Zortiander, Inc. Catalogue

An unofficial CthulhuTech rules & gear expansion

Author

Sebastian Tivig

Inspiration and Copyright

Work is based on the CthulhuTech role-playing game (www.Cthulhutech.com) made by Wildfire LLC and published by Catalyst Labs. All copyright of the CT terms and ideas remains with them.

Images, page borders and backgrounds come from various artists. Please see the last chapter for full references.

Note: this is work in progress, so copyright issues are not handled yet. They will be fully done in the final version only.
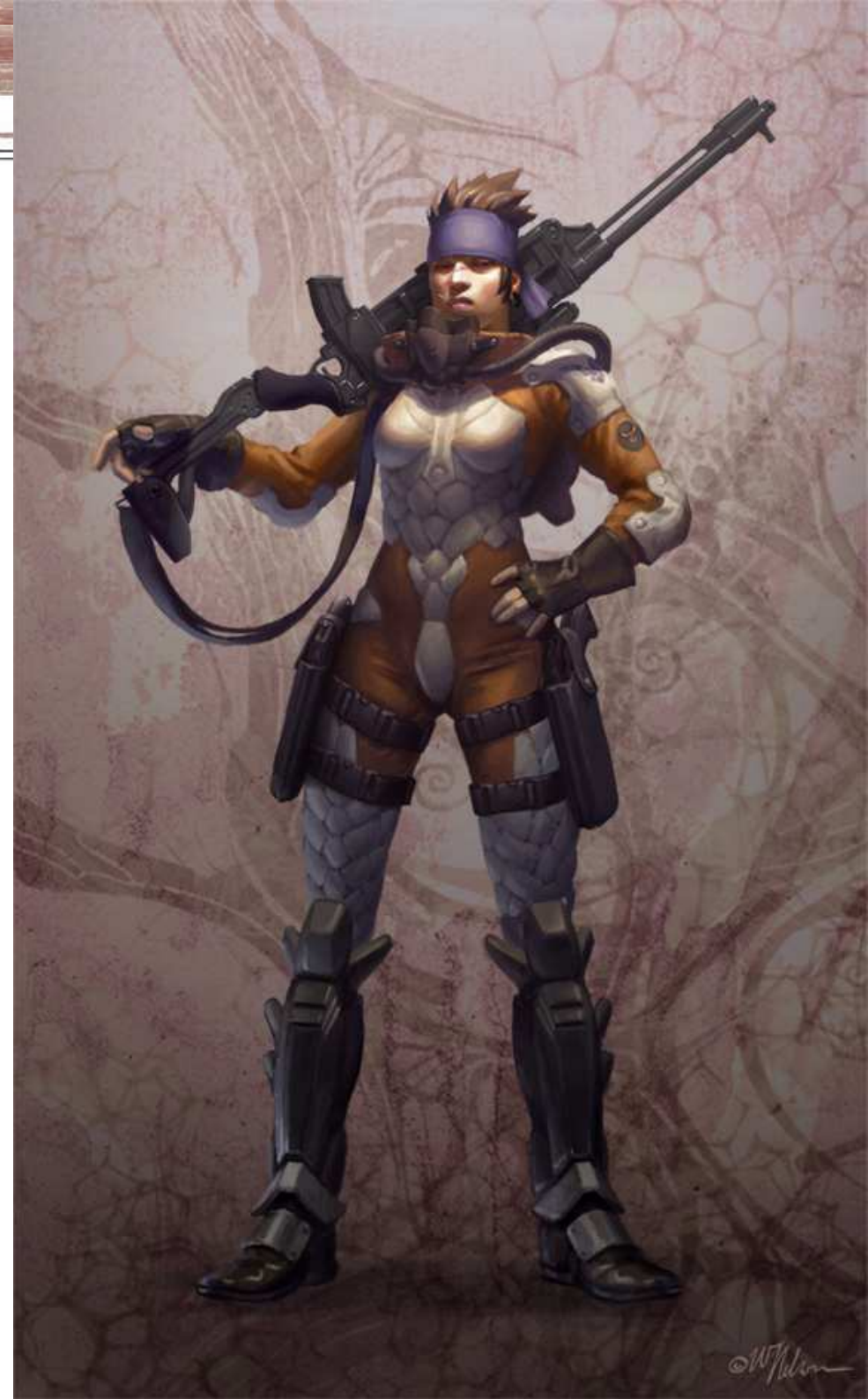
Disclaimers and Content

This document is a work of fiction. All characters herein are fictive characters only, with no ties to reality.

This document is an unofficial CT expansion and is in no way endorsed, affiliated to, edited or commented by the CT authors.

Mature content.

Gearing up

Tired and knackered, Tech Sergeant Li took a clean handkerchief from her breast pocket and wiped the sweat off her face, re-adjusted her hair-net and sighed. The 31st Mecha fighter wing were to move out in two weeks from now, on another forward mission, halting Migou progress in western Russia. And she still had to get her Saber back into action and get to work on tweaking Walther's Blizzard - the testing during the last two weeks had shown some flaws in his rocket boosters. They tended to dangle a bit during combat and needed better support. And finally she still needed to improve the back sheath of Ivanna's Khopesh. So much work, and so little time.

Looking at the mess of tangled wires, broken armour plates and melted circuit boards before her, she made a note on her wrist computer that the left arm actuators needed replacement. Overlaying the delay for delivery, internal stocks, cost and projected time for replacement on her AR goggles she sighed some more. One week. One week where her Saber would be stuck here with one arm inop. At least the repairs remaining where fairly standard and so she sent the work over to her group of young Techies.

Commanding the working platform to descend, she

cleaned her hands on another handkerchief (total usage per hour: 3 and more) then threw it to the heap of used ones on the platform. The walk to the shower room was mercifully quick and deserted, as all other Techies were working on their own assignments, giving her the opportunity to get to the shower quietly and without having to answer tons of questions about the latest stealth paint that just arrived, the semi-mobile sniper rifle (and its use) or the two Mecha-sized assault rifles she had ordered.

She passed underneath the side-walk that ran around the immense hangar, in which the team's Mecha stood: her own Saber, Ivanna's Khopesh, the Captain's Scimitar, André's Rapier and Walther's Blizzard. And at the far end, the two looming and dangerous shapes of the team's newest additions, both slowly and eerily moving of their own strange will. The Engel of Jean and Virginie, an Auphan and a Tarshish, halfway concealed by the numerous cranes, structural re-enforcements, spare parts reserves and service wires and pipes that crossed in carefully arranged patterns the entire hangar complex. As she opened the newly painted green door she stepped from the cacophony of a thousand sounds reverberating through the hangar into the nice quietness of the team's locker and shower room.

Throwing her clothes into the reconditioning machine, she let loose her hip-long red hair and quickly stepped through the cool air towards the showers. The hot stream hit her back, ran down her shoulders and breasts, caressing her nipples and curling around her belly, before running down her scarred legs. She enjoyed the sensation of light pain as vapour filled the room and the stream became hotter, letting her body relax and her worries be swept away.

"Himmel und Hölle, are you trying to suffocate me?"

Walther "The Bear" moved his massive frame through the door frame, a heap of muscles and hair, still good in shape albeit his age of 37 years. He smelled slightly of sweat and oil, grease spots on his hands and scarred face, fresh burn marks on his left shoulder. As he walked over to the shower nearest to the window and let go all cold water, his deep, somewhat rasping voice, carried over the water.

"How's work? Getting your girl back to business?"

He groaned loudly as the ice cold water hit his back-his muscles tensed for a bit, jaws clenched. It always required getting used to again.

"Hm. Your plans were good, speed up a bit. I gave it to the girls to finish."

Her high pitched voice carrier over the splashing even without her needing to raise it. As answer came first a loud rumble, some primordial version of the word "Hm". They ended in silence, got dried, dressed and prepared to walk out. As she pushed open the door with him following close behind, she said quietly.

"Ere we go: Wanna stop by tonight?"

"Sure. Say ten?"

"Ten it is."

Looking at the work

The next two weeks passed in work: Walther drew up plans for an adaptation of the standard Broadsword weapons sheath and adapted it to his Blizzard, while Li made it work. The Captain and Ivanna were mostly out, training the French twins in her Engel and André was giving piloting lessons at headquarters. Two days before the mission, the entire unit finally got together again in the hangar, inspecting the refurbished and repaired Mecha and Engel.

"Done what you asked for Captain." Li was giving the tour, "All rides have back sheath' now and we got

what we wanted as external weapon. Should complement our Mecha fine."

She took out an e-paper and the list of equipment appeared on it. As she handed it to the Captain she continued to point out the modifications made, the team's AR goggles outlining what she explained and providing additional figures and data.

"Let's do the creepy part first!" They started at the Engel, who stood silent but not fully immobile as other Mecha. You could see the heads dart here and there, as if trying to fix you, weight being shifted from one leg to another, as they forced themselves to stand upright for maintenance and modification, instead of sitting down and "relaxing". As they neared, the Auphan head jerked in their direction and the body crouched lower, as if sniffing them out, bend forward, the large claws uneasily hitting the ground. The Tarshish's long tongue slithered into their direction, leaving a trail of ... some unidentified liquid on the floor. As Li sighed while thinking about the time it took to keep the Engel's lair clear, Virginie was already striking affectionately the hideous beast's tongue. Jean let himself be sniffed over by his ... pet? slave? master?

"Difficult to work with them", Li's voice carried an edge, "they were not too cooperative when we went to work on their armour. In any way, we didn't go deep" she left the thoughts of everyone unspoken: no one wanted to know what was beyond the armour and biological containment shell below. She resumed after the short pause "so we only installed the back sheath halfway on top. Should do, though. Won't hold the large sniper or assault rifles we ordered, but the tongued thing'll" she interrupted as the tongue
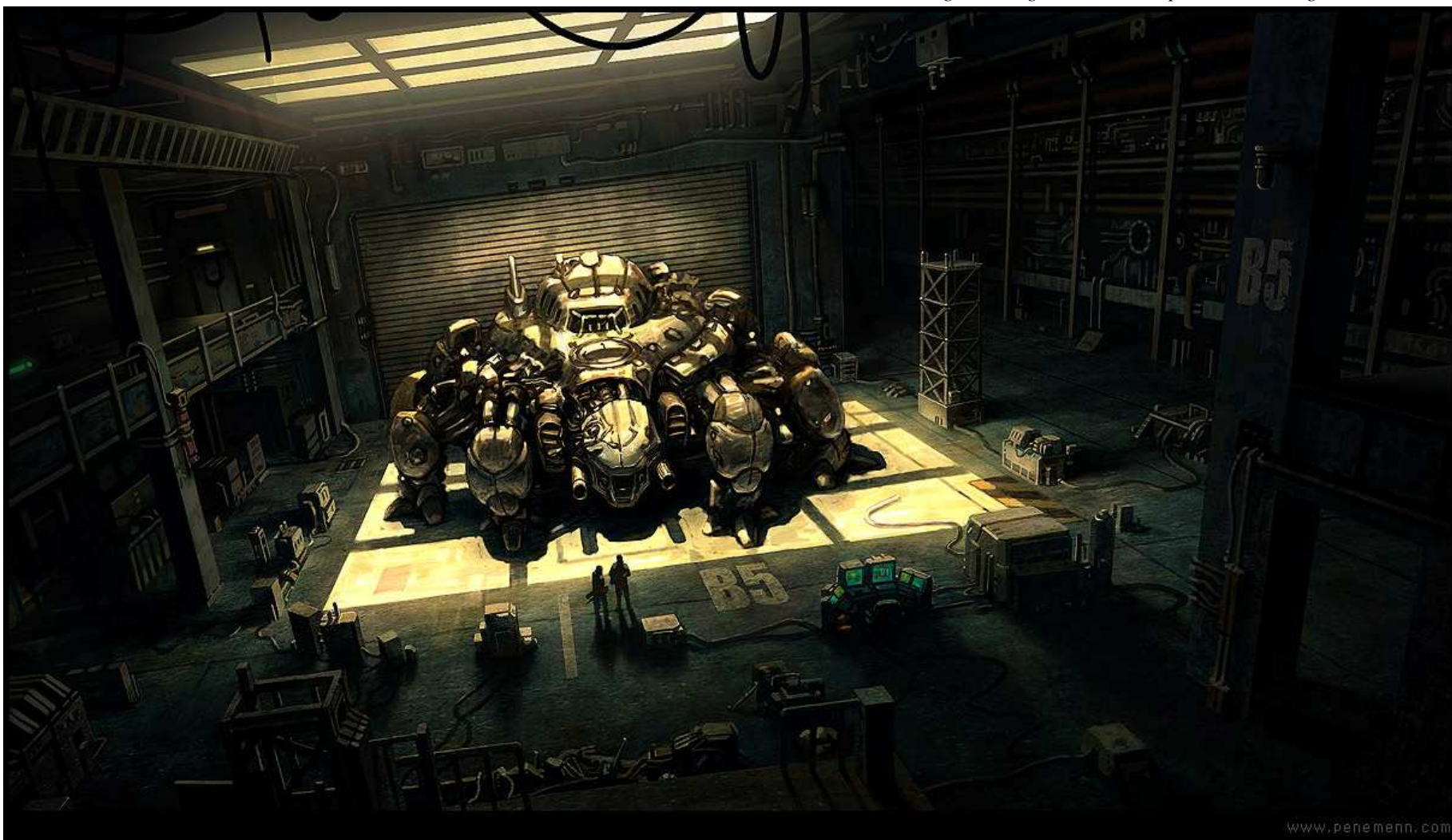
flicked in her direction, with a hissing sound and some large drops of the saliva resembling liquid dropped close to her. "the Tarshish'll be surely happy to carry the new plasma shotgun we received."

She turned around at the Auphan, which was patted on the snout by Jean. "While our little dog there, he'll have an assault rifle. Or whatever they call this giant, fully automatic, self-propelled mini-rocket launcher". She showed them a bullet being brought over by a younger techie. "I wonder where they'd gotten this kind of munitions from."

Ivanna looked at it. "Standard NEG specifications, 80 mm mini-

rocket. It is not self-propelled, but has an explosive warhead in the middle. When the front end hopefully has penetrated the armour, the warhead is supposed to detonate inside. It's ok as principle, but the bullets bounce off the armour too often without doing significant damage, and the warhead explodes on the outside. Pretty but not very effective. Last I heard they're trying to research some new ammo."

"Hm".

They walked on, feeling the gazes of the Engel on their back through the heavy armour they wore, sending shivers down their spines. The first real Mech to meet was the Captain's Scimitar, shimmering in a dangerous and foreboding deep, non-reflective black. He didn't particularly mind being near to the Engel; it was rather disgust he held for them than apprehension or fear.

"So Captain. First of all I've got your call sign pimped." Li pointed towards an enormous ice cube painted on the sides of the charge beams, with watery

text reading "IceCube" around it. "Since you traded hands for weapons, I couldn't give you any hand-held weapons. However, I got you some radar-absorbent paint on the machine; and we managed to squeeze in the long operations cockpit in anticipation of mission 343-A."

Indeed you could see a bit more bulk on the armour where the cockpit was, as if giant hammers had caved the chest of the Mech out a bit. "Sorry it ain't so pretty, but we didn't have the alternative armour plates from HQ so we made do with what we had and re-modelled your chest a bit."

Again they moved on. "Next one... Walther. Difficult to pack anything in the Blizzard, damn Nazzadi Mecha are pretty tight in space. Anyway, you just got the standard back sheath and two hip sheath for weapons. I packed you a P2AR plasma assault rifle to get you some covering possibilities and added an E5-78P taser and T1 heavy pistol. Choose your armour ere you go."

The Bear looked it over, the giant assault rifle on the Mech's back, plasma coils still cold, the semi-automatic weapon retrieval and presentation system shut down and secured in place. Additional magazines were magnetically held in place on the arms of the Mech, while he could see the infantry equipment and weapon dispenser in his legs being reloaded.

"Your baby Vulcan." They stopped before the hunched and angled outline of the small Rapier, which seemed strangely fragile after the massive and danger foreboding shape of the weapon-starring Scimitar.

"Two things you would need, punch and armour, but I can't give you all of it, not enough space. Well, I gave you a bit of fire power, reckoned you could do well with it. I've given you a regular Type I assault rifle with rocket launcher and some special ammo. The chem. rounds are loaded with acid and the shock rounds are nice, too."

The large gun looked somewhat displaced in the hands of the frailer Mech, additional magazines clipped to the magnetic belt, the barrel surpassing the head by a good metre.

"Finally your Khopesh. Whew." The giant war machine with its twin laser canons stood looming over them, blade extended and sensors trained on them. Although it was shut down, the somehow organic forms of the underwater Mecha bore an eerie resemblance to some of the more machine-like Engel. And while it was graceful in water, it looked somehow out of place in the dry hangar.

"Those amphibious Mecha have so little space to squeeze anything in ... I upgraded your targeting system, though, which is easy enough to do and does not require much space. And yeah, I upgraded your cockpit, too, for 343-A. Sorry, that was all that would fit into your lady."

She gestured them finally towards her own Saber, standing a bit awkwardly with his two under-sized chest-high manipulators, in addition to his two bigger weapon arms.

"I had to give me more punch, so I took up an assault rifle, too. After all, you can't be more versatile. But I also added, and that about fills my dear baby, an additional internal surprise for the enemies. They're gonna love my plasma shotgun." And she pointed on the left arm of her Mech, on which a bulky attachment was neatly welded.

"Hmmm"

IceCube gave his watch a look. "All right people, now that Li's worked her magic it's time we got settled up. We'll be riding low for the first part, so let me give you a brief. Gear up and load up with the quartermaster. See you in two hours in the briefing room.

"Aye, Captain!"

They moved out, gathering their belongings, the Mecha pilots getting in the new heavy pilot suits they had received, the Engel pilots in their neuro-feedback suits. By the time they had checked their own Mecha and the Techies had handed over the check-list for departure, it was time to get to the briefing room.

The Mission

The briefing room was standard NEG issue, except for the sound proof walls, electronic containment build into the walls and a host of other features, neatly disguised in the construction of the room. Top secret.

The captain had just switched on the holographic displays in the middle of the room when they entered. Their position jumped into view and clarified as the lenses adjusted and the projector calibrated. A zig-zagging red line flickered into the image, the border between Migou and NEG territory in Russia, a yellow line followed – the border to the Rapine Storm. Finally a host of green, red and yellow dots appeared around them and terrain features crystallized. The alps in the far West and the Dnepr river in the East.

"All right all." The Captain's voice had some commanding quality even when he spoke quietly (and somehow privately) to his unit. "Today's mission is going to be one of the harder once. We're going deep into enemy territory in order to take out one of the central vehicle factories and parks in Russia."

The map zoomed in to some point far east from them, in the middle of Russia's northern Taiga. "They have a host of BG-104 Hailstorms there and are fabricating ever more. These bloody artillery canons have been giving our boys on the front a hard time since almost a year, so its time to stop them. In addition it is the main BG-60 factory on the continent."

Specs ran over the screen, showing a host of data on both vehicles: speed (60 mph both), armour classification, structural integrity, weak points, weapon systems. It was not entirely new to any of them, but the refresher did well. "We're going to drop some 25 klicks away from there, in order to evade radar. It's our team plus a dozen M-111A2s. They don't have to get too close- about 10 klicks out they'll stop and go into firing position, guarded by five Eclipse of the 1st unit." Additional specs ran over the window, showing unit capabilities, pilot names and ranks, shooting stats ...

"We're going to advance stealthily. They'll never expect us to hit on them, since it's so far into their turf, so they'll be unprepared and we can probably sneak in under their radar and other perimeter defences." Blue dots appeared on the map, showing defence positions, radar coverage angles and probable gun turret emplacements. "Vulcan is going to move in with his Rapier and place extra-large EMP

bombs next to the communications centre, and what we make out to be the main control centre, here and here". The map showed a 3-D view of the compound from satellite imaging and intelligence. "He'll also place our hardened tags on the factory and then move back to us. As the artillery will start a massive barrage fire and level the place for about 10 shots, you all settle up and prepare. We move in, take anything out that's left and repeat the levelling / personal routine. When we go, they'll load some prototype shells that should completely waste the place. We're to observe the damage they do, measure and then report back to them and get all together safe and sound to the extraction point. There we'll hopefully board our ship and speed back to base."

As he talked, the battle plan was already uploaded heavily encrypted in all of their Mecha, the targeting computers were calibrated, navigation system checked and appropriate maps were actualized with latest satellite images. The communication

system received the latest comm. codes and the artillery already boarded the heavy transport airplane, while their own drop ship powered up the auxiliary D-Engines and prepared to engage the one special feature that would bring it right in and all of them home again- the stealth field.

Getting there

Inside the cramped space of the heavy A820M, the Mecha and Engel were closely attached to the walls and strapped into place securely. The access hatches of the Mecha stood open, the pilots sitting in the middle of the cargo hold on the uncomfortable drop seats, emergency equipment next to them, munching on some ration bars. LeBeau and HighHeels were still in their Engel - getting in and out of a fluid filled capsule and linking up one's brain with the Engel took too much time and the neurofeedback fluid was too expensive to be wasted on personal preferences.

Li's endlessly long red hair did her complaining justice and just didn't want to be tamed, so Walther got up and stood be-

Zheng's Art

machine had just arisen to shake the Earth free from its confines, monsters awakened from a deep slumber tearing at the fabrics of the very ground they stood on. Seconds passed then a high whirling sound was heard in the air, volume and pitch increasing as a dozen shells homed in on the target, the hardened tags sending homing signals dispite the EMP blast.

Suddenly the sky lit up, the ground shook under tremendous power and a shock wave rushed through the trees, bending some, shredding others. The Mecha and Engel crouched low and leaned in on the blast, withstanding the wave, armour scarred from the debris. And before they could think twice, the next charge hit. A car was propelled by some shell that exploded too close towards the Mecha at tremendous speeds. Li ducked, aimed - and had to watch as SteelBody had already pulverized it with her lasers.

And so it went, wave after wave, 8 shots and the wood was nearly felled, 9 shots and one could see up to the compound, 10 hits and the way was free and they had 10 minutes to get in, clean and get out again, until the Artillery would fire the second salvo. Forward they sped, Engel rushing forward on their A-Pods, closely followed by Ivanna, the Mecha running behind the three on the uneven terrain. Beneath them lay the remains of the once proud wood, shattered cars and pieces of glass, scorched earth and

hind her, arranging it with a firm but somehow loving hand, caressing her from time to time. The Auphan growled and the Tarshish hissed. André scowled.

Small windows to the outside showed clouds passing by at supersonic speeds, the ram jets of the airplane working at high power and pushing them forward towards the danger. The steady roaring was comforting and calming.

Combat

As André got back, the EMP bombs went off, shaking the ground lightly but more importantly saturating the area with a heavy EMP pulse. The unit huddled close together beneath the EMP shield blanket, while they heard the crackling in their coms and saw small lightning on the net and the eventual wire that just evaporated. The only good thing was the thought about what this would do to the enemies.

They counted off the time as the ground suddenly trembled deeply and from far away, as if some giant

Migou / humans burned or torn into pieces, barely recognizable. Blood, brains, former parts of bodies, all mingled with steel, wood and earth, a piece of macabre and disgusting art, the mark of the artillery's work. The air reeked with the stench of burned skin and flesh, sour tones of unknown chemicals; it only lasted for a very short time until the concentration of dangerous contaminants made the filters shut down and go onto internal air supply, but it was enough.

Even from afar they could see that the fire barrage had not had the exact effect they had wished for. Most of the buildings were still standing. The outer layers had been blow away, creating an almost organic mixture of blown concrete, shattered windows and glass, broken and bended metal support struts, everything entangled like the entrails of some giant monster. The air was filled with clouds of pulverized plaster and concrete, their steps crunching on the debris on the ground.

However, below the outer shell they had seen on their satellite imaging, there was the quite solid shell of an armoured building, still standing high despite the artillery barrage, a massive shell of concrete, inter-

weaved with metallic support structures, devoid of any windows. Menacing and resilient it looked, defiant to the assault of the NEG . although scarred as they could see during their quick approach. The shells had not failed to have some effect on the build-

ing.

But before they could assess it any further, a hidden hangar door, heavily shielded, slid away with a horrible screeching, interrupting the almost eerie silence of the scene. The high pitched sound drove right into their brains for a split second before the audio system compensated and adjusted the intensity of the signal. Their weapons already hot, they whirled towards the entrance, simultaneously looking for cover. Li and Walther dove first behind the rests of some old guard housing, while Virginie and Jean took scouting positions somewhere higher up, followed by Ivanna. Happy he who hath A-Pods. André and the Captain made a two quick jumps and landed behind remains of destroyed buildings - old warehouses as the imagery showed.

And there they stood, the two Engel and the Khopesh higher up keeping a look out for potential targets: Dragonflys, aircraft, anything ... a minute passed by and the screeching sound had stopped, the gate fully open. Silence descended again upon them, eerie. Dust coulds started to settle and their countdown showed some 4 minutes passed. No wind blew anymore, and the entire scene was ghostly.

"Nobody enters." IceCube's stern voice came over the radio, cool and concentrated. From his cover position he watched the feed of the Auphan, stabilized electronically, in order to compensate for the continually shifting head of the Engel. "We need to get out of here in 5.5 minutes, so nobody enters. Keep a perimeter. LeBeau, SteelBody, go and scout the entire area, bring back pics and load it to the artillery. HighHeels stay above and give us recon sight on that door." Immediately the team split and the Auphan left with he Khopesh on his side, flying low over the terrain, scouting.

The comm remained silent, nobody fathomed speculating much about possible opposition they would be facing. Seconds ticked by and the large internal counters sprung below the 5 minute gauge. Still, nothing happened and they held still, anxiety and nervousness slowly creeping into their minds. The dust still settled, albeit ever so slowly, and the scene became ever more creepy. At 3.5 minutes before extraction, the Auphan and Khopesh came back, having found nothing but the same destruction everywhere with the same open garage doors on the other two buildings still intact. No radio transmission, nothing.

Time ticked by in utter silence as John contemplated to send the squad back into position and only keep André's Rapier as a scout. He re-ordered the SteelBody to the side, re-enforced the other one with HighHeels but kept LeBeau at height to spot incoming Dragonflies. He switched on his com, and hailed his team.

"All right, listen up. We'll move" suddenly they heard an unmistakable sound of buzzing Migou Mecha. "Stay put! Aim! And don't forget to get out of here in 2.5 minutes, all clear?" Responses came in quikckly "Aye Sir!", "On your mark Sir!", "Set."

Suddenly they poured out. LeBeau yelled a warning that the second door spit out Migou as well: Beetles, nothing else but Beetles, but many, oh so many! Ivanna opened fire first, laying a heavy laser barrage in the middle of the bulk, while Walther braced his Blizzard in a secure firing position and started to saturate the area with plasma bullets from his P2AR. John chimed in with his duo of charge beams, Li lay down a barrage of chemical shells, splashing the tanks with corrosive acid, that ate away their armour.

"Engel next door, stall and control. André with them!" The three of them disappeared and distributed pain and destruction, just as the first door was drowned in a hailstorm of bullets, plasma balls and laser fire, a giant slaughter feast. Dust rose again, the door entrance glowed red already as fiery plasma balls rained down on the unit as response, pulverizing the rememnants of the former factory, heated up the air, tried to find vulnerable spots. Still they held fast, seeing the time tick down until extraction. Somewhere something exploded in a large fireball, debris flew around as deadly Shrapnel and left scars on Li's chest, just as a plasma rifle hit her right arm. It glowed shortly, as the heat dissipated, but she

was back in action, adjusted her cover and fired again.

Dust, dust everywhere, and steam. The superheated plasma had dried the air and surroundings to 0 % humidity, it was all in the air now, heated steam, dust and pulverized concrete, plaster ... seeing became ever more difficult, but the green laser beams, red plasma balls, blue charges and whirling of the assault canon's bullets still gave their positions away.

0.5 minutes until they had to get out, and the Migou concentrated their fire. They seemed to have triangulated the position of Walther and a hailstorm of plasma balls rained down on him. "Everyone out, now!" As the Blizzard got hit by multiple plasma balls, his armour evaporated in a second and dozens of warnings blinked red on Bear's display, screaming "Problem" into his eyes and ears.

"Shit!" He leaped away, backward, turned in flight, while the others followed him, giving the best fire support they could. Li opened the new weapon and dropped a grav bomb in the middle of the pack, then they fled, the two Engel catching Walther in mid air and rushing him out of the zone, all the while firing. Hundreds of shells lay around, some their own, some not, the entire area nearly blackened from the fire of the plasma rifles and guns.

In his cockpit Walther breathed heavily, the air filled with light smoke and oxygen content was a bit too low. "Damn, my ventilation got hit, it'll take a few to get it up again." He could see the reports from the damage control system working furiously, as his Mech got patched up at incredible speed. "Don't

worry, you'll be good in a few." Li looked at the Mech: bad damage to the armour, some structural hits, but nothing that would completely kill him.

They retreated as quickly as they could, firing all the way, dropping magazines of ammunition, the weapons cycling at insane speeds, barrels heating up, ever more steam and dust rising. Suddenly they all got a priority signal from LeBeau, automatic target data to shoot where nothing could be seen. They moved their Mecha in unison, matching elegance with speed, not loosing time thinking about or evaluating the data, and let loose. Before it could react, the Dragonfly was vaporized in the air, debris raining down on them.

"Good job. 5 seconds" They made one last jump into the halfway intact wood, found cover behind large rocks and trees (the fallback position they had identified on their map earlier) and crouched low, taking the damaged Blizzard and Khopesh in the middle, shielding them. Just on time they could hear the whirling sound of the artillery again, and then the ground shook heavily once more. Heat waves blasted over them, as tanks and ammunition blew up, entire Beetles and masses of dislodged and disfigured tank parts flew by, the shockwave sending them through the air like little fluffs, separating them from their frail legs and slamming their massive hulls back into the ground.

Li was working under the cover, taking a few spare armour plates she had brought with them and welding them over the Blizzard's nearly breached cockpit. "How're you doing Walther?" Her voice carried the hint of an edge; it was never good to become too emotionally involved with someone from the unit.

"Hrmpf. The auto-doc hit me with a pain suppressor. It tells me I have multiple small flesh wounds and a leg concussion. It looks as if some of the last hits sprayed armour or structure or whatever into the cockpit." His voice was tense despite the medicine. "I can see some blood specks on my uniform, but vitals are stable."

"Roger, I confirm." The captain's stern voice was like an island of peace in the turmoil of battle. "Bear, you keep behind from now on. No open fights. If in doubt, retreat."

"Aye, captain." He sounded disgruntled and obviously disgusted at having gotten so many hits - like a novice. He'd have to take the crap and silly comments later on, for now, there was still a battle to be fought.

As the thunder of the last shell hit and the shock wave had barely passed, they jumped out of hiding again and made a quick assessment of the scene. Their hiding position was badly damaged but had

been re-enforced by a few beetles which had happened to land against the rock and trees, so the position was still good. In front of them, however, the remaining cover of the wood was all but gone and would provide no further shelter or protection. Instead, they saw the factories, the smoke rising from the complex and around, its armour heavily battered, but still standing. They started moving cautiously, identifying potential safe spots and cover, while John selected the next fall-back point nearly 400 m further away than before.

"4.5 minutes only this time."

Time started ticking, as they made their way through the wrecks in fast, large jumps and on A-Pods, melting away the distance to the factories.

"LeBeau, High Heels, Vulcan, move to gate B, the rest stay with me on gate A."

The gates had not been closed in time and hung loosely now in the open garage, screeching loudly in the otherwise dead silent scene. A frail wind had come up and blew the dust and plaster over the field, plunging the scenery in a ghostly reddish blur. The unit separated and moved into position, staying clear of direct fire possibilities from the two gates. Metal and glass, broken beetle parts and chunks of building plaster broke under their heavy feet, making a con-

tinuous cracking sound. The Geiger counters came to a faint life and interrupted the silence with their eerie clicking.

"Light."

Li and Ivanna both took out a semi-autonomous delivery or SADs (ultra-sound analyzer type) and threw it into the gate opening, giving them a quick overview of the inner topography (a large corridor followed by what seemed an even wider space) and followed it with a handful of the same nifty spheres, packed with area lighting (1 hour charge); their Mecha's control computers automatically distributed them over the floor in a more or less even nature and switched them on, bathing the entire gate area (and whatever lay behind) in a ghostly white light.

Not much was to be seen though. It was obviously a large hangar, in which little remained now. The shockwaves had blasted through and had shattered glass to pieces – or had it been shattered before? From the door, it all looked old and unused.

"Team B stay in place. Fire on sight, retreat if necessary. 3 minutes. Li, Ivanna, you both head in with max speed and look quickly, no fight. We retreat in 2 minutes. HighHeels, you do the same for gate B."

"Look, not fight. Out in 2 minutes and retreat. Roger captain." both women sounded off via the intercom.

They sped up their Mecha, weapons at the ready, gathering up the SADs as they went. Inside everything was dead, indeed. No sign of life, dust and plaster everywhere. In the hall however, the remains of storage and servicing spaces remained, the robotic arms fully intact and yet obviously unused since at least 10 years. As they rushed through, their headlights piercing the dark in visible and infra-red spectra, they saw the carcasses of dozens of old Mecha models, but no Migou. The only interesting parts were two large and closed blast doors.

They were out in 1m55 (High Heels made it at 1m59:59) and joined the others in their quick retreat.

"Gonna call HQ to stop the shots and give us time to examine."

As they crouched and shells blasted off again behind them, John send a few messages via encoded channels. As the last salvo hit and the deafening sound died down again to nothingness, he got a short answer.

"Ok, we have got four hours but are advised to seal bunker B. A package will be in shortly to take care of it. Same position as before."

Around them, the scenery had changed only little – the bunkers now barely held together, their roofs cracked in multiple places.

"They have moved the artillery. The telemetry told me the shots were from a different direction." André checked his circuits.

"I know." André's Engel's head shifted around nervously, sniffing, while High Heel's Tarshish's tongue licked the plaster, as if searching for blood. "It actually happened every time. They also changed distance and moved in-between the shots."

A blimp appeared on the radar, immediately identified as friendly. Still, they all stuck to cover. Only seconds later, a drone roared overhead, low and fast, its ugly and massive bulk a blur against the sky. It passed and was gone, leaving only a package behind, falling heavily on its array of airbags.

"Vulcan, pick that bag up and place it in the middle of that hangar. The others of team B wait outside. When placed, press the red button, then retreat as fast as possible and rejoin team A, all of you three.

You have 30 seconds after ignition of the charge to get to us. Roger?"

Vulcan already moved out as he repeated the orders and by the end of it had reached the entrance to hangar B. Half a minute later they were all grouped next to hangar A, counting down the time on their internal clocks.

It took barely 10 seconds, then the ground shock and a shock wave blasted over the devastated fields; the Mecha crouched low behind the second hangar and waited patiently, as a wave of massive heat washed over them and a rain of debris came down.

"…hould keep our tails clear according to HQ. OK, we have 3h45 left, including safety margins. Set your internal countdowns to 3h15 on my mark and evacuate latest at that date." He waited for confirmation, then *"3 … 2 … 1 … mark.*

So, I want Vulcan and LeBeau up front to scout and get intel. High Heels follows for close quarter back-up. Then Li, Bear, myself and Steel Body. Stick together, fire first and ask questions later. You all copy?"

Confirmations came in from the team, as they already lined up. Vulcan and LeBeau had a quick chat but decided to go on as best it seemed – while Vulcan was invisible, LeBeau simply had the better nose. Quite literally.

Content

1
Cast and
Crew

While gathering all the data on modifications and Mecha, I was helped by a small but dedicated group of individuals from the NEG armed forces: the *Raptors* from the 4th European Defence Army, 31st fighter wing. They will at some points in the story contribute to the technical part and sometimes put into focus the information that is important for you, when in action, and that my technical point of view might have missed.

So, let me introduce those of the Raptors to you, that helped me the most and who were finally charged with commenting this piece of work.

Tech Seargent (1st class) Hua "Red Moon" Li

As the picture shows TS Li is female, in her mid-twenties (born on August 7th 2059 in Beijing) and has long red hair. She also likes assault rifles, but most of all revels in her *MV-18 Saber* – custom modified of course.

Li originally comes from China and has completed technical instructions on the *Beijing Technical College* and later the *New Mecha Institute*, both renown for their expertise until 2082. (And obviously both in Exile, in Paris and London respectively.)

She then started to work for the NEG military and was soon assigned to the 31st fighter wing, where she fit well quite well.

2nd Lieutenant Jean "Le Beau" & Virginie "High heels" Le-Compte

The French twins (born April 1st 2060) from Paris are the newest addition to the crew. Still in their apprentice-ship they graduated top-of-their-class and were directly enrolled in the Engel training program and were fitted in 2083 with the 1st generation of ESI interfaces.

Still arrogant to foreigners, they actually enjoy their stay in the unit very much and are appreciated discussion partners (both, for philosophy and war tactics) and Bridge players of the uppermost class.

Stemming from the aristocracy of older France, where the military still belongs to the good tone, they are equally well trained in manners, languages and

customs as in battle. Since the year they're in the unit, it has often served the entire group well.

While *High heels* loves to get into the full heat of combat and revels in the closed spaces where her *Tarshish* can unleash its full potential. *Le Beau* on the other hand favours his sneaky and sniffing *Auphan*, preferring to see all enemies.

1st Lieutenant Walther "The Bear" Hoffmeister

Walther is at the end of his 30th now, born in Hamburg in the beginning of the Arcanotech age June 6th 2048 (making him 37) and the dawn of the Mecha war.

Originally studying advanced engineering and entering the basics of Arcanotech engineering at the University of Stuttgart in 2054 and finishes in '59, four days before the war hits. Drafted by force into the military (he never wanted to join), he takes part in the 1st Arcanotech war and fights many battles in the following ten years. Tired of the war and wounded many times, having lost dozens of Mecha in the mind-numbing war, he finally settles down as instructor at the Berlin military academy as the war ends in 2065.

When the Migou invade earth in 2075 he is uninterested at first to join the war effort, but is recruited into the Special Forces squad of the 31st wing in 2078, as the Aeon War begins.

Fighting ever since, he still pilots the *Blizzard* he has received as recognition for his years long served. Although surprisingly little remains of its original shell …

1st Lieutenant Andre "Vulcan" Malheureux

André, named also "Casanova" by some of the older team members, but not allowing any of the new ones to call him that way, has been with the unit since he finished military officer school 5 years ago. Known especially for the beating he took from Ivanna after his first, not so gallant, proposition, he is mostly known for his excellent skill with the wire lash and the way he handles his *Rapier*.

Born in Lyon in '56, in a mountainous region of France, he is a son of two world's: the cities with females ready to be hunted all around, cinemas, bars and clubs, shiny cars and expensive toys; and the barren lands of the mountains, dwarfing man and rendering you humble again in the face of nature's might.

Being not very bright and not having any future, he did the only thing he could in that place: go to the military, they take 'em all in.

He joins the Aeon War just as it is being declared and quickly finds himself engaged in numerous battles. And while he can't device plans of his own, he is a brilliant follower and excellent scout – nature always called to him.

1st Lieutenant Ivanna "Steel Body" Karamanova

The 29 year old Russian weapon specialist originally comes from Moscow, where she was born on January 3rd 2056. Child of a General of the (still persisting remains of the) KGB and some infamous spy, she went to a KGB elite school, trained in the KGB grounds and became a hardened soldier of the KGB.

Training ever more at the one facility left of the infamous Russian secret agency, she went into black ops early and bloodily. Her hardened muscles, hard face and love for big, bigger, biggest weapons quickly earned her her call sign.

Today she revels in death and destruction from afar, piloting the only amphibious Mech from the unit: a *Khopesh* (there wasn't anything bigger to had).

Captain John "IceCube" McRynner

The unit's captain originally hails from northern Scotland. In the military (and war) since 15 years, he got his own unit after an astounding stand-off in face of the swarm.

The bugs and monsters had killed large parts of the defenders, when some of them (IceCube, The Bear and Steel Body) eventually found each other and started to round up a small counter-offensive, effectively buying the retreat some time and wrecking havoc, carnage and massacre in between the Migou. The fact that some hundred civilians died in the crossfire was carefully concealed in face of the military heroism.

He leads with a cold head; after all the horrors he's seen, few things get to him. Enjoying the freedom of his unit's forward posts, he can still revel in delight when hordes of Migou die around him.

Firmly believing in superior firepower he is an excellent *Scimitar* pilot, regularly giving lessons to the youngster who think they know how to handle such a beauty. And of course, Red Moon has put some special stuff in his Mech, too.

2

www.daveking.com.au

2
Modification

Flowchart

Determine which modifications you want to install

→ **Single Modification** | **Multiple Modifications**

Final CPX = Old Mech CPX + Modification CPX

Pos. modifier (all tests) = nr. of mod inst., up to ½ diff. in CPX

Acquire Mech blueprint

↓

Make the Engineering Test

↓

Make the Technician Test

↓

This chapter handles everything you

↓

Test the design and adapt the pilot

---

ever wanted (or did not want) to know about the process of modifying your Mech, Engel or Powered armour. The main process described is pretty detailed, but easier rules are given in many instances.

2.1   General overview

In the following chapters, you will find quite some instructions and rules on how to modify your Mech. However, in order for you not to be lost entirely, here is a schematic and a decision tree on the entire procedure. For the details, examples and explanations, please read the following chapters.

In addition, you can find some quicker rules on a side bar later on, if you don't want all the hassle of this rather long and complex procedure.

Glitches

Instead of the term "critical failure" two kinds of glitches are considered in the following: a simple glitch is the typical critical failure from CT basic manual (i.e. at least half the dies equal to "1" on a given roll or two "1"s on a two-dice roll).

A critical glitch is when you're roll came up all "1"s. This means that on rolls with 1 or 2 dice you can only get
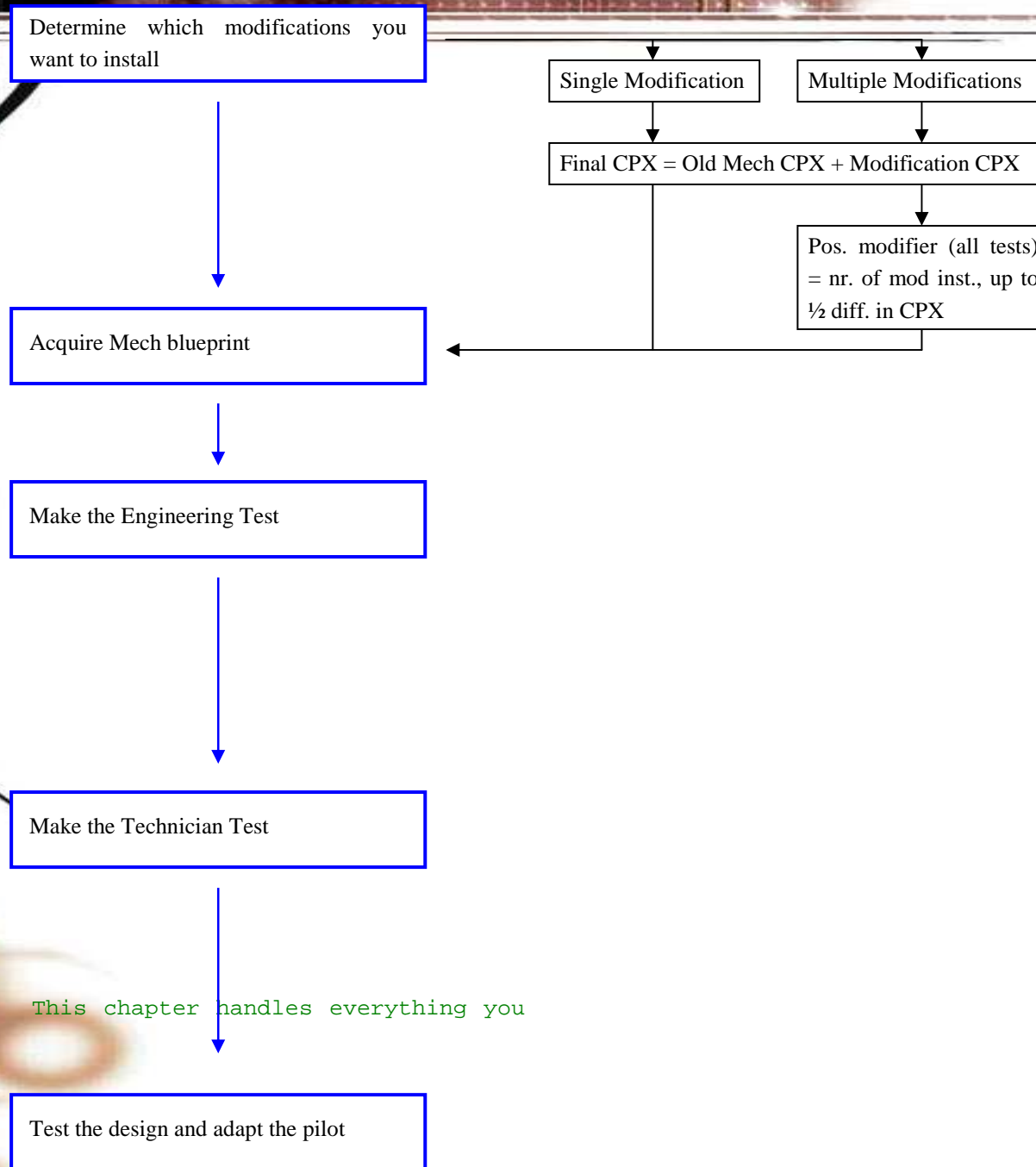
critical glitches but never simple glitches; explain it by the lack of knowledge and thus the increased likeliness of committing errors.

2.2   Tools of the trade

When thinking about re-engineering a Mech, adding new equipment etc., each engineer requires some tools of the trade. The rules pertaining to this discussion can be found in the next chapter. However, methods how to come by the tools and where to find them are also presented here.

What you need

However small the modification you want to implement is, you will need some basic tools in order to perform the engineering and technician part. These are mainly:

Blueprints of the original Mech. If the Mech has already been modified, you need the Mech blueprints including these modifications or the original blueprints plus the modification blueprints.

An engineering office with convenient infrastructure, most notably powerful hologram workstations, state-of-the-art computing power, space, lots of very expensive software and preferably some expert programs that can help you on the way.

Software capable of creating the necessary drawings, plotter and large storage spaces for export of these drawings. Technical illustration and documentation software.

A workshop (small or big) or even a facility for Mech construction. Access to relevant hardware in this shop and a big time slot where you can work on your Mech. Spare parts, new parts, a nanoforge (to create all the small parts you need) and proper authorization codes to create / buy what you need.

Computers capable of understanding Mech machine code and reprogramming a Mech's LAI.

For an Engel, you always need a facility and state-of-the-art biological and magical workshops or facilities for the monster inside.

Naturally, there are a number of skills that you will need, too.

Aracnotechnician is used to implement the changes deemed necessary in the engineering test.

Arcanotech-Engineering is used to calculate and define the changes needed to the Mech in order to implement the modification. It is the main skill, used both to design the original modification and to improve upon this modification.

Computer is used at the end of the modification implementation phase, when the LAI of the Mech needs to be reconfigured in order to accept the new modifications.

Engineering (the basic skill) is needed in order to know the basics of the trade, but also to be able to write a good documentation. While it will not be used in the direct modification of the Mech, it is used to improve the documentation.

Literacy finally is only used to improve upon the documentation. While some might tend to neglect it as a skill, it is very helpful to reduce the time needed to re-apply the modification on another Mech.

Buying basic Mech blueprints

The easiest way to get a Mech blueprint is buying one. You could of course also steal it or reverse-engineer it. The first is up your GM to implement as an adventure, the second is treated in another chapter.

Mech blueprints are no longer the heavily guarded secrets they once were. The war has seen an enormous amount of Mech deployed and as such plans and reverse-engineered blueprints as well as leaks from official sources and the results of daring robberies, have found there way upon the black market. While still riddled with faults and still sometimes difficult to acquire, they still

allow an ingenious person to modify a Mech according to the plans.

When wanting to buy a blueprint, the GM has the last word on whether it's available or not. The maximum quality however (on a scale of -5 to 5, acting as modifier to the engineering test) that can be found on the black market is 2. And even then, the prices are astronomical.

Parts of the original blueprints can also be bought officially, namely the smaller Sword-Mech structural prints, i.e. without weapons, armour and systems, as these also serve as basis for the various industrial Mecha existing around the world. Only such a blueprint is not a good basis for modifications (counts as quality -5) but will aid when combined with other, poorer blueprints (add +1 to blueprint quality for any blueprint with a quality of at least 0).

Buying modification instructions

If you have neither the time nor the knowledge to make the modification plans yourself, it is easiest to just buy the complete modification plan. They come in qualities ranging from -5 to 5 (acting as modifier to the technician test) and can sometimes be found on the open market. As a rule of thumb, availability for non-combatant modifications goes up to quality 3 in official stores and 5 on the black market; military modifications are not available on the free market but up to quality 2 on the black market.
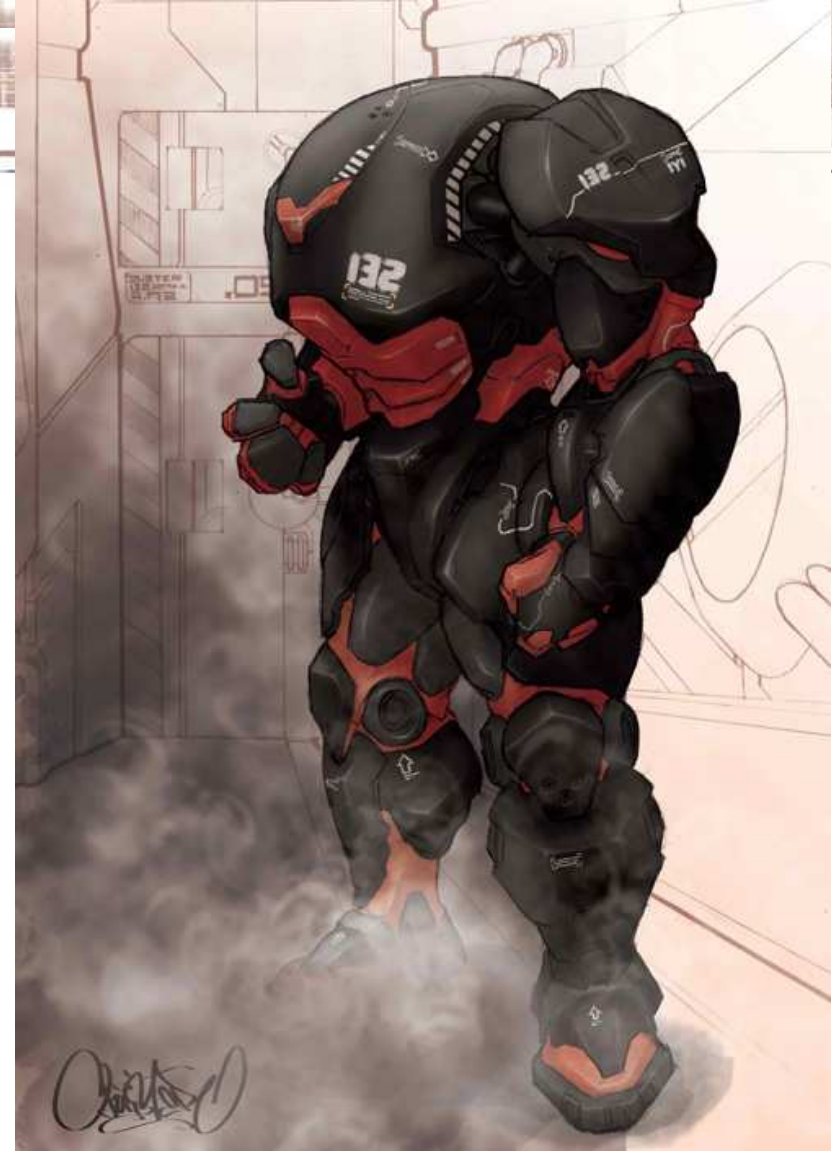
When buying the modification instructions, you can basically directly build the modification from there, although you still need the parts. In general, this saves you about a year of playing with various scenarios and the rigid safety precautions on Mecha. For many people, this is the only way of ever modifying a Mech.

The GM should feel free to incur special "features" on modification instructions that have been bought off the black market. Maybe someone has inserted backdoors, week points or the like into the system in order to have an edge.

Modification kits & Software patches

If you got problems coding software or getting the parts you need, buy a kit or a patch.

Patches are simply installed over the LAI and allow it to use the newly installed modification. Naturally, those coming from the black market will most likely have some additional functionality that is not in your best interest. Sometimes, patches can also be found on the internet in varying quality. Be careful when applying those.

Simple modification procedure

Note the number of glitches and critical glitches rolled during the entire test procedure, as these influence the quality of your work (at the end).

The engineering test takes a base time of 4 x CPX month; roll an *Arcanotech-Engineering very hard* test. The full CPX is counted as negative modifier, team work is possible. For every point below the threshold, increase the time it takes by 10 %, for every point above, decrease the time it takes by 1 month down to a minimum of CPX month.

The technical part takes a base time of 4 x CPX weeks. Roll an Arcanotechnician very hard test. 1/2 the CPX is counted as negative modifier, team work is possible. For every point you stay below the threshold, increase the time it takes and the total modification's cost by 5 %, for every point you beat the test, decrease the time it takes by 1 week down to a minimum of CPX weeks.

In order to modify the LAI to accept the new accessories, roll a very hard Computer test, with a base time of 4 x CPX days. Every point below the threshold increases the time by 1 day, every day above the threshold decreases the time by 1 day, down to a minimum of CPX days.

Finally, you have to test your design. Quick testing takes CPX days, thorough testing CPX weeks and extreme testing CPX month. Do one of these three tests only, extreme testing includes thorough testing which includes quick testing. In case you miss the quick test your Mech incurs d4 major flaws (see the relevant chapter below). In case you miss the thorough test, your Mech incurs d6 minor flaws. Regardless of quick or thorough testing, you still incur one minor flaw per glitch and one major flaw per critical glitch rolled throughout the entire process. When you do extreme testing, your Mech does not incur any flaws at all.

Every pilot wanting to pilot the modified Mech needs to adapt to the new Mech / Engel. This takes CPX days (CPX x 2 days for Engel). If not executed properly, the pilot incurs a penalty to all dice rolls made when inside the Mech equal to the CPX of all newly installed modifications for CPX x 2 days. Reduce the penalty by 1 (to a minimum of 1) every CPX / 2 days.

Patches come in qualities of -5 to 5 which act as training modifier to the pilot. The GM can also incur permanent handling penalties on a Mecha when the patch is not good enough.

Modification kits simply contain all the parts you need. The notes on black market merchandise apply here, too, of course. In addition, the GM should feel free to apply a modifier of -2 to +2 on the technician test, based upon the quality of the kit (quality of pieces, arrangement etc.).

Kits can either be obtained legally (when the modification is legal and on the open market) or through the black market.

Common frames and Mecha

In order to cut the tremendous costs of Mech design and production, many of the civil and industrious Mecha are build on the same basic frames as the military Mecha. Notably the Sword-Line is used in a variety of human civil Mecha all over the world. As such, the modifications designed for this Mecha can be used (albeit with some difficulty) on military Sword-family Mecha, when the underlying frame is the same.

When doing so, apply a -3 modifier to all tests made with the civil kits. Note though, that civil blueprints can never be used on a military Mech except for frame purposes (adding a max. of 1 to the effective plan quality).

Nazzadi Mecha are used very seldom in civil and industrious applications, as they are too expensive. However, some individuals and corporations use them for security work, Mech races and other high-price and prestigious events. As such, plans and modifications might be found, but they are surely expensive and difficult to find.

Engel can obviously never be found on the open market and no frame commonality exists, either between them nor with others.

2.3 Complex modification procedure

Modifying a Mech is not easy. In most cases, you cannot simply slap something on a Mech and then suppose it'll work. Structural attachments need to be made on points of the chassis which can take stress, moment and dynamic loads. Power needs to be re-routed to the new equipment and the load distribution of the internal D-engine needs to be updated to include the new consumer. Finally, command, monitor and data lines need to be implemented in order to ensure that the equipment can be fully used.

In order to perform any modification of a Mech, first consult the modification you wish to use from chapter 2.8. Each modification lists whether it is a Tech job only, or whether it needs a re-engineering of the Mech's internal systems, structure etc. In the former case jump directly to step 2, in the latter start hereafter.

General terms

Whenever the following paragraphs refer to complexity, they explicitly mean the Mech's total complexity, including the complexity added by the modification.

Keep track of all glitches and critical glitches. Every one of them, no matter in what step it took place, will have consequences even to the end of the process. If the product is not tested correctly, flaws and small problems will occur, which depend on the number of glitches rolled.

Multiple modifications at one time

Sometimes, performing one modification is not enough and not practical. Whenever you perform multiple modification at once, you need only part the time which you need if you did each by its own. This is due to the fact, that you can accommodate the additional load, wiring etc. from the beginning and distribute it as best as possible. When you later open the Mech to change the Mechanical parts, you can install it all in one simple go.

Rules-wise, when combining multiple modifications, you get a 1 point bonus for every modification be-
yond the 1st up to a maximum of one-half the complexity of all installed modifications.

Step 1 - Engineering test

The first step in modifying a Mech is to determine how the modification shall be implemented on the chassis, where to locate the new equipment, how to route power and data lines and to compute material bills, costs and an approximated procedure for installation.

Re-engineering a Mech or an Engel is by no means an easy feat. It takes a long time, profound knowledge of the item to be modified, access to blueprints of the Mech and a fully equipped holographic engineering design office. Especially the blueprints of the Mech might be hard to come by, as they mostly are military equipment and as such not available on the free market.

Some modifications might be common enough that plans for them can already be found on the internet or at dedicated workshops. In such cases, the engineering test can be left out. It is also possible of course to record the results of one's own engineering test and make them available to oneself and others for all future modifications.

Determine overall difficulty level

The difficulty level is based on the complexity of the item you wish to modify and on the availability of blueprints, engineering tools and the like.

Table 1: Overall engineering test modifiers

Attribute / Situational modifier	Value	Description
Mech's Complexity	-Full	Use the full complexity value of the Mech to be modified as negative modifier. This represents the difficulty of modifying complex systems without compromising system integrity.
Engineering Tools	-5 to +5	Represents the sophistication and thus the aid given to you by your engineering systems. See the *Engineering tools modifier* table for more information
Blueprints	-5 to +5	Depending on the quality of the blueprints available to you, quickly engineering a new modification become pretty difficult. Use the *Blueprints quality levels* table.

Table 2: Engineering tools modifiers

Value	Meaning
-5	Only rudimentary computer and pirated software. At your home, on your home PC.
-2	Basic computer, basic (university) software. In a PC pool dedicated to construction at university.
0	Good computer, licensed industrial software. Basic holographic display capability and basic analysis software. Typical for small start-ups.
2	Excellent computer, advanced holographic systems with basic interacting possibilities (full AR). Advanced software with automatic error checking etc. Small established enterprises.
3	Regular working station in a large enterprise (Airbus, BMW, Mercedes)
4	Powerful work station in a large enterprise or a small high-technology level enterprise (NASA).
5	Full VR systems with full sensory immersion (similar to D-engine effect), state-of-the-art computers and software. Military, top-level research institutes (secretly funded by the military)

Table 3: Blueprint quality levels

Value	Meaning
-5	You made the blueprints yourself by measuring the Mech with a rudimentary 3D-laser measurement device.
-2	Poor black market blueprints available at regular prices.
0	Standard blueprints as available on the black market for high prices.
2	Quality blueprints with high quality details. Minimum standard for industrial use. Might be available on black market for astronomical prices.
5	Original high quality blueprints from a big enterprise or the military, who have the means to do things correctly. Never available on the black market. Typically would fill some Terabytes of data for a single Mech.

What happens if you do not have the blueprints? Normally, this means that any engineering test is impossible. However, there is the possibility of reverse-engineering any device. Please see the appropriate section for information on how to deal with his feat.

Engineer the modification

Normal enterprises work with a large number of engineers in very good conditions in order to keep development times down. A five man crew can be considered standard for minor modifications on complex systems.

Improve the modification

design, improving the documentation is more time consuming: add 1 week to the time interval.

Critical glitches incur a -1 penalty for the technician test in step 2 (cumulative) as well as introducing major flaws in the reasoning and your notes, effectively reducing the quality of your documentation (see next step) by 1.

Improve your documentation

When finished the previous step, you have produced blueprints of quality 0. In order to upgrade the quality of your blueprints you must succeed in a series of engineering and literacy hard tests with a timer interval of $1/5^{th}$ complexity weeks. Each successful test increases the quality of your blueprints by 1. The maximum achievable quality is 5.

Any glitch doubles the next timer interval, a critical glitch reduces the quality and maximum attainable quality by 1 by introducing flaws and errors that you do not detect.

Step 2 - The technician test

Now that the engineers have (hopefully) successfully made the analysis of the Mech and determined where and how the modification should be implanted, it is time for the technician to implement these changes, i.e. to cut open the armour, add the structural re-enforcements needed, lay out the wiring and make all the connections. Finally, the technician makes a software update to let the Mech's LAI know what to do with the modification.

Changing the Mechanical & electrical parts

Adapting all the Mechanics and electrics of the Mecha, installing new hardware etc. is treated as a single extended Arcano-Technician hard test, with a test interval of $1/5^{th}$ (round true) complexity in weeks and a required number of successes equal to the Mech's complexity.

Every glitch increases cost by 5 % (as new parts are needed) and doubles the time interval of the next test. A critical glitch increases costs by 15 % and doubles the time interval of the next test.

This test is modified by the following criteria.

Table 4: Technical modification modifiers

Attribute / Situational modifier	Value	Description
Mech's Complexity	-½	Use half the complexity value of the Mech to be modified as negative modifier. This represents the difficulty of integrating additional modifications on complex systems.
Critical glitches in improvement test	-1 each	The critical glitches in the design improvement phase have let to confounding requirements and some misunderstandings about the implementation. Wires cannot be installed where they should be, some structural reinforcements are missing and the like. This demands better ideas from your side.
Documentation	-5 to 5	Use the quality of the documentation as modifier, as it helps you (or not) to see what really needs to be done.

Software update

When all parts are finally in place, the LAI needs to be updated with the newest specs of the Mech and needs to be provided with the correct parameters, input / output protocols and data ranges in order to interpret and manipulate correctly the modified parts of the Mech.

In order to correctly program, make an extended hard Computer test with a time interval of $1/5^{th}$ the complexity in days and get a number of successes equal to the Mech's complexity.

32

Step 3 - Testing, Inherent flaws & Pilot adaptation

Normally, the Mech should now be tested thoroughly and undergo a series of very hard, maybe even destructive, challenges to demonstrate that the expected modifications and improvements in the system work as intended. Practically, most people will not take the time to do this properly. This, however, can lead to serious issues.

Testing & Inherent flaws

Take the total amount of glitches and critical glitches you rolled in the entire modification process until now. They effect the probability of your customized Mech having minor or major flaws.

- Every normal glitch adds 1 % to the probability of a major flaw and 3 % to the probability of a minor flaw.
- Every critical glitch adds 5 % to the probability of a major flaw and 10 % to the probability of a minor flaw.

The base probability for a major flaw is the Mech's complexity, for a minor flaw double the Mech's complexity.

Minor flaws should be a nuisance to the pilot, but not

affect the rules except under exceptional circum-stances. Examples for minor flaws are:

- The need for more oil / grease / water than is normal.
- Whirring, unnerving sounds when moving.
- Sticky patches along some movements.
- Some flaws in the personality (Engel) or minor issues with the LAI (Mecha).
- Uncomfortable controls or non-ergonomic controls.

Compare minor flaws to cheap cars, where some things just don't fit.

Major flaws on the other hand represent an issue with the design of the Mech. They should be repaired else you suffer some complications during usage of the Mech. This takes time however: Make an extended hard Arcanotechnician test with a time interval of the Mech's complexity in days and a number of successes needed equal to ½ the Mech's complexity.

Pilot adaptation

When all is done and the Mech is ready and tested, the pilot needs to get used to the modifications implemented. This means a lot of exercise again. It is handled via an extended hard Pilot test with a base time of 1 day for Mecha and 6 hours for Engel; and a number of successes required equal to the Mech's

complexity. The test incurs a negative modifier equal to 1/4th the Mech's complexity (round true).

Note that you can go into action before, but you then have a penalty of 1/5th (round up) the Mech's complexity on all actions you take in the Mech.

Any glitch will simply mean that the roll does not count (so you loose one interval). In a case of a critical glitch, handle it as a training accident. One way to keep it quick is that the pilot occurs 2d10 of wounds (apply no armour) and the Mech receives 3d10 of damage (apply no armour) which need to be healed / repaired as per normal rules before adaptation can continue.

2.4 Characterization of Mecha

Mecha have a variety of attributes that make up the entire individual machine. Depending on the design of the frame, modification and maintenance might be a simple task. When fitting a maximum number of items into a Mech, however, space becomes scarce and maintenance and further modification become ever more difficult.

A Mech is such characterized by the following attributes, in addition to what is written in the base manual.

Complexity (CPX)

Complexity describe the level of integration of a Mech. It thus also serves as a roll modifier for maintenance and further modification, as well as an indicator for how difficult failure scenarios are to figure out. Complexity does not cover the availability of spare parts and the like, which is covered by the "Availability" attribute.

Complexity is rated on a scale of 1 through 30. It is applied as a negative modifier to any of the following tests.

- Engineering Test – Use the full complexity as negative modifier
- Technical Test – Use ½ the complexity as negative modifier
- Pilot Test – Use ¼ the complexity as negative modifier

Sample complexity values can be found in the following:

Table 5: Complexity scale.

Value	Sample
0	Normal ground car without A-pods; sophisticated electronic device
1	Normal ground car with A-pods; state-of-the-art electronic device
2	Powered armour (human); experimental elec-

	tronics & prototypes
3	Powered armour (Nazzadi)
4	Powered armour (Deep Ones)
5	Mech (human)
6	Mech (Nazzadi & Deep Ones)
7	Mech (Migou); civil aircraft; Nuclear power plant
8	Military aircraft; Fission power plant
9	Prototype military aircraft; basic space rockets
10	Engel (1st generation); regular Earth orbit spacecraft
11	Engel (2nd generation); older hull-class (human)
12	Hull-class ships (human)
13	Hull-class ships (human, prototypes); inter-planetary spacecraft
14	Hull-class ships (Migou)
15	Engel (next generation prototypes); inter-planetary colony spacecraft

This table continues further but is then only applicable to heavily modified craft. There are some limitations however on how complex any given object can become. These are

Table 6: Maximum complexity values.

Value	Tech Kind
20	Any human equipment except Engel
25	Nazzadi equipment
30	Migou equipment, Engel

No equipment can ever exceed these values; if any given modification would exceed this value, the modification cannot be installed. This represents the fact, that the tools and methods used by the various nations / races / technologies can only go so far and only have so much potential.

Modification Space (SPC)

Every frame only has so much space to cramp things in. This is of course due to the sheer size of the frame and to its layout. For instance, the human Sword-class Mecha are more sturdy and bulky than the Nazzadi counterpart, thus having more space for modifications. Engel on the other side have only very limited space, since they need to accommodate the creature within.

The basic space limits by frame are found in the following table. They are then modified by the space modifications table.

Table 7: Maximum space per frame.

Frame type	Space
Tiny	28
Small	44
Medium	62
Large	85
Behemoth	110

Each modification requires some space, though there are options to the modifications (see later), which reduce or increase the size by trading cost and complexity. Either consult the table 9 or calculate yourself and round up. Also note that the amphibious entry is cumulative with the others.

Table 8: Frame space modifiers

Technology	Space Modification
Sword-Class	x 1.55
Engel	x 0.95
Nazzadi technology	x 1.2

Each modification has specific space requirements. For a more detailed explanation of those, please see the next chapter.

Combining tables 7 and 8 gives you an overview of space allocation for various frame types and technologies.

Table 9: Complete frame space table

Frame	Technology		
	Sword	Engel	Nazzadi
Tiny	43	27	34
Small	68	42	53
Medium	96	59	74
Large	132	81	102
Behemoth	171	105	132

Power Production (PWR)

Every Mech has an internal D-engine, though the size and power output of the engine varies. Normal engines provide enough power to fully operate the Mech and all its vital sub-systems (sensors, actuators for walking etc., communication, life support) and to fire the main weapons - fully or partially. For instance, only one charge beam can be fired per round.

Table 10: Power modifiers

Technology	Power Mod.
Sword-Class	x 0.85
Engel	x 1.06
Amphibious (cumulative)	x 1.1
Nazzadi technology	x 0.9

The power attribute of a Mech describes on an abstract scale how much power output the D-Engine can provide per combat turn to secondary consumer systems. These systems are defined as all systems not directly related to the basic functioning of the Mech. As such, the D-Engine will always power (and will in stress situations shed load from all secondary consumers just to keep these primary functions alive) the primary functions:

- Ground movement (walking, not A-pod) or limited A-pod for down-floating when in the air
- Life support
- Communication
- Visual & Audio sensors
- Basic manipulation / movement (can hold things, but cannot fight)
- Ejector seat

All other systems are secondary systems and can be shut down by the internal load shedding function. Professional and daring pilots might override these internal functions in order to squeeze more power out; but the load shedding equipment is not intended for this and might be damaged. An Engel cannot redirect power from primary systems, as these are mainly biological systems which cannot be powered down.

It is possible to override primary systems. The pilot declares which system he wishes to override at the beginning of his turn and takes one action do roll a Hard piloting test or a Challenging arcanotechnician test.

If successful, the concerned system is powered down and its power is available for the pilot to distribute. If there is a glitch, the Mech powers down both systems. In the event of a critical glitch, the Mech powers down for 2d10 turns.

The following table lists power output and usable power for various D-engine sizes.

Table 11: Mech power output (normal)

Mech Type	Base Output	Usable Output		
		Mecha	Engel	Nazzadi
Tiny	49	42	52	44
Small	69	59	73	62
Medium	86	73	91	77
Large	108	92	114	97
Behemoth	130	111	138	117

Table 12: Mech power output (amphibious)

Mech Type	Base Output	Usable Output		
		Mecha	Engel	Nazzadi
Tiny	54	46	57	49
Small	76	65	80	68
Medium	95	80	100	85
Large	119	101	126	107
Behemoth	143	122	152	129

It is important to note that a Mech does not need to have enough power to cover the power expense of all its equipment. The pilot can switch on and off any non-primary system installed (unless stated otherwise) to distribute power as he sees fit.

2.5 Modification attributes

Before getting to the modification themselves, lets discuss the modification attributes. Like the new Mecha attributes, each modification characterizes the equipment you wish to install: size, weight, cost, maintenance … all these factors come into play when modifying your Mech.

So while you might build the ultimate nightmare, even minor damage on the battlefield could render your Mech useless, as the special equipment you require is nowhere to be found.

Availability

While most basic items can be constructed off the nano-forge of your favourite Techie, advanced pieces of equipment, integrated circuit boards, optical switches and the like are either not so simple to synthesize and require special equipment or are simply only available by retail; this is especially true for Mecha equipment, where reliability and quality of an equipment play an important role.

So while it is possible to have very advanced pieces of equipment in your Mecha, it might get difficult to acquire replacement parts, leaving your top-of-the-line equipment a dead weight in combat.

Availability is a number between 1 (very common) and 20 (exceedingly rare).

In order to acquire the replacement parts or equipment you need, roll an extended challenging Bureaucracy or Streetwise (military

or black / open market) test with a base time of 1/4th availability in hours. You need to generate as many hits as the modification's availability rating.

Complexity

Increasing number of parts, multiple redundancies, parts from different vendors, maybe even different technologies: they all make the Mech an ever more complex machine.

What makes modification complex is the sheer amount of parts it has, in addition to the number of wires, inter-connections with other system (for instance to the movement processor, to receive information about speed, heading etc.), redundancies to survive more damage and the simple degree of sophistication of the modification's individual parts.

Note that complexity not necessarily means state-of-the-art. In fact, quite a number of state-of-the-art systems are fully self-contained and thus not as complex as their older counterparts.

The complexity of a modification is added to the Mech's total complexity. It is a number between 0.1 (simply integrated device) and 5 (highly complicated integra-

tion).

Cost

Every modification has a certain cost. While generally linked to the complexity, some modifications are already mass-produced although being quite complex. These items are of course less costly.

While of little interest to the average military grunt who just receives the equipment from his superiors, individuals and companies employing Mecha for their own reasons (sporting, industrial work, heavy security) need to keep an eye on their spending.

Failure Code

When the damage inside your Mech starts to affect the more vital systems, some of your modifications and weapons will start to shut down. Might be that they no longer get the resources they need (power, data, control) or that internal safety mechanisms simply switch off the equipment in order to protect you and your Mech.

Unfortunately, while safety could be overridden on older models, it has been statistically proven that the average survival time of a soldier is higher when the safety kicks in, than when he overrides it and risks permanently damaging himself and the Mech. As such, the actual lines of

37

Bypassing failure codes
GMs might rule that some Mech is from an older production batch, still allowing bypassing failure protection. In this case, equipment can function up to one failure code higher (until physical damage becomes too high). Roll a hard pilot test. If successful, the equipment functions. On a glitch roll 2d10 damage (no armour allowed) for the Mech due to equipment overload; the equipment needs to be serviced and will no longer work. On a critical glitch, the equipment explodes together with a major power line; equipment must be replaced (cannot be repaired), 3d10 damage to the Mech (no armour) and 1d10 for the pilot (no armour).

Mecha do no longer allow bypassing the failure protection.

Maintenance

Someday your Mech will break down. In addition, you need to catch every month's inspection and the regular tech meets after each fight. In case you have gotten some of the sophisticated not integrated (and therefore customizable) equipment that was advertised about on *WorldNew Inc.*, you are in for a world of trouble with your resident Techie.

In fact, complex systems are often easy to maintain: they contain heavily integrated systems, with most of the system's functionality upon a few circuit boards. For maintenance, the task is easy: plug into the on-board maintenance and testing equipment, download the error report and the list of broken parts, then change them.

On the other hand, the mechanical systems, which can be fixed with tape and wire, are complex to maintain: large numbers of wheels to grease, cables run-

ning everywhere. The same goes for heavy machinery.

Maintenance is a number between 0 and 10. It is added to maintenance tests (see chapter 2, rules additions) as a negative modifier. Add together the base maintenance of the Mech and the modifiers from all installed modifications.

Power

Today, there is not a single system on any Mecha which does not need power. Sure, you can still hit your opponent with the hyperedged acid-dripping blade, but in case you botch it and the blade gets

damaged, you will not know, as your sensory systems are down.

This is because normally thousands of systems run off the power of your D-Engine to give you status reports, move you and the like. And as such, every modification and weapon you install in your Mech, tries to access this same limited resource of power.

So when you install the modifications, keep an eye out on how much power they want. It could very well be that you can only run part of your modifications at once.

All modifications are given with two power attributes: standby power required to keep the modification ready
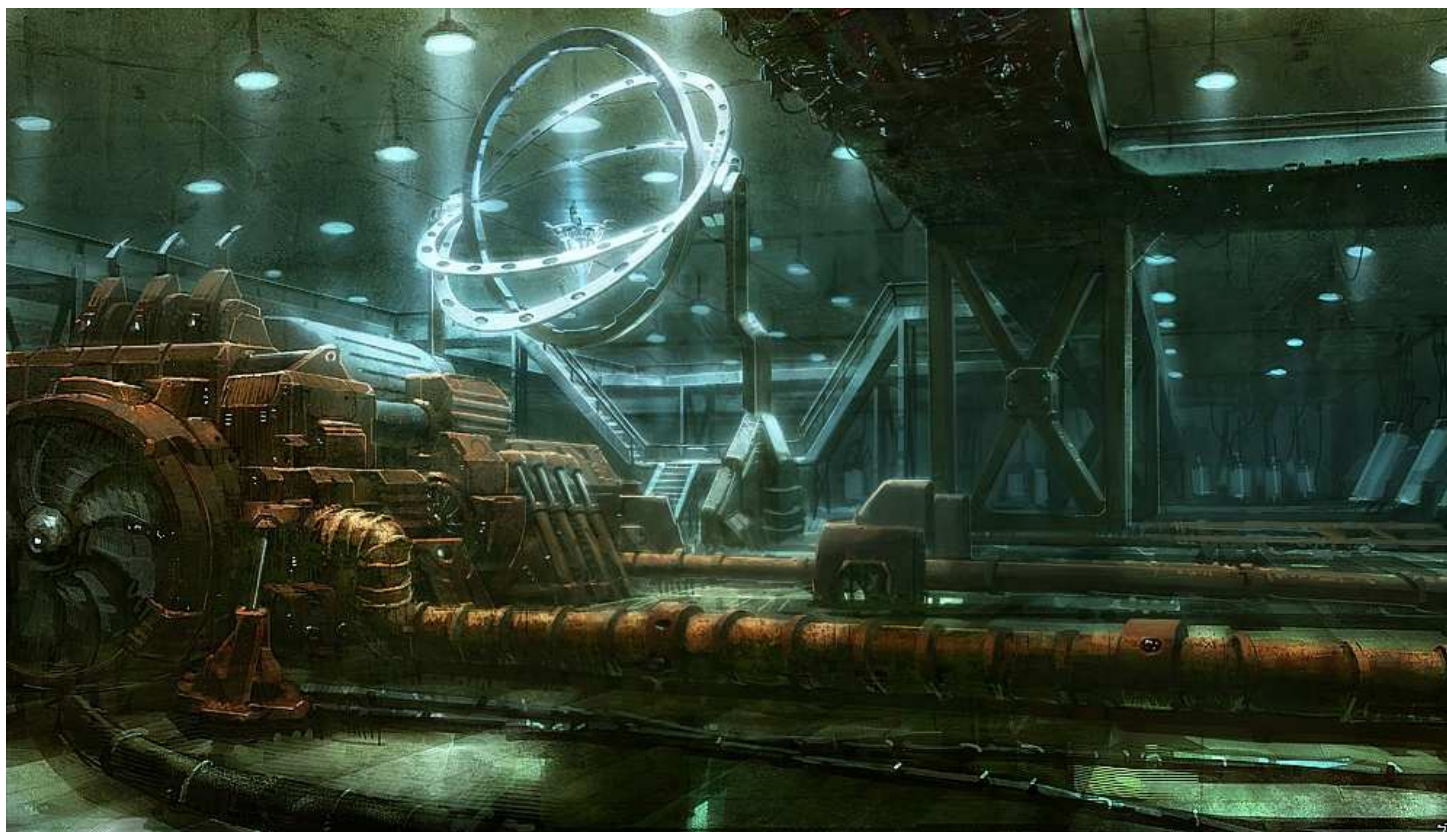
(must always be supplied) and operational power, required to be supplied when used. For more detailed rules, see the next chapter.

Space

Each modification needs some installation space. Sure, this can be reduced (see modification options), but only by increasing cost, switching to more expensive and rare equipment and by generally inconveniencing you more than helping you.

2.6   Chassis Modification

Before we finally delve into the list of modifications, first let us discuss some options you can apply to the chassis only.

This will either require that you build the Mecha from scratch and incorporate the options from the beginning, or will require a complete chassis re-engineering, which is quite long in the undertaking, and requires access to a true construction factory.

Unless otherwise noted all % values are always based off the base power (i.e. after modification by tech-type and evt. amphibious modifications) and space. They do not "stack", i.e. each one is calculated independently of the others.

Suppose a large (85 pwr, 105 spc) Engel (modifier 1.06 / 0.95) which is amphibious (pwr x 1.1). It has an unmodified base pwr of 126 and spc of 81 (Ish and Hamshall for instance). All % values are based off these two values.

Additional Power

Li stood before it, face held in awe, the same incredulous look she always had when looking at it. Yes, it was not only powerful, it was also enormous! How could you build something this large? Incredible! What an engine! She always marveled at the Nazzadi and their engineering and how they were able to push an engine so far beyond what it would normally look like.

Unlike decreasing the engine size, getting more power out of it, and thereby making it bigger, is not that difficult. By enlargement of the arcanotech containment field, altering the third terms of the transdimensional power equation and also tapping in the secondary arcane-quantum flux a stable field can be generated which produces more power. The downside is of course the bulk that comes with it and as such the probability to hit the engine in combat.

Retrofitting is, as always, very difficult. Basically, you need an entirely new engine; building one to specs is possible and not too difficult, but is not done often due to the cost. In practice, existing engine designs are shared.

On all normal (i.e. not small or very small) engines, you can add any number of additional power. Each power point costs 1.1 space points. There is no upper limit. However, for every five points such used, the likeliness of an engine hit is increased. Roll 1d100 and see whether the engine has been hit after each combat round in which you were successfully hit by a weapon against your add. pwr. points divided by 5 (round up). If an engine is hit, the Mecha shuts down and essentially operates on backup power (20 % of main engine power, 2d10+5 turns).

Amphibious

While all equipment installed in a Mech is subject to rigorous and demanding testing, it is seldom tested nor developed for longer periods of submerged operation, nor the pressures of the deep ocean.

However, by applying alternative engineering solutions, switching to high-stress materials, introducing pressure seals, corrosion resistant materials and joints and subjecting the equipment to underwater testing, a modification or Mech can be cleared for underwater use and is consequently classified as amphibious.

Operating in water also allows for alternate power system cooling and more radical and aggressive cooling policy. All amphibious Mecha produce another 10 % of power when operating in water (and in the 30 min. after having operated in water).

Note that in order to be able to operate in deep water, in addition to this modification (which is merely the chassis preparation), you also need to install *Depth Reinforcement* and *Cold Resistance* options. In the following you will find the values for the simple modification and for the modification including the two options.

Increases cost & availability. Does not affect complexity. Also increases available power by 10 % when operating in water. This is a modification to base power; all other modifications to power use this modified 110 % of base power.

Compact Construction

Integrated Defense Systems Europe's (IDSE) research team had been working straight for almost four years now and finally they had gotten it right: using advanced alloys, enhanced manufacturing techniques, reducing wafer sizes and using a new breed of lasers in even shorter wavelengths, they had reduced the size of the average integrated electronics board of Mecha control systems by 20 % while keep-

ing the price increase to an acceptable factor of 20. At the same time, their mechanical partners reduced the average component size by 10 % for a price increase factor of only 12. True scientific breakthrough. And no matter the price, the military would buy it anyway. The CEO rubbed his hands together while calling his agent to send in a few more company ladies.

Regular systems inside Mecha and other high-duty machinery have to walk a fine line between being robust, having sufficient reliability, redundancy and being small. In general, robustness comes at the expense of either size or price, with the price tag being very high. However, some designs (and especially so the Engel) simply need the additional space, no matter the expense and supply difficulties. Engineers have thus devised an increased number of highly compact items and equipment, which is built out of the most expensive and durable materials to be found, made of exotic optical chips and other state-of-the-art components.

However, as these items come at a more than heavy price tag, you will not find them in your average military depot. Quartermasters are keen to keep the number of circulating items heavily under control and in low numbers and it will take more than just a bit of pretty talking in order to receive one of these.

As a general rule, Mecha are never retrofitted or modified to incorporate compact designs, due to technical challenges and supply concerns. They are simply built from scratch according to the new specifications, as this is cheaper and quicker. However, the good news is that for all regular NEG designs, modified blueprints and standard items for compact designs of all so-called levels are readily available and a few of these units are even kept in stock.

Each level of compact design induces a 5 % chance of general failure into the Mech; as a GM, roll 1d100 whenever you feel like it (but not more often than once a playing day or every time the Mecha takes more than Integ / 2 (round up) damage); if you are beneath the chance (5 for lvl 1, 10 for lvl 2, 15 for lvl 3), something vital fails (actuators, power ducting, central processing units) and the Mecha is basically incapable of being used (adapt it as required). Engel do not need to roll.

Increases available space by 20 / 15 / 8 % of base available space on 1st / 2nd / 3rd level (cumulative, so total of 20 / 35 / 43 %).

Robust design

When some equipment is extremely important to you or your mission, you can go out of the normal way of ensuring robustness and design for a robust system.

By using components that are subjected to even more demanding testing and quality assurance than normally you ensure component-level quality and low failure rates. In addition, essential components are installed redundant, sometimes up to three or four times. Electrical commands are typically doubled by wireless and optical command paths with advanced error checking and lots of spare capacity. Wiring is heavily segregated and routed through different parts of the Mech altogether.

That such a design is usually expensive and rather bulky as well as increasingly complex is a drawback that sometimes seems small in comparison to the expected benefits.

Increase cost, size and complexity. Availability is not affected. Increase failure code by one category.

Small Engine

Watching his stocks, the CFO of D-Power International (DPI) had to smile. Ever since they had brought out the new compact engine design, their sales had flourished. And he didn't even have to send his researches to the psych ward, as they had accomplished it all through classic engineering feats. A shiver ran down his spine, but he knew he had to. Placing a call, he feared that he would see once again the minds behind this breakthrough: large and

floating and everything except human. Whatever had driven them to provide him this tech he did not know ... but that every few reactors in a hundred had a killswitch, that he had found out.

Devised by Chrysalis but sold to other less suspicious companies in order to keep sale basis diversified, the SE uses a smaller D-Engine but with much better power converters and an complete overhaul of the power grid with much more expansive materials in order to keep power losses inside the Mecha at minimum and have an increased yield and efficiency rate of the D-Reactor itself. By doing so, the total power available diminished and the result was an engine which is no longer modifiable in any way; however, the space gained can sometimes make the difference between a viable and non-viable design.

Again, integrating this option into an existing Mech is nearly impossible, as virtually every power line has to be replaced and the D-Engine replacement itself involves an awful amount of structural engineering and re-building in order to accommodate it. As such, it is again easier to simply take any of the available NEG designs (or even on-stock units) and build it from scratch. But as so often, these units are expensive and seldom used on the battlefield.

Every few engines in a hundred (roll 1d100 for a 1-5) has a kill switch and can be killed whenever the

GM deems it appropriate for the Chrysalis Corp to shut him down.

Decrease pwr by 20 % and increase spc by 18 %. Cannot be combine with additional power.

Very Small Engine

Anthony sighed as he signed the "not fit for duty" field and placed another folder in the red box marked "for the ward". As his assistant mixed the regular drugs with a strong sedative and the first of a long chain of neurochemical drugs, the scientist before him fell into a deep slumber - he knew where he would awaken: in private facilities, clean and friendly, together with far too many others, secluded form real life, until he would get sufficiently social and human again. Or his 6-month grace period ended and his miserable life ended. In the meantime, life went on and he signed the "fit for duty" field on the tech's replacement's form. A brilliant youth of maybe 28, father of two, with a beautiful wife. He would probably be "unfit for duty" in 7 to 10 month, and dead a year and a half from here. And all to make a damn Mecha engine ever so smaller. He seriously wondered it was worth the effort and wear of man-power.

Through extensive arcanotech engineering and pushing the boundaries of the humanly (and in-humanly) possible, Ashcroft has started to produce in a very limited number a new breed of D-Engines, dubbed the "very

small engine" (VSE) by the military. Using new and strange equations (even for the likes of Ashcroft), the engine is incredibly small (but has a low power output) - and can today only be installed on Engel or on Mecha equipped with especially prepared pilots. In fact, it appears as if some of the extra-dimensional aspects "leak" through the engine from time to time. In an Engel, it will be the creature inside which will absorb the "leak" - eventually driving it into a frenzy. If the pilot takes it, one can only hope he has the psyche to deal with it.

Every day of operation, roll 1d100. On a 1 to 3, the engine leaks. In an Engel, the Engel immediately enters a frenzy and attempts to shut out the pilot. Roll a hard tenacity test to hold him under control and a challenging tenacity test to avoid 1 IP (or let him enter the frenzy and shut him down); an Engel thus frenzied will require 1d6+1 days of "relaxing" before going into duty again. In a Mech, have the pilot roll one hard and one legendary tenacity feat for 1 IP each.

Decrease pwr by 75 % and increase space by 55 %. Cannot be combined with additional power.

2.7 Modification rules

A few rules apply to modifications, which are detailed in the following.

Powering down / up

Normally, modifications need to be supplied with standby power. However, a pilot can completely power down modifications. When powering them up again,

however, the pilot needs to make a hard pilot test; on a glitch the equipment does not activate and requires maintenance. On a critical glitch, something goes really wrong and the equipment is destroyed.

Powering any modification completely up or down takes a base time equal to 5 times the modification's complexity in minutes. The Mech may not be in com

bat, as systems need to re-calibrate and set up.

Switching on and off

The pilot can switch any system from standby to operational and from operational to standby with one free action at the beginning of any combat turn. The system comes online / goes into standby at the

beginning of the next combat turn and cannot be used in the current combat turn any more.

Table 13: Weapon power & space needs	Power (On)			Power (Off)			Space		
	S	M	L	S	M	L	S	M	L
Acid Drip							0,5	2	4
Charge Beam	23	35	50	10	17	25	10	15	20
Flamethrower	2	4	6	1	2	3	2	5	7
Grav Bomb	2	5	15				3	5	7
Hyperedged Blade							1	2	3
Hyperedged Claws							1	2	3
Hyperedged Spur							2	3	4
Laser Canon	6	13	17	3	6	8	8	12	15
Lightning Canon	4	8	11	2	4	5,5	4	7	10
Long-Range Missiles	2	2	2				25	25	25
Mandibles							0	1	2
Plasma Canon	5	8	10	2	3	5	5	7	10
Rocket Pod	4	4	4				12	12	12
Stinger							1	2	3
Teeth							0	1	2
Tentacle Sheath							2	3	4
Tongue							2	3	4

2.8 Modifications

Finally, here it is. The exhaustive list of modifications you can apply to your Mech. Read first and enjoy, then think about the consequences. But take your time and build your dream Mecha in your head.

Additional Integrated Weaponry

1st Lieutenant Karamova grinned as the anti-Mecha unit advanced on her position, oblivious to her being hidden between the rocks and seeing them advance. The Crusaders were advancing slowly, looking for a good hide-out, their magnetic charges still deactivated on their back. They were professionals, scanning the surroundings and keeping radio chatter zero. As they approached, she leaped out from cover and extended her right arm. With satisfaction she noted the last emotion on the Crusader's faces: the shock when they saw that instead of a right hand there was a P2AR plasma assault rifle installed. And then she distributed the pain.

Nearly any weapon can be installed in a Mech, in addition to whatever there is already. It is of course a matter of available space and recoil compensation / mechanical loading of the part in question, etc. But by removing hands or even entire arms, space can be made and the weapon can be attached to a solid mount. In addition, the steering and firing software is updated and the balance profiles of the Mech are re-adjusted. Especially the latter is important, as a wrong adjustment can lead to the Mech becoming nearly uncontrollable.

Anti-BA Measures (small + only)

Ivanna swore as a host of Selkies jumped on her Khopesh and started to claw away at her armour from behind, trying to beat their way through layers of metals. She stopped firing for a moment and diverted some energy off her weapons, giving the Leviathan in front of her a pause- then fired the frying circuits on her Mech's exterior and watched as the Selkies fell off her, the pilots stunned and dazed by the shock.

As the anti-Mecha weaponry (see chapter 3.2) started to pour on the market and many factions became ever more

aware of the large benefits PA could provide to their troops, the NEG quickly designed a host of defensive measures that could be easily and quickly applied to their existing fleet of Mecha.

Surface charges envelope the entire body of the Mech and can be discharged locally per region (each arm & leg, front, back & head). They hit every assailant on the touched region with the same damage (up to a max. number of charges on the region); roll damage once.

Electric Charges

For long duration missions especially (and cost reasons) fully reusable systems are often preferred, though they tend to have their draw-backs in effectiveness. The ESF (electric surface fryer) installs additional heavy-duty high-capacity capacitors along the frame, beneath the armour. They slowly draw power from the reactor, when overhead is available and store it. Whenever the pilot chooses, intense voltage spikes are induced in the exterior armour plates, shocking anyone on them and hopefully deterring any assailants.

The systems recharges 1 shot every 10 turns and can be quick-charged at 1 shot every 5 turns (see power consumption). It deals 2d10 electrical damage to anything contacting the surface (infinite charges) and can be fired twice a turn. It stores up to 4

charges. When activated on the head, the Mech looses all sensory information for this and the next turn.

Exploding Surface Charges

A small additional layer is placed upon the armour, along with explosive charges embedded in the armour, shaped to explode towards the outside. When triggered, the outer armour layer is expelled (with anyone clawed to it) and the charge below deals a destructive blast to the assailant. Unfortunately, the system has to be repaired after use and might be accidentally triggered by a shot hitting the charge.

One-shot system, with 5 distinct charges per region (which are all activated simultaneously). Assailant is thrown off and receives 2d10+10 hybrid damage from the explosion. When the Mech is hit roll 1d10. On a 1, one of the surface charges on the location hit explodes: reduce nr. of charges on that region by 1.

Point-Defence Laser

Nine small laser canons are installed along the Mech's body and limbs, able to shoot down smaller Mech climbing on it. They fire focussed high damage beams, which unfortunately have an extremely short range, such that it is impossible to use them in real combat, but renders them devastating in short

	Power (On)			Power (Off)			Space		
	S	M	L	S	M	L	S	M	L
Anti-BA, electrical (norm charge)	5	10	20	0	0	0	2	3	4
Anti-BA, electrical (quick charge)	10	20	30	0	0	0	2	3	4
Anti-BA, exploding	1	1	1	1	1	1	3	5	8
Anti-BA, laser (per laser)	2	2	2	0,5	0,5	0,5	2	2	2

range. They draw power off the main reactor and are known to lead to occasional power shortages.

Every region (each arm, leg, head, torso front / back) requires its own laser to be protected. It is possible to only protected selected regions. Damage 4d10, 2 shots / turn, range 1 m. Treat it as a normal combat contest with the laser having an attack score of 15 + 3d10.

Armour Upgrades

Sometimes the damage you can take in a battle is just not enough. Seen your buddies chewed up by Migou, monsters or other horrors? Noticed that just an inch of additional armour could have helped?

This modification attaches additional armour plates to your Mech or exchanges existing once to a heavier or more sophisticated variant. It can actually also reduce the armour, if wished. Older (but cheap) 1st generation polycarbonate, Teflon and Titanium armour is replaced by newer nano-tube re-enforced carbon-diamond dust sheets fixed on energy-absorbing (and more flexible) carbon layers.

What is also does to your Mech is eating up nearly all the available space and slowing your acceleration. After all, the additional bulk and weight has to go somewhere. It is also a pretty obvious modification (and very expensive) and is seldom seen in the military, except for higher ranking officers' command Mecha.

Apart from the space modifiers, enhanced armour reduces the Mech's acceleration code by 1 (e.g. from A to B). You can also reduce armour, thereby gaining space in your Mech. Also up acceleration code by 1 (not cumulative).

Modifier	Acceleration	Space
Armour -2	+1	+30 %
Armour -1	+1	+16 %
Armour +2	-1	-20 %

Armour Modification

When you know that you are again up against the fire-breathing bunch of monsters you saw last time and who flamed most of your squad, it is time to give them a little bit of resistance: talk to your Tech Sergeant and let her give you the newest fire-proof coating. And then show hell to them monsters!

It is quite possible to change the molecular structure of the armour a bit and to apply some additional equipment (e.g. cooling tubes, energy dissipation grids) and surface coatings (e.g. reflective, hardening) in order to harden armour against a specific damage type. While it generally compromises armour to a certain extent, it makes it that much more resistant to the damage type of your choice.

However, armour modifications cannot be stacked nor combined, as each one changes large parts of the armour's make-up, from the lower to the uppermost layers.

This modification is quite common in the NEG military and is easy to come by.

This modification gives two additional armour die against the damage type chosen (ex.: fire, electricity, cold, laser). It also decreases armour protection against all other damage by 1 point per armour point (e.g. by 4 points for 4 dice armour). Multiple modifications cannot be combined and the modification is obvious.

Power 0, Space 4 / 8 / 12

Climbing Claws & Aids (tiny and small only)

See your foe flying up a building with his fancy A-Pods? Can't follow him up, unless a friendly unit gives you a lift? Then it's time to start climbing!

Some Powered armour and Mecha are, for whatever reasons, still not equipped with A-Pods. However, in city and close quarter combat, three-dimensional deployment

(roofs, walls, ceiling) can be a huge tactical advantage; this is also true for being able to follow enemies up walls (Tagers for instance).

This modification adds hyperedged, optionally vibrating climbing claws on the Mech's hands, elbows, knees and feet. They deploy via command from the pilot and can drill into concrete and looser rock. Able to support not only the Mech's weight, the pilot can hold himself steady with only one limb (if the material he climbs holds) and can fire his weapons at the same time.

The modification cannot be used as weapon, as it has few cutting edges but features more spikes and drill-like appendages to fix the Mech in the surface.

GMs should be careful what surface is being climbed: a house façade is not made to sustain a 10 ton Mech climbing on it.

At the GMs discretion, this modification can also be applied to medium and large Mecha. You'll need some very solid rock to hold the Mecha, though.

Power (On) 1 / 2 / 3, Power (Off) 0, Space 2 / 3 / 4

As IceCube powered up the command circuit, he saw the other's Mecha appearing on his screen, blinking green. Enemies seen by any of the Mecha became red dots, data relayed back to each Mech. He quickly selected the main and secondary targets, tagged them for target acquisition and waited for André's Rapier to get a target lock on them. As soon as it was transmitted, the other Mecha linked in, charged their weapons. As the Mantis was hit simultaneously by two Engel and 4 Mecha, his armour vaporized and his insides boiled out. And while his remains still smouldered, the combined Mecha force already linked the weapons for the secondary target.

The NEG military quickly realized the potential of linked communications and targeting and started their own programme. By installing various electronic modules, linked together in specialized computers and communication system, Mecha can communicate with each other, sharing targeting information, status reports and more.

Command module

The command module is installed in a single Mech and can communicate with up to 8 other slave or command modules; however, no more than three command modules can be linked together, as the amount of data required to be processed exceeds the

system's capability quite quickly. The command module can also work in a pure "slave" mode, transmitting only the input from the Mech to another command system.

The main functions of the command module are the localization of all slave modules, target designation and strategy planning (as orders can be given directly over the interface) as well as collecting and re-distributing information to other slave nodes. Mecha equipped with a command module can be easily recognized due to the added sensory equipment, which is installed in "backpacks" and significantly increases the bulk of the Mech.

Slave module

The slave module is composed of a central computer, collecting data and transmitting to as well as receiving from the command module, and a vast array of sensors and feedback units, to pinpoint the own position, provide health monitoring and aid in target acquisition in case targeting is performed through the CC. It is also connected to a dedicated communication array, which features powerfully encrypted signals and internal ECCM, in order to guarantee that the CC works even when under enemy ECM.

Each command module can hold up to 8 connections; up to 3 command modules may be interconnected. For every 4 full Mecha in the circuit, all interconnected Mecha gain a +1 modifier to targeting tests. Indirect fire is not considered blind fire if another Mech can see the target.

Command Suit (Powered Armour only)

It was fun time and the unit had donned Centurion Powered armour to train a bit. Firing away with hand-held laser designators laughter came over the communications channel. Suddenly they all fell silent, as the Captain came rushing towards them at some 50 miles per hour and simply jumped the last 8 yards to them. Command Armour. Yeah.

Quite often a single piece of better PA can turn the tide for a small unit; hence the introduction of command suits. They are faster, tougher and better equipped with sensors and electronics than the usual soldier counterpart and are given to experienced unit commanders.

Able to retrieve fallen people, quickly change positions and lay suppressive fire, while keeping a rudimentary command and control network operative, their introduction, while very expensive, has dramatically increased fighting chances of small units.

Double speed, triple jumping distance. Add 3 integrity and add 1 point to any attribute (but not armour). When connected to at least 4 other powered armour units, all units (incl. the command unit) gain a +1 modifier to all attack and defence rolls. This can stack with a command circuit.

DCS upgrades

From somewhere behind you it pops up again! The Dragonfly seems to look at you ere its small laser canon hits you and barely manages to scratch your tough armour. And off she goes. And back again. And slowly but surely she fires her way through every armour layer you possess, while you still struggle to hit even once.

The usual DCS has been in service for quite some time. It uses nano technology which is already quite old, in order not to allow the most modern advances to eventually fall in the enemy's hands.

As such, there is plenty of room for improvement. Additional nano forges, advanced nano programming techniques, sophisticated automatic sealing and self-regenerating materials can be introduced, radically altering the Mech and nearly re-building parts of the frame and system from scratch. While your Techie might not even recognise the interior of your Mech anymore, the upside is that damage will get repaired quite a bit faster.

Adds one point to the DCS up to a maximum of 5 damage / turn for Mecha and 3 damage / turn for Engel (there just isn't so much to repair there). This modification is virtually non-existing in the military, as the modifications to the Mech are too severe and the cost of having so many different chassis becomes too high.

You can also lessen the DCS in order to gain more power / space. Following modifiers not cumulative.

Modifier	Power	Space
DCS -1	+6 %	+10 %
DCS +1	-5.5 %	-9 %
DCS +2	-10 %	-15 %

Emergency parachute

What happens if some critical error shuts down your A-pods, jumping system, wings or whatever you use to float while you're high up in the air? You fall and die. No longer. With this modification you can stay up in the air and float gently down to bring your personal thanks to your harasser on ground.

Two pods are installed on the shoulders of the Mech, barely increasing bulk. In each one a high-stress parachute is integrated, complete with automatic deployment electronics (which can be disabled), a basic steering system, and a small pyrotechnical deployment rocket.

In case of free fall (automatically detected by accelerometers and pressure change), the pods open and small rockets bring the parachutes into the airflow. The steering system kicks in and actuates steering cables according to your movement wishes, without the pilot ever needing to learn how to handle the system. On ground, the system is automatically jettisoned.

One use system. Can be activated automatically or manually. Parachutes come in all kinds of colours and patterns; each parachute can hold the Mech by itself (so yes, you can start only one by overriding the system).

When hitting the ground, roll a challenging pilot roll for landing; the margin of success reduces the 2d10 damage the Mech receives to its legs. In case of a single parachute landing, double damage.

The parachutes can be recovered; roll 1d10; on a 2 to 10, they can be used again. Only a properly equipped technician can re-store them and insert the required pyrotechnics.

Power 0, Space 2/4/6

Equipment dispenser (small+ only)

Fighting on foot to the last, your good old Tager buddy on your right, the left flank covered by Powered Armour. Then suddenly your gun makes this horrible clicking sound and you realize you're out of ammo!

Mecha troops can often be associated with soldiers on foot or in Powered armour, who use regular ammunition, weapons and equipment. However, their carrying capacity is limited by their rather feeble strength.

Military command has resolved this solution by implementing quick access covers in the legs of Mecha, behind which are storage compartments, able to hold a variety of equipment. The most common specialized storages are listed in the following.

Ammunition

When opening the access cover, several clip holders pop out and present a ready clip to the user. Usually there are about 3 to 5 racks beneath each other, which can be filled with any charger up to 20 cm in length (or more on larger Mecha); about 2 to 5 rows of ammunition clips are stored in parallel. They are attached to an automatic feeding system, such that there is always a clip ready for use.

Assume 10 to 20 clips stored at 60 shots of 7.62 mm ammo each. Alternatively, between 4 and 8 boxes of machine gun ammunition (for 200 shots each box) can be stored.

Regular equipment

Other, less specific, racks function pretty much as lockers or storage boards, which slide out of the leg and present a variety of equipment to the user. Roughly 1 metre to 1.5 metre high and 0.5 to 1 m wide, they are up to 0.4 m deep, depending on the size of the Mech (up to ½ m³ on large Mecha). They can hold a vast array of useful equipment and customizable compartments / attachments are readily available.

This modification can be taken twice, for both legs; Large Mecha / Behemoth Engel may take it four times,

using additional space in the arms. If only one is installed, the user must choose where to install it (left / right leg). The type of the dispenser must be chosen beforehand but can be altered with a Arcano-Technician test (extended, average, 1 hour, 3 hits)

Engel only can hold half the normal volumes.

Power 0, Space 1

External Weapon Sheath

John's Auphan's hands clutched with delight his shiny new sniper rifle, as he ran to find a suitable position from where to fire. Suddenly he saw in the near distance a group of smaller Migou coming towards him. Time for some close-combat action. But where to put that sniper rifle now? Happily for him, his day was saved when Virginie dropped a tongue into the fight ...

External weapon sheaths provide a Mech with the ability to store hand-held weapons safely while they need to have the hands free. Attached to the primary structure and equipped with commanded safeguards for weapons release, they come in multiple flavours.

Often used by more seasoned veterans who prefer adaptable load-outs, they gladly sacrifice some of the reaction speed of a Mech for a larger weapons choice.

Large weapons (back)

The back sheath is a combination of magnetic locks on the back of the Mech to hold the weapon in place, automatic straps that fix longer parts, and a semi-automatic simplified arm system, that grabs the weapon when it is held over the back and places it safely in the sheath, while also aiding the Mech pilot to retrieve it.

Small weapons (side)

Looking like classical holsters or sword sheaths, some Mecha are even installed with two (one on each side). When retrieving a weapon, magnetic locks engage and straps slide into place, securing the weapon during even the worst manoeuvres. When required, the system releases the locks and pops the weapons out a bit for better retrieval.

A Mecha can install this upgrade up to 1 (tiny, back only) / 3 (small and medium) / 5 (large+) times: one back sheath and four small sheaths (on each upper leg and on each thigh). Each two side sheaths reduce the Mech's agility or reflex (pilot chooses) by 1 point

when filled with weapons; the back sheath incurs no penalty.

A maximum of 1 back sheath can be installed.

Weapons can be loaded / unloaded and readied to fire from the back sheath in a simple action, due to the semi-autonomous feed system. For side sheath, standard (human) rules apply.

*Small: **Power (On) 1, Power (Off) 0, Space 0.5***

*Large: **Power (On) 3, Power (Off) 0, Space 1***

Full immersion ESI (Engel only)

Futile commands running to the Engel, as the interface is just too slow to process your desires. And again the other Engel in front of you hits you, a tick faster. Every time. Always a tick faster than you are.

The normal interface between an Engel pilot and his Engel has a number of safeguards installed, to protect the pilot from the effects of the Engel's alien psyche. This distances the pilot's mind from the Engel but also slows data exchange by passing it through various sensory, reality and spike filters. Sometimes in a battle, this little delay can mean the difference between life and death, success or failure.

The safeguards are built into the Engel's interface and the pilot's ESI. However, it is possible to override the Engel side without interfering with the pilot and to install a switch on these safeguards. When deactivated, the brainwaves of the Engel are amplified and signal passing is less filtered, thus allowing "full immersion". Of course, this also means exposing one's mind even more to the Engel.

While this can only be done professionally by the military that possess the exact plans of the Engel interface, it is theoretically possible to tamper with the interface without exactly knowing it; however, given strict military regulations and the love most pilots and technicians have for their Engel, there are no known incidents today. Even the military has only modified a very small number of its Engel, usually given out only to the very strong-minded pilots. Rumours fly about something like 20 Engel being modified with a FI-ESI on all of Earth.

The Engel gets an additional action per turn (still up to a maximum of 4) and all tests made in the Engel receive a +2 bonus. Agility and Reflex both increase by 1. However, the pilot is also more susceptible to damage: whenever the Engel gains more than [structure] damage

(after armour attenuation), the pilot receives 1/4th of this damage (round up, no armour) as vitality scale damage. In addition, if the damage surpasses twice the tenacity of the pilot, make a challenging insanity test (2 insanity points).

***Power** (always ON) 5, Space 1*

Increased attributes

Li shivered in her Broadsword even though the cold landscape around her, actually a raid in Antarctica, could not harm her through the shell of her Mech. Cautiously she set foot before foot as suddenly she heard the all too familiar cracking. Attempting jumping did not work this time and the ice gave way beyond her, saw her Mech falling into a crevasse. With an incredible speed of movement and a never expected show of agility she twist around in flight and caught the hand of High Heels' Tarshish just an instant before the long fall became inevitable.

Indeed it is possible to augment nearly any single attribute of a Mech. Regular actuators can be re-placed by stronger ones, the hydraulic systems can be vamped up to higher pressure (potentially improving strength and reaction speed), joints are changed to better lubricated high-duty variants and the software is updated to a more sturdy sensor interpretation and early warning system.

Especially the latter two are quite common modifications, as they are nearly entirely limited to the software and only require replacement

of standardized control / interpretation controllers by more powerful ones and re-adaptation of the software. With the correct kits from the military, these are modifications that can be done in the field and do not necessarily require a true technician.

Modifier	Power	Space
Attr -2	+10 %	+ 20 %
Attr -1	+ 6.5 %	-
Attr +1	- 5 %	-
Attr +2	- 11 %	- 3 %
Attr +3	- 20 %	- 8 %

Control response (Agility)

Most joints are exchanged versus fully enclosed and capsulated ones with a much better lubricant and hydraulic pressure is nearly doubled (thereby requiring exchange of the entire hydraulic system). Electrical pathways are exchanged versus high-speed optical systems and the control computers are also upgraded to a state-of-the-art optic / quantum (depending on Mech / Engel) model with advanced algorithms eating the safety margin and bringing the vehicle to unheard-of performance peaks.

Frame (Strength)

The normal hydraulic actuators and electrical motors are exchanged for larger versions, respectively high-duty high-torque versions. The frame is re-enforced in critical spots to allow for the force to be used. This usually renders the Mech bulkier, as all the hardware needs to go somewhere. Some pilots have also complained about the Mech becoming a bit more sluggish, but this has been corrected with the latest issue of this modification by increasing pressure and motor response time.

Sensors (Perception)

Not touching on the actual sensors themselves, the interpretation computers are upgraded to a much better (and much more expensive) variant, using advanced pattern-recognition and self-programmable and adaptable processor technology with varying fuzzy-logic enhancements in order to improve overall sensor processing power. Advanced, sometimes even experimental, pattern recognition and processing algorithm are added, which take full advantage of the beefed up hardware and allow for a much better treatment of even low quality sensory input.

Warning system (Reflex)

Upgrading mainly the software and installing additional signal processing and picture analysis programs, the warning system's capabilities can be greatly enhanced. Adding advanced fuzzy logic and a host of additional sensors serving mainly as confirmation for the main sensor suit, space and power is traded for reflexes. It also involves stepping up the processing speed and using the latest advances in optical chips.

Improved handling

Ivanna jumped around the corner, her Khopesh skidding on the wet pavement, target designators and crosshairs moving wildly over her internal screens,

as the electronics tried in vain to compensate for the movement and the Mech's difficulties in getting a grip on the slippery ground. Swearing she switched to manual and fired a barrage of laser fire and rockets down the alley while making a mental note to approve the additional gyros and firmware update Li had talked about.

Modern Mecha rely mainly on the operator side effect to control the machine. However, this also has its limitations, as a computer and mechanical actuators are able to do much more than a mere human can imagine.

In order to improve handling of a Mech even more, additional gyroscopes, acceleration sensors, ground radar and laser elevation measurement sensors are installed in the frame, coupled with an expert drive-by-wire system. In addition, joints and actuators are upgraded to state-of-the-art equipment, using advanced polymers and variable tensile strength materials to provide a broader and more adapted movement range.

All these modifications combined, together with an extended pilot training period, make the Mech more agile, improve handling and ensure another edge in close quarters combat.

Add another die to all pilot tests. All tests related to dodging and hand-to-hand combat receive an additional +2 modifier. On non-amphibious Mecha this improvement is not working under water.

Long Operations Cockpit (not Engel, medium+ only)

It was time for another long time operation. IceCube could virtually smell the stench after your re-circulation system fill up after 24 hours, the acrid smell of the air because some of the filters saturated and the aching in the back and neck of long hours in a not-so-comfortable battle seat. And the lack of sleep! He was more than happy to see that Li had just finished installing his new shiny long opera-tions cockpit.

The normal Mecha cockpit can only sustain a single pilot for so long: Besides the cramped con-ditions, the life support, water storage etc. are simply not large enough to keep the pilot comfort-able for a long time.

Long time operations are not so common nowa-days, but military command had quickly realized that they needed to provide some addition com-forts for pilots on long duties.

This is achieved by adding some space behind or below the pilot's seat, a small sleeping tube, a table, recirculation toilet, chair, small display screen and speakers, as well as an increased water and food supply and (if installed) beefed up life sup-port systems, allowing continuous deployment for up to 4 days in a 1-pilot configuration and up to 2 days when having 2 pilots sleep / fight alternatively (which is a pretty frowned-upon solution, as you can only sleep with drugs when the Mech's fighting around you). In addition, seats are modified to allow massage and stress relief functions to be imple-mented.

Magnetic Hardpoints

High Heels was shooting the hell out of the opposition, both her T1HP firing away deadly streams of ammuni-tion at her enemy. As both weapons started chocking on the heat, she threw them away, released the magnetic locks on the lighter T1SPs on her hip and continued firing. Emptying the clips in mere seconds she threw them away, too, and grabbed her PS-35X Plasma Shot-gun from the magnetic holds on her back, cursing that she didn't have the fully articulated Weapons Sheath, which would have fed her the weapon on demand di-rectly into the hands.

Magnetic hardpoints are little else than simple magnetic coils in the outer layers of a Mech's armour, allowing fixation of clips, smaller and larger weapons. However, unlike the full weapon sheaths, there are no straps hold-ing the weapons in place, no additional security and no automatic feeding system. As such, the coils are known to provide insufficient fixation in case of heavy combat situations or impacts, and the enemy can grab the weap-ons, too.

Three types exist: magazine / clip hardpoints, pistol hardpoints and rifle hardpoints (on the back only). They can be placed anywhere on the Mech (except rifle: on back only) and are able to hold one item of the type their

intended for. Anyone can grab them and pull them off with sufficient strength (minimum the same as Mech who was the hardpoints installed). On erratic movement, feel free to have them drop.

During combat there's a 20 % chance of losing the items.

Clip
Power (ON) 0.25/0.5/0.75; Power (OFF) 0; Space 0

Pistol
Power (ON) 2/3/4; Power (OFF) 0; Space 0/0.5/1

Rifle
Power (ON) 4/5/6; Power (OFF) 0; Space 0.5/1/1.5

Magnetic Grips

Slowly Walther tightened his hand around the fragile crate of electronic equipment. His Mech repeated the movement, as if picking up an egg. Slowly the fingers got a grip on the large metal crate. And then it happened: a bit too much pressure, and the crate crumpled into a small ball of solid junk as the immense strength of the Mech kicked in.

Originally a modification for civil and industrial Mecha, the magnetic grips are large magnetic coils installed in the Mech's hands. Other locations (feet,

elbows) are known to exist, but for other reasons (Mech combat being an example). These coils consume a great deal of power but are able to lift sizeable loads, without needing to enclose them in your hands.

When installed in other locations, they can also be used to keep items in place – such as lighter shields, tools and the like. While not really suited for combat, many construction Mecha have magnetic belts or arm covers on which they fix their tools.

Can be installed anywhere on the Mech; one grip roughly covers one part of a limb: hand, lower arm, upper arm, belt, feet, lower leg, upper leg, lower back, upper back, lower abdomen, breast, head. Any number of grips can be installed. They need to be switched on to work (consuming power).

Any metallic items fixed to it will stay in place during normal manoeuvres. For combat, assume a 50 % chance that they will drop due to the erratic movements (reduce to 30 % if object is held by two grips at the same time).

Power (ON) 2/4/6, Power (OFF) 0.5, Space 1/2/3

Missile Defence (small+ only)

Li studied her tactical display. Some 10 Grubs where buried in a solid firing position. She would have two shots from her chaffs and two additional ones from the hand-held chaff dispenser, getting her through the first few seconds, while the others closed in to take it personally. However, that left her with a few stray missiles hitting her for sure. Happily her shiny missile defence system would take care of it just nicely.

In order to have another long-term solution to the missile problem which does not depend on ammunition, the NEG came up with an experimental laser-based system. It plugs into the radar and target acquisition system of the Mech, identifying and tracking missiles. If no chaff is fired, the lasers will start laying barrage fire into the missile volley, taking down as many as possible. Maximum effectiveness is of course achieved, when multiple lasers are installed. If chaff is fired, the lasers will not work.

The system gets a single defence roll (15 + 3d6) in addition to the Mech's dodge roll, which counts against all attacks. If it wins, roll 1d10 for every laser installed and add up: This is the number of missiles / rockets etc. the system destroys this entire turn (not volleys, individual missiles). Any missile non destroyed does damage normally to the Mech (if it didn't doge). Note that the system destroys any incoming missiles, regardless of whether

Example

Li has expended all her chaff. Sadly, 3 Grubs fire from every one of their 2 rocket pods (6 x 5 missiles). 5 salvos would hit. Li rolls her dodge: she'll dodge the 1st and last salvo, but salvos 2 to 4 will hit her. She has 2 lasers installed and wins the defence contest. Rolling 2d10 for the 2 laser she gets lucky: 15 missiles destroyed. So the first 3 salvos are destroyed and the 4th hits, as she dodged the 5th. Note that the system also destroys the 1st salvo, although Li dodged it.

Quick weapon recharge

IceCube fired away with his missile racks, his Scimitar plunging the far away battlefield into the deadly fire of his inferno missiles. Volley after volley he fired, underlining his message with the twin destruction of his charge beams. Suddenly a light blinked red, the ammunition warning. As he called over his com to backup, the logistic Mech approached him, covers beyond his ammunition pouches opened, dropping the expended boxes, while the Mech shoved the next ammo boxed into the Scimitar. Automatic locks clicked into place, the inventory was read via RFID tags in a split second, information on ammo load showed up on IceCube's display and the missile racks were hot again.

By modifying the structure next to the ammunition depots and adding some additional detector circuitry, the Mech is able to quickly dump expended ammunition and to receive new standardized containers. If all goes well, ammunition can be exchanged in just 5 seconds.

When needed, spare ammunition is usually provided by industrial or logistic Mecha, which can reach high enough and are sufficiently strong to lift the ammo to the insertion point. For smaller Mecha, powered armour is sometimes used. This modification is quite common and nearly 80 % of the military has implemented it, although it reduces the maximum ammo capacity somewhat, since the standard bins and quick loading mechanism need to be installed.Allows for quick ammunition change: releasing ammo is a free action, loading new ammo into an empty port when already standing in position takes one full turn. The Mech being reloaded may not move, turn etc., but may fire any of its installed weapons. It is explicitly possible to preload a round into a weapon and exchange its ammo while firing it (the weapon can't reload in that same turn though, so it has to pause for 1 turn).

Radiation shield (medium+ only, not Engel)

In cases where small nuclear strikes are to be expected, NEG military always outfits their Mecha with a special radiation shielding in order to protect the Mech and pilot. Heavy lead plating is placed around the pilot, while essential Mech systems are heavily modified to resist the electromagnetic shock and blast / radiation impact.

One of the most radical changes which can be administered to a Mech, only a few selected are outfitted with it and are then re-deployed wherever necessary. Due to the hybrid biotechnology used in Engel, this modification cannot be used on them; however, they resist it in their own fashion,

Repair system

they were all up again – if only for a few days.

On long time combat missions, when the correct maintenance and technical teams are not available, a Mech still needs to function properly to carry out the assignment.

The repair system is a slower cousin of the DCS, employing similar nano-technology, but having also a small spare parts reserve, allowing the Mech to correctly patch up damage. Repair drones the size of beetles run around the frame, making material available, while specialized welding, patching, gluing and other robots make use of the materials. Of course, the armies of drones need to be deployed, steered and brought back safely, meaning that the system freezes the Mech and can be damaged, if inadvertent Mech movement is performed, as drones and materials are lost under unpredictable movement patterns.

The repair system takes 1 hour to repair 1 box of damage, down to cosmetic damage. It works even on Critical level and can heal up to 50 points of integrity before requiring a re-fill. It is able to patch up DCS repairs but cannot be used in combat.

The repair system only works when the Mech is immobile, frozen in place. Re-activating the Mech takes 5 minutes; if an emergency activation is performed,

the repair system looses 2d10 uses (i.e. points of integrity it can heal)

Power (ON) 10/25/40, Space 3/6/10.

Robust equipment

Again and again Virginie got hit, sparks, debris and armour pieces flying from her Engel like leaves from an autumn tree. She held up fine, but suddenly a flash hit her right arm and dang! Her lightning gun went offline, sparks flying from fried circuit breakers and electronics. Cursing she fired her plasma canon watching as the additional segregation and redundancy kicked in, alternative signal routes activated and her gun came back to life. "Get here you suckers!"

Even the normal equipment installed in a Mech has basic redundancies. These include geometrically separated control units, multiple redundant wires and alternative signal and power routing, error checking protocols on the electronic parts and multiple redundant safeguards for critical functions. However, the biggest enemy of safety is budget. Many items still use the same equipment as redundant means, meaning that a failure in a production run might kill your entire equipment.

This situation can be changed: redundant equipment (for instance the charger coils of weapons) can be designed to have larger safety margins (e.g. specifications allow for 50 % more load than under the worst assumed conditions), can be bought from different supplies with different architectures and so forth. This incurs of course not only some issues with availability and maintenance, as you have multiple spare parts (and is as such frowned upon by field commanders), but also with overall system complexity (due to the larger amount of equipment to be integrated and cross-connected) and, over all, budget.

Each level increases the failure code of a single piece of equipment by one step. Has to be bought separately for each equipment. The frame is not an equipment, only installable items are. In addition, the modification increases an equipment's cost, complexity, maintenance and availability by 10 % (round up).

Increases equipment's power and space requirements by 20 %.

Rocket booster (not Behemoth)

He ran. As fast as he could, the legs of his Broadsword working hard, with a steady rhythm. But still the locusts gained on him with frightening speed. Cursing under his breath he ran towards the small cliff up ahead, already hearing the sound of the Locusts' mandibles clicking, ready to devour him, sure that they had him in a trap

when he'd be stopped by the cliff. Finally smiling to himself he thumbed the button protection open and hit the big red switch beneath it.

The rocket booster system is a radical modification of a Mech, installing solid-fuel powered one-shot rocket pods on the back and front of the Mech, keeping him in a stabilized flight position. Highly inert reaction agents are used, in order to keep them from accidentally igniting during battle, and special safeguards allow detaching them from the Mech's body in case of emergency.

The fuel supply lasts for 60 seconds and is enough to propel the Mech 1 km straight into the air, with very little ability to steer. How he comes down from there is essentially up to the pilot … the modification is not used that much, as the Mech's structure and pilot are subjected to extreme acceleration and often walk away with wounds and damage.

When expended, the rockets are jettisoned, freeing up weight and allowing the Mech to reach its normal ground acceleration again.

Installs 3 rocket pods (two back, one front) on the Mech, dropping the acceleration code by 1 (e.g. from A to B) until used, when the pods are jettisoned and acceleration is back to normal. Upon activation, the Mech is propelled 1 km in direction of firing in about 4.55 seconds with an acceleration of 10 g. The Mech

takes 3d10 % (no armour) structural damage and the pilot 2d10 (no armour) vitality damage.

When the rockets are expended, the pilot still needs to be able to somehow land (A-Pods, parachutes etc.) or he'll crash. "Air-droppable" explicitly works as landing possibility.

Power (ON) 2/3/4, Power (OFF) 0.5; Space 5/9/13
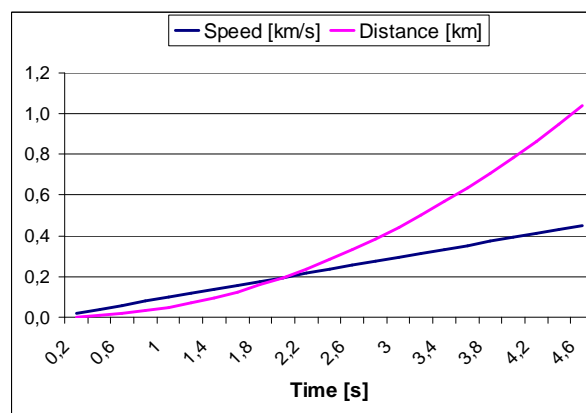
Sensor upgrades

The Dragonfly disappeared, leaving laser marks in John's Scimitar's armour. Trying to go again for its run-and-hide tactics, it

disappeared, stealth system activated. John only smiled. Switching off his charge beams, he powered up his custom X-Ray system and lined up his two long-range missile racks upon the Dragonfly. "Time to die, sucker!"

Why limit oneself to the sensors that are installed in the Mech by standard? By modifying the LAI interface and installing additional equipment, any Mech can accept any kind of sensors. However, most of them are pretty difficult to install, respectively have very high power needs, leading to this modification being taken seldom. This is also the explanation why not every Mech is equipped with X-Ray imaging.

You can install any sensor system from the core book (and other rules books) on your Mech. Look up the Sensor installation table for information on exact data.

58

Support systems

Sensors	Power (On)			Power (Off)			Space		
	S	M	L	S	M	L	S	M	L
Long Range	10	10	10	1	1	1	15	15	15
Loudspeaker	1	1	1				0,5	0,5	0,5
Mimic System	6	8	10	1	2	3	4	6	8
Scan	5	5	5						
Sonar	5	5	5				1	1	1
Spotlights	1	1	1				0,75	0,75	0,75
Targeting +1	3	3	3	1	1	1	1	2	4
Targeting +2	5	5	5	1	1	1	2	4	8
Targeting +3	10	10	10	3	3	3	4	8	16
Targeting +4	20	20	20	5	5	5	8	16	32
Thermal	5	5	5				1,5	1,5	1,5
X-Ray	12	12	12	5	5	5	8	8	8

Running towards the enemy's base, Walter swore again. He could already pick up the first probing scanners and radar beams on his Gladius' frame. The communication centre in front of him had to be taken down before they could sent a warning, lest he wanted to deal with a whole lot more of pesky Mi-gou.

Any support system already available as a build-in solution to some Mecha, is also available to others as a modification. However, many systems are more difficult to incorporate at a later stage and involve some rather important LAI modifications and, in the case of re-enforcements and the like, frame modifications and armour adaptations; all these can become quite bulky.

You can install any support system from the main books on your Mech. Look up the Support installation table for information on exact data.

Surface coating (not stealth Mecha)

Jean crept forward, his Auphan crouching low. His team waited 2 km behind him, as the entire terrain was covered by powerful radar. In the heat of the jungle and the dense fog, the enemy relied nearly solely on this method of detection. Jean did not mind; he knew that his custom anti-radar coating would

throw them off. They would never knew what him them!

Special surface coatings do not offer the same bonuses as a full stealth system, but can help to reduce the Mech's signature against certain detection kinds. By applying absorbent or dispersing materials or paints, the Mech is rendered nearly invisible to certain kinds of sensors. The most typical application is a radar-absorbent paint applied to the armour of a Mech.

Support Systems	Power (On)			Power (Off)			Space		
	S	M	L	S	M	L	S	M	L
0g Adaptation	5	5	5	5	5	5	2	4	8
Airdroppable	10	10	10				2	5	10
A-Pods	10	15	20	5	7,5	10	4	6	8
Buoyancy							5	10	20
Chaff Dispenser	3	3	3				2	2	2
Cold Resistance	5	7	10	1	1,5	2	3	4	5
Depth Reinforce							8	11	20
ECM	15	15	15	2	2	2	3	4	5
Ejector System	5	5	5				4	5	6
Grapplers	5	5	5				2	4	6
Heat Resistance	10	12	15	2	3	5	2	3	4
Jump Pods	9	12	15	1	3	5	3	6	12
Life Support Pod	2	2	2	2	2	2	1	1	1
Limited Stealth Systen	7	10	12	2	3	4	2	4	6
Manipulator Arm	5	5	5				2	6	12
Sealed System	3	4	5	3	4	5	3	6	9
Stealth System	15	20	25	6	8	10	5	10	15
Storage Comp.							2	4	6

Requires neither power nor space, only money.

Tramp-Modification (small + only)

A faint shudder goes through the Mecha as the last Powered armour jumps on and the metallic clamps slid into place. The D-Engine pushes up power production to serve the last tramper, and off the heavily laden Mecha flies on A-Pods, towards battle and glory.

Deployment of Mecha and powered armour at the same time can sometimes become a problem due to power availability in the powered armour and / or differences in speed. Quite soon, ingenious field engineers found out, that by attaching rails and universal power plugs to the main body of a Mech, you could essentially provide tramp points for smaller powered armour and, in the case of the Behemoth class Mecha, even small Mecha.

The modification thus extends rods from the main structure to the outside, through the armour, having hand-holds coupled with magnetic locks to keep the

tramper securely in location. In addition, universal induction power dispensers are installed, allowing powered armour relying on D-Cells to be fed while riding on the Mech. However, the power output is not really large enough to recharge the tramper while the carrier is moving, flying etc. This modification works, of course, also for movement by A-Pods.

In combat, this technique is rarely used, as hostile fire can hit the trampers and reduce them to ashes while still damaging the carrier due to the blast impact on the shell. In addition, most trampers will fall of (or have to let go) in combat in order not to hinder the carrier defending itself, thereby potentially damaging themselves.

The maximum amount of powered armour tramp points is equal to the strength of the Mech; the maximum amount of small Mecha that can tramp on a behemoth-class Mech is equal to one quarter of that (round down). The carrier can supply up to 8 power points per mount, which the host can use as he sees fit. For every three powered armour, or one small Mech, the number of available actions, reflex and agility all drop by 1 (to a minimum of 1). Jumping is not possible.

When fighting a carrier Mech, there is a chance of impacting a tramper. Every powered armour increases this chance by 5 % and every small Mech by

15 %. Roll with a d100; if below the chance, a tramper is hit, taking the full damage while the carrier still takes 1/5th the damage from the impact. Any tramper hit in that fashion must make a Pilot test in order to remain in place.

Base is Easy, but increase difficulty by one step for each (structure) damage the tramper takes. If the tramper falls, treat as falling damage from carrier's height. When high in the air, the tramper may take the time to re-assess the situation and re-calibrate, if he is equipped with A-pods, parachutes or similar. Each combat turn allow one pilot roll as above and reduce difficulty category by one each turn. Parachutes or A-pods decrease this difficulty by one step.

Per Point:
Power (ON) 10/2*, Power (OFF) 9, Space 2

*Can function at 2 power per tramper for tramp only (no recharge of tramper's D-cells).

Troop transport (Mecha: medium+; Engel: only Behemoth)

„All cleared and ready". Troopers strap down in the barracks, last locks click into place and suddenly the entire forward post with its 6 barracks, 24 Mecha and nearly 200 in personnel looks deserted. Then

two Mecha each pick up the barracks, and the entire camp moves out to the next assignment.

Sometimes dedicated troop transports are just not available or are too expensive. So, while you already have your Mech out on the battlefield, why not charge him with some extra weight to transport his own Mechanical staff, troops and the like? The answer comes in two flavours: one solution is installed permanently and one is a temporary hand held container.

Permanent solution

The permanently installed solution is only available to the largest Engel and only available to Mecha of medium size or larger, as it adds suspension bunks to the lower and upper legs. On medium Mecha and behemoth Engel one bunk is installed in each leg, on large Mecha one in each upper and one in each lower leg, which can also support tiny powered armour. On the large sword class Mecha, there is even an option for two (somewhat cramped) main body bunks, installed on each side. The bunks consist of an upright stretcher, where the trooper can strap himself. When releasing the locks, he is suspended either magnetically or mechanically inside the space and thus protected by the worst damage. He also has an intercommunication suit, small screens and a basic waste disposal and water supply system. The bunks are connected to an eventual life support system of the Mech and have an internal sealing

Mechanism, which can quickly repair any battle damage to the environmental seal.

Moveable solution

The moveable solution is a small barracks building, intended to be picked up and carrier around by one or

more Mecha. It comes in different sizes and is essentially a re-enforced composite floor with aluminium beams on major load paths, light composite walls and a composite roof. It comes equipped with standard connection points for electricity and external life support, but can run on internal life support (provided it is powered by the Mecha) for up to 12 hours. The barracks come fully equipped with beds welded to the grounds, shock proof electronic storages, communication systems, lockers and the like. It can be carried by up to two Mecha and is only limited in size by what two Behemoth Engel can carry.

61

Medical facility option

For the built-in solution, there is also the possibility to install emergency medical facilities in the legs. These powerful units hold one trooper each, in a stabilized state. While not able to truly heal the

patient, they can at least delay poison, illness and alleviate life-threatening wounds and pain.

Restraint option

The built-in solution can also be modified to restrain whoever sits inside. Tight belts, hand- and feet-cuffs are installed, with a sedation system and emergency stun charges. In addition, the "seat" is re-enforced and an internal security system (camera & microphone) is installed.

Rules

*For the **permanent solution**, hits to the Mecha might also lead to hits on the bunks. If you play with impact zones, the probability of hitting the compartment is 25 % (1-2 on a d10) for the leg bunks and 12.5 % (1 on d10) for torso bunks. In this case sealing & life support in the bunk are lost for two full turns, until automated sealing kicks in and the occupant receives 1/2 the damage the Mech received, modified by Mech and personal armour (as vitality damage).*

*For the **moveable solution**, the size is limited by the weight both Mecha can handle. When carried by two Mecha, apply only 2/3rd the theoretical strength of the Mecha as they need to carry it in an awkward position. Combat, jumping, running and diving is impossible; movement rate on ground is 1/2 the rate of the slowest carrying Mech. A-Pod usage is possi-*

ble at a maximum speed of 100 km/h. Treat the barracks as an integrity based building with a structure of 5 and no armour. If the barracks take heavy damage, consider the people inside injured if not dead. The barracks are built to survive a fall of up to 10 metres. Beyond that, consider them destroyed and all people within dead. The barracks may explicitly have people inside when being transported, but they need to be strapped down and take 1d10 vitality damage.

*The **medical facility** will stabilize any patients inside and delay poison and illness by factor 10. When on Death's Door, the medical facility will heal 1 vitality per 15 min., until the patient is reduced to serious wounds.*

*The **restraint facility** fully immobilizes the prisoner with self-tightening steel and plastic bandages. Should he try and escape or even rupture any of the restraints, a warning signal is sent to the pilot and the compartment can be flooded with gas (usually a stun-gas) and the metallic restraints can be charged with a non-lethal damage. (Tenacity Feat test (very hard) to remain conscious and 2d10 vitality damage, trauma armour)*

Internal
Power (ON) 0.5, Power (OFF) 0, Space 4

Medical
Power (ON) 1, Power (OFF) 0.25, Space 6

Restraint
Power (ON) 0.75, Power (OFF) 0, Space 7

Weapons Locker (small+)

Private Ryan tossed his water-trenched rifle to the ground, useless after weeks in mud and adverse condition. Normally, this would have been a death sentence, being left unarmed in a fight. As it was, he just walked over the large Scimitar towering above the battle scene and knocked on the leg, while sending a short com-burst out. Panels slid back and an impressive array of weapons slipped out of the Mech.

Similar to the equipment dispenser, a weapons locker is but a glorified storage compartment inside a Mech's or Engel's frame. Depending on the size of the host unit, different weapon sizes and amounts can be carried.

Weapons are safely strapped into an automated distribution system and have already a single clip inserted. When commanded by the pilot or an optional ground control panel, doors slide back in the hosts' armour and a distribution system presents the selected weapon (or a selection of available weapons) to the happy ground user.

Each choice of this option grants 4 points of weapon storage. A pistol or SMG consumes 1 point, rifles and assault rifles 2 points, heavy guns such as machine guns 3 points and support weapons 4 points. The maximum amount that can be installed in a Mech are 8 / 16 / 40 and in Engel 8 in large ones and 16 in behemoth ones.

Power (ON) 1, Power (OFF) 0, Space 2.

Sensors	Power (On)			Power (Off)			Space		
	S	M	L	S	M	L	S	M	L
Long Range	10	10	10	1	1	1	15	15	15
Loudspeaker	1	1	1				0.5	0.5	0.5
Mimic System	6	8	10	1	2	3	4	6	8
Scan	5	5	5						
Sonar	5	5	5				1	1	1
Spotlights	1	1	1				0.75	0.75	0.75
Targeting +1	3	3	3	1	1	1	1	2	4
Targeting +2	5	5	5	1	1	1	2	4	8
Targeting +3	10	10	10	3	3	3	4	8	16
Targeting +4	20	20	20	5	5	5	8	16	32
Thermal	5	5	5				1.5	1.5	1.5
X-Ray	12	12	12	5	5	5	8	8	8

2.9 Modification Table

There it is: the exhaustive list of modifications, including weapons and support systems, as well as sensors and new toys. In case you decide that it's time to build a new Mech to your specifications, see the next chapter (2.10) for more information.

On the following page the list of modifications (exhaustive). An empty field means the value is zero. Fractional values are kept until the process is entirely finished, when they are rounded true.

	Power (On)			Power (Off)			Space		
	S	M	L	S	M	L	S	M	L
Acid Drip							0.5	2	4
Charge Beam	23	35	50	10	17	25	10	15	20
Flamethrower	2	4	6	1	2	3	2	5	7
Grav Bomb	2	5	15				3	5	7
Hyperedged Blade							1	2	3
Hyperedged Claws							1	2	3
Hyperedged Spur							2	3	4
Laser Canon	6	13	17	3	6	8	8	12	15
Lightning Canon	4	8	11	2	4	5.5	4	7	10
Long-Range Missiles	2	2	2				25	25	25
Mandibles							0	1	2
Plasma Canon	5	8	10	2	3	5	5	7	10
Rocket Pod	4	4	4				12	12	12
Stinger							1	2	3
Teeth							0	1	2
Tentacle Sheath							2	3	4
Tongue							2	3	4
0g Adaptation	5	5	5	5	5	5	2	4	8
Airdroppable	10	10	10	0	0	0	2	5	10
A-Pods	10	15	20	5	7.5	10	4	6	8
Buoyancy							5	10	20
Chaff Dispenser	3	3	3				2	2	2
Cold Resistance	5	7	10	1	1.5	2	3	4	5
Depth Reinforce							8	11	20
ECM	15	15	15	2	2	2	3	4	5
Ejector System	5	5	5				4	5	6
Grapplers	5	5	5				2	4	6
Heat Resistance	10	12	15	2	3	5	2	3	4
Jump Pods	9	12	15	1	3	5	3	6	12
Life Support Pod	2	2	2	2	2	2	1	1	1
Limited Stealth Sys.	7	10	12	2	3	4	2	4	6
Manipulator Arm	5	5	5				2	6	12
Sealed System	3	4	5	3	4	5	3	6	9
Stealth System	15	20	25	6	8	10	5	10	15
Storage Comp.	0	0	0	0	0	0	2	4	6

	Power (On)			Power (Off)			Space		
	S	M	L	S	M	L	S	M	L
Rifle Hardpoint	4	5	6				0.5	1	1.5
Anti-BA. electrical (norm charge)	5	10	20				2	3	4
Anti-BA. electrical (quick charge)	10	20	30				2	3	4
Anti-BA. exploding	1	1	1	1	1	1	3	5	8
Anti-BA. laser (per laser)	2	2	2	0.5	0.5	0.5	2	2	2
Armour Modification							4	8	12
Battle Armour Support Point	10	10	10				2	2	2
Climibing Claws & Aides	1	2	3				2	3	4
Cmd Circuit. Commader	10	10	10	3	3	3	4	4	4
Cmd Circuit. User	3	3	3	1	1	1	2	2	2
Emergency Parachute							2	4	6
Equipment Dispenser							1	1	1
Full Immersion ESI	5	5	5	5	5	5	1	1	1
Improved Handling	3	6	9	3	6	9			
Long Operations Cockpit	3	3	3	3	3	3	8	8	8
Magazine hardpoint	0.25	0.5	0.75						
Magnetic Grips	2	4	6	0.5	0.5	0.5	1	2	3
Missile Defense	10	10	10	1	1	1	3	3	3
Pistol Hardpoint	2	3	4					0.5	0.5
Radiation Shield	2	2	2				5	10	15
Repair System	10	25	40				3	6	10
Rocket Booster	2	3	4	0.5	0.5	0.5	5	9	13
Troop Transport. Internal	0.5	0.5	0.5				4	4	4
Troop Transport. medical	1	1	1	0.25	0.25	0.25	6	6	6
Troop Transport. restraint	0.75	0.75	0.75				7	7	7
Unit Transport. per Space	3	3	3	0.5	0.5	0.5			
Weapons Locker Point (by 4)	1	1	1				2	2	2
Weapons Sheath. Large	3	3	3				1	1	1
Weapons Sheath. Small	1	1	1				0.5	0.5	0.5

2.10 Statistics / New Units

For the existing Mecha, you can find computed statistics in the following.

Power ON: all systems on

Power OFF: only essentials on, others off

Power FIGHT: fighting & essential systems on

Name	Tech	Size	Power Avail ON	Power Avail OFF	Power Avail Fight	Space Avail
MV-16 Broadsword	Sword	M	-17	46	6	2
Mk-10A Centurion	Sword	XS	-14	34	6	12
Mk-10S Centurion	Sword	XS	-2	36	18	16
Mk-10U Centurion	Sword	XS	-1	37	19	22
MV-15 Claymore	Sword	L	-9	51	17	38
Mk-5 Crusader	Sword	XS	-19	29	1	2
MV-16A Gladius	Sword	M	-13	37	8	16
MV-18A Rapier	Sword	S	-25	26	7	24
MV-18 Saber	Sword	S	-26	38	7	15

Name	Tech	Size	ON	OFF	Fight	Space
MV-14 Scimitar	Sword	M	-52	33	**-30**	5
Aral	Engel	M	2	76	36	14
Auphan	Engel	M	-16	50	30	3
Cherub	Engel	L	46	88	63	19
Malach	Engel	L	63	101	73	8
Seraph	Engel	XL	11	82	29	14
Tarshish	Engel	L	15	68	37	14
Blizzard	Nazz	L	-31	42	1	12
Borealis	Nazz	XS	10	47	30	19
Eclipse	Nazz	S	-9	35	31	6
Gale	Nazz	XS	-2	44	20	14
Hurricane	Nazz	S	-25	38	13	5
Maelstrom	Nazz	M	16	62	40	21
Storm	Nazz	M	11	56	38	21
Tornado	Nazz	M	-11	36	13	38
AMV-1 Falcata	Sword	M	-10	54	3	13
AMV-3 Khopesh	Sword	L	-8	51	1	49
AMK-5 Makhaira	Sword	XS	-14	38	0	0
AMV-11 Xiphos	Sword	M	-32	33	**-28**	25
Cyclone	Nazz	M	23	66	55	7
Monsoon	Nazz	M	-1	45	29	9
Tsunami	Nazz	L	-35	43	1	10
Undertow	Nazz	XS	13	38	22	8
Chashmal	Engel	X	-12	63	21	19

Name	Tech	Size	ON	OFF	Fight	Space
		L				
Hamshall	Engel	L	-24	56	4	3
Ish	Engel	L	-10	52	17	7
Shinnan	Engel	L	-60	44	**-36**	7
Brushfire	Nazz	M	-25	29	28	6
Sunspot	Nazz	XS	19	51	25	23

New Units

You can build / create new Mecha and Engel with the standard rules from the beginning of the chapter. In this case, simply treat every system as a modification.

New units also have standard specifications, as per the following tables:

Size	Ag	St	Integrity	Arm T	Arm B	DCS	Regen	Rflex
XS	-1	1	5	1	1	1		-1
S	1	2	10	1	1	1	1	
M	1	5	15	3	3	1	2	1
L	1	8	30	3	3	2	3	
XL	1	11	30	4	4	2	5,5	

Technology	Sensor	Actions	Reflex	DCS
Sword-Class				
Engel	1		1	
Nazzadi	1	1		1

Simply add the frame's attributes to the technology selected to get the base attributes of your Mech. If you want higher attributes, treat it as the "Increased Attribute" modification.

For power and space, you can find the basic allocation tables based on size and technology at the beginning of this chapter. They are reproduced here for quicker reference.

Space	Sword-Class	Engel	Nazzadi technology
Tiny	43	27	34
Small	68	42	53
Medium	96	59	74
Large	132	81	102
Behemoth	171	105	132

Power / Norm	Sword-Class	Engel	Nazzadi technology
Tiny	42	52	44
Small	59	73	62
Medium	73	91	77
Large	92	114	97
Behemoth	111	138	117

Power / Amphib	Sword-Class	Engel	Nazzadi technology
Tiny	46	57	49
Small	65	80	68
Medium	80	100	85
Large	101	126	107
Behemoth	122	152	129

Movement Power

Once you are all set now, you still need to determine the power that is being consumed by your motive systems. Regardless of power consumption of your A-Pods etc., your Mech consumes power to move you. The formula is a bit difficult, since it had been introduced to take care of all existing models.

$$Speed\ Rating = 2 \times \left(\frac{Ground}{35} + \frac{Air}{10} + \frac{Water}{25}\right)$$

In addition you have your Jump Factor (the multiplier used for jumping) and your acceleration code, which translates as follows:

A – 0, B – 1, C – 2, D – 3

Leading to the entire formula

$$Rating = Sp.R + 3(Jump\ Factor) - Acc^{1.5}$$

Now that you have your entire rating, you can calculate the power need according to the following formula, as expressed in % of your base power production.

$$PP\% = \frac{Rating^{1.2}}{250}$$

Multiply this value with your base power rating to get your power consumption (as always with percentages):

$$Power = PP\% \times Base\ Power$$

Mind you to include the 10 % additional power for amphibious Mecha (already included in the tables to the left).

3
New Toys

This section introduces a number of new equipment and weapons to be used by humans (including Nazzadi and cross-breeds) and Mecha. Most equipment and weaponry is loosely derived from the 2000 equivalent, but for some items, the advances in science & technology play a great role (intelligent backpacks for instance).

Weapons are treated by size, with one chapter devoted to the large Mecha sized weapons and the other one to weapons carried by human-like creatures (including Tagers).

Name	Type	Damage	D-Type	Range	Ammo	Ener.	Special	Shots
Assault Rifles								
T1AR	AR	1 / 2 / 3	am	25 / 350 / 750	60-120c	2x100	3 / 1-2 / 15	3
T1AR2	AR	1 / 2 / 3	am	25 / 350 / 750	60-120c	2x100	Rocket pod (1 rocket)	1
T4AR	AR	0 / 1 / 2	P	25 / 400 / 850	30-120c	120	4 / 1-3 / 20	3
T5AR	AR	2 / 3 / 4	Exp	25 / 500 / 1100	12c	60	4-round burst (+3 dmg)	3
P2AR	AR	-1 / 0 / 1	H	15 / 200 / 450	100b	25x4	6 / 1-5 / 45	3
Pistols								
T1SP	PS	1 / 2 / 3	am	15 / 50 / 75	6-12c	60		3
T1HP	PS	3 / 4 / 5	am	13 / 40 / 60	6-12c	60	-1/-2 dmg on med / long	2
E5TA	PS	-3	hyb elec	10 / 35 / 50	4c	60	3d10+10 for 5 turns	2
Shotguns								
PS35	SG	3 / 5 / 7	F	15 / 60 / 110	10c	10	Int. D-Cell: 1 / day	1
E2-27X	SG	1 / 3 / 4	Elec	10 / 45 / 80	10i	30	1d10 + 0/2/4 for 3 turns	2
Sniper Rifle								
SMSR	SR	16	L	500 / 1.5k / 4k	-	*	10 hits then 1/4th shots	1*
T7SR	SR	13	CB	200 / 700 / 2k	20i	*	requires power packs	1/4
SIEX	SR	10	am	150 / 500 / 1500	ss	*	requires power packs	1/2
Heavy Weapons								
A2LMG	HW	1	am	40 / 200 / 600	120c, b	2x36h	5 / 2 – 8 / 60	3
PKLMG	HW	3	H	30 / 150 / 400	200c, b	2x18h	4 / 1 – 5 / 30	3
L4LMG	HW	2	L	50 / 300 / 800	-	2x12h	4 / 1 – 6 / 36	3
PRMMG	HW	5	H	40 / 250 / 650	b	6x2	8 / 1 – 10 / 120	3
L1MMG	HW	4	L	45 / 350 / 800	-	1x9h	4 / 1- 5 / 30	3
L5MMG	HW	5	L	55 / 400 / 1000	-	2x6h	5 / 1 – 6 / 45	3
L3HMG	HW	6	L	60 / 450 / 1200	-	1x1h	6 / 1 – 6 / 54	3
PXHMG	HW	7	H	50 / 350 / 900	b	8x1/2	7 / 1 – 8 / 84	3
R1SL	RL	12	H	as rocket	ss	-		1
R3RL	RL	am	am	as rocket	6c	1y		2
R4RL	RL	am	am	as rocket	4/8/15c	6m	-3 for 2nd shot (cumul.)	1/2/2
R7RL	RL	am	am	as rocket	b	3m		2

AR = assault rifle, HW = heavy weapon, RL = rocket launcher, PS = pistol, SG = shotgun, SR = sniper rifle CB = Charged Beam, Elec = Electrical, Exp = Explosive, H = Heat, L = Laser, P = Physical, am = ammo, hyb = hybrid b = Belt, c = Clip, i = Internal, ss = single shot ; h = high power pack

3.1 Weapons (Mecha sized)

A special word about the Mecha sized weapons: some of these weapons can actually be used by Powered armour. These weapons can also be used by Tagers, if the grip is modified and if the Tager is strong enough to keep the weight up and resist the recoil. The strength requirements (if applicable) for vitality scale creatures are listed for the convertible weapons.

With the advent of the Aeon War, it became ever clearer that tactical situations demanded adaptability and versatility. The weapons inside a Mech could not offer these qualities and a great deal of research went into an array of hand held weapons, large cousins to their human-sized counterparts. However, only a smaller array of weapons exists, as development is expensive and transport of weapons and ammunition is difficult due to the sheer size.

One other advantage of hand held weapons is their independent power supply: while charge beams cannot be fired more often then in a 10 s interval, hand held weapons do not draw power form the Mech but come with their own D-Cells, bullets etc. This means that the Mech's D-Engine is free to power other important equipment (or modifications).

Abbreviations & Explanations

In the table "**D-Type"** is the damage type (see explanation at table's end.

"Ammo" is the amount and type of physical ammunition (not energy) the weapon has.

"Ener." is the amount of D-Cells and the life span (measured in shots) the D-Cells have. For heavy weapons, this is measured in rounds of full auto fire the weapon can sustain.

For automatic weapons, "**special"** holds the information for automatic fire.

"Shots" is the maximum amount of shots that can be fired with the weapon in one turn.

For weapons with an **asterisk** "*" anywhere, see the rules section on the particular weapon.

Assault Rifles

Assault rifles are the bread and butter of every army, merging high firing rates with versatile firing modes (semi-automatic, burst and full-auto), packing a serious punch yet still remaining portable and

Type I Assault Rifle (T1AR & T1AR2)

The classical assault rifle: it can fire any of the standard ammunition of the NEG forces, giving it unmatchable versatility, thereby trading in damage. It uses classical mag-rail bullets, automatically loaded from the clip into the chamber and then magnetically accelerated in the barrel. The power comes from an internal D-Cell, which also powers the weapon's

electronics (clip status, heat, health monitoring).

The clips come in different sizes: From 60 bullets for the smaller weapons to some 120 for the really large ones. Clips are available either sealed (for underwater use) or regular and can contain any standard ammunition. A special variant with integrated D-Cells is also available, reducing clip size by 10 rounds. The internal D-Cells (two are installed) are good for some 200 shots; a quick charging system for the D-Cells,

laser or microwave target painting and high-definition scope are also provided.

The T1AR2 (a derivate) also comes equipped with an under barrel rocket launcher, which is supplied form a 3-rocket clip.

Treat the rocket launcher as a rocket pod with half ranges and 1 rocket fired per turn max. See also the scope & target designator rules.

Type IV Assault Rifle (T4AR)

The advent of electrical weapons, such as charged beams, plasma beams etc. combined with rocketry, has lead to some people forgetting purely "mechanical" weapons. However, as many pilots today choose to implement armour modifications (mostly against heat or laser), the type IV assault rifle has been developed to bring regular ordinance back into the military field.

The T4AR fires 80 mm mini-grenades, propelled by a magnetic acceleration field along the barrel. The

69

grenades are aerodynamic and spin in the barrel, giving them superior flight capabilities. Combined with an exhaust speed of Mach 2.5, they are able to fly considerable distances and, contrary to laser and plasma weapons, are not subject to exterior magnetic fields, rain, fog or other weather conditions. The grenades have two distinct parts: the forward part is a depleted uranium shell heated by the enormous exhaust speed, which is intended to puncture the target's armour. The second (aft) part is an explosive shrapnel warhead, designed to damage system beyond the armour.

Capable of firing 3-round bursts and being equipped with an area suppression mode, where grenades are detonated in the air, filling it with deadly debris, the weapon is equipped with an ample fully-integrated clip, holding the necessary D-Cell and between 30 and 120 rounds, the latter in an impressive parallel stacking array.

Type V Assault Rifle (T5AR)

Essentially the big brother of the T4AR, this assault rifle skips the high-duty magnetic acceleration field and uses larger rocket-charges instead, bridging thus a gap between rocket launcher and assault rifle. It fires 120 mm auto-propelled rockets which are first accelerated to 200 km/h in the barrel by a magnetic field and ignite their own engine after that, keeping the heat out of the barrel. With superior range and damage, variable warheads for the rockets, the only drawback is the lower fire rate: up to 48 rockets / min. can be fired, effectively draining the 12 rocket clip in 15 seconds. D-Cells are integrated in the weapon itself and are good for 60 shots.

The T5AR can fire 1 round per action or a single 4-round burst consuming all actions in that turn.

Type P-2 Assault Rifle (P2AR)

Another weapon from the energy weapons species, this assault rifle is in fact a smaller plasma canon; but instead of being built for sheer damage per shot, it uses a devastating hail of plasma bullets.

It fires small compressed metal-hydrogen bullets (calibre 15 mm) which are transformed into low-heat plasma by multiple arcs in one of the four chambers and then propelled outside via magnetic fields. In fact, the 4 sub-assemblies work in parallel in order to increase the rate of fire.

The ammunition comes on belts of at least 100 bullets (normally encased in attachable boxes which hold up to 250 shots), but the weapon also accepts infinite belts. It also has four internal D-Cells and supports in-use D-Cell quick changing (one D-Cell is preloaded in the loading slot and the weapon automatically ejects the used and installs the new one). The four cells are good for 100 shots. The weapon also has an external power connection and can be equipped with a quick-charge system, which stores an additional 4 D-Cells in an external clip.

Note: In Europe, the weapon still goes by the name of an AC-15, result of its development history.

Heavy Weapons

Need to hold your position, cover a pass with heavy interdiction fire? Get that Mech down from his vantage position above you? Heavy weapons are not intended for simple combat usage, but are used as support during a battle, either to saturate certain battlefield areas with suppression fire or to deliver long distance bombarding and the like. Besides the dedicated Mecha used for this, the NEG military has also come up with some dedicated hand-held or semi-portable solutions.

Heavy weapons may not be fired by light Mech, unless the weapon is placed on ground. Powered armour may not even carry these weapons alone, since they are too heavy and encumbering. MMGs may only be fired without support by large or behemoth Mecha; only behemoth Mecha can fire a HMG without support. Recoil from any of these weapons is doubled.

Type A-2 Light Machine Gun (A2LMG)

Realizing the value of variable ammunitions and the tactical importance of being able to change ordinance in the middle of the battle, the A2LMG is an electro-magnetic rail gun developed at the beginning of the 80s in Canada (formerly A-1). Cheap, reliable and powerful, the engineers have gone a long way to make this weapon reality and have, with the A-2, taken yet another step in perfecting this weapon in early '85. Today the weapon is wide-spread around the NEG military and has seen extensive use in underwater campaigns as well.

Using a single barrel design with high-duty magnetic coils, which are super-conductive thanks to cooling by liquid helium, the A2 is able to develop astonishingly high rates of fire, even though the range is not the same as on the more specialized models. A special form of the magnetic fields induces spin on the projectile to stabilize it in flight and the feed mechanism uses a pre-fetch design with two chambers behind each other.

The A2 is supplied by a clip (120 shots) or barrel and one or two high-energy power packs with a quick charge system, each of which is good for nearly 3 minutes of continuous firing (36 rounds). It uses standard 9 mm ammunition. In the A-2+P variant, it can even fire the plasma pellets from the PKLMG (see below), although results vary, as the charge is ignited outside the weapon, due to the heat load, via a lightning strike, potentially making the flight of the projectile unstable.

When using plasma ammunition, reduce damage code by 1 die; in every turn with full-auto on, roll 1d10. On a 1, the plasma ignites poorly and all damage rolls in that round are reduced by 2 die.

Type P-K Light Machine Gun (PKLMG)

The PK is one of the oldest machine guns yet in use, as it was commissioned in the early 70s for exclusive use by Mecha. The reason the military still keeps the weapon around is on one side the many updates to the frame's design, keeping it usable w.r.t. damage, range and rof; and on the other side the incredible robustness of the PK. In fact, like the Kalashnikoff of old, it uses the most simple and reliable mechanisms for ammunition feeding, internal electrics and a very rugged and sturdy barrel design. Spare parts are available nearly everywhere on the planet and most Mech pilots learn how to service and repair these weapons even under adverse conditions.

The PK features a sturdy, heavy barrel and long-lasting oversized magnetic coils, not requiring any active cooling. The loading mechanism can either accommodate belts (finite or indefinite) or clips, filled with standard 9 mm metal-hydrogen pallets. These are transformed into plasma in the burning chamber and then expelled by the magnetic field. The PK uses two parallel chambers, such that there is always a pallet heated and ready for firing. The feeding mechanism seals itself when not used and can be purged / cleaned by high-energy electrical discharges when empty. Today it uses two high-capacity power packs in a quick charge mechanism, each of which is good for about 90 seconds of firing (18 turns).

Given the many years of service, the PK's design has continuously improved, as well as the targeting software. Today, this software is one of the most reliable existing, with detailed databases, which can compute the best targeting point under nearly any conditions, including rare environmental conditions.

The targeting system doubles the bonus from the Mech's targeting system. Under extreme conditions (GM choice) roll 1d10: On a 1, the situation is wrongly calculated and the shooter receives a -2 modifier to the to-hit roll. Must cool 3 turns for every 2 turns fired or may continuously fire up to 36 turns (3 minutes), after which a safety kicks in and the

weapon shuts down for 4.5 minutes. May be used in combat as blunt weapon with no penalties.

Type L-4 Light Machine Gun (L4LMG)

Intended for use in battle environments and for the quick set-up of temporary MG-nests, the L4 sees heavy deployment in difficult terrains, where ambushes and MG nests can be integrated easily into the overall battle plan. Derived from the L5MMG and L3HMG, the L4 is essentially a toned-down version of these two weapons, sharing many of the parts and thus bringing the benefits of commonality to the armed forces, reducing maintenance and spare parts costs. Also because of this, the L4 has quickly replaced most of the older models.

It uses toned-down Zeiss optics and an optimized version of the invisible spectrum laser, firing short but ultra-high energy bursts. Due to the thermal design, no active cooling is required (but is available as an option) and the barrel (and thus the optics) have become extremely sturdy against damage. Coupled with the quick charge system for up to two high power packs or an external power connector, the L4 can sustain high rates of fire for a long time. The power packs are good for some 60 seconds each (12 turns).

Requires 2 turns of cooling for every turn fired in full-auto or 4 turns cooling / 3 turns firing when the

cooling system is installed. Does not take damage due to transport or use in combat. May be used as a blunt hitting weapon; in this case, roll 1d10. On a 2-5, the weapon needs servicing (1 hour) or functions with a -3 to-hit penalty. On a 1, the weapon is seriously damaged, requiring extensive repairs (1 day).

Type P-R Medium Machine Gun (PRMMG or Vulcan)

The classical rotation gun, the Vulcan is a nostalgic piece of equipment, with numbers dwindling in the NEG stocks. Quite popular with Mech pilots in the (leftovers of the) USA, the weapon is somewhat also a toy; the very high rate of fire is a nightmare for ammunition supplies and the weapon's complicated mechanics are a technician's worst dream (beside Hasthur, that is). No wonder that the military neither services nor repairs the Vulcan any more (officially, at least). Those pilots who stick to them, know each other and form a tight bond.

The PR has an arrangement of 12 rotating barrels. Before shooting, the barrels spin up to speed, cooling fins extend and directional fins are placed in order to allow for a stabilized firing platform. Two chambers (one on top, one on the bottom) heat up the ammunition (11.5 mm metal-hydrogen pellets) from the two feeds; high-energy magnetic fields then accelerate

the charge along the barrel, which typically leaves it 0 °C further in rotation direction.

The weapon is unfortunately highly prone to errors and difficulties with its mechanism, leading to the pilots' generally carrying another spare weapon. It requires two belts for ammunition; it also uses one D-Cell for the turning mechanism (good for 1 month of continuous operation) and an additional 6 cells for the weapon itself (each cell is good for 10 seconds (2 turns) at full-auto).

Needs two full turns to spin fully up. Each time the weapon is de-activated and has fired at least three turns, roll 1d10. On a 1, the weapon needs servicing and imposes a -1 modifier on the to-hit roll and a -1 die damage modifier. This weapon is very heavy and may only be hand-held by Mecha / Engel with a strength of 8 and size medium at minimum. Requires 3 turns cooling for every turn fired on full-auto and may fire up to 10 turns before requiring cooling. Can be pushed beyond, but roll a d10 for each turn; on a 1, the weapon ceases to work and requires servicing (1 h) or repairs (3 h).

Type L-1 Medium Machine Gun (L1MMG)

The original replacement of the PXHMG, the 1st generation machine guns (then used as HMGs) are today re-classified as MMGs and cannot compare to modern weapons. Powered either by high-capacity power packs or field power generators (originally 1st generation, today 2nd), the weapons are still used as portable support weapons, but are no longer replaced or produced. Damaged weapons are scavenged for replacement parts and then replaced by the more modern L-5 variants.

The L-1 uses a one-barrel arrangement with liquid cooling and a single visible-light-spectrum laser with ultra-short pulses, two of which are fired in quick succession and make up one shot. The immediate rate of fire is quite high on the weapon, but it tends to overheat very quickly, due to the single-barrel concept. It uses one high-capacity power pack every 45 seconds (9 turns) or 4 D-Cells.

The L-1 requires 1 turn cooling per turn fired in full-auto. It can fire up to 5 minutes (60 turns) maximum before requiring cooling. If used beyond this limit, roll 1d10 every turn. On a 2-5 the weapon shuts down due to the heat and can be used again only 15 minutes later. On a 1, the weapon sustains permanent internal damage and can neither be used nor repaired any more.

Type L-5 Medium Machine Gun (L5MMG)

The smaller cousin of the L3HMG and successor of the L1MMG, the L5MMG is the typical machine gun deployed for quick stationary protection and in battle for smaller MMG nests. Not as elaborate, nor as big or dangerous as the L3HMG, it nevertheless packs a good punch and is a favourite of the military, seeing heavy deployment around all battlefields. As it is also intended for battle operations, it is by far more resilient than it's heavy brother.

The L5MMG uses a somewhat cheaper version of the L3HMG's Zeiss optics and only has two barrels with a fully enclosed, robust cooling system. The laser generator is the same as on the L3HMG, i.e. short, ultra-high energy burst in the invisible spectrum. However, the power consumption has been optimized for the smaller weapon size.

The L5 uses either two high power packs with a quick-charging mechanism, or can be supplied by external power sources, such as Mecha or field generators. Each high-power pack is good for about 30 seconds of full-auto fire (6 turns).

Requires 3 turns of cooling for every 3 turns fired in full-auto mode. May fire up to 20 minutes continuously before requiring cooling. If used beyond that limit, roll 1d10 every 2 turns. On a 2-3 the weapon shuts down and is not usable for 1 hour. On a 1, something blows and the weapon is damaged beyond repair. If powered by a Mech, it uses 80 / 60 / 45 / 35 % of a medium / etc. Mech's total power output.

Type L-3 Heavy Machine Gun (L3HMG)

The latest generation of heavy machine guns was introduced only a few years ago, in 2083. Build by European manufacturers and equipped with the latest high-duty Zeiss optics, this weapon is not only extremely expensive, but also delivers solid punches at incredible rates of fire. The military uses it today mainly for base defence and stationary posts, due to its power requirements and the large parts requiring two Mecha to carry it around.

The weapon consists of the weapon itself and the power supply, which was upgraded in 2085 to a 3rd generation field power generator, further enhancing the weapon's potential. Four fixed firing assemblies are used, each containing a laser generation unit, high-duty capacitors and a Zeiss lens system, which ensures the beam's quality. The lasers work in the invisible spectrum and are short, ultra-high energy bursts, which place extreme strain on the weapon, also requiring active cooling with liquid hydrogen (the entire electrical part is super-conductive). The weapon comes equipped with an automatic bipod and an optional tripod. Unfortunately, the weapons tend to heat up with time, and often need a cooling period, after intense battle.

If a high-power pack is attached to the weapon's energy inlet, it is drained in about 5 seconds (1 turn).

One of the reasons while this weapon is used almost exclusively as a stationary killing machine.

For each turn shooting in full-auto mode, the weapon will require 2 rounds of cooling; a maximum of 1 hour (720 turns) can be shot continuously, before the weapon needs to cool. Using it beyond this limit imposes a +1 modifier every 3 turns and a chance roll (1d10). On a 2, one of the barrels is damaged (reduce rate of fire by 1/4th); on a 1 this barrel also leads to internal malfunctioning, i.e. the weapon ceases functioning completely and is beyond repair. The system is a bit touchy: whenever it is transported, roll 1d10. On a 1, it requires basic servicing (1 hour) before it can be put to use. When in battle, also roll 1d10. On a 2, see phrase before. On a 1, the cooling system or optics are damaged, requiring a 4-hour servicing.

Type P-X Heavy Machine Gun (PXHMG)
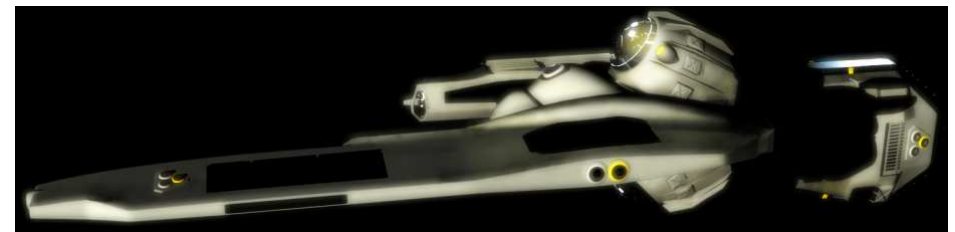
The PX-Series was an early development of energy weapons based on plasma pallets, brought into service during the beginning of the 2nd Arcanotech-War.

It had been intended mainly for interdiction and suppression fire, but was replaced after only a couple of years by the more ammunition friendly laser and pure energy series. Today, the weapon is still in use in some older units and on some front lines, where the extra punch of the plasma weapon is needed.

The weapon uses the same ammunition as the P2AR (15 mm compressed metal-hydrogen bullets) and can be powered either by eight integrated D-Cells (which only last for about 20 seconds) or, as it is usually done, by a portable field kit or a Mech / Engel (if it has enough free energy). The barrel has a special liquid cooling system, allowing sustained enormous rates of fire.

Ammunition is belted; the smaller belts hold some 250 shots (same as for the assault rifle), while usually either long belts (2000 rounds) or infinite belts are used.

Power can be drawn from a Mech / Engel, which needs to remain stationary. Medium sized Mecha may not fire any internal weapons when providing power, Large Mecha may fire any non-charge beam weapons, while behemoth

Engel may fire anything they want to. In case of using power rules (see modification), use 75 / 55 / 40 % of total energy for medium / large / behemoth.

Type R-1 Shoulder Launcher (R1SL)

A basically simple device, this massive launcher is used to fire the newest generation of very large missiles in an attempt to take smaller targets out in one shot, or at least cripple larger targets. Requiring massive strength due to the generated recoil and sheer weight of the weapon, only a small number of these launchers have been built so far, mainly as test beds and prototype testing. While the tests look promising, large scale deployment will probably never be achieved, due to the high cost and limited usability (special missiles, weight, bulk).

Fires a single over-sized missile (31 capacity). Currently only a single type of missile is produced for this launcher: Long Range (10), Autonomous (7), HEAV (27) and Plasma (4). Treat damage as a single +12 damage roll (heat armour applies 1/4, round down) with a single armour roll allowed. Use target-

ing rules for autonomous missiles. Can only be used by large or behemoth Mecha.

Type-R-3 Rocket Launcher (R3RL)

Seeing the use of missiles and rockets on the battlefield, the NEG decided to implement new ways of bringing them to the battlefield. A series of weapons was commissioned of which the pistol-sized hand held P4 rocket launcher was one of the first.

Shooting standard small rockets (capacity 10) from a large magazine attached to the pistol, the weapon is heavy but steady, features recoil compensation and a target interface to the user. While smaller Mech use it as a two-handed weapons, some daring pilots use this weapon Akimbo-Style. The heat of the weapon is dispersed and directed away from the user, thus also increasing barrel pressure a bit.

Automatic feed, pistol sized. Requires a min. STR of 8 to be used 1-handed, power armour may not use it. Damage as rocket, ammo 6c, shots 2. Clips are explosive; any direct hit on the clip has a 20 % probability of exploding the clip, leading to damage equal to the entire clip's content's added damage applied to the Mech holding the clip. Two weapons may be linked (only one attack roll with 3/4 dice pool).

Clan Arena WEAPON CONCEPT / NANO SNIPER

Type R-4 Rocket Launcher (R4RL)

A larger version (and the second one) of the hand held rocket launchers, this weapons comes in the standard three sizes, depending on the Mech holding it. Deployed since almost 5 years on battlefields all around Earth, the R3RL has shown its worth as a versatile and yet deadly medium-range weapon. Seldom taken with oneself into the heat of the battle, it is mainly used in order to soften up enemies before getting toe-to-toe with them.

Using the same ammunition, the only difference between the three different sizes comes from the recoil compensation system and clips being used. The bigger weapons have a quicker loading mechanism with a missile pre-fetch and pre-load and a more elaborate targeting system, able to acquire the second target while the first is still being fed to the rocket being shot. In addition, the larger the weapon, the better it can sustain a high rate of fire and evacu-

ate excess heat.

Damage as rocket, ammo clip with 4 / 8 / 15 rockets; shoots 1 / 2 / 3 rockets per shot. Shots 1 / 2 / 2, recoil 3 per shot (i.e. if used for a 2nd shot that turn, add a -3 modifier for recoil to the targeting roll, in addition to all other modifiers).

Type R-7 Rocket Launcher (R7RL)

A most unusual weapon, the NEG has commissioned production of nearly 5000 of these machine-gun sized launchers and associated belted (!) rocket ammunition, in order to assess usefulness and cost / effect on the battlefield. Today's assignments see these unwieldy, large weapons be used in base defence and sometimes heavy base assaults.

Uses four barrels and four cooled firing chambers on a semi-portable design, i.e. the weapon may be carried (up to 4 parts, combined strength of 8 required) but must be set down on an integral tri-pod before firing. It can plug into the targeting system of the Mech firing it or can use its own advanced tactical interpretation system. Firing standard rockets from a belt, it achieves astounding firing rates. An internal D-Cell supplies the electronics and cooling system, but is good for nearly 3

month usage before requiring replacement. The ammunition is belted and ammo is pre-loaded in all four chambers in order to ensure a high rate of fire.

Damage as rocket; fires volley of 4 rockets, shots 2 (so up to 2 x 4 rockets per turn). Belts are always infinite and may be assembled / disassembled in field. Ammunition mix possible. If carried in multiple parts, it takes 1 turn per part to assemble / disassemble the weapon. If using its own targeting system, powering up and calibrating the electronics takes 1 turn. Own electronics roll 2d10 + 8 for targeting.

Exotic Weapons

A number of rather exotic weapons have also found their way unto the NEG battlefield. Originally not necessarily intended for combat in the field, they have developed into a special cases arsenal that can give inventive pilots the edge they need in a difficult fight.

Grappler

The grappler is essentially a large winch, which's size is selected according to the frame of the Mech

using it. It uses compressed air or a magnetic acceleration (depending on the weapon's size and technology) to shoot a magnetic patch connected to a metal wire. The patch uses a strong electro-magnet, which receives its power from a D-Cell pack, to attach to any metallic item. The winch is strong enough to pull the Mech up, even against some resistance.

Upon a successful hit, the grappler attaches. It comes in the sizes tiny / small / medium / large / behemoth and has ranges of 50 / 70 / 100 / 150 / 200 m. It can pull up any of the Mecha the same size at itself even against speeds of up to 120 mph, one size smaller up to 200 mph and one size bigger up to 30 mph. The winch pulls up 20 m per turn and the cable has 10 / 15 / 20 / 30 / 50 points of vitality-scale life (once gone, the cable is severed). Hitting the cable involves a -8 to-hit modifier, but the roll is not contested.

A Mech one size larger reduces the pulling Mech's speed by 3/4, respectively can pull it in any direction at 1/10th his own maximum speed. If on land, be creative about damage. A Mech two sizes larger can hold onto a pulling Mech and keep it in place, respectively can pull it in any direction at 1/4th his own maximum speed. Again, be creative when computing damage. Electrical charges on the surface will fry a grappler's magnetic pad and thus release it (see Mecha modifications).

Pistols are small hand-held weapons that are used mainly as side-weapons even on Mecha. Seldom used as main engagement weapon, they can provide backup or simply tactical diversity and have thus remained successfully remained on the battlefield.

Type I Standard Mech Pistol (T1SP)

A small cousin in design philosophy of the T1AR, this pistol uses standard ammunition (the same as the assault rifles actually) and can thus accept a variety of different ammunition types. It uses nearly the same chamber and the same basic barrel design, even if it is a lot shorter; however, the power on the magnetic coils has been considerably upped to be able to deliver a bigger punch, and thus increase damage slightly. Scope and target designators have been dropped as there wasn't enough space.

It comes with a standard or extended clip, holding 6 respectively 12 shots and an internal D-Cell which is good for 60 shots.

Type I Heavy Mech Pistol (T1HP)

Sometimes versatility is not enough; the engineers from the NEG developed this pistol to use the same ammunition the T1SP and T1AR use, but completely changed the chamber feed and magnetic acceleration design. Superconductive coils with nearly twice as much power have been used, the barrel size slightly increased and a second D-Cell has been incorporated. A special opening of the barrel reduces speed loss due to the sudden pressure change at the barrel's end. While the bullet still looses speed quite fast and thus range has not particularly increased, the damage done on shorter distances is vastly different.

E5-78P Electrocuter Taser (E5TA)

An upped version of a normal taser, the E5TA fires entire D-Cells complete with a sticky gel that transmits currents onto the target. The weapon is rarely used, as it is extremely expensive, the D-Cells usually being lost in the heat of the battle, but has proven successful when the target needs to be acquired intact. The energy released usually damages all internal systems slightly (and may fry the pilot), but will not damage the structure directly, as it does not deliver such a high current, but rather high voltages.

The charge is a semi-liquid gel with an enclosed D-Cell, in a fragile metal shell. Magnetically accelerated, the D-Cell is activated on barrel exit. As soon as the outer shell hits something solid, it is fractured and the conductive and adhesive gel sticks to the Mech's armour while the D-Cell releases quick pulses of high voltage low current alternated with

mid voltage mid current, in order to fry entire systems without damaging the Mech.

The impact does no damage. However, the Mech receives 3d10+10 hybrid electrical damage per turn for 5 consecutive turns. Treat this damage as stun damage (see new rules) for the pilot. The Mech is not actually damaged, but rather rendered inoperable. See the expanded rules on electrical damage.

Shotguns

PS-35X Plasma shotgun (PS35)

The plasma shotgun is a hybrid weapon, using both energy and ammunition at the same time. A pellet of metallic casing and liquid hydrogen is inserted in the chamber, which hovers is a magnetic containment field. High-capacity capacitors are pre-charged with D-Cell energy; in the moment the trigger is pulled a high-powered electrical beam vaporizes the hydrogen and metal, creating a ball of plasma enclosed in the magnetic field. It is then accelerated through the barrel by multiple electromagnets, where additional hydrogen is injected to increase the plasma mass, before being ripped apart by a magnetic exit field into multiple small fire balls. The result is a hail of super-heated hydrogen and metal, melting through the armour of the target in multiple points.

Ammunition comes in re-Usable fully sealed clips, which hold the metallic / hydrogen charges, an additional hydrogen bottle for the barrel and the main D-Cells. Each clip is good for 10 shots. In addition, the weapon has a build-in D-Cell which powers the standby magnetic field, weapon electronics and interfaces. These cells are good for roughly 1 day of operation and require 2 hours of recharging.

E2-27X Electrocuter (E227)

The Electrocuter (also simply referred to as E2 in military jargon) has been introduced to disable Mecha without damaging them too much. Hoping to overload some critical system and shut it down, the E2 shoots small capacitor packages covered in a sticky gel. When hitting a target they attach to it and start shocking the target in regular intervals with high-intensity voltage.

The E2 comes with an internal D-Cell that is used to power the packages, which in turn are kept in an internal magazine. The Cell is good for some 30 shots, the internal magazine holds 10 shots. The packages come indeed in the form of ammunition, automatically processed by the weapon.

Electrical damage. In the 3 consecutive turns the packages inflict 1d10 damage (+0/+2/+4) on the target until they fall off. Reload 1 shot every action, max 2 shots / turn.

Firing generally slowly, sniper rifles are intended to harass or even kill an opponent from very far away, preferably out of the range of the target's own weapon. Cumbersome due to the long barrels, easily damaged in combat and under harsh condition, they are weapons typically used for point assassination or coverage of crucial passages and are rarely seen in battle.

All sniper rifles come equipped with scopes (see additional rules section).

Semi-Mobile Sniper Array (SMSR)

Another prototype from Europe, the SMSR is sprung from cooperation between France and Germany, bringing the best Europe had to offer in terms of punch to the battlefield. The decision here was to have an ultra-long range weapon for semi-permanent battlefield station, being able to deter enemies from a distance where retaliation is next to impossible. Today, only two dozen models are known to exist, all in the hands of elite European strike teams on forward positions.

The decision was taken to make the SMSR portable enough for a single Mech (of large size, admittedly) to be able to carry it. Weighting an impressive 17 tons, the SMSR comes in three pieces. The main chamber can be attached to the back, while the barrel and small-sized D-Engine have to be carried in their cases. The weapon is then set up on the battlefield and powered by its own D-Engine for continuous firing power.

The SMSR is basically a laser rifle, operating in non-visible wave length, making detection of the weapon impossible. The barrel has a total length of 15 metres and is composed of three pieces, which have to be attached via a specially engineered auto-adjusting system (using laser calibration similar to aircraft construction principles) and lying on auto-adjusting pods that steady the barrel over the entire length.

The lens system has been built by world-leading optical specialist Zeiss and is a marvel of modern engineering, managing a coherent, non-divergent light cone up to a distance of 3.6 km. The laser itself is a supra-cooled monstrosity from the French CNRN (centre national de recherches nucléaires) and can only be powered via a D-Engine. While it has an astounding rate of fire, it has to stop every 10 shots to cool down the barrel.

It takes 15 min. to set up the weapon, 45 min. for it to calibrate itself and power up; 15 min. to power down and 20 min. to take down and store correctly. It has to stop after 10 shots for 3 min. (36 turns) to cool down, then may fire only every 4th round. If more shots are fired, the weapon overheats, leading to decreased damage (due to laser cohesion loss) (+20 only) and reduced range (250/500/1000). After the 3rd overheated shot the weapon completely shuts down for two hours to cool and re-calibrate. In addition roll d10: on a 1 the lens system is damaged and requires replacement.

Type 7 Sniper Rifle (T7SR)

The T7SR is a relatively new addition to the armament of the NEG forces and still in experimentation state. It fires an extremely high energy beam at a target, in order to melt it to bits. Built in Germany, the Engineers have gone a long way to make this an incredible weapon, irrespective of cost and complexity.

The T7SR can either use an external power supply (which is highly recommended) or can be run off three high-power packs (see weapon accessories).

However, it takes a long time to charge the weapon: matter and anti-matter particles are accelerated close to light-speed in four circular matter accelerators and then fired successively from the barrel at slightly different speeds. The internal computers calculate the distance to the target in an most impressive way and time the speed difference such that the particles touch and annihilate a split instance before hitting the target. A single shot fires some 20 matter and anti-matter particles.

The weapon has several drawbacks: the energy required to power the accelerators, containment fields and electronics is enormous, leading to the power packs having a survival time of 3 shots only. In addition, the capacitors for the barrel need to recharge, reducing the rate of fire to about one shot every 20 seconds. The distance prediction system finally, is prone to small errors and particles may sway from the projected path, incurring a risk of non-explosion. After all, this weapon is still in testing.

The weapon has an internal magazine good for 20 shots which needs to be replenished via specialized cartridges.

On a glitch the weapon does not predict distance correctly. GM chooses at what distance (min. 100

metres) the projectiles explode. On a critical glitch the containment field fails. 5d10 + 15 damage to the shooter, armour as usual. For every range category beyond short there is a 10 % chance of wrong detonation.

Sinaii Exterminator (SIEX)

One of the few Nazzadi weapons still in use today, the SIEX has convinced the NEG military by its simple design, rugged parts and standardized ammunition system.

It comes pretty standard, with magnetic acceleration coils, single shot manual loading chamber and an attached power pack for the punch. Something special is the magnetic sealing of the chamber, meaning that the weapon has not a single moving part. All critical systems are fully sealed and the weapon can be used under any conditions (even underwater) without having to crave damage.

Another thing that makes it standing out in comparison to the highly specialized and extremely expensive NEG prototype rifles are the high rate of fire and the simple fact, that the weapon is dirt cheap.

3.2 Mecha Toys

Although primarily machines of war, Mecha also have other uses, as in the industry. And sometimes they need specialized gear for special missions, which is not regularly imbedded inside the Mech.

Flying Dutchman Jet-Pack (FDJP)

André raced through the jungle, trees flying by. His pursuiers were smaller and more mobile than he was, but still he held out. The chase already took long enough, the fuel gauges on his Flying Dutchman showing that the D-Cell assembly was already half empty. Cursing he checked his map, saw that only 500 m were left until he cleared the jungle. He gave a bit more speed, narrowly missed a tree and with a yell of triumph punched the speed lever to the maximum as a laser barely missed him. The A-Pods were fed insane amounts of energy, the Mech surged and it was done - he was away.

The smaller brother of the HST, the FDJP is attached to the back of a Mech, using the standard clamps present in the shoulders and back used normally for maintenance. The pack features a small but compact high-energy D-Cell assembly and a mobile A-Pod for lift (the large one actually uses two). While a Mech is able to move up / down, left / right and forward, the A-Pod cannot swivel towards the Mech, i.e. it cannot go backwards.

Much smaller than the HST but also which a much shorter fuel span and speed, the FDJP is used when a dispensable low-profile solution is needed.

Integrity 1. Use pilot rolls. Speed 350 km/h for up to 2 hours. Imposes a –6 modifier on all made with the Mech; close-combat is impossible unless the opponent moves at the same speed. When destroyed, the wearing Mech immediately falls (unless equipped with its own A-Pods). Cannot carry more than the Mech.

Hitchhiker Small Transport (HST)

The Hitchhiker Small Transport is essentially an A-Pod coupled with a few D-Cells, below a platform, adapted to the size of the Mech it is supposed to carry. One A-Pod on a spherical bearing is used to control thrust and direction, while the Mech stands above it, on a small platform with hand- and foot grips and a steering column. Some very basic sensors

are also built into the HST (radar and terrain clearance warning), but that is it. It can take nearly no damage and even machine guns and other small weapons have been known to tear through the thin sheet of metal and plastics.

It is used mainly for quick deployment or extraction, as the HST can, in an emergency, carry more than one Mech (whilst loosing lots of speed) and is a very versatile movement method. It also features an internal auto-pilot and can be directed to fly directly to a rendezvous point. When flying like this, the steering column retracts, to render the HST more compact.

Integrity-scale vehicle with an integrity of 1/2/4 and no armour. Use pilot rolls. Speed 250 km/h. Carries one Mecha of correct size or two of smaller size. May overload: 3 of smaller size, two of equal size or one of larger size. Reduce speed to 80 km/h and impose a –4 modifier on all

actions (including piloting). In both cases good for 4 hours of flight, 8 hours to reload.

Jump Packs

Crouched behind the already heavily attacked cover, SteelBody could do nothing but wait, plasma balls, laser barrage and all kinds of projectiles zooming around her. Looking left and right she could see her team mates in similar positions, now and then venturing to stick out an arm with a big rifle and fire retaliation, while the automatic gun emplacements in front of them continued to hammer the enemy behind them - who slowly but surely wore them down. Then suddenly they heard the oh-so familiar sound of planes zooming overhead, heard the carpet bombing and then saw the sweet sight of over fifty Broadswords being dropped into combat on their jump packs.

A tuned-down and more easily maintained version of the Jet-

Pack systems, the jump packs have a burst-operated A-Pod, which is very small for the energy he can release but only able to operate in pulses. D-Cells pre-charge a condensator grid, which powers the A-Pod and allows a Mech to heavily augment it's jump capabilities and even allow for high altitude delivery. Good for something like 50 jumps or five aerial deliveries, they are attached either via the standard hinge points or via straps (thus reducing their capabilities) and come in four standard sizes, but are flexible enough to also carry Mecha one size smaller than what they are intended for.

Doubles (triples) the jump distance for Mecha the same size (one size smaller) than the system. Can be used for aerial delivery, consuming 10 charges. A jump can also be extended further by expending an additional 2 charges (i.e. 3 charges in total), bringing maximum jump distance to the triple (quintuple) of the Mech's normal distance. Takes one action to drop and four actions to don when correctly adjusted and 2 minutes to adjust. Incurs a -1 penalty to all physical actions taken while carrying the pack.

Personal Mobility Jet-Pack (PMJP)

The battle was already in full heat as the chief dropped literally in on his Jet-Pack, jettisoned it the moment he touched ground and leaped off to join the action, while The Bear carefully adjusted the dropped pack to his own suit with Li's help and got his damaged and bruised Mech out of way's harm and back to repair.

A smaller and more practicable version of the Flying Dutchman, the PMJP is composed of two parts, a single A-Pod thruster on a swivel mount with all associated steering and control electronics, and the power part, essentially an array of high-duty D-Cells. It is attached via the same general purpose hooks that all NEG Mecha are equipped with for maintenance, and has a standard control pad / plug. Coming in two sizes, it either fits for tiny (primarily) and small (if need be) Mecha or for small to large Mecha, by using an adjustable fixation system. Unfortunately for them, Engel lack the same kind of attachments and thus cannot be transported. One energy pack is good for 6 hours of continuous operation. Due to the swivel design (placed behind the user), the pilot cannot move backwards.

Allows Mecha to fly at speeds of 120 / 60 mph for the small system (tiny / small Mecha) respectively 160 / 120 / 100 mph for small / medium / large Mecha on the regular sized system. The system can be dropped with a simple action and be donned by the same Mecha type in four actions; re-adjusting takes 3 minutes. While donned, the Mech incurs a -3 penalty to all rolls involving physical actions and makes dodging impossible, if the maximum air speed (if applicable) of the transported Mech is exceeded by more than 15 %. Engel cannot be transported.

3.3 Anti-Mecha weaponry

With the ever more widespread use of Mecha, by foes and friends alike, the military has soon started to develop weaponry specifically used to counter the Mecha threat. These weapons are intended to be used by manoeuvrable, often stealth, Powered armour units and usually need to be directly applied to the Mecha or otherwise brought in close, making such an enterprising a daring task.

Contact explosives

One of the most dangerous methods of laying destruction on a Mecha, incidentally being also the most devastating, is to directly lay explosive charges on the Mech itself. These shaped charges adhere with magnetic clamps to the Mech and are usually coupled with high duty capacitors. Few BA units have taken to this measure so far, as approaching an angry Mech is often fatal to many of the BAs. But for recon Mecha, the tactics has been astoundingly successful.

When triggered, the charges blast away openings in the Mech's armour, releasing a second charge inside the exposed and vulnerable areas, as well as starting to induce a few short but very powerful electrical pulses into the Mech.

Mines

One would wonder why land mines are still used in a time, where A-Pods make flying for so many units so easy and fast, that there really is no reason to walk. However, many of the smaller Mecha (especially powered armour) are still not equipped with A-Pods. Especially against the forces of the EOD, entire shorelines have been filled with mines of all kinds.

There are many ways to activate a mine: usually some sort of sensor is integrated into the mine: pressure (including pressure variance), distortion of a magnetic field, sound, sometimes even vision. While regular mines still rely on passive effects, the advent of the D-Cell has made it quite possible to use active mines with operating times of up to a few years- usually by far enough in the turmoil of the Aeon War.

The newest development in the field of mines is the stealth mine. Usually larger than its mundane counterpart, it not only includes a highly sophisticated D-Cell array, but also an adapted limited stealth system, keeping it essentially invisible.

Treat this system as a standard stealth system.

Mines come in different sizes, camouflage patterns and from many manufacturers around the globe; being cheap and easy to produce, they are usually deployed in masses; quite often the formula is: the more & bigger, the better.

Damage is given for light / medium / heavy mines and is integrity scale. Mostly the military just uses heavy mines. Mines do not roll an attack roll, but instead do 1d10 damage by standard, plus what is listed in the individual description.

Damage given is standard + expanded rules: Dmg, Full / half radius, attenuation (expanded).

Mines are built of three parts: the sensory package, which is used to detect anything passing above the mine. Today's battlefields see mostly the use of D-Cell powered electrical detection and a mechanical back-up system for long-term deployment. Secondly, an eventual propulsion system; these are mostly used in case of anti-persona mines, which are propelled to some height above the ground before releasing their deadly charge. And thirdly, the charge / warhead used.

Unlike ammunition, rockets and missiles, mines are much more robust, being buried in the ground under unforeseeable conditions, and are much more cheap. Instead of relying on specially shaped charges, complex plasma generation and similar, they simply rely on the high mass of explosives that can be put into the mine.

Mines come in different sizes (small / medium / large) but can be carried by any Mech. Each Mech may carry 1 small mine per point of strength, 2 medium mines per 3 point of strength or 1 large mine for every 2 points of strength. They may be deployed anywhere, though special vehicles exist, which can saturate a zone or burry the mines in the ground, reducing visibility.

Each mine has a certain space it needs to share for all its components (sensors, propulsion, warhead): 5 for small mines, 7 for medium ones and 11 for large ones. Attacks of mines are also considered surprise attacks. Detection of mines is difficult; the GM should ask for a perception test, with a base difficulty of very hard / hard / challenging plus additional modifiers depending on situation and whether the mine has a stealth system or not..

Sensory systems

The following sensory systems exist today; quite often, more than one system is used in order to achieve a better detection. In case of a (*) next to a sensor name, the sensor is passive and does not require any energy. Other sensors run of D-Cells; electronics are optimized in such a fashion, that a single cell is able to supply the integrated electronics for roughly two years.

Add up the space cost of each sensor installed. Sensors may be installed multiple times, leading to multiple detection rolls. When a mine tries to acquire a target, the mine rolls it's relevant sensor(s). Each sensor has a base skill of 8 + 2d10. If more than one sensor is installed, roll once, but add +2 for every sensor installed. Target numbers are dependent on Mech size: very hard / hard / challenging.

Chemical Sensor (2)
Chemical sensors find use mainly in areas where living beings are expected and targeted. Reacting usually on typical hormones (or pheromones) of a specific or wide group of living beings, they detect a

certain substance, or combination of substances, in the air.

The use of chemical sensors is pretty uncommon, as the scent to be detected has to be fairly generic in order to allow for quick detection. And mines are today seldom used against living personnel.

Friend / Foe Identification (1 */ 2 *)

Used mainly in areas of permanent implementation, such as in front of a base, where all resident Mecha are equipped with a friend / foe chip (or a friend / foe database is accessible). This modification either checks integrated RFID chips or consults a database, based on a unique hard-wired identification code of each Mech. In the latter case however, this information is emitted via wireless link and thus susceptible to jamming. Mines can either shut down or continue working when the wireless link is cut, depending on the user's settings. RFID chips on the other hand can be forged or stolen.

Magnetic / Metal Sensors (1)

A coil picks up any significant variation in the magnetic field around the mine; the electrical pulse thus generated is used to ignite the charge and detonate the warhead and eventual propulsion system. This implies however, that the mine is either equipped with an external probe or is made out of plastic, as a metallic mine would mean having an own magnetic field.

While pretty reliable and easily adjustable to only ignite when a certain mass of metal passes, the downsides of the activation system are that any magnetic field will activate the mine, including lightning, quite often leading to false activation of a mine.

Pressure Sensor (1)

The classical sensor, a spring loaded plate is installed on top of the mine (or a single cylinder, depending on design). When a certain pre-determined pressure applies on the mine, the plate / cylinder is loaded and pushed downwards, leading to activation of the mine. This is by far the most common type of the last two year.

Visual Sensor (2 *)

Using a complex array of cameras, infra-red detectors and sometimes even non-visual aids such as ultrasound, the mine forms a 3-D colour image of all potential targets around itself. The on-board computer interprets the signals and compares it to the database of acceptable targets. If one is found, then the precise point of maximum damage is determined and the mine is detonated as required.

These systems tend to have a shorter lifespan, either because the objectives get dirty and require cleaning or because the automatic cleaning systems (typically electrical arcs) require lots of energy.

85

Propulsion / support systems

Some mines are made to move or to adhere to something. This is treated by installation of the propulsion / support systems. The two most used configurations are without any propulsion / support system, in order to keep costs low, and with magnetic grapples, in order to be used as an anti-Mecha weapon.

Charge Launcher (1)

Used mainly for anti-personnel mines, this modification fixes the charge on a pre-loaded spring or pressure cylinder. When activated, the charge is ejected, being connected with a wire to the cylinder. On the detonation height, the cable is pulled (it is simply shortened to the desired length), pulling a safety device and igniting the charge. Any heights of up to 3 metres are possible.

The mine may not be buried completely, as the spring has not enough power to shift large masses of earth. It will however displace up to 100 kg of mass. The length must be set before detonation and is 1m50 by default. It may be adjusted anywhere between 0 and 3 metres. Divide damage of the warhead by 2, respectively divide number of bullets that hit the target by two (round up in both cases).

Magnetic Grapple (1)

Magnetic coils, powered by an internal D-Cell, are integrated into the mine and the warhead is encased in a special fashion as to direct the blast more exactly towards this side of the mine. Delivered by powered armour or by field troops, the mine is attached to a Mech (usually in vulnerable places such as joints or cockpit latches). The attacker drops and the mine explodes on the Mech, doing heavy damage.

Make a 1d10 roll. On a 1-2 the mine does not correctly attach and falls down. On a 1 roll again. On a 1-2 the mine detonates because of the shock and the attacker and the Mech must resist 1/2 the damage of the mine (armour applies). Increase damage respectively number of bullets hitting by 50 % (after the dice roll, round up).

Stealth System (2)

A smaller and stripped-down version of the advanced Mecha stealth system, the mine is cloaked from view. This requires however the use of very expensive materials (radar-absorbent), a complete plastic set-up (versus metal detectors) and a few other changes in order to fool sensors (camouflage paint, non-distinctive shape, etc.). Few mines are built this way due to the high cost and low benefit.

Provides a -4 detection penalty for detection with any sensors.

Warheads

The main parts of mines are their warheads, i.e. the explosive charges they carry. Usually, these make up a great part of the mine, but some specialized mines sacrifice damage for support systems & advanced detonators.

Warheads are shaped charges, designed to blow up in specific directions and with specific damage zones, ranging from an upward blast for the regular explosive mine to a 360 ° arc for the anti-personnel mine.

Anti-Personnel (1 - 5)

This weapon is used exclusively against non-armoured personnel. It uses a compressed charge enveloped in small metal spheres. When the charge explodes, the spheres are accelerated to great speeds and rip through flesh, bones and other soft materials. Glass will break, non-armoured vehicles will be shredded. Armoured vests are of little aid against these bullets. Because of the cruelty and the prospect of settling all over Earth again, the use of such warheads is forbidden; NEG special forces use it though to contain human cultist threads.

Does vitality-scale damage. Range 50, -1 / m. 2d10 + 3 damage per bullet (roll only once for all bullets). Everyone within the blast radius is subject to (size) + 1d5 bullets. Roll projectile armour and deduct it from every bullet.

Anti-PA (3 - 6)

A beefed-up version of the anti-personnel mine, the explosive charge is increased, the spheres are smaller and their speed is much higher. Used in order to damage the legs of Mecha or to completely annihi-

late powered armour, these charges are also forbidden, because of the massive damage they can do to human beings.

Hybrid damage, Range 100, -1 / m. 2d10 + 4 per bullet. Everyone within the blast radius is subject to (size - 2) + 1d5 bullets. Armour is deducted from each bullet hit.

Chemical (4-7)

A high-pressured chemical cylinder with spring-loaded ejection nozzles of different types is installed in the mine. When activated, the nozzles are extended up to 2 metres; due to their size, they will also pass through loose gravel, earth, but will be repelled by any solid materials, including armoured feet of Mecha. The liquid is then sprayed through these nozzles, either as a direct stream, or as an area-coating.

*Damage as chemical. Range 2m (nozzles), then 20 m (upwards tight beam, 1 target only) or 10 m (flat dispersing). Holds (size)*10 litres of any chemical.*

Electrical (2-5)

Stacks of D-Cells are used to power high-capacity low-loss capacitors (being pre-charged during manufacture) for about 6 month. Whenever the mine is activated, it shoots ten tiny needles on high-tensile cables towards a pre-defined direction and then sends massive amounts of energy over those wires. Although they nearly instantly evaporate due to the high current, the ionized channel is created and the rest of the charge travels along it into the target.

*Hybrid damage. Range (one target only) 10 m. Damage (size * 2)d10; electrical damage. Apply electrical armour + trauma armour (see rules on electrical damage).*

Explosive (1 - 7)

A simple explosive charge, shaped to explode upwards, this warhead is still the standard for all mines used by the NEG and other militaries all over Earth's battlefield. The warheads come in a number of sizes, only dependent on the mass of explosives used.

Integrity-scale damage. Range 10 m, -2 / m. (size)d10 + (size) damage.

Plasma (4 - 7)

Uses a D-Cell in order to quickly heat up a critical mass of liquid hydrogen and transform part of the Earth into an inferno of heat and molten earth, this mine aims to cripple immediately the legs of larger Mecha or completely destroy powered armour. The heat is so intense that it can damage even the surroundings, though the plasma only lasts for a few seconds.

Integrity-scale damage. Range 5 m, -5 / m. (size-2)d10 + (size+3) damage. Apply heat armour.

Targeted bombs

Bombs are typically launched from aircraft; however, Mecha and Engel flying on A-pods or even dropped and still in the air, can also launch those bombs.

Targeted bombs have their own guidance system (in addition to receiving guidance information from the launching unit) and limited flying capability, usually by the aid of small wings and sometimes even small solid-fuel booster, allowing them to home in on a target that has been designated by ground forces.

Bombs come in different classes, depending on their weight, and are commonly classified by the NEG as follows: Small (up to 500 kg), Medium (up to 2 tons), Large (up to 5 tons) and Behemoth (larger than 5 tons).

All sizes come with different warheads. The NEG has standardized the shell for the different classes and only changes the warhead, which is essentially just placed into the bomb's shape and can easily be

changed in field to achieve the maximum damage desired.

Aerosol

Another weapon formerly forbidden by the Geneva Convention, aerosol bombs drop highly explosive fluid into the atmosphere and disperse it in a large area via tiniest droplets. When these are ignited, the large available quantity of air and the enormous surface of the total gas mass lead to an extremely hot and devastating large-scale explosion, burning flesh, trees and whatever is in the vicinity while the blast flattens solid structures, buildings and the like.

Area effect

Area effect bombs break down into several aerodynamic high-explosive charges that saturate an area with heavy damage. These are intended for destruction of heavy objects, such as vehicles or buildings and can usually be avoided by smaller troops (i.e. anything vitality scale which is able to move).

Chemical

Used to deliver large quantities of chemicals upon a certain area, chemical bombs are typically loaded with either acid or napalm (or similar) in war operation and insecticides or stun / tear gas for more civil applications.

They consist of a pressure reservoir, the chemical reservoir and a nozzle and open typically some 50 m above the target, spraying their content over a larger surface. This height can be adjusted in order to cover larger surfaces or to precision-bomb a single target.

EMP bombs

EMP, electromagnetic pulse, bombs use small nuclear charges that create powerful electromagnetic blasts in the air. They are typically detonate over the target, as the blast damage itself is not the critical part, but rather the shockwave. And the higher the detonation, the bigger the electromagnetic damage and the lower the radioactive damage done to the target.

Typically radioactive materials with a very short half-life are used, in order to allow for quick re-settling / conquering of the area with ground personnel and to reduce waste lands. EMP bombs are quite bulky due to the nuclear charge.

High-Explosive

A classical bomb full of high-explosive materials, detonated upon impact, with no further fancy, high explosive bombs are the regular ordinance delivered to flatten opposition in an area before ground troop insertion.

+3/+6/+9/+12 damage, blast, 5/10/20/40 m, -1 / 2 m.

Nuclear

One of the most devastating weapons ever developed, nuclear warheads are only used in situations of total desperation, when even the collateral damage dealt to Earth is not important.

Today's charges are smaller than the old ones of the early 21st century, but achieve a much better penetration rate and thus comparable destruction but using less radioactive mass. Still, few things are able to hold up against such a blast; even most Mecha are destroyed or at least rendered unusable. The NEG only very rarely uses these warheads, as the area is also rendered unfit for humans for a very long time.

Consider anything except Engel destroyed that is not Behemoth size. Behemoth Mecha or monsters receive directly critical damage (or 10d10 + 50 whichever is worse) and shut down / are dazed for 10 minutes. The pilot receives 5d10 + 15 radiation damage. If it doesn't kill him, he will still have to be hospitalized for radiation burns. Engel have their own rules w.r.t. radiation but inflict, but still receive the 10d10 + 50 damage.

Shrapnel

Again a weapon forbidden by the Geneva convention, shrapnel bombs release highly accelerated metal particles in an area. But instead of using them only against humans, these bombs are large enough to be charged with metal spheres and charges that are sufficient to penetrate even power armour. Released shortly above ground, they fill a large area with their deadly ordinance.

+3/+5/+7/+10 hybrid damage. Use double projectile armour (keep the roll against all impacts, roll only once). Roll a hard dodge. For every point you miss it, one additional bullet hits you (use double armour against each hit).

3.4 Weapons (human sized)

Most of the weapons here are just derivates of the base weapon types given in the core book. While they do not substantially change game play (the statistics usually remain quite balanced), they are intended to offer additional flavour in the form of immersion and variety to the game.

Exotic Weapons

Instruments

One of the rare modifications made to instruments is the incorporation of guns. However, it is not unheard of. Stemming from the desire of ever bigger and more interesting shows, instruments were even fitted in the early 3rd millennium with pyrotechnical devices (i.e. fireworks) in order to make for a blasting concert. In later time, this was adapted to be used with lasers (for laser shows) and the occasional one-shot gun (for dramatic purposes). On the black market, these techniques evolved in order to give heavy metal (and other) groups a good argument when having to battle it out again.

Generally, guns can only be incorporated in instruments that are large enough to hold them, their ammunition / power supply and not suffer any adverse effects from the change in the resonance body. As such it can be assumed that no acoustic instruments with higher then mediocre quality can accept modifications, except the following instruments and guns.

- Base (acoustic): anything in neck, laser anywhere

- Chello (acoustic): small calibre guns in neck, laser anywhere (internal power supply is possible)
- Guitar (acoustic): laser in any part, but power supply must be external
- Violine (acoustic): laser in neck but with external power supply

In principle the same modifications as for the walking cane are possible; please look there, what you want to install.

Walking Cane

There are a number of uses a standard walking cane can be put to. The long barrel-like cane has been traditionally used for hidden rapiers, sabres or similar weapons. However, with the advent of advanced manufacturing, nanotechnology and miniaturization, the walking cane has become a host for a large selection of goodies.

Once a status symbol, walking canes are today rather seldom seen, though they have started to enjoy quite a comeback in the last few years. Traditionally made of wood, the best and most expensive ones are also today made from expensive and exotic woods. Younger people have them made out of colour-changing polymers, metal or even translucent with some kind of device in the middle (ranging from simple water games, moving bubbles to complicated mechanical devices without function but cool looks).

Blade

The classical modification includes a fencing blade into the cane. Used namely by those who have to hide something, the blade is made today from specially engineered polymer materials, sharpened by laser and often dipped with its tip into a chemical reservoir. The cane fits tight and completely conceals the opening, advanced materials in the outer shell make the blade and space within invisible to x-ray or other detection methods and let the cane look just like it was nothing special. The blade is available as a rapier or any other fencing weapon, depending on the taste of the user.

Hidden weapon, forbidden everywhere. Dmg+1, reach+1. Can be quick drawn for a surprise attack.

Grappler

The tip of the cane is made from metal and is in fact a small anchor, which deploys via springs in flight. A powerful gas charge is used to propel the anchor up to 15 m in vertical height, while trailing an ultra-light cable behind it. A small winch is installed in the (somewhat larger) upper end of the cane. It is spring loaded and can be used to draw up to 100 kg all the way up. Once shot, the gas cartridge needs to be replaced and the winch's spring needs to be re-loaded, which takes a special tool or a drilling machine (some 10 minutes in the first case and 45 seconds in the last).

Gun (Electromagnetic)

The cane is slightly larger than the usual ones and looks massive, especially due to the upper end being quite large; people used to those exotic canes often recognise the electromagnetic cane solely from its appearance, making it somewhat less popular. The size comes from the electromagnetic coils installed the length of the cane and the D-Cell installed in the tip. A small opening accepts tiny metal spheres, which are then accelerated along the barrel at very high speeds and propelled towards the target. In order to shoot, the tip is separated, and a small laser dot is projected along the barrel from the top.

Hidden weapon, forbidden everywhere. Dmg -1, shots 3, 20 rounds, 1 D-Cell (good for 40 shots). Loaded by hand, shot by shot, though a quick loader can be attached (allowing the weapon to be re-loaded in 4 turns). Due to the improvised nature of the gun, it imposes a -1 modifier to the to-hit roll.

Gun (Laser)

Looking exactly as a normal walking cane, except for the larger top, the laser gun cane houses an elabo-

rae optical focus system, laser generator and a single D-Cell. When activated (either by wireless command or by depressing a hidden button), the cane fires very short high-energy bursts in the invisible spectrum. As this makes targeting difficult, a red-light visible laser is also implemented, projecting a dot on the target. In order to shoot, the tip bends sideways and closes again after the shoot-out.

Hidden weapon, forbidden everywhere. Dmg 0, shots 3, 2 / 1-2 / 6, 1 D-Cell (good for 30 shots). As an improvised weapon it imposes a -1 modifier to the to-hit roll.

Gun (Powder)

An archaic instrument no longer used but by fans of the old days, the tip of the cane is sitting on a charge of gun powder and can be shot. Often combined with an injection system, it can also be used to deliver poison or other chemicals. Strictly forbidden and difficult to use, users sometimes got hurt themselves because of the tremendous recoil from the long cane.

For the very daring out there, a large-calibre version exists; while doing more damage it also requires a thicker cane and a strong arm to fire.

Hidden weapon, forbidden everywhere. Dmg-1 (1 for large calibre), shots 1, 1 round, range 2 / 5 / 10. For each point of strength below 8 the user receives 1

point of damage due to the recoil (no armour applies). Also add 1d10 (2d10 for large calibre) damage for everyone (no armour).

Gun (Taser)

Another popular version of the gun cane is the taser. Small needles are shot from the tip, connected with thin wires to a power supply inside the cane. In order to save on space and costs, no D-Cell has been used, but instead traditional accumulators are in place, which need to be recharged at home. They can transmit high voltage shocks, which essentially render the target unconscious. The only allowed version of self-defence for unlicensed personnel, the taser cane is widespread and often deemed acceptable even on social occasions where guns are heavily controlled.

Hidden weapon, allowed. Dmg+4 (stun), shot 1, 1 round, range 0,5 / 1 / 3 (no extreme range). Imposes a -3 to-hit modifier due to the improvised characteristic of the weapon.

Spray

Using the hollow part of the cane as a reservoir for fluids increases the weight of the cane but allows for a wide selection of useful applications. A standard cane can hold nearly 500 ml of any fluid and encases it in a glass receptacle, resisting even strong acids. A

small compressed CO2 cartridge is installed in the top, which pressurizes the reservoir upon demand and allows spraying from the tip. Different tip caps exist, depending on the use: high pressure for a tight stream with some reach; dispersing, in order to coat an entire area with fluid; or any combination thereof. The law-enforcement has not yet decided how to treat this weapon, and as such it is allowed in America but not in Western Europe.

Hidden weapon, legality varying. Damage depends on fluid charged. Shots 2, CO2 reservoir good for one cane. Range (tight) 0,5 / 1 / 2, range (spray), 0,5 fixed. The weapon can unload 250 ml of fluid in one turn. The size of a shot is determined by the muzzle used (anything from 50 ml to 250 ml).

3.5 Weapon accessories

The following weapon accessories are available for human and Mecha sized weapons of most kinds.

Field power generator

Sometimes large power amounts are needed in the fields, in forward posts … whenever it is not practical to lay a power line or to install an entire power centre, field power generators are installed. These large D-Engines are about ten times bigger than

those installed in a Mech, much more heavy and better shielded.

They are used frequently not only by the military but also buy regular construction sites, disaster relief and as emergency backup for hospitals and other important buildings.

FPGs come in different sizes. They are multi-segment constructions, which can easily be adapted to power needs. The smallest ones with one segment generate about the power of a Large Mech and weigh something like one ton. Each segment increases power by the amount generated by one large Mech and increases weight by 750 kg. They are either transported by Mecha via handles or are embarked on large trucks and transported to their destination.

Can power any regular Mecha weapon and device. One segment powers roughly one mobile barracks complete with all accessory equipment.

High power energy pack

Sniper rifles and some other heavy military Mecha sized weapons have let to the requirement of massive amounts of energy. Simple D-Cells being not enough, the military has developed standardized power packs, holding 4 standard military issue D-Cells each, coupling them with a robust and reliable charge / discharge and health monitoring system. They also have a standard power outlet.

If standard power outlet is used, treat equipment connected to it as if having power from 4 D-Cells,
i.e. 4 times the operation time of a single D-Cell.

Laser pointer

In order to improve accuracy, it is common practice to install a laser pointer on an axis parallel to the barrel, projecting a small red dot next to the point where the bullet will hit (typically a bit higher or lower). This is a common modification, that can be installed on the top or below the barrel.

Provides a +1 to-hit modifier on all ranges except short. Cannot be used in combination with a scope.

Scopes

When using scopes on weapons, the target is brought in closer, thus reducing perceived distance. Using a scope requires the shooter to aim carefully, generally using some sort of support, such as a bipod or tripod.

Another potential drawback of scopes is their delicacy. When hit in melee or otherwise shocked, odds are that the support will shift or some piece of delicate mechanics is moved,

miss-aligned the scope with the barrel and essentially rendering it useless.

3.6 Ammunition

What would the world of carnage be without bullets? Empty guns and energy weapons only get you so far, so here's something for you to put in your guns and to bring tactical versatility to the battlefield.

We only list the ammunition types here, as they are available in all required calibres, and the principles do not change between Mecha and human sized weapons. Sure, the materials used, explosives employed and fabrication methods change, but the underlying function (burn, shock, knock down) remain the same.

Today's weapons automatically detect the weapon type, which is imbedded in a RFID chip in each bullet, and adjust power settings, coil strength and ejection speed accordingly.

All ammunition given here exists in a vitality-scale, integrity-scale and hull-scale variant. Simply adjust the damage as appropriate to the gun that is firing.

Chemical delivery

Acids, tear gas and sometimes even aerosol-vectored sleeping gas can do wonders in non-lethal warfare. As even the military has understood that expending lives at all costs is not always an option, but that vital information can be extracted from prisoners as well being able to use them for cruel and illegal experiments, they have invested in this new type of ammunition.

The bullet is hollow with a thinner jacket, making it somewhat unstable in flight and requiring slower barrel speeds, thereby reducing range. However, the bullet can be loaded with any chemical the shooter desires; typically it is combined with a skin-vector, which increases skin pore dilatation and has slightly acid properties, making the chemical pass even through armour.

Reduce all ranges by 20 % and base damage by 1 die.

Incendiary ammo

Regularly used when it is time to make something burn, the bullets are hollow and filled with a special substance, such as white phosphor or napalm; sometimes an agent for the initial ignition is provided.

Looking from the outside as regular ammo, the bullets explode upon impact letting loose their burning interiors on or in the target. The chemicals used are also made to stick to the target and to be difficult in extinguishing.

Change damage type to "heat". Causes materials to ignite (if possible) and continues to burn for 2 consecutive turns, causing 1d10 hybrid burn damage every turn. It is impossible to extinguish.

Explosive ammo

Filled with a more unstable compound, explosive ammunition is used to inflict more harm unto a tar-

ge. While the bullets remain unchanged on the exterior, the charge is altered. However, since the compound is more unstable, there is a very real risk of explosion / harm to the user when the ammunition is hit.

Adds 20 % (quicker: +1) damage. Use common sense to see if the ammo pouch is hit. If yes, does (remaining ammo)d10 damage to the user (may use armour).

Highly unstable harm-inflictor

Developed from the explosive ammo, this experimental ammunition is forbidden on the regular battlefield and has only seen a very small deployment in test cases. It is not officially supported by the NEG.

Basically, the shell is left unaltered, but the charge is altered to a significantly more damaging kind, which has the drawback of being highly un-stable, even during transport, making the ammo quite useless in regular battle.

Adds 50 % to the damage caused. Whenever transported anyway else than in the special casings under controlled conditions (combat is not a controlled condition), roll 1d10 per hour (count fractions as full

hours). On a 1, the ammo explodes, causing 3d10 damage for every 2 bullets thus exploding.

Rubber ammo

Used mainly in riot suppression but incidentally also on the battlefield, the normal shells are replaced by a thin metallic outer shell and heavy rubber slugs on the inside. When hitting a target, the shell brakes away and the slug flattens against the target, transferring a maximum amount of kinetic energy to the target, hoping to knock it down.

Reduce damage by ½. Treat as knockdown attack: make a challenging strength test. Add a +2 / -2 modifier for every step difference in size. If the test fails, the target falls flat on the back and requires 3 full turns to get back up again. (Roll a challenging athletics test. For every 5 points the threshold is beaten, reduce time by 1 turn to a minimum of 1 turn.)

Semi-Autonomous Delivery

Used in the military mostly in close quarter combat or in confined spaces, these grenades have found widespread application in the securing of buildings, lightning of dark spaces and indirect fire. They are mass produced, light weight and have low costs,

making them a favourite of field commanders. Lastly, their universal charge adaptor makes them perfect for in-field engineering and improvisation, making them also a loved addition to all trooper's and engineer's arsenal.

The SAD is a semi-autonomous drone relying on an initial propulsion but able to control its own movement. It has the form of a nearly perfect rubber sphere, which encloses the command, monitoring and steering shell, which can, by shifting weight, adjust the direction the SAD is moving in. What follows is a nearly 0 friction nano-oil and finally the charge container, which thus always stays in the same position and is not affected by the moving motion of the SAD around it. The SAD is powered by minuscule accumulators and has just enough spare power to hold a receiver unit and provide a single high intensity power spike. Any other required energy, the charge must bring itself.

There are a few options the SAD can accommodate: self-opening on signal (for instance for re-Usable gas grenades, flesh bangs and similar) and advanced movement. The latter implements additional power reserves and a micro-motor, able to amplify the initial movement and keep the SAD going for a bit longer time, while reducing the available charge space.

SCDs also come in all kinds of sizes from a mere 5 cm diameter to nearly 1 m, varying charges held, transportability and cost. The most common however, are 5 and 20 cm, the first as personal, the second as Mecha variant.

Tracer ammo

Used in night or poor visibility conditions, this ammunition burns on the backside when fired, leaving tiny red spots in the air, visible to the shooter (and all behind him), but not to the enemy on the sides or in front of him. They are usually used as every 3rd or 4th bullet in a magazine or belt, but have a slightly lesser punch, since they need to provide the burning material.

Only on automatic weapons. Provides a +1 (1/4th) or +2 (1/3rd) bonus to targeting at night, but also incurs the same amount as damage modifier. When firing bursts simply adjust the damage accordingly. When firing on full auto, reduce damage by 6 (1/3rd) or 3 (1/4th) points.

3.7 Advanced Rocketry

As the regular ammunition has gone with the time, so have the rockets. Today, fighters

are no longer limited to a single kind of rocket, but can choose from a variety of propulsion system, warheads and guidance systems.

Every rocket as presented under these rules can be constructed from three parts: the propulsion system, which is also partly dependent on the launcher; the warhead, which defines the charge of the weapon, i.e. damage amount and type; and the guidance system.

These three systems share the same space, such that it is impossible to install it all into the same weapon. Finally, everything written here is also true for torpedoes (use common sense though).

Rockets have a regular space of 10 units, long range

missiles have a space of 25 and are nearly thrice the size of regular ones.

Propulsion systems

Propulsion of rockets is invariably done by solid fuel burning, which, once ignited, cannot be switched off and will continue burning until all propellant is consumed. However, dependent upon the quantity of fuel, composition of fuel and of the steering capabilities of the rocket, this system can be larger or smaller and will deliver (in addition to the warhead) a bigger punch.

Unguided missiles simply have a fixed nozzle and small wings to stabilize them in flight, often introducing rotary movement. The guided once have

95
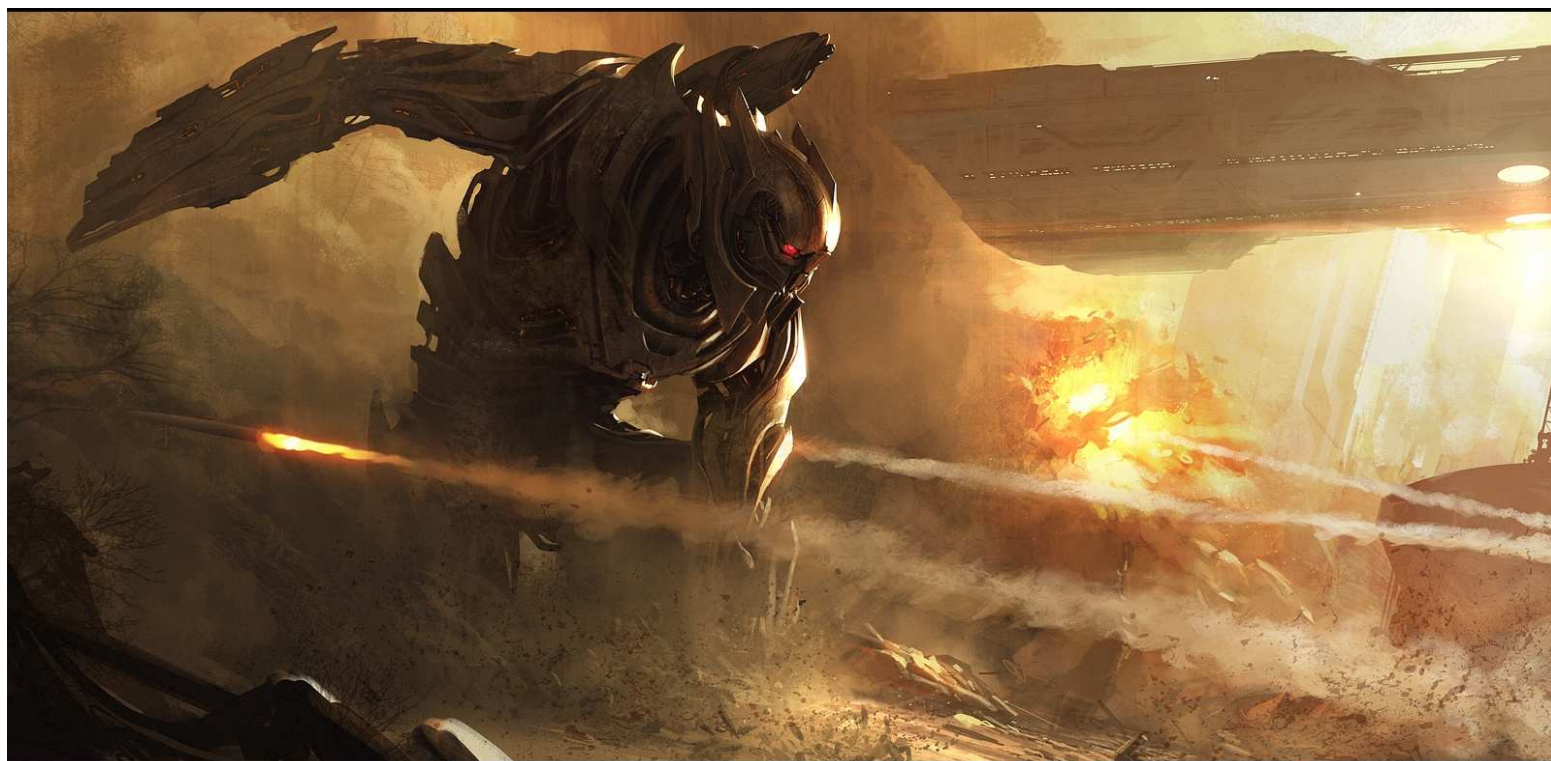
moveable flight control surfaces (usually on 3 to four small wings) and often a moveable exhaust nozzle, giving them vector thrust capabilities. Guided missiles are difficult to trick, as they are able to take more than 20 g in any turns, while human pilots already need proper training just to withstand the 9 g they maximally fly.

Short Range (3)

A small reservoir used for high-speed short-distance delivering of the ordinance. Rather seldom used in combat, as the bigger punches can be supplied by particle canons and the like and rockets are rather used for medium to long range engagements. The NEG today no longer commissions short-range missiles except for a very small contingent of highly specialized payloads.

Medium Range (5)

The usual propulsion system for rockets, it allows engaging the enemy before or just as the long-range weapons come to bearing. Used to soften up a target before it comes too close or trying to destroy the target before it can get into melee range, the NEG makes wide uses of rockets of multiple kinds. The medium range propulsion system is also the ideal compromise between payload and propulsion.

High Speed (6)

Used only for medium-short ranges, these rockets are intended especially to intercept and destroy fast moving vehicles, such as aircraft. Reaching top speeds of Mach 3.5 and supporting loads (any direction) of up to 35 g, these fast burning rockets are the bane of all fighter pilots. Much larger than the usual short range and medium range propulsion systems, it leaves little place for payloads. However, aircraft are traditionally low armoured and thus smaller charges are sufficient.

Extended Range (7)

The largest propulsion system able to be integrated in usual rockets, an extended reservoir and upgraded nozzle are installed, able to propel the rocket just that bit further than the normal ones. Often used by

Mecha with access to quick re-supplies, the battle-field is saturated with these rockets before the enemy can get into sight and his own range. Ordinance is then exchanged in order to be able to keep up with the damage, when the opponent is near.

Long Range (10)

A large propulsion system consisting of multiple tanks and a large nozzle, intended for short flight times at very high speeds, the long range missile reaches Mach 1.2. While not able to intercept air-craft, it can at least hit even far away targets in just a few seconds.

Guidance and Steering

While the steering system is factually also part of the propulsion system (at least partly), it is only installed and upgraded according to the capabilities of the guidance system - after all, there is no use in steer-ing, when the rocket cannot be guided. There are a number of systems, depending either on internal or external electronics to provide guidance to the rocket. Target acquisition is made by many means, each of which has its own drawbacks; therefore, modern rockets use a combination of imaging (infra-red, visible and other spectra), laser, radar and heat seeking in order to correctly identify their target and home in on it.

The vast number of rockets is guided by the launch-ing vehicle, thus also supplied with friend / foe in-formation and the possibility of re-assigning targets in flight (if there is enough time) to kill priority tar-gets. Long range missiles are typically self-guided, as they often rely on remote spotters since the target usually cannot be seen by the launching vehicle.

Non Guided (0)

The simplest of all guidance systems - it is simply not existent. The rocket is launched and continues on its way until impact, without any chance to do any-thing. Seldom used, it is only employed when many rockets are fired quickly in order to saturate an area with interdiction fire - kind of a larger machine gun replacement.

Friend / Foe (3)

Non-autonomous missile simply launched without having a target acquired. Using the launcher's target-ing and battle information system and some basic on-board targeting system, the missile homes in on the closest suitable target and destroys it. Not very reli-able but useful when jammed or when there is great need for damage without the time for a correct tar-geting procedure.

Roll a to-hit contest between the victim and following value: (launcher's targeting bonus x 3) + 7 + 2d10.

Fire and Forget (4)

This missile is launched once a target is acquired and then uses the launcher's targeting system to home in on the target. It uses vector-thrust and a basic wing steering system, allowing for hard course corrections, albeit some deficiencies when flying in rough terrain. If the launcher looses contact to the target however, the missile is able to use some very basic tracking and targeting methods to follow its target and destroy it.

Make the contested to-hit roll. If the contact between launcher and missile is lost, roll 1d10. On a 7-10, the missile correctly homes in on the target and destroys it, on a 1-6 the missile fails to re-acquire the target and destroys itself.

97

Multi-Mode (5)

Combines the fire and forget and friend / foe recog-nition. If fired as a targeted missile, it behaves as a fire and forget missile. If fired without having ac-quired a target first, it uses the friend / foe circuits.

Semi-Autonomous (5)

Launched from a vehicle without prior contact to the target but rough coordinates of the target, the missile quickly speeds to the designated coordinates, where the target has to be designated by spotters (usually laser or microwave). The missile will home in on the

designated target. In order to do so, it has advanced steering mechanisms, speed regulation, vector thrust and a rather complicated electronic brain, able to make semi-autonomous decisions regarding speed, heading etc.

Autonomous (7)

Using the same steering system as the semi-autonomous missiles, but with a much more advanced computer suit, the autonomous missile is loaded with tactical information and has advanced imaging systems and is equipped with a friend / foe system. Given rough coordinates of estimated target positions, the missile will speed there, brake to more manageable speeds and identify quickly a suitable target, on which it then homes in. These missiles are still largely in a prototype phase, as it is not trivial to make a missile recognize friend from foe just by visual identification.

Warheads

The engine of destruction, the warhead is the charge that deals damage. At first, warheads simply consisted of explosives, but as warfare developed new types have been invented: napalm, chemicals, nuclear … Man's imagination is limitless when it comes to tools of destruction.

Light explosive (1)

Sometimes there is just not enough space in order to fit enough explosives, in order to keep the damage in an acceptable range. Rockets with these warheads are always fired in couples (i.e. 2 or 4 etc. at a time), since they need to combine their explosive power in order to make any damage at all. Due to the low damage but the high cost / damage compared to normal rockets, this warhead is rarely used in the military.

Electrical (2)

Using a battery of high-capacity capacitors and a metal depressing contact on the tip, the warhead releases vast amounts of energy with a very high voltage in the millions of volts and high currents of a few tens of kA into the target, hoping to disable it by electrical shock alone, without damaging the target too much. This warhead is not very common, due to the very high cost and the rather frequent modifica-

Warhead	Space	Dmg / Rocket	Dmg Type	Special
Light Explosive	1	0.5	P	Min. 2 rockets (else 1d5 dmg)
Electrical	2	4	E	
Chemical Sniper	2	0	am	See special rules (lots)
Explosive	3	1	P	
Plasma	4	1.5	H	Min. 2 rockets (else use 1d5)
Piercing	5	1	H	No armour roll, ½ vs. small & tiny
Chemical Area Sat.	6/8/10	-1	am	Depends on chemical loaded
Bunker Cracker	10	8	H	No armour roll + special (see text)
HE Anti Veh.	10	10	P	
am = ammo, H = heat, E = elec., P = physical				

tion of increased electrical resistance on many Mecha; special ops and capture operations make the most use of these. The warhead is also not very subtle: lightning strikes wherever it hits.

Dmg+4 (electrical). Under water Dmg+2 but everything in a 100 m radius around the target has to resist the same damage as the target, included the launcher (if in range). Smaller fish and animals die instantly, leaving a trail of destruction.

Chemical sniper (2)

A strange shape with a very sharp front needle, super-heated with small amounts of plasma, the chemical sniper rifle is intended to pierce the armour of the target and deliver a chemical charge directly to the inner part of the target, sometimes even hitting the pilot himself (and in general killing him in the process).

Dmg 0, roll a contest between 1d10 + success dice against the target's armour. If the result is greater than the armour roll, the point penetrates and the chemical is delivered to the inside of the Mech. Roll 1d10. For tiny / small / medium / large / behemoth Mecha, the pilot is hit by a single missile on a roll between 1-7 / 1-6 / 1-5 / 1-4. In this case, inflict 5d10 + 20 damage (armour applies) upon the pilot + whatever the chemical does.

Explosive (3)

The traditional warhead used on nearly all rockets. An explosive charge is detonated when close to the target, the damage coming from the shock wave and the explosion with some added damage due to the exploded shell. These warheads pierce to some extend the armour of the target in order to increase the effectiveness of the explosion; however, this effect is only secondary.

Dmg+1

Plasma (4)

Using a storage of liquid hydrogen and a small high-capacity electrical storage, the warhead has a long "snout" which extends after firing and is depressed before the rocket hits the target, leading to ignition of the charge and immediate fusing of the hydrogen to become one big ball of plasma just an instant before it hits the Mech, thus transferring a maximum amount of damage to the Mech. In order to combine for maximum effects, rockets are usually shot in pairs.

Dmg +3/2 rockets (round down; heat damage). You may roll 1d100. On a 1, one of the rocket hits a bird or similar small object, leading to ignition of the charge in mid flight and thus reducing the damage.

Piercing (5)

On the basis of an explosive warhead, with some reduced charge, the piercing warhead is intended to pierce the target's armour by using a super-heated tip and high rotation speeds, in order to deliver a small explosive charge into the enemy, beyond the armour. Commonly used against heavily armoured targets, including bunker and similar installations. Against small Mecha, this charge is seldom used as it is considered over-kill.

Dmg+1 (heat), no armour roll, but may roll with heat armour modification. Against tiny or small Mecha, half the damage.

Chemical Area Saturation (6, 8 or 10)

In order to saturate a large area with chemicals or with flammable liquids, including napalm, a special warhead was designed, which features a large reservoir of highly resistant materials and can hold up to nearly 80 / 120 / 200 litres of fluids, depending on the size chosen. It is deployed to a certain area, which it over flies, releasing the liquid. Depending on pre-selection it can either saturate an entire area with a rain-like spray, or it can dump the entire content in a few seconds, in a heavy stream. If required, electrical ignition of fluids upon exiting the reservoir is possible. This warhead is today widely used in the NEG military, in all kinds of configurations; pilots

are advised however to be careful when carrying explosive liquids as a direct hit on it can lead to explosive results.

Dmg -1

Bunker Cracker (10)

Used mainly on larger missiles, the bunker cracker is a larger piercing warhead which heats up to tremendous temperatures and has a drilling profile on the warhead. Using plasma-near heat and the drilling motion, it eats even through the toughest armour and releases heated material into the bunker, consuming oxygen and potentially frying anyone inside the bunker. Too large for most missiles do be effectively used against Mecha, the damage done is nevertheless impressive.

Dmg+8, no armour roll; may roll 1/2 of heat armour. Half the damage against tiny or small Mecha. In case of entering a bunker or closed space, intense heat is dispersed, causing hybrid heat damage: 1st turn 1d10, 2nd turn 2d10, etc. up to ten turns, then declining: 11th turn 8d10, 12th turn 6d10 etc.

High Explosive Anti-Vehicle (10)

The warhead used mainly on long range missiles due to its size is composed of the forward drilling part, which is heated by the sheer speed of the missile and used to borrow through the armour of the target and deliver the massive charge of high explosives as close as possible to the target's structure, thus increasing dramatically the damage transferred.

Dmg+10

4 Equipment

In this chapter you will find a
multitude of different equipments,
to be used by your average player.
Those things intended for Mecha are
in chapter 3, so you should be
heading there straight away, if
that's what you're looking for.

4.1 Armour and Cloth

As the possibilities and varieties
of harm infliction on people grew
ever more, cloth and armour
designers had to step up to the
challenge and devise new ways of
protecting their clients – be it
with obvious and heavy armour
plating, or by implementing hidden
armour and protection layers into
regular clothing.

General Notes

Armour values here are given as a static value, following the Armour – Revisited additional rules from chapter four. If you wish to convert this to die, divide by 5 and round up. When using the numbers given here, do not roll for armour, but instead simply subtract the values given from the damage received.

Armour

Typically, obvious armour is used in heavy combat situations by riot control, Special Forces or other official party. However, some special cases of armour not directly intended for combat can also be found.

Powered armour suit

BAs are different from normal Mecha suits in that the wearer pilots a BA differently. As such, the suits are very light, custom tailored and can be stretched in many ways. Build to evacuate sweat and heat from the body, they keep the pilot comfortable and offer electrical protection as well as considerable ballistic and trauma protection.

The NEG military deems BAs similar to soldiers, so they pilots are well equipped to fight on, even when on foot, and their armour suits rival some of the better combat armour. They are truly a marvel of modern engineering and also make use of some of the intelligent materials used in Engel suits (see below) in order to reduce impact energies. BA suits are more expensive than regular Mech suits and also more coveted.

They come equipped with a GPS system, bio-monitor, survival utilities and basic communication equipment. Four ammo pouches for small calibre ammunition are also installed, as well as temperature control equipment.

Provides 20/20 armour, +5 against electrical damage and +3 against thermal damage. Use the PS rules from the pilot armour. Add 1 die to medical diagnosis tests.

Engel pilot suit

The standard Engel pilot suit is a marvel of modern technology: build of ultra-light intelligent Kevlar and breathing material, it can adjust to the size and body shape of the wearer in a limited fashion: the suit is loose when de-energized. When charged, it automatically fits tightly around the wearer, without hindering him, though, continually adjusting its fit. In addition, it has numerous pores, to be able to let the NFL (see add. flavour) contact the body.

While it does not protect against any projectile damage (it simply isn't meant to), it incorporates padding and can deform slightly (mostly thicken) in order to take trauma damage. Also incorporated is of course an advanced bio-monitor and an interface to the ESI's real-time EKG and synchrony measuring equipment.

Provides 15/2 armour. The bio-monitor adds 2 dice for diagnostics. Can be worn underneath all other armour and only counts ½ as encumbrance (i.e. 1

point). Does not protect at all (not even with trauma rating) against electrical damage.

Fighter pilot suits

The standard aircraft fighter pilot suit is a derivate of the Engel suit: not quite as advanced and not made entirely up of smart materials, the legs and lower body parts are made from smart pumps, as well as the arms. The suit is thus able to compensate strong g-forces but still has to be fitted to the person wearing it. Is protects against bullets and impacts, as fighter pilots sometimes have to eject, leaving them in potentially hostile terrain.

The standard suit also incorporates a small emergency D-Cell and a GPS system with some general maps, basic bio-monitor and some emergency equipment.

Provides 6/6 armour. The bio-monitor adds 1 dice for diagnostic, the GPS provides detailed (1:25.000) coverage for NEG core and battle areas and general coverage (1:50.000) for the rest of the world's land mass.

Mech pilot suit (basic)

Primarily intended to keep the impact of the Mech's sudden movements and possible damage from falling etc. from affecting the pilot and intended to deter

electrical damage, the suit is a poor general armour but increases survivability of a Mech pilot. It also includes a basic bio-monitor and temperature regulating equipment.

Provides 6/0 armour, +3 armour against electrical damage and +2 armour against temperature. Gives basic health information (add 1 dice for diagnostics).

Mech pilot suit (advanced)

Mech pilots are of course primarily protected against damage by their Mech's armour and systems. However, the new advanced pilot suit incorporates more than just armour: it also provides climate control for a limited time, a basic bio-monitor, automatic drug dispenser and a few survival tools in specific places. In addition, the outer layer is electrically insulated, in order for the pilot to be protected against electrical attacks on the Mech.

This product of high technology is currently produced only in Europe and Canada and finds use in the NEG forces in Eastern Europe and in Alaska.

Provides 11/6 armour, +4 armour against electrical damage and + 2 armour against temperature damage. Holds 10 doses of up to 4 different drugs and gives basic health information (add 1 dice for diagnostics).

Cloth types

Not all clothing is appropriate under all conditions. While it is not uncommon to see people in all kinds of cloth on the street, the suit is still the regular outfit in most enterprises, while dock workers prefer sturdy clothing; both parties would be quite startled and eventually hostile against the other's outfit. As such, here are different kinds of clothing categories with a short explanation of when to dress how.

It is possible to wear clothing one step above or below without totally falling out of line. At the GMs discretion, being one step out of line may lead to a modifier of -1 or -2 to all social tests.

Utility / Working

Used by factory or other workers throughout the world, the outfit includes heavy cloths that are able to take large amount of punishment, are resistant to abrasion and use. They feature lots of pockets and are designed to be easy to wear, comfortable and, above all, practical. Washed rather seldom, they are usually full of spots, glue, colour or whatever else is in their owner's working environment. Somebody wearing this kind of cloth is automatically classed as a low worker on the way to or from work. Wearing them in any other situation (and even during commuting) will usually earn the wearer depreciating

looks and will forbid most social interaction with any higher class.

Sport

While there are surely different designs, and some sport cloth might be acceptable on the street, the masses confound and social class barriers are less prominent when it comes to regular sport clothing. Utilitarian, breathing, anti-sweat and anti-stench, easy to maintain and able to take a lot of stretching, bad weather and hostile temperatures: build to keep the body comfortable. Sweat and water is transported away from the body to increase performance. Seeing people in sport clothing is quite common, both on the street as in the parks. And while people may not see sports clothing as the most fitting it is accepted in most non-formal and non-office cases.
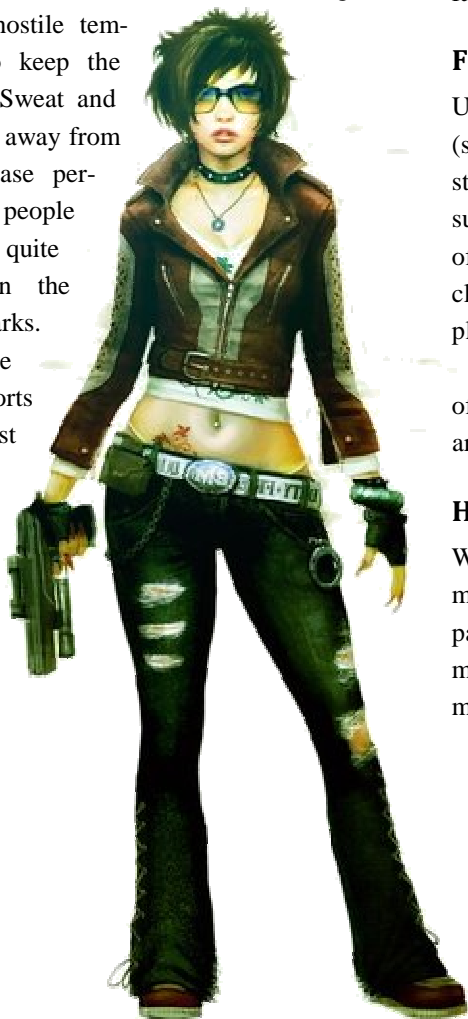
Street

The regular street clothing, which is actually a mixture of many styles: polos, t-shirts, pullovers, jackets, coats ... it encompasses all clothes which are right for everyday use, some a bit for stylish, some not. You could wear them to do sports and some of the better quality ones could actually be worn for a more formal occasion. In the worst case, you could even fit on the docks, if you just had something basic and no fancy designer pieces.

Formal

Used for office jobs, attendance to formal events (such as a guest to a wedding, work dinner), the standard garment is still the suit for men and either a suit for woman or skirts with a blouse or shirt. Made of nice fibre and cut in a variety of ways, the formal clothing can range from understatement to power play. Collars and sleeves come in a variety of forms that have not changed much since the 1st decade of the century and most of the big players from then are still dominating the markets today.

High Class / Evening dress

Worn on the lower state meetings (such as between ministers) or when you are the central attraction of a party (the wedding pair) or when being invited to a more class party (possible a higher class marriage), men will switch either into very expensive and typi-cally 3-buttoned suits or don the Tuxedo. For women, the only acceptable dress is an evening dress, be it cut short or long, usually accompanied by the matching jewellery and make-up. These dresses are typically very expensive and rarely worn, re-tailored to fit the wearer perfectly.

Exclusive / Designer

When the regular clothes that larger designers sell are not enough, there is the ultimate expense of having a known designer tailor you the exact dress you wish. Few tailors are up to this task, where the finest and most fragile and difficult to weave materials are used, sometimes with jewellery such as diamonds already integrated into the cloth. Many of the dresses are worn for one occasion only and finish then in some closet, together with other toys costing millions.

Clothing Upgrades

While the next chapter will discuss manufacturers of armoured clothing in more detail, there are a large number of upgrades that can be installed in clothing: from utilitarian expansions, such as medfibres, to environmental seals and more.

Clothes may receive up to 3 modifications (short arms / short legs) each, 5 modifications (long arms /

legs) or 7 modifications (duster). It is possible to layer clothes with modifications and have modifications be applied simultaneously. However, GM discretion is advised.

If multiple clothes with the special protection or armour are layered, only the highest value counts.

Modification space may be reduced by 0.25 (and eventually thus down to 0) by doubling the price. Or by 0.5 by multiplying the price by 5. The only exception are: Concealed Pockets, Smart and Smart² Fabrics.

Adaptive Camouflage

Must cover entire body.

Using nano-technology and adaptive displaying panels on the outside of a garment, it is possible to blend into the surroundings. In order to do so, tiny cameras (though low resolution) must be hidden in the clothes. Nanites and display panels are then programmed to assume the same pattern as what lies behind / before / on the side of the wearer.

This system requires some time and as such is limited in effectiveness if moving too quickly. It is recommended to only move cautiously.

Provides 4+2d6 bonus to all stealth tests regarding vision.

Either integrates cameras, for an additional modification point, or may use hidden cameras (but requires a minimum of 6), then providing an additional +2 bonus.

When moving quicker than cautious, the bonus is halved. At running speed, provides no bonus.

Auto-Doc

Requires Medi-Fibres & must cover entire body.

An upgrade to the Medi-Fibres, the auto-doc relies on the fibre's feedback on the wearer's health and applies emergency care if needed. The suit is modified with pressure lines, allowing cutting off body parts such as arms & legs from blood circulation, thus preventing bleeding to death. In addition, syringes with common drugs and medicines are integrated, as well as a number of useful slap patches.

Prevents bleeding to death. May stabilize a patient and apply first aid. Can heal 2d10+5 vitality points, but not more than 5 per injury. Re-fills cost ??? TN.

Anti-Mosquito

From the Amazonian jungle and other mosquito-infested parts of the world, comes this simple modification. On the inside of the cloth, a very fine Mevlar (derivate of the famous Kevlar) layer is installed, which effectively prevents piercing damage by small objects and animals. A favourite amongst adventurers of all sorts, a denser variant exists, which can also hold off typical hand-thrown darts.

Prevents any stinging animal up to insect size (e.g. mosquitoes, bees, wasps) from stinging through the cloth. In a 2-point variant also prevents hand-thrown darts to penetrate.

Camouflage Pattern

A standard modification of all militaries over the world and the centuries, camouflage patterns are adapted to a specific environment, such as jungle, snow, desert etc.

When used in the proper environment, these patterns allow the user to camouflage in the natural surroundings and be more difficult to be spotted. However, when used in other environments, the user actually stands out.

Requires no modification slots. In the proper environments, adds 1d10 to tests to avoid being spotted.

Concealed Pockets

Ideal for the not-so-distinguished, concealed pockets use special sewing techniques and integrated pouches to make items concealable. The system works even better with smart materials, when the cloth shifts and moves in order to accommodate the item. Concealed pockets come in a number of positions and sizes, but are always on the inside. Most of them can be sealed.

Requires a hard test to be spotted and a challenging test to be felt. Increase categories by one if the cloth is equipped with Smart² fibres. Reduce by one or two categories, if bulky or solid objects are placed in the pocket.

Requires 0.25 modification slots per ¼ litre and 250 g capacity. This cannot be reduced by paying more.

Envi-Seal

A radical modification, Envi-Seal completely seals the wearer from the outside environment. There is no contact possible of either gaseous or liquid materials, effectively protecting the user from most harm.

The modification is only available to full-body suits, which come complete with built-in, generally non-

removable, shoes and gloves and an adapter for a helmet or a built-in face mask. A small oxygen supply is attached to the belt, as well as a re-breather unit to allow the wearer to breathe cleaned outside air. General market models have an oxygen supply of 30 minutes, though models with up to 6 hours exist.

Most often, this modification is taken together with amenities such as "Waste Reclaim" or smaller options such as water supply, food supply etc.

Effectively acts as an environmental suit, sealing the wearer off from the outside w.r.t. gas and liquids. Provides between 30 min. and 6 h of clean air. Smaller options exist (but are not counted separately), allowing for a water pouch on the back, pill dispenser or other (small) amenities.

Gecko Patches

Usually applied to shoes and gloves, gecko patches can be installed just about anywhere on a cloth. They consist of nano-built low-atom count tubes that attach to the fabric on one side and hold on to any object placed on them, or hold the user against any given surface, by using Van-der-Waals forces (i.e. adhesive forces on atomic / molecular level). Individual hairs are roughly 200 nm long and 100 nm wide. In case of water, they hold even better.

The only surface known today, to which gecko parts cannot stick, are Teflon surfaces.

The effect can be turned off or on, by using low electricity charges in order to hide the hairs inside the cloth or have it stand outward.

Allows clinging and climbing to any given surface. Assume that a 1 cm x 1 cm patch can hold ca. 140 N (i.e. a weight of 14 kg). A typical glove has a surface of 50 cm² on the palm alone, i.e. 900 kg of adhesive force.

Gel Packs

These rather large packs of a specially engineered gel harden upon impact and become totally solid (simply by the kinetic energy stemming from the impact's shockwave), thus providing an armoured barrier against damage. They are a tad like their smaller cousins (the padding packs), but are larger, bulkier and react quicker.

Whenever stricken by an attack, the wearer will be protected but also will have difficulty moving for short time thereafter; the packs take about 30 seconds to liquefy again.

Obvious modification. Provides 3 points (not dice) armour against fast-moving objects like bullets and 5 points armour against blunt / edged weapons. Does

Hidden Cameras

An especially valuable item for spies, hidden cameras are integrated into the fabric of the clothes, allowing supervision of the area around the wearer. These cameras are equipped with night vision and can be fitted with an electronic zoom. Images are of high quality (40 fps @ 2500x1600 or 20 fps @ 5000 x 3200) and are stored on-board just about any storage device – storage can also be integrated into the clothing, if desired. 3D imaginary is possible.

These cameras do not come with a microphone (this is an extra option).

Hidden Microphones

Similar to hidden cameras, hidden microphones can also be integrated into the clothing. These are placed between the inner and outer fabric layers, are incredible small and come with built-in filter electronics, allowing filtering of ambient sounds and even loud noises.

Integrated PCPU

Those not interested in always carrying all their gear around, can quite simply integrate their PCPU, including the telephone, com-unit, storage and more, into their clothing. The circuits are sealed and can thus withstand frequent washing and punishment. However, when brought into a fight, damage to the parts often ensues.

The integrated PCPU comes complete with triple redundant storage banks, that can hold massive amounts of data – anyway between 1 TB and 1 PB, depending on the money put forward.

Impermeable

Unlike protection against liquids, which still allows breathing of the person inside the suit, an impermeable cloth is impenetrable to liquids of all sorts both from the inside and outside. Typically only used in divers' dry suits, this modification is also available to other cloth. Simply add a layer of slightly modified rubber inside the garment, and you're good to go – and sweat.

Padding

Inserting gel packs at critical positions such as the elbows, knees and portions of the bottom and back, those parts of the wearer are protected which would usually come into painful contact when sitting / lying on a rocky / stingy ground. A favourite amongst hunters but also mountaineers, the modification works as follows:

On the protected parts, two thin layers of gel are installed. In case of pressure, the outer layer will

107

hidden and form a protective shell, while the inner layer will remain liquid and provide the padding. When the pressure is gone, the outer gel liquefies again, in order to allow for maximum movement.

Massage Fibres

Lying low for a long time, especially in ambush situations when one is the sniper, can quickly become a pain, as muscles start aching and fatiguing. Hunting sports have found a counter a long time ago: by using electrically actuated fibres, massaging liners are introduced into critical parts of the cloth, e.g. arms, legs, upper torso and neck.

Medfibres

Medifibres are a nanotech-upgrade, which allows integration of medical diagnostic systems into normal armour or clothing. It is a combination of non-invasive analysing techniques, using skin measurement of blood flow, oxygen saturation but also pheromone and sweat levels, as well as a small reserve of nanobots that are inserted in the body through the skin, checking for blood values: sugar content, white cells, red cells, disease, poison and more.

All analysis data is send to embedded optical chips which run on a single small power source and are connected to a database of common compounds and diagnosis, allowing the system to make a first assessment of the subject's health.

A quite common addition even in every-day clothes, quality varies mainly with the sophistication and amount of nanotech and the associated databases and processing power of the in-cloth equipment.

Sensors

Apart from cameras and microphones, which are treated separately, other sensors can also easily be integrated into clothes. Among those that do not require targeting, and can thus be installed just about anywhere, there are:

Air Quality – measures not only trace gases, oxygen and CO2 concentration, but also humidity, temperature and other factors.

Barometer – measures the height above sea level. Is equipped with an antenna to capture weather & position confirmation data, allowing it to compensate for various unwanted influences.

Gas Spectrometer – able to measure the composition of any gas it comes in contact with. Gives detailed information about present molecules. If coupled with a PCPU can look-up dangers & effects of any substance it encounters.

108

Hu-Temp – measures humidity and temperature. Automatically computes the dew-point.

Smart Fabrics

When a PCPU is integrated into the clothes, the entire clothing can be upgraded to be "smart" or

smarter than usual. Captors inside the clothing can read RFID tags and compare the codes with an internal database, that holds various values for weight & volume for the concerned item. It is also equipped with a captors to read standard RFID weapon information, including loading status and weapon type. Comparing it again to a database, the fabrics can easily determine how much total weight a users carries, what kind of supplies he has etc.

Smart² Fabrics

After the simple smart fabrics, comes the time of Smart Squared or Smart² fabrics. In addition to what has been mentioned in the paragraph before, these nifty clothes incorporated moving and adjustable straps and surfaces, as well as being nearly entirely covered in gecko hairs. They can thus adapt to the weight that is being put on them, can fix items just about anywhere and are always comfortable to wear.

It is even able to move items around a bit, by re-adjusting the fabric below and to change size and aspect. Thus, clothes can be comfortable when sitting and expand to allow easier movement – at the same time, they can tighten when running or performing strenuous actions.

Special Protection

Special fibres are used to render the cloth resistant to certain kinds of damage vectors, not associated with bullets and cutting weapons.

Electric damage is precluded by including copper meshes and other insulation wiring into the cloth, running these wires to the ground, and providing a grounding plate on the sole of the shoes. Thus, tasers and other electric weapons have much less of an impact.

Fibres can also be sealed, with varying degrees of success; sealing against liquids is easily done, and even allows breathing from the inside. One-way permeable membranes are the way to go.

Temperature control lastly is an issue of insulating materials, often smart ones, reacting to the inner and outer temperatures and ensuring the wearer's temperature remains at comfort level.

109

Waste Reclaim

For those operating for long times, nano-machine powered waste reclaim is available. Adding high-tech underwear into the garment (or directly into the underwear), nanites take care of any refute (liquid or solid) and decompose it into natural base materials, such as carbon, metal etc. Liquids are broken down into gaseous form, essentially oxygen and hydrogen for water.

While still uncomfortable for a few minutes, recent upgrades have included a more sensitive nanite programming, allowing for a completely cleaned and proper wearer and removal of any residual odours.

Essentially a diaper with auto-cleaning and wearer cleaning. Leaves only dust and gas (non-odorous).

Armoured Clothing

There are many styles of armour around, visible and non-visible as well as a large collection of clothing. Designers and security aware entrepreneurs quickly realized, that there was a marriage to be made and a big market to be tapped. As such, there is today a large collection of armoured clothing available, for all occasions and situations.

In order to see armoured clothing as it is, roll a hard perception test (note that the different brands modify this test). Armoured clothing (even if concealed) might not be acceptable in some social situations.

All armour values given in absolute points, not dice. If you want to translate into dice, divide by 5.5 and round down.

Armanti

The top-style Italian cloth designer, Armanti has gone through a lot of changes. Facing ever more competition from Boxs in Europe and from China in other parts of the world, the label has focussed on the high-price segment in the late 60s and has stayed successful ever since. Catering to an exclusive list of clients, counting some major state officials, Armanti is today considered the label of the wealthy and powerful. (High Class to Exclusive)

Available with up to 7 armour points distributed as the buyer wishes (e.g. 10/0, 5/5 etc.) in exclusive and up to 9 armour points in high class. Apply a -4 modifier for perception.

Boxs

A German enterprise with design in Italy, Boxs has endured the wartime and has continued to supply high quality tailoring to both masses and a more exclusive market. They have classic designs which seem ageless, not trendy but with an aura of timeless style. The most common suits are 3-buttoned, made of excellent thread; the armoured variants include hidden Kevlar fabric woven into the suits, giving them a slightly heavier look, which can be identified by a good observer. In addition, tertiary layers of protective materials are woven into the suits, protecting against any kind of damage the wearer wishes: thermal, heat, electric, chemical or fluids. (Formal to High Class)

Available up to 6/5 armour. Apply a –2 modifier for perception. Add up to +2 against any single damage kind.

Lagoste

Originally known for their shirts and blouses, Lagoste from France became a major player in armoured clothing and now offers comprehensive clothing, from the sporting guy in a rather chic outfit up to the more easy-going formal dresses of young modern executives. (Sport and Street)

While not as class as older European designers such as Armanti, Lagoste has made itself known for the excellent durability and resistance its cloth show with respect to external punishment and sweat, abrasion etc.

Available up to 7/8 armour; apply a –4 modifier for perception and +2 armour against thermal effects.

5
Vehicles
Expanded

It's time. Time for a bit more vehicular madness and action. There's bound to come more with the official equipment book, when it is FINALLY going to come out. Until then, here's a tad of information and ideas. Fluff and vehicles combined. So, put on your gloves, put on your sunglasses and let's get rolling!

5.1 New Vehicles

There are many uses for new vehicles – especially since those in the core book seem unduly slow. Let's face it: with unlimited power in the form of a D-Engine, the only technical limit to forward thrust is heat built-up due to speed. So, we're gonna push that limit and bring out some real passenger transport and logistics planes, that use D-Engines to their full potential.

One thing you will notice is that much more is cramped in every vehicle. It's just not logical, in a total global war ridden world, not to fit every single unit with chaff dispensers, some ECM and the ability to survive against onslaught.

What really needs to be understood is that modern airlines are simply limited by weight: since weight is primordial, high cost solutions are taken to reduce weight. Systems are limited because they weight. With the advent of a-pods and enormous lift possibilities, weight is not an option, making aircraft much cheaper (similar to cars, just bigger) and able to carry an astounding array of utilities.

"Templar" Fast Transport

Named for its massive, unyielding design and heavy armour plating, the Templar is a fast transport aircraft, intended to get emergency or regular supplies to the front lines at maximum speed.

Developed by Airbus in Hamburg, the Templar uses two short and stubby wings to provide lift at higher speed and four smaller A-Pods for VTOL and lift at lower speeds. Two large EEA (European Engine Alliance) engines rated at well over 2 MN each and allowing a cruising speed of Mach 6, achieved by integrated high-duty cooling and advanced heat-absorbing alloys in the nose and other attack areas.

Power is produced by two large D-engines, though the airplane is fully able to cruise on a single one at Mach 1.5 for an unlimited amount of time. The airplane is furnished with a 4-man wide cockpit, though a single pilot can easily fly it. Behind is a courier area for up to 24 people, with reclining seats, a small shower, galley and other amenities. And behind is the large cargo hold, allowing for enormous transportation capabilities.

The cargo hold is accessible through the rear only, fully opening and allowing charging of tanks. Mecha may be charged, but need to be placed on special load-distribution pallets.

The commercial version is designated F300, while the military version is the M300.

Information
Type: Commercial Air Transport
Manufacturer: Airbus
Size: Behemoth (80 m length)
Passenger: 24 + 1-4 crew
Cargo: 1000 m³ / 400 tons
Cost: a lot

Attributes (F/M)
Control Response (Agility) -2
Sensors (Perception) 0/1
Frame (Strength) 10/12

Multi-Tasking (Actions) -1/1
Warning (Reflex) 0/1

Sensor Systems
Long Range
Nightvision
Radar / IFF
Targeting (+1) (M only)

Support Systems
Cold Resistance
ECM (M only)
Sealed System
Limited Stealth System (M only)

Movement
Air Speed: Mach 6 (cruising)
Acceleration Code F (4/3)
A-Pods

Structure
Integrity 15/20
Armour 0/0 (F) 1/1 (M)

Weapon Systems
Chaff (Large)

"Mule" Mech Transport

Designed specifically to transport Mech's and Engels, these large aircraft are intended to provide units that have to be delivered on-site with a means to get discreetly in. Taking the teams back out is not the Mule's task, as it is not armoured sufficiently nor armed to fulfil it. This task is left over to the "Liberator".

The mule is ca. 60 metres long and uses three D-engines in redundant configuration to power eight A-Pods on swivel mounts that provide both lift and partly forward thrust. In an effort to reduce costs, the same engines from the Templar have been taken, providing the Mule with a sizeable thrust excess and enabling speeds of up to Mach 7 for a limited time (due to heat build up) and Mach 6 in cruise, using similar, but improved, heat shielding technology as the Templar.

Mecha are loaded into bays, each being 10 m wide, face outward, Mech folded upon itself, strapped into secure webbing. The bays are entirely enclosed in order to ensure the aircraft is streamlined and to protect the Mecha from heat damage. Once in the drop zone, speed is radically slowed down to subsonic speeds, bays are opened and the Mecha are dropped. Bays close, boosters ignite and the Mule takes off.

Bays can also be changed in size, adapting to fit more smaller Mecha or even power armour. Between the bays is a small and cramped cabin, allowing transportation of up to 50 combat troops (including the pilots).

Information
Type: Military Mecha Transport
Manufacturer: Airbus
Size: Behemoth (60 m length)
Passenger: 2 crew
Cargo: 10 large Mecha or 15 medium ones or 20 small ones or 30 powered armour.
Cost: a lot

Attributes
Control Response (Agility) -1
Sensors (Perception) 1
Frame (Strength) 12
Multi-Tasking (Actions) 0
Warning (Reflex) 2

Sensor Systems
Long Range
Nightvision
Radar / IFF
Scan
Targeting (+1) (M only)

Support Systems
Cold Resistance
ECM
Life Support System
Sealed System

Movement
Air Speed: Mach 7 (20 min.), Mach 6 (cruising)
Acceleration Code E (3/3)
A-Pods

Structure
Integrity 20
Armour 2/2 (M)
DCS 1 / turn

Weapon Systems
Chaff (Large)
Laser missile defence system (10 lasers)

"Liberator" Mech Extractor

After Mecha have been delivered, they sometimes need one heavy extraction. The way to go, according to Airbus, has been to provide a third family members to its Templar and Mules (internally designated by the way as 300-100, 300-200 and 300-300). Sharing the same engines, cockpit, a-pods, thrusters and electronics, the Liberator is just as fast, but much more heavily armoured and armed to the teeth. While build on nearly the same frame as the Mule, it is 10 metres shorter (50 m long) and has sacrificed two Mech bays for an impressive amount of firepower.

What this also means, is that only 6 large Mecha (or 12 medium ones, 15 small / 18 power armour) can be transported out, thus requiring two Liberators per Mule – or simply a high enough attrition rate.

The liberator has identical Mecha bays, but uses the aft two for heavy weapon loadouts, that can be customized but typically come in two identical pods: one charge beam, two linked laser canons and two linked rocket pods in each.

Crew complement is 4: 1 pilot, 2 gunners and 1 loadmaster. Like the Mule it does have a very small cabin between the two Mecha bays, allowing accommodation for up to 40 combat troops (including pilots).

Information
Type: Military Mecha Transport
Manufacturer: Airbus
Size: Behemoth (50 m length)
Passenger: 4 crew
Cargo: 6 large Mecha or 12 medium ones or 15 small ones or 18 powered armour.

Cost: simply too much

Attributes
Control Response (Agility) -1
Sensors (Perception) 1
Frame (Strength) 13
Multi-Tasking (Actions) 0
Warning (Reflex) 0

Sensor Systems
Long Range
Nightvision
Radar / IFF
Scan
Targeting (+1) (M only)

Support Systems
Cold Resistance
ECM
Life Support System
Sealed System

Movement
Air Speed: Mach 7 (20 min.), Mach 6 (cruising)
Acceleration Code E (3/3)
A-Pods

Structure
Integrity 25
Armour 3/3 (M)

DCS 2 / turn

Weapon Systems
Chaff (Large)
Laser missile defence system (10 lasers)

2 pods with identical loadout:
Charge Beam (Large)
2 Linked Lasers (Large)
2 Linked Rocket Pods (Large)

5.2   Vehicle Theory

So how do we drive? What are licence plates? And how do we cope with the adverse conditions / hostile fire over the entire world? Here you're told about the ins and outs of modern vehicle construction.

Note that all of this is invented. Without guidance it's all guesswork and engineering judgement.

Power

In the old days, power game from gasoline, gas and other fossil fuels. By the end of the 20s, electrical batteries and fuel cells pretty much took over for close-range traffic.

Today, the single most important power source are D-Cells and D-Engines. Depending on the size of the vehicle in question, it will either be a battery of high-capacity rechargeable D-Cells (roughly up to 2 tons), miniaturized D-Engines (between 2 and 4 tons) or small D-Engines (above 4 tons).

Propulsion

Propulsion can be divided in A-Pods, used for lower speeds (roughly up to 300 km/h) and for vertical lift. And auxiliary propulsion (jet-type engines, turning wheels etc.), sometimes used as sole propulsion mode, sometimes used to increase speed.

Ground Vehicles

Ground vehicles of below 1 ton typically do not have A-Pods installed, simply due to weight / benefit ratio. Those between 1 and 2 tons, without their own internal D-Engine, only use them occasionally, as they drain D-Cells rapidly. Above 2 tons, A-Pods are the norm.

Ground vehicles without A-Pods have electrical motors that turn the wheel(s) on which the vehicle is build, quite as in the 10s. And even those with A-Pods still retain the wheels and often a secondary emergency propulsion for use inside Arcologies and in case the A-Pods fail.

Those cars that wish to exceed 300 km/h only seldom use wheel propulsion for such a feat, but rather install a single electrical jet-engine to provide forward thrust, essentially converting them into an airplane.

Air Vehicles

Vehicles operating in the air rely exclusively on A-Pods for initial lift and universal VTOL capability. Slower vehicles use the A-Pods also for thrust (giving omni-directional movement possibility), but are then limited to 300 km/h. Faster vehicles require secondary propulsion.

This comes in the form of a new generation of jet-engines: on-ground, engine start-up is performed by an electrical motor. Some engines continue to use this motor in order to provide power to the compressor, allowing for cold exhaust (and thus better stealth capabilities), but are limited to somewhere near 500 km/h.

Large and high-speed jet engines use small electrical motors for start-up and subsequently use high-amperage electrical arcs in order to heat up the air coming out of the turbine, greatly increasing thrust – they essentially work the same as today's engines using electric arcs instead of jet fuel.

With new technology in engine inlet and outlet and universally adopted vector thrust, all modern air vehicles are highly manoeuvrable, only limited by the pilot's ability to sustain high Gs, and can easily reach speeds of up to Mach 3 in super cruise and Mach 6 to 10 with afterburner – though heat remains a serious problem.

Control

The steering wheel of old is gone since a long time now. With the melting of aerial and ground vehicles into a single pot, HOTAS (hands on stick and throttle) has become the norm, with a left-handed control stick for up / down and left / right and a right-hand stick for acceleration / breaking.

Obviously, the operator effect is a boon to those vehicles equipped with a D-Engine. However, all vehicles are equipped with multiple redundant movement control computers (similar to airplanes of the early and middle 10s), that translate steering input by the driver into the required mechanical controls.

Universal protocols regarding reaction of the movement control system (MCS) have been put into place. This essentially means, that every driver can register his preferred rate of reaction, acceleration and general vehicle behaviour unto a small chip. Whenever

he then enters a vehicle, the MCS will adapt, within the vehicle's parameters, to provide a response as accurate as possible to the user's needs.

This in turn has led to the fact that today everyone can pilot nearly anything, be it a high-mach airplane or a simple ground car.

Instruments

Instrumentation has also changed greatly. Gone are the days of dashboards and digital displays. The norm today are at least heads-up displays, that follow the driver's eye, together with sophisticated AR and "enhanced senses". Namely night-vision, obstacle identification and more.

However, the truly advanced vehicles have gotten rid of all tactile controls and now only have AR controls that allow setting parameters with the flick of a though and allow all people inside the vehicle to have access to personalized controls and all available information.

The standard that is implemented into all vehicles are of course multi-spectral vision, including high levels of zoom (30x optical and 100x digital are usual), optical stabilizers and the possibility to combine multiple feeds into 3D imaginary. Night vision, thermal vision and UV vision are standard. As are

automated friend / foe detection programs, developed to spot incoming hostile Migou, EOD and Rapine Storm forces – even in small family cars.

Permission

Permission from the government to drive a vehicle is required and is available from age 16 up for ground vehicles with top speeds up to 100 km/h and from age 18 up for unlimited ground speed and air vehicles. Nevertheless, ultrasound vehicles require a minimum age of 20 and many parts of the world require special restrictions.

It takes 15 hours of driving and about 40 hours of theoretical lessons, complete with a theoretical and practical test, for the limited permission at 16. Another 10 hours of high-speed ground driving and 40 hours in the air, with an additional 50 hours of theoretic instructions then complete the full permission at 18. Of course with another theoretical and practical test.

Ultrasound flight is different: it is a one-time licence but also requires yearly medical check-ups and refreshers. Tested are reflexes, eye sight, hand-eye coordination, emotional restraint and a host of other factors, as well as cardio-vascular resistance and other medical factors. This ensures that all those operating speedy vehicles are mentally and physi-

only up to the task. Needless to say, about 40 hours piloting and 100 hours of theory are required, with a yearly exam and yearly theory refresher (count a day).

5.3   Vehicle Outfitting

Face it: you don't just want a vehicle. Even your Tager character wants a cool ride with cool extras, giving him the edge not only when transformed, but also when in human form. You want guns. You want extras. You do. Now.

The following section expands on options that can be built into vehicles. While I do not yet present any rules to go with, concerning weight, size and cost, the system will eventually expand into a full-blown vehicle construction manual.

All vehicles are characterized by four main elements: weight allowance, free space, power production and cost. And so, each modification you will encounter in the following is (or will be) listed with those four attributes.

There is no maximum amount of modifications a vehicle can take, save for not exceeding its weight allowance, free space or power production. And even then, you will see ways to get around the problem.

Calculating:
Maximum amount of modifications limited by weight, space and power.

Easy:
6 modifications allowed; cars (sport) 8, cars (sedan) 10, cars (van) 12, large vehicles (2.5 – 3.5 tons) 14, trucks 16. Tanks 20. Aircraft 14.

Now let's dive into the subject.

Turbo-Boost

For those times when getting away is more important than anything, the turbo-boost functionality is of prime use. It uses large-capacity capacitors for quick energy availability and emergency coolant on the motors, allowing for bursts of extreme speed. This only works for ground engines, though.

Ground Engines only. Allows 2 minutes of double acceleration and up to 1.5 times maximum speed. Thereafter, car slows normally down again. Requires 10 minutes recharge between uses (but may be installed up to 3 times). Calls for a piloting roll (challenging). Increase difficulty by 1 for directly following uses.
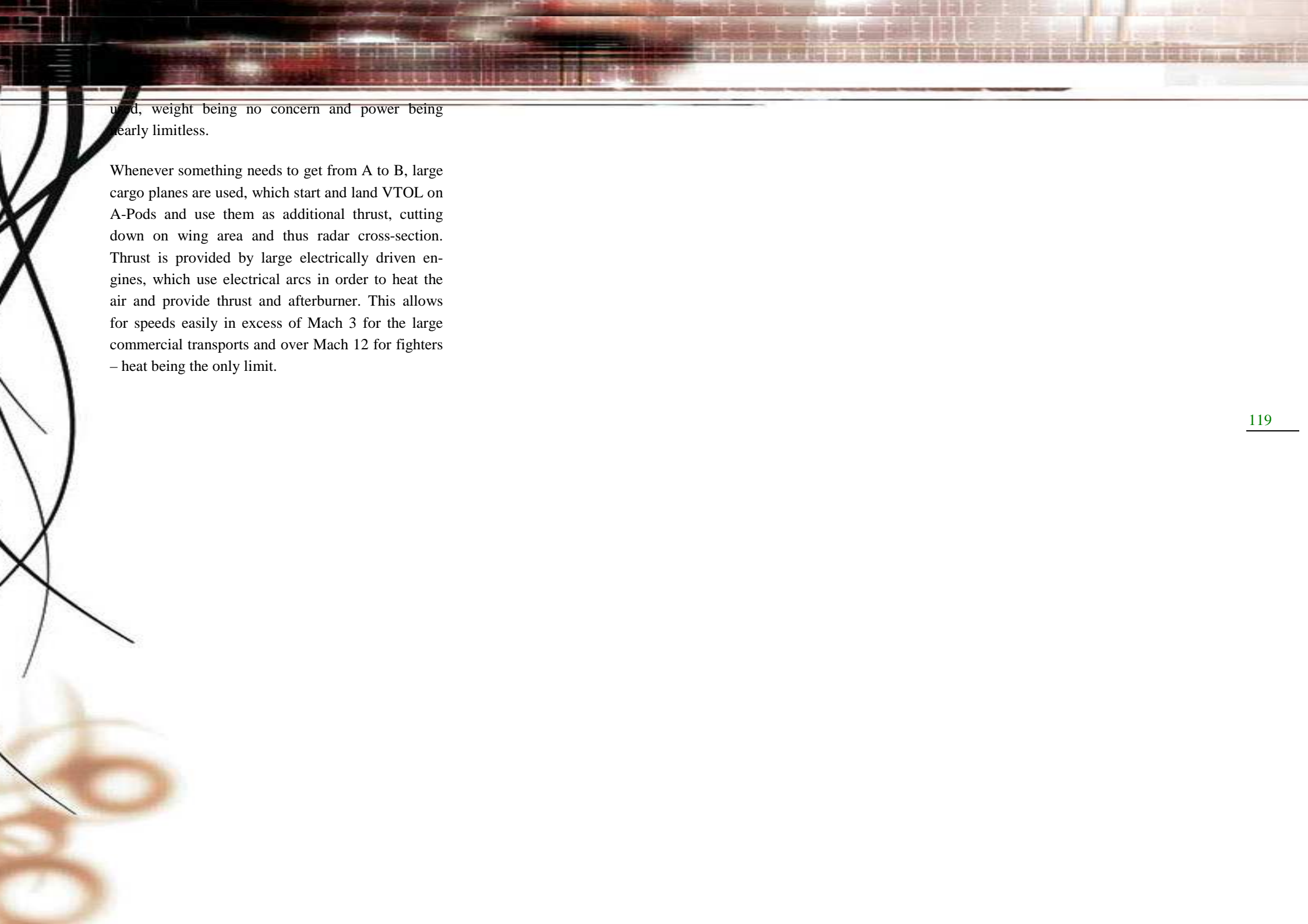
5.4   Additional Fluff

The base books cover some of the aspects of transportation. For instance we know that there is still air-borne overland traffic and that Arcologies all but ban the use of personal vehicles on a large scale. So here are additional ideas.

Logistics

Especially in war times, logistics become all-important. While the advent of nano-fabrication has alleviated many resource problems in the world, certain rare materials must still be ferried around and some items are just impossible to produce out in the field.

With the sea being virtually inaccessible due to the EODs presence and activities, and with airspace being dangerous due to Migou activities, the ground could seem like a good idea – if it were not for terrestrial threats such as the Rapine Storm, cults and other surprises. So where to turn?

Unsurprisingly, A-Pods combined with very high energy classical engines (though electrically driven) have provided an answer. Today, air transport is

118

used, weight being no concern and power being nearly limitless.

Whenever something needs to get from A to B, large cargo planes are used, which start and land VTOL on A-Pods and use them as additional thrust, cutting down on wing area and thus radar cross-section. Thrust is provided by large electrically driven engines, which use electrical arcs in order to heat the air and provide thrust and afterburner. This allows for speeds easily in excess of Mach 3 for the large commercial transports and over Mach 12 for fighters – heat being the only limit.

6
Rules & Flavour

The rules of CT basic and VM can only take you so far. If you wish to share some of the house rules we had in our games read on.

The first part of the chapter introduces you to a host of new rules concerning Engel, Mecha and characters alike. They are mostly rendering the game a bit more realistic and often involve additional book-keeping and dice rolling. While this might scare some people off, others (mostly those used to RPGs like Shadowrun or Das Schwarze Auge) will probably welcome (and recognize) them.

At the far part of this chapter, additional flavour is proposed, where Engel and other (mostly technical) parts of the game are detailed further. These are just suggestions to the GM and players on how certain things could be explained or handled. In addition, rules are often provided; however, even within the framework of this book, these are the rules we deemed optional.

6.1 Engel rules

Engel are very specific creatures and sometimes we didn't feel that CT got close enough to Evangelion and our own notion of reality. So here are some additional rules especially for those of you who trade their sanity for the power of giant Mechanical beasts.

Angel (and Engel) names

As stated in the core book, Engel are usually given the names of angels, from the religious background of the pilot. In the following, angel names are listed, together with some of the name's meanings. Note that these names do not all come from the Bible or the Koran. Most names are extracted from other religious sources or compilations, using material from any available religion (mainly Christian, Islamic and Judaic). The interpretation of the names is either Christian or Islamic.

One difficulty when researching angel names is the ambiguity associated with the interpretation of each religion with respect to the angel's name, position and function. Sources also often disagree whether some quoted entity is really an angel or not. Other names are used synonymously or are used depending on religion. Finally, the following names come from

different languages (mostly German) and might be written differently in English.

Afael
Akibeel
Anane
Anael (Barakiel)
Arazjal
Armers
Asaziel (Azazel, Asael)
Azkeel
Azrael (Bringer of death; writes the names of new-borns and deletes those of the dead)
Bariel
Batraal
Camael (Kamael)
Danel
Daniel
Ertael
Nemania
Gabriel (Archangel) (Angel of wisdom and revelation)
Israfil (Israfel)
Jehoel
Jeremiel
Jomjael
Lucifero (Lucifer)
Metatron (Highest angel next to god, the voice of god)

Michael (Archangel) (Winner over Satan, weighter of souls)
Phanuel
Puruel
Ramuel
Raphael (Archangel) (Angel of healing (Christian), Creator of judgement day and rallier of souls (Islam))
Sabbataios (Schepteel)
Samael (God's poison)
Samsaveel

The Engel Within

Samyaza (Fallen, creator of Nephilim)
Sarakujal
Sariel
Sedekiel (Salathiel)
Suriel
Tamiel
Turel
Oriphiel
Urakabarameel
Uriel (Archangel) (God's light, guide for judgement day, rallier of souls)
Uryan
Vretil
Zachariel
Zavebe

122

Engel feedback

The Engle feedback system normally protects the pilot against the pain from damage an Engel would feel. However, in order to guarantee swift signal processing and optimal mind-link, this system has its limits. Sometimes, when the damage is just too much, feedback spikes are sent back to the user's nervous system, resulting in damage to the brain and maybe a glimpse into some hidden horror of the Engel's alien psyche.

Whenever the Engel receives more than one wound level at the same time (i.e. more damage than struc-

tute) after armour attenuation, the pilot receives 1/5th (round down) of this damage himself as vitality damage. In addition, if this damage exceeds twice his tenacity he immediately needs to make a challenging insanity test or receive 1 insanity point.

In case the pilot has taken the full immersion Engel interface (see modifications), some of the safeguards have been removed; this leads to stronger feedback spikes: he receives 1/4th (round up) the damage the Engel just received (as vitality damage of course); his insanity test is the same but if he fails he gains 2 insanity points.

For electrical damage, the rules are different (as electrical currents pass more simply into the pilot's brain): ½ the electrical damage (see new rules below) suffered by the Engel is transferred to the pilot (on integrity scale), who resist with a tenacity feat test.

Para-Psychics

While not stated explicitly in the core rules, this modification allows para-psychics to pilot Engel. If the military will put such talented people to use in an Engel or not, can be discussed. However, CT is about heroes, and heroes do all kinds of things normally not seen on regular battlefields. In addition, allowing PPs to pilot Engel also allows re-integration of the same pilots to some Tager / street game with an edge.

However, due to the alien mind of the Engel interfacing with the pilot, there are some limitations on how PP powers can be used. Firstly, only spells affecting exclusively the body of the caster (i.e. most somatic powers) or those affecting the global environment only can be used.

Secondly, every use of a PP power inside an Engel warrants an insanity test, as the pilot essentially has to melt a very private portion of his mind with the Engel and sometimes even channel his own powers through his Engel. As such it is a power to be used with delicacy.

Thirdly, the Engel may refuse to let himself be used that way. The GM has the final word, but Engel are neither happy to be used for force channelling nor to be exposed to powers they cannot really comprehend.

In rules: Roll a hard insanity test; increase difficulty by 4 for every additional PP running (1 action). Then roll a contest between the Engel (3 + 5d10) and the pilot (tenacity feat). If the Engel wins, the pilot must make a hard insanity test (1 point) and the power does not erupt and he

losses one additional action (but may defend normally).

Example

Jean-Louis, the French White Engel pilot, sits inside his Shinnan on the aircraft carrier Katsumurga, and fights off a heavy Migou attack on the deck of the ship. Things get nasty, and he uses hyper-agility and hyper-speed to get the associated bonus. This leads to a insanity test (20 + 4), which he makes with tenacity 10 (base) + 4 (he's a white) + 7 + 5 + 4 + 3 (using the straight) for a total of 26. The Engel resists, rolling 3 + 5d10 for a total of 18 (triple 5's) and Jean-Louis rolls 10 + 5d10, making only 17. So the Engel wins and Jean-Louis rolls a hard insanity test (20), which he beats, no problems. But the powers did not manifest and he just wasted two actions.

Radiation damage

See general radiation damage rules.

6.2   General rules

The following rules apply to all kinds of combat / units: Mecha, people, Engel, Powered armour, Tagers. They are meant to bring a bit more versatility and (sometimes) realism to the game.

Anti-Mech combat

One of the most daring and most deadly new specialities of military troops has become the anti-Mecha tactics. Inaugurated by the NEG military in the early 70s as a physical training means of soldiers, it has become an established practice in the middle of the 70s. Anti-Mecha units (AMUs) technically belong to the infantry and thus to the army, but are quite often composed of powered armour troops. Their only goal on the battlefield is to quickly destroy a maximum number of enemy Mecha without engaging in direct combat, often focussing on the largest and potential most dangerous enemies.

The tactics employed are rather standard and can be separated in two categories: ambush and storming. In the first case, the AMUs lay hidden on the project path of passage of the target. Once it passes, the AMU jumps on the Mech, either by their own jump power or using magnetic hooks, attach explosive charges (mostly mines) to the

target and then drop as quickly as possible. In the latter case, the AMUs are deployed either via air or on ground and race towards their target, hoping to catch it off-guard or otherwise engaged in battle. Delivering their charges and hopping off again, they hope to destroy it, before it can retaliate.

The death toll on these troops is typically very high. However, good use of the AMUs can turn the tide of many battles, when the largest enemies (such as spiders) are taken out systematically before they can bring their high fire power to bear.

The anti-Mech combat is today typically divided into three phases: target acquisition, charge deployment and extraction. These phases are discussed in the following.

Target acquisition

The phase from first contact (radar, visual or otherwise) up to the moment the units are mounted on the mech. Executed either from hiding (preferred method) or from storming (air deployment or ground deployment), which usually results in high death tolls. The objective is to get as many soldiers as possible on the target and have as few losses as possible.

Roll a contest between the Mech pilot's observation and the unit's (or unit member's) stealth skill. Use modifiers for cover, hiding etc. If the unit wins, they can attack from stealth the next turn, if not, the Mech's pilot may take any action he wishes.

Roll an athletics test for the unit. Basis is average, but feel free to increase by one degree for large and behemoth Mecha and +1 for every 15 mph the Mech is travelling. If the test fails, the unit / solider cannot mount the Mech, else the Mech is mounted. If there is a glitch, the unit / soldier has mounted the unit, but falls. Apply falling damage from 1/2 the target's height.

The Mech's pilot may roll an observation test (very hard). If successful, he feels the attack and may attack (see next step). If the pilot is aware of the attack, he may take actions to swart the attack. Falling on the back, blasting off, jumping etc. are all viable options. If there is a quick decision needed, roll a contest between the pilot's piloting skill and the unit's / soldier's athletic skill.

In case the Mech wins, inflict 2d10 hybrid damage (trauma armour, plus strength modifier) from the repelling attack and then apply falling damage from the target's height.

Alternatively, to make it really quick, roll Agility + Perception + Observation + Athletics vs. Perception + Agility + Pilot + Observation. If the unit wins, they are on top, if not they take 2d10 hybrid damage (plus Mech's strength modifier) and fall from 1/2 the target's height.

Charge deployment

Once on top of the target, the team must deploy the charge. Doing so takes roughly 5 seconds per charge; all the while, there is the real risk of the target sensing something and taking actions to swart the attackers. However, statistically this phase is the most secure one.

Up to one charge may be placed per combat turn. Doing so requires no test, but moving to another position warrants an athletics test (average, +1 for every 15 mph of Mech speed). Every turn the Mech's pilot may roll a observation test (hard, reduce difficulty by -1 per consecutive turn); in case he notices, he may take defensive action and may attempt to remove the charges. For a quick decision roll a contest between athletics and pilot skills. In case the attacker looses, see step 4 from previous paragraph.

Extraction

Once all charges are set and the timer is on, it is time for the unit to leave. This must be done as discreetly as possible, in order not to risk retaliation from the Mech. In most cases this consists of just jumping / falling to the ground and remaining still, without movement, in order to fool the Mech's sensors. In

...ce of very aggressive charge timing, however, getting away is sometimes the first priority, no matter the cost...

Roll a hard athletics test. If not successful, apply (speed / 10 mph, round up)d10 damage (hybrid), plus falling damage from the Mech's height. No armour applies. Roll an observation test for the target (hard). In case of success, he may try to kill whoever is on the ground. If the AMU moves, reduce the test to challenging, if they run, reduce it to average. Count the time until the target gains the full damage of the charges on him.

Armour degradation

At some point you're armour has taken so much damage that there are more holes than intact plating. While DCS will keep your internal parts repaired, armour requires large stocks of materials, thick armour plates to be replaced. This cannot be done during combat; as such, armour slowly degenerates during combat.

In order to keep the mechanics simple but somehow realistic, too, keep track of damage the following way: Each time raw damage (before armour attenuation) exceeds ten times the armour value, make a mark. On the 10th mark, reduce armour protection by one die (down to a minimum of 0 die), respectively 5

points (see armour revisited). Engel may regenerate up to ½ their armour during a fight (as it is biologic).

Armour layering

It is possible to wear multiple sets of armour one above the other. However, doing so slows the wearer down and encumbers him. Add up the trauma and projectile rating of all armour worn. For every point this exceeds ½ of your agility, incur a –1 modifier to all tests, which include body attributes (agility and strength). The maximum amount of armour anyone can carry is ¾ agility.

Armour revisited

The CT armour system does not allow for flexibility and is poor at simulating body armour. This rules addendum proposes a fixed armour value, which is automatically deducted from the damage. This value ranges from 0 (no protection) to 10 (heavy armour, may still be hidden) to 20 (security armour) or even 30 (heavy military armour, bordering on tiny Mecha).

For conversion simply replace every die of armour by 5.5 points of armour (round down)

Blast attenuation

For explosives a more realistic way of handling them is to simply assume a certain attenuation of the blast. Use the secondary blast radius from the original rules and reduce damage by 1 die per m away from the explosion's centre up to secondary radius, from where damage drops to 0. Always take away the highest dice first. When there are no more dice, reduce any leftover damage by 2 points per m.

Critical hits

Sometimes a hit does not merely damage the target in some minor, non-quantifiable way, but rather does such an intense amount of damage, that the target incurs heavy side effects. It is what I call a critical hit.

Critical hits occur every time the damage exceeds the integrity or vitality of the target. Roll the hit location as per the hit location normal (Vade Mecum) or expanded (see below) rules. Then consult the follow-

ing table for the effects. Note that each additional critical hit on a hit zone has more severe effects.

Table 14: Critical hit table (modifiers not cumulative)

Where	1st hit	2nd hit	3rd hit
Leg	Limping (90% speed) -1 agility, -1 reflex	Broken (60% speed), -2 agility -1 action -1 reflex	Severed (20% speed) -2 actions +1d10 dmg ½ agil & rflx
Belly	1d10 dmg -1 action	1d10 dmg -2 actions -1 strength	2d10 dmg -3 actions -4 strength
Arm	Impeded -1 agil & str	Broken -2 agil & str -1 action	Severed 1d5 dmg -2 actions ½ agil & str
Breast	1d10 dmg -1 agi & rflx	1d10 dmg -1 action -3 agi & rflx	2d10 dmg -2 actions -5 agi & rflx
Head	Dazed -2 to all	Stunned -4 to all	Dead

Critical hits are also difficult to heal: automatically roll on the VM healing complications table and add 1 to the die roll for every critical hit the character got.

On Mecha, where repairs are needed, add 1 day of repairs for each critical hit. On Engel, incur 1 pt. penalty for combat regeneration for each critical hit; Engel heal critical hits at a rate of 1 per day.

Electrical damage

Electrical damage is not primarily meant to damage the Mech. In fact, since the Mech is grounded, a lot of the energy will just pass on the outer shell (the armour) and then pass into the earth, without penetrating the armour. However, electrical damage has adverse effects on systems. In order to simulate this, the Mech receives a second condition monitor (copy the physical one), which is for internal systems damage. Treat system codes just as the physical one, but do not add the damages together; do not consider this for damage codes or DCS / regeneration. Resist electrical damage with the higher of trauma or projectile armour (and applicable armour modifications); this represents the grounding capability of the system.

When the electrical monitor is filled, the Mech is unable to move anymore, as essential systems have been damaged beyond repair or functioning. However, the Mech is not destroyed, it is merely inoperable. It will require internal repairs equal to moderate wounds and is then operable again. Additional damage is recorded on the physical monitor, but only at half the value

The DCS works on this damage all the time, i.e. even when the Mech is shut down, as only minor repairs are necessary (generally cross-connecting fried circuits). It takes three full turns for the DCS to bring

127

back basic systems and it repairs normally from there at full rate that is). The DCS can either repair physical or electrical damage, not both. Mecha pilots receive the full damage on vitality scale as stun damage (see additional rules), resisted by a tenacity feat.

For Engel, electrical damage works differently. Apply 1/2 the damage to the Engel's physical damage (which is regenerated etc. as per normal rules) and 1/2 to the Engel's electrical condition monitor. Regeneration does not work on the electrical condition monitor, but DCS does. Also apply 1/2 the damage as vitality-scale stun damage (see new rules) to the character, resisted by a tenacity feat.

Example (personal)

Walther's new student (tenacity 8, feat 4) receives 30 points of electrical damage. He rolls 4 dice and adds them up (poor roll: 2 + 4 + 5 + 2 = 18): 12 damage get through, which is higher than his tenacity. He is rendered unconscious for (12 - 8 = 4) combat turns.

Example (Engel)

High Heels is getting some serious heat in her Tarshish. After some time in battle she has gotten 35 electrical damage, bringing her into "light damage" (-1 to all) on the electrical monitor; she also has gotten 53 physical damage (moderate, -3 to all), leading to a total test penalty of -4 to all tests. A bit slow from the hits, she doesn't doge the last hit- an electro-cuter hits her, for 30 damage; she resists using her armour rating of 3 (both the same) and rolls 18 (6 + 4 + 8), i.e. she receives 16 damage. Of these ½ (8) are physical and ½ (8) are electrical, upping her electrical condition monitor to 43. Finally, she receives ½ the electrical damage (4 points) as stun damage, resisted by her tenacity feat (4 dice for 36, i.e. no stun damage taken).

Hit zones (expanded)

If you wish for a more expanded hit zone system, roll 1d20 (if you don't have one, roll 1d100 divide by 5 and round up) and consult the following table. When exceeding two times integrity (after armour attenuation), the Mech's armour is locally compromised and damage seeps through to internal system, producing random effects inside the Mech. Some samples are listed in the table; a more detailed view can be found in the "Critical Hits" section.

Table 15: Simple hit locations and effects

Roll	Location	Effect (if damage > integrity x 2)
1-3	Left leg	- 5 % speed, limping
4-6	Right leg	
7-8	Belly	2d10 damage to pilot (apply trauma armour)
9-11	Left arm	- 1 to agility, loose one internal arm weapon
12-14	Right arm	
15-18	Breast	2d10 damage to pilot (apply trauma armour)
19-20	Head	Loose one sensor system

Multiple insanity rolls per month

Given that a character with high tenacity (say 10) can easily succeed at a tenacity feat roll with a target of 16 (basically, he cannot fail it), given that he has 5 dice for a feat roll, combinations like para-psychic + Engel + Call of the void would potentially roll 3 insanity rolls per month at a difficulty of 16, all of which he would succeed, removing the true danger and sense of this drawback.

As such, the following rule is used: instead of making multiple rolls per month a single roll with increasing difficulty is made. For each additional roll beyond the 1st one, the difficulty increases by 4. Upon failing the roll, the character gains one insanity point. On a glitch increase this to two insanity points. On a critical glitch increase to three insanity points.

*Example: Brutus the Strong is a para-psychic (erupted) Engel pilot. He rolls one monthly roll against a difficulty of 20 (16 base + 4 for 1 additional roll) for gaining 1 insanity point. He has a tenacity of 10 rolling 10 + 8 + 7+ 1 + 1 + 1, scoring a glitch. This yields 2 IPs this month.*

Armalia the Beautiful is a White (PP, 1 roll) Engel pilot (1 roll) with the drawback "Call of the Void" (1 roll). The total difficulty is 24 for gaining one insanity point. She rolls 10 + 4 (by race) + 3 + 2 + 1 + 5 + 7 for a total of 10 + 4 + 7 = 21. Not enough, so she gains 1 IP this month.

Radiation damage

Radiation damage is evil, as it not only has immediate effects, but also longer lasting side-effects, which can very well kill an individual even though he survived the first exposure. Radiation damage is treated differently with respect to humans, Tagers, Mecha and Engel. Radiation damage is always considered hybrid damage.

Radiation damage is cumulative and is thus tracked
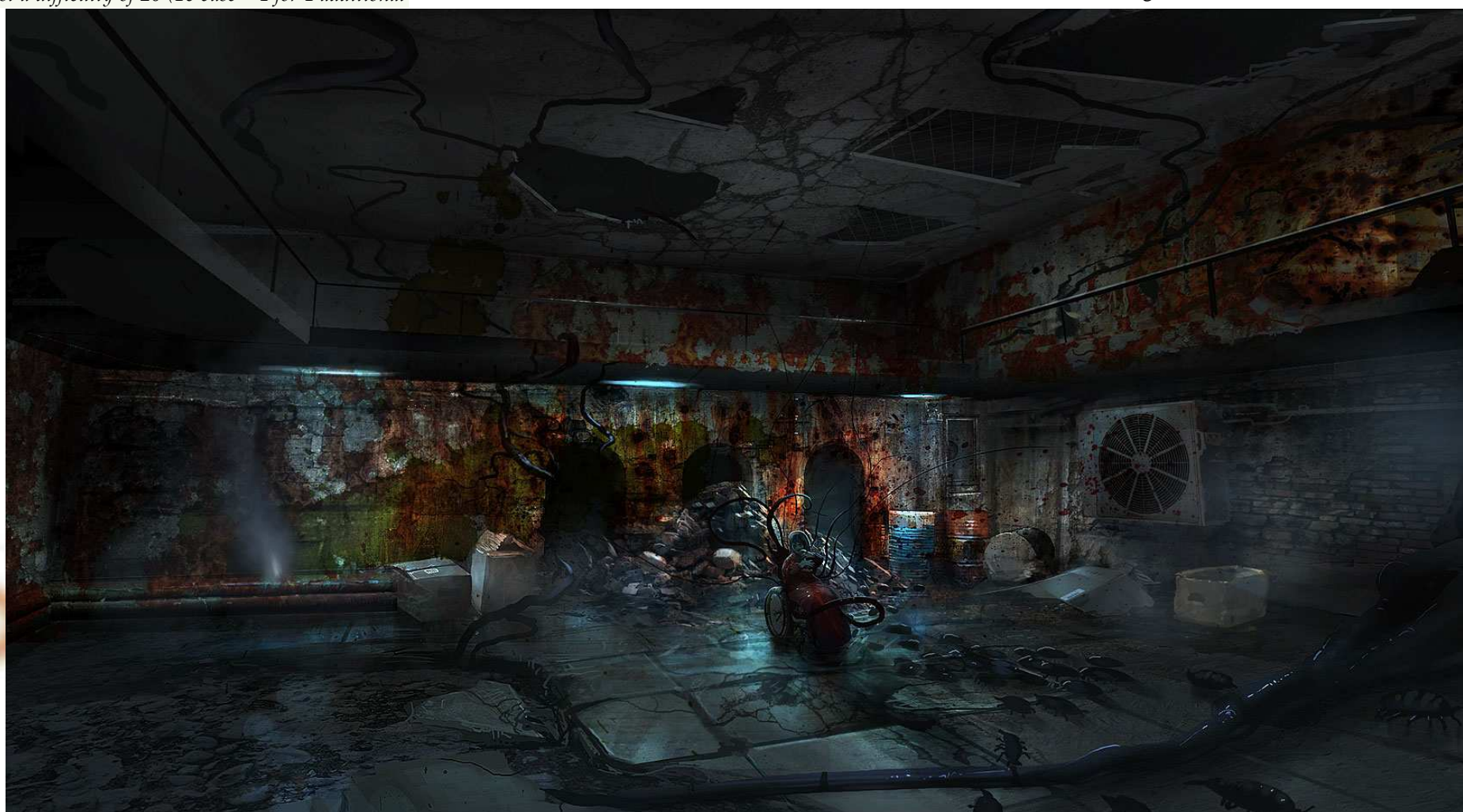
over the period of an entire year: every time another damage level of radiation energy is earned, directly jump to the next category (see below) of long term effects (but apply short term effects as normal).

Engel

While Engel are also living beings with living tissue and could potentially suffer similar fates as humans, they are strangely adapted to the hazards of radiation. Higher body mass and an extremely low cell mutation rate, alongside an extraordinary constitution and radiation absorbent cells make them nearly perfect radiation shields.

Engel do not suffer any effects from excessive radiation, respectively regenerate this damage so quickly, that it is barely noticeable. In addition, they provide protection equal to a damage reduction of 4d10 to anything standing behind them. The pilot, additionally held within the capsule and his suit, only takes $1/10^{th}$ the regular damage.

Human

The human metabolism is not made to absorb large quantities of damage; however, high body mass and a resilient organism might alleviate the effects of exposure.

Treat the damage as follows, each step indicating another damage level filled on the victim by radiation damage. Effects are cumulative.

- Light burns of 1st degree, treatment by medic but may continue to move normally.
- 2nd degree burns, treatment by medic, may continue. Light side effects, including nausea (1d6 weeks), slight hair loss (after 1d5 weeks for 1d6 month), unhealthy skin colour.
- 3rd degree burns and hospitalization along with extensive skin grafting and re-education periods. Internal system damage leading to probability of random mutations in germinal cells (10 %), random mutations inside one's own body (5 %), hair loss (for 1 year), skin texture change.
- Massive damage to skin and outer flesh, resulting in deformation of the body and face, long-term intensive hospital care; chance of death by system shock (10 %). Mutation in germinal cells (20 %), Cancer (30 %), hair loss (permanent), skin spots (permanent), brain damage (5 %, loose 1 INT or PER), else 1 year-long intensive care and complete body re-building, essentially another self. Gain Misfit (2) and make hard tenacity test (1 insanity point). Mutation in germinal cells (40 %), Cancer (70 %

within 1 year, 100 % after 3 years), tumours (30 % within 1 year, 90 % after 5 years), brain damage (-1 INT or PER for 1d10 years every year), severe muscle damage (-2 to STR (permanent)).
- Death.

Mecha

Mecha are mechanical and as such only take so much of the radiation damage. As long as the transferred energy and heat is not enough to damage the metallic structure or integrated electronics / hydraulics, the Mech will continue to function normally.

However, despite some light radiation shielding, true lead plating would be much too heavy for a combat Mech, so most of the radiation will pass through unhindered and contaminate the pilot.

In order to simulate the damage alleviation, subtract 1d5 * 5 % from the total damage and apply to the pilot as per normal human rules.

For the Mecha, only apply damage if the radiation is excessive: in order to simplify the process, apply 10 % of the radiation damage as physical damage to the Mech.

Tager

Due to their mystical nature, Tagers take much better to radiation than their human counterparts. They do not develop cancer at all, neither any other long-lasting defects. Mutated tissue is quickly replaced. As such, as long as the Tager remains alive, he will heal radiation damage just as any other damage.

However, the regeneration system sometimes has trouble squashing the cancer in the beginning; roll a normal cancer test as for humans. In case the cancer is apparent, reduce the regeneration rate by 1 point (to a minimum of 1 point every other turn) to reflect the constant battle between cancer and regeneration for a duration of 1d5 days.

Recoil

Rail weapons and other electromagnetic weapons which do not rely on powder to create the bullet's energy generate recoil. This is for one from the action / reaction principle and the impulse that is transferred to the bullet (leading to the weapon wanting to recoil from it); and from the expansion of the gas resulting from the powder's explosion.

Whatever the reason, recoil has one effect: it moves the weapon, essentially making it difficult to impossible to aim correctly with the weapon. This is even more of a problem when using automatic weapons.

For every bullet fired beyond the first one in a round from a recoil affected weapon, impose a -1 modifier for the opposed aiming test. Reduce by recoil compensation (see new tools) and by strength: for every 2 points of strength above 4 (so 6, 8, 10, 12, 14, 16) the character receives 1 point of recoil compensation. A bipod reduces all recoil by 10 points, a tripod by 20 points and a fixed mount (e.g. tripod welded to a car) reduces recoil to 0.

Example

Ivanna is firing away with an automatic rifle, fixed on a tripod (-20 recoil). Her FN-MAGiC fires 30 rounds (+29 recoil) and she has a strength of 10 (-3 recoil). In

addition she installed a Gas Vent 3 on the weapon (-3 recoil), leaving her with 29 – 20 – 3 – 3 = 3 recoil, i.e. her hitting contest has a -3 modifier.

Reloading D-Cells

A certain amount of weapons, especially the Mecha weapons presented in this book, are powered by D-Cells, so that you can not only run out of ammunition, but also of power.

Combat D-Cells are standardized and can be ejected by the weapon itself in a free action (thereby loosing the D-Cell if not retrieved later on). Shoving the next one into the weapon takes 2 actions or 1 full turn, whichever is lower and 1 action for the weapon to re-power up.

Stun damage

Sometimes a hit does not directly deal physical damage, but either transfers large amounts of energy on a large section (as if you were falling flat on your back or chest) or hits a nerve or the head, which leads to stun or subdual damage (cf. CT, subdual combat, page 125). In order to track this more accurately, a separate stun condition monitor is added.

Each stun level has 5 + (2*tenacity + strength) / 3 points. Treat it like the normal wound monitor, ex-cept that regeneration and the like does not apply, but that the character regenerates one stun level (not damage point, entire level) every 2 hours when not engaged in combat or every 1 hour when sleeping. Apply a -1 modifier (cumulative) per stun level to all tasks (including combat, piloting etc.). Unless otherwise noted, the character receives additionally half the stun damage as physical damage.

Stun damage is normally resisted by trauma armour; however, special occasions may call for a tenacity feat in order to resist damage.

Under the rules presented here, any unarmed combat or combat with blunt weapons causes stun damage. Tagers and other creatures with natural weapons may choose whether to inflict stun or physical damage. Critical hits only apply to the physical part of the damage; stun damage itself does not cause critical hits. During integrity scale combat, only creatures (i.e. monster, not Mecha) may inflict stun damage upon each other. The conversion between integrity and vitality applies. On a Hull scale, stun damage is not possible.

When the stun monitor is filled, all stun damage is tracked as physical damage, as internal haemorrhages and system damage from the continued beating start to take their toll on the body.

Quick stun damage rules
Roll a tenacity feat against the damage incurred. In case of failure the character is dazed for 1 turn (-2 to all); on a glitch or failure by more than 10 points the character is unconscious. In case of a critical glitch the character has incurred brain trauma and is out for the next hour and requires rest, dark and care for one week thereafter.

6.3   Engel Flavour

If by choice or not, the CT and VM books leave a lot concerning Engel to the imagination of the GM and players. In the following are a few ideas to enhance the flavour of the game, mostly inspired (of course) by Neon Genesis Evangelion.

Improving synchrony

One of the things characterizing an Engel pilot is his ability to attune his own mind to the mind of the Engel and to successfully fuse with him. Scientifically this is expressed as the synchrony in cerebral wave patterns of both the Engel and the pilot, with respect to phase, amplitude and frequency; pilots refer to it simply as synchrony.

The higher the synchrony ration, the better the pilot is able to interact with the Engel, but the more he is also opening his mind to the alien. While this obviously results in far better results when piloting the Engel, it also takes a toll on the pilot's psyche and many have been left scarred and scared by the experience.

Today the process of improving synchrony is a carefully watched and guided process, under restrictive clearance only for the strong minded and strict surveillance by NEG military psychologists, medics and

the OIS. How-
ever, nearly all
pilots given the
opportunity
will take it, as
it improves
drastically their
chances of
survival on the
battlefield. And
sometimes,
synchrony will
also jump on
its own.

Classifica-
tion

The synchrony
is rated artifi-
cially in
classes, with 0
being the standard untrained class of any pilot. To-
day, the highest class yet achieved is 2 by training
and 4 by traumatic experience (the pilot, however, is
now under heavy psychiatric treatment), while class
3 is in training.

The class is derived from the total percentage of
relevant wave patterns between Engel and pilot that
overlay perfectly. This percentage can conceivably

pass by 100 %, since it only takes into account rele-
vant wave patterns not all. In general, any excess of
100 % signifies that the personality of the pilot has,
to some extend, fused with the personality of the
Engel.

Risks and dangers

Raising synchrony is not without danger. While the
careful preparation (see below) can alleviate most of

the dangers, spon-
taneous synchrony
increase is by far
more dangerous.

The main risks
are: loss of self-
awareness, identi-
fication with
Engel, traumatic
experiences due to
exposure to the
alien mind, minor
psychological
disorders, person-
ality split (with
one of the two
being close to the
bloodthirsty
Engel) and more.

The side-effects that cannot be avoided, even by
training, are a slight adjustment of both the Engel's
and the pilot's personality towards each other. This
leads in general to the Engel becoming slightly
calmer but to the pilot receiving some of the Engel's
bloodlust (which is common to all of them). Depend-
ing on the Engel type, the pilot will also change
slightly in other directions. Finally, the death of an
Engel usually also means the death of a pilot …

Lastly, it is impossible to achieve synchrony with any other Engel then the one you've trained on, meaning that the process has to be repeated for every new Engel you attune to. And atonement also changes the cerebral wave patterns such that it is impossible to re-gain the same class of synchrony with the original Engel without extensive re-training.

Bene-   fits

Pilot's with a high synchrony are able to perform feats far beyond the regular performance of an Engel pilot. The higher control and understanding of the Engel and pilot thinking, lead to a more harmonious better understanding of the Engel's capabilities and the ability to do the same for an Engel as for a oneself: push beyond one's (and the Engel's) limits. And quite far.

Guided process

The process takes nearly 6 month to complete, during which the pilot cannot be on constant duty – another reason why the procedure is not widespread. The pilot is first extensively screened by a team of psychologists and subsequently prepared by a custom-tailored program, enhancing his resistance to the alien mind and exposing him very slowly to ever new aspects of the Engel's psyche.

At the same time, the engineering staff conducts experiments, where the pilot is slowly and carefully lead towards ever higher synchrony ratios, respectively is trained to attune his mind to the specific wave patterns of his Engel. This also involves the learning of many a meditation technique and self-control and –awareness sessions. Many pilots report that they are much more calm in daily life situations.

Still, the process is taxing and generally involves post-process following in close psychiatric observation.

Spontaneous (traumatic) increase

In situations of extreme danger or pain, usually when the Engel or pilot suffer extreme damage, or in cases of unusually high mental stress (death of a family member, birth of a child) the mind will let down many of its protective barriers, allowing for a very short period of time a complete fusing of both minds, attaining incredibly high synchrony rations, often in excess of 200 %.

Such an event sometimes can even let the pilot leap two classes at once, though it is very rare. In any case, the pilot comes out of it with a severe immediate psychological trauma and must be transferred to closed observation for at least a month. If the pilot enters an Engel before, it has let to catastrophic consequences for both the Engel and the pilot.

Rules

*Each class of synchrony gives the pilot the following changes when piloting his Engel*

a +1 modifier to all tests

ability to "push beyond the limits" (see below), cumulative +1 to test per class

-1 modifier to monthly insanity test per class

additional 5 % of damage taken by Engel seeping through to pilot as stun damage (cumulative, per class, see add. Engel rules)

*Apart from the time necessary, **the cost** is 50 points in experience for a guided military approach and 35 points for spontaneous eruption; in the latter case roll a hard insanity test (2 IPs) and roll 1d100. On a 1, you gain one additional synchrony class for free*
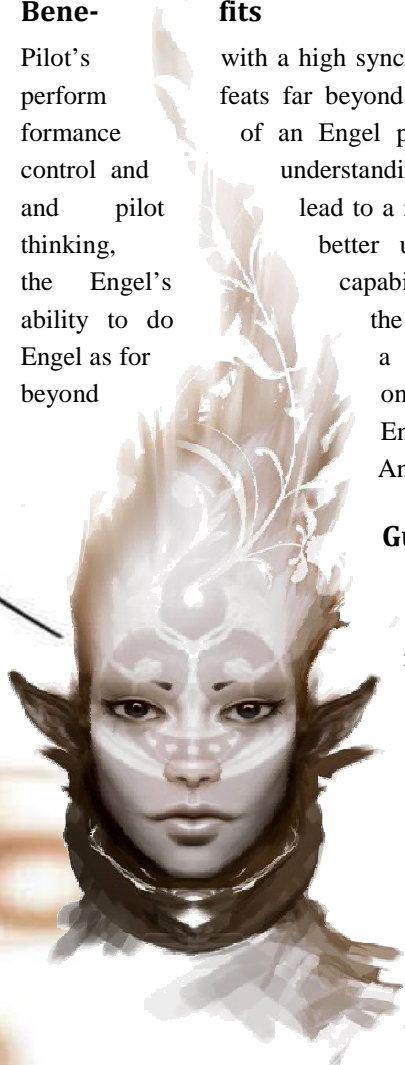
(if you want to or not), and the insanity test increases to very hard / 3 IP.

__Pushing beyond the limits__ means that you are able to get more out of your Engel then you thought. With a hard / very hard / legendary pilot skill check you can get the Engel to exceed any one attribute for 10 turns by 1 / 2 / 3. You may increase the difficulty by one step for another 10 turns. Alternatively, the Engel provides 2 / 3 / 4 bonus points to any single test. Pushing the limits inflicts your tenacity as unresisted damage upon the Engel and causes you 1d10 + (2 * synchrony class) stun damage (you may not resist this).

__In case your Engel dies__, you immediately receive (synchrony class * 2)d10 additional damage and must make a hard insanity test for (synchrony class) IPs. In case you don't die, all synchrony is lost; however, achieving synchrony up to the main level you had before with an Engel of the same type only costs ½ (round up) of the original cost. The same (without the damage) is true if you attune to another Engel.

Lost in the machine

The NFL in the Engel (see NFL chapter below) is a fluid with arcane properties that are today poorly understood. One of them is the ability for the NFL to hold a soul.

Whenever a pilot dies inside his Engel with the Engel still intact, there is a slight probability of the pilot's body disintegrating, while his mind and soul remain inside the Engel. Some pilots even stay partly conscious and can act on their own, while they are not fully aware of what has happened to them. As their soul fuses to a great extend with the Engel, they become to some extent the Engel and feel as if that was their natural state. Some of the individuals even repress the true memories as a self-defence mechanism and continue to function.

What happens exactly no one can say; however, if ever the capsule is removed, the pilot and Engel

immediately die in agony and both their souls are destroyed forever, never to return or be re-born. Quite often, this has led to bloodshed as the Engel (and pilot) did his best in order to keep anyone from opening the hatch.

Today, the NEG military knows of roughly 100 cases where the pilot got "lost in the machine". Of these, roughly half went directly mad and killed themselves or were overwhelmed by the Engel's consciousness. The other half however it still functioning today and continues the fight, under heavy OIS surveillance. continues the fight, under heavy OIS surveillance. Maybe some 40 people are still in active duty, in carefully placed units. Of course, this entire operation is under heavy, heavy wraps.

A character might still be playable as such. However, the only way that he would retain sanity would be his fusing with his Engel and losing all memories of his early human life:

- *All active skills executable with an Engel are kept.*

- *All relevant knowledge skills are kept.*

- *Everything else is forgotten.*

In addition:

- *The character's attributes become the Engel's attributes at the point of death, completed with the pilot's mental attributes that the Engel does not have.*

- *The new attributes and the skills can be learned as normal.*

- *Para-psychic and sorcery abilities are lost forever and cannot be re-learned.*

- *Insanity drops to 0 and the character gains a +6 test modifier for all insanity and fear tests.*

- *The Engel's condition monitor is the only physical condition monitor kept.*

- *The pilot feels and sees through the Engel's sensors as if they were his natural senses.*

- *Unless installed, the pilot no longer has access to touch (on the skin) or smell.*

- *Sexual urges remain. The GM has the final word on how this looks for Engel …*

Since the character also thinks his new form his natural form (i.e. being an Engel), he will have difficulty when not able to socialize normally with oth-

ers; this is why they are mostly kept together. They still need maintenance and repair.

Neural Feedback Liquid (NFL)

The ESI interface alone lets the pilot control the Engel of course; however, preliminary tests had shown that the contact can be enhanced dramatically (as well as immersion and synchrony) if the neuro-electrical signals can be processed, send and received by the entire body of the pilot.

Research soon began to implement a hyper-conductive oxygenating liquid in which the pilots could be immersed. The liquid completely fills the pilot's capsule and "drowns" the pilot, filling his lungs but still enabling oxygen transport, similar to the military liquid breathing equipment for the very deep diving. In addition, electrical nerve signals are carried with nearly no loss through the liquid, deepening the blending of the minds. In order to achieve such a liquid, complicated arcane rituals have been implemented, imbuing the fluid with a lot more properties (many of which are not yet fully explored) than initially thought.

Today, approximately half of all Engel are equipped with NFL. While all capsules are built to support it, many pilots still do not accept it. For one, there is the fact that the pilot has to "drown" every time he wants

to pilot his Engel, a process that not only takes time but is also to most an agonizing experience, to which they never truly get used. Second, the fluid has to come out, too. So when the pilot leaves the Engel he vomits, coughs and spits out every last bit of it, which is usually painful. When having to make an emergency exit in battle, the pilot is also not readily able to act, but first must go through above spasm. And lastly, not all pilots see it as their ultimate goal to blend as well as possible with the alien mind inside their machine.

When NFL is used, the pilot gains a +1 modifier to all actions (including combat) when inside his Engel. However, double all electrical damage the pilot receives and increases feedback damage by $1/4^{th}$ (round up). Increase the difficulty test threshold for the monthly insanity test by 1. Whenever the character gets out of the pilot it takes 3 minutes (36 turns) until the character can act groggily (-4 to all actions) and another 5 minutes (60 turns) until he is fully capable of moving again. Make a hard tenacity feat test; for every point by which you beat the threshold, reduce this time by 2 turns (10 seconds).

Soul barrier

All living beings possessing a soul also possess a barrier that protects it, as core definition of their being. This is different from the mind or body, which can be destroyed, as the soul is immortal (and simply re-born after death into another body). It is why the soul is protected by a barrier, a supernatural force field of immense strength, which can be broken only by the most powerful of beings.

Normally, this power cannot be harnessed. For sure, Tagers draw some of their regeneration abilities from that primordial power, re-directing some of the soul's power to heal their bodies. However, the alien beings from which the Engel are build are able to harness their pilot's soul barrier's energy and create a protective field around the entire Engel – even though at a very high cost to the pilot and Engel and for a very limited time only.

When the synchronization between Engel and pilot is high enough, the pilot can, with a great effort, drop part of his soul barrier towards the Engel – thus temporarily infusing his own soul into the Engel and merging completely with the alien creature, which in turn now protects itself with the so-harnessed energy, creating a field fully impenetrable to any weapon except the will or soul barrier field from another Engel. However, this experience of fusing very often marks the psyche of the pilot; of the few who did it, most went directly into psychiatric care for quite some time.

Similar to a limit weapon, the protection field cannot be penetrated except by another Engel with the same field active. In that case, make a tenacity contest – the winner chooses which field (if any) is penetrated. Any weapons, sorcery, area damage, para-psychic powers, creatures, monsters, Migou, human, Nazzadi or whatever else cannot enter the field at all, it is fully impenetrable. Likewise, environmental effects (depth, pressure, temperature, void) do not affect anything inside the field.

The field extends from the Engel and takes the Engel's form but stays at about 1 m from the Engel. Anything in it is pushed out. It is impenetrable by anything except another field and soaks any damage from any source and whatever the amount. It lasts for 5 minutes and it takes 1 turn to build it up. After the 5 minutes, the Engel receives 4d10+10 damage (no armour applies) and the pilot receives 6d10 + 10 stun damage (resist with tenacity feat). The pilot immediately makes a challenging, hard and very hard insanity test (3 tests in total) gaining 1 / 2 / 1 insanity points upon failing. DP may not be used. Can only be used once a week.

6.4 Gear & Technology

```
The following section expands a bit
on how gear is enabled in the new
world, what is considered smart and
how pieces of gear interlink with
each other. It is an attempt to
estimate how things will look like
in over 80 years and my personal
guess. With the gear book coming
out, it'll surely be superfluous.
```

Power

With the advent of D-Cells and nano-manufacturing, energy is no longer an issue. Clothes generally include motion-energy-generators, as do watches and other small electronics. For larger consumers, a host of D-Cells in all shapes and sizes (including bendable sheets) are available and can hold enormous amounts of power. Since the beginning of the millennium, storage density has increased by a factor of 1000.

With recharge stations being available everywhere and standardized electro-magnetic induction rechargers universally adopted by the industry, it is even possible to recharge your D-Cells in almost every restaurant and even on bus stations!

It is safe to say that energy is everywhere,

abundant, free of charge and plentiful.

Smart? Smart!

Most items can be considered smart. Miniaturization and nano-technology has led to sensors becoming extremely small and resistant, making it possible to integrate them into a variety of products.

As an example, you milk bottle surely has a weight sensor built into it – thus it can tell when it's empty or filled and can relay that information to your fridge.

Your electrical appliances can sense light levels, temperatures and more. Thus your camera will warn you when you try to use it outside of certified temperature limits.

This has also led to the development (and incorporation) of very small chips with standardized communication protocols. As such, your clothes can talk to your washing machine, which transmits a usage index at each washing. Your favourite trouser can thus tell you that it's close to end-of-life due to being washed too often.

Tagging

RFID tags are everywhere and in everything. Every single piece of equipment, cloth, food or anything else imaginable that you can buy, is tagged. These tags hold useful information, such as washing instructions, materials resistance, date of fabrication etc.

Data & Information

However, many tags also hold additional information; this has only change during the last year, with more stringent anti-publicity values. Up until then, all items were also tagged with publicity.

Other data often stored is data of the store where the item was bought; info to which person the item belongs (only for high-value items). Contact information of the manufacturer, main supplier and designer.

And then, of course, an entire host of classified information, that is not easily readable. Especially the Chrysalis Corporation has been unknown to embed either a second chip or second antenna, reading out more classified data and allowing lots of data harvesting, on other frequencies than those normally associated with tags.

Use & Misuse

Many people use the RFIDs daily, without knowing they do so: the fridge keeps inventory of what's in it and what not, alerts you when items are about to perish, can suggest meals & dishes based on what you have available. Or can alert you, when an items goes missing. The same is true for your dishwasher, washing machine (automatically choosing the best programme on loading and warning of incompatibilities) and other household appliances.

It is easy to control access to your stereo, certain clothes etc.: for instance, anyone wearing clothes with a chip marking them as "children's cloth" is not allowed to open the fridge.

139

Misuses are of course in the area of unwanted data collection – when entering any shop or generally most buildings, be assured that someone has just scanned every single tag on you and has stored the data somewhere. This allows government agencies to keep a tab on individual movements.

6.5 FAQ

Unfortunately, the developers have left many questions open or the answers are spread throughout the many books. The following section compiles information from the

Air Superiority

It is supposed that the Migou have space superiority but not air superiority, which is still being held by the NEG.

Main reason seems to be that there are too few Swarm Ships, difficult to repair (in Mortal Remains it is stated that they can only be repaired on-board the Hive Ship) and that the Hive Ship is unable to proceed with precision strikes from space.

Common ground seems to also be the assumption that the airspace (and thus also space-space) around the Arcologies is heavily defended by former orbital canons, able to interdict all Migou strikes.

These explanations of course bring more problems with them: if we can defend space against Migou, why not simply put our own space force into orbit? After all, no weapon can shoot around the earth, unless its missiles.

Area-Nuking Earth

Common consense seems to be that by area-nuking Earth, and thus quickly killing the entire human population, the Old Ones would probably awaken. Either due to the sheer amount of suffering / pain / death released or by the fact that the missing dreams from the humans would bring them back from their sleep.

Army Size

Some on the forums have compared CT to WWII German economy and population and have concluded that about 10 % of the population should be in the military. Seeing however that we have also the Nazzadi, my take would be 10 % in human culture and 20 % in Nazzadi culture (tendency decreasing).

I couldn't find the world-wide population, but assuming something like 3 billion still alive, there would be 1.8 billion humans, or an army of 180 million plus 1.2 billion Nazzadi or an army of 240 million, leading to total manpower of 520 million. Note that these are not all fighters, but also techni-cians, support personnel etc. Even if only 50 % of these people were fighting, the fighting force of the NEG would still be 260 million strong.

Migou Numbers

As stated a bit over all different books, Migou numbers are actually stretched. Coming for a short invasion, the storm was not anticipated, leading to too few resources being available. This is why the Migou are bringing in a second hive ship (see Damnation View) to complete their numbers.

This means that the NEG has the advantage of superior numbers and that the Migou cannot just overwhelm the NEG.

Rapine Storm Logistics

The Rapine Storm only needs little logistics and little conventional food etc. Most of the creatures in it are actually summoned, so they function on different principles. Only the (scarce) human troops require weapons, ammunition etc. etc.

Common ground is to perceive the storm a bit as the Zerg, i.e. enormous numbers but not very effective.

Resources

With the loss of China and missing Russia, the NEG should be close to resource collapse. However, in order to justify the lack of Titanium etc., common understanding is that the nanite technology in that particular application is far enough that it is possible to break any material open at atomic level and re-arrange at needed.

This, of course, also implies that it is possible to produce just about any valuable gem and ore in exactly the wished-for configuration and molecular structure, essentially making jewellery worthless.

7
Credits and Sources
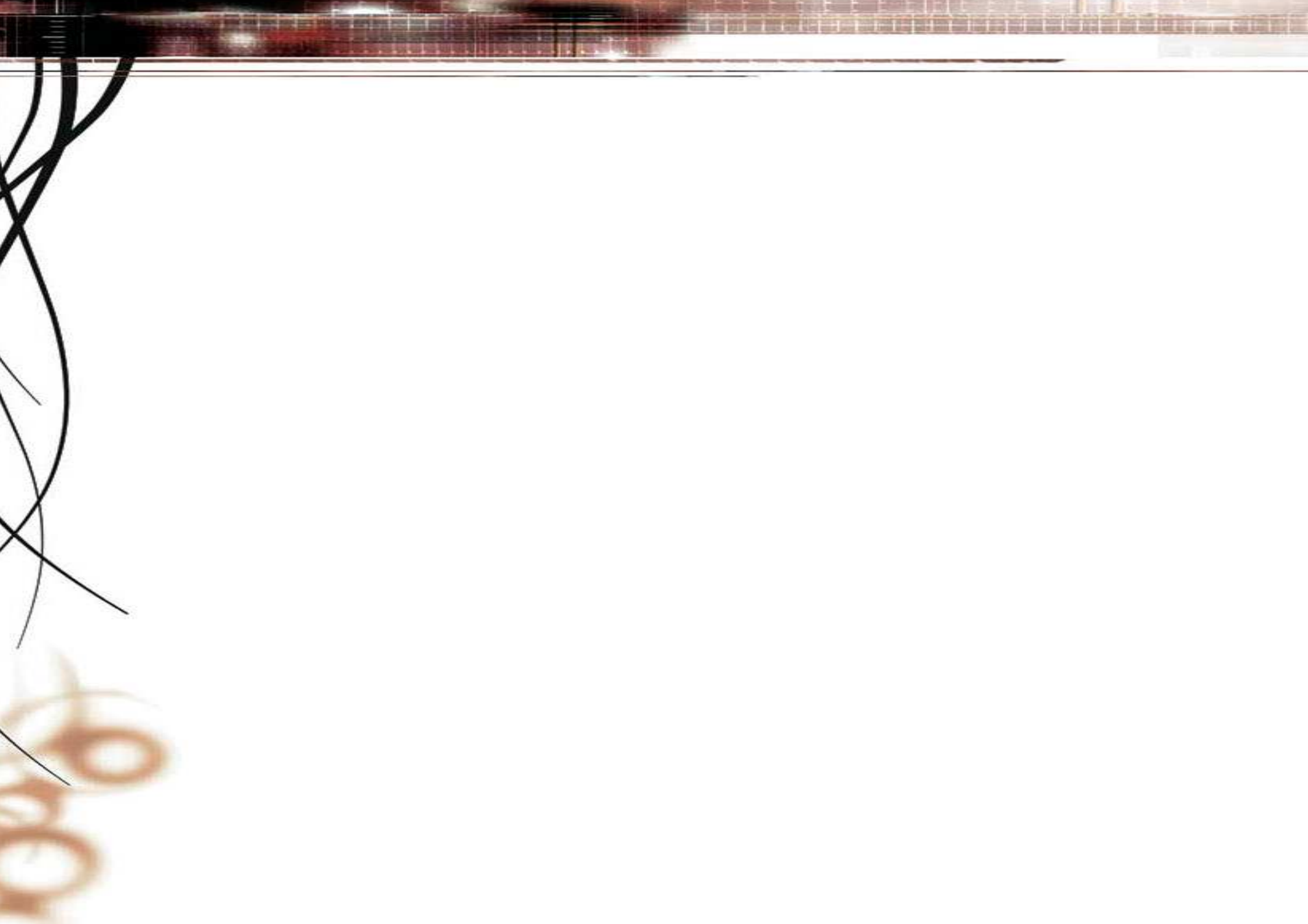
Backgrounds

Page background from the original CT source book.

http://www.cthulhutech.com for more information. The original books are published by Catalyst Game Labs and Wildfire LLC, as well as BlackSky.

Images

First of all thanks to Colin Chapman from the official CT forums for his awesome thread about inspiring art for CT. Most of the images in this book actually come from the thread, which can be found here:

http://cthulhutech.10.forumer.com/viewtopic.php?t=936

And of course thanks to the individual artists actually used in this document for producing such astounding and inspiring work.

Please note that the copyright for their pictures obviously stays with them and that the images have been used without explicit approval by all authors (for the moment, approval will be sought once the document is finished). In case you do not agree to your picture being used here, write an e-mail to Sebastian.tivig@gmx.de and it will be taken out immediately.

343 Guilty Spark
http://343guiltyspark.deviantart.com/gallery/

Cesar Rizo
http://www.rizogallery.com/portafolio.html

Daryl Mandryk
http://members.shaw.ca/dmandryk/

Dave King

Geoffrey Thoorens
http://djahal.cgsociety.org/gallery/

http://www.djahalland.com/en/galerie/#nogo

Haris aka greyhole
http://greyhole.deviantart.com/gallery/

James Paick
http://www.jamespaick.com/index.html

Jim Svanberg
http://jimsvanberg.deviantart.com/gallery/

http://www.jimsvanberg.se/

Jen Zee
http://jenzee.deviantart.com/gallery/

Josh Nizzi
http://www.joshnizzi.com/

Kendrick Lim
http://kunkka.deviantart.com/gallery/

Lorenz Hideyoshi Ruwwe
http://hideyoshi.deviantart.com/gallery/

http://www.hideyoshi-ruwwe.net/gallery.htm

Mathias Verhasselt
http://mv.cgsociety.org/gallery/

http://mv.cgcommunity.com/

Nivanh Chanthara

Patrick Jensen
http://www.metavisuals.com/Meta5/Personal.html

Pene Menn
http://www.penemenn.com/

Ridwan Chandra

http://meganerid.deviantart.com/gallery/

Tim Anderson

http://www.timothyandersonart.com/gallery/

Uitakumuki

http://ukitakumuki.deviantart.com/gallery/

Winona Nelson

http://nonie.cgsociety.org/gallery/

Yannick Dusseault

http://www.dusso.com/

Ideas

Lord Coake from the CT official forums, for his idea of command units and command circuits.

Thanks to all from the official CT forums for helping me in clarifying many questions and indulging in my frequent frustration with the system.

Thanks to Mike V for his awesome and inspiring art in CT – both directed and done himself.

Thanks to the authors behind CT for creating so many good ideas and such a compelling world!