

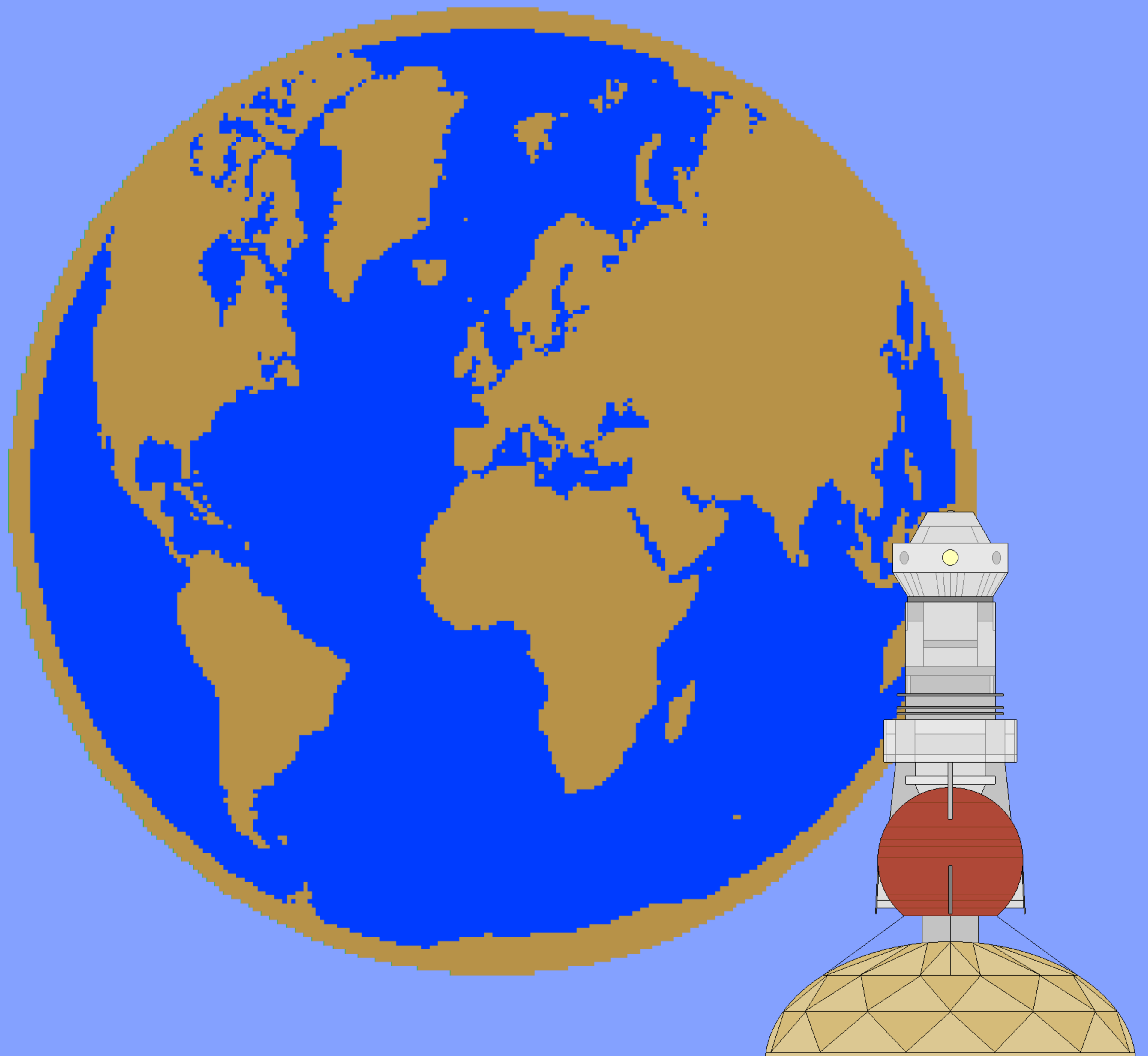
DYNAMICS'

STAR FLEET

STARSHIP RECOGNITION MANUAL

REPORT: AFP-1

EXPERIMENTAL PROPULSION SHIP





FORWARD

My contribution to this project would not have been possible without those who came before me. Mainly, CaptShade, whose original drawings laid the foundation for my work by providing me the figurative and literal tools for my own creative output. Nichodo, who was a big help in creating aft and ventral views of various components. RevancheRM, whose ideas and drive helped me get a little more creative and better at something I really enjoy. And, most definitely, Neale "Vance" Davidson, whose enormous volume of work got me interested in doing this in the first place, and for inspiring us all.

- Adrasil

First, as always, thanks to Adrasil. Since partnering with him, I've taken some great artwork and added some context to it. He's really allowed me to scratch my writing itch, to the point it sometimes bleeds, but still feels Oh-So-Good. Next up, of course, is Timo Saloniemi, who's work I've been following for around two decades and I greatly respect. The artwork in these "Starship Recognition Manuals" are 97% based upon the ones he describes textually in his grand opus, the "Hobbyist's Guide to the UFP Starfleet and Its History," and 3% derived from what he has inspired in us.

- RevancheRM

Additional reports may be found at: starshiptracker.com/deltadynamics

CREDITS

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STAR TREK DESIGN PROJECT: Source of sponsor icons

www.StarTrekDesignProject.com

TIMO SALONIEMI: Author of "Hobbyist's Guide to the UFP Starfleet", the inspiration for these SRMs. A direct link to his Google Drive may be found on most deviations in RevancheRM's gallery.

AFP-1 EXPERIMENTAL PROPULSION SHIP:

- Original inspiration from: Spaceflight Chronology (Goldstein, Goldstein, Sternbach)

NOTE FROM THE WRITING EDITOR

These ships do not always exactly match the specifications Timo provides in his technical section for each class, as I've adapted them in ways that allowed them to fit a bit better with the guidance provided by the starship construction rules in Steven Long's "Spacedock". I've also changed some dates around when I found them in conflict with other information Timo has provided. These two books greatly inform my own alpha-canon and I urge you to look up both online, as offered free by their respective authors. (Links to both are provided on the Delta Dynamics site.)

Delta Dynamics' Starship Recognition Manual, along with the Reports and all other similar publications released under that branding, are released as a public service to familiarize interested beings with the historic starship designs and technical developments of the United Federation of Planets Star Fleet, its member and preceding services, and those services of regional galactic neighbors. Despite the occasional presence of a sensitive nature of both those historic events and technical matters discussed herein, the distribution and handling of this publication has been ruled Security Grade O (Unclassified) by Star Fleet Support Operations, Office of Security.

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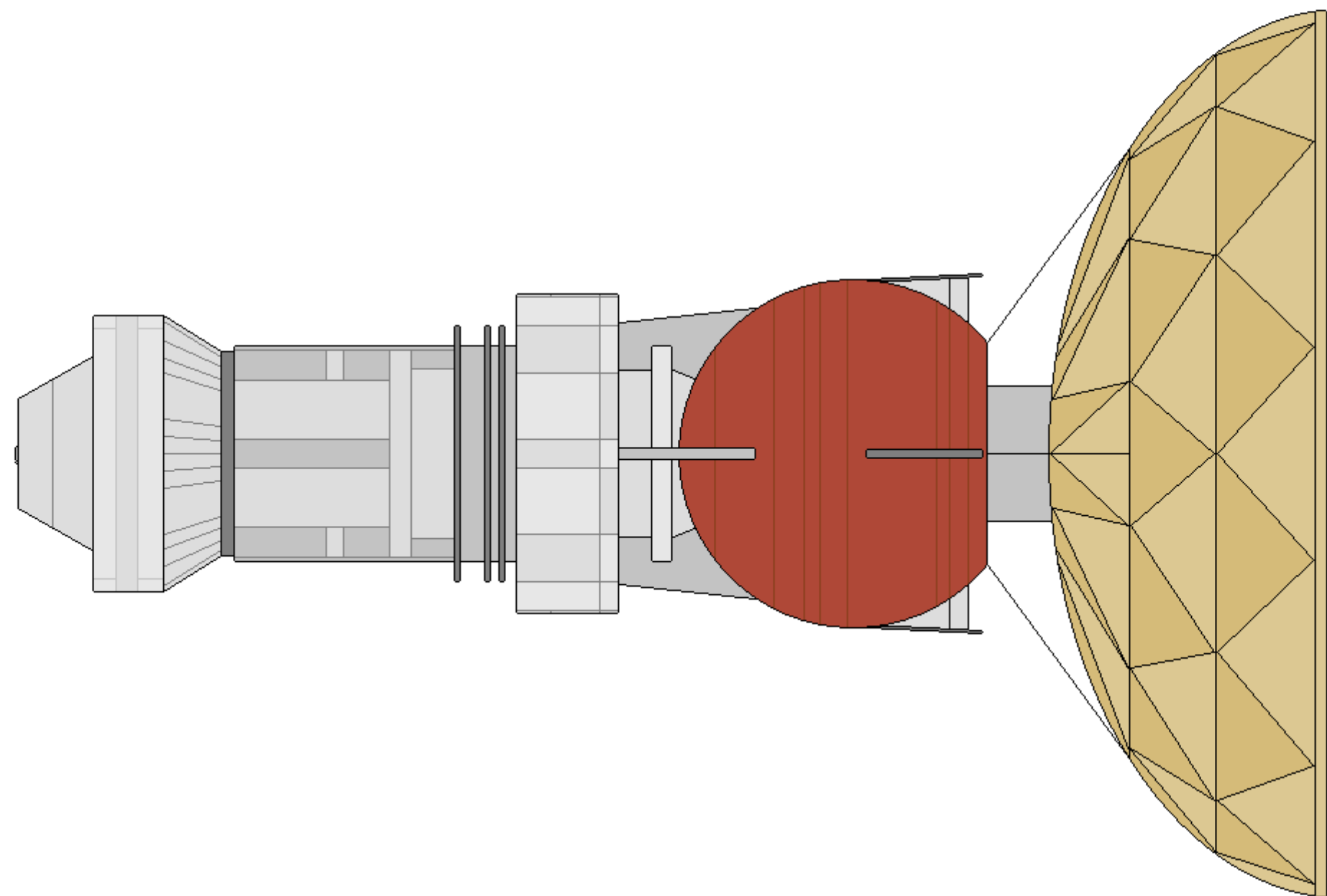
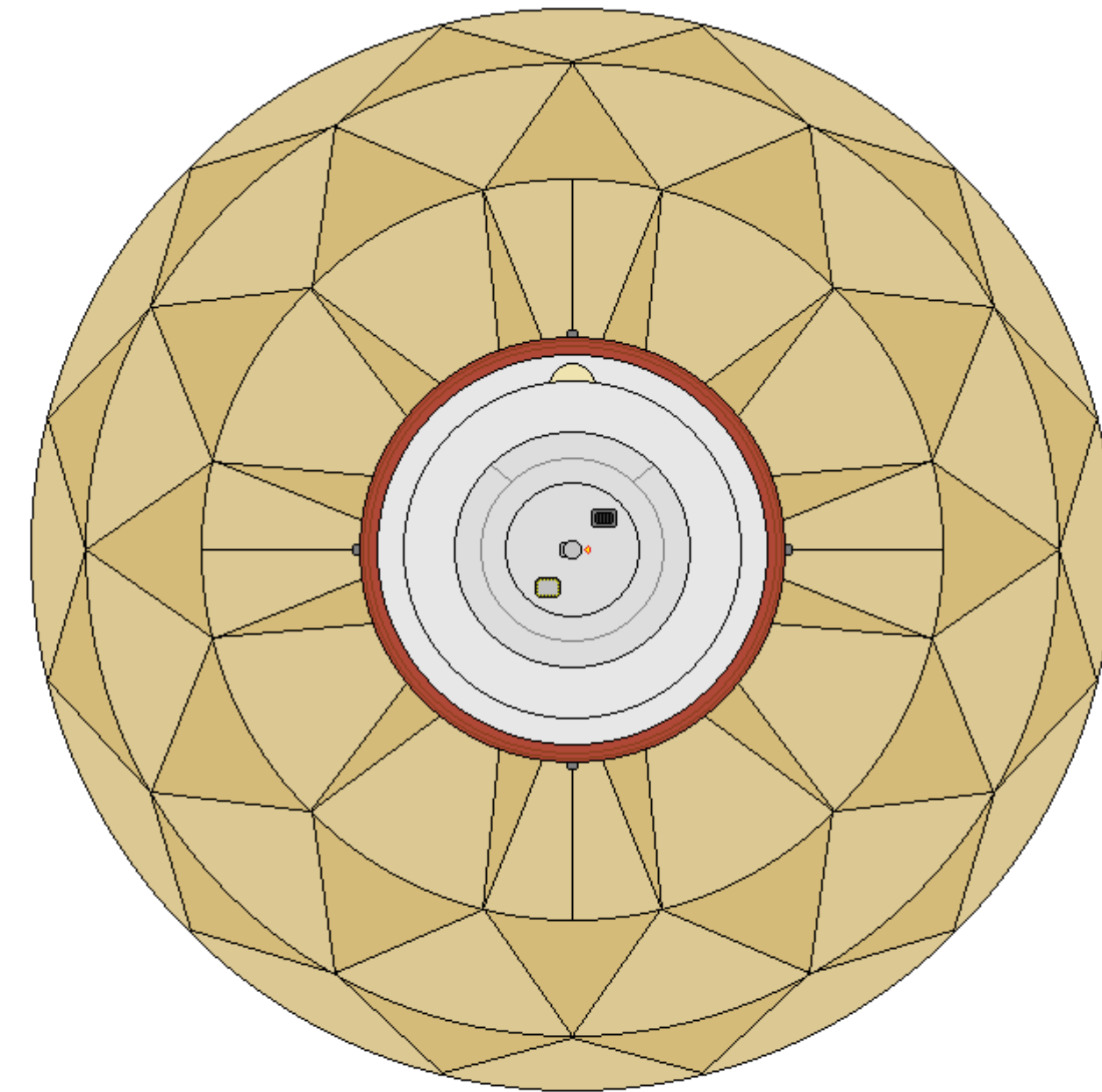
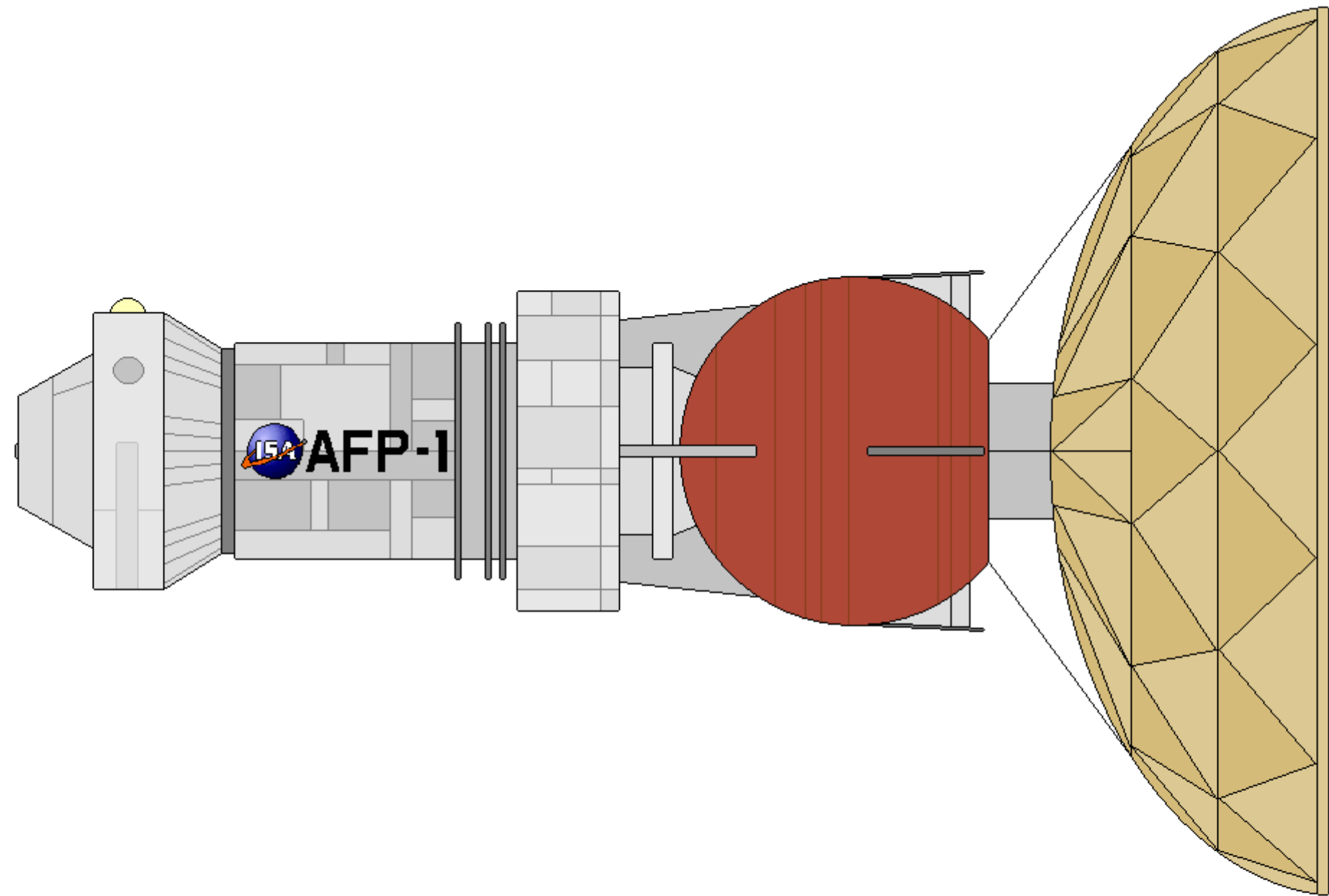
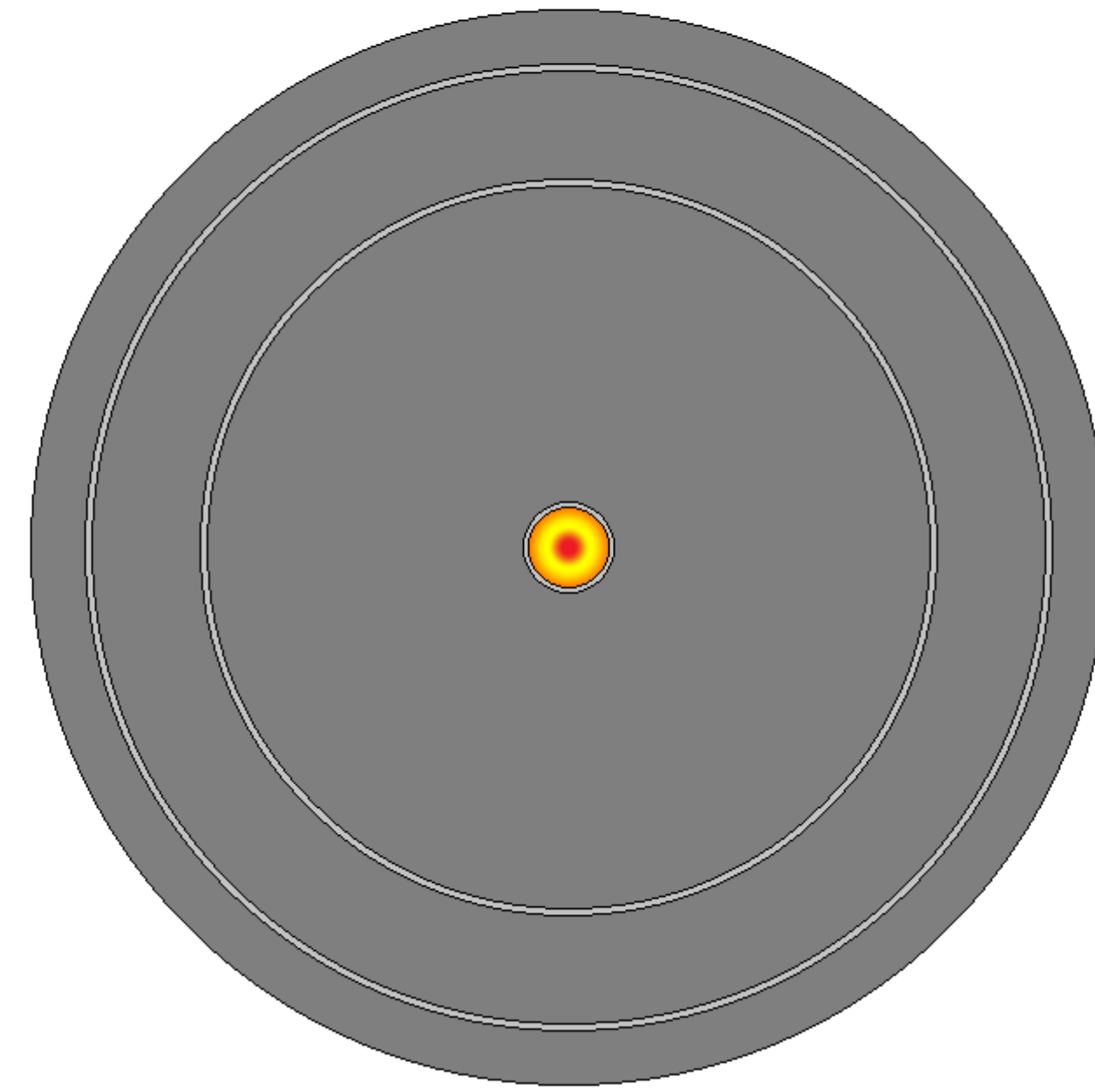
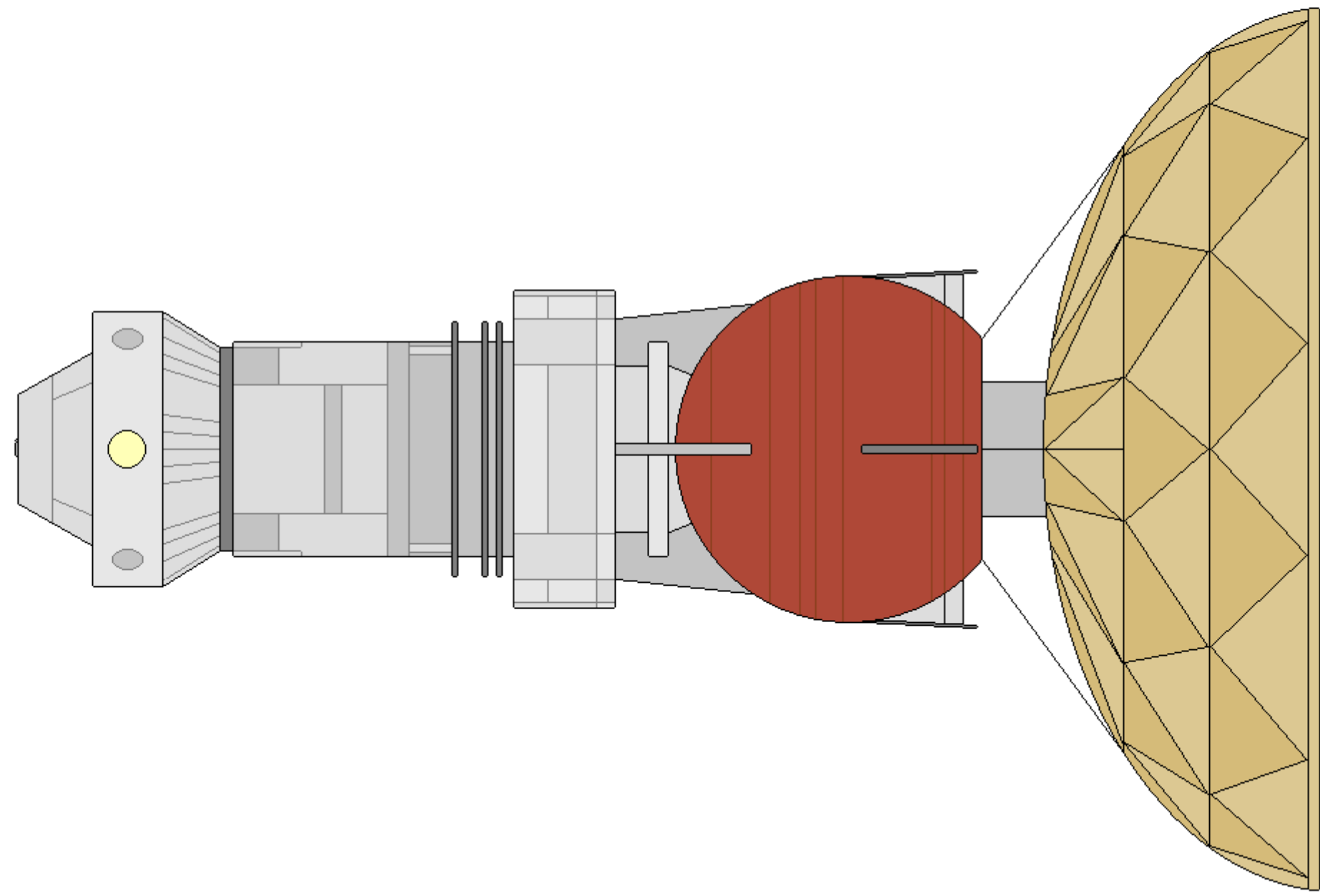


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AFP-1 EXPERIMENTAL PROPULSION SHIP



CATEGORY: TESTBED
OPERATIONAL: 2035 (PARTIALLY)
CONSTRUCTED: 1

DIMENSIONS:
LENGTH: 169.0 M
BEAM: 113.3 M
HEIGHT: 113.3 M
MASS: 7,998 MT

TACTICAL: N/A

PERFORMANCE:
MAX: 0.47 C (PROJECTED)
ENDURANCE: 4 DAYS

AUXILIARIES:
- UNLIKELY

COMPLEMENT:
CREW: 14



AFP-1 EXPERIMENTAL PROPULSION SHIP AUTHORIZED CONSTRUCTION

THE FOLLOWING SHIP OF THE ABOVE CLASS WAS AUTHORIZED AS PART OF THE INTERNATIONAL SPACE AGENCY BY NEW UNITED NATIONS APPROPRIATION.

ADVANCED FUSION PROTOTYPE-1 (AFP-1)

GENERAL INFORMATION

In 2028, the Galileo experimental propulsion project ended catastrophically, with 109 deaths and the complete loss of the test vehicle. It was built with lofty goals—exploration and exploitation of the Kuiper belt and Oort cloud and a voyage to the Proxima Centauri system—and a large amount of capital was expended to build a vehicle with all the perceived equipment and redundancies necessary for such a voyage, despite the reliance on what was still experimental propulsion technology. Additionally, a great deal of public relations "credit" was lavished for all stages of the project, including design, construction, and crew selection. The entire investment by the International Space Agency (ISA) was simply gone when the helium fuel erroneously leaked into the chamber with the energized laser-fusion excitors during a systems test.

However, lost in the stream of the news and investigations of the explosion was the validation of the nuclear thermal propulsion design, which had been anticipated to achieve 0.37c, a high-water mark for subluminal drives of the time (though that descriptor was only utilized by the very few subspace physicists, since faster-than light travel was still considered impossible). The drive itself had not even been completely installed (as it was awaiting the fusion reactor's arrival), so the general public was working from the misassumption that the propulsion technology itself was dangerous and flawed. In reality, the ISA had not abandoned interest in this particular concept for advanced thrust.

Fission drives based on the Yoyodyne Propulsion Systems-derived ion technology were continuing to progress in maximum thrust capacity, though an upper velocity limit was anticipated. However, the same advancements in both engine design and miniaturization were applied to the Earth-bound static model of the Galileo's NTR drive and hybridized with niche research of microwave resonance drive theory, otherwise known as an EmDrive. When the ISA was prepared to take another chance on the experimental tech, they unveiled the Advanced Fusion Project-1, with its hybrid NTR/EmDrive thruster.

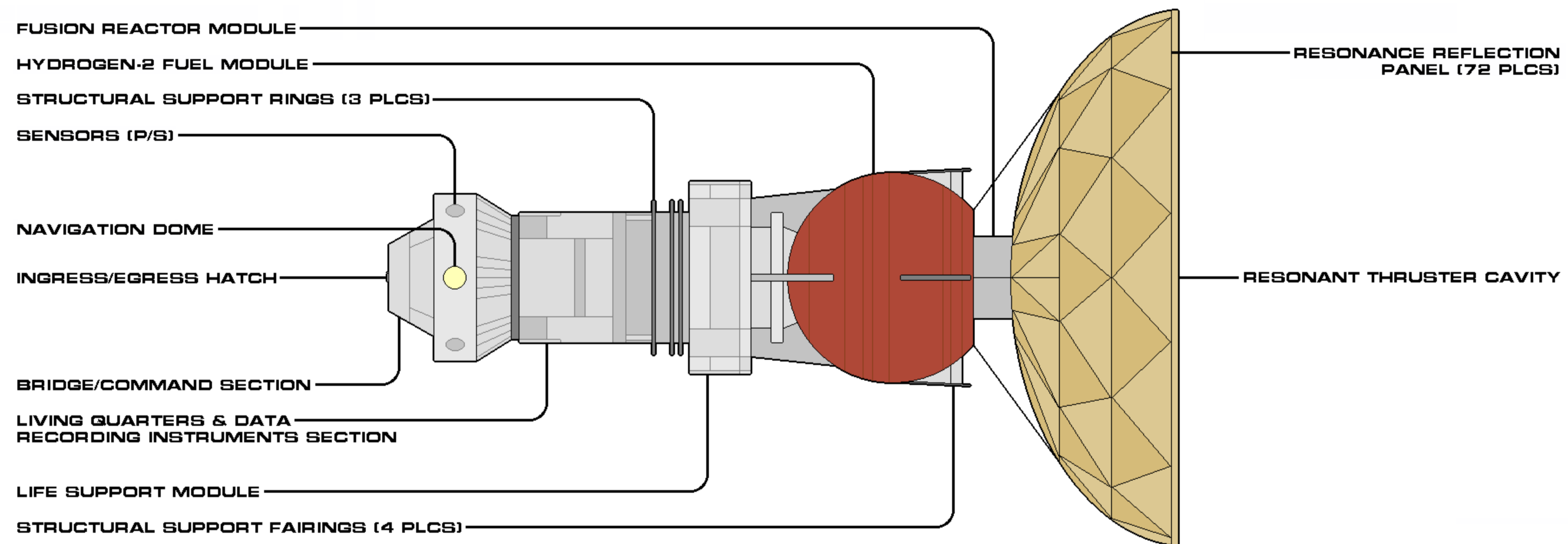
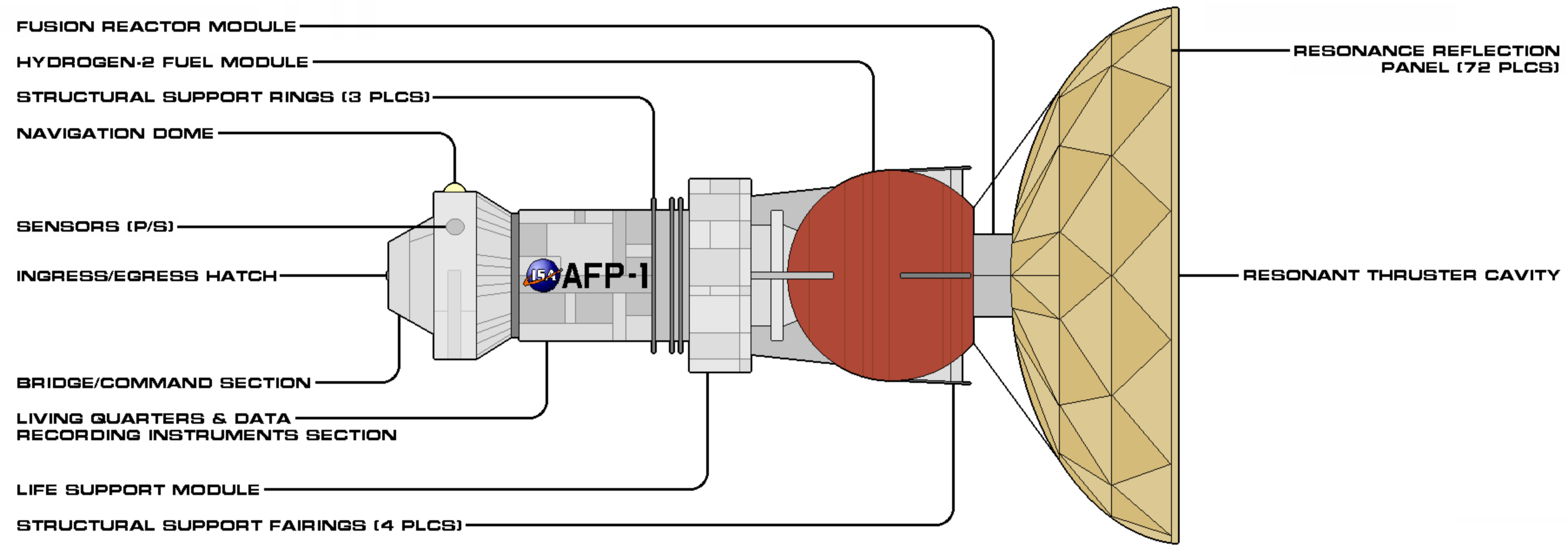
"Unveiling" is a rather hyperbolic description of the vessel's launch, as the ISA did a figurative 180 with this follow-on project; no publicity preceded the event and it was announced with a simple press release. Built at an understated L-1 construction station, the intent was to stepdown expectations for the project and just "do the science". The vessel was just over half the length and mass of the Galileo and crewed by only 14. It was never going to visit another star system and it was not built with that capability. Instead, life support was focused almost exclusively on operational support, not habitability; even the medical bay onboard amounted only to the space of a typical closet. A majority of the non-propulsion equipment was geared towards sensing, recording, and reporting all possible data in the thrust cavity, the fuel tankage, and the external hull. This was a prototype and all members of the project treated it as such; the intent was to test, correct, and refine a potential motive benchmark in Human space travel.

The hybrid drive was self-contained in what a first impression might suggest was a nozzle extension for an enormous thrust engine, but instead was a housing for the hybrid drive, with a flattened aft surface broken only by the thruster's diminutive exhaust port. The energy provided by the fusion reactor (located just forward of the cavity) would be rhythmically-pumped into the chamber, bounced against the semi-absorptive material on the flat aft bulkhead, and then perfectly-reflected back onto a specially-modified ion engine's vibration receiver by the angled panels of the forward and side portions of the cavity. The theory held that the resonance that developed within the void-space imbued multiplying and stabilizing effects upon the thrust generated by the ion engine alone, with a theoretical top velocity of 0.47c for the AFP-1 vehicle as a result. This was extremely more efficient and capable than the best performing ion-only thruster, presently operating at 0.23c on some other test vehicles.

History would, as Mark Twain quipped, end up rhyming for the AFP-1 project. The vessel exploded without warning on February 8, 2035. There were no indications of what went wrong; no tests were scheduled and the full crew was involved in operational training, without any energized engineering equipment, while on shore power. The helium tank was only partially filled (reports

**AFF-1 EXPERIMENTAL PROPULSION SHIP**
GENERAL INFORMATION (CONTINUED)

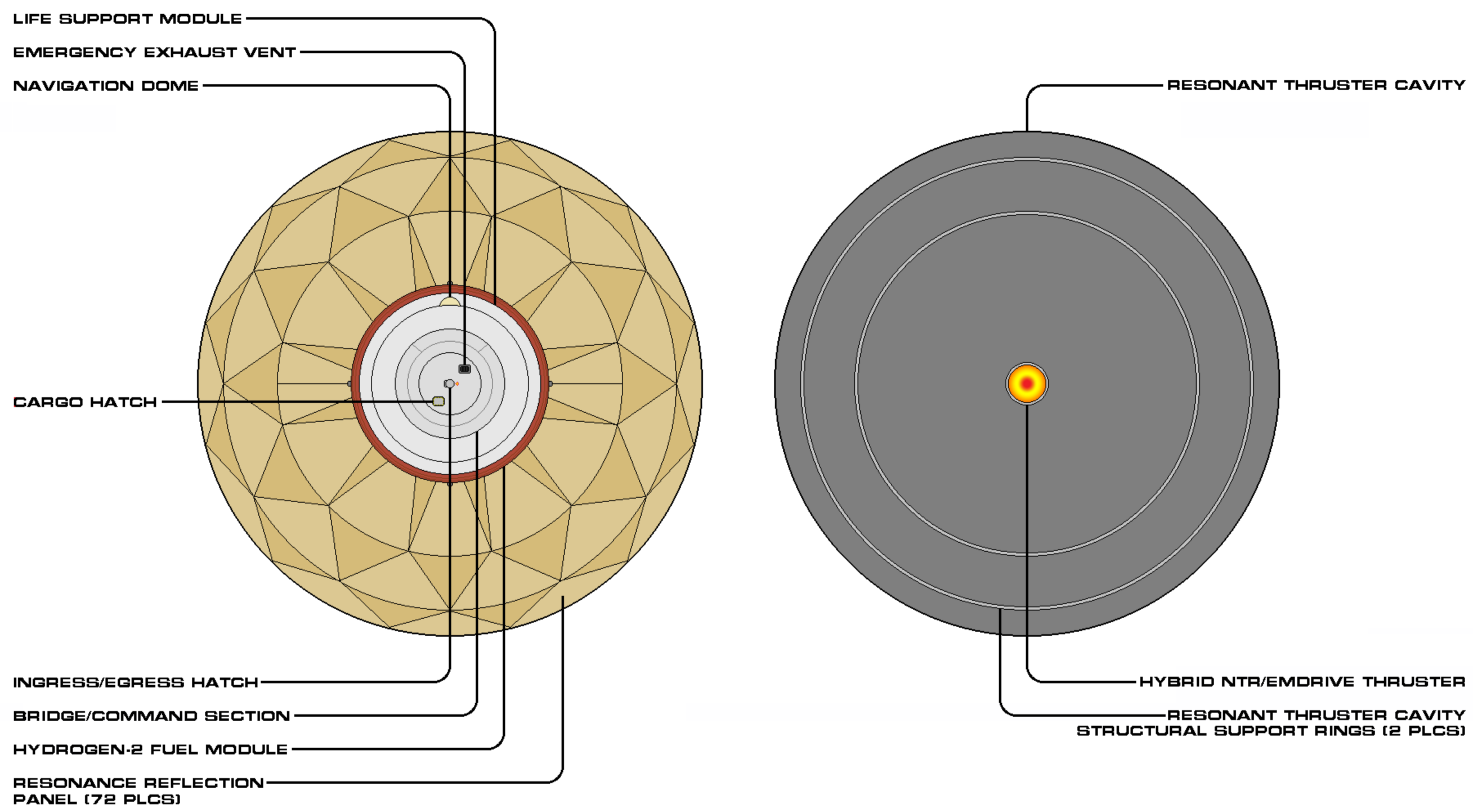
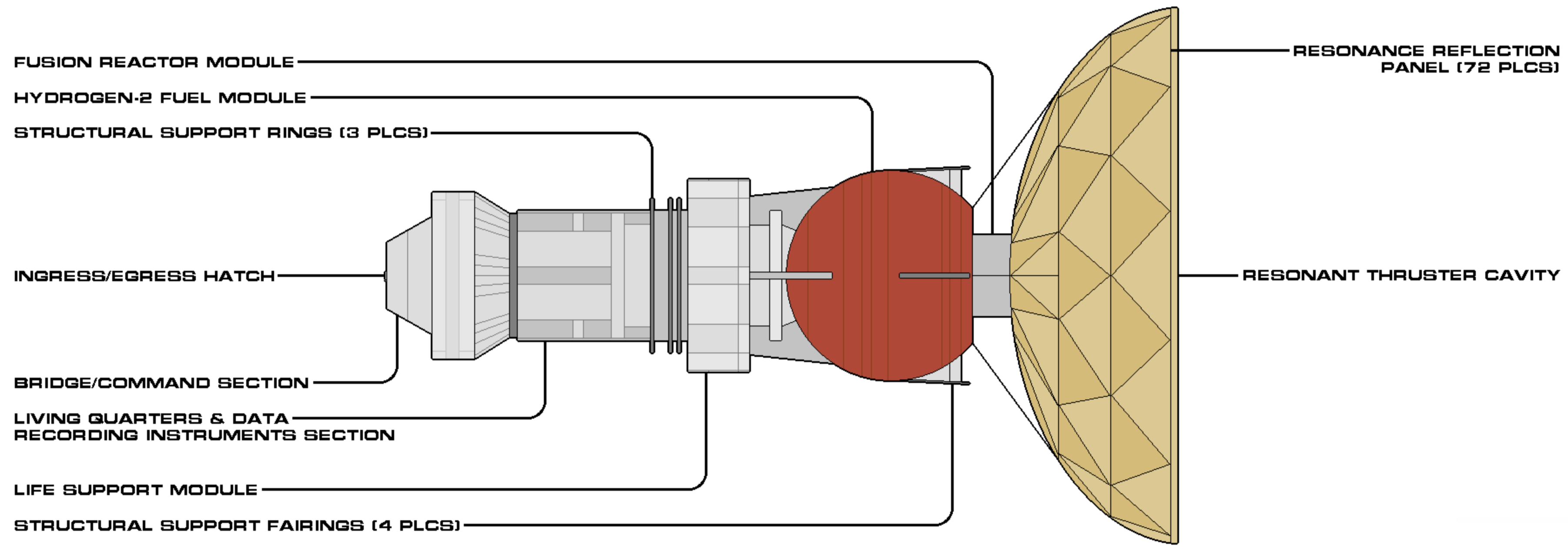
indicate a volume of some amount between 2 and 6 percent of capacity) and did feed the secondary explosions, but there was no evidence it was the origin of the event. Despite the ISA's intensive investigation, the review board could provide no concrete reasoning for the vehicle's sudden loss. There was considerable speculation from the possible (such as a faulty fusion injector that randomly fired, for cause unknown) to the absurd (claims that future-infamous Colonel William Green blew it up, despite his being a relatively obscure first lieutenant in the U.S. Army at the time). Due to both the uncertain results of the incident review and the paucity of historical records in World War Three, the actual cause of loss will likely remain forever unknown.



SHEET 1 OF 2

CLASS	EXPERIMENTAL	CATEGORY	FUSION PROTOTYPE
VARIANT	N/A	CONSTRUCTED	1
LENGTH	169.0 M	BEAM	113.3 M
HEIGHT	113.3 M	MASS	7,990 MT
OPERATIONAL	2035	RELEASE DATE	2210.31

Authorized for release by Star Fleet Bureau of Starship Construction



SHEET 2 OF 2

CLASS	EXPERIMENTAL	CATEGORY	FUSION PROTOTYPE
VARIANT	N/A	CONSTRUCTED	1
LENGTH	169.0 M	BEAM	113.3 M
HEIGHT	113.3 M	MASS	1,990 MT
OPERATIONAL	2035	RELEASE DATE	2210.31

Authorized for release by Star Fleet Bureau of Starship Construction



CLASS TIMELINE

2022

The subspace dimension is discovered, though as yet there is no means to tap its potential.

The Alexander Mackenzie (Aventeur III) arrives at Neptune as part of the Grand Tour.

The John Frémont (Aventeur V) launches from Earth on a Grand Tour to Jupiter and Neptune.

2024

Several European nations, including France, become politically destabilized. The Bell Riots in the United States, the Neo-Trotsky Movement in Russia, a resurgent eugenics movement in Southeast Asia, and the Avignon Riots in France harken the destabilization. Ireland is reunified by force.

2025

The Venus Terraforming Project begins.

The John Powell (Aventeur IV) arrives at Saturn as the first part of its Grand Tour.

The Aventeur VI mission (Stephen Long) to Saturn and Uranus is canceled, prior to launch.

Construction begins on the Galileo experimental propulsion ship.

2026

Factions of eco-terrorists launch a series of attacks that are responsible for as many as 37 million deaths.

Astronomers detect a series of asteroids on a clear path for a near-Earth passage. Multiple analysis of the threatening asteroids confirms a number of them will collide with Earth over a period of three years (starting in 2031), threatening all life.

The Ponce de León (Aventeur II) returns to Earth, having completed its part of the Grand Tour.

The John Frémont (Aventeur V) is remotely recalled to Earth, well prior to its arrival at Jupiter.

2028

The final DY-100 interplanetary transport is constructed on Earth.

The Alexander Mackenzie (Aventeur III) returns to Earth, having completed its part of the Grand Tour.

The Galileo experimental propulsion ship is lost in a catastrophic failure of its hydrogen-2 supply.

2029

Fusion power technology is achieved; work immediately begins to make it space-capable.

The John Frémont (Aventeur V) returns to Earth, having been prematurely and remotely recalled.

The Western Alliance Council authorizes the appropriation of funds for the Companion class mission spacecraft, ostensibly an anti-Swarm platform.

2030

The Ares I is Earth's first manned mission back to Mars, since the fall of the Great Khanate.

The first successful and controlled matter-antimatter energy conversion is tested under laboratory conditions.

2031

The Western Alliance, Pan-African Alliance, Muslim Bloc, and a mix of nations from the Far East and Middle East achieve the first success in the global project to divert the orbits of a number of asteroids due to impact the planet. The effort is able to capture six of the fragments, eventually moving them to Earth's L-5 point, where they are eventually hollowed out and converted to O'Neil-style space habitats: Vanguard colony, Colony Roykirk, the Moss-Offenhouse colony, the NicholCorp facility, the Brynner Asteroid, and the Starling Habitat.

Most Asian, and many near-Asian, nations formalize their relationship into the Eastern Coalition.

The John Powell (Aventeur IV) arrives at Pluto as the second part of its Grand Tour.

2032

Zefram Cochrane is born in St. Paul, Minnesota.

The Ares IV mission to Mars fails when the command capsule disappears, stranding two astronauts on the surface. The Ares V launches early to perform the rescue of the stranded Ares IV astronauts.

2033

The secretary-general of the New United Nations exuberantly proclaims victory against the threat of the Swarm.

2034

The L-5 O'Neil Support Station, Asgard, is completed and begins assisting in the development of the colonies within the captured asteroids.

2035

The multi-national manned prototype AFP-1 experiments with a hybrid NTR/EmDrive thruster, but meets with disaster; 14 lives are lost.

The Central African States are formed from 10 central nations.

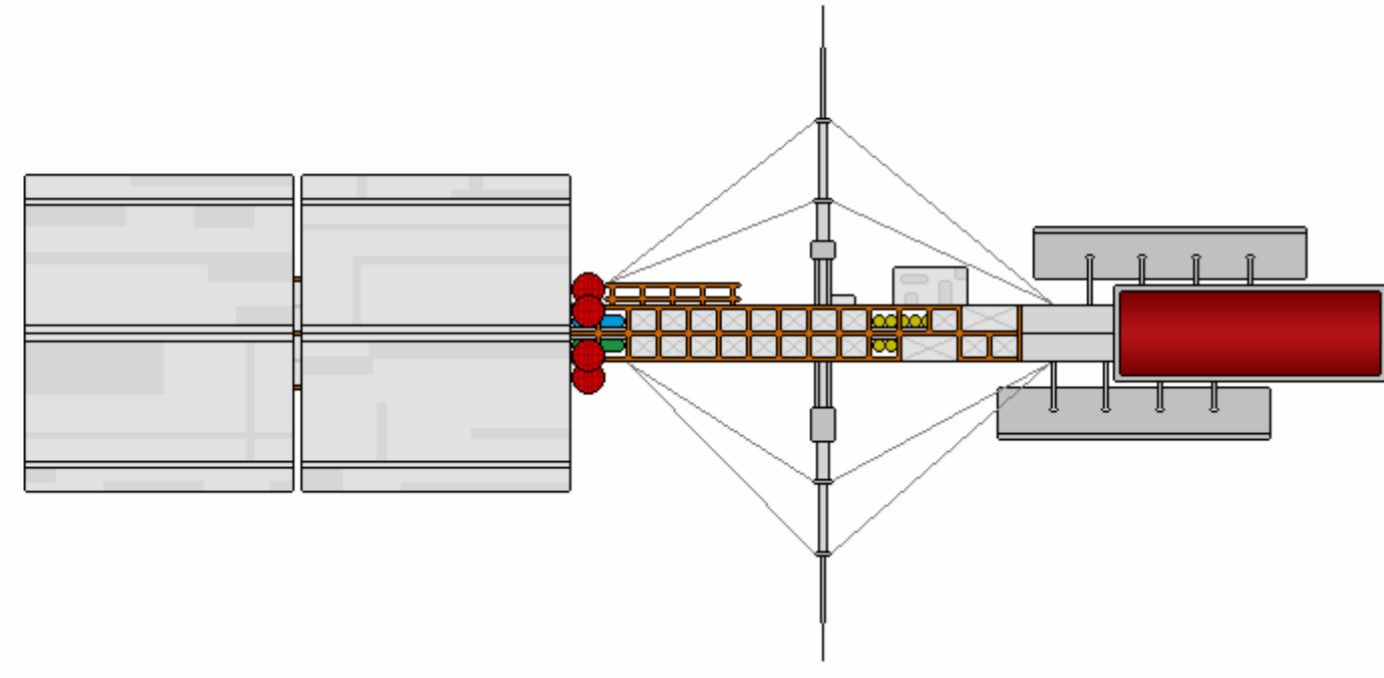
2036

Tau One, the Daedalus, becomes the first manned vessel to attempt to leave the Sol system, when it launches for the heliopause.

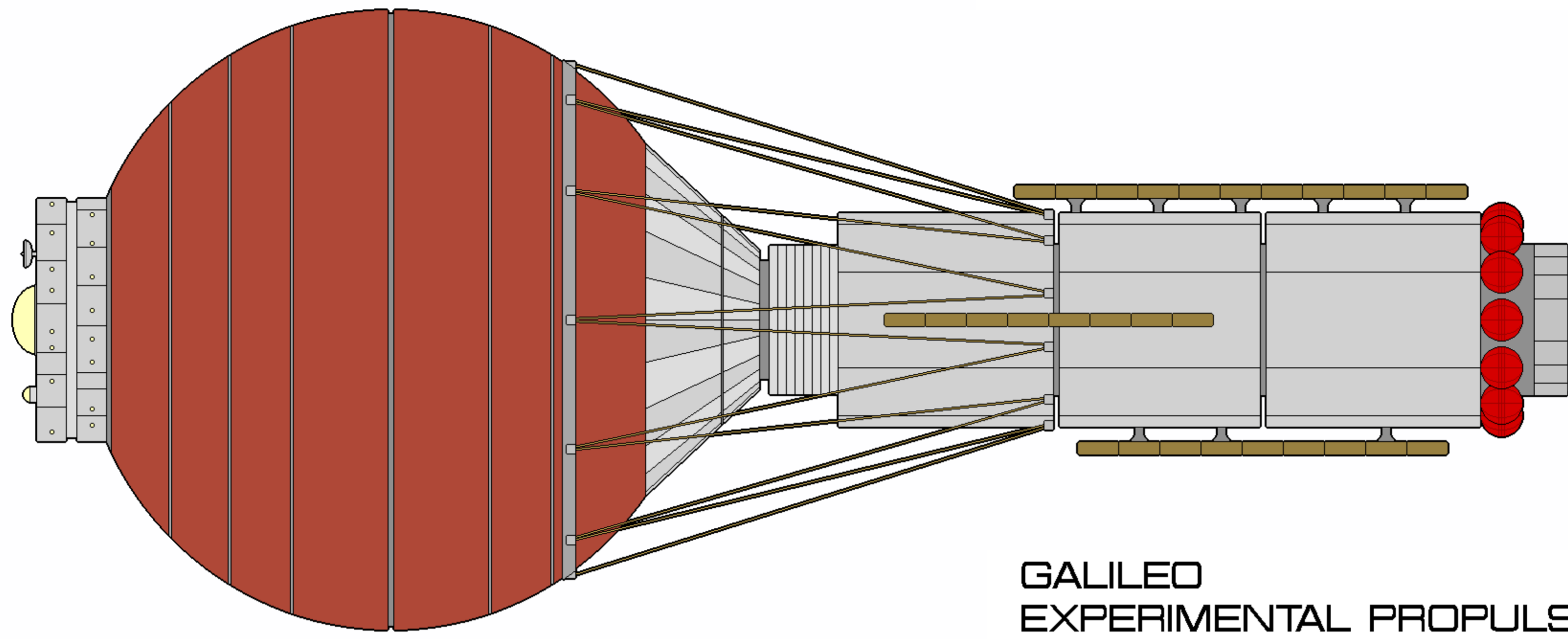
Contact with the main computer of the Daedalus is lost.



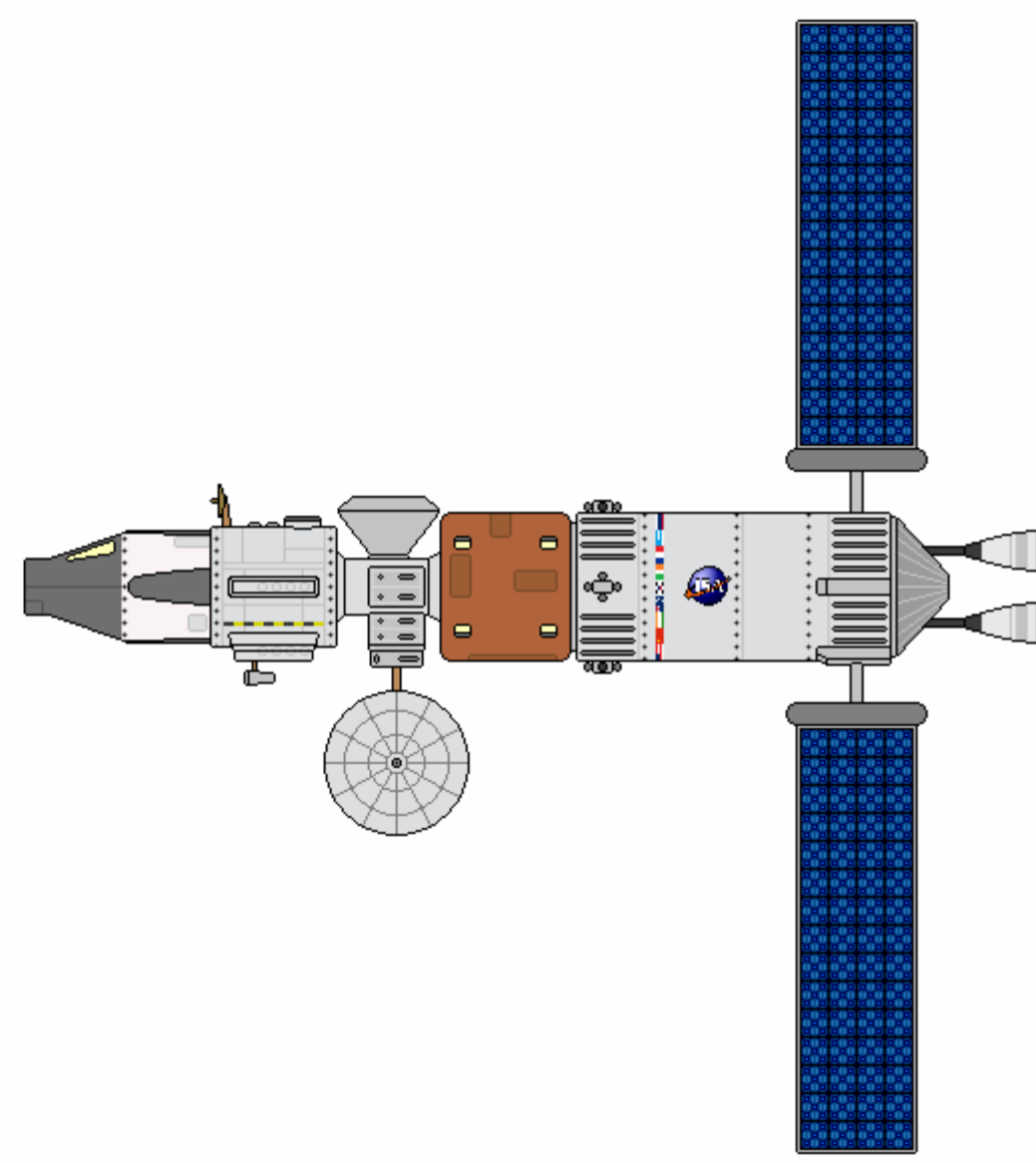
STARSHIP COMPARISON GUIDE



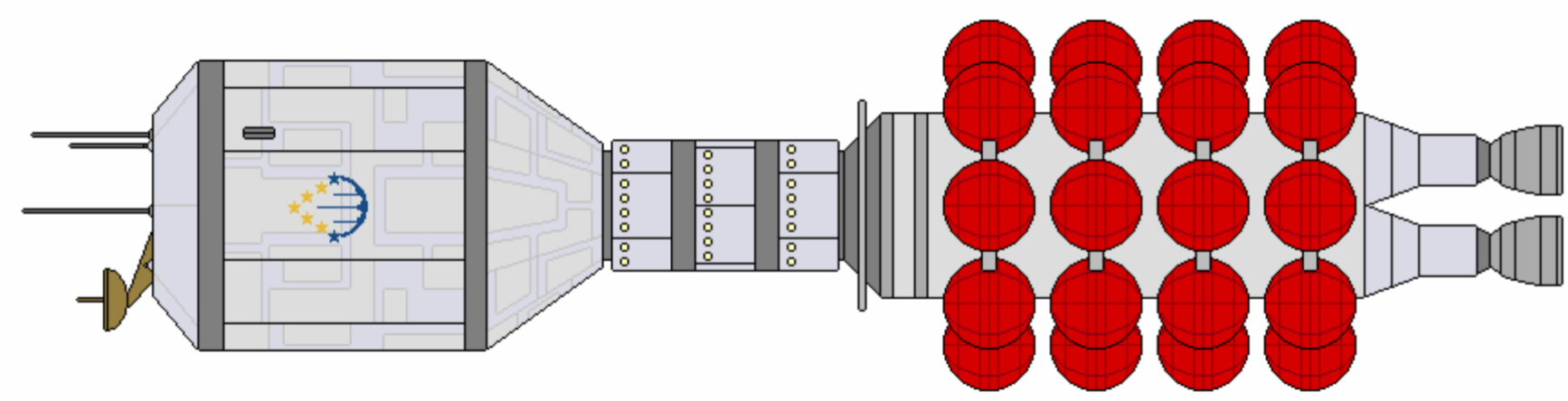
AVENTEUR
MISSION SPACECRAFT (2008)



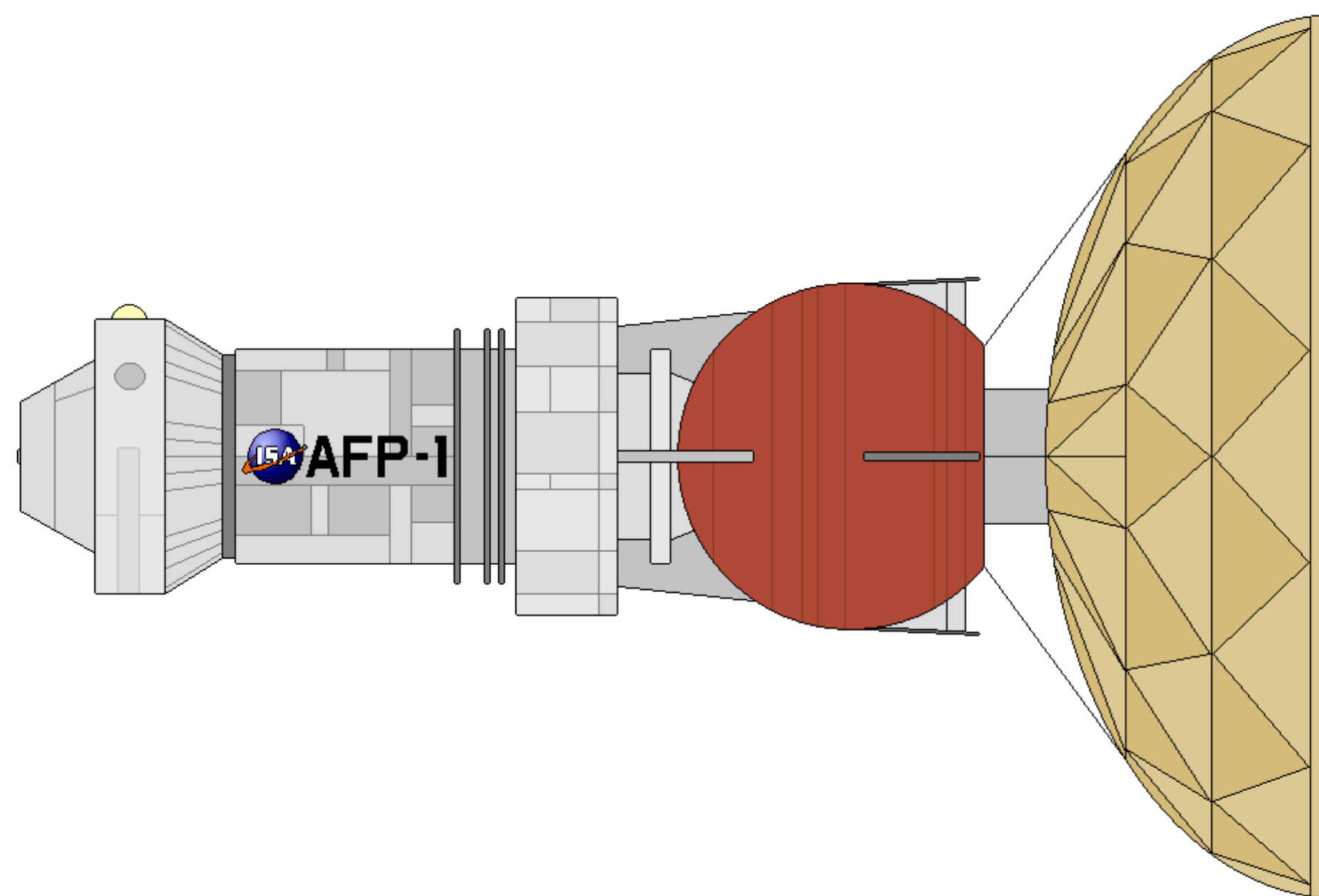
GALILEO
EXPERIMENTAL PROPULSION SHIP (2028)



ARES
MISSION SPACECRAFT (2030)



COMPANION
CRUISER (2033)



AFP-1
EXPERIMENTAL PROPULSION SHIP (2035)



GLOSSARY

Array: Generally, a combination of identical sensors, weapons, or other equipment operating in conjunction.

Augment: A type of Human genetically modified before birth (originally) in the mid-20th century.

Auxiliary: a common name for small craft embarked aboard and utilized by starships for various tasks. Craft types include work pod, shuttlepod, shuttle, plus various tactical craft and other special-purpose craft.

C/P/S: Centerline/Port/Starboard (see P/S).

China: On Earth, a powerful pre-Unification state; joined the Eastern Coalition (ECON) in 2031, and formally absorbed in 2055.

CNSA: China National Space Administration, the official launch agency for the pre-Unification state of China on Earth.

Deep space: The region near or beyond the recognized borders of the Federation, often uncharted in any considerable detail.

Deimos: one of two natural satellites of the planet Mars.

Delhi: a territory of the pre-Unification state of India on Earth.

Deuterium: hydrogen-2, or heavy hydrogen; an isotope of hydrogen often used as one of the primary ingredients for fuel in matter-antimatter reactors (the other being antideuterium).

D-Y: Dinyan-Yoyodyne Conglomerate, a pre-Eugenics War technology and industry sector corporation on Earth that served as the Great Khanate's agent in plans for planetary domination. Collapsed into smaller, disparate companies in 1996.

EC: Eurasian Confederation, a large pre-Unification nation-state on Earth, formed from the smaller states of Afghanistan, Kazakhstan, Kyrgyzstan, Mongolia, Russia, Tajikistan and Uzbekistan in 1996. It was absorbed into the Eastern Coalition (ECON) in 2031, formally so in 2055.

ECSA: Eurasian Confederation Space Agency; formed in 1996 from the constituent agencies and absorbed into the ECSN in 2031.

ECSN: Eastern Coalition Space Navy; formed in 2031 from the alliance's constituent agencies.

ELRS: Extreme Long Range Sensor

EmDrive: A theoretical technology that sought to achieve greater power efficiency for thrusters via the use of microwave resonance waves inside a mostly-empty chamber.

ESA: European Space Agency, an intergovernmental space exploration organization of 22 European member states on pre-Unification Earth.

Eugenics Wars: a late 20th century global conflict on Earth in which the Augments established themselves as super men and attempted world domination.

Great Khanate: an historical designation for the tight but self-contentious organization of Augments that sought to dominate Earth in the late 20th century, culminating in their defeat in the Eugenics Wars.

GW: GigaWatt

HEO: High Earth Orbit; a geocentric orbit with an altitude higher than 35,800 kilometers. In the modern idiom, High Planetary Orbit (HPO) is above that of the geosynchronous orbital range, with orbital periods greater than that of the rotation of the planet in question.

India: an important pre-Unification state; subsumed into the Eastern Coalition (ECON) in 2055.

IRC: ISA Rescue (or Regulatory) Cutter. Ship prefix for the names of vessels of the International Space Agency.

ISA: International Space Agency, a NUN agency on pre-Unification Earth, formed in 2018 and serving as a conduit for peaceful and cooperative space activities by the major space-capable nations, and later for most space activities of any entity, including corporations, organizations, and private individuals. Succeeded by both the UESPA and UESN in 2067 and 2069, respectively.



GLOSSARY

ISRO: Indian Space Research Organization, the national space agency for the pre-Unification state of India on Earth.

KARI: Korea Aerospace Research Institute, the national space agency for the pre-Unification state of South Korea on Earth; transitioned into the ARKS in 2003.

Korea: formally the Royal Republic of Korea on Earth, a 2003 (pre-Unification) merger of the prominent nation of South Korea and the xenophobic and developmentally-devastated state of North Korea.

L-5 Colonies: while not comprising all installations located at Earth's L-5, the six Swarm asteroids captured in the period of 2031-2033 were usually identified by this name; they comprised Brynner Asteroid, Colony Roykirk, Moss-Offenhouse Colony, the NicholCorp Facility, Starling Habitat, and Vanguard Colony.

LaGrange Point: five positions in space where a body of negligible mass would maintain its position relative to two existing massive bodies; these are referred to in abbreviated forms as L-1 through L-5.

Laser: Typically, a secondary weapon on early space vessels. Current shielding technology has largely negated the threat posed by the coherent electromagnetic beam.

LEO: Low Earth Orbit; an altitude of 2,000 kilometers or less. In the modern idiom, Low Planetary Orbit (LPO) is approximately one-third or less of the radius of the planet in question, in altitude.

LIDAR: Acronym for Light Detection And Ranging; a sensor that uses laser pulses to calculate the size, speed, and distance of an object.

Lunar: of or relating to Luna (see Moon).

M: Meters

Main Belt: the designation for the Sol system's major asteroid belt.

M/AM: Matter / Antimatter

Mars: the fourth planet in the Sol system.

Mission spacecraft: a catch-all category for governmental spacecraft, though usually non-military, that operate independently and perform certain functions, such as search & rescue or regulatory enforcement.

Moon: the pre-colonization name for Luna, the sole natural satellite of Earth.

MT: Metric Tons

NASA: National Aeronautics and Space Administration, an independent agency of the United States government responsible for the civilian space program, as well as aeronautics and space research.

Navigation Light: Yellow in color, these lights are generally located on or near major points of superstructure of a space vessel. They often provide low-emission positioning signals for specific locations on and within the vessel for the purposes of proximity maneuvering by another vessel and relative destination positions for transporters. Not to be confused with red or green running lights.

NTR: nuclear thermal rocketry

NUN: New United Nations. Formed in 2011, first dissolved in 2053 (during the Third World War), re-formed in 2065 (two years following First Contact), then finally dissolved in 2079. Authorized the formation of the ISA (2018), UESPA (2067), UEDP and UESN (both 2069). Succeeded by the UEDP.

Oceania: On Earth, a distinct geographic region spanning the eastern and western hemispheres of the northern and southern Pacific Ocean.

P/S: Port/Starboard; left & right side, respectively, in naval parlance.

Phobos: one of two natural satellites of the planet Mars.

RCS: reaction control system; a spacecraft system that uses thrusters to provide attitude and station-keeping control (and sometimes propulsion).



GLOSSARY

FRKS: Royal Republic of Korea Spaceforce, the new nation's space and regulatory agency. Merged with other international agencies to form the ECSN in 2031.

Running Light: Red (port/left) and green (starboard/right) lights traditionally denoting the observed side of a water vessel under low light conditions. Utilized for similar purposes by space vessels of the UFP, though generally for rapid orientation by the pilots/helms of other vessels maneuvering in close proximity. Not to be confused with yellow navigation lights.

Russia: an important pre-Unification state on Earth; it merged with six other states in 1996 to form the Eurasian Confederation (EC).

Shore power: the provision of electrical power to a ship at berth while its main and auxiliary engines are shut down; often provided by a station.

South Korea: an important pre-Unification state on Earth; it merged with the smaller, xenophobic and developmentally-devastated state of North Korea to form the Royal Republic of Korea in 2003.

South Pacific Ocean Uninhabited Area: a spacecraft "cemetery" on Earth, a target in pre-Unification times for spacecraft that had reached the end of usefulness and destroyed by de-orbiting.

Subclass: A significant variant of a given class of ship, usually newbuilds, though sometimes including important modifications to existing ships, that are not intended to replace the existing ships of the original class. Often named for the first ship to reach that final intended production standard.

Transport: A Starship or other vessel dedicated to transporting passengers or cargo. They range in size from small two- or three-crew ships to huge starships and freighters.

Trans-spectral Imager: A sensor that compares changes in perceived light to help determine the platform's location, as well as distance and aspect of a target.

TW: TerraWatt

United States: On Earth, a powerful pre-Unification nation. An original signatory to the Traité d'Unification, which established the United Earth government in 2130.

USAF: United States Air Force, the aerial and space warfare branch of the armed forces of the pre-Unification nation of the United States on Earth.

USNS: United Survey and Navigation Ship. Prefix for joint missions of the ISA & NASA.

Venus: the second planet in the Sol system.

Western Alliance: Originally a NATO agency to oversee the 2002 pre-Unification economic and defensive agreement between Earth's United States and European Union, it became a major force for the coordination response to the Swarm incident of 2026 and a competitor to the rival Eastern Coalition.

Work Pod: The general name for manned, sub-impulse craft used for construction, maintenance, repair, and other service tasks in space. A variety of external tools and modules are attached to the work pods to facilitate a multitude of tasks.

YPS: Yoyodyne Propulsion Systems, an offshoot and surviving entity of the post-Eugenics Wars Dinyan-Yoyodyne Conglomerate on Earth; most associated with the United States and Korean nations, as well as the Western Alliance.



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THE FOLLOWING ARE OTHER STARSHIP RECOGNITION MANUALS
PUBLISHED BY DELTA DYNAMICS:

REPORTS

- AFP-1 experimental propulsion ship
- APHRODITE mission spacecraft
- ARES mission spacecraft
- AVENTEUR mission spacecraft
- BONAVENTURE survey cruiser
- BONAVENTURE dilithium power testbed
- BURKE frigates
- CAVALRY light destroyers
- COMPANION cruisers
- CONSTITUTION heavy cruisers
- DURANCE cargo tugs
- DY sublight interplanetary transports
- GALILEO experimental propulsion ship
- HORIZON heavy cruisers
- SYRACUSE destroyers
- TRENT destroyers

