

Steel Rain[©]

Quasi-Generic Wargaming Rules for 6mm Armor

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Introduction to Steel Rain®

Steel Rain® is a free set of generic wargaming rules for sci-fi armor battles. I specifically wrote these for use with 1/285, 1/300, and 6mm miniatures (these terms are basically synonymous), such as [GHQ's](#) excellent line of Micro Armor miniatures, [Brigade Models'](#) line of Iron Cow miniatures, or [Ground Zero Games'](#) Dirtside/Future Wars models.

These rules are basic, covering most aspects of warfare encountered in company-level engagements (at least, I like to think so). They were written to support company to battalion/task force sized engagements, but since I haven't play-tested them, I'm not sure how scaleable the rules will be. There are plenty of gaps and I invite you to fill those in as you see fit.

I've also created a set of vehicle creation rules that are pretty straight forward; I think that most players will be able understand and use them with very little effort.

I've envisioned using the Steel Rain® rules on a terrain table, not a hex map. That's why all values are given in centimeters instead of hexes. If you want to increase the scale, use inches; the values will still translate. Or, you can use a hex map and just translate all values into hexes. It's flexible.

To play, you'll need:

- Something to represent units (miniatures, markers, etc.)
- Something to record unit information on
- Some place to play (sand table, hex map, etc.)
- A [20-sided die](#) (d20)
- A yardstick or measuring tape ruled in centimeters
- A piece of string is helpful for line-of-sight determination
- Another "nice to have" item is a "periscope" – a small box with openings on the top and side and a 45°-angled mirror inside, allowing a commander to have a battlefield view without having to plant his cheek onto the game table every time. An alternative is a dental mirror or cosmetics compact mirror.

Steel Rain® uses several key concepts to simulate what happens on the battlefield:

Actions let units do things during their turn.

Profile is the size of a vehicle; the larger it is, the easier it is to hit. The necessary To Hit number is a function of Profile and Range.

Weight is how heavy a vehicle is. A vehicle's base speed is a function of its Weight and Propulsion Type.

Propulsion Type is the means a vehicle uses to get around, whether it's on tracks, wheels, or an air cushion.

Armor is the survivability of the vehicle, or its resistance to damage. Sure, you can hit it, but can you hurt it?

Lethality is the destructive effect of your weapons. The "To Damage" roll needed to destroy a vehicle is a function of Armor and Lethality.

Suppression is the psychological effect of combat on units.

Introduction to Unit Types

Infantry (a.k.a. “dismounts” or “crunchies”) are soldiers on the ground, fighting with hand-held weapons. They are best at ambushing, close assault, and combat engineering tasks. Infantry is represented by “stands” that each represent a single four-man fire team.

Cavalry (a.k.a., Armor) comprises the tanks that support the Infantry and spend a lot of their time fighting other tanks. Lethal, but often slow.

Anti-Tank units are quick, thin-skinned, and loaded for bear, often mounting multiple anti-tank guided missiles.

Recon and **Electronic Warfare** units are also quick and thin-skinned. Their job is to seek out and identify the enemy without being engaged, as well as destroy the enemy's recon elements (also known as counter-recon screening).

Artillery units use indirect fire to attack units that can't be easily engaged through direct fire. They can fire smoke, scatterable mines (FASCAM), and high-explosive rounds (HE). In this game, all Artillery is rocket artillery, similar to the MLRS system.

Air Units use their speed and height to attack enemy formations before friendly armor can engage them. Helicopter and VTOL units are also used to lift Infantry into advantageous fighting positions.

Combat Engineer units try to prevent enemy movement through use of mines and obstacles, while enabling friendly movement by breaching the enemy's mines and obstacles. They also provide bridging across rivers and gorges to allow the Armor to move forward.

Air Defense batteries knock down enemy air units to keep the battlefield safe for the ground forces.

Infantry Fighting Vehicles (IFV's or APC's) carry the Infantry into battle and provide fire support for dismounted squads. Often armed with Autocannons, ATGM's, and/or Chain Guns.

Setup

Designate each side of the game table as North, South, East, and West.

Commanders designate platoons and sections. A platoon or section may generally consist of four tanks, five recon vehicles, four artillery pieces, eight infantry stands, eight infantry stands plus their carriers (IFV's APC's, one huge helicopter, etc.), two helicopters, two Fast Movers, or four air defense vehicles. These designations are important, as these vehicles will all move within the same round.

Each commander records his units on a record sheet, assigning a "blip" number to each. They then take turns placing their "blips" on the board within 5cm of their edge, or as the scenario dictates. Each commander places four at a time until all "blips" are placed.

Note that one "blip" may represent up to four vehicles. These need to be annotated on the commander's record sheet as belonging to the same "blip".

Sequence of Events per Turn

1. Players roll for initiative.
2. Artillery fired in the previous round lands; rolls are made for effect and scatter.
3. Units adjust Suppression points and then make Suppression checks.
4. Each player moves and fires a single platoon or section at a time.
5. After the first player's first platoon is moved, the other side moves its first platoon, and the two sides alternate thereafter.

Initiative

Highest of d20 rolled by each player at beginning of each turn; winner gets to choose whether he goes first or allows the other player to move first.

Actions

Each unit has two **Actions** per turn. One Action may be used to move $\frac{1}{2}$ the unit's maximum allowed movement, fire its weapon systems one time each, or perform one special task.

Examples of Actions and possible combinations of Actions:

- Move full movement (2 Actions)
- Move 1/2 movement and fire each weapon system once
- Stay still and fire each weapon system twice
- Entrench (2 Actions; Infantry or Combat Engineer vehicles)
- Hide (Infantry only)
- Rally from a Suppressed state
- Close Assault
- Perform Combat Engineering functions
- Call for Artillery

For example, an air defense vehicle armed with two SAM's sits motionless, waiting for an approaching helicopter. When its target appears, it can fire one shot with each weapon system per Action, so with its first Action it fires two SAM's and gets to roll twice on the To Hit table. It misses both times, so it uses its second Action to fire two more missiles. Thus, by not expending any Action on movement, it has fired four times at the approaching helicopter.

However, on another occasion, the vehicle must move to get a bead on the helicopter. Let's say it has a maximum allowed movement of 16cm, so it uses one Action to move 8cm and its second Action to fire one SAM from each weapon system, for two total shots.

Note that moving even one centimeter automatically commits one Action to movement. That Action may not be used for anything else now, even if the vehicle stops after only one centimeter.

Movement

A unit may move in accordance with the Movement Table, modified by the Terrain Effects Multiplier. Again, one Action buys ½ of the unit's possible movement, so if a Recon Buggy has a base movement of 16cm, it will be able to move 8cm by using one Action.

Dismounted Infantry have a base move value of 6cm/turn. This is for *Light Infantry* – troops carrying only small arms. *Heavy Infantry* stands carry both small arms and either a heavy weapon or Extras package, which include Chain Guns, ATGM's, SAM's, mortars, or an ELINT or Engineer package; this reduces that stand's movement to 4cm/turn.

Terrain Effects

Movement is reduced as per the *Terrain Movement Cost Modifier* table. Each centimeter that a vehicle moves through certain terrain types reduces the overall movement available for that turn. For instance, if a tracked vehicle is moving through Light Woods, each centimeter it travels through those woods would cost it 2cm worth of movement. Recall that each Action is worth ½ of a vehicle's total allowable movement; this means that if our tracked vehicle above has a base move of 12cm, each Action would be worth 6cm of movement, and moving through 3cm of Light Woods would use up one Action (3cm Light Woods x 2cm Movement Cost). You don't have to be a calculator nazi to make these calculations; just do a rough estimate and round off. The terrain effects table is on the next page.

Terrain-Movement Cost Modifier Table

	Wheeled	Tracked	Hover	Infantry
Open	1	1	1	1
Overgrown	2	1	1	2
Light woods	2	2	2	1
Heavy woods	3	3	3	1
Pavement	1	1	1	1
Rocks/Rubble	2	2	1	2
Ruined buildings/Deep rubble	4	3	4	2
Sand	2	3	1	1
Shallow water (<3 ft)	2	2	1	2
Medium water (4 to 8 ft)	2	2	1	3
Deep water (>8 ft)	--	4	1	<i>River Asslt</i>
Flat	1	1	1	1
Easy slope	1	1	2	1
Steep slope	2	3	3	2
Impassable slope/Cliff	--	--	--	3
Concertina wire	3	3	2	3
Dragon's teeth	--	--	3	1
Roadblocks	--	--	--	2

Slopes

Slope modifiers are in addition to any ground cover modifiers that apply. For instance, a hover unit moving through a heavily wooded easy slope would have to use 5cm worth of movement for each centimeter it wanted to move through that terrain. Slope types for a sand table are defined as follows:

- Easy slope: < 30°
- Steep slope: 30° - 60°
- Impassable slope/Cliff: 60° or steeper

Note that Infantry may Scale slopes greater than 60°, using climbing gear such as pitons, crampons, etc. See the **Scaling** section below.

For those players using a hex map or stackable terrain system such as GHQ's Terrain Maker® system, you can substitute the following values:

- Easy slope: change in one elevation
- Steep slope: change in two elevations
- Impassable slope/Cliff: change in three elevations or more

Vehicles that drive off a Cliff are destroyed. Duh.

Entrenching

Creating an entrenchment (such as a prepared battle position, infantry fighting position, or reinforced firing position) costs two Actions per unit entrenching, and can only be done by Infantry or by vehicles equipped with an Engineer Package. One unit cannot entrench and then share the entrenchment with another unit, unless the first unit vacates the spot first.

Vehicles cannot occupy an Infantry Entrenchment, although Infantry can take cover in a Vehicular Entrenchment.

Units that entrench should have an Entrenchment marker placed under them in the spot where they dug in. The Entrenchment marker should then be left there for the duration of the game, to be used by units able to occupy it.

Loading/Unloading

Infantry dismounts may load or unload into a vehicle at the cost of two Actions to load, one Action to unload. This pertains to anything that can carry Infantry, be it helicopters/VTOL's, IFV's, or trucks. The vehicle can use its Actions during the loading period, but cannot use them for movement; it can fire, call artillery, etc., but cannot move or perform Actions that require movement, such as combat engineering.

Infantry that unload from a vehicle must be placed directly adjacent to the vehicle (i.e., touching). If a vehicle were carrying 8 stands (which is one full platoon), it would be nearly surrounded by stands when they dismounted.

Scaling

Infantry can climb natural rock faces (60° to 90° slope, or Impassable to Cliff) at ½ their normal movement rate. Anything steeper than vertical is completely impassable.

River Assault

Infantry can cross Deep Water by preparing a "ruck raft", which consists of tying together their rucksacks and making a floatable raft out of them. This raft moves at 2cm/Action. Each stand must make its own ruck raft, and the creation of one costs 2 Actions of prep time. No attacks other than Small Arms and Smoke may be made during the river crossing.

Stacking Units and Passage Through Lines

Infantry are the only units allowed to share space with or pass through another unit. One Infantry stand may occupy the space immediately around a vehicle; just place the stand on top of the vehicle.

Likewise, two Infantry stands may occupy the same space, although only one can be Entrenched in that space, unless the second stand chooses to spend Action digging an Entrenchment.

Infantry stands can also pass through other units. If there is a tank positioned in the mouth of an alleyway with no room to allow other vehicles to pass, Infantry stands could still pass through the tank and continue their own advance, within terrain constraints. Likewise, Infantry stands can always pass through one another.

Note that there is some danger in stacking units. If a successful attack is made against one unit in that space, the attacker must roll a second attack to see if the second unit is hit as well (this is using the same weapon system; the attacker isn't expending any additional Actions). Area-effect weapons such as artillery and mortars automatically affect both units in a stacked-unit situation. Roll on the To Damage table for each hit unit separately.

Intelligence, Reconnaissance, and Electronic Warfare

Units that have not been spotted visually move as "blips" -- similar to those used in Games Workshop's *Space Hulk* -- to simulate the undefined nature of those threats. Up to four units within a 5cm *diameter* may travel as one "blip"; more than four require another "blip" for each multiple of four.

Dismounted infantry do not generate "blips", but may be visually spotted at 50cm or less. When moving un-Spotted Infantry, mark their location with a small object -- a straight pin works well on a sand table, while a bead or dried lentil works well on a hex map. "Hidden" Infantry may be spotted only when they fire, or at less than 2cm.

Air units moving at more than 10cm/turn have no chance to spot infantry unless those stands are in the open, i.e., on pavement, crossing water, on top of a building, scaling a cliff, etc.

Resolving "Blips"

Once a "blip" is visually spotted, the vehicles it represents are placed on the table where the blip had been, within a 5cm diameter. Visual spotting range is 125cm.

Vehicles equipped with ELINT packages can resolve "blips" into individual vehicles without line of sight, as soon as the "blips" are within the effective range of the ELINT package. Once this happens, the "blip" is replaced by the vehicles it represents.

ELINT packages track electro-magnetic signatures, and thus cannot detect infantry.

"Blips" may split as vehicles travel. For instance, if a commander has four vehicles traveling as a single "blip" and then decides to send two of them in a different direction, simply place a new "blip" on the board to denote the new grouping, and annotate the change on the unit record sheet.

Drones

Drones are the eyes and ears of the modern mechanized force. They are small, flying, robotic devices about the same size as a basketball, equipped with a rudimentary sensor package (laser range finder, night optics, IFF transponder, etc.) and enough battery power for about five hours' flight (more than long enough to stay aloft in a typical game). They hover above the terrain at about two meters and are unaffected by most terrain except woods and slopes, which slow them down the same as for Hover vehicles. They are unaffected by obstacles. Drones have two Actions to use, same as every other unit, but may only use them for movement and directing fire. "Blips" that come within line-of-sight and visual range of a Drone are resolved normally, and Drones must follow the rules for spotting Infantry and Hidden Infantry.

Drones move at 20cm/Action, have a Profile of 1, and an Armor value of 1. They have no weapons, but may spot for artillery or indirect-fire railguns.

An armored vehicle that selects an ELINT package receives **four** Drones to use with it, which are nestled in a "beehive" on the back of the vehicle. One, several, or all Drones may be deployed using a single Action on the part of the launching vehicle, but deployment also costs each individual Drone a single Action. For example, a recon vehicle deploys two Drones; the vehicle must spend one Action doing so, and each Drone now has one Action left available for use. If the vehicle decides to launch its last two Drones later in the game, it must spend another Action to do so.

If a vehicle that is controlling Drones is destroyed, the Drones are lost. Drones cannot be tasked to serve another vehicle.

Once Drones are deployed, they can transmit telemetry directly to the firing computers of any friendly vehicle. A Drone may direct another vehicle's fire in the same way that a Forward Observer does in the **Indirect Fire** section; each time a Drone directs fire, it uses one Action. The controlling vehicle

can take normal Actions once its Drones are deployed; no Actions need to be expended to control the Drones.

Infantry ELINT packages also allow the deployment of Drones. Infantry stands must spend two Actions to deploy Drones – they don't have the luxury of having everything pre-packed in a "beehive", and must set them up manually – and controlling them is different as well. An Infantry stand cannot move and control its Drones' movement at the same time. The stand can take other Actions – firing small arms, Hiding, etc. – but if it uses both Actions for movement in a given turn, then the stand's Drones can only direct fire and spot "blips" during their turn; no movement is allowed. This represents the fact that the Infantry controllers have packed up their control console to be able to move to another location.

A Drone has unlimited range from its parent vehicle, such that an enterprising Commander may flood the battlefield with Drones and flush out his enemy wherever they are, if he desires.

Drones are immune to Suppression and land mines. They are never represented by "blips"; simply place them on the board as soon as they are deployed.

Doppelgangers

A vehicle that has chosen an ELINT package may decide not to take Drones, but may rather choose to carry a Doppelganger instead. A Doppelganger is an unmanned hover vehicle carrying a sophisticated electronics package, about the size of an adult coffin or casket; it is capable of moving 15cm per turn, with all the restrictions that apply to hover vehicles. An ELINT-equipped vehicle may choose to take one Doppelganger in place of its standard four Drones, and it costs one Action to deploy a Doppelganger.

The Doppelganger emits an electromagnetic signature that makes it appear on enemy radar screens as a tank or other large armored vehicle. Therefore, a Doppelganger will appear on an enemy's screens as a "blip", causing great confusion for your enemy and allowing you to concentrate your forces while your enemy (hopefully) spreads his thin.

Doppelgangers can be visually spotted as per the normal rules for armored vehicles, at which time the "blip" is replaced with a Doppelganger marker. They have an Armor value of 1 and profile of 1. Infantry stands equipped with ELINT packages may also choose to carry a Doppelganger instead of Drones.

Doppelgangers do not have to be controlled in the same way as Drones do, since all they're doing is moving. The computer AI on board the Doppelganger will maneuver the unit in a manner consistent with an armored fighting vehicle, and since there is no spotting or artillery direction involved, the crew of the parent vehicle do not need to expend Actions controlling the device.

Doppelgangers may not spot "blips", direct artillery fire, or take other Actions besides movement. They serve one purpose only – to fool the enemy. They are also immune from the effects of Suppression.

An Infantry stand equipped with an ELINT package may choose a Doppelganger instead of Drones. The same rules apply to Infantry as to vehicles, except that – similar to Drones – it takes an Infantry stand two Actions to set up and deploy its Doppelganger.

Hiding

Infantry stands may choose to Hide in a turn in which they have not fired and still have one Action left. Hiding must be done behind/inside of a terrain feature, such as behind a berm, inside a ruined building, in thick brush, etc., and makes the unit basically invisible. Infantry may Hide in water, but only at the bank where vegetation helps conceal their position.

Hiding negates enemy observation in most cases. The unit is undetectable to enemy units more than 2cm away. At 2cm or less, the unit is spotted as normal and placed on the board.

Infantry may spot for artillery while Hidden. If a Hidden stand calls for artillery, they are still considered Hidden. Infantry stands that fire weapons, however, are considered spotted and must be placed on the board immediately

Infantry may not Hide with their second Action if their first was anything other than movement or artillery spotting. Things such as weapon signatures, Entrenching, or Mining would reveal their position for the entirety of that turn.

Enemy units that approach Hidden infantry from a direction that would obviously negate Hiding are able to spot the infantry stands normally. For instance, a squad Hiding behind a wall is invisible to enemy units on the other side of the wall, but if a unit approaches their position from the backside, that unit could spot the squad normally.

Smoke

Artillery units can fire smoke rounds, and all units are equipped with white phosphorous grenades that create small batches of smoke. Artillery smoke rockets create a cloud of smoke 6cm x 6cm, and 6cm high. Infantry and vehicle smoke grenades produce clouds of smoke 2cm long x 2cm wide, and 4cm high; Infantry may pop smoke once per Action, but a vehicle can lay down a screen of smoke – vehicles are considered equipped with smoke grenade batteries, so one Action by a vehicle produces a screen of smoke 2cm deep by 6cm wide, perpendicular to and directly in front of the vehicle.

Aircraft have no smoke capability.

Smoke blocks line of sight for all purposes, although ELINT packages operate normally and artillery can still fire at “blips” as noted in the Indirect Fire section. Units can fire through smoke under the conditions discussed in the **Direct Fire** section.

Smoke dissipates after 10 turns.

Direct Fire

A unit may fire *all* its weapons systems using one Action (except for “complex” weapons, covered later). For instance, a tank with a Rail Gun and Chain Guns may move ½ its allowed movement (using one Action) and then may fire its Rail Gun once and its Chain Guns once (using its second Action).

Likewise, a unit may sit still and fire each weapon system twice. Our tank mentioned above may sit still and wait for an enemy to come into view, then attack it with its Rail Gun and Chain Guns; the enemy unit survives, so our tank fires again with its Rail Gun and Chain Guns. At this point, it has used both its Actions, and its turn is over.

To Hit and To Damage Rolls

There are two steps to shooting another unit in Steel Rain®. First, the attacking unit must roll a To Hit roll. This is a function of the distance to the target and the size of the target, or Profile. **Profile** is the size of a vehicle; the more stuff crammed onto the chassis, the larger the vehicle is and the easier it is to hit. To determine the necessary To Hit roll, consult the *To Hit* chart, using the range and Profile.

To Hit Table

Profile	Range										
	Close Assault*	2 to 10	11 to 20	21 to 30	31 to 40	41 to 50	51 to 60	61 to 70	71 to 80	81 to 90	91 to 100+
30+	2	6	7	7	8	8	9	9	10	11	12
29	2	6	7	7	8	8	9	10	10	11	12
28	2	6	7	7	8	9	9	10	11	11	12
27	2	6	7	8	8	9	9	10	11	12	12
26	2	7	7	8	8	9	10	10	11	12	13
25	2	7	7	8	8	9	10	10	11	12	13
24	2	7	7	8	9	9	10	11	11	12	13
23	2	7	8	8	9	9	10	11	12	12	13
22	2	7	8	8	9	10	10	11	12	13	14
21	2	7	8	8	9	10	10	11	12	13	14
20	2	7	8	9	9	10	11	11	12	13	14
19	2	8	8	9	9	10	11	12	12	13	14
18	2	8	8	9	10	10	11	12	13	14	15
17	2	8	8	9	10	10	11	12	13	14	15
16	2	8	9	9	10	11	11	12	13	14	15
15	2	8	9	9	10	11	12	12	13	14	16
14	2	8	9	10	10	11	12	13	14	15	16
13	2	8	9	10	10	11	12	13	14	15	16
12	3	9	9	10	11	11	12	13	14	15	16
11	3	9	9	10	11	12	12	13	14	16	17
10	3	9	10	10	11	12	13	14	15	16	17
9	4	9	10	10	11	12	13	14	15	16	17
8	4	9	10	11	11	12	13	14	15	16	18
7	4	9	10	11	12	12	13	14	16	17	18
6	5	10	10	11	12	13	14	15	16	17	18
5	5	10	10	11	12	13	14	15	16	17	19
4	6	10	11	11	12	13	14	15	16	18	19
3	6	10	11	12	12	13	14	16	17	18	19
2	7	10	11	12	13	14	15	16	17	18	20
1	8	10	11	12	13	14	15	16	17	19	20

*Close Assault range is defined as 2 cm or less

To Damage Table

Armor Value	Lethality				
	1	2	3	4	5
1	6	4	3	2	Kill
2	8	6	5	3	2
3	12	11	6	4	3
4	16	14	11	6	4
5	20	16	13	9	6

If a hit is scored, the attacker must roll on the *To Damage* table at left to resolve weapons effects.

Infantry stands that take a heavy weapon or Extras package have their profiles increased by the amount shown in the Infantry Weapons and Equipment Table.

Note that there is no such thing in this game as a "wounded" unit. A unit is either dead or it isn't.

Line of Sight

A unit engaging with direct fire must have line of sight to the unit it is engaging. Various objects can block line of sight – obstacles, buildings, foliage, and other vehicles (Infantry stands don't block line of sight). There are certain exceptions to line of sight, which will be discussed later.

Complex Weapons

Some weapons take longer to set up, fire, and reload. An artillery vehicle's salvo rockets take longer to reload, stabilize, and aim, and the ATGM is a wire-guided missile that requires it to be steered to its target. For these reasons, both these weapons systems require two Actions to fire.

For instance, a Tank-Killer carrying an ATGM and Chain Guns could, using two Actions, fire once with the ATGM and twice with the Chain Guns. Another Tank-Killer armed with two ATGM's could use two Actions to fire each ATGM once, for a total of two shots.

Note that even if only one complex weapon is fired, both Actions have now been committed to weapons fire; the vehicle may not move, call artillery, or take any other action, except to fire off another weapon system.

Overwatch

A unit that finishes its turn with one or more unused Actions is automatically put into Overwatch.

Overwatch units may fire at opportunity targets after their normal turn, one shot for each saved Action. Units fired upon may return fire, as below.

Return Fire

A unit that has been fired upon may immediately return fire if it has at least one Action remaining and all other conditions are met.

This counts against its allowed Actions for the turn; if a unit that hasn't moved yet is fired upon and returns fire once, it loses one Action when its turn comes around.

A unit returning fire does so immediately, before the enemy unit is allowed to take its second Action. If the unit returning fire misses, then the unit that fired first may take its second Action. The exception to this is those units firing complex weapons such as ATGM's; in that case, the firing unit *has* to use two Actions to fire, so it is allowed to do so before the targeted unit can return fire.

If a unit has a mix of regular and complex weapons, such as a Rail Gun and an ATGM, it may fire the complex weapon and one shot from its regular weapon before the target vehicle can return fire. The attacking unit can then take its second shot with its Rail Gun, thus completing its turn.

Opportunity Fire

A unit in Overwatch or that hasn't yet moved may fire outside its turn if it spots an enemy unit moving. When the commander announces opportunity fire, the unit being fired upon must stop at the point it was spotted plus up to 3cm and the weapons effects must be resolved.

The 3cm "drift" takes into account the time required to set up a shot and fire; thus a unit may be able to dash through an open danger area into cover and still escape being fired upon. The unit must have that movement left, however; if it was fired upon at the limit of its movement, it doesn't get to "drift" to safety.

If the opportunity fire misses, the target vehicle can either proceed with its turn or return fire, however it chooses.

Revealed "Blips"

A Hidden unit or "blip" that fires upon another unit, whether or not it was spotted, Hidden, or otherwise undetected, is automatically spotted and placed on the board.

Cover and Concealment

Cover and concealment are related but not synonymous. *Cover* is anything that stops bullets, such as rubble, sandbags, bulletproof glass, etc. *Concealment* is anything that prevents direct observation, such as smoke, foliage, camouflage netting, etc. While the two often go hand in hand, such is not always the case.

Units taking cover behind things such as trees, rocks, rubble, overturned cars, other vehicles, etc., or in Entrenchments, are afforded a bonus to their Profile, which is detailed in the Terrain Profile Modifier table.

Terrain Profile Modifier (Cover and Concealment)

Terrain	Profile Modifier
Open	0
Overgrown	-1
Light woods	-5
Heavy woods	-8
Pavement	0
Rocks/Rubble	-3
Ruined buildings/Deep rubble	-6
Sand	0
Shallow water (<3 ft)	-2
Medium water (4 to 8 ft)	-6
Deep water (>8 ft)	-10
Flat	0
Easy slope	0
Steep slope	0
Impassable slope/Cliff	0
Concertina wire	0
Dragon's teeth	0 (-2 for Infantry)
Roadblocks	-3
Entrenchment	-10
Smoke	-10

A *concealed* unit cannot be directly targeted, but the concealment itself can, and damage can "pass through" concealment to affect units behind it (see the **Carnage and Destruction** section for more information on destroying things). This is called "reconnaissance by fire" in today's military. There are two conditions to be met in order for damage to be able to pass through concealment and strike an enemy unit:

1. The firing unit, concealment, and concealed unit are all on a straight line, and
2. The concealed unit is within 5cm of the destroyed concealment.

For example, a tank equipped with a Rail Gun sees an enemy unit move behind some trees, which are too thick to see through. It knows the unit is there, and fires upon the trees blocking its line of sight. The trees are destroyed and are removed from the game table. The trees have an Armor value of 2, while the Rail Gun has a Lethality of 4, which leaves 2 Lethality points unaccounted for. In this case, those two points can be applied to the unit that was concealed behind the trees, again as long as:

1. The firing unit, trees, and concealed unit are all on a straight line, and
2. The concealed unit is within 5cm of the destroyed trees.

The attacking unit then simply rolls for the effect, using a Lethality of 2 against the target vehicle's Armor value.

Note that damage will not pass through more than 2cm of foliage. At that point, an attacking unit would have to destroy a square of foliage first, and then attempt to fire upon the concealed vehicle.

Smoke is a different story. To target an enemy unit through smoke, a unit must have seen the enemy unit *immediately* prior to the interference of the smoke (just before it was popped, dropped by artillery, or the target vehicle moved behind it), and then makes its To Hit roll as if the target vehicle's Profile were reduced by 10. If no unit saw the target vehicle pass behind the smoke, line of sight is considered lost to that vehicle.

Entrenched units have their Profile reduced by 10 while in their Entrenchment, with the lowest possible value still being 1.

Microwave Projectors

A Microwave Projector can fire on up to four units at a time, as long as those four units are within a 5cm diameter. When a Projector fires, use a 5cm Burst Template to see which units are affected. The commander firing the Projector can choose which four units to roll To Hit and To Damage rolls against. Only four units may be affected at any one attack.

Gel Flamers

A gel flamer spits out a stream of sticky magnesium-based gel that clings to its target and burns with an intense, if short-lived, heat. Any unit successfully hit by gel but that wasn't destroyed (i.e., successful To Hit roll followed by a failed To Damage roll) must suffer a second To Damage roll at the beginning of the next turn. This represents the burning effect of the gel, which simply burns out if a second To Damage roll fails.

Ambush

Hidden Infantry stands may Ambush other units at ranges closer than 5cm. The ambushing unit gets to take both attacks before the ambushed unit is allowed to respond.

Ambushed units do not get the 3cm "drift" bonus available to units engaged by enemy units in Overwatch.

Ambushed units may only use one Action for firing; the other must be for movement or be lost to surprise.

Suppressed units may not Ambush.

Artillery Direct Fire

Artillery units may fire directly upon buildings, infantry, and stationary units. They fire at buildings at normal values; the other targets cause a -2 penalty to the To Hit roll, because Artillery doesn't possess the same targeting systems that are used by Rail Guns.

When an artillery piece is used for direct fire, there is no "travel time" (see below); the round is treated as a normal direct-fire projectile except for purposes of Lethality and Damage.

Infantry Fire from Vehicles

Infantry mounted in vehicles such as IFV's, APC's, and helicopters/VTOLs can attack from the vehicle using their Small Arms value. No squad heavy weapons can be fired from inside a vehicle, unless it is open-topped, i.e., has an Armor Value of 1.

Weapons Effects on Infantry

Chain guns have an especially grievous effect on Infantry, gaining a +2 bonus to Lethality when targeting dismounted troops.

Infantry being carried by a vehicle that is destroyed are destroyed as well, without a second To Damage roll such as is applied to stacked units.

Vehicle Direct Fire Weapons Table

System	Weight	Profile	Range (cm)	Lethality
Chain Guns <i>+2 Lethality vs. Infantry</i>	1	+1	40	1
Autocannon	5	+2	70	3
Rail Gun <i>Can be fired as direct or indirect</i>	12	+4	85	4
Anti-Tank Guided Missile <i>Firing counts as two Actions</i>	9	+5	100	5
Surface-to-Air Missile <i>Targets air units only</i>	9	+3	80	2
Chemical Laser	6	+1	60	2
Microwave Projector <i>Complex Weapon; can 'sweep' up to 4 units within a 5cm diameter</i>	18	+6	40	5
Gel Flamer <i>3cm x 3cm effect radius; Double Suppression vs. Infantry; 2nd Damage roll made on next turn if target survives initial attack</i>	10	+3	10	4

Indirect Fire

Artillery units engage other units through three means: forward observers, direct observation, and “blind fire”. Commanders must also contend with the time it takes a rocket or shell to travel to the target, known as “delivery time.”

Artillery can fire three types of rounds: high-explosive (HE), smoke, or scatterable mines (known as FASCAM). Commanders must keep track of which units are firing what kinds of rounds, in case specific artillery vehicles are destroyed before completing their fire missions.

Artillery is a complex weapon as described in the Direct Fire section above. It takes two Actions to fire a single artillery barrage (although it can also fire a secondary weapon during that time, such as two shots from its Chain Guns or an Autocannon).

Note that Infantry mortars are not complex weapons, and can only fire high-explosive rounds. Mortars also have no travel time, but are otherwise subject to the line-of-sight and FO rules of normal artillery.

When artillery is called on a position, mark that position with a Fire Marker. This should be a numbered marker that corresponds to the firing artillery piece, so that neither side forgets to resolve their artillery fire.

Forward Observers

If artillery is called in by a forward observer (FO) or Drone, the attack roll is made as if the FO unit were attacking by direct fire itself, but at a -2 penalty (use the Range from the FO, but subtract 2 from your d20 roll). However, calling for an artillery strike consumes one Action for the spotting unit (just as if it made an attack itself).

For example, an FO unit calls artillery on an enemy unit that is 30cm from its position, but 70cm from the artillery battery’s position. The attack is made using the “21 to 30” range column on the To Hit table, and the FO unit’s d20 roll is reduced by 2 when rolling to see if there was a hit.

Artillery directed by an FO may fire at units outside of its line of sight, naturally.

Adjusting Fire

Each subsequent shot at the same non-moving unit or the same location (i.e., if one unit vacates a spot and it is immediately occupied by another unit) is made at a cumulative +1 bonus. The maximum cumulative bonus for adjusted fire is +4, in addition to any other bonuses.

Direct Observation

Artillery that spots for itself fires at normal values for its To Hit rolls. It must, of course, have line of sight to a unit to be able to fire upon that unit, except in the case of Blind Fire described in the next paragraph.

Blind Fire

An artillery unit may fire at “blips” at a -3 penalty to its To Hit roll. All other bonuses and penalties apply.

If artillery hits a “blip”, at least one vehicle within that “blip” must have been hit, but because of the close proximity of vehicles traveling under the guise of a single “blip”, other vehicles may have been hit as well. Roll a d20 for each additional vehicle in a “blip”; on a roll of 10+, the additional vehicle was hit as well.

Delivery Time

Artillery rockets arrive at the beginning of the round after the fire mission is called, before the Initiative rolls are made. Infantry mortars have no delivery time; their shells behave as if they were direct fire weapons.

Scatter

Artillery that misses must roll for scatter effects (those rockets have to go *somewhere*). Roll on the Scatter table, and apply the burst template to the new point of impact. If the shell strikes another unit, resolve damage accordingly.

The Scatter Table requires just one roll of a d20; the result tells you which direction and how far the errant shell went. For instance, a roll of 15 would send the shell 6cm to the southwest of the target vehicle.

Note that artillery that rolls an unadjusted 1 for its To Hit roll not only misses, but also doesn't get to roll for scatter effect; the rockets failed to arm and just stuck into the ground like big lawn darts.

Artillery Scatter Table (d20)

		Distance (cm), Direction						
Die Roll	1	3N	6	3E	11	3S	16	3W
	2	6N	7	6E	12	6S	17	6W
	3	10N	8	10E	13	10S	18	10W
	4	3NE	9	3SE	14	3SW	19	3NW
	5	6NE	10	6SE	15	6SW	20	6NW

Burst Radius

Artillery rockets have an effective blast radius of 3cm, which can be represented by the 6cm-diameter burst template. After checking with the template to see how many units were caught in the burst radius, mark the blast spot with a single cotton ball for smoke.

Infantry mortars have a 1cm burst radius, represented by a 2cm burst template.

Smoke

Artillery can also fire smoke shells to obscure objectives, danger areas, kill zones, etc. Calling for smoke is handled the same way as calling for normal fire support, except that there is no To Damage roll required. An exploding smoke rocket produces smoke 6cm x 6cm, and 6cm high.

Smoke rockets can be interchanged with HE rockets without any Action penalty (unlike FASCAM rounds, discussed later).

Infantry mortars cannot fire smoke rounds, although the Infantry stand itself may pop smoke as normal.

Counter-Battery Fire

An artillery battery that fires upon another artillery unit that has previously fired in the same turn, or that hasn't moved since last firing, gets a +1 To Hit bonus against that unit.

Artillery units can be given a strict fire mission of counter-battery fire. When placed in CB status, artillery units will fire upon enemy artillery *immediately* after the enemy unit has fired, if the counter-battery unit has enough Actions left to fire with.

Mortars cannot be used in CB mode, as they lack the sophisticated electronics necessary to track enemy shells in flight.

Artillery vs. Infantry

Artillery has an especially grievous effect upon dismounted infantry, gaining a +2 to Lethality when firing against these targets.

Infantry mortars also gain a +2 Lethality bonus when fired against Infantry targets.

Note that Entrenchments help protect Infantry from shrapnel. If an Infantry unit is hit directly (the shell or rocket lands right on top of it), the Artillery +2 Lethality bonus still applies; however, if an Entrenched Infantry stand is not hit directly but is instead caught within the burst template for the exploding shell, the Lethality bonus is reduced to +1.

Rail Guns in Indirect Fire Mode

Because of the sophisticated fire control systems in use on the Steel Rain® battlefield, Rail Guns have replaced howitzers as the delivery system for ballistic artillery fire. The Rail Gun is simply elevated to the appropriate angle and given the appropriate amount of “push” by its magnetic coils to put a shell in the appropriate ballistic arc.

When firing a Rail Gun in the indirect mode, treat the unit as if it were firing Salvo Rockets, with the following modifications:

- Use the Range and Lethality characteristics of the Rail Gun
- A Rail Gun has no burst radius
- Rail Guns have no Smoke or FASCAM capability

All other Artillery conditions apply (such as Blind Fire penalties, Scatter, FO bonuses, etc.). The benefit is that a single FO – say, a dismounted infantry stand – could call down multiple rail guns on enemy units that would be otherwise out of the line of sight of those units.

Close Assault

Units that engage in combat at less than 2cm are considered to be in Close Assault.

Air units may not Close Assault.

Ambush conditions apply to Close Assault; if an ambushing unit attacks at 2cm or closer, it gains the benefits of Ambush while the combat is resolved as Close Assault (with the attendant Infantry bonus and weapons limitations).

Unlike in Ambush, a unit may move to close the distance and then Close Assault an enemy unit. For instance, an Infantry stand may move 3cm to bring itself within 2cm of an enemy unit, then Close Assault that unit with its remaining action. This benefits the Infantry stand by allowing them to attack with a Lethality of 3, while negating an enemy's use of ATGM's.

Infantry in Close Assault

Infantry units always have a Lethality of 3 when in a Close Assault situation, whether attacking or defending. This bonus represents the Infantry's ability to employ grenades, satchel charges, and swarming tactics. *Sharpen those e-tools, men!!*

Weapons Limitations in Close Assault

ATGM's and SAM's may not be fired in Close Assault. All other weapons may be used to normal effect.

Note that an artillery unit firing salvo rockets has a 6cm burst diameter. That means that artillery guns may actually damage themselves if caught within their own burst radius. Roll for damage as normal. Infantry mortars must also be wary of doing themselves harm.

Ramming

A unit that does not/cannot fire its weapon in Close Assault can attempt to ram or run over the other unit. In this case, make a To Hit roll as normal. If it hits, roll for damage using the following Lethality, based on the two units' respective Profiles:

- If assaulting unit's Profile is greater than the defending unit's Profile by more than 20: use a Lethality of 4
- If assaulting unit's Profile is greater than the defending unit's Profile by 11 to 20: use a Lethality of 3
- If assaulting unit's Profile is greater than the defending unit's Profile by 1 to 10: use a Lethality of 2
- If assaulting unit's Profile is equal to or less than the defending unit's Profile: use a Lethality of 1

This allows vehicles to try and run over or destroy the other unit using sheer physical size, which may be the only option for a tank equipped with nothing but SAM systems, for instance.

Suppression and Rallying

Not all shots that hit do damage; however, shots that hit but fail to destroy the enemy cause Suppression. Suppressed ground units may only take three voluntary actions: Rally, Break Contact, or Hide. Air units behave differently, as discussed below.

Suppression Score

Every missed shot at a unit raises that unit's Suppression score by 1, unless the shot was missed with a natural 1 on the d20 To Hit roll.

Shots that hit but fail to kill a unit (i.e., successful To Hit roll, failed To Damage roll) cause Suppression equal to the firing weapon's Lethality. Thus, a Rail Gun that hits without effect raises the target's Suppression score by 4.

Suppression Check

At the beginning of every turn, a Suppressed unit is allowed to roll a d20 against its Suppression score. A roll equal to or less than the current Suppression score means that the unit is still Suppressed and cannot perform any actions other than the three allowed.

Rallying and Reducing Suppression

Suppression doesn't last indefinitely. Units "bleed off" Suppression points at the rate of 2 plus their armor value per turn. For example, a light tank with armor value of 3 would "bleed off" 5 Suppression points per turn. The inclusion of the armor value represents the peace of mind of having thick steel between you and incoming rounds. Infantry bleed off Suppression at the base rate of 2 points per turn.

Units that are Suppressed may also use one Action to Rally. Rallying can take two forms, and it is the unit commander's choice as to which to do. A Rallying unit may reduce its Suppression score by 5 points; this costs one Action. Thus, a Suppressed unit may reduce its Suppression by 10 points per turn. Alternatively, the unit can spend an Action on a d20 dice roll to try and break Suppression. This is conducted as normal, and might be a wise choice if a unit actually has a very low Suppression score, but failed its roll at the beginning of the turn.

Breaking Contact

Units that are Suppressed may spend Action to try and escape their situation by moving back towards their end of the game table; this is called Breaking Contact. Units that are Breaking Contact must take the straightest but safest route back to their "friendly" (starting) side of the board. If there is no safe route back, the unit may attempt to move into cover.

Hiding While Suppressed

Infantry units that are Suppressed may use their Actions to Hide, and receive all advantages of that action as noted previously.

Air Units and Suppression

Air units must face Suppression just as ground units do. Helicopters and VTOL's behave the same way as ground units for dealing with Suppression.

A Fast Mover that fails a Suppression check must use its Actions to either Rally or accelerate. If it doesn't Rally, it must accelerate at its maximum 15cm/Action value and do so with both Actions, until it either leaves the board or reaches its maximum speed. A Fast Mover that leaves the game board reduces Suppression during its time off board in the same way that ground units do.

Minefields and Suppression

Units within 10cm of a friendly unit that is killed by a mine and who have line-of-sight observation of that unit, have their Suppression score increased by 3. This is cumulative, so if a column of tanks

suddenly loses two of its number to mines, all vehicles within 10cm and who saw the blasts will have their Suppression score raised by 6.

Gel Flamers and Infantry Suppression

Gel flamer attacks that fail to kill Infantry raise the surviving stand's Suppression score by 8.

Carnage and Destruction

Vehicles that are destroyed should be covered with a large cotton ball. This smoke blocks line-of-sight as normal.

Terrain can be altered by direct and indirect fire. If trees or brush are hit by fire, they can be removed. Trees have a Profile of 15 and an armor value of 2; brush has a Profile of 10 and armor value of 1. A successful attack clears a 2cm x 2cm square of foliage.

Destroying Buildings

Buildings that take too much damage will collapse; a cumulative Lethality of 15 points per floor applied against a building will bring it down. Thus, if two tanks equipped with Rail Guns are firing at infantry taking cover in a two-story building, each tank will inflict 8 Lethality points per turn against that building. After two turns, the building will collapse (8 points x 2 tanks x 2 turns = 32 points, vs. 15 points x 2 floors = 30 points for the building).

Infantry in buildings that collapse are automatically destroyed.

Bridges may be destroyed in much the same way as buildings. For every 1cm of span, the bridge can take 3 Lethality points in damage before collapsing. Again, units on bridges that are destroyed will be destroyed as well.

Unintentional Destruction

Combatants do damage to buildings anytime they engage units within that building, whether they want to or not.

Bridges, however, don't take damage from fire directed at a unit on the bridge, unless the shot misses. In this case, the Lethality might be applied to the bridge; roll To Hit against a Profile of 20 to see if errant rounds strike the span. Artillery strikes directed at units on a bridge damage both the target units and the bridge as well.

Note that this creates some interesting possibilities for victory conditions. Perhaps the mission is to capture a specific building without destroying it, but that building is swarming with Infantry. Rail Guns might not be a good option, but Chain Guns would work nicely. Or, units attempting to capture a bridge find that the bridge itself is occupied by multiple enemy units; in this case, artillery strikes are not a good idea because of the collateral damage inherent in artillery use.

Combat Engineering

Obstacles

Obstacles in Steel Rain® take four forms: Concertina Wire, Dragon's Teeth, Mines, and Roadblocks. All obstacles are placed on the board in 2cm x 2cm “blocks” for ease of game play.

Concertina Wire is coiled heavy-gauge wire garnished with sharp metal hooks. It will slow down vehicles, especially if it wraps around the axles; however, for purposes of this game, the vehicles simply pay the movement penalty. If the vehicle driving through the wire is Tracked, the wire is destroyed. Wheeled and Hover vehicles have no destructive effect on wire simply by passing through; they have to be ordered to destroy it and must do so using an Engineer package. Infantry cannot pass concertina without destroying it first.

Dragon's Teeth are concrete tetrahedrons laid in rows across a field to stop tanks (they high-center and get stuck). Wheeled and Tracked vehicles cannot cross Dragon's Teeth, and can only destroy them by using an Engineer package. Hover vehicles can cross them by boosting their downdraft, but this costs them some forward speed. Infantry are unaffected by Dragon's Teeth, and can, in fact, use them, for cover and concealment.

Mines do not impede movement, but may cause damage. Minefields are considered to have a Lethality of 3 and explode on a d20 roll of 5 or higher, rolled for *each centimeter* a unit moves through their block. Minefields are considered to have a mix of anti-tank and anti-personnel mines, and they will explode if a hover-type vehicle passes over them. Once a minefield is detonated **four** times, it is expended and removed from the board. Thus, it is possible to clear a minefield by using massed charges – cruel and heartless, perhaps, but a Machiavellian commander could certainly make it happen, provided the units in question can withstand the resulting Suppression. Mines may be deployed in water and among foliage as well.

Roadblocks – such as car cribs, abatis, steel hedgehogs, etc. – can only be destroyed by deliberate action.

Mines and Water

Mines can be placed in water, but they lose their ability to affect hover-type vehicles that may pass over them. Mines in water may only be cleared by Engineer-equipped vehicles.

Breaching – Combat Engineer Vehicles

Engineer-equipped vehicles may destroy Mines, Concertina Wire, and Dragon's Teeth, at the rate of two blocks (2cm x 2cm each) per Action.

Engineer vehicles may dislodge Roadblocks at the rate of 2cm per Action, plus 1cm if it is a Tracked vehicle, plus 1cm for every 30 tons of weight it has over 50 tons, (to the extent of its maximum allowed movement). Earthen Roadblocks are destroyed by this, while others – such as abatis or car cribs – are either pushed straight back or swept to one side (Commander must declare which result he intends). The engineer vehicle must be touching the Roadblock prior to dislodging it; thus, it may have to use one Action to get in place and subsequent Actions to push it out of the way.

Breaching – Combat Engineer Dismounts

Combat Engineer stands (which are Infantry stands with the Engineer package) may destroy Mines, Concertina Wire, and Dragon's Teeth at the rate of one block (2cm x 2cm) per Action.

One Combat Engineer stand may destroy one Roadblock at the cost of 6 Actions (or three turns spent clearing the Roadblock). Stands may team up; for example, three stands may clear an obstacle in one turn, so long as all 6 required Actions are accounted for.

Breaching – Everyone Else

Other units may attempt to clear obstacles, but with varying degrees of success. Any direct fire weapon may target Mines – they have a Profile of 1 and Armor value of 1. It takes four successful hits to destroy a single block of Mines.

Area-effect weapons (artillery, Microwave Projectors, and Gel Flamers) can wipe out patches of Mines as large as their blast templates. For each square of mines caught under the blast template, roll four To Damage rolls. The Mine square is reduced by the number of successful rolls, and if it takes four cumulative hits, it is destroyed and removed from the game.

Dragon's Teeth and Concertina Wire may not be destroyed by direct fire.

Emplacing Obstacles

One Combat Engineer stand may lay Mines or string Concertina Wire at the rate one block per Action. Using a vehicle alongside the stand increases the rate to 2 blocks per Action; the vehicle only has to expend Action on the movement required to keep up with the dismounts as they work.

Engineer-equipped vehicles may emplace Roadblocks at the rate of 2 Actions per 2cm x 2cm block. This might be pushing destroyed vehicles across a road, felling logs, etc. Use your imagination. Combat Engineer dismounts may emplace Roadblocks at 4 Actions per 2cm x 2cm block, and again the rules for teaming up on a task with multiple stands are applicable.

Bridging

Combat Engineer stands may emplace footbridges at the rate of 1cm x 1cm per Action. Up to 5cm long requires no special equipment; beyond that, one truckload of equipment must be brought forward for every additional 5cm.

Armored Vehicle Launched Bridge (AVLB) units may lay their bridge using two Actions. This bridge will support any vehicle and is 6cm long. The bridge must be recovered (i.e., loaded back onto the AVLB, using two more Actions) before it may be used again.

An AVLB bridge can be destroyed just as a normal bridge can in the **Carnage and Destruction** section. It takes 18 Lethality points to do so.

FASCAM Missions

Artillery units may choose to fire scatterable mines instead of conventional HE rounds. It takes two Actions (or one full round) to change munitions types, after which the unit may fire normally. Wherever the round lands, a 3 block by 3 block (6cm x 6cm) square minefield is produced. Once the unit chooses to change back to HE, another two Actions must be expended changing munitions types.

Helicopters and VTOLs may carry FASCAM packages, under the following restrictions. The FASCAM dispenser has only two shots, each of which will produce a minefield 2 blocks wide by 10 blocks (4cm wide by 20cm) long. The air unit must be traveling at 20cm airspeed prior to dispensing the mines; thus, the immediate prior Action must be to travel 20cm (even if this is on the previous turn). The aircraft then travels 20cm while dispensing. No other activity except spotting "blips" is allowed during this time.

Fast Movers cannot carry FASCAM packages.

Infantry mortars cannot fire FASCAM rounds.



The Volcano FASCAM mine-deploying system mounted on a helicopter

Air Defense

Any unit may engage an air unit, but must do so at a -3 to their To Hit roll. SAM's, on the other hand, get a +3 bonus.

A unit equipped with multiple SAM's may choose to fire a volley rather than a single shot at a time. This lets the commander roll four or six To Hit rolls at once (two shots from each missile system) *all at a single target*, before the target vehicle gets any further action. However, this uses up both Actions for the air defense vehicle.

Air Units

An air unit is any helicopter, VTOL, or "Fast Mover" (fixed-wing fighter craft used for close air support). They behave differently than ground units.

Airspeed

Fast Movers can travel no slower than 30cm/turn, and may accelerate/decelerate by up to 20cm/Action. They have a maximum game speed of 100cm/turn.

Helicopters and VTOL's move in the same manner as ground units, except that they have a much higher movement rate.

Actions and Movement for Aircraft

Air units receive two Actions per turn to use for weapons fire and either acceleration/deceleration (Fast Movers) or movement (helicopters/VTOL's).

Helicopters and VTOL's can only land in certain types of terrain, as shown on the Terrain-Movement Cost Modifier table. Mines affect helicopters/VTOL's just as they would a normal vehicle; if one lands in a mined square, roll for hit and effect as normal.

Landing and taking off cost one Action each. Fast Movers cannot land on the game board.

Fast Movers receive free but required movement at the rate they moved the previous turn; thus, if a Fast Mover moved a total of 50cm last turn it must move 50cm this turn, unless it uses Actions to change its airspeed (speed up or slow down). If it decides to move the same speed as last turn, it may use its two Actions for weapons fire.

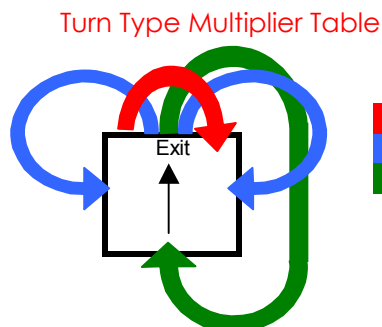
Fast Movers enter the board and travel more or less in a straight line. They are allowed to change their heading up to 30° in either direction **once** during their sweep across the board. The time it takes them to re-enter the board depends on their weight and speed and on which side of the board they wish to re-enter on. The Fast Mover Re-Entry Table lists the base turns off-board and the multipliers used to figure out when the aircraft can reenter.

Speed vs. Weight Table

Weight	Speed							
	20 to 30	31 to 40	41 to 50	51 to 60	61 to 70	71 to 80	81 to 90	91 to 100
15 to 30	1	1	1	2	2	2	2	3
31 to 40	1	1	2	2	2	2	2	3
41 to 50	1	2	2	2	2	2	2	3
51 to 60	2	2	2	2	2	2	3	3
61 to 70	2	2	2	2	3	3	3	3
71 to 80	2	2	2	3	3	3	3	3
81 to 90	2	2	3	3	3	3	3	3
91 to 100	3	3	3	3	3	3	3	3
100+	3	3	3	3	3	3	3	3

To determine how long it takes a Fast Mover to turn and reenter the battle space, first consult the Speed vs. Weight table. This gives the base number of turns required. Then check the Turn Type Multiplier table (listed on the next page) to see how much longer it takes the Fast Mover to re-enter the board on the desired side. Multiply those two numbers together to get the number of turns required before the Fast Mover can make another appearance.

For example, one commander has a YAK-33, which weighs 32 tons, traveling at 65cm/turn when it exits the North side of the board. He wants it to re-enter the board from the East (a 270° turn). He will be able to re-introduce the game piece to the East side of the board in four turns (base 2 for speed and weight, times a multiplier of 2 for a 270° turn).



° of Turn	Multiplier	Examples
180	1	Exit North, Enter North
270	2	Exit North, Enter East
360	3	Exit North, Enter South

When Fast Movers re-enter the board, they are placed at the very edge they are entering from at the beginning of the turn.

Helicopters and VTOL's are only able to land on certain types of terrain; otherwise, the danger is too great that they may pitch over and wind up as flaming wrecks. The VTOL Landing Table below delineates what types of terrain can serve as landing sites for those types of units.

VTOL Landing Ability

Terrain Type	Can land?
Open	Y
Overgrown	Y
Light woods	N
Heavy woods	N
Pavement	Y
Rocks/Rubble	N
Ruined buildings/Deep rubble	N
Sand	Y
Shallow water (<3 ft)	Y
Medium water (4 to 8 ft)	N
Deep water (>8 ft)	N
Flat	Y
Easy slope	Y
Steep slope	N
Impassable slope/Cliff	N
Concertina wire	N
Dragon's teeth	N
Roadblocks	N

Strafing

Fast Movers may strafe up to five units in a single turn, provided they meet the following conditions: The targets must be in a corridor, no more than 8cm wide and no longer than the aircraft's current airspeed, in the Fast Mover's direct flight path. The Fast Mover must use both Actions for that turn to strafe.

The furthest target fired upon must be within the range of the shortest-range weapon system used; thus, if a Fast Mover engages a column of five vehicles with Chain Guns and ATGM's, the furthest vehicle away must be within the 40cm range of the Chain Guns.

Separate To Hit and To Damage rolls are made for each separate vehicle; the To Damage rolls use the average Lethality value of the Fast Mover's combined weapon systems, but any remainder is applied to the next target. Thus, if our proposed aircraft in the previous example is engaging with Chain Guns and ATGM's, the To Damage roll is made using a Lethality of:

$$(1+4)/2 = 2.5 \text{ rounded up to } 3$$

... for the first target, while using a 2 for the second target. These values start with the highest and alternate by targets.

Crashing Aircraft

An air unit that is shot down travels at its current airspeed for one full further turn before crashing; thus, a Fast Mover shot down while traveling at 55cm when hit will travel in a straight line for 55cm. The unit is dead, meaning it cannot make any attacks or take any Actions.

When the aircraft reaches its crash point, roll on the Artillery Scatter table to find the exact spot it crashed at. If the aircraft crashes on a unit, roll for damage against a Lethality of 4.

Weapons Restrictions on Air Units

Because air units operate under different principles as ground units, they are restricted in their choice of weaponry. The choices available to aircraft are listed in the table below.

Aircraft Weapons Table

System	Weight	Profile	Range (cm)	Lethality
Chain Guns <i>+2 Lethality vs. Infantry</i>	1	+1	40	1
Autocannon	5	+2	70	3
Anti-Tank Guided Missiles <i>Firing counts as two Actions</i>	9	+5	100	5
Air-to-Air Missiles <i>Targets air units only</i>	9	+3	80	2
Chemical Laser	6	+1	60	2
ELINT Package <i>Allows for spotting "blips" without LOS</i>	2	+1	65	*
FASCAM Package * <i>Allows Mine deployment; VTOL units only</i>	8	+4	0	As for Mines

Note that air-to-air missiles are listed here, but are not listed in the vehicle design tables included in the Excel package. This is solely for simplicity's sake, as the AAM's listed above have the same exact properties as SAM's.

Aircraft are able to fire using the same volley fire rules as ground-based SAM batteries.

Vehicle Creation

Vehicle creation in Steel Rain® is fairly simple and allows for a lot of flexibility and creativity. In the included Excel package is a tab on vehicle generation as well as a page of sample vehicles.

Those sample vehicle cards are driven by Excel formulas and functions that help populate the appropriate values, without you having to go look for them.

Every vehicle in this game has to have a propulsion method and minimum armor value of 1 (although you can create bunkers just by eliminating the propulsion method). Beyond that, vehicles may carry up to three weapons systems, one “Extras” package (as allowed for that vehicle type), and carrying space for up to eight infantry stands (four squads, or one full platoon).

It's important to understand how your choices affect a vehicle's performance in combat:

- A high **Profile** means that your vehicle is physically large and thus easier hit.
- A high **Weight** impairs your vehicle's ability to move, making it harder for that vehicle to move to areas critical to your battle plan.
- Weak **Armor** means that your vehicle is much more likely to be destroyed by enemy fire.
- Your weapons' **Lethality** will determine how well they can dole out punishment to the enemy.

So when configuring your vehicles, remember to account for speed, survivability, lethality, and infantry capacity. A superheavy tank with 5 armor and the heaviest weapons it can carry may do extreme damage and be able to survive incoming fire, but it will only be able to crawl at a snail's pace and will be very easy to target because of its high Profile. A wheeled artillery vehicle with armor of 1 may be very mobile and hard to hit, but if it does get hit (say, by counter-battery fire), then it's almost certainly a goner. These are the trade-offs that you must keep in mind when designing your forces.

You will most likely find that a combination of vehicles will serve you best. That's about as close to combined arms as this game comes.

Propulsion types, as described below, include Wheeled, Tracked, and Hover. For wheeled, think of the US Marine Corps' LAV, the US Army's new Stryker vehicle, or the South African Defense Industries' G6 wheeled howitzer. Tracked is what people traditionally consider proper for tanks – a segmented belt of “track shoes”, pulled by a drive sprocket, that allows the tank to crawl over broken and difficult terrain. Finally, Hover refers to either an antigravity system or an “air cushion” vehicle such as described in David Drake's *Hammer's Slammers* novels.

Propulsion Type			
Type	Wheeled	Tracked	Hover
Weight	4	12	16
Profile	+2	+2	+4

Armor value is simply the degree of survivability of a vehicle, with a value of 1 representing nothing more than the vehicle's chassis and body panels and a 5 representing the thick hardened armor of a modern MBT, such as an Abrams, Merkava, or T-80.

Armor					
Value	1	2	3	4	5
Weight	5	12	25	45	60
Profile	+1	+2	+3	+4	+5

Weapon Descriptions

Following is some clarification for those who wish to know more about the weapons featured in Steel Rain®

- **Chain Guns:** A type of machine gun that uses a chain to cycle rounds through the firing chamber. Because the gun is not dependent on using the round's recoil to chamber the next bullet, and because the bolt does not move as in modern machine guns, a chain gun is far more reliable and has a much higher rate of fire than a typical modern machine gun.

- **Autocannon:** Basically a huge machine gun that shoots high-explosive shells. The 25mm Bushmaster gun on the US Army's M2/M3 Bradley is a prime example.

- **Railgun:** A cannon that uses magnetic rails to propel a cylindrical projectile. Railguns have been examined in depth as potential Strategic Defense Initiative weapons. Because a Railgun uses magnetic acceleration, it is very easy for a computerized firing system to change the amount of "push" given to a projectile, making a Railgun very efficient and accurate.

- **Anti-Tank Guided Missiles (ATGM):** A missile guided by wires or laser to a distant target. ATGM's usually are able to carry a far more lethal warhead than a typical tank shell. The TOW, Javelin, and SS-4 are perfect examples.
- **Surface-to-Air Missiles (SAM):** Missiles specially designed to intercept and shoot down aircraft. Tracking an aircraft is an entirely different set of variables for a computer to deal with than targeting a land-based vehicle. The Stinger, Hawk, and SA-6 missiles are good examples of SAM's.
- **Salvo Rockets:** Also known as Multiple Launch Rocket Systems, salvo rockets have replaced ballistic ("tube") artillery in this game. They are capable of greater range, more lethal warheads, and higher accuracy than "howitzer" artillery.

Vehicle Weapons and Equipment Table

System	Weight	Profile	Range (cm)	Lethality
Chain Guns <i>+2 Lethality vs. Infantry</i>	1	+1	40	1
Autocannon	5	+2	70	3
Rail Gun <i>Can be fired as direct or indirect</i>	12	+4	85	4
Anti-Tank Guided Missile <i>Firing counts as two Actions</i>	9	+5	100	5
Surface-to-Air Missile <i>Targets air units only</i>	9	+3	80	2
Salvo Rockets <i>Firing counts as two Actions; +2 Lethality vs. Infantry; 2cm burst radius</i>	15	+4	200	2
Chemical Laser	6	+1	60	2
Microwave Projector <i>Complex Weapon; can 'sweep' up to 4 units within a 5cm diameter</i>	18	+6	40	5
Gel Flamer <i>3cm x 3cm effect radius; Double Suppression vs. Infantry; 2nd Damage roll made on next turn if target survives initial attack</i>	10	+3	10	4
ELINT Package <i>Allows for spotting "blips" without LOS; comes with four Drones</i>	2	+1	65	*
Engineer Package <i>Allows ENGR actions</i>	5	+3	0	*
AVLB Bridge <i>Allows bridging operations</i>	25	+5	0	*
FASCAM Package * <i>Allows Mine deployment; VTOL units only</i>	8	+4	0	As for Mines

- Chemical Laser: A deuterium-fluoride laser that uses a chemical reaction to create a beam of intense photonic energy, capable of burning through armor and flesh. In atmospheric conditions, its range and effectiveness are limited.
- Microwave Projector: A vicious weapon that cooks things from the inside. It is incredibly heavy because of the generator and capacitors necessary to power it, and it raises a vehicle's Profile considerably because of the large parabolic dish necessary for adequate projection of the microwaves. However, it is able to sweep across an area and affect multiple units within that area; up to four units within a 5cm diameter can be hit with one use of this weapon.
- Gel Flamer: A gel flamer is a lightweight weapon that fires streams of gel capsules over a short distance. When the capsules hit a target, they rupture, spreading the sticky gel over the surface of the target. The gel bursts into flame just seconds after exposure to oxygen, and burns with an intense heat. Because the gel is made using powdered magnesium, water cannot extinguish it. However, its life cycle is short, and the gel burns out after only a short period. Furthermore, the gel is smokeless; the only smoke produced is from the explosion of fuel and munitions in the target vehicle.

Sample Vehicle Record Sheets:

Name:			
Type:	Weight:	Profile:	
Propulsion:			
Aarmor:			
Weapons:			
Extras:			
Inf. Stands:			
Overall:			

Name:			
Type:	Weight:	Profile:	
Propulsion:			
Aarmor:			
Weapons:			
Extras:			
Inf. Stands:			
Overall:			

Name:			
Type:	Weight:	Profile:	
Propulsion:			
Aarmor:			
Weapons:			
Extras:			
Inf. Stands:			
Overall:			

Infantry stands automatically have Small Arms as one of their weapon systems. They are able to choose one additional heavy weapon or Extras package, which increases their Profile according to the Infantry Weapons and Equipment Table, but only causes their movement to drop from 6cm to 4cm per turn.

Infantry Weapons and Equipment Table

System	Profile	Range (cm)	Lethality
Small Arms <i>Only usable by Infantry stands</i>	--	25	1
Machine Guns <i>+2 Lethality vs. Infantry</i>	+1	40	1
ATGM <i>Complex Weapon</i>	+2	100	4
SAM <i>Targets air units only</i>	+2	80	2
Mortar <i>Indirect fire weapon; +2 Lethality vs. Infantry; 1cm burst radius</i>	+2	50	1
ELINT Pkg <i>Allows for spotting "blips"; comes with four Drones</i>	+1	65	*
Engineer Pkg <i>Allows ENGR actions</i>	+2	0	*

Appendix A: Glossary

APC: Armored personnel carrier. An armored vehicle geared more towards transporting Infantry safely than fighting other armored vehicles.

AFV: Armored fighting vehicle. The currently favored term for “tank.”

ATGM: Anti-Tank Guided Missile, such as a TOW, Javelin, or SS-4.

AVLB: Armored Vehicle Launched Bridge. A tank chassis that has a folding bridge that can be quickly deployed across tank ditches and narrow rivers.

Bunkers: Hardened emplacements, usually constructed of reinforced concrete, that mount weapons systems every bit as lethal as those found on vehicles. When using bunkers in Steel Rain®, give them an armor value and tonnage limit on weapons systems (they may have up to three weapons systems), and then calculate their Profile accordingly.

Chain Guns: Machine guns that have no moving parts, except for the bullets themselves and a chain drive that pulls the bullets through the chamber. They are far more reliable than modern machine guns and have a higher rate of fire.

Commander: The player controlling one side.

d20: A 20-sided die, readily available from most game stores or online from [Chessex](#).

Dismounts: Infantry that are traveling on foot. Also known (affectionately, I’m sure) as “crunchies” by tank drivers.

FASCAM: Family of Scatterable Mines. These are remotely armed mines that can be dropped from aircraft or scattered by artillery shells.

Fast Mover: Any fixed-wing non-VTOL aircraft, such as fighter jets and ground-attack planes.

FST-V: Fire Support Team Vehicle. Usually refers to an artillery-spotting vehicle, but occasionally is used to refer to artillery vehicles themselves.

HE: High-explosive artillery rounds that are effective against both vehicles and infantry.

IFV: Infantry fighting vehicle. Different from an APC in that it usually incorporates some form of heavy weapon (autocannon, ATGM, ETC.)

LOS: Line of sight.

LP/OP: Listening Post/Observation Post. A small detachment placed far outside a unit’s perimeter to allow for advanced detection of an approaching enemy. Usually just one or two soldiers, in this game it will most likely be a fire team.

MLRS: Multiple Launch Rocket System. First developed by the Soviet Army during World War II, an MLRS system can hurl dozens of high-explosive rockets at a distant enemy.

Round: The period wherein a commander gets to move one platoon or section worth of units.

SAM: Surface-to-air missile, such as a Stinger, Hawk, or SA-6.

Small Arms: Infantry weapons such as rifles, squad automatic weapons, hand grenades, grenade launchers, and bayonets.

SPA: Self-propelled artillery; used in this game to denote any artillery piece.

Stand: A wargaming term for an infantry unit, usually consisting of a 1cm-square base with 4 or 5 troops mounted on it.

Steel Rain: A term of affection used in the US military to refer to heavy artillery and salvo rockets (MLRS).

TO&E: Tables of Organization and Equipment; a set of tables that delineates exactly how many people, weapons, vehicles, etc., comprise a specific unit type.

Turn: The period in which the first piece moves to the last piece moves. Every platoons get one round of activity per turn.

VTOL: Vertical take-off and landing; refers to an aircraft that can take off vertically and hover in the air with no necessary lateral motion.

Appendix B: Tables of Organization and Equipment

These are all sample tables (known as TO&E in the military) of company-sized elements; I've included them for people without military experience who aren't sure what a "typical" unit formation might look like. A battalion would have three line companies plus a headquarters company. You can design your own, for the most part, but no 30 tank platoons! If you don't maintain a sense of reality and constraint, the game will stop being any fun.

I would suggest that players choose their own formations and mix of vehicles styles and armaments, with each side having equal tonnage. Otherwise, troop dispositions should be scenario driven.

Armored Cavalry Troop

Headquarters Detachment:

4 main battle tanks (CO and wingman, XO and wingman)
2 heavy trucks (Supply section)
2 light trucks (for general uses)
1 armored personnel carrier (tactical operations center)

Line Platoons (three per troop):

4 main battle tanks
1 light truck (platoon sergeant)

Recon Platoon (may be used in place of one line platoon):

5 light recon vehicles

Anti-Tank Platoon (again, in place of one line platoon):

4 anti-tank vehicles

Mechanized Infantry Company

Headquarters Detachment:

2 armored personnel carriers (CO, TOC)
2 heavy trucks (Supply section)
2 light trucks (general purpose)

Line Platoons (three per company):

4 infantry fighting vehicles
4 squads of infantry dismounts (two light, one heavy, one SAM)

Anti-Tank Platoon (one per company):

4 anti-tank vehicles

Mortar Platoon (one per company):

4 infantry fighting vehicles
4 mortar squads (8 infantry stands with mortar package)

Combat Engineer Company

Headquarters Detachment:

2 armored personnel carriers (CO, TOC)
2 heavy trucks (Supply section)
2 light trucks (general purpose)

Line Platoons (three per company):

4 armored personnel carriers (PL and 3 squads)
3 combat engineer squads (Infantry with ENGR packages)

Assault and Obstacles Platoon (one per company):

4 CEV's (main battle tanks with ENGR packages)
2 AVLB's (vehicle-launched bridges)

Air Assault Company

Headquarters Detachment:

2 troop-transport helicopters (CO, XO)
2 heavy trucks (Supply section)
2 light trucks (general purpose)

Line Platoons (three per company):

3 troop-transport helicopters (2 stand capacity each)
6 infantry squads (two heavy)

Support Platoon:

4 heavy attack helicopters (a.k.a. "gunships")
2 light recon helicopters

Self-Propelled Artillery Battery

Headquarters Detachment:

1 armored personnel carrier (TOC)
2 heavy trucks (Supply section)
2 light trucks (general purpose)

Line Platoons (three per battery):

3 SPA vehicles

Forward Observer section (one per battery):

4 light recon vehicles with ELINT package

Amphibious Assault Company

Headquarters Detachment:

1 troop-transport helicopter (TOC)

Line Platoons (four per company):

Heavy assault hovercraft (8 infantry stand capacity)
4 squads of heavy infantry

Support Platoon (one per company):

3 SPA hovercraft
2 anti-tank hovercraft
2 light scout helicopters

Afterword

I've tried to balance the game to create the need to use more than just One Big Tank. One thing that has bugged me about so many epic wargames is that infantrymen are reduced to mere cannon fodder; Battletech and those other "big stompy robots" games are good examples. Another thing that bugged me about Battletech was the fact that light 'Mechs and vehicles were basically worthless; every side would just try to deploy the heaviest 'Mechs possible and then slug things out. This was especially true when the Clan story line came out, with its inclusion of "Omnimechs" – 'Mechs that could carry any combination of weapons up to their maximum weight. This development made having different 'Mech designs meaningless. I hope that people trying out the Steel Rain® rules will find that there are valid and compelling reasons for using light vehicles, infantry, and different propulsion types in different combinations.

I also wanted battlefield engineering – mines, wire, obstacles in general – to have some meaning and purpose in the game. Being a combat engineer myself, I have a deep and special understanding of how to use obstacles to shape the battlefield. The challenge here is to do it in a way the keeps the game flowing and engaging.

Some of you military purists may have noticed that there is no "Armor" unit type, only Cavalry. That's because there's no real difference between the two, except in certain modern doctrinal aspects (which have often been derived to justify the artificial separation of Cavalry from Armor). There is no official doctrine in this game, so I'll just call those units Cavalry, thank you very much. The world's first Tank Brigade was, in fact, founded and commanded by General Sir Percy Hobart, a combat engineer officer in the British Army following World War I. Just so all you tankers know where you came from!

For those who believe that wargaming glorifies warfare and violence, I leave you with this:

*"It is the soldier, not the reporter,
Who has given us freedom of the press.*

*"It is the soldier, not the poet,
Who has given us freedom of speech.*

*"It is the soldier, not the campus organizer,
Who has given us the freedom to demonstrate.*

*"It is the soldier, who salutes the flag,
Who serves beneath the flag,
And whose coffin is draped by the flag,
Who allows the protester to burn the flag."
--Charles M. Province*

Feel free to contact me at javelin98@lycos.com