14. HIT / MISS DETERMINATION

Briefing

1. Hit/miss determination is the procedure used to determine if a target is hit when a weapon fires. This rule is the core of the game in many ways, since hits determine which units can be damaged and destroyed.

2. Overall process:

- Choose a target for the piece that is firing its weapon. If the piece is firing a weapon with an effect area, choose and mark the target point for the weapon.
- Make a detection check to ensure that the piece can see the target.
- Determine the range to the target.
- Use the Hit/Miss Determination Chart, adding the applicable factors to determine the die roll needed to hit the target.
- Roll a ten-sided die to determine if a hit is made.
- If a hit is made, the next steps will be to determine if the target's armor is penetrated and the damage that results.
- If the weapon has an effect area, center the effect area over the target point. Perform penetration checks and damage evaluation for all pieces in the effect area.
- If the weapon misses and has an effect area, determine the hit location of the miss. (Refer to Rule 15. Hit Location of Misses for the procedure.) If any pieces are affected determine if their armor is penetrated and the damage that results.

If a piece has more than one weapon, the process is repeated for the next weapon.

3. This procedure is used for all **direct fire**: shooting or releasing a weapon directly at an observed target. This type of fire is used by all weapons except artillery pieces that are utilizing indirect fire.

Hit/miss determination

1. The process starts with a base number of **10**. Conditions that affect the accuracy of the fire are factored as numbers, which are added to or subtracted from the base number to arrive at a total.

a. The total is the chance to successfully hit the target.

b. A ten-sided die is then rolled; if the number rolled **is less than or equal to** the total the target is hit.

For example, if the number needed to hit the target is 7, the player must roll a 7 or less.

3. Each point represents a 10% chance. Thus a total of 6 points represents a 60% chance to hit the target.

4. A player may not have a piece fire at a target when the die roll needed to hit is 0 or less.

Maximum chance to hit a target

1. Because of life-form, electronic and mechanical error **the maximum chance to hit a target is 90%** no matter how high the total arrived at above. A player must roll a 9 or less for a hit. A 10 is automatically a miss.

2. This rule represents the effect of intangible factors that cannot be captured on a wargame table: the perspiration fogging the eyepiece of the laser cannon, the tension of being shot at too many times, the dust and smoke drifting across the battlefield, the heat haze rising from pavement baking in the sun.

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3. Players are free to make exceptions to this rule when circumstances seem to warrant, as in the case where a piece is firing at point blank range under ideal circumstances, and a miss results.

4. Players should decide whether they will make exceptions to this rule before the game begins, if possible, rather than when a questionable situation arises. If both players do not agree to make exceptions the rule should stand as given above.

Sighting

1. For direct fire a piece must have a straight, unobstructed line of sight to the target. The piece does not have to be able to see the entire target. Hit/miss factors are applied to reduce the chance of hitting the target when only a portion of it is in sight, as explained in the section on target concealment below.

2. Generally, an infantryman can see everything within a 180-degree arc to his front. A trooper is assumed to be facing in the direction his eyes are facing, no matter which way his weapon is pointing.

3. For gun crews and weapon teams, the facing is considered to be the direction in which the weapon is pointing.

4. For vehicle weapons, the facing is considered to be the direction in which the weapon is pointing. (In cases where the weapons on models are fixed in place and cannot be moved, the players may indicate their facing with small markers if they feel this is helpful.)

Hit/miss factors

1. The conditions that are factored into the hit/miss determination are listed below. They are listed with their numerical ratings on the **Hit/Miss Determination** chart.

2. **Range –** The closer the target, the better the chance to hit it. Accuracy diminishes as range increases. Each weapon is assigned a range factor that determines its short, medium and long ranges. For game purposes, the farthest range for direct fire is restricted to 144 inches.

Range	Factor
Short	0
Medium	-3
Long	-6

3. **Movement –** Movement makes a target more difficult to hit. Movement by the firing piece affects accuracy more than movement by the target.

Movement	Factor
Attacker: stationary	0
Attacker: slow	-1
Attacker: moderate	-3
Attacker: fast	-5
Target stationary	0
Target: slow	-1
Target: moderate	-2
Target: fast	-3

4. **Target concealment**

a. The more concealment a target has, the more difficult it is to hit.

Target Concealment	Factor
None	0
Less than one-third	-1
One-third to two-thirds	-2
More than two-thirds	-3
Total	No direct fire

b. Players will have to estimate the amount of target concealment. The following illustrations are offered to provide a general visual reference to where the boundaries fall when determining the concealment of a target.

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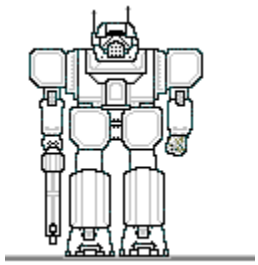
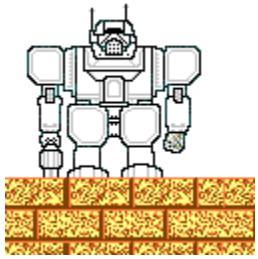
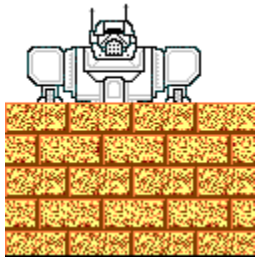


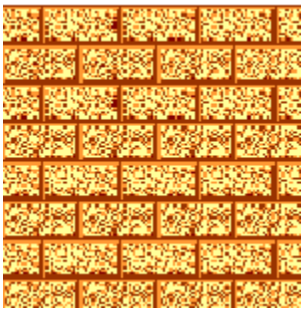
No concealment



One-third concealment



Two-thirds concealment



Total concealment

b. The shape of a target must be taken into consideration when estimating the amount of the target concealment.

c. The attacker must be able to see part of the targeted piece. If the cannon of a tank or the barrel of the soldier's weapon is the only thing visible the piece cannot be targeted. However, the attacker could extrapolate the target's position and fire at the suspected location of the target using the rules for attacking concealed targets. Refer to Rule 29. Fortifications and Buildings, for more information.

5. **Weapon mode** – Some weapons receive a bonus factor when firing because they have an increased chance to hit.

a. **Automatic** and **pulse** weapons have a +1 factor because of their higher rates of fire.
(Mini-rocket launchers also gain this bonus because they fire a cluster of missiles that results in multiple impacts.)

b. **Rotary** automatic weapons have a +3 factor because of their extremely high rates of fire.

c. **Guided** weapons have a +2 factor because they are assisted by laser designation or other target illumination.

d. **Smart** weapons have a +3 factor due to their enhanced tracking and targeting abilities.

e. **Beam** and **single shot** weapons have a 0 factor because they do not have any particular advantages.

Weapon mode	Factor
Single or beam	0
Automatic or pulse	+1
Guided	+2
Smart	+3
Rotary automatic	+3

6. **Detection system** – A vehicle or weapon with a detection enhancement system will receive an advantage when firing. Refer to Rule 11. Detection, for more information.

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Detection system	Factor
Normal	0
Augmented	+1
Extended	+2
Enhanced	+3

7. **Combat effects** – An attacker who is taking enemy interceptive or suppressive fire will not shoot as accurately. An attacker suffering from adverse morale effects or recent damage will not shoot as accurately.

a. The factor for interceptive or suppressive fire represents the surprise, shock or fear reaction to coming under fire. Multiple hits are not cumulative – this factor is added only once to each hit/miss determination.

b. The factors for poor morale represent a range of reactions from an additional amount of caution or loss of efficiency damage to a more debilitating morale condition.

Situation	Factor
Attacker taking enemy interceptive or suppressive fire	-3
Attacker has poor morale: Cautious	-1
Attacker has poor morale: Shaken	-3
Attacker has poor morale: Broken or Eliminated	May not fire

c. It is possible for a piece to add both a factor for poor morale and the factor for taking interceptive or suppressive fire.

For example, a tracked destroyer with a damage marker from the previous turn takes long-range suppressive fire from an enemy battledrone. As the battledrone closes in to fire its shorter-ranged weapons, the destroyer attempts to perform interceptive fire. It checks morale unsuccessfully with a result of Cautious. The destroyer will add both the -3 factor for taking suppressive fire and the -1 factor for poor morale to its hit/miss determination.

8. **Targeting ability** – The damage taken by a vehicle's targeting system will affect its accuracy.

Amount of damage	Factor
Undamaged	0
Lightly damaged	-1
Moderately damaged	-3
Severely damaged	-6

9. **Target size**

a. Larger targets are easier to hit than smaller targets, so the factors increase as the targets increase in size.

b. Sizes are determined by roughly determining the cubic inches that the target occupies. To determine cubic inches multiply length times width times height. For example, a hover tank that is 6 inches long, 4 inches wide and 3 inches high occupies 72 cubic inches.

c. Human-sized and smaller infantry are considered to be size 0 because they are smaller than one cubic inch.

d. The following scale is used to determine the sizes of vehicles, strongpoints and buildings.

Cubic inches	Size
1 or less	0
2 to 4	1
5 to 8	2
9 to 16	3
17 to 32	4
33 to 64	5
65 to 128	6
129 to 256	7
257 to 512	8
513 to 1024	9
1025 to 2048	10
2049 to 4096	11
4097 to 8192	12

e. When determining sizes, players are advised to simplify the process by dropping the fractions from their measurements, rounding the

numbers up or down to the nearest whole number. Any amount less than one inch should be rounded to one inch to avoid multiplying by zero.

f. Players who want to avoid the calculations may find it helpful to buy one inch wooden cubes at a craft store. These can be laid out in a pattern approximating the shape of a vehicle. Counting them up and referring to the table above produces the vehicle size.

10. Some weapons, such as mortars, howitzers and other artillery pieces, can fire at targets which they themselves cannot see. **Indirect fire** procedures are used for these attacks. Refer to Rule 20. Indirect Fire and Artillery, for more information.

11. For purposes of missile fire, vehicles that are within 4 inches of the ground are considered surface targets. Vehicles that are greater than 4 inches from the ground are considered air targets. This clarification is for use when choosing air-to-air, air-to-surface, surface-to-air and surface-to-surface missiles.

12. An abbreviated hit/miss determination procedure is given in the **Hit/miss Determination** chart for convenience. Players should find it sufficient for purposes of play once they are familiar with the game system.

Prioritizing targets

1. To avoid disputes among players some sets of rules require that a piece fire at the closest enemy piece. In reality this is not always possible. For example, a trooper may not be able to detect the closest enemy soldier because of the amount of concealment he has. The following general guidelines may help players avoid arguments.

2. An enemy piece must first be detected to be fired on. If more than one enemy piece is detected by a piece the owning player must determine which one he will have his piece fire on. If the firing piece has more than one weapon, or has a weapon with a blast area that will cover more two or more targets, he may attempt to fire upon multiple targets.

3. A trooper would probably fire at the enemy that poses the greatest threat to him.

a. This might be an enemy soldier at closer range than others, or an enemy that just fired at the trooper.

b. The decision might be based on the lethality of the weapons the enemy soldiers are carrying. For example, a trooper facing two enemy soldiers at the same range would choose to target the soldier with a heavy flamer over the soldier with a sonic rifle. An armored vehicle crew would prioritize enemies equipped with antitank weapons.

c. A higher priority might be placed on an enemy that is an obviously greater threat to friendly troops and vehicles, such as a soldier with a missile launcher.

4. The context of a situation will also determine the action taken.

a. An armored vehicle crew might have to ignore an enemy soldier equipped with an antitank weapon if the situation required it to concentrate its firepower on other enemy infantrymen to prevent them from overrunning a friendly position.

b. A light laser cannon crew might have to ignore advancing infantry to concentrate on its primary target, an enemy armored vehicle.

5. In the end it is up to the owning player to determine which targets his pieces will fire upon.