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Assault: Tactical Combat in Europe 1985 GDW

Boots and Saddles Air Cavalry in the 80's GDW

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Christopher Foss and Jane's AFV Recognition Handbook 1st (1987), 2nd Edition (1992), 3rd Edition (1996)

FM 1-111 Aviation Brigades

FM 1-112 Attack Helicopter Operations

FM 3-0 Operations

FM 3-34 Engineers

FM 3-7 NBC Handbook

FM 3-90 Tactics

FM 3-90.6 Brigade Combat Team

FM 5-34 Engineer Field Data

FM 6-20-20 Fire Support at Battalion Task Force and Below

FM 7-91 Tactical Employment of Anti-armor Platoons, Companies and Battalions

FM 7-92 The Infantry Reconnaissance Platoon and Squad

FM 7-100 OPFOR

FM 17-95 Cavalry Operations

FM 17-97 Cavalry Troop

FM 22-100 Military Leadership

FM 25-100 Training the Force

FM 34-37 North Korea

FM 90-14 Rear Battle

FM 100-2-1 The Soviet Army: Operations and Tactics

FM 100-2-2 The Soviet Army: Specialized Warfare and Rear Area Support

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FM 100-10 Combat Service Support

TB 43-0239 Maintenance in the Desert

TC 25-20 A Leader's Guide to After-Action Reviews

DS-8 Desert Shield Armored Vehicle Recognition

ARTEP 7-7J Drill Battle Drills for the Bradley Fighting Vehicle Platoon, Section and Squad

ARTEP 17-57-10 Mission Training Plan for the Scout Platoon

24th Infantry Division (M) Company/Team Standard Operating Procedures

Soviet Military Power DoD 1989 and 1990 editions

An Army at War: Changes in the Midst of Conflict J. J. McGrath

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FAS U.S. Army Table of Organization and Equipment <https://man.fas.org/dod-101/army/unit/toe/index.html>

I. Advanced Assault (Tactical Combat in Europe in the 1990s+)

Rule 1: Sequence of Play (expanded for airstrikes and logistics)

Each turn in Assault represents five minutes of real time. A great deal can happen in five minutes on the battlefield, and the sequence of play reflects this. All activity in a turn is divided into phases. All activity in a phase must be completed before a new phase begins. *See Appendix A.* Some rules were moved to the appendices.

Rule 2: Unit Organization

General Explanation: Each counter in the game bears unit identification (ID) in the upper left corner. For most units this consists of Platoon ID, Company ID, Battalion/Regiment ID, and Brigade/Division ID. Exceptions are given in D below. *Western units are referred to as NATO and the eastern bloc units are known collectively as Warsaw Pact (WP).*

Unit IDs have a number of uses, the most common of which is in determining subordination for command and control purposes. For example, every unit in a battalion is subordinate to the battalion headquarters. See rule 4. All unit organizations are shown on the unit organization charts.

Note: For purposes of these rules, platoons and sections are identical except that a platoon has two steps and a section has one step. For brevity, the term “platoon” will be used to mean “platoon or section” for the remainder of this rule.

A. Formats for IDs: In unit IDs, the platoon ID is given first, followed by the company ID, followed by the battalion ID then regiment/brigade ID. Platoon and battalion IDs are numbers and Company IDs are letters (*the general exception is for some Engineer companies for example, that are identified by number only*). A NATO tank platoon that is identified as 1C-2/64 is the 1st platoon, Charlie Company 2nd Battalion 64th Armor Regiment.

B. Definitions: Several organizational terms require game definitions.

1. Platoon: Each counter is a platoon (or section; see A above) with certain exceptions. In the case of mechanized infantry, towed artillery, and similar units, each platoon consists of two counters; a transporting vehicle and its cargo, both of which have the same ID. For example, the WP platoon 1A4-265 consists of an infantry unit and a BMP-2 unit. There are also a few units which are called platoons that function as companies. For example, NATO mortar platoons in a mech infantry or armor battalion have two full strength units (which the Army calls sections); this platoon functions in all respects as a company.

2. Company: A company consists of all units with the same company, battalion, regiment/brigade ID. For example, the NATO company A-1/121 is Alpha Company, 1st Battalion A-1/121 is Alpha Company, 1st Battalion 121st Regiment.

3. Battalion: A battalion consists of all units with the same battalion and regiment/brigade ID.

4. Regiment/Brigade: A regiment or brigade consist of all units with the same regiment or brigade ID from the same division. For example, HQ1 – 1Mech is the headquarters unit for the 1st Brigade of the 1st Mechanized Infantry Division (US).

5. Nomenclature: For reasons of tradition, military terminology employs a number of alternates for the terms defined above. In cavalry units (and some others) companies are called troops and battalions are called squadrons. In artillery units, companies are called batteries. In these rules, “company” means “company, troop, or battery”; “battalion” means “battalion or squadron”. Some game unit IDs differ from their official values, for example, WP companies are actually numbered, but they have been given letters for the game.

C. Exceptions: A number of units differ from the identification and organization scheme outlined above.

- 1. One-unit companies:** Some companies are composed of a single platoon. In these cases the platoon ID has been eliminated.
- 2. Regiments/Brigades/Divisions:** Some WP units do not belong to a battalion, and are subordinated directly to a regiment/brigade or division. These units will not have a battalion ID.
- 3. Headquarters, Tactical Operations Centers, and Observation Posts/FISTs:** NATO company HQs and WP OPs are platoons of a company, with HQ and OP respectively, in place of the platoon ID. OPM4-181 MRR would be the observation post Mortar platoon 4th Battalion 181st Motor Rifle Regiment. The WP has no separate company HQ in Assault. NATO and WP battalion HQs, WP regimental HQs, NATO TOCs, and WP TOCs are companies of a battalion /regiment /brigade /division with no platoon ID and with the HQ or TOC in place of the company ID. *For example TOC 1-64 is the NATO tactical operations center for the U.S. 1st Battalion 64th Armor regiment. HQ 194th-15 GTD is the headquarters of the Warsaw Pact Soviet 194th Regiment of the 15th Guards Tank Division. Some HQs, TOCs, and OPs consist of two units; a personnel class unit and a vehicle. The personnel class unit is the actual HQ, TOC or OP; the vehicle unit is the primary means of transportation assigned it and is considered a separate platoon of the same company.*

RULE 3: COMMAND CONTROL

A. General Explanation: Proper command control on the battlefield is essential to survival and success. In Assault command control problems are simulated through the use of operations points. Each player receives operations points from a variety of sources in each friendly movement phase. These are then spent to enable units to carry out functions.

B. Sources of operations points: Operations points are received from four sources: headquarters, tactical operations centers, from off-board, and by default.

- 1. HQs:** At the start of the game, each player generates the command rating of each of his HQ units. Roll the die once per HQ unit and consult the command rating table. Adjust the roll for national and unit type modifiers. Record the command rating on the command record for the specific HQ. The command rating of the headquarters unit is the number of operations points that HQ unit may use each friendly movement phase.
- 2. TOCs:** At the start of the game each player must generate the command and planning ratings of each of his tactical operations center (TOC) units. Roll the die once per TOC unit, apply the appropriate modifiers and consult the command rating table. The resulting two numbers are the command (first number) and planning (second number) ratings and are recorded on the command record. The detailed function of TOC units is explained in rule 6. Command rating rolls are performed in the sight of the other player. However, secrecy is maintained regarding the identities of units being rolled for. Each scenario states the number of HQs and TOCs to roll for, often more than actually appear in the game. The player rolls for these, writes them down and numbers them in order beginning with 1. Then, out of site of the other player, transfers these ratings to the command record. Finally, the player gives the original sheet to his opponent.
- 3. Off-Board:** some scenarios specify that off board operations points are available. These may be used exactly as any other operations points, and represent additional direction from higher

headquarters. In a campaign scenario, operations points from parent headquarters may be used for subordinate units. These operations points are spent for commands to units that are not in view of the headquarters. TOCs can only supply operations points and conduct planning after they are on board and stationary.

4. Default: If no operations points are available from any other source, a player may always expend two operations points per friendly movement phase.

C. Subordination: a command unit may expend operations points to affect only units which are subordinate to it. All units in a NATO company are subordinate to the company HQ. All units in a battalion are subordinate to the battalion HQ and (for NATO) battalion TOC. All units in a WP regiment (all units with the regimental ID and all units assigned to it) are subordinate to the regimental HQ and TOC. All units are subordinate to off-board operations points and default operations points. For example, all NATO units with company/battalion IDS of 3 are subordinate to the 3rd Battalion HQ.

D. Uses of Operations Points: Units never need operations points to fire, nor do they need them to move in march formation (see rule 6). However, operations points are required when changing formation, moving in combat formation, replacing HQ casualties, cross attaching units, and rallying shaken or broken units.

Each command operation (except cross attaching) requires expenditure of 1 point if the affected unit is visible to the expending HQ or TOC or 2 points if it is not visible. The unit is visible if an unblocked line of sight exists between the two units; see rule 9. Cross attaching always requires 2 points unless done during setup when it is free.

Often more than one HQ and TOC will be able to use operations points to affect a particular unit. If the operation desired requires 2 operations points, 1 may be expended by each of two HQ or TOC units. For example, suppose the platoon 1B2 is not visible to any HQ or TOC unit. 2 points are required for it to move. The player could expend one from HQB-2 and one from HQ-2. Of course, either unit could expend both of the required points if it has them to expend.

1. Change formation: 1 point (if visible) or 2 points if not visible are required for all units in a hex to change from march to combat formation or vice versa.

2. Move in combat formation: 1 point if visible or 2 points if not visible allow all units in a hex to move in combat formation. Visibility is determined at the beginning of the movement phase. To count as a single operation, all units must begin in the same hex, must move together as a stack, and must all face the same direction while moving (see rule 6). If a player wishes to break up a stack by moving it in different directions or different distances, the operations point cost must be paid separately for each unit or stack of units moving together.

3. Replace HQ casualties: 1 point if visible or 2 points if not visible allows and eliminates HQ to be replaced. Visibility is determined for the hex in which the replaced HQ will appear (see below). An HQ is replaced using points from units to which it is subordinate; battalion or higher units may be replaced from their TOCs. TOCs may never be replaced. A replaced HQ may not expend operations points in the phase it is replaced. An HQ is replaced by removing personnel and/or vehicles from a specific unit. The HQ appears in the same hex as that unit.

a. NATO Company /WP Battalion HQs: NATO company and WP battalion HQs are replaced from other units in the same company or battalion. If the HQ is a vehicle unit, it's replaced from a unit containing the same vehicle. If the HQ is a personnel unit, it is replaced from a personnel unit; the HQ's transport unit need not be replaced. The replacing unit takes a one-step loss (and is eliminated if it is already at half strength) and the HQ is placed in that hex. For example, if the HQ of a U.S. tank company is eliminated, it is replaced by placing the HQ section back on the board in the same hex as

any other full- strength platoon of the company and reducing the platoon to half strength with a hit marker. No destroyed AFV marker is placed since all that is occurring is that the platoon leader is taking over command of the company and becomes the de facto company commander. Alternatively, a half-strength unit could be removed from play and the HQ unit placed in its former hex. If there is no way to replace an HQ (all eligible units have been eliminated), any surviving subordinate counter may be designated the new HQ at the same cost in operations points as would be required to replace the HQ. The counter remains eliminated.

b. Regiment/Brigade/Division/Corps/Army HQs: These units are replaced from the subordinate TOC. If the HQ unit is a personnel unit, the HQ unit is placed on the board in the same hex as the TOC. If the HQ is a vehicle unit, it is replaced by a *Repl HQ* counter. (*Optionally, each major unit is provided with a replacement HQ*). No loss is suffered by the TOC. If the unit's TOC has been eliminated, the HQ may not be replaced, but any NATO or WP subordinate HQ may be designated as the new higher headquarters HQ. This unit will still function in its lower command responsibilities but will also have command control of all the units that the HQ it is replacing had (i.e. the replacing HQ is not itself replaced. For example, a U.S. tank company HQ becomes the new battalion HQ because its parent TOC and HQ have been eliminated. It still functions as the company HQ in addition to being the HQ for the remaining battalion). No operations are expended for this, but the HQ may not expend any points during the movement phase in which it becomes the new HQ.

4. Cross-attaching units: Cross-attachment merely means that a unit has been assigned to the command of a headquarters to which it is not normally subordinate. For example, the U.S. Army quite often will cross-attach a mechanized company to a tank battalion or vice-versa. A unit which has been cross attached is no longer subordinate to its parent HQ, but is instead assigned to a new HQ. Both players may cross attach units. A player may cross-attach before the scenario begins and/or during the scenario. If a unit is cross-attached prior to the start of game play, there is no penalty or cost. Cross-attachment during the game may be done only at the start of a friendly movement phase and requires the expenditure of 2 operations points by a command unit to which the unit was subordinated at the beginning of the phase.

The cost is paid for each company or group or units from a single company cross-attached to a single other unit (company or battalion). Both players may cross-attach up to two platoons to each company (with any three sections counting as one platoon) and may cross-attach up to two complete companies (a complete company is all surviving units of a single company) to each battalion. Note that each battalion or regimental HQ or TOC is a company, to which platoons or sections may be attached. Record cross-attachments in the cross-attachment section of the command/morale record. (*Cross-attachments can also be recorded on the Task Force record*).

5. Rally: Command units spend operations points to rally shaken and broken units. See Rule 16.

E. Special Cases:

1. Exceptions: Recon units, HQ units, OP units, FIST units, and TOC units do not require operations points to move or change formation. These units are marked with asterisks. In addition, units stacked with HQ or TOC units at the beginning of the movement phase, regardless of their subordination, may change formation and move without requiring operations points, provided they remain stacked with the HQ unit throughout the phase. (This is the only

way in which an HQ with a command rating of 0 can exercise command). Although an OP unit does not allow units it's stacked with to move in combat formation or change formation without using operations points, it does allow any vehicle transporting it to do so.

a. Belgian Mechanized Platoons: Belgian mechanized platoons are equipped with 2 AIFV and 2 AIFV-B-C25 vehicles and are represented by two separate vehicle and dismounted counters. If the vehicle counters remain stacked together they may be activated as a single unit; the same applies to the dismounted counters. The counters may be activated separately but in doing so each counter will incur the appropriate cost in Operations Points as required.

b. 5 tank Platoons: 5 tank platoons consist of two elements, a heavy section (3 tanks) and a light section (2) tanks. The two sections may be activated as a single unit if they are stacked or adjacent to each other; otherwise, each unit must be paid for separately. The two sections may move and conduct combat separately but must be in the same combat or movement formation.

2. Warsaw Pact Battle Drill: While WP units do not have as extensive a command control arrangement as comparably-sized NATO units, their reliance on well-rehearsed battle drills and formation movement allow large units to move at a relatively low cost in command or staff effort. Instead of addressing a move or formation change order to a hex, the WP player may do so for an entire platoon, company, or battalion. Such an order still requires 1 operations point if the platoon/company/battalion, or any counter of it is visible to the TOC or HQ issuing the orders and 2 operations points if not.

All counters of the platoon/company/battalion, with the exception of indirect fire units and their transports, must assume the same formation, assume and maintain the same facing, and expend the same number of movement points, moving in effect in formation. If this is not possible for all counters of the platoon/company/battalion, then WP battle drill movement may not be used. An HQ or TOC may issue a battle drill order without expending operations points if it begins the phase stacked with one or more counters in the unit receiving the order and remains stacked with that counter for the entire phase.

Rule 4: Headquarters Units

The headquarters unit represents the commanding officer and a small command group.

At the start of each friendly movement phase the player must determine how many operations points each HQ unit is expending and on which subordinate unit or units they will be spent on. For example, the NATO player has a company HQ which has a command rating of 3. At the start of the movement phase he might decide that one operations point is being expended to change the third platoon from march to combat formation, a second point is expended to allow the same platoon to move in combat formation, and the third point expended to allow another platoon already in combat formation to move. When an operations point is expended, this fact should be marked on the command record for that turn and phase.

As indicated previously, an HQ unit need not expend operations points to enable units to change formation or move if they are stacked with the HQ unit and remain stacked with it throughout the movement phase.

HQ units may move and/or fire in the same turn in which they expend operations points. HQ units may expend operations points while suppressed and/or shaken, but not while broken (See Rule 16).

Some WP units have two HQs, designated aHQ and bHQ. The second is actually the deputy commander; bHQ is subordinate to aHQ, but otherwise functions as another HQ for the battalion.

However, bHQ cannot rally aHQ, nor may it spend operations points to replace aHQ. bHQ is the first choice as a unit from which to replace aHQ, but bHQ may never be replaced. Assistant Corps Commanders (ACC) units function as an additional TOC for NATO Corps.

A. M4C2V: The U. S. Army began introducing this tracked armored vehicle automated tactical command post in the late 1990s. It provides the commander with a vehicle capable of keeping pace with the Abrams/Bradley task force. The vehicle also allows the Headquarters to issue orders digitally and linking the commander to the Army Tactical Command and Control System Headquarters units equipped with the M4C2V may expend 2 extra Operations Points each movement phase.

B. Soviet Tank Regimental Hq- Soviet Tank Regimental HQ units are equipped with communication equipment that can only be used while the unit is stationary. Soviet Tank Regimental Hqs may deploy in any movement phase by not moving and placing a HQ Deploy



marker on the unit. Beginning in the next movement phase the Soviet Tank Regimental HQ may expend 1 extra Operations Point. Any movement phase in which the Soviet Tank Regimental HQ moves it can no longer spend the extra operations point until it deploys again.

C. U. S. XO units- U. S. Force XXI units have the Executive Officer of line (combat) companies as a separate unit. As such Company teams often split basically into two units, one commanded by the company commander (usually the larger unit) and the XO. XOs have 1 OP point available each *Allocate Op Points* phase with the following restrictions:

1. Units must be attached to the XO prior to the XO being able to allocate OP points to them.
2. Units must be visible to the XO to be allocated OP Points.
3. XO units must remain within 4 hexes of the Company HQ unit to issue commands.
4. XO units do not have to be visible to Company HQ unit to issue commands.
5. Logpac logistical resupply units may stack with the XO unit to conduct resupply operations at company level.

Rule 5: Tactical Operations Centers (TOCs)

A. Function: The tactical operations center is the brain of the unit. While commanding officers can direct individual units, the TOC provides planning, coordination, and command support to the unit commander that multiplies his effectiveness. At the start of each first movement phase of a player's turn, the player must decide which of the following actions each of his TOC units is performing: command, plan, or execute plan, and must write the fact on his command record for that turn. TOCs must be deployed to perform these functions. A TOC may deploy off map but may only accumulate at a rate of half its Operations Points rating while so deployed.

- 1. Command:** A TOC unit functions the same as an HQ unit, expending operations points equal to its command rating.
- 2. Plan:** A TOC which plans may not expend operations points that movement phase. Instead, operations points equal to its command rating are accumulated for later use. Accumulated operations points are recorded on the player's command record. The planning rating of the TOC unit is the maximum number of operations points that the TOC may accumulate.
- 3. Execute Plan:** A TOC unit which executes may expend as many of its accumulated operations points as desired, up to the total number accumulated.

B. Limitations:

- 1. Suppression:** A suppressed TOC may not plan but may command and execute.
- 2. Movement:** A TOC may not move in a movement phase in which it plans (and if allocated to planning that turn it may not command or execute either).
- 3. Firing:** A TOC may not fire in the friendly fire phase if it planned in the previous movement phase.
- 4. Losses:** If a TOC is eliminated it may be replaced at divisional or higher level HQ at a cost of 4 operations points. TOCs lower than division level may be formed at a cost of 3 operations points. A replaced TOC is placed in the same hex as the HQ that is creating it; therefore, the creating HQ must be on the map. However, the unit HQ may use the accumulated operations points of the TOC. Each turn following the elimination of the TOC, the accumulated operations points total are reduced by two in addition to any points used by the HQ. This reduction takes place at the end of the phasing player turn. The loss of one step has no effect on the TOC.
- 5. Loss of Command:** A TOC may not plan or execute if the parent HQ is not in play. If the parent HQ is eliminated, it must be replaced by the TOC before the TOC can plan or execute. The TOC may command in the absence of the HQ unit.

C. M4C2V- The U. S. Army began introducing this tracked armored vehicle automated tactical command post in the late 1990s. It provides the commander with a vehicle capable of keeping pace with the Abrams/Bradley task force. The vehicle also allows the TOC to continue planning even while the vehicle is in motion. TOC units equipped with the M4C2V may command, plan and execute even while moving and may do all three in the same phase.

Rule 6: Movement

A. General Explanation: Units move during the movement phases of a turn. Each player may move his own units in each movement phase of his player turn. Each unit may be moved as many hexes as desired, up to the limits of its movement allowance (Exception See WP Battle Drill). While a player is moving a unit, it may be subject to opportunity fire (see Rule 14) or pass-through fire (See Rule 18). If so, this fire is resolved prior to the unit exiting the hex through which the fire is directed.

B. Procedure: Units may be moved individually or in stacks. Each individual unit or stack of units must complete its movement before another unit or stack begins moving.

Each unit or stack of units is moved by tracing its path of movement through hexes, expending movement points for each hex as it is entered. A unit's movement allowance is the maximum number of movement points it may expend per friendly movement phase.

The movement point cost per hex is determined by the formation of the moving unit, the mobility class of the moving unit and the terrain type of the hex being entered. A unit may always move one hex, even if it has insufficient movement points to do so (except mobility class S and L; see below), provided it is not into prohibited terrain or across a prohibited hexside. A unit may enter a hex occupied by enemy units, but immediately ends its move upon so doing. A unit which begins its movement phase in the same hex as an enemy unit may leave or perform or perform any other activity within the hex except fire out of the hex.

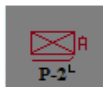
C. Formations: Each unit must be in one of two formations at all times: march or combat. (Exception: units whose morale has been broken are in no formation. (See Rule 16). Units may change formation at the beginning of a friendly movement phase. There is no limit to the number of units which may change formation at the start of a friendly movement phase, provided the appropriate operations point cost is paid. In general, units must be in march formation to use roads for movement (at the road terrain point

cost) and do not require operations points to move. However, units in march formation may not fire except during a close assault. (See Rule 15).

A unit may change formation and move in the same movement phase. A unit which changes from march formation to combat formation and then moves must have operations points expended separately for the formation change and the movement (*that is if the unit requires the expenditure of operations points, i.e. recon units and HQs; See Rule 3. E.*)

Changing formation counts as movement for purposes of spotting and opportunity fire. Units in march formation are differentiated by their directions of facing (See F below).

D. Mobility Class: There are five mobility classes: T (tracked), W (cross-country wheeled), R (road-bound wheeled), L (leg), and S (static). T, W, and R units (referred to as vehicle units) also have a movement allowance which they expend to move as explained above. S class units may not move on their own but may be transported by other units (see Rule 7). L class units (hereafter referred to as leg units) do not have or expend movement points. instead, each leg unit may move one hex in a friendly movement phase. Leg units which move in the first and second friendly movement phase of the same player turn are fatigued, and may not move in the first friendly movement phase of the next turn. Movement for this purpose is defined as entering a new hex; other actions performed in the movement phase, such as entering cover or changing formation does not count. To mark fatigued units, place a fatigued marker on them. Helicopters have a number (the maneuverability rating) in place of a mobility class. Units with a mobility class of 5^L and WS are covered in Rule 7 Transport. Units with a class of WS are wheel mobile.



1. Ski Troops Ski troops have a movement allowance of 2 in any scenario that occurs between October and March. These units have a movement allowance of 2 in each movement phase. Ski troops are affected by terrain as if they are a Leg infantry unit and suffer fatigue normally. In scenarios that occur April-September, ski troops have a movement allowance as if they were normal Leg units.





2. Pack animals These P-class units have a movement allowance of 2 in each movement phase. They are treated as L class for terrain costs. These units may only transport LOGPACs.

E. Terrain: Terrain affects vehicle units and leg units differently. Vehicle units pay a variable movement point cost to enter certain terrain types. Leg units must make a die roll of a given number or less to enter certain terrain types. The terrain effects charts details movement point cost for vehicle units and the die roll necessary for a leg unit to enter a hex. Certain hexsides also have a movement point cost or die roll associated with crossing them. For vehicles, this cost is added to the cost to enter the hex; for leg units, the most difficult die roll of the two required (if both the hex to be entered and the hexside to be crossed require die rolls) is used. Terrain has no effect on helicopter movement.

1. Amphibious Units: Some vehicle units have the letter A in addition to their mobility class, indicating that they are amphibious. Amphibious units can cross certain hexsides and enter certain terrain types prohibited to other units, as noted in the terrain effects chart.

2. Steep Slopes: A steep slope is defined as a hex containing two contour lines of different elevations. The terrain effects chart lists the effect of climbing a steep slope, which is in addition to the regular cost to enter the hex. Climbing a steep slope is defined as entering the hex from a hex of lower elevation. Vehicle units pay a cost to climb a steep slope if a movement point cost is listed. If the notion P appears, the unit is prohibited from entering the hex at all. Leg units have

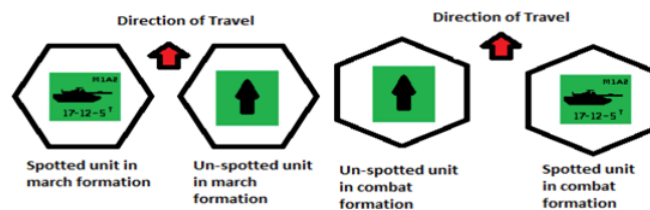
the notation F for steep slope, which means that a leg unit becomes fatigued. Leg units may only climb steep slopes in the first friendly movement phase of a turn. Units which are not prohibited from entering a steep slope hex pay no special cost for entering it unless they climb it. Alpine  and Ranger  units may treat steep slopes as normal slope and do not have any movement restrictions (except other terrain in the hex).

3. Cliffs: Hexes in which there are more than 2 changes in elevation are considered cliff hexes. Only Special Forces, Alpine, Gebirgs, Mountain, Ranger and Airborne units may enter and exit cliff hexes.

4. Alpine Hexsides: Only Special Forces, Alpine, Gebirgs, Mountain, Ranger, and Pack Animal units may cross an Alpine Hexside. The unit must end movement for the turn after crossing and may not move again until the next turn. Alpine Hexsides block line of sight. Aircraft may move and conduct operations normally, including helicopter transport, embarking and debarking passengers.

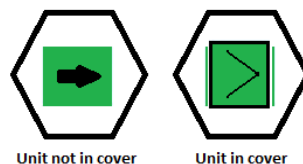
5. Restricted Road: Restricted Roads are narrow road networks that due to the nature of the terrain, force vehicular units to stay on the roadway. Vehicles traveling on a Restricted Road may only enter and exit hexsides through which the road passes and may not leave the roadway. Leg units may move normally.

F. Facing: Units always must be faced in a specific direction. A unit is faced in the same direction as the top of the counter if spotted or the direction of the arrow on the back of the counter if unspotted (*on back printed original edition Assault series counters*). Units in march formation always face a hexside, while units in combat formation face a vertex as illustrated below:



A unit must always face in the direction it is moving. A unit in march formation moves across the hexside it is facing, while a unit in combat formation may move across either hexside it is facing. A unit may change facing without movement cost immediately before entering each hex of its move. When it is finished moving it retains the facing of the last hex moved, unless it expends an additional movement point, in which case it may change facing. A change of facing counts as movement for purposes of spotting, opportunity fire, and (if in combat formation) operations point expenditure. Facing affects the fire of enemy units on the unit in question, as explained in the direct fire rules. Note that facing is also the means of determining the formation of the unit.

G. Cover: A unit in combat formation may enter cover in any friendly movement phase if it does not move, dismount, or deploy in that phase. Entering cover counts as movement for purpose of operations point expenditure. A unit in cover is designated by placing a cover marker on the unit with the point of the marker faced toward the same hex vertex the unit faces.



In addition, any unit which is fired upon during either fire phase (or which is in the same hex as such a unit) and is in combat formation automatically enters cover at the end of the phase, with the unit

and its cover marker turned to face toward one of the vertices of one of the hexsides across which the fire came.

Cover affects the chance of spotting a unit and the chance of causing losses or suppression in direct fire combat (see Rule 11). Only units in cover may conduct opportunity fire. (*Exception is Air Defense units as explained in Helicopter rules and Close Air Support rules*).

If a unit in cover moves out of the hex, the cover marker is removed from the map. A unit may change facing while in cover (changing the facing of the cover marker also); this counts as movement for purposes of operations point expenditure.

Rule 7: Transport (See Naval and Helicopter Transport Charts for specifics)

A. Which Units may be transported: All units with a mobility class of L (leg) and S (static) may be transported. When using the Logistics rules heavy transports such as the U.S. HET-T or Soviet KAZ 65225/Ural may transport any vehicle class unit. Armored Recovery Vehicles (ARV) may transport any destroyed vehicle. Wheeled Recovery Vehicles (WRV) may only transport destroyed W or R mobility class units. Units with a mobility class of 5⁺ are treated as leg units for transport purposes. Units with a mobility class of WS or PS are treated as static units for transport purposes. Static units carried by helicopters are counted as having three times as many steps as they actually do.

Helicopter units may also carry vehicle units, treated as static units. Light vehicles (M-151, LR, UAZ-469, motorcycles, (*See Helicopter Transport Chart*)) are counted as having only as many steps as they actually do. The following units are counted as having 6 times their actual number of steps: Ural-375, GAZ-66, BTR (all types), and BRDM-2 (all types). The BMPs (all types) are counted as having 10 times as many steps as they actually do.

B. Which Units may transport: All transport units have a circle, either open or filled in, or a triangle on the counter. Units with an open circle may only transport leg units. Units with a filled in circle may transport either leg or static units. Units with triangles may transport leg, static and non-tank vehicles (i.e. Humvees, BMDs, jeeps etc. (*See Helicopter Transport Chart*)). Each transport unit with a circle may transport as many steps as its current strength level; transport units with triangles may transport more steps than its current strength level (see Appendix B: Unit Identification Chart). Units with a half-filled in circle on the counter may transport half as many steps of leg mobile units as their current strength; a single half strength unit with a half filled in circle may not transport anything (but see F. below) Units with a filled in triangle may transport leg mobile and static units, and may transport more steps than their current strength. The exact number of steps varies with the unit type; i.e. a Mi-8 unit may transport three times its number of steps, while a Mi-26 unit may transport 12 times its number of steps, as shown on the unit transport capacity table. These steps may be leg, static or vehicle units (See A above). Thus a half-strength Mi-8 unit could transport 3 steps of infantry or one step of static units.

C. Procedure: Units being transported are placed under the transport unit, move at the rate of the transport unit, may not be fired at, and do not count against stacking. The identity of a transported unit is not revealed to the enemy if the transporting unit is spotted. In order for a leg mobile unit to mount or dismount a transport, either the transport unit or the leg unit must spend the entire movement phase in the mounting or dismounting hex. That is, a leg unit could move to a hex containing a transport unit and mount or a transport unit could move to a hex containing a leg mobile unit and allow it to mount. Once mounted no further movement is allowed in that phase. The transporting unit may continue to move (if it has movement points remaining) after dismounting the leg unit. Once dismounted, the dismounting unit may move no further that phase.

In order for a static (*or vehicle unit*) to mount or dismount, both the mounting unit and the transport unit must spend the entire movement phase in the same hex. Static indirect fire units which are deployed (See Rule 18) may not mount transport units.

A unit which dismounts may be placed in any formation and assume any facing without expenditure of operations points. It may not enter cover or deploy in the same phase. Dismounting counts as movement (for the transported unit) for purposes of spotting, opportunity fire, and pass-through fire.

A helicopter must be landed for a unit to mount or dismount. For purposes of this rule, a helicopter is not considered to be “in the same hex” unless it has landed (see Part C in Rule 25).

D. Fire from transporting units: Transporting units may fire normally. Only infantry may fire while being transported by ground vehicles. It may only do so with small arms ammunition (SA) from unsuppressed vehicles, and its conventional fire value is halved. Infantry may fire while being transported in helicopters. As with vehicle transport; Infantry may do so only with small arms ammunition (SA) from unsuppressed helicopter transports, and its conventional fire value is halved.

E. Fire at transporting units: Transporting units are fired at normally. If a full-strength transporting unit is reduced to a half-strength unit, the mounted unit is also reduced to half-strength. (A half-strength unit is unaffected). If a full strength unit is destroyed, the mounted unit is reduced to a half-strength unit and is suppressed in the hex where the transport unit was destroyed. *If a helicopter transporting a unit is destroyed and is not landed, the transported unit is also destroyed.* If a half-strength transport unit is destroyed, the mounted unit is suppressed in the hex where the transport unit was destroyed.

If a full-strength unit is carrying two half-strength units and is reduced to a half-strength unit, one of the half strength units (determine randomly, i.e. place in a cup and draw surviving unit blindly), is eliminated. If the full-strength unit is destroyed, the surviving half-strength unit is suppressed in the hex where the transport unit was destroyed.

If a helicopter is destroyed, the unit being transported is destroyed.

F. Combined Transport: Two half strength units may combine to transport a full-strength unit. The two transporting units must remain stacked together during the entire time they are transporting the full-strength unit. If one of the transporting units is destroyed, the transported unit is reduced to half-strength.

Two helicopters may combine to carry a single full strength unit. More than two helicopters may not combine to carry a unit, nor may two helicopters combine to carry a single half strength unit. *Unlimited number of transport helicopters may combine transport LOG Bases and LOGPACs.*

Rule 8: Stacking

More than one unit may occupy the same hex. (This is called stacking). There is no limit to the number of units which may normally occupy a hex. Only 4 steps may occupy a hex with an Alpine Hexside. However, only a limited number of units may use road movement through a hex at a time, and only a limited number of units may fire from a hex

A. Road Movement: A maximum of six steps of units may move together as a stack in march order using road movement. (A full-strength unit has two steps, a half step unit has one step *and a single vehicle unit (i.e. AVLBS) has a 1/4 step*). No unit or stack of units may use road movement to enter a hex already containing a unit which used road movement to enter that hex in the same movement phase; no unit or stack of units may use road movement to enter a hex in which a friendly unit using road movement suffered a loss from opportunity fire in that same movement phase.

B. Firing: A maximum of ten steps may fire from a hex. Units are divided into three groups for stacking purposes; units on the ground, helicopters in combat formation, and helicopters in march formation. Up to 10 steps of each type may fire from a hex.

Rule 9: Spotting

A unit may not be fired at by direct fire unless it is spotted. All game units are back-printed with their national color and a facing arrow (*only for originally GDW issued game sets*) or National Symbol. Units start each scenario flipped over so that opponents do not know the actual strength and location of enemy forces.

Units remain flipped until they are spotted, at which time they are turned face up. They remain face up (spotted) until the end of a movement phase in which no enemy unit has an unblocked line of sight to them.

A. When spotting takes place: A player may attempt to spot as many enemy units as he desires at the end of each movement phase. A player may attempt to spot every enemy unit which fires at the end of each fire phase. Any player who wishes to fire Msl (Missile) ammunition (*no spotting attempt is made against FGM-148 Javelin, ERYX*) from a previously unspotted unit (See Rule 12) must so declare at the beginning of the fire phase in which he will do so. (*As a player aid, Movement Markers, Missile Fire Markers and Direct Fire markers are available in the Neutral Marker Section for marking firing units*). The opposing player may attempt to spot the missile-firing unit before the fire is resolved. If successfully spotted, the missile firing unit may be fired upon that fire phase.

B. Line of Sight (LOS): A player may attempt to spot only enemy units which are in the unobstructed LOS of one of his own units. A LOS exists if the enemy unit is within the maximum LOS distance of the spotting unit, and if the LOS is not blocked. The LOS is a straight line between the center of the spotting unit's hex and the center of the target unit's hex.

1. Maximum LOS distance: The maximum LOS distance depends on the sum of the heights of the spotting and spotted units, as shown on the LOS table.

2. Elevation: elevation is shown on the map by contour lines and colored areas between them. There are 9 levels of terrain elevation from 0 to 8. Each level change represents 25 meters of actual elevation change. Levels change at contour lines and hex boundaries. Portions of a hex which are in different colored areas are on different levels. The terrain key shows all possible combinations of color and level within a hex (See Appendix C). Note that the same color may represent either of two different levels. If a lower-level color is also present, it is the lower value; if a higher-level color is present or if the hex is only one color, it is the higher value. (Although this may sound confusing, examination of the terrain key should make everything clear; See Appendix C). For example, if light brown and medium brown areas are both present in a hex, the light brown portion is at level 2, while the medium brown portion is at level 3.

A unit is always assumed to be on all levels present in the hex; that is, it may spot and be spotted from any of those levels. In addition, non-vehicle, dismounted units in a town hex or urban strip may attempt to spot (but not be spotted) as if they were one level higher than the hex that the town or urban strip occupies.

A helicopter in combat formation is considered to be at the same level as the hex, plus one if the hex contains woods, urban strip or town. A helicopter in march formation is considered to be four levels above the terrain of the hex. A helicopter executing a popup is at whatever level the player announces when the popup is begun, up to level 14.

3. Blocking Terrain: A LOS is blocked if it passes through terrain higher than the LOS itself. When both the spotter and the target are on the same elevation, this is an easy determination to

make. When they are on different elevations, the LOS graph is used (See Appendix C). Take out the LOS graph and examine it. The vertical axis represents range measured in hexes. The horizontal axis represents height measured in elevation levels. To use the graph, first locate the position of the spotting unit. The spotting unit is always located on the zero hex range of the range axis and the correct elevation on the height axis. Next, locate the point on the graph of the target unit by cross-indexing the range to the target unit and the target unit's elevation. The intersection of these two lines is the target unit's point on the graph. Lay a straightedge on the graph connecting the two points. the straightedge is the LOS from the spotting unit to the target unit. Finally, determine the range and elevation of any blocking terrain. Determine its point on the graph as the same manner as if it were a target unit. If its location on the graph is above the LOS, then the LOS to the target unit is blocked. If it is exactly on or below the LOS, then the LOS is not blocked. All terrain is evaluated on the basis of the colored area through which the LOS passes. Town, urban strip and woods hexes are considered to be one elevation higher than the terrain level of the hex for purposes of blocking LOS. (Note that this is true even if the LOS does not pass through the actual town, urban strip, or woods symbol; unlike the colored areas, the terrain is considered to fill the hex. Apply this only to elevation, a unit may attempt to spot a target unit through an urban strip, town or woods hex as long as the LOS does not actually cross the potentially blocking symbol when using a straightedge). Hexes with smoke screens in them (See Rule 19) are considered to be two elevations higher than the terrain level of the hex.

In addition, the LOS to or from a unit in a woods hex is blocked if the immediately adjacent hex along the LOS is also a woods hex. Adjacent units may still attempt to spot each other regardless of terrain.

The hexes the spotting unit and target unit occupy never constitute a block to the LOS. The LOS to a helicopter in a woods hex is not blocked if the immediately adjacent hex along the LOS is also a woods hex (unless it would be blocked without that special rule, of course).

Alpine Hexsides block LOS unless the unit is adjacent to the hexside.

C. Number of Spotting Attempts: Only one spotting attempt may be made per enemy unit per phase, conducted by the friendly unit of the spotting player's choice. Usually, but not necessarily, this will be the unit with the greatest chance to spot the target unit. **CITV equipped vehicles may conduct two spotting attempts per enemy unit per phase. The vehicle commander and gunner search areas overlap.**

D. Procedure: Five elements determine the likelihood of a successful spotting attempt: range, target type, terrain, target status and spotter status. These elements are all covered in the spotting tables.

The range from the spotting unit to the target unit determines the base die-roll required to spot the target. This is listed on the base roll table as the number or less which must be rolled on the die in order to spot.

The terrain the target unit is in modifies the base roll. The terrain modifiers table lists the target type (personnel, weapon, or vehicle) and indicates the modifier applied against the spotting number. Note that without a modifier some spotting attempts are impossible. Two modifiers appear in each cell of the table. The first modifier is used if the target is not in cover; the second is used if it is in cover. The notation *Auto* means that a unit is automatically spotted by any enemy unit at any range provided the spotting unit has an unobstructed LOS to the target.

The target status table lists additional modifiers based on the action of the target unit, making it easier to spot units which are moving, firing missiles, or have just fired. The *moving* modifier is used only during the movement phases. Formation changes, mounting and dismounting (for the transported unit), deploying and un-deploying are considered movement for spotting purposes. The *firing* modifier

is used during the fire phase and, in the case of non-phasing units conducting opportunity fire, the movement phase.

Finally, the spotter status table lists modifiers based on the type of spotting unit. *(There may be a discrepancy here. From personal experience, some AFVs and AIFVs are equipped with very good thermal imaging equipment. Most of the time, the gunner conducted scanning using the thermal imaging. Thermal imaging significantly increases the likelihood that an AFV or AIFV will spot a target unit. Most modern AFVs and AIFVs are equipped with them but it was probably not until the introduction of the Soviet T-90 (and the Polish PT-91) that eastern bloc forces had a thermal imaging system comparable to NATO vehicles. The installation of the CITV (Commander's Independent Thermal Viewer) in most NATO tanks in the late 1980s and early 1990s will increase the capability of NATO units even more. It's possible to camouflage a tank but you cannot hide the thermal signature it puts out. While spotting should not be automatic (after all some things are just plain missed) it should be a lot easier. Thermal sight modifiers have been added to the spotting table.*

Modifiers are added or subtracted from the base chance. Thus a positive modifier makes a unit easier to spot, while a negative modifier makes it harder to spot.

All modifiers are cumulative with the exception that a recon armored vehicle unit does not suffer an adverse modifier for being an armored vehicle but does receive the favorable modifier for being a recon unit. All units with asterisks other than HQs and TOCs are recon units. *(Again, another possible discrepancy.)* Observation posts and FISTs were equipped with more advanced optics, lasers, and thermal imaging.

Both players are required to give enough information about their units which are spotting or being spotted to determine which modifiers apply (but only the minimum necessary amount of information).

The die is rolled once for each hex containing units the player is attempting to spot; however, since different modifiers may apply, some units in the hex may be spotted while some may not.

The auto-spot range table and the maximum spotting ranges table are play-aids created by combining information from the base roll table and the terrain modifiers table. They provide no new information in themselves, merely saving the players the trouble of computing the values they contain.

E. Auto-spots: if at any time during a movement phase either player has an unobstructed LOS to an enemy unit for which the modified roll is 10 or more, that unit is automatically and immediately spotted. The auto-spot range table gives the distance at which this is true for all unit types. The spotter status and target status modifiers also apply on this table, as modifiers to the range. The notation *Max* means that the auto-spot range is the same as the maximum LOS.

F. Maximum Auto-spot Range: The maximum spotting range table gives the greatest distance at which a spotting attempt on a particular unit has any chance of success (that is, the roll needed is greater than 0). The spotter status and target status modifiers also apply on this table as modifiers to the range.

G. Dummies: Dummy counters are included as listed in the scenarios and are used to confuse the opposing player as to a player's exact strength and disposition. Dummies move using whatever mobility category and movement allowance is desired by the player. Dummy counters may not spot; they are spotted as any type the owning player desires.

In order to maintain the illusion, the owning player may place any marker he wishes on a dummy (for example, a cover or hit marker).

A dummy counter, once spotted is removed from the board. A player may return a dummy counter to play at the start of any subsequent friendly movement phase by placing it inverted in the same hex as any unspotted friendly unit. *Only dummy counters for U.S. or Soviet units were provided in the original game.*

H. Transports: When a spotted unit mounts a transport, the transport is automatically and immediately spotted. When a unit dismounts from a spotted transport, it is automatically and immediately spotted.

I. Un-spotting: If, at the end of any movement or fire phase a previously spotted unit is not within the LOS of any enemy unit, it is flipped over to its unspotted side again. Some units may become incapable of spotting due to suppression (See Rule 10) or morale (see Rule 16). Although these units may not make spotting attempts on spotted units, a spotted unit in their LOS remains spotted.

J. Ground Surveillance Radar: Units equipped with GSR have the capability to spot units when visual spotting techniques are inadequate. Units equipped with GSR are identified on the Unit Data Cards. The GSR auto-spot chart is on the Spotting Tables listed in the Charts & Tables section. GSR may be jammed by ECM and may be detected by Aircraft.

Rule 10: Combat Results

All results of all types of fire are expressed as either *suppression*, *hit*, *elimination* or *no effect*.

A. Suppression: A unit which is suppressed has not suffered sufficient losses to permanently affect its performance in game terms but has temporarily been rendered less effective, either due to losses or fright.

1. Effects of Suppression: A suppressed unit may not spot enemy units nor may it observe for indirect fire. Units suffer additional effects from suppression which vary depending on their defense class.

AFV class units may not be mounted or dismounted by other units, have their conventional fire values halved at ranges of 0 and 1 hex, and subtract one from their base hit number on all anti-armor fires at all ranges.

Suppressed personnel class units immediately go to ground, and thus have a cover marker placed on them. In addition, they may not fire, nor may they move toward a spotted enemy unit. Suppressed weapons class unit may not fire or move.

Suppressed non-armored vehicle units may not move. Any personnel class units in the vehicle automatically dismount and are suppressed. Any weapons class unit in it is also suppressed and may not dismount.

2. Recovery from Suppression: a unit remains suppressed until rallied (See Rule 16). The one exception to this is that if an unsuppressed personnel or weapons class unit mounts a suppressed non-armored vehicle, the vehicle unit automatically recovers from suppression.

B. Hit: A unit suffers a *hit* result loses one step of strength. All units begin the game with either one step or two steps of strength or with some special vehicles, i.e. FIST and AVLBs, a single vehicle. A unit with two steps of strength which suffers a hit has a hit marker placed under the counter and is from then on treated as a unit with one step of strength. A unit which has one step of strength or is a single vehicle and which suffers a hit is removed from play. Place the appropriate destroyed vehicle marker in its place. Note that a unit which starts the game with two steps of strength and which suffers two hits, either at the same time or at different times, is removed from play. Place two appropriate destroyed vehicle markers in its place for a full strength vehicle unit. A unit which suffers a hit is also suppressed.

C. Elimination: A unit which suffers an *elimination* result is removed from play, regardless of how many steps it has. Place the appropriate destroyed vehicle marker in its place if the destroyed unit is a vehicle.

D. No Effect: A *no effect* result has no effect on the strength of a unit but does require the unit's company to check morale, as explained in Rule 16.

E. Smoke Grenade Dischargers: All military vehicles are equipped with smoke grenade dischargers. All vehicles have 1 shot of chemical smoke. If a vehicle unit suffers a suppression or hit, a chemical

smoke marker is placed in the hex with the vehicle and the round of smoke is marked off of the unit's ammunition record as fired. Some AFVs have the capability to make smoke with their engines. This is covered in optional rule in Rule 20.

F. Three Element Units: Some nations utilize weapon systems in three element sets. In Assault, most units are either 1, 2, or 4 weapon systems consisting of a single unit step, 1 step or 2 step counters. In order to simulate 3 system steps the following rules are applied. A three element unit has 1 ½ steps.

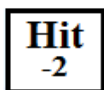
1. 3 Vehicular (Armored and Vehicle) Platoons: Warsaw Pact Tank Battalions that are organic to Motorized Rifle Regiments have platoons consisting of 4 tanks each. All other Warsaw Pact tank platoons are made of 3 tanks per platoon. Standard 4 tank platoons are treated normally. Some NATO countries utilize 3 vehicle platoons; Denmark for example. 3 vehicle platoons will be identified by a black silhouette with white unit type. For example a 3 tank Danish Centurion Mk V platoon would appear as:



2. Artillery: Some artillery units will consists of 3 tubes or guns as minimum sized sub- units. Multiply Fire Values on the Indirect Fire by 1 ½ for 3 weapon units. These are indicated on the Indirect Fire Charts and Unit Data Cards.

3. P-class and Non-artillery W-Class: These units are treated the same as Vehicular units.

4. Hits: When a 3 element unit suffers a hit, place a **HIT-2 Marker** on it.



a. The -2 marker should be applied to both frontal and flank armor calculations, all base to hit chances and all base spotting chances (both to be spotted and spotting attempts). Armor penetration values for rounds fired are not affected.

b. Conventional Fire values, Artillery Rates of Fire and HE values are reduced by 2. All base to hit chances and all base spotting chances (both to be spotted and spotting attempts) are reduced by 2. Units attacking a P- class, W-Class or V-class unit that has a -2 hit marker subtract 2 from the Conventional Fire Combat Results die roll. Artillery fire values are as listed and not adjusted by 1 ½.

c. A unit with a -2 hit marker that suffers another hit is eliminated.

Rule 11: Direct Fire

There are three types of direct fire; anti-armor fire (directed only at armored vehicles), conventional fire (directed at all units, including armored vehicles) and *anti-aircraft fire (directed at helicopters and close air support attack aircraft)*.

Direct fire takes place during the fire phase and may take place during the movement phases (See Rules 14 and 15). Direct fire during the fire phase is simultaneous; all units may fire before fire against them in that phase takes effect.

Each fire attack may be directed at any spotted enemy unit; all shots may, but need not be, directed against the same enemy unit. The targets of all fires from all units must be declared before any fires are resolved.

A. Which Units may Fire: Any unit which has direct fire weapons may conduct direct fire. These units are listed on the fire data charts, along with the characteristics of those weapons. The characteristics listed are ammunition type, rate of fire, effectiveness at range, and ammunition supply. The ammunition supply value is used only if Rule 21 is used.

B. Limitations: Several considerations limit the ability of units to fire.

1. Range: The fire data charts give the effectiveness of various types of ammunition for a unit at various ranges. The presence of a dash (-) indicates that the unit may not fire that ammunition type at that range with any effect. Generally, the greater the range, the less effective the fire. No unit may conduct direct fire at ranges greater than those listed on the chart.

2. Line of Sight: The target of the fire attack must be in the LOS of the firing unit. LOS is determined in the same manner as for spotting, except that dismounted personnel class units in town and urban strip hexes may, at the owning player's option, fire from one level higher than the elevation of the hex. (In other words, they are firing from roof tops and upper stories of the tallest buildings in the hex.) If they do so they may be spotted and fired upon at this higher elevation.

3. Formation: Only units in combat formation may fire. (Exception see Rule 15 and *Rule 27: Helicopter Combat*).

4. Movement: Since most modern AFVs have very sophisticated stabilizers built in to the fire control system. An M1A2 is very, very good at hitting targets while moving and all NATO units trained that way. Even the Soviets had gun stabilization to a degree. Add +1 to the base chance to hit die roll for NATO units and +2 base chance to hit die roll for WP units. WP units equipped with the AT-8, AT-10 and AT-11 laser guided cannon launched anti-tank missiles may fire their laser guided missiles if they moved in the first movement turn; (including the T-55M, T-62M, T-64B, T-72B, T-80B, T-90, T-90A, PT-91 and the BMP-3). See the Advanced Capability Spreadsheet for each nationality.

5. Units: Although units do not block LOS for spotting purposes, they sometimes do block LOS for firing purposes. A unit may never fire through a hex containing friendly units, nor may it fire conventional fire through any hex containing enemy units. A unit may fire anti-armor fire through a hex containing enemy units provided the hex contains no enemy AFV units. A helicopter does not block the LOS for fire purposes.

A unit may always fire over both friendly and enemy units with direct fire if it is on higher elevation and the LOS passes above, rather than through, the elevation of the hex being fired over.

C. Ammunition Type: There are a number of different ammunition types listed on the fire data charts. Their specific effects are detailed in the rules on anti-armor and conventional fire. However, a brief description of their actual function will aid in a general understanding of later rules.

1. Anti-Armor Rounds:

a. AP: Armor-piercing ammunition is an anti-armor round designed to punch through armor by virtue of the kinetic energy generated by extremely high velocities. The main armor-piercing round for both sides is the hyper-velocity, armor-piercing, fin-stabilized, discarding sabot (HVAPFDS) round.

b. APDU: Armor-piercing, depleted uranium ammunition is similar to AP but has a special penetrator core made from uranium, which in addition to its other properties is very dense, giving high penetration.

c. HEAT: High explosive anti-tank ammunition relies on the explosion of a shaped charge warhead to blow through armor.

d. HESH: High explosive squash head ammunition is used by the British in Challenger and Chieftain series tanks. The HESH round is fired by the 120mm rifled barrel used by Challenger and Chieftain. The HESH round is a multi-purpose round good for use against buildings, tanks and vehicles. It has the same properties as the HEP round used by U.S. M728 CEVs.

e. MPAT/MPHE: Used by the Americans and Germans, the multiple purpose anti-tank round, is essentially an upgraded HEAT round. It is capable of engaging AFVs, soft vehicles and helicopters.

f. Msl: Anti-tank guided missiles are extremely accurate anti-armor weapons with HEAT warheads. Missiles are differentiated from other HEAT rounds since there are special rules relating to missile fire. These rules are found in rules 9, 12, and 14. *The Soviets developed a series of main gun laser guided anti-missiles for their tanks and the BMP3 in the 1980s and 1990s. The AT-11 Sniper, for example, has a range of 4000m (16 hexes) and penetrates up to 900mm of armor. Ammunition was developed for the three main calibers used by the Warsaw Pact, 100mm, 115mm and 125mm. Warsaw Pact tanks were retrofitted with laser designators.* As such, smoke will prevent the WP LGATM from being used. Only the firing unit may designate a target for itself.

g. SCAP: Small caliber armor-piercing rounds are fired by heavy machine guns and small cannons. SCAP rounds are differentiated from other AP rounds due to their lower chance of a kill on an armored vehicle once they achieve penetration. *(This may not be entirely correct. U.S. M2A1s using depleted uranium SCAP rounds fired from the 25mm Bushmaster during Desert Storm, reportedly achieved at least 3 kills on Iraqi T-72s at ranges of 500m (2 hexes)).*

h. HEP: HEP (high explosive, plastic) It uses a large explosive charge which flattens against a hard target before exploding causing high velocity fragments to break off the target's inner surface (this is called spalling). In game terms HEP is identical to HEAT.

i. APFSDS: Armor Piercing Fin Stabilized Discarding Sabot. Basically the same as AP, the designation APFSDS is used to distinguish the British 120mm Rifled round and the South Korean self-sharpening round from other AP rounds.

j. FGM-148 Javelin Anti-Tank Missile: Javelin is a fire-and-forget missile with lock-on before launch and automatic self-guidance and a top attack profile. The Javelin replaces the Dragon wire-guided ATGM in U.S. Infantry units after 1996. Unlike the Dragon, there is NO spotting attempt on the unit firing the Javelin prior to resolution of fire combat. Also, there is NO modification to the base hit number when a Javelin is attacking enemy units under cover. Other base hit modifications may apply. The Javelin is not laser guided and will not activate Shtora type defense systems. It is also capable of engaging Helicopters. Units always use the flank value when defending against the Javelin.

k. BGM-71F TOW-2B: Another top attack profile missile, the TOW-2B always attacks the flank value of defending units.

2. Conventional Rounds:

a. HE: High explosive rounds are effective against all targets. Other conventional rounds are not very effective against armored targets.

b. SCHE: Small caliber high explosive rounds lack a large enough explosive charge to damage armored targets, but are otherwise similar to HE rounds.

c. SA: Small arms fire consists of automatic weapons (machine guns and assault rifles) and grenade launchers *(such as the M203 and not the MK19 AGL)*.

d. APERS/CANISTER: the anti-personnel tank round *(including the Canister shot)* is packed with thousands of flechettes. The gunner selects a range (up to 1500m) at which the round will detonate. When it detonates, the flechettes are released as a cloud of lethal projectiles still travelling at high velocities along the ballistic path of the round with devastating effect on non-armored targets.

e. **IS:** Incendiary smoke rounds are filled with white phosphorus which not only creates a good deal of smoke but also burns at extremely high temperatures. An exploding white phosphorus round thus is an extremely deadly weapon against non-armored targets.

f. **FLW:** Flame weapon used by the Soviet TO-55. Napalm or jellied gasoline that is delivered to the target in a stream. Used against targets at less than 250m (1 hex) range.

3. Multi-Purpose Rounds: If the fire data chart gives a single ammunition supply for two different rounds, the two are actually a single type of round capable of being used for both anti-armor and conventional fire. For example, the HEAT and HE rounds of the Soviet T-62 are the same round; if fired at an armored vehicle it acts as a HEAT round, and if fired at any other unit it acts as an HE round.

D. Rate of Fire: Each step of a unit may fire as many times per phase as its rate of fire as listed on the fire data chart. Also, each step of a unit has its full rate of fire for both opportunity fire and for close assault, even when both activities occur in the same movement phase. A personnel-class unit may always fire every ammunition type available at its listed rate of fire. Any other type of unit with more than one type ammunition available may fire one or several types in a phase, but the total number of fires may not exceed the lowest ROF number of the ammunition types being fired. For example, a U.S. M1 could fire twice (per step) with AP ammunition or twice with SA ammunition or once with each, as long as the total ROF does not exceed 2. A Soviet BMP-2 could fire three times with SCAP ammunition or once with MSL ammunition or once with each. A U.S. infantry unit could fire once with HEAT, once with MSL and twice with SA ammunition.

E. Strength of Firing Unit: All fire data is listed per step. Since full-strength units normally have two steps, each fire from such a unit enables the unit to make two attacks. These two attacks must use the same ammunition but may be directed at different targets. For example, a full-strength Soviet T-72 platoon fires once with AP ammunition and once with HE ammunition. Since the platoon has two steps, it attacks one target two times with HE ammunition and another target two times with AP ammunition or one target with 2 HE and 2 AP.

F. Single Vehicles: FIST, AVLB, some specialized engineering vehicles, and minefield breaching units each represent a single vehicle, indicated by a white vehicle silhouette. In direct fire (anti-tank and conventional), one shot expended by a firing unit allows for two die rolls against the single vehicle (or unit) in one hex. When determining the number of steps in a hex (for fire purposes) or in a company (for morale purposes) a single vehicle counts as only $\frac{1}{4}$ of a step; round fractions up.

RULE 12: Anti-Armor Fire

Anti-armor fire is directed at armored vehicle units. Ammunition types which may be used for anti-armor fire are those which, on the fire data charts, have two numbers separated by a colon in each column of the *effectiveness at range* section of the chart. These include AP, APDU, HEAT, HESH, MPAT, SCAP and MSL ammunition.

A. Hit Procedure: The first number in the *effectiveness at range* section of the direct fire data chart is the base chance of achieving a hit on a target unit at a given range. Roll the decimal die; if the number rolled is equal to or less than the base chance to hit, the fire attack results in a hit. Several factors modify the base hit number.

1. Multiple Targets in Hex: Divide the number of enemy AFV steps in the hex by two, rounding fractional results down, subtract one, and add the total to the base hit number. This step is performed before using the modifiers in bullets 2-4 below. For example, a unit has a base hit number of four and there are six steps of enemy AFV units in the target hex. Add $(6/2 - 1) = 2$ to the base hit number, giving a new hit number of 6. The number of steps in the hex is considered

separately for units on the ground, helicopters in combat formation, and helicopters in march formation.

2. Cover: If a unit is under cover and is being fired at across one of the two covered hexsides, divide the base hit number by 2 and round fractions down, *unless the ammunition being utilized is a top-attack round, in which case there is no modification for cover.*

3. M-901 Units: If a U.S. M-901 unit is under cover and is being fired at across one of the two covered hexsides, divide the base hit number by three, rounding fractions down. *(See the **Anti-Armor Fire Modifiers** chart for additions to this list, i.e. FIST units, PRAT, etc.)*

4. Missile Fire: If a unit is firing Msl ammunition at units in a woods hex, divide the base hit number by two, rounding fractions down. If the target is also under cover, (see 2 and 3 above), divide with both modifiers before rounding down. *(I do not know why missiles are any different than any other ammunition firing into the woods unless we are assuming that small limbs may break the wire or leaves reflect the laser. Following that same logic, wire guided ATGM should not be fired across the lakes because of the possibility of the wire hitting the water and shorting out the circuit. Also laser guided missiles should probably suffer the same effect when firing into woods, i.e. laser beam reflecting off a tree. After all, an APFSDS round traveling at 1600mps would probably pass through a limb like a hot knife through butter).*

After the final hit number is determined, roll the die. A roll equal to or less than the hit number means that the target unit suffers one hit. A roll equal to or less than the hit number minus two means that the target unit suffers two hits. For example, a firing unit's final modified hit number is 7.

If a 7 or 6 is rolled the target suffers one hit; if a 5 or less is rolled the target suffers two hits. *Shtora equipped vehicles receive a -2 modifier to the base chance to hit when attacked by enemy ATGM, either laser or wire guided. This modifier is applied after all other modifiers (see Rule 19.B.4.c. Shtora Smoke).*

A target unit which suffers one or more hits will lose steps, provided the hits penetrate.

Top attack profile ammunition and missiles, such as the U.S. Army Javelin and the BGM-71 TOW-2B, always use the flank armor value of the defending unit. Top attack profile munitions are designed to engage the top armor of vehicles where armor is the thinnest. These weapons are identified on the Direct Fire data charts.

B. Penetration: Once a hit has been achieved, determine whether or not the ammunition used is capable of penetrating the vehicle's armor. To do so, compare the penetration value of the ammunition to the armor value of the target. If the penetration value is equal to or greater than the armor, the hit may penetrate. If it is less than the armor, the hit does not penetrate, and instead causes the target unit to be suppressed.

1. Penetration Value: Locate the correct column of the *effectiveness at range* section of the direct fire data chart. The second number (i.e. the number following the base hit number) is the penetration value of the ammunition at that range. For example, Soviet T-80 firing AP ammunition has a penetration value of 15 at a range of 8 hexes.

2. Armor Value: Each AFV has two armor values; the first value is for frontal shots and the second value is for flank shots. If the LOS crosses the hexside (march formation) or hexsides (combat formation) the unit is facing, the frontal armor is used. If the LOS crosses any other hexside the flank value is used. If the LOS exactly crosses the vertex between a front hexside and a flank hexside, the front value is used. If the firing unit is in the same hex as the target unit the flank value is always used. Units always use the flank value when defending against top attack profile munitions.

3. Hit Confirmation: A hit from APDU ammunition which is capable of penetrating the target's *UNMODIFIED* armor value automatically causes a loss of one step. Hits from other ammunition must be confirmed. Roll the die once. If the number rolled is equal to or less than the difference between the penetration value of the ammunition and the armor value of the target, the hit causes a one-step loss. If not, the target is suppressed but otherwise unharmed.

In most cases, an addition to the difference between armor and penetration is made (thus making it easier to confirm the hit). If the target unit is protected by Chobham (*Composite*) Armor, no addition is made (*Composite/Depleted Uranium and Chobham 2 armors were developed in the late 1980s and early 1990s. These are exceptionally dense versions of Chobham Armor and as a result a negative modifier is applied to the die roll. See Advanced Armor Spreadsheets for complete list*).

All vehicles protected by Chobham (Composite) style or laminate armor are listed on the armor types table.

For example, a U.S. infantry unit firing HEAT ammunition achieves a hit on the front of a T-80 unit. The T-80 has a frontal armor value of 15 while the infantry's HEAT ammunition has a penetration of 17, or a difference of two. Since the T-80 has laminate frontal armor, two is added to the difference, for a final difference of four. The U.S. player must roll a four or less on the die to inflict a step loss on the T-80.

a. Reactive Armor- Reactive Armor (and Explosive Reactive Armor) consist of add on armor, explosive bricks such as Kontakt 5 or the Israeli Blazer, designed to defeat AP (NOT APDU) and HEAT rounds including anti-tank missiles. More modern AP, HEAT, and MSL rounds have built in counter-measures, such as probes, designed to defeat Reactive Armor. Both NATO and Warsaw Pact armies utilized RA or ERA to some degree, generally becoming more common after 1990. This new rule mainly addresses the add-on or bolt-on RA/ERA.

1. After it is determined that a hit has occurred with AP/HEAT/MSL ammunition, check the Advance Capabilities Spreadsheet for the RA/ERA modifier. This number is added to the armor value being attacked. Subtract the ERA modifier listed on the Direct Fire Chart for that particular type ammunition from the target armor value. This is the target modified armor value. Subtract the target modified armor value from the firing unit ammunition penetration value. This is the Penetration value. Add the Armor Type to the Penetration value. Roll the die. If the number rolled is equal to or less than the penetration value of the hit causes a one- step loss. If not, the target is suppressed but otherwise unharmed. The final modifier is applied to the hit confirmation die roll to determine if the round penetrates.

For example, a U.S. M901 successfully fires a TOW2 missile flank shot on Soviet T-90A tank. The Soviet T-90A flank value is (11) + ERA Armor modifier (7) + Ammunition ERA modifier (-3) = Soviet Modified Armor Value (15). Subtract the Soviet Modified Armor Value (15) from the US TOW2 penetration value (23); 23-15=8. Since the T-90A is equipped with composite armor (-1), these values are added giving a final penetration value of 7. The U.S. player must roll 7 or less to achieve a hit (penetration). The U.S. player rolls an 8. The Soviet Kontakt 5 ERA and composite armor has defeated the TOW2 missile.

C. Non-armored vehicles: Non-armored vehicles may be attacked using anti-armor rounds; HEAT, AP, APDU and SCAP. Roll the die to determine if a hit occurs (all modifiers apply). A hit results in an automatic loss of 1 step.

Rule 13: Conventional Fire

Conventional fire may be directed at any unit. However, conventional fire from rounds other than HE rounds cannot inflict losses on armored vehicles; any result other than *no effect* merely suppresses the AFV unit. Conventional fire is resolved by the following procedure.

A. Determine Target Defense Value: Each target has a defense value against conventional fire which is determined by the target defense class, the terrain it is occupying, and whether or not it is in cover.

When subtracting from defense value for steps in the hex, the number is considered separately for units on the ground, helicopters in combat formation and helicopters in march formation.

Helicopters have their own row on the conventional fire defense table.

1. Basic Defense Value: Consult the conventional fire defense table and cross-index the target defense class with the terrain of the hex it occupies. At the intersection there are two numbers separated by a slash. The first number is the defense value of the unit if it is in the open (i.e. not under cover), while the second number is the value of a unit under cover.

2. Armored Vehicles: If the target is an armored vehicle, add its front or flank armor value to the defense value; if the target is being fired upon from both front and flank, use the front armor value.

3. Steps: Subtract 1 from the defense value for each step in the hex in excess of 2. However, a unit may never have its defense value reduced below half the value listed on the chart.

For example, a U.S. infantry platoon is in a woods hex under cover. Also in the hex are two other platoons, one of which has already suffered a one-step loss. The U.S. infantry unit is a P (personnel) class unit, and thus would normally have a defense value of 15. Since there are a total of 5 strength points in the hex, however, three is subtracted from the defense value giving a modified value of twelve.

B. Determine Fire Value: Add the fire values of all conventional fires being directed at the target unit from all enemy units firing at it that phase. Thus if two enemy units, each with an ROF of 2 and two steps each, were firing at the unit, a total of 8 shots would be added together. If both firing units had a value of 4, the total fire value would be 32. If an armored vehicle is attacked by a combination of HE and other types of rounds, resolve the HE fire separately. Infantry units may fire HEAT ammunition at units in bunkers and trenches and against non-armored vehicles. In this case, the penetration value of the HEAT round is used as the conventional fire value. Infantry HEAT rounds may only be fired this way against units in entrenchments, bunkers and non-armored units.

C. Resolve the Attack: Compare the fire value to the defense value and convert it to one of the simple odds ratios found on the conventional fire results table. If rounding is necessary, round in favor of the target unit. Thus, a fire value of 32 versus a defense value of 7 would be a 4:1 attack. Roll the die and consult the conventional fire results table. The intersection of the odds column and the row corresponding to the die roll lists the result of the attack. Implement the result as explained in Rule 10.

Rule 14: Opportunity Fire

Opportunity fire takes place during the movement phase. Only units of the non-phasing player which are under cover may conduct opportunity fire, and only at units which are moving. For purposes of opportunity fire, the following actions are also considered movement: changing formation, mounting and dismounting (for the transported unit), deploying and un-deploying.

A. Limitations: Since units are moved individually or in stacks, the non-phasing player must choose whether or not he will conduct opportunity fire each time the phasing player moves a unit or stack. There is no limit to the number of opportunity fires a player may make in a movement phase, provided no unit exceeds its normal rate of fire for a phase. Fire is conducted based upon the facing of the target as it enters the target hex. Landing, taking off, and popping up are considered movement for purposes of opportunity fire.

1. Range: All weapons may conduct opportunity fire at any enemy unit within four hexes. Units firing Msl ammunition may not conduct opportunity fire beyond four hexes. At ranges of five to eight hexes, units may conduct opportunity fire against enemy units only as they enter the second or any subsequent, consecutive hex under observation of the firing unit. That is, a unit cannot be fired on in the hex in which it is first visible to the firing unit. At ranges of nine to twelve hexes, units may conduct opportunity fire only in the third or any subsequent, consecutive hex under observation. *(This may be somewhat confusing here. Since only spotted units may be fired at, and spotting occurs after movement (unless Auto-spot applies) in a movement phase and during the fire phase, this can mean that the unit is already spotted by another unit prior to the current movement phase and before moving into sight of the unit that is to conduct opportunity fire, hence the range restrictions. It also would apply to opportunity fire conducted in the second movement phase against units that were spotted in the first movement phase or the fire phase).* No unit may conduct opportunity fire beyond a range of twelve hexes *(see Close Air Support rules for opportunity fire vs aircraft).*

An enemy unit which begins the movement phase visible to the firing unit may be fired at in any hex of its movement (including the hex it begins in) up to a range of twelve hexes.

Double the number of hexes in which a helicopter in march formation must be visible before opportunity fire may be conducted against it: two hexes at a range up to 4, four at a range of 5-8, and 6 at a range of 9-12.

2. Fires per Hex: Any single step may fire against any single stack in any single hex once (with a ROF of 1). For example, if a stack moves three hexes with the LOS and range of a unit, the unit may fire a total of three times, once per hex (assuming it has a sufficient ROF). A unit eligible to conduct opportunity fire may do so against enemy units entering or leaving the hex the unit occupies.

B. Resolution: Opportunity fire is resolved as anti-armor or conventional fire as appropriate and resulting morale checks are resolved immediately. After they are resolved, movement proceeds.

Rule 15: Close Assault

Close assault takes place during the movement phase and is resolved after all movement is completed. A close assault takes place when, at the end of movement, there are units of both players in the same hex.

If a close assault takes place, all units in the hex fire simultaneously. Close assault fire is resolved using the normal rules for anti-armor and conventional fire. Unlike fire conducted in a fire phase, units in march formation may fire in a close assault.

It is possible that after all fires are resolved, both players may still have units remaining in the hex. No special actions are required by these units. If at the end of the next movement phase there are still units of both sides in the hex, another close assault is resolved. No unit may fire during a fire phase if there are enemy units in the hex it occupies. Helicopters in march formation may not close assault or be close assaulted (although they may be fired at a range of 0 in the fire phase).

Rule 16: Morale

Units under fire may suffer from reduced combat effectiveness, especially when casualties are suffered. Units whose morale deteriorates can become shaken or broken.

A. Morale Checks: Units check morale by company. Each phase in which any unit of a company is fired at, the company must check morale. Regardless of how many times the company is fired at, it is never required to check morale more than once per phase. Morale checks during the movement phase occur the first time a unit is fired on by an enemy conducting opportunity fire. To check morale, roll the die once. If the result is equal to or less than the current morale of the company, the company passes the check; otherwise it fails the check.

Units which have been cross-attached to another company are treated as part of that company for morale purposes.

1. Morale Level: A company's initial morale level depends on its initial number of steps. If the company initially has 4 or fewer steps, it is 8; if it has 5-8 steps, its morale is 10; if it has 9 or more steps, its morale is 12. The initial number of steps is counted before any cross-attachment occurs. A company's morale is reduced by 1 for every step loss suffered (including steps of cross-attached units).

Each company's initial morale and any changes to its morale during the game are written down on the morale section of the command/morale record.

a. Elite Unit Morale: Each army contains elite units that either through training or indoctrination possess a higher level of morale than the regular units. The morale level for an elite unit is raised by a number of levels depending upon the type and nationality. See the Elite Unit Modifiers chart in the Advanced Assault Charts & Tables for applicable modifiers

2. Failed Morale Checks: If a company fails a morale check it is shaken. A shaken company which fails a morale check is broken.

a. Shaken: Units of a shaken company may not move any closer to the closest spotted enemy unit.

b. Broken: Units of a broken company are in no formation; they move as if in march formation but all shots against them are considered to be flank shots. Units of a broken company may not fire, spot, or observe for indirect fire. They must move away from the closest spotted enemy unit to the extent of their movement ability. The identity of the closest spotted enemy unit may change during movement; that is, the closest enemy unit is that unit which is closest during each hex of the broken unit's movement. If two units are equally close, the broken unit must move away from both of them. If unable to move farther away from one enemy unit without approaching another enemy unit, the broken unit may not move. Any unit which becomes broken in a hex also occupied by an enemy unit is removed from play (surrenders).

Any unit which leaves the board while broken is removed from play.

B. Rally: A player may attempt to rally broken and shaken companies at the start of a friendly movement phase. The attempt is made by a HQ or TOC to which the company is subordinate. Rallying a company costs 1 operations point if any part of the company is visible to the HQ or TOC unit expending the operations point, and 2 points if it is not visible. TOCs may rally companies only while committed to command, not while planning or executing.

To attempt to rally a company, roll one die. If the result is equal to or less than the company's current morale level, the company rallies. Broken companies which rally become shaken. Shaken

companies which rally become normal. Broken companies which became shaken immediately assume combat formation, with any facing desired by the player.

Players may also attempt to rally suppressed units at the start of each friendly movement phase. The procedure for rallying suppressed units is identical to that for rallying shaken and broken units except that it does not require the expenditure of operations points.

The player attempts to rally broken and shaken companies before attempting to rally suppressed units. If the company rallies, then all suppressed units of the company also rally and are no longer suppressed. If the company doesn't rally, then the player may attempt to rally each suppressed unit of the company individually.

C. HQs and TOCs: A shaken HQ must expend one of its operations points (if it has any) in each friendly movement phase in an attempt to rally itself (and any other units in its company). A shaken TOC allocated to command must do the same.

A broken HQ or TOC must attempt to rally itself in the same manner as a shaken HQ or TOC. A broken HQ or TOC may not expend operations points for any other purpose and a broken TOC may not plan or execute.

Rule 17: Entrenchments

(These rules are only for use with basic Assault. More advanced engineering rules are covered in the Engineering Section Rule 37)

Certain scenarios will call for one side to have several entrenchments. These must be placed on the board with the initial placement troops and, once placed, may not be moved. Each entrenchment may hold up to two steps of personnel or weapons class units.

A unit must be in combat formation and must spend its full movement phase in an entrenchment hex to enter the entrenchment; no expenditure of operations points is required and entering the entrenchment is not considered movement of any purpose (spotting, opportunity fire, etc.). A unit in an entrenchment is noted by placing the unit under the entrenchment marker. Dummy units may occupy entrenchments. A unit may not occupy an entrenchment already occupied by an enemy unit. Units may capture and occupy enemy entrenchments.

Units in entrenchments defend against indirect fire and conventional fire as listed on the conventional fire defense tables. An entrenched unit may not enter cover, but entrenched units are considered to be under cover for spotting and opportunity fire purposes. Entrenchments may not be placed in marsh hexes.

Rule 18: Indirect Fire

A. General Explanation: Indirect fire represents the firepower of rockets, mortars and artillery, which deliver high trajectory plunging fire. Indirect fire units are all units which are included on the indirect fire data charts. Artillery forward observers and FISTs call fire missions back to indirect fire units, which in turn fire on the requested target. The process of requesting fire takes time as the following rules indicate. During the pre- game cross-attachment segment, artillery units may be designated as Direct Support or General Support.

B. Requesting Fire: Indirect fire is requested at the beginning of each friendly Artillery Plot Phase. The player secretly writes down his fire missions on his fire mission record. The left side of the record lists the turns of the game in order. Fire missions arrive in the Indirect Fire portion of the Fire Phase.

1. Writing Fire Orders: Fire orders are written on the right side of the fire mission record. The turn of arrival and the unit firing are repeated. In addition, the player must specify the target hex number, the ammunition being fired, and whether the mission will use maximum ROF/ICM/Un-

observed Fire (see below). . Fire missions are written on the line of the turn in which they will arrive; record each firing unit's ID; for example the 9th Battalion would be 9. B battery of the battalion would be 9B, and the first platoon would be 1B9.

2. Observing Fire: A hex must be under observation by a unit capable of calling fire in order for a fire mission to be written for the hex. All NATO units are capable of calling fire as are all WP HQs, Ops, drones and FISTs. An indirect fire unit may also observe for itself. For a hex to be under observation, an unblocked line of sight must be traced from the observing unit to the target hex. Procedures for tracing LOS are explained in Rule 9. Special Forces Units function as FOs and may be cross-attached with any indirect fire unit.

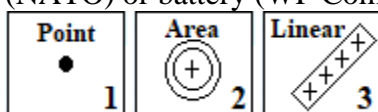
a. Direct Support – Artillery units designated as Direct Support may only fire missions that are observed fire. Direct Fire units may fire Counterbattery Fire if the impacting enemy indirect fire is observed by the FIST or OP to which it is assigned (see Section J Counter-battery Fire. Artillery units belonging to the same Brigade/Battalion as the spotting unit are always considered Direct Support unless otherwise designated during the cross-attachment segment during pre-game setup.

b. General Support – Artillery units designated as General Support during the pre-game cross-attachment segment, may fire indirect fire missions only for FISTs or Ops. The target hex must be under observation by the calling FIST/OP for at least 1 Artillery Plot phase prior to arrival. General Support units may also fire during pre-game artillery Un-observed Fire.

3. Canceling Missions: A fire mission may be canceled at the beginning of any artillery fire portion of the Friendly Fire Phase. Another order may be written for the unit at that time, but it is subject to delay starting in that artillery phase; it may not be simply substituted for the canceled fire order.

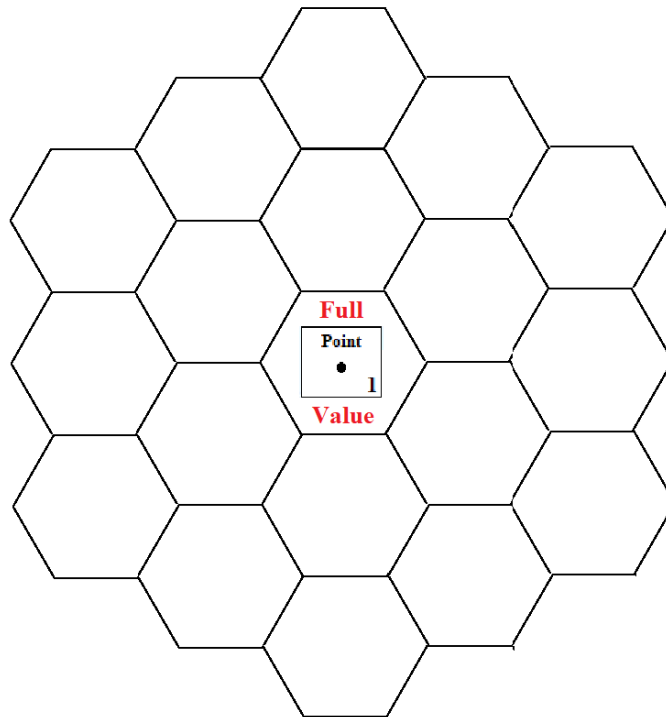
C. Indirect Fire Procedures: Fire missions due to arrive in the current turn are resolved in the Artillery Fire portion of the Friendly Fire Phase. All artillery firing at a hex is added together and attacks all units (enemy and friendly) in the hex.

1. Select Fire Mission Type- Three type of artillery fire missions may be selected for each platoon (NATO) or battery (WP Company)

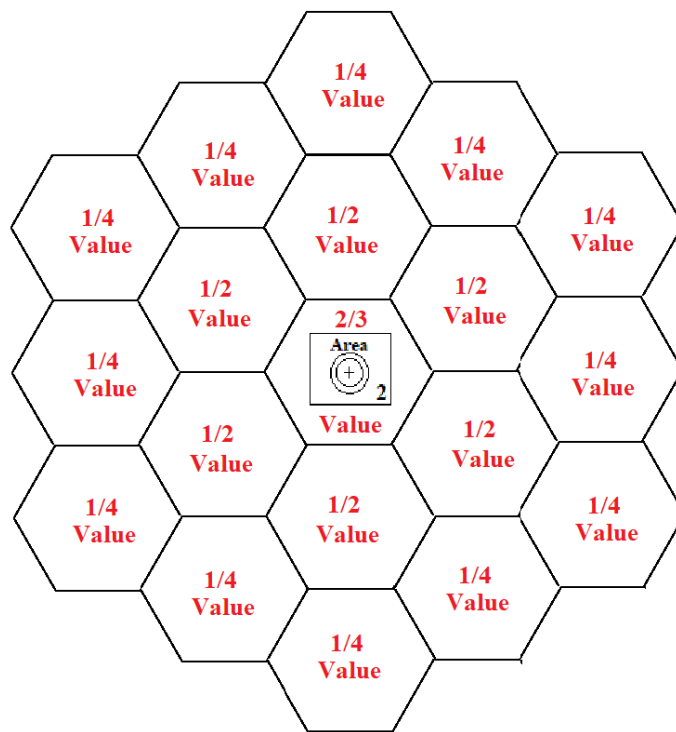


2. The indirect fire data chart lists the fire value for each indirect fire unit in the game. The value listed is per step. Each full-strength counter has two steps and each half-strength counter has one. Since the fire value is per step, multiple it by two for full-strength units. Write the total fire value (after modification by D1 and D2 below) on the fire mission record as determined by Fire Mission type.
3. **Target Defense Value:** The indirect fire defense chart lists the defense values of various units in various terrains.
4. **Resolution:** The fire values of all artillery units firing at a hex are added together. This is then compared to the defense value of the top unit in the stack and expressed as a simple odds ratio as found on the conventional fire combat results table. If rounding is necessary, always round in favor of the target unit. After locating the correct column of the combat results table, roll a die and implement the result. Repeat this procedure for each unit in the target hex. Note that the fire strength will be the same each time, but the defense value may change.
5. **Results:** Results are explained in Rule 10.

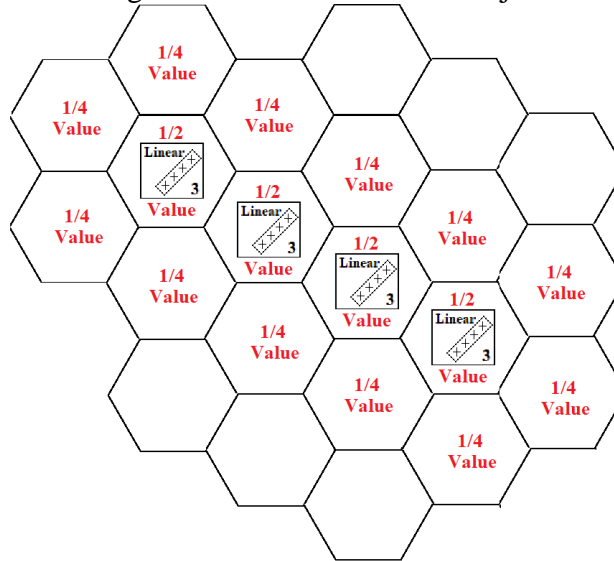
- a) **Point Strike**-Entire Artillery Fire value concentrated in one hex. All Artillery fires values are added together and applied to the hex being attacked.



- b) **Area Strike**-Target hex $\frac{2}{3}$ fire value. Adjacent hexes $\frac{1}{2}$ fire value. 2 hexes from target hex $\frac{1}{4}$ fire value

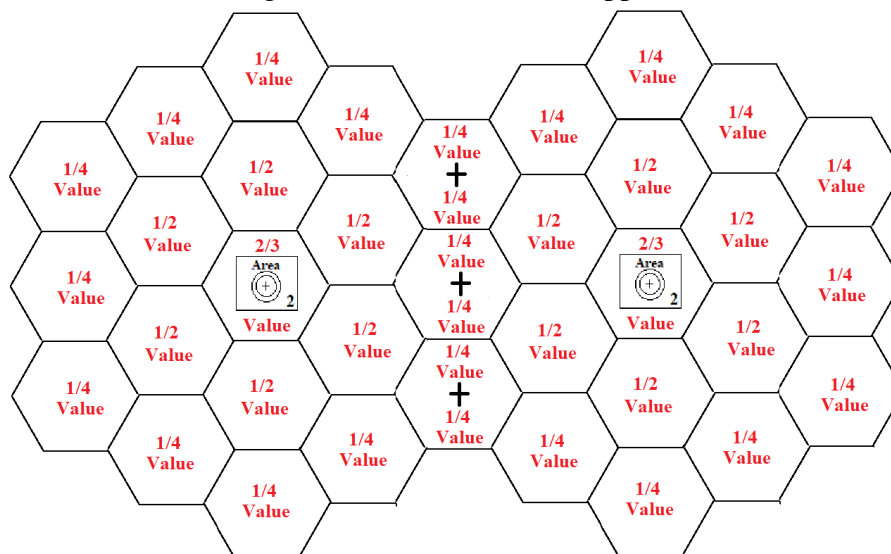


c) **Linear Strike** - 4 contiguous hexes $\frac{1}{2}$ fire value. Adjacent hexes $\frac{1}{4}$ fire value.



D. Overlapping Fire

Add the two fire values together for total fire value applied to each hex



E. Special Cases:

1. Max ROF: Each indirect fire weapon may fire at its maximum rate of fire for one turn without being re-supplied. In that turn the fire value is modified by the max ROF multiplier on the indirect fire chart. The firing unit suffers no adverse effect from firing at its max ROF.

For example, the WP D-30 howitzer has a value of 4 when firing HE ammunition. Since its max ROF multiplier is 6, its total value for that turn would be 24. The firing unit must be resupplied before being able to fire another MAX ROF mission again.

2. ICM: With some weapons, the NATO player has a choice of firing either HE or ICM (Improved Conventional Munitions). ICM may not be fired at town, urban strip, woods, full lake or swamp hexes. When firing ICM the fire value is modified by the ICM multiplier on the indirect fire chart. If the max ROF option is taken with ICM, multiply the fire value both by the

max ROF and ICM modifiers. Unlike MAX ROF modifiers, the ICM modifier can be used as long as the firing unit has ICM rounds.

3. Smoke: An indirect fire unit may fire smoke instead of HE or ICM. Smoke missions are plotted using the same procedure as any other fire mission, except that units capable of laying more than one smoke screen may plot as many target hexes as smoke screens. The indirect chart indicates what type of smoke may be fired (chemical or incendiary) and how many smoke screens may be fired per step per turn. Incendiary screens last one turn; chemical screens last two turns. Screens are removed at the start of the artillery phase. The effects of smoke are detailed in rule 19.

For example, a U. S. M-125 mortar is plotted to fire an incendiary smoke mission. Since it may fire four incendiary screens per turn, the U. S. player writes down up to four target hexes.

If there are units in the target hex the turn smoke arrives, they may be subject to an attack. Chemical smoke missions do not attack units in the target hex but incendiary smoke missions do. Resolve the attack as if it were an HE fire mission but with a value of 10 per incendiary smoke screen targeted on the hex. *For example, a U.S. M-106 mortar can fire up to three incendiary smoke screens per turn per step, or a total of 6 per turn if a two-step unit. If all six were fired at a single hex, each unit in the hex would be attacked with a fire value of 60.*

4. Pass-Through Fire: Indirect fire is assumed to be taking place over the course of the turn. Thus, the fire mission marker is left in place until the next Friendly Artillery Fire Plot Phase and any unit moving into the hex during a movement phase is attacked by the fire mission as well. Units mounting or dismounting from transport units and units deploying or un-deploying also suffer pass-through fire. All units suffering pass-through fire are fired at as if in clear terrain. However, the total artillery fire value is halved, rounding fractions down, before the fire is resolved.

F. Deployment: In order to conduct indirect fire, or to be given a fire mission, units must be deployed. After all indirect fire in the friendly artillery phase has been resolved, the player may have any indirect fire units deploy. This is done by placing a deployed marker under the unit. A unit must be in combat formation when it deploys. When off-board artillery deploys, this fact, plus its distance off-board, should be noted under current turn number on the fire mission record.

Indirect fire units which are deployed may not move. They may not enter cover, entrench, mount or dismount, or change formation or facing. (However, a unit which is already under cover or entrenched may deploy, in which case it remains under cover or entrenched). A deployed unit may fire in the direct fire phase of a player-turn only if it was not performing a fire mission in the preceding artillery phase (if no fire mission marker is on the board for it).

Indirect fire units may leave deployment during a friendly movement phase, paying their entire movement allowance to do so. Self-propelled artillery units may do so in either friendly movement phase; towed units may do so only in the second movement phase. Units may not leave during a turn in which they conducted a fire mission. Deploying or un-deploying counts as movement for purposes of spotting, opportunity fire, pass through fire, and operations point expenditure.

1. Enhanced SPG Artillery: Modern SPA (self-propelled artillery) are equipped with sophisticated fire control systems that negate the requirement that the unit be deployed. These units have the capability to go from movement, to firing a mission in less than a minute, then back to moving on completion of the fire mission; well within the 5 minutes per game turn. The NATO SPAs do not have to be deployed to fire a mission on or off board; and may move in any movement phase regardless. These units may fire any indirect fire mission (including counter-

battery fire) in the direct fire phase provided the target hex is under observation by a FIST, or OP. Enhanced SPGs are identified on the Indirect Fire Data chart per nationality.

2. Precision Guided Munitions: PGM guided munitions are vastly improved since the laser guided M712 Copperhead round. The M985 Excalibur, M395 PGMM (mortar), M1156 (PGM kit to upgrade standard artillery rounds), JDAM and guided MLRS/HIMARS rockets rely on GPS guidance to hit their target. As such, PGM do not require a FIST/OP to spot the target hex. The munition always strikes the hex being targeted. The Swedish m/41 mortar round does not require spotting or designating. This round may conduct an attack versus an afv/aifv/vehicle within one hex of the target hex. If the target hex is under observation by a FIST or OP, a -1 modifier is made to the die roll.

3. Rocket Assisted Projectiles (RAP): RAPs are regular artillery rounds that incorporate a rocket motor for independent propulsion. These are identified on the Indirect Fire Charts where available. Any artillery round available to a specific weapon system may be enhanced by the RAP. Weapon systems may not fire Max ROF using RAP but may utilize ICM. On the indirect fire charts in the RAP column are two values. The first value is the number of RAP rounds available. The second number is the max range of the extended round. The RAP round is recorded and expended as a regular round of ammunition with the extra range. When utilizing the RAP round, note on the Ammunition Expenditure Record the use of the RAP and the type of artillery round that is being fired; for example a HE attack using the RAP would require the expenditure of one HE round and one RAP round.

G. Range: Indirect fire is limited by the range of the firing unit. The indirect fire data chart lists the range of the various firing units in hexes. Artillery may not fire beyond its maximum range.

H. Off-Board Artillery: In some scenarios, players receive off-board artillery. The scenario description states what units are received, how far off-board it starts, and whether it is deployed. No counters are received for off-board artillery; it exists only on the fire mission record. Off-board artillery performs all its activity, including movement, the same as an on-board artillery unit. Off-board artillery may do one of four things: deploy, un-deploy, perform a fire mission or wait for an assigned mission (if deployed), or move (if un-deployed). Fire missions are recorded as for other artillery. Deploying or un-deploying are recorded in the left side of the fire mission record: instead of a fire mission, write D or U. movement is also recorded on the fire mission record; instead of a fire mission, write M followed by the number of hexes off-board the unit will be after its movement. Each unit starts at a particular distance off-board. Each turn's movement may change this distance by up to 5 hexes; however, off-board artillery must always remain at least 5 hexes off-board. The range from off-board artillery to a target is equal to the artillery's distance off-board plus the distance from the target to any hex on the owning player's board edge (East or West).

I. FIST: FIST are fire support teams that operate out of a FIST-V of some type. The U.S. utilizes the M-7 Bradley FIST-V known as B-FIST and the M-113 based vehicle known as the M-981 and the M-1131 Stryker FSV. The Soviet Ka-52 helicopter functions as a FIST and is equipped with laser designators. These units are equipped with sophisticated G/VLLD (Ground/Vehicular Laser Locator Designator) and a GPS system for pinpointing target locations. FIST-V crews are in direct contact with Fire Direction Centers (FDC) and significantly speed up the process of call for fire. Some FIST also carry a standard OP unit, such as the B-FIST does, to supplement the vehicle's observation operations. FIST units are identified as such on the unit counter and/or on the Unit Data Cards. Artillery units are considered subordinate to the parent unit FIST. For example, any U.S. 17th Field Artillery Brigade artillery unit is subordinate to the COLT1 1C22 BFIST and considered a Direct Support artillery unit for the COLT 1 unit.

1. FIST On-call Fire Missions: A FIST unit can have up to 2 batteries; in addition to those batteries that are subordinate to the FIST; assigned as Direct Support batteries. Record these Direct Support batteries on the cross-attached unit record. These Direct Support batteries are available for on-call fire mission only if they are not conducting a fire mission in the current turn or scheduled to conduct a fire mission in the next turn. In order to conduct an on-call fire mission, the battery or batteries must be deployed if required. The FIST unit requesting the mission must be in combat formation and capable of observing the target hex.

a. Mission: The fire mission is recorded in the First Movement Phase, (after spotting attempts), on the fire mission record. Only HE and PGM fire missions may be fired. No ICM, mines, smoke, or rocket missions may be fired (i.e. NATO MLRS or WP BM-21 or BM-27). The mission is recorded on the fire mission record as OC. On-call missions in the Second Movement Phase are recorded in the same manner.

b. Fire: The fire arrives in the Fire Phase of the same turn for missions requested in the First Movement Phase. Missions requested in the Second Movement Phase arrive in the Resolve Indirect Fire segment of the very next Artillery Plot phase (regardless of player turn).

c. Fire Value: Max ROFs missions may never be used for this On-Call quick fire mission. Standard fire values are used.

d. Pass-through fire: There is no pass through fire for On-call fire missions. These fire missions are directed against a specific target at a specific time.

2. FIST Fire Missions: FIST may call for fire as standard OP units with one change. The FIST unit will reduce delay by 1 turn for non-dedicated batteries. Delay for non-dedicated batteries may never be below 1.

3. Target List: Prior to the beginning of the game, each player may select 2 types of targets that are designated "High Value". If a deployed FIST unit spots a high value target, the player may conduct IDF against this target by deployed artillery units that are subordinate to the spotting FIST in the next Artillery Phase or the next fire phase if using enhanced SPG weapons system (PzH 2000 or M109A6 for example). For example, during pre-game activities the NATO player selects Air Defense units and Artillery units as high value target types. During the game the NATO player has deployed enhanced M109A6 battery and a deployed M-7 B-FIST. In the second movement phase the NATO player's M-7 spots a Warsaw Pact 2S6 (ZSU-30) and decides to attack that unit in the second fire phase with a CLGP from the M109A6 battery.

4. Pre-Plot: At the beginning of a scenario, each available FIST may pre-plot 3 target reference point hexes. At any time during the game, the FIST may call for a fire mission on the pre-plotted hex with any available dedicated or direct support artillery unit. The FIST may adjust the fire into any of the adjacent hexes. This pre-plotted fire may be conducted in any fire phase. The fire may be observed by the requesting FIST if the hex is within the LOS of the FIST. The fire may also be conducted as Un-observed Artillery Fire (see below) if the hex is not under observation.

J. Un-observed Artillery Fire: Un-observed artillery fire occurs when an area needs "softening" up prior to a major attack or a player wants to provide harassing fire in a general area. Un-observed missions are not an accurate way to conduct an artillery strike. Normally, these attacks would occur at the very beginning of a defense or attack scenario and not in a movement to contact. The location of the defense is generally known, specific locations of enemy units are not.

1. Pre-game Procedure:

a. Before Set-up: Players determine the wind direction for the game if not already indicated by scenario rules. Both players record fire missions for the hexes that are

believed to be most likely to contain enemy units. These fire missions are noted by UA on the fire mission record. Players are not required to conduct Pre-game artillery combat. Only artillery units designated as General Support may conduct Pre-game Artillery strikes.

b. Set-up: Both sides set-up units and engineering construction takes place.

c. Fire: HE fire missions only are conducted. Fire Drift is calculated for final target hex. Resolve artillery fire is for each hex as required. Remove target mission markers at conclusion of fire. No pass-through fire for pre-game missions. Units may use Max ROF in pre-game fires and in the game itself (regular restrictions apply once the game starts).

2. In-game Procedure: Conduct Un-observed Artillery Fire Mission as a standard fire mission with no unit observing fire using HE or Smoke missions only. Fire drift will affect these missions also. For Chemical smoke missions only, a 1 turn Smoke marker is placed.

3. Fire Drift: With no one available to observe the strike of rounds and adjust fire, a fire mission will probably drift from the intended target hex to multiple impact hex locations. The fire mission will drift from the intended target in the direction of the wind as determined in pre-game set-up. Roll die once. Divide the result by 2 to determine the number of hexes the fire drifts. Round up. This is the new impact hex. Place the fire mission marker in this hex. Conduct artillery fire versus units in this hex. Reduce the total fire value of artillery units firing into this hex by 1/3 rounding down. An unobserved mission also affects each adjacent hex. Any units in the adjacent hexes are attacked by the firing artillery units but reduce the fire values by 2/3 rounding down. For example, the WP is the attacking player and conducts unobserved artillery mission with a full strength S-152 152mm Howitzer Battery (4 steps of S-152). After the final impact hex is determined the fire value of the battery, 20 HE, is reduced by 1/3 rounding down for a fire value of 13 in the impact hex and 6 for the adjacent hexes.

K. Counter-battery Fire: Counter-battery fire is designed to disrupt or destroy enemy artillery units. Any time an artillery unit fires indirect artillery it may be subject to counter-battery fire.

1. Procedure: For an artillery unit to be subject to counter-battery fire, it must have conducted fire in the Artillery Fire Phase. The target hex that was attacked by the enemy artillery unit must be in-view of an un-suppressed OP or FIST unit in combat formation. The OP or FIST unit may then immediately record a CB fire mission on the Indirect Fire log:

- i. Record the target hex and turn number that the enemy artillery unit attacked.
- ii. Record the turn number of the counterbattery fire
- iii. On arrival of the counter-battery fire; announce the attack against the artillery unit that fired as recorded in **step i.**
- iv. The defending player must announce the hex that the defending artillery units had fired from. Indirect fire is conducted against that hex and results applied. CB fire missions can be conducted against either on-board or off-board artillery units.

2. Counter-battery artillery units: Any artillery unit can fire a CB fire mission. The selected units may not have conducted On-call Fire in the previous game turn, conducted a fire mission in the current game turn, or scheduled to conduct a fire mission in the next game turn. Enhanced SPGs may fire counter-battery regardless of previous fire or fire phase. A counter-battery fire mission does not require placement of a fire mission marker. The fire is directed against specific units, not a hex.

3. Counter-battery Fire value: A counter-battery fire mission may only be conducted using HE ammunition but it may be conducted at Max ROF (but only once per game unless the unit is resupplied using the Logistics Rules).

4. Counter-battery Fire Resolution: Counter-battery fire units apply the counter-battery modifier to the Conventional Fire Combat Results die roll. Apply all modifiers that are applicable on the Conventional Fire Modifier table. Apply the results as per rules. Off-board artillery units are treated as if they are a full strength unit occupying a clear hex under cover.

Rule 19: Smoke

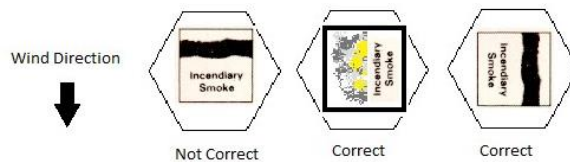
Smoke may be delivered by those indirect fire weapons so noted on the indirect fire charts. There are two types of smoke: incendiary smoke and chemical smoke.

A. Placement on the Board: Smoke missions are plotted using the same procedure as any other fire mission, except that units capable of laying more than one smoke screen may plot as many target hexes as smoke screens. In the artillery phase in which the smoke mission arrives, place one smoke marker on the map for each smoke screen.

1. Wind Direction: At the start of each scenario, roll the die and consult the wind direction diagram in the NATO player's scenario folder. This is the direction of the wind for the entire scenario.

2. Wind Velocity: At the start of each scenario, roll the die and consult the wind velocity table. The result will be light, moderate, or strong.

3. Orientation: Each smoke marker is placed in a hex but actually blocks two hex-sides. The marker is faced toward a hex vertex, indicating that the two hexsides adjacent to the vertex are blocked. Smoke markers may only be faced in such a way that the line of blocked hexes is parallel to the wind direction.



4. Duration: On the turn of arrival incendiary smoke, place an incendiary smoke marker on the target hex. At the start of the next friendly artillery phase, remove the marker. On the turn of arrival chemical smoke, place a chemical smoke 1 marker in the hex. If in a light wind condition, flip the marker to its chemical smoke 2 side at the start of the follow-up friendly artillery phase. If in a moderate wind condition, flip the marker to its chemical smoke 2 side and add one additional chemical smoke 1 marker one hex downwind at start of the next friendly artillery phase. At the start of the following friendly artillery phase remove the chemical smoke 2 marker and flip the downwind marker to its 2 side. In the next friendly artillery phase, remove the remaining marker. If the wind velocity is strong, neither type smoke round creates a smoke screen; no smoke markers are placed (but IS rounds may still attack units in the hex).

B. Effects:

1. Incendiary Smoke: Incendiary smoke blocks LOS for spotting and fire purposes for all units. Incendiary smoke is considered to be two elevation levels tall. The LOS must cross one of the two blocked hexsides to be blocked. Incendiary smoke may also cause casualties if units are in the target hex the turn of its arrival. See Rule 18.

2. Chemical Smoke: Chemical smoke has the same effect as incendiary smoke except that units equipped with thermal sights (TI and CITV) ignore the effects of chemical smoke. All U.S. M-1s, M-2s, M-3s, and M901s are equipped with thermal sights. In addition, U.S. Dragon gunners have thermal sights, and thus U.S. Infantry may spot units through chemical smoke and fire MSL ammunition through it; they may not observe artillery fire through smoke or fire other

ammunition through smoke. See the Thermal Sight Imaging Tables. (The Thermal Imaging tables are a more comprehensive list of units equipped with thermal sights and the CITV system since the original Assault came out).

3. Direct Fire Smoke: A few direct fire units are listed as having IS (incendiary smoke) ammunition. This may be used in conventional fire, as detailed in Rule 13. In addition, whenever IS ammunition is used to attack a target in direct fire, an IS screen counter is placed in the target hex, regardless of the result of the fire attack (but not if the wind velocity is strong). The incendiary smoke screen lasts for one complete game turn starting in the artillery phase after it appears. Thus a smoke screen which appears in the NATO fire phase of turn 4 would be removed at the start of the WP fire phase of turn 6.

4. Unit Generated Smoke: Infantry, HQs, OPs and vehicles can self-generate chemical smoke through smoke grenades and in the case of most AFVs, by dumping raw diesel fuel on the engine to generate the smoke screen.

a. Leg Units: Infantry, HQ and OP units can produce one round of chemical smoke. This smoke last for 1 game turn from the phase in which it was created. Place a chem smoke 2 marker in the same hex with the unit generating the smoke. Infantry smoke can be produced in either movement or any fire phase.

In fire phases it can be created after fires occur and fire results applied (including after resolution of opportunity fire against it). In the movement phase it may be created prior to movement or after movement but before spotting attempts. Record the specific unit's use of smoke on the ammunition record. If using the logistic rules this ammunition supply may be replenished. Generating smoke in this manner does not constitute movement and a unit does not have to be in combat formation to do so.

b. AFV Units: AFVs are equipped either with smoke grenade dischargers or can generate smoke through the engine. All tanks and turreted Infantry fighting vehicles are assumed to be able to generate smoke. All other AFVs (WP BRDM-2 or NATO M-113s for example) are equipped with smoke grenade launchers (See list for smoke generating AFVs). AFVs that survive direct fire combat may have a chem smoke 2 marker placed in its hex at the owning player's discretion. Also, a moving AFV may generate smoke in the hex from which it entered its final movement hex. In this case, a chem smoke 2 marker is placed in each hex. Smoke markers are placed in accordance with rules governing wind direction and velocity.

c. Shtora Defense System: Soviet BMP3/BMD3s, T-80s and T-90s are equipped with the Shtora active defense system developed in the early 1990s (*See Advanced Armor Spreadsheet*). The system is designed to automatically activate in the event that the Soviet Shtora-equipped AFV is fired upon by an enemy unit that is using a laser designator or the enemy unit is spotting the target Soviet Shtora-equipped AFV using a laser designator. The system also will increase the chance for spotting the firing or spotting enemy unit if the enemy unit is previously un-spotted. Shtora only activates if the firing unit is firing on the front armor of the target unit. The Shtora Defense System activates whether the target unit is in combat or march formation, any time the unit is fired at; the Shtora Smoke generated by the system only occurs on the very first time the Shtora system is activated. Each Soviet BMP3/BMD3 class, T-80 class and T-90 class AFV carries one round of Shtora smoke and may be resupplied. ***Shtora equipped vehicles receive a -2 modifier to the base chance to hit when attacked by enemy ATGM,***

either laser or wire guided. Shtora Smoke BLOCKS laser designators. The modifier continues to be applied even after the expenditure of the Shtora Smoke round.

1. Spotting Procedure: The firing or spotting enemy unit must announce whether it is using a laser designator. If the firing unit is unspotted apply the Shtora spotting modifier. If the firing unit becomes spotted, the target unit is automatically placed in combat formation facing the target and may engage the firing or spotting enemy unit before any enemy missile fire in the resolve fires section of the fire phase. Exception: If the target Soviet Shtora-equipped unit IS ATTACKING WITH missile attack on any enemy unit, the missile is recorded as fired on the ammunition supply but no attack takes place since the Shtora system will disengage the missile. In this case the target Soviet Shtora-equipped unit may not fire again in the current fire phase.

2. Shtora Smoke placement: If the target unit has not expended a round of Shtora smoke, the owning player may place a Shtora smoke marker across the hexsides through the frontal arc of the target unit. Shtora smoke last until the beginning of the next movement phase after which it was placed. Record the use of Shtora smoke on the ammunition record for that unit. Shtora smoke may be replenished if using the Logistics Rules.

d. Chemical Smoke generators: CSG, such as the U.S. M-1059 and Soviet TMS-65, are vehicles designed specifically for creating smoke screens on a large scale. CSG may create smoke screens while in any formation. CSG smoke screens block all hex sides of a hex and are 1 level high. CSG smoke screens are affected by wind as every other type of smoke screen. CSGs can generate Smoke screens for 6 friendly movement phases.

Stationary CSG smoke screens are created in the following manner:

1. Place a HEX 1 smoke screen in the CSG hex and a HEX 1 smoke counter in the 3 contiguous hexes from the CSG unit in the direction of the wind as determined at the start of the game. *(If there is light wind, ONLY place HEX 1 counters in 2 contiguous counters in direction of wind.)*
2. If the CSG continues to generate smoke in the next movement phase, place 3 HEX 2 smoke counters in the next 2 contiguous hexes in the direction of the wind extending from the HEX 1 counters. *(If Light WIND only place one HEX 1 smoke counter extending from the counters placed initially.)*
3. These counters remain in place as long as the CSG is on and producing smoke. When the decision is made to end smoke generation, remove the HEX 1 smoke counters and replace the HEX smoke counters with the HEX 1 smoke counters at the start of the 2nd movement phase following cessation. On the next turn remove the HEX 1 counters if no new smoke is produced. *(If Light Wind, simply remove the HEX 1 smoke counters).* Moving CSGs can also produce smoke similar to smoke generating AFVs as follows:

Place a HEX 1 smoke screen in each hex that CSG moves through. The HEX1 smoke screen counters are removed at the beginning of the next friendly movement phase.

Rule 20: Cannon-launched Guided Projectiles and Precision Guided Munitions

Cannon-launched Guided Projectiles and Precision Guided munitions provide the artillery with the capability to make pin-point strikes against specific units rather than attacking a hex. These weapon systems rely on laser designation or in the case of PGM GPS coordinates.

A. Firing CLGPs: CLGP fire is recorded as a normal fire mission on with a specified target hex. PGM munitions are available for mortar and Rocket systems as identified on the Indirect Fire Data Charts.

B. Directing Fire: CLGPs impact during the artillery phase and count as normal HE attack on the target hex unless they are directed by a designator unit. They may be directed to any hex within four hexes of the target hex provided the designator unit has an unobstructed LOS to the designated hex and its range is no more than 24 hexes. The CLGP attack is then resolved against any only one AFV unit in the hex as an anti-armor fire

with a base hit number of 8. Hits automatically penetrate and do not need to be confirmed. If the CLGP attack is directed against an AFV unit, there is no HE attack.

C. Designator Units: The laser designator is not capable of penetrating smoke, and thus smoke always blocks the LOS for purposes of directing fire, even if the designator unit has thermal sights. Any casualty in the designator unit eliminates its ability to designate CLGP fire.

All AH-64D, Ka-52, Oh-58D and M2A3 and M3A3 Bradley units have the capability to laser designate for CLGPs and all laser guided weapons.

The practice in the U.S. Army was to assign FIST to mechanized and armor companies. Each Brigade also is assigned three COLT teams (Combat Observation and Lasing Team). Each FIST is considered a designator unit. Each OP has a designator assigned to it. Designators are no longer assigned as special equipment to units.

Laser designators will activate the Soviet Shtora Defense System of target units. The WP T-12 100mm cannon has a laser designator assigned to it but it may only be used to designate targets for the AT10 ATGM.

Rule 21: Ammunition Supply

Given the time scale of Assault, it is possible for most units in the game to burn through their basic load of ammunition. This is particularly true of most units equipped with missiles. However, the mechanics involved in keeping track of each game shot are such that this rule is not recommended for players until they are thoroughly familiar with the game mechanics. At that point, players may keep track of ammunition in those weapons which have 3 or fewer shots available. Finally, experienced players may wish to keep track of all ammunition expenditures. If WP SPG-9, SD-44, or M-29 (*any weapon with a mobility class of 5^L*) units ever move by themselves (i.e. other than being transported), their ammunition supplies are reduced to a total of 4 rounds of the owning player's choice. Mark this fact on the ammunition record.

A. Ammo Supply: The direct and indirect fire data charts list the ammunition available in terms of game fires that may be made. Each time a unit fires, regardless of the number of steps it has, it uses one unit of ammo.

Indirect fire units consume one unit of ammo per turn that they fire unless they fire at Max ROF or they conduct direct fire. If they fire at max ROF, they consume units of ammunition equal to their Max ROF multiplier. If they conduct direct fire, they consume one unit of ammunition per fire.

If the ammo supply column of the fire data chart lists one combined value for two different rounds (for example, HEAT and HE for the U.S. M-1), these are actually the same round, which combines anti-armor and conventional fire effects. Use of either round reduces the combined ammo supply.

B. Ammo Use: Both players should have an ammo record with a separate line for each type of ammunition carried by each unit. The quantity of a round remaining to the unit should be changed each time it fires. Once a unit has exhausted its basic load of ammo, that ammo type may not be used again until resupplied. (*See Rule 22 Logistics*)

Rule 22: Logistics

A. Resupply Operations

Log bases are the administrative and logistical assets of tactical units such as Battalion (NATO) and Brigade/Regiment (Warsaw Pact) or operational units such as NATO Brigade/Regiment/Divisions or Warsaw Pact Divisions/Armies. In order to function as a resupply/repair point, the Log Base must be deployed. The Log Base assigned carrier unit must remain with the Log Base.

NATO Log Bases contain enough supply for 3 resupply operations. Warsaw Pact Log Bases contain enough resupply for 2 resupply operations. One resupply operation will provide one logistical package for each Logistics transportation units (LTU) or subordinate to the supplying Log Base (in addition to organically assigned transportation units, any wheeled vehicle or helicopter with a cargo rating may transport Log Pacs).

A Log Pac marker is placed under each LTU present. Each tactical logistical package contains enough supply for one NATO combat company or one Warsaw Pact battalion. NATO Tactical LTUs are assigned to specific companies; Warsaw Pact Tactical LTUs are assigned to battalions. The Operational LTUs are not assigned to a particular unit but may be used to resupply any of the subordinate tactical Log Bases. Any cargo or transport vehicle may be utilized as a LTU.

1. Determining available Log Pacs: The total number of available logistical packages for a higher echelon Log Base is dependent upon the number of combat units assigned to the parent Brigade or Division after Cross Attaching has occurred. A higher level Log Pac will fully restock a Bn/Rgt/Bde Log Base with Log Pacs for distribution to subordinate units. *For example, a Soviet Division has 3 Regiments assigned to it. The Divisional Operational Log Base will have 3 Operational Log Pacs times 2 resupply operations for a total of 6 Operational Log Pacs available to resupply the assigned Tactical Log Bases. A NATO Battalion has 6 companies assigned to it. Therefore, the corresponding Bn Tactical Log Base will have 6 tactical Log Pacs times 3 resupply operations for a total of 18 tactical Log Pacs available to resupply subordinate combat units.*

2. Procedure: Logistics transportation units (LTU) can load up with logistic packages by remaining adjacent to or stacked with its parent Log Base for a number of Log phases (see Resupply table). LTUs then proceed to move in regular friendly movement phases to the HQ unit of the units to be resupplied. **LTUs move as if they are always in combat formation when carrying a Log Pac counter. The 2 point operations point expenditure is paid by the LOG BASE or higher headquarters only once on the first turn that the LTU moves to re-supply units. This cost is paid per stack of LTUs. For example; a stack of 4 LTUs has picked up a Log Pac counter each to re-supply 4 different battalions. The LOG BASE pays 2 operations points for the entire stack to enter combat formation and move. A stack may be of any size.**

LTUs must occupy the same hex as resupplied HQ unit to resupply that unit for the number of phases as indicated by the Resupply table. Re-supply Ops constitute the supplying of logistical packages to LTUs or the distribution of logistical packages to Log Bases from LTUs. A Tactical Log Pac will fully resupply each combat unit subordinate to the HQ unit up to its basic load of munitions. Dispersed, shaken or broken combat units may not receive resupply. Combat Units may not move or fire while being resupplied. An Operational Log Pac will resupply a

Tactical Log Base up to its full basic load capacity. Once an LTU has conducted a resupply mission, the Log Pac is removed from the map. The LTU may not return a Log Pac to its parent Log Base.

For example, a Soviet T80 Bn HQ with 9 assigned platoons has 4 platoons that are dispersed. A resupply operation will only resupply the remaining 5 un-dispersed platoons and the Bn HQ up to their starting basic load.



3. Log Pac Losses: Nothing makes an commander happier than the destruction of an enemy supply chain. Losses of LTUs or Log Bases slow or restrict the amount of supplies available to subordinate units.

a. LTU Losses:

1. If a Battalion/Company LTU losses a step it can only resupply $\frac{1}{2}$ (rounded down) of the units/platoons of a company.
2. Operational Log Pacs require 2 steps of units to transport. Brigade or higher LTU $\frac{1}{2}$ strength LTUs or transport vehicles may not transport Operational Log Pacs but may combine with other $\frac{1}{2}$ strength LTUs to transport Operational Log Pacs.

b. Log Base Losses: If a Log Base is destroyed in combat it may be reconstituted by the next available higher Log Base. For example, a battalion log base may be reconstituted by a Brigade/Regiment Log base, or a Division or higher log base. To reconstitute a log base requires the expenditure of 1 Resupply operation by the Log Base conducting the operation. The destroyed log base is then placed back on the map in the same place as the Log Base conducting the operation. An LTU subordinate to the replacing Log Base is assigned as transport for the reconstituted Log Base for the remainder of the scenario/operation.

B. Maintenance and Recovery Operations

Maintenance and Recovery Operations (MRO) of Logistic Bases cover those actions required to return combat damaged units to full strength.

1. Procedure: The MRO can recover .5 armored combat vehicle (ACV) step per armored recovery vehicle (ARV) for Warsaw Pact and 1 ACV steps per ARV for NATO assigned to the Log Base.

a. Recovery: In order to recover an ACV, an ARV must remain stacked with a destroyed ACV marker for 2 MRO phases. A tank or apc in-tow marker is placed under the ARV at the end of the 2nd MRO phase and the destroyed ACV marker is removed from the map. The ARV may then proceed to return to its assigned Log Base in the next movement phase. Un-recovered ACVs are lost at the moment an enemy unit enters its hex.

b. Maintenance: The ARV must stack with its parent Log Base for one MRO to off-load the damaged ACV. For each ACV off-loaded, the appropriate number of steps of the appropriate type is added to the Log Base Record (LBR). These steps may be used to purchase replacement units for the next operation.

C. Replacements: Replacement units can be created in the pre-game setup prior to placing any units on the map. Players are not required to use any recovered steps available to them.

1. Select Units to Replace: Units that were recovered may only be replaced by units of the same type. *For example, if MIA1 unit 1A2-34 was destroyed and recovered it must be replaced by the same unit counter; in other words, it cannot be upgraded to an MIA2.*

2. Update Log Base Record (LBR): Subtract the number of steps used to re-build the Replacement Unit from the total on the LBR. The steps used must be of the same type. *For example, to rebuild the aforementioned MIA1, the player must use steps from the AFV box, not the AIFV or the WV box.*

3. Strength: Players may build one step units if desired. Place a hit marker under the platoon counter if the unit is a regular size platoon. Examples of ARVs:



II. Helicopter Operations

In these rules, helicopters are treated generally as AFVs-although with several exceptions, most obviously their ability to fly. However, unless a specific exception is given below, every rule in Assault which applies to AFVs also applies to helicopters. Helicopters are mobility class H, and are also identified as type H on the spotting tables and the conventional and indirect fire defense tables.

Rule 23: The Airmobile Reaction Phase

The airmobile reaction phase is an additional phase inserted into each player-turn between the first movement phase and the fire phase. This is a special movement phase in which the non-phasing player (the NATO player in the WP player-turn and the WP player in the NATO player-turn) may move his helicopters. The sequence is as follows:

Warsaw Pact Player-Turn

Artillery Phase

First WP Movement Phase

NATO Airmobile Reaction Phase

Second WP Movement Phase

NATO Player-Turn

Artillery Phase

First NATO Movement Phase

WP Airmobile Reaction Phase

Second NATO Movement Phase

The airmobile reaction phase is identical to a movement phase with the following exceptions:

A. Command: The only units which receive operations points or perform command functions in this phase are helicopter HQs, and only helicopter units may be affected. A helicopter HQ is any HQ with a helicopter silhouette.

B. Movement: The only units which may move are the non-phasing player's helicopters. (Exception: the non-phasing player's other units may mount or dismount from helicopters during this phase.) Helicopters' movement in this phase is in addition to movement in the two movement phases.

C. Spotting: Any eligible units of the phasing player may attempt to spot in this phase, but may spot only helicopters which are moving (and mounting/dismounting units). Of the non-phasing player's units, only helicopters may spot, but they may spot any units.

D. Opportunity Fire: Only helicopters and mounting or dismounting units are vulnerable to opportunity fire.

Rule 24: Helicopter Movement

A. Maneuverability: Every helicopter has a maneuverability rating as a superscript to its movement rating. The lower the rating, the more maneuverable the helicopter.

B. Formations: A helicopter in march formation is flying at medium altitude and moderate to high speed. A helicopter in combat formation is flying at low altitude (nap of the earth) and low speed. Movement rules are different for the two.

1. March Formation: The helicopter pays 1 MP for each hex entered, regardless of terrain. It may enter only the hex it is facing. A change of facing costs MPs; the helicopter pays MPs equal to its maneuverability for the first hexside of change within a hex' it pays MPs equal to twice its

maneuverability for the second or third change within a hex. Thus, a change of 180° facing change within a single hex would cost five times the helicopter's maneuverability.

2. Combat Formation: The helicopter pays MPs equal to its maneuverability for each hex entered, regardless of terrain. It may enter either of its two front hexes and may change facing, without cost, immediately before entering a new hex. It may also change its facing, without cost, at the end of its movement. *A helicopter pays MPs equal to its maneuverability rating for each change of facing within one hex on the second and subsequent change. It would cost a helicopter twice its maneuverability rating to make an 180° change of facing within a single hex.*

Helicopters which have landed or whose morale has broken are in no formation; a landed helicopter may not move except to take off, while a broken helicopter moves as if in march formation.

Rule 25: Landing and Taking Off

A. Landing: A helicopter in either formation may land at the end of any friendly movement phase. It may land only in clear or urban strip terrain. When a helicopter lands, place a landed marker under it. A helicopter which has landed is in no formation and facing is unimportant. It may not move except to take off; units may mount or dismount. It may not fire its weapons. In all other respects (except for its unitary armor value) it functions as an AFV. References to helicopters in subsequent rules do not apply to helicopters which have landed.

B. Taking Off: A helicopter may take off at the beginning of any movement phase. It may assume any formation and facing without expending operations points.

C. In and Out: A helicopter may enter a hex, land, dismount leg-mobile personnel units, take off again, and leave the hex in the same movement phase. This action may be performed in any formation and costs half the helicopter's movement allowance. Only leg-mobile personnel units may dismount; no units may mount.

D. Movement Effects: Landing and taking off are considered movement for purposes of operations point expenditure, spotting, opportunity fire, and pass-through fire. A helicopter in combat formation, and which did not move in the phase, may enter cover as it lands.



Helicopter Landed

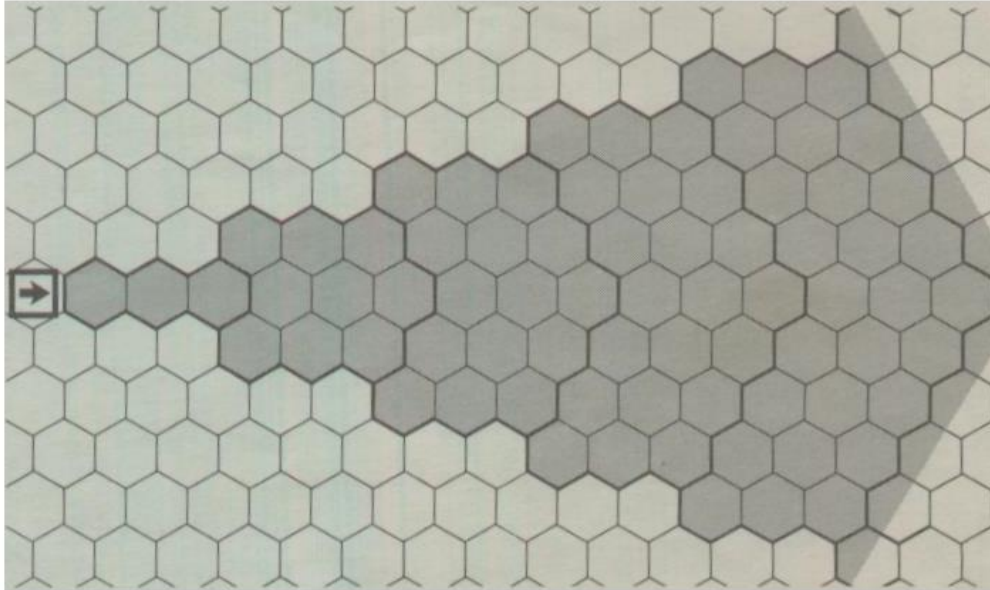
E. Transport: See the Helicopter Transport Chart for helicopter transport capacities.

Rule 26: Helicopter Combat

A helicopter may fire in the fire phase even if it moved in the first movement phase; however, a helicopter which moves in the first movement phase or the airmobile reaction phase may not fire Msl ammunition in the following fire phase.

A. Firing in March Formation: Unlike ground units, a helicopter in march formation may fire, with certain restrictions. It may only fire within a restricted field of fire, as shown in the diagram below.

It may only fire within a restricted field of fire, as shown in the diagram below. It may not fire Msl ammunition, and may not fire at a range of 0. (Note: the NATO UH-1, UH-60, CH-53, CH-47, and SA-330 may not fire in march formation).



B. Firing in Combat Formation: A helicopter in combat formation may conduct opportunity fire even if it is not under cover, but it may not fire Msl ammunition in the airmobile reaction phase if it moved in the first movement phase. (*This restriction on firing Msl ammunition must refer to opportunity fire by the phasing player in the non-phasing player's airmobile reaction phase*).

C. Firing at Helicopters: Fire against helicopters is resolved in the same manner as fire at AFVs with the following exceptions:

- 1. Armor:** A helicopter has a single armor value which applies to both front and flank shots.
- 2. Conventional Fire:** Helicopters are fully affected by all conventional fire rounds, not just HE.
- 3. Limitations:** AAMs (see Rule 28) follow their own rules. The abilities of other weapons to fire at a helicopter depend on whether the helicopter is stationary. A helicopter is stationary if it is under cover or is executing a fire popup (See Rule 27).
 - a. Stationary Helicopters:** Any direct fire weapon may fire at a stationary helicopter. Weapons (and ammunition) marked on the direct fire data charts with one or two asterisks (* or **) fire without penalty. Other weapons have their hit changes (for anti-tank fire) or fire values (for conventional fire) halved, dropping fractions.
 - b. Non-stationary Helicopters:** Only weapons (and ammunition) marked with one or two asterisks (* or **) may fire at a non-stationary helicopter. Weapons marked with two asterisks fire without modification. Weapons marked with a single asterisk have their hit changes halved, dropping fractions.

Rule 27: Popups

Helicopters in combat formation may perform popups. There are two types: spotting popups and fire popups. In both types, the helicopter expends MPs equal to its maneuverability and rises to a higher level in the hex (14 is the maximum). Units performing popups are spotted as if they are in clear terrain.

A. Spotting Popups: A spotting popup may occur at any time during movement. The helicopter rises and returns to ground level in the same phase. Thus only spotting and opportunity fire may occur while it is at higher level. (Exceptions: see rules 28 and 29).

B. Fire Popups: A fire popup may occur at the end of movement. The helicopter rises and remains at the high level until the beginning of the next friendly movement phase or airmobile reaction phase, at which point it returns to ground level. Thus the unit may spot, perform opportunity fire, and participate in combat during the fire phase (unless it popped up in the second movement phase) at the higher level.

C. Movement Effects: A popup is considered movement for purposes of operations point expenditure, spotting, and opportunity fire. It does not prevent a helicopter from firing Msl ammunition (if it did not otherwise move in the phase).

D. Mast Mounted Radar: The Longbow is a fire control system developed for the Tiger UHT, Apache AH-64D and the OH-58D. The WP Soviet Mi-28N has a similar system. NATO Tiger UHT, AH-64Ds and OH-58Ds and Soviet Mi-28Ns can spot and conduct combat from 1 level higher than they actually are without performing a popup. For example, a U.S. OH-58D at level two conducts spotting as if it were at level three. This applies even if the helicopter is under cover; therefore, NATO OH-58Ds and AH-64Ds and Soviet Mi-28Ns can conduct spotting and fire (including anti-tank missile fire but not AAM fire) from under cover without having to perform a popup. The Tiger UHT only conducts spotting and not combat using the mast mounted radar. A helicopter equipped with a mast mounted radar is not considered moving for purposes of operations point expenditure, spotting, and opportunity fire unless it actually performs a popup.

Rule 28: Anti-Aircraft Missiles

Anti-aircraft missiles (AAMs) are a special type of ammunition which may be fired only at helicopters. For game purposes, the term AAM includes both surface to air missiles (SAMs) and air to air missiles (AAMs). AAMs may fire at stationary or non-stationary helicopters without penalty.

A. IR Homing Missiles: AAMs marked with a + on the fire data chart (all the ones in this game (*Boots & Saddles*)) are infrared homing missiles. IR homing missiles add the infrared signature of their target to their hit chances. For example, if a Stinger AAM is fired at a Mi-24E at a range of 10 hexes, the base hit chance of 3 is added to the Mi-24's IR signature of 2, for a combined 5 (50%) chance hit. IR missiles are unaffected by cover.

A helicopter which performed a spotting popup during the first movement phase or airmobile reaction phase may fire IR homing missiles from the higher level in the fire phase.

B. Stinger and SA-7 (All MANPAD SAMs): The NATO and WP forces both possess small, shoulder fired AAMs which are distributed among their maneuver units for local protection.

One issue (two shots) of MANPAD is given to each maneuver company in each NATO armored, mechanized infantry, cavalry, and infantry battalion. Maneuver companies are all companies except battalion HQs, TOCs, and scout, mortar and anti-tank companies. (Note: Anti-tank companies are not maneuver companies).

One issue (2 shots) of MANPAD is given to each maneuver company of WP motor rifle and air mobile/Desant battalion. (See the Homepage for each Country for available MANPADS)

One counter in each company carries the AAM. Any counter (including the company HQ and the transport vehicle of an infantry platoon) may be so designated; mark this fact in the equipment section of

the ammunition record. The AAMs may not be transferred to a different counter, and if the carrying counter is eliminated, so are the AAMs. Infantry may fire AAMs while mounted in ground transport. (As a player aid, generic MANPADS counters are available in the Neutral Markers Section)

C. Other SAMs: The UK Stormer/Starstreak SAM uses laser guidance during its attack profile. For UK Stormer/Starstreak do not apply the IR modifier.

Rule 29: Laser Designated Missiles

The Msl ammunition carried by the NATO AH-64 is the Hellfire; the Msl ammunition carried by the WP Mi-24E is the AT-6 Spiral (the AT-9, AT-9, AT-10, and AT-11); both of these are laser-designated missiles, with several special characteristics.

A laser-designated missile may be fired even if the helicopter moved, and a helicopter which performed a spotting popup during the first movement phase or the airmobile reaction phase may fire a laser designated missile in the fire phase from the higher position. In both these cases, another unit must be capable of designating the target. NATO ground units with laser designators (see rule 20), FIST-V, any AH-64, OH-58, Soviet Mi-24D/E, Mi-28N, Ka-52, French Tigre, German Tiger, and Italian A-129 Agusta in the same company may designate for laser guided missile attacks.

Any Mi-24D/E in the same company may designate for Mi-24D/Es. the designating unit must not have moved in the first movement phase or airmobile reaction phase and must have an unblocked LOS to the target. Maximum range from designator to target is 24 hexes.

ADATS: ADATS (Air Defense Anti-Tank System) is used exclusively by the Canadian Army. ADATS (developed by Oerlikon-Contraves) is mounted on an M-113 carrier and can engage both AFV and aircraft. At the start of the game the NATO player must designate which ADATS unit is in air-defense mode and which one is in anti-tank mode. This can be noted as a cross-attachment simply by placing either AD or AT in the block. ADATS functions as a laser designated missile for combat purposes.

Rule 30: Radar

The WP ZU-23, ZSU-23, SA-8, and ZSU-30/2S6; the NATO ADATS, Gepard, Roland, and M-988 (the M-988 Sgt York never entered into U.S. service) and the Finnish ITPS V-90 all possess radar (See the Advanced Capability Charts in the Charts & Tables section and the Unit Data Cards). A unit which has radar and is in combat formation automatically spots any aircraft in its LOS. (Exception: the player may decide at the beginning of his player turn that the radar of any unit is not being used, if he so desires. If so, it may not be used until the beginning of his next player turn).

However, only the unit itself is allowed to conduct opportunity fire against the spotted target in the movement phase in which it is spotted. (Exception: An SA-9 or SA-13 stacked with or adjacent to a ZSU-23 or ZSU-30 of the same company is linked to the ZSU's radar and may conduct opportunity fire in the same movement phase). Radar can trace a LOS through any type of smoke.

The NATO AH-64, OH-58, MH-60, A-129, Tigre/Tiger, WP Ka-50, Ka-52, Mi-28N, and all CAS aircraft possess a radar detector; whenever it is spotted by radar, it automatically and simultaneously spots the spotter. Again, only the spotting unit is allowed to conduct opportunity fire against the spotted target in the movement phase in which it is spotted.

Rule 31: Variable Armament

The armament of some WP and NATO helicopters can vary. The Helicopter Direct Fire Data Charts provide information concerning weapon stations and type of armament available by type.

A. WP Helicopters: There are three variants of the Mi-24 and two variants of the Mi-8; Mi-24A, Mi-24D, and Mi-24E, Mi-8C and Mi8D. In game terms, they differ only in their armament. The (original Boots & Saddles) counters do not differentiate between types, although the direct fire data charts do. Each scenario states the type of Mi-24 or Mi-8 included in it (if any). (The Mi-28N, Ka-52 and Ka-50 are equipped with variable armament pylons like NATO attack helicopters. See Section B. NATO Helicopters for use of pylons.)

B. NATO Helicopters: The AH-1, AH-64, OH-58, A-129, Tigre/Tiger, SA-341, and MH-60 carry pylons which can be fitted with various weapons. The OH-58 and MH-60 have one pylon; the AH-64, A-129 (and WP KA-52/50) have four pylons; and the AH-1 has four pylons, but two of them may be fitted with only with rocket pods. At the beginning of the game, the player selects the armament of each pylon of each of his helicopters and writes it down on his ammunition record.

Examine the direct fire data chart. If the ammo supply for a round is followed by a “p”, that round may be chosen for a pylon; rounds with ammo supplies followed by an “r” are rocket pods. On the AH-1, AH-64, Tigre/Tigre, A-129, Mi-28N, Mi-50, and Ka-52, pylon loads must be chosen in pairs: two pylons loaded with the same round, with the exception that the player may choose one each of the two types of rocket pods or missiles. The ammo supply is listed per pylon. *For example, if the player chooses two loads of Msl ammunition, one HEAT/HE rocket pod, and one APERS rocket pod for an AH-64, the helicopter’s total ammunition load would be 4 Msl, 5 HEAT/HE, 5 APERS, and 10 SCAP/SCHE.*

C. Other Helicopters: The PAH-1 (BO-105) may be armed with either MSL or AAM ammunition but not both. The SA-330, UK Lynx, MD-500, UH-1, and UH-60 carry only ammunition as specified by the fire data charts.

III. Engineering

Rule 32: Overview of Combat Engineering

In game terms, combat engineers do four types of things: they create improved positions, create obstacles, breach enemy obstacles, and build bridges and ferries to cross water barriers. Improved positions consist of entrenchments, bunkers (entrenchments with overhead protection from artillery bursts and bombs), and vehicle hull-down positions. Obstacles consist of minefields, road craters, anti-tank ditches, and abatis. Because minefields are more complex than the other types, they are given their own rule.

A. When Engineers Work: Some engineer operations can (or must) be done before the game begins. Others are done during the game. All engineer work can be conducted within a game, though it will take a long time to complete some tasks. There are 12 game turns to the hour and some operations may take several hours. The length of time for the engineering operations are given below, just multiply the number of hours by 12 to get the number of game turns required.

1. Before the Game: All improved positions and all obstacles except minefields must be created before the game. Minefields may be laid before or during the game. Exception: point minefields may be laid only before the game.

2. During the Game: Minefields may be laid during the game. All breaches and water crossings are done during the game.

B. How Engineers Work:

1. Before the Game: the scenario will specify whether one player (or both) may do engineer work before the game, and how many hours of work may be done. The rules specify the work each unit may do in an hour. Improved positions and some obstacles are built with earthmoving points. each earthmover unit counts as 6 points per hour. Some engineer companies receive extra earthmoving points representing additional equipment which has no use during the game, and is consequently not represented by counters. See the earthmoving assets table.

Record completed work on the engineer log. *(The log can also be used to keep track of engineer work during the game that is normally conducted prior to the game. That way the engineer unit can perform all tasks described).*

2. During the Game: Engineer work is counted in friendly movement phases. Units must be in march formation in the hex in which the work is performed. Units do no work if suppressed, shaken, or broken. Units which do engineer work may not fire in the following combat phase. (The player may have units stop working if he wants them to fire.)

When work begins it is recorded in the engineer log. It has no effect until completed. If a unit stops working, its progress is retained, and work may be resumed later.

3. The Engineer Log: The log is a complete record of engineer work. Each operation gets one line, marked as follows:

Done: Check this column when the work is complete

Location: Put the hex or hexside number of the operation here. Hexes need map letter and hex number, for example, E1809-45 means hexsides 4 and 5 of hex 1809, map E. Hexside 1 is north (or just clockwise of North); number clockwise from there. *(If using multiple copies of the same map add a second letter; for example using the above example, there are two E maps being used. One map would be EA and the second would be EB. So if the work was being done on the first E map it would be written EA1809-45.)*

Operation: Record the work being done



Time: Write the number of phases needed for the work to be done; each phase that work is done, put a mark after this number until the work is completed.


4. Markers: There are markers for each engineer operation. When the positions is spotted, put a marker on the map. For all except minefields, the position is spotted if an enemy unit has LOS to it at the end of movement or comes adjacent to it during movement. Hull down positions, entrenchments, and bunkers are built for protection and concealment. These positions or units in them must be spotted using the spotting rules for units under cover unless the spotting unit moves adjacent to it, then it is spotted. *For minefield spotting see Rule 34.*


Rule 33: Engineer Units

A. Definitions: three terms used in the rules need definitions.

1. AVLB (Armored Vehicle Launched Bridge): the WP MTU-55 and MTU-72; and the NATO BIBER, M-60 AVLB, M-104 Wolverine, Challenger AVLB, and AMX-30 AVLB.

2. Earthmover: Units with a diamond  in the upper right of the counter are earthmovers. These are the WP IMR, and BAT-M; the NATO M-728, M-9, PiPz, PR, AMX-30 AEV, Fv180, Centurion AVRE, and Chieftain AVRE 2. Units with an inverted triangle  in the upper right of the counter are dozer blades or vehicles that have been converted into earthmovers by the addition of a dozer blade; i.e. French VAB Engineering vehicle.

a. Dozer blades: These are earthmoving blades that may be assigned to any tracked vehicle unit or any wheeled vehicle unit with 6 or more wheels; i.e. jeeps, Humvees, Land Rovers, etc. are 4 wheeled vehicles. These blades have an inverted triangle  and may perform earthmoving tasks at 3 earthmoving points per hour and allow the assigned vehicle to function as an earthmover. Armor and Mechanized Battalions have 3 organic dozer blades and Engineer battalions have 4 organic dozer blades that may be cross attached to any unit.

b. Earthmovers: These are specialized engineering vehicles designed to move significant amounts of earth and debris. These units have a diamond  and may perform earthmoving tasks at 6 earthmoving points per hour.

3. Heavy Vehicle: Any armored vehicle with a frontal armor of 11 or more is a heavy vehicle.

B. Single Vehicles: AVLB and minefield breaching units each represent a single vehicle, indicated by a white vehicle silhouette. In direct fire (anti-tank and conventional), one shot expended by a firing unit allows for two die rolls against the single vehicle (or unit) in one hex. When determining the number of steps in a hex (for fire purposes) or in a company (for morale purposes) a single vehicle counts as only half a step; round fractions up.

Rule 34: Minefields

There are three types of minefields (and minefield markers): hex, hexside, and POINT. If three hexside minefields of the same characteristics (see below) are laid in the same hex, remove them and replace them with a hex minefield. Point minefields are covered in F below; the rest of this rule concerns hex and hexside minefields.

A. Characteristics: Minefields have three characteristics in addition to hex/hexside.

1. Density: A minefield is either single or double (D) density.

2. Composition: A minefield is either anti-tank (AT), anti-personnel (AP), or mixed (MX).

3. Camouflage: A minefield is either camouflaged or un-camouflaged. Most minefields are un-camouflaged

4. Recording Characteristics: When a minefield is laid, write its characteristics in the engineer log. Single density, un-camouflaged minefields are assumed unless specified otherwise. For short, a double density, mixed camouflaged minefield would be written as DMXC. A single density, mixed un-camouflaged minefield would be just MX.

B. Detection: There are two ways to detect a minefield: spotting it and running in to it.

1. Spotting: A camouflaged minefield may be spotted only by dismounted personnel units or Engineering Reconnaissance units. The minefield is spotted immediately when the unit moves adjacent. (In case of a hexside minefield, adjacent means in any hex which one of the minefield hexsides is part of.) An un-camouflaged minefield may be spotted by any unit. The unit attempts to spot as it enters the minefield (moves into the hex or crosses the hexside); if the spotting roll is successful, the unit stops short of the minefield and may move no further in the phase, but takes no casualties. See the *Minefield Spotting Table*.

2. Failure to Spot: If a unit fails to spot a minefield, it runs into the minefield; roll for losses (see below). Whether or not it takes losses, the unit stops short of the minefield and may move no further in the phase.

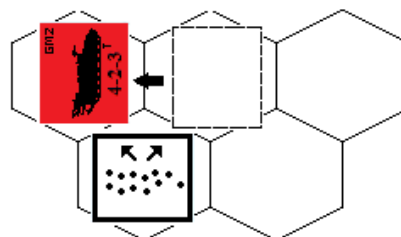
3. Results: Whichever of the two means above cause a minefield to be detected; its marker is immediately placed on the board. No unit may enter or cross a minefield during the phase in which it is detected.

4. Laying in Sight: If a minefield is laid in a hex which is visible to the enemy at the time, it is immediately spotted and the marker is placed on the map.

C. Effects: AP minefields attack only dismounted leg mobile or static units; AT minefields attack only vehicle units; mixed minefields attack all units. A minefield attacks separately each step which enters its hex or crosses its hexside. A hex minefield counts as three successive hexside minefields. (Exception: a unit which detects a minefield by running into it is only attacked once, and only one step of the unit is attacked.) For each step cross the minefield, roll a die and consult the mine attack table. (Thus there are two rolls for a full-strength platoon.) The step is eliminated if the number rolled is equal to the number on the table. Note: Minefields have no friends. Any unit of either side which tries to cross the minefield is attacked.

D. Minelaying: Minefields are most commonly laid by specialized vehicles or by artillery fire. In the descriptions below, all minefields are un-camouflaged unless otherwise stated.

1. Vehicles: Minelaying vehicles create hexside minefields; they create hex minefields by laying three minefields in the same hex. A minelaying vehicle creates a minefield either on two hexsides of the hex it occupies or, when moving from one hex to another (in march formation), on adjacent hexside of the two hexes. See the diagram below:



Specific characteristics of the various minelayers are given on the minelayer table. Load is the number of phases in which an engineer platoon can load the system with mines. (Exception: a GMZ does not require an engineer platoon to load.) Fields: is the number of single-density minefields produced; a double density minefield counts as two of these. Type gives the minefield's characteristics. Rate gives the number of minefields laid per phase; ½ means that it

takes two phases to lay one minefield. Rates are for single or double density, except for the Mi-8, which takes 4 phases to lay a single density minefield or 8 phases for a double density minefield.

a. GMZ and MiV: These systems are capable of laying mixed, camouflaged minefields at half their usual rates. The MiV must be accompanied by an engineer platoon to do this. *The Czech MU90 is the Czechoslovakian version of the GMZ and has the same characteristics. See the Minelayer table.*

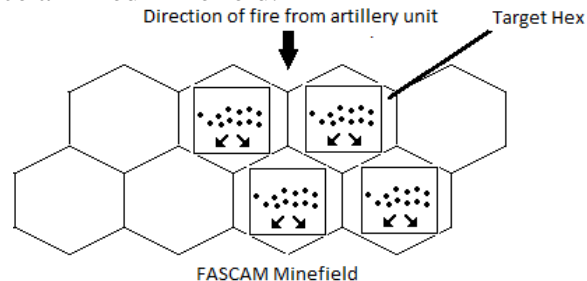
b. UH-1H and UH-60: Only specially equipped helicopters, found in armored cavalry regiments, can lay the M-56 anti-tank mine. No loading is necessary; it enters the board loaded and cannot be reloaded. *(A helicopter can be resupplied at the regimental Log Base if using the optional Logistic Rule 22. It would take 6 Logistic Phases to reload one helicopter and only one may be loaded per Log Base.)* The 6 single density fields must be laid in two groups of 3; the double density minefields must be laid as one group. The minefields in each group must form a continuous, non-overlapping line (i.e. hexside minefields in one straight line). The minefields are laid as fast as the helicopter can move.

c. Mi-8: Mi-8 helicopters can lay mines. The helicopters enter loaded and can lay single density minefields at the rate of one in four phases or double density minefields at the rate on one in eight phases (counting the airmobile phase.)

d. Other NATO Minelayers: *NATO minelayers such as the Volcano Mine System, may lay mines during the game in the same fashion as the GMZ and MiV. Only the MiV requires an engineer platoon to be present. See the minelayer table.*

2. Artillery: Minelaying by artillery fire produces a pattern of several adjacent, hex minefields. The size varies, as given below. The fire mission order must list each affected hex and the minefield characteristics.

a. FASCAM (NATO): These mines are fired by M-109, AS-90 and GCT 155mm howitzer units. There are two types of rounds: AT and AP. In a single fire mission, AT may be fired at a single hex or a pattern of four hexes (see diagram); AP is always fired as a four hex pattern. The number of steps required for a fire mission of each type is given on the FASCAM table. Note that although some fire missions require only one step, it is not possible to assign a fire mission to less than a platoon (two steps at full strength), in this case, the platoon may fire two adjacent patterns, or the player may choose not to fire the extra step. (In reality, both steps fire the mission in half a turn.) AT and AP fire may be combined in one mission to produce a mixed minefield. A single density minefield may be added to an existing minefield to produce a double density minefield. An AP minefield may be added to an existing AT minefield (but not the other way around) to produce a mixed minefield.



b. WP Artillery-Emplaced Mines: Very little is known about WP artillery emplaced mines except that they exist and are fired by the multiple rocket launchers (There was a round for the BM-21 as well. It fired AP or AT rounds Allow for the BM-21 to fire either

an AT or AP minefield using the same characteristic). One step in one fire mission produces one hex double density AT minefield or two adjacent single density AT minefields. *A full strength platoon of BM-27s produces two double density adjacent pattern or four single density adjacent four hex patterns (as shown above).*

3. Minelaying before the Game: The pre-game minelaying table gives minefields laid per hour for each minelaying vehicle counter, for single/double density minefields. Each scenario also gives limits; the total number of single density minefields available to the player (supply limits).

E. Minefield Breaching: there are two main ways used to breach minefields quickly; mine plows/rollers and rocket fired explosive line charges. Minefield breaching requires equipment only; engineer assistance is not necessary.

1. Plows/Rollers: Each NATO and WP tank battalion has a set of mine plows, rollers, or combination units (all of which are treated the same in these rules and are hereafter referred to simply as “rollers”). At the beginning of the game each battalion’s rollers must be assigned to a tank platoon and recorded on the equipment roster. They may not be transferred later. A tank platoon with rollers attached has its movement allowance reduced by one.

To breach all minefields on a single hexside or to breach a hex minefield, the roller platoon must pay one additional movement point in addition to costs to enter the new hex. For each minefield breached by rollers, roll a die on the mine attack table to determine if the roller is destroyed. (Roll three times for a hex minefield.) The minefield is breached even if the roller is destroyed.

West German rollers are never destroyed (actually these are chain flails). The platoon can breach as many minefields in a phase as its movement allowance allows. *(As a player aid MICLIC counters are available in the Neutral Marker section).* The Finnish RA140 is a dedicated roller vehicle.

2. Line Charges: Long tubes filled with explosives are fired by rocket over the minefield, and then detonated to create a breach. Line charges are fired during the movement phase.

a. MICLIC (NATO): This line charge is towed behind a tank (or dedicated AFVs such as the U.S. M-58 or UK Giant Viper); one step can tow two charges, assigned as equipment before the game. (The M-58 and Giant Viper carry 3 charges). Each engineer company has three charges available. These charges may be cross-attached to tank or armored personnel carrier (tracked). If attached separately, place a MICLIC counter underneath the armored vehicle unit. If a full strength platoon takes a hit it loses half of its line charges (fractions rounded up).

The line charge breaches one hexside minefield (or 1/3 of a hex minefield). The towing vehicle must begin the movement phase adjacent to the minefield and may not move. Only one line charge may be fired across a single hexside in one movement phase. (As a player aid MICLIC counters are available in the Neutral Marker section for use with non-dedicated vehicles, i.e. M-1 tank.)

b. M-1979 (WP): The M-1979 is a dedicated line charge vehicle. It can breach all minefields on a single hexside (or one hex minefield) in a single movement phase. The M-1979 carries enough charges for four hexside minefields. The M-1979 must begin the movement phase adjacent to the minefield and may not move except that it must enter the hex if breaching a hex minefield. The Czech SVO is the Czechoslovakian version of the M-1979 and has the same characteristics.

3. Visibility: Plows, rollers and MICLIC are easily visible to the enemy; when a unit is spotted the owning player must state if it is so equipped.

4. Effects of Breaching: When a minefield is breached, place a breach marker on it. If the hex or hexside still has un-breached minefields, place a partial breach marker instead. For example, if a player's rollers are destroyed on the second die roll against a hex minefield, the minefield is only 2/3 breached. The players will have to remember the exact extent of a partial breach (easily done by making o notation on the Engineering Log). For hex minefields, the breach must leave the minefield hex on a specific hexside, which can be any of the three hexsides not adjacent to the entry hexside. Orient the breach marker to indicate the exit hexside. No unit except the breaching unit may move through the breach in the movement phase in which the breach is made. In subsequent phases, units pay one movement to enter the breach in addition to other terrain costs.

F. Point Minefields: Point minefields are laid before the game. An engineer platoon can emplace three point minefields per hour. All point minefields are single density, mixed, and camouflaged.

1. Location: Point minefields are laid at a single point within a hex. There are three possible locations attached to a road crater or abatis, on a road, or at a river crossing.

a. Attached: Units attempting to breach or cross the crater or abatis encounter the minefield.

b. Road: The minefield is placed on a road hexside. Only units using the road (moving along it in march formation) encounter the minefield.

c. River-Crossing: A river-crossing is the point at which a road crosses a river or stream. The minefield is on one side only (which must be specified). Units attempting to use that location as a bridge or ferry site encounter the minefield.

2. Breaching: A point minefield may be cleared (removed) in 12 phases by an engineer platoon. More than one platoon may work at once; mark the log twice each phase if two platoons participate and so on. This is the only method which works on abatis. Roads and river crossings can also be breached by roller.

Craters can be breached by roller, then crossed by AVLB, and then breached again by roller; the road is not clear until the second breach. (*Line charges do not breach point minefields*). *The Finnish RA140 functions as a roller.*

G. Minefields Combined with Obstacles: if a hex or hexside minefield overlaps abatis or anti-tank ditch, the minefield must be breached twice: once before and once after breaching the obstacle. This procedure is necessary for road craters only if the player wants to clear the road.

Rule 35: River Crossing

A. River and Bank Types:

1. Rivers: In previous games of the series, it was assumed that there was a bridge wherever a road crosses a stream; when the engineering rules are used, this is no longer true, and a non-amphibious wheeled vehicle may not cross a stream unless a bridge has been built there. Bundeswehr introduces three types of river (in addition to streams) as shown on the terrain key. None of them may be crossed except by amphibious vehicles. Streams and deep streams are 20meters wide. Narrow (hexside rivers are from 20 to 150 meters wide; wide (hex rivers are greater than 150 meters wide; a river's exact width is given in the scenario description.

2. Fords: Deep streams and narrow rivers may have fords. A ford hexside has the same characteristics (except for width) as a stream.

3. Banks: A river's banks restrict crossing operations. There are three possible bank conditions, shown on the terrain key, which may differ between the two sides of a river. If no banks are shown, conditions are excellent; there are no restrictions. If either bank is impassable, the river may not be crossed there. If the bank is intermediate, there are no restrictions on swimming

vehicles and PTS-M ferries, but the bank must be improved before a bridge or ferry (other than PTS-M) can operate.

4. Bank Improvement: An intermediate bank must be improved before a bridge or ferry can be established there. The entry bank must be improved before the work can begin on assembling the bridge or

ferry; the far bank must be improved before the bridge or ferry can begin operation. Bank improvement takes an engineer platoon, or earthmover 12 phases. If two units work at the same time, mark off two phases on the log, and so on.

B. Bridges: When work begins on a bridge, place a bridge site marker in the hex. Record the type of bridge and number of steps needed to cross the river on the engineer log under operation. When work is finished, flip the marker over to a bridge. Units may begin crossing the bridge on the phase after work is completed.

Bridges may be attacked by conventional or indirect fire, (and bombs if using the Close Air Support rules) and are counted as weapons. Suppression has no effect. If one or more steps are eliminated, they must be replaced (at the same rate as the bridge is built) before the bridge may resume operation.

1. AVLB: An AVLB may be emplaced across a stream or deep stream in 1 phase. The vehicle must begin the phase adjacent to the stream. Up to three BIBERs may be connected to bridge small rivers. The first BIBER takes one phase, the second and third BIBER take two phases each. Total length is 33 meters for two and 45 meters for three.

2. TMM and EFA: One step of TMM bridging crosses a stream or deep stream. Steps can be combined to any length to cross rivers. It takes 4 phases to lay one step, at 20 meters per step. When a TMM unit's steps have been laid, remove the counter (leave counter in place and place a bridge marker on top of it. One step of EFA bridging crosses a stream or deep stream. Steps can be combined to cross rivers. It takes 1 phases to lay on step, at 25 meters per step. When the unit's steps have been laid to the desired length place a Bridge marker on top of the EFA.

3. Ribbon Bridges: Ribbon bridges can be used only on rivers. The number of steps needed to cross a river of a given width (or less) is shown on the Ribbon Bridge Table. (The formula is steps = meters/13.5, round up). Ribbon bridges are laid at a rate of 2 steps per phase. When both of a ribbon unit's steps have been laid, remove the counter. There are two types of ribbon steps: ramp and center. Each WP company has 1 ramp step and 9 center steps. Each NATO company has 4 ramp steps and 10 center steps. Each bridge must include only 1 ramp step. Thus, for example, a Soviet company could build only one bridge, and the longest bridge a U. S. company can build is 148 meters (11 steps). It is not necessary to keep track of a step's type until it is incorporated into a bridge; the only effect is to place limits on the number of bridges built. The French PFM and U.S. M1977 CBT function as a ribbon bridges.

4. Removal: It takes twice as long to remove a bridge as to emplace it. The bridge no longer functions when removal begins. When a bridge unit's steps have been removed, put the counter back on the board.

C. Ferries: when work begins on a ferry, place ferry site marker in the hex. Ferry operations are kept track of on the ferry log. Write the ferry site's location in Location. Record the number of ferries of each type (Ribbon, GSP, PTS-M and M-2 (UK) and EFA (FR)) under Ferries. Each operating ferry generates ferry points each phase; the number depends on the width of the river, as shown on the ferry table. To determine the total points in a site, multiply the number of ferries by the points per ferry. Count PTS-M ferries separately. Enter the total (or the two totals if there are PTS-M ferries) on the log under Points/Phase. It takes 40points to carry across one step of heavy vehicles (frontal armor of 11 or more)

and 20 points for one step of other units. The French EFA may not ferry heavy vehicles. Units being transported (infantry in APCs for example) cross free. When a unit begins crossing, put it under the ferry site marker until enough ferry points have accumulated for it to cross. Each phase, record the ferry points accumulated on the ferry log under Points Across. When a unit has crossed, mark off those points and start with another unit. Ferries may be attacked by conventional, indirect, (and bombs if using the CAS rules) and are counted as weapons. If a ferry is suppressed, shaken or broken, it does not operate.

1. Ribbon Ferries: These take 4 phases to assemble. Two ribbon steps make one ferry; when a ferry is finished, remove the counter. One additional ramp step is also needed at each WP ferry site. If a ferry step is destroyed, one ferry is out of commission; it may be restored by adding another ribbon step, in 4 phases.

2. GSP, M3 (UK) and PFM (FR): These take 1 phase to assemble. One step makes one ferry; when a ferry is assembled, remove the counter. The French PFM takes 2 phases to assemble.

3. PTS-M: These take no time to assemble and may begin operating if they start the phase adjacent to a river. One step makes one ferry. When a ferry begins operation, remove the counter. The PTS-M ferry may not carry armored vehicles.

4. Removal: It takes twice as long to remove a ferry as to emplace it. The ferry no longer functions when removal begins. When a ferry's steps have been removed, put the counter back on board.

F. Swimming: Amphibious vehicles can cross streams and rivers at the rates given on the swim table. If crossing takes one phase, the unit starts the phase adjacent to the river and ends the phase adjacent to the river, on the other side. If crossing takes two phases, the unit starts adjacent to the river, moves one hex onto the river in the first phase, and moves one hex off the river in the second phase.

Fast amphibious vehicles are the BRDM, BMD, BTR, SA-9, Fuchs and Luchs. (Contrary to the original Assault, M-2/M-3 Bradley Fighting Vehicles were not amphibious. It did originally, in the M-2/M-3 and M2A1/M3A1 vehicles, include a flotation screen, but these were ponderous and time consuming to erect and did not function very well. Optionally, treat the Bradley as a non-amphibious unit).

G. Snorkeling: WP tanks (T62, T-64, T-72, PT-91, M-84, T-80 and T-90) may cross rivers by snorkeling at a snorkel site. They must be first prepared; this takes 6 movement phases without moving or firing. A prepared tank may not fire anti-tank fire until the turret ring is cleared, which takes 2 phases without moving or firing. A prepared tank may fire conventionally (SCAP/SCHE or SA), but if it does so it may no longer snorkel. A tank crosses the river in 1 phase per 100 meters (or fraction) of river width.

Possible snorkeling sites are very limited. Before the game, for each map, randomly determine 3 sites (hexes or hexsides) per river, chosen from among possible swim sites (i.e. passable banks). Both players know the locations.

H. Bridge/Ferry Load Limits: See the Bridge/Ferry Classification Chart in Charts & Tables section for Bridge and Ferry vehicle weight limitations. These limitations may restrict certain heavy armored vehicles from using the specific type ferry or bridge.

Rule 36: Obstacles

Obstacles are normally built during pre-game set up but may also be constructed during the game. This can also be done during the game at a rate of 12 turns per hour. Just keep track of the work on the Engineer Log. The obstacle is not complete until the total time required to build it is completed. Work is listed per platoon or engineering vehicle. Up to two platoons or vehicles may combine to complete the work in the same hex in half the time.

A. Road Craters: A U.S. engineer platoon makes 3 per hour; other engineer platoons make 2 per hour. A road crater blocks the road across one hexside. A crater can be breached by an earthmover in 6 phases of an engineer platoon in 12 phases, or it can be crossed by an AVLB.

B. Abatis: An engineer platoon or earthmover makes 1.5 abatis hexsides per hour (3 in 2 hours). Abatis creates a dense woods hexside and blocks any road on that hexside. Abatis can be breached by an M-728, AVRE, or CEV in 6 phases, any other earthmover in 8 phases, an engineer platoon in 10 phases, a platoon plus earthmover in 6 phases, or a platoon plus M-728, AVRE or CEV, in 4 phases. The M-728, AVRE, and CEV expend one round of HEP ammunition in breaching the abatis.

C. Anti-tank Ditches: Two hexsides (one marker) of AT ditch costs 20 earth moving points; vehicles may not cross AT ditch hexsides. An AT ditch can be breached by a M-728, AVRE, or CEV in 6 phases, any earthmover in 8 phases, an engineer platoon in 10 phases, a platoon plus earthmover in 6 phases, or a platoon plus M-728, AVRE or CEV, in 4 phases. The M-728, AVRE, and CEV expend one round of HEP ammunition in breaching the AT Ditch. Alternatively, the ditch can be crossed with an AVLB.

Rule 37: Improved Positions

All improved positions must be built before the game.

A. Entrenchments: One entrenchment costs 3 earthmoving points. in addition, all dismounted personnel begin the game in entrenchments if they have been in position for at least 2 hours before the game begins. The effects of entrenchments are given in Rule 17.

B. Hull Down Positions: one hull down position costs 6 earthmoving points. in addition, all WP tanks and self-propelled artillery begin the game in hull down positions if they have been in position for at least 2 hours before the game begins.

A hull down position holds 2 steps of vehicle units (or 4 steps of P class, or 2 steps of W Class). A hull down position is entered in the same manner as an entrenchment. A hull down position counts as cover; however, there are four covered hexsides, not two.

Vehicles in hull down positions have increased indirect fire defense value against HE (but not ICM) and conventional fire. V class units have a strength of 20 and AFVS have a strength of 40.

Anti-armor fire is multiplied by 1/3 for NATO and Non-aligned Western-produced AFV and AIFV (Sweden and Austrian); anti-armor fire base hit chance is multiplied by 1/2 for Warsaw Pact (including Finnish produced Soviet vehicles) and Yugoslavian AFV and AIFV. *(Any vehicle will derive protection from a hull down position. Though intended for AFVs, W-class units have an increased defensive fire value of 15 versus HE indirect fire only.)*

C. Bunkers: A bunker costs 6 earth moving points plus 3 hours of work form an engineer platoon. In addition, dismounted personnel units may begin the game in bunkers if they have been in position for at least 8 hours before the game begins. Bunkers are identical to entrenchments except that their indirect fire defense strengths are 30, not 20.

D. Fortifications: Some countries; Austria, Italy and Norway for example, make extensive use of fixed fortifications in their defensive networks. These fortifications are usually found around strategic installations, mountain passes and vital terrain features.

1. Tank Turret Emplacements: Some armies employ tank turrets in fortified positions; i.e. Austrian Centurion turrets. These units are treated as if they are in hull down position with 360° coverage. These style fortifications have a defense modifier to the base hit chance die roll multiplied by 1/3 versus anti-armor fire and a conventional fire defensive value of 40.



2. Static Formations: Static formations include infantry, artillery, anti-tank and air defense P and W class units that are assigned to fortifications; i.e. Austrian SpK infantry units. Artillery and Air Defense units have an F class mobility identifier and may not move. Static Formations begin all scenarios in bunkers.



IV. Air Operations

Rule 38: Close Air Support

Close Air Support, or CAS, provides the player with the ability to call in airstrikes on enemy positions or perceived positions. CAS use UGBUs (Unguided Bomb Units), GBUs (guided bomb units), AGM (air-to-ground missile) and internal guns to attack targets and hexes.

GBUs can attack hexes, units and bridges. AGM are used against installations (units in entrenchments, bunkers and hull down positions), and all vehicles. Guns can be used against all units. Each aircraft is considered to be 1 plane for direct fire and opportunity fire. See Appendix A. Sequence of Play for the Air Phase.

A. Flight: Aircraft move similar to helicopters in that they do not pay terrain costs and can enter any hex regardless of terrain. All aircraft have unlimited movement (The AV-8B Harrier has special movement rules

and is covered separately). Aircraft are always considered to be in combat formation. Aircraft may enter from any map edge and exit from any map edge. All aircraft (except the AV-8B) must exit the map in the same air phase in which they entered it.

1. Facing: Aircraft are placed on the map facing a hexside. The nose of the aircraft is its front.

2. Turning Radius: Even though aircraft have unlimited movement (class ∞), they do have a turn rate. (Except the AV-8B). Fighter-Bomber and Multi-role aircraft turn by moving two hexes forward, and then turn one hexside; Attack Aircraft turn by moving one hex forward, and then turn one hexside.

3. Spotting: Normal spotting rules apply to spotting aircraft. All spotting attempts are against a moving unit (except the AV-8B). Radar will detect any aircraft, just like with a Helicopter, automatically, given a clear LOS. Aircraft will fly at different altitudes depending upon the type. Consult the Aircraft Data Chart in the Charts & Tables section for specifications

a. Low Altitude: Aircraft fly at 1 level above the highest terrain in the hex.

b. Medium Altitude: Aircraft fly at 2 levels above the highest terrain in the hex.

c. High Altitude: Aircraft fly at 3 levels above the highest terrain in the hex.

4. Stacking: CAS aircraft may not enter a hex containing another aircraft but may enter a hex with a helicopter.

B. Availability: CAS may be canceled for a number of reasons. Enemy air superiority and weather may limit the number of sorties available. See Rule 40 on weather.

1. Air Superiority: In game terms, this means local air superiority and it only affects the availability of CAS missions. It is variable and could change each turn. At the beginning of each turn players roll the die. The player with the highest roll has local air superiority for the current air phase and may conduct CAS missions for the current air phase. The losing player may not conduct CAS missions (Air Superiority of the winning side prevented the CAS aircraft from reaching the target area. If both players roll the same number, then both players may conduct CAS missions. Each player rolls for Air Superiority whether he has CAS missions available or not. Air Superiority does not affect Helicopter Operations

2. Determining available CAS Missions: Prior to starting the game, each player secretly determines which CAS mission or missions he will have available to him.

a. Procedure: Consult the Availability Modifiers for each modifier available. Add all modifiers together. Roll one die and add the die roll modifier to determine the appropriate column on the Mission Availability chart. This will determine the type and number of

CAS Aircraft available. Multi-role Aircraft as identified on the Aircraft Data Chart may be selected as either Attack or Fighter Bomber.

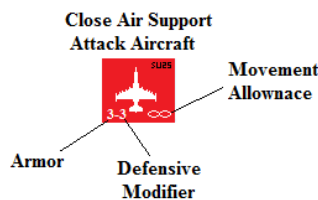
b. Countries: Roll once for each country, applying all modifiers. If a country does not have a particular type aircraft (Denmark for example has no ATT (attack aircraft) but does have a FB (Fighter- bomber), then that specific mission is not available. Multi-role (MR) class aircraft may substitute for ATT or FB class aircraft.

3. Strike Package Selection: Players may select weapons to be carried on CAS aircraft hard-points as with helicopter pylons. Each unit has an Aircraft Data Card that identifies the types of weapons that may be carried on board. Weapons without a “p” or “r” after it in the Ammo Supply column of the Unit Data Card, are integrated systems that are always assigned to the type aircraft and do not take up a pylon. Each weapon pod takes up 1 hard point.

a. Sorties: A player may conduct 1 sortie per air phase per aircraft. The player may conduct sorties in as many air phases as he wants as long as the aircraft has ordinance (ammunition) and it is not damaged.

C. Combat

1. Anti-aircraft fire: To be attacked, an aircraft must be spotted. Aircraft have two factors that are used in anti-aircraft combat. The first factor is the unit’s armor rating. The second factor is the unit’s defensive modifier versus missile attack. Aircraft are more difficult to attack than Helicopters.



The Aircraft Defensive Modifier is subtracted from the base chance to hit value. The final value is the new Chance to Hit value. Roll die and the Aircraft is hit if the roll is less than or equal to the value. A rolled 1 is always a hit regardless of the actual value. *For example, if a Stinger missile is fired at a WP SU-25 from 10 hexes away, the defensive modifier of 3 is subtracted from the base hit chance of 4 for a new chance to hit value of 1.*

2. Hit confirmation: If the aircraft is hit then the armor value is subtracted from the penetration value of the anti-aircraft weapon. Roll one die and if the roll is equal to or less than the difference, the ammunition penetrates the aircraft. The aircraft is removed from play and can make no further sorties. If the aircraft is firing a AGM or dropping a GBU that is being laser designated by another unit and is hit by anti- aircraft fire at the same time, the AGM or GBU combat still occurs, regardless of the fate of the aircraft.

3. Weapons: The player announces what type of weapon is used in each sortie prior to entering the map. An aircraft may not change weapon types during the current air phase, but may select a different weapon type in subsequent phases. In other words, the player may announce a GBU attack for the current phase. Thus, the player may not change to an AGM or gun attack until the next air phase.

4. Opportunity Fire: Opportunity fire may occur versus aircraft during an aircraft’s ingress or egress to the target, just like helicopters with some minor changes. Only Air Defense units (units whose primary weapon systems have a ** or † indicated on the Direct Fire Data Chart may engage in opportunity fire versus CAS aircraft. Opportunity fire results against aircraft are applied at the instant they are obtained.

a. Tracking: An aircraft must be tracked for a number of hexes by the firing unit before opportunity fire takes place. Low Altitude Aircraft must be tracked for 6 consecutive hexes. Medium Altitude and High Altitude aircraft must be tracked for 4 consecutive hexes. Normal opportunity fire combat occurs at any time after the aircraft completes the tracking requirement for the engaging air defense unit.

5. Target Defensive Fire: The target unit may conduct defensive fire with any weapon marked with an *, **, or †, as long as it did not opportunity fire at any other aircraft. The target unit may not engage in direct fire in the current turn's Fire phase if it fires in the Target Fire versus aircraft portion of the Air Phase. Any Air Defense unit (i.e., weapon systems marked by an ** or †) may fire at the aircraft during Target Fire if it is adjacent to, or stacked with, and did not opportunity fire at any aircraft during aircraft movement.

6. Air-Ground Combat: *ONLY TARGETS SPOTTED BY FRIENDLY UNITS MAY BE ATTACKED BY CAS.* There are four types of air-to-ground combat. Bomb (Guided Bomb Unit GBU or Unguided Bomb Unit UGBU), Air-to-Ground Missile, HARM (Anti-radar) and Gun (SCAP and SCHE) attacks. To be attacked by AGM or Gun the target must be spotted prior to the aircraft ingress to target. A UGBU attack is made against a hex just like HE indirect fire, a GBU attacks specific targets that are designated by OPs, FIST or any unit capable of laser designating targets including the attacking aircraft itself. Observation Posts and FISTs act as the Forward Air Controller (FAC) for aircraft. **AIRCRAFT MAY FIRE UP TO THE AMMUNITION SUPPLY OF THE SPECIFIC WEAPON BEING USED IN A FIRE PHASE.** *For example, if the aircraft carries 4 GBUs, it may use all 4 in a combined attack against a single target or hex. Therefore, the ROF of a given weapon system is the available ammunition supply.*

a. Bomb Attack: There are two weapon classifications under Bomb Attack.

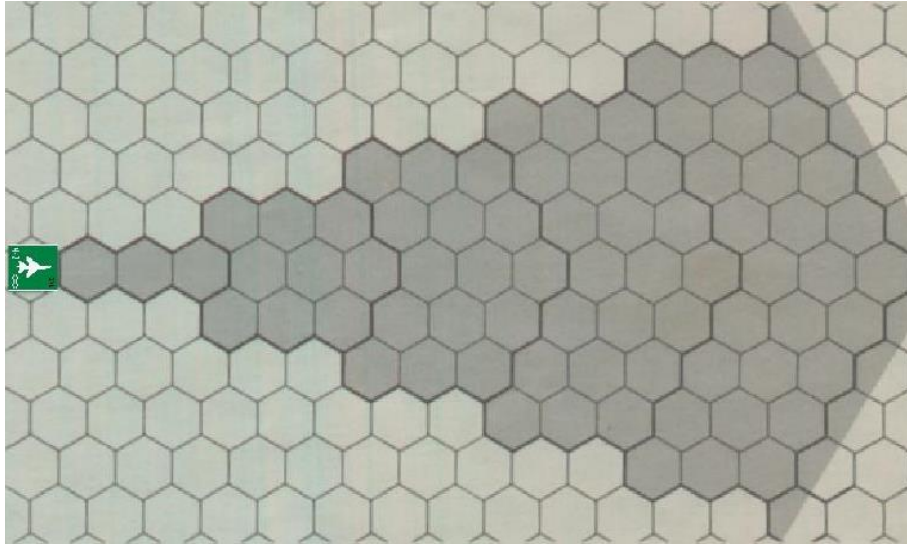
1. Un-guided Bomb Unit (UGBU) A UGBU mission attacks a hex similar to an indirect fire attack. First determine if the strike results in a hit on the hex. High level hits on a die roll of 1-3; Medium level hits on a roll of 1-5 and Low level hits on a roll of 1-7. If the result is a miss then the strike drifts one hex in the direction as determined by rolling on the wind direction chart. Once the strike hex is determined, all units in the strike hex are attacked by indirect fire (use the indirect fire defense table for values). Since the attack is against the hex, specific defending units are not required to be previously spotted.

2. Guided Bomb Unit (GBU) A GBU is used against a specific spotted target similar to an AGM. A FIST may designate for a specific target unit (that way the attack can still strike the target hex if the aircraft suffers loss during the Target Fire) or the aircraft can designate the target for itself. GBUs have a -3 modifier to the Conventional Fire Combat Results Table Die Roll versus all target units (use indirect fire defense table for values); All other units in the hex are attacked by indirect fire (use indirect fire defense table for values).

b. AGM/Gun Attack: A target unit may only be attacked by an AGM or Gun CAS mission if the unit has been spotted prior to the Air Phase. Both these attacks are resolved as direct fire attacks versus the target.

c. HARM Attack: Any target unit within the forward arc of the attacking aircraft that is utilizing surface to air radar may be attacked by a HARM missile. If the attacking aircraft successfully hits the unit utilizing surface to air radar, it is destroyed.

d. Firing Arc: An aircraft may only fire or drop its weapons in its forward arc, similar to a helicopter in march formation firing. See Diagram below:



Rule 39: AV-8B Harrier

The AV-8B, unlike other jet aircraft, has the ability to hover and loiter over the battlefield similar to a helicopter. Therefore, AV-8Bs are not required to exit or egress from the target area and may remain on the map, at the discretion of the owning player. AV-8Bs are treated the same as helicopters and can conduct operations in all movement phases (of the owning player) and the Air Phase. The AV-8B may not use more than one weapon type and may only fire once per fire segment (i.e. opportunity fire, direct fire, etc.).

A. Combat: The AV-8B can fire any of its (but only one type) while hovering except the UGBU/GBU. The UGBU/GBU can only be dropped (fired) in the air phase and only if the AV-8B is making a strike run (moving towards) the target hex. The AV-8B may perform popups just like a helicopter except that it may not fire the UGBU/GBU.

B. Movement: AV-8Bs have no turning radius and may turn in any direction at any time. The AV-8B has unlimited movement allowance class ∞ . The AV-8B may not enter a hex containing other CAS aircraft or helicopters. It may occupy a hex containing only ground units.

C. Removal: An AV-8B is removed from the game, if it suffers damage or it expends all the ammunition in its Strike Package.

Rule 40: Weather

Weather is determined prior to the start of the game. Roll once on the month table to determine the month. Then roll once on the weather table to determine the specific weather for the game. Consult the Availability modifiers list for the specific weather type modifier to the Mission Availability die roll. Weather only affects the availability of CAS.

Rule 41: Counter Rocket, Artillery and Mortar (C-RAM)

C-RAM is the U.S. anti-rocket, artillery, and mortar defensive system. The unit is available in scenarios after 2010. It is built around the U.S. NAVY CIWS Phalanx. The land based version,

Centurion, is mounted on a lo-boy trailer, and can engage in-coming indirect fire and aircraft. The C-RAM is radar guided.

A. Range: The C-RAM can engage helicopters and aircraft from 0 to 14 hexes in opportunity or direct fire. The C-RAM can provide protection from incoming indirect fire in a radius of 10 hexes. Normal line of sight restrictions for radar apply.

B. Combat: The C-RAM must be deployed to engage targets. The C-RAM must be in combat formation to deploy and deploys in a manner identical to SPGs; a Deployed marker is placed on the C-RAM unit once deployed. Prior to moving again the C-RAM must un-deploy. Un-deploying takes one movement phase. Operations Point expenditure is the as for SPGs. C-RAM may fire once per Indirect and Direct fire phase up to the limit of the ammunition supply.

1. C-RAM engages aerial targets in the same manner as other radar guided anti-aircraft guns (See Rule 38.C). C-RAM may not engage enemy aerial targets if they are in the same hex as friendly units.

2. Incoming indirect fire of any type or direct fire by mortars may be intercepted by the C-RAM. One is added to the Indirect Fire resolution die roll for each round of C-RAM SCAP fired up to the C-RAM ROF (10). For example; the Soviets have fired a mortar attack against a U.S. Infantry unit that is 6 hexes from the C-RAM. The attack will take place on the 2:1 column of the Conventional Fire Combat Results Table. The U.S. player decides to intercept the incoming mortar attack by firing the C-RAM 5 times. The Soviet player rolls a 3. A 5 is added to the 3 and the result is 8 which is NE. The expenditure of five rounds of C-RAM SCAP ammunition is recorded on the Ammunition Supply log.

Rule 42: UAVs (Unmanned Aerial Vehicles)

UAVs are unmanned aircraft utilized for intelligence gathering, artillery spotting and limited attack. UAV development began in the 1950s with the more modern systems such as the US Predator entering service in 1995. UAV counters are available for NATO and WP. In simulations taking place after 1995, ground based MI (Military Intelligence) company 1 UAV available.

A. Intelligence/Artillery: NATO and WP UAVs function as reconnaissance units equipped with thermal imaging and laser designators for spotting and directed artillery fire. NATO UAVs have a spotting range of 2 hexes per each level of height and WP UAVs have a spotting range of 1.5 (round down) per each level of height; as determined by the owning player to be flying at. This is recorded at the beginning of each Record Artillery Mission by each player. Maximum altitude is level 15.

Therefore, the maximum spotting range for a NATO UAV is 30 hexes for an UAV flying at level 15. Terrain blocking rules apply.

1. **Organic UAVs-** UAVs assigned as part of an Observation Post (OP) platoon (unit) function as an airborne extension of that specific OP. In order to use its' UAV, the OP must deploy by not moving for 1 movement phase. A deploy marker is then placed on the OP. Beginning with the next movement phase following deployment, the UAV assigned to the OP is placed in the map in the same hex as the OP. This UAV may then move no more than 16 hexes from the deployed OP. Altitude is determined in the same manner described in (A) above. Organic UAVs DO NOT carry a weapons pylon. The OP may call for, and adjust artillery fire from the UAV's vantage point.

B. UAV COMBAT: NATO UAVs are equipped with 1 pylon that can carry either an anti-personnel or anti-armor missile. As with helicopters, the weapon load is determined at the start of the game. WP UAVs are equipped with an anti-armor missile. UAVs may **not be reloaded if using Logistic Rules.**

1. ANTI-AIRCRAFT FIRE vs UAV COMBAT: The biggest obstacle to attacking the UAV is the small size of some UAVs and the built-in stealth capabilities. There is no auto-spot vs UAV. All units must attempt to spot the UAV including radar equipped units. UAVs are always considered in clear terrain not under cover. Maximum spotting range vs an UAV is 15 hexes and Level 15 altitude by units equipped with radar, 10 hexes and Level 10 altitude by infrared missile equipped units (including MANPADs) and 5 hexes and Level 5 altitude by all other units. Radar equipped units add 3 to the base spotting chance die roll; Infrared missile units add 5 and all other units add 7. Once spotted UAVs may be attacked by anti-aircraft fire; appropriate modifiers apply.



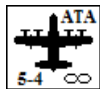
Rule 43: Airborne Operations

In the original Assault series, scenarios with airborne units began in the post drop phase. This optional set of rules allows players to simulate the actual drop itself. There is a chance that a unit will suffer casualties in the actual drop through loss of personnel, equipment and vehicles in accidents that occur outside of actual combat.

A. Airborne Transport Aircraft

Airborne capable units are transported via Airborne Transport Aircraft. Special Forces and Ranger units may conduct air drop operations via helicopter. Each ATA counter consists of several C-130 or AN-12 type aircraft. See the ATA Transport Capability Chart in the Transport Reference Guide of the Charts and Tables page. Airborne Transport Aircraft may be attacked by anti-aircraft fire. If ATA suffers adverse anti-aircraft fire result it and transported para units are removed from play. ATA fly at medium altitude. ATA performing Low Altitude Parachute Extraction System (LAPES) fly at low altitude. Heli-borne aircraft fly at low altitude. The player conducting Airborne Operations must have Air Superiority to conduct Air Drop Operations (See Rule 38.B.1 Air Superiority).

1. ATA Availability: Players roll for Air Superiority (See Rule 38.B.1). Next determine the number of ATA available per turn by rolling the die and cross referencing the result on the ATA availability table on the Transport Reference Guide Chart. The number of ATA available is per turn. The player determines the type of ATA as needed; i.e. either Air Drop or LAPES.



B. Air Drop

Vehicles with frontal armor of 10 or less and un-armored vehicles may be deployed by either the LAPES or air-dropped. Units may not Air Drop into a hex that contains an Alpine Hexside. Vehicles may not carry passengers while conducting air drops or LAPES. Vehicle crews are considered to drop in close proximity to their vehicles. (See Rule 44. C. for Soviet exception)

1. Air Drop Procedure

- a. Determine weather: (Use weather chart in CAS Availability Table)
- b. Determine wind and wind direction (Use the wind table on the Conventional and Indirect Fire Chart)
 1. Light wind-no drift unit lands in march formation in designated Drop Zone (DZ) hex.
 2. Moderate wind drift- Designate the Drop Zone hex that the unit is to land in. Roll the die and divide by 2. This is the number of hexes that the unit will drift from the Drop Zone in the direction of the wind. Conduct a morale check. The unit is suppressed in march formation if the morale check is failed.

3. Strong wind drift-Designate the Landing Zone hex that the unit is to land in. Roll the die and divide by 2. Add +2 to this number. This is the number of hexes that the unit will drift from the Landing Zone in the direction of the wind. No morale check is conducted. The unit is placed in the final DZ hex suppressed in march formation.

d. The player conducting the air drop determines the orientation of each unit.

3. Adverse weather in Moderate and Strong Winds; adds an additional +2 for rain, +4 for fog, and +6 for snow to all landing zone drift die rolls. For Light Wind roll for wind direction and move unit +1 hexes in direction of wind for rain and +3 hexes for Fog and +5 for snow.

4. Air drops occur in the Non-phasing player Airmobile movement phase. No suppressed air dropped units may rally until the Friendly 2nd Movement Phase following the air drop. Unsuppressed units may move in Friendly 1st Movement Phase after the air drop.

5. Units that land in woods or marsh hexes lose 1 step if full strength 2 step unit; and are broken if it is a 1 step unit. Air-dropped artillery and air dropped vehicles are eliminated if landing in a woods/marsh hex. All units are eliminated if landed in full sea or lake hexes.



C. Low Altitude Parachute Extraction System (LAPES)

LAPES Procedure- LAPES ATA must fly 4 consecutive hexes at low altitude in clear non-slope terrain before depositing transported unit in 4th hex. Units cannot be LAPED into a slope hex.

1. Determine the landing status:

a. On a roll of 1-3 the LAPE unit loses 1 step and is suppressed. A 1 step unit is eliminated.

b. On a roll of 4-6 the LAPE unit lands suppressed.

c. On a roll of 7-10 the LAPE unit lands in march formation.

d. The player conducting the LAPES determines the facing of the unit.

2. LAPES is not affected by weather conditions or wind drift.

3. No passengers may be carried by vehicles deploying via LAPES

4. No suppressed LAPES unit may rally until the Friendly 2nd Movement Phase following the LAPES.



D. Soviet Airborne BMD-3 Units

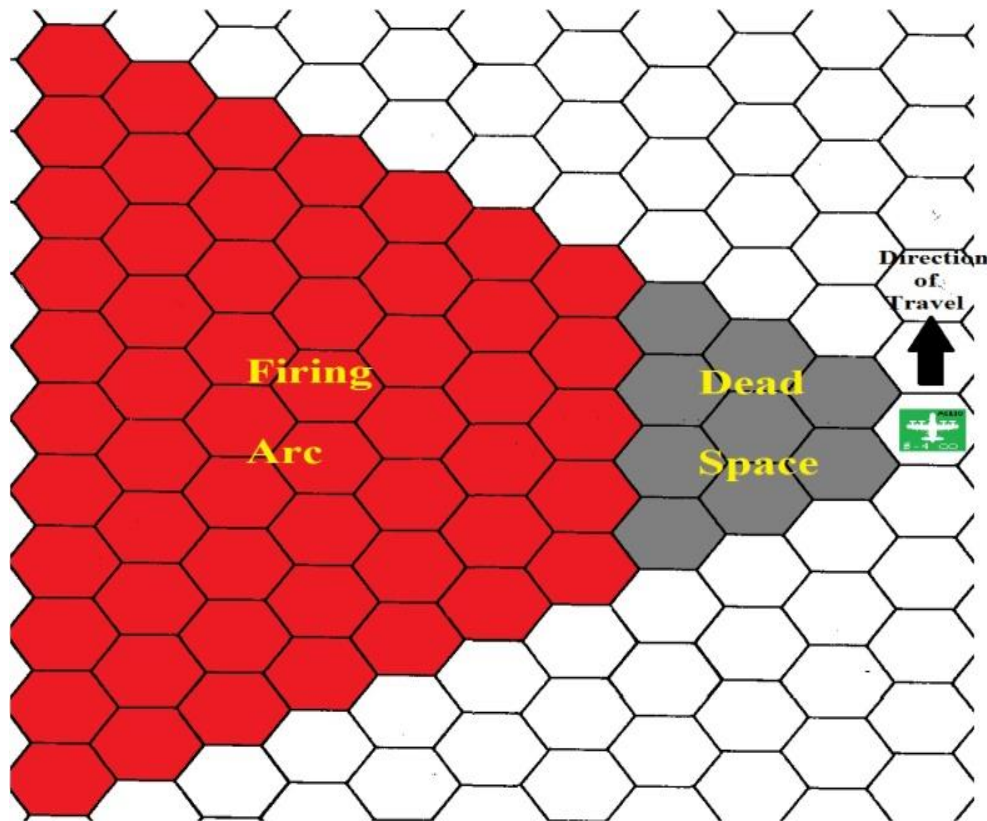
Soviet Airborne units that are equipped with the BMD-3 may air drop with passenger units loaded on board the BMD-3. Loaded passengers do not count toward the ATA transport capacity limits. This is the only exception to loaded vehicle restriction. Loaded BMD-3 may only deploy via air drop. Unloaded BMD-3 may still deploy via LAPES if desired. The passenger unit suffers the same damage as the transporting BMD-3 from the air drop procedure.



E. AC-130 Spectre Gunship

The AC-130 Spectre Gunship is an American C-130 Hercules modified for Close Air Support (CAS). The AC-130H is armed with two 20mm M-61 Vulcan cannon, one 40mm Bofors L/60 cannon and one M-102 105mm howitzer. The Spectre is also equipped with thermals, Low Light Level TV and laser ranging/designating equipment.

1. The AC-130 is available as a U.S. CAS aircraft. It may be selected in place of a Fighter Bomber aircraft on the CAS availability chart only if U.S. units are available. Only 1 AC-130 may be substituted for a CAS aircraft.
2. The AC-130, like the AV-8B, is not required to exit the map at the end of a strike mission and may continue to operate in all friendly movement, fire and CAS phases.
3. The AC-130 flies at 4 levels above the highest terrain in the hex and conducts movement as an Attack Aircraft in regards to the turning radius.
4. The AC-130 is subject to anti-aircraft (SAM, AAM, and Gun), opportunity and direct fire from units capable of *, **, and fire.
5. The AC-130 may not conduct opportunity fire.
6. All weapons may be fired simultaneously at the same target or individually at separate targets, up to the maximum rate of fire of each weapon system.
7. The AC-130 has a restricted firing arc 4-10 hexes to the left of the aircraft orientation. No weapon may fire into the 0-3 hex dead zone. The AC-130 conducts what is called a "pylon turn" to deliver continuous fire to a single point. See below:



V. Amphibious Operations

RULE 44: Naval Assault

NATO, primarily the United States, and the Warsaw Pact, mainly the Soviet Union and Poland, operated a significant number of Landing Craft and Amphibious Assault Ships for operations in the Arctic, Mediterranean, Black Aegean and Baltic Seas. Operations were planned against Denmark, West Germany and Norway. There are currently no maps available for a coastal scenario unfortunately (I am working on one though); optionally you can designate all hexes on one side of a major river to be ocean hexes. The following rules are specific to the organization, i.e. NATO/Warsaw Pact.

A. Warsaw Pact Naval Warfare Operations

1. Movement: Ships can move freely in any coastal or all sea hex up to their movement allowance. To off-load units a ship must be deployed. It takes two movement phases to place a deploy marker on the ship. Once the deployed marker is placed the ship may begin disembarking units. Only one deployed ship may occupy a hex at a time. A ship may not move in the same turn that it disembarks passenger units (*See D. ZUBR LCAC (Hovercraft) below for exception*).

2. Transport: See the Naval Transport Charts for specific transport capacities and restrictions.

a. Disembarking units: LST and LSD class ships may disembark amphibious vehicles from any all water or partial land hex. POS and PCL class ships must be in a partial land/sea hex to disembark passenger units. An HVCL (hovercraft) class ship may be in either a partial land/sea hex or a full land hex to disembark passengers. L class and non-amphibious vehicles may only be disembarked in partial land/sea or full land hexes.

1. Procedure: To disembark units, a ship must be deployed. It takes 2 movement phases to deploy a ship for disembarkation. Once deployed units may move up to half their movement allowance (round down) in the first movement phase, then normal restrictions apply in subsequent movement phases. Units may not stack in the first movement phase after disembarking (not including transported units). A ship counter may remain deployed and provide fire support or may move off map at any time. A ship may not move during a turn in which passenger units disembark. (*exception see ZUBR LCAC Hovercraft*)

2. Naval Combat: Ships may be attacked and may attack. Ships have a single armor factor that functions in the same manner as a bunker. Ships defend against indirect fire and conventional fire as listed on the conventional fire defense tables. Ships must be deployed to attack with all weapons except weapons with air defense combat ratings; i.e. *, **, † which may fire normally.

Damage: If a ship receives enough damage that would cause it to be eliminated, it is removed from play along with any passenger units that it is carrying. A ship that becomes suppressed may continue to offload passengers but may not move or fire any of its weapons.

3. Amphibious Units: Amphibious units may enter from the map edge without being on board a transport ship. These units are considered to have disembarked off map. Amphibious units may transport P-class passengers only while water-borne. Amphibious APCs may fire, amphibious tanks may not fire. Passengers may not fire. Amphibious units move at half of their normal movement rate while water-borne.

4. Zubr LCAC (Hovercraft): The ZUBR LCAC may operate up to 4 hexes from the shoreline.



a. Movement: The ZUBR may only operate over clear terrain and may not climb slopes unless on a road or enter woods hexes whether on a road or not. The Zuber may cross streams, rivers, marsh, and all-water hexsides with no penalty. See the Terrain Effects Chart for Zubr HV (hovercraft) movement costs. The Zubr may move in the same turn that it disembarks passengers but may not do so in the same movement phase.

b. Combat: The ZUBR defends using the armor value of 10 regardless of orientation. The Zubr is not required to be deployed to conduct offensive fire.

c. Disembarking passengers: The Zubr is not required to deploy to disembark passenger units. Non-amphibious and L class units may only disembark in partial or all land hexes.

5. Ivan Rogov Class LSD



a. Ka-29 Assault Helicopter: Each Ivan Rogov class LSD carries a compliment of 2 one step Ka-29 helicopters. When the IVR is deployed it functions as a base for the Ka-29. The IVR must be deployed and not move for the Ka-29 to operate. The IVR may not fire any of its weapons in the fire phase following a movement phase in which the Ka-29 lands on or takes off from the IVR. The Ka-29 may not take off or land in any movement phase immediate following a fire phase in which the IVR fires its weapons.

6. Transport Log: Players may record transported units on the Transport Log if desired, instead of stacking large numbers of counters underneath the transporting assault vessel. Transport Logs are available in the Charts and Tables section. Example below:

TRANSPORT LOG					
SHIP TYPE	UNIT	STEPS	SHIP TYPE	UNIT	STEPS
Z1 Zubr	ROW 32TR OP4-32TR	5			
"	1AD32 MRB	1			
IVR-1	1-32TR	19			
IVR-2	HQ4-32 5 IM4 A+/B+/C+/32	20			

B. United States Amphibious Warfare Operations

1. U.S. Naval Classes: The U.S. Navy operates greater variety of amphibious warfare ships than the Warsaw Pact. The U.S. classes are as follows:

LHA-Tarawa Class landing helicopter assault ship

LHD-Wasp Class landing helicopter dock ship

LPD-Austin Class landing platform dock ship

LSD41-Whidbey Island Class landing ship dock

LSD50-Harpers Ferry Class landing ship dock

LPH-Iwo Jima Class landing platform helicopter

LCAC-Landing Craft Air Cushion (Hovercraft)

LCM-LCM8 Class Landing Craft Mechanized

LCU-LCU1610 Class Landing Craft Utility

Dock ships are amphibious warfare vessels that contain a large cavernous interior for launching amphibious vehicles directly into the water. These “deck wells” can usually hold around amphibious 12-24 vehicles and landing craft. All US Navy amphibious assault ships (not including LCACs, LCUs and LCMs) serve as logistic bases for USMC units. LCACs and LCMs are actually transported by other amphibious warfare ships. See the Transport Reference Guide.

2. Movement: Ships can move freely in any coastal or all sea hex up to their movement allowance. A ship must be deployed to off-load amphibious units and carriers but not to launch helicopters which can launch anytime. It takes one movement phase to place a deploy marker on the ship. Once the deployed marker is placed the ship may begin disembarking units. Only one deployed ship may occupy a hex at a time. A deployed ship has a movement allowance of 1. LCACs may operate up to 4 hexes inland from an all sea hex and treat river, lake and marsh hexes as clear terrain. LCACs may not cross slope hexsides unless on a road or enter any woods hex whether road bound or not.

3. Transport: (*See the Naval Transport Chart*) Ships may transport any ground unit unless otherwise noted. USN ships have three values for transport on the Naval Transport Reference Guide. The first is for USMC ground steps and the second is for the number of air USMC helicopter steps and the third is for the number of naval LCAC/LCU/LCM vessels carried. Players must select one type of naval steps to be carried. Some ship classes allow you to mix LCU and LCM steps; i.e. LCU/LCM 6 means that you could have any combination of LCU or LCM landing craft as long as the combined total is 6 steps.

a. Disembarking units: U.S. ships may disembark amphibious units in any all sea or partial land/sea hex. An LCAC (hovercraft) class ship may be in either a partial land/sea hex or a full land hex to disembark passengers. L class and non- amphibious vehicles may only be disembarked in partial land/sea or full land hexes.

1. Procedure: To disembark units, a ship must be deployed. It takes 1 movement phase to deploy a U.S. ship for disembarkation. Once deployed units may move up to half their movement allowance (round down) while amphibious, then normal restrictions apply on land. Units may not stack in the first movement phase after disembarking (not including transported units). A ship counter may **remain deployed and provide fire support or may move off map at any time.**

2. Naval Combat: Ships may be attacked and may attack. Ships have a single armor factor that functions in the same manner as a bunker. Ships defend against

indirect fire and conventional fire as listed on the conventional fire defense tables. Ships must be deployed to attack with all weapons except weapons with air defense combat ratings; i.e. *, **, † which may fire normally anytime.

a. Damage: If a ship receives enough damage that would cause it to be eliminated, it is removed from play along with any passenger units that it is carrying. A ship that becomes suppressed may continue to offload passengers but may not move or fire any of its weapons.

b. Combat: Ships conducting helicopter operations may not fire any of its weapons in the fire phase following a movement phase in which a helicopter lands or takes off. Helicopters may not take off or land in any movement phase immediate following a fire phase in which the ship it is operating from fires its weapons.



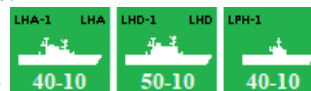
3. Amphibious Assault Vehicle Personnel-7:

The AAVP-7 (LVTP-7) and AAVC-7s may enter from the map edge without being on board a transport ship. These units are considered to have disembarked off map. AAVP-7s may direct fire while waterborne. Passengers may not fire. AAVP-7s and AAVC-7s move at half of their normal movement rate while water-borne. Once on land, the AAVP/C functions as an APC. See Naval Transport Chart for capacity limits.

a. Command: The AAVP/C serve in dual roles. They may function as ship- to-shore transportation for USMC units or assigned as a transport/combat asset to a specific unit.

1. Tactical Transport: The AAVP/C units may be assigned USMC infantry units as an APC. When this occurs the AAVP/C receives orders from the USMC HQ units to which it is assigned. The AAVC HQ functions as a transport for the USMC HQ and may not spend operations points.

2. Ship-to-shore Transport: The AAVP/C units may also serve as ship-to-shore-transport. When used in this manner the AAVP/C HQ unit spends operations points for the transporting AAVPs only. Once the USMC units dismounts from the AAVP/Cs, the USMC HQ units may spend operations points only for the dismounted units and the AAVCs may spend operations points only for the AAVP/Cs units.



4. Helicopter Assault Ships:

The U.S. Navy operates several classes of amphibious assault ships that basically function as helicopter carriers. The Naval Transport chart specifies by type the aircraft capacity of these vessels.

5. Helicopter Operations: Helicopters may land and be carried by U. S. Navy LHA, LHD, and LPH ships. These ships may serve as logistic bases for all USMC helicopter units. Helicopters may land and mount or dismount passengers on the LSD-41 and LSD-50 class vessels. LSDs may not transport helicopters when not deployed (they move at a movement rate of 1 when deployed and may still conduct helicopter operations). LSDs may not serve as logistic bases for helicopters.

6. United States Marine Corps: The USMC is a highly trained, aggressive amphibious force. It consists of air and land units made up of M1A1 Abrams, AV8B Harrier II, and AH-1W Supercobra and AH-1Z Viper attack helicopters.

The USMC is a complex organization. The core organization for deployable Marine units is the MAGTF or Marine Air-Ground Task Force. The MAGTF varies in size from a reinforced battalion, MEU or Marine Expeditionary Unit, to a division size MEF or Marine Expeditionary Force. A MAGTF is composed of four sub-units; the Command Element (CE), the ground combat element (GCE), the aviation combat element (ACE) and the logistics combat element (LCE). A complete MEU, 22nd MEU (*GCE, ACE and LCE are drawn from the 2nd Marine Division*), is available with two more CEs for the 24th MEU and 26th MEU available. The 2nd Marine Division is provided from which to build the MEUs or MEFs from. The U.S. Navy amphibious assault ships are provided for the Atlantic Fleet for operations in the North Sea or Mediterranean.

a. GCE Operations: USMC ground units and U.S. Army units may be cross-attached but only as homogeneous units. For example, a USMC infantry company may be cross- attached to a U.S. Army armor battalion but the USMC company may not be further cross-attached. The company would fight as a whole company. USMC and US Army artillery batteries may be cross attached but the batteries may not be further subdivided.

b. ACE Operations: Only USMC helicopter units may base from an amphibious assault ship or draw supply from amphibious assault ships. USMC CAS may only provide CAS to USMC ground units or ground units subordinate to USMC Headquarters. See Rule 39: AV8B Harrier for operation of the USMC AV8B Harrier II. AV8B Harriers may use LHAs and LHDs for logistic base purposes.

c. LCE Operations: USMC MEU logistic units may only provide supply to units that are subordinate to a USMC MEU. Units may be resupplied via helicopter, LCAC, LCM and LCU from amphibious assault ships. U.S. Navy amphibious warfare ships may conduct 2 resupply operations. The total number of available logistical packages for resupply is dependent upon the number of combat units assigned to the ship; i.e. A USMC Battalion has 6 companies assigned to it. Therefore, the ship will have 6 tactical Log Pacs times 2 resupply operations for a total of 12 tactical Log Pacs available to resupply subordinate combat units. These log pac may be carried by helicopters (from ships capable of supporting heli-borne operations), or in trucks transported by LCAC/LCM/LCU landing craft.

7. Transport Log: Players may record transported units on the Transport Log if desired, instead of stacking large numbers of counters underneath the transporting assault vessel. Transport Logs are available in the Charts and Tables section.

Example below:

TRANSPORT LOG					
SHIP TYPE	UNIT	STEPS	SHIP TYPE	UNIT	STEPS
LHA-1	HMLA269	10 air			
LHA-1	1/8 bn	65 gr			
LHA-1	LCAC 1 LCAC 2	2 Nav			

VI. Advanced Operations

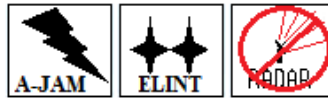
Rule 45: Electronic Warfare

Electronic warfare (EW) is designed to disrupt enemy command and control through disintegration of opposing communications networks through the jamming of signals. It also aids in intelligence gathering through radio interception and suppression of enemy air defense with radar jamming. The advent of frequency hopping communications equipment, such as the U. S. SINCGARS radios, in the late 80s and early 90s, has somewhat lessened the effects of electronic jamming of communications. Generally, Western equipment tends to be somewhat more sophisticated than Eastern-bloc.

Though there were many types of electronic warfare available to NATO and the WP; the focus here will be on tactical application of Active Jamming (A-JAM) and Electronic Intelligence (ELINT). EW units are identified by the Lightning Bolt symbol. EW occurs during all spotting attempt portions of Movement and Airmobile Reaction Phases.

A. Electronic Counter Measures

1. EW Units may not move and conduct Active Jamming or ELINT.
2. Once a unit moves, remove the A-JAM or ELINT marker.
3. An EW unit may conduct A-JAM or ELINT in a single game turn but not both.
4. Once an A-JAM marker or ELINT marker is placed on an EW unit, it cannot be changed until the next game turn.



5. Electronic Line of Sight (ELOS): ELOS differs from physical LOS in that electronic warfare is dependent on being able to “see” the target unit. ELOS is determined by fixed number of hexes in the forward arc of the unit conducting EW.

- a. Wood and urban strip hexes have no effect on the ELOS
- b. A-JAM is affected only by higher terrain which blocks the jamming signal (as with physical LOS); i.e. hill or mountain but not urban or city hexes.
- c. ELINT is affected by higher terrain including hills, mountains, and city hexes that blocks ELOS (as with physical LOS).

6. NATO Electronic Warfare Aircraft

a. Active Jamming: Active jamming takes place during all spotting attempt portions of the movement and airmobile phases.

1. **Procedure:** Place an A-JAM marker on the unit conducting jamming.

a. Any enemy HQ or TOC unit in the forward arc, and within an ELOS of 20 hexes of the aircraft, may only use operations points for units within 3 hexes.

b. Enemy radar equipped SAM units do not automatically detect aircraft within an ELOS of 14 hexes. Search may still be conducted for aircraft through normal spotting means. Place a JAMMED radar marker on affected radar equipped SAM units.

c. Jammed SAM units that were equipped with RADAR/IR missiles may still fire at aircraft, radar only missile SAM units may not fire.

b. Electronic Intelligence: ELINT takes place during all spotting attempt portions of the movement and airmobile phases.

1. Procedure: Place an ELINT marker on the unit conducting electronic intelligence gathering.

- a. The Phasing player designates the area that within the forward arc and ELOS of 12 hexes of the EH-60L conducting ELINT.
- b. The non-Phasing player must identify the location hex of any HQ or TOC unit within the area but does not reveal the unit.
- c. The EH-60L conducts spotting attempt using a -4 die roll modifier (this is to the die roll itself and not the base chance).
- d. The unit is only spotted and revealed on a successful spotting attempt.

7. Warsaw Pact Electronic Warfare Aircraft

a. Active Jamming: Active jamming takes place during all spotting attempt portions of the movement and airmobile phases.

1. Procedure: Place an A-JAM marker on the unit conducting jamming.

- a. Any enemy HQ or TOC unit in the forward arc, and within an ELOS of 15 hexes of the Mi-8PP, may only use operations points for units within 6 hexes.
- b. Enemy radar equipped SAM units do not automatically detect aircraft within an ELOS of 12 hexes. Search may still be conducted for aircraft through normal spotting means. Place a JAMMED radar marker on affected radar equipped SAM units.
- c. Jammed SAM units that were equipped with RADAR/IR missiles may still fire at aircraft, radar only missile SAM units may not fire.

b. Electronic Intelligence: ELINT takes place during all spotting attempt portions of the movement and airmobile phases.

1. Procedure: Place an ELINT marker on the unit conducting electronic intelligence gathering.

- a. The Phasing player designates the area that within the forward arc and ELOS of 10 hexes of the Mi-8PP conducting ELINT.
- b. The non-Phasing player must identify the location hex of any HQ or TOC unit within the area but does not reveal the unit.
- c. The Mi-8PP conducts spotting attempt using a -2 die roll modifier (this is to the die roll itself and not the base chance).
- d. The unit is only spotted and revealed on a successful spotting attempt.

B. Combat Electronic Warfare & Intelligence (CEWI): Ground-based EW

1. Ground-based ELOS: CEWI units have a more restricted ELOS than airborne units. CEWI units ELOS is in a 360° radius around the CEWI unit.

a. ELOS is blocked by all terrain as with physical LOS, except woods hexes which have no effect.

b. NATO CEWI (includes Swedish, Austrian units and Israeli units)

1. Active Jamming: Active jamming takes place during all spotting attempt portions of the movement and airmobile phases.

a. Procedure: Place an A-JAM marker on the unit conducting jamming.

- 1. Any enemy HQ or TOC unit within an ELOS of 15 hexes of the CEWI unit, may only use operations points for units within 2 hexes.

2. Enemy radar equipped SAM units do not automatically detect aircraft within an ELOS of 12 hexes. Search may still be conducted for aircraft through normal spotting means. Place a JAMMED radar marker on affected radar equipped SAM units.
 3. Jammed SAM units that were equipped with RADAR/IR missiles may still fire at aircraft, radar only missile SAM units may not fire.
 4. GSR equipped units within an ELOS of 12 hexes are jammed as in 2 above and may not electronically search.
- b. Electronic Intelligence:** ELINT takes place during all spotting attempt portions of the movement and airmobile phases.
1. **Procedure:** Place an ELINT marker on the unit conducting electronic intelligence gathering.
 - a. The Phasing player designates the area that within ELOS of 10 hexes of the CEWI unit conducting ELINT.
 - b. The non-Phasing player must identify the location hex of any HQ or TOC unit within the area but does not reveal the unit.
 - c. The CEWI unit conducts spotting attempt using a -2 die roll modifier (this is to the die roll itself and not the base chance).
 - d. The unit is only spotted and revealed on a successful spotting attempt.
- c. WP CEWI (includes Arab, Yugoslavian and Finnish CEWI units)**
1. **Active Jamming:** Active jamming takes place during all spotting attempt portions of the movement and airmobile phases.
 - a. **Procedure:** Place an A-JAM marker on the unit conducting jamming.
 1. Any enemy HQ or TOC unit within an ELOS of 15 hexes of the CEWI unit, may only use operations points for units within 6 hexes.
 2. Enemy radar equipped SAM units do not automatically detect aircraft within an ELOS of 12 hexes. Search may still be conducted for aircraft through normal spotting means. Place a JAMMED radar marker on affected radar equipped SAM units.
 3. Jammed SAM units that were equipped with RADAR/IR missiles may still fire at aircraft, radar only missile SAM units may not fire.
 4. GSR equipped units within an ELOS of 12 hexes are jammed as in 2 above and may not electronically search.
 - b. Electronic Intelligence:** ELINT takes place during all spotting attempt portions of the movement and airmobile phases.
 1. **Procedure:** Place an ELINT marker on the unit conducting electronic intelligence gathering.

- a. The Phasing player designates the area that within the forward arc and ELOS of 8 hexes of the **CEWI unit conducting ELINT.**
- b. The non-Phasing player must identify the location hex of any HQ or TOC unit within the area but does not reveal the unit.
- c. The CEWI unit conducts spotting attempt using a -1 die roll modifier (this is to the die roll itself and not the base chance).
- d. The unit is only spotted and revealed on a successful spotting attempt.

C. Electronic Counter Counter-Measures (ECCM)

Units conducting ECM warfare are vulnerable to detection by enemy ECM units that are conducting ELINT. Units that are marked with A-JAM markers conducting active jamming are automatically detected if within ELOS range as shown on the ECCM table below:

Detecting Unit	Detection Range
NATO Aircraft	16
NATO CEWI	12
WP Aircraft	12
WP CEWI	10

Detection must be within the forward arc of the detecting aircraft.

Duration and Effects

- a. Units that are being jammed are until the Spotting Attempt section of the Second Friendly Movement Phase of the next turn, regardless of what phase they were actually jammed. Remove the marker.
- b. Units that were spotted by ELINT remain spotted until they move from the spotted hex; however, units that are also under direct observation remain spotted as per normal spotting rules (*see Rule 9*).
- c. Spotted units are subject to indirect artillery fire or direct fire if a combat unit has direct LOS to the spotted unit. Artillery does not need an OP/FIST nor does the hex need to be under observation if the firing Artillery unit is enhanced (*see Rule 18.E.1.*).

Rule 46: Low Light Operations

While Assault assumes mostly daylight hours in combat, the truth is different. Most professional armies, are very good at operating in low light level environments and train extensively to do so. The Low Light system works best when using the unit status markers in the Neutral Marker page; i.e. laser, moving unit, direct fire, and missile fire markers.

A. Low Light Devices

There are 6 types of “night” vision that will be addressed, un-aided, star-light, white light, infrared, thermal (including FLIR), and low light level TV (LLTV). The Advanced capabilities spreadsheets list the optics available for each unit type.

- 1. Un-aided:** All units can use un-aided spotting; i.e. optics with no low light devices and eyesight, are very restricted in their low light level combat capabilities.
- 2. Star-light:** Star-light night vision devices, such as the U.S. AN/PVS-7B, uses the ambient light available to enhance the wearer’s night vision capability. These type devices are worn as headgear, attached to helmets or mounted on weaponry; i.e. rifles and machineguns.
- 3. White Light:** All Vehicle Units are equipped with white lights. Units using white light are automatically spotted by units with an LOS.
- 4. Infrared Light:** An improvement over white light, Infrared spotlights equip most Warsaw Pact vehicles up to the T-72. A major drawback to Infrared equipped units is that the Infrared light source is visible to all other devices except the un-aided eye and white light.
- 5. Thermal Imaging:** Low light level combat capabilities made great leaps when TI began showing up. Vehicles such as the M2 Bradley and the M1 Abrams lost very little in spotting and combat thanks to this system. In fact, thermals are used 24/7 in conjunction with the day sights. This type device also includes Vehicle, Aircraft and Helicopter FLIR (Forward Looking Infra-red) systems.
- 6. Low Light Level Television:** LLLTV equipped tanks like the M60A3. This type low light device actually had better thermal imaging system than the Abrams until the Abrams were upgraded in the 21st century.

B. Low Light Spotting

The spotting tables for daytime are replaced by Low Light Spotting Tables. These tables are organized by device type and range. Modifiers are applied as specified.

1. Procedure:

- a. Determine the unobstructed range to the target unit.
- b. Determine the base chance to spot using the Low Light Spotting Table by cross referencing the Low Light Device type with the range in hexes. All units may select un-aided spotting if desired and not use the assigned device. If the spotting unit uses White Light or Infrared Light, place the appropriate marker on the spotting unit. These markers, White Light and Infrared Light, remain on the unit until the end of the next Fire Phase.
- c. Check the target status and apply the appropriate modifier.
- d. Roll the Die.
- e. Apply the appropriate modifiers from the Low Light Spotting Roll Modifiers Table to the die roll. Modifiers are cumulative. A die roll equal to or less than the Base Chance results in the target unit being spotted.
- f. RADAR equipped units are not affected by Low Light conditions and may spot and conduct combat normally.

In the Soviet Fire phase, a Soviet T-62A with IR low light device attempts to spot a Belgian Leopard 1A5 that is in a clear hex under cover at a range of 6 hexes. The Leopard has fired at another unit. The base spotting chance is 5. The base chance is modified by +4 because the Leopard fired at another target. The modified Base Spotting chance is now 9.

Low Light Spotting Table

Low Light Device	Base Spotting Roll											
	Range in hexes											
	0	1	2	3	4	5	6	7	8	9	10	12
Un-aided	10	6	—	—	—	—	—	—	—	—	—	—
Starlight	10	8	6	5	—	—	—	—	—	—	—	—
White Light	10	10	10	6	5	—	—	—	—	—	—	—
Infrared	10	10	10	8	6	5	—	—	—	—	—	—
Thermal Imaging	10	10	10	10	10	8	6	5	4	4	3	—
Low Light Level TV	10	10	10	10	10	10	10	8	6	5	4	4

Un-aided Infrared
 Starlight Thermal Imaging
 White Light Low Light Level TV

CITV/TI modifier +2

Shtora Defense System Modifiers
+1 to Base Chance Roll on spotting attempt by targeted Soviet AFV against enemy units utilizing laser designators to spot or engage the targeted Soviet AFV
Shtora equipped AFVs
Soviet only: BMP3, BMD3, T-80s, T-90, T-90A

Target Status	
Moving	+2
Firing	+4

The Soviet player then rolls the die and rolls a 6. The Leopard is in clear terrain (-4) but is under cover (+2) for a modifier of -2 to the die roll. $6-2=4$. Since the modified base chance to spot is 9 and the final modified die roll is 4, the Leopard has been spotted by the T-62A.

Low Light Spotting Roll Modifiers

Target Type	CLEAR	WOODS	MARSH	TOWN	URBAN STRIP	① Cover	Used White Light	Used Infrared Light ②	Used Laser ②
H	+2	+1	+1	0	+1	+4	n/a	n/a	-2
P	-2	-1	-2	+3	+2	+3	n/a	n/a	-2
W	-3	-2	-2	+1	0	+2	n/a	n/a	-2
V/AFV	-4	-3	-3	-1	-2	+2	Auto	-4	-2

① Cover modifier applies to units in bunkers, entrenchments, hull down positions and cover.

② IR modifier only applies if spotting unit is using Starlight, Infrared, Thermal Imaging or Low Light Level TV (LLTV)

All modifiers are cumulative.

Radar-equipped units are not affected by Low Light conditions and spot as normal

C. Low Light Combat

Low light devices have an impact on combat. The Thermal and LLLTV systems allow the unit to engage targets almost as well as if daylight. These modifiers are applied in addition to other modifiers as specified on the Anti-Armor and Conventional/Indirect Fire tables.

1. Procedure: Determine the range that the combat takes place by cross referencing the range with the device type. The maximum range for the weapon system is dependent upon the Low Light Level Device being used and NOT the ammunition type. Engagement range is any range with an assigned Low Light Combat Modifier value. Now, find the appropriate base Hit for the Low Light Device selected. Apply all appropriate modifiers for combat.

a. For Anti-Armor combat apply the Low Light Combat value to the base Hit chance. Roll the die and apply the appropriate modifiers to determine if a hit occurs. Then check for penetration. Low Light Combat value ONLY affects the Base Hit Chance in Anti-Armor Combat.

b. For Conventional/Indirect fire apply the Low Light Combat value to the DIE ROLL.

- c. The use of FLARES and Ambient Light may affect the use of Low Light Combat Modifiers (See Rule 46.V.)
- d. Only Helicopters organically equipped with ATGM or have an ATGM as a weapons pod option may conduct Low Light Combat. These weapons systems use thermal imaging integrated into the weapons package.
- Air Defense units with a ** or † may conduct SAM or AAA attacks as normal. IR Seeker and Radar guidance weapons systems are not affected by lighting conditions.
- f. All Aircraft are considered to be equipped with a Thermal Imaging (FLIR) Laser Designating weapon system with the applicable Low Light Combat modifiers.

The Soviet T-62A, having spotted the Belgian Leopard 1A5, decides to engage the Leopard with a HEAT round at 6 hexes. Since the range of 6 hexes is within the IR low light device range, the T-62A has a -3 modifier to the Base Hit Chance

Low Light Combat Modifiers

Low Light Device	Base Hit Modifier											
	Range in hexes											
	0	1	2	3	4	5	6	7	8	9	10	12
Un-aided	-2	-3	-	-	-	-	-	-	-	-	-	-
Starlight	0	-1	-2	-3	-	-	-	-	-	-	-	-
White Light	0	0	0	0	-1	-	-	-	-	-	-	-
Infrared	0	0	0	0	-1	-2	-3	-	-	-	-	-
Thermal Imaging	0	0	0	0	0	0	0	0	0	0	0	0
Low Light Level TV	0	0	0	0	0	0	0	0	0	0	0	0

Apply to Die Roll for Base Chance to hit
Apply to Conventional Fire Die Roll

- Un-aided ● Infrared
 ● Starlight ● Thermal Imaging
 ○ White Light ● Low Light Level TV

The HEAT round has a base hit chance of 1 at 6 hexes. Applying the Low Light Combat modifier for Infrared of -3 brings the base chance to hit to -2; however, the base chance to hit can never be modified below 1 so the modified base chance to hit is 1. Since the Leopard is under cover this is multiplied by ½ and rounded up. The base chance to hit remains at 1. If the Soviet T-62A had used an AP round the Base Chance to Hit would also have been a modified 1.

Soviet Direct Fire Data Chart 2

Soviet Direct Fire Data Chart 2																		
Unit	Ammo	ROF	Range Effectiveness															Ammo Supply
			Range in hexes															
			0	1	2	3	4	6	8	10	12	14	16	18	20	22		
T-62A	AP (A)	1	8:18	9:18	8:17	7:17	5:17	3:16	2:15	1:14	—	—	—	—	—	—	—	4
	HEAT (A)	1	7:18	8:18	8:18	5:18	3:18	1:18	—	—	—	—	—	—	—	—	—	2

D. Low Light Movement

Low light level affects the movement capability of V/AFV class units. Units may choose to use Un- Aided movement, White Light movement or Aided movement. Un-aided movement is just that, the unit moves under black out conditions. White Light movement occurs when the unit uses headlights to illuminate the area in front of it. Aided Movement occurs when using a low light driving aid; i.e. infrared viewer for the driver. These type devices do not provide modifiers to spotting attempts.

1. Un-aided Movement: Units using unaided movement subtract -3 from their movement allowance. Movement allowance may not be reduced below 0 and all units may move at least 1 hex. All units may move at least 1 hex regardless.

2. White Light Movement: Units using white light movement move at normal movement allowance. A White Light marker is placed on the vehicle and may not be removed until the end

of the next Fire Phase. Units using White Light Movement suffer all the penalties associated with being the target of spotting attempts.

3. Aided Movement: NATO (including Sweden and Austria) units using aided movement subtract 1 from their movement allowance. Warsaw Pact (including Finland and Yugoslavia) units using aided movement subtract 2 from their movement allowance. Movement allowance may not be reduced below 0 and all units may move at least 1 hex. Only AFV/AIFVs may use Aided Movement. V class units may not use Aided Movement.

4. Helicopters: All helicopters are considered to use Aided Movement. Only Helicopters organically equipped with Thermal Imaging (FLIR) may engage in combat (See Advanced Capability Chart in Charts & Tables for listing). Helicopter Low Light Movement is a modification of the Maneuverability Rating. NATO helicopters add +1 to the Maneuverability Rating. Warsaw Pact Helicopters add +3 to their Maneuverability Rating.

5. Aircraft: Aircraft add +1 to their altitude value; i.e. Attack Aircraft fly at 2 levels above the terrain in low light conditions instead of 1 level.

E. Artificial Light


Artificial light sources, such as flares, are used to provide short term illumination to a small area. Flares can either be of the handheld type, trip-flares or the artillery deployed type. Ambient light would be that light produced by a full or half-moon. Ambient Light mainly affects those units equipped with un-aided, starlight, white light and infrared light; providing the latter two with an option of not using the equipment but relying on un-aided spotting.



1. TRIP **Trip Flares:** These flares are generally emplaced prior to the start of play. Each infantry or engineer “P” class unit may emplace 1 trip flare in any hex (except all-water hexes) within a 1 hex range. Record the location of a Trip flare on the Engineering Log-sheet as if it were an engineering action. Trip flare markers are placed as soon as an enemy unit enters the hex during a movement phase. Trip flares illuminate the hex that they are placed in. All spotting attempts in this hex are conducted as if under daylight conditions and normal spotting rules apply. Remove the Trip Flare marker at the end of the next Fire Phase.


2. Hand-launched Flares (HLF): These type flares are hand-held/launched, (think supersize Roman candle). Each “P” class unit has 2 hand-launched flare available per game. Record the use of a HLF as if it were a round of ammunition. HLF is a movement oriented action but does NOT require Operation Point expenditure. A “P” class unit may use a HLF in any Movement Phase regardless of who the phasing player is.




- a. Place a  marker 2 hexes from the firing unit in the designated hex.
- b. Spotting may occur in the hex and within a 1 hex radius from the flare marker as if under daylight conditions; normal spotting rules apply.
- c. At the END of the next Fire Phase remove the flare marker.

3. Artillery Emplaced Flares (AEF): These flares are launched from field artillery and mortars. They have a longer duration than hand launched flares and are affected by wind. See the Indirect Fire Data charts for availability of flares. Some small caliber mortars (U.S. M224 60mm Mortar) have flares in the ammunition section of the Direct Fire Data Charts.



- a. Record the Flare Mission just as you would any Indirect Fire Mission (exception: Enhanced SPG {Rule 18.E.1.} and direct fire mortar, both of which may fire and place the flare in any eligible Fire Phase); do NOT place a fire mission marker.

- b. On execution of the fire mission, place a  marker in the designated hex.
- c. Spotting may occur in the hex and within a 2 hex radius from the flare marker as if under daylight conditions; normal spotting rules apply.

- d. At the end of the next Fire Phase replace the flare marker with a  marker; if there is a moderate wind move the marker 1 hex in the wind direction. If there is a strong wind move the marker 2 hexes in the wind direction.
- e. Spotting may occur in the newly illuminated hex and within a 1 hex radius from the flare marker as if under daylight conditions; normal spotting rules apply.
- f. At the end of the next Fire Phase remove the flare marker.

4. Flares and Combat: If a unit is spotted by a spotting attempt that used flare illumination and the flare marker is still in place, combat may occur as if in daylight conditions with no Low Light Combat modifiers applied.

F. Ambient Light

At the setup determine the level of Ambient Light available after determining the weather status. Ambient Light will only be available in clear weather. Roll the die and cross reference for the available light on the Ambient Light Table. Place a  Full Moon marker or a  Half Moon marker anywhere on the map as a player aid.

Natural Light Table

Full Moon	Half Moon	None
1-5	6-8	9-10

1. If the result is a Full Moon subtract -2 from all spotting attempt die rolls
2. If the result is a Full Moon Low Light Combat modifiers are halved (round up)
3. If the result is a Half Moon subtract -1 from all spotting attempt die rolls.
4. Units using Un-Aided and Aided movement have +1 added to their movement allowance in addition to the modifiers required by *Low Light Movement (Rule 46. IV)*.

G. Imaging Equipment

Imaging Equipment is specified for units on the Unit Data Cards. CITV and Thermal Imagery are explained in Rule 9 Spotting and Low Light equipment is explained in Rule 46. This section will explain the quick reference system. The Advanced Capabilities Spreadsheets have specific optic type equipment identified in the OPTICS section.

APPENDIX A. SEQUENCE OF PLAY

ROLL FOR AIR SUPERIORITY

Deploy units

FIRST MOVEMENT PHASE

Record Artillery missions (Both Players)
Declare TOC action for turn
Allocate Ops points
Attempt to rally broken/shaken/suppressed units
Perform logistics operations (1. Resupply; 2.MRO)
Determine Low Light Movement Type and place markers as needed
Change formations and Move units/Remove fatigue markers as necessary
Conduct Engineering operations/Place Trip Flares as needed
Attempt to spot; Conduct EW warfare, Launch Hand Held Flares;
Resolve close assault and check morale

AIRMOBILE PHASE (NON-PHASING PLAYER)

Roll for Airdrop/LAPES availability Conduct Air-drops and LAPES; Allocate ops points for helicopters
Attempt to rally broken/shaken/suppressed helicopters
Change formation
Move helicopters and resolve ADA fire, check morale
Attempt to spot; Conduct EW warfare, Place Low Light markers
Resolve close assaults involving helicopters

AIR PHASE

CAS ingress to targets
(Resolve ADA opportunity fire on moving aircraft) Direct fire on jet aircraft by Target Units
Resolve airstrikes
CAS conduct egress movement
(Resolve ADA opportunity fire on moving aircraft)

FIRE PHASE

Adjust smoke markers/Adjust Artillery Launched Flare markers
Declare all AT missile fire
Attempt to spot units firing AT missiles
Resolve indirect fire/Counterbattery/C-RAM/Place Artillery launched Flares/On-call Fire Missions (Both Players)
Resolve all fires, apply results simultaneously
Check morale
Attempt to spot firing units;
Conduct EW warfare
Remove all Low Light and Flare markers as required

2nd PHASING PLAYER MOVEMENT PHASE

Same as 1st phase plus reduce accumulated ops points by 2 for each eliminated TOC Rally Airdrop-LAPES units suppressed from last friendly Air-mobile phase

REPEAT ALL STEPS FOR NON_PHASING PLAYER (Completes Turn)