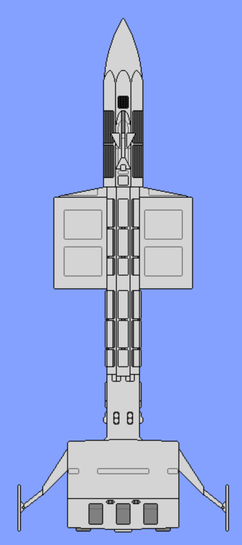
#300

STAR FLEET

STARSHIP RECOGNITION MANUAL

REPORT:

BY SUBLIGHT TRANSPORTS



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

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Credits

ADRASIL: All imagery (unless otherwise credited)
www.DeviantArt.com/Adrasil
REVANCHERM: All writing (unless otherwise credited)
www.DeviantArt.com/RevancheRM
NEALE 'VANCE' DAVIDSON/JAYNZ: Project & cover concepts
www.DeviantArt.com/TFVanguard
Jaynz.Trekships.org
STAR TREK DESIGN PROJECT: Source of governmental and agency logos
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.
VIPERAVIATOR: Source of adapted cover starburst
www.DeviantArt.com/ViperAviator

DY (SUBLIGHT) SERIES:
– Original inspiration from: Star Trek (The Original Series), Star Trek: The Next Generation, Aridas Sofia (et al), and Spaceflight Chronology (Stan & Fred Goldstein and Rick Sternbach)

– Incorporated parts from: CaptShade

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.)

Memory Terra/Memory Alpha Cataloging Data: UFP ITP/TE 7259381460300

CONTENTS

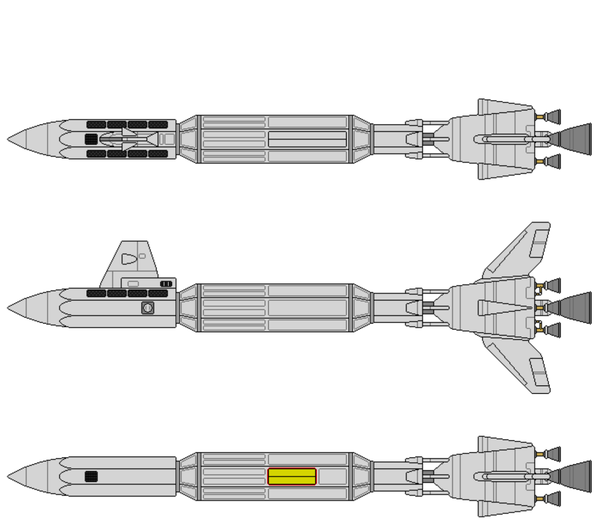
A NOTE TO THE READERS

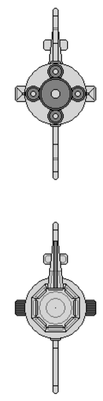
Typically, an issue of Starship Recognition Manual focuses on the ships of the uniformed services and agencies of the United Federation of Planets, its allies, and its historical opponents. We have, though, in the past made exceptions when dealing with extraordinarily or historically important vessels, such as Zephram Cochrane's Phoenix or the Vulcan Science Academy's Tal'Kyr type scouts and see it necessary to do so again with our re-initialization of the Star Fleet series, beginning with early Earth interplanetary vessels. Readers will notice that the traditional ship article content of this Starship Recognition Manual includes not only the ships of the uniformed services of the International Space Agency, the Eastern Coalition Space Navy, and others, but also the non-uniformed DY-50 and DY-100 type transports, operated both by the nominally civilian China National Space Administration, other civilian space agencies, and by commercial operators. We have done so because of the relative importance those two types of ships had on the development of the follow-on DY sublight transports in service to Earth's various uniformed services. We have also included one appendix providing typical specifications for the more numerous commercial-only variants of those armed mission spacecraft and another detailing the early launch capabilities of the single-planet Humans. A third appendix presents some recently reconstructed symbols and images of those agencies, thanks to the efforts of Dr. Brad Wilder, an exo-iconographical historian who has turned his talents towards his home planet's history.

A MESSAGE FROM THE EDITORS

We are stepping out of character for a moment to show appreciation for our guest artist, Brad Wilder, of the Star Trek Design Project. Brad had previously allowed us to make use of canon symbology of his own creation in our "Sponsors" pages that often back-end these journals. Because we are exploring a much earlier, pre-Star Fleet era, we realized our ships would benefit with the adornment of logos and other symbolic images of the time and asked Brad if he'd be willing to loan us his talents in creating these graphics. He unreservably jumped onboard to help us out. To be clear, while some of the governments and agencies are considered canon (e.g., the ECONs), the symbols we are unveiling here are certainly not canon outside of the Delta Dynamics universe. However, we are extremely grateful for the beautiful and meticulously researched graphics Brad has provided us and certainly have no issues with any other creators sharing in their use, as long as full and proper attribution is provided to Brad Wilder. Thank you.

DY-50 TYPE





CATEGORY: EXPERIMENTAL TRANSPORT
OPERATIONAL: 1989 – 1991
CONSTRUCTED: 2

DIMENESIONS:
- LENGTH: 125.5 M
- BEAM: 14.4 M
- HEIGHT: 36.8 M
- MASS: 2,200 MT

TACTICAL: N/A

PERFORMANCE:
- CRUISE: N/A
- MAX: 0.005 C
- ENDURANCE: 4 MONTHS

COMPLEMENT:
- CREW: 2

AUXILIARIES:
- 1X ESCAPE CAPSULE

AUTHORIZED CONSTRUCTION

THE FOLLOWING SHIPS OF THE ABOVE CLASS WERE AUTHORIZED AS ASSETS OF THE CHINA NATIONAL SPACE ADMINISTRATION BY THE STATE COUNCIL OF THE PEOPLE'S REPUBLIC OF CHINA.

SHUGUANG	SHENZHOU

GENERAL INFORMATION

It is difficult to impart the value the Dinyan-Yoyodyne Conglomerate had upon the Terran entry into modern space travel without referencing the Augments. The in vitro-conceived super-humans –some who founded the multinational spacecraft corporation, as well as a large number of other technological, philosophical, and economic movements and even states, in the late 20th century– were a major defining chapter in the Earth's progress from a one-planet, socially-fragmented species into what could have been an empire built on the conflicts and conquests of a fascist authoritarian regime. Fortunately, not only for Earth but for the future Federation, the Humans overcame the lure of domination at the right historical moment, taking the opportunity of the technological impetus to begin developing into something far greater: a leading partner in the formation of a diplomatic alliance of numerous space-capable species with galactic influence.

Dinyan-Yoyodyne was one of the most public representations–though not overtly so–of the enhanced intellectual capabilities of the Augments. It burst on the scene with a massively heavy and reusable lift vehicle (the DY-T) and two experimental heavy space craft (the DY-50), as test platforms for a full series of vessels that would quickly overshadow the achievements of the Americans' 10-year-old orbiter fleet. The craft were fueled by a liquid hydrogen-oxygen propellant, mixed with a proprietary compound that significantly reduced oxidation while also increasing chemical reactivity, providing a thrust exhaust ratio–in a reaction engine that was also proprietary–that far exceeded any system manufactured elsewhere on the planet.

DY-50 TYPE
GENERAL INFORMATION (CONTINUED)

The launch of the two vessels in quick succession from China's Wenchang Launch Center shocked the other space-capable nations. Such a heavy craft launching to orbit with such a non-aerodynamic frame, more akin to a submarine than a launch vehicle, with such a small propellant section seemed simply impossible, yet it had been done. Yes, the craft could not get any further than low earth orbit (LEO) at launch, but—equally amazingly—the automation of the DY-T rocket that had launched only 24 hours earlier provided all the necessary fuel for the first DY-50, the Shuguang (Chinese for "Divine State"), to achieve high earth orbit (HEO), far in excess of any previous manned vessel not on a cislunar trajectory. As the Shuguang returned to LEO, the Shenzhou ("Divine Ship") launched, refueled, and proceeded to complete a full cislunar flight path, with 4 orbits of the satellite, before also returning to LEO.

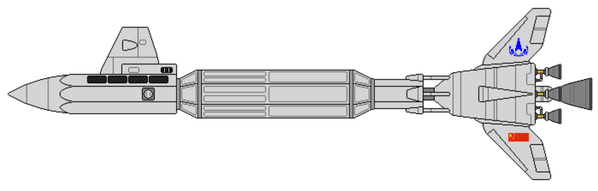
Neither ship could return to the surface of the planet, but they demonstrated a capability that had not existed outside of forty-year plans the more capable space agencies were only preparing. The ability to send a manned vessel to the moon at a delta-vee of 0.005c (~5,400,000 km/h) was quite simply earth-shattering. Over a period of mere weeks, concepts of lunar & Mars outposts, asteroidal mining, and even manned system exploration were advanced by decades. And despite the catapulting of the Chinese from a space-envious status to the premier space nation on the planet, Dinyan-Yoyodyne was not locked into that nation as its sole client. A production schedule was quickly and easily reached with the Indian Space Research Organization (ISRO), the nascent Korea Aerospace Research Institute (KARI), and the United States Air Force. Other nations held back, reticent to sign on to what was still (possibly) a dubious enterprise, then began rapidly investing in infrastructure that other organizations and corporations (most associated in one way or another with what would be identified as the Great Khanate) stepped up to provide. South America, Europe, Oceanic nations, and numerous regions of northern Africa began sprouting factories, laboratories, and training facilities to support the suddenly all-growth space industry. Craft production centers were built in India and the United States, with the Wenchang facility also exporting completed spacecraft for South Korean and other Eurasian use.

The DY-50s themselves remained active experimental platforms even as the first DY-100s launched onto their own missions a year later. The ships never hosted more than 4 Humans, and that only during crew turnovers, as they were very limited on creature comforts and life support. The arriving crews would access the ship from the dorsal capsule airlock on the port side of the forward section, with the capsule soon after departing with the relieved taikonauts. A reserve capsule was docked in the ventral bay for emergency purposes.

Unlike the later transports in the DY series, the ship never had the capacity to haul the familiar Type DY standardized cargo module, as it was only intended to prove the heavy launch vehicle concept. It did have an internal capacity for over 1,400 metric tons of cargo, accessible from a rudimentary area on the midsection, behind dorsal clamshell doors. An early conceptual auxiliary bay was included on the ventral side, but the obstruction by cargo containers on the production series precluded this location from being viable. On the DY-50, while the bay and associated airlock were functional, they were never utilized other than in an early mission structural test.

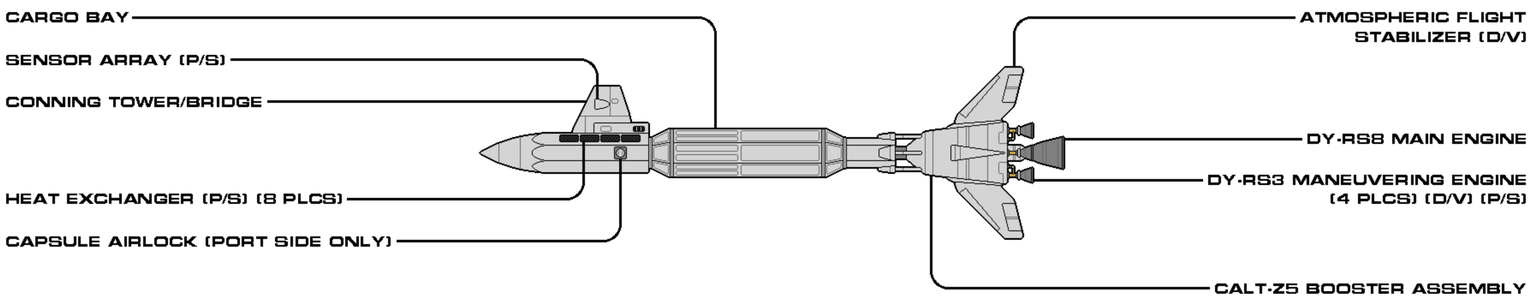
Another difference between the DY-50 and later ships in the series was the interplanetary drive. Unlike the DY-100 and its succeeding classes, this CALT-Z5 drive section was a permanent installation. Those first launches in 1989 proved the hypothesis that the production ships would need one propulsion system for achieving orbit and another for transiting away from Earth. However, the initial concept served as a hint of what would be revealed as the DY-B2 drive (as detailed in a later article).

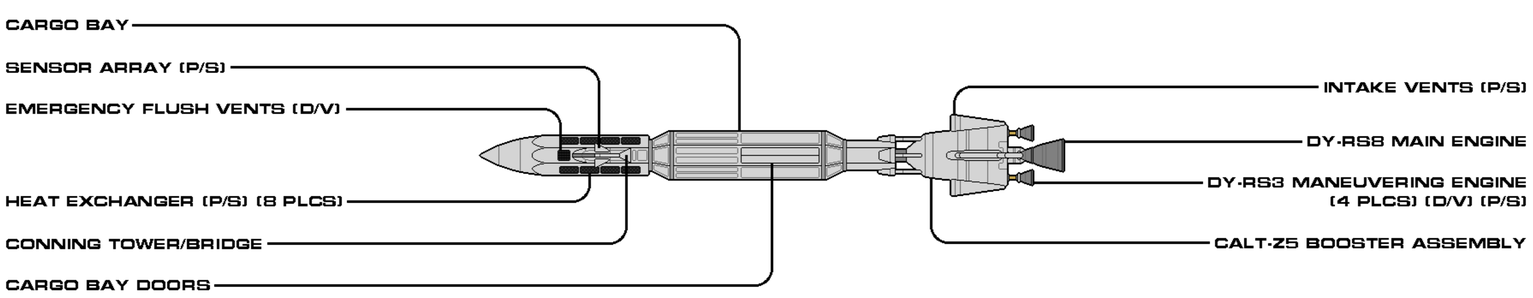
The Shuguang and Shenzhou would perform many Earth-Lunar flights, first as mission tests, and later in reconnaissance flights of potential landing zones on Luna. However, by 1991, the DY-Ts were no longer routed to the orbiting vessels for resupply services and at the end of the year, the final crews departed via the emergency escape capsules. The ships were maintained in stable orbits for another three years, before being de-orbited by automated routines on vectors to Earth's spacecraft cemetery in the South Pacific Ocean Uninhabited Area.

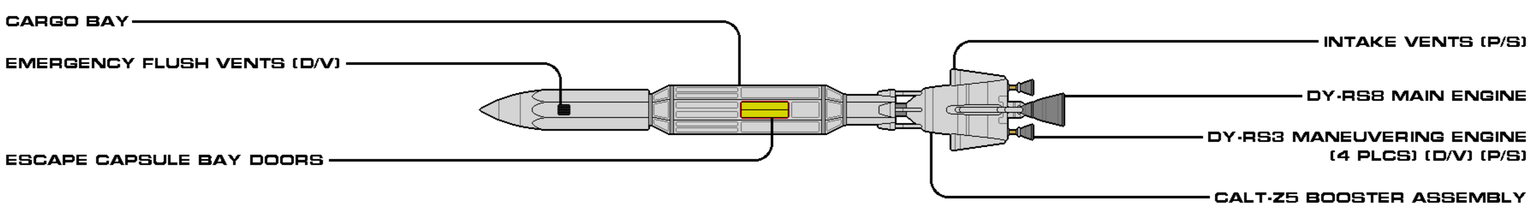


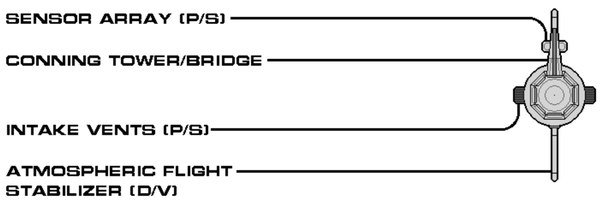
DY-50 with the flag of
the People's Republic of China (PRC) and the emblem
of the China National Space Administration (CNSA)

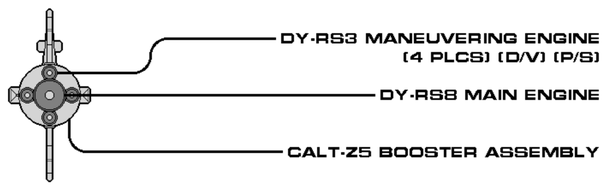
DELTA DYNAMICS
AUTHENTICATED STARDATE 2010.22







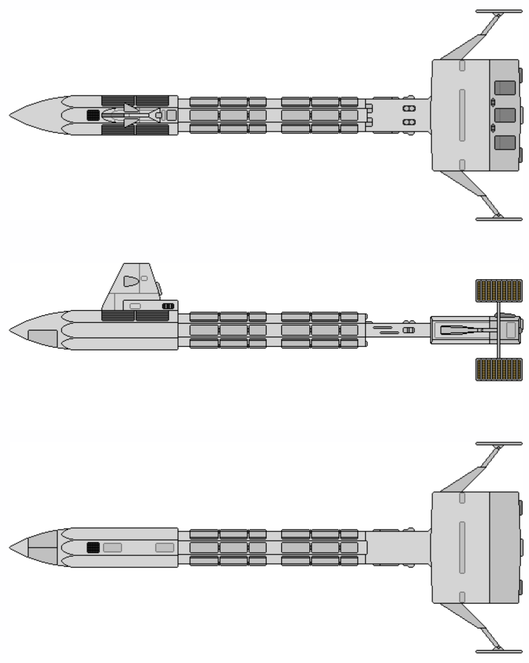


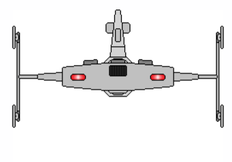


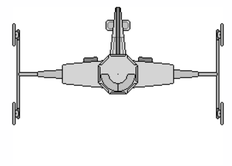
SHEET 1 OF 1

CLASS DY-50	**CATEGORY** EXPERIMENTAL TRANSPORT
VARIANT N/A	**CONSTRUCTED** 1989
LENGTH 125.5 M	**BEAM** 17.4 M
HEIGHT 36.8 M	**MASS** 2,200 MT
OPERATIONAL 2	**RELEASE DATE** 2005.25
Authorized for release by Star Fleet Bureau of Starship Construction	

DY-100 TYPE







CATEGORY: INTERPLANETARY TRANSPORT
OPERATIONAL: 1990 – UNKNOWN
CONSTRUCTED: 58

DIMENESIONS:
- LENGTH: 110.4 M
- BEAM: 45.2 M (36.2 M)[1]
- HEIGHT: 25.2 M (29.8 M)[2]
- MASS: 2,720 MT

PERFORMANCE:
- MAX (W/ DY-B1): 0.005 C
- MAX (W/ DY-B2): 0.01 C
- ENDURANCE: 1 YEAR (5+ YEARS CRYOSLEEP)

COMPLEMENT:
- CREW: 12

TACTICAL: N/A

AUXILIARIES (MISSION DEPENDENT):
- 1X LUNAR/ASTEROID LANDER, OR
- 1X SHUTTLEPOD
- 1X LUNAR TUG (OPTIONAL FOR CARGO POD)

NOTES: 1- RADIATOR RETRACTED; 2- FULLY LADEN

AUTHORIZED CONSTRUCTION

THE FOLLOWING SHIPS OF THE ABOVE CLASS WERE AUTHORIZED AS ASSETS OF THE INDIAN SPACE RESEARCH ORGANIZATION BY THE PARLIAMENT OF INDIA.

SAHASRARA
AJNA
VISHUDDHA
ANAHATA

THE FOLLOWING SHIPS OF THE ABOVE CLASS WERE AUTHORIZED AS ASSETS OF THE CHINA NATIONAL SPACE ADMINISTRATION BY THE STATE COUNCIL OF THE PEOPLE'S REPUBLIC OF CHINA.

KAITÒUZHE
MÌNGYÙN
SHÈNGLÌ
WÚBǏ
YŌU
ZHÌXIÀNG
WÁNMĚI
KAITÒUZHE
DŌNGZHÌ
RÌ SHÍ
LIÚXĪNG
BĚN YǏNG

DY-100 TYPE
AUTHORIZED CONSTRUCTION (CONTINUED)

THE FOLLOWING SHIPS OF THE ABOVE CLASS WERE AUTHORIZED AS ASSETS OF THE UNITED STATES AIR FORCE BY THE UNITED STATES CONGRESS.

COPERNICUS	SV-106	THORNE	SV-115
PATHFINDER	SV-107	WALKER	SV-116
MARINER	SV-108	GODDARD	SV-117
GRISSOM	SV-109	LOEB	SV-118
SCOBEE	SV-110	TUTTLE	SV-119
CRIPPEN	SV-111	GLENN	SV-120
ARMSTRONG	SV-112	RESNICK	SV-121
LINDBERGH	SV-113	RIESS	SV-122
KIRSHNER	SV-114	YOUNG	SV-123

THE FOLLOWING SHIPS OF THE ABOVE CLASS WERE AUTHORIZED AS ASSETS OF THE KOREA AEROSPACE RESEARCH INSTITUTE BY THE NATIONAL ASSEMBLY OF THE REPUBLIC OF KOREA.

ISKRA	JIN

THE FOLLOWING SHIP OF THE ABOVE CLASS WAS AUTHORIZED AS AN ASSET OF AND FUNDED BY THE GREAT KHANATE, UNDER A CONSTRUCTION CONTRACT WITH THE CHINA NATIONAL SPACE ADMINISTRATION.

BOTANY BAY

THE FOLLOWING SHIPS OF THE ABOVE CLASS WERE AUTHORIZED AS ASSETS OF THE EURASIAN CONFEDERATION SPACE AGENCY BY THE EURASIAN COUNCIL.*

ZEUS	0762	AMATERASU	0773
CLIODHNA	0763	AGASTYA	0774
JANUS	0764	MAPONOS	0775
ANSHAR	0765	DON	0776
ATALANTA	0766	MOYANG KAPIR	0777
BRANGAINE	0767	PRAHLADA	0778
FENP PO	0768	WADD	0779
ODIN	0769	BEDWYR	0780
BRAHMA	0770	YAO	0781
EPONA	0771	NAZHA	0782
ZU	0772		

*Historians generally agree that a large percentage of these vessels served under the Eastern Coalition (ECON) banner, in the years following 2031, though the exact numbers and names remain unknown.

GENERAL INFORMATION

In what would appear to have been a bit of brilliant marketing by Dinyan-Yoyodyne to demonstrate its open-market nature–in light of the sudden awareness of Chinese launch technology with the DY-50–the rights to the first DY-100 interplanetary transport were sold to the Indian Space Research Organization (ISRO) in 1989. With a targeted invitation and complete openness by their Sino hosts, the Indian leadership, accompanied by their space technologists, were quick to accept ownership of the next generation vessel well underway in the construction bay, with a surprisingly minimal markup. The first launch would have to, by necessity, be from Wenchang, but a menu of pre-planned missions was provided to the ISRO, with a rapid and targeted training regime for each of their space corps candidates. The agency chose a cislunar mission for their trial run.

The sale of the Sahasrara (Hindi for "Thousand Petals") to the Indians was the kernel of a revolutionary business concept, where space was an international "sandbox" for commercial purposes, without the decades of intergovernmental competition that had stifled near-Earth development. The question as to why the Chinese did not immediately nationalize Dinyan-Yoyodyne, to prevent the use of the company's space technology by other nations and provide itself an enormous technological and economic advantage, has never been satisfyingly answered. A strong theory is that the emerging network of the (yet unrealized) Augments recognized the opportunities that came with a much larger client base. How they came to have this leverage over the authoritarian Chinese regime is still debated, but if similar dealings with other governments, corporations, and individuals are of any enlightenment, targeted corruption played a large part in providing the Great Khanate the early upper hand.

DY-100 TYPE
GENERAL INFORMATION (CONTINUED)

Similar sales were made to the United States and South Korea, with their own ships being delivered in 1991 and 1992, respectively, following China's own acceptance of the second and third vessels to be built. Dinyan-Yoyodyne was open to the construction of production centers in India (at the Satish Dhawan Space Centre) and the United States (at Kennedy Space Center and at a USAF spacecraft construction facility in California), from which those two countries built most of their remaining orders, for a total fleet number of 4 and 6, respectively. Between 1989 and 1996 (when the Great Khanate fell, taking most of Dinyan-Yoyodyne's proprietary production facilities with them), 7 DY-100s (known as Kaitòuzhe) were built for the Chinese, 2 (Iskra) for the South Korean's KARI, 4 (Vayu) for India, and 6 (Copernicus) for the American air force. The Great Khanate reserved one for their own use (built in 1994), for a total production of 20 first-run interplanetary transports.

Another opportunity presented to the client states by the Great Khanate, headlined by the brilliant and charming technologist Khan Noonian Singh, was the spaceborne industry which he pitched to them with great grandiosity. Orbiting construction platforms–initially similar in features to the international Space Station Freedom, but with extensive lattices and gantries–would serve to build super-capable ships of exploration and resource gathering; space stations could be built to serve extensive numbers of purposes, such as zero-gravity material fabrication, pharmaceutical development, and platforms for habitation. The stalled Deep Space Gateway, orbiting the moon, could be completed in short order with the DY-100s, and Dinyan-Yoyodyne's more specialized follow-on designs. Darkside, deep space-focused telescopes, lunar mining sites, and "moon towns" on the "shores" of Mare Tranquillitatis itself were now a potential reality within the near future.

Of course, while all these goals were achieved, it was without the Great Khanate leading the way, as the historical record is understood. However, the craft with which these were to be delivered was indeed an incredibly capable vessel for its time. While the DY-50s were an experimental testing of the launch capabilities of Dinyan-Yoyodyne and the general space worthiness of the unconventional hullform, the DY-100 proved sustainability and range–equipped with fission reactors for power and propulsion–instead of massive batteries and chemical reactant thrust. Also, unlike the relative light weight of a 2,200-metric ton test spacecraft, the triple-rocket DY-A1 launch booster was lifting both a 2,700-ton transport and the additional 7,552 tons of cargo in the 16 detachable Type DY cargo containers (though these were not fully-laden launch-tested until the delivery of the Chinese Mìngyùn in 1991).

With the initial vessels, the launch booster would be detached upon achieving orbit and allowed to burn up in the atmosphere. The ship would maneuver, on RCS thrusters, to mate with the DY-B series interplanetary drive–delivered to a shared orbit previously by a DY-T heavy launch vehicle–providing the DY-100 with the massive and capable fission power systems installed within the module. At this point, the 12-person crew had a complete vessel on their hands, with any destination within 6-months travel a possibility, and capable of achieving 0.01c, given enough time for acceleration and a minimum mass load.

Most vessels engaged in early exploration and construction missions to Luna or resource scouting in the Main belt. In either case, the ventral bay on the bow of the DY housed an auxiliary craft appropriate for the destination: the lunar lander, reminiscent of the previous Apollo series (but fully capable of lunar surface launches), could carry 2 crew and 2 passengers to the surface. The asteroidal landers had grappling hooks on winches, to assist the minute but precise chemical thrusters in getting the miners secured to their target. Specifically for early lunar base construction tasks, the DY would deliver a lunar tug in place of one of the sixteen cargo containers; the tug was capable of delivering 4 of the containers to the low-gravity lunar surface. The tug would remain behind, shuttling cargo up and down between the base and future visiting transports.

The DY-100 had 68 metric tons of internal cargo space, providing plenty of sustenance and spare parts for a one-year round-trip mission. If the mission was delivery of construction materials or base supplies, the crew would have little need to linger on station; time is money, afterall, and as ground- and orbital-based industry began picking up, the ship would not have to wait long at Earth to begin another run. They could–theoretically–soft-land on large asteroids or the moons Phobos or Deimos, but not on Luna or Earth itself. Additional fissionable materials and reactants for thrusters would be provided by resupply DY-Ts or the stations from which the vessels took their cargo. Between 1990 and 1995, the rate of orbital launches (of the newest transport ships and DY-T resupply missions) increased by 200% annually.

Details on the final dispensation of the DY-100s are sparse, due to the extreme violence and levels of destruction the planet would suffer over the coming decades. "Salting the earth" was a repeated practice by the Augments when they saw their individual domains rapidly slip from their fingers, with the DY ship production facilities destroyed decidedly and with little chance of immediate recovery. This would set the Humans' interplanetary capabilities back to almost 1988 levels. The scientists of Delhi had just perfected the first practical long-term cryogenic sleep technology to allow "safe" use by living beings; however, this went unannounced in the growing chaos, with the early achievement only realized when the SS Botany Bay was discovered

DY-100 TYPE
GENERAL INFORMATION (CONTINUED)

lightyears downrange in the Mutara Sector, 270 years later. The remaining first-run DY-100s would serve various roles-generally military in nature-close to Earth, as the various competing nations seized what Dinyan-Yoyodyne assets they could.

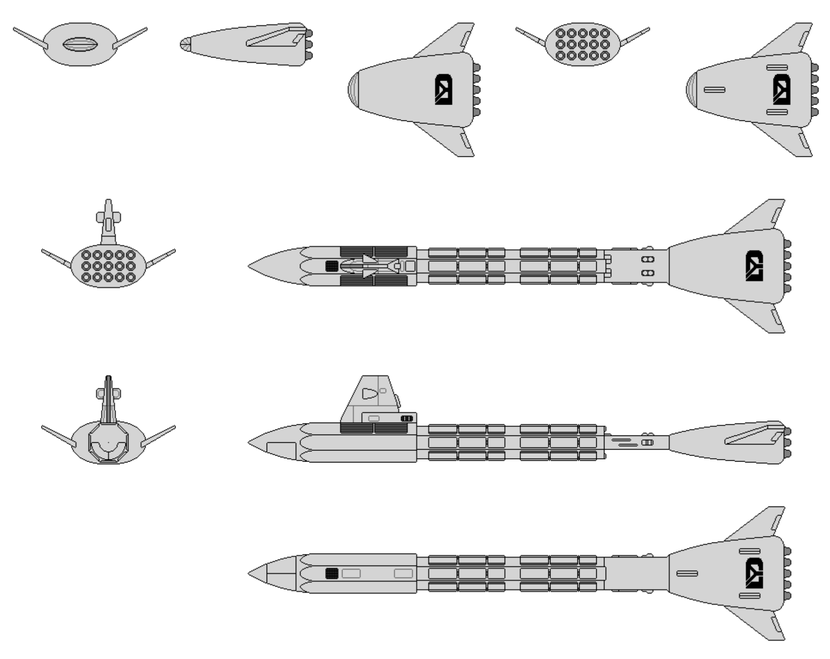
Limited interplanetary drives would quickly emerge from the working models the space agencies would spare for reverse engineering, but it would not be until 2021 when the series re-entered production. Russia, the core member of the Eurasian Confederation, had uncovered D-Y production plans for the spacecraft in Baikonur two years previously, and ramped up the Eurasian Confederation Space Agency's production and launch capacities precipitously. China was provided the plans in a trade agreement and by 2023, the United States-working with D-Y offshoot Yoyodyne Propulsion Systems-had them as well. No later than 2028, China had 5 additional DY-100s, the United States 12, and the ECSA operated 21. Ground-based production of large spacecraft had transitioned to the various space platforms in orbit of Earth, positioned at the trailing L-5 point, or above Luna and the less gravity-restrictive conditions had seen the introduction of vessels either directly descended from the DY-100 series, or working off entirely independent design concepts.

DY-B1

The DY-100's modus operandi was to launch from Earth, separate itself from its launch booster assembly, maneuver (on reaction control system thrusters) to the waiting interplanetary drive module, marry up with that module, and then transit to the cargo containers waiting in orbit. Once those were secured to the sixteen available attachment points, the vessel would proceed on to its initial destination (lunar orbit, high-earth orbit point, target asteroid, or some other select destination), deliver the cargo, and then return, possibly with return cargo. Once back in low-earth orbit, the process would repeat. The DY-B1 booster was the first interplanetary module to provide the propulsive means for the spacecraft to conduct said mission, but with one additional step: refueling.

Unlike the ion drive module that Dinyan-Yoyodyne was preparing to unveil, the DY-B1 module made use of chemical reactant technology that was already in play with the company, its subsidiaries, and the client space agencies that bought and operated many of their aerospace products. Ideally, it would seem, the better method would have been to wait until the entire package -interplanetary spacecraft and fission-powered ion propulsion module-could be fielded, but the corporation's ultimate mission was not just simply to enable states and other companies to build their own agenda-driven space presence. Instead, it was to both profit off the servicing of those agendas and fund the goals of the network of Augments commonly identified as the Great Khanate. D-Y had strong confidence in their ability to market the ion drive by 1992 (a target hit in mid-1991), but until then, they had a perfectly viable and adaptable interplanetary transport on their hands, as proven with the DY-50 experimental transport.

The raison d'etre for the DY-B1 was to get those first DY-100s operating and to demonstrate the extreme profitability that awaited an operator of such a spacecraft, instead of waiting for the ion drive to be functionally developed. That confidence in the development schedule provided an opportunity for the more fiscally-aware leadership of the corporation: the numerous chemical reactant drives could be re-tasked with servicing duties, once they were replaced on the DY-100s. After a spacecraft was fitted with the new DY-B2 interplanetary drive, the -B1 could then be autonomously directed to perform other low-earth orbit tasks, generally delivery of small amounts of cargo or large quantities of additional chemical reactants for the growing number of spacecraft and orbital structures taking form around Earth.



The DY-B1 Interplanetary module, both in its autonomous role and attached to an early DY-100.

DY-100 TYPE
GENERAL INFORMATION (CONTINUED)

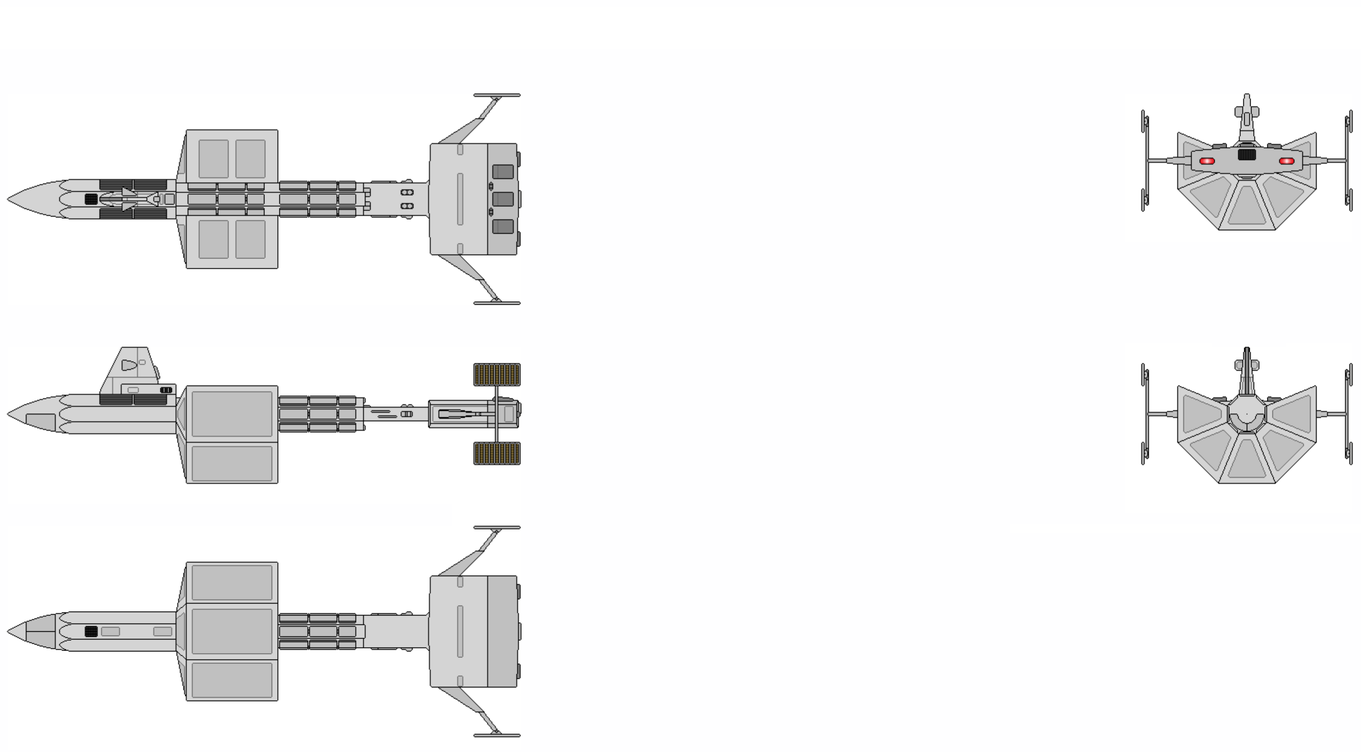
Because it could not be accurately determined when there would be enough of a self-sufficient orbital presence to maintain these drones, they were provided with the necessary aerodynamic features, such as wings and re-entry shielding, to return to groundside. Once serviced, they would be returned to orbit within a DY-T heavy launch vehicle, just as they had been for their first mission as interplanetary drives. Their blunt noses, used as the point of connection with the DY-100 in that interplanetary role, were rounded out with an overlapping series of flexible but stress-strengthened panels that extended from within the main body of the drone. This "soft" compartment had a generous capacity for 27 metric tons in a non-pressurized environment, while the internal fuel cell held 1,842 tons, a source shared with the drone's fifteen DY-TS73 thrusters.

In 1996, as Dinyan-Yoyodyne and its subsidiaries began imploding (literally in many cases), nation states rushed to lock down regional ground control stations. A large percentage of the DY-B1 drones were lost and the few that converted to national control were left in orbit. They were well-tasked with servicing the orbital stations, but the decision to keep them aloft was to also minimize the risk of loss during re-entry. These few units were critical to space operations in the earliest period following what would later be identified as the Eugenics Wars.

DY-B2

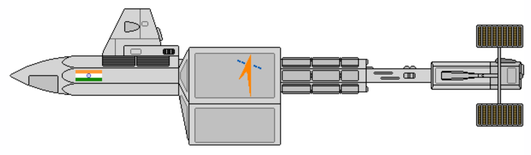
The DY-B2 interplanetary module is the classic propulsion drive most associated with the DY-100 transport. While a few early DY-100s first operated with the chemical reactant DY-B1 booster upon achieving post-launch orbit, by 1991 the fission-powered ion thruster module was being lifted to orbit to replace them, or standing ready to be mated up with newer -100s and the DY-110 Apex variant reserved for the Great Khanate. The 2nd production run of DY-100s did not launch with the DY-B2 attached, as the four-rocket DY-A2 booster set could not accommodate the increased drag of the module's non-aerodynamic shape, nor the considerable 780 metric tons. However, with the advent of the six-rocket DY-A3 in 1994, designed to slip right off without snagging the hearty radiator fins of the module, the ships could be launched fully completed and laden with the full load of 16 cargo containers.

Not to be overlooked is the incredible leap forward-yet again-in spacecraft technology provided by the ion drive, a form of electric propulsion generating thrust through the acceleration of ions. Not nearly as responsive as the fifteen chemical thrusters of the DY-B1, nevertheless, the ion drive was the clear choice in propelling a spacecraft. At full acceleration, the DY-100 could achieve a typical top speed of 0.01 the speed of light, over 40% faster than the chemical thrusters, given enough time. Usually, this would take weeks to achieve, and was much too fast for trips to the Main belt, as the ship would need to flip around to begin deceleration far before that top speed could be achieved. However, other than topping off the propellant for the RCS and minute amounts of xenon for the ion drive, the DY-B2 equipped spacecraft did not have to be concerned with post-mission refueling. It was presumed the fission power reactors (numbering eight) would need to be refueled about every 13 years, and only due to the constant acceleration and deceleration maneuvers of "short-hop" routes. The Great Khanate's long-phase plans foresaw a spaceborne service economy, operating under their banner, that would be so well established as making nuclear refueling an evolution of low-concern.

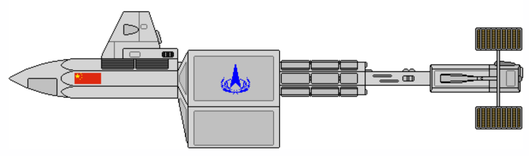


DY-100 (with attached DY-B2 interplanetary module
and configured for 5 cargo pods)

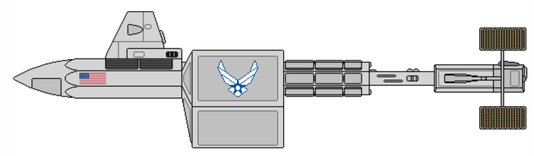
DY-100 TYPE
GENERAL INFORMATION (CONTINUED)



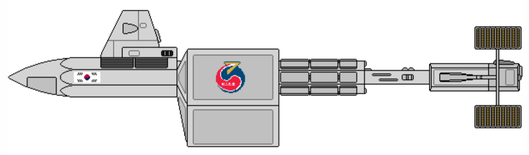
Indian Space Research Organization (ISRO)



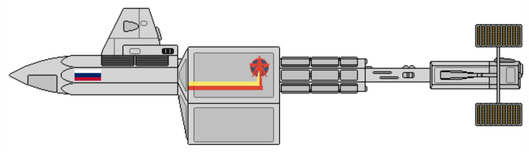
China National Space Administration (CNSA)



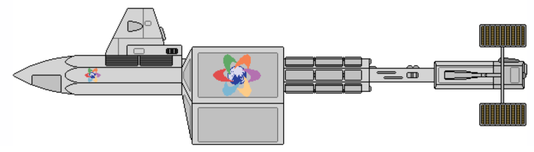
United States Air Force (USAF)



Korea Aerospace Research Institute (KARI)

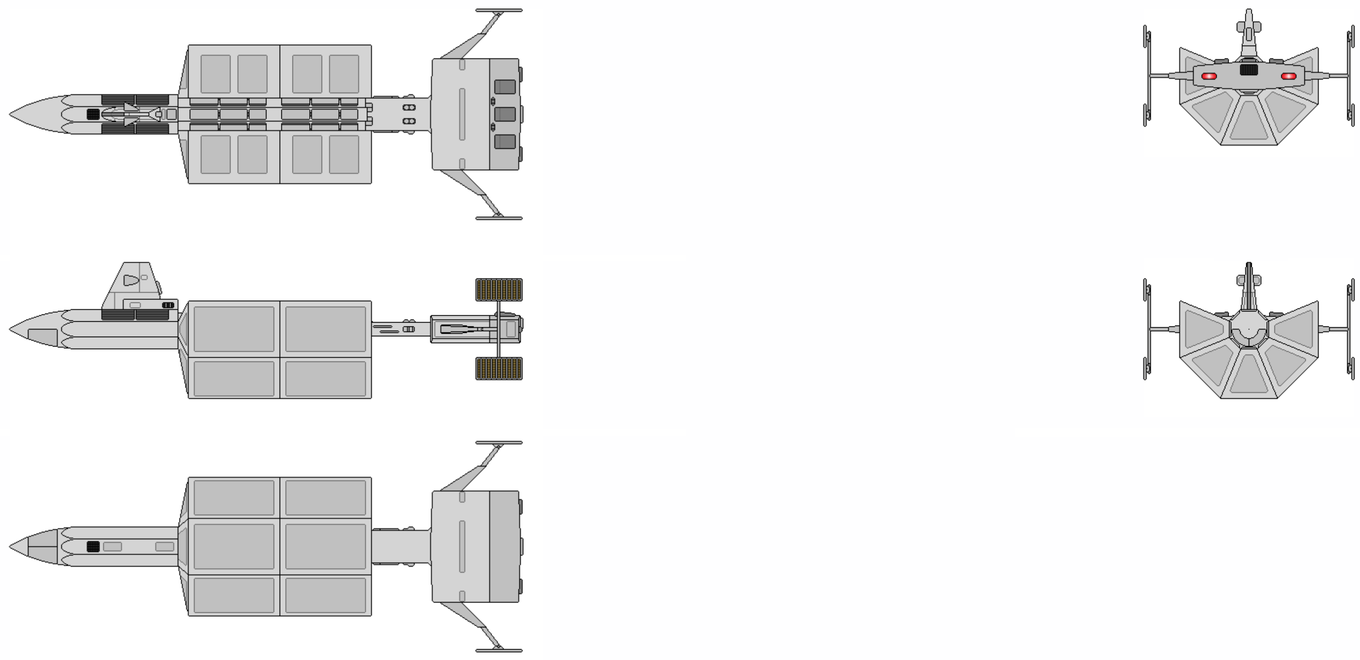


Eurasian Confederation Space Agency (ECSA)

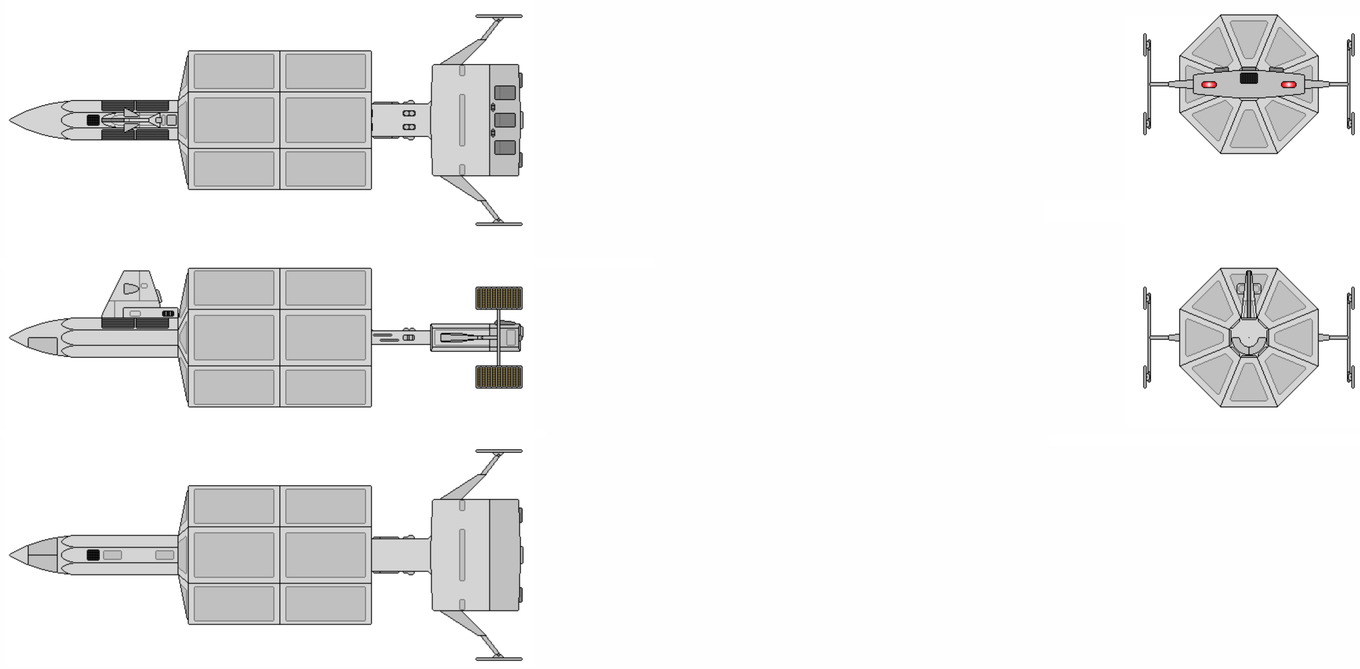


Eastern Coalition Space Navy (ECSN)

DY-100 TYPE
GENERAL INFORMATION (CONTINUED)

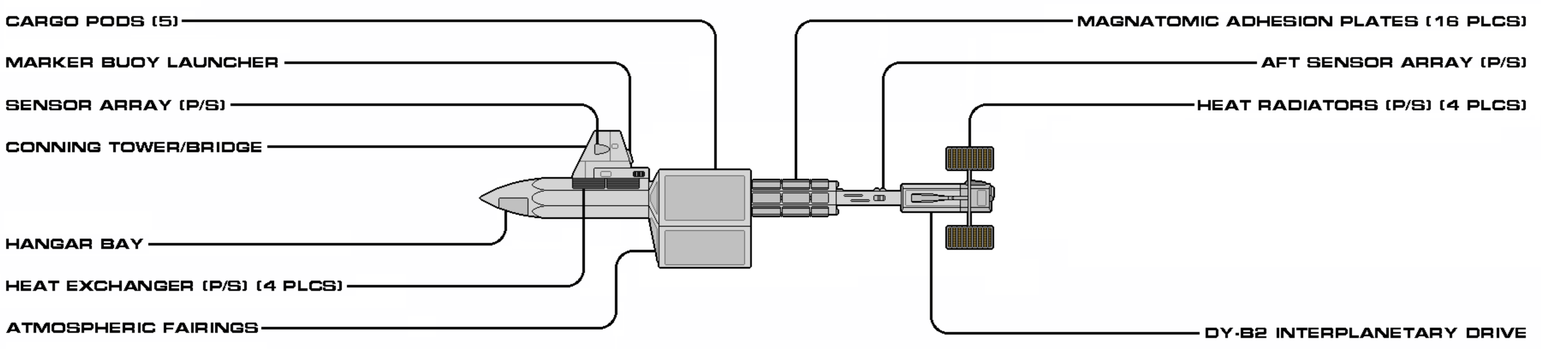


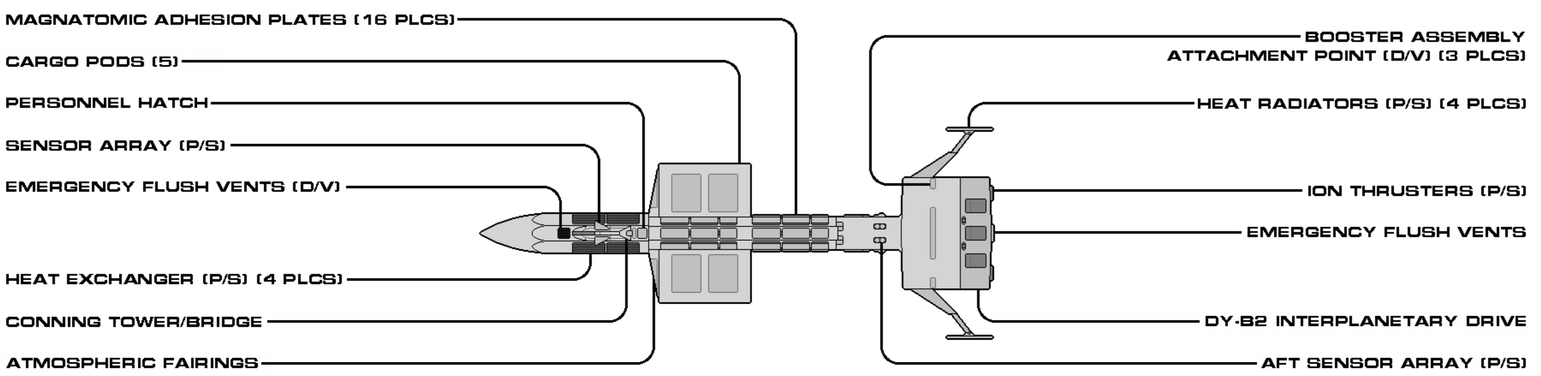
DY-100 (configured for 10 cargo pods)

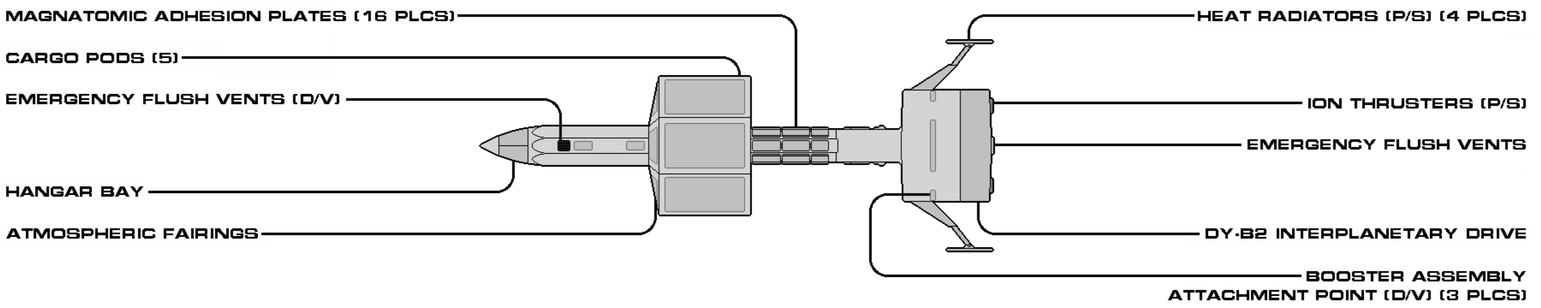


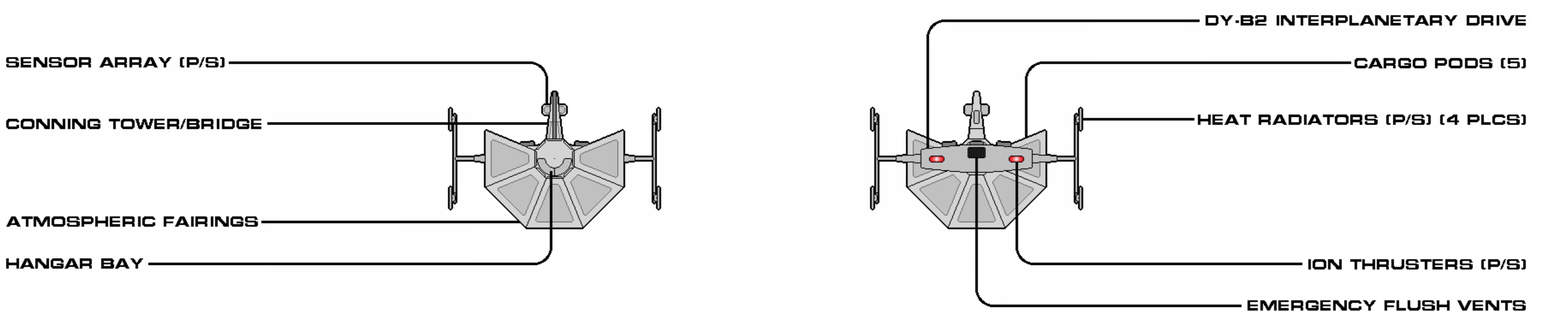
DY-100 (configured for full 16-cargo pod load)

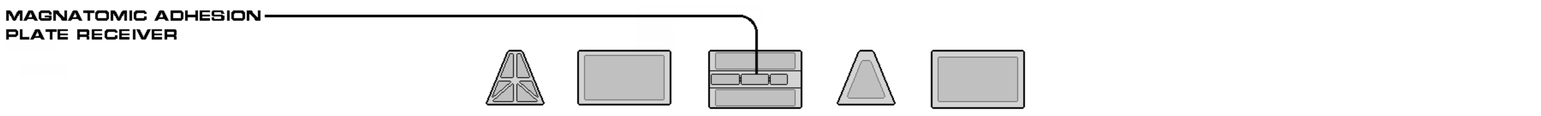
DELTA DYNAMICS
AUTHENTICATED STARDATE 2010.22







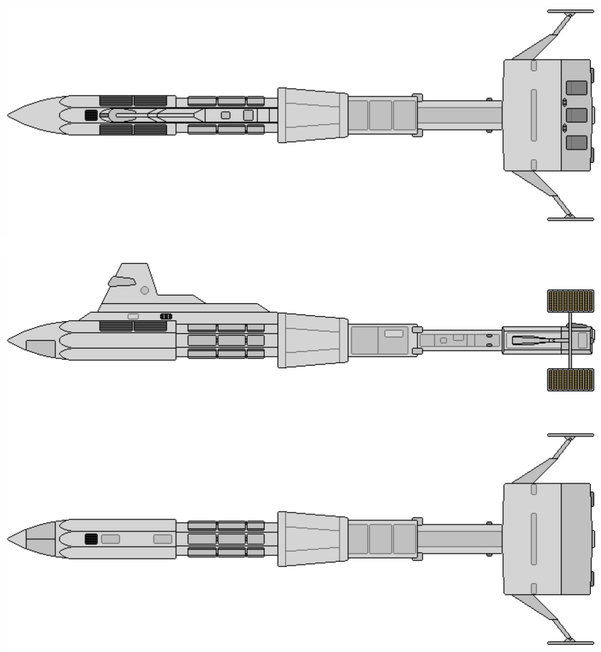


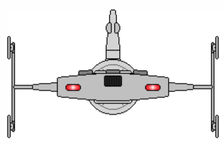


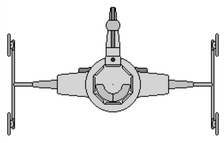
CARGO POD SHOWN WITH ATMOSPHERIC FAIRING REMOVED

SHEET 1 OF 1	
CLASS DY-100	**CATEGORY** INTERPLANETARY TRANSPORT
VARIANT N/A	**CONSTRUCTED** 1990
LENGTH 110.4 M	**BEAM** 45.2 M
HEIGHT 25.2 M (UNLADEN)	**MASS** 2,720 MT (UNLADEN)
OPERATIONAL 58	**RELEASE DATE** 2005.25
Authorized for release by Star Fleet Bureau of Starship Construction	

DY-110 APEX CLASS







CATEGORY: MISSION SPACECRAFT
OPERATIONAL: 1991 – 2008
CONSTRUCTED: 12

DIMENESIONS:
- LENGTH: 126.3 M
- BEAM: 45.2 M (36.2 M)[1]
- HEIGHT: 25.2 M (29.8 M)[2]
- MASS: 2,800 MT

PERFORMANCE:
- CRUISE: N/A
- MAX: 0.01 C
- ENDURANCE: 1 YEAR (5+ YEARS CRYOSLEEP)

COMPLEMENT:
- CREW: 24

TACTICAL:
- 1X MISSILE TUBE (W/ 10 RADAR-GUIDED FRAGMENTATION RDS)
- 1X CLOSE-IN WEAPON SYSTEM (W/ 2,000 RDS)

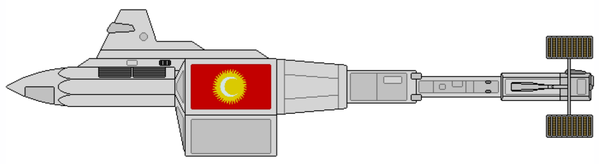
AUXILIARIES (MISSION DEPENDENT):
- 1X LUNAR/ASTEROID LANDER, OR
- 1X SHUTTLEPOD
- 1X LUNAR TUG (OPTIONAL FOR CARGO POD)

NOTES: 1- RADIATOR RETRACTED; 2- FULLY LADEN

AUTHORIZED CONSTRUCTION

THE FOLLOWING SHIPS OF THE ABOVE CLASS WERE AUTHORIZED AS ASSETS OF AND FUNDED BY THE GREAT KHANATE, UNDER A CONSTRUCTION CONTRACT WITH THE CHINA NATIONAL SPACE ADMINISTRATION.

APEX	APOGEE
CROWN	EPITOME
ASPIRATION	PINNACLE
VERTEX	MERIDIAN
SUMMIT	ZENITH
PEAK	CRESCENDO



DY-110 APEX with the flag of the Great Khanate adorning one cargo pod.

DY-110 APEX CLASS
GENERAL INFORMATION

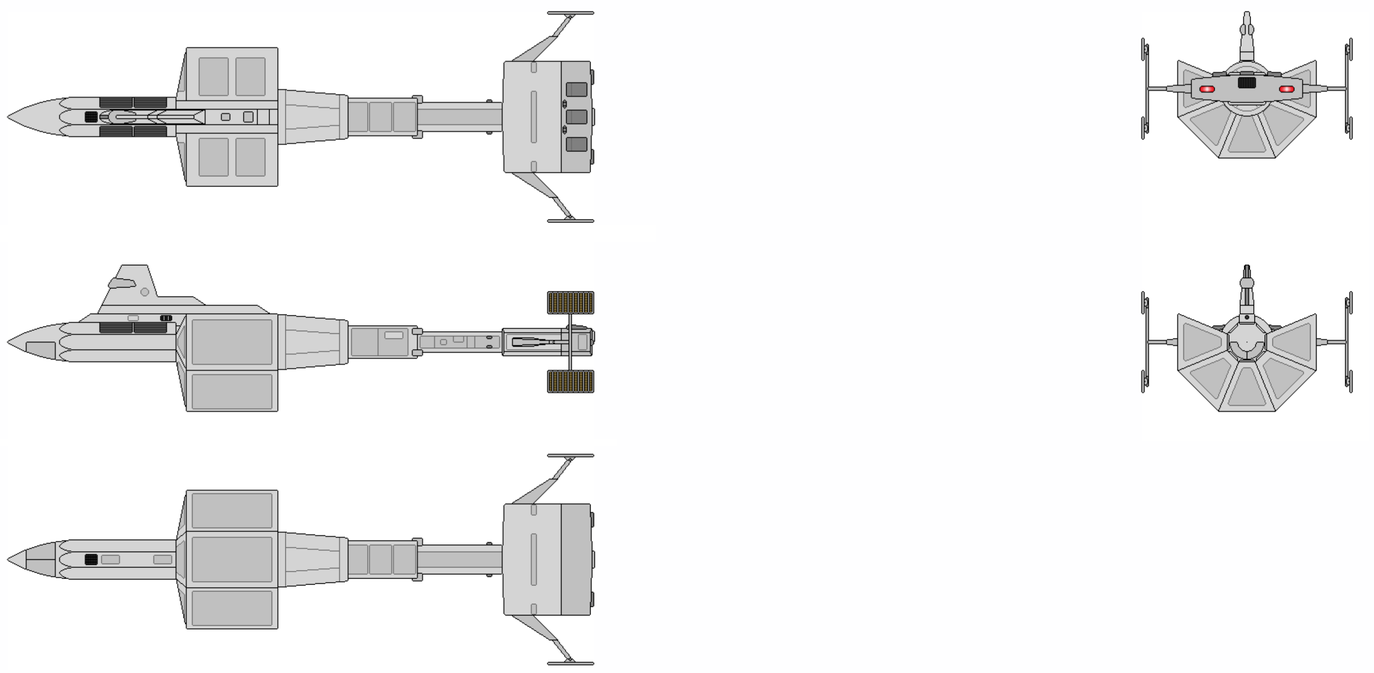
The most that can be surmised regarding the intent for the DY-110 Apex mission spacecraft is the twelve ships were intended to actively progress the Great Khanate's interplanetary agenda, which itself can only be theorized as to dominate non-Augment Humanity and push the species onto the interstellar stage. Few records exist to detail what the Apex took part in; only the ship names and destinations are available as complete documents.

Naval historians naturally used the comparative method as a means of teasing out the truth: in what ways was the Apex different than the DY-100 on which it was based? Very similar in silhouette, the Apex had a slightly more streamlined look on the conning tower. Most striking was the midsection: where the DY-100 had adhesion plates to accommodate 16 DY-style cargo pods, the latter vessel was limited to a maximum of 5. Instead, the forward dorsal pod space, as well as the aft 8 connections, made way for added craft superstructure that included about 16 more meters of length. These additions only saw a surprisingly meager 80 metric tons to the overall vessel's dry mass.

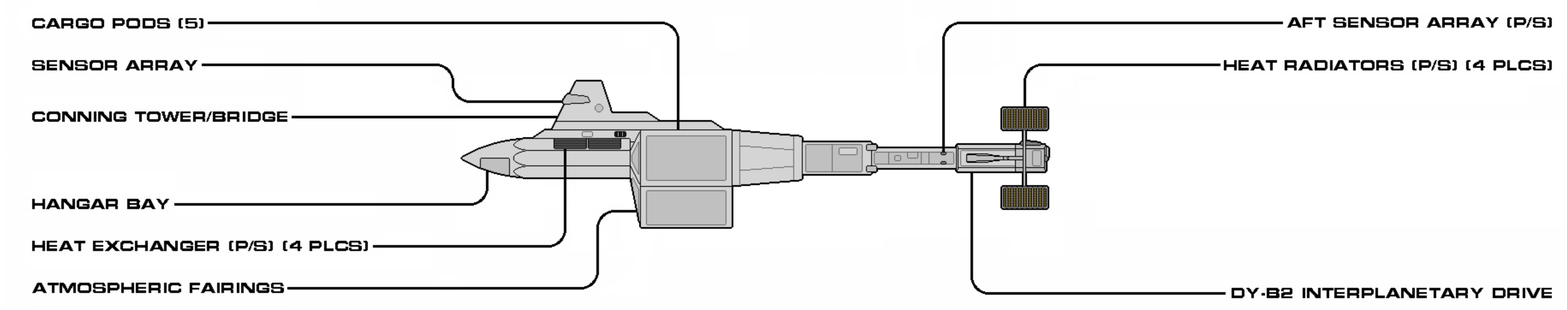
So, at the cost of 68% of its cargo capacity, what did these modifications provide? To be certain, the crew size was doubled, and–as is understood well after the period of the Eugenics Wars–they were all Augments. A radar-controlled missile launch tube, loaded with 10 fragmentation warheads, was installed at the forward base of the tower and a space-modified defensive close-in weapons system–with 2,000 high-explosive rounds–deployed from a hatch on the mid-section, above the cargo pods. The vessels did not appear to be equipped with cryochambers; only SS Botany Bay was proven centuries later to have that technology. But cryochambers were not necessary, as the Apexes never even ventured out as far as the Main belt, limited to round-trip voyages from Earth to Mars or Venus. Those voyages were prolonged by undecipherable loiter times on station to do what? Build permanent presences seems the most likely answer: it was Augments who first stepped foot on Mars in late 1993, immediately setting forth not on exploration, but the construction of a surface base and adding long-term features, such as a large fission plant.

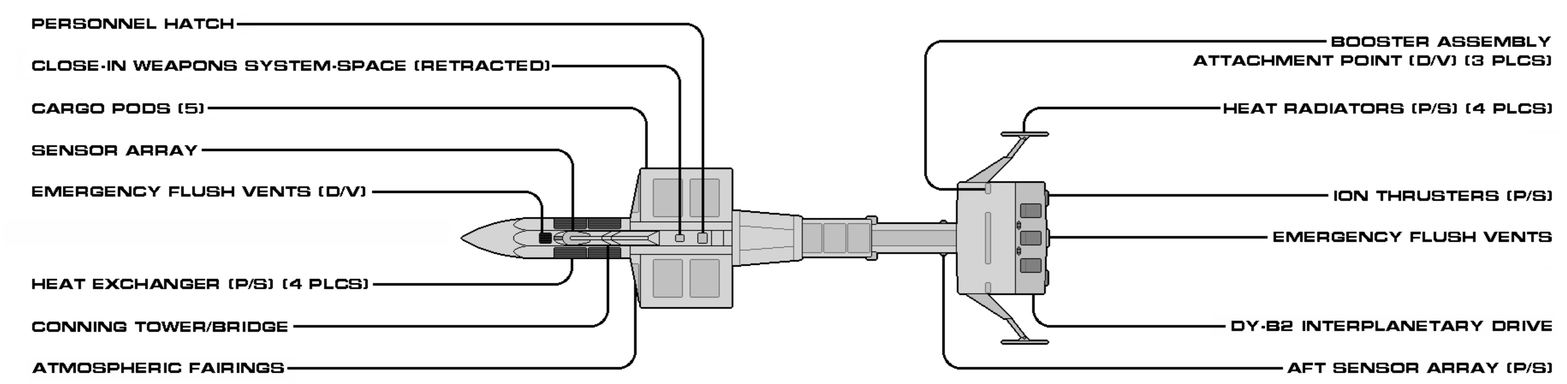
Manned Venus landings were, very surprisingly for the technological capabilities of the time, conducted in 1994. Unlike past human endeavors, the Augments did not publicize either of these historic achievements, but did confirm them when their rumors were reported upon weeks later. However, maybe the Venusian landings can explain the modified form of the Apex, because there is little doubt the landing craft could not make a second trip to the surface without a tremendous degree of overhaul, as the excessive heat and crushing atmospheric pressure would take their toll. It is possible the ships had workshops that provided the overhaul capacity.

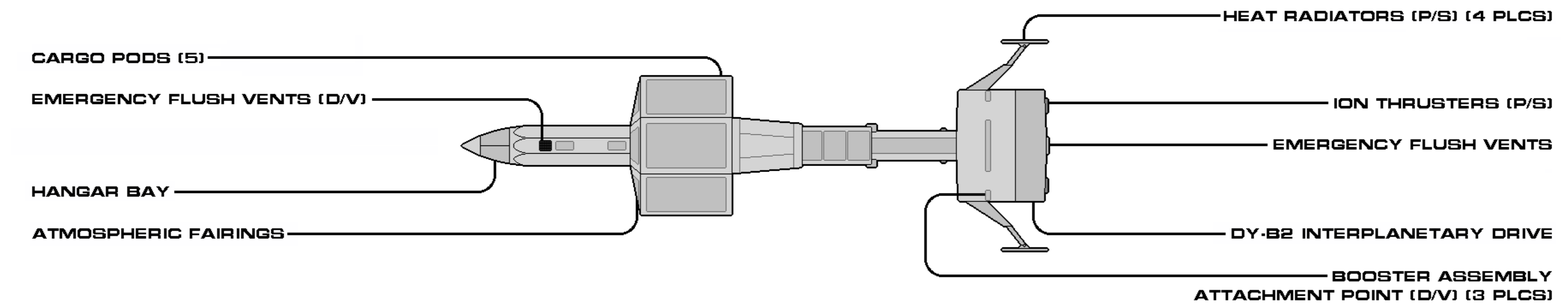
It is unlikely we will ever get the chance to examine an authentic DY-110. Two of the three that were in Earth orbit during the fall of the Great Khanate were destroyed in the attempt, while the last was so damaged in its escape that it could not decelerate upon its arrival at Mars, devastatingly impacting the surface at speed. Five maintained their positions above their respective planets (2 above Venus, 3 Mars), until well after the capability to support human life had passed, also eventually succumbing to destructive orbits as late as 2008. The remaining four never returned to Earth and it is presumed they were lost at any of a number of places, possibly including the Main belt.

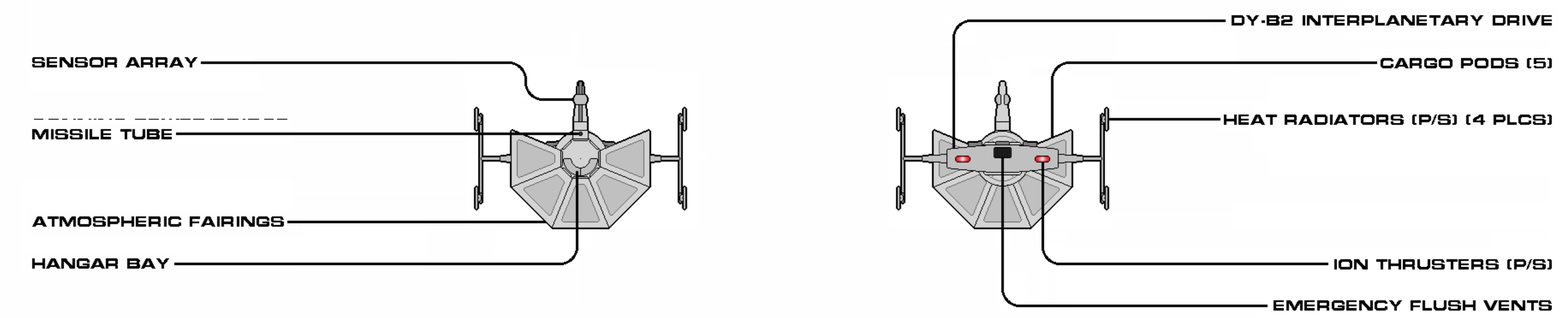


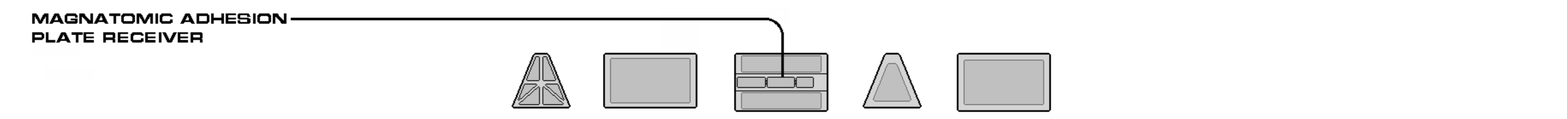
DY-110 APEX (configured for full 5-cargo pod load)











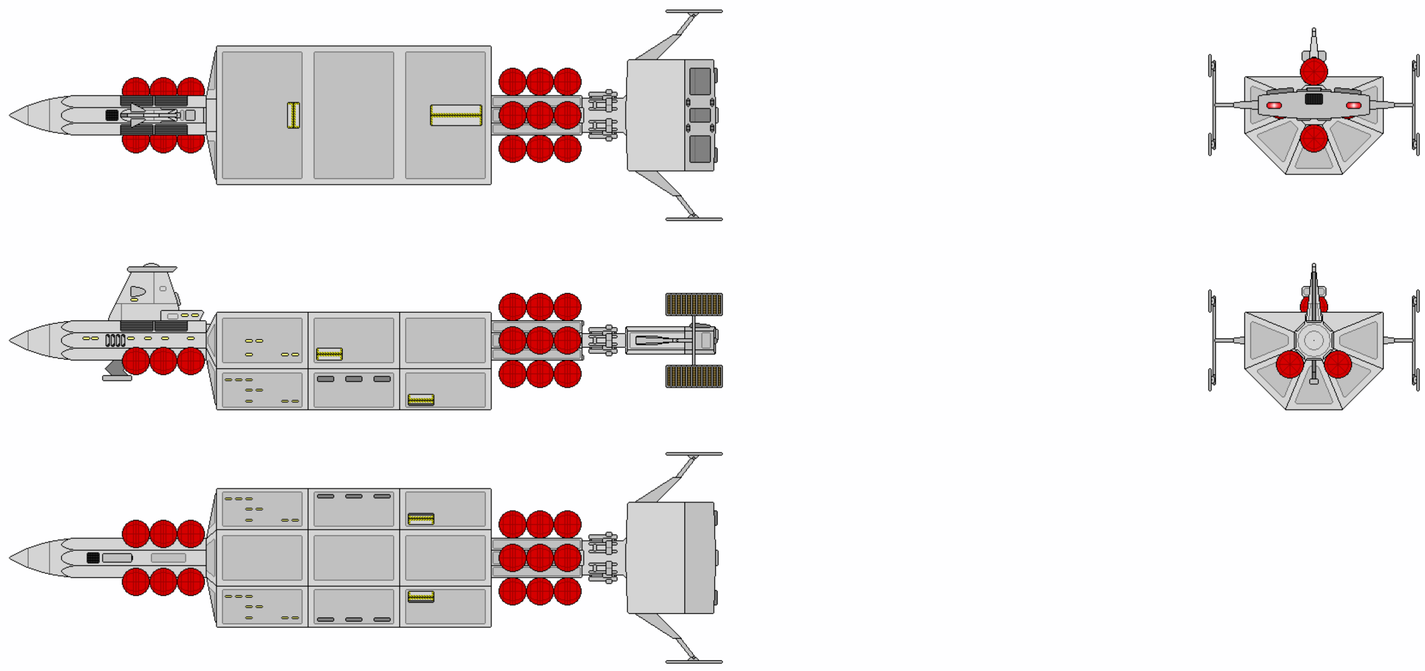
CARGO POD SHOWN WITH ATMOSPHERIC FAIRING REMOVED

SHEET 1 OF 1

CLASS DY-110 APEX	**CATEGORY** MISSION SPACECRAFT
VARIANT N/A	**CONSTRUCTED** 1991
LENGTH 126.3 M	**BEAM** 45.2 M
HEIGHT 27.3 M (UNLADEN)	**MASS** 2,800 MT (UNLADEN)
OPERATIONAL 12	**RELEASE DATE** 2006.06

Authorized for release by Star Fleet Bureau of Starship Construction

DY-120 BRENTON CLASS



CATEGORY: MISSION SPACECRAFT
OPERATIONAL: 2023 – UNKNOWN
CONSTRUCTED: 31

DIMENESIONS:
- LENGTH: 153.2 M
- BEAM: 45.2 M
- HEIGHT: 31.4 M
- MASS: 6,460 MT

PERFORMANCE:
- CRUISE: N/A
- MAX: 0.11 C
- ENDURANCE: 1.5 YEARS

COMPLEMENT:
- CREW: 33

TACTICAL:
- 6X GLASS BEAD EMITTERS

AUXILIARIES:
- 3X CLASS A2 "ZENT" EVA PODS

AUTHORIZED CONSTRUCTION

THE FOLLOWING SHIPS OF THE ABOVE CLASS WERE AUTHORIZED AS ASSETS OF THE INTERNATIONAL SPACE AGENCY BY THE NEW UNITED NATIONS.

- BRENTON
- NIRIT
- DILIGENCE
- DVORA
- RESOLUTE
- YATUSH
- JAGUAR
- HETZ
- SCARPE
- GEULA
- KAPER
- ARAMIS
- JERSEY
- DURABLE
- VIGILANT
- ENDURANCE
- SUMNER
- RELIANCE
- THOR
- ALIYA
- ESTERON
- LEGEND
- BERTRAM
- BALDUR
- TYR
- SHETLAND
- SHALDAG
- MINNA
- ALERT
- ODEF
- CONFIDENCE

DY-120 BRENTON CLASS
GENERAL INFORMATION

In 2018, most of the original production vessels of the DY-100 series were still in operational use, with the few exceptions of the orbital "drydock queens" being harvested for spare parts. The figurative implosion of Dinyan-Yoyodyne (D-Y) in 1996 had been almost total and while some near-common parts could be machined by other producers, the complete systems of a super-durable and launch-capable spacecraft were beyond the means of any other shipbuilder (as if that term could describe any corporation other than the now-historical D-Y).

Not that the setback was simply accepted. The four DY-equipped nations still had their small flotillas of interplanetary transports and they were being utilized almost non-stop on lunar and belt runs for resource gathering. Orbital construction was the new boom; the existing lunar colonies were primarily devoted to gathering the resources of that body to assist in creating a spaceborne shipbuilding industry in orbit of Earth, at the leading and trailing LaGrange points, and above Luna. Life in space-and relatively easy travel between system points-was not theoretical any longer, but something to re-achieve.

And while China, India, South Korea, and the United States were still somewhat non-collaborative in their space agendas, a network of commercial enterprises supporting the DY-100s-and re-developing the past advanced interplanetary capability-had sprung up both on the ground and in the space habitats that had been established as cooperative efforts between governments and corporations. For example, in the intervening years, the NASA Afrodite spacecraft and the joint NASA/ESA Aventeur missions had all been launched largely because of the efforts of the commercial industry that had sprouted in the wake of the Eugenics Wars. They had not yet grown to the level of the Augment-led achievements of Dinyan-Yoyodyne, but they aspired to, and they knew it would happen. The same corporate conglomerations were largely responsible for the establishment of the International Space Agency (ISA) by the New United Nations (NUN) in 2018, to help coordinate and elicit cooperation from the slightly-reticent national space services.

The nations that had not been privy to Dinyan-Yoyodyne's production schedule were left out of interplanetary missions, but not the space industry itself. The same corporations that had sought to influence the space advancement of the post-Eugenics War era recognized that many of these states held the key to re-discovering the technologies that had been lost. With similar consideration, in 1996, Russia-amidst the chaos of the Augments' frantic throes-surprised the world's leading nations by announcing the creation of the Eurasian Confederation (EC), an economic and technological alliance of former Soviet states dedicated to securing their share of the world's natural resources and working together to take their place on the orbital stage. Over the next few years, the Eurasian Confederation demonstrated the capacity to provide conventional launch and production facilities out of Baikonur in support of the orbital construction efforts.

The EC, even before its unveiling, had been in early negotiations with the Great Khanate for the purchase of its own interplanetary assets. This, obviously, did not come to pass before the culmination of the Eugenics Wars, but preliminary surveys had been started to prepare Baikonur to become the fifth locus for Dinyan-Yoyodyne production facilities. In the EC's drive to re-develop their own space industry, an important discovery had been made: a former D-Y satellite office at the cosmodrome included an encrypted drive with specific plans for the machining and assembly of the DY-100 interplanetary transport. It took almost twenty years for enough of the drive to be decrypted, but in 2019 the EC announced that the DY-100 would be under production once more, for sale or by license.

To say there was a great deal of interest would be an understatement. The EC though, unlike the Augments before them, chose to employ their monopoly to direct economic advantage: while licenses would be immediately available, they would be at a premium cost. Additionally, actual production of the DY-100s at Baikonur would be on a schedule that placed the needs of the Eurasian Confederation Space Agency (ECSA) first, rationalized as allowing the alliance to "catch up" with the other interplanetary nations. Not willing to wait until 2023 or later, only licenses were procured from the EC and the remaining assembly facilities in China and the United States were re-opened and refitted for accelerated production.

The Royal Republic of Korea (RRK), formed from the reunification of the peninsula in 2003, took a different path than ground production: it allied itself with Yoyodyne Propulsion Systems (YPS) -a surviving subsidiary of D-Y-and several other corporations with access to spaceborne construction facilities. They began designing an updated variant of the DY-100, which they designated the DY-120. This was immediately challenged in the New United Nations' International Court by the EC as an abuse of the license. However, YPS was able to defend their legal claim to continue development of the DY-B fission-powered ion thruster module and that the module was capable of powering and propelling a much more proficient craft than the ones the EC was offering.

The DY-120, the first commercial ship to be built in space, could transport a cargo load 50% greater than the DY-100, by lengthening the mid-section and adding an additional eight DY type cargo pods, for a total of 24. Yoyodyne's booster module, the YPS-B2, was clearly related to the original DY-B2 but with larger heat radiators. As the original had no issues with heat, it was

DY-120 BRENTON CLASS
GENERAL INFORMATION (CONTINUED)

speculated within the industry that the change was to support YPS' claim to be improving the module, but actual advancement of the thrust capacity projected a top speed of a very impressive 0.11c. One important innovation was the cargo pod stability monitor array (CPSMA), which queried the cargo load for flight integrity via active sensors against the available manifest and would automatically recalibrate when pods were authorized for removal from any of the number of controlling stations onboard the ship. Station-keeping reaction control systems and the ion thrusters adjusted according to these changes, allowing pods to be jettisoned in an emergency even during transit, without throwing the vessel into an uncontrolled spin.

While the DY-100 saw an additional 38 vessels constructed and launched from Baikonur, Wenchang, and White Sands, the DY-120 was termed "a moderate success", with over 400 vessels sold to governments, corporations, and the not-so-idle rich; not a single one was constructed on Earth.

Previous space agencies, in utilizing the DY-100s and -120s, had developed national agendas for their national assets, some of which dovetailed a little too nicely with some corporate agendas, while others-such as the ESA and NASA, did endeavor to use them not only for building orbital structures and industry, but also exploration and science. However, it was the ISA, founded by the NUN in 2018, that saw a looming demand for a vessel to be used for search and rescue, as well as law and regulation enforcement. Subsidized not only by the NUN, but also corporations and nations that recognized the wisdom in being able to recover their expensive assets-and their spacefarers, of course-Yoyodyne assembled, starting in 2023, a variant of the civilian DY-120 transport for the ISA.

The first and most eye-drawing feature of the Brenton were the 18 bright-red Type T fuel cells adorning each perspective of the vessel. Just as with all other interplanetary craft preceding it, the SAR ships relied on the slow-but-faithful ion thrusters to achieve maximum range at considerable speed; however, due to the nature of their mission, the reaction control thrusters saw considerable use-even over-use-as the ships maneuvered within "walking" range of their target vessels, or otherwise negotiated around an obstacle or away from a particular threat (such as debris). Whereas the ion thrusters could easily operate for years without refueling, the thrusters required reaction chemicals and had to be relied upon to operate when required. The T-cells provided in excess of 55 multiples of the fuel amount a standard transport could expect to use between destinations of call, but-statistically-only about 4 times what a Brenton would use on a patrol.

Another significant difference between the civilian DY-120 and the Brenton was the cargo pods: it had none. Instead, what appeared to be 15 DY-type cargo containers was one entire unremovable superstructure, with an added "cap" over the dorsal midsection serving as the equivalent to another manned deck. This structure provided the operational capability via mission spaces set aside for rescue and salvage equipment, additional storage for replenishment oxygen, berthing (and a brig) for rescued spacers, and common spare parts for vessels that just needed that "one" component in order to be mobile and on their way again. The midsection spaces also included a total of six cargo bay doors, four for typical pod access, one large one for oversize equipment, and a dedicated pod-sized hatch directly adjacent to the ship's enlarged sickbay. The port and starboard would each have three re-chargeable light-scattering glass bead emitters added as defensive measures, when laser weaponry started to be encountered not only on military craft, but also on civilian ships that might not take too kindly to a ship of the law.

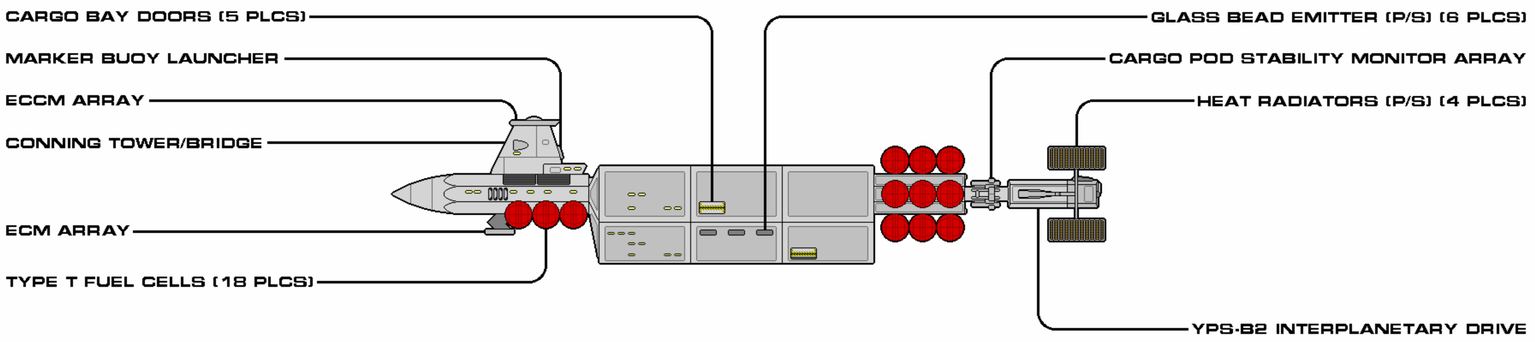
The electronic counter measures systems expected of a militarized vessel were mounted on a steerable pod installed ventrally just aft of the bow, with an electronic counter-counter measures suite providing a nearly 360/180 degree field of view situated on top of the conning tower. The shuttlebay typically found within the bow of a DY-series was replaced by additional avionics and communications gear.

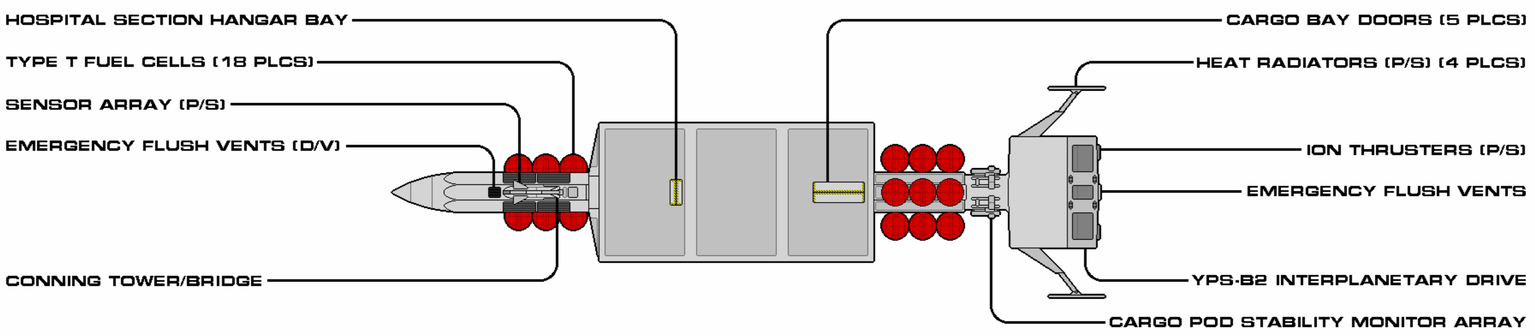
At least 31 named ships have been found in reviews of the available historical records.

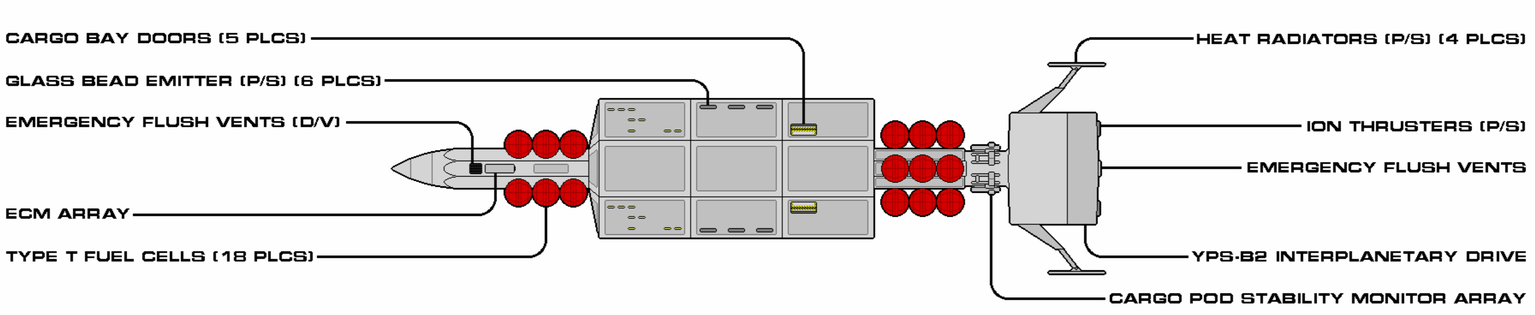
DY-120 BRENTON in International Space Agency (ISA) colors

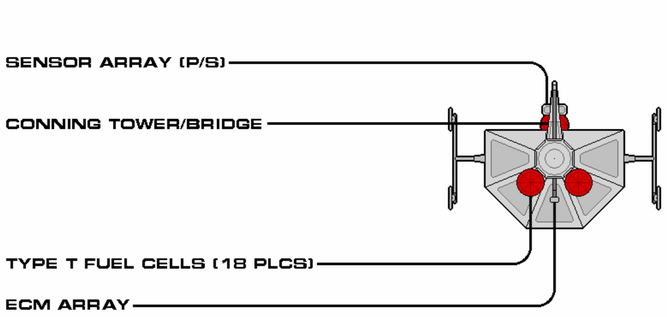
DELTA DYNAMICS

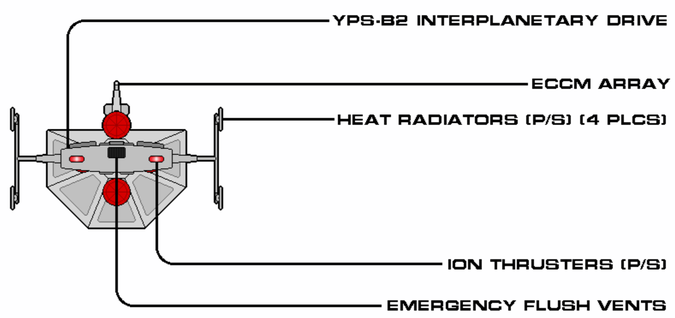
AUTHENTICATED STARDATE 2010.22









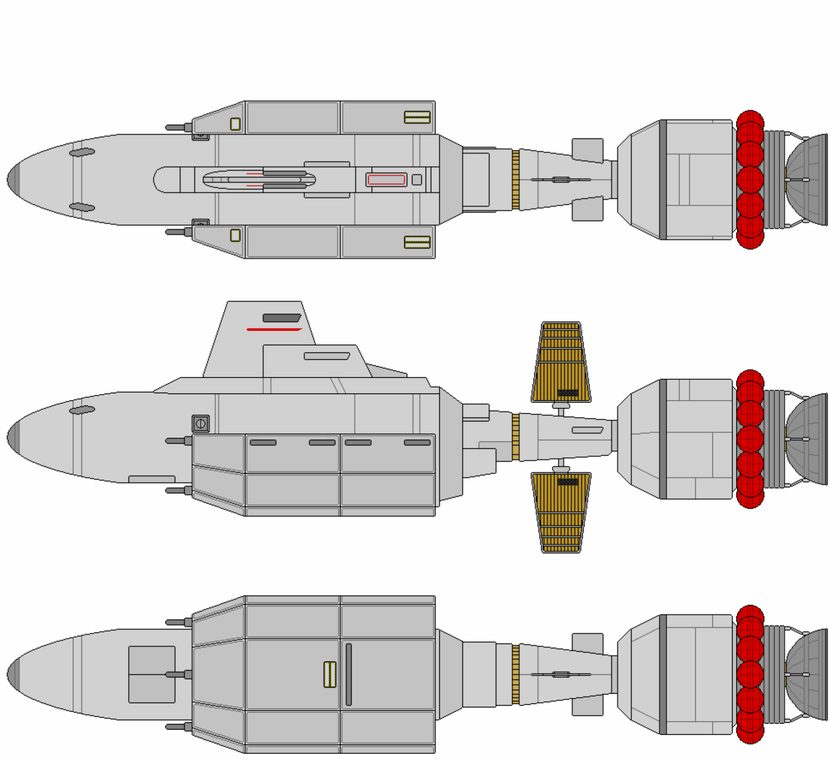


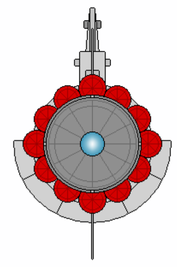
SHEET 1 OF 1

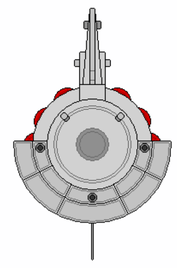
CLASS DY-120	**CATEGORY** MISSION SPACECRAFT
VARIANT BRENTON	**CONSTRUCTED** 2023
LENGTH 153.2 M	**BEAM** 45.2 M
HEIGHT 31.4 M	**MASS** 6,460 MT
OPERATIONAL 31	**RELEASE DATE** 2006.06

Authorized for release by Star Fleet Bureau of Starship Construction

DY-140 HELSINKI CLASS







CATEGORY: MISSION SPACECRAFT
OPERATIONAL: 2039 – UNKNOWN
CONSTRUCTED: 12

DIMENESIONS:
- LENGTH: 171.5 M
- BEAM: 33.8 M
- HEIGHT: 54.0 M
- MASS: 5,600 MT

PERFORMANCE:
- CRUISE: N/A
- MAX: 0.22 C
- ENDURANCE: 1.5 YEARS

COMPLEMENT:
- CREW: 33

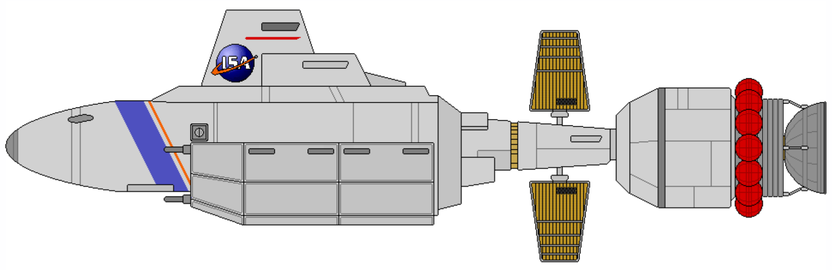
TACTICAL:
- 3X ROOSEVELT RAIL GUNS (W/ 75 RDS)
- 9X GLASS BEAD EMITTERS

AUXILIARIES:
- 3X CLASS A3 "ZENT MK II" EVA PODS

AUTHORIZED CONSTRUCTION

THE FOLLOWING SHIPS OF THE ABOVE CLASS WERE AUTHORIZED AS ASSETS OF THE INTERNATIONAL SPACE AGENCY BY THE NEW UNITED NATIONS.

- HELSINKI
- TIRANA
- SARAJEVO
- COPENHAGEN
- PARIS
- REYKJAVIK
- DUBLIN
- RIGA
- LUXEMBOURG
- OSLO
- MADRID
- LONDON



DY-140 HELSINKI in International Space Agency (ISA) colors

DY-140 HELSINKI CLASS
GENERAL INFORMATION

The International Space Agency (ISA) developed–in its mandate as an intergovernmental coordinator of space activities–the mission of search and rescue, with the DY-120 Brentons performing the majority of those tasks rather sufficiently. The vessel class had been selected, partially, because of the strength of the ship construction firm behind it, Yoyodyne Propulsion Systems (YPS), which increased the confidence for ongoing support and future material development. However, that support worked as a two-way street; the New United Nations (NUN) understood that YPS would need to have confidence in the continued business of governmental agencies, most certainly that of the ISA, in order to commit to building repair and construction facilities that might otherwise be more profitable when focused on commercial sectors. That relationship was tested by the events surrounding the DY-130 debacle.

In late 2037, the ISA grandly announced the full funding of 12 yet-undeveloped future search and rescue vessels to gradually replace the aging and well-worked Brentons. Additionally, the contract provided a partnership with YPS that would jointly design a line of vessels continuing from the mission spacecraft production run into a commercial passenger transport utilizing the exact same hull and engineering layouts, loaning the prestige and confidence of the ISA to the ship builder. To the world, the NUN was proclaiming that it had enough faith in YPS–despite the very public blow to the company's design reputation–to rely on a future DY series vessel for its astronautical safety agency and the lives of spacefarers throughout the inner system.

The investigation into the ship handling failures of the DY-130 very clearly shined a spotlight on two major contributing factors: the inadequacy of the reaction control system for a vessel of that size and the chaotic center of mass problem associated with hauling large individualized containers of asteroidal ore. With those issues in mind, the DY-140 Helsinki was built around the traditional submarine hull of the DY series with an extended structure–alluding to but not indicating actual standardized cargo containers–from the ventral and wrapping partially up along both sides. This provided additional work, living, and combat system spaces for the vessel, without allowing too much emphasis on cargo hauling capacity. The ship made use of a much more powerful ion reaction drive, necessitating a nozzle-like radiation barrier that guided the more dangerous particles astern.

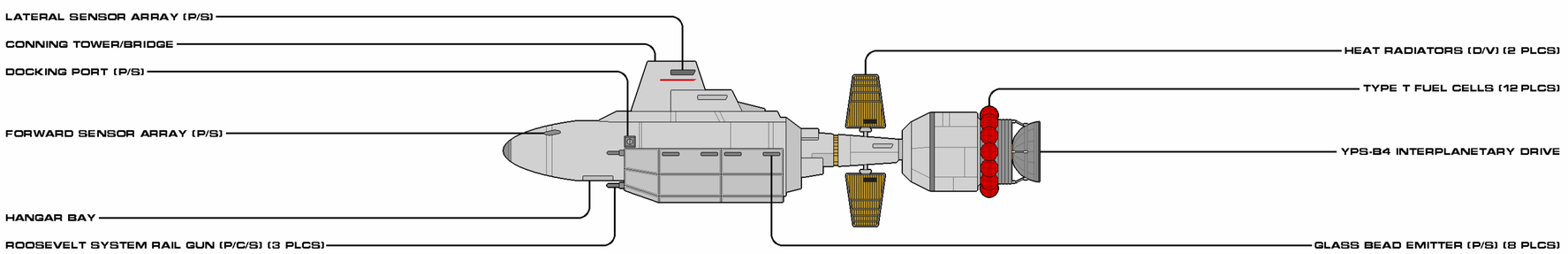
Defensive weapons were limited to the standard glass beam emitters, four running along both sides of the hull extension with an extremely long emitter along the ventral; this provided a rather broad emission "curtain" when deployed. Ship commanders were instructed to focus their initial protective actions with the activation of this emitter first by rolling the ship, essentially creating a shimmering spectacle of laser-deflecting beads that confidently demonstrated the ineffectiveness of any anti-ship laser usage. The smaller emitters were secondary in nature, reserved for the time-intensive reloading period of this main bank.

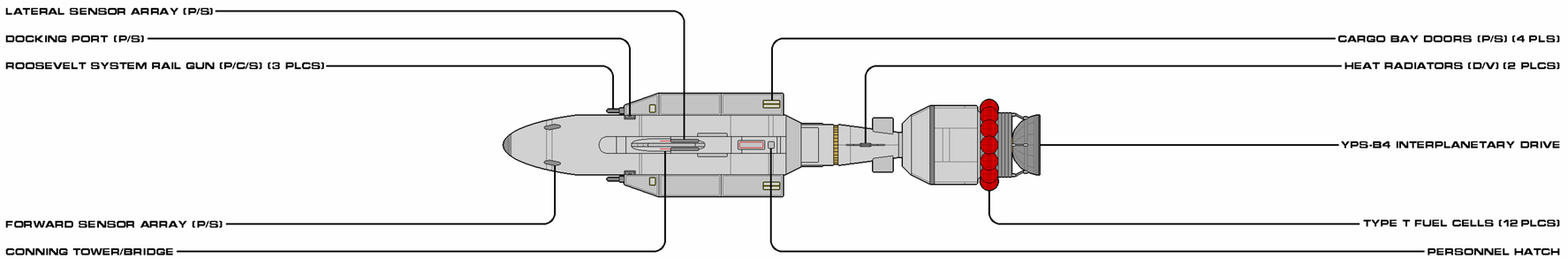
Offensively, the Helsinki was well-prepared. Three Roosevelt system rail guns, each with 25 rounds, extended from the cowl structure. Laser systems were initially considered, but it was felt too many turrets would have to be emplaced about the hull to be effective in the present era of reflective armor and anti-laser glass shield systems, and that would make the vessel more of a gunboat than a force for peace. The rail guns were also seen as rather provocative in their brutish presentation, but heat and size limitations prevented them from being any more embedded within the ship than eventually established. The use of three was also a debatable point, but in the end, it was decided that the long reload period and relative undependability of the systems meant having "one more" would be justified if one was already down for maintenance or repair when action was deemed necessary.

The Helsinkis certainly elevated the ISA's response capabilities from those of the Brentons, which were shifted to near-Earth duties in the safety and welfare inspection realm. Internally, the vessels were considerably less adaptable than their predecessors as the interior spaces were not as modular in nature, though much more secure, with thicker inner and outer hulls and additional compartmentalization. Crew sizes were identical (at 33), but the Helsinkis could only carry less than half of the emergency passenger complement (though with twice the medical capacity). Three smaller cargo bays each held one Class A3 "Zent Mk II" EVA pod. However, the craft's true advantage was in response time: with a top speed twice that of the DY-120 and an acceleration that was observable, the ship could provide the heavy and/or comforting presence of the ISA wherever it was needed rapidly.

Over fifty commercial versions of the DY-140 followed the 12th and final Helsinki. The passenger transports were equipped like the opulent cruise liners of the oceans 80 years prior, though many of those purchased were used to beef up existing ferry lines to Mars. As the distance between Earth and the red planet lengthened over the solar year, additional ships would be phased in, to keep shift workers on the job at the various colonies sprouting up. In the shortened periods of the year, the same ships would take miners out to the Main Belt and back, with a handful of them dedicated to providing the astronautical experience for cruising tourists.

DELTA DYNAMICS
AUTHENTICATED STARDATE 2010.22





SHEET 1 OF 2

CLASS DY-140	**CATEGORY** MISSION SPACECRAFT
VARIANT HELSINKI	**CONSTRUCTED** 2039
LENGTH 171.5 M	**BEAM** 33.8 M
HEIGHT 54.0 M	**MASS** 5,600 MT
OPERATIONAL 12	**RELEASE DATE** 2006.06

Authorized for release by Star Fleet Bureau of Starship Construction

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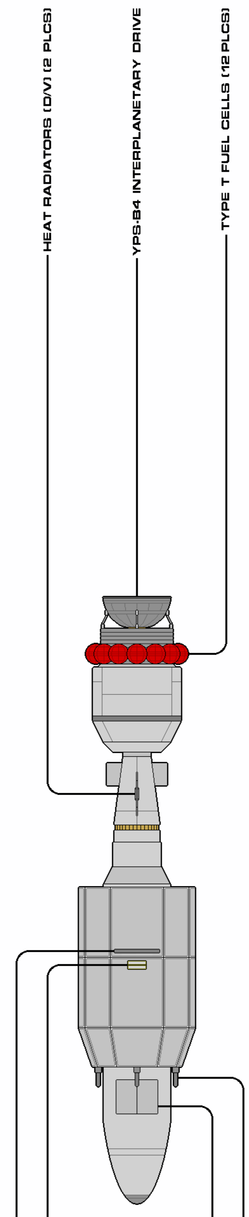
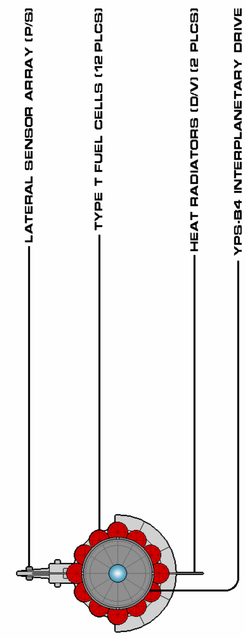
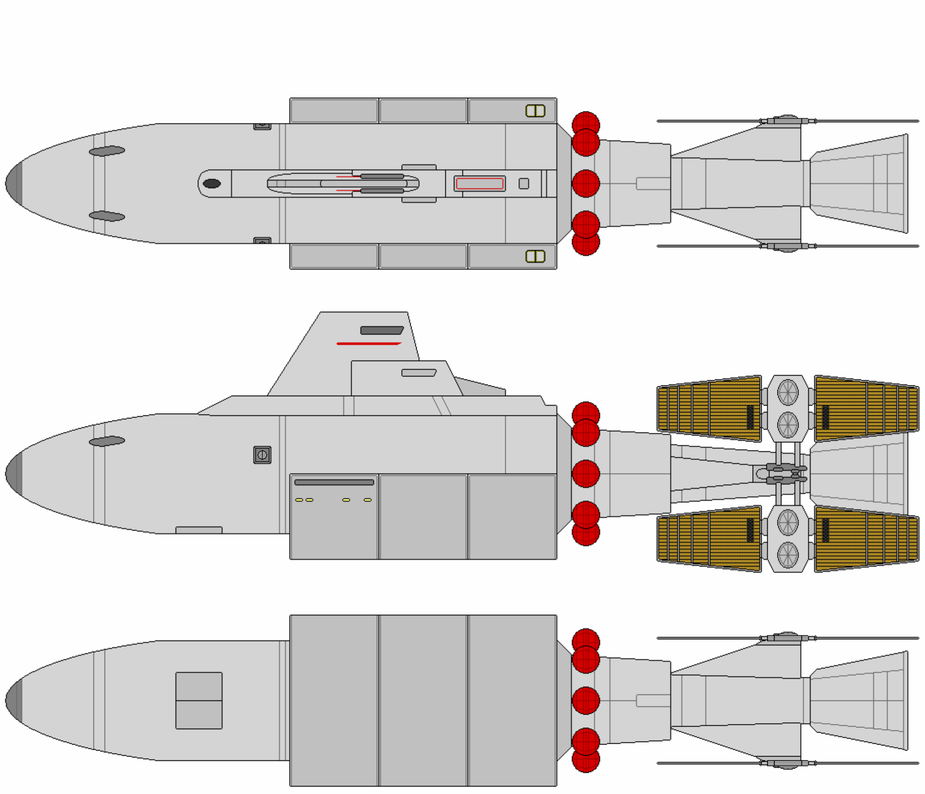


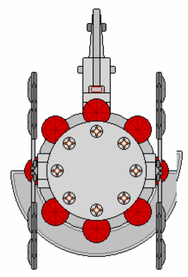


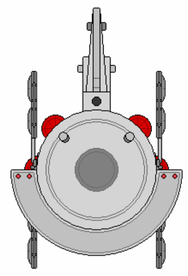
SHEET 2 OF 2

CLASS DY-140	CATEGORY MISSION SPACECRAFT
VARIANT HELSINKI	CONSTRUCTED 2039
LENGTH 171.5 M	BEAM 33.8 M
HEIGHT 54.0 M	MASS 5,600 MT
OPERATIONAL 12	RELEASE DATE 2006.06

DY-135 BLACK MAMBA CLASS







CATEGORY: MISSION SPACECRAFT
OPERATIONAL: 2042 – UNKNOWN
CONSTRUCTED: 6

DIMENESIONS:
- LENGTH: 196.8 M
- BEAM: 37.2 M
- HEIGHT: 56.3 M
- MASS: 3,850 MT

TACTICAL:
- 4X 90 MW LASER EMITTERS
- 1X MK II MISSILE LAUNCHER (W/ 36 NUCLEAR RDS)
- 4X GLASS BEAD EMITTERS

PERFORMANCE:
- CRUISE: N/A
- MAX: 0.24 C
- ENDURANCE: 1 YEAR

AUXILIARIES:
- 3X CLASS A3 "ZENT MK II" EVA PODS

COMPLEMENT:
- CREW: 20

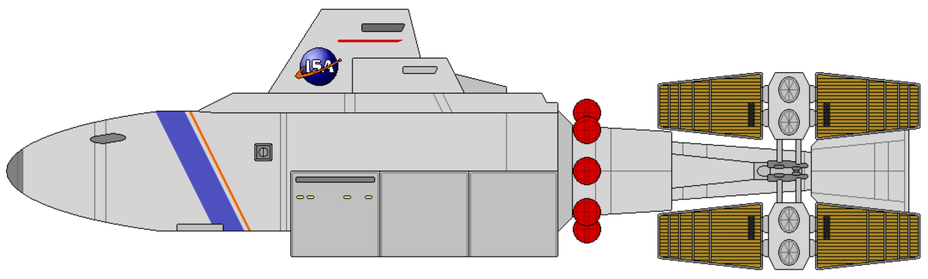
AUTHORIZED CONSTRUCTION

THE FOLLOWING SHIPS OF THE ABOVE CLASS WERE AUTHORIZED AS ASSETS OF THE INTERNATIONAL SPACE AGENCY BY THE NEW UNITED NATIONS.

- BLACK MAMBA
- TAIPAN
- KRAIT
- COBRA
- JARARACA
- BUSHMASTER

GENERAL INFORMATION

In 2037, the DY-120 interplanetary transport had been in production by Yoyodyne Propulsion Systems (YPS) for seventeen years, achieving an understated "moderate success", with "moderate" apparently defined as "anything less than complete market presence". With over 400 ships of the class plying the interior system transport lanes, one would presumably feel confident that such numbers would describe the entirety of the Terran collective flotilla. However, the competitive arena established by the state shipbuilding industry of the Eastern Coalition (formed in 2031 from the Eurasian Confederation and an alliance with the nations of China, India, Iran, Japan, Korea, Pakistan, Singapore, and Vietnam) and that of the Western Alliance members had allowed for the exploration of a large number of ion-propelled ship designs. These vessels were often seemingly individualized, ranging from small cislunar ferries to large rubble-hauling freighters, all quite different from the series ships previously produced by Dinyan-Yoyodyne and now by YPS.



DY-135 BLACK MAMBA in International Space Agency (ISA) colors

DY-135 BLACK MAMBA CLASS
GENERAL INFORMATION (CONTINUED)

These varied and multitudinous utility ships were a business threat, because each one could do anything the DY-120 could do far better, though few could rival the DY-120 in adaptability to most any mission. Nonetheless, commerce was buying the type of ships that fit immediate commercial needs and at the acquisition cost that best allowed the most rapid maximization of profits. In order to stay relevant, YPS corporate decided to build a ship that had all the dependability of the DY series, but would excel at the targeted industrial sector.

The first sector to be considered was asteroid mining. It had, by far, the most growth potential and YPS envisioned that the advantage their standardized container pods–combined with scheduled routes by freight transport companies–would immediately create a demand for a specialized mining transport vessel of the DY brand. Just after the mid-year, the first DY-130 interplanetary transport was leased to Maersk Space Freight, with an additional two committed to that line. The vessel's container pods were nearly identical to that of the earlier Type DY containers (now designated as Series One), but far larger: each could hold over 2,100 metric tons of ore, more than 4.5 times that of the Series One pod. Each vessel could haul 15 of these pods, for a total of 32,010 metric tons.

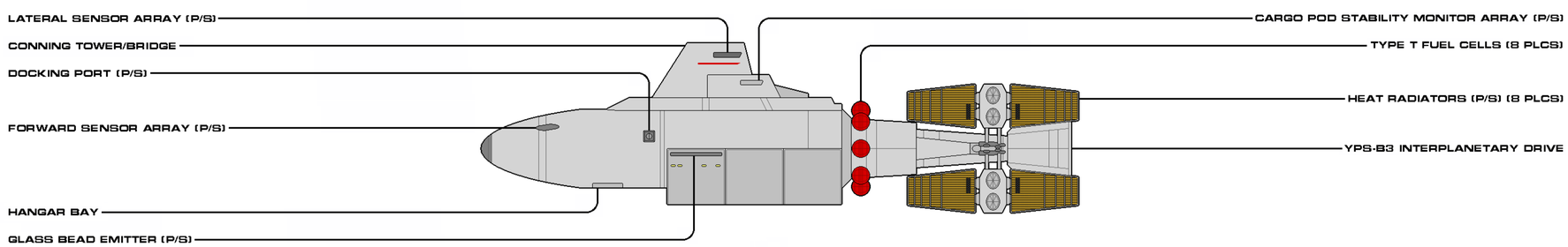
By the time the last ship of the first production run (the SS Black Mamba) was nearing completion, the DY-130's story appeared abruptly completed. Maersk had encountered several ship maneuvering problems from the immediate operations of their three ships: when even partially loaded, the reaction thrusters were proving incapable of maintaining positive control of the ship's flight profile, most notably when approaching loading and unloading stations. A few allisions with minimal damage occurred in 74% of restricted maneuvering operations in the first 10 months alone, with any catastrophes avoided sheerly on the experience of the ships' crews. Maersk threatened to sue for release from their 15-year contract and all interest from other commercial sources dried up within a few weeks.

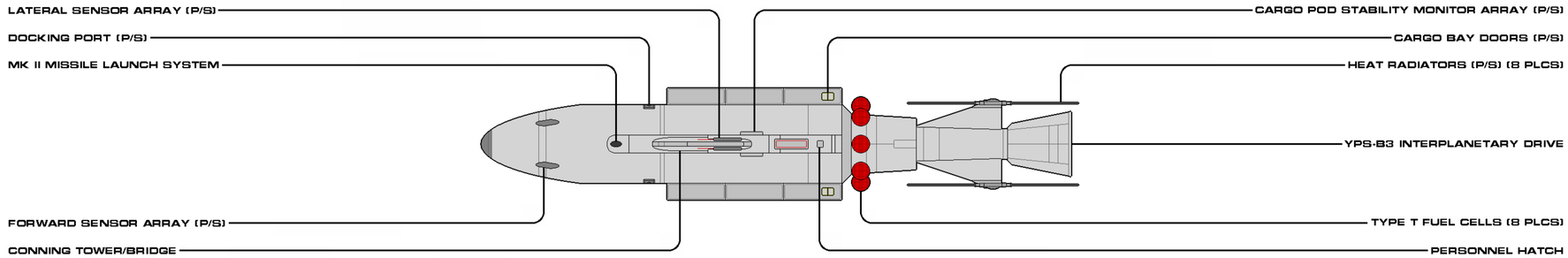
The International Space Agency (ISA), operating under the mandate of the New United Nations (NUN), investigated. While their primary concern was in regards to the safe operation of spacecraft, they were equally concerned with the future of Yoyodyne, an otherwise trusted and critical shipbuilding partner for ISA and other governmental operations. During the investigation, the reaction control systems were proven to not only be extremely underpowered for the mass of a loaded ore hauler, but also poorly placed to handle a shifting center of mass problem, a common issue for loose ore under a dynamic speed delta. The two solutions–refitting an entirely new series of thrusters or redesigning a much smaller cargo component–were just not feasible, especially for a class of ship that had already been identified as a disaster-in-waiting. Instead, with a corporate-saving contract from the New United Nations, Yoyodyne Propulsion Systems went back to the drawing board to design a new interplanetary vessel, based upon the inquiry's results. The ISA would guarantee the safety of this class (the DY-140) by being the first to take receipt of 12 vessels for modernized search and rescue missions.

But that was not the end of the DY-130. The ISA, working with Yoyodyne, took possession of the Black Mamba and began a fully-subsidized refit that would incorporate the investigation's suggestions of relieving the ship of its enormous and unstable cargo load and redesigning the thruster system. In place of the enormous Series Two container pods, a much less massive and permanent semi-circular superstructure was added onto the main hull. Though not as extensive or internally large as the same structure on the aging DY-120 Brentons, the six repurposed vessels did have two hatches for repair equipment and cargo access, an adequate medical bay, emergency quarters for rescued spacers, a ventral hanger bay for 3 Class A3 "Zent Mark II" EVA pods, and 8 Type T fuel cells.

For all intents and purposes, the ISA seemed to have designed itself a modernized search and rescue craft, but one that paled in comparison to the DY-140 Helsinki class that had debuted three years earlier. Instead, the six Black Mambas performed as up-gunned law enforcement vessels (in another of the ISA's wide net of mandates), helping ensure that the small corporate flare-ups between asteroid miners or the smuggling/piracy operations of struggling independent tramp freighters, was kept in check. The DY-135s sported what was hoped to be a completely unnecessary Mark II nuclear missile launch system, with 36 warshots, and 4 forward-firing prototypes of the forthcoming Sorac 0.36, a 90-megawatt laser emitter that outclassed any other medium-powered spacecraft-mounted laser systems. While the prototypes proved to be about 20% larger than would be produced just six years later, and generated an enormous amount of heat, they could cause a respectable amount of destruction upon any spacecraft hull, as was very publicly demonstrated upon a target meteoroid of not insignificant-size.

Due to the tensions between the Eastern Coalition (ECON) and the Western Alliance-dominated NUN, the Black Mamba craft proved to be problematic due to their existence alone. The mounting of such overpowered lasers might have been forgiven in a law enforcement role, but the inclusion of nuclear weapons on the vessels proved ECON fears that the post-Swarm militarization of space was a credible threat to their interests. Regardless of the limited numbers of the mission spacecraft and despite its troubled origin, the ISA's police vessels were consistently tracked and reported by all ECON-affiliated vessels as potential aggressors; anytime they showed up with the intent of conflict de-escalation, ECON defense forces elevated their response alert status. The vessels were priority targets in the infamous days of May 2053.

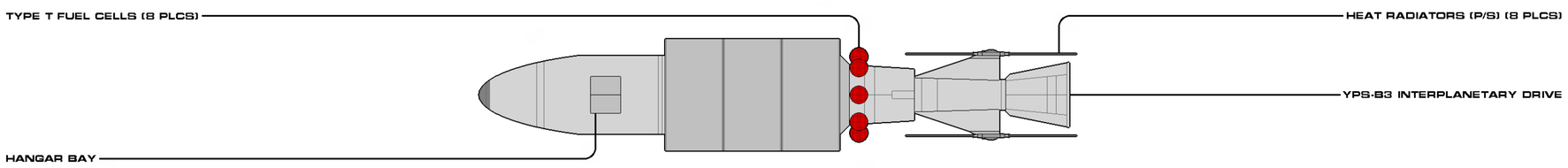


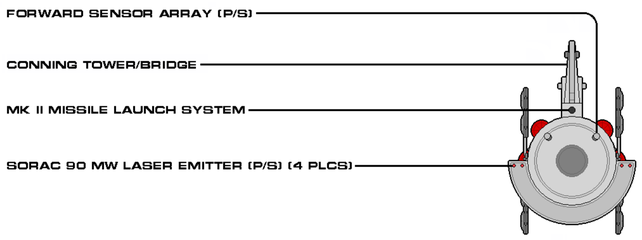


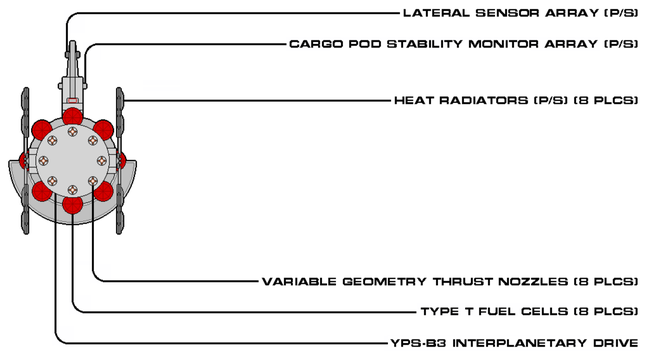
SHEET 1 OF 2

CLASS DY-135	**CATEGORY** MISSION SPACECRAFT
VARIANT N/A	**CONSTRUCTED** 2042
LENGTH 196.8 M	**BEAM** 37.2 M
HEIGHT 56.3 M	**MASS** 3,850 MT
OPERATIONAL 6	**RELEASE DATE** 2006.06

Authorized for release by Star Fleet Bureau of Starship Construction





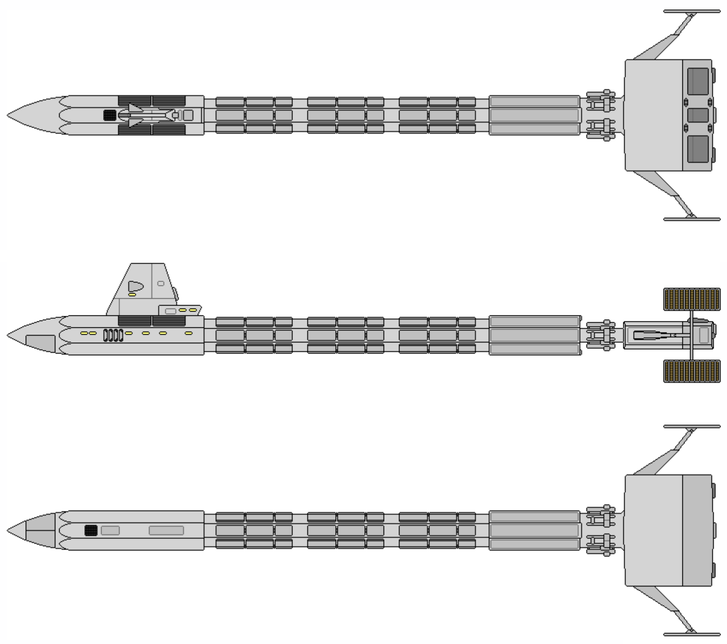


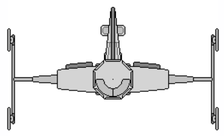
SHEET 2 OF 2

CLASS DY-135	**CATEGORY** MISSION SPACECRAFT
VARIANT N/A	**CONSTRUCTED** 2042
LENGTH 196.8 M	**BEAM** 37.2 M
HEIGHT 56.3 M	**MASS** 3,850 MT
OPERATIONAL 6	**RELEASE DATE** 2006.06
Authorized for release by Star Fleet Bureau of Starship Construction	

APPENDIX I:
CIVILIAN VARIANTS

DY-120 TYPE





CATEGORY: INTERPLANETARY TRANSPORT
OPERATIONAL: 2021 – UNKNOWN
CONSTRUCTED: 400+

DIMENESIONS:
- LENGTH: 153.2 M
- BEAM: 45.2 M
- HEIGHT: 26.3 M (30.3 M)[1]
- MASS: 4,100 MT

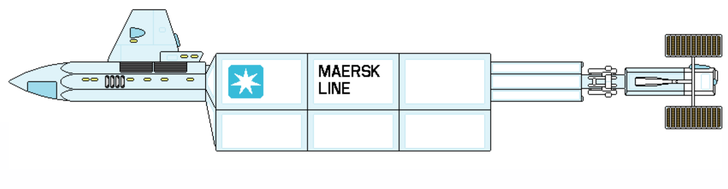
TACTICAL: N/A

PERFORMANCE:
- CRUISE: N/A
- MAX: 0.11 C
- ENDURANCE: 1.5 YEARS

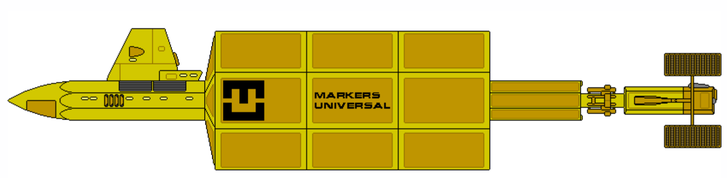
COMPLEMENT:
- CREW: 29

AUXILIARIES:
- 1X LUNAR/ASTEROID LANDER, OR
- 1X SHUTTLEPOD
- 1X LUNAR TUG (OPTIONAL FOR CARGO POD)

NOTES: 1- FULLY LADEN

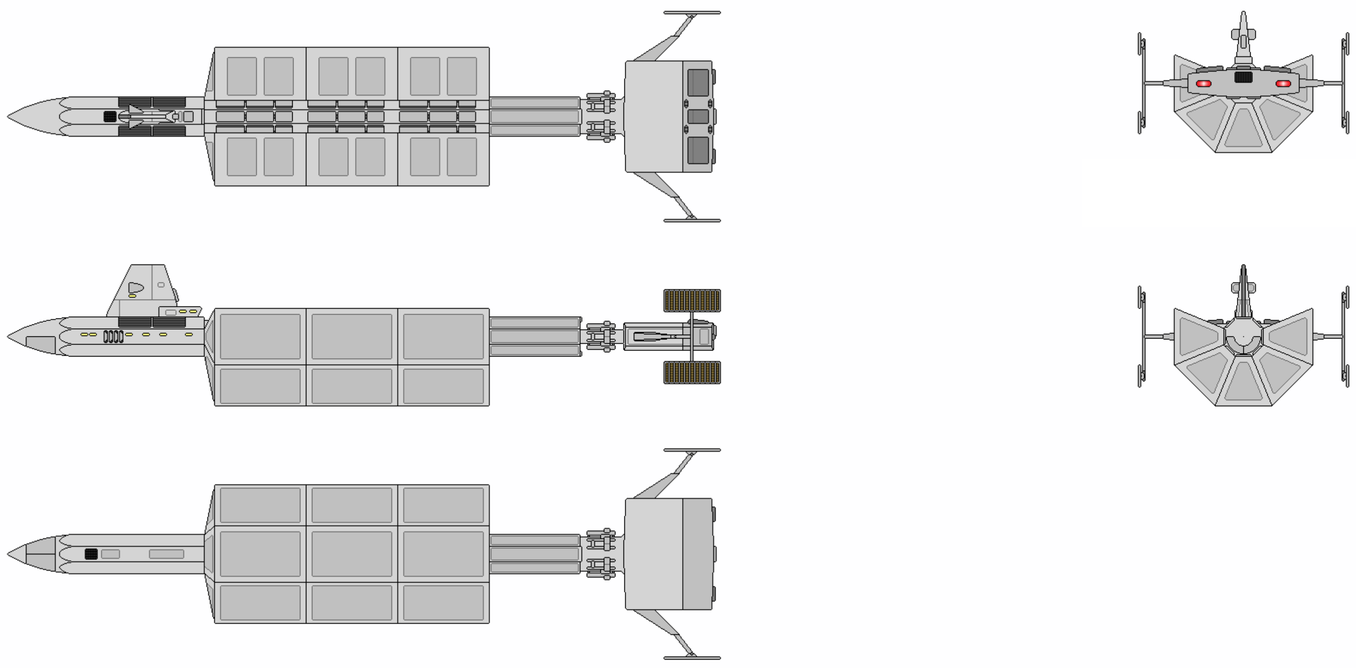


Maersk Space Freight Line

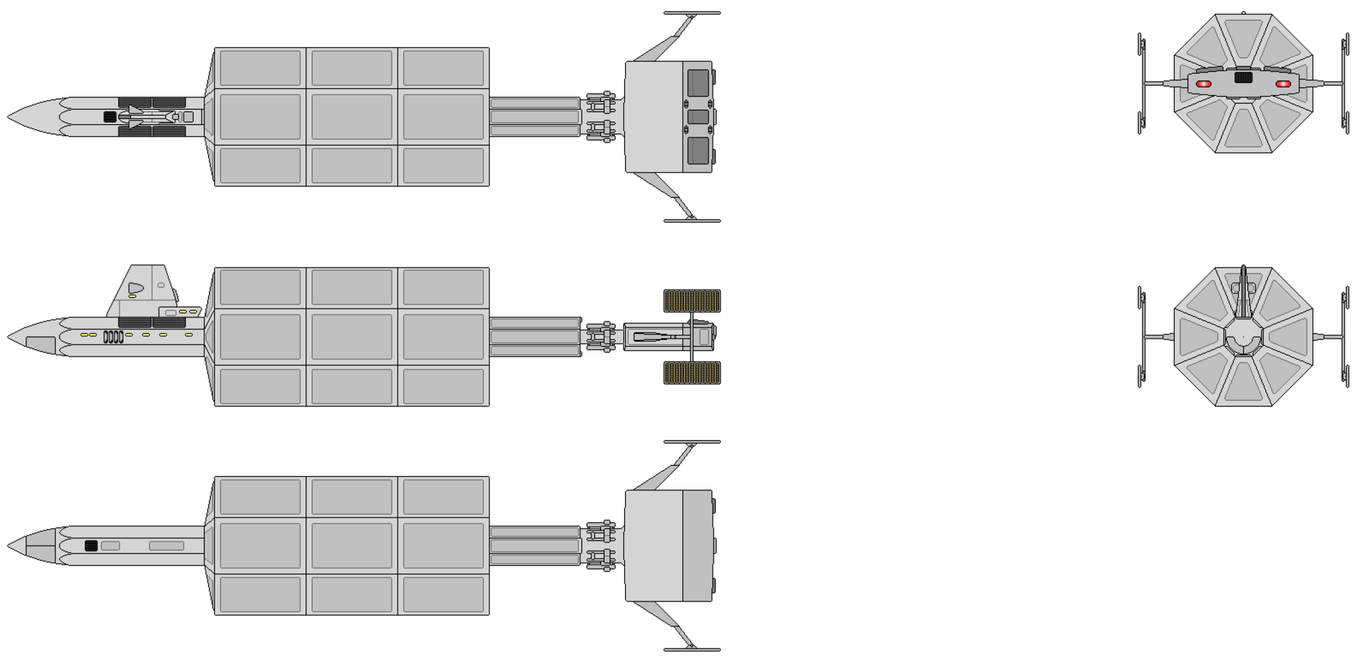


Markers Universal Transporters

DY-120 TYPE

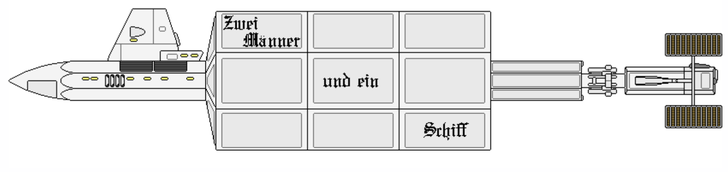


DY-120 (configured for 15 cargo pods)



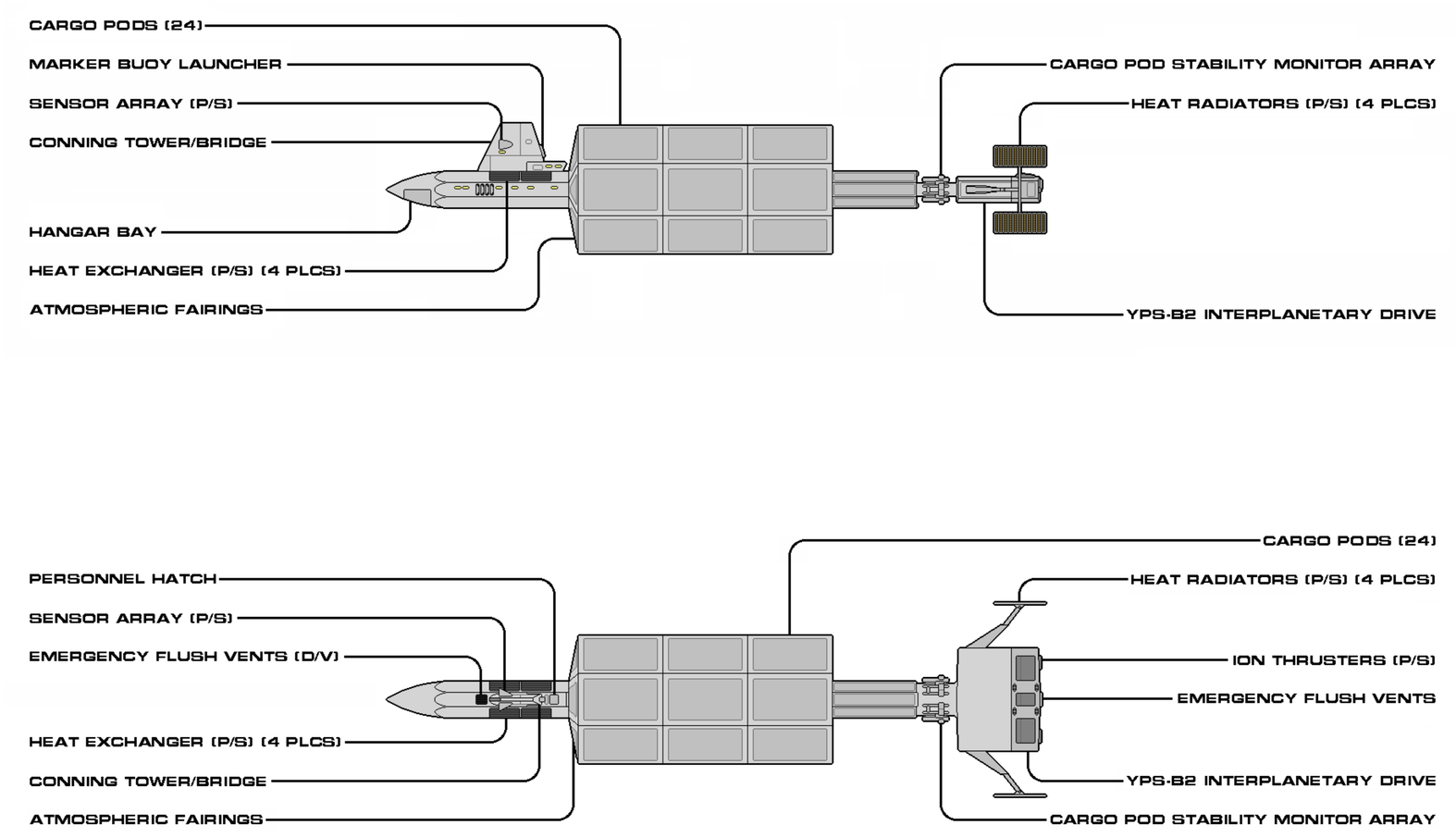
DY-120 (configured for 24 cargo pods)

Santa Maria Shipping Line



Zwei Manner und ein Schiff

DELTA DYNAMICS
AUTHENTICATED STARDATE 2010.22



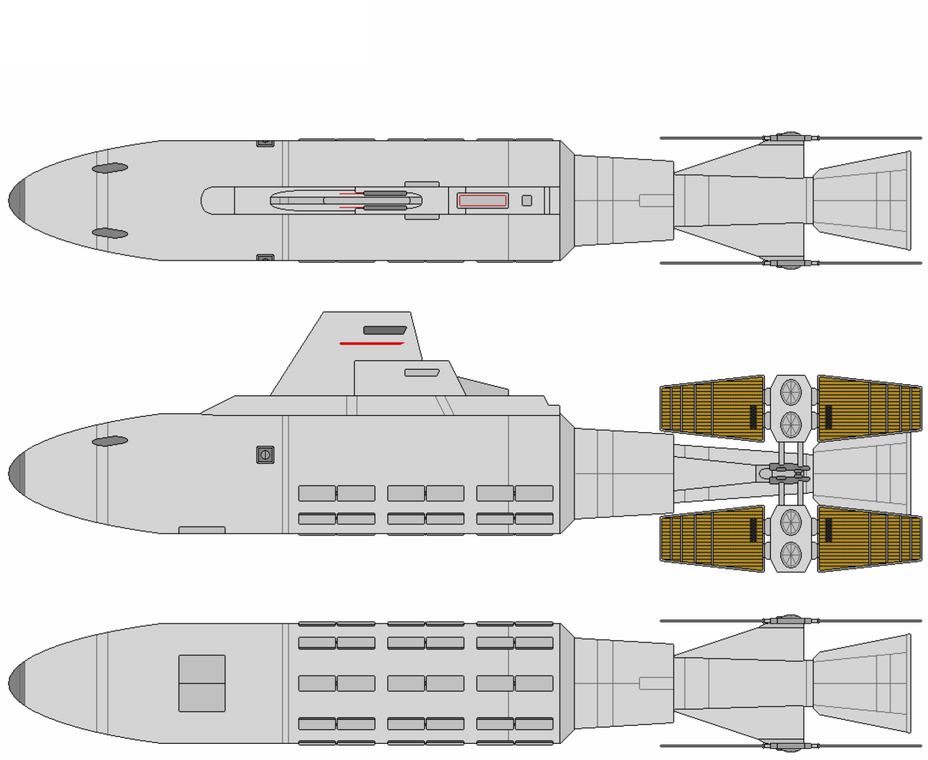
CARGO POD SHOWN WITH ATMOSPHERIC FAIRING REMOVED

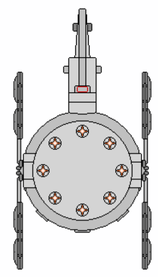
SHEET 1 OF 1

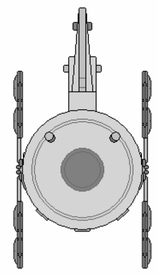
CLASS DY-120	**CATEGORY** INTERPLANETARY TRANSPORT
VARIANT N/A	**CONSTRUCTED** 2021
LENGTH 153.2 M	**BEAM** 45.2 M
HEIGHT 26.3 M (UNLADEN)	**MASS** 4,100 MT (UNLADEN)
OPERATIONAL 400+	**RELEASE DATE** 2006.06

Authorized for release by Star Fleet Bureau of Starship Construction

DY-130 TYPE







CATEGORY: INTERPLANETARY TRANSPORT
OPERATIONAL: 2037 – 2038
CONSTRUCTED: 6

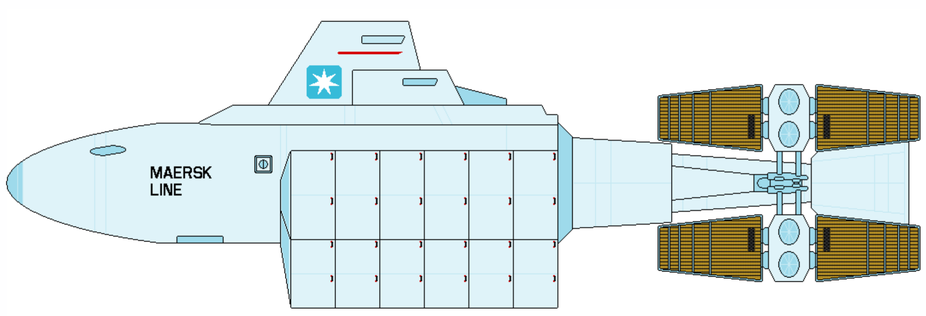
DIMENESIONS:
- LENGTH: 196.5 M
- BEAM: 29.3 M
- HEIGHT: 56.0 M
- MASS: 4,450 MT

PERFORMANCE:
- CRUISE: N/A
- MAX: 0.21 C
- ENDURANCE: 1.5 YEARS

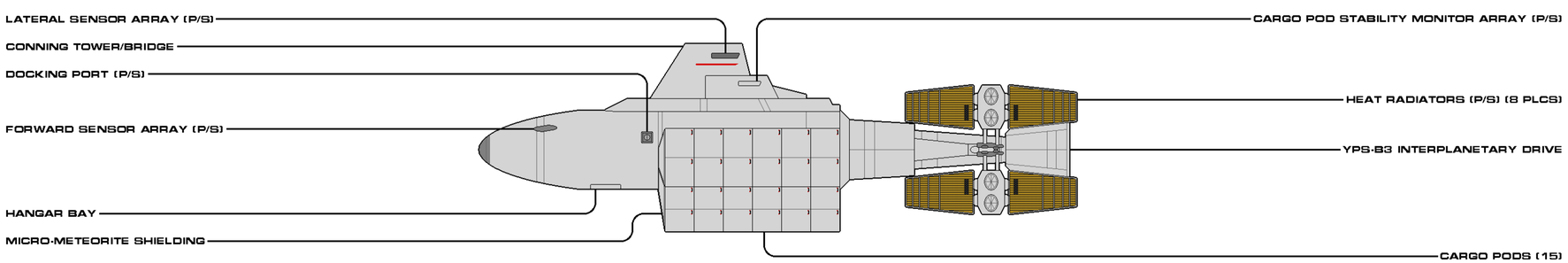
COMPLEMENT:
- CREW: 32

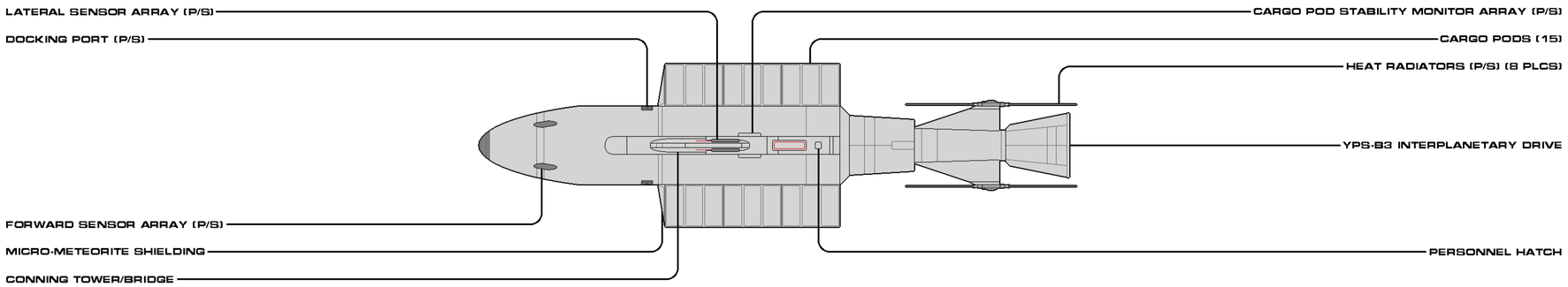
TACTICAL: N/A

AUXILIARIES:
- 1X LUNAR/ASTEROID LANDER, &
- 2X SHUTTLEPODS, OR
- 4X SHUTTLEPODS



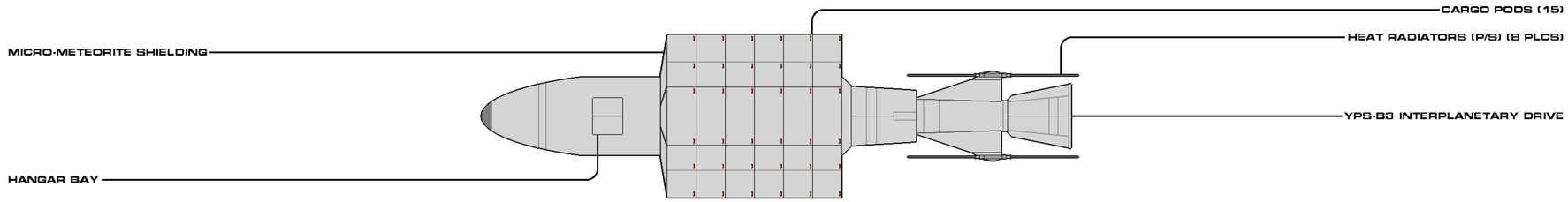
A DY-130 in Maesrk Space Freight Line livery

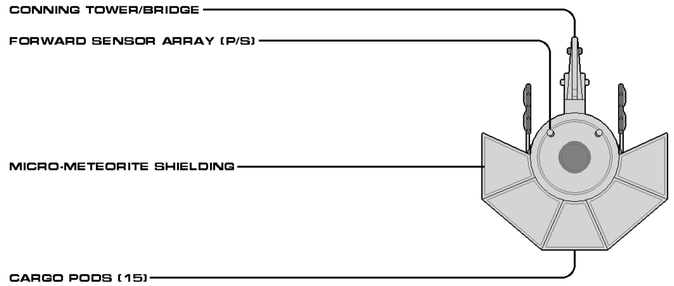


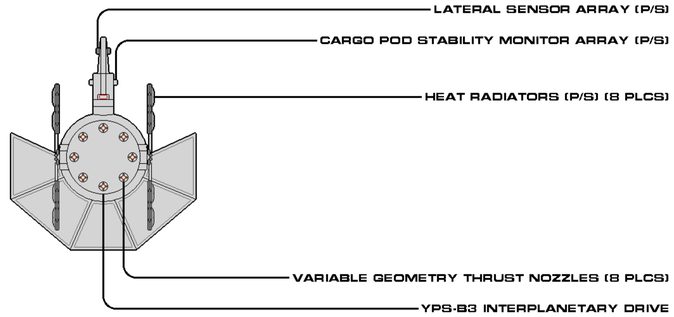


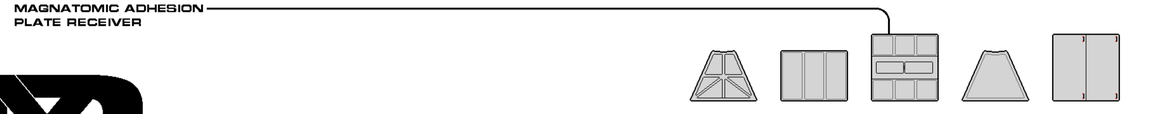
SHEET 1 OF 2

CLASS DY-130	**CATEGORY** INTERPLANETARY TRANSPORT
VARIANT N/A	**CONSTRUCTED** 2031
LENGTH 196.5 M	**BEAM** 29.3 M (UNLADEN)
HEIGHT 56.0 M (UNLADEN)	**MASS** 4,450 MT
OPERATIONAL 6	**RELEASE DATE** 2006.06
Authorized for release by Star Fleet Bureau of Starship Construction	









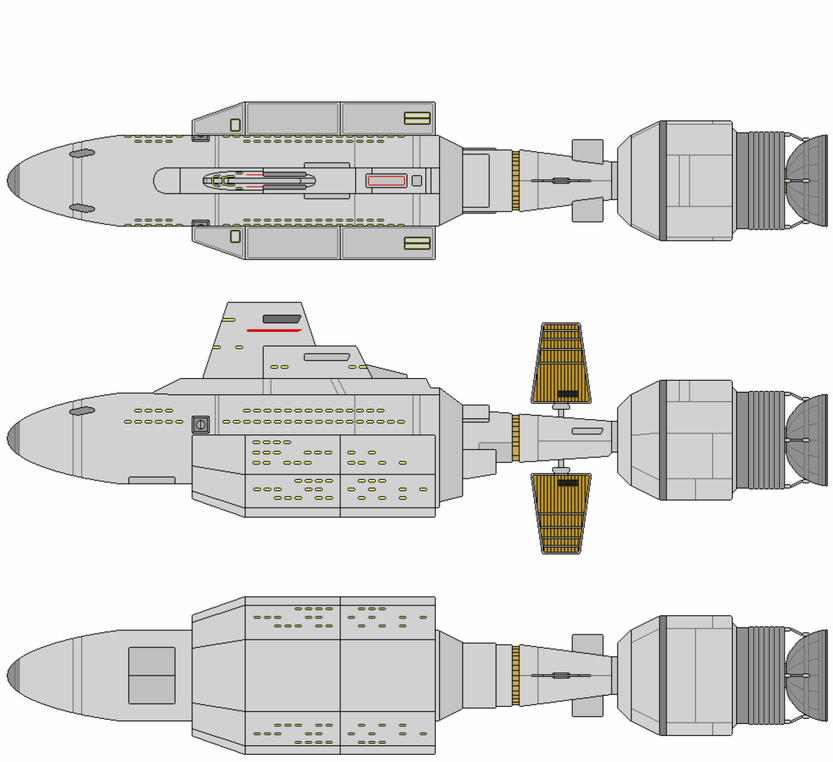
CARGO POD SHOWN WITH MICRO-METEORITE SHIELDING REMOVED

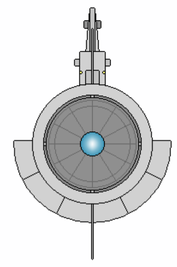
SHEET 2 OF 2

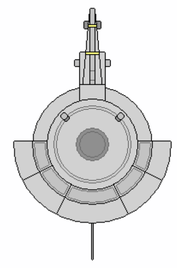
CLASS DY-130	**CATEGORY** INTERPLANETARY TRANSPORT
VARIANT N/A	**CONSTRUCTED** 2037
LENGTH 196.5 M	**BEAM** 29.3 M (UNLADEN)
HEIGHT 56.0 M (UNLADEN)	**MASS** 4,450 MT
OPERATIONAL 6	**RELEASE DATE** 2006.06

Authorized for release by Star Fleet Bureau of Starship Construction

DY-140 TYPE







CATEGORY: INTERPLANETARY TRANSPORT
OPERATIONAL: 2044 – UNKNOWN
CONSTRUCTED: 50+

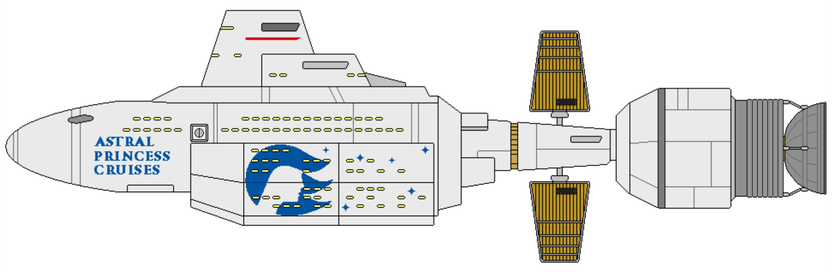
DIMENESIONS:
- LENGTH: 171.5 M
- BEAM: 33.8 M
- HEIGHT: 54.0 M
- MASS: 5,200 MT

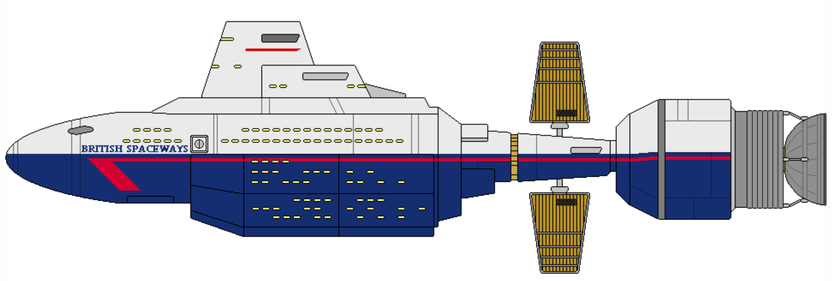
TACTICAL: N/A

PERFORMANCE:
- CRUISE: N/A
- MAX: 0.22 C
- ENDURANCE: 5 MONTHS

AUXILIARIES:
- 1x SHUTTLEPOD
- 3X PASSENGER PODS

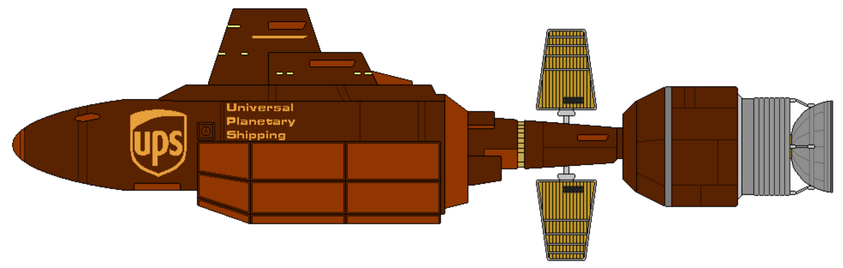
COMPLEMENT:
- CREW: 29 (+20 HOSPITALITY)
- PASSENGERS: 125

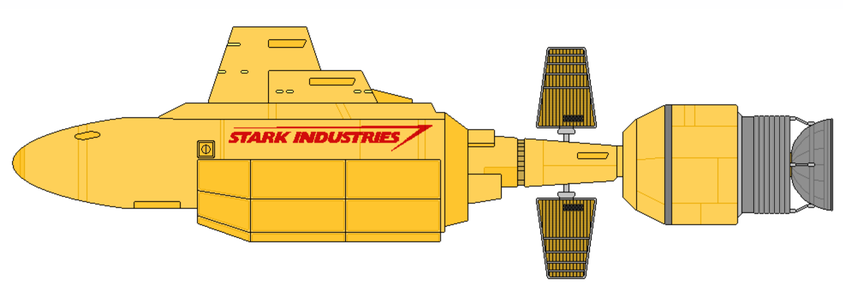


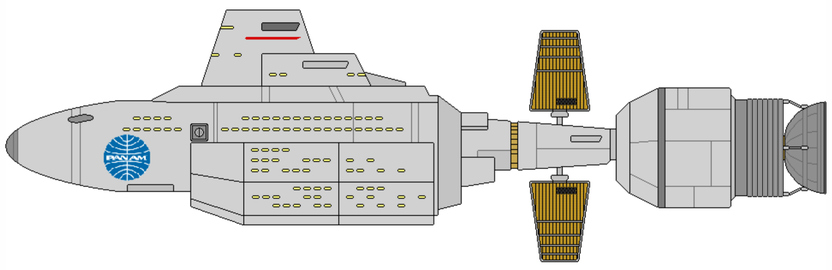


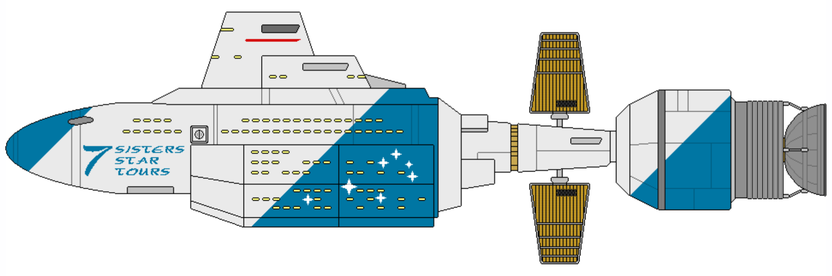
SAMPLING OF CORPORATE BRANDINGS

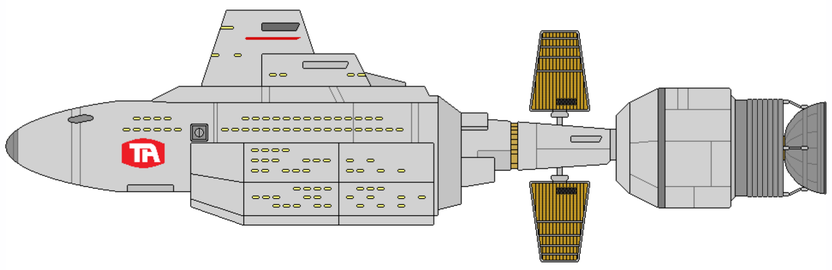
DY-140 TYPE

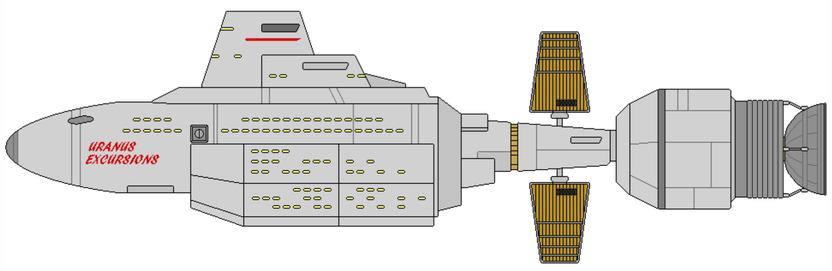


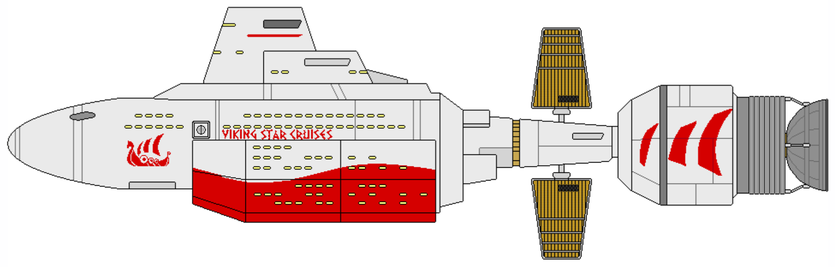




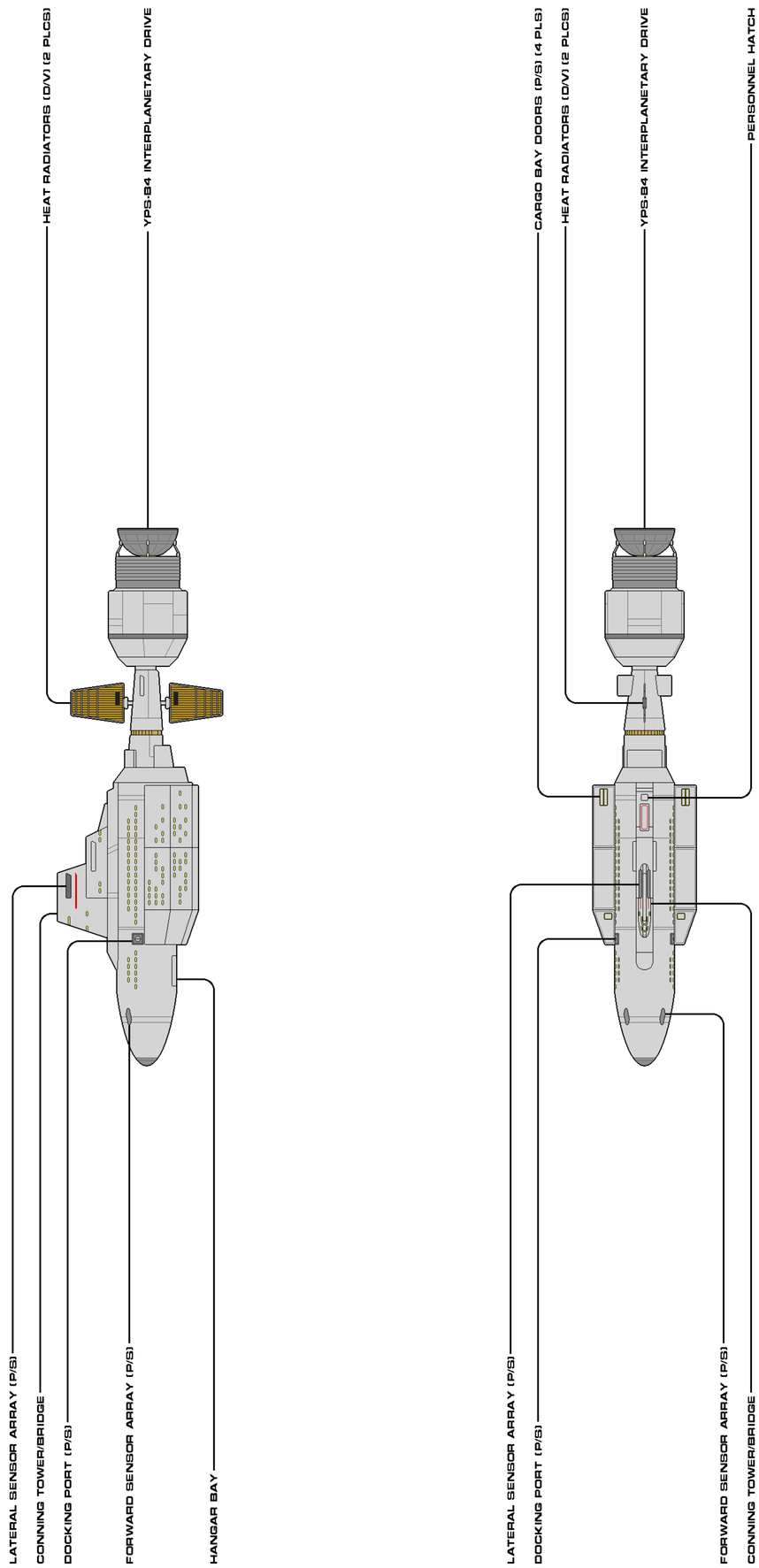






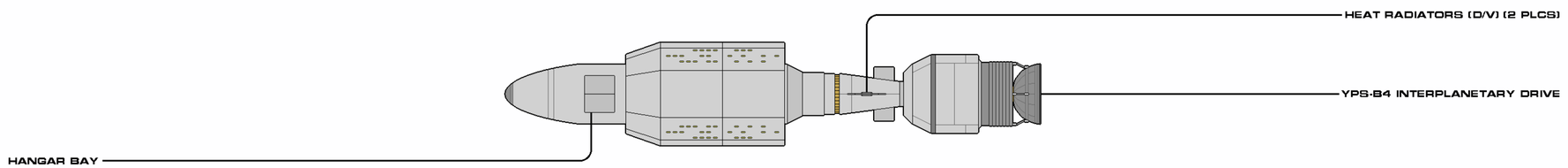


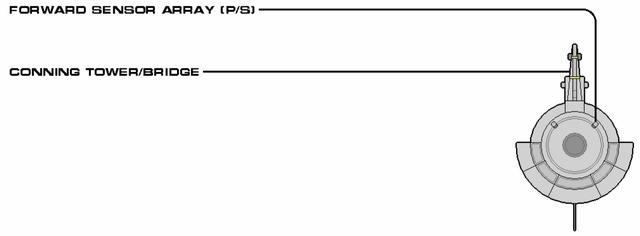
SAMPLING OF CORPORATE BRANDINGS

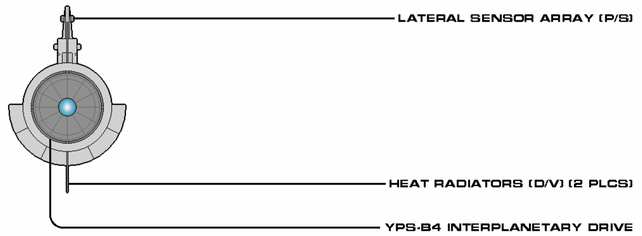


SHEET 1 OF 2

CLASS DY-140	CATEGORY INTERPLANETARY TRANSPORT
VARIANT N/A	CONSTRUCTED 2044
LENGTH 111.5 M	BEAM 33.8 M
HEIGHT 54.0 M	MASS 5,200 MT
OPERATIONAL 50+	RELEASE DATE 1006.06







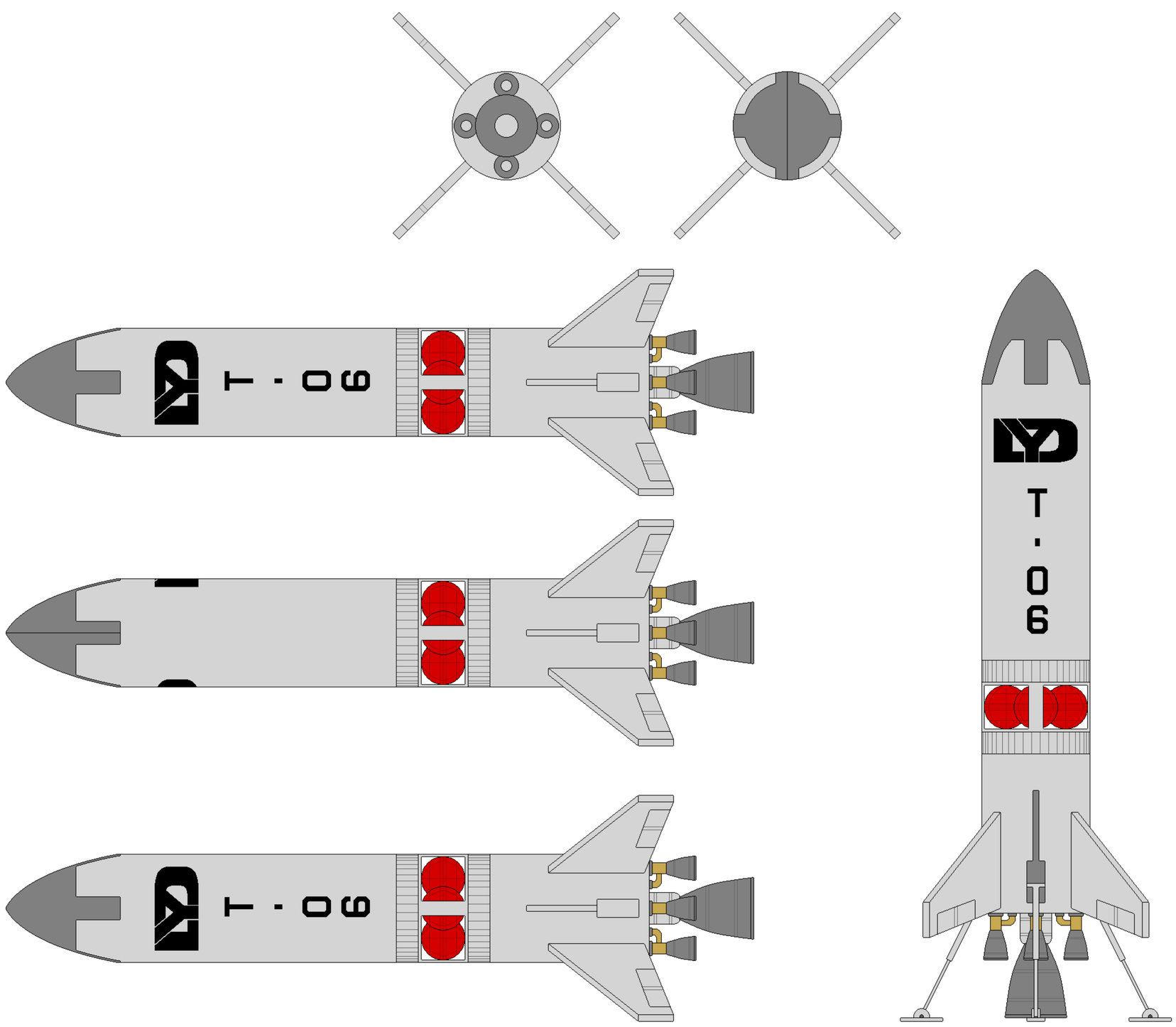
SHEET 2 OF 2

CLASS DY-140	**CATEGORY** INTERPLANETARY TRANSPORT
VARIANT N/A	**CONSTRUCTED** 2044
LENGTH 171.5 M	**BEAM** 33.8 M
HEIGHT 54.0 M	**MASS** 5,200 MT
OPERATIONAL 50+	**RELEASE DATE** 2006.06

Authorized for release by Star Fleet Bureau of Starship Construction

APPENDIX II: LAUNCH SYSTEMS

DY-T HEAVY LAUNCH VEHICLE



GENERAL INFORMATION

In early 1989, with zero intelligence and no other warning, China became a space power at a scale neither Russia nor the United States could immediately match. That morning, a massive heavy launch vehicle roared off the pad at Wenchang. From 1967, the American Saturn V held the record as the world's tallest, heaviest, and most powerful rocket ever brought to operational status; it could not compare to the Dinyan-Yoyodyne DY-T on any of those metrics, nor the important ones concerning operational capability or cost.

With a height of 226.5 meters, a diameter of 68.4 meters and a dry mass of 27,662 metric tons, the DY-T was over twice as tall, almost seven times as wide, and 9.3 times heavier than the Saturn V. For a rocket known to tower over any observer, impressing with its sheer grandness, the Saturn itself was now towered over by the privately-owned retro-styled DY-T. The associated surprise of China's catapulting ahead of all other space nations aside, the sheer lift capacity of the vessel-claimed to be over 75,500 metric tons-had to be a complete fiction compared to the proven capacity of the standard 140 tons of the American rocket. However, it wasn't fiction and that would be proven over dozens and dozens of launches from sites worldwide over the next few years.

Granted, the rocket's primary mission was a far easier load than maximum capacity; the rocket was designed with the diameter to transport the in-development interplanetary drives to a low-earth orbit. But the DY-T was perfectly capable of performing other transport missions, when it was properly configured. As with the DY-B1 chemical reactant thrust module/drone, Dinyan-Yoyodyne had every intention of retaining ownership of these craft to provide services -refueling, earth-to-orbit freight, etcetera-to the company's intended client base, the operators of the DY series of interplanetary transports. In fact, especially at the start of this endeavor, those very capable transports absolutely required a support structure to provide them the cargo, fuel, and other support requirements that these heavy launch vehicles readily delivered.

DY-T HEAVY LAUNCH VEHICLE
GENERAL INFORMATION (CONTINUED)

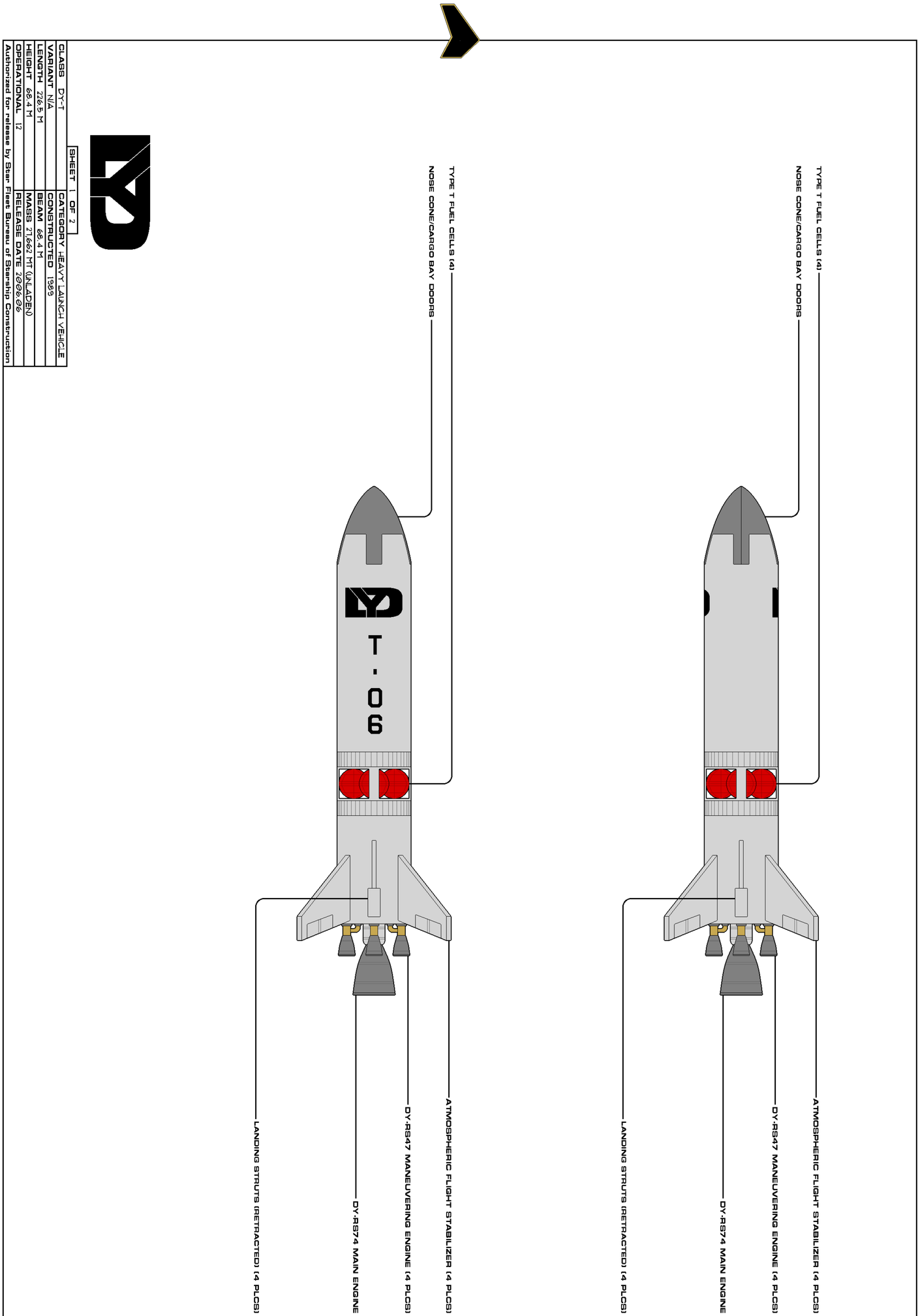
And that is where the second important criteria came into play: cost. Not only was the DY-T a massive leap forward in launch capacity, but it was also re-usable. Powered by the proprietary and colossal DY-RS74 main engine and the four-also exceptionally large-DY-RS47 maneuvering engines, the rocket could achieve a thrust of 1.55 KPS (5,560 kph) by burning a chemical reactant that was a closely held secret (even from the Chinese government). Not only was the launch vehicle a single-stage-to-orbit design, it was also capable of achieving the desired low orbit with enough fuel to spare to conduct re-entry and return-to-launch sequences. Never before had such a feat even been designed, much less attempted and accomplished. The magnitude of advances in thrust, computing, design, lift capacity: it was bewildering, completely unforeseen, and, yet, irrefutable. And the utility of the design was also beyond dispute: within days, the DY-50 experimental transport Shuguang lifted off from Wenchang, met the DY-T (designated T-01) in orbit, took on fuel, and then boosted to a high-earth orbit. T-01 remained in low orbit to provide fuel to the arriving Shenzhou and then again to the returning Shuguang, before going back to Earth.

Twelve DY-Ts were assembled and launched from several contracted launch facilities around the world, completely overseen and maintained by their Dinyan-Yoyodyne operators. Originally, each was intended to be completely configurable to the next launch mission's requirements, be it for refueling, delivery of construction materials and supplies to the construction crews building the new space structures, or sending aloft the returning-to-service DY-B1 booster drones and new ion interplanetary drives (two of either one per launch). However, as the last DY-T entered service, it was decided that keeping each lift vehicle in a specific configuration allowed for quicker turnaround, ensuring the various mission rosters were fully supported. The phenomenal international cooperation being demonstrated extended to the sharing of the modified launch schedules and vehicles.

As national space budgets ballooned-the economic benefits promised to more than pay for them-this service angle by Dinyan-Yoyodyne proved to be a cash cow. The company was now well-enough established to begin the commercial phase of the Great Khanate's plan, wherein corporate conglomerates would be prompted to take advantage of the same services, without any risk to DY of being sidelined by competition. The tight security on the protected intellectual property provided a sense of confidence and pride in their products and services, and most employees felt a sense of destiny in leading Humanity forward into the future.

Unfortunately for the company, as the Khanate fell in 1996 the full scope of what could be carrying Dinyan-Yoyodyne's brand out past the asteroid belt would not be realized. The company would be shattered by the self-serving destruction of the Eugenics Wars, though rebuilt in the following years in much smaller incarnations by nations encumbered with enormous debt from funding underrealized space plans and driven to re-achieve that level of space presence.

DELTA DYNAMICS
AUTHENTICATED STARDATE 2010.22

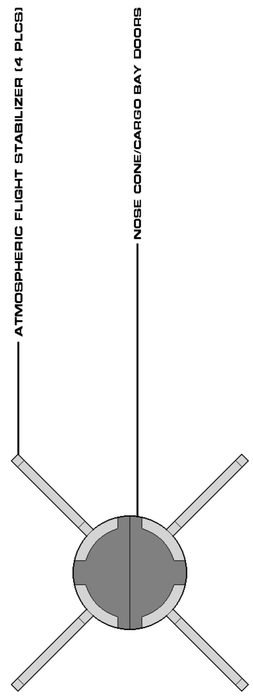


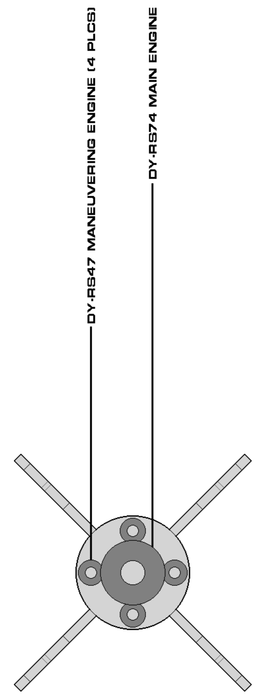
SHEET 1 OF 2

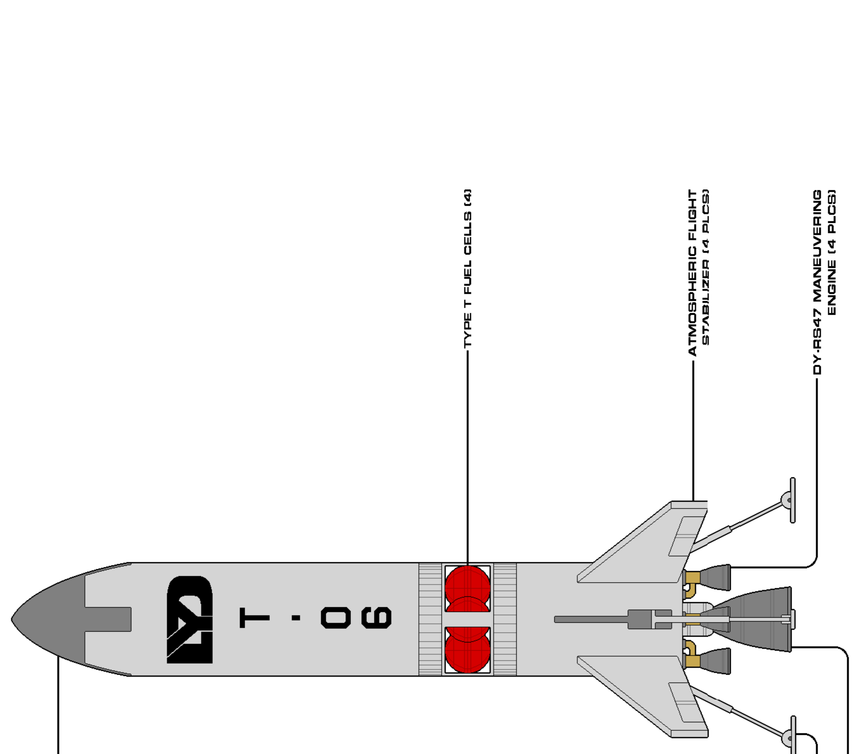
CLASS	DY-T
VARIANT	N/A
LENGTH	226.5 M
HEIGHT	68.4 M
OPERATIONAL	12

CATEGORY	HEAVY LAUNCH VEHICLE
CONSTRUCTED	1989
BEAM	68.4 M
MASS	21,662 MT (UNLADEN)
RELEASE DATE	2008.06

Authorized for release by Star Fleet Bureau of Starship Construction







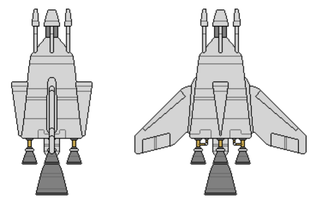
LANDING CONFIGURATION SHOWN

SHEET 2 OF 2

CLASS DY-T	CATEGORY HEAVY LAUNCH VEHICLE
VARIANT N/A	CONSTRUCTED 1989
LENGTH 226.5 M	BEAM 68.4 M
HEIGHT 68.4 M	MASS 21,662 MT (UNLADEN)
OPERATIONAL 12	RELEASE DATE 2006.06

Authorized for release by Star Fleet Bureau of Starship Construction

CALT-Z5 LAUNCH BOOSTER/TRANS-ORBITAL DRIVE

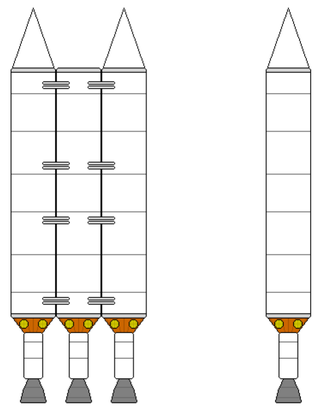


GENERAL INFORMATION

Unlike follow-on launch boosters, the CALT-Z5 was an integral and permanent component of the DY-50 experimental transport preceding the DY-100. On one hand, the system was not at all the dominant feature of the bizarre submarine-style spacecraft; on the other, something that diminutive in relation to the orbital load should have easily been half the story-of-the-day. Comprising the final 39.8 meters of the 125.5-meter long ship, there was nothing to suggest the massive breakthrough the corporation had achieved in both the reactive power of the chemical reactant nor the proprietary engines that turned that mixture into a thrust exhaust ratio never before witnessed. Equally amazing was the realization that the small-scale single-stage-to-orbit booster was also a primary drive for trans-orbital propulsion. After achieving orbit, both the Shuguang and the Shenzhou refueled from the orbiting DY-T; their individual CALT-Z5 boosters re-ignited to propel them on to high-earth orbit and cislunar trajectories, respectively. Other than expected maintenance and usage-related issues, the two individual booster systems would operate dependably for back-to-back missions over two years.

(For details on the components of the CALT-Z5, refer to the DY-50 blueprints in Section 02.)

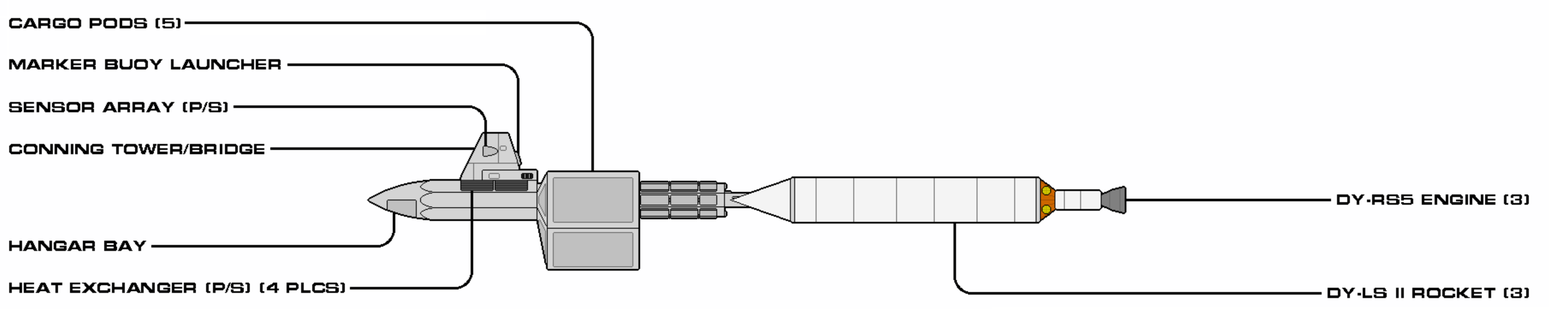
DY-A1 LAUNCH SYSTEM

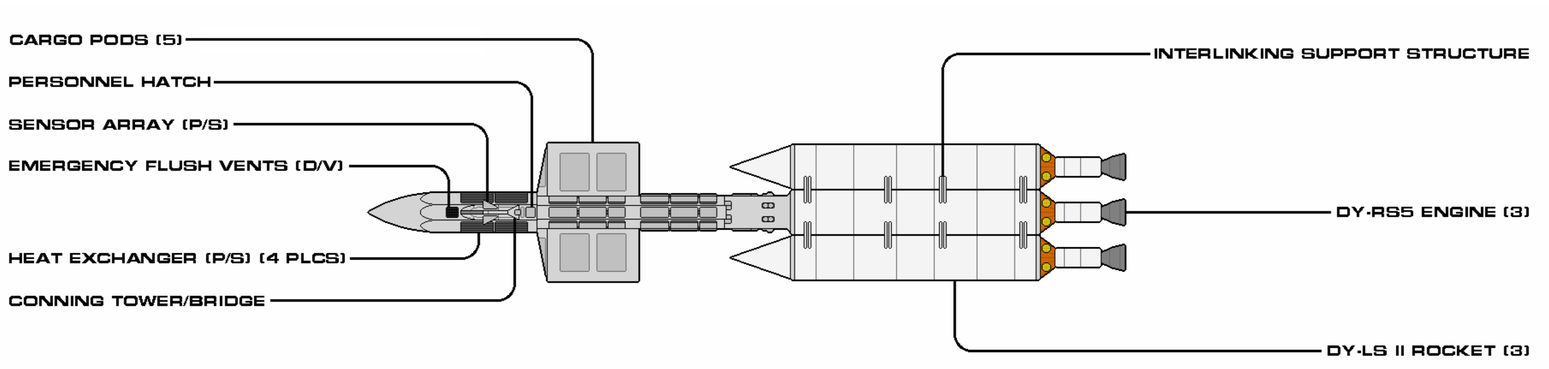


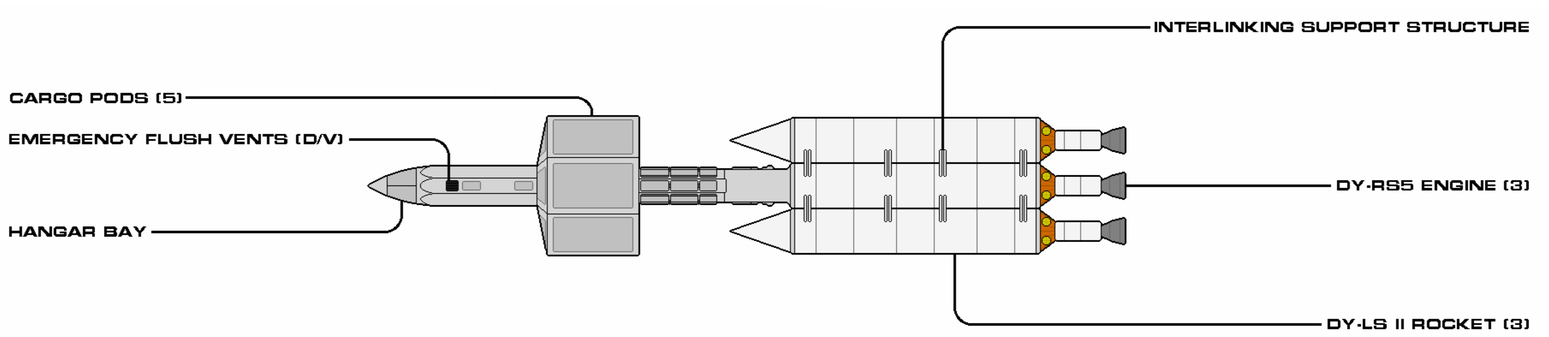
GENERAL INFORMATION

The DY-A1 launch system is probably the least examined component of the early Dinyan-Yoyodyne products, as its operational period was extremely short and it was replaced by far more capable systems. Nevertheless, it was an evolutionary step forward for the corporation, in that-the amazing performance of the CALT-Z5 aside-there was now the expectation of launching cargo containers, a challenge in both massive weight and aerodynamic drag concerns, with the serviced DY-100 vessel, as a complete package. The ability to launch a maximum cargo capacity of over 7,500 metric tons (within 16 containers) would be a goal reached incrementally over time, and by meeting the interplanetary booster module in orbit, the first DY-100 launches could carry 5 containers (and almost 2,400 tons) on the vessel's maiden voyage aloft. It was a far more impressive sales pitch to see a container-laden DY-100 lift off from Wenchang, and so the DY-A1 was attached to the stern of the vertically-positioned ship. The triple boosters, each weighing almost 2,000 tons, appeared small in relative size to their launch load (the partially-laden DY-100), when compared to the massive rockets the Americans and Russians used to launch their much smaller orbital loads. However, the rate the launch vehicle climbed (after clearing the tower) was stunningly obvious.

DELTA DYNAMICS
AUTHENTICATED STARDATE 2010.22





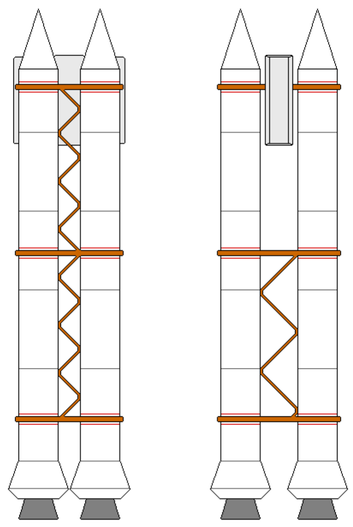


SHEET 1 OF 1

CLASS DY-A1	**CATEGORY** LAUNCH BOOSTER
VARIANT N/A	**CONSTRUCTED** 1990
LENGTH 84.6 M	**BEAM** 29.0 M
HEIGHT 9.5 M	**MASS** 5,585 MT
OPERATIONAL UNKNOWN	**RELEASE DATE** 2005.25

Authorized for release by Star Fleet Bureau of Starship Construction

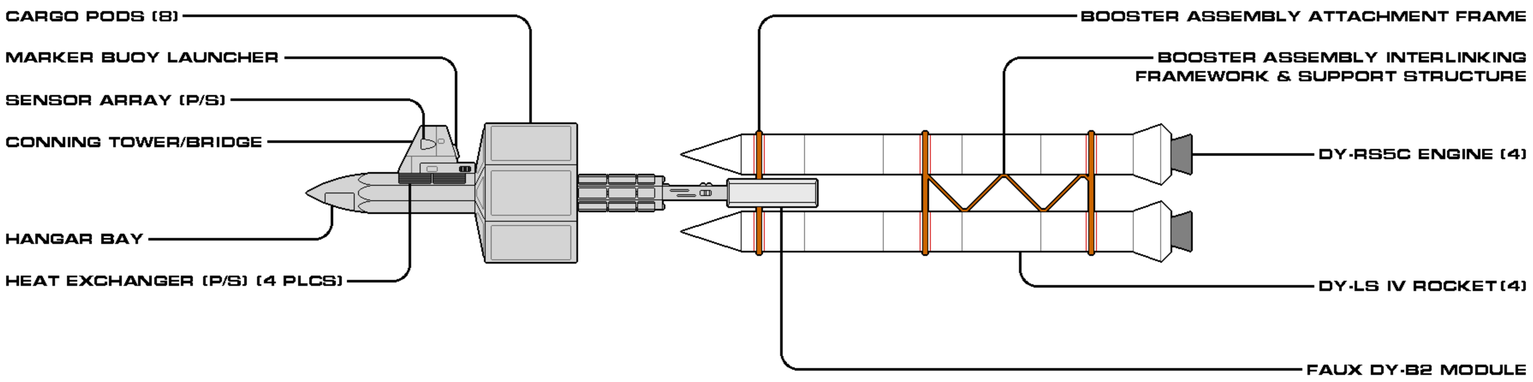
DY-A2 LAUNCH SYSTEM

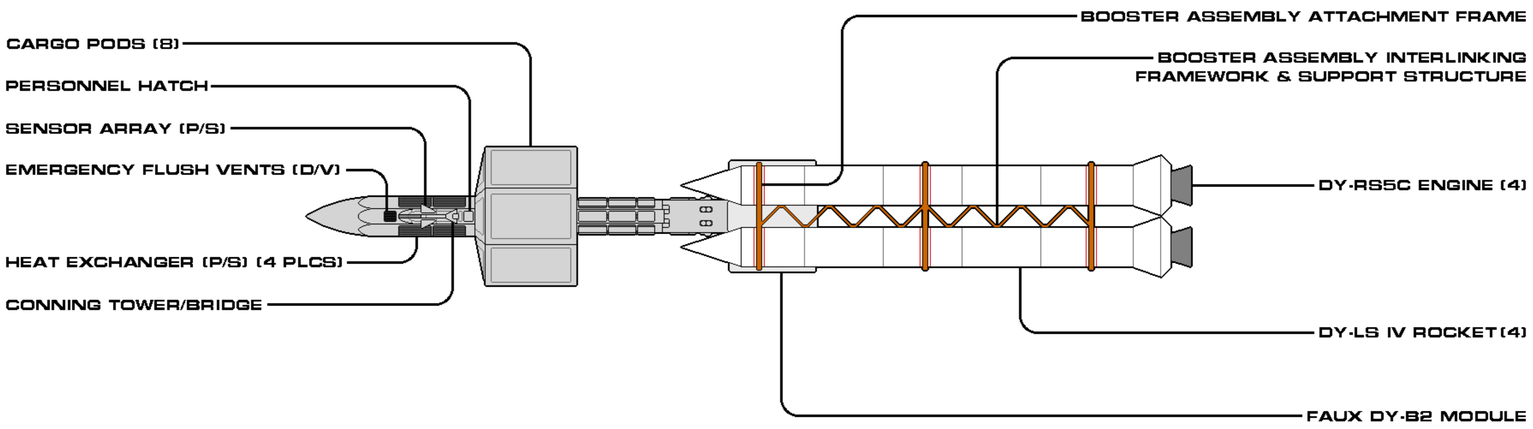


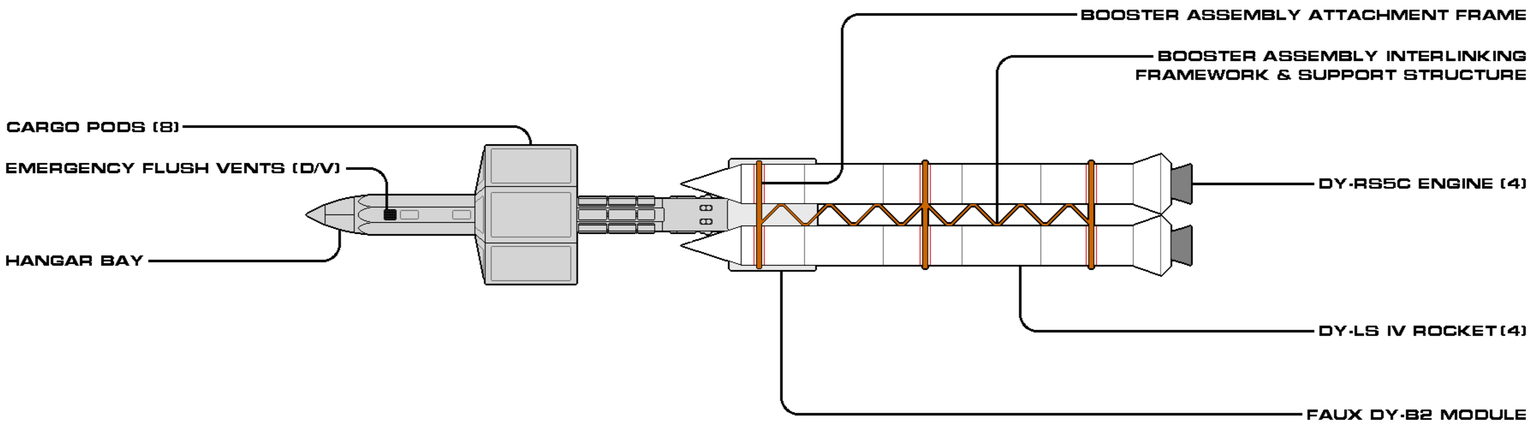
GENERAL INFORMATION

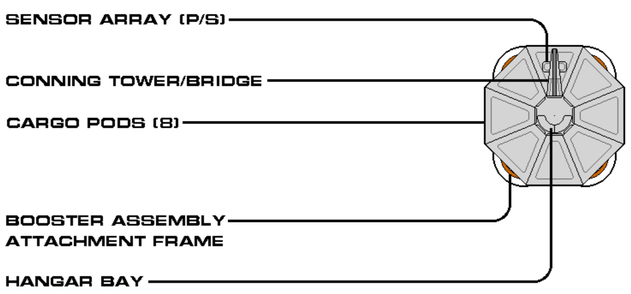
Dinyan-Yoyodyne's consistent goal was to increase the amount of cargo which a new DY-100 could carry into orbit. The company-and its partners-were adamant that the true value of the ship was the ability to divest itself of full cargo containers at their destinations, take on new containers, and return to the transport route as quickly as possible, and that it would do this constantly, throughout its service life-once it achieved orbit. The DY-T series of single-stage-to-orbit rockets would send up future cargo for follow-on transport, but there was something to be said to see your agency's newly purchased interplanetary transport launch while laden with cargo. To that end, the DY-A2 launch boost assembly was introduced in 1991. The four single-stage DY-LS IV rockets, each equipped with a DY-RS5C main engine, were mated to a shared assembly attachment frame. Their combined thrust used a faux DY-B2 module, attached to the stern of the DY-100, to propel the vessel from sea-level to low-earth orbit. The combination assembly, capable of lifting the 2,720 metric ton vessel and almost 3,800 tons of cargo (in 8 containers), would be detached once orbit was achieved, to burn up upon re-entry.

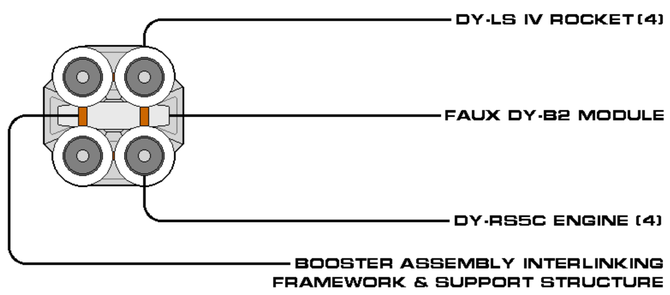
DELTA DYNAMICS
AUTHENTICATED STARDATE 2010.22







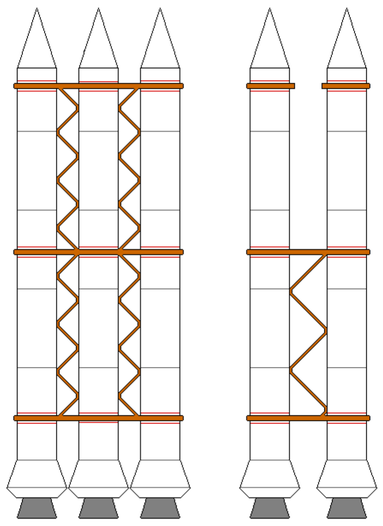




SHEET 1 OF 1

CLASS DY-A2	**CATEGORY** LAUNCH BOOSTER
VARIANT N/A	**CONSTRUCTED** 1991
LENGTH 110.2 M	**BEAM** 26.5 M
HEIGHT 30.1	**MASS** 19,980 MT
OPERATIONAL UNKNOWN	**RELEASE DATE** 2005.25
Authorized for release by Star Fleet Bureau of Starship Construction	

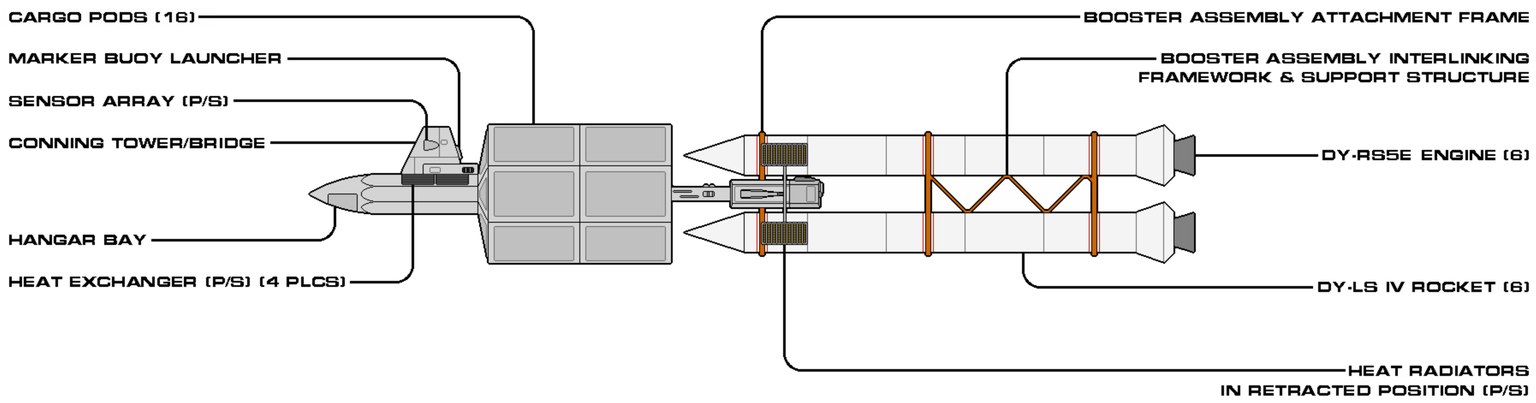
DY-A3 LAUNCH SYSTEM

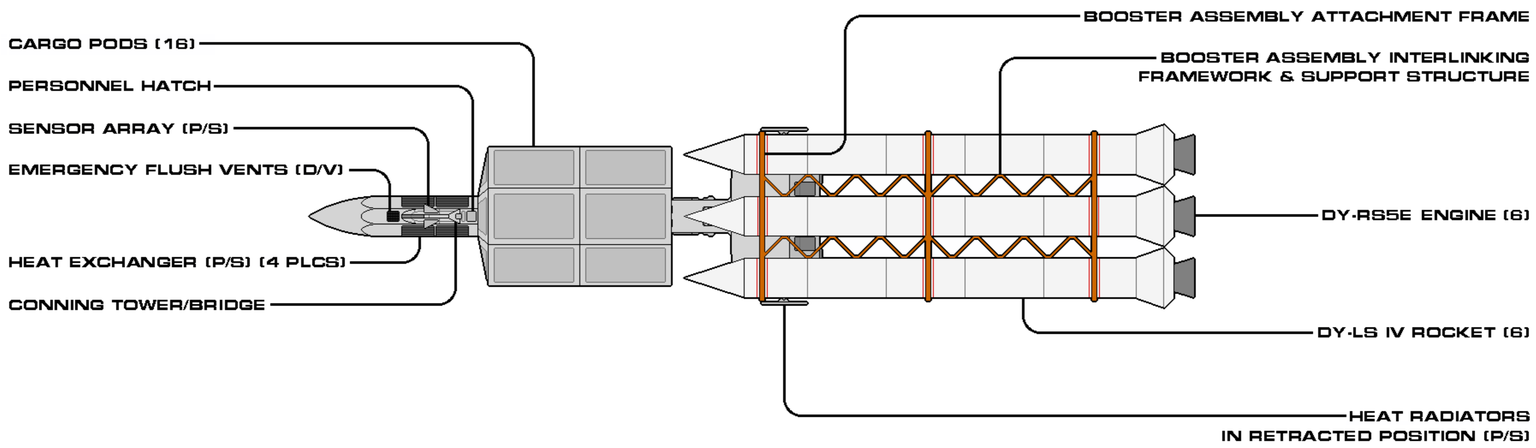


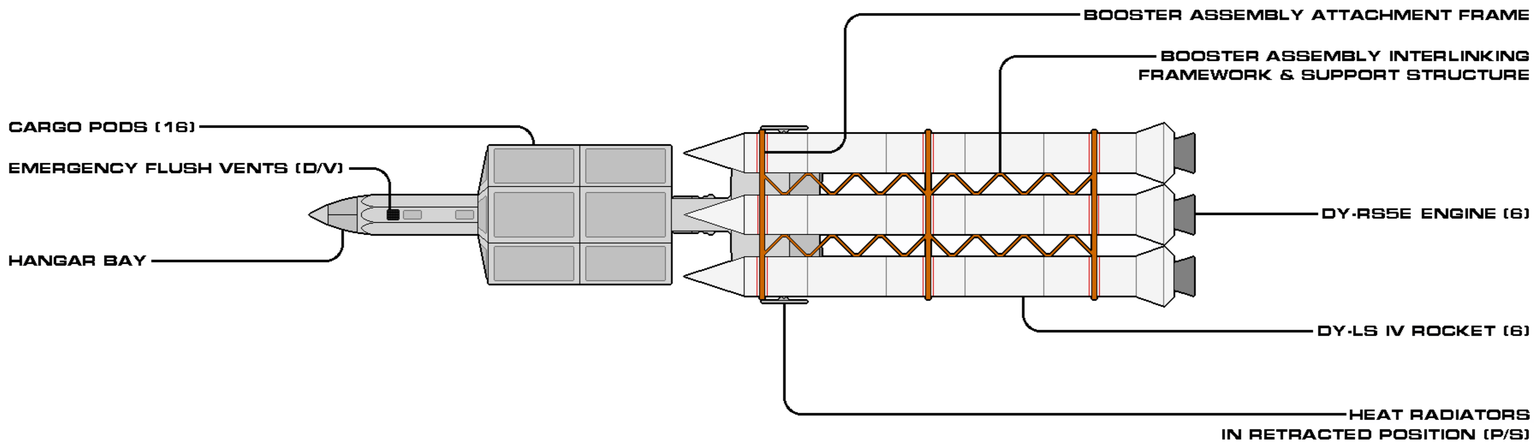
GENERAL INFORMATION

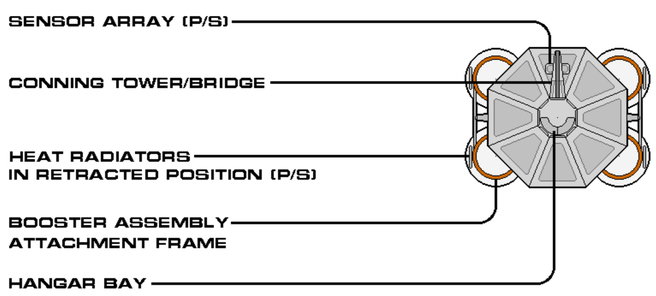
In 1994, the DY-A3 launch boost assembly was introduced, to lift what would be the final production run of the DY-100s and their DY-110 Apex cousins. By this time, there was no need to impress potential client agencies with the capabilities of the transports, but Dinyan-Yoyodyne maintained the objective of launching 10,272 metric tons of spacecraft and fully-loaded cargo containers for the sheer mastery of the challenge. Additionally, with such a capable launch boost system, the 780-ton DY-B2 interplanetary module—previously married in orbit—could now be attached on the ground, saving both a preceding DY-T launch and several days of orbital preparation, prior to the first transport run. Operated exactly as the DY-A2, this booster stood out with its six DY-RS5E engine-equipped rockets mated onto a more spacious attachment frame, connected directly to the propulsion module. The plan was to use this heavy lift capability for a few years, until orbital, lunar, and asteroidal production facilities made Earth a less-viable alternative source of spacecraft. However, their end came much sooner than the Augments expected, when the Great Khanate—and its grasp on the planet—suddenly became quite tenuous... and then ceased to be.

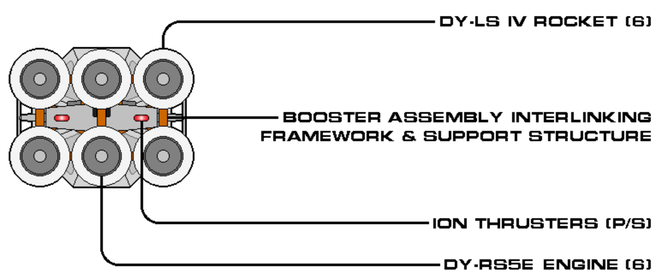
DELTA DYNAMICS
AUTHENTICATED STARDATE 2010.22





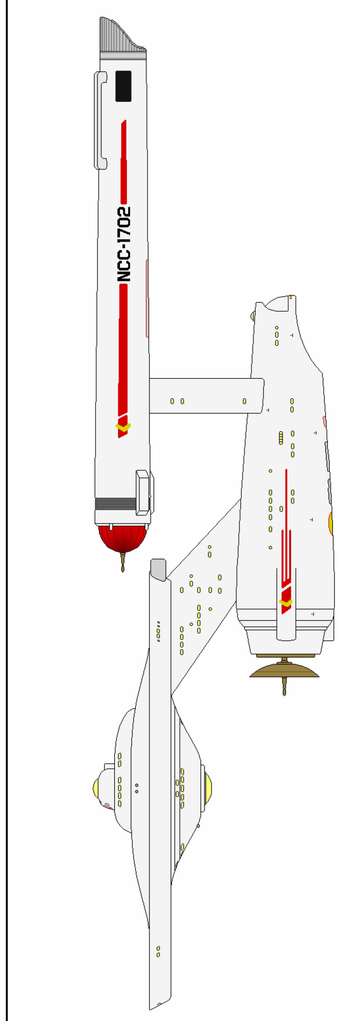


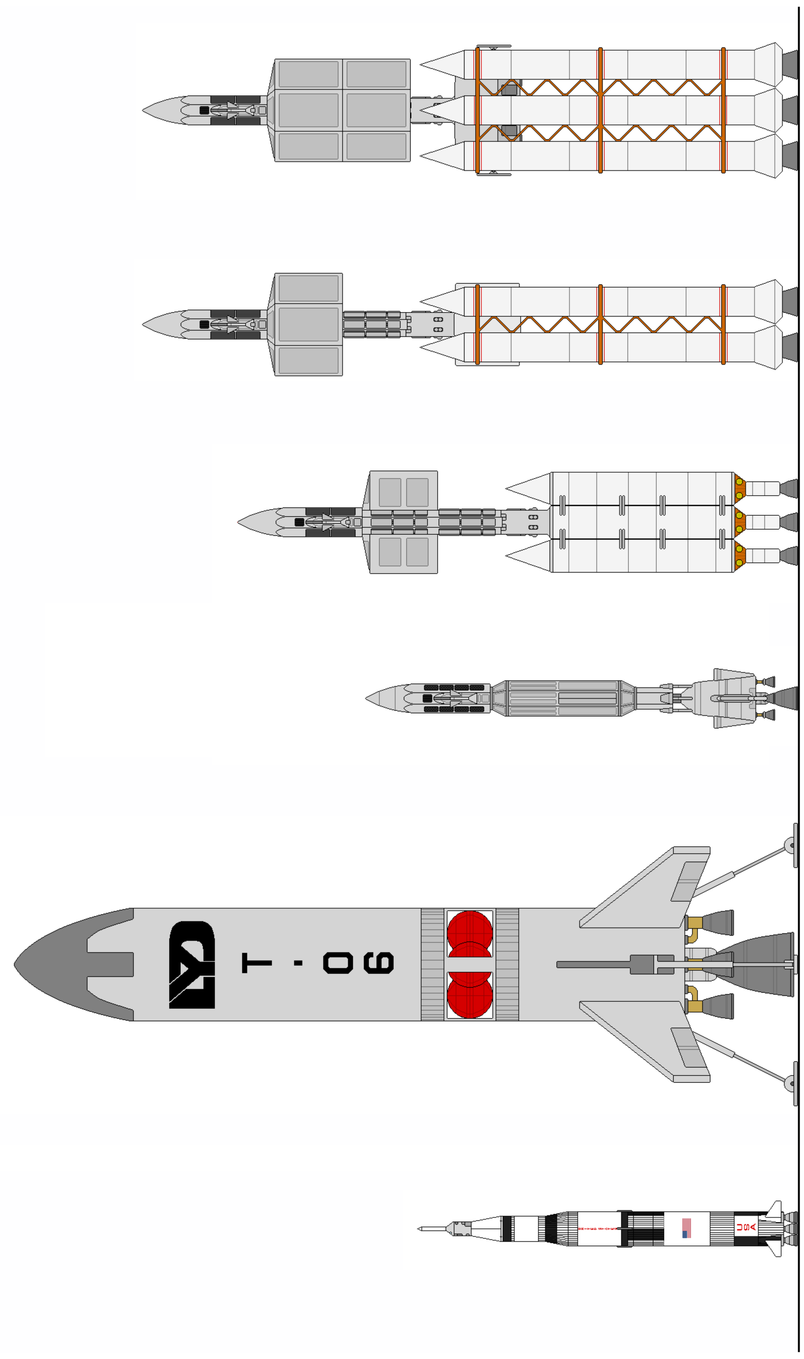




SHEET 1 OF 1

CLASS DY-A3	**CATEGORY** LAUNCH BOOSTER
VARIANT N/A	**CONSTRUCTED** 1994
LENGTH 110.2 M	**BEAM** 39.8 M
HEIGHT 29.8 M	**MASS** 29,905 MT
OPERATIONAL UNKNOWN	**RELEASE DATE** 2005.25
Authorized for release by Star Fleet Bureau of Starship Construction	





SATURN V

DY-T

CALT-25
(W/ DY-50)

DY-A1

DY-A2
(W/ DY-100)

DY-A3

BOOSTER LAUNCH CONFIGURATIONS

APPENDIX III:
GALLERY

KOREAN AEROSPACE RESEARCH INSTITUTE (KARI)

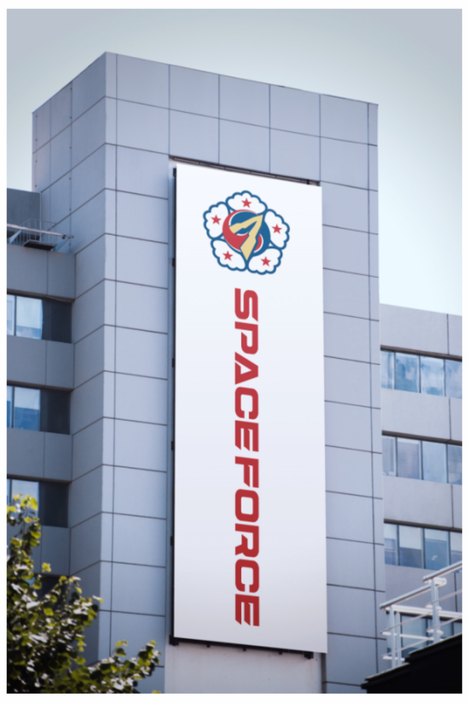
KARI 한국 항공 우주 연구원

Courtesy of Brad Wilder & The Star Trek Design Project (https://startrekdesignproject.com/)

EURASIAN CONFEDERATION SPACE AGENCY (ECSA)

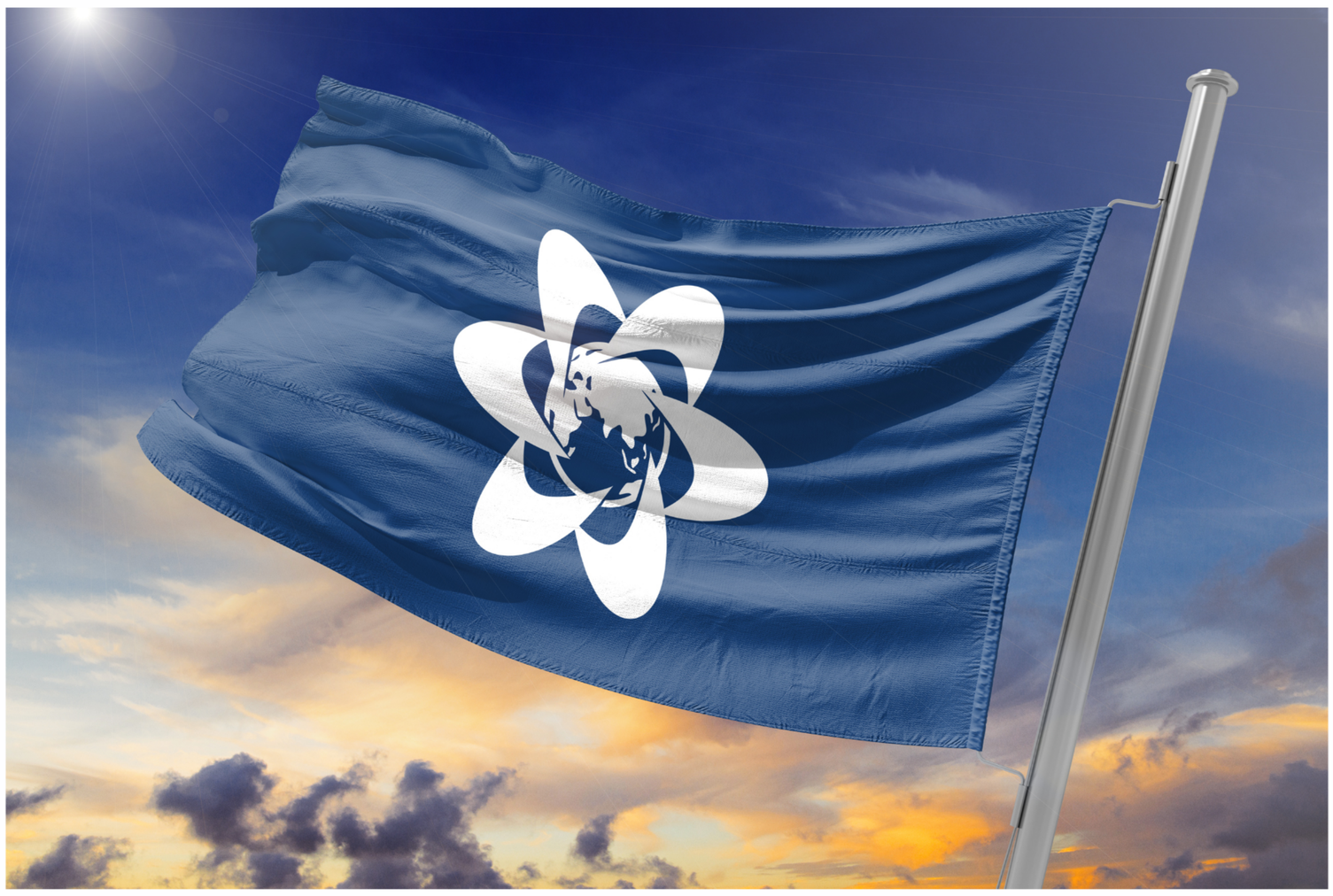
Courtesy of Brad Wilder & The Star Trek Design Project (https://startrekdesignproject.com/)

ROYAL REPUBLIC OF KOREA SPACEFORCE (RRKS)



Courtesy of Brad Wilder & The Star Trek Design Project (https://startrekdesignproject.com/)

EASTERN COALITION (ECON)



Class Timeline

1987
Production of the DY-T heavy launch vehicle begins in China.

1988
The Great Khanate, a rough organization of augmented Humans, begins to build influence on Earth.

Khan arranges the airplane accident that claims the life of Pakistan's General Muhammad Zia-ul-Haq.

Construction begins on two groundbreaking experimental spacecraft in China.

1989
The DY-T heavy launch vehicle is certified for operations.

As part of the vast number of technology breakthroughs of the time that are the result of a long international, clandestine eugenics program, two ships of the DY series are launched from the province of Xuhan in the country of China.

South Korea founds the Korea Aerospace Research Institute (KARI) as the nation's space agency.

Khan arranges the natural-appearing death of Iran's Ruhollah Khomeini.

Construction begins on the DY-100 series of interplanetary transports.

Production of the DY-A1 launch and DY-B1 interplanetary boosters starts.

1990
The DY-A1 launch and the DY-B1 interplanetary boosters are certified for operations.

The DY-110 Apex series of mission spacecraft begins construction in an exclusive contract with Great Khanate-associated operators.

Production of the DY-A2 launch booster starts.

1991
The DY-110 Apex mission spacecraft enters service with the Great Khanate, running space trials between Earth and Luna for the first 2 years.

The Saturn Dual Probe, launched in 1985, arrives at the Sol System's great Ringed Planet. Its orbiter begins making a detailed survey of the planet and its moons while a heavily shielded lander attempts to penetrate its dense atmosphere. The probe is eventually destroyed by the ever-increasing pressure; however, it relays constant telemetry on its descent up to the point of its demise.

The final crews of the DY-50 series (Shuguang and Shenzhou) depart their respective vessels.

Production of the DY-A1 launch booster ceases.

The DY-A1 launch booster is replaced in operations by the DY-A2.

1992
Khan Noonian Singh and other eugenically-enhanced superhumans take over most of Southeast Asia and the Middle East on Earth.

The eugenics origin of many people associated with the Great Khanate is dramatically made public.

NASA takes delivery of the final Space Shuttle orbiter, Endeavor (OV-105).

Khan has the Morning Star satellite launched into orbit from Muroroa Atoll.

Khan demonstrates the Morning Star's capabilities by damaging the ozone layer.

1993
The advent of the DY-B2 booster allows the Apex series to begin missions to Venus and Mars.

The Great Khanate successfully lands a man on Mars for the first time.

The first of twenty interplanetary missions are launched from Earth, mostly to Mars, through 1996.

Scarbak Propulsion Systems, a manufacturer of impulse engines and reaction control systems, is founded in Cairo on Earth.

With the signing of the Maastricht Treaty, the European Union is formalized.

Vasily Hunyadi attempts to assassinate Khan, with the resulting earthquake killing over 10,000 in the Maharashtra region.

1994
The Great Khanate successfully lands a man on Venus for the first time.

The published research of Miguel Alcubierre proves that faster-than-light travel is possible even given the physical laws of our space-time continuum. His paper, "The Warp Drive: Hyper-fast Travel Within General Relativity," is published by the University of Wales. It causes a sensation among the leading Terran space scientists of the day. Practical applications of Alcubierre's theories are decades in the future, however, given Earth's current technology and the Eugenics War starting to heat up.

Khan's and Hunyadi's forces fight an undersea battle in the Mediterranean.

Khan acquires the flesh-eating strain of Streptococcus-A.

The Army of Eternal Vigilance (AEV) attempts to attack the Eurotunnel with sarin gas, but is stopped.

Khan's attempts to unify the Augments backfires, instigating the Eugenics Wars.

Hunyadi defiantly addresses the UN in Geneva, when the AEV gasses the council chambers in order to assassinate him.

Class Timeline

Khan begins testing the Streptococcus-A virus on human subjects.

The DY-50 vessels Shuguang and Shenzhou are de-orbited into Earth's South Pacific Ocean Uninhabited Area.

Production of the DY-A2 launch booster ceases.

Production of the DY-A3 launch booster starts.

The DY-A2 launch booster is replaced in operations by the DY-A3.

1995
The Great Khanate begins construction of a manned base on Mars.

Khan acquires over 200 Soviet-era bio-ready warheads, as part of a doomsday plan.

Muroroa Atoll is attacked by a combined Russian-American strike and is destroyed by a nuclear weapon.

The final DY-110 Apex mission spacecraft is completed for the Great Khanate.

Production of the DY-T heavy launch vehicle ceases.

1996
The last of the Khanate's twenty interplanetary missions are launched from Earth, mostly to Mars.

The Great Khanate's Mars colony fails.
The Eurasian Confederation, incorporating Russia and former Soviet satellite nations Afghanistan, Kazakhstan, Kyrgyzstan, Mongolia, Tajikistan and Uzbekistan, is founded, in order to combine natural and technical resources and get a foot in the door of the space-faring nations club.

Khanton falls, with Khan Singh and 84 followers escaping undiscovered the next day on a DY-100 they had held in reserve.

Construction of the DY-100 series of interplanetary transports is suddenly halted by the dramatic disruption of the Eugenics Wars.

2009
The Aventeur I mission (also known as the first of the Grand Tours) launches from Earth with the Lewis and Clark, with Christopher, Fontana and O'Herlihy in deep cryosleep.

The democratic nations of Arabia, Palestine, Syria, Iraq and Iran form the Muslim Bloc.

New Constantinople, the second L-5 "space city," is completed and opens its doors. It will become a haven for disaffected Middle Eastern cultures.

2014
The Lewis and Clark arrives at and studies Jupiter, with the first manned visit to the planet.

The New United Nations passes the Space Homestead Act, which opens the Sol system's inner asteroid belt for colonization by anyone with the means to get there. This marks the beginning of the first great Space Land Rush.

2020
The Lewis and Clark arrives at and studies Saturn, the first manned spacecraft to visit the planet. The crew discovers evidence of extraterrestrial mining on the moons of Enceladus and Dione (although this is not released until 2039).

The Western Alliance provides the military command structure for the New United Nations, giving it extraordinary political power.

Construction starts on the DY-120 series interplanetary transports.

2021
The DY-100 interplanetary transport re-enters production at multiple facilities around the world, most notably in the ECSA, United States, and China.

The DY-120 interplanetary transport series is commercially sold to numerous governments, corporations, and private individuals.

The Class A2 / Mars Century SP-W03 'Zent' EVA pod enters service with several (and then most) space-going nations, their agencies, and corporations.

2022
The subspace dimension is discovered, though as yet there is no means to tap its potential.

Construction starts on the DY-120 Brenton class mission spacecraft.

2023
The DY-120 Brenton mission spacecraft enters service with the International Space Agency.

2028
The final DY-100 interplanetary transport is constructed on Earth.

2032
Zefram Cochrane is born in St. Paul, Minnesota.

The Ares series spacecraft Guan Yu conducts the Ares III mission to Mars, the thirteenth successful manned sortie to reach that planet.

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.

2035
The multi-national manned prototype AFP-1 experiments with an e-beam pulsed fusion detonation drive, but meets with disaster; 14 lives are lost.

The Central African States are formed from 10 central nations.

Class Timeline

Construction starts on the DY-130 series of interplanetary transports.

2036
The New United Nations declares "no Earth citizen can be made to answer for the crimes of their race or forebearers".

The Class A3 / Mars Century SP-W04 'Zent Mk II' EVA pod enters service with several nations, their space agencies, and corporations.

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.

After a prolonged effort to re-establish communications with the Daedalus, brief telemetry contact with the monitoring systems reveals a series of onboard fires and subsystem failures. Soon thereafter, the ship vanishes in the inner Oort cloud, and is presumed destroyed.

The first of more than 400 interceptors are launched into orbit.

The installation of defensive glass bead emitters onto DY-120 Brenton mission spacecraft begins.

2037
Following the lead of the Central African States, the nations in the northwestern part of the continent form the Northern African Alliance.

Tau Two, the Betelgeuze, launches for the heliopause.

Tau Three, the Charybdis, launches for the heliopause.

Tau Four, the Phlebas, launches for the heliopause.

The DY-130 interplanetary transport enters service with Maersk Space Freight. Serious shiphandling issues arise almost immediately.

Production of the sixth DY-130 interplanetary transport is abruptly halted.

2038
Contact with the Charybdis is lost, following indications from telemetry that the spacecraft is at a velocity 12x that necessary for solar escape (i.e., 1.68% of c).

Maersk Space Freight abruptly withdraws from its lease contract with Yoyodyne Propulsion Systems, implicitly condemning the DY-130 interplanetary transport.

Tau Five, the Jacob, launches along the same track as the Charybdis, in order to discover what might have happened to that mission.

Construction begins on the DY-140 Helsinki class mission spacecraft.

2039
The Lewis and Clark returns to Earth from the Aventeur I mission. The evidence of extraterrestrial mining on Saturn's moons is released to select space-exploration nations.

The DY-140 Helsinki mission spacecraft enters service with the International Space Agency.

2040
The UNSS Columbus, first in a series of interstellar sublight explorers, launches for Saturn on a test run.

The Mediterranean Alliance forms.

The Vegan Tyranny is destroyed, resulting in the extinction of the Vegans.

The refitting of the DY-130 interplanetary transport SS Black Mamba to ISA specifications begins.

2042
The refitted DY-130 interplanetary spacecraft re-enter service as the DY-135 Black Mambas with the International Space Agency.

2043
Betelgeuze returns to Earth.

The final DY-140 Helsinki mission spacecraft is completed.

The final DY-130 interplanetary transport is converted to the ISA's DY-135 Black Mamba class.

Production of the DY-140 commercial interplanetary transport begins.

2044
The DY-140 interplanetary transport enters passenger service with numerous cruise and ferry operators.

2266
Augment leader Khan Noonien Singh's escape from Earth is discovered when his ship is found adrift in space in the distant Mutara sector.

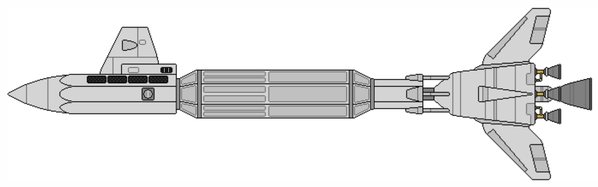
Klingon hostilities peak.

USS Ball (NCC-1691, Flagstaff scout drone) distinguishes herself by rescuing the crew of prospector SS Malverne.

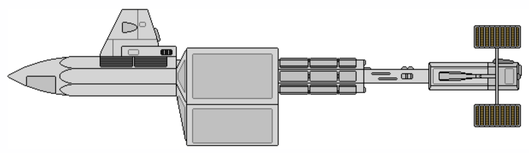
The Federation class dreadnoughts enter a heightened operational readiness, in anticipation of Klingon hostilities; they'll practice offensive, as well as defensive, maneuvers until mid-2267 and the abortive Klingon invasion.

The United Federation of Planets extends membership to Delta IV.

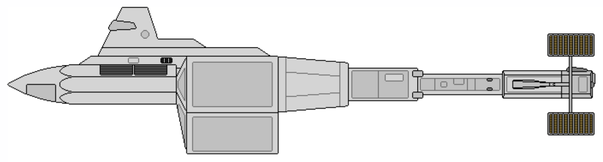
Ship Comparison Guide



DY-50
EXPERIMENTAL TRANSPORT

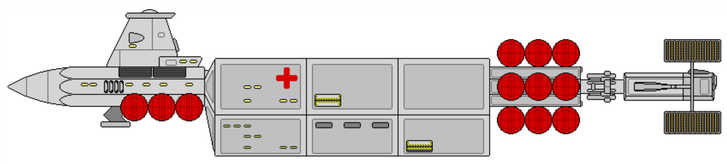


DY-100
INTERPLANETARY TRANSPORT

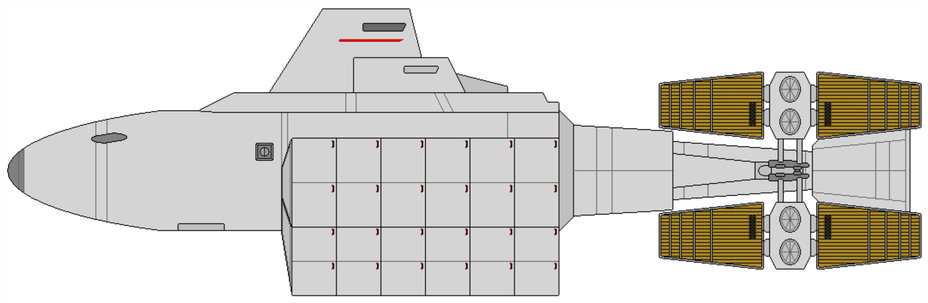


DY-110 APEX
MISSION SPACECRAFT

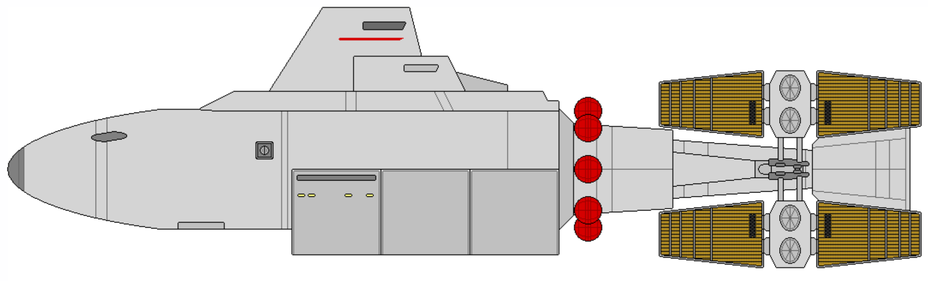
DY-120
INTERPLANETARY TRANSPORT



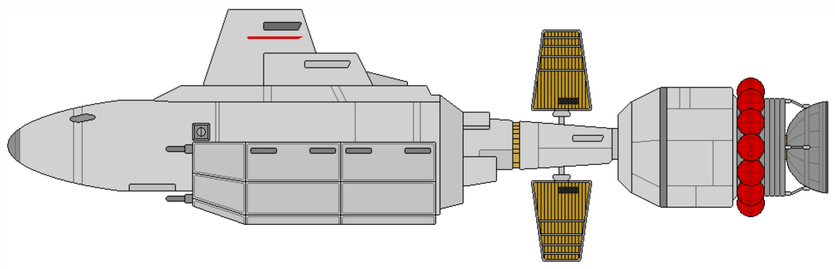
DY-120 BRENTON
MISSION SPACECRAFT



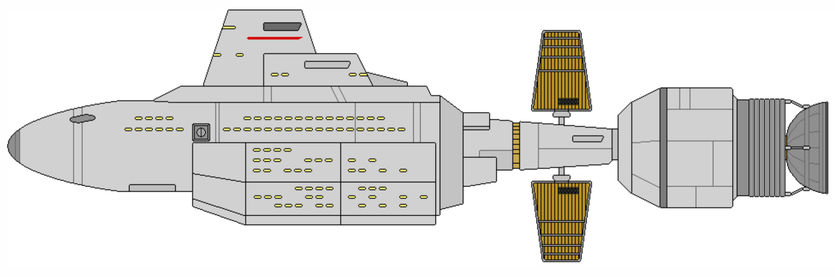
DY-130
INTERPLANETARY TRANSPORT



DY-135 BLACK MAMBA
MISSION SPACECRAFT



DY-140 HELSINKI
MISSION SPACECRAFT



DY-140
INTERPLANETARY TRANSPORT

Note: ships are presented here in numerical, rather than the standard chronological, order for the purpose of better relational comparison.

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.

Corvette: Small warp-capable ship dedicated to local patrol, law enforcement and community service missions. Sometimes landing-capable, not dependent on starbase facilities for support.

Cruiser: A medium multi-purpose starship. The largest exploration vessels until the early 24th century, when relegated to other duties with the introduction of large Explorer starships.

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.

Destroyer: A medium offense starship intended for destroying enemy capital ships and installations, as well as conducting fleet escorts.

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.

ECS: Earth Cargo Ship, a prefix for vessels flagged under the governing authority of the Earth Cargo Service.

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

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.

Flight: A modification to a class of ship intended to be incorporated by most or all members of that class.

Frigate: Until the late 22nd century, a dedicated medium defense and escort starship, larger than corvette but smaller than destroyer, often capable of trans-atmospheric operations. In the 23rd century and into the early 24th century, often used to designate defense and escort starships ranging from small patrol and escort ships typically lacking torpedo armament to versatile multipurpose ships similar to light cruisers.

FTL: Faster Than Light

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.

GLOSSARY (CONTINUED)

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.

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.

Ishakawa-Dell Barrier: The exponential growth in the power required by early warp nacelles as FTL speeds approached warp factor 6 (on the OCU scale).

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.

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.

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.

Moon: the pre-modern 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.

NCC: Letter prefix in UFP Starfleet vessel registries, anecdotally said to come from the term Naval Construction Contract. Current usage has letter N signifying UFP registry, and CC signifying active Star Fleet forces.

Nearspace: The region of the Federation considered to be internal, fully charted, and uncontested.

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.

GLOSSARY (CONTINUED)

OCU: Original Cochrane Units, representing the original warp scale, where the warp factor cubed was the velocity in c, the speed of light.

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

Particle Cannon: A primary or secondary weapon on some early space vessels, though generally replaced by phaser technology. The weapon accelerated charged or neutral matter (or antimatter) particles to relativistic speeds. Also commonly known as phase cannons.

Phase Cannon: (see Particle Cannon)

Phaser: A directed-energy/particle weapon in common use aboard Star Fleet vessels, as well as other UFP and foreign fleets. Based upon rapid nadion effect, it generates a wide-band particle beam utilizing both electromagnetic and subspace components.

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

Plasma Cannon: A projectile weapon in common use aboard early space vessels. A sublight weapon, the cannon generates, contains, and directs the release of ionized matter. The weapon is often complemented by particle and/or laser weapon systems.

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

RRKS: 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).

Scout: A small to medium, fast research and/or reconnaissance space vessel, equipped with extensive sensor and research equipment. Though protected by defensive energy weapons, most substitute probe launchers for torpedoes.

Shuttle: An auxiliary craft usually carried by larger vessels for orbit-to-ground transportation or detached operations. Also used for starbase liaison duties.

Shuttlepod: Very small auxiliary craft used for ship-to-ship or orbit-to-ground transportation, free-space maintenance, and repair work, and detached operations of a very limited nature. Usually not equipped with a warp drive.

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.

Star Fleet: The primary exploration and defense organization of the UFP. Formed in 2161 to protect the integrity of the Federation and the safety of its members and to expand the knowledge of the member cultures.

Starfleet: Short-hand name for the United Earth Starfleet (UESF), the primary exploration and defense organization of United Earth 2033-2161. Not to be confused with the UFP Star Fleet. Renamed Earth Fleet upon the formation of the United Federation of Planets.

STL: Slower Than Light (also known as sublight).

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.

Tender: An auxiliary vessel specifically designed for deep space replenishment and support of starships and other vessels. While often equipped with a tractor device, the inability to efficiently tow another vessel in warp distinguishes the tender from a tug.

GLOSSARY (CONTINUED)

TNG: Terrance-Neltorr Graduated scale where upon each full warp factor is achieved when a certain number of cochranes were met in output, resulting in more efficient engine plateaus. In this scale, Warp 10 is unattainable.

Torpedo: The general designation for warp-capable guided projectile weapons, in contrast to sublight-only guided missiles.

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.

Tug: 1) A warp-powered ship specifically designed to extend her warp field around objects that can thereafter be towed at warp speeds. Primarily used for the carriage of transport pods and towing of disabled starships or other equipment lacking appropriate motive capabilities. 2) A craft designed to propel ships or equipment lacking motive power about a limited area of operation, such as a space dock or construction site. May also refer to such a vessel intended to assist ships maneuvering within and in the vicinity of docking facilities.

TW: TerraWatt

Tyme Barrier: The exponential growth in the power required by early warp nacelles as FTL speeds approached warp factor 7 (on the OCU scale).

UEDP: United Earth Defense Pact. Formed by the NUN in 2069 to put the "Earth's ascendancy and safety ahead of national goals". Tasked with the combined command and control of the planet's various armed forces, it became the de facto world government upon the NUN's second dissolution in 2079, until superseded by the United Earth government in 2130.

UES: United Earth Ship. Ship prefix for the names of vessels of the UESN.

UESF: (see Starfleet)

UESN: United Earth Stellar Navy. Predecessor to the UESF. Formed under the authority of the United Earth Defense Pact in 2069.

UESPA: United Earth Space Probe Agency. Formed by the NUN in 2067, relieving the ISA of the coordination and development of human presence in interstellar space. Re-purposed as the exploration arm of the NUN in 2069.

UESS: United Earth Space Ship. Ship prefix for the names of vessels of the United Earth Starfleet.

UFP: United Federation of Planets. Formed in 2161 by a coalition of United Earth, the Andorian Empire, Tellar, Alpha Centauri, and the Confederacy of Vulcan, following the Romulan War.

UFP SF: (see Star Fleet)

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.

USS: UFP Star Fleet Starship. Ship prefix for the names of Star Fleet vessels, emblazed on ship hulls (along with the ship's registry number). Commonly abbreviated as "United Starship" in verbal communication, although the expressions "United Spaceship" and "Federation Starship" are also frequently used.

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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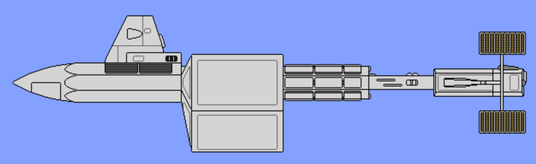

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