

Mech 2003

Chapter 2003 Design by Role

When Ves began to expand on the draft of the Hexer mech with Gloriana, they encountered a lot of initial difficulties.

Second-class mechs were more powerful than the mechs he was used to designing.

Even so, there were several tiers of second-class mechs, ranging from the cheapest economy models that were only modestly better than his Bright Warrior to the ultra-advanced premier mechs that were within throwing distance to first-class mechs!

A vast spectrum existed between the two extremes. What a newcomer like Ves ought to do was to dip his toes into the water by entering the shallow pool first.

Instead, he dove head-first into the ocean by tackling a mech design that was meant to be on par with the military mechs of the Hex Army!

Having participated in the development and maintenance of the mechs of the Bright Republic's Mech Corps, Ves knew that there was a significant difference between private mechs and government-funded mechs.

Right now, this meant that Ves abruptly had to work with a category of mechs that was a bit too much for him to grasp!

The insane performance parameters of the components made available to them blew any third-class mech out of the water! With each component performing several times better than their third-class equivalents, Ves found it very difficult to estimate the overall performance of his draft in a real setting.

Additionally, many of the components that used to take up a lot of space were suddenly smaller and lighter. Sensor systems, mech engines, power reactors and more came in both bigger and smaller models, providing mech designers with a plethora of options to choose from! Ves soon became unable to see the forest from the trees as he was unable to determine which components he should include in his mech design in a miniaturized form or keep them at full size!

Gloriana placed her hand on his forearm. "Calm down, Ves. I know this catalog of components can be overwhelming to you, but that doesn't mean your old approach is wrong. You've always centered your design choices around your vision. This time should be no different. Ignore the flashy features of all of these components and just choose something by going down a list of priorities."

He sighed. "That's the problem, Gloriana. I initially conceived of my concept when I didn't have a clear picture of how a military mech ought to perform."

"You watched the battle footage of our mechs in action, did you not?"

"I did, but that was from an outsider's perspective. Now that I am exposed to the full might of second-class mechs, I am a bit less certain on what to go for with our Hexer mech."

A brief silence ensued as Ves massaged his forehead while Gloriana fell into thought.

"You have me, Ves. You don't have to shoulder all of the burden alone. In our past design projects, you've taken the lead all the time. Maybe you should relinquish some more decisions to me this time. I'm a lot more familiar with these advanced components than you, and I have a much better grasp on the level of performance that is expected of this kind of mech."

She was right, though Ves noted an issue. "Aren't you incapable of designing non-custom mechs?"

"I wouldn't say I'm incapable. I just don't prefer it. It's not a problem for me to take care of these general problems, but I still need you to help complete this design."

"Okay."

They began to go back to the drawing board in a sense and reviewed their current mech concept. The vision that Ves had come up with was fine, but the technical details needed some refinement.

"So you're still going with a landbound knight mech?"

"Yes." Ves nodded. "It's what I'm most familiar with and it's the simplest mech type by nature. I thought about designing a rifleman mech instead, but they are often spread out throughout the battlefield or placed in the rear. What I want is a mech that can support the female Hexer mech pilots up close."

"That is sound reasoning. I agree. What else?"

"I'm not sure whether to emphasize the defense or mobility of my mech. There are advantages and disadvantages to both, and I'm not sure which one I should choose. Prioritizing defense is good if my support mech is deployed in defensive battles, while prioritizing mobility makes my mech a lot more useful in offensive actions."

The same applied to third-class mechs. His Blackbeak may not be the most ideal defensive mech, but its relative mobility was so good that it could keep up with offensive mechs when they went on the attack!

However, Ves confidently designed the Blackbeak because he was very familiar with the way that third-class battles were being fought. His father was a mech pilot and his entire family regaled him with many tales of mechs in action.

The same rules didn't apply to the higher classes of combat. Second-class mech battles were very different due to the higher levels of performance and added versatility of the main pieces.

A second-class knight mech was often not 'just' a knight mech. They often incorporated at least something extra to make them stand out from the competition. It was like the gimmicks that Ves used to add in his mech design in a much stronger form.

The question now was what kind of capabilities he could add to his Hexer mech.

"What kind of features do existing knight mechs in the Hex Army come with?" He asked.

"There are a lot of choices depending on the intended role of the mech. For example, defensive mechs often incorporate some self-repair functions to sustain its presence on the battlefield. They can also carry jamming arrays that can interfere with scans and targeting systems in order to prevent the enemy from targeting critical assets."

"What about offensive knight mechs?"

"Oh, sometimes they come with augmented flight or boosting capabilities in order to speed up their navigation or charges. They can also come with augmented shields or more specialized fields that can temporarily mitigate energy attacks within a small radius around the mech. There are also knight mechs that can carry support systems that can rapidly repair certain types of battle damage in the field, though those systems are usually found on dedicated support mechs or support vehicles."

Support mechs were machines that weren't explicitly designed to attack. Instead, they worked to support their own side by resupplying their spent reserves or fixing up some battle damage in the middle of an active engagement.

While they weren't as good as a bunch of mech technicians in a mech workshop, these support mechs were nonetheless vital in extending the operation time of a lot of mechs.

Because their functions weren't as critical as mechs designed for battle, some forces eschewed support mechs for support vehicles instead.

Piloted or crewed by norms, support vehicles essentially fulfilled the same functions just as well, though they were completely helpless if they were cornered by an enemy.

As could be imagined, the Hex Army only crewed these support options with boys!

Right now, Ves wasn't interested in designing a support mech or any kind of utility mech for that matter. He was still rooted in third-class mech design where every mech was expected to fight in one way or another.

To him, designing a support mech that couldn't even hurt a fly was not a good entry into second-class mechs. He didn't want his products to be interpreted as support machines, even though his design philosophy conveyed a lot of advantages in this aspect.

As a man, he wanted to design mechs that could demolish other mechs!

Unfortunately, the Hexer tradition of limiting the offensive options of male mechs posed a huge hindrance to this urge!

"You can't add secondary weapon systems to our current mech design." Gloriana warned him. "No missile launchers. No electrorods. No grenades. No integrated laser mounts. The extra functions either have to be defensive or supportive in nature. No exceptions."

Ves adopted a sour expression. "I really want to add some ranged options to our Hexer mech. One of my most persistent complaints about my Blackbeak and Aurora Titan designs is that they can't effectively retaliate against ranged mechs. I thought I could change that now that I'm working at a higher tech level."

"It's fine if you want to design a mech for a different audience, but the Hex Army absolutely forbids this. I think you don't quite get it, Ves. Male Hexer mechs aren't truly meant to defeat their opponents. Sure, a knight mech can defend itself when threatened and a ranged mech won't receive any blame if it scores a lucky hit, but female mechs must always be responsible for the majority of kills! Everything that male mechs can do must facilitate the actions of female mechs in some way. Hexers can't imagine a situation where it's the other way around!"

That sounded completely absurd to Ves! Yet so far, the Hexers didn't seem to find a problem with this artificial separation. They were doing decently enough in the Komodo War to suppress any voices that advocated for change.

He breathed deeply. He was not a social activist nor a politician. He was just a mech designer. It wasn't his job to advance certain causes or alter the arrangements of his client.

Perpetuating any perceived injustices, even if it offended his sensibilities, shouldn't even be a factor. As long as he accepted a commission, he had to do his best to advance the interests of his client, even if DIVA forced it down his throat this time!

"What would be a good supportive module to add to our knight mech?"

"Hmm..." Gloriana pressed her finger against her lips. "There are many options to choose from. I think we should first determine the role and sub-role of our mech. Offensive or defensive?"

"Offensive." Ves answered. "I think second-class offensive knights are already resilient enough. Defensive mechs at this level are completely excessive and over the top when it comes to their capacity to resist damage."

"You'd be surprised at what kind of firepower the Fridaymen can bring to bear against fortified positions. Many defensive mechs in the Hegemony are designed to withstand focused bombardment by artillery mechs, you know."

"Well, I don't want to design a turtle. I want a mech that moves!"

"Okay." Gloriana nodded and noted it down. "So right now we have a knight mech that possesses enough mobility to keep up with most offensive actions. What else?"

Ves rubbed his smooth-shaven chin. He recalled the battle footage he had seen and tried to identify the most glaring difficulties the Hexers experienced when they resisted the Fridaymen.

"From what I can gather, Hexers are better in shock tactics while the Fridaymen are more proficient in attrition warfare, isn't that right?"

Gloriana immediately glowered. "We're not that incompetent! We can last in lengthy battles just fine!"

Ves ignored her objection. "I think our Hexer mech should be adapted to the rigors of attrition warfare. This also happens to be one of my strong points. Unlike almost every mech designer, I actually lived through several battles. Even if second-class mechs are fancier than the machines I'm used to working with, they are still subject to the same challenges. Am I right?"

She reluctantly nodded. "There are some differences."

"Whatever. Second-class mechs are energy-hungry machines, right? What if I base our Hexer mech around energy collection, storage and distribution?"

Gloriana shook her head. "A support mech can fulfill that function better."

"In the frontlines? At the tip of the spear? I bet that any support mech will get targeted by the enemy right away! Taking out the source of replenishment and resupply is always useful, especially when they aren't designed to take hit! Our mech will be different! Not only can it function as a source of rapid resupply, it can also make use of all of that energy to empower its own capabilities, all the while advancing to the thick of the fighting!"

This time, his argument took hold. Gloriana looked a lot more intrigued than before!

Chapter 2004 Good Boy

In the Hex Army, knight mechs played a supportive function. Aside from providing a mobile bulwark that provided some much-needed protection for offensive mechs piloted by women, they also offered an array of support services.

In line with the general Hexer preference for shock attacks, the knight mechs piloted by the boys accompanying the superior gender usually offered various defensive or utility benefits.

Direct defensive boosts entailed measures which directly improved the defense of surrounding mechs such as projecting a radial shield, emitting an anti-energy particle cloud or launching deployable cover.

Indirect defensive features comprised of features such as powerful directional scanning arrays that could defeat most ECM measures or putting up a stealth field.

One detail that Ves already knew was that the Hex Army actually didn't exhibit an endless variety of mech models. Unlike the Friday Coalition which adopted different doctrines and battle traditions for every partner, every mech division and every mech regiment, the Hex Army only used around less than a couple of hundred mech models for its entire lineup!

A hundred sounded a lot to a single mech force like the Living Sentinels, but the Hex Army comprised millions of mechs, each of which fought across a battleline stretching an innumerable amount of light-years!

For such a huge and critical mech military to exhibit so little diversity, especially considering that many mech models were merely variants of each other, was staggering to Ves! As someone who was used to the high degree of autonomy adopted by the mech regiments of the Mech Corps, he simply couldn't imagine what it would be like for the regimental commanders to lack the ability to choose their own mech models!

"The Hex Army adopts the same mechs throughout its entire lineup for good reasons, Ves." Gloriana told him. "We don't ascribe to the belief that we need a million different mech models to confuse our enemy or throw them off-guard. We believe in the might of our superiority! We press our attack with the only mechs that are necessary to break through enemy lines!"

The Hex Army's mech regiments mostly adopted the same set of mech models depending on their overall role. Assault regiments fielded one common pool of mech models while scout regiment fielded another common pool of mech models!

The advantages of this were obvious. Using the exact same mech models across thousands of different units meant that it was a lot easier for the Hex Army's logistical services to supply the same spare parts and replacement mechs. The economies of scale increased the efficiency of these efforts by a very significant margin over the Friday Coalition's own logistical operations!

From a design standpoint, Ves was aware that the mech models adopted by the Hex Army all represented the culmination of the best Hexer mech designers. The matriarchs only accepted the best, and the designs that met their approval were constantly being iterated and improved upon by dedicated teams of Masters and Seniors!

Instead of spreading the expertise of many Masters and Seniors across tens of thousands or even hundreds of thousands of different mech models, pouring all of their attention to less than five-hundred mechs resulted in highly-optimized mechs that performed admirably on the battlefield!

That said, the lack of variety also led to a number of disadvantages. The Fridaymen probably analyzed each and every mech model to death and figured all of their weak points.

Though it wasn't easy to exploit the weak points of highly-optimized mechs, the lack of surprises offered by the Hex Army really hampered some of its operations!

Ves realized the Hex Army was too predictable!

Of course, there were other organizations like DIVA who specialized in subterfuge and special operations, but the main Hexer force was a huge and powerful exobeast who only knew how to charge in one direction: forward!

In contrast, the various military organizations of the Friday Coalition were scattered because they were divided among the six partners. The Gauge Dynasty's Sundered Phalanx adopted a completely different set of mechs from the Carnegie Group's Fortune Legion.

Together with the fact that their mech regiments were highly individualized, the Friday Coalition often managed to surprise the rigid Hex Army with its new and unexpected mech models.

That said, the performance of those new mech models were inconsistent, and even the best Fridayman mechs couldn't compare to the Hexer mechs in terms of optimization.

Which approach was right and which approach was wrong?

Ves couldn't answer such a huge and profound question. As a mech designer, he vastly preferred the diversity model adopted by the Bright Republic and the Friday Coalition. These states offered many mech designers the opportunity to distinguish themselves by

expressing their design abilities to the fullest extent. This was also the mainstream approach chosen by many states.

However, the Hex Army chose a different path, and it wasn't in his place to challenge this decision. All Ves could do was to accept this reality and figure out a way for his mech to best slot into this paradigm.

Right now, Ves noticed a clear need that the Hex Army's current lineup failed to address.

"The Hex Army already has an energy resupply mech, though." Gloriana said. She manipulated the projector with her mind, causing it to display a 'fat' support mech. "The Good Boy 77S is the predominant landbound energy resupply mech. It's a heavy mech, but doesn't feature a lot of armor for its weight class. While slow, vulnerable and defenseless, it carries a huge amount of high-density energy cells. It can supply an entire mech squad if necessary!"

"... 'Good Boy'?"

Gloriana blinked. "What's wrong with that? It's called that way because every female Hexer pilot is appreciative of the energy resupply it offers. They always thank the mech by calling it a good boy, hence it adopted this name."

"..."

He truly didn't know how to respond to this story. Weird Hexer naming conventions aside, the so-called 'Good Boy' was indeed very good at its job.

Yet its holes were also glaringly obvious.

"Your Hex Army's so-called Good Boy might be lovable in the eyes of your Hexer mech pilots, but it's a slow, fat and juicy target for any Fridayman mech! It may exhibit the mass of a heavy mech, but it lacks the corresponding armor!"

"It's not meant to be fielded in the thick of battle." She said. "Most resupply mechs are like that. They are predominantly deployed in the rear lines or a reinforced forward position. They aren't designed to accompany the vanguard. Sure, they get taken out a lot whenever the Fridaymen sneak some mechs past our lines, but better for a Good Boy to go down than a more important female mech."

What? Ves couldn't help but be taken aback!

"Good Boys are deliberately designed to attract enemy fire?"

Gloriana nodded as if it completely made sense. "That's the other reason why they are called Good Boys. The Fridaymen consider it to be a strategic target because it

provides a huge amount of support while boasting relatively inadequate protection. That always makes it the first target to be taken out. While it's a shame to lose a Good Boy, it is better for a male mech to go down first, because at least it gives female mechs time to respond and defend themselves against ambushes!"

What the hell?! Ves wanted to rub his ears in order to make sure he was hearing this right. This rationale sounded too ridiculous to his sensibilities!

"So the Hexers aren't just content to turn male mechs into cannon fodder, but also bait?"

"That's what Good Boys are for." Gloriana responded with a smile. "Don't worry, Ves. A lot of boys consider it a great honor to pilot such a crucial mech. Every mech pilot that falls while piloting a Good Boy receives posthumous honors. They genuinely deserve to be seen as good boys, and their families always receive generous pensions and other rewards as a result! Don't you think they're good boys for braving such risks?"

His face turned flat and expressionless. He tried his best to control his emotions. There was no point blowing up over this matter because it wasn't his girlfriend's fault the Hex Army treated their good boys like sacrificial lambs.

In fact, Ves became a lot more determined to promote his own vision for a Hexer mech! For the sake of all of those good boys, he had to show them what a real man could do with a sturdier mech at their disposal!

"These 'Good Boys' sound.. useful, but they can't take part in assaults, am I right? The female Hexer mechs always have to draw back from the front in order to resupply. That wastes valuable time and blunts the initial momentum of their opening moves. I think a mech that is designed to support Hexer assaults up close can be very useful."

"I think so as well." Gloriana nodded. "That's why I haven't rejected your initial suggestion. However, there are a few major issues hampering the practicality of your energy resupply mech. First, the capacity of the mech is limited. You want to design a medium offensive knight. Okay. That means that its armor won't be as thick as defensive knights in order to retain some mobility. However, now you want this mech to function as an energy supply mech as well, which means that much of its capacity has to be devoted to storing energy cells and energy transfer systems. Do you know how much space that takes? Good Boys are huge and fat for a reason!"

The same issue plaguing the striker mech also applied to his current mech concept.

Ves recognized the problem as much as Gloriana, but he possessed a different opinion on the viability of his latest idea.

"Gloriana, how much energy does a Good Boy carry?"

"A lot. Enough to give an entire mech company a second wind."

"Don't you think that's excessive?" Ves crossed his arms while adopting a skeptical expression. "Sure, the Good Boys are more convenient in many ways, but they are so fragile and vulnerable that they are often placed too far from the front. My mech concept is different in that it is designed to resupply friendly mechs while they are literally in the thick of the battle! Its role is different. Instead of giving friendly mechs an opportunity to replenish all of their spent energy cells, my mech will instead provide an immediate pick-up boost without requiring anyone to withdraw!"

This fell in line with the offensive doctrines adopted by the Hexers. They highly preferred to go on the attack and overwhelm the Fridaymen through brute force.

While this approach had its merits, the Fridaymen always tried to stall such attacks and force the Hexer mechs to waste their energy without yielding too many results.

Once the overenthusiastic Hexers lost steam, that was the time the Fridaymen counterattacked! The window of opportunity that opened up when Hexer mechs started to withdraw from the front in order to resupply was a very familiar pattern to the Fridaymen!

A lot of battles between the two sides turned against the Hexers because they were caught in an awkward situation where their mechs at the front were unable to resist a sudden counterattack!

Of course, the situation on the battlefield was often a lot more complex than the scenario that Ves had in mind, but there was no doubt that the lack of immediate resupply constrained the Hexer mechs to an extent.

"I'm not sure if it will work out the way you think it will." Gloriana eventually replied after considering his mech concept. "Your mech sounds useful, but the limited amount of energy reserves limits its utility. It won't be able to carry more than an eighth or a tenth of the total energy capacity of a single Good Boy."

Ves smiled. "I'm already happy with that. My mech may not excel in any single area, but it provides numerous smaller advantages that combine into a very supportive package! Combining defense, mobility, energy resupply and an exceptional Hexer glow on top of that will result in the perfect accompaniment of assault mechs!"

The conventional benefits of his Hexer support mech already sounded pretty useful. Adding a glow based on the Idol of the Superior Mother would propel the value of his mech to another level!

He was sure that the Hex Army would not be able to resist such a useful package once his mech received an opportunity to prove itself in battle!