

HOW THEY FIGHT
DESERT SHIELD

ORDER OF BATTLE
HANDBOOK

September 1990

This Order of Battle Handbook supersedes Field
Order of Battle Handbook (Interim Supplement, August 1990).

Purpose of this Handbook

This handbook was produced by the United States Army Intelligence and Threat Analysis Center (USAITAC) under the auspices of the United States Army Intelligence Agency (AIA), and has been designed as a ready reference at the unclassified level to encourage the widest possible dissemination of information. Although primarily a stand-alone document, this handbook is intended to complement the AIA's handbook *Identifying the Iraqi Threat and How They Fight*, August 1990, that was distributed to the troops participating in the Operation Desert Shield. The *How They Fight Desert Shield Order of Battle* handbook contains valuable basic information; however, if more complete information is required, other reference sources should be consulted.

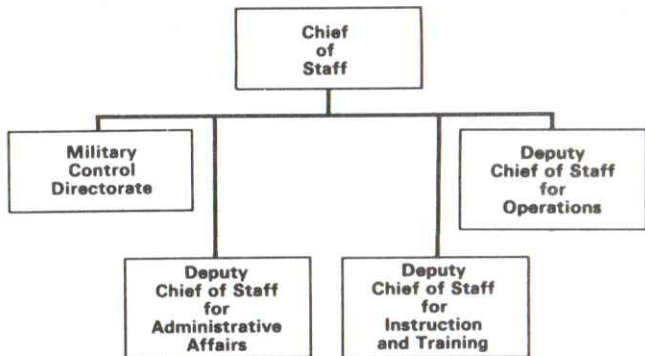
The USAITAC wishes to thank the Defense Intelligence Agency for its responsive support and assistance in the research and production of this handbook.

The USAITAC also extends its gratitude to Jane's Information Group for granting release of the materiel characteristics, specifications, and illustrations used in this handbook. The preponderance of data used was taken from the following volumes: *All the World's Aircraft (1989-1990)*; *Armour and Artillery (1989-1990)*; *Armour and Artillery (1981-1982)*; *Armoured Fighting Vehicle Systems (1989-1990)*; and *Land-Based Air Defense (1989-1990)*.

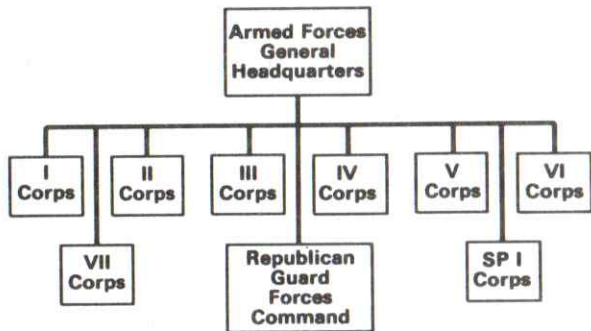
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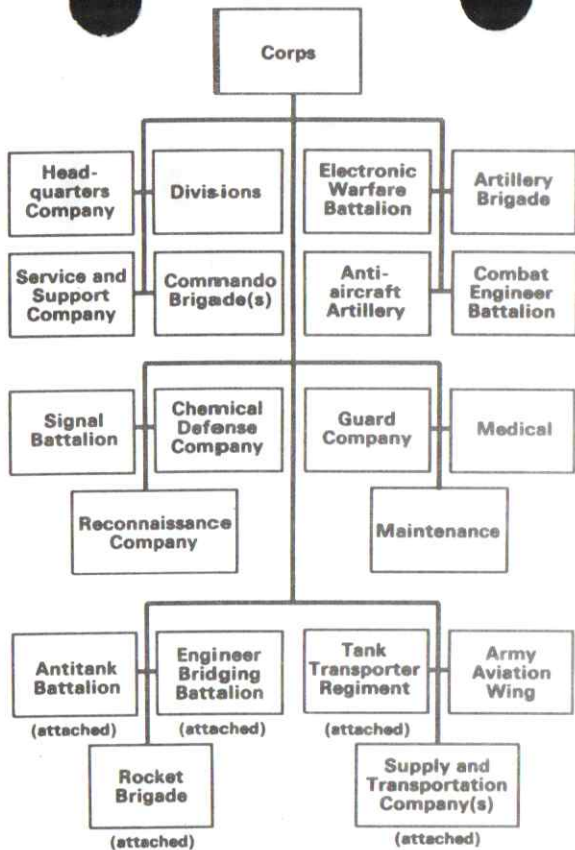
**ORGANIZATION
CHARTS**



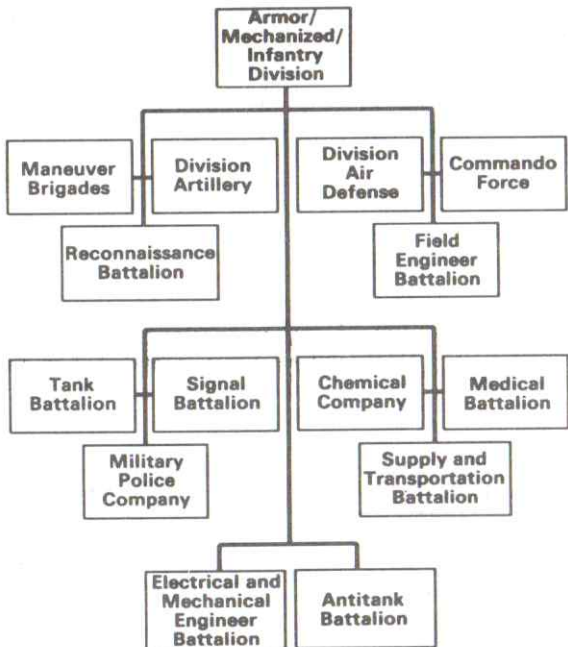
Iraqi General Headquarters Organization



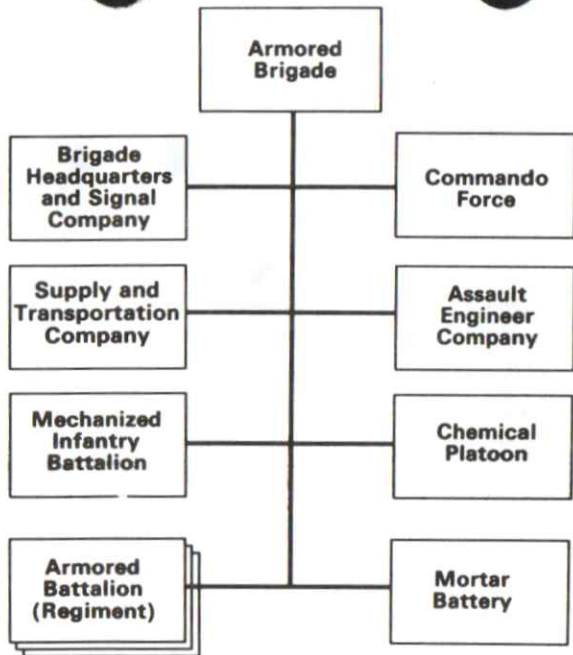
Iraqi General Headquarters/Corps Command Relationships



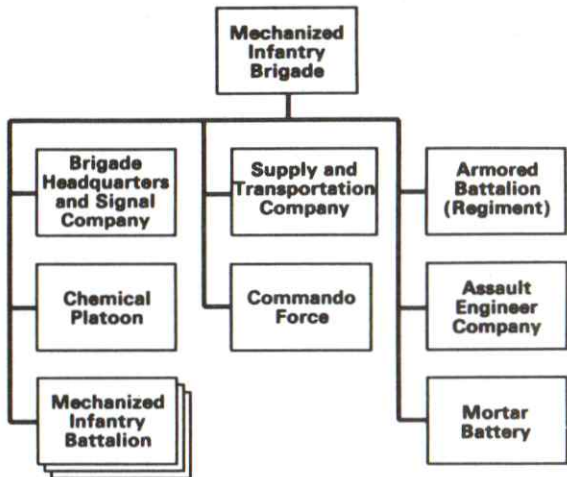
Iraqi Corps Organization



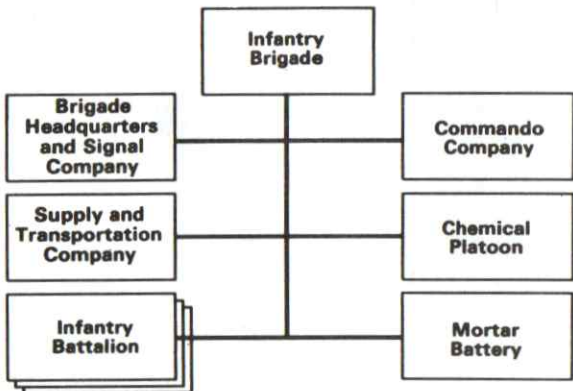
Divisional Organization



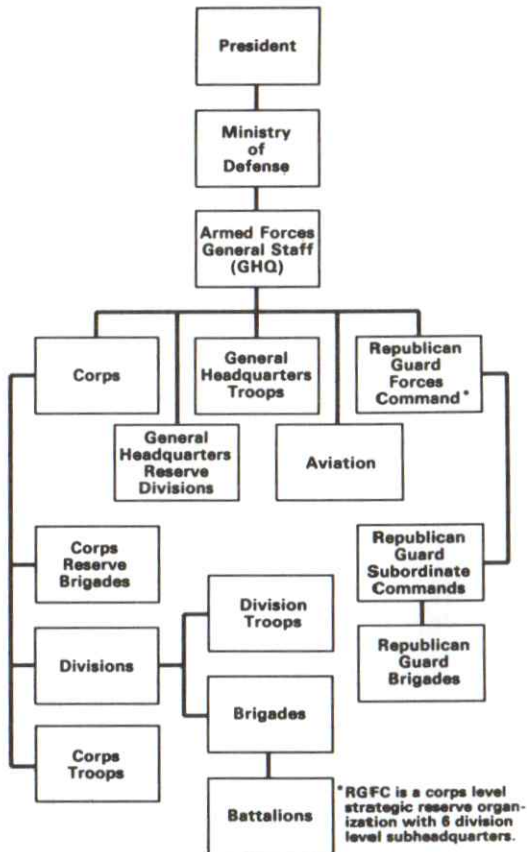
Armored Brigade Organization



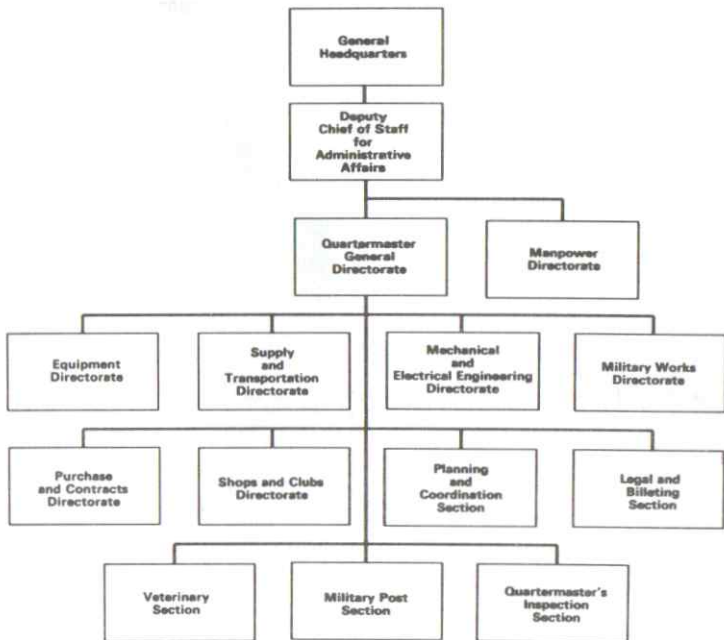
Mechanized Infantry Brigade Organization



Infantry Brigade Organization



Chain of Command -- Iraqi Army



General Headquarters Logistics Organization

























OFFICER RANK INSIGNIA RECOGNITION*

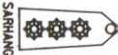



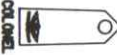







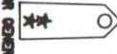

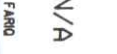


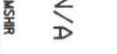



* Insignia Recognition for Yemen Arab Republic and Yemen People's Democratic Republic reflect data available prior to unification; any changes to these insignia were unavailable at press time.
















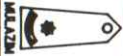




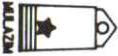
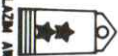



MIDDLE EAST & NORTH AFRICA


























Officers Military Rank Insignia Recognition



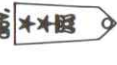









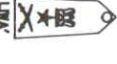

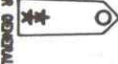


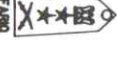
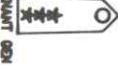







(Ground, Air, and Naval Forces)


























United States	 2D LIEUTENANT	Algeria	 MLAZIM THANI	Bahrain	 MLAZIM THANI	Egypt	 MLAZIM	Iran	 SETVAN  SETVAN DOVOM
1ST LIEUTENANT	CAPTAIN	 MLAZIM AMVAL	 MLAZIM AMVAL	 MLAZIM AMVAL	 SETVAN MEKOM				
MAJOR	LT COLONEL	 NAOIB	 NAOIB	 NAOIB	 SARVAN				
 MAJOR	 RAYD	 RAYD	 RAYD	 SARCOOD					
 LT COLONEL	 MLOQODAM	 MLOQODAM	 MLOQODAM	 SARHANG DOVOM					

				
				
				
			N/A	
			N/A	
				



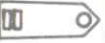
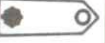
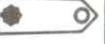





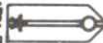




United States	 GSGR1	 LEUTENANT AIRMAN GRADE	 LEUTENANT	 LEUTENANT COMMANDER	 COMMANDER
Iraq	 MLAZM	 MLAZM AMVAL	 MAOS	 RAYD	 MLOAQDAM
Israel	 SERGH-MSHNEH	 SERGH	 SERGH	 RAY-SERGH	 SGAN-ALLIF
Jordan	 MLAZM	 MLAZM AMVAL	 MAOS	 RAYD	 MLOAQDAM
Kuwait	 MLAZM	 MLAZM AMVAL	 MAOS	 RAYD	 MLOAQDAM






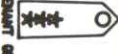

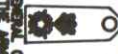

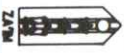
United States	 SERGEANT	 LEUTENANT JUNIOR GRADE	 LEUTENANT	 LEUTENANT COMMANDER	 CAPTAIN
Lebanon	 MEJAZM	 MEJAZM AMVAL	 RAJTS	 RAYD	 MEJADJAM
Libya	 MEJAZM	 MEJAZM AMVAL	 NAJBS	 RAYD	 MEJADJAM
Morocco	 SERGEANT DE VASSEAU	 SERGEANT DE VASSEAU F.M. CLASSE	 LEUTENANT DE VASSEAU	 CAPTANE DE CORVETTE	 CAPTANE DE FREGATE
Oman	 MEJAZM THANI	 MEJAZM AMVAL	 NAJBS	 RAYD	 MEJADJAM

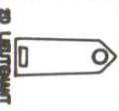
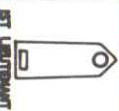
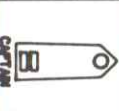
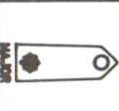
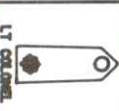
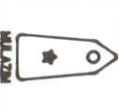
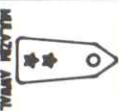
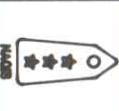
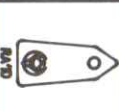
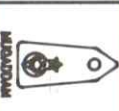
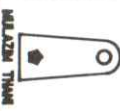
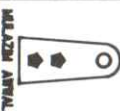
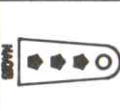
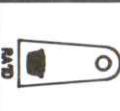
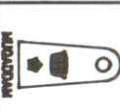
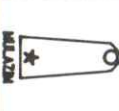
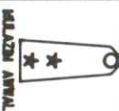
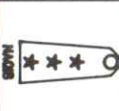
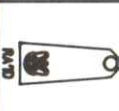
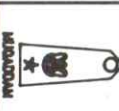

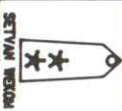
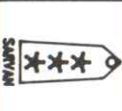
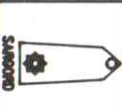
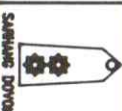
COLONEL 	COLONEL COLONEL MAJOR 	COLONEL 	COLONEL 	COLONEL 
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GENERAL DE DIVISION 	GENERAL DE DIVISION 	GENERAL DE DIVISION 	GENERAL DE DIVISION 	MAJOR GENERAL 
GENERAL DE CORPS D'ARMEE 	GENERAL DE CORPS D'ARMEE 	GENERAL DE CORPS D'ARMEE 		LEUTENANT GEN 
GENERAL D'ARMEE 	GENERAL D'ARMEE 		GENERAL 	GENERAL 
MAIRCHAL 	MAIRCHAL 			GENERAL OF THE ARMY 

United States	 2D LEUTENANT	 1ST LEUTENANT	 CAPTAIN	 MAJOR	 1LT COLONEL
Saudi Arabia	 MELAZM THAM	 MELAZM ARVAL	 NAOBS	 RAYD	 MADODAM
Syria	 MELAZM	 MELAZM ARVAL	 NAOBS	 RAYD	 MADODAM
Tunisia	 SOUS-LEUTENANT	 LEUTENANT	 CAPTAINE	 COMMANDANT	 LEUTENANT COLONEL
United Arab Emirates	 MELAZM THAM	 MELAZM ARVAL	 NAOBS	 RAYD	 MADODAM


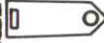























		COLONEL AArF					
		BRIGADIER GEN AArF					
		MAJOR GENERAL AArF					
		LIEUTENANT GEN AArF					
		GENERAL AArF					
		GENERAL OF THE ARMY AArF					
		MAJOR GEN AArF					
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		MAJOR GEN AArF					


























United States	 2D LEUTENANT	 1ST LEUTENANT	 CAPTAIN	 MAJOR	 1LT COLONEL
Yemen Arab Republic	 MELZER THAM	 MELZER ANWAL	 MAJOR	 RA'ID	 MELZODAM
Yemen, People's Dem. Republic	 MELZER THAM	 MELZER ANWAL	 RA'IS	 WAZEL QAYD	 QAYD


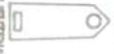











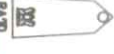











									
									




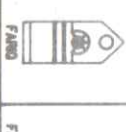
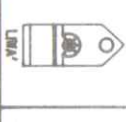

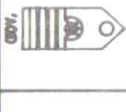






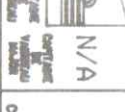



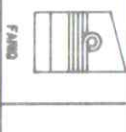
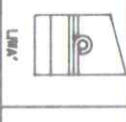
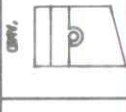





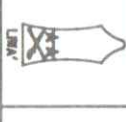







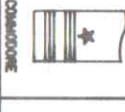

United States	 2D LIEUTENANT	 1ST LIEUTENANT	 CAPTAIN	 MAJOR	 LT COLONEL
Algeria	 MELZEM	 MELZEM AHWAL	 MAJORS	 RAYD	 MELZEM
Bahrain	 MELZEM THAM	 MELZEM AHWAL	 MAJORS	 RAYD	 MELZEM
Egypt	 MELZEM	 MELZEM AHWAL	 MAJORS	 RAYD	 MELZEM
Iran	 SETYAN SETYAN DOVON	 SETYAN AHWAL	 SARVAN	 SARROD	 SARVAN DOVON


























MAJORSIA YEKOR		'FARD	N/A			CAPTAIN	
DARTYADAR		'FARD	N/A			COMMODORE	
DARTYADAR		'FARD	N/A			REAR ADMIRAL	
		'FARD				VICE ADMIRAL	
		'FARD				ADMIRAL	
		'FARD				FLEET ADMIRAL	









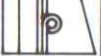








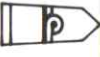
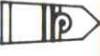






United States	 20 LEUTENANT	 1ST LEUTENANT	 CAPTAIN	 MAJOR	 1T COLONEL
Iraq	 MILAZIM	 MILAZIM ARWAL	 NAQIB	 RAYD	 MUQADDAM
Israel	 SEGEN-MISHNEH	 SEGEN	 SEREN	 RAY-SEREN	 SGAN-ALUF
Jordan	 MILAZIM	 MILAZIM ARWAL	 NAQIB	 RAYD	 MUQADDAM
Kuwait	 MILAZIM	 MILAZIM ARWAL	 NAQIB	 RAYD	 MUQADDAM


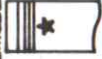







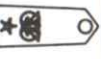
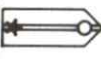
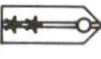



 GENL	 ADM	 ADMIRAL	 ADMIRAL	 CAPTAIN
 COMDR	 COMDR	 COMDR	 COMDR	 COMMANDER
 LINA	 LINA	 LINA	 LINA	 REAR ADMIRAL
 FADM	 FADM		 FADM	 VICE ADMIRAL
	 FADM AIRVAL		 FADM AIRVAL	 ADMIRAL
	 MADMIR		 MADMIR	 FLEET ADMIRAL







United States	 2D LIEUTENANT	 1ST LIEUTENANT	 CAPTAIN	 MAJOR	 LT COLONEL
Lebanon	 MELAZN	 MELAZN ARVAL	 RA'YS	 RA'YD	 MAJDOOAN
Libya	 MELAZN	 MELAZN ARVAL	 NA'OS	 RA'YD	 MAJDOOAN
Morocco	 SOUS-LIEUTENANT	 LIEUTENANT	 CAPITAINE	 COMMANDANT	 LIEUTENANT COLONEL
Oman	 MELAZN THAM	 MELAZN ARVAL	 NA'OS	 RA'YD	 MAJDOOAN






















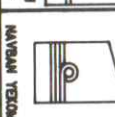




 MASTER	 FLEET ADMIRAL	 ADMIRAL	 VICE ADMIRAL	 REAR ADMIRAL	 COMMODORE	 CAPTAIN
		 ADMIRAL	 VICE-ADMIRAL	 ADMIRAL	 COMMODORE-ADMIRAL	 N/A ADMIRAL VICE ADMIRAL REAR ADMIRAL
						
						
						































<p>United States</p>	 ENSIGN	 LIEUTENANT JUNIOR GRADE	 LIEUTENANT	 LIEUTENANT COMMANDER	 COMMANDER
<p>Saudi Arabia</p>	 MEALZM THAM	 MEALZM ANVAL	 NAQOB	 RA'YD	 MIQADDAIM
<p>Syria</p>	 MEALZM	 MEALZM ANVAL	 NAQOB	 RA'YD	 MIQADDAIM
<p>Tunisia</p>	 VASSEAU DE CLASSE	 VASSEAU DE CLASSE	 LIEUTENANT DE VASSEAU	 CAPITAINE DE CORVETTE	 CAPITAINE DE FREGATE
<p>United Arab Emirates</p>	 MEALZM THAM	 MEALZM ANVAL	 NAQOB	 RA'YD	 MIQADDAIM


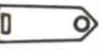
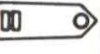

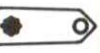











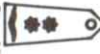








	CAPTAIN		COMODORE		REAR ADMIRAL		VICE ADMIRAL		ADMIRAL		FLEET ADMIRAL
	'A00		'A00		'A00		'A00		'A00		
	'A00				'A00		'A00		'A00		
	CAPTAIN DE VASSEAU		COMTE-AMIRAL		VICE-AMIRAL		VICE-AMIRAL DE CLASSE				
	'A00		'A00		'A00		'A00		'A00		






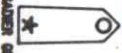

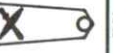





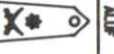

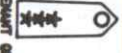


















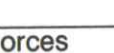
United States	 SERGEANT	 LEUTENANT JUNIOR GRADE	 LEUTENANT	 LEUTENANT COMMANDER	 COMMANDER
Yemen Arab Republic	 MAJAZH THAM	 MAJAZH AMVAL	 MAJAZH	 RAT'D	 MAJAZHAM
Yemen, People's Dem. Republic	 MAJAZH THAM	 MAJAZH AMVAL	 RAT'S	 RAT'D RAT'D	 RAT'D


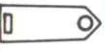

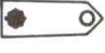
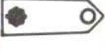




















		 CAPTAIN	 COMMODORE	 REAR ADMIRAL
		 VICE ADMIRAL	 ADMIRAL	 FLEET ADMIRAL















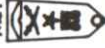











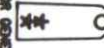
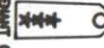
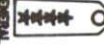



















United States	 ENSIGN	 LIEUTENANT JUNIOR GRADE	 LIEUTENANT	 LIEUTENANT COMMANDER	 COMMANDER
Algeria	 MIAZIM	 MIAZIM ARVAL	 NAQIB	 RA'YD	 MIAQADDAM
Bahrain	N/A  MIAZIM THANI	N/A  MIAZIM ARVAL	N/A  NAQIB	N/A  RA'YD	N/A  MIAQADDAM
Egypt	 MIAZIM	 MIAZIM ARVAL	 NAQIB	 RA'YD	 MIAQADDAM
Iran	 NAYBAN ESYOM  NAYBAN DOYOM	 NAYBAN YESOM	 NAVSARVAYAN	 NAKHODA SEYOM	 NAKHODA DOYOM


























 COLONEL	 BRIGADIER GEN	 MAJOR GENERAL	 LIEUTENANT GEN	 GENERAL	 GENERAL OF THE AIR FORCE
 CAPTAIN	 MAJOR	 LIEUTENANT COL	 COLONEL	 MAJOR GENERAL	 GENERAL OF THE AIR FORCE
 MAJOR	 CAPTAIN	 LIEUTENANT COL	 COLONEL	 MAJOR GENERAL	 GENERAL OF THE AIR FORCE
 CAPTAIN	 MAJOR	 LIEUTENANT COL	 COLONEL	 MAJOR GENERAL	 GENERAL OF THE AIR FORCE
 MAJOR	 CAPTAIN	 LIEUTENANT COL	 COLONEL	 MAJOR GENERAL	 GENERAL OF THE AIR FORCE











































United States	 20 LEUTENANT	 1ST LEUTENANT	 CAPTAIN	 MAJOR	 1 ST COLONEL
Iraq	 MILJ20R	 MILJ20R AVN/L	 MILJ20R	 MILJ20	 MILJ20D/M
Israel	 S00G-HSHCHEN	 S00G	 S00G	 RAV-S00G	 S00M-ALIF
Jordan	 MILJ20R	 MILJ20R AVN/L	 MILJ20R	 MILJ20	 MILJ20D/M
Kuwait	 MILJ20R	 MILJ20R AVN/L	 MILJ20R	 MILJ20	 MILJ20D/M


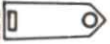













	COLONEL		MAJOR GENERAL		LEUTENANT GEN		GENERAL		GENERAL OF THE AIR FORCE
	BRIGADIER GEN		MAJOR GENERAL		LEUTENANT GEN		GENERAL		GENERAL OF THE AIR FORCE
	COLONEL		MAJOR GENERAL		LEUTENANT GEN		GENERAL		GENERAL OF THE AIR FORCE
	BRIGADIER GEN		MAJOR GENERAL		LEUTENANT GEN		GENERAL		GENERAL OF THE AIR FORCE
	COLONEL		MAJOR GENERAL		LEUTENANT GEN		GENERAL		GENERAL OF THE AIR FORCE
	BRIGADIER GEN		MAJOR GENERAL		LEUTENANT GEN		GENERAL		GENERAL OF THE AIR FORCE
	COLONEL		MAJOR GENERAL		LEUTENANT GEN		GENERAL		GENERAL OF THE AIR FORCE















































































United States	 2D LIEUTENANT	 1ST LIEUTENANT	 CAPTAIN	 MAJOR	 LT COLONEL
Lebanon	 MEJAZH	 MEJAZH ARVAL	 RAYS	 RAYD	 MEJAZH RAYD
Libya	 MEJAZH	 MEJAZH ARVAL	 NAJIBS	 RAYD	 MEJAZH RAYD
Morocco	 SENS-LIEUTENANT	 LIEUTENANT	 CAPTAIN	 COMMANDANT	 LIEUTENANT COLONEL
Oman	 MEJAZH THAM	 MEJAZH ARVAL	 NAJIBS	 RAYD	 MEJAZH RAYD

 MAJOR GENERAL	 MAJOR GENERAL	 MAJOR GENERAL	 MAJOR GENERAL	 MAJOR GENERAL	 MAJOR GENERAL
 COLONEL	 COLONEL	 COLONEL	 COLONEL	 COLONEL	 COLONEL
 MAJOR	 MAJOR	 MAJOR	 MAJOR	 MAJOR	 MAJOR
 CAPTAIN	 CAPTAIN	 CAPTAIN	 CAPTAIN	 CAPTAIN	 CAPTAIN
 FIRST LIEUTENANT	 FIRST LIEUTENANT	 FIRST LIEUTENANT	 FIRST LIEUTENANT	 FIRST LIEUTENANT	 FIRST LIEUTENANT
 SECOND LIEUTENANT	 SECOND LIEUTENANT	 SECOND LIEUTENANT	 SECOND LIEUTENANT	 SECOND LIEUTENANT	 SECOND LIEUTENANT
 CAPTAIN	 CAPTAIN	 CAPTAIN	 CAPTAIN	 CAPTAIN	 CAPTAIN
 MAJOR GENERAL	 MAJOR GENERAL	 MAJOR GENERAL	 MAJOR GENERAL	 MAJOR GENERAL	 MAJOR GENERAL

United States	 2D LIEUTENANT	 1ST LIEUTENANT	 CAPTAIN	 MAJOR	 1T COLONEL
Saudi Arabia	 MILAZIM THAM	 MILAZIM ARVAL	 MAGS	 RATD	 MILAZIM
Syria	 MILAZIM	 MILAZIM ARVAL	 MAGS	 RATD	 MILAZIM
Tunisia	 SOUS-LIEUTENANT	 LIEUTENANT	 CAPITANE	 COMMANANT	 LIEUTENANT COLONEL
United Arab Emirates	 MILAZIM THAM	 MILAZIM ARVAL	 MAGS	 RATD	 MILAZIM

 COLONEL	 MAJOR GENERAL	 LIEUTENANT GENERAL	 GENERAL	 GENERAL OF THE AIR FORCE
 COLONEL	 MAJOR GENERAL	 LIEUTENANT GENERAL	 GENERAL	 GENERAL OF THE AIR FORCE
 MAJOR GENERAL	 LIEUTENANT GENERAL	 GENERAL	 GENERAL OF THE AIR FORCE	
 MAJOR GENERAL	 LIEUTENANT GENERAL	 GENERAL	 GENERAL OF THE AIR FORCE	
 MAJOR GENERAL	 LIEUTENANT GENERAL	 GENERAL	 GENERAL OF THE AIR FORCE	
 MAJOR GENERAL	 LIEUTENANT GENERAL	 GENERAL	 GENERAL OF THE AIR FORCE	
 MAJOR GENERAL	 LIEUTENANT GENERAL	 GENERAL	 GENERAL OF THE AIR FORCE	
 MAJOR GENERAL	 LIEUTENANT GENERAL	 GENERAL	 GENERAL OF THE AIR FORCE	
 MAJOR GENERAL	 LIEUTENANT GENERAL	 GENERAL	 GENERAL OF THE AIR FORCE	
 MAJOR GENERAL	 LIEUTENANT GENERAL	 GENERAL	 GENERAL OF THE AIR FORCE	

United States	 20 LIEUTENANT	 1ST LIEUTENANT	 CAPTAIN	 MAJOR	 LT COLONEL
Yemen Arab Republic	 MELAZM THAM	 MELAZM ARWAL	 MAJOR	 RAYD	 MAJORDAM
Yemen, People's Dem. Republic	 MELAZM THAM	 MELAZM ARWAL	 RAYD	 WAZEL QAYD	 QAYD

		 COLONEL	 BRIGADIER GENERAL	 MAJOR GENERAL	 LEUTENANT GENERAL	 GENERAL	 GENERAL OF THE AIR FORCE
		 MAJOR	 MAJOR GENERAL	 MAJOR GENERAL	 MAJOR GENERAL	 MAJOR GENERAL	 MAJOR GENERAL
		 MAJOR	 MAJOR GENERAL	 MAJOR GENERAL	 MAJOR GENERAL	 MAJOR GENERAL	 MAJOR GENERAL
		 MAJOR	 MAJOR GENERAL	 MAJOR GENERAL	 MAJOR GENERAL	 MAJOR GENERAL	 MAJOR GENERAL
		 MAJOR	 MAJOR GENERAL	 MAJOR GENERAL	 MAJOR GENERAL	 MAJOR GENERAL	 MAJOR GENERAL
		 MAJOR	 MAJOR GENERAL	 MAJOR GENERAL	 MAJOR GENERAL	 MAJOR GENERAL	 MAJOR GENERAL
		 MAJOR	 MAJOR GENERAL	 MAJOR GENERAL	 MAJOR GENERAL	 MAJOR GENERAL	 MAJOR GENERAL
		 MAJOR	 MAJOR GENERAL	 MAJOR GENERAL	 MAJOR GENERAL	 MAJOR GENERAL	 MAJOR GENERAL
		 MAJOR	 MAJOR GENERAL	 MAJOR GENERAL	 MAJOR GENERAL	 MAJOR GENERAL	 MAJOR GENERAL
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Iraqi Ground Forces

General

The Iraqi Army, the world's eighth largest, is also one of the best equipped and most combat-experienced in the world. It can conduct multi-corps operations spread over 100km or more and is capable of coordinating air and artillery, timing of movements and operations, coordinating complicated logistics requirements, and getting supplies, equipment, and troops to the right place at the designated time. The Iraqi Army is distinguished by its flexibility, unity of command, and high level of mobility. The Army is highly qualified in planning, C², logistics and maintenance, but limitations placed upon the commanders' initiative, especially in exploiting success, reduce these advantages. Concern over the political impact of excessive losses, military leaders' fear of punishment for failure, and lack of interservice cooperation also hindered initiative during the Iran-Iraq War.

Republican Guard Corps

The Republican Guard, originally organized to secure the regime in Baghdad, serves as an elite strategic reserve and performed very well in the Iran-Iraq War. This corps consists of armored, mechanized infantry, infantry, commando, special forces, and marine brigades controlled by the Republican Guard Forces Command and subordinate division or special forces headquarters. Republican Guard armored, mechanized infantry and special forces conducted the *blitzkrieg* invasion of Kuwait.

Maneuver Brigades

The brigade is normally the lowest echelon that operates independently, although battalion operations occurred in the Iran-Iraq War. There are three types of maneuver brigades: armored, mechanized infantry, and infantry. Armored brigades have three armored battalions (regiments) and one mechanized infantry battalion; mechanized infantry brigades have three mechanized infantry battalions, and one armored battalion. Infantry brigades have three infantry battalions, no armor. Armored and mechanized infantry brigades have the same combat support and service support elements: headquarters and signal company, mortar battery, assault engineer company, commando force, supply and transportation company, and chemical platoon. Infantry brigades have the same, except no assault engineer company. Artillery, air defense, and other combat and combat service support are provided by the parent division. Brigades may be reinforced by other brigade elements, or they may attach battalions to other brigades. Brigades are supported by division artillery, which consists of at least three direct support artillery battalions, general support battalions, and three direct support 120mm mortar batteries. Rocket batteries may also provide support.

Maneuver Battalions

Armored battalions consist of three tank companies of four platoons of three tanks each. They also have APC's, BRDM's, and 2 1/2-ton trucks, 1/2-ton trucks, and two each fuel trucks and trailers. Mechanized infantry battalions have three infantry companies, about 45 APC's, about 25 2 1/2-ton trucks, and two each fuel trucks and trailers. Each infantry company has a heavy weapons platoon and three platoons of three 10-man rifle squads each. Maneuver battalions also have headquarters and administrative companies.

Iraqi Offensive Operations

Composition of Forces

Iraqi doctrine requires armored and mechanized infantry battalions to operate in combat groupings (i.e., task forces) of armored and mechanized infantry regiments supported by artillery, engineer, and other support elements. A typical tank-heavy combat grouping could include three tank companies, a mechanized infantry company, an artillery battery, an engineer company, an antitank company, and an antiaircraft company. Each tank company would have an attached infantry platoon.

Iraqi Principles of Offensive Combat Operations

- Intelligence - Vital to planning, necessary to achieve surprise; regarded as the most important of all the principles.
- Maneuver - Swift movement using terrain for cover and concealment.
- Momentum - Forward momentum must be maintained at all costs; its loss renders a unit susceptible to counterattack.
- Establishment of Reserves - Reserve forces must be established at all echelons to assist attacking forces to achieve the tactical goal.

- Surprise - Ideally should be achieved in time, place, and weapons used. Its use promotes successful operations.
- Logistics and Administrative Support - Necessary to support forward momentum.
- Concentration - Continuation of fire power, forces, and equipment is needed to provide absolute superiority at the point of attack.
- Morale - Must be developed to the highest degree possible, and stems from the rigorous use of realistic training. Morale is supported by developing a thorough understanding of the mission and tactical goal by subordinate commanders and by the troops.
- Cooperation - Unity of command and support to units on the flank.
- Objective - The tactical goal.

Planning Factors for Offensive Operations

The planning factors for offensive operations consist of operational factors and estimating the situation for writing the operational order. If required, use of chemical weapons can be authorized at corps level.

Operational Factors

- **Terrain** - Offensive forces should be structured to make the most use of natural terrain and other obstacles.
- **Troops and Equipment** - Study the enemy's disposition of forces, capabilities, vulnerabilities, and strength for best application of one's own forces.
- **Time and Distance** - The most important consideration in planning. The time allotted and distances which must be covered to effectively destroy the enemy defensive position and attain the objective before the enemy can mount a counterattack.

Estimating the Situation for Writing the Operational Order

- **Mission** - A clear and concise mission statement understood by all subordinate commanders.
- **Terrain** - Sufficient detail to allow each subordinate commander to know the terrain and operational boundaries.
- **Enemy** - Location, disposition, and depth of defensive area.

- Time and Distance - Each subordinate command is assigned a specific mission to accomplish, moving a specific distance in a given amount of time.
- Weather - Forecast of conditions for the duration of the planned operation.
- Friendly Forces - Estimate of supporting forces needed to attain the objective. Heavy emphasis is given to artillery support.
- Decision - Based on all the above factors, a decision is reached on how to conduct the operation.
- Planning - A battle plan is briefed to all commanders; also, subordinate commanders are briefed the plan to ensure sufficient information and assets to conduct the operation.

Use of Chemical Weapons in Offensive Planning. Below corps level, chemical weapons are not integrated into the planning. High command headquarters in Baghdad reviews offensive OPLANs to determine whether or not to supplement them with chemical weapons planning. Chemical weapons are utilized when planners assess fire support or force size as insufficient to attain the objective. Once authorization for chemical weapons use is given, corps commanders are given chemical rounds to be delivered by artillery. Chemical warheads include three types: a lethal mustard agent, an incapacitating agent, and tear gas.

Offensive Operations as Employed

Offensive operations include advance operations, offensive operations, and assault or attack operations.

Advance Operations. Advance operations include movement-to-contact, pursuit, and the meeting engagement.

Movement-to-Contact. This type of operation is used when the enemy has established a hasty defense. Frontal assaults are generally avoided in favor of flanking movements or exploiting gaps in the defense. Figures 1 and 2 illustrate the movement-to-contact of an infantry division.

Pursuit. Pursuit operations are either frontal or parallel. While the frontal is the easiest to employ, the use of the parallel is preferred whenever possible to prevent the enemy from gaining time for resupply or reinforcement.

Meeting Engagement. Meeting engagements are classified by the types of enemy defenses the attacking force will encounter. General principles followed by Iraqi forces in meeting engagements include:

- Avoiding enemy strong points;
- Rapid maneuver;
- Movement to the enemy rear by either penetration or flanking maneuvers.

Weak Enemy Defense. This type of meeting engagement calls for the attacking advance guard to leave a small holding force and move to one of the enemy flanks to neutralize reserves and

Part of one of the infantry brigades forms the advance guard: the remainder brings up the rear of the main body.

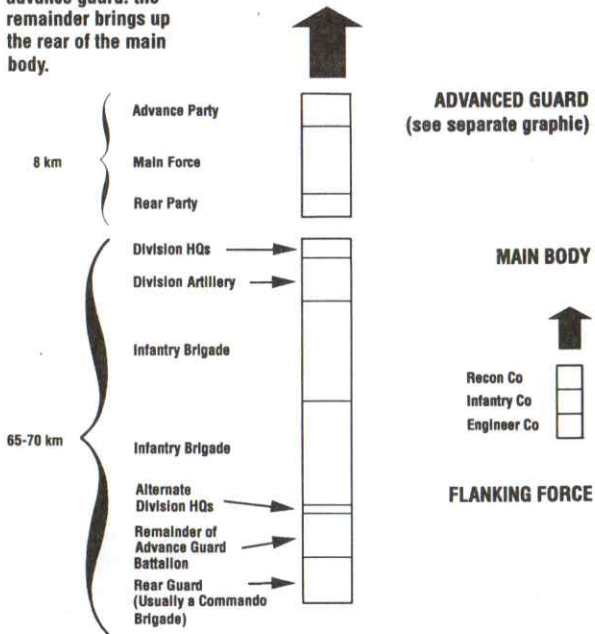


Figure 1. Iraqi Infantry Division of Order of March.

prevent counterattack. The main body then destroys the enemy forward forces. Continuous forward movement is maintained at all times.

Controllable Overwhelming Enemy Defense. Strong enemy defenses call for the initial attack by a company of the advance guard battalion, with the follow-on by the rest of the battalion. Once enemy defenses are neutralized, this battalion is replaced by another unit that becomes the advance guard battalion. The former advance guard battalion moves to rear guard position.

Uncontrollable Overwhelming Enemy Defense. If the advance guard is unable to destroy the enemy defenses, then it holds until the main force bypasses the defenses. There is no reinforcement of the advance guard except to provide antitank defenses to deal with a counterattack.

Offensive Operations. There are three major types of offensive operations: hasty, deliberate, and breakthrough.

Hasty. Hasty offense calls for approximately 2 to 1 ratio, with a reserve force ready to continue momentum or repel a counterattack. Iraqi forces attempt to outmaneuver the enemy and maintain momentum in the attack. Maintaining momentum is considered the key to hasty attacks, with as much time allocated to planning as the tactical situation allows.

Deliberate. In deliberate attacks, the ratio of friendly to hostile troops is more favorable, 3 to 1. More time is possible for the planning, which ranges from 1.5 to 2 hours for a division, 45 minutes for a brigade, and 35 minutes for a battalion. Sufficient time in planning ensures thoroughness of preparations as well as

approval by the next highest echelon. Deliberate attack plans are sent to Army Headquarters in Baghdad for approval.

Breakthrough. Breakthrough operations have not been 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 counter-attack.

Assault or Attack Operations. Iraqi forces use two types of assault, one employing artillery preparation and a silent assault without artillery, usually at night to achieve surprise.

Assault Formations. Assault formations consist of the wedge, left/right echelon, line, and diamond.

Wedge formations are used prior to reaching the assault line, with a changeover to a line formation.

Left/Right Echelon support for advancing units promotes better command and control. At the assault line the designated unit continues the advance.

Line formations are used when attacking forces reach the assault line. This consists of two units forward and one unit in reserve.

Diamond formations are used for small units in mountainous areas or other terrain where little maneuver is possible. This provides maximum protection fire.

Assault Phases. Assault phases consist of the concentration area, the assembly area, the formation line, the line of departure, and the assault line. The first two are out of artillery range, with the other three 1,200 meters or less from the enemy lines (see figure 3).

Factors for a Successful Assault

Iraqi doctrine teaches that the overall key to a successful assault is timing, with five other main factors: surprise, officer quality, support fire time and concentration, completeness of engineer support, and the proper deployment of reserves (outside of artillery range). If the attack is to be made at night, all personnel must have a clear knowledge of directions and operational boundaries.

Engineer Operations in the Offensive

In the offensive, the primary task of engineers is to identify minefields and open gaps for attacking units. This is done by opening simple gaps, making larger gaps for attacking units, and marking minefields.

Opening Gaps. Engineers first open gaps in minefields by clearing mines for advancing units. One 8 to 12 meter gap is required for each infantry unit, with armored companies requiring a greater width.

Establishing Gaps for Assault Forces. Larger gaps in minefields are required for general assaults. Time required to clear such large paths varies with the situation, but engineer units are

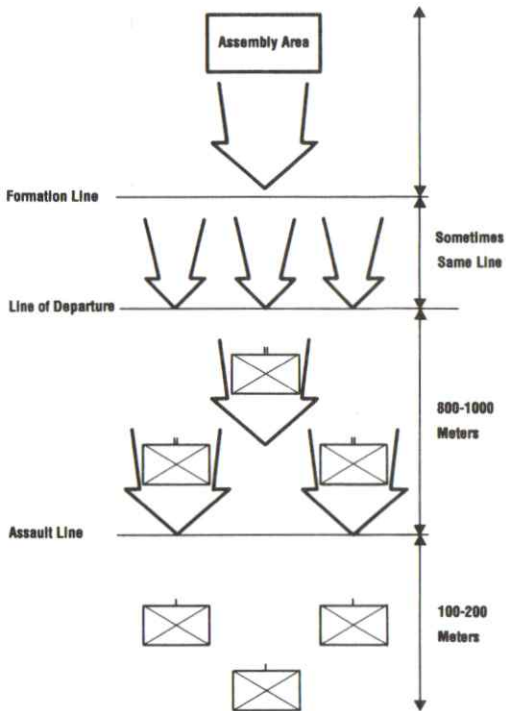


Figure 3. Assault Phase Lines/Areas.

usually given a flexibility of 1 hour outside the designated time to accomplish their mission.

Marking Minefields. Minefields are marked with flags during the day and flares at night, with each attacking company having its own color flares.

Engineer Mine Detection/Detonation Methods

Iraqi engineer units are taught three basic ways of detecting mines. The first is by hand, using probes or poles. The second is by using modern electronic mine detection devices. The third method dispenses with detection and emphasizes clearing the paths through minefields using mine plows. Iraqi combat forces have not been used to clear mines using infantry units in suicide assaults sent forward into minefields, although they are aware of this method through combat with Iranian forces, who did use this method.

Artillery Operations to Support the Offensive

Utilization of Artillery Assets. Utilization of artillery assets to provide preparatory fires for the assault is a key element of Iraqi offensive doctrine. Artillery fires may include chemical loads.

- Preparing for an Attack - Artillery units are located in the assembly area with the combat units they support.

- Artillery Organization in an Attack - Artillery units are generally attached to the units they support, artillery battalions being assigned to support armored or infantry brigades. During the attack, most artillery units are deployed to support the main axis of attack.
- Density of Firing Positions - Density depends upon the tactical situation. Normally each artillery battalion requires 150 meters square for deployment, with 150 meters between batteries. Batteries are deployed in groups of three, two forward and one in the rear (see figure 4).
- Movement to/from Firing Positions - Movement to and from firing positions depends on the rate of advance and the tactical situation. Coordination of artillery movements with attacking units over speed of advance is emphasized strongly in Iraqi doctrine.

Self-propelled Artillery. Self-propelled artillery usually requires 20 minutes to occupy a position, with full operational capability in 30 to 35 minutes. Movement out of a firing position requires about 15 minutes.

Towed Artillery. Towed artillery takes longer to deploy, up to 40 to 45 minutes, although the time for movement out, 15 minutes, is comparable to that for self-propelled artillery.

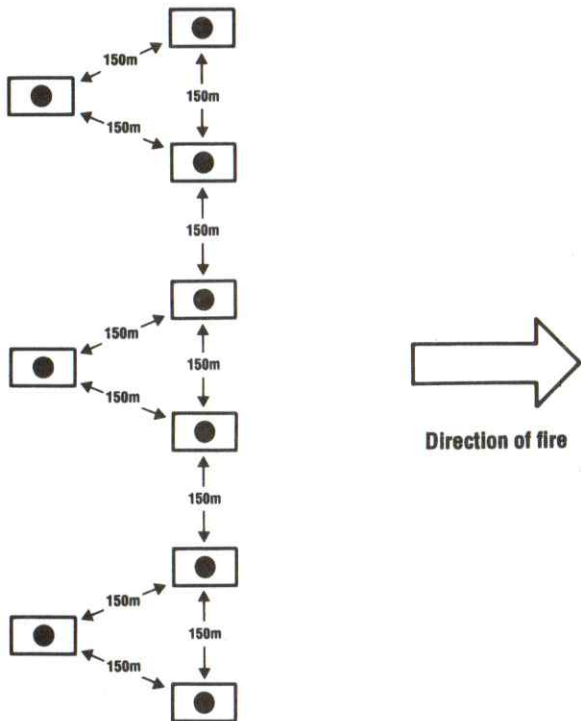


Figure 4. Battery Firing Positions in Iraqi Artillery Brigade Deployment.

Artillery Bombardment Types. The most common types of artillery fires are primary and direct support. Nondivisional fires may be used in exceptional instances.

- Primary bombardments begin approximately 1 hour before the first attack echelon crosses the line of departure and last 45 minutes to an hour. Fires are initially directed at forward targets, but once friendly troops cross the line of departure, the bombardment is moved to targets in the enemy rear area.
- Direct support fire is performed by brigade artillery batteries against enemy front line targets and is controlled by the brigade commander the artillery supports. Each firing battery has between 3 and 8 targets that are assigned prior to the attack. Direct support fire begins as soon as the primary bombardment shifts toward the rear of the enemy position.
- Nondivisional heavy ordnance support consists of rockets and air support. Both are used to attack the enemy rear area.

Types of Artillery Rounds Used. The Iraqi army has a considerable stockpile of all varieties of artillery rounds, to include chemical. Chemical rounds are always fired by corps artillery on order of the corps commander.

Iraqi Defensive Operations

General

The Iraqi Army uses primarily defensive operations, subdivided into *deliberate*, *mobile*, and *hasty*. Another type, *withdrawal* is characterized as *organized*, with effective C², and *disorganized*, a rout with varying degrees of C². Defense is only a stage in preparing for offensive operations or to gain time to achieve political goals or wait for reinforcements.

Deliberate Defense

Iraq developed a static deliberate defense with reinforced positions in a triangular configuration to maximize firepower. Two-thirds of the combat units are located forward, with one in reserve. Iraqi President Saddam Hussein believed that Iraqi soldiers would fight to the death defending their own borders.

Mobile Defense

This type of operation places one combat unit forward; two back. But apparently it was not used in the Iran-Iraq War.

Hasty Defense

This is used in a retreat to prepare for a counterattack or to gain time to develop a deliberate defense.

Withdrawals

Basic principles are followed as time allows. The enemy is kept from obtaining knowledge of a withdrawal once the decision to break contact is made. Surprise, planned depth of movement to allow troops maximum safety, and a high degree of C² are used to prevent the withdrawal from turning into a rout.

Defensive Aids

- The proper use of terrain is considered in relation to the mission and types of weapons employed. Natural cover is used to conceal movements and positions, supplemented by camouflage nets.
- Each echelon in the defense develops overlapping sectors of fire.
- The Iraqi commander seeks to have a thorough knowledge of enemy operational doctrine and uses intelligence about enemy strengths, capabilities, and vulnerabilities.
- Each echelon in the defense has a dual-purpose reserve to provide rear security and launch a counterattack.
- Defense in depth is the most important principle. Natural and man-made obstacles are used to

channel enemy forces into areas covered by cross and flanking fires. There may be three or more lines of defense employing troops, antitank guns, and engineer obstacles. Gaps are covered by artillery fire, mine fields, and troop movements.

The Defensive Area

The defensive area, about 8 km wide and 10 km deep for an infantry division, is subdivided into three distinct sub areas.

Security Zone. The security zone is forward of the forward edge of the battle area (FEBA), which is a part of the operations area. The security zone for a mechanized infantry division is about 8 km deep and is manned by a recon battalion reinforced by an artillery battery, an infantry company used as a reserve, an engineer platoon, and a chemical defense/survey platoon.

Operations Zone. The two forward units are infantry or mechanized infantry brigades, which may have attached radio intercept units. Behind, and roughly centered, is the division tactical headquarters, flanked by direct support artillery battalions, one per brigade. In reserve behind the division headquarters is the armored brigade and its supporting artillery battalion. Behind these are the deputy commander at the division main headquarters. Communications between the two division headquarters are maintained on a command net and also on artillery unit frequencies. Behind the armored brigade are the antitank and engineer battalions along with additional signal elements.

Administrative Area. The divisional commando brigade and rear services administration are located in the division rear.

Triangular Defense

The Iraqi Army developed a triangular configuration for defense. The base of the triangle for a division is divided into smaller triangles or defensive sectors for brigades down to battalion defensive positions, and company/platoon defensive locations (see figure 5). The centers of brigade and division defensive triangles are used as kill zones; battalions and below seek to defend their front lines. Brigade and division kill zones contain antitank and antipersonnel mines, tank traps, trenches, and concertina wire.

Antitank Defense

Iraq uses Soviet antitank tactical doctrine and emphasizes three principles.

- Force enemy tanks to concentrate in open areas.
- Employ antitank weapons in depth, according to their ranges: short-range weapons in front; long-range ones behind. Each infantry squad has one RPG-7; the second line consists of 82mm mortars paired with recoilless rifles. Mine fields are used to channel enemy tanks into kill zones. In the administrative area, the commando brigade is trained to conduct antitank ambushes. Iraqis expect three RPG-7s to destroy one tank at less than 500 meters; 82mm mortars and recoilless rifles to destroy two tanks each at about 1,000 meters.

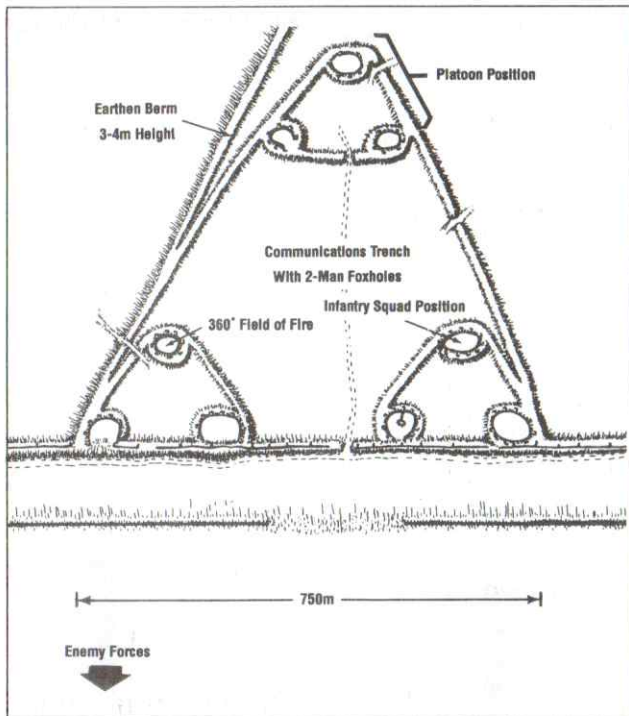


Figure 5. Company-Size Subsection of Strongpoint.

- Support reserve forces with antitank weapons. Weapons are required for counterattack purposes as well as defense against enemy armor breakthrough.

Artillery Fires on the Defense

Sequence of fires is as follows.

- Counterbattery until enemy forces cross the line of departure.
- Long-range against enemy assembly areas.
- Short-range on the enemy's line of departure and that which follows enemy attacking forces.

Artillery forward observers are normally attached to forward battalion headquarters.

Chemical Defense

Chemical defense personnel are included in recon patrols during defensive operations only when Baghdad Headquarters gives notice of impending use of chemical weapons (an indicator). Chemical defense unit can set up decontamination areas and create gas-free environments using a Soviet filtration device. Individual soldiers carry a Soviet personnel decon kit that includes atropine injection and a blister agent decon agent.

Air Defense

Air defense units defend headquarters, artillery and reserve positions, and administrative and supply areas from enemy air attacks. C² is exercised at corps level.

Night Operations

Iraqi forces have a limited capability to conduct night combat operations. C² is a major Iraqi difficulty at night. Iraqi troops generally experience a drop in morale at night, which Iranian forces learned to exploit during the Iran-Iraq War. Iraq uses starlight scopes on antitank weapons, machineguns and some armored vehicles. Most Iraqi tanks use active IR searchlights and sights; however, a sizeable number have starlight (passive) sights.



FIRST AID

First-Aid

First aid is the immediate treatment administered to a casualty before they can reach medical assistance. Prompt and correct first aid for wounds will not only speed healing, but will often save a life – and that life may be yours! The most important points are to remain calm and use common sense. This short guide is intended as an emergency reference. The tactical situation and the expertise of the personnel present may influence treatment decisions. The four priority life-saving steps in first aid are:

- **Restore Breathing and Pulse**
- **Stop Bleeding**
- **Protect the Wound**
- **Prevent or Treat Shock**

Vital Signs

Check Heartbeat and Pulse:

To Hear a Heartbeat:

For a male and/or child place your ear below and slightly to left of the left nipple; for a female, place your ear just below the left breast. Listen for a heartbeat.

To Feel for a Pulse:

1. Place the tips of your index and middle fingers on the thumb side of the victim's wrist to feel for a pulse. Do not use your thumb as this will confuse the victim's pulse with your own.
2. If a pulse cannot be felt at the wrist, check the carotid pulse gently with your fingertips (it is located in a groove next to the windpipe, deep in the neck) or the femoral pulse (deep in the groin).
3. Once a pulse has been located, count the number of beats in 15 seconds and multiply by 4 or if the pulse is very slow or irregular, count for 60 second's. A pulse rate may vary depending on the victim's condition.

The normal adult male heart rate is between 70 and 80 beats/minute, for a female the rate is 75 to 80 and for a young child 82 to 180. However, excitement, exercise, or fever may increase the rate. Be sure to note whether the pulse is weak, full, bounding or irregular.

Look and Listen for Breathing:

Look for the rise and fall of the chest. If it is cold there may be frost on the victims breath. Place your ear near their mouth and listen for breathing. Note whether the breathing is regular, rapid, shallow, or shows signs of difficulty. Check airway for obstructions.

Check for Wounds and Injuries:

Look at the casualty from head to foot checking for bleeding, open wounds, external signs of internal injuries and other problems. Remember that many wounds, particularly bullet wounds, have both an entrance and exit hole, check for both. Additionally, large shrapnel wounds may be accompanied by multiple small metal sliver wounds.



CPR

Artificial Respiration:

If the victim is not breathing, check airway and remove any obstructions with hooked fingers.

Mouth to Mouth Method:

With patient lying on back, hold jaw well open, bend head back (prevents tongue falling and blocking airway). Hold nostrils closed with other hand. Place mouth over patient's mouth and exhale. Watch for chest to rise as you blow gently into patient's lungs. (If chest does not rise, turn him on his side and thump between shoulder blades to remove obstruction.) Separate mouths. Take a breath while watching for fall of victim's chest. You should see, feel and/or hear the victim's exhale.

For a child; Do not blow. Exhale normally, or in the case of baby in gentle puffs. Blowing forcefully into a child's mouth can damage delicate lungs.

Arm-Lift Method:

If mouth to mouth technique is not possible due to facial injury or NBC contamination, use the arm-lift method. With victim on back, check airway for obstructions and kneel behind the victim's head. Grasp the victim's hands and place them on their lower ribs, rock forward, pressing downward and forcing air out of the victim's lungs. Then when you meet firm resistance lift the arms upward and backward as far as possible. This process of lifting and stretching the arms increases the size of the chest cavity and draws air into the lungs. Repeat cycle of Press-Lift-Stretch.

REPEAT either method, as quickly as possible for first six inflations, then at 12 repetition per minute until normal breathing is re-established.

DON'T GIVE UP! If breathing doesn't start, keep up artificial respiration for at least an hour.

CHECK HEARTBEAT. If no pulse, start alternating cardiac resuscitation and artificial respiration. Give 2 full breaths, for each cycle of 15 compressions in single rescuer CPR.

Cardiac Resuscitation:

Regardless of the method of artificial respiration, if there is no pulse and after 10-12 breaths there is no apparent improvement in the casualty's condition, cardiac resuscitation (external heart massage) should be started.

There is no time to lose! If the rescuer can't feel a pulse, he is going to have to circulate the blood as well as breathe for the victim.

External Chest Compression

The victim always must be in the horizontal position when external chest compression is performed. During cardiac arrest, even during properly performed chest compression, inadequate blood flow to the brain may exist when the body is in an upright position.

1. With the middle and index fingers of the lower hand, the rescuer locates the lower margin of the victim's rib cage on the side next to the rescuer.
2. The fingers are then run along the rib cage to the notch where the ribs meet the sternum in the center of the lower chest.
3. With the middle finger on the notch, the index finger is placed next to the middle finger on the lower end of the sternum.
4. The heel of the other hand (which had been used on the forehead to maintain head position) is placed on the lower half of the sternum, and just next to the index finger which is next to the middle finger that located the notch. The long axis of the heel of your hand should be placed on the long axis of the breastbone. This will keep the main line of force of compression on the breastbone and decrease the chance of rib fracture.
5. This first hand is then removed from the notch, placed on top of the hand on the sternum so that hands are parallel and directed straight away from the rescuer.

Cardiac Resuscitation Continued:

6. The fingers may be either extended or interlaced but must be kept off the chest.
7. The elbows are straightened by locking them, and the rescuer positions his shoulders directly over his hands so that the thrust for external chest compression is straight down. If the thrust is other than straight down, the torso has a tendency to roll, part of the effort is lost, and the chest compression is less effective and requires an inefficient amount of effort from the rescuer.
8. To compress the sternum of a normal-size adult you must push with enough force to depress the breastbone 1 1/2 to 2 inches. With each compression you want to squeeze the heart or increase the pressure within the chest so that blood moves through the body. You must compress in a manner at a rate of 80-100 times per minute.
9. If you use the weight of your body, you do not depend on the strength of your arms and shoulders as much. Instead of having to push from your shoulders, you let the natural weight of your body falling forward provide the force to depress the victim's sternum. Keep the arms straight.
10. Do not lift your hands off the chest, or change their position in any way, because correct hand position may be lost. Bouncing compressions must be avoided since they are less effective and are more likely to cause injury and additional problems.

Traumatic Amputation

1. Recognize and assess injury. Has the part been completely severed?
 2. Apply direct pressure to stump and elevate.
 3. Apply pressure dressing and secure with self-adherent gauze bandage.
 4. Reinforce with more dressing and secure with self-adherent gauze bandage.
 5. Assess for bleeding control. If bleeding is not controlled, proceed to pressure point. If still not controlled, apply tourniquet *no more* than 2 inches nearest to stump. Treat for shock and evacuate.
 6. If the tactical situation permits, treat amputated part as follows:
 - a. Wrap the part in dry sterile dressing and secure with self-adherent gauze bandage.
 - b. Place the part in a plastic bag and label bag with the patient's name, date, and time. Seal bag.
 - c. Place the part in a cooler or in another appropriate container on top of a sealed bag of ice or cold packs.
- Note: The part is to be in a cool environment. It must *not* be submerged in or come in direct contact with the ice or ice water.
7. Transport the amputated part in the cooler with the patient to hospital if possible.

Sucking Chest Wound

1. Examine casualty and expose a large area around the wound. Remember to check for exit wound on opposite side. Cut away clothing if necessary.

2. All penetrating chest wounds will be treated as sucking chest wounds.

NOTE: The characteristic hissing, sucking, and fluttering noise that is produced as the patient breathes may not be present.

3. A SUCKING CHEST WOUND MUST BE CLOSED IMMEDIATELY BY ANY MEANS AVAILABLE. Use the palm of your hand initially to seal the wound and prevent additional air from entering the thoracic (chest) cavity. The wound should be sealed after the patient forcibly exhales. TREATMENT SHOULD NOT BE DELAYED TO PREPARE DRESSINGS.

4. Prepare an occlusive (air tight) dressing of plastic. Sterility should be maintained to prevent further wound contamination. The rescuer might consider using the inside of the plastic wrappers from trauma pads, IV bags, or other medical supplies as these are relatively sterile. The occlusive dressing should be at least 2 inches wider than the diameter of the wound.

5. Cut plastic to required size. Place in palm of hand (clean side up) and apply directly to the wound. Secure three sides of the plastic to the patient with 3-inch adhesive tape. Have the patient forcibly exhale. At the end of the exhalation, seal the remaining side with adhesive tape. When sweating prevents

maintaining a seal (i.e. tape does not stick to the patient) or if the wound is massive, trauma pads should be placed over the occlusive dressing and secured in place with cravats.

6. Have the casualty lie on the injured side to allow the lung on the uninjured side to expand more freely. Treat for shock and evacuate.

7. Reassess patient's vital signs frequently,
a. Respiration rate and quality
b. Breath sounds
c. Blood Pressure
d. Pulse

8. Should the patient develop increasing respiratory difficulty and extreme restlessness and anxiety, air trapped in the chest cavity (tension pneumothorax) must be suspected. The signs of tension pneumothorax are:

- a. Cyanosis (blueness of skin)
- b. Tracheal deviation
- c. Weak rapid pulse
- d. Hypotension (decreased or lowered blood pressure)

If tension pneumothorax is suspected, immediately lift on corner of the occlusive dressing to break the seal and allow the release of excessive air pressure from the thoracic cavity. The patient's condition should improve as the pressure is released. The occlusive dressing should then be resealed after the patient forcibly exhales.

Other Wounds

General: Expose wound, control bleeding, apply sterile dressing, treat for shock. Look for exit wound. Do not clean wound.

Jaw: Clear and maintain airway, stop bleeding with direct pressure, do not bandage mouth shut, support jaw, position head to allow drainage from mouth.

Head: Elevate head. Clean the airway and protect wound. Position head to allow drainage from mouth. Do not give morphine.

Belly: Do not touch or replace organs. Use loose, dry sterile dressing. Give no food or liquids.

Shock, Sprains, Fractures and Dislocations

	Signs/Symptoms	First Aid
Shock	Pale, clammy wet skin, nervousness and thirst. They may pass out.	<ol style="list-style-type: none">1. Lay patient on back, elevate feet, loosen clothing, keep warm.2. Feed hot liquids if conscious.3. Turn head to side if unconscious. Remember shock can kill.
Sprains, Fractures, and Dislocations	Localized pain and swelling possibly accompanied by discoloration. If a fractured bone protrudes through the surface of the skin, it is considered a compound fracture and the wound should be treated accordingly. Dislocations and fractures may exhibit obvious deformity.	<ol style="list-style-type: none">1. Remove clothing around the site of the affected area or dislocation. If necessary cut clothing rather than causing further injury or discomfort2. Prior to and following splinting, check blood circulation and for feeling.3. Splint all fractures in a manner which immobilizes both the joint above and the joint below the fracture site.4. Fracture joints should gently be returned to splinting position if this can be accomplished without using excessive force or causing the patient to experience extreme pain.5. Joints that cannot be gently returned to splinting position should be splinted in their current position.6. Straighten fracture of a long bone with gentle traction prior to splinting.7. Cover all open wounds with sterile dressings prior to application of a splint.8. Pad all splints to prevent excessive pressure.9. Immobilize fractures prior to evacuating.10. Splint fractures of the lower arm with the hand in position of function.11. Apply gentle traction while splinting.12. Leave fingers and toes exposed if possible.13. Splint should not impair circulation.14. Elevate the extremity following immobilization-where possible.15. Elevate the injury, and for sprains apply ice to the affected area periodically for approximately 24-48 hours following the injury.16. For dislocations immobilize and apply ice to the affected area periodically for approximately 24-48 hours following the injury.

Heat Injuries

	Signs/Symptoms	First Aid
Dehydration	<p>1-5% Fluid Loss: Thirst, vague discomfort, lack of appetite, flushed skin, impatience, sleepy, nausea. 6-10% Loss: Dizziness, headache, labored breathing, no salivation, indistinct speech, unable to walk. 11-20% Loss: Delirium, swollen tongue, unable to swallow, dim vision, numb</p>	<ol style="list-style-type: none">1. Keep cool, shaded and loosen clothes.2. Give water with a little dissolved salt (a pinch per pint).3. Casualty needs rest and medical treatment. <p>NOTE: Increasingly noticeable as more body fluid is lost. Other heat injuries are usually directly related. Often an overlooked cold weather injury. More than 20% fluid loss is usually FATAL.</p>
Heat Cramps	<p>The person experiences muscle cramps of arms, legs and/or stomach. The person may also have wet skin and extreme thirst.</p>	<ol style="list-style-type: none">1. Move the person to a shady area or improvise shade and loosen his clothing.2. Give him large amounts of cool water slowly.3. Monitor the person and give him more water as tolerated.4. Seek medical aid if the cramps continue.
Heat Exhaustion	<p>The person experiences loss of appetite, headache, excessive sweating, weakness or faintness, dizziness, nausea, and muscle cramps. The skin is pale, cool, moist and clammy.</p>	<ol style="list-style-type: none">1. Move the person to a cool, shady area or improvise shade and loosen/remove his clothing.2. Pour water on him and fan him to permit coolant effect of evaporation.3. Have him slowly drink at least one canteen full of water.4. Elevate the casualty's legs.5. Seek medical aid if symptoms continue.
Heatstroke	<p>The person stops sweating (hot, dry skin). He first may experience headache, dizziness, nausea, vomiting, fast pulse and respiration, seizures, and mental confusion. He may collapse and suddenly become unconscious. THIS IS A MEDICAL EMERGENCY. HEATSTROKE CAN KILL IF IT IS NOT TREATED PROMPTLY AND CORRECTLY.</p>	<ol style="list-style-type: none">1. Move the person to a cool, shady area or improvise shade and loosen his clothing, remove the outer garments and protective clothing if the situation permits.2. Immerse him in cool water. If he cannot be immersed, the arms and legs should be massaged with cool water. Pour cool water on him and fan him to permit cooling by evaporation.3. If conscious, have him slowly drink at least one full canteen of water.4. SEEK MEDICAL ASSISTANCE AND EVACUATE AS SOON AS POSSIBLE. PERFORM ANY NECESSARY LIFE-SAVING MEASURES REQUIRED.

Bites and Stings

Spiders, Scorpions, and Snakes

The overall threat from venomous animals in the northwestern Persian Gulf is low. Encounters will be low during daylight, increasing with darkness. Normal clothing is generally adequate to prevent most bites. The following animals are listed in order, the most dangerous at the top. Remember...

If It Moves, Don't Touch It!

Carpet Viper (Saw-Scaled Viper)

.4 to .9 meters long; short and stout; head is wide with a blunt snout.

Back is tan, brown, buff, olive, or reddish with white spots and a long white line along each side. Belly is white to pinkish brown with gray spots.

Lives: barren, rocky, sandy desert, dry bush

- Traits:
- Hunts at night
 - Very alert, strikes fast and often
 - Coils into figures "S"
 - Makes a rasping sound as warning

Bite: pain, swelling at bite, bleeding from gums, nose, and kidneys.

Egyptian Cobra

1.5 to 2.5 meters long, moderately stout body

Back is yellow, dark brown, or almost black; head and neck always darker, dark bars across neck at hood; belly is yellow and brown.

- Lives:
- Flat lands, scrub brush
 - Irrigated fields
 - Rocky hillsides
 - Near rodent populations

- Traits:
- Holds and chews savagely
 - May raise head and spread hood
 - May bite without warning

Bite: highly toxic; pain and swelling may cause respiratory or cardiac arrest.

Horned Desert Viper

.5 to .7 meters length; wide body; short, wide head; blunt snout, scale-covered horns above eyes.

Pale gray or bluish gray to khaki with brownish gray blotches or narrow crossbands; white belly, black tail.

- Lives:
- Very arid areas
 - Burrows in loose sand
 - Hides in rodent holes

Traits: Sluggish by day, aggressive at night.

Bite: Highly toxic, weakness and immobility 2 to 3 hours after bite.

Puff Adder

.9 to 1.3 meters average length; large, stout, heavy body.

Head is broad and triangular with four yellow streaks (two from each eye to lip); back is brown or yellow with V-shaped marks along backbone; has very large fangs and short tail.

- Lives:
- Seldom found in very wet or dry areas
 - Near houses; in or near buildings

Traits:

- Easily excited
- May inflate body and hiss

Bite: Can inject large amounts of venom; severe pain; swelling; lowered blood pressure; shock.

Leventine Viper

Up to 1.6 meters long; very large fangs; tail tapers abruptly.

Back has brown circles with light centers; gray, gray-brown, or yellowish with with gray belly, pinkish-brown tail.

- Lives:
- Dry, rocky areas
 - Mountains up to 2,000 meters elevation
 - Bushes

Traits:

- Calm during the day, but will strike
- Aggressive at night

Bite: Bleeding from wound; immediate burning pain; swelling and discoloration; weakness and sweating.

Scorpion

76.2 to 101.6 mm (3 to 4 inches) long; eight walking legs; two large pincers; stinger in tip of curved tail.

Light tan to red or dark brown.

- Lives:
- Burrows under stones
 - Loose bark on trees
 - Around houses
-

Battle Fatigue

	Signs/Symptoms	First Aid
Mild (Common)	<i>Physical Signs:</i> † Nervous, trembling, sweating, pounding heart, dry mouth, tired, frequent urination, nausea/vomiting, diarrhea, "thousand-yard stare", tearful.	<ol style="list-style-type: none">1. Continue mission performance.2. Expect soldier to perform duties.3. At all times remain calm; be directive and in control.4. Let soldier know his reaction is common (normal), expected, and that there is nothing seriously wrong with it.5. Keep soldier informed; control rumors.6. Build soldier's confidence.7. Keep soldier productive (when not resting) and supervised.8. Ensure soldier eats and drinks as soon as possible.9. Let soldier talk with you about his feelings or personal problems. Do not "put down" feelings. Give practical advice and perspective.
	<i>Mental Signs:</i> † Forgetful, indecisive, difficulty concentrating, difficulty paying attention, anxious, easily startled by sudden noise or movement, nightmares, trouble sleeping, irritable and griping. † These signs can be present in any normal soldier in combat yet he can still do his job.	
Serious	<i>Depressed Reaction:</i> * Prolonged sad or vacant facial expression, slowed down, stands or sits without moving, cries does not talk much.	<ol style="list-style-type: none">1. Get soldier to a relatively safe area for sleep and food (with usual comrades if possible).2. Ensure soldier is not left unobserved. Use brief physical restraints only if necessary to protect individual or unit.3. Have the soldier wash and shave himself.4. Give soldier easy tasks to do when not sleeping/resting/eating.5. Assure soldier he will return to full duty within 24 hours.6. Return soldier to normal duties as soon as he is ready.7. If soldier cannot be managed or does not improve, get medical assistance. Still tell the soldier that you are counting on him to recover with rest and return to the unit soon. <p>Do the things listed above in addition to what you should do for a mild reaction.</p> <p>NOTE: Ensure casualty is not suffering from a head injury, heat, cold, dehydration, drug or alcohol intoxication or withdrawal, or chemical agent injury. These injuries may look like battle fatigue</p>
	<i>Active Reaction:</i> * Constantly moves around, shaking, jerky movements, talks rapidly and constantly, overly fearful, makes endless suggestions, reckless, argumentative, may see or hear things that are not there, panic. <i>Physical Reaction:</i> * Major loss of memory or cannot use some part of the body (arm, hand, leg or has trouble seeing, hearing, or speaking. *These signs are present in addition to the signs of a common (mild) reaction.	

NBC Counter Measures

Biological Attack: The best personal defense against biological warfare is strict preventive medical and sanitation measures and high standards of personal hygiene. Up to date immunizations and protection against insects may also help. Seek medical aid if personnel become sick.

Chemical Attack: When an individual displays the symptoms of chemical-agent poisoning, first aid must be given immediately to save his life. Seek medical aid quickly.

Nerve Agents: The symptoms of nerve agent poisoning are difficult breathing, drooling, nausea, vomiting, convulsions, and sometimes dim vision. The use of atropine autoinjectors and artificial respiration are first-aid measures for nerve-agent poisoning. If you have such symptoms, inject yourself with one injector in the thigh and massage the area. If symptoms persist, use another injector. The interval between injections is 15 minutes. If you are unable to treat yourself, a buddy must do it for you. He will inject three injectors at once and administer artificial respiration, if necessary. No more than 3 atropine autoinjectors will be given.

Blister agents: The symptoms of blister agent poisoning are burning sensations in the skin, eyes, and nose. The symptoms may be immediate or delayed for several hours or days, depending on the type of agent used. If blister agents come in contact with the eyes or skin, decontaminate the areas at once. Decontaminate the eyes by flushing them repeatedly with plain water. Remove liquid blister agents from the skin by using the M258A1 kit. If burns or blisters develop on the skin, cover with sterile gauze or a clean cloth to prevent infection.

Blood Agents: The symptoms of blood agent poisoning are dizziness or giddiness, throbbing headache, skin/lips red or pink, rapid or shallow (panting) breathing, convulsions, coma and death. Seek medical attention.

Choking Agents: Choking agent poisoning produces coughing, choking, tightness of the chest, nausea, headache, and watering of the eyes. If you have these symptoms, stay quiet and comfortable, but seek medical aid quickly.

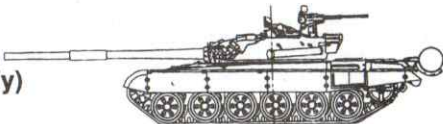
MOPP (Mission Oriented Protective Posture) Chart

MOPP Level	Protective Equipment			
	OverGarment	OverBoots	Mask/Hood	Gloves
1	Worn opened or closed based on temperature	Carried	Carried	Carried
2	Same as MOPP 1	Worn	Carried	Carried
3	Same as MOPP 1	Worn	Worn, hoodopened or closed based on temperature	Carried
4	Worn, closed	Worn	Worn	Worn

EQUIPMENT RECOGNITION

Tanks.....	80
APC, IFV,ACV, & ARV.....	84
Artillery.....	97
Anti-Tank.....	113
Air Defense.....	117
Aircraft.....	126

T-72 Tank (Family)



CHARACTERISTICS:

CREW	3
LENGTH	7.0m
WEIGHT	3.6m
HEIGHT	2.4m
SPEED (max)	60kph
RANGE	700km w/aux tanks
CBT WEIGHT	41mt
ARMAMENT	
main	125mm, 40 rds, 2000m max eff rng
OTHER	
coax	7.62mm PKT MG
Turret	12.7mm
NSVT MG	

X-T72M1-Additional armor protection and laser range finder

-T-72M - laser range finder

RECOGNITION

6 road wheels - 3 return rollers

Evenly spaced road wheels

Bore evacuator 1/3 down from muzzle

Die-cast road wheels

Splash plate is V-shaped

Co-incidence range finder

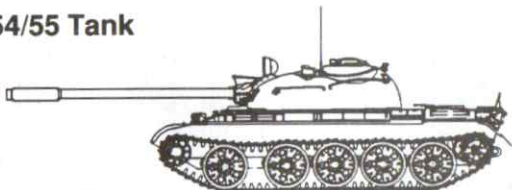
Khalid MBT, Essentially Chieftan MBT



CHARACTERISTICS:

CREW	4
COMBAT WEIGHT	62,000 kg
LENGTH (gun forward)	11.56m
WIDTH (overall)	3.518m
HEIGHT (turret roof)	2.5m
MAX ROAD SPEED	
4th gear	56 km/h
SMOKE -LAYING EQUIPMENT	2 X 5 smoke dischargers
AMMUNITION (main)	up to 64 projectile

T-54/55 Tank



CHARACTERISTICS:

- Crew: 4
- Speed (max): 50kph
- L: 6.5m
- Range: 600km w/aux tanks
- W: 3.3m
- Cbt Weight: 36mt
- H: 2.4m

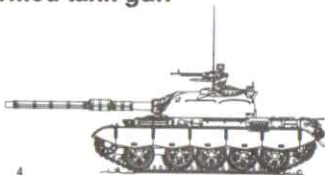
ARMAMENT:

- Main: 100mm, 34 rds, 1300m max eff range
- Other: Coax 7.62mm SGMT/PKT MG, Bow 7.62mm MG, Turret 12.7mm DShK MG

RECOGNITION:

- 5 road wheels - no return rollers
- Space between 1st and 2nd road wheels
- Bore evacuator at end of barrel
- Front climbing handles on turret are straight
- Splash plate is straight
- Rear of tank chassis is straight
- Turret when viewed from side is half-egg shaped

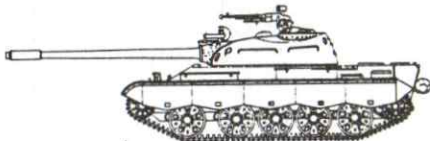
Type 59 MBT with 105mm rifled tank gun



CHARACTERISTICS:

CREW	4
COMBAT WEIGHT	36,500-37,000 kg
LENGTH	
gun forward	8.657 m
WIDTH	3.298 m
HEIGHT	3.909 m
MAX ROAD SPEED	50 km/h
MAX ROAD RANGE	420-140 km
ARMAMENT	
main	1 x 100 mm gun
AMMUNITION	
main	34

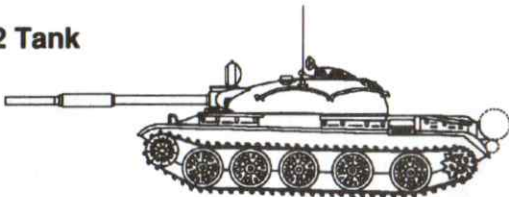
Type 69-II MBT



CHARACTERISTICS:

CREW	4
COMBAT WEIGHT	36,000 kg
LENGTH GUN FORWARD	9 m
LENGTH HULL	6.04 m
WIDTH	3.27 m
HEIGHT	2.59 m
MAX ROAD SPEED	40-50 km/h
RANGE	
main fuel supply	420-440 km
main - external supply	600 km
ARMAMENT	
main	1 x 100 mm Type 59 gun
AMMUNITION	
main	34

T-62 Tank



CHARACTERISTICS:

- Crew: 4
- Speed (max): 50kph
- L: 6.6m
- Range: 650km w/aux tanks
- W: 3.3m
- Cbt Weight: 40mt
- H: 2.4m

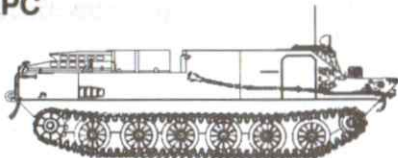
ARMAMENT:

- Main: 115mm, 40 rds, 2000m max eff rng
- Other: Coax 7.62mm PKT MG, Turret 12.7mm DShKM MG

RECOGNITION:

- 5 road wheels - no return rollers
- Space between 3rd & 4th and 4th & 5th road wheels
- Bore evacuator 1/3 down from muzzle
- Front climbing handles on turret are curved
- Splash plate is straight
- Turret when viewed from side is rounded

BTR-50P APC



CHARACTERISTICS:

- Crew: 2 + 20 passengers
- L: 7.3m
- W: 14.2m
- H: 1.9m
- Speed (max): 45kph (10kph water)
- Range: 240km w/aux tanks
- Cbt Weight: 14.2mt

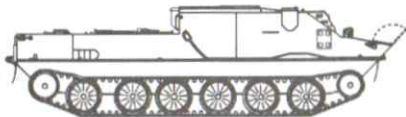
ARMAMENT:

- Main: 7.62mm SGMB MG

RECOGNITION:

- 6 road wheels - no return rollers
- Circular, forward opening cupola on front left
- Bow-shaped hull at front
- Troop compartment open and forward of center
- Two hydrojet covers on right/left rear chassis

BTR-50PK APC



CHARACTERISTICS:

- Crew: 2 + 20 passengers
- L: 7.3m
- W: 3.1m
- H: 1.9m
- Speed (max): 45 kph (10 kph water)
- Range: 240 km
- Cbt Weight: 14.2 mt

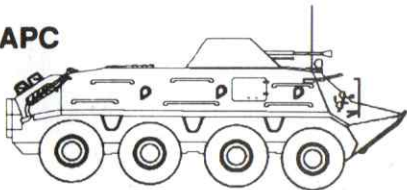
ARMAMENT:

- Main: 7.62 mm SGMB MG

RECOGNITION:

- Six road wheels - no return rollers
- Wedge-shaped front
- Lowered rear deck
- Full overhead armor protection
- Covered ports in rear for hydrojets
- Two firing ports in each side of hull

BTR-60PB APC



CHARACTERISTICS:

- Crew: 2 + 8 to 14 passengers
- L: 7.6m • Speed (max): 80kph (10kph water)
- W: 2.8m • Range: 500km
- H: 2.3m • Cbt Weight: 10.3mt

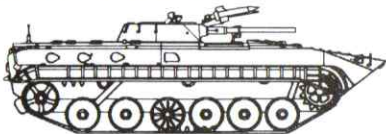
ARMAMENT:

- Main: 14.5mm KPV MG
- Other: 7.62mm PKT MG

RECOGNITION:

- 8 road wheels
- Wheels evenly spaced w/foot step in between
- Pointed bow w/ trim vane mounted below hull nose
- BRDM-2 style machine gun turret forward on hull
- Covered troop compartment
- Engines mounted in rear
- Well sloped armor

BMP-1 Infantry Fighting Vehicle



CHARACTERISTICS:

- Crew: 3 + 6 to 8 passengers
- L: 6.7m • Speed (max): 80kph (6-8kph water)
- W: 2.9m • Range: 500km
- H: 2.2m • Cbt Weight: 13.5mt

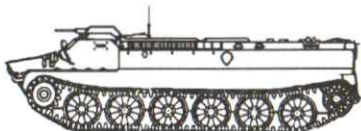
ARMAMENT:

- Main: 73mm smoothbore cannon, 40 rds
- Other: 7.62mm PKT MG, AT-3 Sagger ATGM

RECOGNITION:

- Six road wheels - three return rollers
- Sloping front glacis with raised horizontal ribbing
- Two bulging rear troop doors
- Centrally located, flattened conical turret
- Exposed Sagger launch rail mounted above gun

MT-LB APC/Armored Transporter



CHARACTERISTICS:

- Crew: 2 + 11 passengers
- L: 6.5m • Speed (max): 60kph (6kph water)
- W: 2.9m • Range: 500km
- H: 1.9m • Cbt Weight: 11.9mt

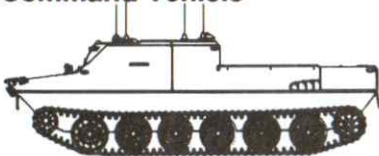
ARMAMENT:

- Main: 7.62mm PKT MG

RECOGNITION:

- Six road wheels - no return rollers
- Large drive sprocket at front of vehicle
- Sharp bow with large plate bolted on top
- Rear is square in appearance with two flat doors
- Small flat topped turret on right front

BTR-50PU Command Vehicle



CHARACTERISTICS:

- Crew: 2
- L: 7.3m • Speed (max): 45kph
- W: 3.1m • Range: 240km
- H: 1.9m • Cbt Weight: 14.2mt

ARMAMENT:

Unarmed

RECOGNITION:

- Six road wheels - no return rollers
- Hatches on top of troop compartment are oval-shaped and open toward center
- Usually has 4-5 antenna mounts
- Vents located atop the troop compartment
- Has one cupola on front of troop compartment
- Wedge-shaped front

BTR-60PU Command Vehicle



CHARACTERISTICS:

- Crew: 4 - 6
- L: 7.6m
- W: 2.8m
- H: 2.3m
- Speed (max): 80kph
- Range: 500km
- Cbt Weight: 10.3mt

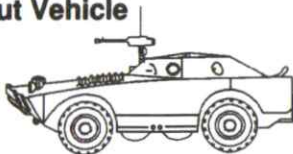
ARMAMENT:

Unarmed

RECOGNITION:

- Bent diapole antenna that runs entire length of vehicle top
- Has canvas roof
- No turret
- Additional communications equipment

BRDM-1 Scout Vehicle



CHARACTERISTICS:

- Crew: 2 + 3 passengers
- L: 5.6m
- W: 2.2m
- H: 1.9m
- Speed (max): 80kph
- Range: 500km
- Cbt Weight: 5.6mt

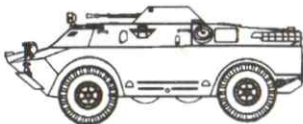
ARMAMENT:

- Main: 12.7mm DShK MG
- Other: Coax 7.62mm PKT MG

RECOGNITION:

- Two axle, 4-wheeled vehicle with long, sloping front deck.
- Four retractable auxiliary or "belly" wheels.
- Raised, hexagonal-shaped superstructure with smooth, angled sides.
- Square rear with climbing handles on right and left rear deck
- Teardrop-shaped hydrojet cover on rear.

BRDM-2 Scout Vehicle



CHARACTERISTICS:

- Crew: 2 to 4 or 5 + up to 4 troops
- L: 5.7m
- W: 2.4m
- H: 2.3m
- Speed (max): 100kph
- Range: 750km
- Cbt Weight: 7.0mt

ARMAMENT:

- Main: 14.5mm KPVT MG
- Other: Turret coax 7.62mm PKT MG

NOTES: Some Iraq BRDM-2s may have mounted a 22mm cannon instead of the 14.5mm MG.

RECOGNITION:

- 2-axle, 4-wheel vehicle with 4 belly wheels
- Conical turret centered on superstructure
- Superstructure slopes downward towards rear
- Vision blocks on both sides of superstructure
- Teardrop-shaped hydrojet cover on rear

BMD-1 Airborne Combat Vehicle



CHARACTERISTICS:

- Crew: 3 + 4 passengers
- L: 5.4 m
- W: 2.6m
- H: 1.8m
- Speed (max): 70kph (10kph water)
- Range: 320km
- Cbt Weight: 7.37mt

ARMAMENT:

- Main: 73mm smoothbore cannon
- Other: Coax 7.62mm PKT MG; 2 x bow 7.62mm PKT MGs; AT-3 Sagger or AT-4 Spigot ATGM

RECOGNITION:

- Five road wheels - 4 return rollers
- BMP-type turret set forward on hull
- Boat shaped hull with smooth front deck and flat rear deck
- Two hydrojets in rear
- Rear mounted engine
- Exposed AT-3 Sagger launch rail mounted above cannon

PRC Type WY 701 Command Vehicle



CHARACTERISTICS:

CREW	2 + 13
COMBAT WEIGHT	12,600 kg
LENGTH	5.476m
WIDTH OVERALL	2.978m
HEIGHT (overall)	2.58m
MAX SPEED	
road	65 km/h
water	6 km/h
MAX ROAD RAGE	500 km
ARMAMENT (main)	1-12.7mm MG
AMMUNITION	1120 rounds

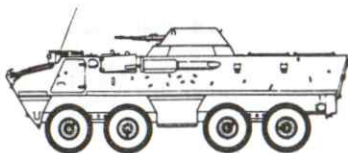
PRC Type 63/YW 531



CHARACTERISTICS:

CREW	2 + 13
COMBAT WEIGHT	12,600 kg
LENGTH	5.476m
WIDTH OVERALL	2.978m
HEIGHT (overall)	2.58m
MAX SPEED	
road	65 km/h
water	6 km/h
MAX ROAD RAGE	500 km
ARMAMENT (main)	1-12.7mm MG
AMMUNITION	1120 rounds

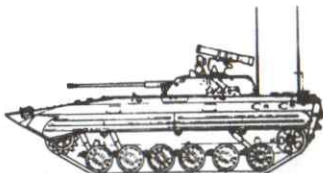
OT-64C(1) APC



CHARACTERISTICS:

CREW	2-15
CONFIGURATION	8 x 8
COMBAT WEIGHT	14,500 kg
LENGTH	7.44 m
WIDTH	2.55 m
HEIGHT	2.71 m
MAX SPEED	
road	94.4 km/h
ARMAMENT	
main	1 x 14.5 mm MG
AMMUNITION	
main	500

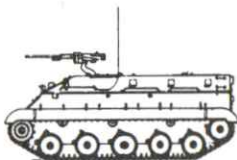
BMP-2



CHARACTERISTICS:

MODEL	BMP-2
CREW	3-7
COMBAT WEIGHT	14.3 tonnes
LENGTH	6.858 m
WIDTH	3.134 m
HEIGHT	2.756
MAX SPEED	
road	65 km/h
ARMAMENT	
main	30mm
secondary	7.62mm
AMMUNITION	
main	500
secondary	2000

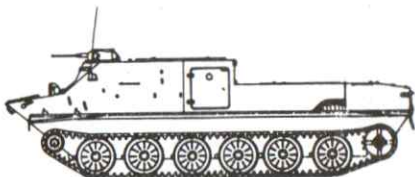
M-60P APC with 12.7 mm machine gun



CHARACTERISTICS:

CREW	3-10
COMBAT WEIGHT	11,000 kg
LENGTH	5.02 m
WIDTH	2.77 m
HEIGHT	1.86 m
MAX RANGE	
road	400 km
cross-country	250 km
ARMAMENT	
antiaircraft	1 x 12.7 mm MG
bow	1 x 7.62 mm MG

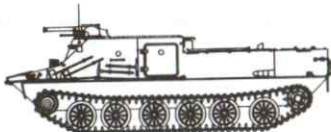
OT-62B armoured personnel carrier



CHARACTERISTICS:

CREW	2 - 18
COMBAT WEIGHT	15,000 kg
LENGTH	7.06 m
WIDTH	3.14 m
HEIGHT Including turret	2.23 m
MAX SPEED	
road	58.4 km/h
MAX ROAD RANGE	460 km
ARMAMENT	
main	1 x 7.62 mm MG
SMOKE-LAYING EQUIPMENT	diesel fuel injected into exhaust system

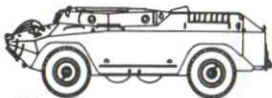
OT-62C



CHARACTERISTICS:

CREW	3-12
COMBAT WEIGHT	16,390 kg
LENGTH	7 m
WIDTH	3.225 m
HEIGHT including turret	2.725 m
MAX SPEED	60 km/h
road	60 km/h
MAX ROAD RANGE	570 km
ARMAMENT	
main	1 x 14.5 mm MG
coaxial	1 x 7.62 mm MG
SMOKE-LAYING EQUIPMENT	fuel injected into exhaust system
AMMUNITION	
14.5 mm	500

FUG (OT-65A) reconnaissance vehicle



CHARACTERISTICS:

CREW	2-4
CONFIGURATION	4 x 4
COMBAT WEIGHT	7,000 kg
LENGTH	5.79 m
WIDTH	2.5 m
HEIGHT with turret OT-65A	2.25 m
MAX SPEED	
road	87 km/h
MAX CRUISING RANGE	
road	600 km
MAIN ARMAMENT	1 x 7.62 mm MG
AMMUNITION	
(main)	1,250
ARMOR (max)	13 mm

ENGESA EE-11 APC with 12.7 mm M2 MG



CHARACTERISTICS:

CREW	13 (12 + 1)
CONFIGURATION	6 x 6
COMBAT WEIGHT	14,000 kg
UNLOADED WEIGHT	11,000 kg
LENGTH	6.1 m
WIDTH	2.85 m
HEIGHT	
to hull top	2.125 m
MAX ROAD SPEED	100 km/h
MAX RANGE	
road	850 km
ARMAMENT	12.7mm M2 MG
SMOKE-LAYING EQUIPMENT	2 or 3 smoke dischargers either side of turret (optional)

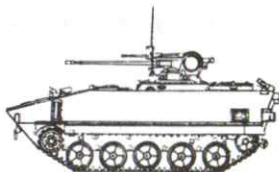
ENGESA EE-9 Cascavel



CHARACTERISTICS:

CREW	3
CONFIGURATION	6 x 6
COMBAT WEIGHT	13,400 kg
UNLOADED WEIGHT	10,900 kg
LENGTH GUN FORWARDS	6.2 m
LENGTH HULL	5.2 m
WIDTH	2.64 m
HEIGHT	
top of commander's cupola	2.68 m
MAX ROAD SPEED	100 km/h
MAX CRUISING RANGE	880 km
ARMAMENT	
main	1 x 90 mm gun
secondary	1 x 7.62 mm MG
SMOKE-LAYING EQUIPMENT	3 smoke dischargers either side of turret
AMMUNITION	
main	44
secondary	2,200

AMX-10P ICV



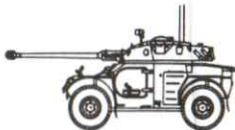
CHARACTERISTICS:

CREW	3-8
COMBAT WEIGHT	14,500 kg
LENGTH	5.778 m
WIDTH	2.78
HEIGHT	2.57
MAX ROAD SPEED	85 km/h
ARMAMENT	1 x 20 mm cannon
SMOKE-LAYING EQUIPMENT	2 x 2 smoke dischargers
AMMUNITION	
main	760

Panhard AML with H 90 turret armed with 90 mm gun

CHARACTERISTICS

CREW	3
CONFIGURATION	4 x 4
COMBAT WEIGHT	5,500 kg
LENGTH GUN FORWARD	5.11 m
LENGTH HULL	3.79 m
WIDTH	1.97 m
HEIGHT overall	2.07 m
MAX ROAD SPEED	90 km/h
MAX ROAD RANGE	600 km
ARMAMENT	
main	1 x 90 mm gun
SMOKE-LAYING EQUIPMENT	2 x 2 smoke dischargers
AMMUNITION	
main	20
coaxial	2,000
smoke grenades	12



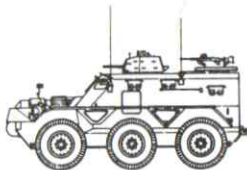
FIAT-OTO Melara Type 6614 APC with 12.7 mm machine gun



CHARACTERISTICS:

CREW	1-10
CONFIGURATION	4 x 4
COMBAT WEIGHT	8,500 kg
LENGTH OF HULL	5.86 m
WIDTH	2.5 m
HEIGHT inc MG mount	2.18 m
MAX SPEED	
road	100 km/h
MAX ROAD RANGE	700 km
ARMOR	6-8 mm

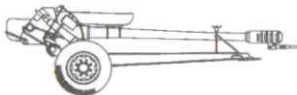
Alvis Saracen APC with reverse-flow cooling



CHARACTERISTICS:

CREW	2-10
CONFIGURATION	6 x 6
COMBAT WEIGHT	10,170 kg
LENGTH HULL	5.233 m
WIDTH	2.539 m
HEIGHT to turret top	2.463 m
MAX ROAD SPEED	72 km/h
MAX RANGE	400 km
ARMAMENT	
turret	1 x 7.62 mm MG
ring-mounted	1 x 7.62 mm MG
SMOKE-LAYING EQUIPMENT	2-3 smoke dischargers
AMMUNITION	3,000

D-30 (122mm) Howitzer



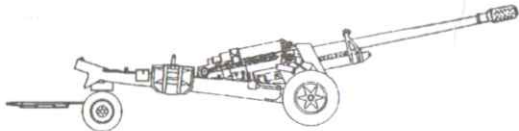
CHARACTERISTICS:

- Crew: 8
- Range (max): 15,300m
- L: 5.4m
- Sustained rate of fire: 75 rds/hr
- W: 2.0m
- Cbt Weight: 3180kg
- H: 1.8m
- Prime movers: MT-LB, ZIL -157, URAL-375D

RECOGNITION:

- Multi-baffle muzzle brake with towing lunette attached
- Unusual location of recoil mechanism above tube
- 3 split trails-folded under tube when towed
- Prominent covered "pea-pod" recoil mechanism above tube

M-46 (130mm) Field Gun



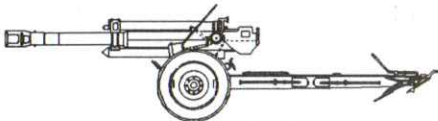
CHARACTERISTICS:

- Crew: 8
- Range (max): 27,490m
- L: 11.7m
- Sustained Rate of Fire: 70 rds/hr
- W: 2.5m
- Cbt Weight: 8450kg
- H: 2.6m
- Prime movers: AT-P, AT-S, ATS-59, M-1972

RECOGNITION:

- Long barrel
- "Pepper-pot" muzzle brake
- Split trail carriage with 2-wheeled limber and detachable spades
- Recoil mechanism below gun tube in front of shield
- Recuperator above tube behind shield
- Split winged shield with flat top

D-1 (152mm) Howitzer



CHARACTERISTICS:

- Crew: 9
- Range (max): 12,400m
- L: 5.9m
- Sustained Rate of Fire: 65 rds/hr
- W: 1.9m
- Cbt Weight: 3620kg
- H: 1.8m
- Prime movers: AT-S

RECOGNITION:

- Double-baffle muzzle brake
- Box-section split trails (same as 122mm M-30)
- Swept-back shield with sliding center section
- Recuperator/recoil mechanism above and below gun tube

D-20 (152mm) Gun-Howitzer



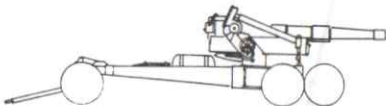
CHARACTERISTICS:

- Crew: 10
- Range (max): 17,230m
- L: 8.1m
- Sustained Rate of Fire: 65 rds/hr
- W: 2.4m
- Cbt Weight: 5800kg
- H: 2.5m
- Prime Movers: AT-S, URAL 375, TATRA-813

RECOGNITION:

- Double-baffle flared muzzle brake
- Stepped-down barrel with prominent splines and ring
- Box-section split trails with prominent bogeys on top
- Shield top is irregular and has sliding center section
- Circular firing platform under tube forward of shield
- Shield top and circular platform fold down in transit
- Dual recoil cylinders above gun tube pass through shield

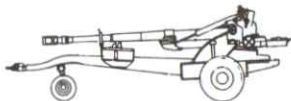
8-inch howitzer M115



CHARACTERISTICS:

CALIBER	203.2 mm
BARREL LENGTH	5.142 m
WEIGHT	14,515 kg
LENGTH	10.972 m
WIDTH	2.844 m
HEIGHT	2.743 m
RATE OF FIRE	
max	1 rpm
sustained	1 round per 2 min
MAX RANGE	16,800 m
CREW	14

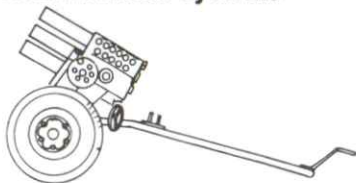
155 mm FH-70



CHARACTERISTICS:

CALIBER	155 mm
BARREL LENGTH	6.022 m
WEIGHT	9,300 kg
LENGTH	12.43 m
WIDTH	2.56 m
HEIGHT	2.56 m
RATE OF FIRE	
normal	6 rpm
MAX RANGE	
standard projectile	24,700 m
base bleed projectile	31,500 m
CREW	7 or 8

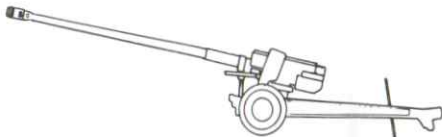
107 mm (12-round) Type 63 and Rocket Systems



CHARACTERISTICS:

TYPE 63	
CALIBER	107 mm
NUMBER OF BARRELS	12
NUMBER OF ROCKETS	12
RATE OF FIRE	12 rds in 15 secs
RELOAD TIME	3 min
WEIGHT IN FIRING POSITION	611 kg
LENGTH TRAVELING	2.6 m
WIDTH TRAVELING	1.4 m
HEIGHT TRAVELING	1.2 m
CREW	5

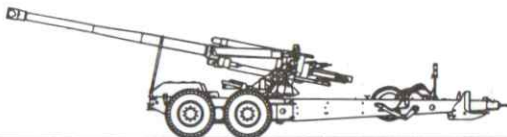
130 mm Field Gun Type 59-1



CHARACTERISTICS:

CALIBER	130 mm
WEIGHT	6,300 kg
LENGTH (traveling)	10.8 m
WIDTH (traveling)	2.42 m
HEIGHT (traveling)	2.75 m
RATE OF FIRE	5-6 rpm
RANGE (HE)	27,490 m
CREW	8-10
TOWING VEHICLE	6 x 6 truck

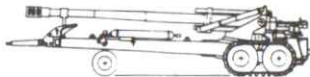
155 mm G5 howitzer



CHARACTERISTICS:

CALIBRE	155 mm
BARREL LENGTH	6.975 m
CARRIAGE	split trail with APU
WEIGHT	13,500 kg
LENGTH	
travelling	9.1 m
WIDTH	
travelling	2.5 m
RATE OF FIRE	
max	3 rpm for 15 mins
MAX RANGE (sea level)	
standard	30,000 m
HE BB	39,000 m
MINIMUM RANGE (+75°)	3,000 m
CREW	8

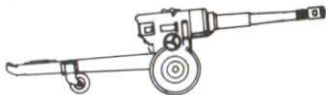
NORICUM GH N-45 155 mm gun howitzers



CHARACTERISTICS:

MODEL	TOWED	APU
CALIBER	155 mm	155 mm
BARREL LENGTH	7.046 m	7.046 m
LENGTH TRAVELING		
barrel forward	13.97 m	13.97 m
HEIGHT (traveling)	2.05 m	2.05 m
RANGE		
ERFB	30,300 m	30,300 m
ERFB BB	39,600 m	39,600 m
RATE OF FIRE		
normal	2 rpm unlimited	2 rpm unlimited
maximum	7 rpm	7 rpm
burst	3 rounds/16 s	3 rounds/16 s
CREW	6	6

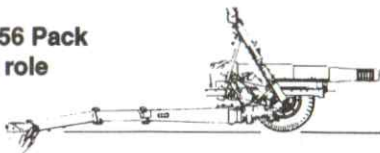
152 mm gun-howitzer Type 66 in firing position



CHARACTERISTICS:

CALIBER	152.4 mm
BARREL LENGTH (overall)	5.195 m
WEIGHT	5,720 kg
LENGTH (traveling)	8.69 m
WIDTH (traveling)	2.42 m
HEIGHT	
travelling	2.52 m
RATE OF FIRE	6-8 rpm
RANGE	17,230 m
CREW	10-12

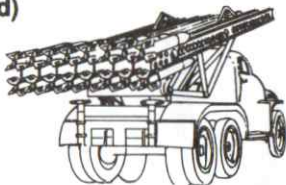
OTO Melara 105 mm 56 Pack Howitzer in anti-tank role



CHARACTERISTICS (data in square brackets relates to antitank configuration):

CALIBER	105 mm
LENGTH	
firing	4.8 [4.7] m
WIDTH	
firing	2.9 [4] m
HEIGHT	
travelling	1.93 m
firing	1.93 [1.55] m
RATE OF FIRE	
for 30 minutes	4 rpm
for 1 hour	3 rpm
antitank	8 rpm
MAX RANGE	
(normal HE projectile)	10,575 m
CREW	7

132mm BM-13-16 (16-round) Multiple Rocket System



CHARACTERISTICS:

CALIBER	132mm
NUMBER OF LAUNCHER RAILS	8 (two rockets per rail; one on top and one underneath)
LENGTH OF ROCKET	1,743 m
WEIGHT OF ROCKET	42.5 kg
MAX RANGE	8,000m
MAX VELOCITY	350 m/s
RELOAD TIME	5-10 minutes
CREW	6

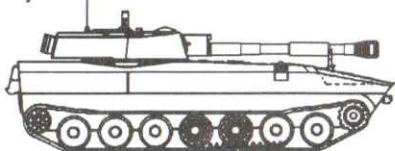
122 mm (12-round) Multiple Rocket Launcher System



CHARACTERISTICS:

CALIBER	122 mm
NUMBER OF BARRELS	12
MAX RANGE	14,000 m
MIN RANGE	1,500 m
LENGTH (travelling)	4,830 m
WIDTH (travelling)	1,775 m
HEIGHT	
travelling (launcher at 35°)	2,815 m
MAX SPEED	
road	60 km/h
cross-country	15-20 km/h

2S1 (122mm) SP Howitzer



CHARACTERISTICS:

- Crew: 4
- L: 7.4m • Speed (max): 70kph
- W: 3.0m • Range: 500km
- H: 2.4m • Cbt Weight: 20mt

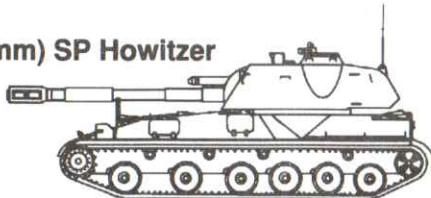
ARMAMENT:

Main 122mm howitzer
Range 15,300m (21,900m w/RAP)
Rate of Fire (max) 4-6 rds/min

RECOGNITION:

- 7 pressed road wheels - no return rollers
- Double-baffle muzzle brake with bore evacuator immediately aft.
- Gun barrel does not extend beyond vehicle front
- Single flat door on rear of hull
- Large IR searchlight mounted on top left of turret

2S3 (152mm) SP Howitzer



CHARACTERISTICS:

- Crew: 4 + 2 in ammo carrier
- L: 8.4m • Speed (max): 55 kph
- W: 3.2m • Range: 500km
- H: 2.8m • Cbt Weight: 25.30mt

ARMAMENT:

Main 152mm gun/howitzer
Range 17,230m (21,880m w/RAP)
Rate of Fire (max) 2 rds/min
Other Turret 7.62mm PKT MG

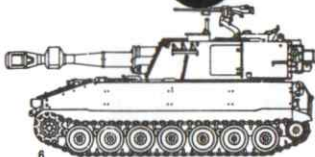
RECOGNITION:

- 6 large road wheels - 4 return rollers
- Gap between 1st & 2nd and 2nd & 3rd road wheels
- Large turret set back on hull
- Massive double-baffle muzzle brake
- Gun tube extends beyond the front of the vehicle
- Recoil cylinders above gun tube
- Similar to American M-109

M109 series of 155 mm self-propelled howitzers

CHARACTERISTICS: (M109A2)

CREW	6
COMBAT WEIGHT	23,948 kg
LENGTH GUN	
FORWARDS	9.12 m
LENGTH HULL	6.19 m
WIDTH	3.1 m
HEIGHT	2.8 m
MAX ROAD SPEED	56.3 km/h
MAX ROAD RANGE	349 km
ARMAMENT	
main	1 x 155 mm howitzer
anti-aircraft	1 x 12.7 mm or 7.62 mm MG
AMMUNITION	
main	34 plus 2 CLGP
12.7 mm anti-aircraft	500
SUSTAINED RATE OF FIRE	1 rpm
RANGE	
conventional/extended	18,000m/24,000m



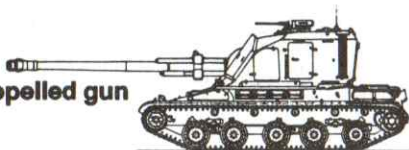
M110 203 mm self-propelled howitzer in traveling order

CHARACTERISTICS:

CREW	5
COMBAT WEIGHT	26,534 kg
LENGTH GUN	
FORWARD	7.467 m
LENGTH HULL	5.72 m
WIDTH	3.149 m
HEIGHT to top of barrel traveling	2.93 m
MAX ROAD SPEED	56 km/h
MAX ROAD RANGE	725 km
AMMUNITION	2 rounds
RANGE	16,800m
RATE OF FIRE	1 rd/2 min



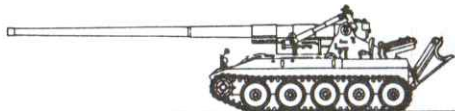
155 mm GCT self-propelled gun



CHARACTERISTICS:

CREW	4
COMBAT WEIGHT	42,000 kg
LENGTH HULL	6.7 m
WIDTH	3.15 m
HEIGHT (to turret top)	3.25 m
MAX ROAD RANGE	450 km at 40 km/h
ARMAMENT	
main	1 x 155 mm gun
antiaircraft	1 x 7.62 mm or 12.7 mm MG
SMOKE-LAYING EQUIPMENT	2 x 2 smoke dischargers
AMMUNITION	
main	42
antiaircraft	2,050 rounds of 7.62 mm or 800 rounds of 12.7 mm
RANGE	
conventional/extended	24,000m/52,000m
SUSTAINED RATE OF FIRE	2 rpm

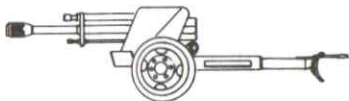
M107 175 mm self-propelled gun in traveling order



CHARACTERISTICS:

CREW (on gun)	5
COMBAT WEIGHT	28,168 kg
LENGTH HULL (without gun or spade)	5.72 m
WIDTH	3.149 m
HEIGHT to top of barrel, traveling	3.679 m
MAX ROAD SPEED	56 km/h
MAX ROAD RANGE	725 km
RANGE	32,700 m
RATE	1 rpm

105 mm M56 howitzer in firing position



CHARACTERISTICS:

CALIBER	105 mm
BARREL LENGTH (overall)	3.48 m
WEIGHT (traveling order)	2,100 kg
LENGTH (traveling)	6.17 m
WIDTH (traveling)	2.15 m
HEIGHT (traveling)	1.56 m
HEIGHT (traveling) at max elevation	3.8 m
RATE OF FIRE	16 rpm
MAX RANGE	13,000 m
CREW	7
TOWING VEHICLE	TAM 1500 (4 x 4) truck

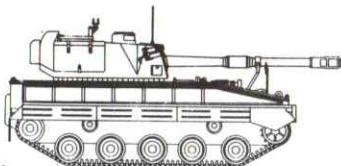
Production version of OTO Melara Palmaria 155 mm self-propelled



CHARACTERISTICS:

CREW	5	RANGE	conventional/extended	24,700m/30,000m
COMBAT WEIGHT	46,000 kg	SUSTAINED RATE OF FIRE		2 rpm
LENGTH				
gun forward	11.474 m			
WIDTH	3.35 m			
HEIGHT	2.874 m			
MAX SPEED (forward)	60 km/h			
MAX CRUISING RANGE	500 km			
ARMAMENT				
main	1 x 155 mm howitzer			
antiaircraft	1 x 7.62 mm MG			
AMMUNITION (main)	30			

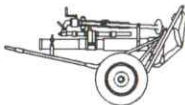
Abbot 105 mm self-propelled gun



CHARACTERISTICS:

CREW	4
COMBAT WEIGHT	16,556 kg
LENGTH GUN	
FORWARD	5.84 m
LENGTH HULL	5.709 m
WIDTH	2.641 m
HEIGHT	2.489 m
ARMAMENT	
main	1 x 105 mm howitzer
antiaircraft	1 x 7.62 mm MG
SMOKE-LAYING EQUIPMENT	2 x 3 smoke dischargers
AMMUNITION	
main	40
antiaircraft	1,200
RANGE	17,000m
SUSTAINED RATE OF FIRE	8 rpm

M-1943 (120mm) MO-120 Mortar



CHARACTERISTICS:

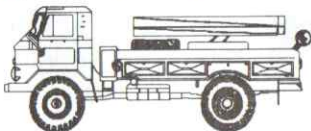
- Crew: 6
- L: 2.5m
- W: 1.7m
- H: 1.7m
- Range: 5,700m
- Rate of fire (max): 15 rds/min
- Cbt Weight: 521kg (traveling)

Prime Mover: various trucks and APCs

RECOGNITION:

- Circular baseplate
- Bipod mount
- Often seen with anti-double loading safety device at the end of the muzzle
- Two wheel transporter available

M-1975 (122mm) Airborne MRL



CHARACTERISTICS:

- Crew: INA
- L: 5.7m • Speed (max): 95 kph
- W: 2.3m • Range: 875km
- H: 2.4m • Cbt Weight: 5.7mt

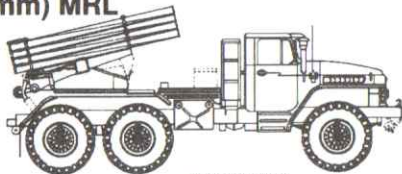
ARMAMENT:

- Main: 122mm rockets (12 tubes)
- Range: 20,500m (long rockets)
- Rnd type: smoke, HE, WP, chemical

RECOGNITION:

- Mounted on GAZ-66 4x4 truck chassis
- 12 tubes arranged in 2 banks of 6 tubes each
- Reduceable-height for airdrop variant only

BM-21 (122mm) MRL



CHARACTERISTICS:

- Crew: 6
- L: 7.4m • Speed (max): 75 kph
- W: 2.7m • Range: 405 km
- H: 2.9m • Cbt Weight: 13.3 mt

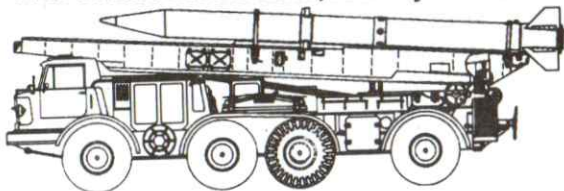
ARMAMENT:

- Main: 122mm rockets (40 tubes)
- Range (max): 20,500m (long rockets)
- Rnd type: smoke, HE, WP, chemical

RECOGNITION:

- Mounted on URAL-375D 6x6 chassis
- 40 tubes arranged in 4 banks of 10 tubes each
- Has a distinctive rear fender design
- Carries a spare tire at the rear of the cab
- Troop seats forward of the rear wheels
- Blast shields not fitted as on other MRLs
- Exhaust and muffler mounted under front bumper
- Pallet and mount tarped in transit

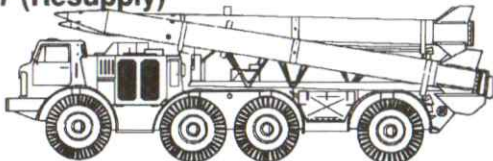
FROG 7 - Free Rocket Over Ground, Artillery Rocket System



CHARACTERISTICS:

DIAMETER OF BODY	544mm
NUMBER OF ROCKETS PER LAUNCHER	1 (single rail)
MAXIMUM RANGE	70,000 m
MINIMUM RANGE	11,000 m
LENGTH (traveling vehicle w/rocket)	10,800mm
WIDTH (traveling vehicle w/rocket)	2,800mm
HEIGHT (traveling vehicle w/rocket)	3,660mm
MAXIMUM SPEED (road)	65 km/h
(cross country)	20 km/h
WARHEADS AVAILABLE	FRAG-HE shaped charge; ICM; chemical

FROG-7 (Resupply)



CHARACTERISTICS:

- Crew: 4
- L: 10.8m
- W: 2.8m
- H: 3.5m
- Speed (max): 70 kph
- Range: 400 km
- Cbt Weight: INA

ARMAMENT:

- Main: 3 x VOLGA free rocket over ground SSMS
- Range: 12-70km
- Length: 9m
- Warhead: HE, chemical, nuclear

RECOGNITION:

- ZIL-135 8x8 chassis with 1-2-1 wheel arrangement
- Carries 3 rockets which extend over cab
- Center rocket is above other two at vehicle rear
- Circular jack stand plates not mounted
- Rockets normally tarped with square projection over cab

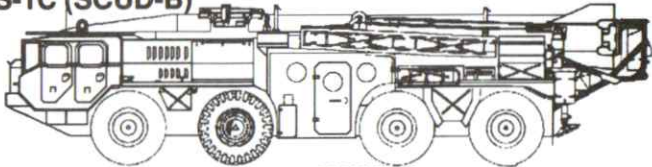
ASTROS II MULTIPLE ROCKET LAUNCHER; 127mm, 180mm, 300mm



CHARACTERISTICS:

CALIBER	127 mm	180 mm	300 mm
TUBES PER LAUNCHER	32	16	4
MAXIMUM RANGE	15,300 m	35,000 m	60,000 m
MINIMUM RANGE	9,000 m	15,000 m	20,000 m
LENGTH (traveling)	8,000 mm	8,000 mm	8,000 mm
WIDTH (traveling)	2,400 mm	2,400 mm	2,400 mm
HEIGHT (traveling)	2,600 mm	2,600 mm	2,600 mm
MAXIMUM SPEED (road)	70 km/h	70 km/h	70 km/h
(cross country)	40 km/h	40 km/h	40 km/h
WARHEADS AVAILABLE	HE-CF	HE-CF DPICM	HE-CF DPICM

SS-1C (SCUD-B)



CHARACTERISTICS:

- Crew: 8
- L: 12.0m • Speed (max): 70kph
- W: 3.0m • Range: 550km
- H: 2.6m • Cbt Weight: 29.00mt

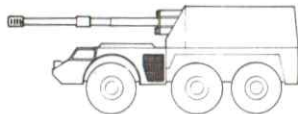
ARMAMENT:

- Main: 1 x SCUD inertial-guided SSM
- Range: 180-300km • Length: 11.5m
- Warhead: HE, chemical, nuclear

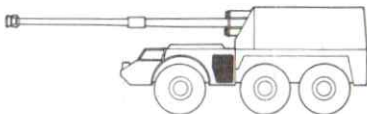
RECOGNITION:

- MAZ-543 8x8 chassis
- One missile is carried in a cradle which extends the length of the vehicle
- The vehicle cab is split
- Tubular firing table overhangs the rear of vehicle
- Missile launched from vertical position

Majnoon 155 mm SP



Al Fao 210mm SP



CHARACTERISTICS:

MODEL	Majnoon	Al Fao
CONFIGURATION	6 x 6	6 x 6
WEIGHT	43,000 kg	48,000 kg
LENGTH OVERALL	12 m	15 m
WIDTH	3.5 m	3.5 m
HEIGHT	3.6 m	3.6 m
MAX ROAD SPEED	90 km/h	90 km/h
CROSS-COUNTRY SPEED	60-70 km/h	60-70 km/h
ARMAMENT		
main	1 x 155 mm	1 x 210 mm
LENGTH OF BARREL	8.06 m	11.13 m
RANGE ERFB	30,200 m	45,000 m
RANGE ERFB-BB	38,800 m	57,340 m
PROJECTILE WEIGHT	45.5 kg	109.4 kg
RATE OF FIRE	4 rpm	4 rpm
SUSTAINED RATE OF FIRE	1 rpm	1 rpm

AT-1 (SNAPPER) ATGM



CHARACTERISTICS:

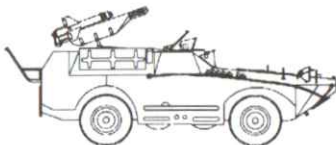
MISSILE:

- L: 1.1m
- Diameter: 140mm
- Weight: 22.3kg
- Fin Span: .78m
- Command Link: Wire
- Range (max/min): 2300/370m
- Flight time to max range: 19sec

RECOGNITION:

- BRDM-1 or GAZ-69 launch platforms
- Guide-rail launched
- Four missiles mounted in GAZ-69 application
- Three missiles mounted in BRDM-2 versions
- GAZ-69 launcher is canvas covered in transit

AT-2 (SWATTER) ATGM



CHARACTERISTICS:

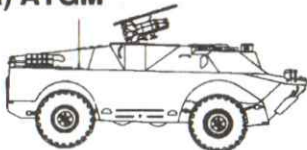
MISSILE:

- L: 1.2m
- Diameter: 148mm
- Weight: 27.0kg
- Fin Span: .70m
- Command Link: Radio
- Range (max/min): 4000/INAM
- Flight time to max range: 26sec

RECOGNITION:

- BRDM-1, BRDM-2, Mi-8 Hip-E, Mi-24 Hind-A/D, Ka-25 Hormone launch platforms
- Guide-rail launched
- Cylindrical body
- Blunt spherical nose
- Four large fins with 2 small "spoiler" fins forward
- Four missiles mounted in BRDM-2 installation

AT-3 (SAGGER) ATGM



CHARACTERISTICS:

MISSILE:

- L: .86m
- Weight: 22.3kg
- Command Link: Wire
- Range (max/min): 3000/500m
- Flight time to max range: 25sec
- Diameter: 120mm
- Fin Span: 40m

RECOGNITION:

- Manpack, BRDM-1, BRDM-2, BMP, BMD, OT-64/SKOT, B0V-1, MI-2 HOPLITE MI-8 HIP-F, MI-24-A and D launch platforms
- Guide-rail launched
- Short cylindrical body
- Blunt conical nose
- 4 tail fins
- Two clusters of three missiles in BRDM-1 mount

AT-4 (SPIGOT) Anti-Tank Missile

CHARACTERISTICS:

- TYPE: Man-portable surface-to-surface wire-guided anti-tank missile
GUIDANCE: Semi-automatic command to line of sight; optical tracking
PROPULSION: Solid
WARHEAD: HEAT
LAUNCHER LENGTH: 1.2m
LAUNCHER DIAMETER: 13.5cm
LAUNCH WEIGHT: 10-12 kg (estimated)
RANGE: 2000m/s (approx)
PENETRATION: 500 mm



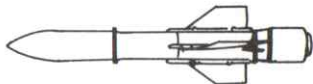
AT-5 (SPANDREL) Anti-Tank Missile

CHARACTERISTICS:

TYPE: Surface-to-surface guided anti-tank missile
GUIDANCE: Command to line of sight; optical tracking
PROPULSION: Solid
WARHEAD: HEAT
LAUNCHER LENGTH: 1.3m
LAUNCHER DIAMETER: 155cm
LAUNCH WEIGHT: 12 - 18 kg (estimated)
RANGE: Approx 4000m (approx) (estimated)
PENETRATION: 500 mm



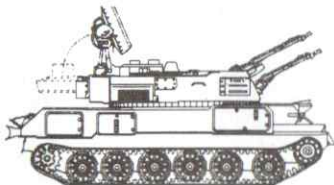
HOT Anti-Tank Missile (International)



CHARACTERISTICS:

TYPE: Long-range, vehicle-mounted, wire-guided, antitank weapon with airborne applications
GUIDANCE METHOD: Wire-guidance control of jet vane system
WARHEAD: 6.48 kg hollow charge
LAUNCH TUBE LENGTH: 1.3 m
LAUNCH TUBE DIAMETER: 175 mm
MAX SPEED: 240 m/s
FLIGHT DURATION: 2000 m: 9 s 3000 m: 13 s 4000 m: 17.3 s
RANGE: 75 m - 4 km
PENETRATION: 800 mm of solid armor (HOT 1); 900 mm (HOT 2);
NATO triple-armor target at 65° coincidence. Effective against composite armor
OPERATING CONDITIONS: -40 to +52° C at up to 95% rh

ZSU-23-4 (23mm) SPAAG



CHARACTERISTICS:

- Crew: 4
- L: 6.5m Speed (max): 65kph
- W: 3.0m Range: 450km
- H: 2.3m Cbt Weight: 20.5mt

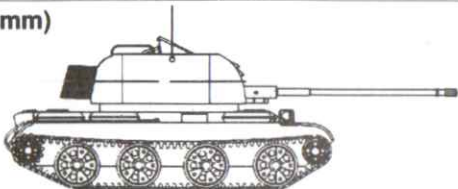
RECOGNITION:

- 6 pressed road wheels-no return rollers
- Low rectangular turret with side bulges
- Four 23mm guns mounted in front of turret
- Folding circular GUN DISH fire control/acquisition radar mounted at rear of turret

ARMAMENT:

4 x 23mm water-cooled AZP-23 cannon
Range (tactical AA): 2500m
Sustained rate of fire: 50rds/barrel burst

ZSU-57-2 (57mm) SPAAG



CHARACTERISTICS:

- Crew: 6
- L: 6.2m • Speed (max): 50kph
- W: 3.3m • Range: 420km
- H: 2.8m • Combat Weight: 28mt

ARMAMENT:

2 x 57mm water-cooled S-68 cannon
Range (tactical AA): 4000m
Rate of Fire: 210-240rds/min

RECOGNITION:

- Based on modified T-54 chassis
- 4 road wheels-no return rollers
- Large box-shaped open turret
- Two long slender gun tubes with multiperforated muzzle brakes
- Flat hull with casing basket on turret rear

57mm S-60 AA Gun/ 57mm Type 59 AA Gun



CHARACTERISTICS:

TYPE OF FEED	clip (4 rnds)
RATE OF FIRE (rds/min)	106 to 120
ELEVATION LIMITS (deg)	-4 to 87
TRAVERSE LIMITS (deg)	360
TACTICAL AA RANGE (m)	4000/6000/6500
TYPES OF FIRE CONTROL	optical mechanical/radar
RHA PENETRATION @ 1000 METERS (mm)	96
CREW	5 to 8
WEIGHT (kg)	4763
LENGTH (m)	8.84
WIDTH (m)	2.06
HEIGHT (m)	2.37
AMMUNITION	FRAG-T, APC-T

ZU-23 AA Gun



CHARACTERISTICS:

GUN CALIBER	23 x 152mm
TYPE OF OPERATION	gas
TYPE OF FEED	belt
RATE OF FIRE (rds/min)	800 to 1000 (per barrel)
ELEVATION LIMITS (deg)	-10 to 90
TRAVERSE LIMITS (deg)	360
TACTICAL AA RANGE (m)	2500
TYPES OF FIRE CONTROL	optical mechanical/optronic
RHA PENETRATION @ 1000 METERS (mm)	19
CREW	5
WEIGHT (kg)	950
LENGTH (m)	4.60
WIDTH (m)	1.86
HEIGHT (m)	2.07
AMMUNITION	HEI, HEI-T, API-T, TP

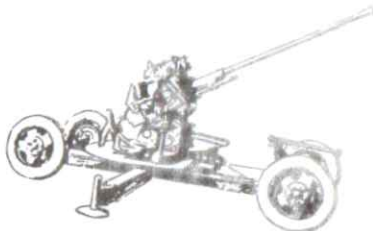
353MK Oerlikon (GDF-001)



CHARACTERISTICS:

GUN CALIBER	35mm
TYPE OF OPERATION	gun
TYPE OF FEED	clip fed magazine (7 rnd clip/56 rnd magazines)
RATE OF FIRE (rds/min)	550 (per barrel)
ELEVATION LIMITS (deg)	-5 to 92
TRAVERSE LIMITS (deg)	360
TACTICAL AA RANGE (m)	3000/3500
TYPES OF FIRE CONTROL	optical mechanical/optronic/radar
RHA PENETRATION @ 1000 METERS (mm)	95
CREW	3 to 5
WEIGHT (kg)	6300
LENGTH (m)	7.80
WIDTH (m)	2.28
HEIGHT (m)	2.90
AMMUNITION	HEI, HEI-T, APHEI-T, APDS-T, TP

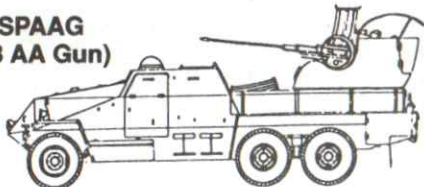
M1939 AA Gun/ Type 55 AA Gun



CHARACTERISTICS:

GUN CALIBER	37 x 253mm	RHA PENETRATION @ 1000 METERS (mm)	95
TYPE OF FEED	clip (5 rnds)	CREW	5 to 8
RATE OF FIRE (rds/min)	180 to 180	WEIGHT (kg)	2500
ELEVATION LIMITS (deg)	-5 to 85	LENGTH (m)	5.94
TRAVERSE LIMITS (deg)	360	WIDTH (m)	1.00
TACTICAL AA RANGE (m)	2500/4000	HEIGHT (m)	2.58
TYPES OF FIRE CONTROL	optical mechanical/radar	AMMUNITION	FRAG-T, AP-T

M53/59 and M53/70 SPAAG (truck mounted M53 AA Gun)

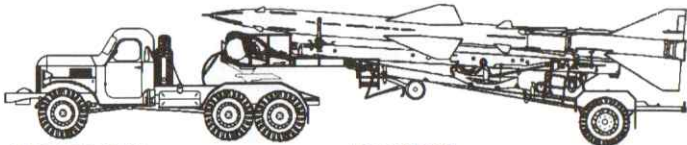


CHARACTERISTICS:

TYPE OF FEED	box magazine (36 rounds each)
RATE OF FIRE (rds/min)	420 to 450 (per barrel)
ELEVATION LIMITS (deg)	-10 to 85
TRAVERSE LIMITS (deg)	360
TACTICAL AA RANGE (m)	3000
TYPES OF FIRE CONTROL	speed ring
RHA PENETRATION @ 1000 METERS (mm)	45
CREW	2 to 4
WEIGHT (kg)	10306
LENGTH (m)	8.92
WIDTH (m)	2.35
HEIGHT (m)	2.95
AMMUNITION	HEI-T, API-T
SPEED (highway/off road-km/h)	60/20

Notes

SA-2 (Resupply)



CHARACTERISTICS:

Tractor:

- L: 6.9m
- H: 2.4m
- W: 2.3m

Missile: High altitude SAM

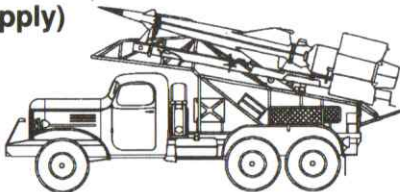
- Range (min/max): 7-50km
- Altitude (min/max): 100-28,000m
- Max Velocity(Mach): 4.5
- Guidance: command

RECOGNITION:

- Long, slim missile
- Four fin sets; small, large, small, very large (front to rear)
- One missile per trailer
- Towed by ZIL-157VKV articulated tractor
- Launch platform is single rail, ground mount

ASSOCIATED RADAR: FAN SONG, SPOON REST

SA-3 (Resupply)



CHARACTERISTICS:

Vehicle:

- L: 6.9m
- H: 2.4m
- W: 2.3m

Missile: Low-medium altitude SAM

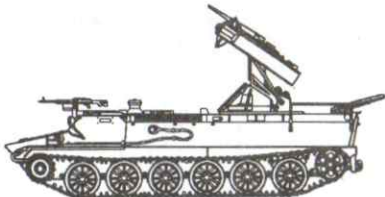
- Range (min/max): 6-25km
- Altitude (min/max): 100-25,000m
- Max Velocity(Mach): 3+
- Guidance: command (possible IR terminal homing)

RECOGNITION:

- Missile with heavy rear section
- Three fin sets; rear are large and rectangular
- Two missiles per vehicle
- Carried by ZIL-157 or -131 6X6 trucks
- Launch platforms: 2 or 4 rail, ground mount

ASSOCIATED RADAR: FLAT FACE, LOW BLOW, SQUAT EYE

SA-13 TELAR (GOPHER)



CHARACTERISTICS:

TELAR:

- L: 6.6m
- H: 2.3m
- W: 3.8m

Missile: Low altitude SAM

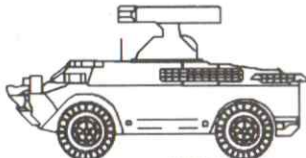
- Range (min/max): 0.5-8km
- Altitude (min/max): 10-9700m
- Max Velocity (Mach): 2
- Guidance: passive IR homing, cooled seeker, dual frequency

RECOGNITION:

- Modified MT-LB chassis without turret
- 4 missiles enclosed in canisters
- Launching assembly similar to SA-9
- Canisters rest flat on rear of vehicle in transport
- Launch platforms: 4 canister tubes

ASSOCIATED RADARS: HAT BOX (on-board)

SA-9 TEL (GASKIN)



CHARACTERISTICS:

TELAR:

- L: 5.7m
- H: 2.3m
- W: 2.3m

Missile: Low altitude SAM

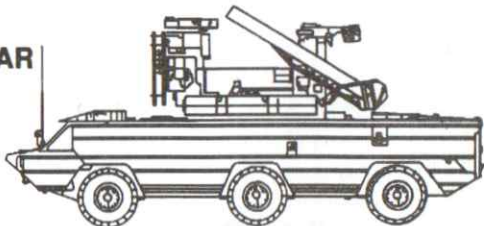
- Range (min/max): 0.6-6km
- Altitude (min/max): 10-5000m
- Max Velocity (Mach): 1.5
- Guidance: passive IR homing, optical sights

RECOGNITION:

- Modified BRDM-2 4X4 chassis
- 2-4 missiles enclosed in canisters
- No auxiliary belly wheels
- Canisters rest flat on rear of vehicle in transport
- Launch platforms: 2 or 4 canister tubes

ASSOCIATED RADAR: none (tied into div air defense net; gets info from ZSU-23/4)

SA-8B TELAR (GECKO)



CHARACTERISTICS:

TELAR:

- L: 9.1m
- H: 1.8m
- W: 2.9m

Missile: Low altitude SAM

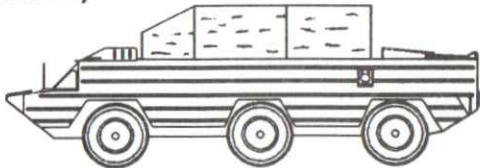
- Range (min/max): 1.6-13km
- Altitude (min/max): 10-12,000m
- Max Velocity (Mach): 2+
- Guidance: command

RECOGNITION:

- Large 6X6 boat-like chassis, based on ZIL-167 truck
- Missiles enclosed in canisters
- Large LAND ROLL radar behind cab
- Search radar between canisters folded flat in transit
- Launch platforms: 6 canister boxes

ASSOCIATED RADAR: LAND ROLL (on board),
LONG TRACK, THIN SKIN

SA-8 (Transloader)



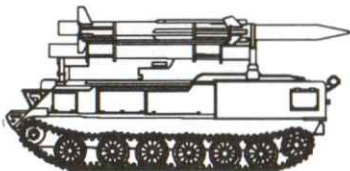
CHARACTERISTICS:

- L: 9.1m
- H: 1.8m
- W: 2.9m
- Weight: 9000kg approx
- Max speed: 60kph
- Range: 500km

RECOGNITION:

- Large 6X6 boat-like chassis, same as SA-8 TELAR
- Large neat roofed tarp gives appearance of a coffin
- Tarp front has blunt point
- In operation, front portion is raised and tarp slides rearward

SA-6 TEL (GAINFUL)



CHARACTERISTICS:

TEL:

- L: 7.8m
- H: 4.5m
- W: 3.2m

Missile: Medium-high altitude SAM

- Range (min/max): 4-22km
- Altitude (min/max): 100-25,000m
- Max Velocity (Mach): 4
- Guidance: Homing

RECOGNITION:

- Modified ZSU-23-4 chassis with 6 road wheels
- Three long thin missiles, untapered except at point
- Two sets of small fins
- Four ram breathing tubes on missile body
- Platform rear traversed and missiles flat in transit
- Launch platforms: 3 rotating rails

ASSOCIATED RADAR: STRAIGHT FLUSH, LONG TRACK, THIN SKIN

SA-6 (Transloader)



CHARACTERISTICS:

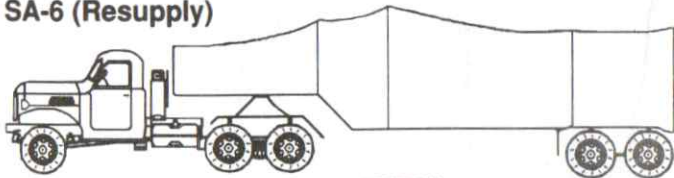
Chassis: ZIL-131 6x6 truck

- L: 6.9m
- H: 2.5m
- W: 2.5m
- Weight: 6700kg empty
- Max speed: 80kph
- Range: 525km

RECOGNITION:

- Carries three missiles
- Large crane mounted centrally at vehicle rear
- Missiles point forward and extend over cab with supports from missile to bumper
- Tarping does not overhang rear of vehicle

SA-6 (Resupply)



CHARACTERISTICS:

Tractor:

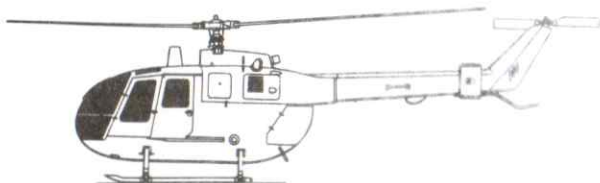
- L: 6.9m
- H: 2.46m
- W: 2.3m
- Weight: 5800kg empty
- Max speed: 65kph
- Range: 430km

RECOGNITION:

- ZIL-157V 6x6 articulated tractor with double axle semi-trailer
- Neat tarp with shallow front
- Central stitching slopes slightly forward
- Has step effect when viewed from side
- Same as SA-4 Resupply, but with six SA-6 missiles

Notes

BO 105 CB five-seat light helicopter (two Allison 250-C20B turboshafts)



CHARACTERISTICS:

WEIGHTS AND LOADING:

Weight empty, basic: CB	1,275 kg (2,813 lb)
Standard fuel (usable)	460 kg (1,005 lb)
Standard T-O weight	1,400 kg (3,091 lb)
Max T-O weight	2,000 kg (5,511 lb)

PERFORMANCE (A at 2,400 kg; 5,291 lb standard T-O weight)

Never-exceed speed at S/L: A	145 knots (270 km/h; 167 mph)
Max cruising speed at S/L: A	131 knots (242 km/h; 150 mph)
Best range speed at S/L: A	110 knots (204 km/h; 127 mph)
Max operating altitude: A	6,100 m (17,000 ft)
Range with standard fuel and max payload, no reserves at S/L: A	310 nm (575 km; 357 miles)
Ferry range with auxiliary tanks, no reserves: at S/L: A	540 nm (1,000 km; 621 miles)
Endurance with standard fuel and max payload, no reserves at S/L: A	3 h 30 min

Bell Model 214ST SuperTransport (two General Electric CT7-2A turboshafts)



CHARACTERISTICS:

WEIGHTS:

Max T-O weight:

Internal or external load

7,938 kg (17,500 lb)

PERFORMANCE (at max T-O weight except where indicated):

Normal cruising speed at S/L, at average cruise weight

140 knots (259 km/h; 161 mph)

Max cruising speed at 1,220 m (4,000 ft)

138 knots (256 km/h; 159 mph)

Service ceiling, one engine out, ISA

1,460 m (4,800 ft)

Hovering ceiling IGE

1,950 m (6,400 ft)

Range at 1,220 m (4,000 ft) with max standard fuel, no reserves

463 nm (858 km; 533 miles)

Range, ISA, VFR, standard fuel, no reserves

439 nm (813 km; 505 miles)

Ferry range with auxiliary fuel, pilot only, no payload, no reserves

over 560 nm (1,019 km; 633 miles)

BK 117



CHARACTERISTICS:

WEIGHTS:

Empty equipped weight

2,560 kg (5,644 lb)

Max T-O weight

3,200 kg (7,055 lb)

PERFORMANCE OBJECTIVES:

Max cruising speed 148 knots (275 km/h; 171 mph)

Hovering ceiling OGE 3,000 m (9,850 ft)

Range with max fuel 386 nm (720 km; 447 miles)

Aerospatiale AS 332F, Super Puma,



CHARACTERISTICS:

WEIGHTS:

Weight empty:	
AS 332F	4,550 kg (10,031 lb)
Max T-O weight:	
AS 332F, internal load	9,000 kg (19,841 lb)

PERFORMANCE (at max T-O weight):

Never-exceed speed	167 knots (310 km/h; 192 mph)
Cruising speed at S/L:	
AS 332F	146 knots (271 km/h; 168 mph)
Max rate of climb at S/L:	
AS 332F	534 m (1,752 ft)/min
Service ceiling: AS 332F	3,950 m (12,959 ft)
Hovering ceiling IGE:	
AS 332F	3,100 m (10,170 ft)
Range at S/L, standard tanks, no reserves:	
AS 332F	491 nm (910 km; 565 miles)
Range at S/L with external (2 x 338 litre) and auxiliary (320 litre) tanks, no reserves:	
As 332M	672 nm (1,245 km; 773 miles)

Carries two AM-39 EXOCET Missiles

Mil Mi-6



CHARACTERISTICS:

WEIGHTS:

Weight empty	27,240 kg (60,055 lb)
Max internal payload	12,000 kg (26,450 lb)
Fuel load: internal	6,315 kg (13,922 lb)
with external tanks	9,805 kg (21,617 lb)
Max T-O weight with slung cargo at altitudes under 1,000 m (3,280 ft)	38,400 kg (84,657 lb)
Normal T-O weight	40,500 kg (89,285 lb)

PERFORMANCE (at max T-O weight for VTO):

Max level speed	162 knots (300 km/h; 186 mph)
Max cruising speed	135 knots (250 km/h; 155 mph)
Service ceiling	4,500 m (14,750 ft)
Range with 8,000 kg (17,637 lb) payload	334 nm (620 km; 385 miles)
Range with external tanks and payload	4,500 kg (9,920 lb)
Max ferry range (tanks in cabin)	540 nm (1,000 km; 621 miles)
	781 nm (1,450 km; 900 miles)

"Hip-C" military version of Mil Mi-8 twin-turbine helicopter



CHARACTERISTICS:

WEIGHTS:

Weight empty	6,800 kg (14,960 lbs)
Max fuel load with ferry tanks in cabin	2,750 kg (6,050 lbs)
Max T-O weight with slung cargo	11,700 kg (25,740 lbs)

PERFORMANCE:

Cruising speed, empty	135 knots (250 km/h; 155 mph)
Max cruising speed with slung load	109 knots (202 km/h; 125 mph)
Service ceiling	3,000 m (9,850 ft)
Ferry range with auxiliary fuel	428 nm (795 km; 494 miles)

MI MI-24 gunship known to NATO as "Hind-D", showing exhaust IR suppressor boxes



CHARACTERISTICS:

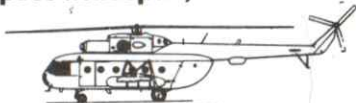
WEIGHTS:

Weight empty, equipped	7,100 kg (15,653 lbs)
Max combat payload	2,700 kg (6,000 lbs)
Max T-O weight	11,500 kg (25,400 lbs)
Normal T-O weight	11,200 kg (24,700 lbs)

PERFORMANCE (A at normal T-O weight; B at max T-O weight):

Max level speed: B	Sea Level Standard	172 knots (320 km/h; 198 mph)
Max cruising speed: B		145 knots (270 km/h; 168 mph)
Service ceiling: A		5,000 m (16,400 ft)
B		3,600 m (11,800 ft)
Hovering ceiling OGE: A		1,760 m (5,775 ft)
Range with max standard fuel, 5% reserves:		
A		232 nm (430 km; 267 miles)
Range with auxiliary fuel:		
A		513 nm (950 km; 590 miles)

MI-17 military general purpose helicopter, with external stores carriers



CHARACTERISTICS:

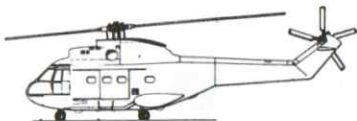
WEIGHTS:

Weight empty, equipped	7,100 kg (15,653 lb)
Max payload: Internal	4,000 kg (8,820 lb)
external, on sling	3,000 kg (6,614 lb)
Normal T-O weight	11,100 kg (24,470 lb)
Max T-O weight	13,000 kg (28,660 lb)

PERFORMANCE (A at normal T-O weight; B at max T-O weight):

Max level speed: B	135 knots (250 km/h; 155 mph)
Max cruising speed: B	129 knots (240 km/h; 149 mph)
Service ceiling: A	5,000 m (16,400 ft)
B	3,600 m (11,800 ft)
Hovering ceiling OGE: A	1,760 m (5,775 ft)
Range with max standard fuel, 5% reserves:	
A	267 nm (495 km; 307 miles)
B	251 nm (465 km; 289 miles)
Range with auxiliary fuel:	
A	513 nm (950 km; 590 miles)

SA-330 Puma



CHARACTERISTICS:

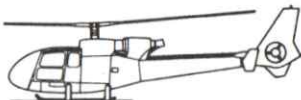
WEIGHTS:

Empty weight	3,785 kg (8,300 lbs)
Max takeoff weight	7,400 kg (16,315 lbs)
Max external payload	3,200 kg (7,050 lbs)
Max useful load (payload and fuel)	3,600 kg (8,000 lbs)
Troop capacity	20

PERFORMANCE:

Max speed	142 knots (263 km/h; 163 mph)
Max cruise speed	139 knots (248 km/h; 160 mph)
Max range, no reserve	297 nm (550 km; 341 miles)

SA-342L Gazelle



CHARACTERISTICS:

WEIGHTS:

Basic empty weight	998 kg (2,200 lbs)
Max takeoff weight	2,000 kg (4,400 lbs)
Sling load	700 kg (1,545 lbs)
Payload	750 kg (1,650 lbs)

PERFORMANCE:

Max speed	167 knots (310 km/h; 192 mph)
Cruise speed	144 knots (267 km/h; 165 mph)
Range	397 nm (735 km; 456 miles)

The Gazelle is the primary antitank helicopter armed with 4 to 6 hot ATGMs.

SA-316B Alouette III



CHARACTERISTICS:

WEIGHTS:

Empty weight	1,146 kg (2,526 lbs)
Max takeoff weight	2,250 kg (4,960 lbs)
Max sling load	800 kg (1,700 lbs)
Useful load (payload and fuel)	1,100 kg (2,425 lbs)

PERFORMANCE:

Max speed	119 knots (220 km/h; 137 mph)
Cruise speed	113 knots (209 km/h; 130 mph)
Range	351 nm (650 km; 403 miles)
Endurance	4.15 hours

The Alouette III is armed with 4 AS-11 ATGMs.

SA-321 Super Frelon



CHARACTERISTICS:

WEIGHTS:

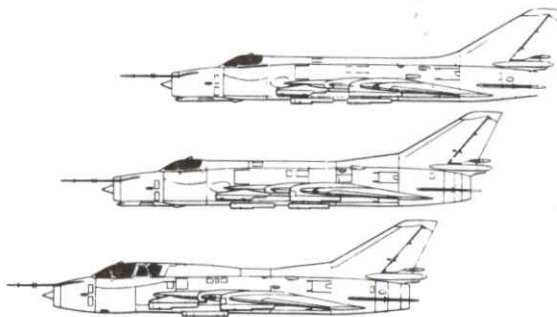
Empty weight	6,915 kg (15,255 lbs)
Max takeoff weight	13,000 kg (28,660 lbs)
External payload	5,000 kg (11,000 lbs)
Useful load (payload and fuel)	6,100 kg (13,450 lbs)

PERFORMANCE:

Max speed	148 knots (275 km/h; 170 mph)
Max cruise speed	134 knots (248 km/h; 154 mph)
Max range, no reserve	432 nm (800 km; 497 miles)
Max endurance, no reserve	4.1 hours

The SA-321J is armed with 2 AM-39 Exocet Antiship missiles.

Top to bottom: The versions of the Su-17/20/22 series known to NATO as "Fitter-D," "Fitter-F," and "Fitter-E" respectively. Tumansky powered versions can be identified by more bulged rear fuselage and single air intake by dorsal fin



CHARACTERISTICS:

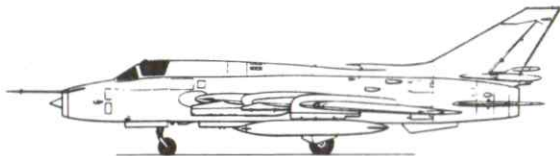
WEIGHTS (estimated):

Weight empty	10,000 kg (22,046 lb)
T-O weight, "clean"	14,000 kg (30,865 lb)
Max T-O weight	17,700 kg (39,020 lb)

PERFORMANCE (estimated for "clean" aircraft, 60% internal fuel, except where indicated):

Max level speed: at height	Mach 2.09
	(1,200 knots; 2,220 km/h; 1,380 mph)
at S/L	Mach 1.05
	(693 knots; 1,285 km/h; 798 mph)
Touchdown speed	143 knots (265 km/h; 165 mph)
Service ceiling	18,000 m (59,050 ft)
T-O to 15 m (50 ft) at AUW of 17,000 kg (37,478 lb)	1,400 m (4,600 ft)
Landing run	600 m (1,970 ft)
Combat radius with 2,000 kg (4,409 lb) external stores,	
incl fuel: hi-lo-hi	370 nm (685 km; 425 miles)
lo-lo-lo	240 nm (445 km; 275 miles)

"Fitter-K", latest single-seat version of the Sukhoi Su-17 series



CHARACTERISTICS:

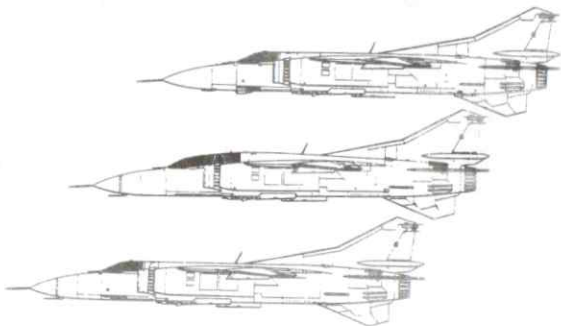
WEIGHTS (estimated):

Weight empty	10,000 kg (22,046 lb)
Max internal fuel	3,700 kg (8,157 lb)
T-O weight, "clean"	14,000 kg (30,865 lb)
Max T-O weight	17,700 kg (39,020 lb)

PERFORMANCE:

Max level speed: at height	Mach 2.09
at S/L	Mach 1.05
Service ceiling	18,000 m (59,050 ft)
Combat radius with 2,000 kg (4,409 lb) external stores, incl fuel: hi-lo-hi	370 nm (685 km; 425 miles)
lo-lo-lo	240 nm (445 km; 275 miles)

Top to bottom: side views of the "Flogger-B", "Flogger-C", and "Flogger-E" variants of the MIG-23 series



CHARACTERISTICS:

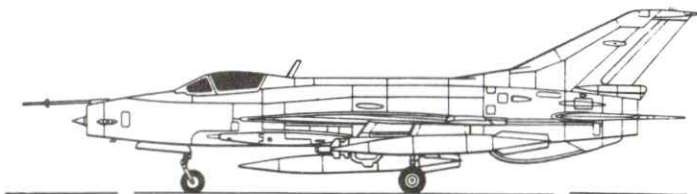
WEIGHTS:

Weight empty	10,200 kg (22,485 lb)
Max external weapon load	3,000 kg (6,615 lb)
T-O weight	16,100-18,900 kg (35,495-41,670 lb)

PERFORMANCE:

Max level speed: at height, with weapons	Mach 2.35
at S/L	Mach 1.2
Service ceiling	18,000 m (59,055 ft)
T-O run	900 m (2,950 ft)
Landing run	1,600m (5,250 ft)
Combat radius	485-700 nm (900-1,300 km; 560-805 miles)

Chengdu F-7M Airguard ("Fishbed") single-seat fighter and close support aircraft



CHARACTERISTICS:

WEIGHTS AND LOADINGS:

Weight empty:

F-7M

5,275 kg (11,629 lb)

Normal max T-O weight with two PL-2 or PL-7 air-to-air missiles:

F-7M

7,531 kg (16,603 lb)

PERFORMANCE (at normal max T-O weight with two PL-2 or PL-7 air-to-air missiles except where indicated):

Max level speed between 12,500 and 18,500 m

Mach 2.05

Service ceiling:

F-7M

18,200 m (59,710 ft)

Absolute ceiling:

F-7M

18,700 m (61,350 ft)

Range:

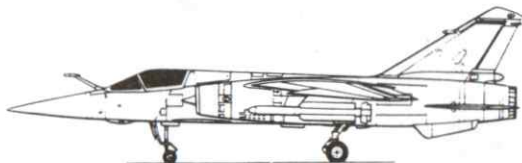
F-7M, two PL-7 missile and three 500 litre drop tanks

939 nm (1,740 km; 1,081 miles)

F-7M, self-ferry with one 800 litre and two 500 litre drop tanks, no missiles

1,203 nm (2,230 km; 1,385 miles)

Dassault-Breguet Mirage F1-C-200 single-seat multi-mission fighter and attack aircraft



CHARACTERISTICS:

Mirage F1-EQ5s and EQ6s of the Iraqi Air Force are equipped to carry Exocet antiship missiles and laser guided weapons such as the AS.30L missile and Matra 400 kg laser guided bomb. They have Thomson-CSF Agave radar.

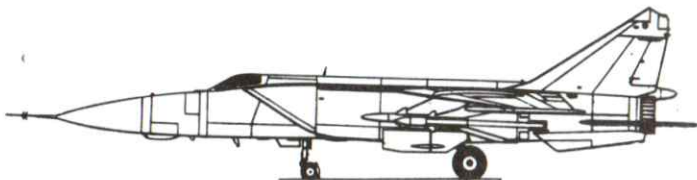
Aero L-39 ZO Albatros two-seat basic and advanced jet trainer



CHARACTERISTICS:

L-39 ZO. Jet trainer with four underwing weapon stations (ZZbrojni: armed) and reinforced wings. Prototype (X-09) first flown 25 August 1975. Export customers include the air forces of Iraq, Libya, and Syria. In production.

Mikoyan MIG-25M single-seat fighter (NATO "Foxbat-E") with scrap



CHARACTERISTICS:

WEIGHTS: (estimated)

Basic operating weight, empty:

"Foxbat-A"

at least 20,000 kg (44,100 lb)

Max T-O weight:

"Foxbat-A"

37,425 kg (82,500 lb)

PERFORMANCE (estimated):

Max level speed at low altitude: "Foxbat-A", with four "Acriid" missiles and 50% fuel

Mach 0.85

Service ceiling: "Foxbat-A"

24,400 m (80,000 ft)

Normal operational radius:

"Foxbat-A"

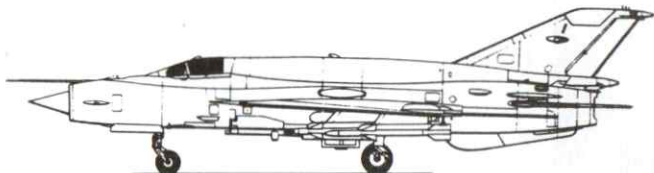
610 nm (1,130 km; 700 miles)

Max combat radius, econ power:

"Foxbat-A"

780 nm (1,450 km; 900 miles)

Mikoyan MIG-21SMB ("Fishbed-K") single-seat multi-role fighter



CHARACTERISTICS:

WEIGHTS (MIG-21MF):

Weight empty	5,843 kg (12,882 lb)
T-O weight:	
with four K-13A missiles	8,200 kg (18,078 lb)
Max T-O weight	9,800 kg (21,605 lb)

PERFORMANCE (MIG-21MF):

Max level speed above 11,000 m (36,000 ft)	Mach 2.05 (1,175 knots; 2,175 km/h; 1,353 mph)
Design ceiling	18,000 m (59,050 ft)
Practical ceiling	about 15,250 m (50,000 ft)
Combat radius (hi-lo-hi):	
with four 250 kg bombs, internal fuel	200 nm (370 km; 230 miles)
with two 250 kg bombs and drop tanks	400 nm (740 km; 460 miles)
Range, internal fuel only	593 nm (1,100 km; 683 miles)

Sukhoi Su-24 ("Fencer-D") variable geometry attack aircraft



CHARACTERISTICS:

WEIGHTS:

Weight empty, equipped	19,000 kg (41,885 lb)
Max T-O weight	41,000 kg (90,390 lb)

PERFORMANCE (estimated):

Max speed, "clean", at height at S/L	Mach 2.18
Service ceiling	Mach 1.2
Combat radius:	16,500 m (54,135 ft)
lo-lo-lo	over 174 nm (322 km; 200 miles)
lo-lo-hi, with 2,500 kg (5,500 lb) weapons	515 nm (950 km; 590 miles)
hi-lo-hi, with 3,000 kg (6,615 lb) weapons and two external tanks	700 nm (1,300 km; 805 miles)

Sukhoi Su-25 single-seat close support aircraft



CHARACTERISTICS:

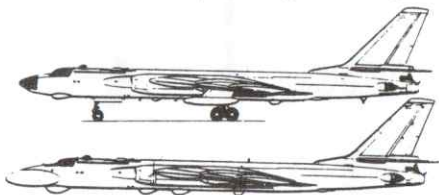
WEIGHTS:

Weight empty	9,500 kg (20,950 lb)
Max T-O weight	18,120-19,200 kg (39,950-42,330 lb)

PERFORMANCE (estimated):

Max level speed	Mach 0.8
	(530 knots; 990 km/h; 608 mph)
Combat radius, hi-lo-hi, with 200 kg (4,410 lb) air-to-ground weapons and two external fuel tanks	300 nm (556 km; 345 miles)

Tupolev Tu-16, in the form known to NATO as "Badger-F", with additional side view (bottom) of "Badger-D"



CHARACTERISTICS:

WEIGHTS ("Badger-G*):

Weight empty, equipped
Normal T-O weight

37,200 kg (82,000 lb)
75,000 kg (165,350 lb)

PERFORMANCE ("Badger-G", at max T-O weight):

Max level speed at 6,000 m (19,700 ft)

535 knots (992 km/h; 616 mph)

Service ceiling

12,300 m (40,350 ft)

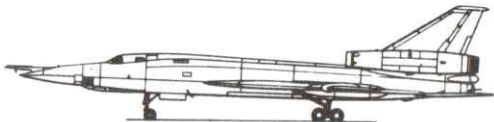
Range with 3,790 kg (8,360 lb) bomb load

3,200 nm (5,925 km; 3,680 miles)

Max unrefueled combat radius

1,700 nm (3,150 km; 1,955 miles)

Tupolev Tu-22 twin-jet supersonic bomber ("Blinder-A")



CHARACTERISTICS:

WEIGHT (estimated):

Max T-O weight

83,900 kg (185,000 lb)

PERFORMANCE (estimated):

Max level speed at 12,200 m (40,000 ft)

Mach 1.4 (800 knots; 1,480 km/h; 920 mph)

Service ceiling

18,300 m (60,000 ft)

Max unrefueled combat radius

1,565 nm (2,900 km; 1,800 miles)

Antonov An-12BP ("Cub") four-turboprop general purpose military transport aircraft



CHARACTERISTICS:

WEIGHTS:

Max payload 20,000 kg (44,090 lb)

PERFORMANCE:

Max level speed 419 knots (777 km/h; 482 mph)

Max cruising speed 361 knots (670 km/h; 416 mph)

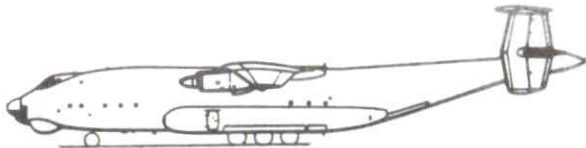
Landing speed 108 knots (200 km/h; 124 mph)

Range:

with max payload 1,942 nm (3,600 km; 2,236 miles)

with max fuel 3,075 nm (5,700 km; 3,540 miles)

Antonov An-22 Antheus long-range heavy transport aircraft



CHARACTERISTICS:

WEIGHTS:

Normal payload 4,500 kg (9,920 lb)

Max payload 5,500 kg (12,125 lb)

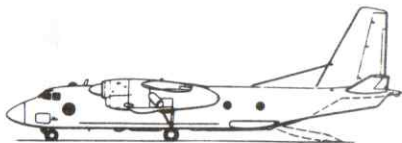
Max T-O and landing weight 24,000 kg (52,911 lb)

PERFORMANCE (at normal T-O weight)

Cruising speed at 6,000 m (19,675 ft) 237 knots (440 km/h; 273 mph)

Landing speed 102 knots (190 km/h; 118 mph) CAS

Antonov An-26 twin-turboprop short-haul transport



CHARACTERISTICS:

WEIGHTS:

Max payload

80,000 kg (176,350 lb)

PERFORMANCE:

Max level speed

399 knots (740 km/h; 460 mph)

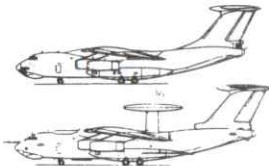
Range with max fuel and 45,000 kg (99,200 lb) payload

5,905 nm (10,950 km; 6,800 miles)

Range with max payload

2,692 nm (5,000 km; 3,100 miles)

Ilyushin Il-76MD ("Candid") four-turbofan heavy freight carrying transport



CHARACTERISTICS:

WEIGHTS:

Max payload: A

40,000 kg (88,185 lb)

B

48,000 kg (105,820 lb)

Max T-O weight: A

170,000 kg (374,785 lb)

B

190,000 kg (418,875 lb)

PERFORMANCE (Il-76T):

Max level speed

459 knots (850 km/h; 528 mph)

Cruising speed

405-432 knots (750-800 km/h; 466-497 mph)

T-O speed

114 knots (210 km/h; 131 mph)

Approach and landing speed

119-130 knots (220-240 km/h; 137-149 mph)

Normal cruising height

9,000-12,000 m (29,500-39,370 ft)

Absolute ceiling

approx 15,500 m (50,850 ft)

T-O run

860 m (2,790 ft)



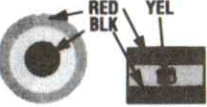









Landing run

450 m (1,475 ft)

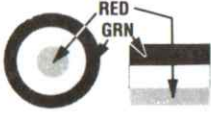


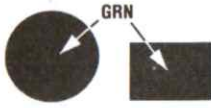

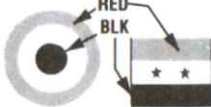

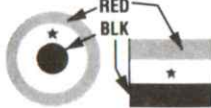
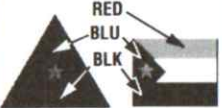
Nominal range with 40,000 kg (88,185 lb) payload

2,700 nm (5,000 km; 3,100 miles)

MILITARY AIRCRAFT MARKINGS OF MIDDLE EAST AND NORTH AFRICAN COUNTRIES

 <p>WINGS AND FUSELAGE</p> <p>FIN FLASH</p> <p>ALGERIA</p>	 <p>FIN FLASH</p> <p>BAHRAIN</p>	 <p>WINGS AND FUSELAGE</p> <p>FIN FLASH</p> <p>EGYPT</p>
 <p>WINGS AND FUSELAGE</p> <p>FIN FLASH</p> <p>JORDAN</p>	 <p>WINGS AND FUSELAGE</p> <p>FIN FLASH</p> <p>KUWAIT</p>	 <p>WINGS AND FUSELAGE</p> <p>FIN FLASH</p> <p>LEBANON</p>
 <p>WINGS AND FUSELAGE</p> <p>FIN FLASH</p> <p>OMAN</p>	 <p>WINGS AND FUSELAGE</p> <p>FIN FLASH</p> <p>QATAR</p>	 <p>WINGS AND FUSELAGE</p> <p>FIN FLASH</p> <p>SAUDI ARABIA</p>
 <p>WINGS AND FUSELAGE</p> <p>FIN FLASH</p> <p>ABU DHABI</p>	 <p>WINGS AND FUSELAGE</p> <p>FIN FLASH</p> <p>UNION AIR FORCE UNITED ARAB EMIRATES</p>	 <p>WINGS AND FUSELAGE</p> <p>FIN FLASH</p> <p>DUBAI</p>

MILITARY AIRCRAFT MARKINGS OF MIDDLE EAST AND NORTH AFRICAN COUNTRIES

 <p>RED GRN</p> <p>WINGS AND FUSELAGE</p> <p>FIN FLASH</p> <p>IRAN</p>	 <p>GRN RED BLK</p> <p>WINGS AND FUSELAGE</p> <p>FIN FLASH</p> <p>IRAQ</p>	 <p>LT BLU</p> <p>WINGS AND FUSELAGE</p> <p>ISRAEL</p>
 <p>GRN</p> <p>WINGS AND FUSELAGE</p> <p>FIN FLASH</p> <p>LIBYA</p>	 <p>RED GRN YEL</p> <p>WINGS AND FUSELAGE</p> <p>FIN FLASH</p> <p>MOROCCO</p>	
 <p>RED BLK</p> <p>WINGS AND FUSELAGE</p> <p>FIN FLASH</p> <p>SYRIA</p>	 <p>RED MRN</p> <p>WINGS AND FUSELAGE</p> <p>TUNISIA</p>	
 <p>RED BLK</p> <p>WINGS AND FUSELAGE</p> <p>FIN FLASH</p> <p>YEMEN ARAB REPUBLIC</p>	 <p>RED BLU BLK</p> <p>WINGS AND FUSELAGE</p> <p>FIN FLASH</p> <p>YEMEN, PEOPLE DEM. REP. OF</p>	



HOW THEY FIGHT

