MAKER-WAR

The open source epic scale table top for 3D printers
The war about who makes reality

Rules Book

Factions

Behind the Scenes

PREFACE

A open source table top in the epic scale of 6mm. The idea of the game is to deliver it free of charge and to rely on creative common content. A free Web-App is available to support the game. Miniatures can be produced with a good household 3D printer, designs are available inside the App.

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RULES OF THE GAME

BACKGROUND

„On a quantum level reality does not exist until observed. "
- Professor Andrew Truscott 2015

Maker War is a game of strategy and war set in a far future.

Humanity made advances in technology that allow them to reach distant stars and to explore the universe. While humanity is expanding rapidly they meet other space faring civilizations. As they are met with aggression and attacked seemingly without reason, humanity was not yet aware that they entered an ancient war about who will make reality itself.

Reality is created by observation, this is true down to the laws of nature itself. Humanity formed their reality itself and with each new observation and measurement that verified their view of the world they fortified the same. Alternate realities became impossible as millions of humans witnessed the same observations, the same laws of nature.

But in the depth of space each civilization formed their own distinct reality in just the same way. This led to dramatically different developments in some areas. And the realities of the different races proved to be incompatible. Minor changes in the laws of nature for example could prevent a computer from working or cause a meltdown in a nuclear reactor.

 Where two races meet each other their realities meet as well and my cause paradoxes. Some of these are harmless like just a different perception of colour, other could tear apart reality itself.

As the effect is caused just by observation it expands with the speed of light through the universe. The more detailed the observation of other stars, the more colonies humanity establishes the bigger the menaces for other civilizations. Without the option of a peaceful coexistence the races of the universe wage war against each other to make their reality the only reality.

THE CONCEPT

TABLE TOP

Maker War is a table top game. You play with one or more friends on a large surface like a table without a board and you use miniatures to represent the game. Rules, dices and maybe a tablet are also common tools.

WHY YET ANOTHER 6MM TABLE TOP?

Because something like Maker War just doesn't exist yet. There are several 6mm rule sets, but the first point to set Maker War apart is that it recognizes the possibilities of 3D printers within the years to come. There are no miniatures sold by shops, all designs are freely available and everybody can print his army for free at home. (Well … everybody that owns a good quality household 3D printer and internet)

Another unique point is that the game is creative commons and relies on creative common material. Everybody could expand the game or the universe and publish their work.

The last strong point is the Maker War Web App. This App does not just allow to manage your army in a manner befitting the age of tablets, it is sufficient to play the game on its own, as it also serves as guide through the rules and repository for all 3D designs.

3D PRINT

A good 3D Printer indeed cost significantly more than a full army of miniatures in good quality. But it is foreseeable that the prices of 3D printers will go down, while the number of households that own a 3D printer anyway will rise.

All models that are needed to play Maker War will finally be available as 3D designs. You can download them for free and print them with any 3D printer of good quality. This makes the game not only cheap to acquire, but you are independent from vendors, the existence of local shops and already a single printer in your vicinity might be enough.

Of course you can print templates or terrain pieces as well for the game.

FOCUS OF THE GAME

The focus is certainly on mass scale battles with big armies. The game will be won by good strategy which includes tactical movement, resource management, army composition and the ability to react to your opponent. The rules are fluent and designed for hundreds of units on the battlefield. This means that a lone unit doesn't have much individuality. Some random chance is included but is far from able to win you the game alone.

The combination of different races, distinct troops, supply management und tactical orders allow for endless possibilities.

CREATIVE COMMONS

Maker War is available through the creative common license and makes use of creative common resources as well. This means that the game is available for free and that all models and pictures included will have their authors honoured.

OPEN SOURCE

The game is insofar open source as all rules are available, including documentation on the intention and design process behind some of those. Further I would like to encourage everybody to participate in extending and refining the game. A large amount of interesting material is in the behind the scenes section of this book.

THE MAKER WAR APP

The Maker War Web App is free, without any restrictions. It includes all rules, allows to assemble your army, organize your collection and assists during a game. It is optimised for tablets to allow to play your table top game in a style befitting the year 2016. Further the Maker War App is the central Repository to download the 3d models.

For most of the interactive functionality you'll need to register and login to the App. This is required to be able to show your Armies the next time you access the app.

Access the Web App with the following link:

www.maker-war.com

THIRD PARTY MINIATURES

Of course you can play Maker War with miniatures in 6mm scale from any traders that offer these. A lot of the given range of 6mm miniatures might match ok to the range of units required to play Maker War. As the rules of Maker War are open source, it is easy to take your existing army and field it in a game of Maker War if desired.

Out of respect for the intellectual property of traders and distributors I cannot recommend which units are suited best as proxies. If a trader views his models as fitting however and has interest in including his models here, that should work out.

An interesting way for your collection could be the approach, to use 3D printed miniatures for the bulk of the army and for heroes or chiefs to buy miniatures in exceptional quality from traders.

THE WORLD

WAR FOR REALITY

Each creature has a different perception of reality and each race creates its own reality through their collective perception. With the meeting of different civilizations deviations showed in the realities of those. Some were subtle and nearly untraceable, other led to strange paradoxes. Some paradoxes were big enough to tear reality apart with devastating effect.

As the realities of the spacefaring factions proof incompatible a coexistence becomes impossible. In a battle to protect their own reality the civilizations went to war against each other.

FASTER THAN LIGHT

While in the reality of humanity traveling above the speed of light was long perceived as impossible this was normal for other races since a long time. The first interstellar travels from earth began tens of years before humanity became able to bend space to reach faster than light speeds.

Within the realities of other civilizations however, there exist far more powerful technologies to travel through the universe. Sometimes humans are able to salvage these, a blessing that often doesn't last long before the reality of the humans catches.

THE BATTLEFIELD OF THE FUTURE

Maker War makes some assumptions about the battlefield of the far future. The generals have nearly full information about what is going on and have reliable ways to communicate their orders to their army. Generals are aware of the fitness of their troops and positioning of the enemy. Friend and foe can usually be classified without fail.

Untrained drafted rookies exist but are the exception in most civilizations. The troops are competent, well equipped and trained for war. While the soldiers are neither suicidal, fearless or perfect, they try to follow their orders and grimly accept casualties within their ranks.

SUPPLY

Armies receive support from behind the front lines to keep operational. In Maker War the armies on the battlefield are not isolated and on its own, but they constantly get supplies to keep the battle going. The general of each army decides on short term how these supplies are put to use.

SHIELDS AND SCREENS

A lot of civilizations developed some kind of energy shields. These shields can block a considerable amount of firepower. On average these shields are more effective the bigger the shield generators are and most of all the longer the distance between thread and shield.

Shields that specialize in protecting over a long range are called screens. The existence of screens changed some strategies in Warfare. Cruise range weapons became nearly ineffective as screens are easily able to protect cities and armies against those. Long range artillery is still feared, but a prepared general that employs some screens on the battlefield can counter those. The existence of screens is one of the driving reasons why even in the far future armies are forced to fight their wars on battlefields.

Short range shields made huge machines of war viable are these are big enough to carry several layer of shields. These huge machines are called Titans. Given enough energy such a machine might seem invulnerable to the enemy.

Most factions have very developed and deployed similar technologies to shields. Some of these are small enough to use on a tank, which for example explains the toughness of the astral tanks that otherwise look more artistic than sturdy. Even shields small enough for a single person are known to exist, but the terran makers were not able to reproduce these yet.

THE CIVILIZATIONS AT WAR

As humanity ventured into space they soon realized they were not alone. Several big civilizations were the major players in the War to make reality. In the incredible size of the universe there were however numerous further races. While a contact occurs seldom there are rumours of alien trading posts were races meet, despite the conflicting realities. The different technologies to travel make it hard to trace a territory for the factions in the war and technologies like the portals from the Astral could span lightyears or maybe even the distance between galaxies.

Here is a list of some of the most common factions for which you can field an army. Further factions are likely to exist and some are detailed in the chapter about factions.

THE TERRAN MAKERS

The most pushing colonists from earth. They continually spread through the universe and use 3D printing technologies to develop and produce with incredible speed.

THE TRANCENDENT

An ancient race that is said to be extinct. It is verified that at least some members of this race, if not all transferred their consciousness into powerful computer networks. On the battlefield they completely rely on drones, robots and artificial intelligence.

FUNGUS PANDEMIA

This race is often just a single colossal being. A giant fungus that steadily grows and covers complete planets until it crack those apart to seed itself throughout space. There is no evidence that the fungus is intelligent or sentient but it is a completely alien menace that needs to be answered with lethal force or it easily overwhelms anything nearby.

THE ASTRAL

This civilization seems to have reached a level of technology that literally seems like magic. Their tanks are a work of art and defy gravity with elegance and the individuals that were called mages among the terran makers can call down lightning storms with just a wave of their hands.

At the same time from the few contacts with humanity it became obvious that this civilization has no concept of lie or deceit. Crime is unthinkable and seen as insanity. A combination that leads them to the conviction that most creatures in the universe besides themselves are more or less insane.

THE CYBERDEMONS

There are Rumours that humanity encountered these creature long before they developed space travel. They seem to see their own body and race as just building material and craft weapon and implants to their bodies. They even craft several of themselves together to create bigger and stronger beings. On the Battlefield you can often see Cyberdemons called Oni by the terran makers. These are of the size of a tank, possess four strong and mostly mechanical legs and their two arms end in weapons. The most disturbing however is the fact that these tanks

seem to be crafted from dozens of the native creatures of the Cyberdemons, just the head consists of 4-5 creatures and it is impossible to make a distinction between weapon and parts of other creatures.

THE SWARM

The Swarm is a large Horde of creatures that work in perfect concert but without a common general or communication. They seem to have evolved in an environment where those creatures adapted to each other and finally formed a dangerous army in itself.

The Swarm doesn't seem to care about territory or reality and are seen as less a thread by some strategist. But they are brutally effective if they do appear and leave either the option to stand and fight and or to be devoured.

WHAT YOU NEED TO PLAY

DICE

First of all you'll need some dice to play the game. Common 6 sided dice. But you'll need lots of those, the more the better. If you own some dive in distinctly different sizes that's also great. The common 6 sided dice will be called d6 in the document from now on.

RULER

A tape measure, yardstick or large ruler is required. The unit of measure in the game is centimetre. Is you only have inch you can half all centimetre values and round down. This is not exact but sufficient for the game.

You are allowed to measure at any time during the game. However, the placement of marks to help with measurement is not allowed. This includes the placement of dices, rulers and more.

MINIATURES

The game is designed for 6mm scale miniatures. This scale is sometimes called the epic scale.

It is recommended to print the miniatures with a 3D printer. You'll find their designs in the Maker-War App (www.maker-war.de). If you already own 6mm scale miniatures from other games you can use these of course as well.

GAMING TABLE

As battlefield a table of the size 120cm x 120cm is recommended. If the area you use to play is not a square you always use the long edges as deployment zones.

TERRAIN

You can print Terrain pieces and decoration as well. Further terrain from other 6mm scale games is fitting of course or you can tinker around yourself to create some nice terrain pieces. Several terrain pieces are recommended as they look good on the battlefield and increase the fun of the game.

Terrain pieces should have a roughly rectangular base with 15-20 cm on each side. The base should fit to the terrain pieces.

TOKENS

You'll need tokens or markers for the stances of the formations (explained later) and for the impact markers. You can print these with a 3D printer, draw or print them on paper or other methods. For the impact tokens it is fitting to have smoking craters, broken tanks and fire. In this way the impact tokens look good on the battlefield.

You need a few distinct impact tokens for terror weapons.

- Impact Tokens
- Terror Impact Tokens
- Activation Markers
- Stance Markers (March, Scatter, Patrol)

TEMPLATES

You will need a small template for some heavy weapons. The small template has a diameter of 5cm.
You will need a big template for the formations. The big template has a diameter of 15cm.

Of course you can print these as well.

SUMMARY ON HOW TO PLAY

Ahead of a game all players decide on a point budget for their armies and assemble their armies.

An army is organized into formations. The player alternate by activating a formation, this stands for the acts of giving the formation an order, moving the formation and then shooting or fighting in a close combat. In rare circumstances a player can activate several formations in succession. The activation of one or more formations by a single player is called a turn.

Orders allow for different tactical options like trading in fire power for faster movement.

Formations move the speed of the slowest unit in cm. Terrain and orders may effect this.

To shoot an activated formation chooses a target and add up its fire power and roll an equal number of dice. Each dice that shows a 5 or 6 is a hit. Some units are killed and removed on the first hit, others have armor or structure and survive several hits. Close Combat is resolved in a similar manner. Depending on orders and other circumstances a formation can have advantage or disadvantage in shooting or close combat. With advantage a roll of 4 is a hit as well, disadvantage on the other side reduces the chance to score a hit to the 6 only.

When all formations were activated once, a round passed. Both players draw supply cards which give them several opportunities to support their armies. The state of the mission objectives is checked now as well. Then the next round begins.

The game ends when one side is annihilated and has no units beside flyers on the battlefield. Usually the game ends earlier when one side choose to surrender with dignity.

THE UNITS

All units are abstracted to be composed of several attributes that completely describe a unit.

NAME

Each unit has its own name. Within each faction a name is unique and allows to identify a unit without doubt. Across factions the reuse of a name is discouraged but possible. The name itself does not imply any rules mechanic.

UNIT TYPE

The unit type is rarely directly addressed but nevertheless an important distinction, as unit types may differ strongly in their interaction with the battlefield.

INFANTRY

Infantry mostly consists out of soldiers, but in the universe of maker war some alien troops are classified as infantry just because they are many, small and versatile. An infantry unit is marked by the addition of (Inf.) right next to their armor points. Infantry is often slow and has a low armor.

Infantry have the benefit of being transportable and are able to take cover in bunkers.

TANKS

Most units are classified as tanks. Tank armor is usually able to take several hits and tanks are often faster than infantry. Tanks are more heavily armed as well.

Tanks have no special rules mechanic and are considered the basic unit type.

TITANS

Titans are big War engines or creatures that carry a devastating firepower and take several hits with ease. Titans always have structure instead of armor. Structure allows to absorb several hits over multiple rounds. Titans usually have a secondary defense mechanism like shields that allow them to survive even more hits.

A unit with structure is a Titan. A Titan is less agile then tanks or infantry and has more restrictive rules for movement. A Titan bears one or more weapons and is able to use these independently. Further a Titan can receive critical hits which result in damage. Titans have their own chapter to detail these rules.

FLYER

Flyer are aircrafts that race across the battlefield in a few moments and are unreachable by most weapons.

A unit is classified as a flyer if their speed is given as 'flyer'. Flyers are considered to 'fly high' and cannot attack or come under fire in this state. Flyers have their own method of movement which is incredible fast. Flyers can't control Points of Interest and the deployment of flyers requires to spend supplies.

DEFENSE - ARMOR OR STRUCTURE

A unit either possess armor or structure. Both values depict the number of hits the unit can take before it is killed and removed from the battlefield.

For armor all hits need to happen in a single turn. A tank with armor 3 that suffers 2 hits is still alive and once the turn ends it will once again need full 3 hits to destroy. You do not need to keep track of armor outside a turn, which usually equals to have no need to keep track of armor at all. Either you have enough hits to destroy a unit or you don't. An armor of 4 or higher is extremely rare.

Only Titans have structure. Each hit reduces structure and structure will wear down over several rounds. A Titan that suffers a single hit each round will finally be destroyed. A decent Titan will have around 16 Structure or more.

SPEED

The Speed is the amount of centimeter the unit is able to travel in a basic movement.

A flyer has no speed.

FIRE – RANGE (F-R), FIRE ARC

Most units are able to shoot over a fair distance. This distance is depicted as Fire Range (short F-R) in centimeters.

A few units or weapons have a restricted fire Arc, this is usually given as symbol. As only Titans and flyers keep track of their orientations they are the only units to exhibit a fire arc. If a fire arc is given the unit or weapon may only attack targets within the pictured fire arc.

FIRE POWER (F-P)

The fire power (short F-P) is the amount of dice the unit may contribute to shoot and score hits. Some of the most common special rules are marked directly next to the fire power, for example AT as Anti-Tank.

MELEE (M) OR AIR-TO-AIR (AA)

If a melee value is given it depicts the amount of dice the unit may contribute to a close combat.

Likewise if for flyers an Air-to-Air value is given it depicts the amount of dice the unit may contribute to a dogfight.

TRAITS

Many units feature special traits, these are listed here.

POINTS (P)

Each unit has a price in points. To include a unit into your army you'll need to have enough points left. Some units (like infantry) are cheap and you'll be able to include a lot of these while other units (like Titans) are expensive may take up a significant amount of your point budget.

FORMATIONS

Several units are organized together as formations. Formations are important and during a game you'll always act with formations and never with a single unit. Even Titans that are in fact a single unit form up their own formation.

How to group your units into formations depends on your faction. Often you'll have several formation plans to choose from to build your own formations and for starters you'll find some classic formations in the App which you can use right away.

THE CHIEF

All formations that consist of several units have one of their units as chief. The chief is the leader and focal point of the formation. In the formation plan the chief is clearly indicated. A formation may never have more than one chief.

During movement you always measure from the chief of the formation.

The chief is ignored if hits are allocated on a formation. On the other hand, if the chief is the only unit remaining it is removed at once.

ASSEMBLE A FORMATION

Each faction has several Formation plans. You choose one of these to follow.
A formation plan lists units that may be included in a formation. There may be several restrictions, which are noted in each formation plan, for example a minimum or maximum amount of units, obligatory units, or dependencies. A lot of formation plans give a list of possible units as chief for the formation.

FORMATION ATTRIBUTES

A formation has several attributes as a whole.
- The formation name.
- The point cost of the formation.
- The formation speed (see movement).
- The supply cost to deploy the formation (see deployment).
- The rare star cost (see rare formations)

RARE FORMATIONS

Rare Formations are either extremely specialized like Generals, Titans or Flyers. Some rare Formations consist of units that are just that good. Rare formations are marked with one or more stars.
The amount of rare formations in an army is limited. Depending on the Point Budget you have a Budget of stars to include in your army. Your army may not include a greater sum of stars than allowed by your star budget. You may always include less rare formations then possible.

ASSEMBLE AN ARMY

Once all player agreed to a point budget they choose a faction. Players assemble their army by adding formations to their army till the point budget is spend. The formations may be chosen from the given classic formations or freely assembled.

COURSE OF THE GAME

STARTING

ASSEMBLE ARMIES

All players agree on a point budget and assemble their armies within this budget.

PREPARE TERRAIN

Prepare an appropriate sized battlefield (see recommend table sizes below). And place a number of terrain pieces. The players choose which edge is their deployment zone. Only the longer edges may be chosen as deployment zone.

POINTS OF INTEREST

The players determine the points of interest and add these to the battlefield. Points of interest are detailed in a later chapter.

DEPLOY ARMIES

The host goes first. In case of a rematch the player that asked for the rematch goes first.

In the App the costs to deploy a formation is given by the [sp] value in the formations header. The budget for which you may deploy formations during the first deployment is given as well. If you play without App support read up on how to deploy a formation later in this chapter.

The deployment zone is the area within 10cm of the edge that belongs to the player. He places a deployed formation with the chief within the deployment zone. Then he places the remaining formation as usual. When a player has placed a formation the next player must deploy and place a formation or pass for the rest of the deployment.

Formations which couldn't be deployed initially need to wait off the battlefield and can enter the battle at a later time. These formations need to be bought with Supply points as well, before they may enter the battlefield.

Flyers, Planetfall and Invaders are kept off the battlefield as well.

GAME SETUP TABLE

The following table helps during the setup of your game. Decide on a point range and look up guidelines for table size, terrain and rare formations. You can choose to ignore these guidelines, just make sure all players agreed on the same setup.

For the very first game it is recommended to play with 500 points and without Points of Interest, Supply Cards, Flyers or Rare Formations.

Point Range	Supply Cards per turn	Total Points of interest	Rare formation Stars per side	Recommended table size	Terrain pieces on table
500 (training)	none	none	none	100x80 cm	2 pieces
1 – 1000	1 card	2 PoI	1 star	100x80 cm	2 pieces
1001 – 2000	2 cards	3 PoI	2 stars	120x120 cm	6 pieces
2001 – 4000	3 cards	4 PoI	3 stars	120x120 cm	6 pieces
4001 – 9999	3 cards	6 PoI	5 stars	200x120 cm	10 pieces
10000 or more	4 cards(reshuffle)	8 PoI	8 stars	200x200 cm	16 pieces

The number of supply cards is for each player, you draw these cards once at the end of a round.
Usually if the supply cards are depleted you stop drawing cards in further turns. For games with 10.000 points or more you reshuffle the discarded supply cards once to keep going.

The number of objectives is the total for both players combined.

The rare formation stars are per side. This means usually per player. You can invest all stars in a single formation or split those onto several rare formations. You do not need to include any rare formations in your army.

The terrain pieces is the total number of terrain pieces on the table. You can always divide the number by two if for example the players place the terrain in an alternating fashion. One terrain piece is around 15x15 cm in size. Or around 100 cm in length in case of roads.

A ROUND

A Round of the game consists mostly of the players taking alternating turns, each activating a single formation and acting with these. When all formations were activated a round is concluded. In Maker War most things are timed according to the activation of Formations, so no administration needs to be done at the end of a round and you just keep playing.

ACTIVATIONS

The players activate their formations by turns. On a players turn he activates a single formation. A player must activate a formation or pass for the remaining round. The first activation of a round has the player that was next in line from the previous round. For the very first round of a game either the host goes first or in case of a rematch the player that called for the rematch.

An Activation consists of the following actions in the following sequence:

- Issue an order
- Movement of the formation according to the order
- It is recommended to place an activation marker to keep track which formations already moved.
- Any enemy formation in patrol stance may choose to shoot now.
- Resolve shooting with the formation (if the order allows to shoot).
- Resolve a close combat with any formations involved in a close combat (A close combat only happens after an assault order).

Several situations may slightly alter the activation sequence, for example:

- If the formation has the rookie trait, it may need to make a moral check after the order is issued.
- If the formation has the scatter stance it must enact the scatter order on its turn. Keep in mind that you must eventually activate all formations on the battlefield, you can't skip a formation in the scatter stance.
- If the formation contains a warlord you may activate further formations on the same turn. Move all formation right after another, then grant the chance for any enemy patrols to fire and finally resolve the close combat.

AT THE END OF A ROUND

At the end of a round all players draw supply cards. If you placed activation markers remove them now. The player who is next in line with the activation of a formation starts the next round with his turn.

Otherwise the end of a round may be the right time to reflect on the flow of the battle and resign with dignity.

DEPLOYMENT OF FORMATIONS

To deploy a formation you first pay the required supply cost. To calculate the supply cost of a formation simply divide the formation point cost by 100 and round.

During Setup both players may deploy formations up to a given budget. You can deploy roughly half your army. Supply cost for formations and the point budget for deployment are both calculated in the App. To calculate the budget manually divide the agreed upon point budget by 200 (or by 100 and half it) and round.

The deployment zone is the area within 10cm of the edge that belongs to the player. He places a deployed formation with the chief within the deployment zone. Then he places the remaining formation as usual. When a player has placed a formation the next player must deploy and place a formation or pass for the rest of the deployment.

If you control a landing zone it provides an additional deployment zone. As long as you are in control of the landing zone the 5cm area around it counts as your deployment zone, just like your table edge. If you used a terrain piece of regular size (~ 15cm diameter) to represent the landing zone, the whole terrain piece counts as deployment zone, but not the area around it.

You'll need to deploy further formations during the game. Instead of the activation of a formation on the battlefield you deploy a waiting formation by paying its supply cost and placing it in your deployment zone. Right after the deployment you activate the formation that just entered the battlefield for the first time. There are no restrictions concerning orders or movement of recently deployed formations.

On the turn in which you deployed and supplied a formation you may deploy further formations by paying their supply cost. You deploy all formations but your allowed to activate only one of these formations on the same turn. You may activate the remaining formations later in the round as usual.

If you passed during a round you are not allowed to deploy another formation during this round.

On the turn in which you deployed flyers you do not need to pay their activation cost.

ADVANTAGE AND DISADVANTAGE

A formation may encounters circumstances that may be favorable or adverse. For example a formation in cover is harder to hit or a formation in the scatter stance is easy prey. In terms of game play this is considered as an advantage or a disadvantage.

Advantage or disadvantage have a strong effect on the chance to achieve a hit during shooting or close combat. To jump ahead, usually a dice is a hit on a 5 or 6. With advantage you already score a hit on a 4 as well. With disadvantage you score a hit on a 6 only.

If you gain advantage or disadvantage from several sources this has no additional effect. If you have advantage and disadvantage at the same time those cancel each other, it still doesn't matter if you have "more" advantage then disadvantage or the other way round.

Most of the time you are granted advantage or disadvantage through orders or stances.

ADVANTAGE AND DISADVANTAGE OVERVIEW

The following is a nearly complete table of the situations in which a formation has advantage or disadvantage.

	Advantage	Disadvantage
Shooting	- The continuous fire order grants advantage for shooting. - If you shoot at formations in the march or scatter stance you benefit from advantage.	- If you shoot at formations in cover or shelter you suffer disadvantage. - Artillery shooting on targets they can't see suffer disadvantage.
Close Combat	The side with more heroes involved benefits from advantage.	- The side with a higher impact token total suffers disadvantage in close combat. - The scatter stance imposes disadvantage. - If you attack a formation that is inside a fortification you suffer disadvantage.

ORDERS

When a players turn starts, he chooses a formation that was not yet activated this round. He activates the formation by declaring the formation and the order they are given. He then resolves the order for the formation.

The following orders are available:

- (Basic) Advance – basic movement and basic shooting
- Assault – double movement, restricted shooting and possible close combat
- March – triple movement and grants an attacker advantage
- (Continuous) Fire – no movement and advantage shooting
- Patrol – basic movement and delay shooting
- Regroup – half impact tokens, 5cm movement
- Scatter – wear down units, basic movement, grant attacker advantage and no attack
- [flyer] veer off – move in straight line ahead and leave the battlefield

FLYERS AND ORDERS

Flyers are not able to receive all orders. Flyers are restricted to Basic Advance, Continuous Fire, Patrol, Regroup, Scatter, Veer off.

TITANS AND ORDERS

Titans receive orders as normal. They treat the Scatter order slightly different than other formations.

IMMOBILE UNITS AND ORDERS

Formations that have no speed or a speed of 0cm are not able to receive all orders. Those formations are restricted to Basic Advance (obviously without moving), Patrol, Regroup, Scatter.

ASSAULT

During the double movement the formation is allowed to enter the close range of enemy formations and even bring units in direct contact if these are within movement range. If at least one unit is in direct contact to an enemy resolve close combat.

MARCH

Make a triple movement which basically consists of three basic movements. The formation then assume the march stance and ends the turn.

CONTINOUS FIRE

The formation does not move at all. It may shoot freely and receives advantage for doing so.

PATROL

After the formation finished its movement it gains the patrol stance and your turn ends. The patrol stance allows to interrupt an enemy right after he moved a formation. The patrolling formation now shoots at the formation that finished its movement. Restrictions concerning range or line of fire still apply. This ends the patrol stance.

REGROUP

The Formation shed half of their impact tokens (round up). You can then remove additional impact tokens by spending Supply Points. Remove 1 additional Impact token for each supply point spend. If the formation has a medic the medic takes effect after the formation shed impact tokens due to regrouping.

The formation has a speed of at least 5cm it may move 5cm. While the chief moves it 5 cm keep in mind that the remaining formation may reposition at will while within command range to the chief (inside formation template).

SCATTER

A formation seldom receives the scatter order by choice. Often this is the result of a failed moral check and the scatter stance. When given the scatter order roll a D6 and removed the same amount of impact tokens and the same amount of units from the formation. Do not remove more units then impact tokens. The remaining formation may now make a basic movement. All units that end this movement within 10cm of an enemy unit are removed but do not inflict a further impact token. After moving the formation makes a moral check and ends the turn. If the moral check fails the formation is again in the scatter stance.

VEER OFF

This order is given to flyers only. It is the only order a flyer may receive during activation that does not cost supply points. If the player is not able or willing to spend supply points he must take this order for his flyers. This order removes the flyers from the battlefield.

The flyer turns and then moves in a straight line until it leaves the battlefield.

STANCES

If an order has effect beyond a turn it turns into a stance. There are further possibilities to acquire a stance. A formation can only ever have one stance at once. A stance is always in effect till the next turn of the formation and does not care about the end of a round. A stance is clearly marked by the formation. For example by putting a counter with an appropriate symbol next to it.

Here is a list of the possible stances of formations and suggested symbol.

- **Patrol** – (crosshair) – Acquired by the patrol order this stance allows the formation to shoot right after the movement of an enemy formation. This will interrupt the enemies turn to be resolved before the enemy continues. Once this effect was used the stance is removed.
- **March** – (triple arrows) – Acquired by the March order. The formation may not profit from cover and if under fire it grants the attacker advantage. During a close combat it grants the attacker advantage.
- **Scatter** – (spreading arrows) – Received by a failed moral check. The formation may not profit from cover and if under fire it grants the attacker advantage. During a close combat it grants the attacker advantage. Firepower and Melee Power are reduced to 0. On its next activation the formation must enact the scatter order.
- **Flying low** – (Arrow into a star) – A formation of flyers is flying at low altitude and can be targeted normally.

MOVEMENT

MOVEMENT OF INFANTRY AND TANKS

All infantry and tank units have a speed given in centimeters(short cm). In a basic movement you pick the chief of the formation and move it up to the given distance. If the formation has only a single unit you pick this unit, of course. The distance you travel does not need to be a straight line. You have to take into account any terrain in your way. Here are the most common influences to movement:

- You can't move through terrain that blocks movement and need to travel around such terrain.
- If you travel through difficult terrain the distance you cover counts twice against your movement speed.
- You may not travel closer than 10 cm to any enemy unit (exception for the assault order)

Once the chief finished its movement the remaining formation catches up. You do not measure the distance that the remaining units travel, instead you just place them around the chief as desired. Use the formation template, all units of the formation must be inside the template or at least touch the template.

This allows some units of the formation to move further than their given speed. As long as you always move the chief of the formation this is acceptable. This allows to completely reposition the formation on each movement as well. This is true for very short movements like the regroup order as well.

If the chief of the formation may not move none of the units in the formation may move.

MOVEMENT OF TITANS

Titans have a speed in cm like any other unit. For a Titan you always keep track of its facing. A Titan may move only straight ahead and must move in a straight line. You may turn a Titan up to 45 degree if you reduce its movement by 5cm for this turn. You may take several turns, by paying 5cm for each.

MOVEMENT OF FLYERS

When a flyer is allowed to move it has a distinctive movement mode.

A flyer keeps track of its orientation. At the beginning of its movement it may turn into any direction. The flyer then moves forward in a straight line as far as it wishes.

This movement mode is true for basic advance, patrol, regroup and veer off. For continuous fire no movement is allowed.

If at any point during movement the flyer approaches a FLAK unit closer than 10cm the flyer is automatically destroyed.

In Maker War a piece of terrain specifies a terrain piece on a base of roughly 15cm x 15cm. A terrain piece which is significantly larger may be still okay as long as it isn't clearly twice that size. Terrain influences the movement and the line of fire. It may have different effects on different types of units. The effect of terrain always spans the whole base and already affects units in contact with the base.

Terrain may have one or more of the following effects and it may have different effects for different type of units.

DIFFICULT

Mud, rubble and the inside of buildings is neither quick nor easy to traverse.

If you travel through difficult terrain the distance you cover counts twice against your movement speed.

COVER, SHELTER

Trees, rocks and buildings provide cover for units to hide inside or behind those.

If the terrain is in line of fire between attacker and target the target formation is in cover. An attacker who is shooting at a formation in cover suffers disadvantage during shooting.

If the terrain is declared as shelter it not only provides cover for units behind the terrain, but for units inside the terrain as well.

IMPASSABLE, BORDER

Huge Rock formations or canyons are impassable. Cliffside's and fences are common borders.

Units are unable to move through this terrain. Sometimes only the outline of the terrain is impassable and the terrain itself is not. For example a Cliff, a steep hill or a fence. If only the border of the terrain is impassable it is called border, often there is still a ramp or a smoother side that allows access.

STREET

Streets are great for fast travel. Most streets are manmade, but alien civilizations build streets as well and some rare occurrences of natural streets exist as well.

Formations that end their movement on a street may move further 5cm at once. These additional distance must be covered completely on the street.

If the formation had an order that changed its movement speed this applies for the extra movement as well. An assault order finally grants up to 10cm extra and a march order grants 15cm extra.

While usually a terrain piece is 15cmx 15cm a street has no such shape. A Street of up to 5cm wide counts as one terrain piece up to 100cm in length.

HIGH, HIGH GROUND

High is any terrain that is higher than most tanks, including walls or building complexes. High Ground are often hills or cliffs.

Units do not have line of fire through high terrain or high ground.

While the high trait just implies that the terrain blocks line of fire, the high ground trait is more valuable. Units usually may be positioned in high ground, for example on a hill. High ground allows units to treat any high terrain as cover instead of a blocked line of sight. However this goes both ways and units on high ground can be targeted from below.

In Maker War it is not tracked if a terrain is higher than another and terrain either counts as high or not. If you want to expand on this you can grade terrain by height levels. Terrain of a higher level blocks the line of fire between grounds of any lower level. Ground level would be level 0 and high ground would start with level 1.

DEADLY

There are many reasons why terrain is considered deadly, some of the most prominent are landmines or rifts in reality.

For each cm which a formation travels through deadly terrain take one dice. At the end of the movement roll these dice and treat them as an attack. Any 6 is a critical hit on a unit in the formation, the formation owner distributes the hits.

FORTIFICATION

Fortifications are strongholds like bunker or trenches and strongly enhance the defensive capabilities.

Fortification blocks line of fire. Formations that are in contact with fortification are in cover. Formations in fortification further benefit from a screen value of 6. A fortification imposes disadvantage in close combat against any formations that attack formations which are in contact with the fortification.

As the fortification effect is quite remarkable it is reserved for points of interest, you may not place terrain with the fortification effect during terrain set up.

SAMPLE TERRAIN

Here are some samples for terrain and its effect on units. It may serve as a starting point for further terrain.

Terrain	General Traits	Specific Traits
Forest	Cover	Tanks: Difficult; Infantry: Shelter
Building	Cover, Difficult	Infantry: Shelter
Hill	High Ground	
Lake	Difficult	Tanks: Impassable
Minefield	Deadly	
Fortress	Fortification	Titan: Impassable
Street	Street	

SHOOTING

To shoot you first decide on your target. Check for advantage or disadvantage. You cumulate the firepower of the units within range and throw an according number of dice. You start allocating hits by line of fire. Remove units whenever their armor or structure is depleted and place an impact token for each killed unit. A single cycle of shooting is called a salvo.

LINE OF FIRE

If you shoot you usually need line of fire to the formation or units you target. The line of fire is a straight line from any of your attacking units within range to the target. The line of fire is blocked by high terrain and other enemy units, including units of the target formation itself. A unit already blocks line of fire if it only blocks a part of the target.

Line of fire always include range. If a target unit is out of fire range it is not within line of fire.

Line of fire is always mutual, if a huge Titan has line of fire to your formations, is the other way round as well.

TARGET SELECTION

Usually you target a formation within fire range. You could target any formation on the table but without line of fire to the target this doesn't make too much sense.

You can always opt not to target a formation but all units covered by a formation template. You place the formation template as desired and shoot at the units inside or touching the template. You still need line of fire of course.

All units that are targeted always block line of fire to each other. This is true for artillery weapons as well. The only exception are weapons with the sniper trait.

CUMULATE FIREPOWER

Calculate your firepower by adding up the firepower of all units of the attacking formation that have line of fire to at least one target unit. Keep track how much firepower was Anti-Tank (AT), Dicey (DY) or Terror (TR). The Firepower directly translates to dice (those with 6 sides and numbers from 1 to 6). Roll all dice at once, you do not roll the firepower of Anti-Tank (or similar) separately.

ROLLING LARGE NUMBER OF DICE – BIG DICE RULE

The firepower of formations easily reach about 10 dice and may go above and beyond large number like 40 dice or more. To make this less of a hassle you are allowed to roll distinct 'big' dice instead of 5 normal dice each. Ideally you have a few dice that are distinctly bigger in size compared to the rest of your dice, otherwise a distinction in color would also be sufficient. These big dice still have 6 sides each.

Whenever you roll firepower (or melee dice) you may replace 5 usual dice by a big dice. You may replace as many normal dice as desired as long as at least 5 normal dice remain.

The big dice are rolled along with the normal dice and hit, miss (or crit) on the same numbers. However, the result of a big dice counts five times. If a big dice hits you allocate 5 hits as if 5 normal dice would have hit.

You do not need to use big dice, but it is recommended to do so for firepower of 20 or higher.

ALLOCATE HITS

You roll all dice at once and count the hits. A dice is a hit if it shows a 5 or a 6. If you had advantage you hit on a 4 as well. If you suffered disadvantage you only hit on a 6. You count all hits. If you had special firepower like anti-tank (which allows to achieve a critical hit on a 6) you count how many hits are affected.

The attacker allocates the hits on the target formation. He starts with a single target unit which is within line of fire to a unit of the shooting formation. He allocate hits on the target until the armor or structure of the target is depleted and thus the target is destroyed. A unit with an armor of 1 needs 1 hit to be destroyed and so on. A destroyed unit is removed at once. You continue to allocate hits until all hits are allotted. If the last unit has armor above 1 and does not receive enough hits to be destroyed it remains completely undamaged once you turn ends.

If during the same turn you are able to target the formation again you may continue with this unit and deal the remaining hits to destroy it.

DEAL IMPACT TOKENS

For each unit that was destroyed the formation of this unit receives one impact token. If the formation would be forced to make a moral check, for example due to a terror weapon the amount of impact tokens handicap this check.

DICE SPECIAL TRAITS

As a quick overview there are rules or traits associated with each side of the die. These never change:

Dice	Hit or Miss
1	Miss, counts toward **Dicey** weapon trait
2	Miss
3	Miss, counts toward **Terror** weapon trait
4	Hit on **Advantage**
5	Hit if not **Disadvantage**
6	Hit, counts toward **Anti-Tank** weapon trait

CLOSE COMBAT

Close combat takes place following an assault order. Both sides cumulate their melee power and roll an equal number of dice. Check for advantage or disadvantage. Each hit is a destroyed unit.

ASSAULT MOVEMENT

The assault order allows to enter within 10 cm of another formation. To initiate a close combat you need to give the close assault order and bring at least one of your units in a direct base to base contact with an enemy unit. You may not move (your chief) through enemy units.

The units that are in base contact to an enemy unit are called combatant.

All units within 10cm of an enemy combatant (a unit that is in base contact to an allied unit) is involved in the close combat. This may easily involve the whole enemy formation, but this may involve several formations in a single close combat as well.

CUMULATE MELEE POWER

You add up the melee power of all involved units for both sides. The value equals the number of dice each side is allowed to roll.

BIG DICE RULE

The big dice rule that was detailed for firepower is valid for close combat as well.

ALLOCATE HITS

You allocate hits one player after another. In close combat hits are more effective than during shooting. Each hit in close combat destroys a unit if the unit has only an armor value. A unit with a high armor value is still destroyed in a single hit. A unit with structure lose one structure for each hit.

You start allocating hits with any enemy units that were in base contact to one of your units, you are required to select further targets by selecting the units closest to your combatants first.

Destroyed units are not removed immediately, their position is required to identify the combatants and the hit allocation for the player that goes second. Mark units that are killed by tipping them over.

Once the first player rolled his dice and allocated hits the second player does the same. Units that were killed still fight normally, there is no penalty for the second player as both sides of a close combat are assumed to fight at the same time.

DEAL IMPACT TOKENS

Each destroyed unit inflicts an impact token on its former formation. After a close combat all involved formations are required to make a moral check.

FORMATIONS INVOLVED IN MULTIPLE CLOSE COMBATS

It is possible that formations are involved in multiple closed combats during a single round.

For example a formation attacks an enemy formation called Defender. The close combat is resolved with some causalities and impact tokens but neither formation fails its moral test. If another formation attacks the Defender on a later turn in the same round the original formations of attacker and defender are involved in another close combat.

In these or similar circumstances the close combat is resolved by following these rules:

All involved units and formations are determined as normal.

All involved units of the defender may contribute their melee power, even if they already fought this round.

All involved formations (defender and attacker) add their impact tokens to the total.

Involved formations that belong to the attacker and were already activated this round are not allowed to contribute melee power or heroes. They still add their impact tokens.

Involved formations that belong to the attacker and are not yet activated this round are allowed to instantly receive an assault order. Despite the assault order they are not allowed to move but they may contribute to the close combat as normal. They count as activated for the remainder of this round.

Involved formations that belong to the attacker and are not yet activated this round may choose to pass on the assault order, in this case the formation is not allowed to contribute melee power or heroes. They still add their impact tokens. The formation can be activated as normal later in the round.

IMPACT TOKENS AND MORAL CHECK

A formation suffers an impact Token for each destroyed unit. An impact token represents the impact of causalities, wounds, damaged equipment and above all shattered moral. While usually a few impact tokens have no imminent effect, once a formation comes under pressure it may break and scatter if it has amassed a high number of impact tokens.

A formation may shed some impact tokens using the regroup order or the medic trait.

MORAL CHECK

Moral Checks happen only after certain events, not all the time.

A moral check happens

- after any close combat
- as result of terror firepower / activation with terror impact tokens
- forced by supply cards
- due to the scatter order

To check for moral just roll 2 normal 6-sided dice. If the result is higher than the amount of impact tokens that the formation has amassed the check succeeded. If the check failed the formation receives the scatter stance. The formation may not profit from cover and if under fire it grants the attacker advantage. During a close combat it grants the attacker advantage. Firepower and Melee Power are reduced to 0. On its next activation the formation must enact the scatter order.

TERROR WEAPONS

Weapons with the terror trait cause additional impact tokens and may force a Moral Check. A formation that received additional impact tokens from a terror weapon is forced to pass a moral check on its next activation.

You track this by placing visually distinct impact tokens on an affected formation. These are called terror impact tokens. You do not really need to place more than one terror impact token on any formation. It's recommended to design these tokens according to the weapons used.

Terror weapons only force a moral check on the formations next activation, not on any subsequent activations. Remove terror tokens first or replace them with common impact tokens if any remain to avoid confusion.

Terror impact tokens are normal impact tokens in all other regards.

If a formation with terror token and the rookie trait is activated it needs to pass a moral check due to terror. It doesn't need to roll a second moral check for the rookie trait on this activation.

If a formation with terror token and the medic trait is activated I may remove impact tokens before a moral check, but it must make the moral check from the terror token. Even if the terror tokens are completely removed.

SPECIAL TRAITS

These traits effect a single unit each and expand the tactical possibilities of units and weapons in Maker War. A trait may have an effect that contradicts the basic rules, in this case the effect of the trait generally overwrites the basic rules. Not all traits are positive, units can stand out by bad traits as well.

There may be additional traits for specific factions, those are not listed here but in the faction description.

FIREPOWER TRAITS

These traits influence firepower directly. Some of these traits are even directly added to the firepower of the unit as abbreviation. In such a case you still add the firepower of the unit as normal to the firepower of the formation.

ANTI-TANK

Add the firepower as normal during shooting.

After the roll each 6 counts as a critical hit. You can't deal more critical hits than the amount of Anti-Tank firepower with a salvo. A critical hit destroys a unit with armor at once. Unit that have structure determine the individual result of a critical hit.

TERROR

Add the firepower as normal during shooting.

After the roll each 3 causes an additional impact token. You can cause additional impact tokens up to the amount of firepower with the terror trait.

If you place additional impact tokens, place at least one impact token that is visually distinct and allows to track if a formation suffered impact tokens through a terror weapon. For convenience you can call this a terror impact token. When a formation with terror impact tokens is activated it needs to pass a moral check at the start of its turn.

SUSTAINED FIRE

If given the continuous fire order the firepower of units with the sustained fire trait is doubled.

DICEY

The weaponry of the unit is unreliable. For each 1 you roll during a salvo the shooting formation receives an impact token. The shooting formation does not suffer more impact tokens than the amount of firepower with the dicey trait.

UNIT TRAITS

These traits apply to individual units and grant them extraordinary abilities. These traits mostly concern infantry and tanks.

ARTILLERY

If only units with the artillery keyword choose to fire they may ignore any terrain that would otherwise block line of fire. If not a single unit of the target formation can be seen they fire with disadvantage.

ASSAULT

When given the Assault Order the Unit is still allowed to fire at the end of the move, before close combat is resolved.

HOVER

If all units in the formation have hover they can ignore any terrain during their movement. If you include the optional rule for height levels for terrain a formation with hover may not cross a height level difference greater than one level.

TRANSPORT

A unit with the transport ability can transport several infantry units during movement. The transported units are ignored during movement, usually allowing the formation to become faster as a whole. The amount of units transported is indicated in brackets.

CARRIER(X)

Units with the carrier ability are able to load and transport whole other formations that have the invader trait. The number of units in the transported formation must fit into the carrier capacity. You may carry infantry and tank units of a formation with the invader trait, each counts as one unit. When the carrier formation is placed on the battlefield you must declare if and which formation (or formations) is carried. You must be able to deploy the carried formation and possibly spend supply points.

The carrier capacity is always a transport capacity as well. Of course you can't use the same capacity for transporting and carrier at once. This does not allow to transport tanks.

When a carrier unit is destroyed while another formation is carried you check if the remaining carrier capacity is sufficient to carry the formation. Before you may activate the carrier formation you must choose to either abandon units from the carried formation until enough capacity is available or you must activate and unload the whole carried formation.

EXPENDABLE

If the unit is killed, the formation does not receive an impact token for the unit being killed. All other rules concerning the death of this unit, apply.

SACRIFICE

After the causalities of firepower or close combat are removed from this formation you can sacrifice this unit to save one of the causalities.

HERO

During a close combat the side with more Heroes involved gets an advantage. Several Supply cards may affect Heroes.

SNIPER

For each Unit with the Sniper Ability you can freely choose one unit in the target formation as target.

SCOUT

If the Formation chief has moved you may place all scouts of the formation anywhere within 30cm to the formation leader. There need not to be a path from the chief to the scout, the way may well be blocked, it does not matter. You still need to respect the 10cm zone to enemy units as long as no assault order is issued.

If the scout has the transport trait as well it may extend its scout trait to infantry units it could transport. These units must be placed in contact with the transporter to benefit from this trait.

BERSERK

When a unit with the Berserk ability would be killed you may choose to give the formation the rage stance instead.

In rage stance units with the berserk ability aren't removed if they receive a hit that would usually kill them. The formation receives an impact token and the berserk unit is kept alive and could be chosen again as target. A single berserk unit may produce several impact tokens this way.

A formation that is activated while in rage stance must take the assault order and keep the rage stance.

The rage stance ends normally when the formation fails a moral check. Once the moral check fails remove units with the berserk ability and impact tokens from the formation in a one-to-one ratio. Remove units and tokens until either no impact tokens or no berserk units are left.

CHIEF AND FORMATION TRAITS

These traits are often granted to the chiefs of formations but they affect the whole formation.

STRATEGIST

If your army has more strategist units on the battlefield then your opponent you always move first on a new round. Most notably the very first round of the game.

SCREEN(X)

This unit projects a powerful shield or defense mechanism to protect the whole formation from long ranged fire. When the formation is targeted from more than 45cm away the first hits are negated. The amount of negated hits is equal to the screen value of all units in the formation combined.

Screen protects against bombers that fly high as well, they count as more than 45cm away no matter what.

WARLORD

When you activate a formation with a warlord and you give the formation the assault order, you can follow up by giving two further formations that have their chief within 30cm of your warlord the assault order as well. Move all formations together and resolve the close combat as a single fight.

Formations that are off the table may be affected and activated as well if they can legally enter the table within 30cm of the warlord. For example if the formation was inside a carrier within reach of the warlord.

Likewise, if the warlord starts its turn off table this ability possibly affects formations within 30cm of the point where the warlord enters the table.

MEDIC

When you activate a formation with a medic you may remove 1d6 impact tokens for each medic in the formation.

PLANETFALL

The unit and thereby the formation has the ability to suddenly appear on the battlefield. This enables the unit to appear anywhere on the battlefield and possibly to carry further troops deep into enemy territory.

The formation starts the game off the table. When first activated the formation can try to enter the battlefield anywhere. Take all units with the planetfall ability from the formation and let them physically drop on the battlefield. Release all units at once and from a height of 30cm. (Of course it is recommended to do so with the intended plastic miniatures and not fragile or expensive miniatures.)

A landing formation with the carrier trait may carry an invader formation into battle which is allowed to act on the same turn. To carry an invader formation into battle wait till all planetfall units are stable and choose one. Place the chief of the invader formation in contact to the planetfall unit. Continue to place further units from the invader formation in contact with the remaining planetfall carrier or transport units. Do not place more units in contact to a planetfall unit than the carrier or transport capacity of the unit.

A unit that lands in impassable terrain or off the table is pushed to the nearest edge and the formation receives 1d6 impact tokens and is required to make a moral check after placement. Units that may not be placed due to lack of space are destroyed and inflict an impact token.

Once the landing formation and possibly the invader formation is placed you go on with your turn. The planetfall formation is handled as if it received a normal advance order, but may not move. Any carried invader formation can receive and resolve any order. All movement of the invader formation is halved this turn as if in difficult terrain.

Units of the invader formation that start outside reach of their chief (check with the formation template) need to be picked up during this turn or they are destroyed.

- The regroup order allows to pick up and reposition all units no matter how far away.
- The Advance, March, Assault and Patrol order allow to pick up and reposition units if the chief comes within 5cm at any point during his movement.
- The continuous fire order and the scatter order do not allow to pick up units.

INVADER

A formation that has the invader trait may start the game off the table. The formation may be carried into battle by other formations that feature the Carrier ability. The combined carrier capacity in the carrier formation must be at least equal to the number of units in the invader formation. Invader formations consist mostly out of infantry, but it is possible to include tanks as well.

BLOODLUST

This unit always participates in close combats if involved. Even if it's formation already received the assault order this turn or is in the scattered stance.

ROOKIES

When you activate a formation that contains at least one rookie, you need to pass a moral check before you can give the patrol, fire or assault order.

If the check fails the formation receives the regroup order, that's an exception to the rule that a failed moral check inflicts the scatter stance.

FLYER

These traits concern flyers and their interaction on the battlefield.

INTERCEPTOR

When the formation is in the patrol stance and chooses to react to an enemy movement, the formation may move 30cm. All units in the formation need the interceptor ability.

BOMBER

The Aircraft may fire at ground targets even while flying high.

This does not help against Anti-Air. Bomber often have the fire arc rear.

ANTI-AIR

The unit can always fire at aircraft, even if they fly high.

TITANS

These traits concern Titans, supersized tanks or huge weapon systems. If a normal unit bears such a weapon trait its firepower is resolved apart from the remaining formation. The unit must choose the same target as the remaining formation, as long as not all target units were already wiped out.

HUGE

Most Titans are huge and tower high over the battlefield. While this give them a better fire position it makes them a bigger target as well.

A Titan with the huge property is always treated as if on high ground, that means it can treat high terrain as cover instead of a blocked line of fire. The same is true the other way round.

SHIELDS(X)

The Unit has the amount of shield points given in the brackets. Any hit by firepower reduces shield points first. A hit upon shields usually does not inflict Impact Tokens. As long as any Shield points are remaining the unit can't suffer critical hits through fire power, instead a critical hit on shields inflicts an Impact Token. If a salvo with critical hits achieves more hits than shield points remain, the critical hits can be allocated last.

Shields are ignored in close combat.

During the activation of the unit you can spend Supplies to recharge 1 Shield for each Supply Point.

SINGLE SHOT

This Weapon can be fired only once during a game. After it is fired, considered the Weapon removed from the Titan.

ANNIHILATION

All hits caused by this weapon are critical hits. This is true for fire power and melee weapons.

BOMBARD

This weapon is able to blast a whole area clear of enemies. When you fire this weapon place the bombard template (5cm) anywhere within range and the fire arc of the weapon. Roll the firepower of the weapon. All units that touch the template are equally affected by the undiminished result.

SUPPLY

A war is not fought on an isolated battlefield. In Maker War armies are backed up by their faction during battle. The game uses Supply Cards, they are drawn at the end of a round from a card deck.

Each supply card has a supply value of 2 or 3 points. You can discard a supply card at any time to receive and spend this amount of supply points. Supply points can be used to deploy formations or flyers and to repair and recharge Titans.

Many Supply Cards have alternate uses like 'lucky shot'. You can either use a supply card to generate supply points or to use the alternate effect on the card, but not both.

SUPPLY POINTS

You gain supply points by playing a supply card. A supply card that is played for supply points does not activate its alternate effect. You can generate supply points as needed at any time, but you'll need to spend them at once and they expire with the end of a turn. Supply points which you can't spend expire at the end of any turn as well.

Some actions require an amount of supply points to spend:

	Supply points required
Issue an order to a formation of flyers. (Any order besides veer off)	2
Deploy a formation on the battlefield.	formation supply cost
Remove 1 additional Impact Token during a regroup order	1
Recharge 1 shield on a Titan	1
Repair one damaged system on a Titan	2

If you deploy a Formation you need to pay the supply cost given on the formation card. (See Chapter Deploy Formations).

THE SUPPLY CARDS

This a list of the basic supply cards. Each card is in the card deck 5 times. This makes a total of 40 cards. If you draw a supply cards that seems to be of no use you can always use it to enhance an orbital barrage.

WHEN ALL CARDS DRAWN

Once all Supply Cards are drawn no further supply cards are available. You usually do not reshuffle the Supply Cards.

It's possible that at the end of a round players end up in a situation where few cards remain, but not as many as should be drawn. It's possible as well that an odd number of cards remain. In both cases you do reshuffle all spend supply cards and draw the remaining cards normally. Afterwards you remove the deck from the game. You only use this method at the end of a round, not for points of interest.

As a further exception, for **games of 10.000 points or above you do reshuffle the unused cards once** and continue drawing from the new deck in rounds to come. If the deck is depleted a second time that's it.

FACTION CARDS

For a faction there could be up to 5 additional faction specific cards, which you may shuffle into the deck if you play that faction. The alternate use of faction specific cards is restricted to their faction. Faction cards are restricted to games above 2000 points.

PRINTABLE PDF

You'll find a PDF containing the basic supply cards on www.maker-war.com

	Supply Points	Alternate Use
Lucky Shot	2	Play after you resolved the hits from a salvo of firepower. The last allocated hit becomes a critical hit.
Reinforcements	2	Play right before you activate a formation that has the scatter stance. You may give the formation the regroup order instead of the scatter order.
Shock and Awe	2	Play at the end of your turn. Choose an enemy formation. The Formation needs to roll a Moral Check at once.
More Fuel	3	After an activation right before you end your turn. You may now activate another formation in this same turn.
More Ammunition	2	Play after you rolled a salvo of fire power or close combat and are not contend with the result. Reroll all dice. The new result counts, even if it is worse.
Orbital Barrage	3	Play instead of an activation. Choose a target formation and attack it with a firepower of 3. You can spend Supply points to add an equal amount of fire power to this attack. To allocate hits you assume a line of fire from any of your units on the battlefield.
Second Wind	3	Play after a unit with the hero trait received a hit. The unit acquires 3 additional armor until the end of this turn.
Against all odds	2	Play during a close combat before you roll your melee dice. A unit with the hero trait gains 2 additional melee power until the end of this turn.

TITANS

Titans are huge war machines, dominating the battlefield with enormous weaponry and able to take a beating. Some Titans are supersized tanks, other are big walking machines and some are gigantic living beings. All are called Titans in Maker War.

Titans have structure instead of armor and they keep track of their orientation and movement in more detail. They may carry several weapons which are fired in a single turn, which are often restricted by their fire arc. Titans aren't destroyed at once on a critical hit but they suffer damaged systems which need to be repaired to bring them back to full operational readiness.

A Titan may receive the same orders as any other formation, but it usually is a formation by itself.

MOVEMENT OF TITANS

Titans have a speed in cm like any other unit. For a Titan you always keep track of its facing. A Titan may move only straight ahead and must move in a straight line. You may turn a Titan up to 45 degree if you reduce its movement by 5cm for this turn. You may take several turns, by paying 5cm for each.

WEAPONARY OF TITANS

A Titan often carry several weapons. You may fire these weapons all in a single turn, one weapon after another. Each weapon may select another target. If two or more weapons choose the same target in succession in a single turn you may overcome armor which a single weapon failed to punch through.

SCATTER ORDER FOR TITANS

A Titan may be forced to enact a scatter order as well, but they are treated differently than most formations.

A Titan with the scatter order may move in a straight line backwards as well. A Titan is not automatically killed if it ends its movement within 10cm of an enemy unit.

A Titan is not automatically killed once you roll a d6 to remove impact tokens as written in the scatter order. You still roll a d6 and remove this number of impact tokens, but the Titan only receives a single critical hit.

IMPACT TOKENS FOR TITANS

Titans receive an impact Token for each hit.

CRITICAL HITS

A critical hit against a unit with armor is always a kill.

Against a Titan a critical hit inflicts a single impact token and brings down structure by one point. Mostly a critical hit on a Titan causes an individual long-term effect. Each Titan has either a note what the effect of a critical hit is or a table with several possible effects.

CRITICAL HIT TABLES

A moderate sized Titan uses a table with 7 systems, a bigger Titan uses a table with 12 systems. The tables are numbered, low numbers correlate to systems close to the ground as well as systems with minor impact. Systems with high numbers are important and high above the ground. All systems may go bust, which should be marked as a system stays broken until it is repaired.

It is recommended to print the schematic of your Titans and mark any damaged systems with an impact token. Alternatively, in the App, you can press on the structure of a Titan in your army to bring up the schematic of the Titan and you can mark destroyed systems there.

On a critical hit you decide at random which effect takes place, you roll a dice (or 2 dice for a bigger Titan) and suffer the effect of the given number. If the system is already broken you step up one number and hit this next system, if this system is destroyed as well you continue until you reach a working system. This finally allows to hit the most important system which is otherwise not accessible by the dice. Each table is topped off by a generic nearly lethal effect which may take effect several times.

If not otherwise noted you use the following critical Hit tables.

GENERIC TITAN TANK CRITICAL HIT

Apply on a critical hit to Titans of up to 6 structure. If the Titan has a specific entry for critical hits, use this. A Titan of this size does usually not use a table, but the following fixed result.

Plating penetrated. Causes 3 structure damage.

GENERIC MODERATE TITAN

Apply on a critical hit to Titans of up to 15 structure. If the Titan has a specific entry for critical hits, use this.

	D6 Roll	System Damage
Legs	1	The Titan may not enact the Assault or March order.
Accumulator	2	The Titan suffers 1 structure damage at the end of each of its turns.
Left Weapon	3	The left weapon is out of action.
Right Weapon	4	The right weapon is out of action.
Shields	5	Shields (or other defensive trait) can't be recharged.
Head	6	The Titan suffers the rookie trait.
Generator	(7)	Suffer 4 structure damage.

GENERIC BIG TITAN

Apply on a critical hit to Titans above 15 structure. If the Titan has a specific entry for critical hits, use this.

	2D6 Roll	System Damage
Left Leg	2	Reduce Speed by 5cm
Right Leg	3	Reduce Speed by 5cm
Quarters	4	May not regroup and suffers 1 impact token on each activation.
Accumulator	5	The Titan suffers 1 structure damage at the end of each of its turns.
Ammunition	6	The Titan suffers the dicey trait.
Left Arm	7	Weapon out of action.
Right Arm	8	Weapon out of action.
Left Mount	9	Weapon out of action.
Right Mount	10	Weapon out of action.
Shields	11	Shields can't be recharged.
Head	12	The Titan suffers the rookie trait.
Generator	(13)	Suffer 5 structure damage.

DEATH OF A TITAN

If a Titan is destroyed it is often a turning point in a battle. The remaining Ammunition and Power may cause an explosion or the view of the falling Titan may have significant impact on troop morale.

If a Titan's structure drops to 0 roll a D6.

D6	Death throes
1-2	Nothing special.
3	**Small Detonation;** Roll a firepower equal to the initial amount of structure of the Titan. You allocate hits beginning with the closest unit to the Titan and move outward. You must allocate hits to a unit until destroyed as normal. You must allocate hits to any unit, whether friend or foe.
4	**Losing Hope;** Formations allied with the Titan and with at least one unit as close to the Titan as the Titans initial structure as cm must make a moral check at once.
5	**Cheers;** Formations opposing the Titan and with at least one unit as close to the Titan as the Titans initial structure may lose 1d6 impact tokens and the scatter stance.
6	**Large Detonation;** Roll a firepower equal to the initial amount of structure of the Titan. The firepower has the annihilation trait. You allocate hits beginning with the closest unit to the Titan and move outward. You must allocate hits to a unit until destroyed as normal. You must allocate hits to any unit, whether friend or foe.

REPAIR A TITAN

During the activation of the Titan you may repair damaged systems. Pay 2 Supply Points for each system you repair. The system is repaired at once.

FLYER

Flyer include all aircrafts that travel at very high speed and may reach altitudes that are way above the battlefield.

What makes flyers stand out is their ability to fly at high altitudes outside the reach of enemy fire, to move across the battlefield in an instant and the requirement of supply points to activate their formations. Flyers can never be involved in a close combat.

ACTIVATING A FORMATION OF FLYERS

A formation of flyers starts the game always off the table. You may forgo the activation of the formation if it is off table. You only need to deploy flyers the first time they enter the battlefield. If you activate a formation of flyers you must spend 2 Supply points or issue the veer off order. On the turn in which you deployed flyers you do not need to pay their activation cost.

Flyers can receive all orders other than the march or assault order. A flyer formation can freely choose if it takes the fly high stance before enacting its order.

MOVEMENT OF FLYERS

When a flyer is allowed to move normally it has a distinctive movement mode.

A flyer keeps track of its orientation. At the beginning of its movement it may turn into any direction. The flyer then moves forward in a straight line as far as it wishes.

This movement mode is true for basic advance, patrol, regroup and veer off. For continuous fire no movement is allowed.

If at any point during movement the flyer approaches a FLAK unit closer than 10cm the flyer is automatically destroyed.

SHOOTING WITH FLYERS

A flyer is only allowed to shoot at targets on the ground if it either is a bomber or does not have the fly high stance. Keep this in mind when you issue an order to a formation of flyers.

To shoot upon other flyers additional restrictions apply. In an air to air battle flyers may only shoot to the front and their range is fixed to 15cm. The air to air firepower is not the same as the air to ground firepower. While you can read the air to ground firepower in its usual space, the air to air firepower (AA) replaces the melee value for flyers.

SHOOTING UPON FLYERS

As long as a flyer does not take the fly high stance it is just a normal target.

If a flyer is in the fly high stance it is out of reach of any units without the Anti-Air ability. Flyers that fly high as well may target other flyers that fly high of course.

POINTS OF INTEREST

While many table top games utilize some kind of victory points Maker War instead incorporates Points of Interest, which are useful but not mandatory to win. Points of Interest (PoI) are placed on the Battlefield. These points may be pivotal to victory, but they aren't necessary. Points of Interest may be valuable resources, factories or defenses. Points of Interest may well be the reason why the armies fight and why they fight on this battlefield and not somewhere else. They should be interesting for both sides and of equal value, but while most points of interest offer an identical benefit for both sides it is only obligatory that the benefit is of an equal value to both sides.

There are several kinds of points of Interest and most of these are placed as actual terrain on the battlefield. This is in addition to any terrain that might already be on the battlefield.

PLACEMENT

There are different possibilities to place Points of Interest choose one before you start to set up the gaming table. Place Points of Interest after terrain is set up and players chose their side. If any method would place a point of interest in conflict with existing terrain you may move each, the terrain and the point of Interest as less as possible to make space for the point of Interest. All players need to agree on the placement.

APP

The Maker War App includes a function to distribute Points of Interest randomly and fair. Place the Point of Interest compass in the middle of the game with the player axis point to the opposing sides and the middle axis along the middle axis of the battlefield. In the App select an army to play with and press the "Points of Interest" button.

Place the Points of Interest as Instructed in the App. Measure from the Points of Interest compass along the given axis to place the Points of Interest. After all Points of Interest are placed you remove the compass of course.

BEADS

This option is recommended if you want a very quick setup and play without App support.

Imagine a line which divides the battlefield into two sides one for each player. You start on the left side of this line and roll a dice and place the assigned point of interest at the border of the battlefield.

You continue by moving 30cm along the middle line and placing a further Point of Interest at random there. Continue until you reach the right side of the battlefield.

ALTERNATING PLACEMENT

After terrain is set up one player determine a point of Interest at random and then freely places it on the battlefield. You may even decide that the points of Interest are chosen as well.

Once a player placed a point of interest the next player places a point of interest with the same method. Continue until all points of interest are set up.

This method should be used carefully as it may produce unfair or unbalanced scenarios.

ACTIVATING A POINT OF INTEREST

A Point of Interest may provide a benefit to a side if the side is able to control the point of Interest. This chapter details the rules on how to occupy and control a point of Interest.

OCCUPIED

A formation with a unit within 5cm to the point of Interest is said to occupy the point of Interest. Often this is just the requirement to control the Point of interest.

CONTESTED

If formations of opposing sides occupy the same point of Interest the point of Interest it is contested. Usually nobody benefits from a contested point of Interest, but it prevents that the point of Interest is in control of anybody.

CONTROL

If a formation occupies a point of Interest and it is not contested, then a formation likely controls the point of interest. The formation must occupy the uncontested point of Interest at the start and the end of its turn. If the point of Interest can be activated it may be activated as part of the turn in which it was controlled, usually right after you resolved the order of the controlling formation. A Point of Interest that can be activated has an activation benefit listed.

You can benefit from a point of interest only once per round.

COMMON POINTS OF INTEREST

These points of Interest may be sufficient for most games. You may however come up with your own ideas to expand this list or to replace some options. Ideally a point of interest should provide a benefit which is apt to bring the game to a close.

D6	Point of Interest	Terrain example
1	Source of Supply	Depot, Factory or Mine
2	Source of Supply	Crossroads, Alien artifacts
3	Ordnance	Turret, Tower
4	Fortification	Fortress, Bunker
5	Reliquary	Ruin, Church, small Bunker
6	Landing Zone	Landing Pads, Portals

SOURCE OF SUPPLY

The most common type of points of interest are sources of supply. This may include anything that in some way contributes to the long-term war efforts. While some factions will use the location in its intended way, other already profit from studying the alien technologies.

Activation Benefit: Draw an additional supply card.

ORDNANCE

This point of interest includes strong turrets set up to defend against attackers or scientific stations which can be abused to direct forces of nature against your enemies. Even if a faction may be unable to operate the ordnance by damaging the enemies weapons and by their presence alone you can severely harm the enemy.

Activation Benefit: You may activate it to shoot with a Firepower of 2 (no range limit) with the artillery and annihilation traits.

FORTIFICATION

This point of Interest is terrain with the fortification trait. While it has no additional benefit its defensive value may proof pivotal to battle.

Fortification blocks line of fire. Formations that are in contact with fortification are in cover. Formations in fortification further benefit from an impressive screen value of 6. A fortification imposes disadvantage in close combat against any formations that attack formations which are in contact with the fortification.

RELIQUARY

This includes anything that is sacred or in high respect. For at least one side on the battlefield this place has a high value without being able to provide supplies or firepower. Whoever is in control of the reliquary is harder to demoralize.

Activation Benefit: When you control a reliquary you may remove 2d6 impact tokens across your army.

Optional: Place only a small marker for the reliquary. A controlling formation is allowed to 'collect' the reliquary and place it next to its chief. On the next activation is the reliquary is not contested it may move with the formation.

LANDING ZONE

This Point of Interest somehow allows for fast troop movement. As long as you are in control of the Point of Interest the 5cm area around the point of interest counts as your deployment zone, just like your table edge. If you used a terrain piece of regular size (~ 15cm diameter) to represent the landing zone, the whole terrain piece counts as deployment zone, but not the area around it.

If you control the Landing Zone it provides 3 Supply Points each round, which you may spend to deploy formations or activate flyers. You are not allowed to spend these points for anything else.

It is possible for both players to benefit from a landing zone in the same round, if they manage to switch who controls the landing zone.

FACTIONS

TERRAN MAKERS

With the advancement of 3D printing in terms of materials, speed, precision and reliability a new Age began. Besides enormous social changes this technology allowed to colonize the Moon, Mars and further places of the solar system with reasonable effort.
This success soon led to the construction of the first generation-ship, which finally started with a 40 lightyear distant planet as destination.

Without waiting for decades to see if these first mission is a success soon more ships were build and started to various destinations. With each ship the construction improved and finally, by exploiting the curvature of space, speeds above the speed of light were achieved.
The new technology reduced the time between the stars to mere weeks. This breakthrough made humanity upbeat and without constraint they began to build star ships to colonize and explore space.
But already the first tries to contact the generation ships pointed towards trouble. Most of them were either nowhere to be found or destroyed, aliens soon proved to be real and in the depth of space the laws of nature no longer seemed to apply.
Confronted with deadly a menace of unknown margin the makers started their printers and prepared for war.

SPECIAL RULES

MAKER WEAPON

When the unit first enters the Battlefield it may choose one of the following abilities to replace Maker Weapon: Terror, Anti-Air, Anti-Tank, Sniper

You may spend a supply point at activation of the formation to change your choice.

ARMY

For a complete list of the units, weapons, formations and upgrades in the Terran Makers army please visit the Web App www.maker-war.com

STELLAR PILGRIM

As with the first American colonists once again religious minority were among the first that left earth for a new beginning. Still in the recent past most religions that believed in a single god began to merge. The pilgrim are a unified religion that honour the holy days and traditions of several ancient religions at once and relaxed in some views at the same time.

The pilgrims are however the proof that the reality of a race isn't unchangeable. In the isolated colonies of the pilgrims miracles become frequent and nobody questions the influence of the almighty.

This army is still under construction.

THE TRANSCENDENT

This ancient race once experienced the singularity and transferred themselves into computers. Their advanced technologies not only include nanites, shields and interstellar communication but they also wireless energy transmission over large distances. This allows even some of their smallest weapons to channel devastating firepower.

The biological ancestors of the race expired millennia ago. Most of their arsenal is driven by artificial intelligence and usually only one or two minds of the exalted race are present.

SPECIAL RULES

GENERATOR

When a formation with a unit with the generator ability is activated you receive 1d6 energy tokens for each generator unit in the formation.

CONDUIT(?)

This unit is able to channel the energies from the transcendent. There are distinct possibility how the unit is able to use this energy.

(firepower) You may spend energy tokens to add 1 firepower for each energy token you spend.

(melee) During a close combat you may spend energy tokens to add 1 melee dice for each energy token.

(screen) When a formation comes under fire you may spend energy tokens to grant and increase the screen points by 1 for each energy token.

ARMY

For a complete list of the units, weapons, formations and upgrades in the Transcendent army please visit the Web App www.maker-war.com

CYBER DEMONS

The most remarkable trait of this race is that their wounds heal fast and they do not know of gangrene or rejection. Indeed, it is common that two creatures may grow together if crippled.

They found multiple ways to take advantage of these connections. These creatures willingly replace limb with machines and fuse themselves together to abominations. For the average human the sight of these beings is a horrific experience by itself.

This civilization has no respect for individuals and they do not care about the pain or terror they cause.

ARMY

For a complete list of the units, weapons, formations and upgrades in the Cyber demon army please visit the Web App www.maker-war.com

THE ASTRAL

These aliens reached a state of technology that seems like magic to humans.

Their culture cannot grasp the concept of deceit or lies.

SPECIAL RULES

HIT AND RUN - ORDER

This special order may be given only to Astral Formations and only if all units in the formation hover or are transported. The formation makes a basic movement, followed by basic shooting. Then the formation may move again further 10cm.

PORTAL

This unit can open a portal to allow for incredible flexible troop movements. An invader formation that is off table may enter the table through the portal.
Further, an invader formation may enter a portal during its movement and immediately leave at another portal. This does cost an additional 10cm movement, which the formation must be able to spare.

ARMY

For a complete list of the units, weapons, formations and upgrades in the Astral army please visit the Web App www.maker-war.com

FUNGUS PANDEMIA

The Fungus Pandemia seems to be a giant fungus, which is able to grow with surprising speed and covers whole planets. It seems to reproduce by cracking infested planets apart and using the resulting asteroids as spores to colonize further planets. Despite the apparently dead slow method the terran makers again and again discover this menace on their explorations.

SPECIAL RULES

ROOT

This unit and its formation is able to start the game off the table and enter the battlefield on a later activation. You can place the root anywhere on the battlefield within 5cm of another unit of the fungus pandemia. This location must be connected with a command chain to the deployment zone of your army.

Hypha

This units are independent of any formation. Hypha never gain impact tokens and never receive orders. Hypha are activated by activating another formation with any unit within 5cm distance. In the same way, when you fire on a Fungus Pandemia formation all hypha within 5cm to any unit of the formation count as part of the formation and may block line of fire.

SPROUT(?)

When activated the unit creates a hypha of the given type. This Hypha may be placed at any place that is connected to this unit by an unbroken command chain.

ARMY

For a complete list of the units, weapons, formations and upgrades in the Fungus Pandemia army please visit the Web App www.maker-war.com

ARMYS BY MAKERS

You can create your own army with the help of the tools available on www.maker-war.com and you can access armies of other makers. Tools and calculators help to keep armies balanced against each other.

BEHIND THE SCENES

This Part of the book is not about playing the game but about the Development of this game. Tips how to create units or armies and explanations behind some rules

GENERAL CONCEPTS TO GAMEPLAY

To keep the game interesting no single unit should be superior to any other in all situations.

Some guidelines were fixed for the armies in this book and for the gameplay in general.

- Tanks should beat infantry. This is achieved by higher mobility, range and armor for tanks. It is somewhat offset by the difference in point cost.
- Infantry is of more strategic value than tanks. Infantry is able to use fortifications and can be carried and transported for flexibility.
- Flyer beat artillery. Most artillery tanks are unable to defend against an air strike.
- Flak beats flyers. Flak is effective against all kind of flyers and able to defend before the flyers do their worst.
- Artillery beats tanks and infantry that dig in.
- Screen beats artillery. Already a small screen value can protect from artillery or bomber fire.
- Firepower is effective through range and against low and moderate armor.
- Close Combat is effective against high armor and expensive units.

SCREEN

This trait is more important to Maker War than it looks. It allows an effective counter to artillery and even Titans.

POINT OF INTEREST AND INFANTRY

A tempting idea is to make Points of interest only controllable by infantry. While this would have enhanced the role of infantry it would have crippled the overall usefulness of Points of Interest and was rejected.

UNIT COST CALCULATION

The following formula is to calculate the cost of a unit. It is available as calculator in the Maker War App. The constants used either are empirical values, playtest results or just best guess.

```
$fire_power = $unit->fire_power*(0.333+$unit->fire_at*0.333+$unit-
>fire_tr*0.15-$unit->fire_dy*0.1); // Anti-Tank; Terror; Dicey
```

```
if (mw_unit_has_ability($unit_id,119)) $fire_power = $fire_power * 2.7 ;  //
Annihilation

if (mw_unit_has_ability($unit_id,129)) $fire_power = $fire_power * 3.6 ;  //
Bombard

if (mw_unit_has_ability($unit_id,100)) $fire_power = $fire_power * 1.6 ;  //
Sustained Fire

if (mw_unit_has_ability($unit_id,117)) $fire_power = $fire_power +  $unit-
>fire_power*0.333 ;  // Maker weapon

$speed = $unit->speed;

if (mw_unit_has_ability($unit_id,104)) $speed = $speed * 1.14 ;  // Hover as
Speed bonus

$range_smooth = 5;

$range_norm = 20;

$range_cc_norm = $range_norm ;

$range_pow = 1.3;

$fire_range = $unit->fire_range; // Before normalization

if (mw_unit_has_ability($unit_id,112)) $fire_range = $fire_range * 2 ;

if (mw_unit_has_ability($unit_id,124)) $fire_range = $fire_range + 120 ; //
Bomber is range Adjustment

$fire_range = ($speed + $fire_range + $range_smooth)/($range_smooth +
$range_norm);

if (mw_unit_has_ability($unit_id,103)) $range_pow = $range_pow + 0.2; //
Artillery Adjustment

if (mw_unit_has_ability($unit_id,109)) $range_pow = $range_pow + 0.4; // Anti
Air Adjustment

$offensiv_fire = pow($fire_range,$range_pow) * $fire_power ;

if (mw_unit_has_ability($unit_id,115)) $offensiv_fire = $offensiv_fire / 5;
// Single Shot Adjustment  5 Round Avg.

$fire_arc = 1;

if ($unit->fire_arc == 1) $fire_arc = 0.65 ; // Front

if ($unit->fire_arc == 2) $fire_arc = 0.8 ; // Left

if ($unit->fire_arc == 3) $fire_arc = 0.8 ; // Right
```

```php
if ($unit->fire_arc == 4) $fire_arc = 0.5 ; // Rear

$offensiv_fire = $offensiv_fire * $fire_arc;

$cc_power = $unit->melee * 0.5;      // Nahkampf Wert

if ($unit->type ==  35) $cc_power = $unit->melee * 0.33 * 2;      // Air to
Air  (1/3 Chance but instant kill as double)

if (mw_unit_has_ability($unit_id,119)) $cc_power = $cc_power * 2.7 ;  //
Annihilation

if (mw_unit_has_ability($unit_id,112)) $cc_power = $cc_power + $fire_power;

$cc_range = (($speed * 2) + $range_smooth) / ($range_cc_norm +
$range_smooth);

if ($unit->type == 35) $cc_range = ((60) + $range_smooth) / ($range_cc_norm +
$range_smooth);

if (mw_unit_has_ability($unit_id,116)) $cc_range = $cc_range * 1.2;
      // Berserk is increased cc range

if (mw_unit_has_ability($unit_id,125)) $cc_range = $cc_range * 1.5;
      // Interceptor is increased cc range

$offensiv_cc = $cc_power * pow($cc_range,1.3);

$armor = $unit->armor;

$defense = pow($armor,1.3) * ($unit->hitpoints +
(mw_unit_has_ability($unit_id,120) * 1.1) ) ;          // shields

if (mw_unit_has_ability($unit_id,136)) $defense = $defense * 1.2 ;  //
regeneration


$evade = $speed / 15 ;

if ($unit->type == 35) $evade = 3.6; // Aircraft fixed evade (for defense).

            $evade = max($evade,1);

$defense = max($defense * $evade *0.9 ,1);  // Defense downscale 10%

$offensiv = max($offensiv_cc,$offensiv_fire,0.1) +
(min($offensiv_cc,$offensiv_fire) * 0.25);

$points =  $defense * $offensiv ;

$overpowered = pow((1/sqrt($points)), 0.5) ;

$points =  $points * $overpowered;
```

```php
if ($unit->type == 10) $points =  $points *1.2 ; // Infantry type

if ($unit->type == 35) $points =  $points *0.6 ; // Aircraft Supply Trade Off

if (mw_unit_has_ability($unit_id,101)) $points = $points * 1.2 ;  //
Expendable

if (mw_unit_has_ability($unit_id,106)) $points = $points * 0.7 ;  // Rookie

if ($unit->type == 45) {

$points = $points+0.4;  // base cost

$points = $points*6;
      // Weapon scale

      } else {

            $points = $points+0.5;  // base cost

            $points = $points*4;
                                // maker War scale

      }

if ($unit->type == 35) $evade = 1.8; // Aircraft fixed evade (for transporter
etc.).

if (mw_unit_has_ability($unit_id,128))  $evade = 1.4; // planetfall fixed
evade

if (mw_unit_has_ability($unit_id,102)) $points = $points + 20 ;  // Hero

if (mw_unit_has_ability($unit_id,130)) $points = $points + 25 ;  // Sacrifies

if (mw_unit_has_ability($unit_id,126)) $points = $points + 35 ;  //
Strategist

if (mw_unit_has_ability($unit_id,127)) $points = $points + 15 ;  // Invader

if (mw_unit_has_ability($unit_id,107)) $points = $points + 25 ;  // Warlord

if (mw_unit_has_ability($unit_id,108)) $points = $points + 25 ;  // Medic

if (mw_unit_has_ability($unit_id,105)) $points = $points + 10 ;  // Scout

if (mw_unit_has_ability($unit_id,114)) $points = $points + 10 ;  // Sniper

if (mw_unit_has_ability($unit_id,121)) $points = $points + 28 ;  // Generator

if (mw_unit_has_ability($unit_id,122)) $points = $points +
0.17*pow($fire_range,4) ;  // Conduit

if (mw_unit_has_ability($unit_id,123)) $points = $points + 32 ;  //
Broodmother
```

```php
if (mw_unit_has_ability($unit_id,111)) $points = $points + (12 + $defense) *
mw_unit_has_ability($unit_id,111) ;  // Screen

if (mw_unit_has_ability($unit_id,110)>0) $points = $points + 6 * $evade *
pow(mw_unit_has_ability($unit_id,110),0.8) ;  // Transport

if (mw_unit_has_ability($unit_id,118)>0) $points = $points + 7 * $evade *
pow(mw_unit_has_ability($unit_id,118),0.8) ;  // Carrier

if (mw_unit_has_ability($unit_id,137)>0) $points = $points + 35 * $evade ;
// Carrier

if (mw_unit_has_ability($unit_id,128)) $points = $points * 1.3 ;  //
planetfall

$points = round($points);
```

CREDITS AND SOURCES

PICTURES

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