CHAPTER 1: INTRODUCTION
2
CHAPTER 2: DESIGNER'S NOTES
2
CHAPTER 3: DICE TYPES AND CONVENTIONS
3
CHAPTER 4: GAME SCALES AND DEFINITIONS
3
CHAPTER 5: THE COUNTERS, CHITS AND MARKERS
5
CHAPTER 6: FORCES AND TECHNOLOGY
6
CHAPTER 7: COMMAND, CONTROL, COMMUNICATIONS
6
AND ORDNANCE
6
CHAPTER 8: VEHICLE DESIGN
7
CHAPTER 9: COMMANDER'S NOTES
8
CHAPTER 10: ORDNANCE
8
CHAPTER 11: ARMY RECONNAISSANCE UNIT
9
CHAPTER 12: ARTILLERY
10
CHAPTER 13: AIRCRAFT INTRODUCTION
10
CHAPTER 14: AIRCRAFT OPERATIONS
11
CHAPTER 15: AIRCRAFT UNIT ACTIVATION SCIENCE
12
CHAPTER 16: AIRCRAFT UNIT INFORMATION
12
CHAPTER 17: INSTRUCTIONS FOR PLAYERS
12
CHAPTER 18: APPENDICES
13

CREDITS:
Written by: Jon M. Tuffy
Systems Development: Mike Elliott
Background Development: Jon Tuffy and Steve Tillery
Scene: Mike Elliott
Text/Art/Map Advisors: Paul Arboek, Bruce Miller
"Jonah" Playtesting and Development: Jon Tuffy, Mike Elliott, Tim Penell, David Margen
External Playtesting Teams: Bruce Miller and "Die Knapsack", Raymond AFB, Germany; Richard Peters, Steve Tilly and Commander Games Club; Steve Taylor and friends, Israel; David Brown, Neil Mabury and Jason Sayer, Sheffield
Artwork: Sue Linn and Peter Dabela
Photography: John Treadwell and Kevin DeMonre
Backs by the generous sponsorship supplied by Meri Marquis
Modeling: John Tuffy
Art Direction: John Tuffy ("See Knapsack" Signal Corps) by Kevin Detlaff Special thanks to Mike Lescjak for help with the "See Knapsack" game's layout.
Basing: Dennis O'Sullivan
Basing Materials: Plus Model Basing Supplies; Yosi Basing Supplies; Inside the Wall; Benno's Basing Supplies; Kelly Tuffy; Pat Tuffy
Photography: Jon Tuffy; Pat Tuffy; Kelly Tuffy

Please Note: Most of the Companies, Names and Regions mentioned are Trademarks of their respective companies. This game is for entertainment/information purposes only, and should not in any way be construed as a challenge to the trademark status of any company in the real world.
INTRODUCTION

The drop on Mipho-Dzu was the only hot zone drop ever. The normally Command incumbents were too expensive – much better to land everyone in a nice quiet bit of back-country and then mount an ordinary overland assault. That takes time though, and on Mipho-Dzu, they needed results fast – a futile relief force was supposed to be on its way and the brass wanted everyone up and gone before they got there.

We were in the second wave, the big luggers with all the armour and support. The PJ went down in the first wave, the little interface boats – talk of men – to make the ground forces have work to do at it. We heard that the Hook and drop had dropped thirty boats, all of Delta battalions, and only six made it in. Typical Command screw-up; they told us that most of the defectors had been “neutralised” by this Fleet bombardment. All I can say is that a lot of them must have un-neutralised themselves by the time we got there.

My Great Grandad used to tell me about the time he was parachuted on Rico back in the American War. He was in the Royal Marines – five star groups went in, he and about twenty others were the only ones to come out. That was back in 1946; they gave him a pair of, of course, to replace the ones that some Geek looted off with a plasma grenade. He always used to say that was the best thing that ever happened to him – random the lads reduced the strain in his heart, and the old boy lived till he was 116 and decided he didn’t want any more patch-up jobs.

Yeah, sorry, ranting again. Anyway, we were lucky enough to hit dirt in one piece. 8 and 15 Squadrions got down OK too, but Charlie Squeakson’s trooper took too much trep a about a thousand miles up and just fell apart – don’t think anyone ever got out of it. We grounded about a kick outside the city and got all dozen tanks out in two minutes, just like clockwork. We must have done it by the book, eh? Captain Truax was actually sounding phased for once when he gave us the Tac briefing – old man Truax was that sort of officer, the type who can never go fast enough, but that’s why (you did say you were going to edit this, didn’t you?).

So, next thing we’re walking into the town with no goddamn infantry to support us! Yes, I know everything was a mess by then and there weren’t enough of the Pongers left to go round, but any Turkie will tell you that the Turks can’t fight in an Urban Zone without backup from the footsoldiers.

The Captain was leading in Apple One-One, sitting up there in the turret just like he was on some bloody parade! Never even saw the monorail cross the road that took his head off. From there on things just went downhill – we were taking incoming and even our Air couldn’t give us any targets to shoot back at. The last thing I remember was this fat Geek jumping out in front of us with a buzzsaw, then all of a sudden the turret wasn’t there any more and I got a fearful of splinters and liquid excrement.

Dumna what happened to the gook – guess I probably ran him over. I woke up on the C-Vac the way back here, with some rare round-nosed little GA nurse trying to tell me why I can’t see. These new eyes are pretty good once you get used to them – hey, I know guys back home that were gaining fifteen kay for ages, and the Army gives me one for nothing! By the way, anyone tell you how you look on infrared?

(Transcript of interview with Copper-Driver Daniel M. Kasst, “A” Squadron, 17/28 NZ, New Zealand Lanceros, F1/2092161 at Celebration East Medi-centre by Margaret Nokiagy, Confid News Service.)

INTRODUCTION:

DIRTSIDE is a rules system for playing combined arms ground combat games with miniatures, in a science fiction setting. The rules themselves are written as a generic system, intended for use within virtually any SF background or setting that the players desire. This book is a development of the original DIRTSIDE rules first published several years ago, and during this period we have tried to remain true to the concepts and ideas that made the 1st edition so well accepted and liked by many SF gamers. On the other hand, we decided early on that a major rehash of the actual mechanics of play was required to make the game flow faster, and to allow battles with larger sized forces, thus these rules bear little resemblance to the first DIRTSIDE in terms of game mechanics, we hope that we have kept enough of the “flavour” of the original game that this new edition will appeal to “old hands” and newcomers alike.

Basically, this is a game about armoured warfare – that is, battles using tanks and mechanical infantry. As such, it is essentially a extrapolation of present day warfare into a future setting, which is why the combat is usually presented in most SF titles and books. We have tried to reproduce the style of battles from the kind of literature listed in the bibliography; books like David Drake’s “Hammer’s Slammers”, Robert Heinlein’s “Starship Troopers”, Gordon Dickson’s “Deer” series and so on. Thus DIRTSIDE B reflects the “popular” view of SF combat – top heavy, many multi-mounted vehicles, fast action, no time to queue, no scenery – other’s don’t even know what warfare will really be like in the next fifty years, let alone the next two or three centuries – in all probability it will be as different from today’s actions as the Gulf War was from the Boer War. Perhaps tanks and infantry will survive in some form, perhaps they won’t; here we assume they will, because a game terrain full of nasty armed figures and PING is much more fun than an empty battlefield with a couple of robot drones flying over it.

DESIGNERS’ NOTES:

When we first envisaged re-writing DIRTSIDE for this new version, we had to set a number of basic goals: 1) the system had to be as generic as we could make it, with as few and obvious gap-filling rules that the players would have to fill in themselves. 2) It had to be simple and fun-playing in play, without the need for endless references back to charts and tables, and 3) It had to be able to cope with large forces too big, say, Battalion sized units still remaining playable in a realistic space of time. Above all, this game had to be FUN!

That is what we set out to achieve; we think that we managed to get pretty close, but we won’t know for sure until YOU try it out and tell us what you think.

Looking at point 1), writing a truly generic game is a bit of a minefield for any designer. Too often, games claim to be generic but then fall into the trap of trying their own background so tightly into the fabric of the rules that trying to use them in any other setting requires a major hatchet job. Having already provided a fairly well-developed (though optional) background for our FULL THRUST! Starship Combat rules, it
INTRODUCTION

It's a great temptation to expand on this viewpoint to the extent that it "looks over" DIRECTS II and makes it defend background-specific rulebooks with the word "generic" thrown in a few times to confuse people. We sincerely hope that, in the end, we've avoided doing that—

as with FULL THRUST. The background is there in the ascendencies, but it is presented purely as an option for you to use if you wish the design and point cost systems will enable you to classify and use virtually any equipment that you wish, and combined with the notes on unit organizations should allow almost any desired "future history" to be used as a game setting.

Of course, some compromises have to be made somewhere—a good example being naming the weapon systems. Just because we've got one system of "high energy laser" doesn't mean that you can't call it something else entirely if that fits your own background better!

As to "rules," it is obvious that the mechanics of the first edition DIRECTS were somewhat slow and cumbersome, and something much "slicker" was needed for the new era. After a great deal of thought and much trial and error, we came to realize that although individually not original, have not (to the best of our knowledge) been used together in a single game before.

The end result is the system used here—heavy on the hardware (all the polyhedral dice so beloved of the dungeon haunters, plus that fancy set of colored counters that you've been looking at and wondering what the hell it was doing in a miniatures game!) but with the need to considerably cut back on rules in myriad of charts and reference sheets, basically the dice and the counter is the core of all the variables, leaving you free to get on with your tactics. At first sight, some of the mechanisms may seem unusual—probably because they ARE unusual for any of the sorts, but a few minutes reading through the rules and examples, you think you'll be as interested as we finally were in how well and easily they work.

Now to the point, this really wasn't naturally from the second goal, in

that if you move the system simple and fast playing then it naturally becomes easier to handle larger forces. The rules function well for forces of up to slightly larger. "What is a "squad"?" for the initial target-sized units of six or eight, and will handle more if time, space and players allow. The most realistic size of game is probably "short battle", which is referred to by the unit organization notes in "Combat Group"—the equivalent of, say, a couple of companies, plus extra support elements.

Finally, but certainly the most important—MAKING IT FUN. There is little point in writing what may be technically the best rules system in the known world, if it does not grab players' imaginations and make them actually want to get the toys out on the table. We put a lot of thought into the actual rules, and think up with a set of mechanisms that we liked: the sequence of play entries that both (fairly) players are ACTIVELY involved throughout the turn play, setting back for half an hour or more while your opponent makes his move and takes away half your forces, without you being able to lift a finger and try to counter the opponent's moves. In much of the fire combat mechanic actually gives you the feeling of being able to "defend" your turn against the incoming fire. Most of the basic rules are legal extensions and unimpeachable. We have designed the rules to be as simple and easy to understand as possible, and to fit in with any number of games. With this version, anyone who has had any involvement with the roleplaying side of gaming should be familiar with them and will almost certainly have access to a full set of such rules, in any case, are readily (and inexpensively) available from virtually any game shop or mail-order supplier, either individually or as sets.

As a bare minimum you will require one full set of the five dice to play DIRECTS II, at any time during play. However, it will be necessary for both players to have access to virtually anywhere in the world, and it is generally simpler and quicker if each player has his own set of dice with his own set of dice with his own set of dice. When a full set costs about as much as a couple of tank for your army, it is still not too big an outlay. If you can also provide a small "spare" set of extra dice for use in certain circumstances then so much the better.

Whenever the rules call for a die roll to be made, the TYPE of die to be used will be specified. Where a note tells you to use a "+3 Die Type," this does not mean rolling the die and adding 3 to the score—this means that you should select the NEXT DIE UP. eg: if the usual die for this roll would be a D6, then a +3 Die Type, indicates that a D9 is rolled instead. Similarly, if a +5 Die Type is called for them use the next LOWER die type a D5 drops to a D4.

The note should be read through twice, when this is done and you have grasped the basic principles behind the rules then all you need are quick reminders of the most important points—these are highlighted in BOLD type throughout the rule book for ease of reference.

Once you have played a couple of basic games and got used to the systems the Vehicle Recruit Charts for your forces should be all you need for play.

DICE TYPES AND CONVENTIONS:

DIRECTS II departs from the entirely die-based system of the original DIRECTS and make use of a range of "polyhedral" dice four-sided through to twelve-sided—thus giving five different dice types, commonly referred to as D4, D6, D8, D10 and D12 According to their respective numbers of faces.

While this selection of dice may be unusual at first, to some new players, anyone who has had any involvement with the roleplaying side of gaming should be familiar with them and will almost certainly have access to a full set of such dice. In any case, they are readily (and inexpen-sively) available from virtually any game shop, or by mail-order supplier, either individually or as sets. When a bare minimum, you will require one full set of the five dice to play DIRECTS II, at any time during play, however, it will be necessary for both players to have access to virtually anywhere in the world, and it is generally simpler and quicker if each player has his own set of dice with his own set of dice. Even when a full set costs about as much as a couple of tank for your army, it is still not too big an outlay. If you can also provide a small "spare" set of extra dice for use in certain circumstances then so much the better.

Whenever the rules call for a die roll to be made, the TYPE of die to be used will be specified. Where a note tells you to use a "+3 Die Type," this does not mean rolling the die and adding 3 to the score—this means that you should select the NEXT DIE UP. eg: if the usual die for this roll would be a D6, then a +3 Die Type, indicates that a D9 is rolled instead. Similarly, if a +5 Die Type is called for them use the next LOWER die type a D5 drops to a D4.

USING THIS RULEBOOK:

When writing this rulebook, we have tried to cover all the major topics, and rules in sufficient detail that most events occurring in the game will be covered in some form. In order to do this, most of the sections not only give the RULERS to cover certain situations but also contain notes and discussions on Wynn the rules work as they do.
In very general terms, any factor (e.g., weapon accuracy, unit quality etc.) that is below AVERAGE status will use a D as its normal die type; those that rank AVERAGE will use a D6, and those ABOVE AVERAGE a D8. Circumstances that increase the chance of success will raise the die type by 1, while adverse circumstances will reduce it by 1.

Although there are certain exceptions to this general principle (these are specified when you shall encounter them), you have got used to the concept of using the different die types then you are well on your way to grasping the basic mechanics of play.

The COUNTER SHEETS:

With this book, you will have two sheets of die-cuts counters (also referred to as the “markers,” or “chits”). Carefully punch out all the counters, sort them into types and store them safely — small clip-top plastic bags or a segmented storage tray are the best ways.

The BLACK counters, which are normally referred to as the DAMAGE CHTs, should be placed in a mug, jar or similar opaque container from which they may be easily drawn at random during play; this is the “pot,” and all Damage Effects are resolved by drawing one or more of the black chips from it when required. Always remember to replace all chips in the pot immediately after resolving each individual attack or other situation, and stir them about now and then to ensure a fully random drawing.

All the other counters on the sheets are MARKERS for use in play; they are designed to indicate the status and condition of units on the table, and to perform other game functions to effectively move the need for written record keeping during the game. Most other rules require some measure of written notes and record sheets to keep track of the condition of your various units, we have tried to minimize this as far as possible by using the counters and markers, as in our opinion written records not only slow the game down but can also be easily (and remarkably sometimes deliberately) overlooked in the heat of the battle.

The markers are designed to actually be placed on the table next to the unit itself which, of course, would give a glance at the exact status of any given unit. While it is true that this allows your opponent to see your unit at a glance, we feel that this is a small price for the ease of play that the markers allow.

Being aware of the fact that some players may prefer NOC to actually see the markers placed on the table (perhaps for aesthetic reasons), we suggest that if preferred markers may use a FORCE STATUS SHEET, which can simply be a sheet of paper with a “flag” ruled on it for each unit to align the force markers and the markers they affect.

We would recommend the “markers on table” method, please feel free to use the Status Sheet method if you are happier with it.

GAME SCALING AND DEFINITIONS:

The game is designed for play with 1,000 points per side. The minimum level, 1,000, being the UK standard, 1,285 is the American version, while both scales are so close as to be effectively the same thing. This scale is also known as Formation scale. An alternative model is 1,500, which will work equally well — very few SMs are modelled in this scale, but the wealth of “modem” ranges of low/medium conversion potential. At the extremes, the ultra-heavy 2mm models may be used (just use the modern WWII ranges — in 2mm you can hardly tell the difference!) or you could potentially go as low as 15mm if table space and budget allow!

For the intended 1,000 scale, we recommend using a ground scale of 1” for (2mm) on the table equals 100 metres. All distances in the rules are given to this ground scale, so if you wish to use something else then you will have to convert all ranges, movement etc. accordingly. A 1” = 1km large-scale game might be fought on a table around 6’ x 4’, though a lot of the early playtesting was done on tables as small as 4’ x 2’ and still worked well with small forces. If you have a very large area available, feel free to use 1’ = 500m (thus doubling all ranges and moved).

Each individual model represents one real vehicle (an ELE- MENt) and each infantry figure represents one man — Infantry are always based in teams of between two and five figures on a small base, each such team being classed as a single element. (Note to note: note that) if you require a platoon of four guns, three PzKfw IVs, a mortar, and a section of infantry, a miniature gaming, the “groundscale” and “model scale” are two different things. If a groundscale (smallest realistic thing) and the smallest realistic model represent the same the same as the model scale, i.e. 1,300, then the lightest artillery would be able to fire from one end of the table to the other. Thus it is necessary to determine how long a battery has stationed in game terms (e.g. if it is part of a campaign) then treat each full turn as being equivalent to 15 minutes, hence a four turn game would represent a battle lasting about an hour of campaign time, which would be an important factor if either side is trying to bring reserve forces up to the battlefield.

LINE OF SIGHT AND LINE OF FIRE:

Some rules systems provide lengthy mechanisms, charts and formulae to determine whether lines of sight are blocked by intervening terrain, especially where the observer and the target are themselves at differing heights (e.g.). All that we feel is required, however, is a reasonable attribute and a lot of common sense! If you can stretch the tape-measure in a straight line between the two elements then there is a clear line of sight and of line of fire, if within range. This is a very large simplification of the groundscale, and no real depth of field is accounted for, so in a real world scenario, anything other than a model dimension is unlikely to be useful. In most cases, any detailed method is actually pretty abstract and not that relevant to play in a tabletop war. It all out mathematically in every case then feel free to do so.

Lines of sight are blocked by raised ground, buildings and wood, unless the observer is at height high enough that he may see over the obstacle. Smoke and other obscuration agents will also block sight and firing.

The MAXIMUM distance that any ground-based line of sight or line of fire can be traced is 60”, this is defined as the maximum acquisition range of any sensor system in play line very good reason for this is that 60”, 6000 metres in the recommended groundscale, is actually not far being being more than a couched each earthscale, as seen from the turret of an average AV/1.

VTOL craft in low mode (NOI or terrain following) may be hidden by obstacles in the same way as other elements, take the straight line from the height of the actual model on its stand, which in most cases should be a fairly good approximation of the real scale altitude. All airborne aircraft, VTOLs in high mode, are assumed to actually for flying considerably higher than the model’s actual stand height, and are generally visible from anywhere on the table (there is a point of very tall terrain feature in the way) — conversely, such aircraft generally can’t see anything on the table themselves, and thus potentially attack it.

[As with some other cases in the rules, if you, truly do have a dispute that is not easily clarified by dissection then simply roll a d6 or flip a coin! If an umpire is available then his decision must be final!]

4
THE COUNTERS, CHITS AND MARKERS:

The full set of counters (2 sheets) consists of the following:

A) THE DAMAGE CHITS (BLACK counters):
- The NUMERICAL damage chits (100 in total – 50 RED, 25 YELLOW, 25 GREEN) (example of VALUE 2 chit shown – actual values are a mix of 0, 1, 2 and 3).
- "MOOM" chits – catastrophic hits (Quantity 5).
- MOBILITY hits – immobilises vehicles. (Quantity 3).
- SYSTEMS DOWN – TARGET vehicle affected. (Quantity 1).
- SYSTEMS DOWN – FIRING vehicle affected. (Quantity 2).

B) THE COMMAND AND CONFIDENCE MARKERS:
- COMMAND MARKERS – Colour Indicates Unit Quality, Number Indicates Leadership Rating. (66 in total – 18 GREEN, 18 ORANGE, 30 BLUE)
- CONFIDENCE LEVEL MARKERS – Grey counters, letters indicate confidence level. (74 in total – 18 "00", 18 "3", 18 "5", 12 "8", 12 "NO")

C) THE PLAY MARKERS:
- PANIC markers (Quantity 12).
- "RUINED BUILDING" markers (Quantity 14).
- DAMAGED vehicle markers (Quantity 28).
- IMMOBILISED vehicle markers (Quantity 14).
- "SYSTEMS DOWN" markers (Quantity 14).
- LETTERED markers for hidden unit identification etc. (Quantity 24).
- "DUMMY" markers (Quantity 18).

D) THE ARTILLERY AMMUNITION MARKERS:
- HIF – HIGH EXPLOSIVE FRAGMENTATION rounds (Quantity 14).
- MAX – MULTIPLE ARMOUR KILLER rounds (Quantity 16).
- SMOKE rounds (Quantity 14).
- BIOCHEM rounds (Quantity 7).
- NUCLEAR ("NUKE") rounds (Quantity 7).
COMMAND, CONTROL AND COMMUNICATIONS:

One of the primary assumptions we have made in OATSTRIKE is that whatever happens to the rest of Military technology (in terms of weapons, propulsion systems etc), the soldier can advance faster than any other is that of information technology. Computers and electronics already run a lot of the 20th century high-tech battlefield, and as each new generation of processing equipment is developed you can be sure that the Military are going to be among the first people to benefit.

Information gathering on its own, however, is not enough. In fact, the recent developments in the Gulf have shown that giving a commander access to 100% MICU information is almost as bad as too little – no human mind can cope with the massive input and sort out the relevant bits from the garbage. What we are assuming for the future setting of this game is that sufficient advances have been made in the field of supercomputers and artificial intelligence that a commander is assisted by a multitude of electronic ‘aides’ that can actually make decisions about which information he NEEDS to know at any particular moment.

The command computers will access vast amounts of incoming data from sensors of all kinds (airborne remote missiles, surfaces on virtually every vehicle and trooper’s helmet etc), and provide the officer with a continually-updated visual or holographic simulation of what is happening on the battlefield. He then makes the tactical decisions for each unit or formation, and these are relayed back down the electronic links to the individual unit commanders and the men on the ground. This effective bypassing of the traditional chain of command (ie Battalion CO to Company CO, then to Platoon leader and finally to Squad leader) will mean a much quicker and more fluid response to orders, and will also lead to a more flexible unit organisation – whilst Commandos, Battalions and Regiments will still exist for administrative purposes, in action their constituent units will be interlinked to provide the best force for each particular situation.

To achieve this, of course, we also have to assume a few other things: such as relatively unjammed communications links (think ‘light-beam’ communicators, Laser/Infrared, phased mirror arrays etc), lots of warning systems beyond the enemies, the first one down, just a couple more up, and so on – but is this really any harder to accept than the technology you see every night on the news reports?

In most Command Groups (the group of forces under the player’s command on the map) there will be a Command Unit of several vehicles (usually in combat support roles). This unit (and in particular a specific Command Vehicle or team) acts as a focus for all the data streaming up and down the command links, thus playing a very important part in the battle. The Command Vehicle does NOT however, necessarily carry the overall force commander himself – he is much more likely to be riding in a budget-friendly high-speed command jeep, driving an orbiting starship in some cases. Hence the loss of the command vehicle (or even the loss of a few high-speed command vehicles) is obviously a serious and disheartening blow, but is not totally catastrophic; it will cause temporary confusion while communications links are re-established and routed through backup channels, and will have a definite detrimental effect on the overall confidence levels of the force – the troops will be able to continue their attacks, but at somewhat reduced efficiency.

So, we have a situation where a single overall commander is able to direct the flow of his battlefield force almost as the player of the game moves his miniature tank. The one thing that the technology will NOT however, be able to do in any qualified human army, and in the perennial problem of the individual soldier’s will to fight. Barring the use of drug-induced mind control over its troops for totally robotic forces... no army will be able to guarantee that every trooper is going to do exactly as his officers tells him to – go good Old Private Funk, it will still seem a much better idea to stay safely hidden in the bottom of his foxhole than to get up and charge the enemy replacement as his Sergeant is telling him to!

Such natural reactions, and their results on the fighting efficiency of the unit, are covered by the rules system. The operator confidence levels and confidence tests – quick, simple procedures determine whether or not a unit will actually carry out the orders it has been given. Technology has given the Commander easy and efficient ways to tell his troops what to do – but whether they will do it is another matter entirely.

OVERVIEW OF WEAPON SYSTEMS

The various types of weapon used in the rules are many and a great many features are dependant on the particular weapons, some of the more popular concepts from SF literature and films. In keeping with the generic nature of the rules, players should feel free to add or delete systems as they wish, to conform to whatever background they wish to use. Most of the weapons described are suitable for use in mid to mid-future settings, and are in keeping with the (optional) background supplied in the appendices.

The continued evolution of the High Velocity tank guns used in the late 20th century has led to this type of weapon reaching the limit of its potential, though such guns remain in common use – usually with binary liquid propellants and very sophisticated targeting systems. An offshoot of this development has brought an increased trend for Hyper-Velocity weapons, using either reaction-propelled rounds (the Hyper-Kinetik Piterator) or the electromagnetic “Fulminum” principle (the Mass Driver Cannon).

Small caliber rapid fire cannons are still in very common usage as defense and defensive weapons, particularly on MICUs and scout vehicles. Conventional Auto-cannons use careless rounds or liquid propellants, while “Gusau Automorns” (slalim Missie Drives) are a popular and reliable alternative with higher-tech forces.

Energy weapons have been described in the rules. These weapons, used with enough punch to be an effective tank killer is now practical, given a suitable power source. Lasers are, for obvious reasons, the most accurate weapon systems available – basically, once you have acquired the target then you’ve hit it! Despite this, Lasers still have enough disadvantages in combat use (such as massive power requirement, relative vulnerability to shatt, smoke or arenals etc.) that they have failed to replace many of the other weapons except for specialised roles.

There is another system that is normally classed as an “Energy Weapon”, though in fact this is not really an accurate description, this is the Direct Fire Fusion Gun, which fires a “bolt” of particles energised to a plasma state. The weapon is frighteningly effective, particularly at short ranges (before the plasma “bolt” begins to spread and diffuse some of its energy surrounding air resistance). However, it is also a very complex system using very advanced and costly ammunition – one “round” for the gun is a cartridge containing the fuel slug, ignition system and an ultra-fast discharge power cell to “zap” the fuel into plasma and maintain the magnetic containment field that directs the bolt down the barrel of the weapon.

Guided Missile Systems, already highly developed by the close of the 20th century, have been further refined into compact user-friendly packages using very advanced smart guidance systems. Despite great developments in point defence systems and counter-measures technology, these high velocity anti-vehicle missiles are still in widespread use in both vehicle and infantry carried systems.

Finally in the Direct Fire armor is the SLAM (Solar-Lighted Anti-Missile) system. SLAM packs fire clusters of small unguided rockets to saturate targets that are in direct line of sight of the firing vehicle, and can be devastatingly effective against both infantry and armour.

Area Fire weapons (ie Artillery) still fulfill their traditional roles of mass bombardment, but in the hands of the like Multi-Launcher systems are very much in favour with their capability to deliver a high volume of fire in a short time, though rocket-launched
conventional Artillery and Missle Drivers howitzers can come very close to this with the use of magazine fed autoloaders. Artillery-delivered tank killers and mine dispensing rounds are commonly used, and there are always the "nursery" forms of munition (mini-rules and boomer gauntlets) to use if the situation warrants them.

While most vehicle mounted weapons are capable of some kind of anti-personnel fire, the most effective way of engaging Infantry from a vehicle is still an automatic weapon such as a conventional Machinegun, Minigun or Automatic Grenade Launcher. Weapons of this type are generally referred to as APSM (Anti-Personnel Support Weapons).

A secondary form of anti-personnel weapon is the APFC (Anti-Personnel Fragmentation Charge), which is a "bath" of 25 or 35g of high explosive charges fixed around the hull of some combat vehicles; these charges are designed to fine outbreaks to deter enemy Infantry from getting too close to the vehicle.

To redress the balance somewhat, Infantry themselves may be equipped with GMS launchers for anti-vehicle fire, though these are still relatively bulky and only issued to localised teams; for the "Humdrum" fighting in the Anti-armour weaponry is the Infantry Anti-Vehicle Rocket (IARV) - a small, disposable tube-launched rocket similar in most respects to the LAW (light AntiTank Weapon) of the 20th century. IARVs are compact, cheap and reasonably effective at their short range, giving the ordinary Rifleman at least a chance of taking out an AV that happens to get too close.

**FORCE ORGANISATIONS AND ORDERS OF BATTLE:**

A player in **Dirtside II** takes on the role of the commander of a force generally referred to as a **COMBAT GDP**. Combat GDPs are all-mech formations created for specific missions or duties, and are formed from a selection of smaller "units", as detailed below.

The basic building block of any force is a platoon-sized formation known throughout the rules as a UNIT. Such units consist of a number of individual ELEMENTS, each element being a single vehicle or team of Infantry (5 figures on a single base). Units may be referred to as "platoon", "troop", "team" or any other term that fits the background in use. A typical Armoured Unit would consist of between 3 and 5 tanks, although more or less may be used according to each player's specific organisation and preferences; in game terms, a unit with few elements cannot easily absorb losses and remain functional, but an unit of many elements will lack flexibility in use - the choice is up to you. For Mechanised Infantry, a typical unit would have 3-5 APCs or MCVs, each with one or two embarked Infantry elements.

In 20th century terms, a number of platoon-sized units would then be combined into a Company, with several Companies then forming a Battalion or Battlegroup. In **Dirtside II**, the symptoms we have made about the increased efficiency and flexibility of Command, Control and Communications (C3) mean that the concept of the "Company" has fallen into disuse - if it survives at all in your preferred background then it will be a purely administrative structure with little bearing on combat actions. Instead, commanders will select whatever individual units that they need (or that are available to them) to accomplish a specific mission; these component units are formed into a **COMBAT GDP**, which may be of any size up to what would previously have been known as a Battalion - in other words, a platoon's force may consist of anything from just a couple of platoon-size units up to ten or twelve such units.

*Note: the counter-provides provided with this rulebook should allow two players to each field forces of roughly 10-12 individual units as a maximum - in perhaps 40-50 vehicles or elements per force, games with larger forces are certainly possible, particularly with multiple players, but will require extra counters to be made or purchased. Additional sets of counters sheets are available direct from GSG, please send an SAE for further information.*

As a very generalised example, a typical **COMBAT GDP** for a medium-sized game might be:

1 unit (Troop) of 4 x **HEAVY BATTLE TANKS**
2 units (Troops) each of 4 x MEDIUM BATTLE TANKS
3 or 4 units (Platoons) each of 4 x APCs or MCVs, each vehicle carrying 1 or 2 teams of Infantry
1 unit (Battery) of 3 x **ARTILLERY VEHICLES**
Command unit of a Command Vehicle, an Anti-Tank Vehicle and (Optional) 2 **Missle Vehicles**

Ongoing this basic formation could be added any mix of other units and supporting arms, such as a unit of 3 or 4 Transport V/STOLs and an Anti-Aircraft missile system etc, to tailor the force to fit the particular mission that is required.

The whole point of this section is to give you guidelines for organizing your forces, without going too much into specifics. To maintain the flexible and generic nature of **Dirtside II** we have deliberately not laid down any hard and fast rules on the organisation of your armies, and you should feel free to experiment with us many different force previously have been known as a Battalion - in other words, a platoon's force may consist of anything from just a couple of platoon-size units up to ten or twelve such units.
VEHICLE SIZE CLASSES:

Throughout the rules, vehicle elements are referred to by their SIZE CLASS. This is generally from Class 1 (VERY SMALL) through to Class 3 (LARGEST), although rules options are discussed for “Oversize” (i.e., larger than Class 5) vehicles if desired. The available Size Classes are listed below, along with some notes on the kinds of vehicles that fall into each Class:

Class 1 (VERY SMALL):
- Very light scout vehicles, “jeeps”, fast attack “dunebuggies” etc.
Class 2 (SMALL):
- Light scout tanks, small APCs, small armoured cars etc.
Class 3 (MEDIUM):
- Most Main Battle Tanks, heavier APCs and MVCS, Medium Artillery etc.
Class 4 (LARGE):
- Heavy tanks, larger APCs, big Artillery pieces etc.
Class 5 (VERY LARGE):
- Superheavy tanks and similar very big combat vehicles.

The Size Class of a vehicle determines how much (and what kind of) equipment, weapons and cargo it can carry, and also indicates the BASIC SIGNATURE of the vehicle (i.e., the Size Class, e.g., a MEDIUM vehicle has a Basic Signature of 3) which determines how easily the vehicle is to hit when fired at.

To determine how much CAPACITY a vehicle has to carry cargo, weaponry, and other systems (and to transport infantry etc.), simply multiply the vehicle’s Size Class by FIVE: thus a class 4 (LARGE) vehicle would have 4 x 5 = 20 Capacity points available.

WEAPON SIZE CLASSES:

Weapon types are defined by Size Classes in much the same way as vehicle sizes: weapons are generally available in sizes 1 (Smallest) to 5 (Largest), though not every different kind of system will be available in all sizes. For example, an IFAC is available in sizes 1 to 2 only, while an HAP only comes in classes 3 to 5. Full details of the possible sizes for each weapon type are given in the sections describing the weapon system.

The Size Class of a weapon system determines its effective ranges, the damage it can inflict and how much space the system takes up when mounting it in a vehicle.

DIRECT FIRE WEAPON SYSTEMS:

Direct Fire weapons are those which require a clear line-of-sight to the target, and are primarily used against “point” targets (i.e., single vehicles) rather than against area targets. A number of systems are described below, but players are free to develop their own additional systems if they wish.

1) RAPID-FIRE AUTOCANNONS (RFACs):

These are “conventional” small-calibre shell-firing cannons, differing from their late 20th-century counterparts only in their use of cannon rounds or liquid-propellant projectiles in place of the earlier used ammunition. Many RFACs are multi-barrel “gatling” types, and most use electric drives for improved reliability and rate of fire. The RFAC still retains its traditional role as an anti-personnel or anti-armour weapon on APCs, MVCS and scout vehicles, or as a secondary weapon on larger AFVs.

The RFAC is available in size classes 1 and 2 only. These very small weapons correspond to 25-30mm and 30-40mm calibres respectively. As their external power requirement is minimal, they may be used on vehicles with any type of Power Plant.

2) HIGH VELOCITY CANNONS (HVCs):

The HVC is the final development of the conventional high velocity tank gun, generally a large-calibre weapon firing superdense sabot projectiles and special high-explosive warheads, and using liquid propellants. The HVC still provides a relatively cheap option for main armament on tanks and other heavy AFVs. Its simplicity and general reliability ensures it a long future in service, particularly with forces that cannot afford to support the more advanced armament systems.

HVCs are available in size classes 3 to 5; power requirements are small, so the system may be fitted to any vehicle within the usual size restrictions.

3) HYPER KINETIC PENETRATORS (HKP)

The HKP is probably the ultimate mechanically-propelled anti-armour gun. Unlike the HVC, an HKP system uses a relatively small-calibre (but very long) barrel to develop hyper-velocity for its superdense long-bore penetrator rounds. Early models use liquid propellants, while the more advanced types actually use a very small plasma reaction to propel the round. The rate-of-fire of an HKP is not as high as that of a Mass Driver, but the HKP is somewhat more versatile as it does not require the huge electrical input of the large electromagnetic weapons. Its one major failing is its inability to fire an effective explosive round, this making it of little use against dependent targets such as infantry (a problem also shared by the MDCO).

HKPs are available in size classes 3 to 5, and may be fitted to any vehicle subject to size restrictions.

4) MASS DRIVER CANNONS (MDCs):

In some terms applied to all weapons which fire a kinetic-energy projectile by electromagnetic acceleration rather than chemical reaction. They are also commonly known as “Gauss Guns” and “Railguns”. In common usage, MDCCs of size classes 1 or 2 are referred to as “Gauss Autocannons”; while those of sizes 3 to 5 are called Mass Drivers or Railguns. All MDCs are very small calibre weapons with a very high rate of fire, using solid slugs propelled at incredible high velocities. Like the HAP, their small calibre precludes the use of special explosive warheads - however their very high rate of fire makes them capable of limited and personal use through their machinegun-like characteristics.

MDCs are available in all size classes (1-5), but owing to their very high power requirements they are only usable on vehicles with powerful power plant systems (i.e., Vehicle Power Plants).

5) HIGH ENERGY LASERS (HELs):

Combat Laser projects a very short but very high intensity pulse of coherent light energy, causing damage to the target by the sudden massive overpressure and explosive vaporisation effects as the beam’s energy is released at the point of impact. HELs are, of course, extremely accurate (since the firecontrollers) sensors have acquired the target, a hit is virtually automatic) and their effective range is limited only by that of the acquisition system in use – although some attenuation of the beam can occur due to atmospheric distortion, over the few kilometres at which the target can be seen and engaged this effect is negligible. Smoke, shaft, specialised aerosols and similar countermeasures are all effective in disrupting incoming Laser fire, but of course they rely on advanced sensors to tell the victim he has been targeted in time to deploy the countermeasure!
A more passive form of laser defense is Active Armour, which "roots up" much of the beam's energy as the ablative coating boils away without harming the main armour underneath. Ablative coatings are expensive, however, and are not widely used due to the relatively small number of laser-armed opponents that the average army is likely to encounter; the cost of HET systems, coupled with those relatively poor armour penetration in comparison with other weapons, means that laser-armed vehicles are quite rare sights on the battlefield.

When engaging "hard" (armoured) targets, HETs use a single very high energy pulse when they need to engage infantry or other disordered targets; a lower power setting enables the weapon to "sweep" an area with rapid-fire bursts of much lower intensity. Such area fire does, however, have a much shorter effective range as the lower energy beam is much more susceptible to the effects of atmospheric attenuation.

HETs are available in all size classes (1-5), but as with MDCs their very high kill input requirements limit their use to vehicles which have suitable power plants.

6) DIRECT FIRE FUSION GUNS (DIFFGs):

The DiffG is one of the most deadly anti-armour weapons available, despite having a relatively short effective range due to the diffusion and energy loss of the plasma bolt once it leaves the magnetic containment of the weapon barrel. Each round of DiffG ammunition is self-contained, consisting of the hydrogen fuel charge, a flash laser ignition system to heat the fuel to plasma state, and the power supply that holds the plasma in containment until fusion occurs, when the bolt is released down the magnetically shielded barrel. At these ranges, the penetrative ability and damage potential of the bolt is extremely high — even the most heavily armoured target is unlikely to withstand a close-range hit from a DiffG. As range increases, the bolt begins to spread and lose energy to the surrounding air, causing some spectacular visual effects but severely lessening its destructive potential at longer ranges. Anti-infantry potential is good, as the plasma bolt will cause significant explosive and fragmentation effects when it strikes an unarmoured target (including an area of ground).

DIFFGs are available in all size classes (1-5), and may be fitted to any vehicle subject to normal size limitations (as the ammunition for a DiffG carries its own power source, the required external input is fairly small).

7) GUIDED MISSILE SYSTEMS (GMSs):

The Guided Missiles used in DIRTSIDE II are a further refinement of the systems developed in the late 20th century; they are far better than their predecessors (though still much slower than a cannon-projecting rocket), and virtually all of them are the "fire-and-forget" type — operator guidance (either by wire or radarscope link) is no longer necessary. Advanced semi-intelligent seeker heads have given missiles their own target identification and discrimination capabilities, and many are able to use terrain-following flight to minimise the effects of countermeasures. Nevertheless, the major disadvantage of the GMS is its lack of deployability to the great advances made in countermeasures — both active (missile-defense) and passive (jamming). It is relatively simple for a properly equipped vehicle to either confuse or actually shoot down an incoming missile, and this has led to a trend away from using missiles as primary kilo-killing weapons. They are, however, still in very widespread use on both vehicle and infantry-carried weapons, the latter type providing diminishing returns with sufficient punch to take out armour at reasonable ranges. The GMS is still a cost-effective and reliable system, but does not eliminate the battlefield as it did in the late 20th — early 21st centuries.

GMSs are available in size classes 1 and 2, which are denoted as GMS1 (Light) and GMS2 (Heavy) respectively. Infantry may carry GMS2 while vehicles may be equipped with 1 or 2 systems, subject to normal size restrictions.

Note that vehicles may be equipped with multiple missile systems if size restrictions permit; in this case each separate "system" represents the ability to fire one missile per turn, so a vehicle with 3 x GMS systems could fire 3 up to 3 separate missiles per turn — but only at the same target.

8) SALVO-LOADED MISSILE PACKS (SLAMs):

The SLAM system operates in much the same way as the rocket pack, often mounted on present-day attack aircraft; the pack contains many small unguided rockets that are fired in clusters, saturating the target with destructive fire. As the range increases, the total number of projectiles fired out, lessening the chance of hitting any one target but increasing the area bombarded — thus this may also be scored on elements close to the one actually targeted. The large number of rockets fired and their high speed will overwhelm the capabilities of point defence systems, and if they are not aimed they cannot be "spoiled" by ECM or Stealth systems; this makes the SLAM pack a very effective weapon against even high-tech enemies.

SLAM packages are available in size classes 3 to 5, and may be fitted to any vehicle subject to normal size restrictions.
VEHICLE DESIGN

VEHICLE POWER-PLANT SYSTEMS:

There are three basic types of Power unit available for vehicles:

1) CHEMICAL-FUELED ENGINES (CFEs): These are "conventional"
      motorengines, either internal combustion engines or gas turbines.
      Driving the vehicle either directly (mechanical transmission) or
      via an electrical or hydraulic transmission. CFEs are cheap, effective
      and well-proven; they run on oil or alcohol based fuels, or synthetic
      equivalents. CFEs are perfectly adequate to power most types of wheeled or
      tracked vehicles, and for the smaller GVs; however, they are unable to
      provide the large surplus of electrical power needed to operate the
      larger Laser or Railguns weapons systems.

2) HYDROELECTRIC TURBINES (HETs): Power generators using an
      advanced version of the fuel cell principle to provide electricity for
      both propulsion and weapons fire. Ample power is available for
      ground vehicles and at least the very largest GVs, and should there be
      surplus energy to supply medium/LGE and MDCs.

3) PHOTOGENIC GENERATION PLANTS (PGPs): Small, compact Fusion
      generators are the most advanced and expensive type of vehicle power
      system, but they are the only type that can provide the massive
      amount of energy required for the biggest GVs. Gear-driven vehicles
      and the largest power-consuming weapons.

The type of power plant used in a vehicle will affect the
MODIBILITY TYPE and the WEAPONS that it can have, as well as

- IF the vehicle is fitted with a CFE power system, it may use any of the
  following Mobility types: any WHEELED or TRACKED mobility, SLOW
  GEV for up to size class 3 (Medium) vehicles only, or FAST GEV for up to
  size class 2 (Small) vehicles only.
- With an HMT system, a vehicle may use any WHEELED or TRACKED
  mobility type, SLOW GEV if it is no larger than size class 4 (Large), and
  FAST GEV up to size class 3 (Medium) only.
- FGP systems may be used to drive any mobility type, in any size class
  of vehicle; FGM MUST be used in all GRAV, "WALK" or "Drown" vehicles.

For weaponry, the "non-power-consuming" weapon types (RFACs, RFVCs,
HYCs, HPs, DFDGs, SLAMs etc) may be fitted to vehicles with any type of
power plant subject to normal size restrictions as laid down in the
vehicle design rules. The weapons that require external power input
(HELs and MDCs) are restricted as follows:

A CFE-driven vehicle may only be fitted with HEL or MDC systems up to
TWO SIZE CLASSES LOWER than the vehicle's own size class; this is 4
Large (class 4) vehicle with a CFE engine could only mount a HEL or
MDC of size 2 or smaller.

HMT-powered vehicles may support HEL or MDC weapons of up to
ONE SIZE CLASS LOWER than the vehicle size (e.g. maximum of a class 3
weapon on a size 4 vehicle).

Finally, MDP systems may power AWB weapon subject to the normal
size limitations.

VEHICLE ARMOUR:

AVM armour is assumed to be various forms of high-tech laminates and
composites, superdense spin-collared materials, synthetics and
alloy-cast armoured plating. AAV armours give reasonable protection against
the very powerful weapons of the age. During the design procedure,
each vehicle type is assigned an ARMOUR VALUE, which is a
numeric rating from 0 (very thin, basically a soft-skinned vehicle) to a maximum of 7
(supra-heavy armour used only on "overstressed" vehicles).

No vehicle may carry an armoured rating higher than its
BASIC SIZE CLASS; thus a size 2 vehicle could only be fitted with a
maximum of Armor A.

This indicates that Armours 5 is the maximum for any "normal"
combat vehicle. Armour ratings 6 and 7 are only possible if you are
designing "overstressed" vehicles, using the rules on p.19.

The Armour Rating actually indicates the armour used on the
front surfaces of the vehicle; the Sides, Top and Rear are
assumed to have a value of 1 LESS than the front/strafed armour.

If a vehicle with an Armour Rating of 5 would have armour 5 on the
front, but only armour 4 on sides, top and rear:

Note that there is no Armour Value less than 0; a basically
"unarmoured" truck would have armour 0 all round.

OPEN-TOPPED vehicles count as Armour 0 against all ARTILLERY
and SLAM fire - regardless of what other armour they have.

There are two kinds of "special" armour that may also be fitted if
desired during the design procedure; these are ABLATIVE and
REACTIVE armours.

ABLATIVE armour is a special coating that exposes itself when hit by
LASER (HEO) fire, absorbing much of the energy of the beam. It can be
added on top of any normal Armour. It lasts, and does not reflect the
effects of the armoured against any weapons except a HEL when
attacked by Laser fire; the effects of the Ablative armour are as covered in the
Damage Valuation chart.

A vehicle fitted with Ablative Armour is denoted by putting an "A"
after its basic Armour Value. e.g. armour value 3A.

REACTIVE armour consists of explosive blocks or panels on the vehicle
body and/or turret which explode outward when hit, dissipating the
penetrative power of incoming shaped charge rounds. As such
workhorses are generally used only by Gilded and Gilded, and a very few
other weapons (must use kinetic energy penetrators which are
basically unaffected by the Reactive armour) the use of Reactive
armour has declined somewhat since its introduction in the late 20th
century, though it is still used in some armies. As with Ablative, the
effects of Reactive armour are factored into the Damage Valuation
chart for the weapons that are affected by it. A vehicle so fitted is
denoted by an "R" after its basic armour value, e.g. RR

[Note that due to the physical incompatibility of the two systems, it is
not possible to fit Ablative AND Reactive armour to the same vehicle]
VEHICLE SIGNATURES AND STEALTH LEVELS:

All vehicle elements have a BASIC SIGNATURE which is equal to their SIZE CLASS. This represents how easy they are for enemy sensors and Fire Controls to spot and lock-on to. Loss-of-this-signature typically affects the "TARGET" OE Type that is used to "fire" the vehicle when it is fired at by any Direct Fire system except guided missiles, which are detected against by the vehicle's ECM systems. It is possible to ALTER (ie reduce) a vehicle's "effective" signature by fitting it with stealth capabilities. STEALTH covers a wide variety of methods, both physical (adder/sound absorbing paint, heat-emission masking etc) and electronic, which render the vehicle more difficult for the enemy to see and acquire as a target. Even traditional camouflage paint can be considered as "stealth" in looking against the old Mk 1 Eyeball sensor!

STEALTH capabilities are bought in terms of LEVELS, each level costing according to the size of the vehicle. For every STEALTH LEVEL spent, the EFFECTIVE SIGNATURE of the vehicle goes DOWN by 1. Thus a class 1 vehicle with 1000 lbs of stealth would have a "base" signature of 4, but an "effective" signature of 2.

SYSTEM QUALITIES AND LEVELS:

SYSTEM QUALITY refers to the level of sophistication and ability of the various Electronics and Sensor packages with which elements are equipped.

The different types of SYSTEMS comprise:

FIRE CONTROL SYSTEMS: The package of sensors and computer modules that assist the Gunner of a vehicle in controlling Direct Fire weaponry.

ELECTRONIC COUNTER MEASURES (ECM): Systems designed to jam the guidance of incoming Missiles.

GUIDANCE SYSTEMS: The sensor and guidance package of a Missile Launcher (AML), that determines how well the missiles can seek their Targets and avoid enemy ECM.

POINT- and AREA DEFENCE SYSTEMS (PDS and ADS): Sophisti-
cated sensor suites linked to fast-reaction weapons, used for defence against incoming missiles (and in the case of ADS, an Anti-Air weapon as well).

Each SYSTEM used on an element is rated as one of three QUALITY LEVELS: BASIC, ENHANCED, or SUPERIOR.

BASIC systems are exactly what they sound like - the simplest and cheapest possible. This level of quality is usually limited to vehicles with a low cost, low size or low mobility.

ENHANCED systems are better than Basic, but their more advanced features come at a cost and require a higher level of operation.

SUPERIOR systems are the most advanced and complex, and are the most effective. For example, a vehicle with a BASIC Fire Control System uses a DB as its normal OE Type. If you tense shots, one with an ENHANCED system would use a DB, and a SUPERIOR Fire Control would use a DIB. The general rule is that the better the system, the "bigger" the firer it can use.

SPECIAL NOTE: Each individual vehicle or other element needs only ONE of each system, even if it uses multiple weapons, one Fire Control system will cover them all. Multiple GML Launchers, however, DO have multiple guidance systems as these are integral to the Launchers.

ARCS OF FIRE:

Weapons that are mounted in TURRETS have an all-round (360°) Arc of Fire, unless some specific feature of the particular vehicle design makes this impossible. For example, some multi-turreted designs available in model form have obvious limitations to the traverse of some or all turrets - in such cases a 180° Arc is suggested for restricted-traverse turret. We give each size of the turret's normal facing.

FIXED MOUNTS have much more limited Fire Arcs; a vehicle-mounted weapon in a Fixed Mount may only fire through a 30° arc, or 15° either side of the vehicle centre-line. Targets outside this arc may not be engaged without physically turning the vehicle, which is a major drawback in asymmetric threat scenarios. The amount to be fired BEFORE moving, it follows that such weapons may only fire in the direction they are pointing at the end of their previous activation.

OPTION: If preferred, the Fixed Mount Fire arc may be set as the same as the "MORF" arc used in the "Angle of Attack" rule on p.32, i.e. the arc bounded by lines extended through diagonal corners of the model. This method allows a wider arc for most models, but has the advantage of not requiring an Arc of Fire template to be made or used - in the end, it is up to you.

FIXED MOUNT WEAPON
FULL TRaverse TURRET
RESTRICTED TRaverse TURRET

WEAPONS FIT LIMITATIONS:

The size and number of weapons that a vehicle may be fitted with is determined by its Size Class, and by the type of mount (ie: fixed or turretless) that are chosen for the weapons.

When equipping a vehicle, you can fit from one weapon to each side of the vehicle ("Primary") weapon to be fitted first, if it is to be a FIXED MOUNT (ie in a Fixed Mount or a Full Traverse Turret). The weapon that the take can be up to twice the size of the vehicle.

If it is to be a TURRET, it takes up THREE TIMES its size CLASS. Example: A class 3 weapon of whatever type takes up 9 points of Capacity if in a Fixed Mount, or 9 points if in a Turret.

This capacity is the gun mechanism, crew space, ammunition storage, etc. turret guns take more capacity due to the internal space required in the hull for the turret mechanism and on.

Note that this refers to DIRECT FIRE WEAPONS ONLY (including SLAM packs), not other weapons such as Guided Missile Systems, Point Defense, etc. All Rounded fixed capacity of as listed in the systems table on p.32, regardless of whether they are turret-mounted or not.

When further weapons are added to a vehicle that already has a Turreted main weapon (ie an existing plus adding extra barrels of the same weapon type to a multiple mount), all the additional weapons only occupy TWICE that class in terms of capacity - the extra bulk of the turret has already been accounted for in the primary weapon. Thus to pack by a TWIN-MOUNT class 3 gun system in a turret would use up 9 capacity points for the first barrel, but only for the additional one - a total of 15 points capacity for the twin-mount.

NO VEHICLE MAY BE FITTED WITH MORE WEAPON SYSTEMS THAN ITS BASIC SIZE CLASS; thus a class 3 vehicle could carry no more than THREE weapon systems; multiple mounts count every barrel towards this limit, and a Point Defense System counts towards the total as well. The only weapon NOT Counted in this total is a single ASW, below.

ALL MILITARY VEHICLES ARE FITTED WITH ONE "FREE" APSU, CAPABLE OF ALL ROUND FIRE. THIS WEAPON DOES NOT COUNT TOWARDS ANY WEAPONS FIT LIMITATIONS, OR TAKE UP ANY CAPACITY. This is assumed to be a Machinegun or equivalent, or an external remote mounting. Additional APSUs may be fitted if desired, but any such extra each occupy one capacity point and do count towards total weapon fit limitations.
VEHICLE DESIGN

NOTE: it is RECOMMENDED that players limit the MAXIMUM SIZE of any single weapon system on a vehicle to ONE CLASS LARGER than the vehicle's own Size Class. Thus a class 3 vehicle could not carry any single weapon larger than class 4. This is not an absolute ruling however, and players may (if all agreed experiment with fitting ANY gun size into whatever vehicle will hold it, within the limits of the Capacity points - it's possible therefore to put a Fixed-Mount class 3 gun on a class 2 hull, but only just, there will not be any capacity left over for any other systems at all.

Examples:
1) A LARGE vehicle (class 4) will have 20 Capacity points. If we wish to carry a turret class-4 main gun (of whatever type), that will use 4 x 4 = 16 points of capacity, leaving us 4 for other systems. We could then add a second class-4 barrel to make a twin-turreted, but that would cost the full 8 points we have left and not leave room for anything else. We therefore decide to add a class 2 secondary weapon (perhaps an MG2) which, although mounted on the turret, only uses 2 capacity (the turret has already accounted for) and leaves us 2 points over to use for defensive and other systems.
2) A MEDIUM (class 3) vehicle has 15 capacity points. If we wish to build a "Tank Destroyer" with a large fixed gun, we could fit a single class-4 weapon in a Fixed Mount at a cost of 8, this leaves us with 7 points over. Besides that a fully-traversable second weapon would be a good idea, we mount a class 2 gun (maybe an NF3 -2) in a turret, at a cost of 3 capacity points - as we did not fit a barrel for the main weapon, the extra capacity MUST be allowed for on the secondary weapon. The ONE point thus left over could be used for an extra APW (to supplement the one fitted "free"), or for any other capacity item.

ARTILLERY VEHICLE DESIGN:

Artillery vehicles are designed in the same way as any other ground vehicle, with the following notes and limitations. [REFER TO P.37 FOR DETAILS OF ARTILLERY WEAPON TYPES.]

I. Artillery Weapons have SIZE CLASSES as follows:
   LIGHT ARTILLERY weapon (RAP MORTAR) = class 2.
   MEDIUM ARTILLERY weapon (RAM Guns, small MLRS) = class 4.
   HEAVY ARTILLERY weapon (M60 Guns, large MLRS, HaiLo) = class 6.*
   * though outside the normal 1:3 class range, class 6 weapons use the same calculations in all cases, they are available ONLY as Artillery – no class 6 Direct Fire weapons are permitted.

II. The (and points cost of) an Artillery weapon INCLUDES its Fire Control (as Level of FinRes is not relevant to Artillery fire), and the space for ammunition storage. ALL ARTILLERY WEAPONS MOUNTS TAKE UP CAPACITY EQUAL to 3 x CLASS.
   (eg: a class 6 (M60) Artillery piece would need 3 x 6 = 18 capacity, so could not fit on a class 4 vehicle with a couple of capacity points over for basic defences.)

III. Artillery Arc-of-Fire is assumed to be the FRONT 180° Arc, mounts are taken as limited traverse, or else the rounds are steerable in flight (eg Heavy Artillery rockets).

IV. Artillery weapons are generally only fitted to specialized Artillery vehicles, though it is possible to mount them on other APVs in an attempt to Direct Fire a sufficient capacity is available: such a "hybrid" vehicle could then act as either a normal combat vehicle OR as an Artillery piece as desired, but would have to follow all the relevant rules for each type.

V. COUNTER-BATTERY RADAR (CIB) takes up 14 capacity points; it is normally mounted on a separate vehicle, but could possibly be carried by an Artillery vehicle itself if sufficient capacity was available.

VI. Although the vast majority of Artillery pieces are Self Propelled (ie: mounted on vehicle chassis), it is possible to use Towed Artillery at desired. An Artillery weapon on a towed carriage has a Size Class (for Signature purposes) of one LOWER than the class of weapon (a towed MEDIUM ARTILLERY piece would be a size 3 element) and requires a "tractor" of an equal size or larger to move it around. Limiting in/embarking a towed piece for firing or movement takes a full activation.

When costing towards Artillery in points, only the cost of the weapon system is paid for – the carriage costs nothing (though the Tractor vehicle must be cost as a normal vehicle), the tractor is assumed to carry all the "necessary" ammunition for the gun.

Towed Artillery counts as a softskinned target, in: Armour rating 0.

INFANTRY CARGO TRANSPORT:

Vehicles that are designed to carry Troops or cargo must have a certain amount of their Internal Capacity points dedicated to such accommodation. The capacity requirements are as follows:

Carrying infantry in any element (LINE or MILITIA troops) takes 4 points of capacity:

One element of POWERED INFANTRY takes up 8 points of capacity; one "LOAD" of CARGO takes 4 points of capacity (eg: Artillery Ammunition);

any smaller vehicle takes up 8 x the Size of that vehicle (eg: carrying a SMALL vehicle takes 16 points of capacity), a Communications/Communications centre takes 8 points of capacity.

Example: To build an MCV (Mechanized Infantry Combat Vehicle, which is basically an APC with sufficient armament to hold its own in combat), we could choose a MEDIUM (class 3) hull, giving us 15 capacity points. Assuming we wish to carry TWO elements of Line infantry, these will require a total of 8 points of capacity, leaving 7 points over. We can then fit a turret class 2 weapon (probably an NF3-2 or MGC-2) at a cost of 6 (with one point spare), and an Artillery class 1 turret gun at 3 points and a Heavy Miusiling System at 4 points capacity.

INFANTRY FORCES:

There are a number of different types of INFANTRY (or non-vehicular) elements available; the basic types are:

MILITIA INFANTRY: this category covers very lightly-equipped troops, probably with basic and/or obsolete weaponry. Although we use the term "infantry", this also covers second-line and reserve forces, irregular troops, rickety guerrillas and so on. Though often poorly equipped, this type of infantry will usually be poor soldiers - in some units, many may be of irregular or even Veteran status - their abilities should be determined in accordance with the 'history' of the unit and the scenario being played.
LINE INFANTRY: the bulk of most line infantry forces; troops equipped with modern weapons and combat armour, but still relying on "battle test" APCs or MRVs for transport. As with the Miliita type, the line infantry category defines only the level of equipment of the troops, NOT their training or status.

POWERED INFANTRY: the high-tech troops in full suits of Powered Combat Armour; these stublime the men to move far faster and further than their unpowered counterparts, protect them much more against enemy fire and allow them to carry far heavier weaponry. 

The Powerd Infantry are the "werer" troops of the battlefield, able to act independently of transport vehicles if necessary and to fight in the most hostile environments: their psychological effect alone (especially against other infantry types) is of considerable value. In general, most Powered Infantry units will be a mix of Regular or Veteran status rather than Greens - the majority of armed forces only need armed fighters to undertake the extra training necessary to become Powered troopers.

CAVALRY: the idea of using Cavalry for troops on riding animals in an SF environment is not as strange as it may first sound. Horses or other beasts can be transported to colony worlds as freezing embryos, require minimal maintenance, reproduce themselves and can carry their organic load. Additionally, they can traverse certain types of terrain that are otherwise impossible to all but airborne units. For many small settlements and rural colonies with limited resources and technological base, the use of animals for transport of troops and supplies will be a very attractive and cost-effective proposition. 

This is the Cavalry concept, a unique mix of horsemanship training and military tactics. The use of Cavalry is generally reserved for more remote or primitive worlds, but there is absolutely no reason why you should not experiment with more "exotic" ideas (Power Armoured troops riding genetically-modified elephants...?).

It is assumed that in most cases Cavalry Units will fight more as Mounted Dragoons, using their animals for transport only and fighting as dismounted infantry (Miliita or Line type) - however if you REALLY want to do a mounted charge into close combat then feel free to try it!

All infantry elements represent the TROPS of men on a single base. A given Team may consist of from two to five men; the following are the different types of teams available, any of which may be made up from any of the above-mentioned kinds of troops and equipment.

A BATTLE TEAM is the basic infantry element: it consists of four or five troops equipped with Personal Arms ("flies") and (usually) AMVs. 

Most such troops are equipped with a light team support weapon (LMS or GPMS equivalent), but this is NOT considered a separate weapon for firepower purposes - its effect is factored into the overall "personal arms" firepower of the team.

An APSW TEAM is a two or three-man element carrying an Anti-Personnel Support Weapon (AMW). In the case of standard Light ("fly") weapons or equivalent, the weapon team only carry Close-Defence (CDW) weapons in addition to the APSW.

An ASSAULT TEAM is a four or five-man team (like a Rifle Team), but armed with specifically Close-Assault weapons - they may NOT fire in Ranged Riflefire combat, but get a bonus over normal teams in Close-Assault combat. (Rifle Assault teams are available as Miliita or Line units only - Powered Troops already have the increased combat capability.)

A FIRE DESIGNATION TEAM is a two or three-man team dedicated to spotting and designating for Artillery fire support. They carry only close-defence weapons in addition to their designator and sensor equipment.

An ANTI-ARMOUR TEAM is two or three men carrying a GAMS system for anti-tank use; they carry only close-defence weapons in addition to the other.

A LOCAL AIR DEFENCE TEAM consists of two or three men with a LOS system (such as a light AA Missile launcher), armed with close-defence weapons.

An ENGINEER TEAM consists of anything from two to five men with demolitions, mine-clearing and other specialist combat engineering equipment, plus close-defence weapons.

Note that RIFLE TEAM Personal Arms and APSWs are the only weapons that can perform ranged fire during an INFANTRY FIREFIGHT; all other teams have only close-defence weapons (machine pistols, SMG equivalents etc) for personal protection, which may be useful in Close-Assault combat but NOT in ranged firefights.

RIVERINE CRIFT:

The term RIVERINE CRIFT covers vessels built for coastal river and other "brown-water" operations, usually in support of land forces. They may be "conventional" boats, hydrofoils (very fast, shallow-draft boats which can "fly" above the water and consume less fuel), or semi-submersible structures. 

Surface Effect craft, using a "right angled" (RWS) Air Operated Sea and even small submrible craft. Riverine craft will be more likely to be used by powerboat forces, as the arctic of better GUVs and even larger vessels will tend to make them redundant for many missions; however a "blend" of whatever sort will still be low-cost and fairly efficient form of transport in areas with suitable waterways available.

RIVERINE CRIFT DESIGN:

Watercraft are designed and costed using exactly the same procedure, as for ground vehicle elements. There are a few different limitations imposed on watercraft design, as follows:

1. Riverine craft may not carry Armour rating more than TWO LESS or more than their size class - that is a class 4 (LARGE) vessel could only have up to Class 2. Vessels of size 1 and 2 can only be Class 1 or Slightly Improved.

2. No vessel may mount more than ONE weapon of a class more than ONE LOWER than their size class - that is a class 1 (SMALL) watercraft could only mount Class 1 or 2 weapons (however, it could still mount up to 3 such weapons - the NUMBERS limitation remains in effect). Size 1 vessels MAY mount a single Class 1 weapon.

3. Watercraft require Power Plants as normal, with usual limitations to certain weapon types according to power available. For mobility, any Power Plant type is sufficient for conventional loads and hydrofoils, but RWS Air Operated craft have the same upper weight limit as GUVs.

Some of the larger watercraft types (planes) may wish to use eg Landing Craft and Big Fire Support Monitors) will require the OVERSIZE VEHICLE rules described on F.15.
3 VEHICLE DESIGN

AIRBORNE VEHICLES:
Flight-capable vehicles are divided into two groups: VTOLs and AEROSPACE CRAFT.
VTOLs are flying combat vehicles that may hover, take-off and land on a table, operate at NAP, fly at NAP, or "hit and fly" (lightning fast height) and so on. This category covers conventional helicopters, "jetcopters," some V-22 Osprey into ground-effect craft, and "flying lorries" terminal VTOLs which stay airborne through simple thrust at least alone. VTOLs are the equivalents of 20th century battlefield helicopters, and perform awe, of the same missions -- troop transport and airmobile assault, tank hunting, convoy of wounded etc.
AEROSPACE CRAFTs have high-speed ground attack, fighters (mostly capable of operation in atmosphere and in low-flying) interceptors, and such. Interfacing landing craft (from small size assault boats up to huge Dropship carrying an Armoured Squadron or more) are also classed as AEROSPACE CRAFT, but for their design and see INTERFACE LANDINGs (s.v.t.).

AIR VEHICLE DESIGN:
Both VTOL craft and Aerospace craft are designed in basically the same way as ground elements, with the following provisions:
1) For CAPACITY (to fit weaponry, ordnance and other cargo), VTOL craft and Aerospace craft all have the same as ground elements (s. s. Size Class).
2) For Power Plants, All air vehicles must pay the costs for FPGs (this does not necessarily mean that they are Fusion power, but covers the fact that they need much more powerful, more efficient engines than ground vehicles). Note also the special small air mobility types in the points lists, which are additional to the Power Plant costs.
3) If Direct Fire weaponry an Air vehicle is more limited than on ground elements, VTOLs may employ smaller turrets (usually thin-shells) that may hold APSWs or (less 1 weapon only) other VTOL weapons (and all Direct Fire weaponry on ground attack Aerospace craft). The same is true for fixed mounts, firing forward. Additionally, NO WEAPON OVER CLASS 3 may be fitted to any Air vehicle.
4) For (DEF-DEAD-FALL ORDINANCE) on Aerospace craft, one AMMUNITION MARKER (in the ability to make one attack on a Beaten Zone) counts up 4 (capacity points).
5) Armor ratings on Air vehicles are limited to MAXIMUMS of Armour 2 for VTOL craft, and Armour 3 for Aerospace craft; additionally, the armor rating must be lower than the ship's class. Thus if a 13 VTOL could only carry Armor 2, but a size 4 5 VTOL could also be limited to Armor 2 maximum. (For Air vehicles, the "armor" rating does not simply indicate thickness of armor carried but also the general "survivability" of the airframe.)

AEROSPACE WEAPONS:
An air-vehicle may carry Direct Fire weapons and Guided Missiles which function in the same way as their ground-based counterparts. They may also carry DEAD-FALL ORDINANCE (DFO), which are Cluster Bombs or Submunition (Shipments) available in the same types (Wx and NE) as normal Artillery ammunition.
Each aircraft may carry one or more "ORDNANCE LOADS," each with load representing the DFO--we dropped on one attack pass (though multiple loads may be dropped simultaneously on the same targets per if desired).
To record the loads carried on each aircraft, use some of the Artillery Ammunition markers, either kept off-table or placed with the aircraft model as desired. One Ammunition marker represents one Ordinance Load of the relevant type, and is expended when the Load is dropped.

COMBAT WALKERS:
The Combat Walker is a very specialized type of fighting vehicle: 2/3s is the huge "Mecha" so popular in Japanese SF and now well-known to gamers the world over thanks to several systems dedicated entirely to them. While the actual rationale behind building and using them is to some extent a matter of personal preference or personal bias, there are real facts the shape of the "big-tin Samurai" striking across the table is that it is a great fun. Walkers are thus included here as an optional rule, if you like them, and wish to recreating that kind of battle, then use them freely. If you hate them then just leave them out. Be warned, however, that even if you do use them you are NOT the all-powerful kings of the battlefield -- they are just another type of 3/4, and we'll get KO'd just as quickly as anything else (or possibly quicker, see note). The bigger they are -- the easier they are to Make From or Bit..."

COMBAT WALKER DESIGN:
Walker vehicles come in three basic types: the true Combat Walker (effectively a 'tank on legs'), Infantry Walkers (small Mecha, 2-4 meters tall and used like a very heavy powered), and Transport Walkers (big multi-legged troops carriers, as used in certain popular SF films.)
All Walker vehicles are designed using the same basic system as any other vehicle; the size class limitations are:

Combat Walkers and Transport Walkers may be class 4 or 5 (VERY big ones may be class 6 if 7 vehicles are being permitted).
Infantry Walkers are all class 1 vehicles.
When fitting weaponry to Walkers, consider the cost and combat capacity limitations only; in the terms of capacity, just burn the spare. Maximum Armour ratings are as normal vehicles, i.e. equal to Size class:

Signature of Walkers are ONE HIGHER than normal for their size class, due to their height and overall size -- thus a class 4 Walker has a BASSIC signature of 5. Stealth systems can reduce this signature if used, and are highly recommended if you want your Mecha to survive very long! Note that this adds a class 5 Walker a Signature of 6 (the total in use) is, refer to section on OverSize vehicles for rules on firing, it elements with signatures greater than 3.

Damage to Walkers is treated the same as for any other vehicle -- Mobility hits simply indicate "set damage" and are taken. An example of a typical Combat Walker design might be:

Class 5 (VERY LARGE) vehicle, WALKER mobility, FGP Power, Armor 3, (Capacity = 29).
Armament: DFOs (4 2 in each "arm," but Counts as fly-around mount) (capacity = 16).
SLANG (shoulder mount) (capacity = 6). ENHANCED POS (capacity = 3). APSW (1 free), no capacity.
Other systems: SUPERION FireCone, ENHANCED ECM, Stealth 1 (Basic. Signature 0, Effective Signature 5).

WALKER ARCS OF FIRE:
Though Walker weaponry are treated as "FIXED MOUNTS" for capacity and design purposes, they actually have much more flexibility than a normal vehicle Fixed Mount due to their much higher mobility and agility of the Mecha design.
**OVERSIZE** VEHICLES:

The basic design and combat systems allow only for vehicles up to VERY LARGE size (CLASS 50), as this should cover most models and types that players will wish to use. There is no reason, however, why this limit cannot be expanded to cover **OVERSIZE** vehicles of classes 6, 7, and even larger. These represent the REALLY huge vehicles that sometimes crop up in SF literature, virtually "mobile fortresses" bristling with arrays of heavy weaponry.

If you wish to construct and use such Oversize vehicles, use the following rules and notes as guidelines:

i) The Vehicle Design system can be used as it stands for class 6 and 7 vehicles; they will have CAPACITIES of 30 and 35 respectively, and follow one normal rules for weapons fits etc.

ii) There are no ** OVERSIZE** vehicles larger than 5 available (Oversize vehicles may just carry more of them), but Armour ratings of 6 or 7 ARE permissible.

iii) Oversize vehicles may, if desired, be fitted with more than one FIRE CONTROL system (class 6 may carry 2, CLASS 7 up to 3). Each additional FireCon over the normal one allows the vehicle to fire an extra weapons system (at a different target) in one Combat Action — thus it may engage multiple different targets with different weapons mounts in one activation. Each additional FireCon occupies one Capacity, but costs the normal points value.

iv) Oversize vehicles have signatures of 6 or 7 according to class, as the normal list of signature/mode types do not go above signature 5 (6 to 14), a special rule is enforced.

When firing at a vehicle with Signature 6, count all shots as being one range band closer than they really are (i.e. LONG range is counted as MEDIUM; for Signature 7 or greater, count ranges as TWO bands closer — i.e. All shots are counted as CLOSE range. Size 6 and 7 vehicles always use a D4 as their basic target type.

v) STEALTH abilities may be purchased for Oversize vehicles at the usual costs, to reduce their effective signature if desired.

vi) Oversize vehicles may in general use whatever mobility type it desires, but players may if they wish apply some extra limitations on movement — some terrain types may be deemed impassable to class 6 or 7 vehicles due to their sheer weight and bulk. Such limitations must be agreed before the game.

**MODULAR OVERSIZE VEHICLES:**

In addition to the Oversize classes 6 and 7 described above, the following notes will allow players to design EVEN BIGGER vehicles if they wish! This is specifically to cover such vehicles as the giant "CYBER-TANKS" of military SF log; Ken:law: Kei:tra's Bolo units and the like — huge mobile arsenals grinding forward on massive treads, invincible to all but the biggest weapons and directed by their own onboard Artificial Intelligence.

The way to construct such vehicles for use in DIRT SIDE II is to treat each one as a single vehicle, but as a series of "MODULES" linked together. Each Module is constructed and coded separately under the normal design rules, and may be of any size from class 1 to class 7 (Over-Size). To give an example, the classic type of Cyber-tank that most players will be familiar with might consist of 56 Modules — a front hull module of (big) class 5, a rear hull module of class 5, and four "tread" modules (one at each corner), each of size 4.

Each Module will be designed according to the usual rules, with a few limitations:

i) The only permissible Mobility Type is Tracked (Fast or Slow as desired) — no other form of propulsion is practical for something this size! The total size of all the Track-modules is counted when determining mobility costs, so the example vehicle above would have the mobility costs of a "class 16" vehicle (4 x class 4 modules).

ii) The Multiple FireCon rule suggested for class 6/7 vehicles may also be used for Modular designs, up to a maximum of FOUR modules may be fitted to the entire vehicle.

iii) Weapons and systems may only be fitted to the Main Hull modules (front and rear in the example above) the "tread" modules may not carry weapons. The TOTAL capacity of the main modules may be treated as one figure for the purpose of weapons fit, thus the example vehicle would have a capacity of 56, the weapons may be distributed as desired between the main modules, regardless of individual module capacities.

iv) ND Stealth abilities are available for Modular vehicles (they are tad dimmed to begin with, ever electrocyclic!) all Oversize vehicles always use a D2 on their Secondary die whatever the circumstances — just 'is basic D4 in all cases.

v) The Armour rating on any module may not exceed 7; the "tread" modules may carry Armour up to ONE LEVEL HIGHER than the size of the vehicle, up to TWO LEVELS higher. (Thus the example vehicle could have Armour 7 on its main modules, and Armour 5 on its treads.)

**FIRING AT MODULAR VEHICLES:**

When attacking Modular Oversize vehicles, ALL shots are counted as CLOSE range due to the huge size of the target; in addition, the range figure NEVER gets to roll a Secondary die whatever the circumstances — just use D4 in all cases.

If a modular vehicle is caught in an Anti-Tank Beazon Zone, draw circles separately for EACH module of the vehicle.

When hit by Direct Fire at MEDIUM or LONG ranges (this is the TRUE range, not the "always close" range used to determine hits), the particular Module that is hit should be resolved at (random for the typical 6-module vehicle described above, i.e. a D6 to see which module is hit), if the shot is actually at CLOSE range, then the firing player may ONSCONE which module is hit by the shot.

It will be necessary to make up a single "control card" for each modular vehicle, with a box on it for each module — damage markers affecting each module are placed on this card as required. Markers that affect the entire vehicle may be placed on table-as normal.

 Destruction of one tread module will reduce the vehicle to half movement; loss of two or more will immobilise it. The catastrophic destruction ("BOOM") of any module will completely disable the vehicle.

---

**Vehicles by CMD and Musi:gal Purpul**

All weapons mounted on Walker vehicles may fire through a 180° arc...
CLASSIFYING VEHICLE MODELS:

We have already mentioned that BIRTHSIDE II allows you to take virtually ANY miniature, from any manufacturer, and define its capabilities for use in the game. There are two basic sections of this procedure – the DESIGN stage and the COSTING stage. The former consists of deciding what equipment and capabilities you wish the vehicle to have, and working through a simple procedure to determine what that would certainly act in the real world, and then to see if the statistics that the vehicle will use in the game. The latter (Costing) stage is to determine the POINTS COST of the vehicle or equipment, and is actually OPTIONAL, it is not entirely necessary to know how much an element costs. If you prefer a force organisation that is based around certain unit sizes and types of vehicle, the Points Value only really becomes important if you and your opponent need a relative measure of the value of your forces, for instance if you are playing a "competitive" game and desire exact force balancing.

If you wish to use the Costing procedure, it may of course be worked out at the same time as the vehicle is "designed".

Full points costs list are included in the appendices, on P.52.

The first point of DESIGNING a vehicle is to choose the model you are using, and have a good look at it. In most cases it will be obvious from the model what basic mobility type it will have (i.e. it has tracks, wheels, a hover-skirt etc?), the exact mobility type chosen will also depend on the model's size and desired function – a small tracked tank intended for recce work would probably be given FAST TRACKED mobility, while a very big, lumbering, "tanker" type tank would likely be SLOW TRACKED (though there is no real reason why you could not make the latter as fast as you wanted if you were pricing it out).

This brings up the notion of SIZE CLASS for the vehicle; this should be decided by a combination of what you want the vehicle to do or carry, and a common sense appraisal of the size of the actual model. We are deliberately NOT going to try to lay down dimensions and formulate for exactly what constitutes, say, a VERY SMALL, MEDIUM or VERY LARGE vehicle, because the model sizes given (in nominally the same scale) differ so wildly in their sizing that to do so would be pointless. Let us just say that if your opponent puts out a half inch long squarish car on the table and tells you it is a Class 5 (VERY LARGE) tank, you should gently point out the error of his ways.

The final point of designing a vehicle is to choose exactly what weapons, equipment and systems it will carry. Once again, again we won't try to come up with a fool proof method of determing from the limitations imposed by the vehicle size Class. When deciding systems such as Fire Control, ECM and so on, bear in mind the use the vehicle will be put to (e.g. don't put superior ECM on a cargo truck that is never meant to be fired at) and also consider the technology level of the overall force you are building.

The best way to explain the Design system is to give you a working example, and we have chosen this tank because it is one of the most popular in this rulebook (the big one within the targeting reticula). The actual model is a DEIMOS/GO Heavy Tank from CM DESIGNS (catalogue no. P/W 1-2).

The hull of the model measures about 31mm long by 20mm wide, looking at it in relation to other items in the CM range (and in 1:350th scale measurements, the DEIMOS would most reasonably be classed as a LARGE (Class 4) vehicle). For MOBILITY, the model could pass equally well for a GO (towards) or DMAT type, so we are designating vehicles for a medium-tech army, so decide on SLOW GEV as a reasonable Mobility Type.

Adding the POWER PLANT type next, for a SLOW GEV of size 4 we need at least a Hydrodynamic Turbine (HMT) – a chemical-fuelled engine will simply not have enough power to lift the tank. If the background allows for it to be available, a better choice for this sort of vehicle would be a Fusion power (FP), so this would allow for MOD or HIL weaponry to be used, assuming it is available, we decide to go for the FP to allow more freedom in weapons fit.

Now we can ARMOUR the vehicle as it is a Battle Tank, it makes sense to go for the heaviest allowable, which is the same as the vehicle size class – thus we fit ARMOUR RATING 4. The extra cost of All-steel or Reactive armour is not deemed worthwhile at this point.

Then comes the fun bit – putting the guns on! Obviously the model has a TURRET, with a single male gun mounted in it. We have 20 capacity points to play to (with size 4 vehicle, times 5), so we could go for a class 5 weapon in the turret, using up 15 of the capacity; however there is also a big box on the turret side that looks as if it should hold a GMW, and an obvious point-defense system on the turret roof. After deliberation, we decide to fit a class 4 Mass Driver (MOD-6) as the Main Gun (assuming x4 or x5 = 15 points capacity), a GMW taking a further 4 points, and an ENHANCED Point-Defence System (PDS) that uses 3 capacity points. The final 1 capacity point is spent on an APPC system round the hull.

[There are obviously a lot of other options we could have chosen even for this particular model, but the ones we have gone for give you a fairly well balanced offensive/defensive capability for such a vehicle.] Finally, we must decide on the levels of SYSTEMS to be added: FIRE CONTROL, for the gun, GUIDANCE for the missile system, ECM and STEALTH features for protection. Not wanting to go over the top, and bearing in mind that we will have to "pay" for everything when we do the actual points costing, a reasonable level would be SUPERIOR FireControl, ENHANCED Guidance and ECM, and ONE level of STEALTH (to reduce the effective Signature from 4 to 3).

So, we have the specifications for our DEIMOS tank:

LARGE vehicle (Class 4), SLOW GEV Mobility, FGP Power Plant, FPB gun, MOD-6 Mass Driver, GMW, PDS, APPC, ENHANCED GUIDANCE, ENHANCED ECM, ONE level of STEALTH.

Now, let's look at some real world examples:

LARGE vehicle (Class 4): SLOW GEV Mobility, large size, FPB gun, MOD-6 Mass Driver, GMW, APPC, ENHANCED GUIDANCE, ENHANCED ECM, LEVEL 1 STEALTH.

CAPACITY REQUIREMENTS FOR VEHICLE WEAPONS AND SYSTEMS:

ALL DIRECT FIRE WEAPONS:

<table>
<thead>
<tr>
<th>Class</th>
<th>Maximum</th>
<th>Fixed Mount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class 2</td>
<td>10mm HE</td>
<td>1</td>
</tr>
<tr>
<td>Class 3</td>
<td>20mm HE</td>
<td>2</td>
</tr>
<tr>
<td>Class 4</td>
<td>30mm HE</td>
<td>3</td>
</tr>
</tbody>
</table>

MOR TED FIRE WEAPONS:

<table>
<thead>
<tr>
<th>Class</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class 2</td>
<td>30mm HE</td>
</tr>
<tr>
<td>Class 3</td>
<td>40mm HE</td>
</tr>
<tr>
<td>Class 4</td>
<td>50mm HE</td>
</tr>
</tbody>
</table>

GUIDED MISSILE SYSTEM:

<table>
<thead>
<tr>
<th>Class</th>
<th>Maximum</th>
<th>Minimum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class 2</td>
<td>2GMWS</td>
<td></td>
</tr>
<tr>
<td>Class 3</td>
<td>3GMWS</td>
<td></td>
</tr>
</tbody>
</table>

POINT DEFENCE SYSTEM (PDS):

<table>
<thead>
<tr>
<th>Class</th>
<th>Maximum</th>
<th>Minimum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class 2</td>
<td>1PDS</td>
<td></td>
</tr>
<tr>
<td>Class 3</td>
<td>2PDS</td>
<td></td>
</tr>
<tr>
<td>Class 4</td>
<td>3PDS</td>
<td></td>
</tr>
</tbody>
</table>

LOCAL AIR DEFENCE (LAD) SYSTEM:

<table>
<thead>
<tr>
<th>Class</th>
<th>Maximum</th>
<th>Minimum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class 2</td>
<td>1LAD</td>
<td></td>
</tr>
<tr>
<td>Class 3</td>
<td>2LAD</td>
<td></td>
</tr>
<tr>
<td>Class 4</td>
<td>3LAD</td>
<td></td>
</tr>
</tbody>
</table>

AREA DEFENCE SYSTEM (ADS):

<table>
<thead>
<tr>
<th>Class</th>
<th>Maximum</th>
<th>Minimum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class 2</td>
<td>1ADS</td>
<td></td>
</tr>
<tr>
<td>Class 3</td>
<td>2ADS</td>
<td></td>
</tr>
<tr>
<td>Class 4</td>
<td>3ADS</td>
<td></td>
</tr>
</tbody>
</table>

COUNTER BATTERY RADIO:

<table>
<thead>
<tr>
<th>Class</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class 3</td>
<td>4COUNTER BATTERY</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Class</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class 3</td>
<td>4COUNTER BATTERY</td>
</tr>
<tr>
<td>Class 4</td>
<td>5COUNTER BATTERY</td>
</tr>
</tbody>
</table>