battalion consisting of nine ZSU-23-4s. SA-7/14/16s are present as in the armored division.

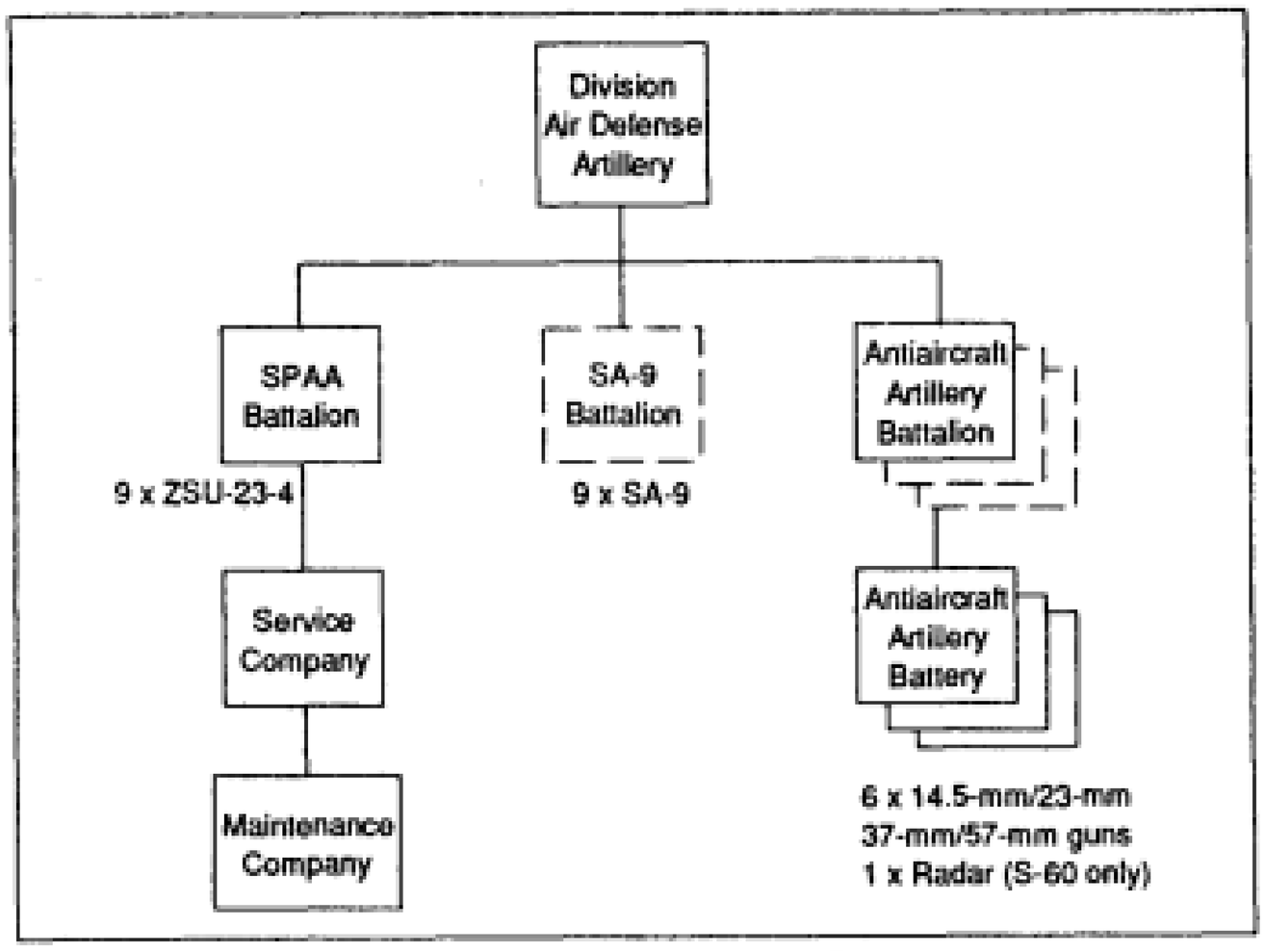


Figure 15 Mechanized Infantry Division Air Defense

Infantry Division Air Defense

Infantry divisions (Figure 16) are normally equipped only with air defense guns and man-portable SAM systems (SA-7/14/16s).

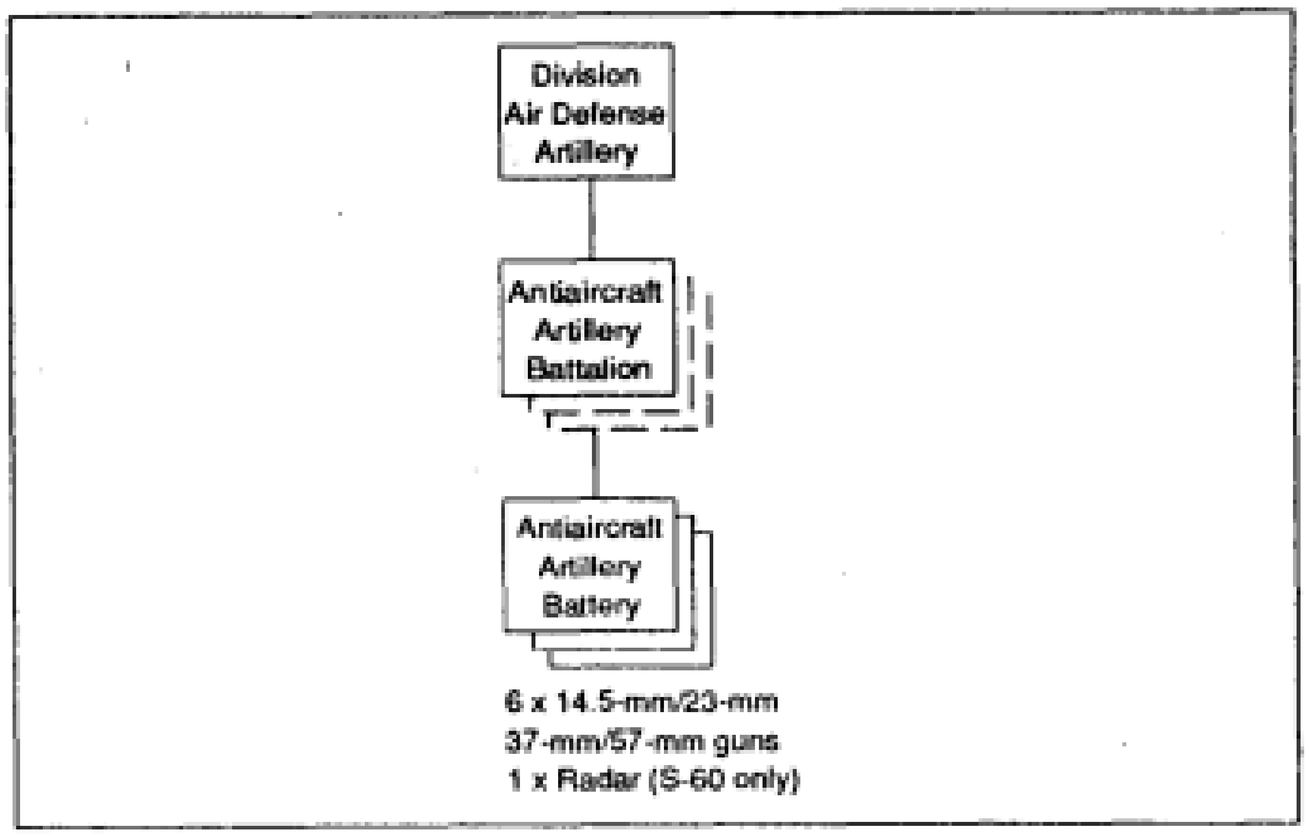


Figure 16 Infantry Division Air Defense

Signal Battalion, Division

The signal battalion is composed of a landline company, a radio company, a service company, and an electrical maintenance company. The radio company may have a jamming platoon as well as a receiving and transmitting platoon, so that in addition to normal communications missions, the battalion may collect signals intelligence and jam enemy communications.

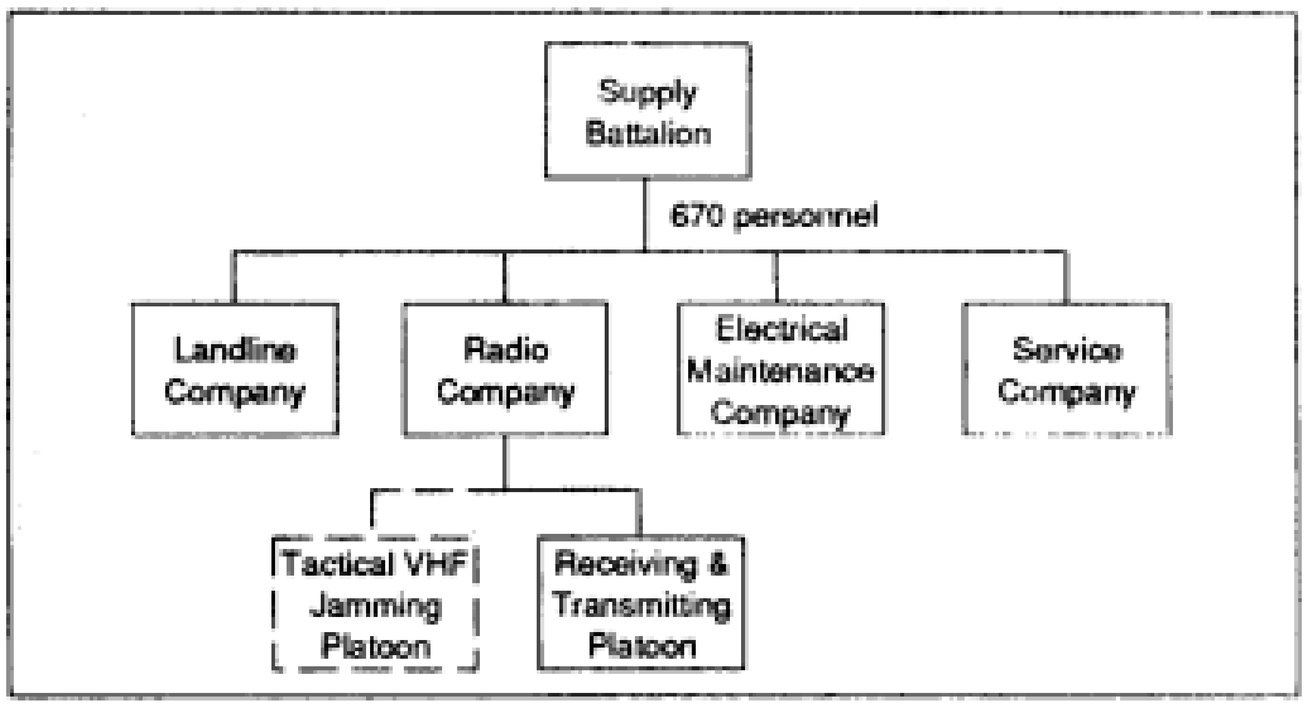


Figure 17 Signal Battalion, Division

Electrical and Mechanical Engineer Battalion, Division

The battalion consists of a headquarters with three field workshops and one medium workshop, providing vehicle, weapons, and miscellaneous equipment maintenance. The battalion provides 2nd and 3rd echelon maintenance services for the infantry brigades.

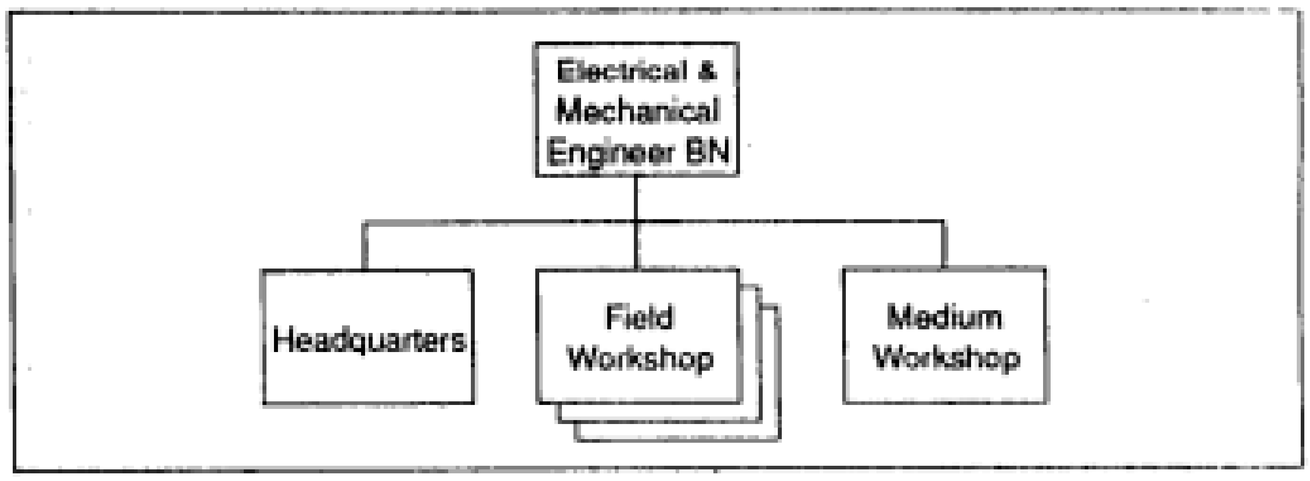


Figure 18 Electrical and Mechanical Engineer Battalion, Division

Chemical Defense Company, Division

The company has a services and supply platoon, a chemical reconnaissance platoon, a vehicle decontamination platoon, and a weapons and equipment decontamination platoon. The company

has the same equipment as the corps chemical defense company/battalion. These units may have been consolidated at corps level.

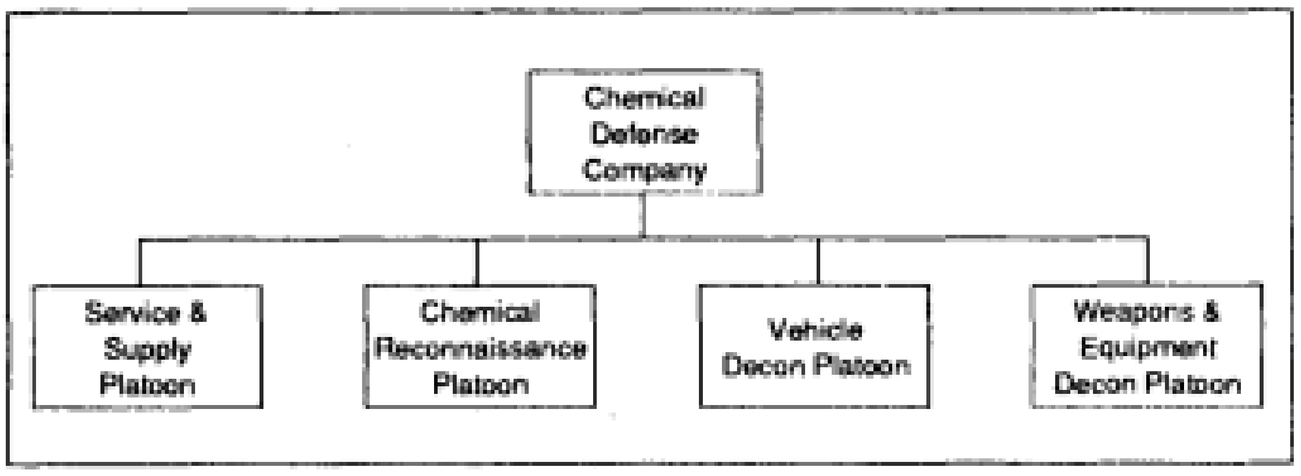


Figure 19 Chemical Defense Company, Division

Commando Brigade/Force, Division

This unit serves as an elite strike force for the division. It often leads in infantry assaults or reacts to block penetrations in the defense. Additionally, the unit provides rear area security and serves as a division reserve force. Some divisions may have more than one commando battalion, or a commando brigade. Also, GHQ and corps commando brigades may be attached to divisions for combat operations.

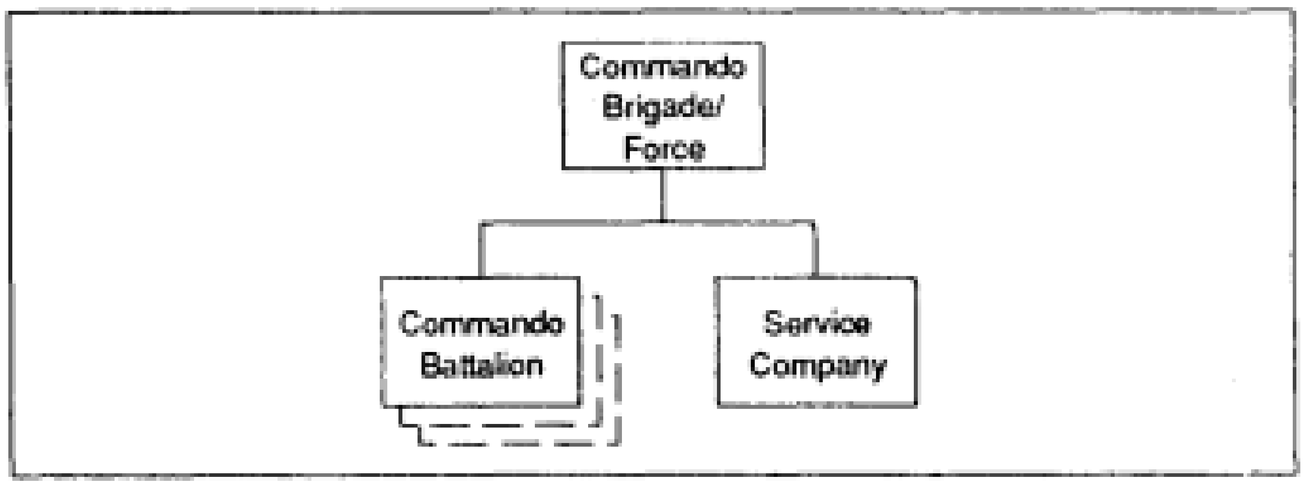


Figure 20 Commando Brigade/Force, Division

Reconnaissance Battalion, Division

This battalion has two reconnaissance companies, a service company, and a maintenance company. A reconnaissance company is equipped with 18 BRDM-2 reconnaissance vehicles, 6 per platoon, and 5 BTR-50 command vehicles. This company may be equipped with French AML M3-VTT or Yugoslav M60 APCs instead.

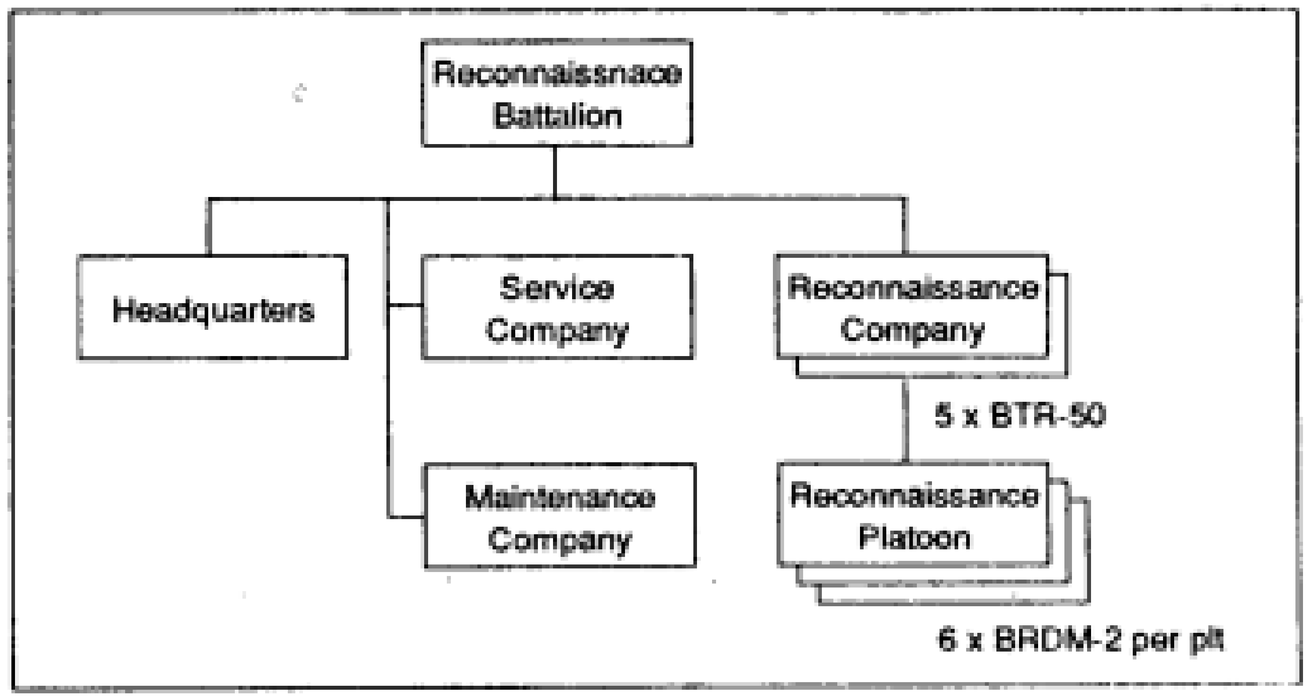


Figure 21 Reconnaissance Battalion, Division

Armored Battalion, Infantry Division

The infantry division has 35 T-54 or T-55 tanks, four BTR-50 command vehicles, six BRDM reconnaissance vehicles, one T-34 recovery vehicle, and one tank bridge MTU-20. The battalion has three tank companies, a maintenance company, and a service company. Its three companies each have 11 main battle tanks: three platoons of three tanks each and two command tanks. Tank companies are task organized to infantry brigades for combat missions.

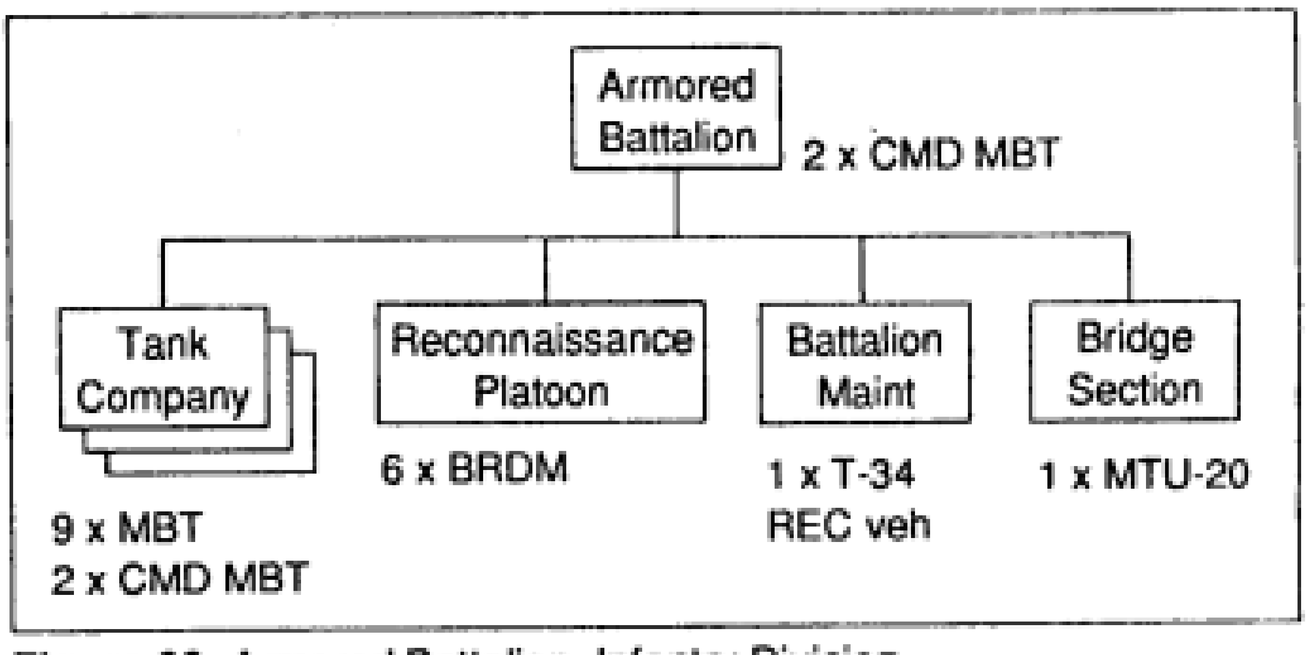


Figure 22 Armored Battalion, Infantry Division

Medical Battalion, Division

Each of the battalion's three subunits has ambulances and vehicles set up as field hospitals. They may have Chinese MEDEVAC APCs available. Corps aviation provides helicopter support.

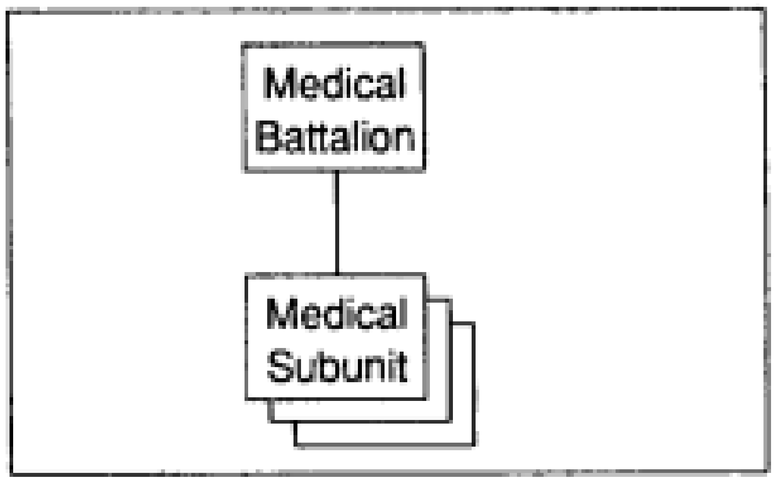


Figure 23 Medical Battalion, Division

7. MANEUVER BRIGADES

The brigade is normally the lowest echelon in the Iraqi army which operates independently. There are three types of brigades: infantry (sometimes designated as mountain infantry), mechanized, and armored. Each brigade has enough organic support to allow flexibility in the execution of its mission either independently or under a parent division. Conventional maneuver brigades will consist of:

- mechanized infantry brigade — three mechanized battalions and one armored battalion (see Figure 24)
- armored brigade — three armored battalions and one mechanized battalion (see Figure 24)
- infantry brigade — three infantry battalions (see Figure 25)

Additionally, each conventional maneuver brigade has a supply and transportation company, a headquarters and signal company, a chemical platoon, a commando company (the commando unit is separate from the division commando force), a reconnaissance platoon, and assault engineer company. Artillery, air defense, and other combat and combat service support is provided by direct and general support units of the division, with specific units dedicated to support individual brigades. Additionally, a light artillery battery from division may be attached to the brigade (see Figure 12). Infantry brigades have an organic 82-mm mortar company.

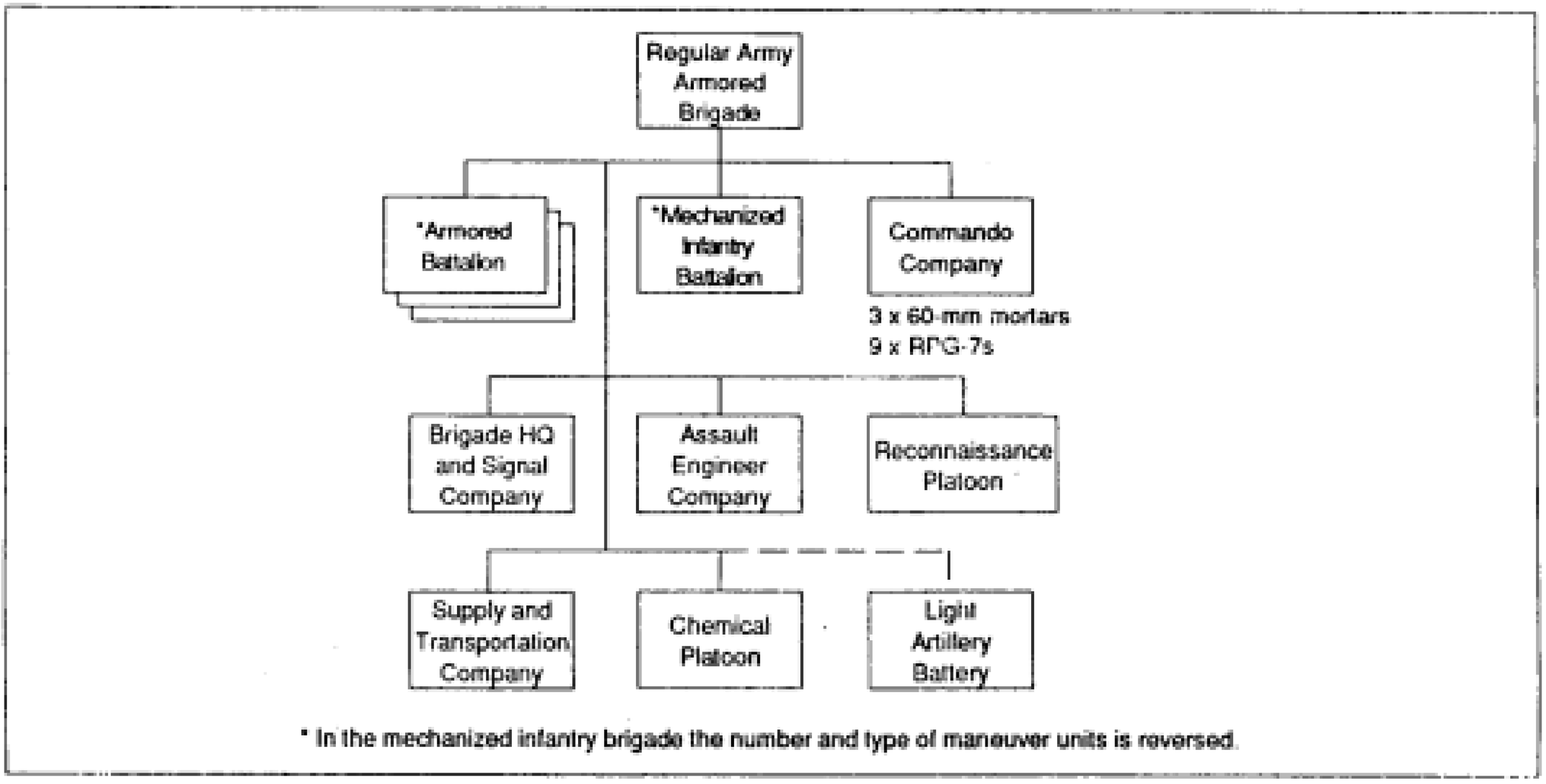


Figure 24 Regular Army Armored Brigade, Division

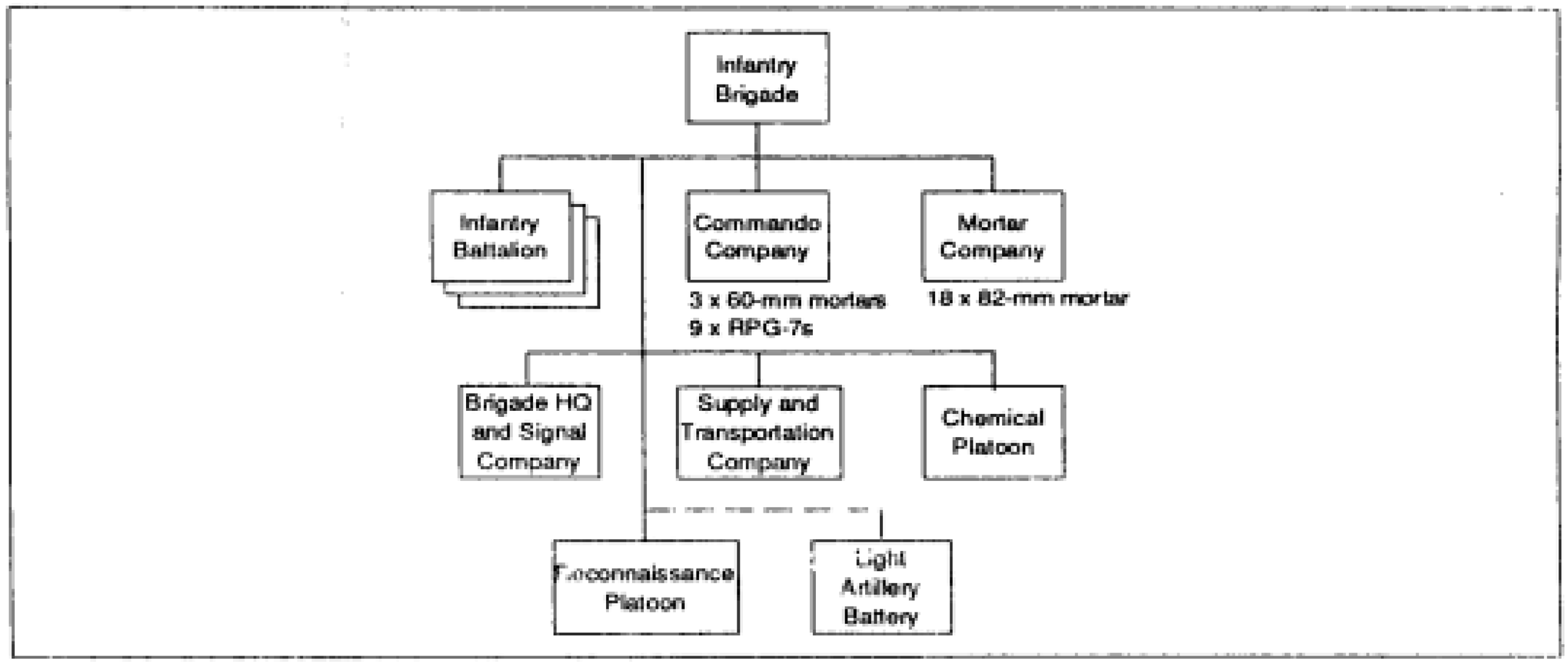


Figure 25 Regular Army Infantry Brigade, Division

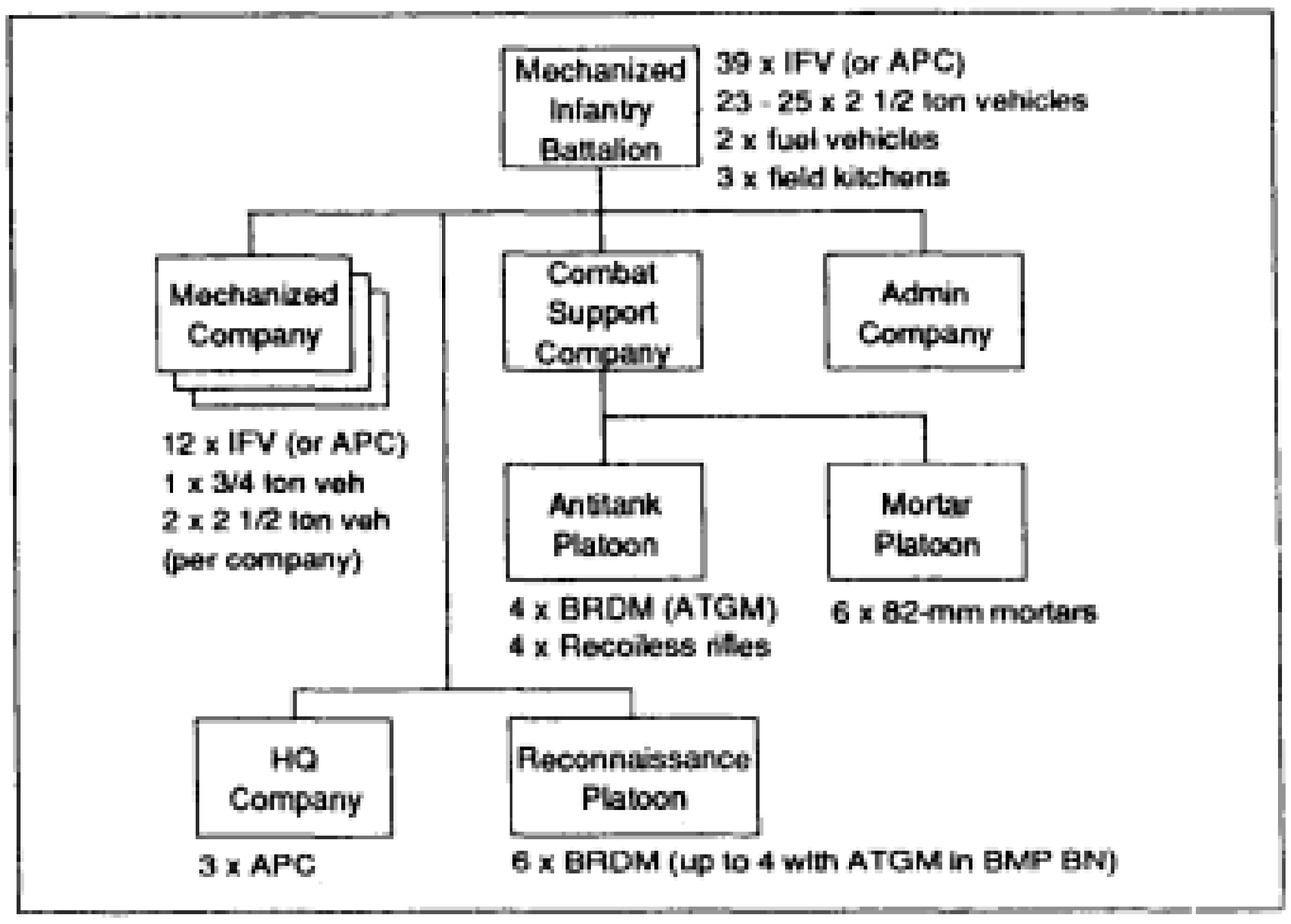


Figure 26 Regular Army Mechanized Infantry Battalion, Regular Army Mechanized/Armored Brigade

Mechanized Infantry Battalion

Each battalion consists of: three mechanized companies, each containing 12 APCs, one ¾-ton vehicle, and possibly two 2½-ton vehicles; a combat support company; an administration company; a reconnaissance platoon; and the headquarters company. A total of 39 APCs, four BRDMs (AT), 23 to 25 2½-ton vehicles, eight -ton vehicles, four cargo trailers, two fuel kitchens, two fuel trailers, and 3 field kitchens have been reported.

Each mechanized company has three rifle platoons, and probably has a heavy weapons platoon equipped with three 60-mm mortars, 12 RPG-7 antitank weapons, and four 12.7-mm heavy machineguns.

Each rifle platoon has three APCs and three rifle squads. Each rifle squad contains 10 men.

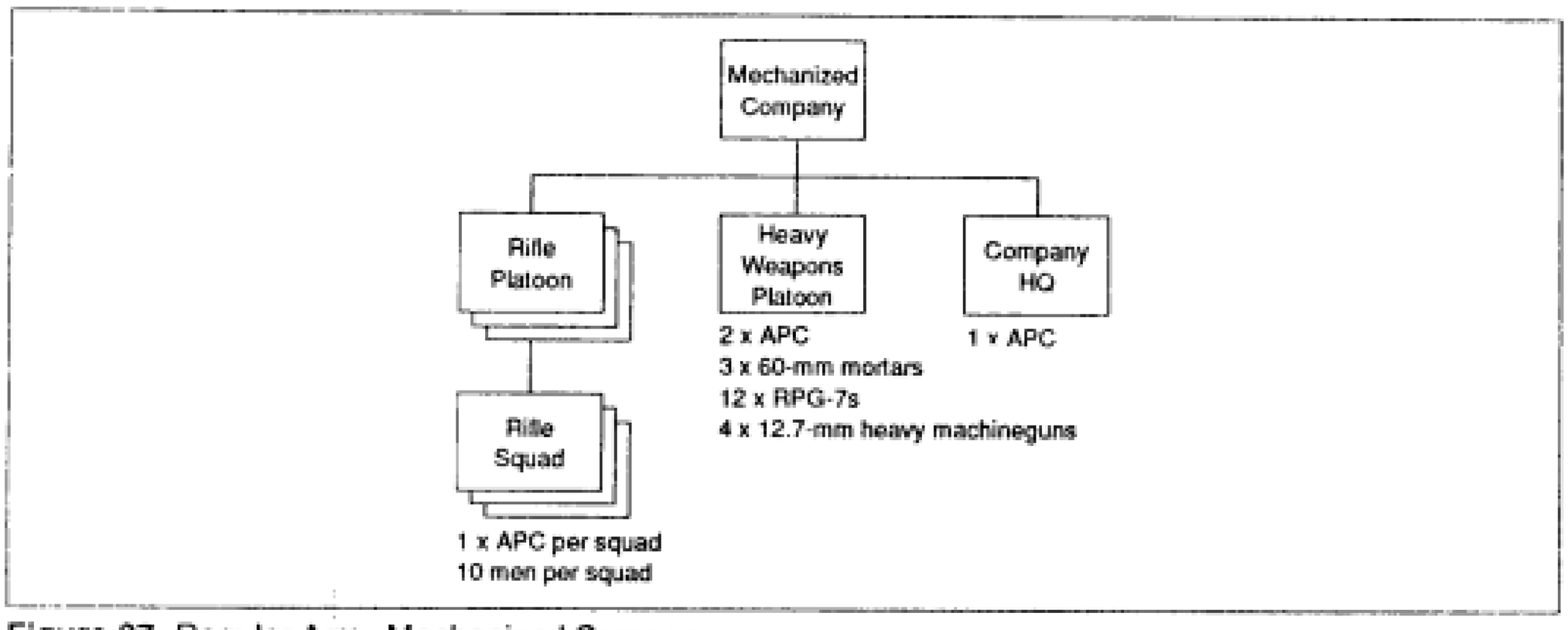


Figure 27 Regular Army Mechanized Company

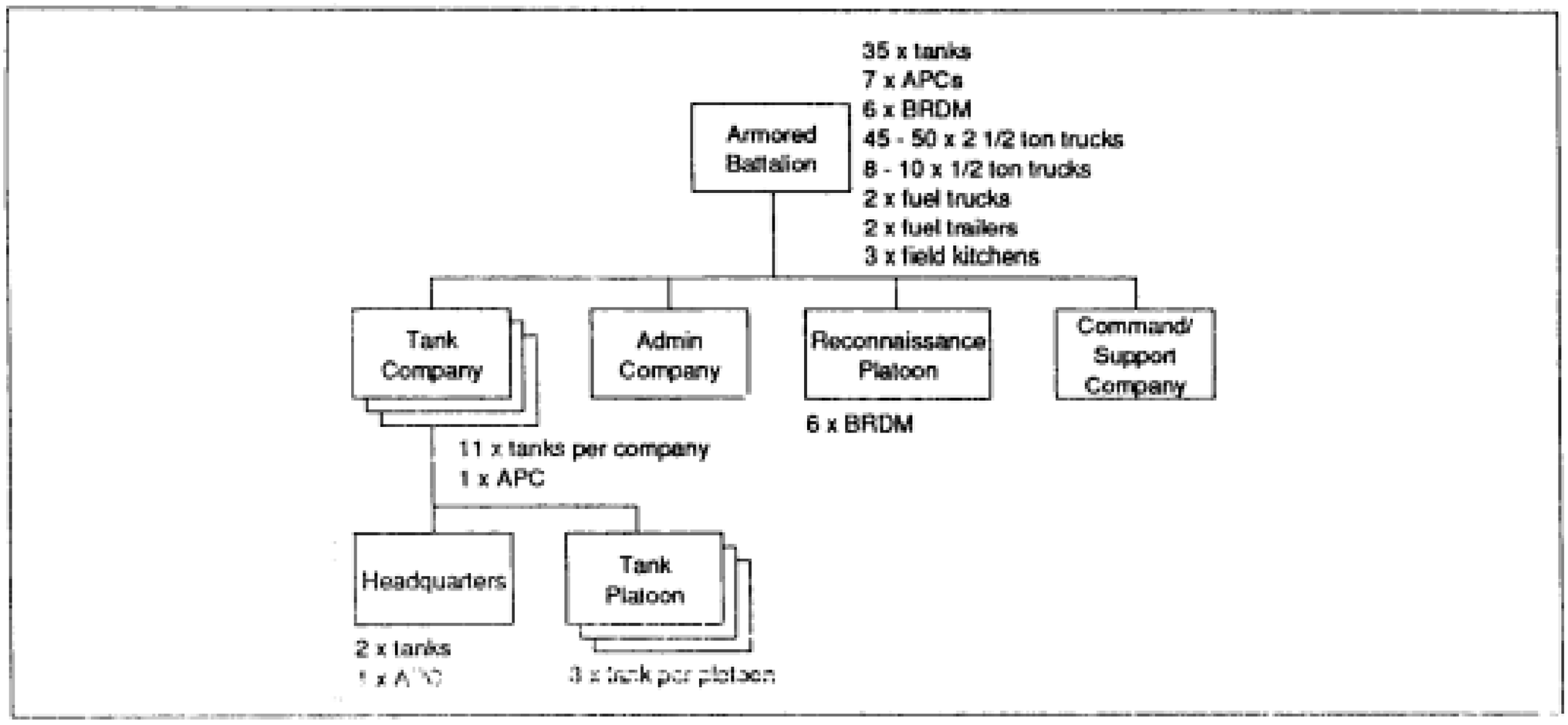


Figure 28 Armored Battalion, Regular Army Armored/Mechanized Brigade

NOTE: *The Iraqis follow British fashion in calling their tank battalions armored regiments (this applies to the Republican Guard Forces Command as well). For simplicity, they will be called battalions here [Editor].*

Mechanized/Armored Brigade Armored Battalion

Each mechanized or armored brigade armored battalion consists of three tank companies, each of three platoons, each with three tanks, for a total of 11 in the company. In addition, there is an administrative company, a command/support company, and a reconnaissance platoon (see Figure 28).

8. THE REPUBLICAN GUARD FORCES COMMAND

Historical Evolution

Prior to the Iran-Iraq War, the role of the Republican Guards was to secure the regime. Between 1982 and early 1986, the RGFC served as a relatively small strategic reserve force of six separate brigades employed in almost every counterattack against Iranian offensives. These forces suffered heavy casualties in unsuccessful counterattacks following the February 1986 Iranian capture of the Al Faw peninsula.

That defeat and the lack of additional counterattacking forces convinced the Iraqi leadership that a large strategic reserve was needed. To create that reserve a major expansion of the RGFC was undertaken. By spring 1988 the RGFC had grown to a multi-division force with its own corps and several division headquarters. By August 1990, the RGFC had grown to eight divisions of 30 to 33 brigades.

Operational Experience

The final two years of the Iran-Iraq war saw the development of a mature, experienced RGFC organization. The RGFC was employed skillfully as a strategic reserve in a series of two-corps defensive and offensive operations. The RGFC assumed a tactically offensive role: the counterattack.

Personnel

Unlike the conscript regular army, the Republican Guard is all volunteer and displays a motivation and initiative not found in conscripts. At its inception, only men from Saddam Hussein's hometown were eligible for the Republican Guard. This limited the size of the Republican Guard to three brigades.

To expand the Republican Guard into a decisive force on the battlefield, eligibility was opened to volunteer college students from all parts of the country. With college deferments removed, large numbers of relatively well educated and motivated volunteers poured in to gain the prestige and benefits of being in the Republican Guard. This influx of fresh manpower, untainted by the years of defensive warfare, enabled the Republican Guard to become the highly motivated and trained offensive force that it is today.

Strengths

The RGFC is the best-equipped and best-trained force in the Iraqi ground forces. It is a self-sufficient and self-contained force with organic combat, combat support, and combat service support elements. It maintains its own supply system and has priority for all supplies. This results in "pampered" forces that are relatively well paid and receive the best food, uniforms, equipment, etc.

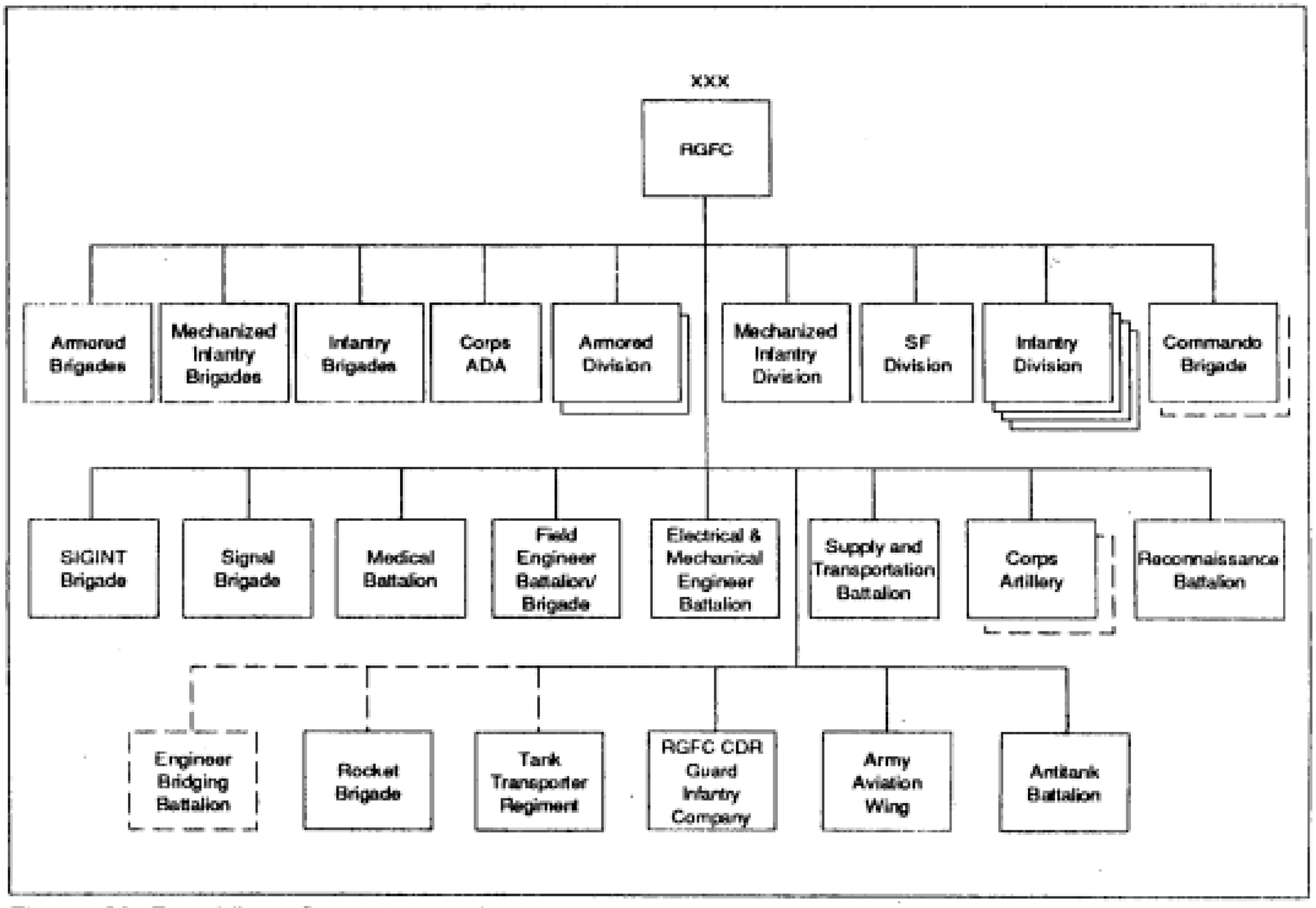
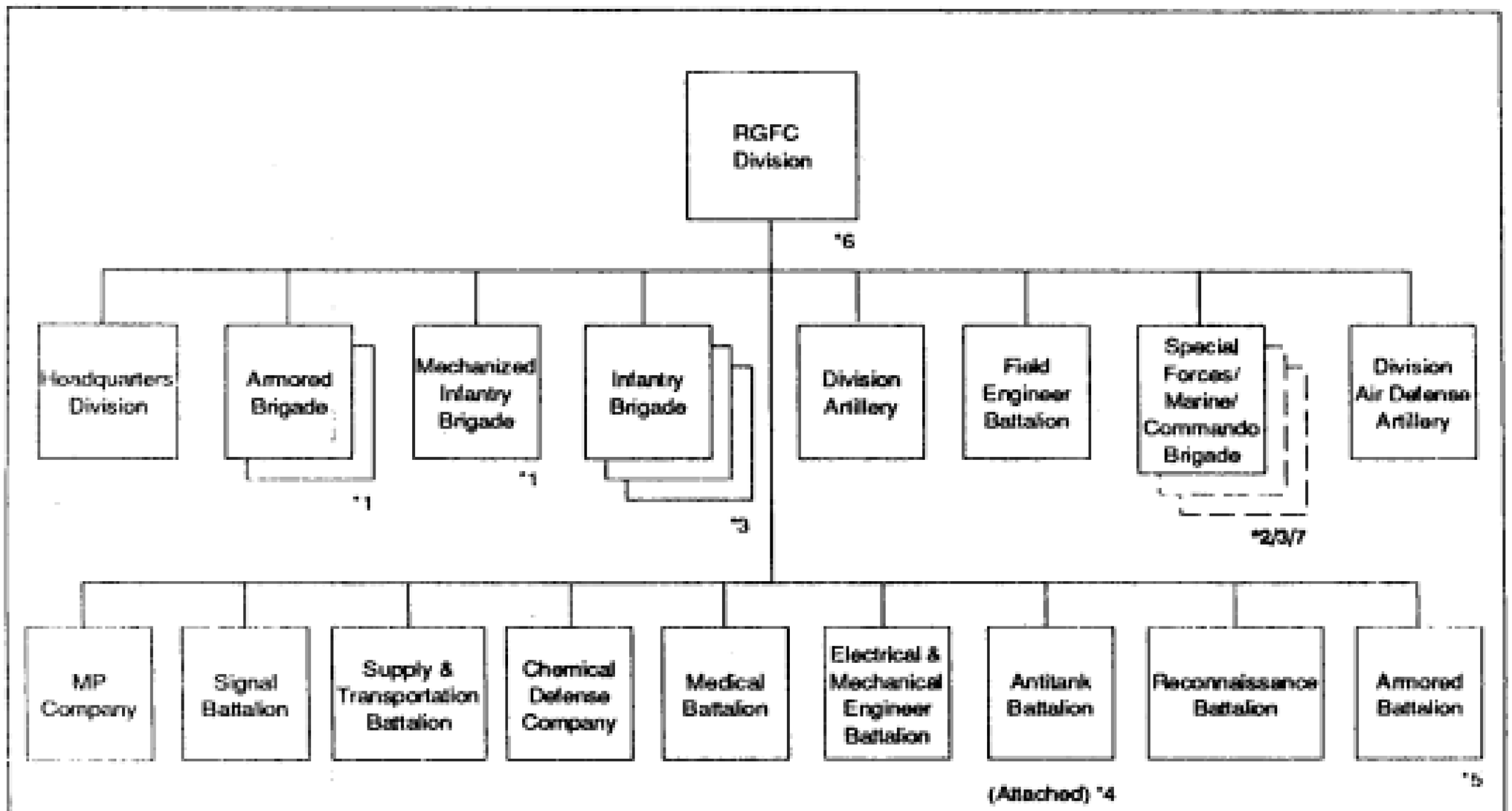


Figure 29 Republican Guard Forces Command (RGFC)



NOTES:
- *1 - Numbers reversed in a mechanized infantry division.
- *2 - There may be a commando brigade in the heavy divisions.
- *3 - A heavy division may have additional commando or infantry brigades instead of three armored/mechanized infantry brigades.
- *4 - Attached to infantry and mechanized infantry divisions. May be in the armored divisions.
- *5 - In infantry divisions only.
- *6 - The number of brigades can vary, but usually no more than 6 because of span of control problems. Any mix of the three type of brigades may constitute this number.
- *7 - The special forces division usually has two special forces and one marine brigade.

Figure 30 Typical Division, Republican Guard Forces Command

Maneuver Brigades

Maneuver brigades (RGFC) consist of:

- mechanized infantry brigade — three mechanized infantry battalions, one armored battalion
- armored brigade — three armored battalions, one mechanized infantry battalion
- infantry brigade — three infantry battalions

Additionally, each brigade will normally have a headquarters and signal company, a light artillery battery, an assault engineer company, a chemical defense platoon, an evacuation and

maintenance platoon, (except in an infantry brigade) a supply and transportation company (platoon in an infantry brigade), a reconnaissance platoon, and a commando company.

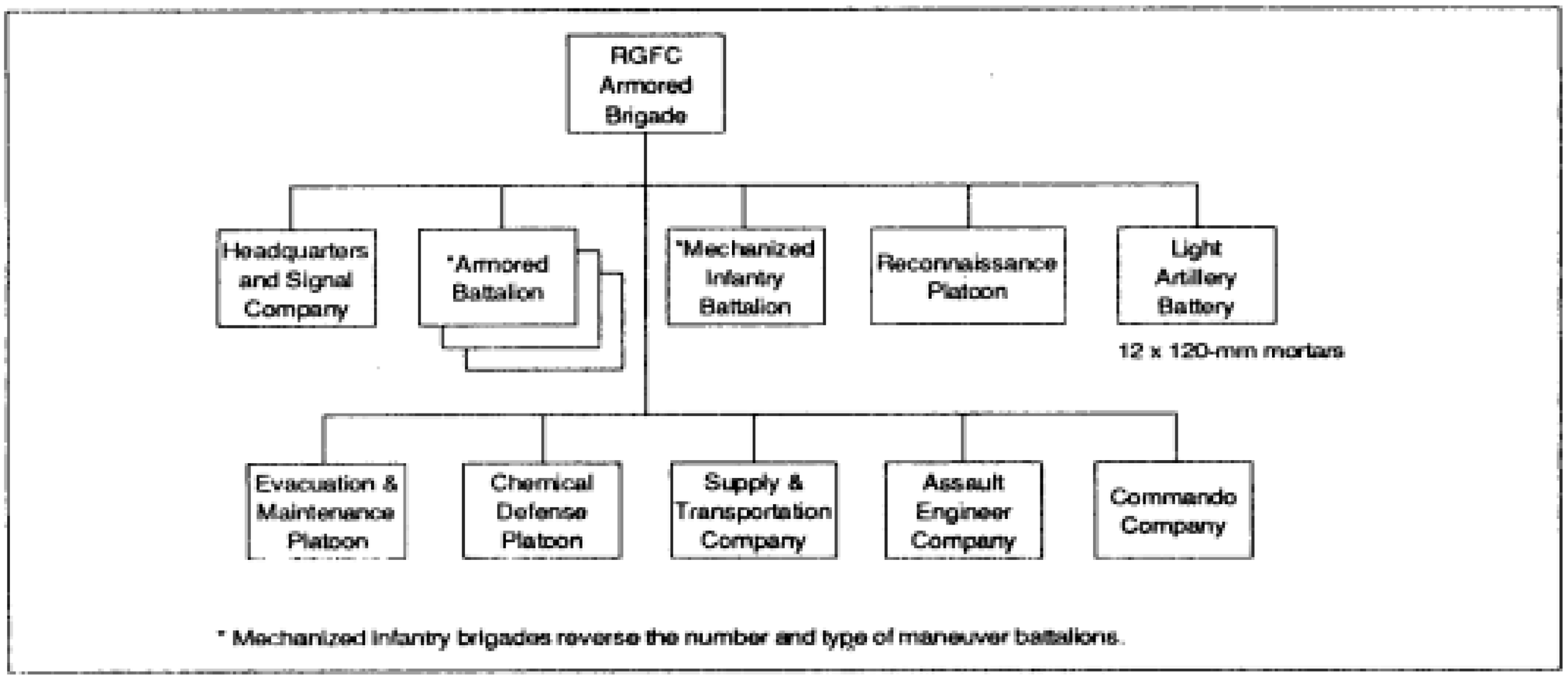


Figure 31 RGFC Armored Brigade

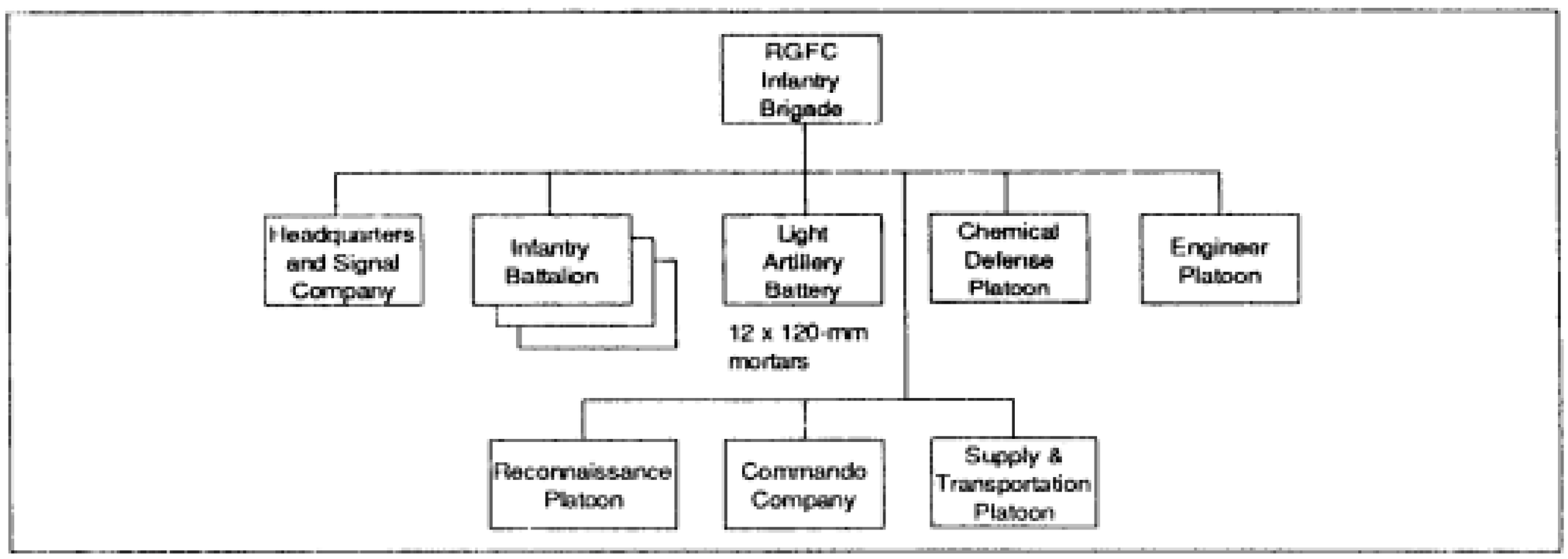


Figure 32 RGFC Infantry Brigade

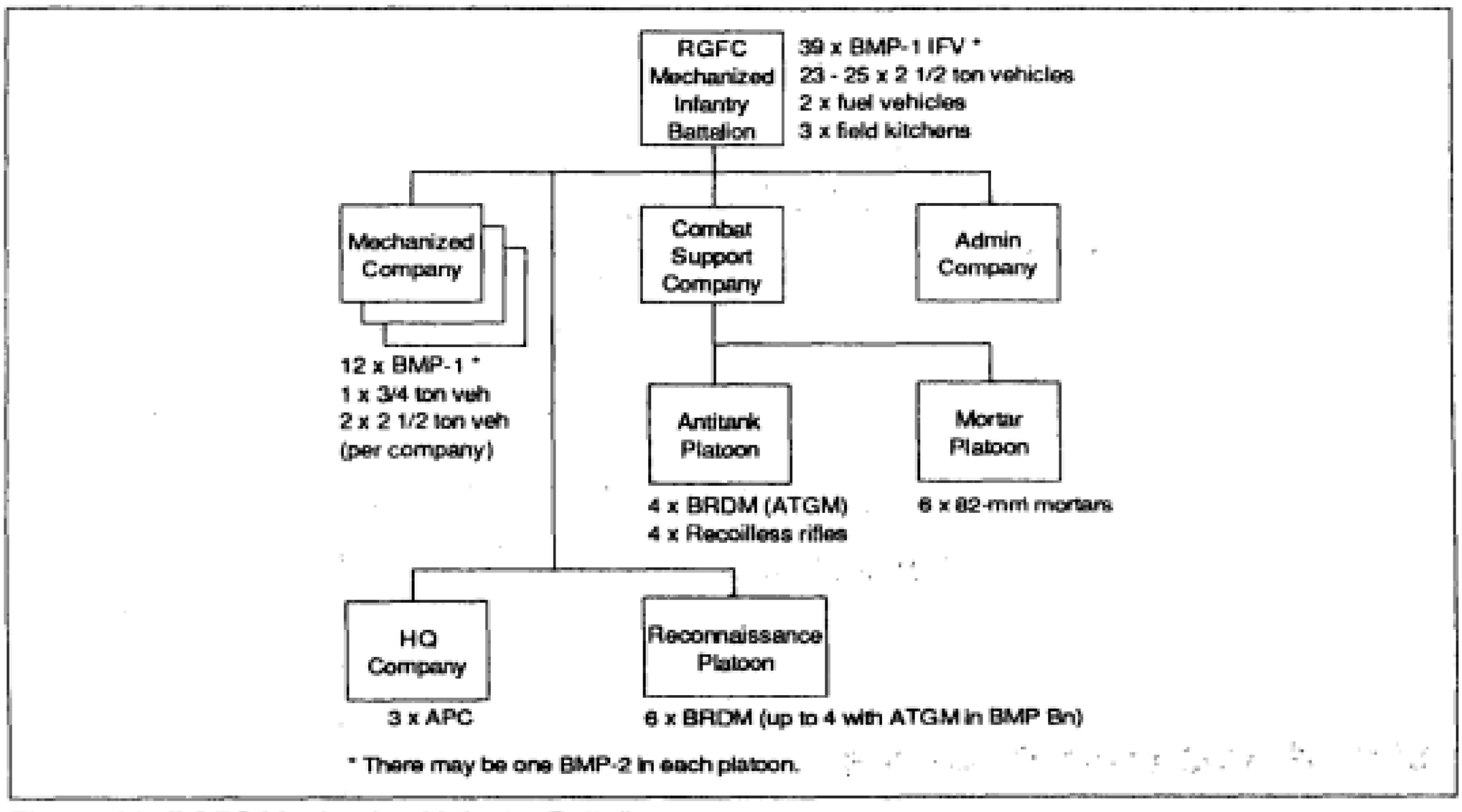


Figure 33 RGFC Mechanized Infantry Battalion

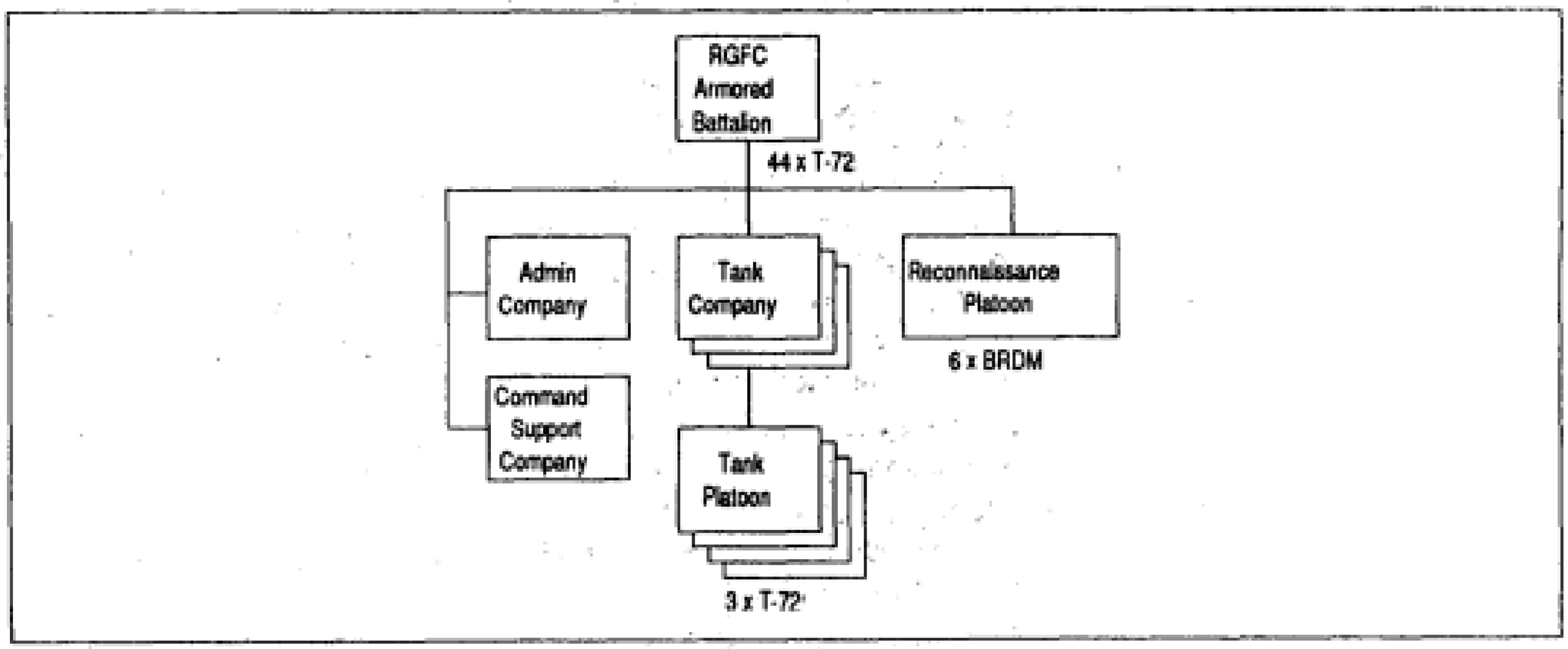


Figure 34 RGFC Armored Battalion

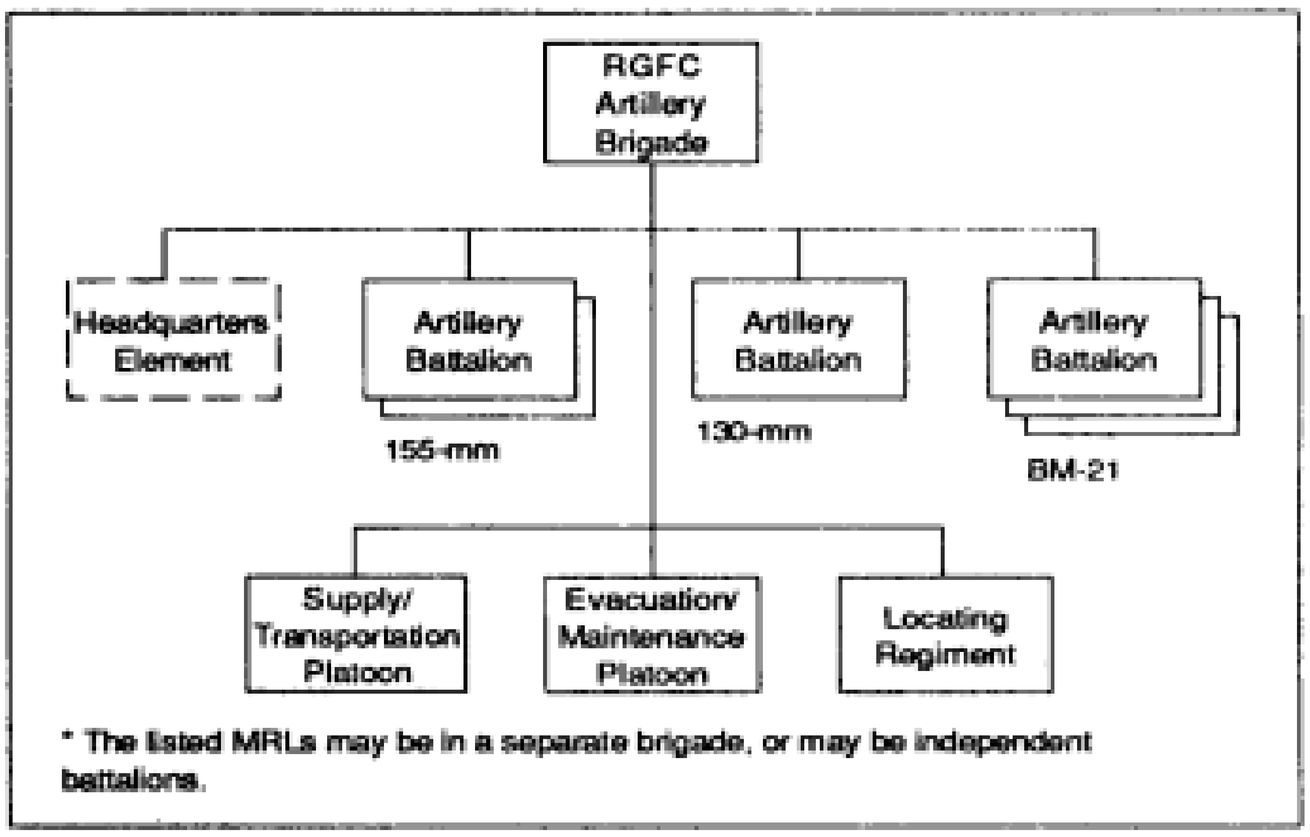


Figure 35 RGFC Artillery Brigade

9. SPECIAL OPERATIONS FORCES

Special forces and commando brigades are considered "elite" units in the Iraqi army.

Iraq has special forces brigades subordinate to GHQ and the RGFC. There are also commando brigades, marine brigades and an RGFC marine brigade under corps command.

Special Forces Brigade, GHQ

A special forces brigade has three special forces battalions, an artillery battalion (12 pieces), a 120-mm mortar battery (six 120-mm mortars with 13.5 km range), a reconnaissance company, an antitank company (106-mm recoilless rifles and antitank missiles), an assault engineer company, a medical company, and a headquarters and signal company.

Each special forces battalion has three companies. The battalion is authorized 70 wheeled vehicles as opposed to 50 for a regular infantry battalion. The naval special forces unit may have at its disposal landing craft and amphibious armored personnel carriers (BMP-1 or TOPAS/OT-64).

Special forces squads are composed of nine men as opposed to regular infantry squads of 10 to 11 men. Each special forces squad has two machineguns and two rocket launchers.

Special forces brigades are usually kept in reserve for counterattacks, or used to spearhead limited objective attacks. Missions include:

- vertical envelopment of the enemy
- deep reconnaissance
- unconventional warfare
- combat in urban and mountainous terrain

Marine brigades may:

- conduct amphibious operations to outflank enemy forces or seize islands.
- defend coastal facilities.
- raid to destroy enemy coastal facilities.

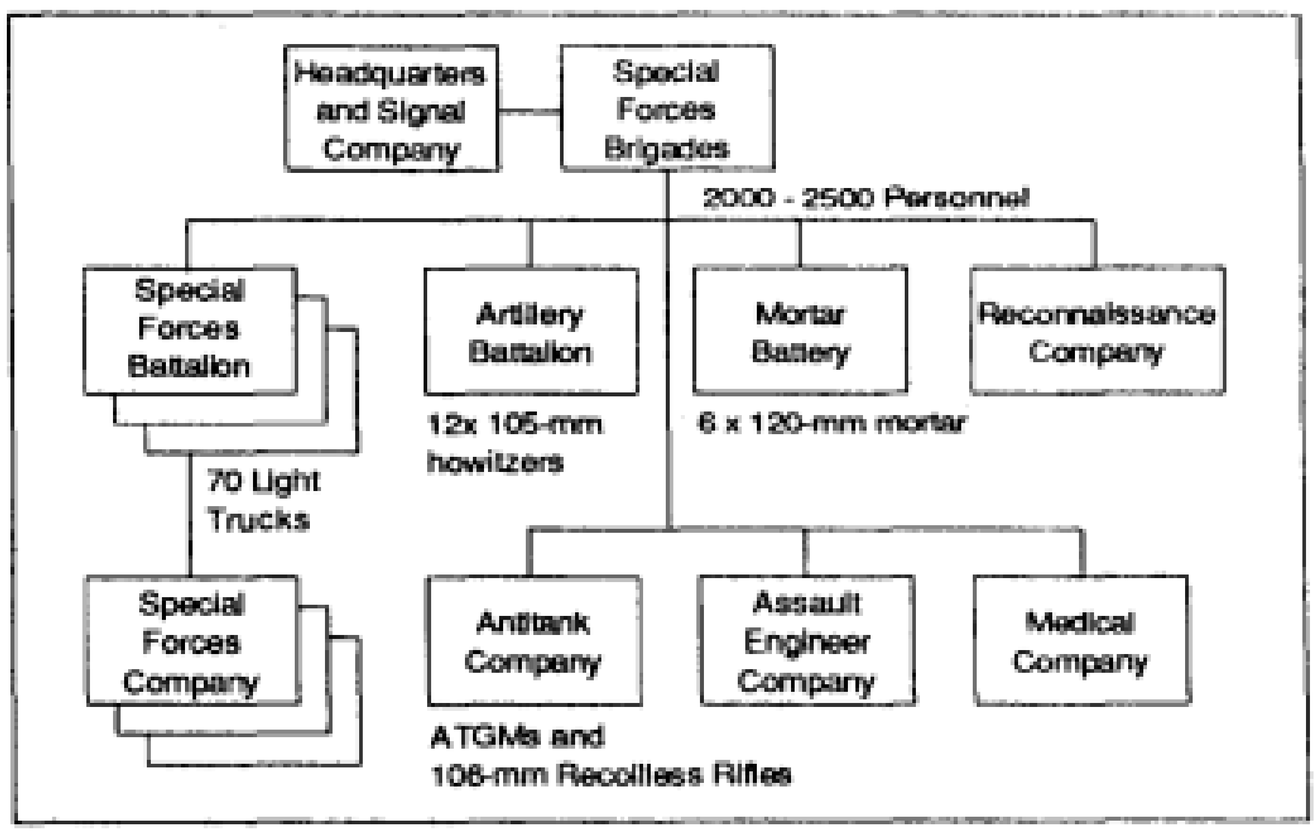


Figure 36 Special Forces Brigade, GHQ

Commando Brigade, GHQ

Two commando brigades may be found under the operational command of corps headquarters in the sector assigned.

Commando brigades have been used as infantry to man defensive positions, to lead limited objective attacks, in counterattacks, and for rear area security or protection. As with other brigades, commando brigades may not always operate in their parent unit sectors.

10. THE POPULAR ARMY

The Popular Army consists of a popular militia composed of civilian volunteers, members of the Ba'ath party.

The main function of the Popular Army normally is to secure the Ba'ath regime against internal opposition and to serve as a power base (and counter-balance) to the regular army.

The Popular Army is organized on an area basis.

- Popular Army GHQ in Baghdad controls area HQs located in each of Iraq's 18 administration districts. Each area HQ is commanded by a district commander.
- Each district controls a number of "sectors" headed by sector commanders.
- Each sector controls up to 10 "bases," led by platoon commanders. There are four types of bases:
  - infantry or combat bases with infantrymen
  - command bases with commanders
  - close support bases with light mortars, machineguns, and possibly
  - antiaircraft bases, with antiaircraft guns and machineguns

Each base contains up to 10 squads of from 10 to 15 men. Personnel are assigned to squads based on their residences, to ensure swift mobilization.

Training in the Popular Army is limited to several weeks prior mobilization, although some instructors come from the regular army to help improve the quality. Training is conducted in:

- physical training
- use of arms (mainly small arms)
- obstacle crossing (including wire and mine obstacles)
- assaults on enemy positions
- searches in mountainous terrain
- possible air assault training for Popular Army commandos

CHAPTER 2

IRAQI MILITARY CONCEPTS

1. MILITARY DOCTRINE

Iraqi military doctrine was originally based on British doctrine. Their manuals and military school texts are still based on British doctrine. Since the 1960s, Iraqi officers have received training at Soviet military schools. They have also been trained by Pakistani, Jordanian, and Indian military officers in-country. Therefore, their military doctrine includes elements of Soviet doctrine. For instance, during the invasion of Iran, Soviet-style objectives of X-kilometers-a-day advance were set. But the Iraqi army should not be construed to represent merely a "miniature" Soviet army. The elements of Soviet doctrine are combined with primarily British doctrine, reinforced by the advisors from Pakistan, Jordan, and India, and modified by lessons learned in the war with Iran. Other than the portions that describe combat operations during the war with Iran, this section discusses Iraqi doctrine — the principles of the conduct of war as they are taught, not the way the Iraqis fought the last war.

2 EFFECTS OF DOCTRINE ON TACTICS

The primary philosophy of Iraqi military doctrine observed during the war with Iran seemed to be to protect the integrity of the homeland with the minimum expenditure of human resources. No attempts were made to launch major offensive operations into Iran or even to regain lost Iraqi territory from late 1980 until early 1988. Operational planning appeared to be guided by this philosophy, leading to a reactive, defensive strategy. Attacks were used only to recover critical terrain or to counterattack. This doctrinal approach called for the preparation of strong defensive positions disposed in depth behind natural and man-made obstacles. These obstacles included flooded tank ditches, minefields, barbed wire, berms, and flooded terrain. A reserve force available for counterattack backed

up the forward defensive echelons. The design of these defensive positions reduced the ability of the Iraqis to counterattack effectively in many areas, because the maneuver room for their armored forces was so greatly restricted by the obstacles.

The Iraqis remained on the defensive through most of the war, until 1988. Over time they learned to be skilled at the defense. They developed a sizable force of tank transporters and cargo trucks, which enabled them to shift forces as large as division strength from sector to sector quickly and effectively. Such shifts occurred both in anticipation of Iranian attacks and in reply to actual attacks.

CHAPTER 3

COMMAND AND CONTROL

1. COMMUNICATION

The Iraqi Army is primarily structured and operated on the pattern of the British Army. Consequently, its communications operations doctrine is fundamentally British. The salient features of this doctrine are as follows:

- A minimum of networks.
- There are backup bands for the networks.
- For units from division level upward, there are two command networks: voice and Morse code.
- Radio communications are used only when the commander is in his vehicular command post; otherwise, landlines are used.
- Communications electronic operating instructions (CEOI) are utilized.
- The ruling Ba'ath party has its own landline communications network connecting units with Ba'ath political officers assigned; however, when necessary, the military communications system is used.

There are usually only two networks in the combat units, a command network and an administrative network.

The CEOI contains encryption codes, call signs, frequencies, three-letter code names, and passwords.

Above division level, the Iraqis may rely extensively on Iraq's post, telephone, and telegraph (PTT) systems for their communications. This is augmented by many meetings. Below division level, wire and radio communications are used. Wire is quite obviously more usable in a defensive situation.

The Iraqi Army has in recent years undergone a transition from Soviet communications equipment to Western communications equipment. Soviet equipment is used as back-up to Western

systems. Changing the communications sets has probably resulted in a fundamental change in the way communications are established and maintained.

The general rules to be followed when communicating are to use landline if possible, encrypt messages, and minimize the length of the communication.

Iraq is in the process of incorporating state-of-the-art frequency hopping radios into its tactical C^3 structure, and may also have a burst capability. The use of frequency hoppers and burst transmissions significantly reduces the probability of intercepts. The Iraqis assert a credible COMSEC posture. When coupled with their defensive strategy, an excellent OPSEC profile emerges.

2 FORWARD COMMAND POSTS

The Iraqis attach considerable importance to the concept of the forward command post. They believe that a forward command post located in the midst of forward forces can significantly affect the combat picture. Forward command posts are especially useful for operations that require fast movement.

Armored and mechanized brigades may deploy a forward command post for a limited period. Normally positioned with or near one of the battalion command posts, the forward command post includes the brigade commander, a junior staff officer, and the supporting artillery battalion commander. Infantry brigade forward command posts may not be used because main command posts are already close enough to the front.

FORWARD COMMAND POST ORGANIZATION	
PERSONNEL	**EQUIPMENT**
Infantry Division	
Divison Commander Aide de Camp Radio Operator	One ¼-ton truck R-104 radio
Divison Artillery Commander Artillery Staff Officer Two Radio Operators	One ¼-ton truck Two R-104 radios
Support Unit Commanders or Representatives (as required)	One ¼-ton truck
Infantry Section for security (possibly division commando element)	One 3-ton truck Two motorcycles
Heavy Division	
Division Commander Operations Staff Officer Aide de Camp Attached Officers (as required)	One tracked command vehicle
Division Artillery Commander Artillery Staff Officer Attached Officers (as required)	One tracked command vehicle
Liaison Officer(s)*	One tracked command vehicle
**Other elements as determined by the commander*	

CHAPTER 4

TACTICS: DIVISION AND BELOW

1. THE OFFENSE

The Iraqis recognize the need for offensive doctrine and tactics. During the war with Iran, they established defensive positions and defeated most Iranian offensives, inflicting large numbers of casualties. The strategy of attrition did not bring Iran to the bargaining table. The Iranians only sought a negotiated settlement after Iraq began offensive operations in the last two years of the war.

Features of Iraqi Offensive Operations

Limited Objectives

Limited objectives typified most offensive operations. Iraqi failure to attain stated objectives sometimes resulted in execution of the commanders. Units often attacked to their objectives and stopped, failing to exploit any further successes.

The stated reason for this was that it raised the morale of the attacking troops to know that once they reached their objective they would not be exposed to further fire. Use of limited objectives was more likely due to a lack of reliable intelligence on the enemy rear area, lack of deep indirect fire support due to a lack of long range target acquisition (radars), poor tactical initiative displayed by small unit commanders, or specific orders from GHQ for limited operations due to strategic considerations.

Limited Night Operations

The Iraqi army is well equipped with night vision devices, but like most armies, it is reluctant to continue large scale combat operations after nightfall. Iraqi forces will initiate large scale combat operations during hours of darkness, the latest example being the invasion of Kuwait. Iraq recognizes the inherent difficulty in

continuing coordinated night offensive operations between large units that have already been in combat with the enemy throughout the day, and like most armies, prefers to continue attacks at night only against absolutely essential objectives. Hours of darkness are used for resupply operations.

Extensive Rehearsals

Iraqi forces prefer to conduct extensive rehearsals on terrain that is similar to that of their assigned objective, if time permits. Iraqi engineers have even constructed mockups of the terrain in the objective area for these rehearsals.

Initial Use of Commandos

During offensive operations the Iraqis may employ their "commando" units as initial assault troops with a limited depth of penetration, allowing them to be relieved within a few hours by mechanized forces.

Failure to Conduct Pursuit

Iraq rarely had the opportunity to conduct pursuit operations during the war with Iran, but when the opportunity was presented, Iraqi forces would often halt and wait for orders rather than maneuver beyond planned objectives or routes.

Principles of Offensive Operations

The following are Iraqi doctrinal principles of offensive combat:

Intelligence

Intelligence is intrinsic to all offensive operations. Intelligence is also necessary to achieve surprise. No planning can be accomplished without good intelligence.

Maneuver

An army must be able to maneuver swiftly on the battlefield to make use of natural terrain for cover and concealment.

Momentum

Once forward momentum is established, it must be maintained at all costs. There must be a steady, unflinching move toward the tactical goal. Once the momentum ceases, the unit is susceptible to enemy counterattack.

Reserve

In order to maintain momentum, a reserve force is established at all echelons to be committed to the unit making substantial progress. Reserves are used to achieve the tactical goal.

Surprise

Surprise, ideally, should be achieved in time, place, and weapons. The tactical goal can be achieved more easily if surprise is obtained. Additionally, surprise itself provides an element of security.

Logistics and Administrative Support

Logistics and administrative support are necessary to maintain forward momentum.

Concentration

All necessary firepower, troops, and equipment must be concentrated at the proper place and time. Concentration of forces provides absolute superiority at the point of attack and can bring about a reduction in casualties and save time.

Morale

Morale must be developed to the highest extent possible. Iraqis believe that realistic training contributes greatly to troop morale. A thorough knowledge of the mission and the tactical goal also contributes to high morale.

Cooperation

All organizations in each command must answer to one commander. Each unit must support the unit on its flank with overlapping fires.

Objective

Although the Iraqis do not identify the principle of the objective as one of the principles of offensive combat, their constant mention of the "tactical goal" undoubtedly refers to the objective.

Operational Planning Factors

Operational planning factors for offensive combat are as follows:

Terrain

Terrain must be studied to determine which forces can make the most effective use of its characteristics. Natural and man-made obstacles must be identified and considered.

Enemy Troops and Equipment

The location and size of the enemy force as well as his deployment, weapons, morale, air support, and engineer obstacles must be considered in planning offensive operations. If it could be determined why the enemy has decided to defend a certain area, it could be determined how long and intense the enemy defense would be and what reserves, logistics, and administrative support the enemy has available to accomplish his defensive mission.

Time and Distance

Considered the most important planning factor. The enemy must be defeated before he can improve his defensive positions or mount a counterattack.

Preparation of the Operations Order

The following factors are considered during the preparation of operations plans and orders:

Mission

The mission must be stated clearly and concisely so that each commander has a full understanding of what is expected of him and his unit.

Terrain

The terrain is discussed in enough detail so that each commander is fully knowledgeable of his unit boundaries and the terrain he must traverse.

Enemy

Enemy location, disposition, strength, weapons, equipment, and air support are discussed in terms of capabilities and vulnerabilities.

Time and Distance

Each unit has a specific distance to cover within a given average speed to accomplish its mission within a certain amount of time.

Weather

Weather is a doctrinal consideration but, due to the constancy of the weather along many parts of the front with Iran, it has rarely been considered.

Friendly Forces

Forces required to accomplish the mission must be determined. The most important consideration is the correct amount of artillery required. Although all forces are believed important, the proper number of artillery units is considered critical to success.

Decision

Weighing the previous six factors, a decision is made regarding the conduct of the offensive.

Preparation of the Plan

The operations plan is compiled and briefed to the commanders, who then go through the same steps in preparing their own plans. Plans are approved by higher headquarters, often GHQ in Baghdad, and implemented on order.

Attack Against a Defending Enemy

During the Iran-Iraq war, Iraq initiated offensive operations only during two periods: when they first initiated hostilities, and during the last two years of the war. Operations conducted at the beginning of the war were conducted against scattered elements

from the Iranian army and revolutionary guards. Operations during the last two years of the war were against a seasoned, well dug-in enemy, and usually initiated when front-line forces were in close proximity to each other.

During the middle years of the war, Iraqi attacks were generally limited to local spoiling attacks to blunt Iranian offensives. The final offensives of the war were well-coordinated, large-scale operations, in some cases involving massed mechanized forces attacking through what is considered in the west to be impassable terrain along a narrow front, or multi-corps attacks over a front exceeding 120 km in width. Local forces ratios exceeded 12:1 and 20:1 in Iraq's favor in at least two of these operations.

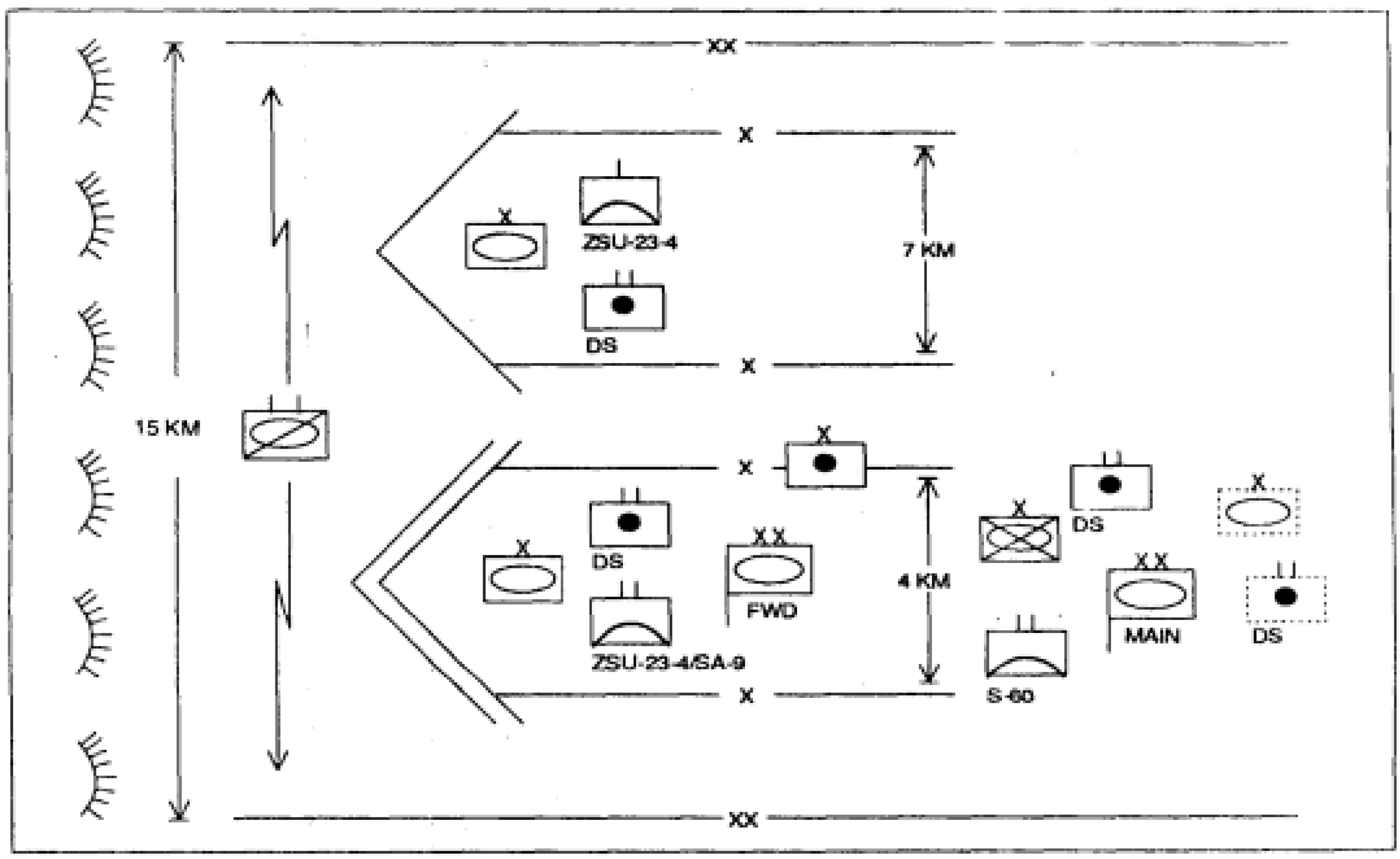


Figure 37 The Armored Division in the Attack

Planning

Local attack planning originates from the lower levels and is passed up the chain of command for approval. In some cases the attack has to be approved by the headquarters in Baghdad. Once the attack has been approved, the unit will conduct extensive

rehearsals over terrain that resembles that over which they will attack. This is normally conducted while in the concentration area (see below).

The Attack

There are two types of attack: "silent," without artillery support; and "loud," with artillery support. The "silent" attack is employed mainly at night to maintain the element of surprise.

Attack Formations

According to Iraqi doctrine, the following attack formations are used by platoon through brigade:

Wedge

Used before reaching the attack line. Upon reaching the attack line, the line formation is assumed.

Left/Right Echelon

- provides support for advancing units
- promotes better command and control
- the designated unit continues the advance at the assault line

Line

Used after crossing the attack line. Units at all echelons move into the attack in this formation, with two units forward and one following in reserve.

Diamond

Used in mountainous areas where there is little room for maneuver. This formation provides all-around protection and is more correctly a march or approach formation rather than an attack formation.

Control Measures

Iraqi doctrine includes the following control measures (see Figure 38).

Concentration Area

Located far enough to the rear to be out of enemy artillery range. The logistics and administrative needs of the soldier are provided in this area. Armored units can move from this area directly to the line of departure.

Assembly Area

Located forward of concentration area but also out of enemy artillery range. Units cooperating in the attack coordinate here, and supporting units link up with their supported units. Armor units can move directly to the line of departure from the assembly area also.

Formation Line

Located about 1200 meters from the enemy. Used to assure that all attacking units are formed correctly within their own boundaries.

Line of Departure

Often the same as the formation line. Usually from 900 to 1200 meters in front of the forward edge of enemy troops.

Attack Line

Point where the attack actually begins. About 100 to 200 meters from the forward edge of enemy troops.

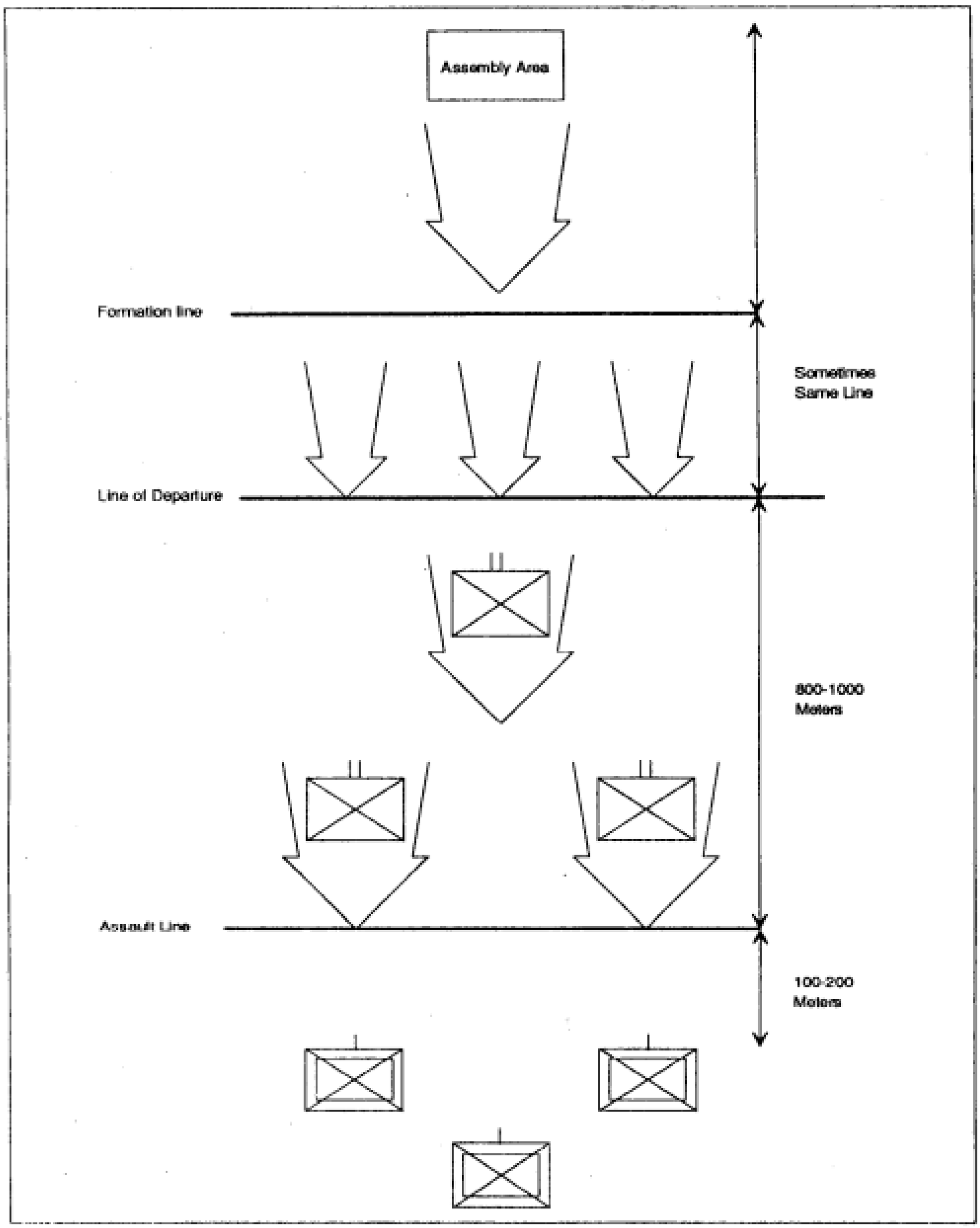


Figure 38 Assault Phase Lines/Areas

Factors for a Successful Attack

According to the Iraqis, the following factors are necessary for a successful attack:

Timing

The overall key to a successful attack.

Surprise

Attained with relation to security. The enemy must not be aware of the attack, the anticipated time, or the weapons to be used.

Officer Quality

The right officer in the right job. The officer must be highly trained for that job.

Fire Support

Fire support is essential and the timing is critical.

Engineer Support

Engineers support attack forces to remove obstacles and clear pathways.

Reserves

Reserves must be available and committed at the critical time.

Night Attack

In a night attack, it is imperative that commanders and soldiers have a complete understanding of directions and boundaries.

Combined Arms Tactical Principles

Combined Arms Ratios

Iraq has accepted combined arms doctrine in principle, but has executed it irregularly. The ideal mixture of forces is 2:1 of the organic unit (tank or infantry) to the attached maneuver element. However, it is not unusual to see battalions operating as pure elements, or with ratios of as much as 10:1 in organic to attached elements. The attached elements may be broken down to their smallest sub elements and attached to the organic elements, so that a tank company will get an infantry platoon, or an infantry company will receive a tank platoon. The predominant element will

be the controlling headquarters and the attached commanders and staffs will act as advisors to the commander and staff of the combat grouping.

Reserves

All units from company on up can employ a portion of their combat strength as a reserve force which is committed to maintain momentum in offensive operations. Typically, this reserve is about 1/3 of the unit's total force.

Combined Arms Offensive Operations

Organization, Command and Control of Combat Groupings

Iraqi doctrine requires armored and mechanized infantry battalions to operate in combat groupings (US terminology "combat grouping") of armored and mechanized infantry elements supported by artillery, engineers, and other support elements. When the situation requires tank heavy forces, the armored battalions operate as combat groupings (Figure 39).

These include:

- three tank companies
- a mechanized infantry company
- an artillery battery
- an engineer company
- antitank company
- an antiaircraft battery

Each tank company should receive one infantry platoon under its operational control. The armored battalion commander is the combat grouping commander. One of the armored battalion headquarters in the armored brigade is also designated alternate brigade headquarters in the event the brigade HQ ceases to function.

Task organized units are likely to be fully task organized. An armored brigade would attach one company of its mechanized infantry battalion to each of its armored battalions (the reverse in a mechanized infantry brigade).

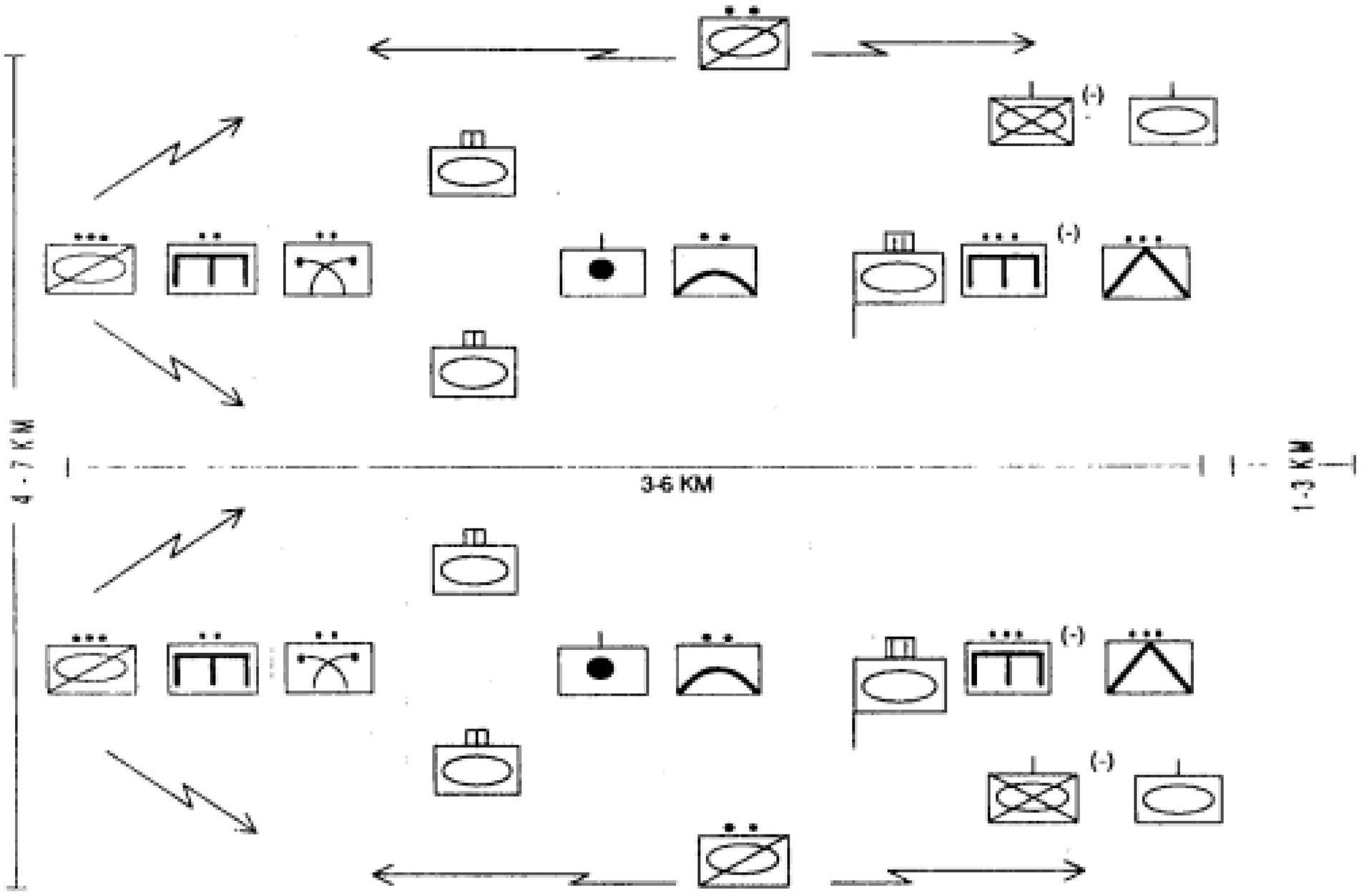
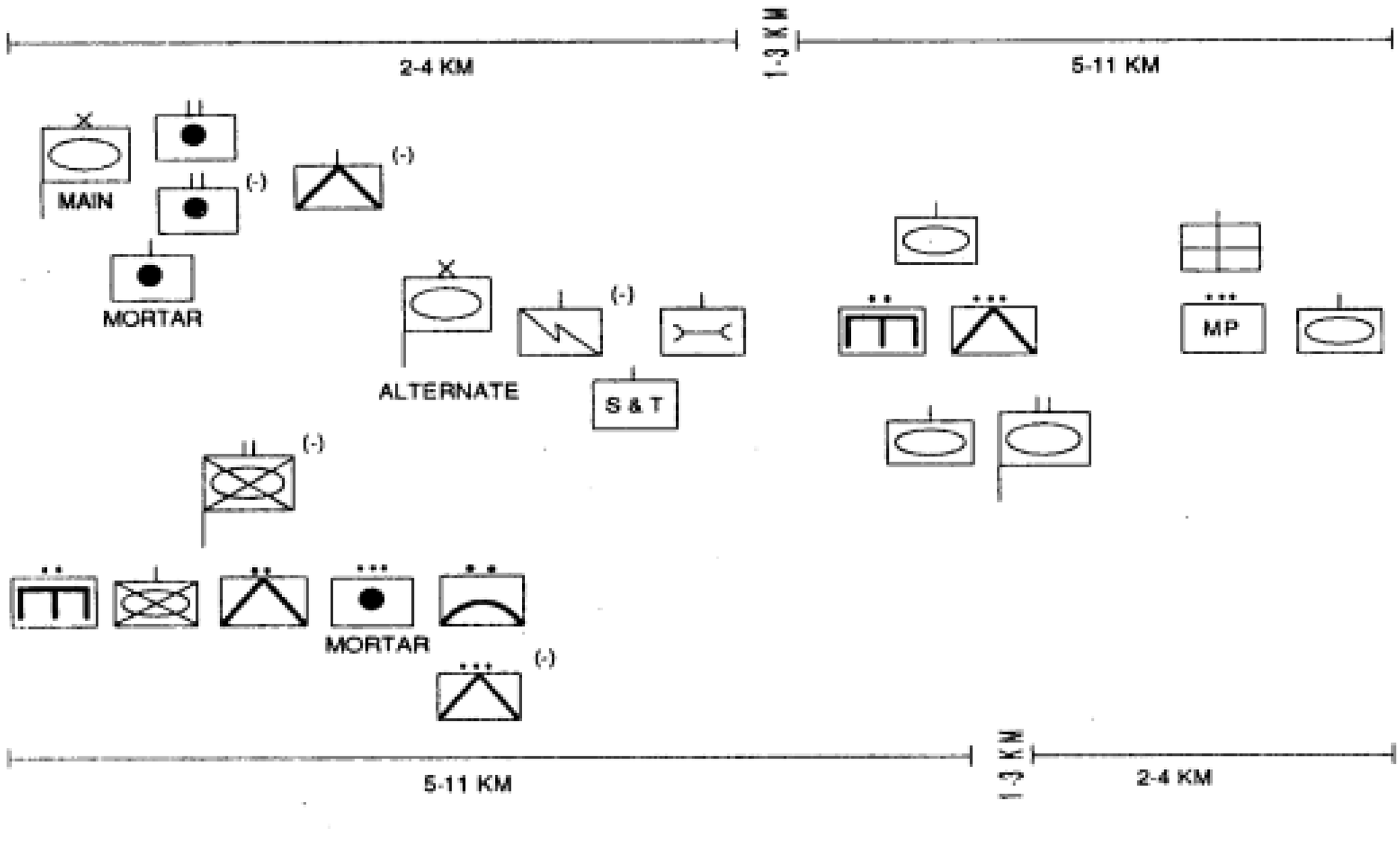


Figure 39 Iraqi Armored Brigade Attack Formation (Variant)



Should the situation require infantry heavy forces, the mechanized infantry battalion commander assumes command of the combat grouping. A tank company falls under operational command of the mechanized infantry battalion and operates in the infantry command net. The supporting units would be similar to those supporting the tank-heavy combat grouping.

When a combat grouping of equal armored and infantry forces is organized, the command is determined according to the missions assigned to the grouping. When mission, enemy, and terrain require armor priority, the tank unit commander assumes command. When the situation requires mechanized infantry priority, the infantry battalion commander is in charge. The two staffs work together — the commander who is not in charge advises the grouping commander on employment of his unit.

The armored or mechanized infantry brigade headquarters controls the combat groupings and organic and attached support units, and is responsible for planning combat operations and controlling the fighting. The brigade headquarters determines the composition of

the combat groupings according to the mission, threat, and terrain. The brigade commander receives his mission, method of operation, and timetable from division headquarters.

Attack from the March

In an attack from the march, or hasty attack, the Iraqis will attack with as little as a 2:1 overall superiority in forces. *However, they will mass at the point of attack to achieve up to 6:1 or better local superiority*. In preparation for offensive operations, the Iraqis will first enter a concentration area allowing the division to bring together all of its elements. Normally the division's air defense elements will occupy the concentration area first to establish an air defense umbrella over the division's concentration.

From the concentration area, the division will move out in march column into an assembly area nearer to the enemy forces. From the assembly area, the unit will march to the formation line, which may also double as the line of departure.

Traveling to the formation line, the subunits of the battalions (or combat groupings) will travel in either a wedge or echelon right or left. The formation line is used to bring the units on line and to ensure that all units are in their proper positions. From the formation line/line of departure, the unit will proceed to the assault line for the final assault.

Iraqi units will most likely attack with two thirds of their forces forward and one third to the rear. In desert terrain, tank forces reinforced with mechanized elements will most likely lead attacks and counterattacks (see Figure 38).

When attacking, units will move in a leap-frogging manner similar to our bounding overwatch. A unit will take up a position in covering terrain and provide covering fires, while other units move to a new covered position from which they will cover the next movement with fire. The Iraqis have the capability to fire on the move, but dislike to do so due to the problems inherent in acquiring targets while moving. Also, they prefer to have their tanks provide fire support to the infantry elements, and will use tank companies to provide indirect fire support for the attacking units.

Attack from a Position In Direct Contact

In an attack from a position in direct contact, the Iraqis will mass an overall 3:1 superiority in forces, but mass to get as much as 10:1 superiority at the point of attack. The Iraqis' doctrine for attacking from a position in direct contact follows the same pattern as an attack from the march, with the exception that a few days prior to the attack, the unit that will attack will move some of its elements up and relieve some of the units in contact.

It is unclear whether they are securing just those areas where they can provide supporting fire, or where they will actually pass through in their attack. In either case, the attack will be conducted much like a forward passage of lines with the formation line/line of departure/assault line coinciding with their forwardmost troops.

Small Unit Tactics In the Offense

The methods of cooperation in attack, between armor and infantry as one organic whole, can be summed up as follows:

Tanks as the Spearhead

Customarily, the tanks move at the spearhead when antitank weapon resistance is light and speed is vital, or where the terrain is exposed, usually in daytime, or when the infantry is transported by APCs.

Tanks and infantry will begin movement together toward the objective, each according to its own set speed. The tanks will proceed by the leap-frog method using fire and maneuver, and the infantry will move right behind them.

Infantry as the Spearhead

The infantry will advance in front when there is strong antitank weapon resistance and the terrain provides concealment. The infantry will move toward the target at its own speed using the best possible approaches to afford concealment. The tanks will provide fire support from flank or rear positions while advancing in leap-frog fashion, together with the infantry attack. It is possible to introduce part of this fire support within the framework of a plan according to schedule, in full coordination with artillery support.

However, the best support can sometimes be given by improvised fire at targets of opportunity which stop or slow the attacking infantry. There is special importance for covering fire for the infantry assault in the last few hundred yards to the objective.

In addition to tank fire support, some of the tanks will accompany the assaulting infantry in order to raise their morale. These tanks will move from place to place at the optimal speed necessary to ensure their arrival at the objective together with the infantry. The timing will be determined by the armor and infantry commanding officers.

Tanks and Infantry on the Same Axis

Command and control will be easier if the tanks and infantry move on the same axis. If the route is suitable, this method is preferable, especially for inexperienced units. However, one danger must be

taken into account; the infantry will be in the line of fire of some of the tanks, and this is liable to occur at a decisive stage of the assault.

Tanks and Infantry on Separate Axes

Among the advantages of an advance by tanks and infantry on different axes is the ability of the tanks to give fire support from an angle to the infantry advance axis and thereby continue fire support from the flanks for a longer period. This ensures protection of the infantry more effectively than firing over their heads. Moving by separate axes enables armor and infantry to each choose the most suitable axes for itself. This method of attack requires a higher level of training owing to the difficulty of command and designation of targets between the two forces.

Forces in the Assault

The infantry and armor units in the assault will organize in two forces:

The Assault Force

This force must reach the objective quickly, reorganize it, and prepare to start the next phase. This force can consist either of tanks alone, or tanks and infantry, or infantry only. The tanks of the assault force should always be in the vicinity of any covering artillery fire and should not engage targets that do not delay the infantry's advance.

The Reserve Force

Several tanks should be kept in reserve to accompany and support the infantry reserve according to the development of the fighting.

Reorganization on the Objective

Upon capturing the objective, infantry should prepare defensive fighting positions. At this stage the infantry will be under bombardment and possibly enemy counterattacks until support arrives. Therefore, it is vital to leave tanks in the forward positions so they may support the infantry. However, it is obligatory to reduce the number of tanks in the forward positions as much as possible. Additionally, the tanks' effective concealment must be assured to prevent exposure to enemy fire.

The rest of the tanks must be moved to a location near the objective, concealed from enemy observation. These tanks will be located so they can deploy to support the infantry. This location is called the "forward assembly area." The infantry commander will

not withdraw any tank for maintenance and rest from this location before he has ascertained that his support weapons have reached the objective. After this has taken effect, most tanks will be transferred to the rear for maintenance. This area is called the "rear assembly area."

Usually, a small percentage of tanks are left in forward positions to provide for emergency alert. The Iraqis recognize that the tendency to leave tanks dispersed in forward positions in small numbers to raise the morale of the troops during defensive reorganization should be resisted; however, they do so anyway. It also is preferable to concentrate the tanks in the rear where they can be moved more quickly to the critical battle sector. Location of the tanks in rear assembly areas will also facilitate movement to preselected battle positions.

Forward Assembly Area

With the relaxation of the situation, it may become possible to transfer several tanks from the advance positions to the forward assembly area. If the objective is exposed to enemy antitank fires, the transfer of tanks may prove to be necessary. Tank crews in forward assembly area should prepare firing positions to which they can move to repel an enemy counterattack. The tanks engage only in hasty maintenance and ammunition resupply in the forward assembly area. The tanks should be organized in a 24-hour all-around defense during difficult continuous combat situations. The number of tanks to remain in advance positions for infantry support depends upon the battlefield situation.

Rear Assembly Area

With reorganization of the infantry on the objective and completion of antitank defenses, the infantry commander will inform the armor commander that it is possible to withdraw his tanks to where they can perform maintenance and resupply. The tanks will still remain at the disposal of the infantry commander to deal with a counterattack. However, they will not be kept on immediate alert.

Artillery Support

The tanks need immediate artillery support to destroy enemy antitank weapons and to provide smoke screens when required. The forward observers should accompany the tanks and make an effort to ensure communication with them. It is also preferable to secure immediate artillery support by means of a self-propelled gun battery if one is available.

All artillery pieces will fire according to a predetermined firing plan. In order to enable the infantry to reach the target with the tanks supporting the infantry, the artillery firing plan should take into account the estimated positions of enemy antitank artillery (see Figures 40 and 41).

To ensure the greatest possible fire support for the assault echelons, the firing plan should be based on the speed of movement of the infantry, which is the main arm. However, in lightning attacks, when the battle is fluid and the armor is the main arm, the artillery fire should follow the speed of the tanks and not the infantry. It should be remembered that as the tanks are relatively immune to their own artillery, they should approach much closer to the supporting fires in order to reach the objective at the same time as the artillery.

Breakthrough

Breakthrough operations have not commonly used in Iraqi doctrine. They are viewed as methods to exploit perceived enemy weaknesses. Breakthrough attacks have the objective of reaching enemy reserves and preventing a counterattack.

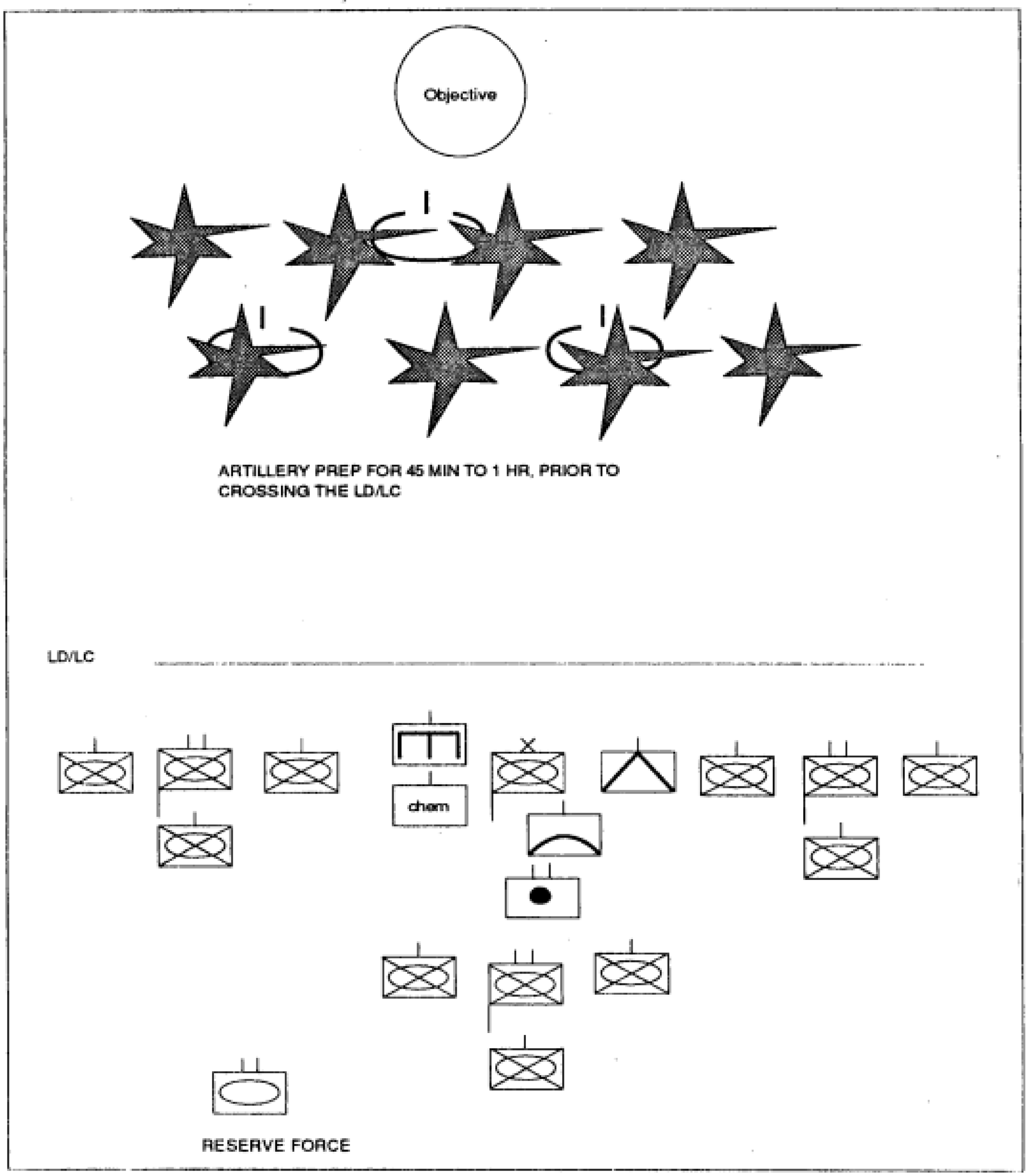


Figure 40 Attack Against a Defensive Enemy — Artillery Preparation Before the Attack

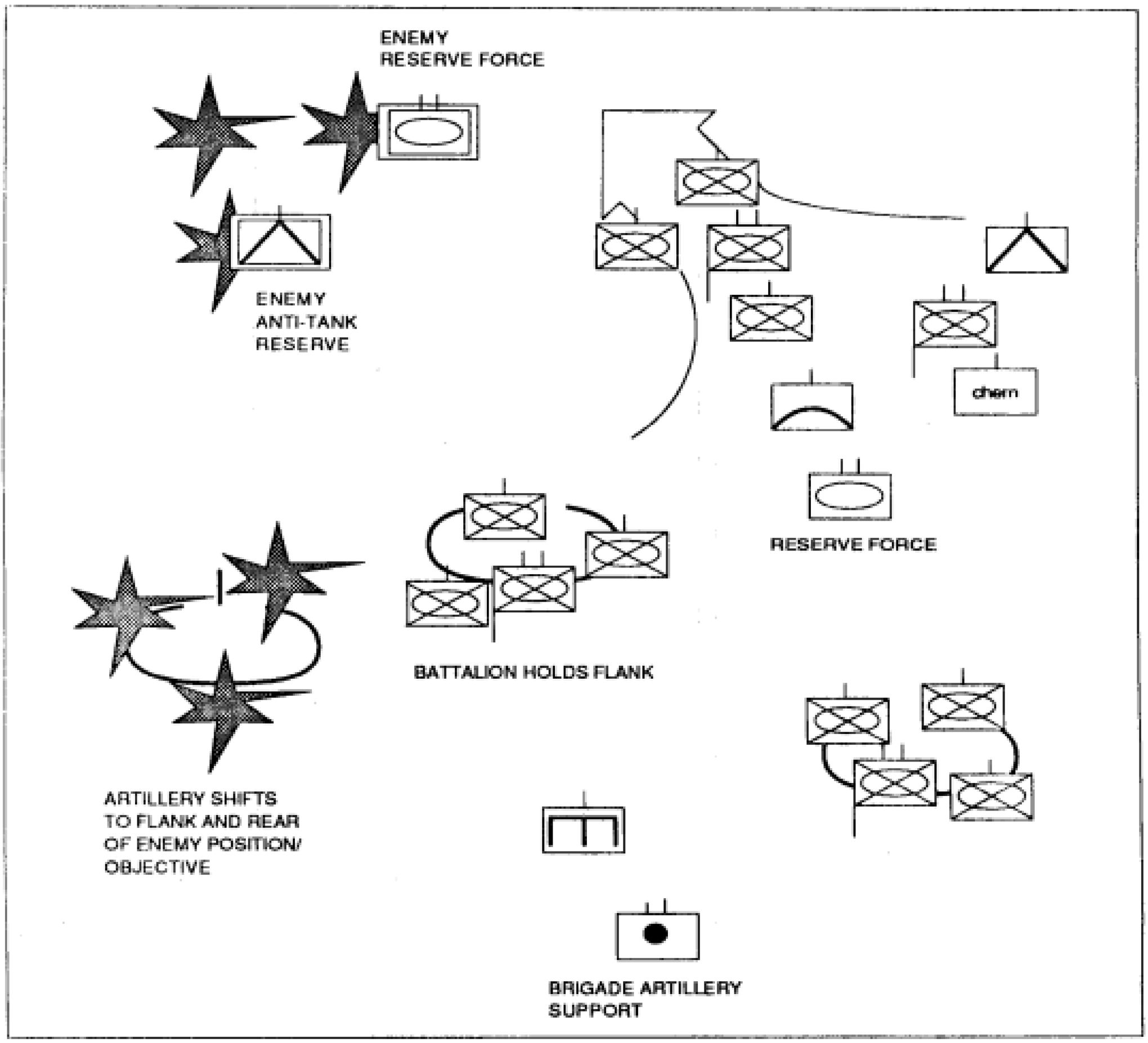


Figure 41 Attack Against a Defensive Enemy — Artillery Support of the Breakthrough

Movement to Contact

Iraqi doctrine describes three situations which might occur when a unit in movement to contact encounters a hasty defense by a weak enemy force, a comparable enemy force, or a superior enemy force. The principal objectives in a movement to contact are to avoid enemy strongpoints, attacking the enemy rear either by

flanking movements or a penetration. The flanking movement is preferred because fewer resources normally would be consumed than when attempting to effect a penetration.

The Advance Guard

One of the division's three brigades will act as the advance guard when the division conducts a movement to contact. The brigade will advance on one or two parallel axes with a battalion/combat grouping on each. If on two axes these units will advance at a rate dictated by the slowest element so all units remain within supporting distance of each other (see Figures 42 and 43).

If on one axis, the advance guard will consist of an advance party of a battalion/combat grouping three to five kilometers long. The main force and rear party trail by up to 25 kilometers, and together cover about ten kilometers, for a total length of about 20 to 40 kilometers. The lead battalion(s)/combat grouping(s) will be reinforced with engineer assets to assist in breaching any obstacles on the route of advance.

Additional combat support and service support units will be attached as the mission dictates. In some cases this may include self-propelled artillery for direct support, and almost always includes some air defense assets.

The advance party would most likely attack with two companies forward and one to the rear. The advance party would have an artillery battery. The main force would have an artillery battalion (-). The Iraqis would lead with tank units in open country and against an enemy in a hasty defense or possessing weak AT defenses.

In restricted terrain, mechanized troops or infantry would lead. In open terrain, tank heavy forces will spearhead most attacks and counterattacks. Antitank units would protect flanks, and air defense would be positioned to cover the entire unit, but would not be forward of the maneuver elements.

A division would most likely employ an armored brigade as an advance guard in a desert environment.

If the enemy forces are weak, the advance guard will leave a small fixing force and move rapidly to the flank in an attempt to neutralize the reserves and prevent counterattack. The main body will destroy the enemy forward forces. At no time will the momentum of the attacking force be lost (see Figures 44 thru 46).

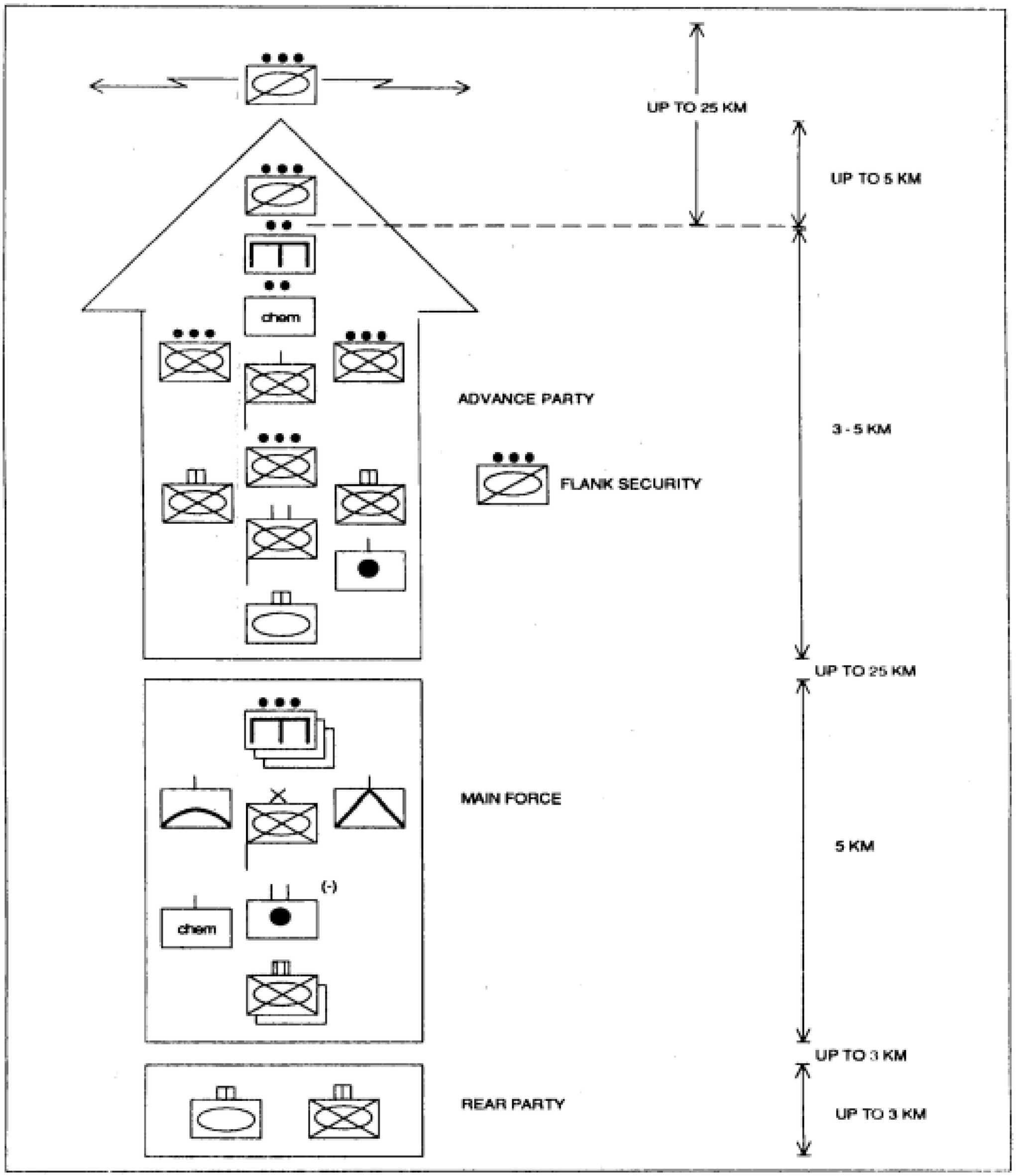


Figure 42 Mechanized Infantry (Armored) Brigade Advance Guard Formation

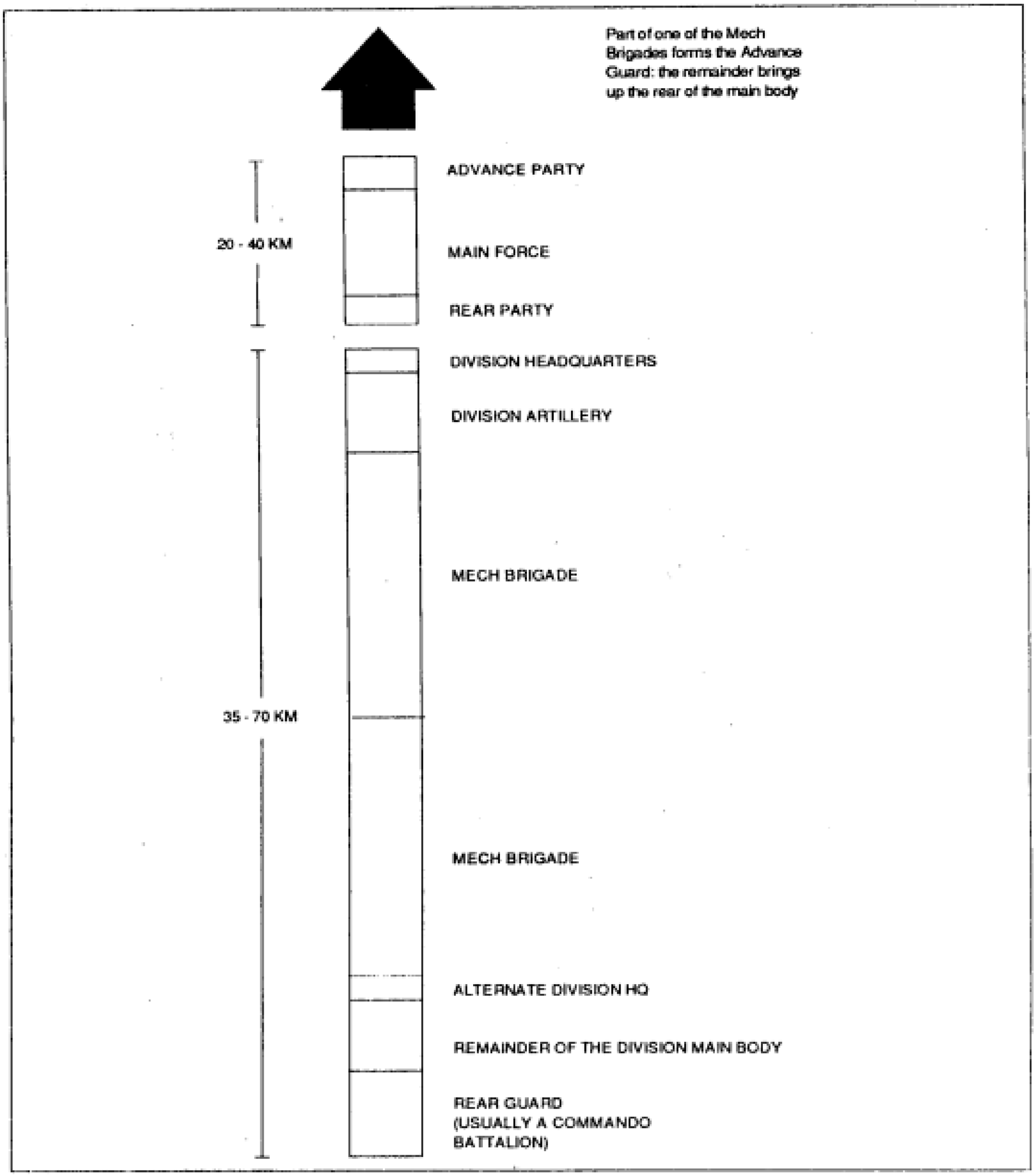


Figure 43 Mechanized Division Movement to Contact

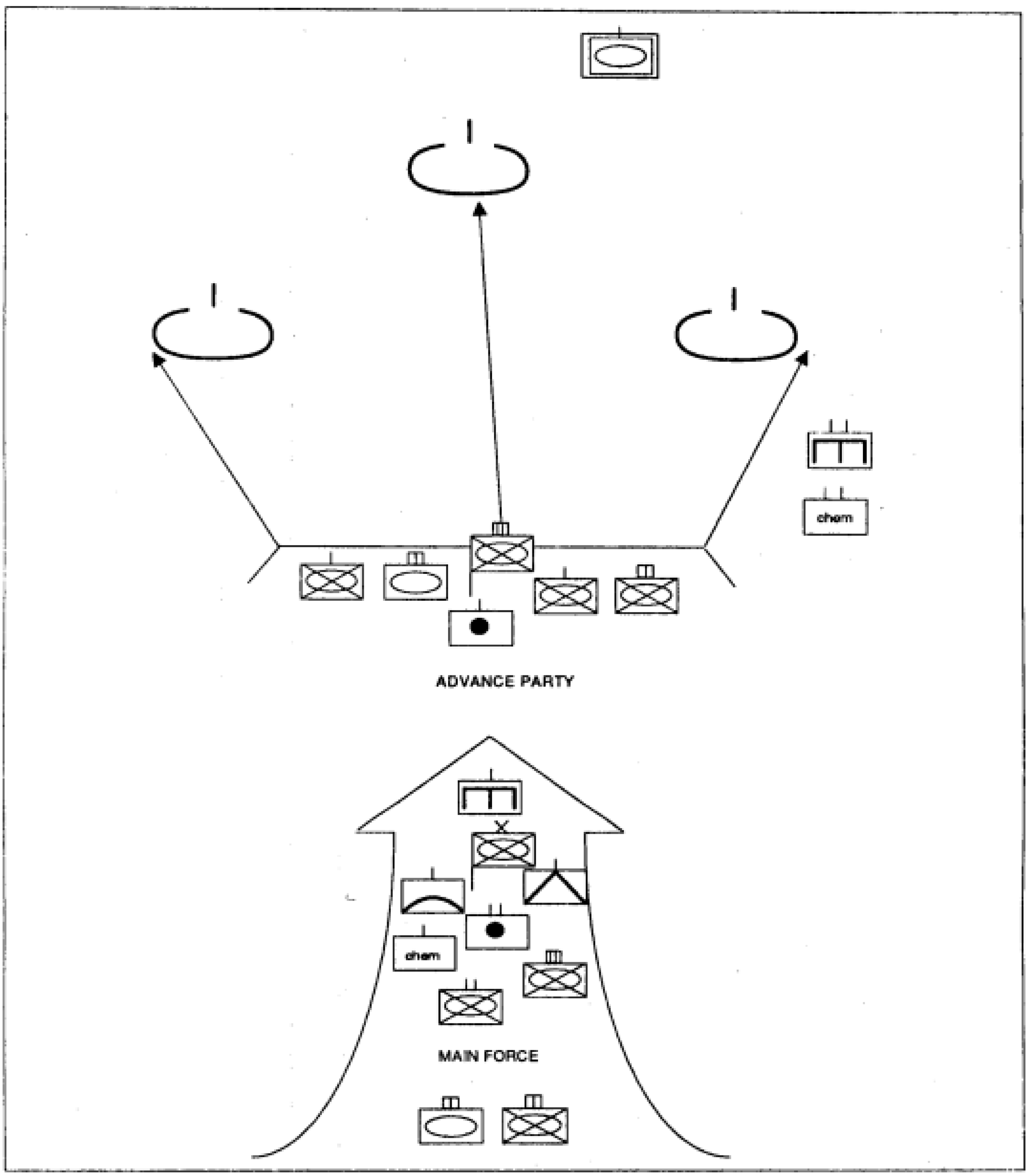


Figure 44 Movement to Contact Against a Weak Defense

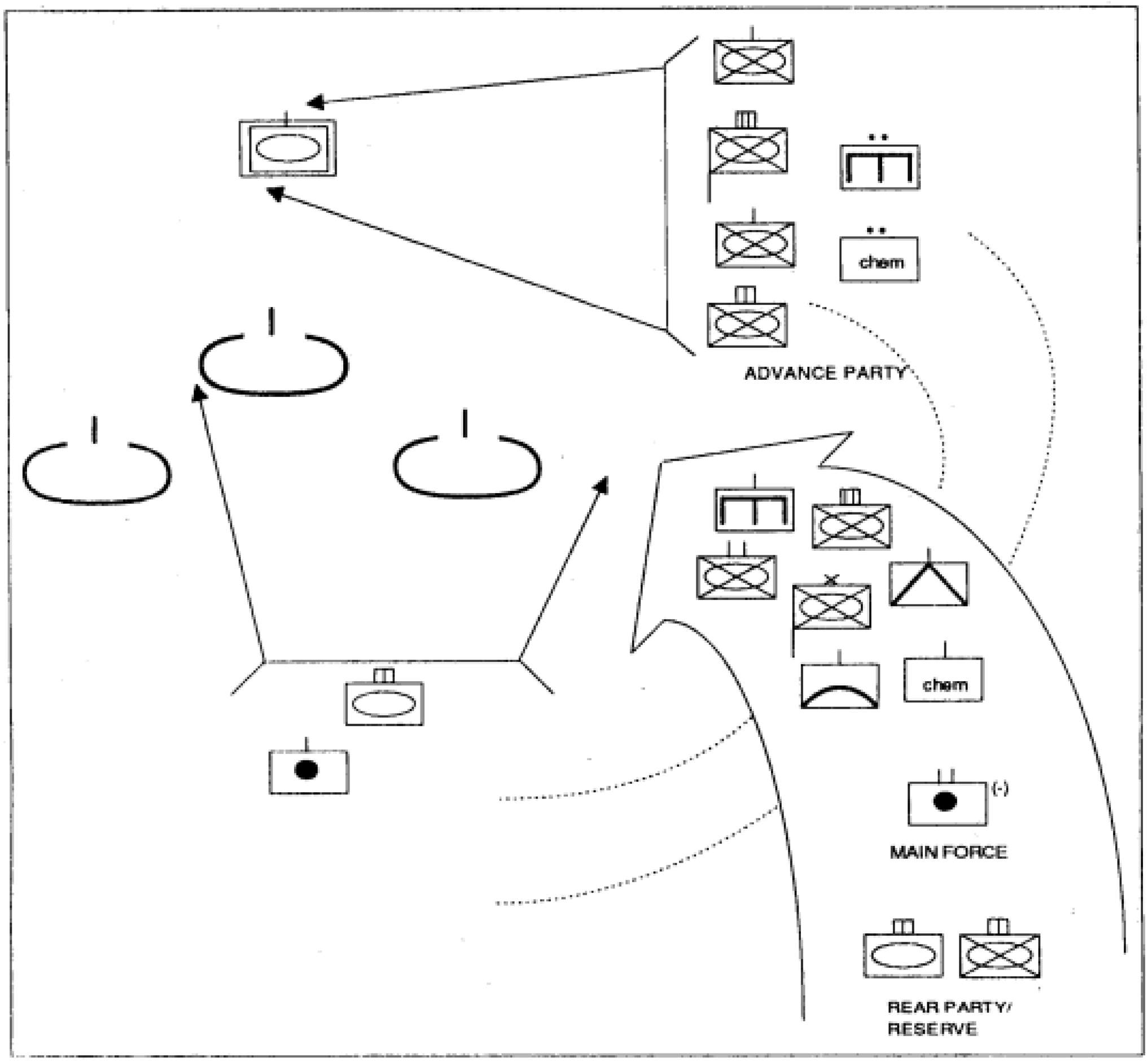


Figure 45 Movement to Contact Against a Weak Defense/Force

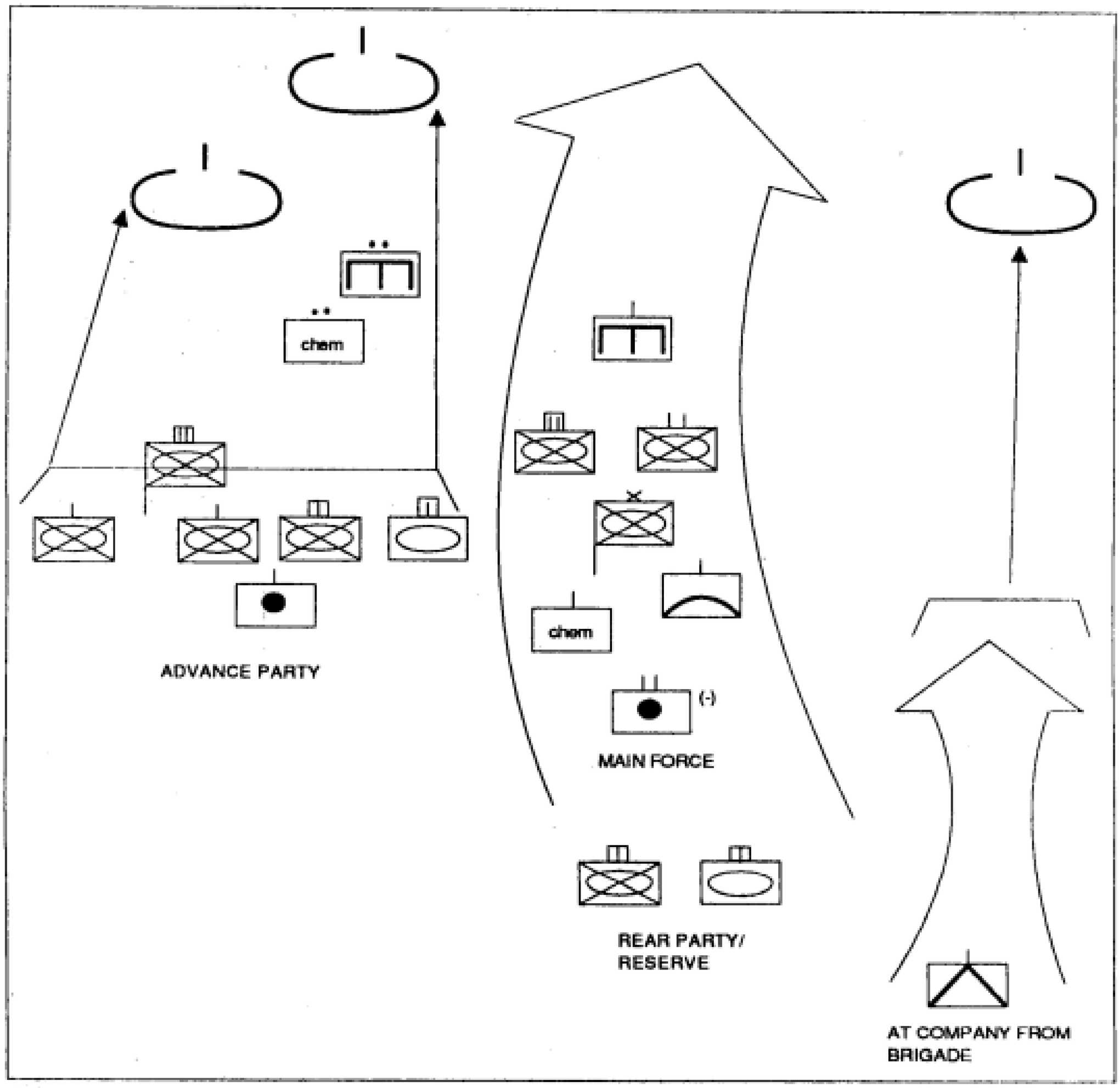


Figure 46 Movement to Contact with a Gap in Hasty Defense/Force

If the enemy is a comparably sized force, all elements in armored vehicles would "button up" and a reconnaissance would be made to determine the enemy's strength. The advance guard would then reduce the enemy defenses. After the action, a new battalion would assume the advance guard mission (see Figures 47 and 48).

If the enemy is a superior force, the advance guard would fix the enemy force and the main body would bypass the enemy. The advance guard would not be reinforced, except by antitank weapons to protect against counterattack. As before, the momentum of the advancing force must not be lost (see Figure 49).

Main Body

Apparently, the only situation in which the main body would be committed to attack is one in which the enemy is weak. There is a fourth situation in which the enemy is too strong to penetrate and too extended to envelop. In this situation, the Iraqis would probably assume the defense until additional forces could be brought up which were strong enough to reduce the enemy position.

Flank and Rear Security

In the war with Iran, the Iraqis did not consider flank security elements essential for the advance party or advance guard of a division. Flank and rear security elements, including some reconnaissance subunits, were used for the division main body.

However, Iraqi maneuver forces conducting movement to contact, etc., may make greater use of flank and rear security elements today than was the case during the war with Iran. An Iraqi commander may decide to employ flank and rear security elements if he feels that the situation warrants their use.

In particular, use of march security elements may be desirable for an Iraqi heavy division or brigade that is moving close enough to the front that contact with an enemy ground or helicopter force is possible.

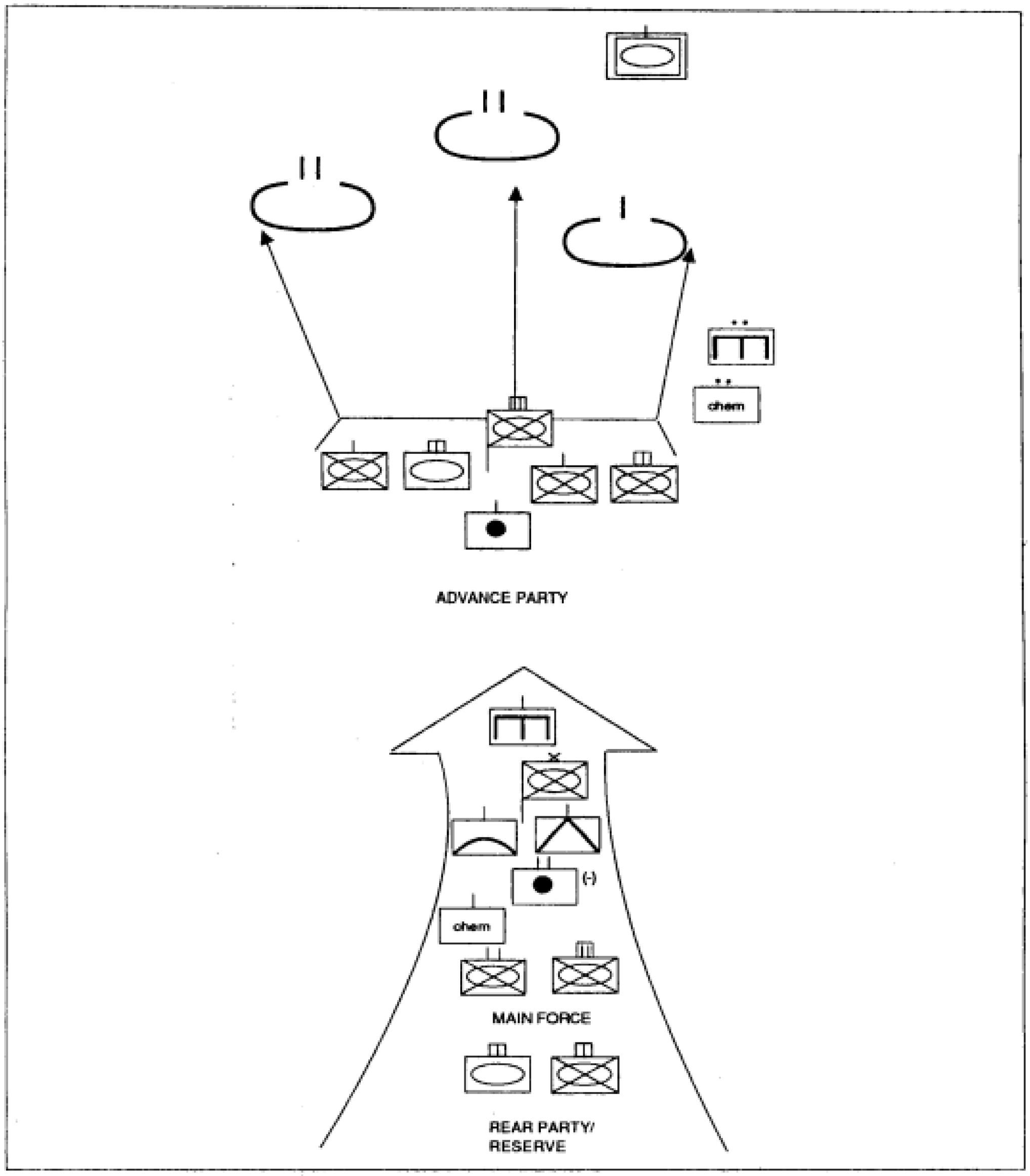


Figure 47 Movement to Contact with a Comparable Enemy Defense/Force

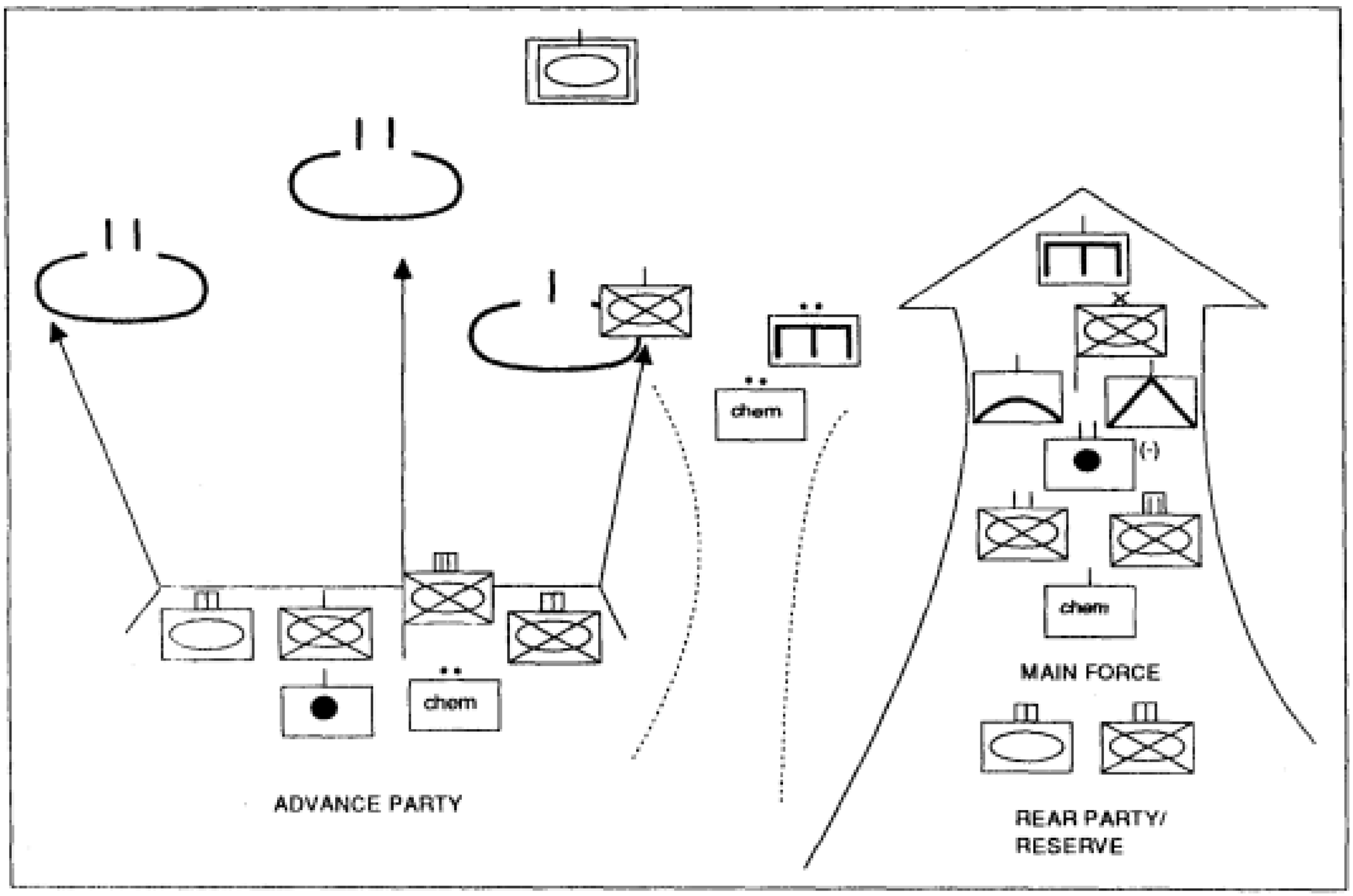


Figure 48 Movement to Contact with a Comparable Enemy Defense/Force

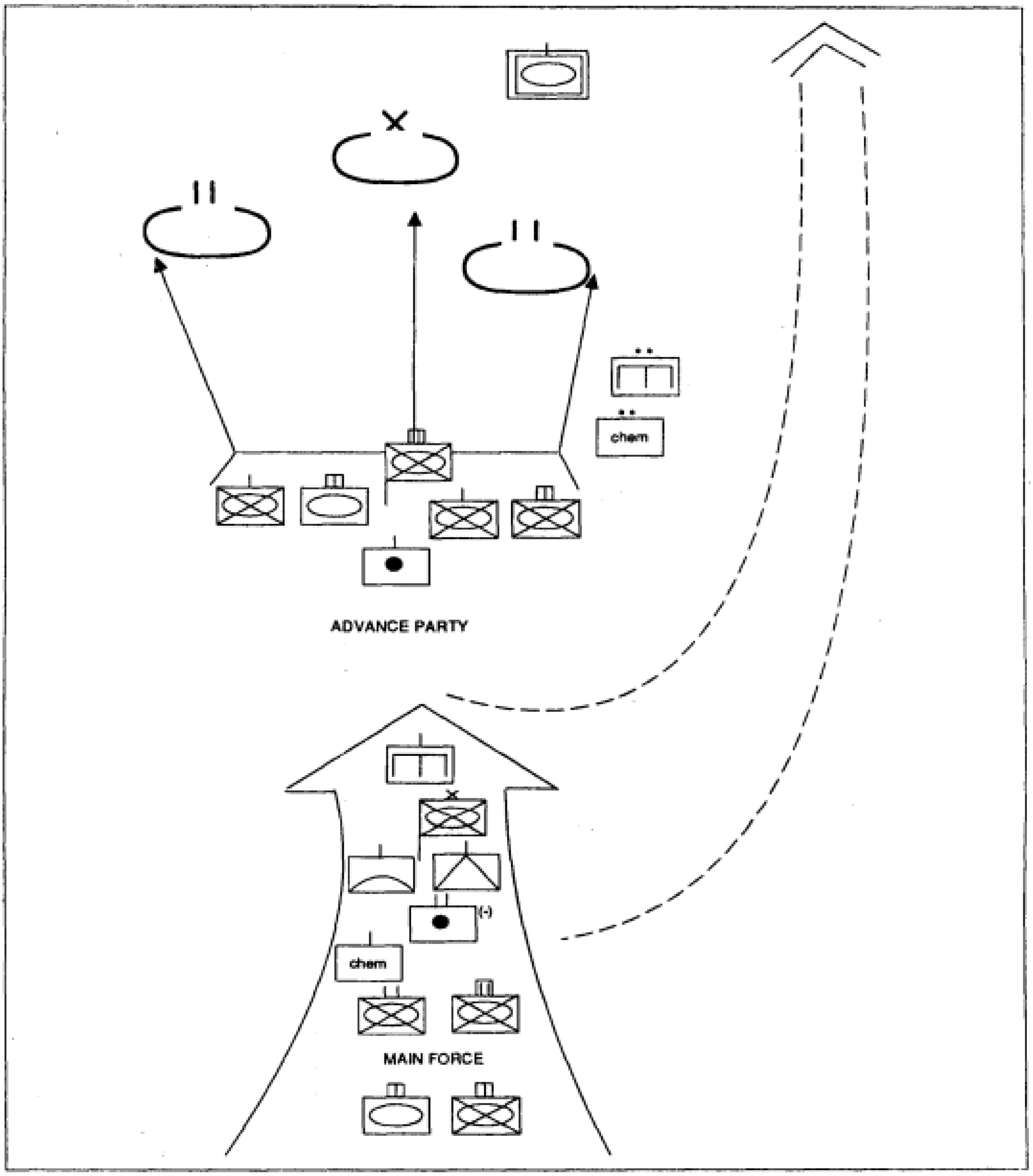


Figure 49 Movement to Contact with a Superior Enemy Defense

Pursuit

In pursuit operations, the frontal pursuit is normally employed, but parallel pursuit may be employed when possible to block enemy escape or reorganization attempts.

When enemy forces retreat in orderly fashion and leave strong forces along the axes of retreat to protect the retreating forces, it is necessary to open these axes while continuing cautious movement. For example, in a corps consisting of two armored divisions and a mechanized division, the force will be divided into three parts. The mechanized division will continue to supplement the defense disposition. One armored division will follow the retreating enemy and one armored division will be in reserve.

The armored division commander pursuing the retreating enemy issues general orders regarding the manner in which the division will execute its mission. For example, the mechanized infantry brigade will follow the retreating enemy on the northern axis while an armored brigade, which is subordinated to the division commander, will remain in reserve to deal with the unexpected.

The brigade commanders determine the suitable form of movement according to the terrain and the enemy. An armored brigade combat grouping likely includes:

- the armored brigade HQ
- an HQ and signal company of the armored brigade
- repair teams
- a military police squad
- three armored battalions
- a mechanized infantry battalion
- a light battery (120-mm mortars)
- two self-propelled artillery battalions
- a battery from a field artillery battalion
- a self-propelled antiaircraft artillery battery
- an equipment repair shop
- a supply and transportation company
- a medical field unit
- two communications vehicles for air support

The armored brigade will advance in the following manner: two battalion-sized combat groupings advance in two axes, with a third combat grouping following in reserve. The brigade combat grouping could have an attached reconnaissance company from the divisional reconnaissance battalion to augment its reconnaissance platoon. The locations along the axis where the armored battalion's headquarters will manage the battle are predetermined, as are the locations where the infantry battalion's headquarters will control the battle. Locations are determined by terrain features. In open areas,

the armor is dominant, while in areas of thick vegetation, like plantations or mountainous areas, the infantry commands the movement (see Figures 50 thru 53).

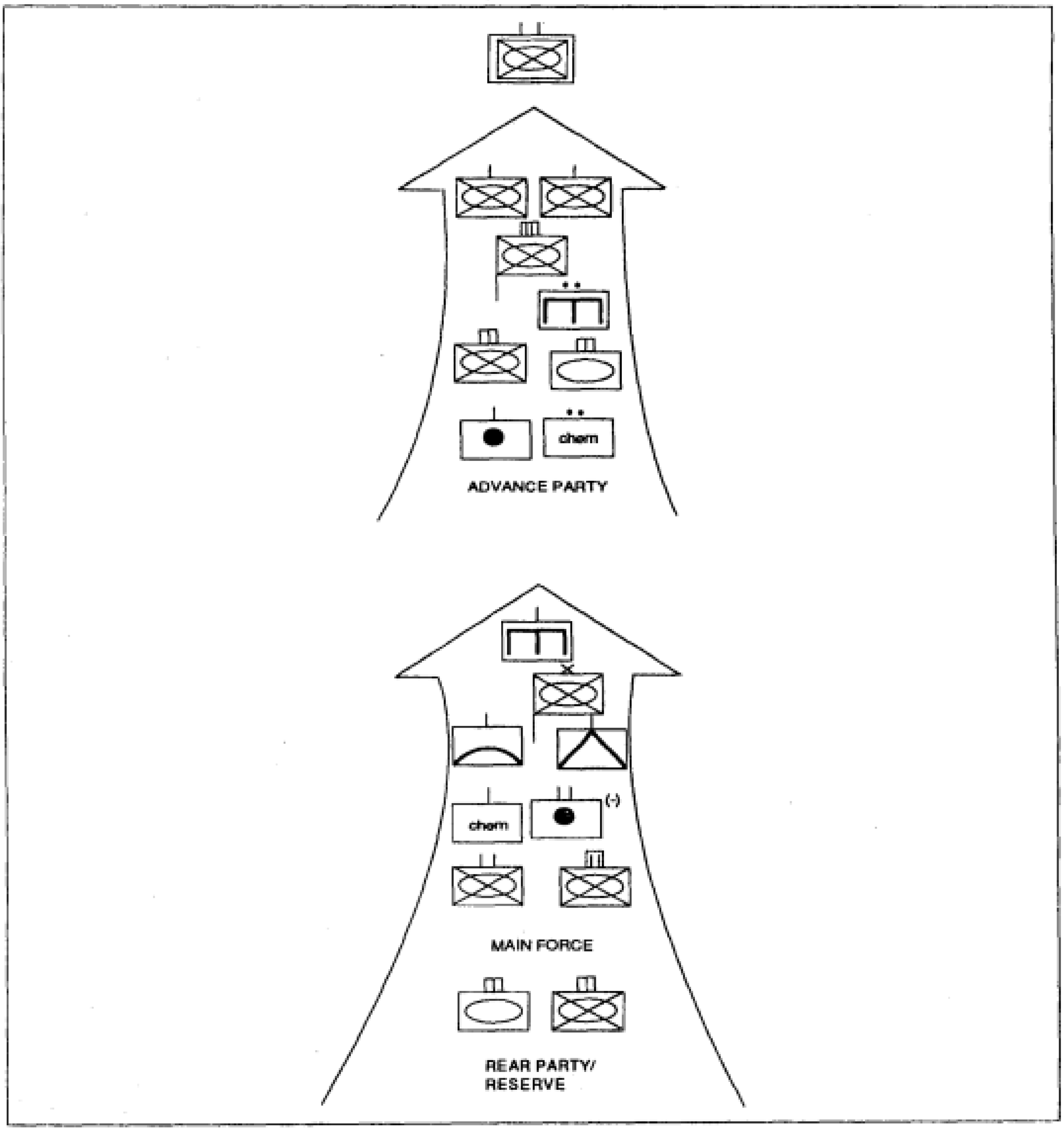


Figure 50 Frontal Pursuit

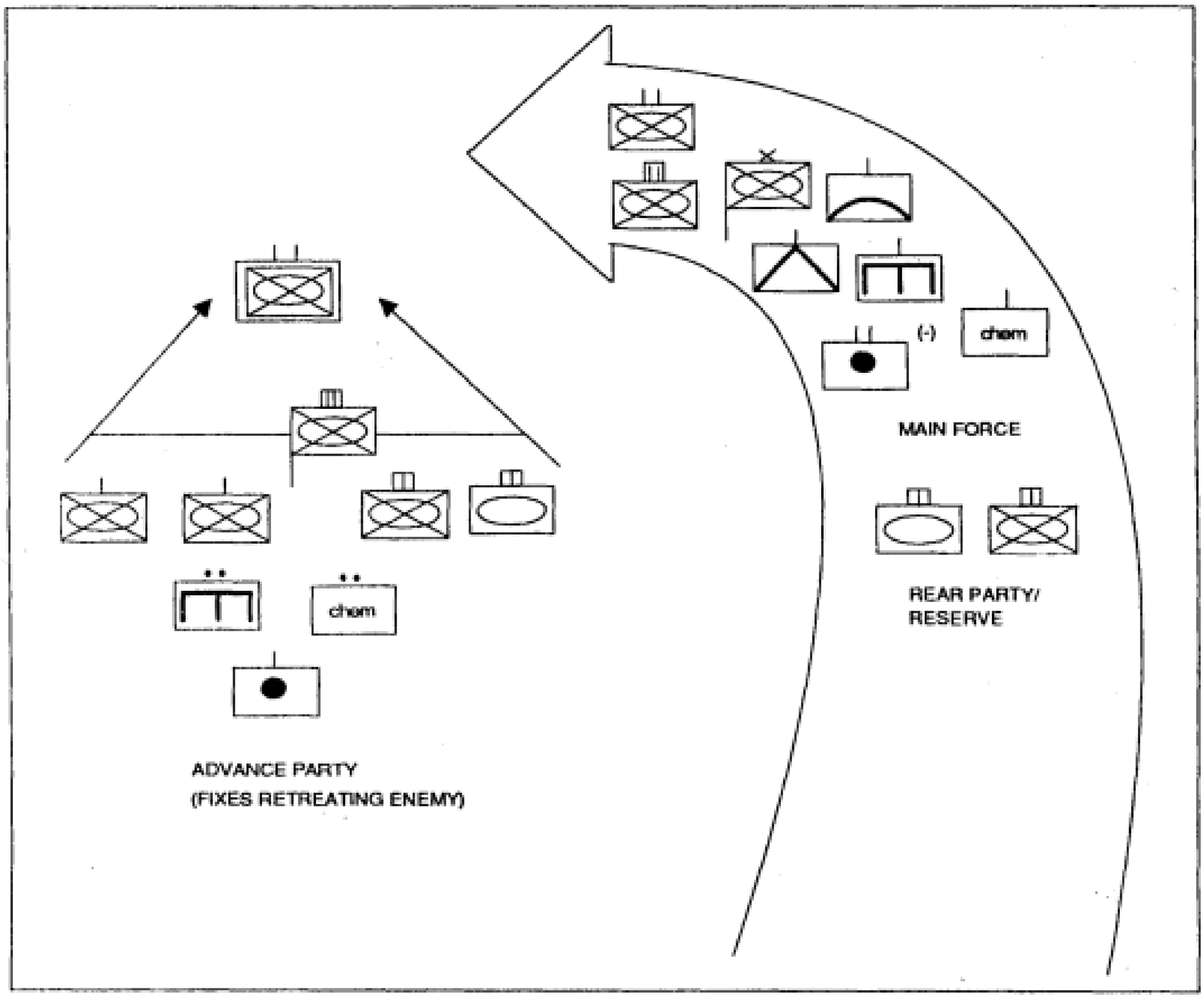


Figure 51 Frontal Pursuit/Envelopment

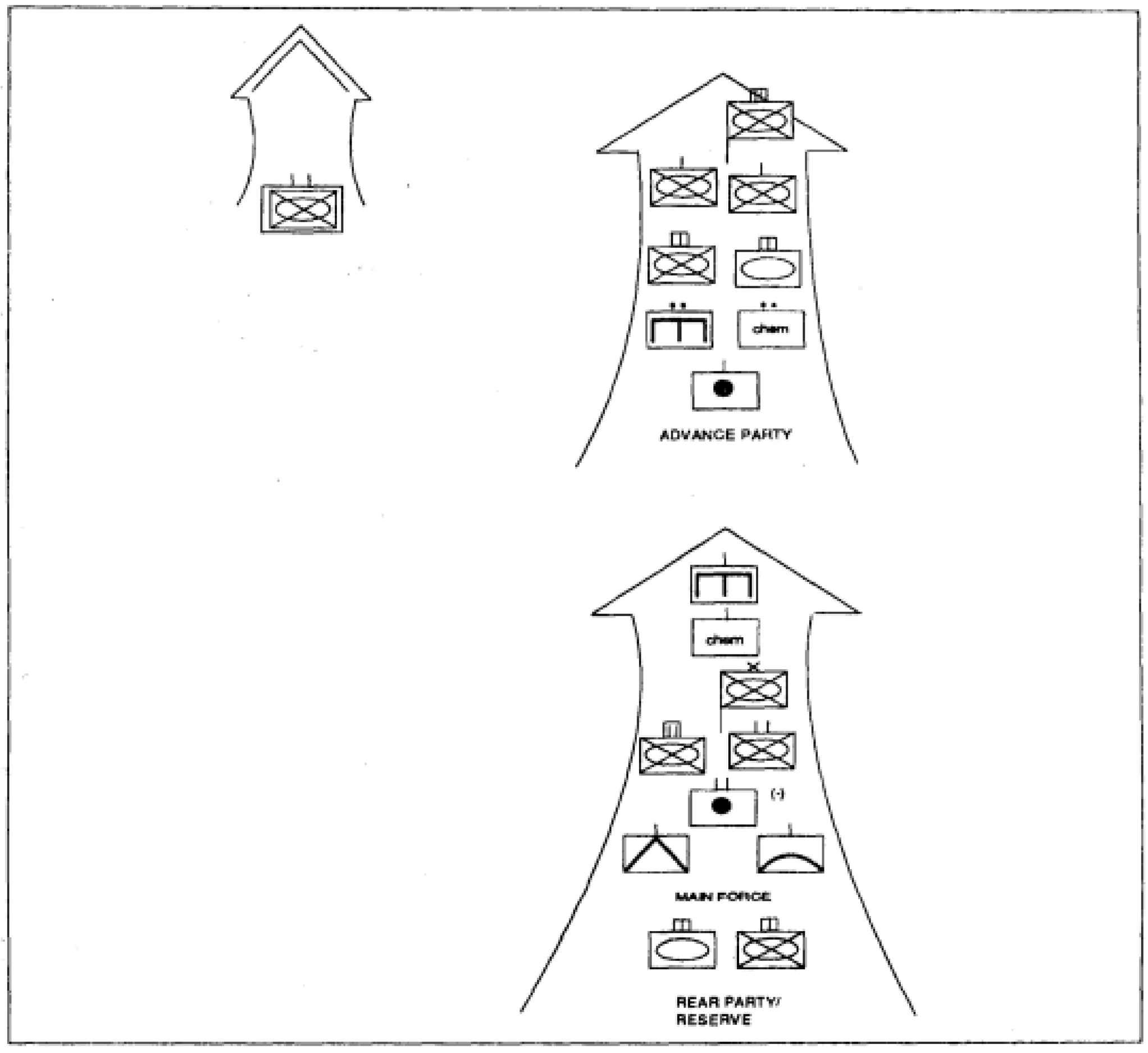


Figure 52 Parallel Pursuit

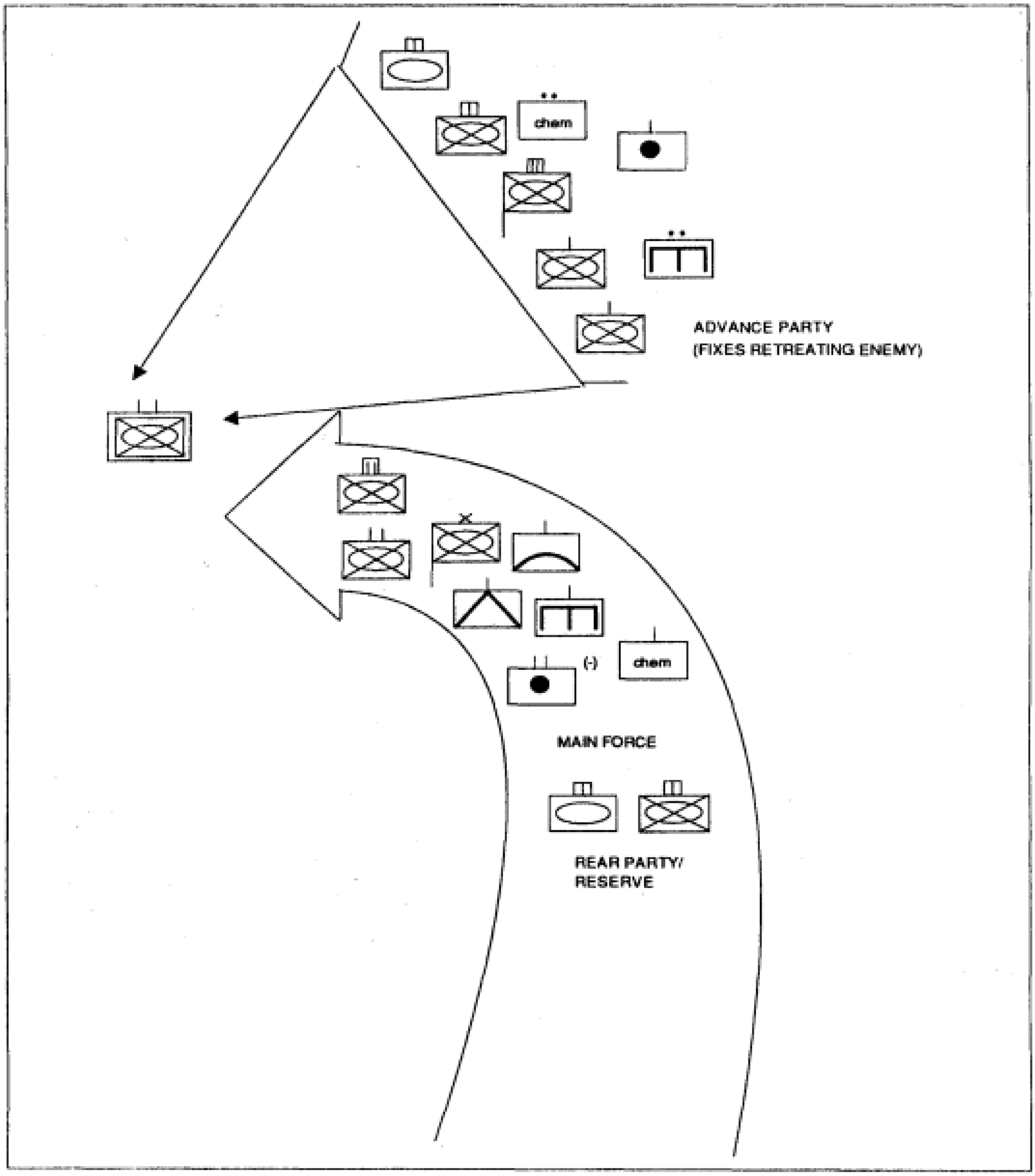


Figure 53 Parallel Pursuit/Envelopment

The brigade's chief of staff prepares the advance plan, which includes:

- form of advance
- use of artillery and antiaircraft artillery
- action plan of the other arms
- action plan of the services
- supervision of the advance

During the brigade combat grouping advance, a tank-heavy combat grouping on one axis will advance with two forward teams and a third team in reserve. In a similar pattern, a tank-heavy combat grouping will advance on the second axis. The third armored battalion will serve as a reserve and striking force and will move behind the combat grouping on the first axis. When the brigade reaches an area of vegetation, companies of the mechanized infantry battalion spread out and clear the plantation with the assistance of the air force. When the plantation area has been cleared and the advance forward continues, the armored battalion commander returns to command of the combat grouping on the first axis.

Reporting on the progress of the advance is made by dividing the axis into phase lines, and codewords are passed reporting the crossing of the phase lines. Reporting is passed to the brigade's headquarters and at the same time to the other battalion combat grouping headquarters.

Night Combat

During the later stages of the Iran-Iraq War, serious Iraqi attacks and major offensives involved night combat.

Generally, the Iraqis fared poorly defending against Iranian attacks at night or in poor weather. Although Iraqi tanks, antitank weapons, and machineguns may be equipped with night vision devices, the crews have limited nighttime capability due to lack of training. Iraqi troops are reported to have become distracted at night by Iranian use of noise, enabling the Iranian attackers to achieve surprise in time and direction. The Iraqis probably employ listening posts at night to enable them to more easily hear enemy movement.

In response to Iranian night attacks, the Iraqis fired many illumination rounds. Helicopters and aircraft also provided illumination.

Meeting Battle (or Engagement)

Concept

A meeting battle occurs when both sides are trying to fulfill their missions through offensive (maneuver) action. The principal goal of a meeting battle is the destruction of the enemy. The side that seizes the initiative first through rapid deployment into battle formations and delivery of indirect and direct fires is most likely to win, even in the face of superior enemy forces.

For the subunit commander, the correct decision is to take the initiative and execute a battle formation/drill that will destroy the enemy first. Wresting the initiative from the enemy is accomplished through multiple, simultaneous decisions forced on him at all levels by outmaneuvering and overwhelming him and seizing key terrain to ensure favorable conditions for future operations.

Once the enemy is destroyed, the advance is continued. The meeting battle may range from a brief fight of several minutes involving small security forces to a battle lasting many hours or days involving the entire division.

It is possible that a task organized mechanized infantry (or armored) brigade, described earlier, would conduct the meeting battle along lines similar to a Soviet motorized rifle regiment.

In the offense, a meeting battle will most likely develop when surprised enemy forces are deploying forward, when encountering an enemy counterattack, when developing the attack into the depths of the enemy's tactical zone, and during pursuit.

The meeting battle will be the basic form of offense to meet and destroy enemy tactical reserves. In the defense, a meeting battle may occur during the conduct of a counterattack against an attacking enemy force. The following characterize meeting engagements and battles:

- continuous, intense combat to seize/maintain the initiative
- rapid troop deployment from march into battle formation
- situation uncertainty at the outset and throughout the battle
- rapid and sharp situation changes
- combat development on a wide front with open flanks and great emphasis on maneuver
- continuous and thorough reconnaissance to ensure success
- speedy decision making and bold action to allow an inferior force to defeat a superior one

- deployment and firing first may be the deciding factor
- good flank and rear security is at its most critical
- initiative and creativity by subunit (battalion, company, platoon) commanders will be crucial

A commander anticipating a meeting battle must consider these factors in his planning and decision making:

- continuous, thorough reconnaissance from his own means and the correct interpretation/use of information from higher levels
- requirement for speed in his troop leading procedures — the making and transmitting of decisions
- anticipation of enemy air and artillery strikes, and the use of such information in gaining fire superiority
- achievement of the initiative through immediately responsive deployment of maneuver forces
- adequate flank and rear security

Meeting Battle (Mechanized Infantry or Armored)

Division

The division will enter a meeting battle in march formation with a zone of advance 15 to 25 kilometers wide. Within the division zone of advance will be two, or possibly three, brigade axes. Subunits of the divisional reconnaissance battalion scout all potential routes of advance for the division's lead brigades.

Brigade

Brigades are the division's maneuver units — they actually fight meeting battles. The division's leading brigades conduct meeting battles using the advance party/main force march formation (see Figure 42).

Battalion

A battalion is more likely to become involved in a meeting battle when acting as the advance party of a brigade. Battalions acting as advance parties for their parent brigades fight meeting battles as outlined in Table 1.

Table 1 Phases of the Meeting Battle

Phase	Element In March	Basic Task	Actions on Contact
Initial contact	Reconnaissance patrols and groups	Obtain data on enemy disposition and terrain along main routes of advance	• Disengage when possible • Report and/or continuously monitor the situation • Bypass enemy, continue to penetrate enemy positions • Determine enemy disposition, particularly nuclear-capable weapon systems • In favorable conditions (or out of necessity), may attack advancing subunits, take prisoners, disorganize or disrupt enemy forces, and destroy enemy nuclear and C^3I systems
	Advance party	Moves along route of main body to ensure uninterrupted advance of main force overcoming enemy security/reconnaissance forces and obstacles	• Reports enemy contact/distruption • The leading element deploys and attempts to overcome enemy forces based on information from the reconnaissance patrols • If the leading element is not about to overcome the enemy, it assumes defensive overwatch position to support manuever of main body of advance party • Main body of advance party will attempt a close envelopment or double envelpment to defeat the enemy unless that force is superior in size • If successful, units will reform and resume march or initiate pursuit • If unsuccessful, will hold position and block enemy/continue attacking to support the subsequent maneuver and attack of the main force
Actions of the main force	Main force	Rapid deployment for the attack and defeat of the enemy, generally from the flanks	• Based on information from forward elements, commander maneuvers his forces and attempts to envelop • Subunits march rapidly to assign sectors and deploy in prebattle/battle formations as needed to assault enemy forces
		Develop the attack into the depths of the enemy rear	• If the enemy is decisively defeated, initiate pursuit or resume direction of march and overall mission • If the enemy is not defeated, continue to develop the attack and hold positions aggressively until division can conduct its maneuver

Company

Maneuver companies use formations and drills in meeting battles in the same manner as they fight defending enemies.

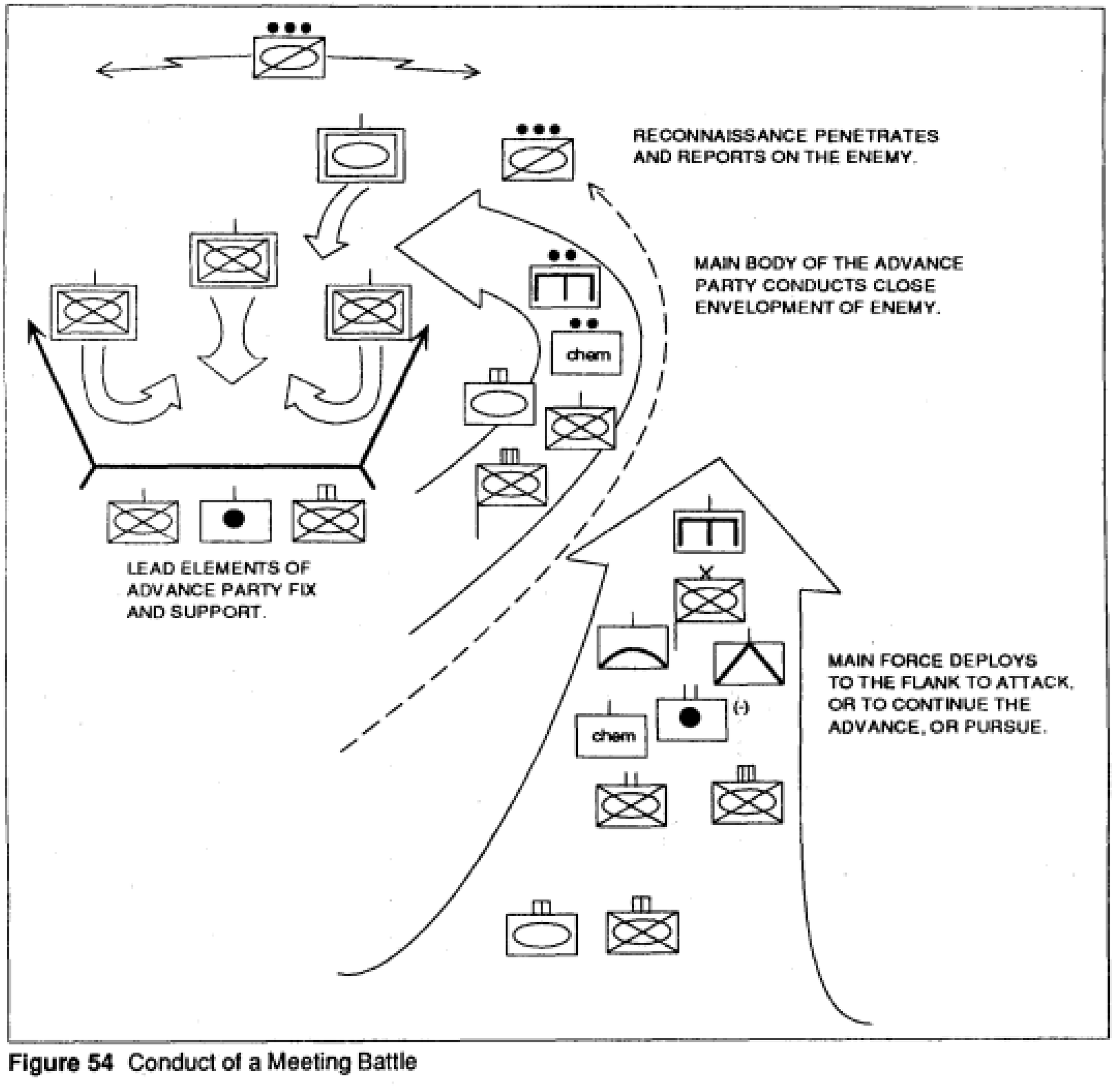


Figure 54 Conduct of a Meeting Battle

Reconnaissance

Moving ahead of a brigade conducting a march usually is its organic reconnaissance platoon, out to about 25 kilometers ahead of the brigade advance party, and possibly elements of the division reconnaissance battalion, out to about 50 kilometers. These elements attempt to avoid enemy contact and to obtain as much information as possible on the enemy. For a detailed discussion of reconnaissance operations, see Chapter 6.

The advance party usually dispatches its reconnaissance platoon as a reconnaissance patrol, augmented with chemical and engineer reconnaissance personnel. Its mission is to conduct reconnaissance, which additionally provides security by preventing surprise. The organization of reconnaissance is flexible and tailored to the mission at hand.

The patrol attempts to penetrate and report on the enemy main force. It provides prompt information on:

- enemy strength, composition, and direction of movement
- information on routes, especially into flanks
- the radiological and chemical situation
- the nature of the terrain, especially key terrain

The patrol sends its reports directly to the battalion commander.

The Advance Party

The advance party has the mission of either eliminating enemy opposition, permitting continuation of the march, or fixing the enemy force to permit a flank attack by the main force. Artillery and tanks usually march well forward in the column to allow their early deployment. If the commander perceives a threat from the flank, artillery and tanks may march in the middle of the column.

The tasks of the advance party are:

- insuring that the main force moves unhindered
- creating suitable conditions for the commitment of the main force
- protecting the main force from surprise attack
- preventing the penetration of the main force by enemy reconnaissance

Typical composition of advance party (based on a mechanized infantry battalion):

- battalion commander, staff, artillery commander
- signal element
- antitank platoon
- engineer and chemical element

- antiaircraft section
- artillery battery
- tank company (minus platoons with the mechanized companies)
- two mechanized infantry company teams
- one mechanized infantry company

The Main Force

The main force, about two thirds of the combat power of the brigade, maneuvers to destroy enemy forces that the advance party cannot quickly overcome. The composition of the main force may vary.

Typical composition of brigade main force:

- brigade commander, staff, fire support commanders
- antitank battery
- antiaircraft artillery and missile battery (minus elements with advance party)
- artillery battalion (minus battery with the advance party)
- armored battalion (minus one company with advance party)
- two mechanized infantry battalions
- rear party

Elements of the brigade assault engineer company (minus elements in the advance party) march throughout the formation. The signal/HQ company and chemical platoon (minus) are probably in the middle or rear of the formation.

In addition, there may be additional engineer, antiaircraft, artillery, and signal support from division, or corps assets.

Rear security elements normally march up to 3 kilometers from the brigade main force. These would normally be company strength. Also depending on the enemy threat, flank security elements march up to 3 kilometers from the column.

Initial Phase

The initial phase of the meeting battle is that period of combat from the time of enemy encounter by the leading reconnaissance element up to the commitment into battle of the main force. Elements of the advance party carry out the initial phase. The subsequent employment of the brigade main force depends on the outcome of the initial phase.

With current reconnaissance capabilities, the initial enemy encounter should not be a complete surprise. Rather, the use of reconnaissance reporting may permit employment of long-range fires, both artillery and air, to inflict damage on the enemy and to delay his advance.

As the forward elements of the advance party encounter the enemy, the brigade commander is at or near the head of the brigade main force, up to 25 kilometers to the rear of the advance party. This calculated spacing should give the commander about 2 hours for planning and execution of his battle.

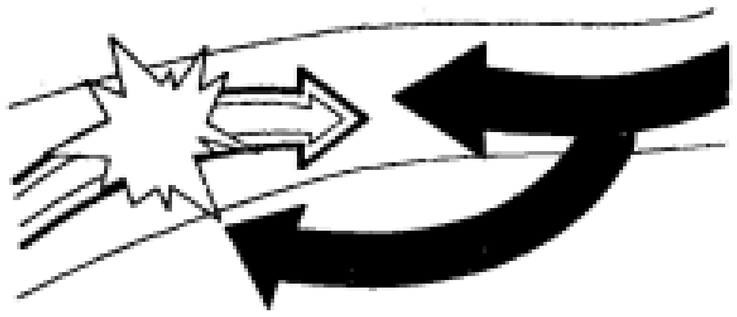
Deployment of Main force

While the advance party engages the enemy, the brigade main force continues its forward movement. The deployment of the main force depends on the outcome of advance party action. Four possible outcomes of advance party action are shown below (see Figure 55):

- attack by advance party is successful
- advance party achieves no immediate success
- enemy forces deny further offensive action by advance party
- advance party is unable to hold the enemy

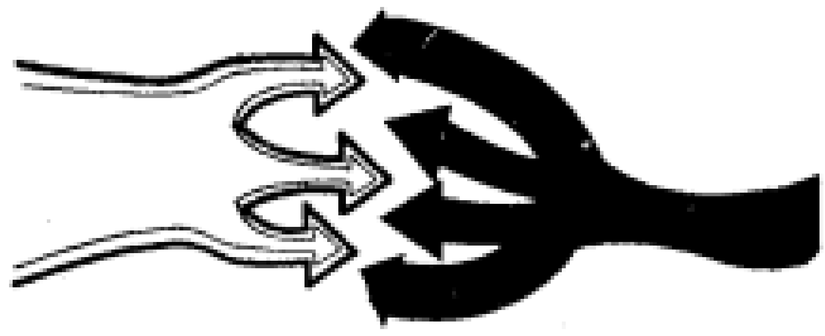
ATTACK BY ADVANCE PARTY LEAD ELEMENT AND/OR ADVANCE PARTY SUCCESSFUL

- o Enemy element destroyed.
- o Advance party resumes march.
- o Main force does not deploy.



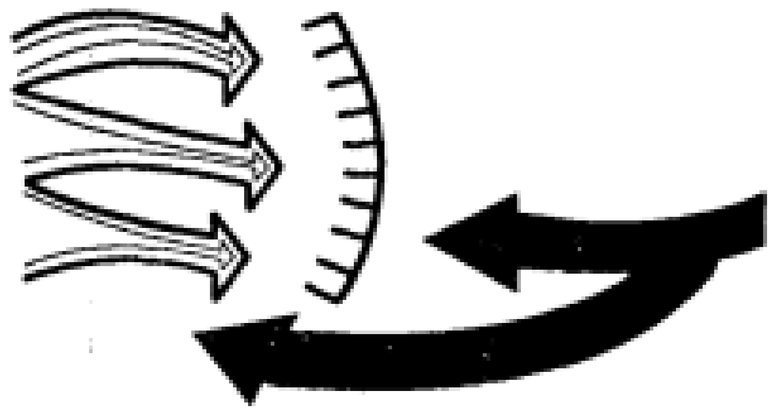
NO IMMEDIATE SUCCESS BY ADVANCE PARTY

- o Advance party continues attack.
- o Main force continues march forward and prepares to deploy.



ENEMY FORCES DENY FURTHER OFFENSIVE ACTION BY ADVANCE PARTY

- o Advance party shifts to defense.
- o Main force deploys and attacks.



ADVANCE PARTY UNABLE TO HOLD ENEMY

- o Main force defends on best terrain available.
- o Advance party withdraws and joins defense.
- o Follow-on division forces committed to attack.
- o Division assumes defense if enemy force too powerful to attack.

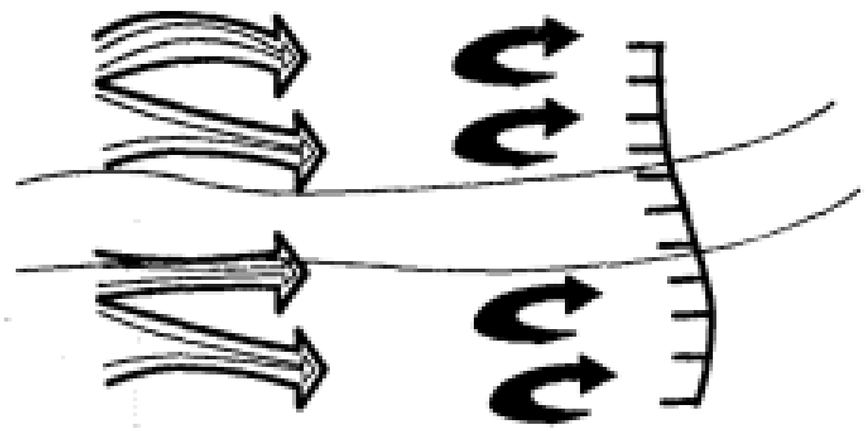


Figure 55 Possible Outcomes of Advance party: Action in a Meeting Battle

When the outcomes of the advance party action require deployment of the main force, the commander decides what form of maneuver to use. There are three basic choices:

Envelopment

A deep maneuver, executed through gaps or from an open flank, requiring the enemy to turn and fight in a new direction. The double envelopment involves a deep maneuver around both flanks.

Flank Attack

A more shallow maneuver, which the brigade may execute through gaps or breaches.

Frontal Attack

A direct maneuver against enemy defenses, most often conducted in coordination with an envelopment or a flank attack.

The envelopment and the flank attack are the preferred forms of maneuver. However, in some cases the frontal attack may be necessary. The time available to execute a maneuver may be a major factor in the commander's selection of a form of maneuver.

For an envelopment, space could be the controlling factor. Terrain must be trafficable and should provide covered or concealed routes for the enveloping force, open ground for deployment, and good fields of fire. The area adjacent to the original route of advance must be 3 to 5 kilometers wide for an envelopment by a battalion-sized advance party. Envelopment by a brigade main force requires an area 10 to 15 kilometers wide.

The Iraqis consider the major contributing factors to a successful envelopment to be:

- effective real-time intelligence and counterintelligence capability
- effective utilization of terrain
- coordination between forces
- appreciation of enemy tactics and capabilities
- capable, ingenious leadership and staff work

Follow-on Forces

The preceding description of the meeting battle focuses on the actions of a mechanized infantry or armored brigade. Unless such a brigade has received an independent mission, such as in a pursuit, it is marching as part of a division force. Consequently, the development of battle might require the commitment of the follow-on elements of the division. The procedures are substantially the same as in the example of the lead brigade.

Before his lead brigade is fully engaged, the division commander's forward command post normally is near the head of the main division force and most likely with the next following brigade. He

monitors the action of the lead brigade and, after its engagement, moves his command group to the best location to control subsequent deployments.

The Iraqis believe that the disadvantage of a hastily planned attack is more than offset by the advantage of a quick strike against the enemy before he has sufficient time for his own preparation. Division follow-on forces can be in combat in less than three hours after the lead brigade's main force engages the enemy.

Employment of Division Follow-on Forces

The employment of division follow-on forces depends on the progress of the initial actions of the lead brigade and appears in Table 2.

Table 2 Employment of Division Follow-on Forces

SITUATION	RESPONSE
Successful attack by the lead brigade	• Lead brigade exploits success or resumes march. • Follow-on brigades initiate pursuit or resume march on one or multiple routes. • Depending on the assigned mission and degree of success, units could consolidate positions and await orders, or resume march in new direction
Enemy establishes hasty defense	• Lead brigade attacks enemy defenses and, by fixing enemy force, facilitate commitment of division follow-on forces. • Depending on availability of maneuver space and size of enemy force, follow-on brigades flank or envelop enemy. • If follow-on forces succeed, exploitation or pursuit occurs. Alternatively, Iraqi forces may consolidate and regroup, and resume the march.
Lead brigade must establish hasty defense	• Lead brigade holds pending arrival and deployment of follow-on forces. • Follow-on forces counterattack and attempt to envelop enemy. If successful, subsequent actions are as above. • Follow-on forces may be necessary to augment defense.
Lead brigade unable to contain enemy attack	• Follow-on forces conduct counterattack. If successful and the enemy withdraws, exploitation or pursuit begins. Alternatively, follow-on forces may resume the march. • Follow-on forces establish defensive positions to or through which the lead brigade withdraws. • Division holds pending commitment of coprs follow-on forces.

The division's actions in a meeting battle appear here generally as a sequential, front-to-rear unfolding of combat. There are many other possibilities as formations move on a fluid battlefield and encounter one another. The meeting battle will not always unfold in the sequence of encounters by reconnaissance elements, advance elements, and main bodies. Neither will it always begin with a head-to-head meeting — it may arise from direct encounter by main bodies, or from oblique encounters.

Whatever the patterns and condition, the Iraqi formula for a successful meeting battle requires surprise, rapid and decisive maneuver, and concentrated preemptive fires against the enemy.

2. THE DEFENSE

The Iraqis consider the defense as a stage in preparing for offensive operations. The strategic objective is the first consideration in assuming a defensive posture. The most important reasons to employ defensive operations are to achieve political objectives and wait for reinforcements. Other reasons for going on the defensive are to protect the flanks, consolidate gains, or prepare for a counterattack.

Principles of Defensive Operations

According to Iraqi doctrine, the following considerations are involved in defensive operations:

Proper Use of Terrain

Use terrain properly for the particular mission and weapons available. Proper use of terrain includes the use of natural concealment for maneuver and consideration of the suitability of terrain for equipment and troops.

All-around Protection

Use prepared defensive positions. Continue to improve them.

Mutually Supporting Fires

Use overlapping fields of fire by flanking units.

Knowledge of the Enemy

The commander must have a thorough knowledge of enemy operations. Intelligence is required to established enemy capabilities, vulnerabilities, and strengths. The commander must know enemy doctrine and lessons learned through experience with enemy operations.

Proper Use of Reserves

Each echelon supplies a reserve force to provide for rear security and to be prepared to launch counterattacks.

Camouflage and Concealment

Natural concealment, camouflage painting, and camouflage nets are used.

Defense In Depth

This is the most important defensive principle. Defense in depth includes echeloning and employment of natural and man-made obstacles. Channeling of enemy forces by natural and man-made obstacles and making provision for flanking fire and crossfires must be included in defensive plans. Multiple defensive lines are to be used.

Coordination

Gaps must be covered by indirect fires, minefields, obstacles, and relocations of troops.

Defensive Area of Operations

The defensive area of operations is divided into a security zone forward of the line of troops, the operations zone, and the administrative area (see Figures 56 thru 61).

Security Zone

Doctrinally, a division security zone is about 8 kilometers deep. However, it can be 10 kilometers. The divisional reconnaissance battalion, with an engineer platoon and a chemical defense/survey platoon, is located in the security zone. An infantry company, under operational control of the reconnaissance battalion commander, may be provided as a reserve.

An artillery battery, located one kilometer forward of the operations area, may provide direct support. Tanks and mechanized infantry (in company strength and possibly revetted) are also placed within the security zone at times, including in infantry divisions reinforced with a heavy brigade. The security zone would essentially serve the same function as a covering force to delay and channelize the attacker into kill zones.

Operations Zone

A typical organization of a mechanized infantry division operations zone would have two mechanized infantry brigades as its forward units. The division forward command post is directly behind and centered on the two brigades. The direct support artillery battalions are directly behind the forward brigades. The armored brigade and its supporting artillery battalion are directly behind the division forward command post.

The division main command post is behind the armored brigade. The engineer battalion, antitank battalion, and signal headquarters are located in the vicinity of the division rear, with elements forward as required.

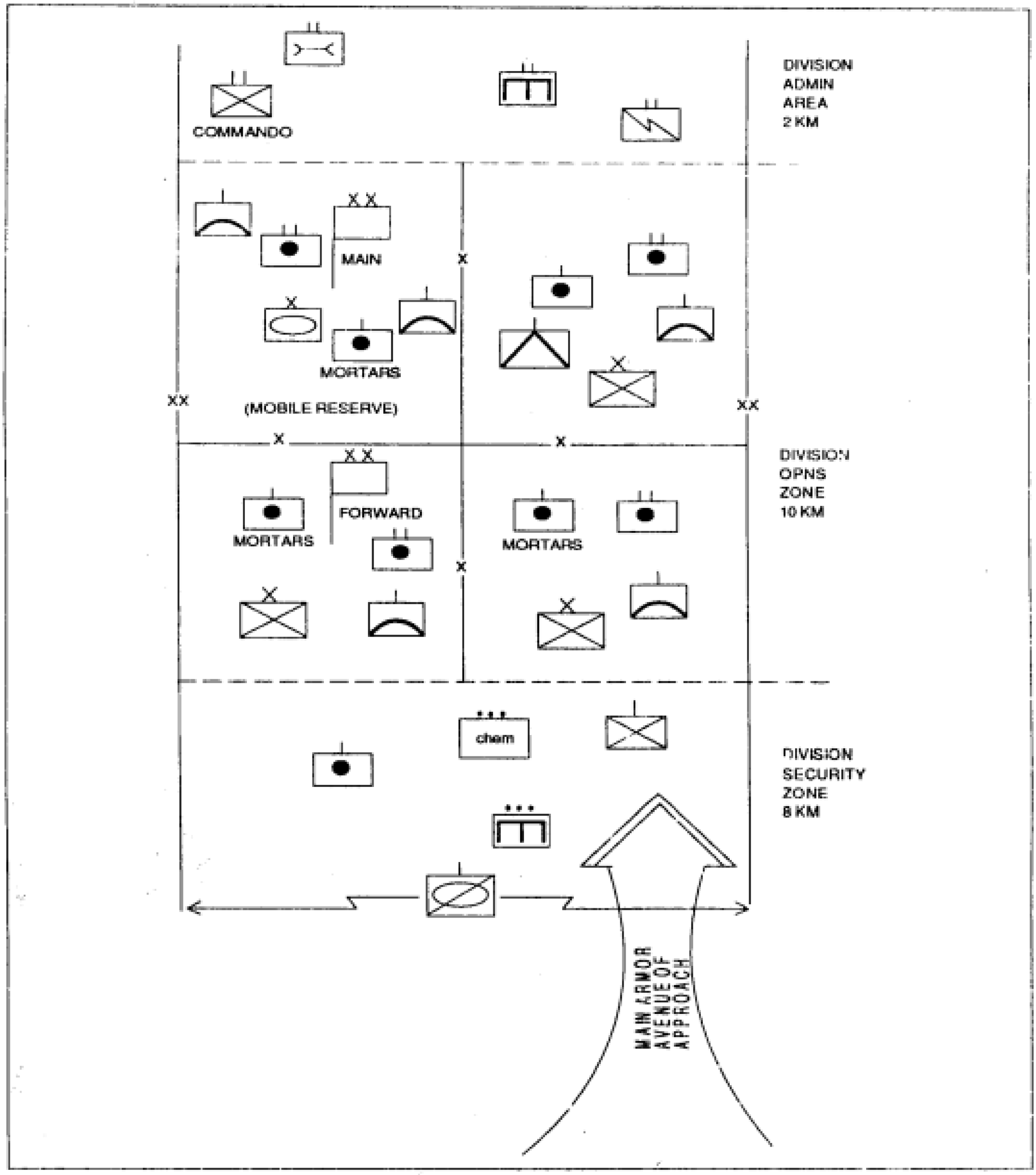


Figure 56 Division Deliberate Defense

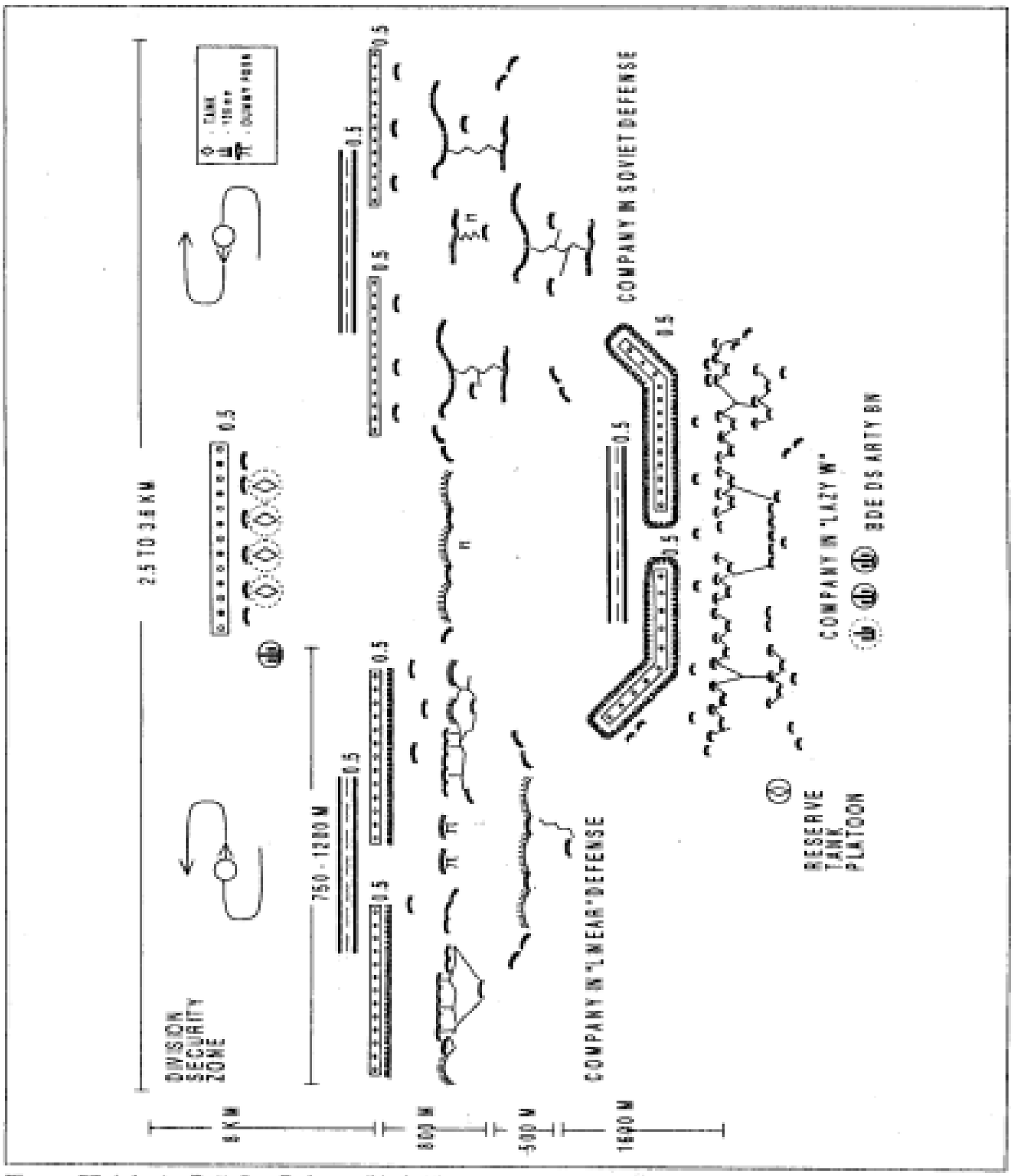


Figure 57 Infantry Battalion Defense (Variant)

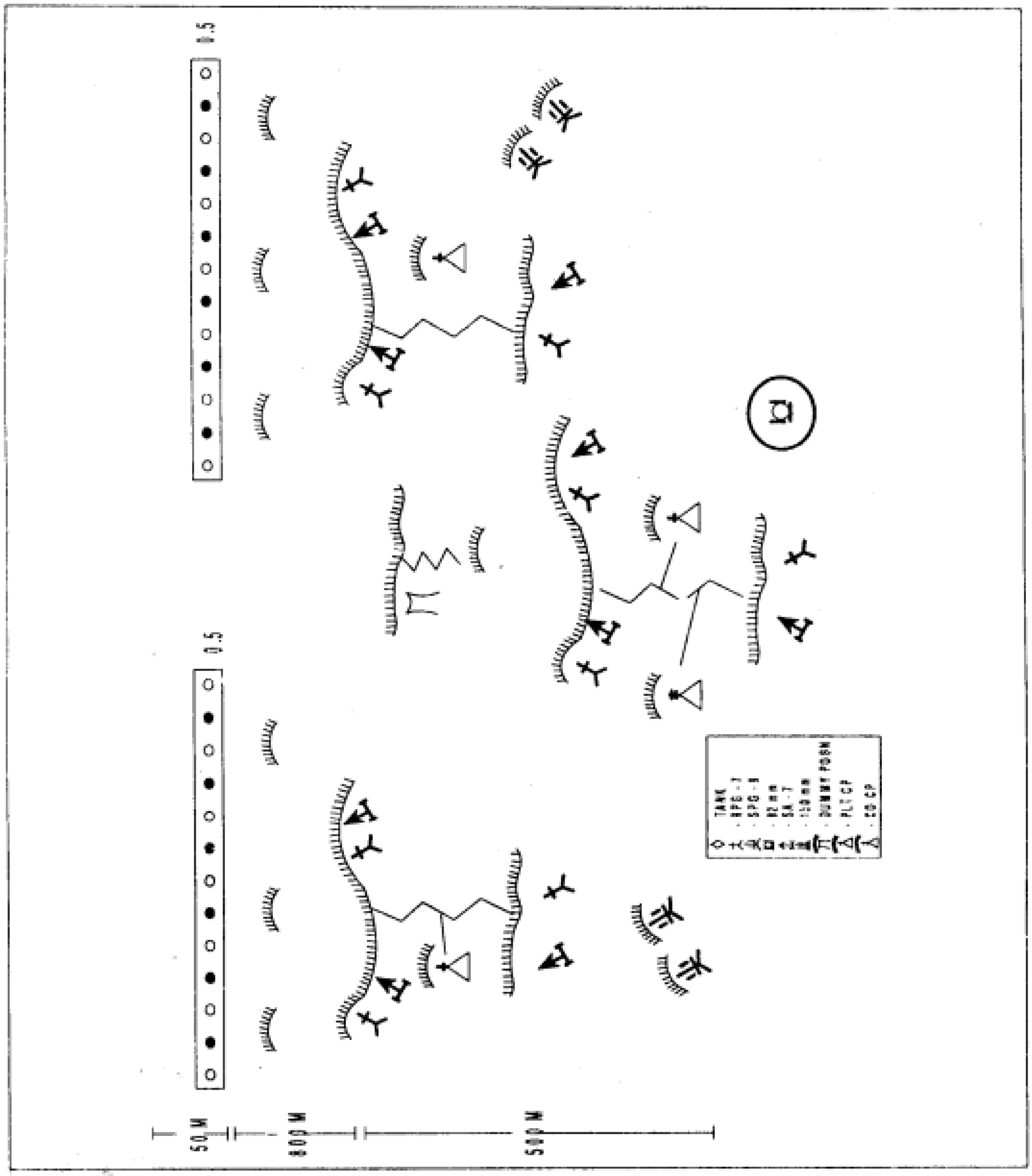


Figure 58 Company in Soviet Defense

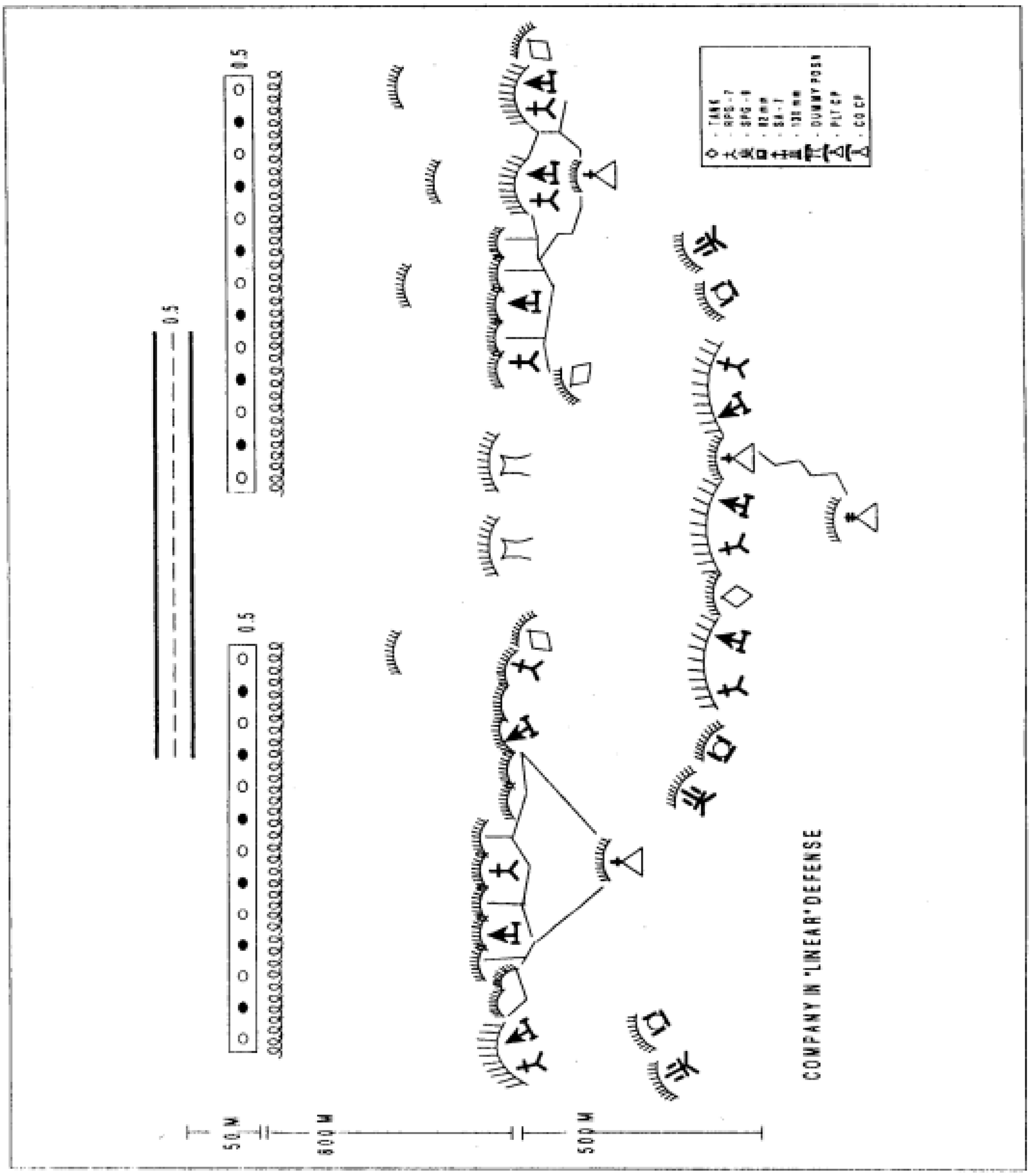


Figure 59 Company in "Linear" Defense

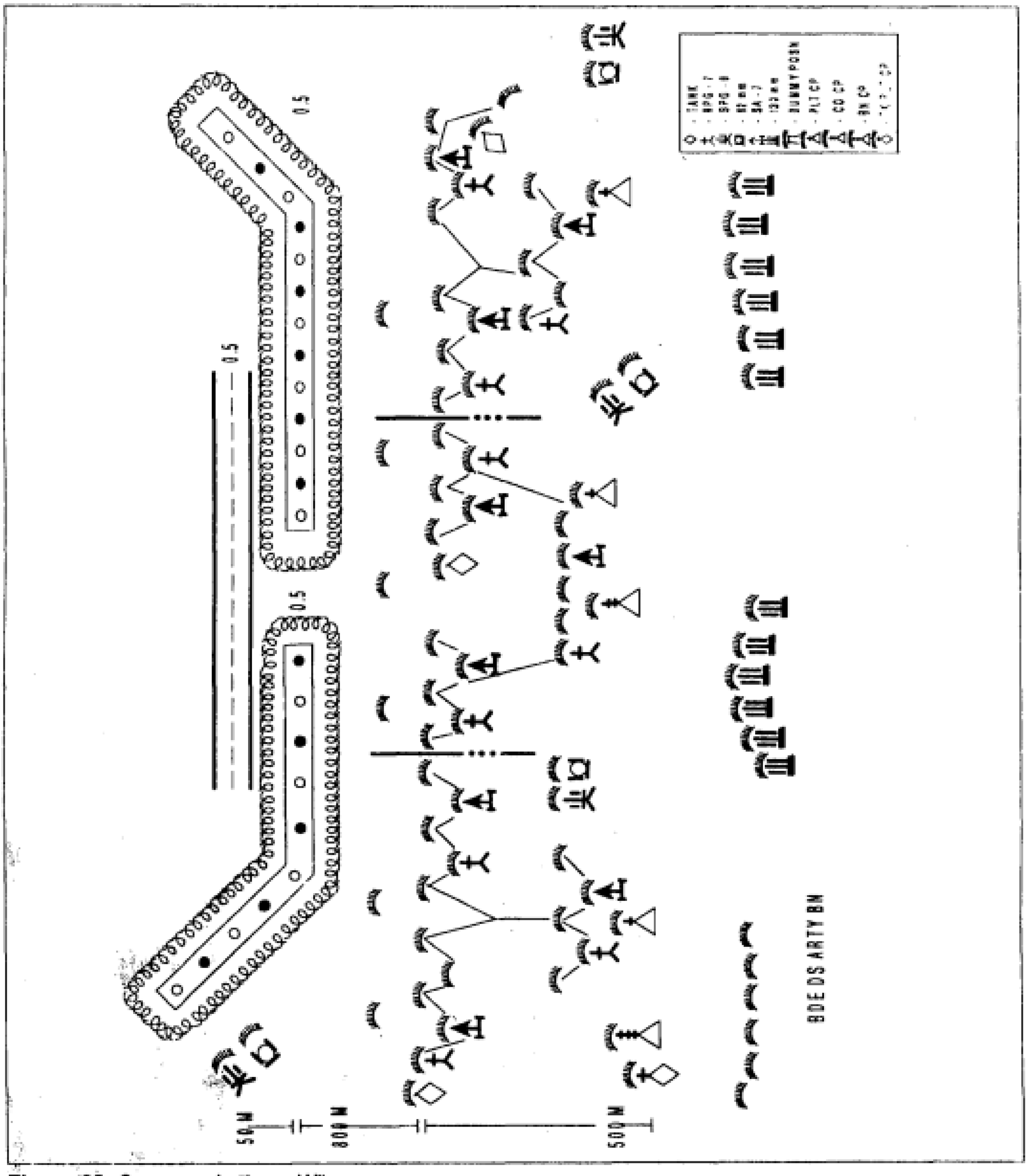


Figure 60 Company is "Lazy W"

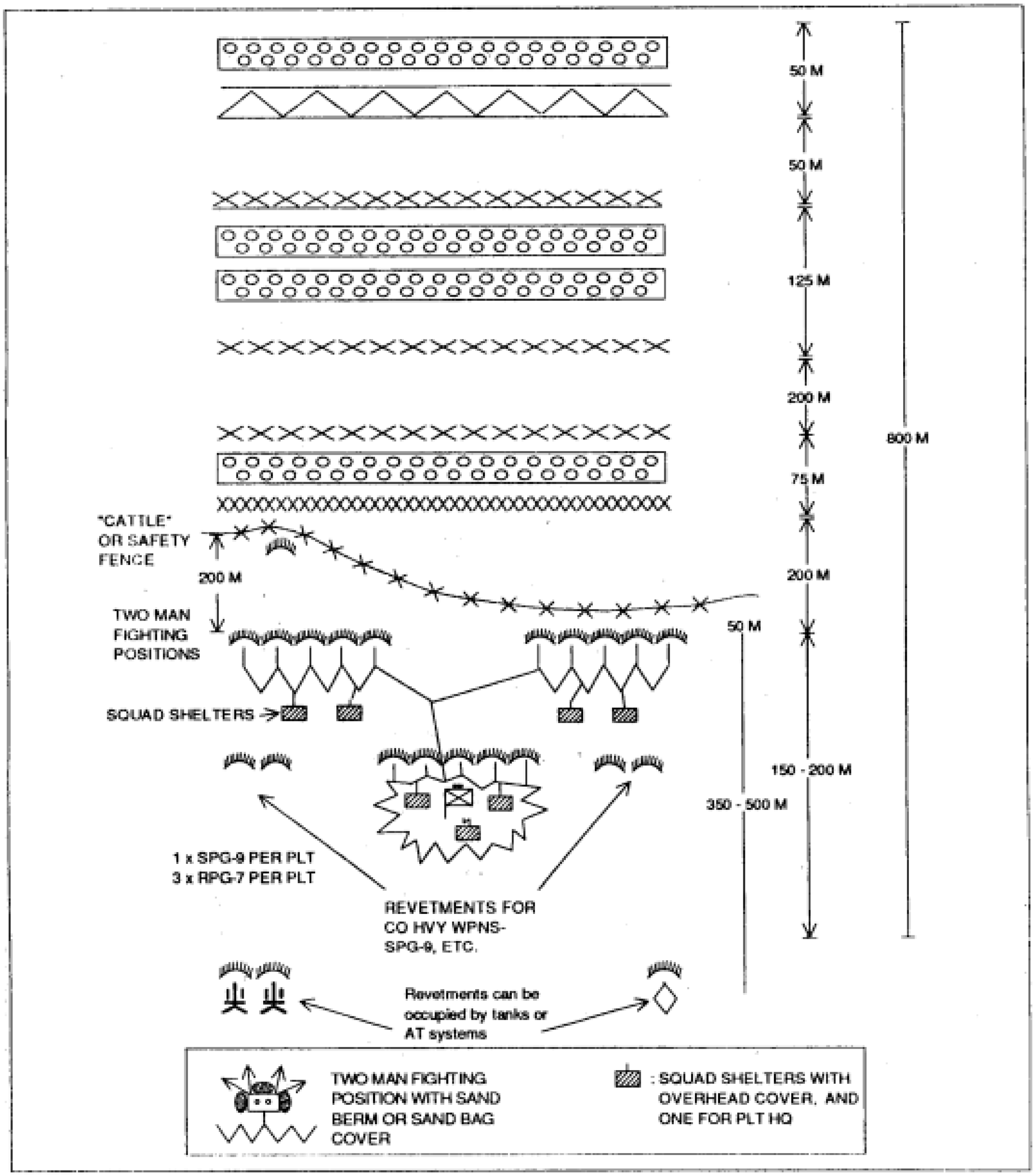


Figure 61 Platoon Deliberate Defense with Obstacles

Administrative Area

Administrative and logistics elements are located in the administrative area. The division commando brigade/force may provide rear area security when not occupied with other missions.

Combat Support for the Defense

For information on related subjects, refer to the appropriate chapter as indicated below:

- Artillery Support (Chapter 7)
- Antitank Support (Chapter 8)
- Air Defense Support (Chapter 9)
- Air Support (Chapter 10)
- Engineer Support (Chapter 12)

Defensive Frontages and Boundaries

Doctrinally, the width of a corps defensive sector is 90 to 160 km, and its depth is 50 to 80 km. Historically, during the war with Iran, corps frontages in the defense ranged from 70 to 220 km, and depths ranged from 40 to 220 km.

The defensive area for a division is 24-45 km wide, and 20 km or more in depth. In open desert conditions, depths can increase to 30-60 km or more for a mechanized infantry (armored) division, and 30 km or more for infantry divisions. Frontages can increase to over 60 km for mechanized infantry (armored) divisions.

A brigade defensive sector is normally 8 to 12 km wide, and is 5 to 7 km deep. However, brigades may defend fronts of 20 km or more, and depths of brigade rear areas can be 15 km. Brigades in reserve can be 20 km to the rear.

In some instances, these sectors are delineated by geographical features (wadis, rivers, streams) and in others by arbitrary lines drawn on a map. There is no apparent system to this delineation, as the presence of geographical features in the area will not necessarily preclude the arbitrary line method.

The Iraqis have had problems in coordinating properly between adjacent units at all levels. During the Iran-Iraq war, the Iranians would search for these boundaries and attack along them, causing major problems for the Iraqis.

Types of Defense

Iraqi forces employ two basic types of defense: static and mobile defense. Infantry divisions are more likely to be assigned a static defense. Conversely, mechanized infantry (armored) divisions are more likely to assume a mobile defense or a counterattack role to the rear of a static defense.

Static Defense

Divisions that assume a static defense position two brigades in the forward defensive line, and one brigade in a second defensive line in depth (assuming a division only has three brigades). An armored brigade, if assigned to the division (or at least the majority of the division's organic armored battalion and antitank reserve), is disposed in depth, positioned for a counterattack. Different counterattack options are preplanned and often rehearsed.

The goal of a unit in a static defense is to allow no penetration of its forward line. To hold the forward line, it emplaces extensive obstacle belts forward of its main defensive line. These belts often span the entire width of the division's sector, and can include a complementary mix of extensive minefields, concertina wire barriers, antitank ditches, sand berms, and oil-fueled "fire trenches."

During the war with Iran, man-made lakes were created in the marshy areas of southern Iraq, containing underwater obstacles, mines, and even electrified barriers using electricity from the Al Basrah city power grid.

A unit in static defense attempts to make the obstacles in its sector so formidable that no enemy will dare to attack it. Instead it is hoped the enemy will choose to attack where Iraqi forces have deliberately left gaps in the obstacle belt, backed up by fixed defenses (in depth) combined with heavy armored counterattack forces deeper still. Enemy forces attacking through the gap will initially make progress, but gradually lose momentum and be halted against the fixed defenses.

Before the enemy can reorganize and reposition forces to continue, Iraqi heavy forces counterattack against the flanks of the now stalled penetration, destroying the enemy with a combination of heavy indirect fires, flanking anti armor fires, combat helicopters, and other weapons. In describing this sort of defense (and indeed, Iraqi defense in general) the Iraqis emphasize that the counterattack is key. Timing of the various counterattacking elements for maximum disruption and therefore destruction of the enemy is absolutely essential.

Mobile Defense

Only mechanized infantry or armored divisions are usually assigned a mobile defense. A division will defend forward with a small fraction of its total force, typically one reinforced brigade. More could be deployed forward if the division has more than three brigades. The division's remaining brigades are positioned in depth, prepared to launch a counterattack at the appropriate moment.

A brigade assigned to the forward defense attempts to slow and halt the enemy force, making the enemy pay dearly in time and casualties for ground gained. Iraqi conduct of this phase of the defense envisions either a classic "delaying action" or "defense in sector." For example, it would be either a fighting withdrawal or a series of defensive positions that must be successively taken or bypassed by the enemy, or possibly a mix of these. Mobile defenses are quite difficult for Iraqis to execute properly under combat conditions.

Counterattacks

Iraqi doctrine stresses that regardless of the form of defense, the counterattack is key. The size of the force committed to the counterattack depends on the size of the penetrating enemy force. For minor penetrations, division armor and antitank reserves can be sufficient. For major penetrations involving one or more enemy divisions, corps-level reserves are committed.

Counterattacks are often preplanned, and rehearsed. Where rehearsal on the actual terrain is not possible, units rehearse on terrain that is similar to the actual terrain. Engineers are sometimes used to alter the "substitute" terrain to match the actual terrain over which the counterattack will take place.

During the war with Iran, Iraqi counterattacks generally were launched to meet Iranian penetrations head on, rather than from the flanks. However, this was likely due to the unique nature of the war in the restricted environs of the swamps of southern Iraq, against masses of Iranian light infantry. Given the nature of the enemy and poor trafficability of the terrain, it is likely that flanking counterattacks were not always feasible, desired, or necessary.

During the war, Iranian penetrations were generally dealt with by setting up blocking positions to contain the penetrations, and then directing large volumes of fire against it. Local attacks, again accompanied by large volumes of fire, were then used to reduce the Iranian forces, and pressure maintained by ground forces as the enemy retreated to cover the lost ground. This approach minimized Iraqi casualties and capitalized on Iraqi firepower advantages.

There would be only a limited comparison between combat against massed infantry in swamps during the Iran-Iraq War and combat against a mechanized opponent in the open desert. To destroy a penetrating enemy force, armor-heavy counterattacks against the flanks of an enemy penetration are preferred.

Small units may also conduct local counterattacks to recover lost positions. Usually, such counterattacks are launched by uncommitted adjacent units or units in reserve. Any type force can be used in a counterattack role: commando, armored, mechanized infantry, or infantry companies/battalions.

Withdrawal

During the war with Iran, the objective of the Iraqi army was to defend in place and make the Iranian army pay as high a price as possible for any land it might take. Withdrawal was not viewed as a viable option. Doctrinally, however, the three Iraqi principles of withdrawal are as follows:

Surprise

The enemy must be kept from obtaining knowledge of a withdrawal.

Command and Control

A high degree of command and control is necessary to prevent a withdrawal from becoming a rout.

Depth

Delaying positions must be selected in depth and manned to provide security for the unit withdrawing from contact.

The two types of withdrawal practiced by the Iraqis are hasty and deliberate.

Hasty Withdrawal

The Iraqis use the term "hasty withdrawal" to describe a withdrawal accomplished without approval from higher headquarters. Such a withdrawal is frowned upon. A unit commander may decide to withdraw, reorganize, and launch a counterattack. This is permissible if the counterattack is successful.

Deliberate Withdrawal

A deliberate withdrawal is ordered by higher headquarters. It is a planned operation. A division will issue withdrawal orders to its brigades. The following procedure is carried out:

Select New Defensive Area

Each brigade directs reconnaissance elements to search for new defensive positions within the sector directed by the division.

Occupy the Intermediate Defensive Position

The commander of a withdrawing unit selects an intermediate area behind the present position. The reserve brigade holds this intermediate position. During daytime, the reserve brigade occupies and secures the intermediate position before the forward brigades begin their withdrawal. At night the forward brigades withdraw directly to the new defensive position, then the reserve brigade withdraws to a new assembly area or rear defensive position.

Withdraw the Main Body

Iraqis expect the main body to complete its withdrawal within 30-35 hours. All nonessential heavy equipment is moved to the rear with the reconnaissance element at the beginning of the withdrawal. Next, higher headquarters designates alternate frequencies for the withdrawal in case of enemy signal jamming. During the movement a system of checkpoints and rally points is used to maintain control. There are checkpoints at company and battalion level. Noncommissioned officers deemed nonessential to the withdrawal man checkpoints.

The reconnaissance battalion, under command of the division intelligence or operations officer, secures the new area. Division administrative and support units move with the battalion. The division commander moves to the rear as his forward units withdraw. The chief of staff moves with the reserve (see Figure 62).

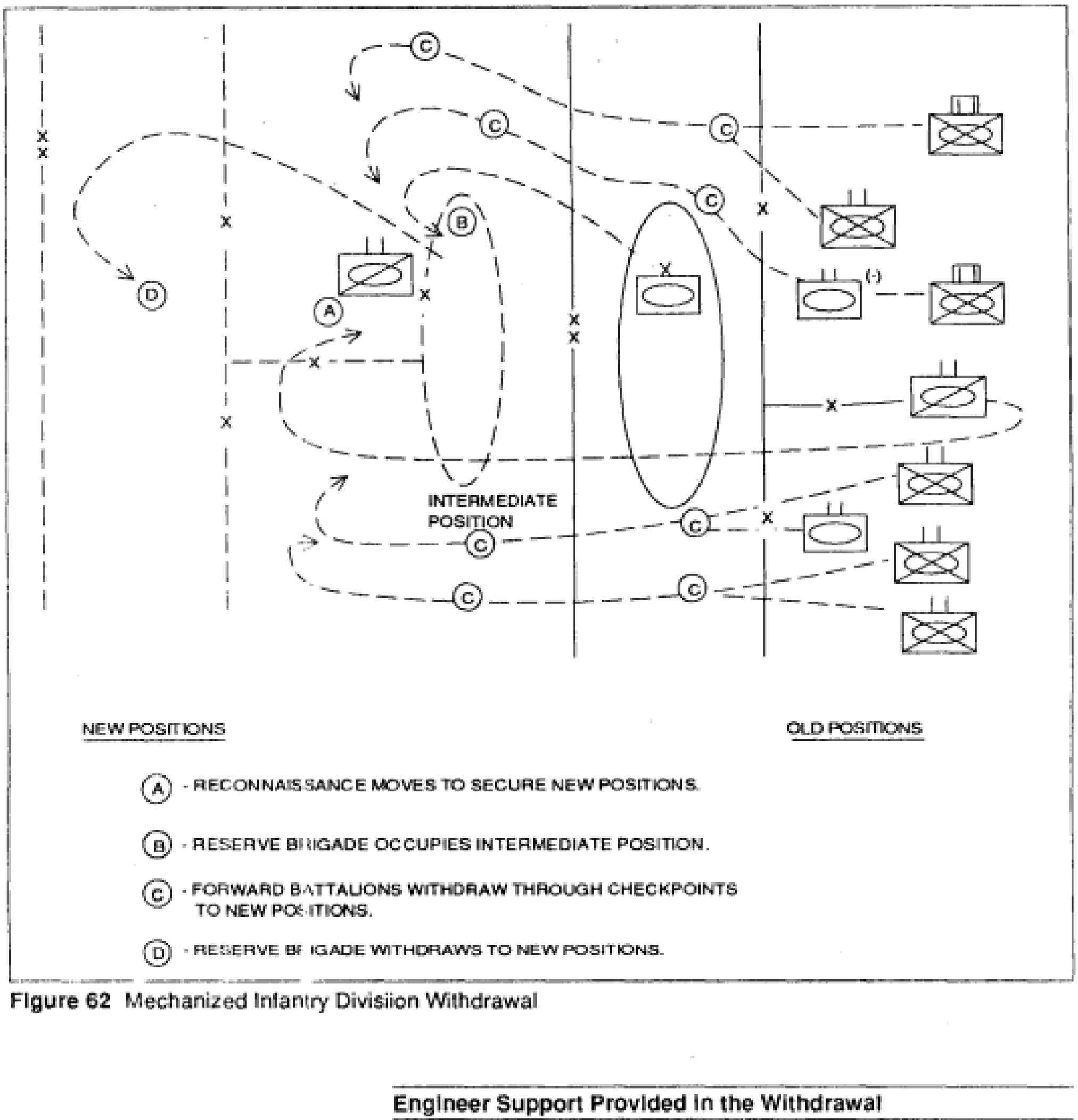


Figure 62 Mechanized Infantry Divisiion Withdrawal

Engineer Support Provided in the Withdrawal

In a deliberate withdrawal, time allowing, the engineers set up minefields in front of the new defensive positions before the withdrawal. The engineers mark corridors through which the withdrawing troops may move: Should enemy contact not be expected, the engineers lay the minefields after the withdrawal is complete.

Mountainous Terrain

The Iraqis appear to defend hilltop positions in the mountains rather than attempting to maintain a continuous defensive line. In theory, this permits enemy infiltration and isolation of the defending units, yet few Iraqi units have been isolated or overrun in the course of using this tactic. Apparently they are able to withdraw in time when necessary. During the war with Iran, Iraqi reoccupation of lost terrain in the mountains followed a pattern of retaking the hilltops from the Iranians or seizing overlooking positions, forcing the withdrawal of the Iranians.

Reserves

A corps may retain armored or mechanized infantry divisions in reserve. Corps can also have independent armored, infantry or commando brigades as reserves, in addition or in place of an armored or mechanized infantry division. When an armored unit is not available, several special forces or infantry brigades may be retained under corps control to reinforce a threatened area or launch a counterattack.

Generally, GHQ also retains a reserve force, the corps-level Republican Guard Forces Command (RGFC), to be able to react to shifting situations. The RGFC units are usually committed in multiple brigade or in division-level forces, rather than as a corps-level unified force.

Defensive Positions

The Iraqis use a stationary defensive line, consisting of one or more rows of defensive positions integrated with natural and man-made obstacles, backed by a mobile reserve, generally an armor unit when available (see Figures 56 and 57). The stationary defensive line has generally consisted of infantry units supported by tanks in individual firing positions along defensive berms. While allocating tanks to this role does not use them in the optimum manner, it does appear to improve the morale of the infantrymen. Extensive engineer support has been employed to prepare these positions (see Figure 63).

One or more tank/mechanized companies are sometimes placed to the rear of infantry brigade defensive positions as reserves when the infantry division is reinforced with a heavy brigade.

An antitank line would be placed along likely enemy avenues of approach or along flanks. Soviet AT doctrine is employed by the Iraqis.

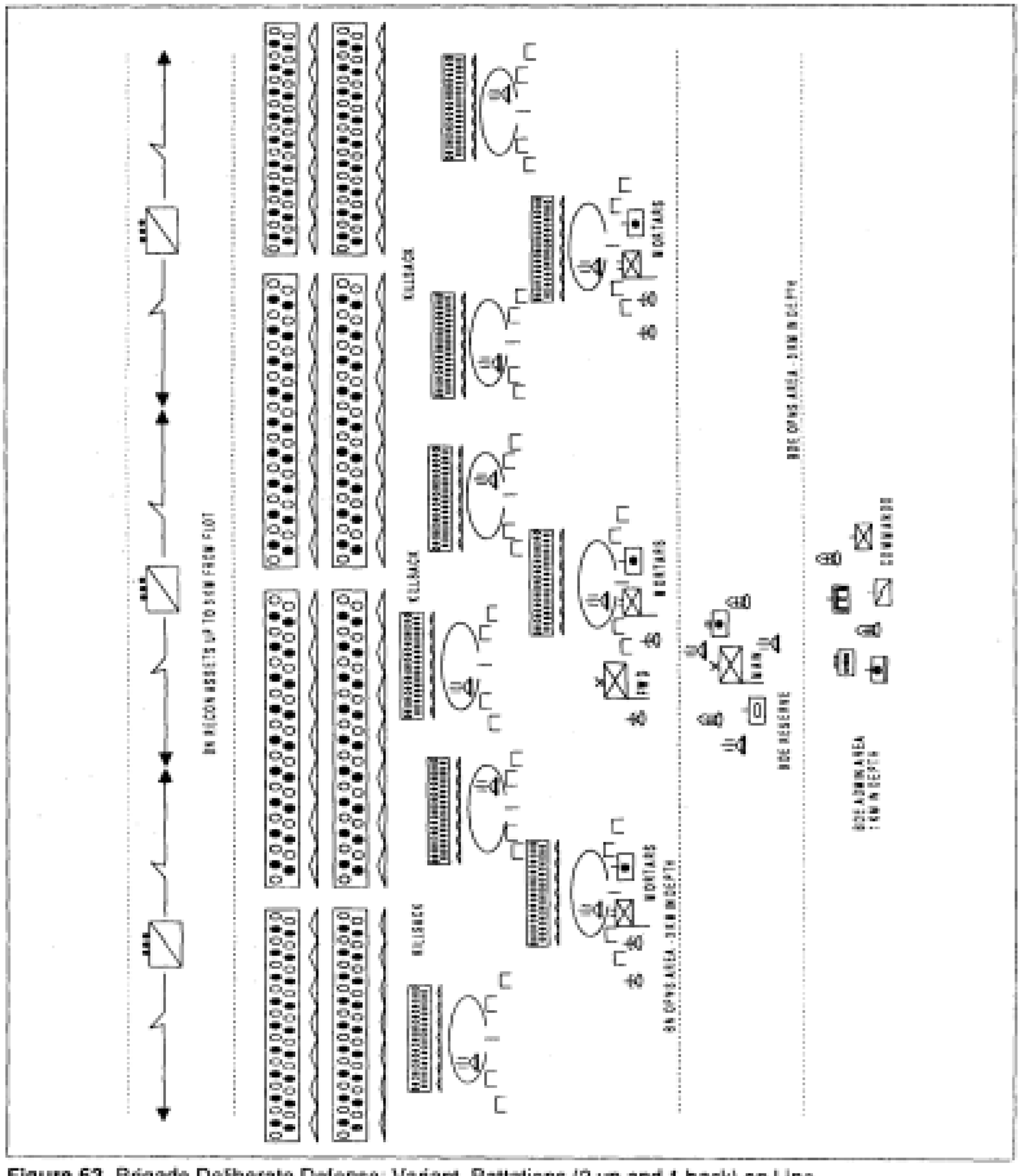


Figure 63 Brigade Deliberate Defense: Variant, Battations (2 up and 1 back) on Line

CHAPTER 5

INTELLIGENCE

1. INTRODUCTION

The Iraqis emphasize Imagery Intelligence (IMINT) and Signal Intelligence (SIGINT) for planning attacks and targeting. Both of these disciplines are controlled at GHQ.

2. INTELLIGENCE ORGANIZATION

General

Iraqi intelligence consists of the Iraqi Intelligence Service (IIS) and military intelligence. The IIS provides strategic intelligence, while military intelligence is more directly involved in tactical intelligence. The military intelligence organization is in an apparently subordinate position to the IIS.

Military Intelligence

Military intelligence is organized under a directorate at GHQ. Additionally, each of the services has its own military intelligence branch. The information in this section is most applicable to the GHQ-level and Army intelligence functions.

The Director of Military Intelligence (DMI) is responsible for the following:

- Combat intelligence — includes all types of information about the enemy (intentions, organization, equipment, resources, weak points, topographic data).
- Counterintelligence — includes prevention (field security) and counterespionage.

- Censorship — includes prevention of information leaks which could hurt the war effort or the moral of the population.
- SIGINT collection.
- Electronic warfare.

Military intelligence is present at corps, division, and brigade level. At these echelons, the responsibilities are the same as those at GHQ. Photo interpretation is performed at corps and division. At brigade, there is an intelligence officer, and in some cases he is assisted in carrying out the counterintelligence responsibilities by a security officer.

There are some additional field intelligence units as well. Artillery and engineer units have intelligence officers responsible for collecting information related to their particular concerns.

Liaison Between Intelligence Staff and Other Organizations

The intelligence staff works closely with all other staffs. All use intelligence estimates for assessments of the enemy order of battle. Terrain and weather are other areas of particular interest.

The operational and intelligence staffs in particular have to work in close contact. Especially at brigade-level and lower, they should work as one team, preparing the operations and intelligence maps together. It is also usual to maintain a common war diary (staff journal). Operational staffs assign missions to collection agencies according to the requirements of intelligence staffs. Administrative staffs work with the intelligence staffs regarding prisoners of war.

In addition to providing intelligence to subordinate units, intelligence staffs prepare collection plans. Detailed execution orders of these plans are issued by GHQ.

Tactical Intelligence Collection

Requests for artillery and air strikes are based primarily on IMINT. Forward observation posts were also used to collect targeting data for fire missions on Iranian frontline activity.

Imagery is usually provided by the Air Force through reconnaissance flights.

During the Iran-Iraq war, DMI organized "special detachments" for missions behind Iranian lines and in Kurdish controlled areas. These units, each made up of 25 to 30 men, including Iranians or Kurds who rallied to the Iraqi side, conducted long range patrols to collect information and to carry out ambushes to capture prisoners. Sabotage may be an additional mission of these detachments.

Signal Intelligence

Iraq has an intelligence collection capability at the strategic and tactical level utilizing SIGINT collection means. There are civilian collection systems as well as the systems maintained by the Iraqi army and air force. Iraqi electronic warfare (EW) assets have the mission to intercept, analyze, manipulate, suppress, and/or prevent the enemy's use of the electromagnetic spectrum, while ensuring Iraq's own ability to exploit it to its own advantage.

Iraqi ground-based SIGINT consists primarily of Communications Intelligence (COMINT), but an Electronic Intelligence (ELINT) capability also exists. Present capabilities allow the Iraqis to exploit communications in the high-frequency (HF), very-high-frequency (VHF), and the lower ultra-high-frequency (UHF) bands. Tactical unit language capabilities include English, Farsi, Kurdish, Turkish and Arabic. EW units have some capability to decode tactical communications. Iraq can exploit unencrypted communications.

One electronic warfare battalion is organic to each corps and a separate battalion supports the Republican Guard. The battalions use older Soviet systems mixed with modern equipment.

A variety of aircraft in the Iraqi Air Force have the capability of tactical ELINT collection.

Satellite Imagery

Iraq has no known military satellite IMINT capability. They do have access to geophysical satellites which could provide tactically important military information on geophysical conditions, intelligence for targeting, and information for damage assessments. They can directly receive imagery of the Persian Gulf from meteorological satellites and they could have access to high-resolution commercial satellite data.

CHAPTER 6

RECONNAISSANCE

1. STRATEGIC RECONNAISSANCE

The Directorate of Military Intelligence is responsible for national-level intelligence support to the Iraqi Army. DMI employs SIGINT, IMINT and Human Intelligence (HUMINT) collection.

Because Iraq and its immediate neighbors like Saudi Arabia and Kuwait are Arab countries with a common language and large Muslim populations, HUMINT operations by the DMI and special operations units are highly likely. Missions of these units would include intelligence collection, sabotage, and capturing prisoners for interrogation.

Special Forces Reconnaissance

SF missions include raids, ambushes, and deep reconnaissance. A special forces brigade has a reconnaissance company. For more information about Special Forces, see chapter 1.

Aerial Reconnaissance

The frequency of Iraqi air force reconnaissance is based primarily on need. Reconnaissance targets are based on priority as established by higher command. When the command establishes a target it is prioritized. If the target is more than 15 kilometers beyond forward echelon units it is then reconnoitered by air force assets according to priority. Areas less than fifteen kilometers in front of forward units are reconnoitered by normal ground reconnaissance. There is no doctrine on the maximum depth that is reconnoitered by air force assets.

The Iraqi Air Force has a fairly good capability to conduct low-altitude and high-altitude aerial reconnaissance. The Iraqis use both fixed-winged aircraft and remotely piloted vehicles to perform

reconnaissance. Equipment includes all weather side-looking airborne radar (SLAR), long-range photographic cameras and television cameras.

2 OPERATIONAL RECONNAISSANCE

General

The Iraqis have no *front*-level Soviet-type intelligence network. The intelligence flow is from the corps to GHQ. The Iraqis rely heavily on SIGINT to plan operations.

Signal Intelligence

SIGINT is one of the two primary means to determine enemy disposition and intentions. The Iraqis have demonstrated a significant SIGINT capability and are able to exploit SIGINT for tactical decision making.

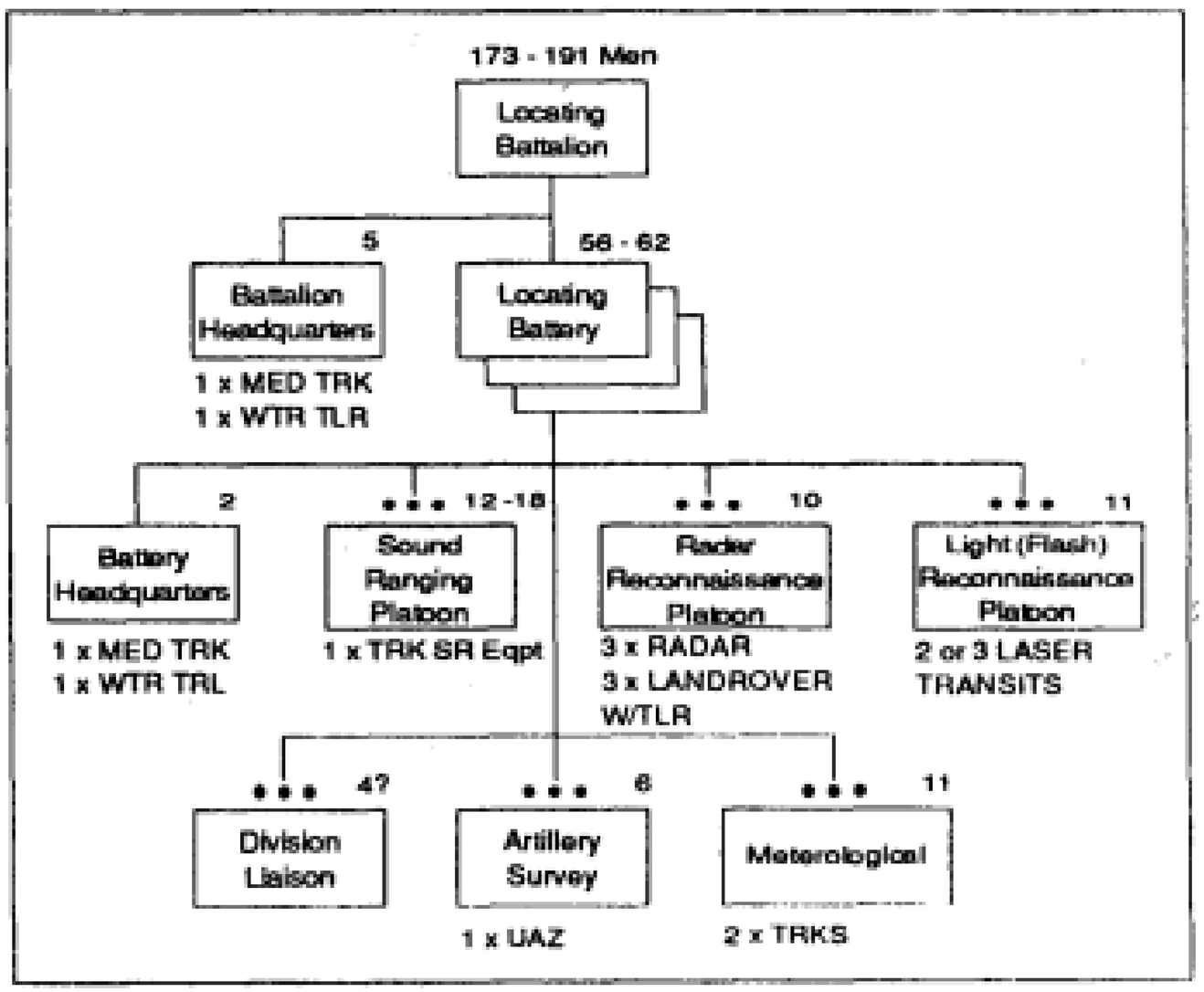


Figure 64 Locating Battalion, Division

Artillery Reconnaissance

For target acquisition, Iraq has locating (*Istimkan*) battalions and several independent locating batteries. Most of these units are subordinate to corps. Each battalion has three identical batteries that include sound-ranging, radar, and optical reconnaissance platoons. This enables the corps to attach batteries to divisions as required (see Chapter 7 for more discussion of this unit).

Aerial Reconnaissance

The following aircraft are used for visual and photo reconnaissance operations prior to the use of close air support operations: MiG-25, Mirage F-1, MiG-21, MI-8/HIP and Gazelle.

One mission of the Army Aviation Wings is to conduct aerial reconnaissance. A more complete discussion is in the section Strategic Intelligence.

Engineers

The primary mission of engineers in the offensive is to identify enemy minefields through reconnaissance. This is usually done at night, with the first priority on the main axis of attack.

Chemical

The chemical defense company/battalion has a reconnaissance platoon. Chemical defense personnel are included in reconnaissance parties during defensive operations before chemical operations.

Corps Reconnaissance Battalion

Iraqi corps have a reconnaissance battalion. The reconnaissance battalion consists of two companies, each equipped with 18 BRDM-2 (6 in each platoon) and 5 BTR-50 command vehicles. This unit may also contain a long-range reconnaissance element responsible for the conduct of extended patrols behind enemy lines.

The reconnaissance vehicles for separate reconnaissance battalions within a corps can be different, but battalions will normally not mix vehicles. Known reconnaissance vehicles within reconnaissance battalions are the BRDM, BRDM-2, BTR-50, YUGO-60 and the Panhard. The Republican Guards have BMD-equipped reconnaissance battalions.

3. TACTICAL RECONNAISSANCE

One of the lessons learned by the Iraqis during the war was the need to emphasize patrolling and reconnaissance. As a result, the reconnaissance units have probably improved significantly despite the Iraqi's reliance on IMINT and SIGINT for targeting and planning attacks.

Division Reconnaissance Battalion

Each division (armored, mechanized infantry and infantry) has a reconnaissance battalion. This battalion has two reconnaissance companies, a service company, and a maintenance company. A reconnaissance company is equipped with 18 reconnaissance vehicles, 6 per platoon, and command vehicles.

Brigade Reconnaissance Platoon

Each maneuver brigade has one reconnaissance platoon of six vehicles.

Battalion Reconnaissance Platoon

Armored and mechanized infantry battalions have a reconnaissance platoon composed of six vehicles, usually the BRDM-2. The platoon deploys up to 5 km in front of the battalion.

Tactics

In addition to its own organic intelligence collection assets, a division also has access to information from corps and GHQ-level intelligence gathering units. For some missions, higher level intelligence assets, such as electronic warfare units, target acquisition battalions, or Special Forces units, can be attached to a division from higher HQs.

A staff intelligence section/platoon is organic to units above battalion level, to coordinate intelligence information from all sources, including engineer, chemical, artillery, electronic warfare, and dedicated and attached higher and lower-level intelligence assets.

Iraqi ground reconnaissance generally follows Soviet doctrinal guidelines, modified as needed for the unique organizational structure of the Iraqi Army. The divisional reconnaissance battalion probably conducts reconnaissance up to 50 km forward of the division's main body, the brigade reconnaissance company up to 25 km (corresponding roughly to a Soviet regimental

reconnaissance subunit), and the battalion reconnaissance platoon (only recently appearing in restructured Soviet units) up to 5 km forward.

The maximum range that a reconnaissance subunit will operate forward of its parent unit is not fixed. In all cases reconnaissance elements are deployed only as far forward as the mission requires, and remain there in order to provide higher HQs with the information needed to accomplish the mission at hand.

For example, divisional reconnaissance subunits do not move continuously 50 km ahead of the main body — they locate and if need be, continually report on the elements of the terrain and enemy force that the division commander must know about in order to accomplish his mission. If a particular subunit is assigned to locate and report the activity of a suspected enemy reserve brigade, it would locate the enemy brigade and remain to continue its reporting until directed otherwise, regardless of whether that brigade was 10 km or 36 km deep in the enemy sector.

In all cases, the operating depth of organic reconnaissance subunits is governed by the "sphere of responsibility" of its parent units. This "sphere of responsibility" also roughly coincides with the reach of each unit's organic weapons and sensors — beyond which it cannot directly influence the battle. For example, division commanders are responsible for dealing with enemy forces within 50 km of the division, well within heavy MRL or FROG-7 range, while battalion commanders need only be directly concerned with the area within about 5 km forward of the battalion, in mortar and direct fire weapon range.

In wide open desert and flat expanses Iraqi reconnaissance subunits may operate at the outer limits of these ranges, or even slightly beyond them. Thus they make much use of HF (AM) radio, which unlike VHF (FM) radio, is not limited to line-of-sight ranges.

For example, in open desert combat, an Iraqi reconnaissance subunit of the division reconnaissance battalion could be sent forward to scout a potential axis of advance for the division's main strike, and locate the main enemy defense, perhaps "tipped-off" to likely targets by aerial photo-reconnaissance, electronic direction finding, or higher-level "deep" reconnaissance elements.

In the Iran-Iraq war, the nature of the restricted terrain and dense enemy defenses limited long-range ground reconnaissance. Only aerial reconnaissance was generally used for targets beyond 15 km from the Iraqi FLOT.

As the division advances and brigade reconnaissance elements come into action, the divisional reconnaissance elements may be sent deeper to locate enemy artillery and reserves, and report on enemy rear area movements. Meanwhile the brigade reconnaissance elements could be assigned to report on the defenses and activity on the specific objectives of their parent brigades.

A brigade reconnaissance subunit is likely to be directed to maintain surveillance of the brigade objective (or local enemy reserves, obstacles, or whatever else has been assigned) until its brigade actually assaults or takes that objective, thus the reconnaissance element is no longer needed there. At that point, the brigade reconnaissance element is likely to be ordered deeper into the remaining enemy sector, to scout the next brigade objective, or report on enemy movements that could affect the brigade mission. It could just as easily be ordered to watch a vulnerable flank to warn of an impending enemy counterattack.

During the approach march to the objective, the battalion reconnaissance platoons would probably operate several kilometers forward of the battalion, locating enemy weapons for destruction, gaps in defenses, breaching obstacles if capable, warning of enemy counter-moves, and keeping the battalion commander informed. When the battalion objective is taken, the reconnaissance platoon would be assigned a new mission, possibly to screen a few kms forward, or to screen a flank as the battalion consolidated on the newly-won objective.

Employment of divisional, brigade, and battalion reconnaissance troops of course varies with the mission and situation. In a defensive scenario, they are usually deployed in the security zone, suitably reinforced by other arms according to the expected threat. In a meeting battle, reconnaissance subunits locate approaching enemy forces and report their activity to higher HQ, as well as find bypasses to obstacles and suitable routes to ensure the secure, uninterrupted movement of the advance guard and main body.

In a movement to contact against an enemy that has assumed a hasty defense, reconnaissance elements probe for gaps between enemy units and obstacle coverage, and attempt to penetrate to identify enemy headquarters, artillery, and reserves. In a pursuit, reconnaissance elements maintain contact with the enemy, secure vulnerable flanks, and if possible, move beyond the enemy rear guard to report activity in the enemy rear.

Iraqi chemical and engineer reconnaissance troops also typically operate along with ground reconnaissance elements, in typical Soviet fashion. In the war with Iran, Iraqi chemical reconnaissance troops were generally not needed forward with the other ground reconnaissance elements, as the Iranians had little chemical delivery capability, and the locations and type of Iraqi chemical strikes were known.

Still, chemical troops were routinely employed alongside other reconnaissance elements, as the extra margin of safety against chemical attack they provided helped bolster Iraqi troops moraie. Engineer reconnaissance troops were valuable in accurately assessing the condition of terrain and enemy obstacles, and in finding suitable bypasses or assessing the engineer work required to support the parent unit's progress.

Other Assets

In addition to its normal signal function, the signal battalion organic to a division also has the mission to collect signal intelligence. For further information on Iraqi signal intelligence collection see Chapter 13. The signal battalion may have a jamming platoon and a receiving and transmitting platoon.

During the Iran-Iraq war, the division was also fed intelligence from the higher headquarters. This was mostly in the form of either air photos or electronic information. The corps also had organic SF units that were sometimes attached down to the division for reconnaissance missions. They could operate out to an extended distance, but some commanders misused them as infantry.

CHAPTER 7

ARTILLERY SUPPORT

1. ALLOCATION PROCEDURES

The following are general procedures for the allocation of artillery by a higher headquarters to a maneuver force for a specific mission:

GHQ and Corps

GHQ and corps normally allocate artillery battalions based on the importance of the missions assigned to specific corps/divisions.

Division

A division will normally allocate one battalion in direct support of each brigade and retain one or more in a general support role.

Brigade

A brigade acting as an advance guard may attach up to one battery to the maneuver battalion operating as the brigade's advance party.

2 ORGANIZATION FOR COMBAT

Unlike Soviet doctrine, Iraqi artillery organization for combat does not rely on use of temporary, mission-oriented groupings like regimental, divisional, and army artillery groups. British doctrinal precepts for use of artillery predominate in Iraqi artillery organization for combat. Lessons learned late in the war against Iran taught the Iraqis the value of massed fires particularly against mass infantry attacks.

Artillery brigades at corps level form the basic building blocks for massing artillery units in the Iraqi Army. The key emphasis in Iraqi organization for combat is control. Multiple rocket launcher assets

are closely controlled at division and higher levels and large quantities of large caliber tube artillery are retained under corps and GHQ control.

3. COMMAND AND CONTROL

At brigade and above, an artillery officer who plans and coordinates artillery fires serves on the maneuver staff. At division level, he is called the Chief of Artillery and commands the artillery brigade of the division with its three to four battalions. At brigade level, the direct support artillery battalion commander may act as the fire support coordinator for the brigade commander. At battalion level, the battery commander may serve as fire support coordinator and forward observer.

4. COORDINATION AND COMMUNICATIONS

The artillery commander is located with the maneuver commander he supports, thereby facilitating face to face coordination of artillery fires. At division level, for example, the Chief of Artillery is located with the commander in the division's forward command post. An artillery staff officer and radio operators with separate fire support radios are also in the forward CP for execution and planning of artillery fires. Radio and wire are the primary means of communication. The Iraqis probably use all means of communications, based on the tactical situation.

Forward artillery observers may use scramble transmission sets. During standard operations, the forward observer is in contact with the command and control battery by landline and uses a fairly simple code to identify enemy targets for plotting purposes, and assignment to the firing batteries.

5. FIRE CONTROL AND TARGET INTELLIGENCE

Observation Posts

Artillery fires are controlled through use of direct observation and time phased schedules. Time-phasing, similar to an H-hour sequence is used to control fires. At the forward division CP, the artillery commander makes necessary adjustments to fires based on effects. During the war with Iran, the Iraqis employed aerial observers in helicopters and observers in towers in the flat terrain

of their border region with Iran. A general rule is that forward observers will be located with the headquarters of the forward battalions in both the defense and the offense.

Iraqi artillery uses a dedicated artillery net to control fires (see figure). Calls for fire from the company forward observer are cleared through the battalion forward observer who in turn passes the mission to the battery fire direction center. If additional fires are needed, the battalion observer can request additional supporting fires from division or corps level assets.

Forward observers, and forward air controllers to control aerial-fire support from army aviation, may be located down to company level. If possible, and particularly in the defense, forward observers will use landline telephones to relay fire missions. They should also use landline in prepared offensive positions. To expedite calls for fire, artillery commanders will establish a list of codewords to represent types of equipment or potential targets (see Figure 65).

The Iraqis have some battery level technical fire direction computers. However, many artillery units probably still rely upon manual computation to solve gunnery problems. Iraqi fire direction plotting is modeled after the Soviet system.

Reconnaissance and Target Acquisition

The Iraqis possess counterfire radars as well as sound-ranging equipment. Sound-ranging is known to be somewhat ineffective in the arid climates of the Middle East due to the acoustic distortion caused by the relatively flat and dry terrain. Radar employment is based on availability of the current inventory of Soviet and Western-made radar systems. Battlefield surveillance radars in the Iraqi inventory include moving target radars. These radars are probably controlled and allocated at the corps level.

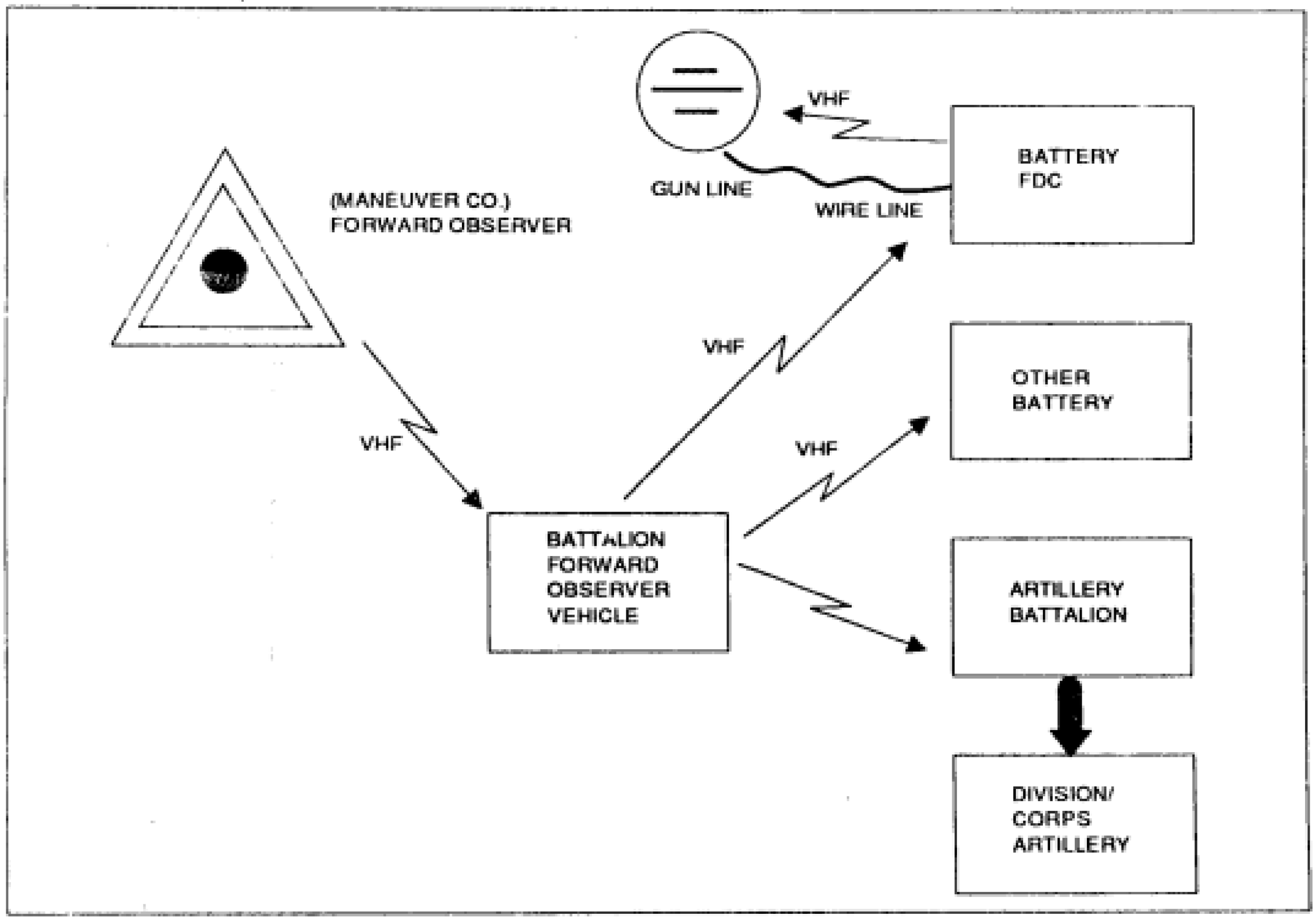


Figure 65 Forward Observer and Fire Control Net

6. EMPLOYMENT OF ARTILLERY SYSTEMS

Iraqi employment of artillery systems is based on availability and tactical considerations. Range capabilities and mobility of systems, to include displacement and emplacement times, play a significant role in selection of specific systems for specific missions. The Iraqis demonstrated a tendency during the war with Iran to emplace artillery in the center of their combat formations.

DS battalions are often located close to the supported maneuver brigade headquarters, and division-controlled multiple rocket launchers are near the division's main CP. Artillery systems used to deliver chemical munitions are designated in advance by the corps commander or higher and closely monitored during both preparation and execution of chemical fires.

7. TACTICAL DEPLOYMENT OF AN ARTILLERY BATTALION

Battalion firing positions are emplaced batteries occupy an area 150 meters by 150 meters with two batteries forward and one battery back. Spacing between firing batteries is approximately 150 meters.

Artillery battalions may form ad hoc "fourth batteries" where each battery gives up one gun. These three guns are then formed into an additional fire unit. The purpose may be to confuse the enemy, or more likely, to provide more flexibility in fire support.

The battery CPs and FDCs are centrally located in each battery to facilitate command and control. Selection of individual battery positions is made by the battalion commander. Battalion locations are coordinated with the supported maneuver brigade commander. Centralized command and control requirements drive all emplacement and displacement decisions for Iraqi artillery at all levels.

Specific Iraqi techniques for positioning individual firing pieces are relatively unsophisticated. Towed artillery is generally emplaced on line by battery, while self-propelled artillery pieces are emplaced on a five-point configuration similar to the fingertip pattern of a hand. It should be noted that a lack of standardization in Iraqi artillery sometimes leads to use of either emplacement method by either towed or self propelled units.

8. FIELD ARTILLERY IN THE OFFENSE

Preparation for the Attack

Before the attack, artillery units are located in the assembly area with their supported units. Liaison is effected with commanders and staffs of supported units, and communications problems are solved. During this time targeting instructions are received and forward observers are attached and briefed on the tactical situation. Artillery units depart the assembly area with supported units.

Organization for the Attack

Artillery units are task-organized for offensive operations. Doctrinally, one battalion is attached to each brigade for direct support, and one battalion remains at division for general support. During the Iran-Iraq war, when more than three brigades were attached to a division, additional artillery units were assigned to provide adequate support. Artillery units are positioned to support the main axis of attack. The same artillery battalion is normally

attached to the same brigade for each operation to assure close coordination. See the section Field Artillery in the Defense for additional details on organization for combat.

Iraqi artillery units may take a great deal of time to emplace/displace, up to 20 to 30 minutes, regardless of whether the units are towed or self-propelled. While this has undoubtedly been true in past circumstances, this should not be taken as the norm. Leisurely emplacements/displacements could be the result of poor training or lack of discipline.

Other possible reasons for long emplacement/displacement times include little or no pressure from enemy action, plentiful friendly fire-support means, difficult terrain, type of weapon, or crew fatigue. Iraqi artillery units can probably displace within 10 to 15 minutes. In displacing to follow-on firing positions, the primary concern is the coordination of the move with the supported unit rather than the speed at which the move is accomplished.

Fire Support of the Attack

According to Iraqi doctrine, the modes of tactical employment are as follows:

Primary Bombardment

Primary bombardment by general support units at division level commences about 50 minutes before the first echelon crosses the line of departure. The shelling lasts from 45 minutes to 1 hour and is directed at enemy fighting positions and headquarters to destroy the targets, cause confusion, and lower enemy morale. Once attacking forces cross the line of departure, fires are lifted and directed toward enemy rear elements.

Direct Support Fires

Direct support fires by brigade artillery assets are controlled by the brigade commander through his artillery officer. This includes the division artillery battalion which normally supports the brigade. Each firing battery has from three to eight targets assigned. Targets are designated prior to the attack and are provided in the attack order.

Direct support fires begin as soon as primary bombardment is lifted and moved to the enemy rear. The fires continue on enemy front-line positions until attacking troops reach the enemy positions. The direct support fires are then lifted and targeted on the enemy rear. Attached artillery units are expected to fire only in support of the supported unit.

The line unit commander can authorize fires in support of adjacent units if he wishes. However, it appears this would be done only if all targets in the supported unit sector were destroyed.

Flexibility of Fire Support

It appears that all fire support is planned in detail prior to offensive operations, and little room is left for targets of opportunity and changes in the tactical situation.

Non-Divisional Fire Support

Doctrinally, surface-to-surface missiles/rockets will be used only after the assault begins. However, it appears that in one case in the war with Iraq, FROGs were fired as part of the preparation. Air support begins before the attack commences and continues through the attack. Both types of support are targeted primarily at the enemy rear.

Iraqi Targeting Priorities (Offense)		
Close Support	**General Support**	**Rocket Launchers**
• Antitank wpns	• Div/bde HQ	• Arty batteries
• FIST/OPs	• Arty batteries	• ADA sites
• Inf/tank plts	• Battalion HQ	• Logistics facilities
• Mortar plts	• ADA sites	• Chokepoints (w/mines)
• Minefields	• Reserves	• Maneuver reserves
• Reserves	• Engineer units	

9. INTEGRATION OF SURFACE-TO-SURFACE MISSILES IN THE OFFENSE

The short-range SSM (FROG) is employed as a tactical support weapon as part of corps artillery. It is possible that when it is used against civilian targets, it is controlled by the GHQ as a strategic weapon. Command and control facilities have been the primary type of tactical target attacked with FROGs.

Strategic SSMs (SCUD, AL-HUSSEIN, AL-ABBAS) are used under GHQ control as support for troops and for firing at strategic targets. No SCUD firings are known to have taken place in a tactical context. During the Iran-Iraq war, the main targets of Iraqi SRBMs

were Iranian urban areas. Today, likely targets include fixed targets such as cities, airfields, or oil-related facilities. These targets will probably be pre-planned, and launch operations will thus require little, if any, communications.

10. FIELD ARTILLERY IN THE DEFENSE

Firing Sequences

Artillery fire is first directed at enemy artillery positions until the attacking troops cross the line of departure. The second defensive firing sequence consists of long-range fires against enemy assembly areas and short-range fires against the line of departure and the advancing troops. Despite this reported priority of counterbattery fire, there is little evidence that the Iraqis actually conducted counterbattery fire until late in the war with Iran, and was then of limited effectiveness.

Types of Defensive Fires

Iraqi doctrine uses three types of defensive fires:

Saving Fire (Final Protective Fire)

Directed on or near friendly positions in extremely critical conditions.

Harassing Fire

Used prior to battles and during lulls in battle.

Massed Fires

Used to destroy attacking enemy tanks after the tanks have been slowed and concentrated in one area by obstacles and antitank weapons.

Control of Artillery Support

Artillery pieces are controlled in five ways during defensive operations. Defensive operations have been the primary type of tactical operations used by the Iraqis in the past.

Direct Supporting Fire

Artillery is attached and the priority of fire is controlled by the supported unit.

Indirect Supporting Fire

Support fire must be requested through the next higher headquarters.

Attached for Support

The artillery unit is attached to a supporting unit which is responsible for logistics and administrative support. Firing is controlled by higher headquarters.

Indirect Supporting Fire for Movement

This requires the subordinate unit request fire support for movement from higher headquarters. During movement, higher headquarters controls the artillery fire. After movement is conducted, the supporting fire is either withdrawn or continued, depending on the situation.

Counterbattery Fires

The artillery counterbattery fire direction/mapping and surveying battalion (*Istimkan*) is responsible for positioning battlefield surveillance assets, detecting enemy artillery, and directing counterbattery fire within the division zone of operation.

Prior to an attack, *Istimkan* teams usually consisting of 2 men will operate beyond the FLOT. Equipped with laser rangefinders or surveying instruments, these teams will locate potential enemy targets. During the course of battle, *Istimkan* personnel will direct counterbattery fires against enemy artillery detected by sound, flash, and radar acquisition means.

Immediately upon locating an enemy artillery unit, target data are forwarded to an Artillery Combat Control Center (possibly the division artillery headquarters) to initiate counterbattery fire. Counterbattery missions are fired by an 18-gun battalion dedicated solely to that purpose. As a minimum, two 18-gun volleys will normally be fired against counterbattery targets.

Iraqi Targeting Priorities (Defense)		
Close Support	**General Support**	**Rocket Launchers**
• Inf/tank plts	• Div/bde HQ	• Arty batteries
• FIST/OPs	• Arty batteries	• Assembly areas
• Engineer plts	• Battalion HQ	• Chokepoints (w/mines)
• Mortar plts	• Engineer units	• Ammo points
• Minefields	• Reserves	• Maneuver reserves
• Reserves	• Logistical sites	• ADA

CHAPTER 8

ANTITANK SUPPORT

1. GENERAL

The Iraqi army divides antitank weapons into two categories: general and special. The general weapon types include aircraft and tank fire against enemy tanks. Iraqi artillery is not commonly used in the direct fire mode against tanks. The special weapons systems consist of antitank guided missiles (ATGMs), and antitank recoilless rifles. These weapons are designed specifically to destroy tanks and their crews by direct fire. The direct fire weapons provide quick-response fires at medium, short, and point-blank ranges, on broken ground, and under favorable visibility conditions. Additionally, the Iraqi army has HOT or AS-11/12 on French SA-3422 Gazelle helicopters, and AT-2/SWATTERS on Soviet MiG-24/HIND and Mi-8/HIP helicopters.

The majority of Iraqi ATGM weapon systems are the AT-3/SAGGER on BMPs and the BRDMs. These types of weapons systems are found mainly in the mechanized infantry units. The Iraqi army units also possess ATGM systems such as the AT-1/SNAPPER on BRDMs and on UAZ-69S, HOT on the Panhards, and 106-mm Recoilless Rifles (M40A1s). Iraqi ground forces can be equipped with a varied array of antitank weapons systems to include the RPG-7 rocket-propelled launchers, SPG-9 73-mm recoilless rifles, 82-mm recoilless rifles and the French MILAN ATGM system.

2 ORGANIZATION AND EQUIPMENT

Each corps has an antitank battalion which may be reinforced by an antitank gun battalion from GHQ. Its mission is to support infantry against tank attacks. Typical antitank battalions at division level have 40 BRDMs with SAGGER ATGMs broken into 5

companies. The mechanized infantry and infantry divisions have antitank battalions organic to their organizations. Antitank battalions may be located in the armored divisions as well.

At the brigade level, most of the maneuver battalions' antitank weapons are located in the heavy weapons platoon within the companies. The weapons located in the heavy weapons platoon include direct-fire ATGM systems. Any unit that has in its organization a Special Forces brigade will have an antitank company of 106-mm recoilless rifles and ATGMs.

At the battalion level, antitank assets are organized and distributed according to the organization they support. An armored battalion will have no additional antitank assets. A BMP equipped mechanized infantry battalion has a reconnaissance platoon with up to four ATGM vehicles and a support company with four to six recoilless rifles. A mechanized non-BMP battalion only has an antitank platoon of four BRDMs with the AT-3 or AT-5/SPANDREL. Light infantry battalions have man-portable systems such as the AT-3 and Milan and an antitank platoon of four to six recoilless rifles, usually mounted on jeep-type vehicles.

3. MANEUVER FORCES

Iraq uses Soviet antitank doctrine. The mission of antitank units is to destroy or slow attacking tanks to prevent them from achieving their objective and allow the commander time to mount a counterattack. Coordination of antitank defense is the main consideration of the commander when he prepares a defense position. He has to decide how to allocate his tanks for antitank defense and be able to launch a counterattack. The antitank defense includes antitank guided missiles mounted on vehicles or helicopters without the need for additional tanks for this purpose. Therefore, the greater part of the tank force should be kept in the rear for other missions.

Destruction of enemy APCs and armored cars is not the responsibility of the tank force or of other mobile arms, because the vehicles can be destroyed by antitank weapons at the disposal of mechanized infantry battalions. Tanks should be used to the full extent of their fire power and mobility during enemy tank activity. The preferred angle of attack is in the flanks. If freedom of movement is limited, then tanks should move within their given area from one firing position to another.

Portable antitank weapons form a main element in an antitank defense plan. They can be concentrated or allocated to infantry companies. They must always operate in coordination with the

tanks. It is also desirable to emplace launchers so that it will be possible to destroy enemy tanks before they enter the range of other defensive weapons.

Iraqi doctrine stipulates the following principles of antitank defense:

- Channel enemy tanks into an open area with limited cover and concealment. Minefields are the primary means to channel enemy tank movements.
- Organize antitank weapons in depth according to range, with short-range weapons in front.
- Support reserve forces with antitank weapons. Weapons are required for counterattack purposes as well as defense against enemy armor breakthrough.

4. EMPLOYMENT OF ANTITANK WEAPONS

Prior to deployment of antitank weapons, an analysis must be made of the expected number and types of attacking tanks in order to calculate the number and types of weapons needed to destroy them. The Iraqis calculate it takes one 106-mm or 82-mm recoilless rifle to destroy two tanks, and three RPG-7 rocket propelled grenade launchers to destroy one tank. When the tank threat is not known, 106-mm and 82-mm recoilless rifles are paired on the flanks of the unit. When necessary, tanks may be deployed along with antitank weapons.

5. COMMAND AND CONTROL OF ANTITANK WEAPONS

Antitank weapons fire is ordered from battalion headquarters through the chain of command to the platoon leader. Initially each RPG-7 gunner fires at a designated tank and then fires at targets of opportunity. At night, range stakes with reflectors, set up by patrols, are used to indicate fields of fire and ranges.

CHAPTER 9

AIR DEFENSE

1. CONCEPTS AND PRINCIPLES

The Iraqi Air Defense Force (IADF) is subordinate to the Air and Air Defense Force.

The controlling headquarters for army air defense is the Air Defense Artillery (or Antiaircraft) Directorate at GHQ. The ADA Directorate coordinates all training and assignment policies as well as integration of army and air force assets. Some air defense battalions are directly subordinate to the GHQ. Each corps-level organization probably has a brigade size air defense headquarters, and battalion size ADA units with which to support subordinate forces. Within the division, all air defense assets are controlled by division air defense. The structure of air defense units is not standard throughout the army, and the number and types of units vary greatly.

2. MISSION

The mission of the IADF is to defend Iraqi territory and airspace against hostile aircraft intrusions through the coordinated employment of the early warning radar network, SAM systems, ADA assets and interceptor aircraft. With the priority of protection to strategic targets over ground forces.

3. ORGANIZATION OF STRATEGIC AIR DEFENSE

Iraq is divided geographically into air defense sectors. Ground based radars, visual observers, SAMs and ADA (excluding those subordinate to the Army) are subordinate to the air defense sectors. Air defense sectors are also responsible for directing interceptor aircraft conducting air defense missions.

Iraq possesses the SA-2/3/6/7/8/9/13/14/16, I-Hawk, Roland I/II, and possibly Shahine SAMs. Protection of strategic targets has priority over the protection of ground forces. Therefore, SA-6s and Rolands are deployed in defense of strategic installations in addition to units in the field.

At the start of the Iran-Iraq war, each Iraqi armored division had an organic SA-6 regiment. Each regiment comprised five firing batteries, a main and rear headquarters, and a technical support battery. The regiment provided area air defense for the division and point air defense for division main/corps forward headquarters. The regimental headquarters was normally deployed near the division HQ.

The SA-6 batteries were deployed in a crescent pattern 2 to 15 kilometers from the division HQ. Technical assistance and additional missiles and supplies were provided by the technical support battery. Approximately 15 missile transporters were attached to the technical support battery. Iraqi SA-6s may now be a GHQ asset, deployed as the need becomes apparent.

When supporting maneuver units, SA-6s provide low-to-medium-altitude area air defense for reserve forces and/ or logistics support areas. Some SA-2s may also be deployed to sites near the front. These provide high-altitude area air defense for ground force assets in the rear. Both the SA-6s and SA-2s are deployed to fixed sites and are integrated into the Air and Air Defense Force air defense network.

4. CORPS AIR DEFENSE

Corps air defense is the responsibility of the corps Air Defense Headquarters. It has at least one 57-mm radar-guided air defense artillery battalion, probably for the protection of corps headquarters and logistics sites.

The primary means of air defense support for the ground forces comes from the ADA weapons organic to the division, corps, and GHQ. ADA equipment has been obtained from numerous sources, primarily the Soviet Union and China. In tactical configurations, these weapons fill several roles. The 57-mm S-60, normally deployed in battalions of 18 guns, serves consistently in defense of divisional headquarters and field artillery assets. The 37-mm M1939, the ZSU-23-4, and the lighter ADA weapons often deploy close to front-line elements, covering troops as well as command elements.

This general mix gives the Iraqis tremendous range and volume of firepower. Unlike the Soviets, the Iraqis do not employ SAMs well forward in the offense. Air defense of the forces is primarily provided by ADA assets. SAMs have in the past moved forward only after initial objectives have been secured.

5. DIVISION AIR DEFENSE

Iraqi divisions often have non-standard air defense organizations probably due to the wide variety of AAA and SAM systems in the Iraqi inventory, the subordination and type of division, and task-oriented division missions.

Each division has at least one organic air defense unit and possibly an air defense staff similar to a division artillery staff. Armored and mechanized divisions have self-propelled antiaircraft guns, SA-9 surface-to-air missiles and one to three 37-mm antiaircraft artillery battalions with 18 guns each. All divisions normally have 81 SA-7/14/16s, organized in 27 three-man teams.

The Iraqis apply Soviet employment doctrine for the SA-9 and SA-13, assigning up to a battalion of SA-9s and ZSU-23-4s from the division air defense regiments to each of the armored and mechanized infantry brigades for the protection of headquarters assets.

The SA-7/14/16s are the only SAMs currently organic to Army Air Defense units, although some Roland units may also be subordinated to the Army. The SA-8 and SA-13 may also be available.

In tactical configuration, the 57-mm S-60, 37-mm M1939, ZSU-23-4, and the lighter ADA weapons often deploy close to front-line elements, covering troops, boundaries and gaps, and command elements. This general mix gives the Iraqis tremendous range and volume of firepower.

6. IRAQI AIR DEFENSE EQUIPMENT

Iraqi AAA Systems and Statistics

Nearly two-thirds of Iraq AAA guns are Soviet-built, while the remainder are Chinese-built. The following are the types of AAA systems in the Iraqi military:

Towed

- 12.7-mm
- 14.5-mm
- 20-mm, M-55/M-75
- 23-mm, ZU-23
- 37-mm, M1939/Type 74
- 40-mm, L-70
- 57-mm, S-60/Type 59
- 85-mm, KS-12/18
- 100-mm, KS-19
- 130-mm, KS-30

Self-Propelled

- 23-mm, ZSU-23-4
- 30-mm, M-53/59,M-53/70
- 57-mm, ZSU-57-2

AAA Threat to Helicopters

Below are the types and the tactical ranges of AAA weapons.

Weapons	Range
57mm (S-60)	4.0-6.5 km
57mm (Type 59)	4.0-6.5 km
40mm L-70	4.0 km
37mm (M1939/Type 55)	2.5 km
35mm (Oerlikon-Skyguard)*	4.0 km
23mm (ZU-23/ZSU-23-4)	2.5 km
20mm M-75	1.2 km
20mm M-55	1.5 km
14.5mm (AAHMG)	1.4 km
12.5mm (AAHMG)	1.0 km
7.62mm (MG)	1.0 km
7.62mm (Rifle)	0.5 km
**Captured*	

The minimum range figure for the S-60 and Type 59 represents the maximum effective range using optical sight only; the 6.5 km figure represents the maximum effective range for radar-controlled firing operations. Helicopters can be engaged at ranges slightly greater than those indicated below, since they fly at slower speeds and altitudes than fixed-wing aircraft.

In addition, inexperienced Iraqi air defense crews may attempt to engage targets outside of their doctrinal range envelopes. Although not technically considered AAA, 7.62-mm rifles and machine guns have been included to emphasize the small arms threat to rotary wing aircraft.

In Operation Just Cause, for example, 41 U.S. helicopters were damaged and 4 destroyed solely by small arms fire. During the Vietnam War, anti-aircraft weapons accounted for more kills against American warplanes than SAMs. The 35-mm Skyguard system is also included since some of these highly capable systems may have been captured from the Kuwaiti military.

Iraqi SAM Launcher Statistics

The current Iraqi SAM systems (listed below) are Soviet-built, except for the Roland and I-Hawk.

- SA-2 (UR)
- SA-3 (UR)
- SA-6 (UR)
- SA-7 (UR)
- SA-8 (UR)
- SA-9 (UR)
- SA-13 (UR)
- SA-14 (UR)
- SA-16 (UR)
- I-Hawk (US)*
- Roland (FR)

*Captured from Kuwait

SAM Threat to Helicopters

Below are the tactical ranges of each SAM in the Iraqi inventory. Iraq employs the Roland in a strategic manner as a point-defense SAM system to defend high value targets. The Aspide system may also be encountered since Skyguard was also captured in Kuwait.

The Skyguard air defense system represents a significant threat to helicopters since the system integrates both radar-controlled 35-mm guns and SAMs into a single fire control unit capable of

quick response. The SA-6 system is associated with Republican Guards units and armored/mechanized units. As with the AAA, most SAM systems are of Soviet origin.

Weapons	Range
SA-6	24 km
SA-7	4 km
SA-8	11 km
SA-9	7 km
SA-13	7 km
SA-14	6 km
Roland	8 km
Aspide (Skyguard)	15 km
I-Hawk	42 km

SA-7 Site Configuration

The Iraqis normally employ the standard Soviet SA-7 site configuration. Each site is configured as a V-shape trench with three firing positions, one at the end of each trench and another at the apex of the "V." The point of the "V" is always oriented towards the expected threat axis of approach. SA-7s configured in this manner operate in the point defense role. In a desert environment this type of position may prove highly visible to incoming aircraft (see Figure 66).

Helicopter Detection by Maneuver Divisions

Helicopter detection will be accomplished by early warning radars, countermortar and artillery radars, and visual observation. Visual observation teams are an integral part the Iraq air defense network. Reliability of the observers decreases tremendously as the volume of incoming aircraft increases. Training and discipline of the network detection personnel is critical and is neither consistent nor sustainable.

Air Defense Assessment

The Iraqi SAM and AAA threat is a serious, but vulnerable one. Its multi-layered and overlapping coverage of strategic SAMs, tactical SAMs, and AAA guns emphasize volume of fire. AAA coverage at low altitudes presents the most serious threat. The Iraqi air defense

strategy emphasize volume of fire to force the target to fly into various air defense envelopes, and includes small arms fires directed against the target in volume.

SA-7 SITE CONFIGURATION

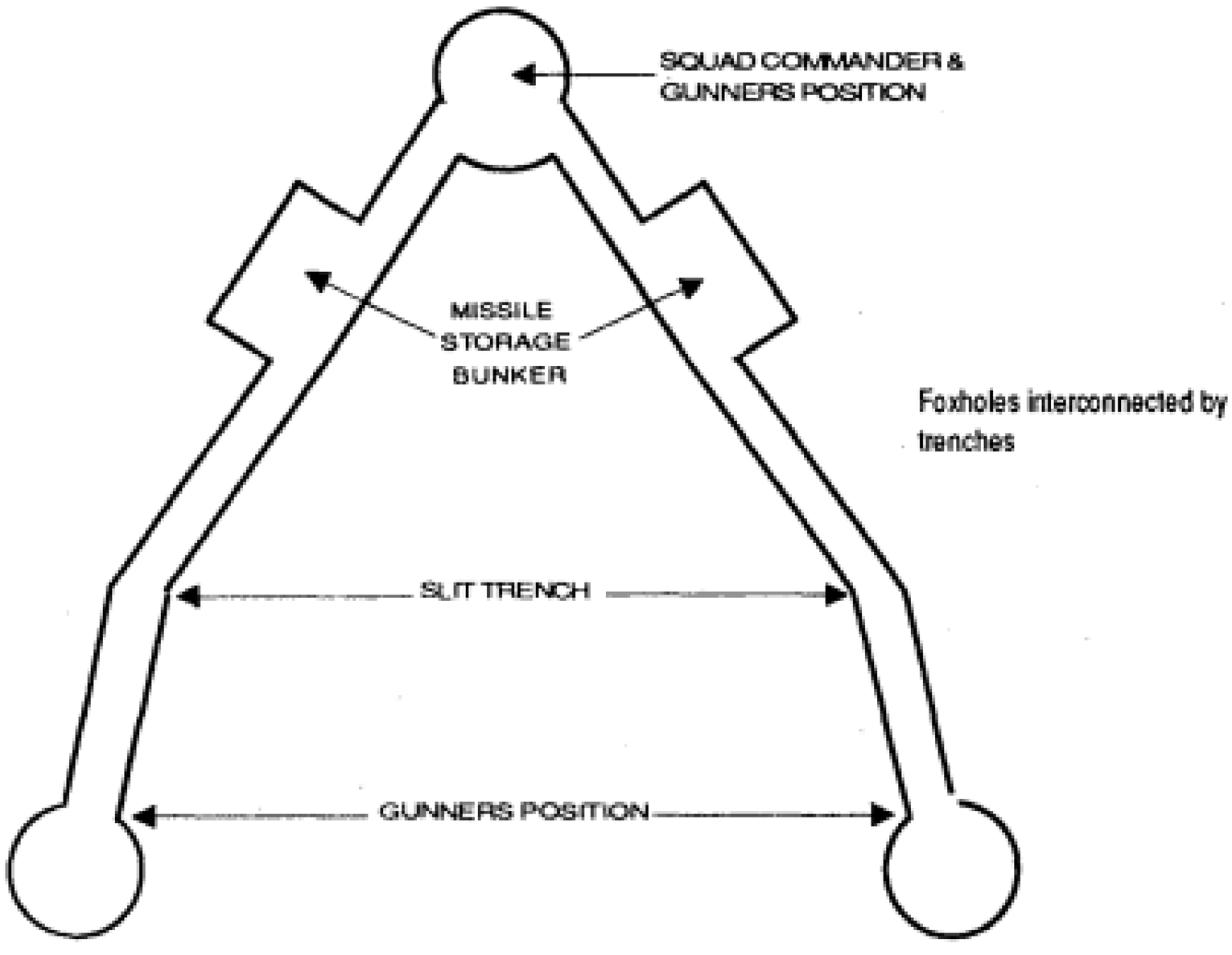


Figure 66 SA-7 Site Configuration

CHAPTER 10

AIR SUPPORT

1. GENERAL

The Army Aviation Command (AAC) is responsible for providing air support to the ground forces. Details concerning the structure and organization of the AAC are very limited. There were originally four Army Aviation wings which corresponded to the four Army Corps. Additional Army Aviation wings probably have been created to support all of the corps currently deployed.

The primary role of the AAC is to provide air support to the ground forces. Helicopter assets perform the primary ground attack, close air support, armed reconnaissance, troop transport, and anti-insurgent missions. Helicopters are frequently used as platforms for forward observers and have been noted firing illumination rounds in support of ground operations.

2 COMMAND AND CONTROL

Each corps probably has operational command of one aviation wing. Requests for air support go through each intermediate headquarters to the army aviation wing, that is, battalion to brigade to division to corps to army aviation wing. The Army Aviation Command probably has liaison officers located at corps headquarters.

Mission planning and control are the responsibility of the corps commander and the AAC. There is an army aviation liaison officer assigned to the corps-level staffs. Tactical control of helicopters is probably provided by ground-based forward air controllers and airborne controllers. Flight activity is coordinated with the Air and Air Defense Force through the sector operations center in the area of operations.

3. FIXED WING AIRCRAFT

PC-7/9s, and possibly Tucano trainers, are the only fixed wing aircraft subordinate to the AAC. These aircraft, armed with machineguns or bombs, are used for armed reconnaissance and ground attack missions along the front.

The primary use of Iraqi air force fixed-wing aircraft appears to be for battlefield interdiction: attacking lines of communication; command posts; troop assembly areas; logistics facilities; and major economic targets. The only known points of interdiction have been rail lines and stations, highway bridges, and bridges over rivers, the majority of which have been forward of corps-level headquarters. Before and during the Iraqi offensive, in June 1988, near Dehloran, Iraqi aircraft destroyed all highway bridges leading into the battle area, effectively cutting it off from reinforcement and resupply.

The most significant feature of the Iran-Iraq air war was Iraq's overwhelming advantage in operational combat aircraft and its failure to take full advantage of its air superiority.

Strategic Air Operations

Deep Penetration Strikes

The timing of deep penetration strikes frequently coincided with preparations for Iranian offensives as well as during the actual offensives. Prior to and during the Val Fajr and Karbala offensives, the IAF increased its strikes against logistic, troop concentration, and economic targets.

Fighters and Fighter-Bombers

The Mirage, FITTER, FLOGGER and FOXBAT fighters and fighter-bombers were the primary aircraft participating in the deep penetration strikes. BADGER and BLINDER bombers were also used. The fighter-bombers normally carry 4 to 8 250-kg or 500-kg high-explosive or cluster bombs, and the bombers probably carry up to 18 100-kg bombs. French-built Exocets and AS-30L laser-guided missiles are also used. AS-37 Martel and AS-9/KYLE anti-radiation missiles have been used against radar facilities, and I-Hawk SAM sites.

Many of the strike missions were supported by fighters conducting defensive fighter patrols and electronic countermeasures (ECM) missions.

Tactical Air Operations

Fighter/fighter-bomber aircraft supporting the ground forces are under operational control of the IAF. Requests for IAF support are passed from the corps commander to GHQ staff and, if approved, are tasked to the Air and Air Defense Force chain of command. In order to reduce response times, corps commanders may be permitted to request strikes directly from Air and Air Defense Force headquarters without prior GHQ approval.

Coordination is provided by Air Force personnel assigned to liaison positions on the staffs at corps and possibly division levels. Control for IAF assets during ground support operations is provided by ground control intercept sites assisted by forward tactical air controllers.

Air Force fighters/fighter-bombers providing air support to ground forces include Su-17/20/22/FITTERs, Su-25/FROGFOOTs, MiG-21/FISHBEDs, MiG-23/FLOGGERs, and Mirage F-1s. Additionally, air support can be provided MiG-25/FOXBATs and MiG-29/FULCRUMs.

4. ROTARY WING AIRCRAFT

Iraqi helicopters are organized into squadrons authorized 15 to 20 helicopters. Attack squadrons include Gazelle, Alouette III, BO-105, and Mi-24/HIND A/D helicopters. Assault squadrons include Mi-8/Mi-17/HIP C/H and Mi-6/HOUND helicopters. Mi-8 helicopters are usually armed with 57-mm rockets. A typical squadron normally consists of:

- Mi-8/HIP C (14 to 15 helicopters)
- Mi-17/HIP H (15 to 20 helicopters)
- Mi-6/HOUND (10 helicopters)
- Gazelle (10 helicopters)
- Alouette (10 helicopters)
- BO-105 (8-9 helicopters)
- Mi-24/HIND A/D (8-9 helicopters)

Other helicopters that may be in Army Aviation squadrons include the Hughes 500D and Hughes 300C training helicopters.

Squadron and individual helicopter rotations and deployments between wings to reinforce the wings at critical sectors of the front are common. To overcome crew shortages in these areas, crews are often shifted between squadrons to maintain at least a 1:1 crew-to-helicopter ratio.

Attack Helicopters

The Army Aviation attack helicopter inventory includes HINDs, Alouette IIIs, and Gazelles. Additionally, the HIP C/H and Hughes 500D helicopters can be modified to carry weapons and perform in an attack role. Attack these helicopters are frequently deployed to airfields and heliports close to the front.

Iraqi attack helicopters can be armed with HOT, AS-11, AS-12, or AT-2C anti-tank missiles, machineguns, rockets, and bombs. They may use low-level "pop-up" techniques during rocket attacks on enemy armor. This tactic involves a low-level ingress, a "pop-up" maneuver for target acquisition and weapons launch, and a low-altitude egress. Most missions are performed in formations of at least two helicopters. Iraq also employs teams of three aircraft in order to improve effectiveness and survivability during armed reconnaissance missions. These teams consist of a Gazelle with HOT missiles, a BO-105 with rockets, and an HIND as a scout.

In an offensive mode, the helicopters probably follow the advancing ground troops, providing general support from behind the front lines. Helicopters may fire rockets in a nose-up position in order to maximize weapons range while remaining behind friendly forces.

The helicopters have been used primarily in a defensive role, firing from behind friendly positions. Targets are engaged by several helicopters firing from different positions and angles. Attack helicopters were invaluable in containing major Iranian ground offensives.

Assault Transportation

Assault transportation is primarily provided by the HIP. The squadrons deploy flights (usually three helicopters) to the various air bases for transportation of assault troops, officers, air crews, and equipment. For assault missions, they normally deploy to airfields and helipads close to the front. Iraqi helicopters were used extensively in the Iran-Iraq war to assault hilltop positions, both defended and undefended.

In most of the major Iranian offensives, Iraqi troop air transportation was carried out to reinforce the combat fronts. Troops moved by helicopters carry only their individual weapons. Flights are conducted at low altitude, and the landing points are several kilometers from the front (out of range of enemy infantry weapon fire). In Val Fajr 4, brigade-sized forces were withdrawn from a more southern front and flown to Penjwin. These forces stabilized the defensive line and contributed to stopping the Iranian advance.

Iraqi helicopters have occasionally conducted combat assault flights (landing troops in the enemy rear or under fire). During the July 1983 Val Fajr 2 battle, Iraqi heliborne troops recaptured Mount Karamand, near Hajj Umran, after it fell to the Iranians. In August

1987, Iraqi forces were lifted into rear areas as part of a limited Iraqi attack on Meymark. These Meymark air lifts were supplemented with a battalion-sized or smaller parachute drop. This attack succeeded in capturing Iranian ridgeline positions. Heliborne operations probably were also conducted during the 1988 Iraqi offensives.

CHAPTER 11

SMOKE

1. INTRODUCTION

The Middle East countries have reevaluated the use of obscurants on the modern Middle East battlefield, and have apparently concluded that obscurants can be very effective in offensive and defensive operations.

While Iraq is known to maintain dedicated obscurant producing units, information is not available to determine organization. However, the proliferation of Soviet combat vehicles with smoke generation systems support the Iraqi use of Soviet smoke employment techniques. The employment of obscurants might either follow US or Soviet doctrine to some degree. Iraq has probably modified or developed doctrine based on its wartime experience.

2 SMOKE SYSTEMS/CAPABILITIES

Iraqi forces are well equipped for the use of smoke. Their munitions and equipment include:

- grenades with an unknown obscurant fill
- smoke pots, barrels and drums
- artillery/mortar smoke rounds
- combat vehicles equipped with smoke grenade launcher capability
- combat vehicle engine exhaust smoke systems (VEESS)

Iraq may have the capability to deliver obscurant filled munitions by aircraft.

The Iraqi smoke capabilities include ammunition with an obscurant fill, vehicle grenade launchers and VEESS.

Ammunition with an obscurant (WP) fill:

- 122-mm
- 130-mm
- 155-mm

Vehicles with grenade launchers:

- Panhard HOT tank destroyer
- Panhard M-3 APC
- Panhard AML light armored patrol car
- AMX-30 tank
- T-72M tank

Vehicles with VEESS:

- BMP-1 IFV
- BTR-50P APC
- PT-76 light tank
- T-54/55 tank
- T-62 tank
- TYPE 69-II tank
- T-72M tank

3. SMOKE SCREENS

Three basic types of smoke screens are blinding, camouflaging and decoy. Each type is classified as frontal, oblique, or flank in nature depending on the placement of the screen.

The purpose of blinding smoke screens is to blind gunners, observation post and target acquisition system.

The intent for camouflage smoke is to provide freedom of movement for units, to conceal the location of units and the nature and direction of an attack.

A decoy screen is established to deceive an enemy as to actual location of forces and probable direction of attack.

4. METEOROLOGICAL INFLUENCES ON SMOKE

Local meteorological conditions impact greatly on the employment of smoke. The meteorological conditions that must effect the employment of smoke are wind, lower atmosphere stability, temperature, relative humidity and precipitation.

Three conditions of atmospheric stability are recognized:

- stable
- neutral
- unstable

Stable conditions exist when the lower layers of the air are cooler than the upper layers. This usually occurs at night and in the early morning.

Neutral conditions exist when the air temperature is the same at the earth's surface as it is at the upper layers.

Unstable conditions exist when the lower layers of air are warmer than the upper layers, thus causing an intensive intermixing of the air by vertical air movements.

In desert environments, smoke operations are normally executed one to two hours prior to sunrise. Nevertheless, desert regions in general may not be favorable for smoke operations due to the low relative humidity.

CHAPTER 12

ENGINEER SUPPORT

1. ENGINEER TROOPS

The Iraqi army is equipped with engineer personnel and resources to support offensive and defensive operations. Engineer units are organic from GHQ to brigade level. Under GHQ control are several engineer battalions (used primarily for road and airfield construction) and a bridging brigade.

Organic to the Iraqi corps is a field engineer battalion and an engineer bridging battalion. The field engineer battalion is equipped with an unknown number of EVA and ZIL trucks with barbed wire-laying equipment, graders, and GAZ-69 and -63 transport vehicles. It is difficult to determine the number of vehicles available at any time because they are controlled by both corps and GHQ, with GHQ moving them around the front based on its analysis of tactical requirements.

The battalion's mission included constructing obstacles, conducting defensive positions, engineer reconnaissance, water supply, clearing enemy obstacles, building roads, and supporting bridging units in bridging operations. The engineer bridging battalion is equipped with an unknown number of MTU-20 scissor bridge vehicles, pontoon bridge vehicles, and six GSP ferries. This battalion was tasked with building bridges throughout the war.

Each armored, mechanized infantry, and infantry division has an organic field engineer battalion. The battalion is composed of three field engineer companies and a service company. The battalion of an armored or mechanized infantry division also has a tank bridging platoon. The field engineer companies are normally attached to infantry brigades on the front lines.

This battalion is equipped with a number of EVA, ZIL, and GAZ trucks. The ZILs are equipped with barbed wire layers and graders. The responsibilities of the battalion include construction of obstacles and defensive positions and engineer reconnaissance. The unit also clears enemy obstacles, builds roads, provides bridging support, and assists the chemical defense unit in decontamination operations.

Each armored and mechanized infantry brigade also has an organic assault engineer company. Brigades in the Republican Guard Forces Command also have an organic assault engineer company.

Iraqi engineer units have a wide variety of equipment and munitions. The majority of engineer equipment is Soviet; however, there are Chinese and some Free World equipment in their inventories as well. The Iraqi landmine inventory is quite large and is a diverse mix of munitions from around the world.

2 ENGINEER SUPPORT MISSIONS

On the March

During advance operations, where an advance guard is employed, engineers are employed well forward to facilitate movement. In the advance party, an engineer element will be attached to the lead reconnaissance patrol. Three engineer platoons will generally lead the advance guard main force. The size of these engineer elements depends upon man-made and natural obstacles reported by intelligence.

In the Offense

Iraqi engineers are tasked to support offensive operations with engineer reconnaissance, preparation and maintenance of routes, and obstacle clearance. The engineers' primary mission is opening gaps in minefields or other obstacles along the main axis of attack. The two methods used to open gaps in minefields are:

- Manually, using a metallic mine detector or probes to locate the mines.
- By using countermine equipment such as plows or rollers mounted on tanks and/or explosive line charges.

Iraqi doctrine requires only one lane through a minefield per infantry company, with an ultimate lane width of 8 to 12 meters. One gap is also specified for tank companies, but with an unspecified wider lane. Minefields are marked by flags in the daytime, with each company having its own color, and flares at night. Minefield breaching operations are expected to occur at night.

In the Defense

Respohsibilities of engineer units in defensive operations are listed in order of importance:

- Construct man-made obstacles, including minefields, and improve natural obstacles.
- Mark and map minefields.
- Construct headquarters field bunkers.
- Ensure necessary roads are usable.
- Quickly build needed roads.
- Deny roads to enemy use.
- Conduct engineer reconnaissance.
- Establish water points.
- Test for water purity in conjunction with medical units.
- Construct defensive positions
- Camouflage headquarters area.
- Build helicopter landing pads.

One antitank mine is normally laid with three antipersonnel mines. Occasionally, trip-wire activated antipersonnel mines are laid in addition to pressure-activated antipersonnel mines.

In addition, engineer troops attempt to deny the enemy water resources by preparing wells and water sources for demolition.

Iraqi forces also construct complex obstacles. They also have demonstrated the ability to flood areas to hinder enemy mobility and drain areas to improve their own mobility.

3. ENGINEER RECONNAISSANCE

On the March

Engineers are located well forward within movement formations to facilitate mobility of the main force.

In the Offense

Identification of enemy obstacle and fortification effort is a priority during offensive missions. Engineers may participate in this reconnaissance effort.

In the Defense

An engineer platoon is generally located in the defensive security zone with the reconnaissance battalion.

4. MOVEMENT SUPPORT

LInes of Movement

During the Iran-Iraq war, the Iraqis constructed an extremely efficient system of roads behind the front. This network, once augmented with a superb traffic control system and the purchase of over 2000 heavy equipment transporters, allowed the rapid movement of divisions and corps to support tactical operations. Iraqi engineers are experienced with hasty road construction in a harsh environment where there are few alternate routes and numerous bottlenecks.

In the Defense

Iraqi engineers can be expected to construct and maintain the necessary road networks to allow rapid movement of reserve or counterattacking forces. Mobility operations were critical and generally successful during the final stages of the Iran-Iraq war.

Road Preparation

The Iraqis have extensive road construction/improvement capabilities. These roads are for reinforcement, supply and resupply of the forward defensive line. Construction techniques include route clearing, widening, and oil surface treatment.

Iraqi combat engineer equipment is predominately civil engineering equipment, such as dozers, graders, etc. Their equipment is quite varied, as it has been purchased from several nations. They may have some older Soviet equipment, to include:

- BAT-M route clearers
- MDK ditching machines
- TMK trenchers
- IMR (T-55 based) obstacle clearing vehicle

Iraqi engineers probably train to Soviet standards. The Soviet standard for preparation of a hasty road in desert terrain is 2.5 to 3 km/h. This is with an engineer road platoon employing mechanized means (BAT, truck-mounted crane). Soviet engineers construct cross-country routes as necessary.

An engineer company can construct 2 to $2^{1}/_{2}$ km per day in moderately sandy terrain with the following equipment:

- 2-3 graders
- 2-3 dozers
- 4-6 rollers
- 4-6 crane shovels or backhoes

- 10-12 additional vehicles

An engineer company can repair 10 km per day in moderately sandy terrain with the following equipment:

- 2 dozers
- 4-6 rollers
- 4-6 crane shovels or backhoes
- 10-12 dump trucks

Overcoming Water Obstacles

Iraqi bridging assets consist mostly of Soviet-made equipment as follows:

- Soviet MTU-20 AVLB
- Czech MT-55 AVLB (Iraqi armored units)
- TMM truck launched bridges
- PMP pontoon bridges
- GSP amphibious ferries
- PTS amphibious transporters
- BLG-60

Mineclearing

Iraqi countermine equipment is held by engineer and armor units. The Iraqis employ standard Soviet countermine doctrine, but their units have fewer countermine assets overall than equivalent Soviet units. Iraqi countermine equipment is technologically simple, yet has the capability to defeat complex obstacles which include mines, if the equipment is used in combination.

The Iraqi inventory of countermine equipment is as follows:

Detectors

The Iraqis use hand-held mine detectors and Soviet vehicle-mounted mine detectors (DIM). Their hand-held mine detection capabilities were recently upgraded with UK-produced MD2000 metallic mine detectors. These can detect mines with a low-metallic content. They are used in conjunction with the Soviet and Iraqi hand-held metallic detectors and the Soviet vehicular-mounted DIM mine detector. The Iraqis have little or no equipment to detect non-metallic mines.

Plows and Rollers

This capability includes Soviet tank-mounted mine plows (KMT-4/6) and rollers (KMT-5). There is one KMT-4/6 per tank platoon and one KMT-5 per tank company, if supplies allow.

Line Charges

Soviet rocket propelled line charges come in vehicular and man-portable variants. The trailer-mounted version is the UR-77, which clears a lane 90 meters long and 6-8 meters wide, with a standoff of 150 meters.

Bangalore Torpedoes

These hand emplaced explosive line charges are used in a manner similar to that used by US forces.

Fuel Air Explosives

Fuel Air Explosives (FAE) can be useful for mineclearing operations due to both blast and overpressure effects.

Mechanical mine clearance equipment is expendable by nature. Therefore, sustained offensive operations utilizing mechanical mine clearance equipment could result in shortages of the equipment resulting in a decreased countermine capability.

5. ENGINEER OBSTACLES

Types of Minefields

Iraq has a full suite of landmines and explosives. Their forces used over 4 million mines against Iran. The army maintains a large stockpile of mines (estimated at 10 million) which can be deployed manually, mechanically, aerially, and by artillery/rocket. State-of-the-art mines have been obtained from numerous countries. All types of antipersonnel (AP) and antitank (AT) mines are available as well as, limpet, sea mines, and antilanding mines. Of note, some of these mines are designed to thwart detection and disarming.

The Iraqi army may have chemical mines with mustard fill.

Defensive positions are supplemented with minefields and non-explosive obstacles such as antitank ditches and wire. Minefields are placed to channel enemy armor into the divisional kill zones, which may contain more mines, tank traps, trenches,

and concertina. In some locations, an approaching enemy may also face Iraqi flooding operations. Thus, the channeling minefields serve to complement the antitank weapons at the Iraqi commander's disposal.

The many types of scatterable mines currently available in Iraq further complicate an enemy's breach of an Iraqi defensive position. Ground-based mine dispensers include the following:

- Soviet mechanical minelayers (PMR-3)
- Italian vehicular scattering system (Valsalla)
- Italian Firos-25 light MRL (110-mm)
- Soviet BM-21 MRL (122-mm)
- Chinese type 81 minelaying rocket system (122-mm)
- Brazilian Astros-II medium MRL (180-mm)
- Iraqi/Yugoslav MRL (262-mm)
- Brazilian Astros-II heavy MRL (300-mm)
- FROG-7 rocket
- SCUD missile
- Several artillery systems

Aircraft mine dispensers include the following:

- Soviet Mi-17/HIP helicopter
- Soviet Mi-24/HIND helicopter
- Hawker Hunter aircraft
- Mirage aircraft
- Su-25/FROGFOOT
- Transport aircraft

Establishing Minefields

Minefields are generally Soviet in design in that they are linear, tied into other natural and man-made obstacles, and placed to force units into fire sacks or enhance the effectiveness of covering fires. Minefield dimensions have commonly been configured 500 x 30 meters with one AT mine per meter of front. Minefield depth in well-prepared positions can be as much as 350 meters. Non-mechanical emplacement includes throwing mines randomly off trucks then burying mines by hand.

6. FORTIFICATIONS

The Iraqis use a stationary defensive line consisting of one or more rows of defensive positions. These positions are integrated with natural and man-made obstacles. This defensive line is backed by a mobile reserve, generally an armored unit when available.

Iraqi engineers also construct command bunkers. One method utilizes Soviet or Soviet-copied prefabricated materials, a simple curved frame is constructed in the ground and is covered with wood or steel planking. The entire structure is then covered with earth and then with 15 to 20 inches of gravel (0.75 to 1.5 inch stones). Gravel (not of standard size) would cause the rounds to explode before striking the metal. A typical sized bunker about 5 yards long would take 4 hours to construct. They also use pre-fab concrete and locally available material.

Iraqi defensive positions constructed during the Iran-Iraq war were built in a triangular configuration. The corner of the triangle of a divisional position is composed of a triangular brigade position, whose corners are occupied by battalion positions. This subdivision continues down to squad level. One side of a battalion's triangle measures 2000 meters in length, and the company subsection measures 750 meters per side. The triangle corners are fortified firing positions having 360 degree fields of fire. The sides of the triangles are formed by earthen berms 3 to 4 meters high (see Figure 67).

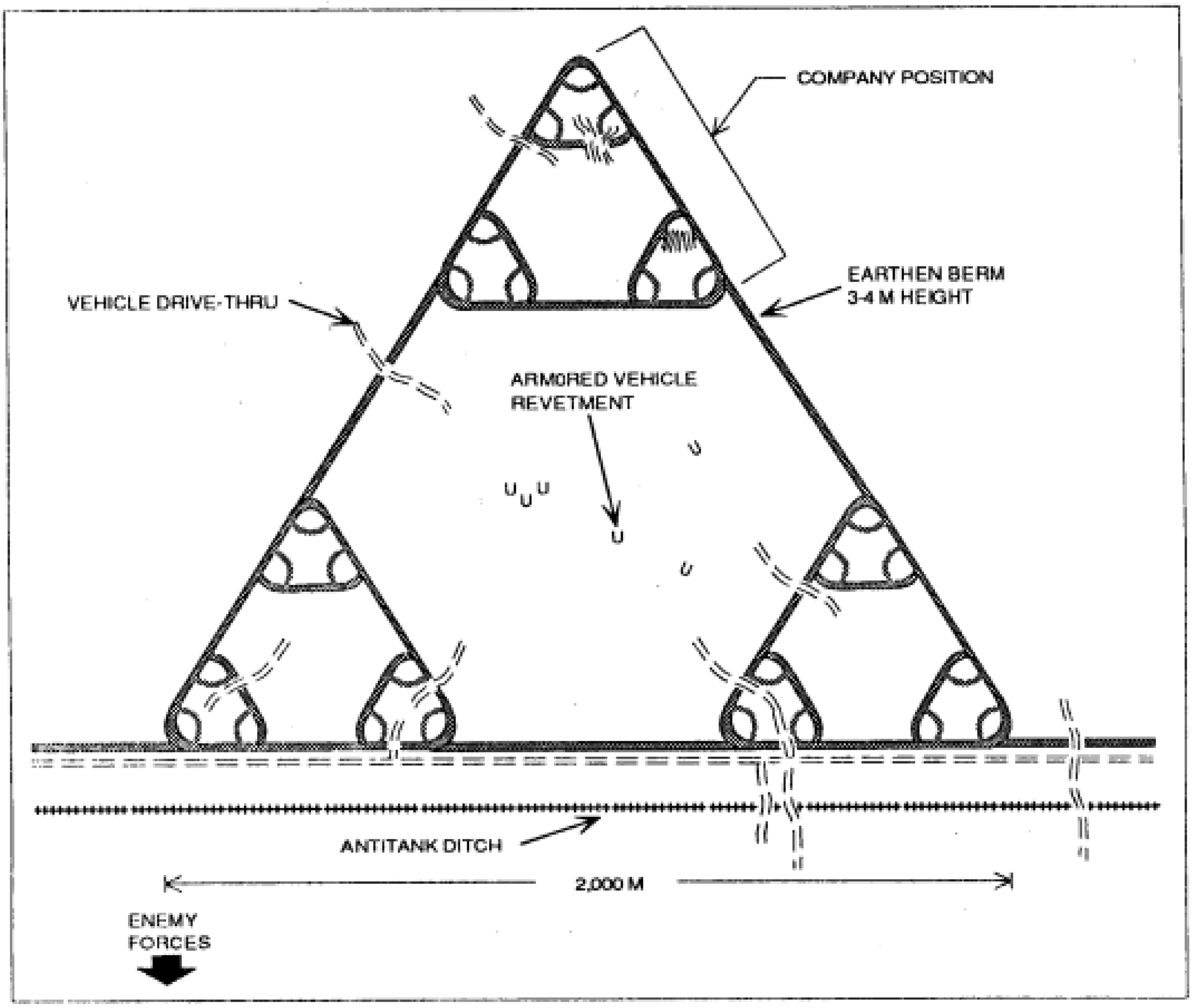


Figure 67 Infantry Battalion Defensive Position (Iran-Iraq War)

These positions were constructed to meet a specific infantry threat (Iranian mass wave attacks) with little to no air threat, on specific terrain (the flat, sometimes swampy, low ground of eastern and southeastern Iraq). The Iraqis have demonstrated flexibility in their defensive doctrine, gearing specific defensive operations to METT-T. Therefore, the triangular positions constructed during the Iran-Iraq war may not be used against a highly mobile ground threat, against a significant air threat, or in an open desert environment.

The Iraqis have learned that well-prepared defensive positions using water-filled ditches, dry antitank ditches, strongpoints, berms, minefields, barbed wire, all covered by interlocking fields of fire and anchored on natural obstacles, can provide a very effective positional defense. These multiple defensive positions can be established within a week on a wide front with the use of bulldozers and large dump trucks. One aspect of this, though, has been a great deal of indiscriminate mining — without the use of mining plans. This creates problems when sector control is transferred to a new unit.

The Iraqis may also dig ditches, fill them with oil and use them to augment their defenses with massive "fire trenches."

These "fire trenches" could have a significant impact on combat operations. The general area will be lit up, eliminating any "cover of darkness" advantage. Since the fire trenches are in front of the defensive line, forces attacking through the obstacle will be illuminated by the fire backdrop. Heat seeking munitions, thermal imagery, and infrared systems will also be affected.

The Iraqis could also use the destruction of oil wellheads as an obstacle to attacking forces. Some types of sour crude give off hydrogen sulfide (from bubbling up from the deeper wells). Breathing this gas has effects ranging from disorientation to death. Also when this gas contacts water, such as perspiration or mucous membranes and the eyes, the resulting sulfuric acid causes burning and blistering. The demolition of some wellheads could therefore create a contaminated environment.

7. ENGINEER CAMOUFLAGE MEASURES

Iraqi doctrine for camouflage and concealment stresses the importance of proper utilization of the terrain including the use of natural concealment for movements. In barren desert terrain, movement of troops or vehicles is very vulnerable to enemy reconnaissance. Thus, hills, valleys, and wadis will be used to conceal troop and vehicle movements. The Iraqis will also use the cover of darkness for troop displacement thereby concealing the dust plumes caused by such movement.

During the Iran-Iraq war, Iraqi artillery positions were often vacated at night and decoys left behind. Decoy tanks, aircraft, and antiaircraft systems are also employed. Many of the decoys were highly detailed mockups constructed from fiberglass or sheet metal and accurately painted. It appears that the Iraqis were primarily concerned with just the visual signatures of the decoys.

CHAPTER 13

ELECTRONIC WARFARE

1. ELECTRONIC WARFARE SYSTEM

Iraq has a sophisticated electronic warfare (EW) capability. The collection and jamming capability includes a hodge-podge of older Soviet equipment and more advanced Western systems. This capability includes both ground based and airborne systems.

Targeted against both communications and noncommunications systems, the Iraqi SIGINT/EW structure includes three separate organizations under the control of the civilian government, the army and the air force respectively. Their capabilities are arrayed at both strategic and tactical levels.

Iraq developed excellent intelligence on locations, movement and intentions of enemy forces during the previous conflict. However, this intelligence did not always seem to be used by tactical commanders, either because it didn't get to them or because they chose not to use it.

Concept

Iraqi EW units have the mission to intercept, analyze, manipulate, suppress or prevent the enemy's use of the electromagnetic spectrum while protecting Iraq's own abilities to exploit it to their own advantage.

Iraqi use of EW against tactical ground communications stresses collection and direction finding for intelligence purposes over disruption of enemy communications.

Iraq's EW concept is probably based on Soviet radioelectronic combat (REC) doctrine. However, Iraq's EW structure is unique to its own priorities, needs, and equipment capabilities.

Highly centralized control and reporting procedures delay the dissemination of generally excellent intelligence to front-line units.

Target Priorities

Artillery units, brigade and higher headquarters, and special forces are likely objectives of EW targeting.

2. JAMMING

Jamming operations during the Iran/Iraq war were minimal. Priorities for jamming are likely to be artillery nets and rear echelon communications nets.

3. DECEPTION

The principle of surprise is considered a key element of Iraqi doctrine. Deception helped the Iraqis achieve tactical surprise in the battle of Al Faw in April, 1988. Key civilian leaders made visits to the front in northern Iraq to make it appear the attack would occur there. False radio traffic was transmitted on Iraqi nets to confuse the Iranians. Artillery prep fires which normally lasted at least one hour were cut to 45 minutes.

Preparation and dissemination of deception plans is identified as a responsibility of the GHQ during the preparation and deployment phase of offensive operations in Iraqi doctrine.

4. OPERATIONS SECURITY

Iraqi forces are aware of their vulnerability to enemy collection systems. Operations security measures can be expected to increase as more tactical commanders are made conscious of their exposure to this collection.

The use of landline and reduced communications in the defense is common to many doctrines, as is going to radio listening silence prior to an attack.

CHAPTER 14

NUCLEAR, BIOLOGICAL, AND CHEMICAL WARFARE

1. NUCLEAR WARFARE

Iraq has long expressed an interest in nuclear operations, allegedly for the peaceful exploitation of nuclear power. Significant national resources have been committed to nuclear research and development. To date, Iraq does not posses nuclear weapon capability.

2. BIOLOGICAL WARFARE

Iraq has pursued biological warfare research and may have a biological warfare capability.

3. CHEMICAL WARFARE

Doctrine

A chemical advisor or directorate is assigned to each Iraqi division and corps headquarters. Chemical troops plan the use of chemical weapons. The chemical advisor has special maps and orders, and briefs the chemical situation at the onset of all operations. The division or corps commander identifies targets and tasks the chemical advisor to develop a plan for destroying the targets. Elements of the target destruction plan include limitations on friendly troops, actions required of friendly troops, and a warning order. When the plan is adopted and integrated into the mission, a warning order is issued down the chain of command.

Chemical fire planning is a routine part of all Iraqi military operations. To ensure security for their planning, Iraqi units are warned to expect enemy chemical warfare (CW) attacks just prior to the Iraqi employment.

Initial release authority for CW agents is held by the President of Iraq. Release authority may be delegated to lower levels. Release authority for chemical artillery and mortar shells is granted to some corps commanders, with verbal approval from GHQ. However, release authority for air force chemical weapons and missiles remains with the president.

After corps commanders are given release authority, artillery and mortar chemical munitions are stored in the corps rear administrative area, usually at least 60 kilometers behind the FEBA. Expenditures are calculated by a chemical advisor/directorate based on the size of the target area as determined by the commander. Quantities kept in the corps rear administrative area may exceed mission requirements, and resupply is probably immediate.

Chemical Agents

Although chemical agents would primarily be used to cause casualties among military personnel, they could also prevent or hinder use of aircraft, equipment, and facilities until decontamination is effected. Collateral damage to equipment may occur as well. For example, plexiglass windshields on aircraft could be rendered permanently opaque by sulfur mustard contamination.

Iraq is known to possess three toxic chemical agents:

Agent	Name	Type	Effects
HD	Sulfur Mustard	Persistent blister	Casualty
GA	Tabun	Semi-persistent nerve	Lethal
GB	Sarin	Non-persistent nerve	Lethal

Five other chemical agents are being developed for production or are possibly being produced:

Agent	Name	Type	Effects
GD	Soman	Semi-persistent nerve	Lethal
GF	N/A	Semi-persistent nerve	Lethal
VX	N/A	Persistent nerve	Lethal
BZ	N/A	Persistent	Incapacitating hallucinogen
CX	Phosgene Oxime	Blister	Casualty

Agent Mustard (HD) has been stockpiled in both liquid and "dust" forms. Dusty mustard penetrates permeable overgarments. Penetration is enhanced by the wind. Protective mask filters are effective against this agent.

Dusty agents are effective both through inhalation and on the skin. These agents are capable of penetrating deep into the lungs, resulting in greater effectiveness than liquid agent aerosols that can evaporate before deep penetration.

The main role of dusty agent is to cause casualties, not to contaminate terrain and equipment. Dusty agent particles tend to adhere to larger particles when they contact a terrain surface, reducing the impact of re-aerosolization. However, the rotor wash from helicopters landing in an area contaminated with dusty agents could contain hazardous quantities of dusty agent.

The particulate aerosol of "Dusty Mustard" is difficult to detect by standard means, which are designed to detect vapors. This may result in little or no warning of the hazard. Particles tend to collect in the moist body areas, and produce small rash-like dots which turn into blisters within 15-90 minutes.

Other agents may also have dusty versions.

Riot control agents (CS) are included in the Iraqi stockpile and were used in the Iran/Iraq War.

Chemical Weapons and Delivery Systems

Chemical Delivery by Aerial Bombs

Iraq has employed both nerve and blister agents by aerial bomb. Available chemical fills are HD (sulfur mustard), GA and GB (nerve agents). Bombs filled with more persistent agents (e.g. HD or GA) would be used to strike deep targets. However, nonpersistent nerve agent GB (Sarin) may be used for close air support of ground operations and in the enemy's rear.

The combat radius of the Iraqi aircraft that can deliver chemical agents depends on numerous factors, including aerial refueling capability, aircraft speed during the mission, bomb load, weapons configuration, and the sizes and types of other ordnance loaded on the aircraft. The maximum combat radius is approximately 800 nautical miles. Iraq has shown that it can adapt purchased weapons for chemical delivery, and that chemical weapons can be produced by Iraq. Aerial bombs with cluster munition fills may also be available for the delivery of chemical agents.

Artillery Ammunition

Chemical ammunition is available for virtually all calibers of artillery weapons in the Iraqi inventory. The 155-mm Austrian and South African guns in the Iraqi inventory are the preferred means of disseminating chemicals, although 122-mm MRLs were used extensively in the Iran-Iraq War.

GB (Sarin) a nonpersistent nerve agent, is the chemical agent of choice for artillery delivery. GB (Sarin) stays in the target area for periods of under a minute to 30 minutes under typical desert conditions depending on temperature and vapor concentrations. This residence time could be further reduced when the winds are strong. When forces are advancing rapidly, Sarin provides a quick-acting means to kill enemy personnel in the target area without inhibiting friendly options for maneuver.

Iraq may have used multiple rocket launcher (MRL) ammunition with greater payloads than that used in the BM-21. The warheads of the MRL ammunition have been changed to accept plastic containers filled with chemical agents. This allows the Iraqis to combine different chemical agents in the same munition, a procedure that makes decontamination and reconnaissance much more difficult. MRLs are a good choice as an area saturation weapon that is responsive to the commander's requirements.

Other Ammunition

Iraqi chemical agents have also been delivered by aerial spray. Iraqi SCUD and modified SCUD SRBMs may also be capable of delivering chemical agents. The Iraqis have adapted a number of conventional munitions for the delivery of chemical agents. Examples are the 250-kg white phosphorus bomb used to deliver mustard and nerve agents, 90-mm air-to ground rockets, and 122-mm artillery rockets which had been filled with chemical agents in plastic containers in the warheads. The potential exists for the filling of submunition warheads and bombs. Other short range weapons with chemical fills may also be available, such as mortars. Iraq may also possess chemical mines.

Fuel Air Explosives

Although not technically a chemical weapon, fuel air explosives (FAE) are unusually effective, but are largely unknown in the U.S. Army. These weapons, normally air delivered but capable of delivery by MRL systems, create a cloud which, when ignited, explodes with tremendous force — several times the force of equivalent weight conventional explosives.

Further, the effects are enhanced by the total coverage of the impacted area, to include penetration of structures, as with any vapor. When ignited, the force of the explosion creates pressure waves in excess of 200± psi within the structure. Lethal overpressure for human beings is approximately 40 psi. The explosions of grain elevators in the American Midwest are essentially FAE disasters. We believe the Iraqi army has used these weapons, and will use these weapons to target headquarters or fortified installations.

Offensive Employment

Chemical weapons are an integral part of corps or lower level offensive plans. Chemical munitions are normally stored in central national locations until immediately prior to offensive operations, when they are transferred to corps or division sectors. However, prepositioning of chemical munitions closer to a theater of operations can not be ruled out.

During offensive operations, nonpersistent agents are used against selected front-line positions, normally those positions located along the main attack axis. Chemical fires will be included in the conventional artillery prep to mask their use. Nonpersistent agents will also be used to facilitate the movement of friendly troops.

Chemical agents may be employed with smoke rounds. Persistent chemical agents are used against command posts, artillery units, logistic facilities, airfields, reserve/counterattack forces, and

populations centers. Iraqi chemical fires are normally force oriented. The Iraqis will protect their flanks using persistent chemical agents by directly contaminating a unit that can threaten a flank.

Iraqi losses because of their employment of chemical weapons are expected and accepted.

Two or more chemical agents may be employed against a single target to complicate detection and casualty treatment. The mixture of nerve and blister agents will create both immediate and delayed casualties.

Defensive Employment

In the defense, nonpersistent chemical agents may be used as assault breakers. As the enemy force reaches the defensive obstacle system, a nonpersistent agent may be fired to break the assault and create immediate casualties.

Persistent chemical agents are used as a terrain denial weapon by Iraqi troops when retreating. The Iraqi military also uses chemical agents to protect their flanks by firing them into an exposed flank to shield the flank against attacks.

In a rapidly fluctuating tactical environment, the corps or division commander will probably have the authority to employ chemical weapons if they are in imminent danger of being overrun or defeated.

4. NBC DEFENSE

Chemical Defense Troops

Chemical defense units are organic to all combat formations from corps to brigade. The corps chemical defense company has the mission to conduct personnel and equipment decontamination, NBC reconnaissance, and may have a flame mission/capability.

The division chemical defense company is organized with four subordinate platoons:

- service and supply
- vehicle decontamination
- weapons/equipment decontamination
- NBC reconnaissance

Brigade chemical platoons have NBC reconnaissance and decontamination sections.

NBC defense equipment in the chemical defense units are mainly of Soviet manufacture. Tables of organization and equipment are probably similar to Soviet chemical defense units. The decontamination units are equipped with the DDA-53/66 series and the ARS-12/14 series decontamination trucks. The NBC reconnaissance units use a mixture of GAZ-66 medium trucks and BRDM-2RKh vehicles.

NBC Reconnaissance

Soviet techniques may be used.

The Iraqis use the BRDM-2RKh vehicle, which is a chemical reconnaissance version of the BRDM-2. This vehicle carries a GSA-12 automatic chemical detector and a TNA-3 inertial navigation device. It also has a warning flag dispenser.

Decontamination Procedures

Soviet techniques may be used.

The following decontamination apparatuses are available:

DDA-53/DDA-66 Series

These are truck mounted decontamination apparatuses. These vehicles consists of two steam chambers, a vertical boiler, fuel tank, water pump, formaldehyde tank, and a 12-head shower unit. There is no organic water on this vehicle. The apparatus uses steam for decontamination, however, decontaminants can be added to the steam if necessary. The system can decontaminate between 40-80 uniforms per hour. The main difference between the -53 and -66 versions are the boiler and steam chambers on the -66 are enclosed.

ARS-12/ARS-14 series

These are truck mounted decontamination apparatuses. The ARS-12 vehicle consists of a 2500 liter tank and a self priming pump. Decontaminants are mixed in the tank and can be applied by several means. A wide spreading nozzle is mounted on the truck (at the rear for the -12 and both front and back for the -14) to apply the decontamination solution to a roadway or terrain.

A full tank of decontamination solution can decontaminate a strip 500 meters long by 5 meters wide. Eight 18 meter hoses with spray heads can be used to decontaminate vehicles and equipment. Up to four vehicles can be decontaminated at any one time. A full tank of decontamination solution can decontaminate 12 MBTs, 13

APCs, 15 trucks, or 45 artillery pieces. To decontaminate buildings, four 25 mm hoses are provided. The ARS-14 is a product improvement of the ARS-12.

DDP-1

This is a trailer mounted decontamination apparatus. This trailer is similar to the DDA series decontamination apparatus. The apparatus consists of a vertical boiler, one steam chamber, and a portable shower unit. The system can decontaminate between 20-40 uniforms per hour.

Protective Measures

Medical personnel are well trained, well equipped, and sufficient in number to handle the chemical casualties they are able to treat. However, the Iraqi military does not evacuate its casualties during a battle. As a result, a higher percentage of Iraqi soldiers die from their wounds before receiving medical attention. This reduces the number of casualties the medical units must treat.

The forward medical point provides initial care. The brigade medical point is located approximately 20 kilometers to the rear, and provides a larger, better equipped medical facility which can provide limited surgical procedures. A complete medical field hospital in the division rear administrative area is located approximately 40-60 kilometers behind the FEBA.

Each Iraqi soldier is provided with an unidentified Soviet-style protective mask, gloves, two-piece protective suit, and decontamination kit. Included in each kit is a spring-loaded, pressure sensitive atropine injector and an unidentified decontamination agent for use against blister chemical agents (such as mustard).

The principal type of chemical-protective suit used by Iraqi military is a Soviet-made impermeable butyl rubber suit of a 1970s vintage.

The Iraqis are probably using the Soviet-made Schlem mask of 1970s technology. This mask is also made of butyl rubber, and fits over the chin in the front and down to the hairline in the back. Although of older technology, the mask is effective against chemical attack.

5. NBC TRAINING

Unit Training

Ground troops appear to be well trained in NBC defense and are confident in the use of their equipment. Practical experience has been gained during the Gulf War while operating in an NBC environment.

Chemical Defense Officer Training

Iraqi officers originally were trained in NBC in the Soviet Union according to Soviet doctrine. Utilization of chemical weapons as a force multiplier is taught in the Iraqi Staff College and evolved from a strategic role to a more conventional role.

6. CONCLUSION

The Iraqi CW threat is serious. Iraqi forces are well prepared for chemical warfare, even in the heat of the desert, and have demonstrated no compunction about using chemical weapons against either military or civilian targets.

Iraqi forces would be highly likely, if not virtually certain, to use chemical weapons in any defensive situation where they were being pushed back. Iraqi forces would be highly likely to use chemical weapons as an integral part of any offensive. Once Iraqi forces begin using chemical weapons, they would probably be willing to use their entire chemical arsenal.

CHAPTER 15

DIRECTED ENERGY WARFARE

The Iraqi laser threat is assessed as low. Currently available U.S. laser eye protection devices are judged adequate to protect personnel. Iraq has several hundred laser rangefinders and laser target designators that could possibly threaten close-in ground troops. These units can cause eye or sensor damage. The maximum damage range in the daytime is:

- 1 km for eyes (dazzles to 2 km)
- 3 km for sensors

Most of these devices are useless against aircraft and aircrews because of the physical mounting of the laser. Damage range is reduced by dust but is increased at night or when optics such as binoculars are used.

While the probability of equipment or eye damage is low, some laser effects, such as dazzle or illumination of cockpit canopies, may be observed. Illumination well below hazard levels can produce significant canopy glare which may cause confusion and obscure the target.

CHAPTER 16

COMBAT SERVICE SUPPORT

1. PRINCIPLES OF LOGISTICS OPERATIONS

The supply doctrine practiced by the Iraqi Army is the principle of "drawing," in line with British doctrine. According to this principle, each level, from brigade up to corps inclusive, draws supplies from the higher level.

At the GHQ level, however, the Soviet principle of "pushing" is used. Supplies are pushed from rear GHQ depots to forward GHQ depots by GHQ transportation assets. The corps will draw supplies from forward GHQ depots.

These principles for drawing/pushing supplies function in a flexible manner so that, for example, a corps level transport vehicle could travel to a meeting point and transfer provisions to a brigade vehicle.

The logistics system is based on the principle of granting logistics independence to the formations for lengthy periods, even when the units are deployed at considerable distances from GHQ logistics areas.

Inventory located in a special forces brigade is intended to supply provisions for 8 days. Stockpiles dispersed in the combat area and the transport area may contain supplies for as much as 40 days.

Level	Days of Supply
Individual/battalion	1 day
Brigade	1-2 days
Division	1-2 days
Corps	3 days
Total in Corps	6-10 days
GHQ Trans Area	26-30 days
Total in Theater	32-40 days

With the exception of artillery ammunition, division and brigades in alert status keep all supplies uploaded.

2 STRUCTURE, ORGANIZATION, AND OPERATION OF THE LOGISTICS AREA

General

The logistics organization in support of the combat echelon is based on an "area" which is divided into two parts:

- The combat area, which includes the area from the forward line of contact to the corps area.
- The transport area, which extends behind the corps main battle area.

The Combat Area

Maintenance facilities belonging to the combat echelon (from brigade to corps level) are set up behind ground shelters in the administrative rear area of their particular level.

Doctrinally, a distance of up to 60 kilometers separates the administrative area of one combat echelon from that of the echelon above it. The actual distance is determined with the purpose of facilitating night transportation. This includes travel to the higher echelon, loading, return, and unloading.

The command quartermaster at each level is in charge of the administrative area at that level.

Supply Stockpiles

Supply stockpiles are divided as follows:

- Active stockpiles
- Combat reserves or operational reserves
- Repair stockpiles

Active stockpiles serve current maintenance of the forces. Their inventory is intended to keep the combat forces stocked up for the duration of 1 day. The quantity of supplies inventory in these stockpiles is called a "maintenance day."

Combat reserves or operational reserves are supply stockpiles prepared in advance to serve the combat units before and during combat.

Repair stockpiles are small inventories of arms and equipment (such as vehicles, guns, and small arms, etc.) for replacing damaged and malfunctioning equipment.

Inventory Distribution

The distribution of inventory levels is designated as follows:

- Front line
- Second line
- Third line
- Fourth line

The front line supplies inventory is located in the vehicles and the inventory at the battalion and brigade level. The second line supplies inventory is in the division rear. The third line supplies inventory is in the corps maintenance area ("Lacking Items Supply Depot") and in GHQ depots in the forward transportation area. The fourth line supplies inventory is in the GHQ depots.

In the brigade and division rear, supply is accumulated for 1-2 days at each echelon and is often termed "daily maintenance."

3. DIVISION SUPPLY SYSTEM

The division is the basic formation in the Iraqi army. It incorporates all the logistics echelons necessary to ensure its operational readiness.

Rear Administrative Area

The rear administrative area (RAA) is located in the division rear, out of enemy artillery range, in an area which provides suitable cover and concealment and is near the lines of communication. The RAA is secured by troops from the division commando force, the reconnaissance battalion, or the air defense regiment. Composition of the security force depends upon the threat.

The RAA includes one distribution point for each brigade and other units organic or attached to the division, where vehicles loaded with ammunition, fuel, food, and equipment are parked during combat operations. The number of distribution points and the distance between them are determined based on the deployment methods of the units in the field. Also in the RAA are mobile workshops and administrative organizations of the division maintenance units.

The distribution points are operated by an office called the "Regulation Center." Their function is to collect information regarding the supply situation, regulate supply flow to the distribution point, and supervise the approach routes.

Forward Administrative Area

The forward administrative area (FAA) is located behind the division's artillery battalions, close enough to expedite resupply. The FAA is normally configured in a rectangular shape and organized into battalion areas. Each battalion area is further subdivided according to the class of supply or type of ammunition. Supplies are transported from the RAA to the FAA and distributed to the battalions according to need. During resupply operations, trucks are dedicated for the sole purpose of shuttling supplies and ammunition from one supply echelon to another.

Brigade Level Logistics

A workshop, a medical field unit and a supply and transport company, which draws supplies from a division distribution point are located at a brigade logistics area.

An administrative area is established for independent brigades under the command of the brigade quartermaster officer. It functions in the same manner as a division administrative area.

Battalion Level Logistics

Each battalion submits requisitions to the FAA. The FAA in turn requests resupply from the RAA, which transports the supplies to the FAA, where they are distributed to the battalions. The battalions transport the supplies forward in their organic vehicles. The trucks park behind the positions of the forward units. The forward units, apparently down to gun crew level, retrieve their own supplies and carry them to their locations.

Basic Loads

The individual soldier carries 1 day's supply of ammunition, rations, and water. The daily basic load of ammunition for an infantryman is 120 rounds of rifle ammunition. Platoon through brigade each carry 3 day's basic load; division carries 5 days. Each echelon replenishes basic loads daily.

4. SUPPLY AND TRANSPORTATION OPERATIONS

General

The divisional supply and transportation HQ establishes supply sites where it stores ammunition, fuel, food, and equipment (during an alert/war, the supplies are stored/loaded in trucks). These supply sites are located in sheltered areas near movement axes. The brigades then draw supplies from these sites using their own trucks for this purpose.

The division supply site is divided into separate areas so that all supplies for each brigade are concentrated in one area, with separation between types of supplies. A separate area is allocated to all other units operating within the divisional framework. These areas are usually located approximately 10 to 15 kilometers behind the front lines in order to keep them out of enemy artillery range and are bermed for added protection.

For each brigade, the following supply points are established:

- ammunition supply point
- fuel supply point
- food supply point
- equipment supply point

Ammunition Supply

Artillery brigades and groups on the move are allocated trucks loaded with ammunition which move behind these units.

Artillery ammunition is stockpiled near artillery positions; however, the presence of excess ammunition must be avoided.

Fuel Supply

Fuel stores at various echelons include fuel already on the vehicles including fuel in the main tanks and in spare containers. In most vehicles this capacity suffices for approximately 250 kilometers of travel. It also includes fuel stores at battalion and brigade levels known as "first line reserve supply." These stores suffice for 150 kilometers of travel. It includes additionally fuel stores at division level known as "second line reserves." These supplies suffice for approximately 100 kilometers of travel.

Water Supply

The Engineer Directorate is guided by the Quartermaster General Directorate and is responsible for allocating technical equipment required for exploring, pumping, and purifying water. The Engineer Directorate has to prepare and operate three water points for each divisional sector.

The Medical Services Directorate is responsible for testing all water sources and providing guidance regarding purification methods.

5. MAINTENANCE AND EVACUATION SYSTEM

The Maintenance System - Electrical and Mechanical Engineering

The armored fighting vehicle/vehicle maintenance organization is divided among the following echelons:

First Echelon

First line squads are located at the brigade level and at independent units subordinated directly to the division. They perform light to medium repairs. In the brigade, repair squads are allotted to brigade headquarters, the battalions, and to secondary units such as the transport company.

Second Echelon

Second line workshops also known as field workshops, are at division level. These workshops are mobile and carry out repairs at the medium level. A divisional workshop could send front line repair squads as support to first line squads in the brigades subordinated to it. Additionally, a repair squad is allocated to the division HQ.

Third Echelon

Third line workshops are also called basic medium workshops. These GHQ workshops carry out repairs beyond the capability of the divisional workshops. Third line workshops are subordinated in wartime to the corps level where there will be a corps workshop and additional workshops according to the number of divisions in the corps.

Fourth Echelon

Fourth line workshops (depot) are workshops at the GHQ level which carry out complicated repairs and overhaul of AFVs and other vehicles.

The GHQ electrical and mechanical engineering administration establishes field workshops and medium workshops along the lines of communication leading from the rear to the front. Their roles are to provide assistance, when required, to second and third line workshops at the combat echelon, and repair of armored fighting vehicles and other vehicles which break down along the way.

Recovery and Evacuation

Priority for recovery in combat is given to damaged armored fighting vehicles and other vehicles which can be repaired speedily.

As a general rule, "empty" vehicles returning to the rear carry wounded soldiers or damaged equipment. Vehicles are evacuated to the echelon which repairs the amount of damage sustained; light, medium or heavy.

6. TRANSPORTATION SUPPORT OF LOGISTICS

Transportation Company, Supply and Transportation Battalion, Division

A transportation company consists of a headquarters, three (or more) supply and transport platoons, a mixed platoon (or part of a platoon), and a repair squad (attached from the electrical and mechanical engineer section).

In practice, in an armored or mechanized infantry brigade, there are 60 to 120 trucks with a capacity of 3 to 5 or 3 to 10 tons. Additionally, there are two tankers in every company.

Each transport company is capable of delivering a brigade's supply requirement for each day.

Mixed Transport Platoon

The mixed transport platoon consists of three ammunition and fuel squads, and a food and equipment squad. The authorized manpower in the platoon consists of 1 officer, 2 warrant officers, 29 NCOs, and 14 soldiers. The role of the mixed platoon is the transport of supplies to units in the brigade that are not able to reach the brigade distribution point.

Each transportation platoon is authorized 33 trucks with a capacity of 3 to 5 tons each, 3 of them in reserve. There are also additional vehicles for administrative use of the platoon. Platoons which work with armored and mechanized infantry brigades also have two fuel tankers.

Transportation Company, Supply and Transportation Administration

A transportation company of the supply and transportation administration consists of 30 vehicles with a load capacity of 5 tons each, excluding heavy transport companies, in which there are vehicles with load capacities of 10 tons. In addition, there are fuel transport companies.

Additional Military Transport Means

When required, the supply and transportation administration makes use of aircraft, helicopters, and river vessels for transferring supplies to the units.

Helicopters have also been used to move large numbers of troops.

Civilian Transportation Potential

There is a large number of civilian trailers and heavy equipment transporters which could be used to transport tanks and APCs. The large scale construction projects for highways, railways, and pipelines have required civilian use of heavy-lift trailers.

Railroads

The Iraqis have a well developed rail system available for military transport and resupply.

It is estimated that Iraqi trains can average about 20 to 30 kph. Some lines have been engineered for 100 kph but this would be a maximum speed and probably could not be maintained. How many armored vehicles can be carried on each Iraqi flat car is not known. A fair estimate would be one or two APCs or one main battle tanks per car.

Wheeled Vehicles

Iraqi convoys usually travel at night, normally guarded by mobile antiaircraft weapons. There is no information available about ground security for convoys moving through secure territory, but it is believed that few guards are used on these convoys.

7. MEDICAL

Most of the divisions and corps contain a medical battalion. This battalion provides basic health service support for units in its support area and for its parent unit. The battalion has 21 ZIL-157 trucks, 9 hospital vans used for surgery and recovery, and 20 ambulances.

Medical supples and equipment for the military comes from a wide variety of sources. The USSR and Eastern Bloc countries supply the majority of supplies, but substantial amounts of materiel come from western countries. Medical materiel production in Iraq is limited to pharmaceuticals and intravenous apparatuses. The military depends solely on civilian sources for its supply.

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