

Spaceship design wasn't always this complicated. Back in the old days, before FTL travel or heavy colonization, no one had to worry about artificial gravity or life support for extended trips. Of course, back then, they didn't have the advances we have now.

Eric wiped his brow as he tinkered with the life support on an old skipper-class ship. *Three-person crew. Twenty-one man-days*, he thought to himself. At this rate, he'd be lucky to keep it above fifteen. Part of the circuit that heated produced carbon dioxide and hydrogen to facilitate the Sabatier reaction had fused. A simple circuit, but it had gotten overloaded when the thermocouple that absorbed the excess heat energy had somehow crossed with the heating circuit. Without that system running, you didn't get water. Without water, there was no hydrolysis. Without hydrolysis, no oxygen. Without oxygen, no life.

Eric had managed to purchase this ship, with the help of his brother, in a Quantum Impulse auction. It was at least twenty years out of date, and hadn't been used in five. Still, it had nearly bankrupted the both of them to buy it. *Space travel is so damn expensive.*

"The methane filters don't seem to be working properly. See the discoloration here?"

Eric nearly had a heat attack. He hadn't heard the chorian enter the garage, and now she was speaking from maybe a half-meter from his ear. She continued.

"The drive core only seems to be operating at forty percent efficiency as well. At that compression ratio you won't be able to hop more than half a light-year. Maybe less. Even skipping, it'll burn out after maybe seven hops. Not even enough to get us to the next system."

"Bullshit. I just checked over the drive core. It's at fifty-eight percent, and I doubt it could get any better."

Lialin threw the main power switch for the drive core, which was currently hooked into the main power for the garage to bypass the engine itself and allow testing of the compression mechanism. The core hummed to life.

"There. Listen to the harmonics. There's a stutter in the frequency. 70 hertz to 61 hertz."

Eric shook his head. "I don't hear it. Sounds smooth to me. Besides, the equipment reads..." he glanced at the meter hooked up to the core. "...forty-three percent." *Damn.*

"You keep working on that filter circuit. I'll get this core up to seventy percent."

"There's no way in hell you can do that. That core is only rated for sixty-five, and it's twenty years old."

"Just watch, little brother."

Eric hated it when she called him that. Not because she was his sister-in-law, and not biologically related, but because it's what his brother called him whenever he bested him at something. Which was entirely too often. And it was likely he was about to be bested again, in his own domain. He turned back to the CO₂-H₂O-O₂ cycling system.

The methane filter was clogged with carbon scum. Likely a spark ignited the methane at some point and the resulting carbon ash blocked most of the filter. With methane clogging up the reaction chamber, you couldn't use partial pressures to send in any more carbon dioxide or hydrogen, and the reaction would have halted even if the heating coil circuit hadn't fused.

Even at fifteen man-days, we're not going to want to stay in this thing for more than three or four. No artificial gravity, and problematic heat venting would make an extended trip a biological nightmare. Sometimes Eric envied the autogol.

"We could always retrofit this thing with better oxygen storage, then we wouldn't have to worry about the recycling circuit as much." He called over to Lialin.

"Sure, if you want to deal with yet another storage system, and a highly volatile one at that."

"They've got those cobalt crystal oxygen storage systems that Biosynth makes."

"And when you get your hands on the money to buy one, let me know. We can barely afford to rent this garage."

"Get your husband to make more wildly successful investments for us."

“You get him to, he's your brother. He's terrified of losing money now that you and him have poured it all into this ship. I swear, humans are the most stubborn species in the galaxy.”

“You should have known what you were getting into when you decided to marry him.”

“I did. That doesn't make it any less true.”

The two worked in silence for a while. After a spell, Eric spoke up.

“I think I've got the methane filters cleaned up. Air might smell a bit funky for a while, but it shouldn't go stale on us.”

“Check on the alpha detectors. I doubt they're properly calibrated, and without them, it doesn't matter how great this compressor is, we won't be able to locate the Rest Frame to hop.”

“I glanced at them earlier. Most are corroded from being in atmosphere for years without maintenance. We're gonna need to buy some new ones.”

“Damn.”

“At least they're cheap. Calibration's gonna be a nightmare, though. Need to do it in a vacuum, which means we'll need to the rest of this thing working. Or, at least most of the rest of it.”

“I'll bet you whatever you like that I'll have this drive core running by the end of tomorrow.”

“I won't take that bet. I think I've made all the progress I can for the night. Good luck with that compressor.”

“Thanks. We'll get this thing in working shape soon.”

“I hope so. Looking forward to ditching my desk job for gallivanting about the sector.”

“We'll still need to work, you know.”

“Yeah, but we'll have open space. Maybe it's a human thing, but being able to be free, to just go... out there. It's a good thing, you know?”

“Just don't get your head too far up in the clouds.”

“I'll try to keep myself grounded. Figuratively.”

“Night.”

“Say 'hi' to my brother for me when you see him later. 'Night.’”