

## Airland War Supplement

Version 2.02

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#### Sequence of Play - Outline

- A. TACTICAL ORDERS PHASE
- B. COMMUNICATIONS PHASE
- C. MOVEMENT PHASE
  - 1. Aircraft/Helicopter / Infantry First Movement Segment.
  - 2. AFV Close-up / Unbutton Segment
  - 3. AFV Full Movement Segment
  - 4. AFV Half Movement Segment
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  - 6. Aircraft / Helicopter/ Infantry Second Movement Segment
- D. SIGHTING PHASE (Primary)
- E. COMBAT PHASE
  - 1. Stationary Fire Segment
  - 2. Shift Movement Fire / Old Artillery Segment (2a. Auto Sighting of First Firing Elements Seg.)
  - 3. Half Movement Fire Segment
  - 4. Full Movement Fire Segment
  - 5. Close Assault / New Artillery Segment
- F. SIGHTING FIRING ELEMENT PHASE (Final)
- E. BATTLEFIELD MORALE PHASE
- H. MISCELLANEOUS DETAILS PHASE

## 1.0 Ranging Devices

**1.1 Ranging Machineguns and Spotting Rifles.** Some AFVs were equipped with ranging MGs. Other guns or recoilless rifles are equipped with .50 cal spotting rifles. These were mounted alongside the main gun. The maximum range for use is 1200 meters (600 GSU).

**1.1.** As this is rated as an 'ac' weapon thus it can be fired at first sight at targets at any range (up to 600 in this case).

**1.2.** It is considered to be co-aligned with the main gun. Thus firing at a target is considered to be the 'first shot' at that target. Should it actually hit a stationary target the target is considered to be 'acquired'. The drawback is that it must be used in a fire segment prior to firing the main gun. This can either be in a previous turn or a previous fire segment of the current turn. Another drawback is that when firing the weapon is considered to be sighted as if it were firing small arms. (Though its killpower at 30 is 0 that should help.)

**1.3.** The to-hit number is the same as the .50 cal mg.

**1.4.** There is no killpower attributed to this weapon.

**1.5. Laser Rangefinder.** Targeting an enemy with a laser rangefinder is somewhat similar to that of a ranging machinegun except it does not miss the target and the maximum range is the maximum sighting range.

**1.6.** A laser can be fired at first sight at targets at any range (up to the maximum sighting range in this case).

**1.7.** It is considered co-aligned with the main gun. Thus this is considered the 'first shot' at a target, provided it is used prior to the fire segment the gun is fired in. Should the target be stationary the target is considered to be 'acquired'.

**1.8.** Lasers are affected by fog, rain, and sand storms. The maximum range being 300 in these cases.

**1.9.** Some newer model vehicles have laser detectors. If one of these is being ranged, then the owning player is told that he is being ranged. He doesn't know where it is but may be told the quadrant of the tank that is being ranged. In which case it may be possible for the vehicle to try to evade or fire a smoke screen.

### 1.10 Enhanced sighting Devices.

Sighting was enhanced by several new devices.

**1.11.** Active IR - starting 1950s. These consisted of an infrared search light along with sights. These increased the maximum night sighting range up to 150. Warm objects are sighted as in normal daylight at night up to this range. The IR searchlight can be spotted by other IR equipped troops up to 300 away.

**1.12.** Passive Night vision - starting 1965. Light enhancing devices that do not give themselves away to the enemy. These increased the sighting maximum range

to 200. Objects up to that range are sighted at normal daylight sighting ranges.

**1.12.1.** Vehicle mounted passive night vision units can sight as daylight up to 500 away.

**1.12.2.** Large tripod artillery observer passive night vision units can sight as daylight up to 1000.

All the previous units could not see through fog, smoke or haze.

**1.12.3.** In the late 1990s infantry squads were able to use small night vision head sights that could see as daylight up to 1000.

**1.13.** Thermal Image intensifier (sometimes known as FLIR forward looking infrared) - starting around 1973. These could see through most smokes, fog or hazes. But they can not see tracers or power wires. A separate sighting calculation row is used on the Sighting Calculator for vehicle mounted FLIR.

**1.13.1.** Into the 1980 and 1990s some infantry weapon elements (ATGMs) were able to field their own FLIR. As these still needed to be cooled to work they are bulky.

**1.13.2.** Helicopters also were fitted with FLIR controlled weapon systems, however this still had the limitation that it could not detect power line wires nor tracer fire. So Passive Night vision had to be used by the pilots to avoid these at night.

**1.13.3.** Light ambient air temperature FLIR is the goal in the 21<sup>st</sup> Century. In 2006 some infantry OP elements are being equipped with these. They are man portable but still need a tripod or to be rested on something. These sight at night using the Thermal sighting rows.

**1.13.4.** It is expected that in the 21<sup>st</sup> Century light normal temperature FLIR units will become common place. Infantry squads may have their own FLIR headsets.

**1.14.** Active IR and Thermals (FLIR) have an added advantage that at night visual camouflage does not work on them. So this adjustment is ignored when tallying adjustments for the Sighting Calculator.

**2. Stabilized Guns.** AFV guns have four classes of stabilization, x0, x1, x2, and x3. 'x0' being no stabilization whatsoever. Most WWII tanks were x0 and so this is not shown of their tables.

**2.1. x1** – One axis/plane stabilization. We saw some of this as early as WWII. This does help somewhat as shift moving vehicles are now only +1 to-hit instead of the usual +2 of an x0 vehicle.

**2.2. x2** – Two axis/plane stabilization. Vehicle has no firing penalty when shifting and is considered stationary then for all firing purposes (to-hit modifier, fire segment) when shifting. All other to-hit moving penalties are reduced by 1. If moving full the vehicle is not reduced to a ROF rate of '1' but has its ROF reduced by half rounded up. But must still only fire in Fire Segment 4.

**2.3. x3 – Three-axis/plane stabilization.** Vehicle has no firing penalty when shifting and is considered stationary then for all firing purposes (to-hit modifier, fire segment) when shifting. All other 'to-hit' moving penalties are reduced by 2.

**2.3.1.** If moving half, the x3 vehicle may fire at full ROF at its end position (at targets previously sighted) in fire segment 2 and again in fire segment 3 at full ROF.

**2.3.2.** If moving full the x3 vehicle may fire in fire segment 2 from its movement midpoint and again at its final position in segment 4. (If may be helpful to mark its midway point with some sort of marker to see where it fires from.) The vehicle may fire once (with no multiple hits) from its midpoint position. Then may fire at full ROF at its end position.

### 3. ATGM, anti-tank guided missiles.

These weapons behave somewhat different than direct gun fire weapons. The basic difference in the behavior is that often the ATGM weapon is fired in one fire segment and attacks the target in a later fire segment. Usually the ATGM will be launched 'fired' in fire segment 1 (as it should be stationary). However, if the target is at a significant range the actual attack could come in segment 2, 3 or even 4. In these cases the missile launcher/controller must remain intact in order to steer the missile to its target.

**3.1.** Most to-hit modifiers are the same for ATGMs. There are some to-hit modifiers that do not apply to ATGMs.

**3.1.1.** There are no acquired targets with ATGMs.

**3.1.2.** There is no first shot beyond 300 or any first shot penalties.

**3.1.3.** Firing into or through woods or buildings the to-hit penalties are doubled. This is mainly because of tree limbs or wires tangling the control wires or pre-detonating the missile.

**3.1.4.** There are no multiple hits with an ATGM. Each launch is one missile. But if there are ready racks of missiles the same launcher may launch missiles in up to two segments in a turn.

**3.2.** The missile controller must be stable to control the missile in flight. This usually means the controller must remain stationary during the flight of the missile.

**3.3.** To fire an ATGM the launcher must announce in the fire segment the missile fires that it is being fired. In addition a launcher marker or some other indicator (small puff of cotton) is placed at the launch position. As per sighting the sighting will either take place in the segment of the Combat phase called 2.1 Auto Sighting of First Firing Elements Segment and ATGMs, or the Final Sighting Phase F. Only if sighted in segment 2.1 can fire be directed on the missile launcher to prevent its' attack.

**3.4.** The puff of smoke is a launch signature and enemy elements may be able to sight this and react to it. Auto-cannons and machineguns at any range may react to a signature, as well as other weapons within first sight reaction range.

#### Example:

Turn 1 – A M2 Bradley is stationary hulldown watching across a broad plain 2000GSU across. Appearing from a depression come three T72As. The T72As end their movement at 1850 GSUs away.

The M2 rolls to sight the T-72As and the T-72As moving open fail to sight the hulldown M2.

The M2 cannot fire its ATGM in turn 1 as the distance is beyond the first sight reaction distance (450). It could potentially fire its auto-cannon but it probably is out of effective range at this point.

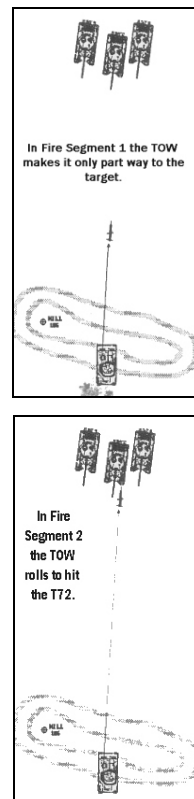
Turn 2 - The T72s have continued to move forward from their last position to finish the turn at 1615 away. Checking the flight characteristics of the Tow2 missile it is found that it is beyond the minimum range of the weapon (50) and beyond 1025 it takes two fire segments to reach the target. Which is actually good since the to-hit number goes down to '1'. They are under maximum range of 1850.

**Turn 2/Fire Segment 1** - A fire marker is placed behind the M2 to indicate it fires. The missile at this time is said to be in flight. No other firing takes place in fire Segment 1 as nothing has yet seen the Bradley.

**Turn 2/Fire Segment 2** - The missile 'attacks'. The basic to-hit number is '1' plus the target moved (+1) and moved beyond 600 away (+1 additionally). Thus it is a '3' or better to hit. The die roll made and it is a '5' – a hit. The missile is a HEAT warhead which penetrates a maximum of 80. The T-72A is hit in location '5' the front hull. The armor is 42s<sup>46</sup> there. The penetration will be compared to the spaced armor basis of 46. A D6 roll of a '3' to penetrate underlined (but spaced armor) results in 'Maximum – 6\*\*'. (Where \*\* means the shell penetrates at most  $\frac{3}{4}$  of its maximum of 80.) The modified penetration is 60. 60 is equal or greater than the spaced armor value of 46 thus it is a penetration.

**Roll for damage:** Roll one D10 for fire/explosion and one D10 for mobility loss. The fire explosion roll is a '6' which is greater than the 4 needed to catch the T-72 on fire so the T-72A is destroyed and the tank brews up. But only a '3' would be really be need to cause a fire because of the '+1f' notation of the T-72A. (This means add 1 to the D10 fire dice vs. this tank.)

**Note** - Using the optional realistic firing rules the T72 would have to be attacked at its midway travel point if attacked in fire segment 1 or 2 thus it should be hit when it is about 1730 GSUs away.



**Fire Segment 3.** The Bradley has a second ready TOW. It can fire this segment 3. The Bradley is marked again with a fire marker as it fires at another T-72. The TOW will again takes 2 fire segments to arrive on target it attacks in fire segment 4.

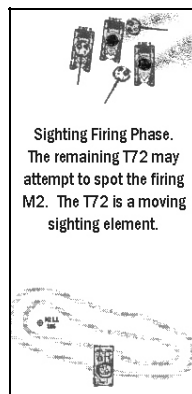
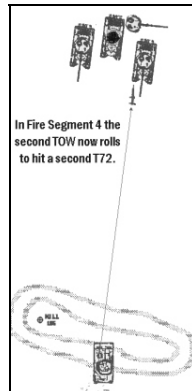
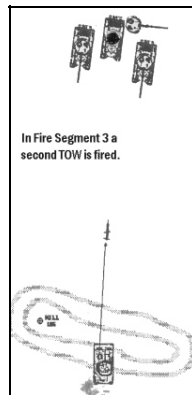
**Fire Segment 4** -The to-hit number is 4 at range 1615 and a '9' is rolled. The Location die roll is '7' on this second T72. This is the turret which has a rating of 45s<sup>55</sup>. The armor vs. HEAT is 55 in this case. A D6 roll of '2' is made. This is '¾ maximum' or ¾ x 80 = 60 again. This still penetrates and the vehicle damage is rolled resulting in another destroyed T-72B.

**Sighting Firing Phase** - In this Sighting Fire phase the remaining T-72 (and any overwatching enemy elements) can try to sight the M2.

**Turn 3.** The Bradley now has to reload its missile racks. This takes one full non-moving turn. It probably should go full turret down behind the crest of the hill. If it can get full defilade with 1/8 move a halted T-72 would not get a shot off at it. If not and the T-72 has spotted the Bradley the T-72 might remain stationary and fire on the M2 and would get a disappearing shot on it in Turn 3/Segment 1.

**3.5.** In the above example it took only two segments for the missile to travel to its target. In some cases it may take 3 segments to reach the target. Missiles must reach their target by the final fire segment. There is no carry over movement from turn to turn.

**3.6.** Some ATGMs can be controlled by an operator that is displaced from the launcher. Older wire-guided ATGMs can have their controller up to 50 from the launcher. Some modern ATGMs can use a laser designator to target the missile and be kilometers away from the launcher. In these cases the firer must make a



successful radio contact roll to the launcher to get it to launch missiles. This is done in the Communications phase of a turn.

**3.7.** When an ATGM launcher rolls a '1' to-hit it may jam. If the second backup roll of a D10 then a 1, 2 or 3 the weapon has malfunctioned or out of missiles and is permanently out of play for the remainder of the game.

**3.8.** Unlike most other weapons players must count the number of ATGM rounds available and subtract one from this number each time one is fired. Once the number of ATGMs reaches zero the launcher element may no longer fire. If the launcher is a ground vehicle there may be other missiles stored inside the vehicle. A load time for vehicles will determine the length of time needed to reload the launcher. Helicopters must return to base to reload their launcher.

**4.0 The Variable Penetrations charts** change somewhat from WWII tables.

Because of the larger ranges of penetration values in modern weapons some changes have to be incurred.

**5.0. HESH** - These rounds were popular during the 60s and 70s as they could damage through some of the thickest armor. This shell contained a soft plastic or putty-like explosive warhead that was fired with much the same accuracy of a HEAT or HE round. When hitting the shell would squash the explosive on the tank and a moment later it would detonate. The explosion would generate a compression wave that would transmit the force into the armor and spall off the inner side of the armor breaking off chunks of armor to the peril of the crew and tank. Spaced or composite armor greatly reduces the effect of the HESH shell.

**5.1.** While the shell may not penetrate a thickness of armor it will automatically effect up to a certain thickness of armor with damage. Multiples of this thickness reduces the effect. The thickness is listed in italics. The Damage and Stun effect follows to the right.

**5.2.** Spaced armor reduces the effectiveness of this

Pen.	12	D	S	24	D	S	32	D	S	48	D	S
Range	all	4	7	all	6	8	all	8	9	all	10	10

105mm HESH Penetration and Damage

round. The HESH armor penetration is always compared to the spaced armor value. In addition add 2 to the D number if the HESH round strikes a spaced armor facing.

**Example:** A 105mm HESH round has struck the hull of a tank at a location that has an armor value of 24s<sup>30</sup>. The armor value that must be tested against is the spaced value (s<sup>30</sup>). If the armor was up to 12cm the damage factor (D) would be 4. If the armor was up to 24 the damage would be '6'. The spaced armor being up to 36 the damage would be '8'. But as the armor is spaced this adds +2 to 8 giving 10 as the Damage number.

Meaning roll one D10 for fire-explosion and one D10 for mobility loss. Only on a 10 or better will the tank suffer the damage. The stun ('S') roll is not adjusted by +2 so this is compared to the 30 spaced value. Thus a roll of 9 or more stuns the tank.

**5.3.** Hits on front locations 9 and 10 of the turret can destroy the main gun and coaxial MG if it penetrates the gun tube. This has an armor equivalent of ½ x the main gun caliber. This does not require the penetration of the turret armor.

**6.0. Helicopters.** Helicopter movement is allowed in two phases. The end point of the first phase of movement becomes the midpoint of the complete turns movement. This point should be marked if the helicopter is going to fire in its turn.

**6.1.** Helicopters may not change their speed more than ½ of their base movement per phase.

**6.1.1.** Helicopters moving full in one phase may not move less than ½ speed in the following phase.

**6.1.3.** Helicopters hovering or shift moving may in one phase may not move more than ½ movement in the next phase.

**6.1.3.** Helicopters moving ½ in one phase may in the next phase hover at a halt or they may even increase their speed to full in the following.

**6.2.** Helicopters are rated for their avionics. This is similar to tank stabilization. With avionic factors of A0, A1, A2, A3 correspond to something like that of tank gun stabilization.

**6.2.1.** Avionics rated as A4 are stabilized like A3 but the helicopter is all weather day/night capable.

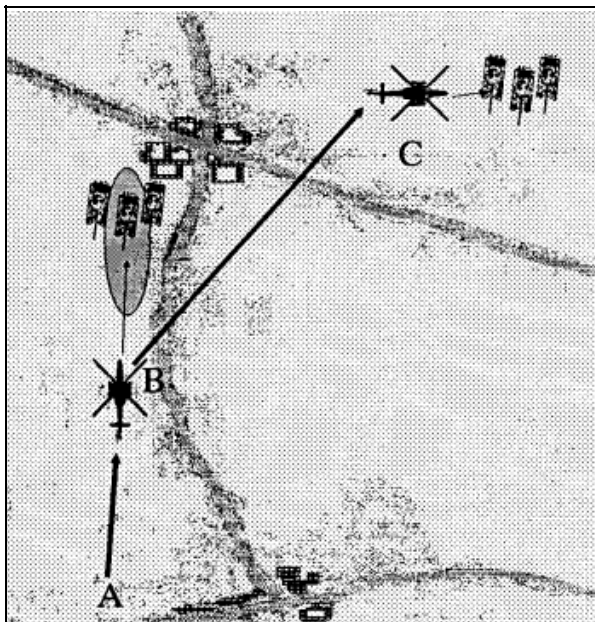
**6.2.3.** Helicopters may move at four altitudes. The may move at medium altitude, low altitude or very low altitude (contour) and nape-of-the-earth. Very low altitude flight can take advantage of terrain features like hills, ridges or deep canyons. Nape-of-the-earth height (NOE) can take advantage of terrain as contour flight in addition it can take cover from large trees and buildings.

**6.2.4.** Helicopters will be rated as to their flying speed based on altitude they are fly at.

**6.3.** Helicopter movement at certain altitudes requires avionics which is somewhat like X3 (2.3) movement for fully stabilized AFVs. The movement in the phase is considered when computing to-hits for firing.

**6.3.1.** A helicopter may hover or make a shift like movement while it fires an ATGM. It may not move more than a shift movement while it controls an ATGM. Some ATGMs are fire and forget and some are fired but controlled by other elements. Since it sometimes takes an ATGM more than one fire segment to reach its target the helicopter must remain in position the length of time. Like a ground mounted ATGM armed vehicle a helicopter may fire up to two ATGMs per turn if there are enough fire segments for both to reach their targets.

**6.3.2.** A helicopter may hover in part of its turn in order to fire weapons and then move later in the turn. In this maneuver it must mark its position at the end of the first phase of movement with a pin or marker. If firing an ATGM that takes two or less fire segments to reach a target the helicopter is considered to be at the marker for



Apache with A3 avionics starts its movement at point A. It moves to point B in the first movement segment. This point is marked. Then in the second movement segment it moves to point C. In fire segment 2 it fires two pods of rockets at tanks in shaded area. In fire segment 4 it strafes with its auto-cannon at tanks from C.

the first half of the turn. In the second half it is considered to be at or moving to its final end point.

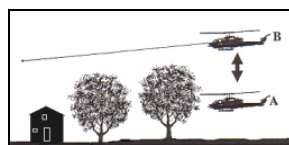
**6.3.3.** In this manner a helicopter may fire once while hovering and then evade by moving behind cover.

**6.3.4.** If the ATGM controller is the helicopter then the target must be in sight of the helicopter in order to be hit.

**6.4. Pop-up.** Various special sighting maneuvers can be done using abilities. Maneuvers like the *pop-up peek* or *pop-up fire* are easily done.

**6.4.1.** The helicopter moves from a hide position to a position from which it can see over intervening terrain or obstacles. It ends its first movement segment here and marks the spot with a marker of some ind. The next aircraft movement phase of the same turn it moves back to its hide position.

**6.4.2.** The helicopter can sight from its end position as normal but it must do it using 'auto-sight' method. Since the usual auto-sight range is 25% of the normal sighting range this is fairly limited. The helicopter lingering around longer could be a target. In fact the helicopter



Cobra begins its turn at A. In movement phase of 1 it moves to B. It auto-sights from B. It then moves back to end the turn at A. During firing phase 2 it may fire its auto-guns one time from position B.

itself becomes a moving target and is itself auto-sight able. It could even be a target from auto-cannon fire in Fire Segment 3 in a pop-up situation.

**6.4.3.** The helicopter may fire auto-cannons at sighted enemy elements when making a pop-up maneuver if it has A3 or better avionics. The range is from the marked pop-up position. The helicopter then can either disappear and pop-down and not fire again. Or move or remain hovering and fire a second time from that position.

**6.4.4.** A helicopter could fire an ATGM after popping up if it remained hovering the remainder of the turn and as long as it only takes two or less segments for the missile to reach its target.

**6.4.5.** If the helicopter hovers to where it can see over terrain or obstacles at the end or the beginning or a turn it can sight at full normal distances.

**6.5.** A far better way to fire missiles while hidden is to have a mast mounted sight on the helicopter and look over the intervening terrain without exposing the body of the helicopter. In this the helicopter can sight at its leisure a turn ahead of firing its ATGMs. In this case the distance and sighting measure is from the top of the rotor.

**6.6.** Another way to direct ATGM fire is to guide the missile from a remote designator. In this case, like a ground launcher, the designator must communicate with the launcher (helicopter) to direct it to fire. The laser designator must trace a direct line to the target for the time the missile is launched until it attacks the target.

**6.7. Strafing - Helicopter** may attack using auto-cannons or rockets. Helicopters with A2 or better avionics may make up to two strafe attacks per turn. Those with less avionics may make one. Strafing is done from low or very low levels.

**6.6.1.** For strafing from very low level add +3 to the location hit on a target AFV. Location 13 is a **turret top** hit, while locations 11 and 12 are **deck top** hits. Other locations are what they are per the normal **Damage Location** table. Roll penetration and damage are per a normal shell hit.

**6.6.2.** For firing from **low level** use the **AFV Hit Locations From Low Aircraft** table to determine hit locations.

**6.6.3.** If scoring multiple hits on a target one hit may be applied per gun to each target in flight path line from the first target up to 200 for very low and 100 for low.

**6.6.4. Firing Rockets -** A helicopter armed with rockets may fire them at a target that it sighted per auto-sight along its path or in previous turns. Rockets may only be fired from low or very low levels. Rockets are fired from

a spot 200 from the target using the same procedure as firing machineguns and auto-cannons. Rockets must be fired in pairs but can be fired all in one pass or in a series of passes.

Because unguided rockets are pretty inaccurate they have both a direct fire effect and an area fire effect.

**6.6.5. Rockets To-Hit** - The base number to hit with a rocket is 10. Roll once per rocket. The modifiers to this are found on the **To Hit - Aircraft Rockets** table.

Any rocket that misses its primary target may hit secondary targets in an area 30 wide and 80 long centered on the primary target. Roll to hit each vehicle in this area, subtracting one roll per previous hit vehicle.

**6.6.6. Rockets as HE** All HE or HEAT rockets have an HE area effect. Roll as per HE attack for targets in an area 30 wide and 80 long for rockets up to 100mm diameter and 50 wide x 100GSU long for rockets 100mm diameter. Roll 1 D10 per 4 rockets.

**6.7 Anti-Aircraft (AA) fire** - In order to fire AA fire at a helicopter or fixed wing aircraft, the firing element must not have fired during the game turn. Firing AA at aircraft place after all ground firing and may take place before or after a ground attack. The firing element may pick a spot along the craft's path to fire at the plane. If the firing is done before the craft attacks, it is taken care of and the results applied before the plane attacks the ground target. Otherwise, it is taken care of and the effects are applied after the ground attack.

**6.8.** An element which has its LOS blocked by smoke or woods\* cannot fire at an aircraft

\*Winter combat in deciduous woods do not block sighting from and to airplanes.

**6.9.** To fire at any type of aircraft, look up the type of gun being fired. Measure the range to the target and take into account the altitude of the target. After the range and altitude are cross-referenced and the % number is found, decimal dice are rolled to determine if there is hit or not. Roll one % dice attack either by the number of gun barrel total of the attacking AA element.

**6.9.1.** AA guns must be set up in order to fire Anti-Aircraft fire. While these are moving they cannot fire effectively unless mounted on trains or ships.

**6.9.2.** Auto cannons and machine guns can fire AA from moving tracked or wheeled vehicles but the percent chance to hit is halved.

**6.9.3.** Guns, machine guns and auto cannons may fire from moving trains or boats but the chance to hit is reduced by 1/4. (75% of the basic %.)

**6.9.4.** If a hit is scored then damage is done to the plane. The damage is the Attack number. This number can be less. Roll a **D6** as per the **Aircraft Variable Attack** table. Subtract this adjusted number from the aircraft Defense factor. Do not round off. Keep all fractions as they add up too.

**6.9.5.** If the Defense factor is reduced to zero or less the aircraft is destroyed.

**6.9.5.** If the damage accumulated by the aircraft is equal to or more than half the Defense factor roll one time on the Critical Hit table.

**6.9.6.** If the damage accumulated by the aircraft is equal to or more than 3/4 the Defense factor roll a second time on the Critical Hit table.

**6.9.7.** All damage to an aircraft is permanent and cumulative. Each time an aircraft is hit more and more damage is done until the aircraft leaves the game or is destroyed.

**6.9.8. Evasion of Anti-aircraft Fire.** When attempting to hit an aircraft and the D100 roll is equal to or less than double the % number the attacking aircraft must make an evasive attack that turn if they decide to attack. If the point of attack is at a point after the aircraft's current turns attack then the aircraft must make evasive attack the following turn if the attack point is within 500 of the current attack point.