

## 18. WARHEADS AND GUIDANCE SYSTEMS

### Briefing

1. A wide range of weapons is capable of firing projectiles with warheads. Many of these weapons can fire more than one type of warhead. Most warheads combine a powerful attack factor with an effect area, although there are also chemical, smoke and jammer warheads.

2. The **Weapons and Warheads** table specifies the types of warheads used in the projectiles of various weapons. The warheads are listed with the highest attack factor first.

3. Multiple warheads and cluster bombs increase the effect of warheads by spreading them out over a wider area.

4. A wide range of technologies can provide an attacker an increased ability to hit a target point more accurately. These technologies include radio and video guidance, laser designation, self-correcting projectiles and seeker and tracker warheads.

### Attack Factors and Effect Areas

1. The attack factors of the various warheads are given below:

Warhead	Attack factor
Anti-matter	Equal to armor class of target
Chemical	5
Hailstorm	7
Hammerhead	7
Hellburner	7
High explosive	6
Nuclear	9
Piercer	8
Smoke	0
Sonic	3
Vaporshock	7

2. Most warheads have an effect area. Of those listed above, only hellburner and piercer warheads do not have effect areas.

Warhead	Effect area?
Anti-matter Chemical Hailstorm Hammerhead High explosive Nuclear Smoke Sonic Vaporshock	Yes
Hellburner Piercer	No

### Declaring warhead type

1. During hit/miss determination a player must declare which type of warhead his weapon is firing before he rolls to determine a hit.

2. If the player does not declare the warhead type and he gets a hit, he must randomly determine which type of warhead was fired, using the **Weapons and Warheads** table as a guide.

3. Before a battle the players should specify on their status sheets the warheads of projectiles in external weapon mounts such as rocket pods and missile racks. The warheads of these weapons cannot be changed during a game.

4. The warhead of a weapon that can be loaded from within a vehicle does not have to be specified on the status sheet, since the type of warhead can be chosen (and announced) at the time of firing.

### Multiple warheads

1. Tactical missiles were developed to carry nuclear warheads. The prohibition on the use of nuclear warheads on many settled and developed planets led military designers to develop multiple conventional warheads for tactical missiles.

2. Tactical missiles may be armed with multiple conventional warheads instead of nuclear

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warheads. The warheads available are vaporshock, hailstorm, hammerhead, high explosive and chemical.

3. The table **Multiple Warheads for Tactical Missiles** specifies the number of conventional warheads a tactical missile can carry.

4. Because of the limited size of the warheads they cannot be independently targeted. Instead, each missile has an effect much like an artillery barrage on the target area. The impact point of each warhead is determined by using the normal indirect fire procedure.

5. The number of conventional warheads a tactical missile can carry is based on the size of the missile. A missile may only be loaded with one size of warhead. For example, warheads with three inch and four inch blast areas may not be mixed in the same load.

6. Because each additional warhead requires space for its casing and detonator and creates additional wasted space, the total surface area affected by a multiple warhead will not be as great as the area affected by the same caliber nuclear weapon.

### Cluster bombs

1. Cluster bombs are delivery systems for multiple conventional submunitions instead of single warheads.

2. The warheads available for cluster bombs are hellburner, high explosive, chemical and smoke.

3. Because of the limited size of the submunitions they cannot be independently targeted. Instead, each cluster bomb has an effect much like an artillery barrage on the target area. The impact point of each warhead is determined by using the normal indirect fire procedure.

4. The number of warheads a cluster bomb can carry is based on the size of the bomb. A bomb may only be loaded with one size of warhead. For

example, warheads with two inch and four inch blast areas may not be mixed in the same load.

5. Because each additional submunition requires space for its casing and detonator and creates additional wasted space, the total surface area affected by a cluster bomb will not be as great as the area affected by the same size conventional bomb.

6. The sheet for bombs includes a table for cluster bombs. It specifies the number of warheads a bomb can carry.

### Mini-rocket launchers

1. Mini-rocket launchers fire a cluster of small, unguided warheads simultaneously to create a small barrage effect at the target point.

2. All of the warheads in a mini-rocket launcher must be of the same type, either high explosive, chemical or smoke.

### Global positioning systems

1. A global positioning system allows an observer to pinpoint target coordinates by feeding information on his own coordinates and the target location into a global satellite network.

2. The satellite system provides precise information on latitude and longitude. This information can then be used to call in artillery fire or air strikes.

3. A system of this complexity and sophistication is generally not available when two or more stellar nations oppose each other in a conflict, because the nations will damage or destroy their opponent's satellites to prevent them from having an advantage.

4. In the absence of global positioning systems the opposing sides will generally utilize expendable mini-satellites and micro-drones to capture a "quick fix" of the battlefield.

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### Guidance systems

1. To simplify matters a wide range of weapon guidance systems have been condensed into four categories of increasing technical sophistication. Seeker and tracker weapons are generally referred to as “smart” weapons.

2. **Inert** – the warheads have no guidance or targeting system; they conform to ballistic principles in regard to course and trajectory.

3. **Guided** – the warheads can be steered or led to the target by commands sent by radio control, laser targeting, video imaging or through trailing wires. These systems are also referred to as “directed” warheads to capture their passive role.

4. **Self-correcting** and **Seeker** – the warheads are capable of identifying targets and adjusting their trajectories to maneuver to attack them. These systems are also referred to as “homing” warheads.

5. **Tracker** – the warheads are capable of loitering until a target appears, identifying targets and following targets.

6. The table below gives the factors that are used in hit/miss determination for direct fire.

Type	Factor
Inert	0
Guided	+2
Self-correcting, Seeker	+3
Tracker	+3

### Obsolete guidance systems

1. Wire-guided weapons are not used in the **Laser Grenadiers** era because the missiles travel too slowly to effectively track moving vehicles and are too vulnerable to close defense systems.

2. Systems that use radio, radar and video signals to transmit guidance from the launch vehicle to

the missiles are not yet obsolete, but are being phased out by the major stellar nations. They are more susceptible to jamming than seeker and tracker weapons and also have a tendency to make the launch vehicle a target for enemy fire because of its high electronic emissions profile.

### Radio-directed missiles

1. Radio-direction allows a missile carrier or launcher to remain out of sight of enemy units while it launches its missiles. The missiles are directed to targets by forward observers equipped with specialized targeting and control devices.

2. A missile is launched from a vehicle, platform or other launcher in response to a request from a forward observer or in anticipation that a target will be acquired. Once it is in the air, the missile flies in a holding pattern until it is acquired and directed to a target.

3. Control of a missile is acquired by a forward observer equipped with a specialized radio weapon controller. The forward observer must establish a communications link with the missile to control it. Communication is determined when the owning player has the initiative and wants the forward observer to acquire control of a missile.

4. The forward observer must have detected the target and have a direct line of sight. The vehicle, platform or other launcher does not require a direct line of sight.

5. The forward observer directs the missile to the target using the normal hit/miss determination, adding the +2 factor for guided weapons.

6. A forward observer can guide one missile per turn

### Video guidance

1. Video guidance is used to direct missiles to targets within their fields of fire. A missile

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equipped with a video guidance module is launched to search for a target. The launch vehicle monitors the video transmissions of the missile. When a target is spotted the missile is directed to the target.

2. The video is in the nose of the missile. Use the detection rules to determine if the missile spots any targets. If the missile spots a target, the target can be attacked (unless enemy ECM is disrupting guidance, and cannot be overridden).

3. The missile and launcher will be considered to be in communication (unless enemy ECM is disrupting communications, and cannot be overridden).

4. The missiles are fairly maneuverable and can make a turn after each one-sixth of movement, if desired.

5. The missile is considered a guided weapon in hit/miss determination, adding the +2 factor for guided weapons. If the missile does not spot a target it will travel off the board and is out of play. If a missile comes to the end of its movement allowance without finding a target it will crash to the ground and detonate.

6. Tactical missiles may have several warheads with video guidance. As targets are spotted they will be independently targeted, one at a time.

### Laser Designation

1. Laser designation is used to pinpoint targets for friendly guided weapons such as missiles, guided bombs and artillery-fired guided munitions.

2. Only pieces specifically equipped with laser designators may perform laser designation. Normal laser weapons cannot be used for laser designation.

3. The piece performing laser designation serves as a spotter when it has the initiative. It must successfully designate a target and then call in

friendly fire by establishing communications with the piece that will fire guided weapons at the designated target.

4. The hit/miss procedure is employed to determine if the target is designated. Laser designators are pulse weapons with no attack factor. The range factors are given below.

Designator	Range factor
Light	12
Medium	18
Heavy	24
Magnum	30
Ultra	36

5. When a target is hit it has been successfully designated. Any guided projectiles fired at it receive the +2 factor for guided weapons during hit/miss determination.

6. A piece may perform laser designation for itself if it has any laser-guided weapons. When laser designation has been performed for another friendly piece, that piece must fire on the designated target on the first friendly initiative after the designation occurred or the designation is lost.

7. If the enemy piece that has been designated moves completely out of sight of the designator before the guided munitions are fired, the laser designation is ended.

### Self-correcting projectiles

1. Self-correcting projectiles identify and acquire their targets through their internal programming. They are capable of correcting their own courses by adjusting their final vectors to maneuver onto an attack path.

2. Self-correcting projectiles are equipped with smart targeting systems and movable control surfaces, such as fins or vanes. These projectiles make course corrections in the final portion of their flight to zero in on their target.

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3. During hit/miss determination a player must declare he is using a self-correcting projectile before he rolls to determine a hit.

4. When used in direct fire, a self-correcting projectile adds the +3 for a smart weapon in the hit/miss determination procedure.

5. When used in indirect fire, a self-correcting projectile may subtract up to three inches from the distance it would miss its target point when the random fall of shot procedure is used. A self-correcting projectile will not over-correct.

**Examples:** A self-correcting mortar bomb is fired at a distant target point. The random fall of shot procedure results in a miss, five inches to the northwest of the target point. This can be adjusted so the bomb lands two inches to the northwest of the target point.

Another self-correcting mortar bomb is fired at the target point. This time the random fall of shot procedure results in a miss, two inches to the east of the target point. This can be adjusted so the bomb lands directly on the target point. The shot would not be over-corrected - that would have made the bomb land one inch west of the target point.

### Tracker warheads

1. Tracker warheads are equipped with sensors and smart targeting systems that allow them to detect, identify and acquire their targets through their internal programming. Until a target is acquired a tracker warhead can loiter over the battlefield. When a target appears, the tracker can identify it and maneuver to attack it. Directional nozzles and movable control surfaces allow these warheads to make course corrections to follow their targets.

2. Each type of tracker warhead is specifically designed to detect and attack a particular kind of target. The target categories are:

a. **anti-armor** - the warheads detects the mass, magnetic signature and chemical signature of vehicles

b. **anti-personnel** - the warhead detects the biochemical signatures of creatures and attempts to target the largest concentration of them

c. **anti-radiation** - the warhead detects radar and radio emissions

3. When the tracker warhead is launched the player must declare he is using a tracker warhead, the type of target the tracker warhead is specifically designed to attack and the range at which the warhead will stop and begin to loiter. A loitering warhead hovers in place.

a. Although the weapon that fired the warhead will have used its initiative, the warhead will still be considered to have an initiative of its own once it is loitering.

b. The warhead can use its initiative to attack a target at any time during the remainder of the turn, including using its initiative to perform interceptive or suppressive fire.

4. When the warhead detects a target the player then performs hit/miss determination. Tracker warheads add the +3 factor for smart weapons in hit/miss determination.

5. A tracker warhead may redirect itself in any direction from its original flight path to attack the kind of target it was designed to attack.

### Programmable warheads (Optional rule)

1. Advanced hammerhead warheads have two settings: **Impact** and **Delay**. A rotating ring on the fuse provides some control over the detonation of the main charge.

2. If the warhead is set for **Impact**, the main charge will detonate on contact with a surface. This setting is used to penetrate armored vehicles.

3. The **Delay** setting is used against enemy forces within buildings. The main charge does not

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detonate until after the initial penetration of the surface. Then the main charge detonates inside the building.

4. During hit/miss determination a player using a programmable warhead must declare which setting he is using on his warhead before he rolls to determine a hit.

### Jammer shells (Optional rule)

1. A jammer shell contains a small powerful broadband radio that produces static noise over a wide range of frequencies. The shell is specifically designed to disrupt enemy communications.

2. Once the shell lands it deploys a compact antenna array and begins jamming. An internal battery provides power for a few hours.

3. When a jammer shell is fired the owning player should determine where it lands using the normal random fall of short procedure. The location of the shell can be marked with a small counter.

4. The jammer disrupts all enemy radio and communicator within a 12 inch radius of the shell (a circle with a 24 inch diameter).

5. Detection and destruction

a. An enemy trooper within 4 inches of a deployed jammer shell can detect it on a die roll of 1 to 5.

b. The jammer has a size of 0, and an armor class of 4. It is destroyed by any hit that penetrates its armor.

### Seeker projectiles (Optional rule)

1. Seeker projectiles were originally developed to provide commanders with an "over the horizon" capability to damage and disrupt enemy forces. The projectiles were developed to be fired into

areas of possible enemy troop concentrations, but with a much greater capability to cause target-specific damage than a conventional artillery bombardment.

2. Seeker projectiles find, identify and acquire their own targets through their internal sensors and programming. They are capable of correcting their own courses by adjusting their final vectors to maneuver onto an attack path.

3. Seekers are equipped with smart targeting systems, which include electronic identification systems that allow them to distinguish between friendly and enemy targets, and sensor systems to distinguish between an enemy vehicle that is operational and one that is knocked out.

4. Seekers have movable control surfaces, such as fins or vanes. The projectiles make course corrections after they have found, identified and acquired a target in order to zero in on the target.

5. A seeker projectile is only used in indirect fire. Seekers provide capabilities that some weapons do not normally possess. For example, mortars may fire seekers with piercer warheads.

6. Each type of seeker projectile is specifically designed to detect and attack a particular kind of target. The target categories are:

a. **anti-armor** - the projectile detects the mass, magnetic signature and chemical signature of vehicles. Warheads can be piercer or hellburner.

b. **anti-personnel** - the projectile detects the biochemical signatures of creatures and attempts to target the largest concentration of them. Warheads can be hammerhead or high explosive.

c. **anti-radiation** - the projectile detects radar and radio emissions. Warheads can be hammerhead or vaporshock.

7. During hit/miss determination a player must declare he is using a seeker, and the type of target

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the projectile will home in on. The player then chooses a target point on the tabletop.

a. The area within 12 inches of the target point is considered the target zone. The seeker will attempt to spot and select a target in this target zone.

b. The seeker must detect targets using the detection rules. For convenience and consistency, seekers can be considered to perform their detection checks from a point 18 inches above the target point.

c. If there is more than one target in the target zone the final target should be determined randomly. Anti-personnel war-heads will target the largest concentration of personnel detected. The attacking player should determine the largest group of detected infantrymen that can be covered by the blast area. If there are several groups of the same size a random die roll can be used to select one of them.

d. A seeker warhead can attempt to communicate with the firing unit before it actually attacks a target and detonates. The seeker will attempt to send a message indicating that it has found a target. The purpose is merely to provide information that a target is located, not to request confirmation or instructions.

e. The target is automatically hit by the seeker unless a 9 or 10 is rolled on a ten-sided die. If a 9 or 10 is rolled, the seeker malfunctions and does not hit the target or detonate. It has no effect.

### 8. Examples:

a. A heavy mortar fires an anti-armor seeker at a distant target point. There are two enemy armored vehicles within 12 inches of the target point. One vehicle is 5 inches to the north of the target point. The other vehicle is 9 inches southwest of the target point. Both vehicles are

detected. The player must determine randomly which target is hit.

b. A light howitzer fires an anti-personnel seeker at a distant target point. There are ten enemy infantry and one armored vehicle in the target zone. The seeker ignores the armored vehicle because it has an anti-personnel warhead. Three infantry are standing at the rear of a building to the east of the target point. The other seven are positioned in a trench to the south of the target point. The seeker does not detect four of the seven infantry in the trench; therefore it targets the group of three infantry standing at the rear of the building. Which infantryman the blast area is centered on should be determined randomly.

c. A medium mortar fires an anti-radiation seeker at a distant target point. There are three enemy infantry, a forward observer and a war drone in the target area. The observer and war drone have been sending radio reports back to their battlenet. The infantrymen have been contacting each other with their helmet communicators. All of them are potential targets for the seeker. The player must determine which targets are observed and then randomly determine which one is hit.

### “Suicide” drones (Optional rule)

1. Suicide drones follow the rules for video guidance with two exceptions.

2. They do not travel off the board and out of play – they may loiter on the board, hovering in one spot until they have the initiative again.

3. They only have one warhead with an attack factor of 7 and a blast area of 3 inches.

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Weapon	Warheads Available
Antiaircraft missile launchers	Hammerhead
Antitank rocket launchers	Piercer
Artillery rockets	Vaporshock, high explosive, chemical
Attack missiles	Hammerhead, high explosive
Autocannon	Piercer, hammerhead
Bombs and cluster bombs (air-dropped)	Vaporshock, hellburner, high explosive, chemical, smoke,
Bomb throwers	High explosive, chemical, smoke
Cannon	Piercer, hammerhead
Grenade launchers	Hellburner, high explosive, smoke
Guns (artillery)	Hailstorm, hammerhead, high explosive, chemical, smoke
Hand grenades	High explosive, sonic, smoke
Helldriver rifles	Anti-matter
Howitzers	Hailstorm, hammerhead, high explosive, chemical, smoke
Infantry missile launchers	Piercer, hammerhead, hellburner, chemical
Infantry rocket launchers	Piercer, high explosive, smoke
Keg bombs	Hammerhead, chemical
Mini-rocket launchers	High explosive, chemical, smoke
Mortars	High explosive, chemical, sonic, smoke
Petards	Hammerhead, hellburner
Recoilless rifles	Piercer, high explosive
Rifle grenades	High explosive, sonic, smoke
Rocket-propelled grenade launchers	Piercer
Satchel charges	Hammerhead, high explosive
Seeker mines	Hammerhead
Seeker projectiles	Anti-armor - piercer, hellburner Anti-personnel - hammerhead, high explosive Anti-radiation - hammerhead, vaporshock
Strike missiles	Piercer, hammerhead
Tactical missiles	Nuclear (Multiple warheads may be vaporshock, hailstorm, hammerhead, high explosive or chemical)