D-D Main Fusion Reactor

Set to replace the old Heavy Water Fusion-Fission Reactor, the newest fusion reactor, designed in AF 260 (YE 31), is a Deuterium-Deuterium Fusion reaction as opposed to the Deuterium-Tritium and Deuterium-Helium Three reactions that have been common place in Abwehran space. The main problem with Deuterium-Deuterium reactions have always been its low reaction rates and the creation of 'ash' in the reaction chamber because of the low reaction rates. Because of this, Deuterium-Tritium was mostly favored due to its high reaction rates, but that itself was a problem because of the need to 'breed' tritium. Because of this, the more common form of fusion was Deuterium-Helium Three due to the fact that Abwehr orbited the Gas Giant of Jaspis IV.

To counter the problems with Deuterium-Deuterium Fusion, scientists developed Helium-Catalyzation using a levitating Dipole to increase the reaction rates of deuterium. Using a magnetic dipole to contain and direct deuterium particles for the initial reaction, the deuterium used creates Helium Three. The helium three is then used as a catalyst to fuse with more deuterium to produce tritons (particles of tritium) and continue the fusion process from deuterium to helium three to tritium.

In essence, this system enables the Main Fusion Reactor to produce much more power than the old Heavy Water Fusion-Fission Reactor and much more power than the old Deuterium-Helium Three Reactors, also known as the D-H3 Secondary Fusion Reactor.