



OBERTH

DORSAL VIEW

PROTOTYPE NX-602

EXTERNAL VIEWS SHEET 1/7
SPECIFICATIONS

SPECIFICATIONS

Particulars

Vessel Class Oberth
Identification NX-602
Type Research Cruiser

Spaceframe

Overall Length 150 meters
Overall Beam 77.5 meters
Overall Draft 42.5 meters
Decks 11
Displacement 2.55×10^5 tons

Crew & Auxillary Systems

Complement 8 Officers
63 Enlisted
Transporters 2 6-personnel
2 Cargo

Information Systems

Computer Core 1 Multitronic Processor

Warp Systems

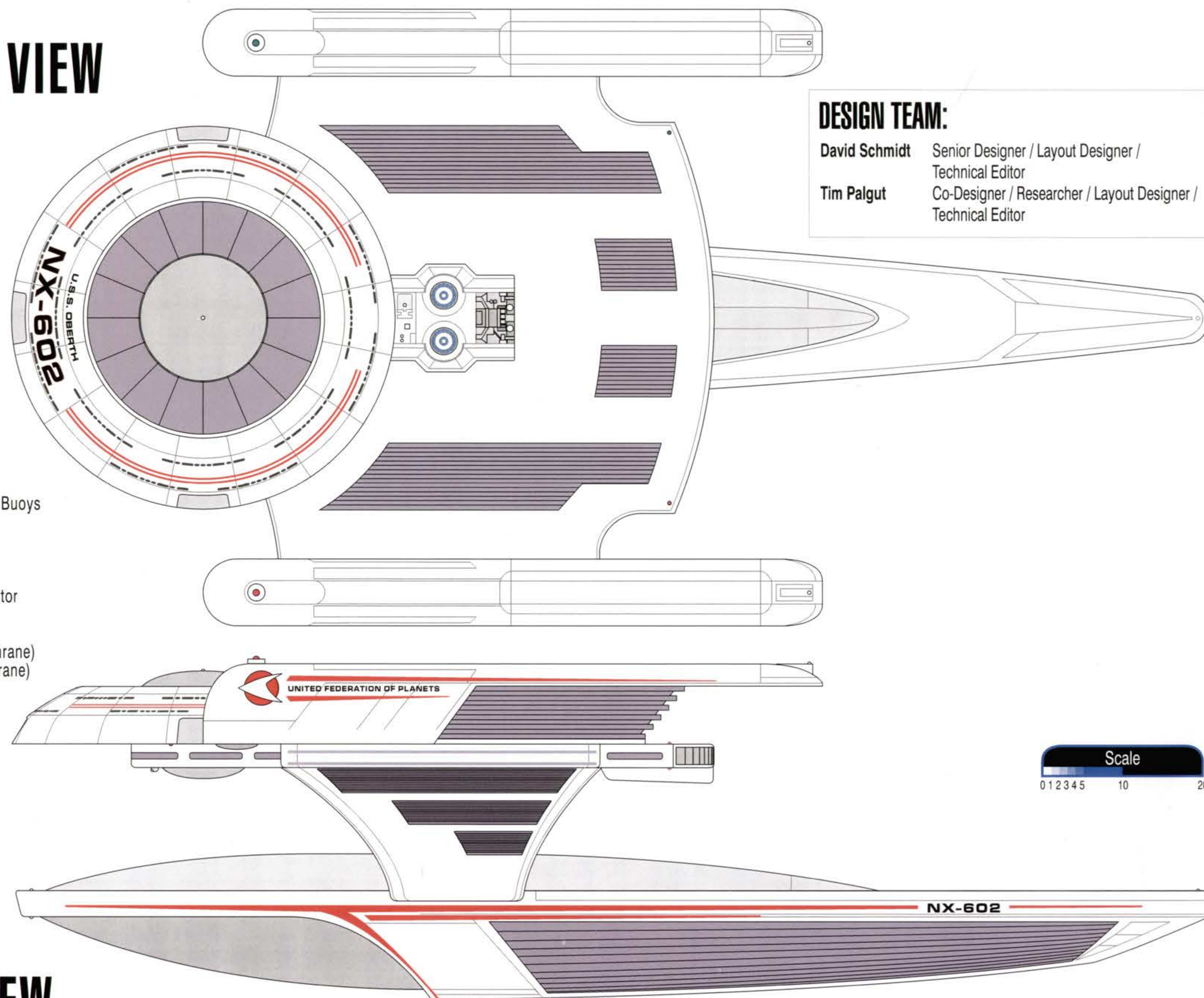
Power Matter / Antimatter Reactor
(2.5×10^8 terawatt)
Cruising speed wf 5.0
Flank speed wf 6.0 (Sustainable for 12 hours)
Burst speed wf 6.4 (Sustainable for 1 hour)

Impulse Systems

Power 2 deuterium fusion reactor
(5.2×10^{10} megawatt)
Vector nozzle 2 Aft
Cruising speed 0.25 c
Flank speed 0.90 c

Tactical Systems

Phaser 2 - Type VIII turret
Torpedo Tube 1 Aft -Type 5f (buoy capable)
Magazine Aft 80 Mark VI Photon Torpedoes
36 Type 5k Communication Relay Buoys
Grid 4 Deflector Shield Generator
(rated 1.15×10^3 mw - standby /
 2.69×10^3 mw - alert /
 4.73×10^5 mw - 0.0017 Sec.)
4 Structural Integrity Field Generator
(rated 2.23×10^3 mw)
Deflector 2 - Forward
(0.9×10^2 megawatt - 90 millicochrane)
Tractor beam 1 Aft (8 megawatt - 225 millicochrane)



DESIGN TEAM:

David Schmidt Senior Designer / Layout Designer /
Technical Editor
Tim Palgut Co-Designer / Researcher / Layout Designer /
Technical Editor

PORT VIEW

OBERTH

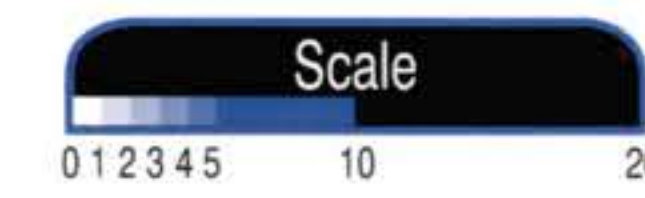
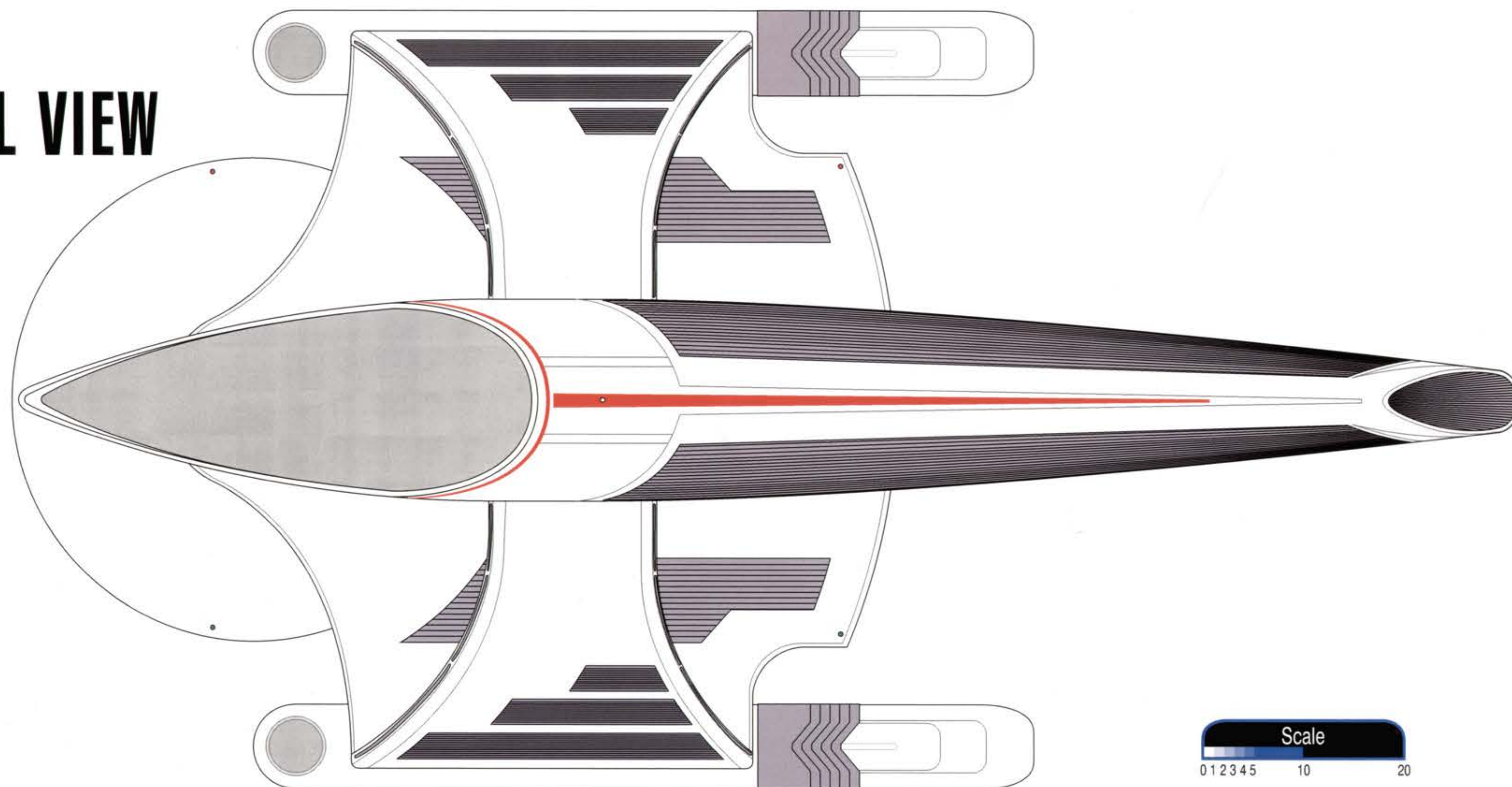
PROTOTYPE NX-602

EXTERNAL VIEWS SHEET 2/7

SPECIFICATIONS

DESIGN HISTORY

VENTRAL VIEW



DESIGN HISTORY

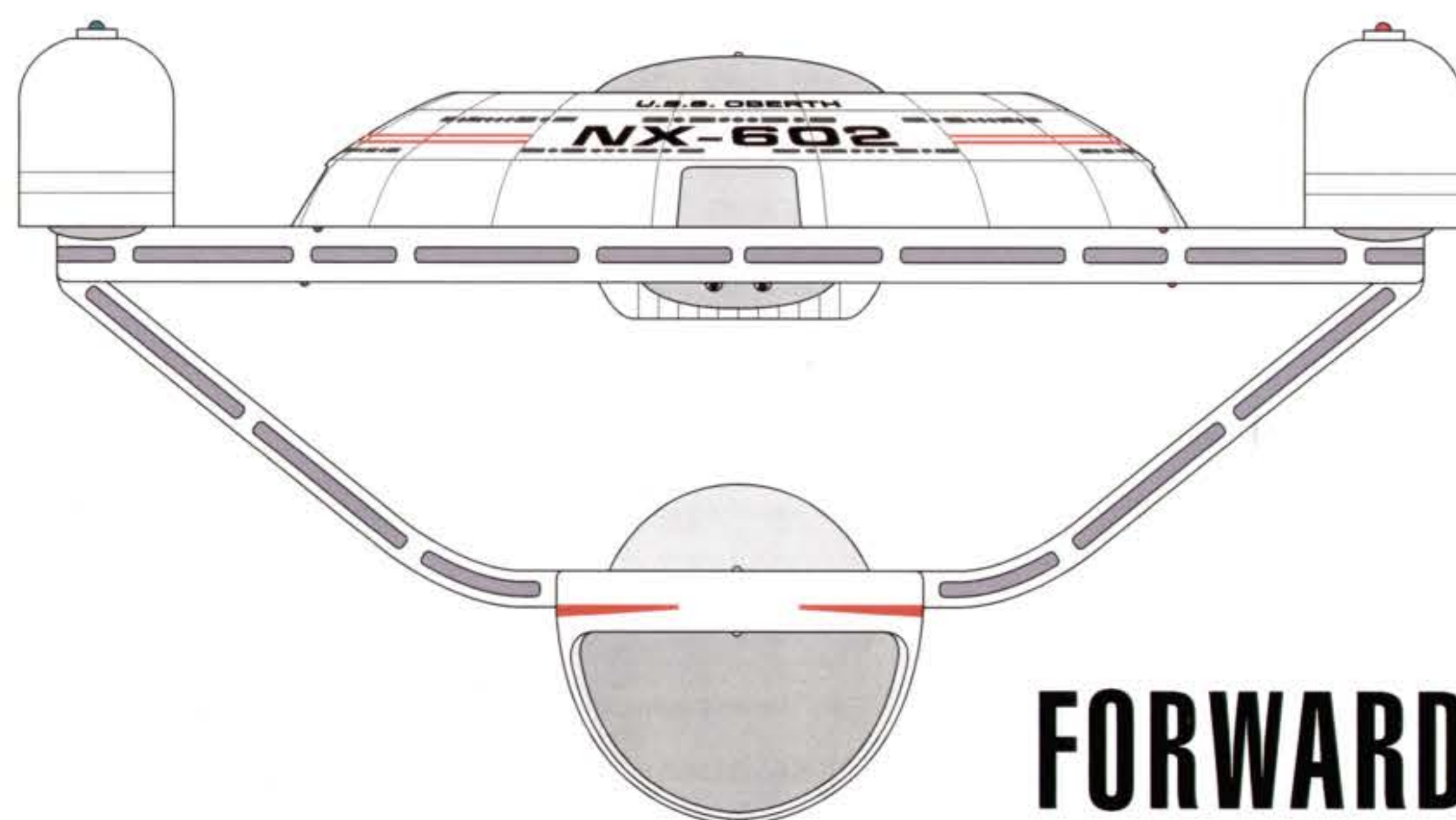
In 2270 - faced with the escalation of the Klingon/Romulan-Federation cold war - the majority of Starfleet's 'Capital Ships' of-the-Line' (Class I Starships based upon the Constitution & Knox Primary Hulls) were called up for patrol/picket duty along the neutral zone and within major sectors of the Federation. This faced Starfleet with a quandary; although its stated 1st mandate was exploration (the 2nd being defense), the stated 2nd mandate was drawing essential starships from the 1st. Accordingly, the Class II Starship was created to supplement in less military missions.

The Class II Starship is based upon an Integral Hull Design - comprised of a hemispheric Main Hull-portion and a plate-like Support Hull-portion.

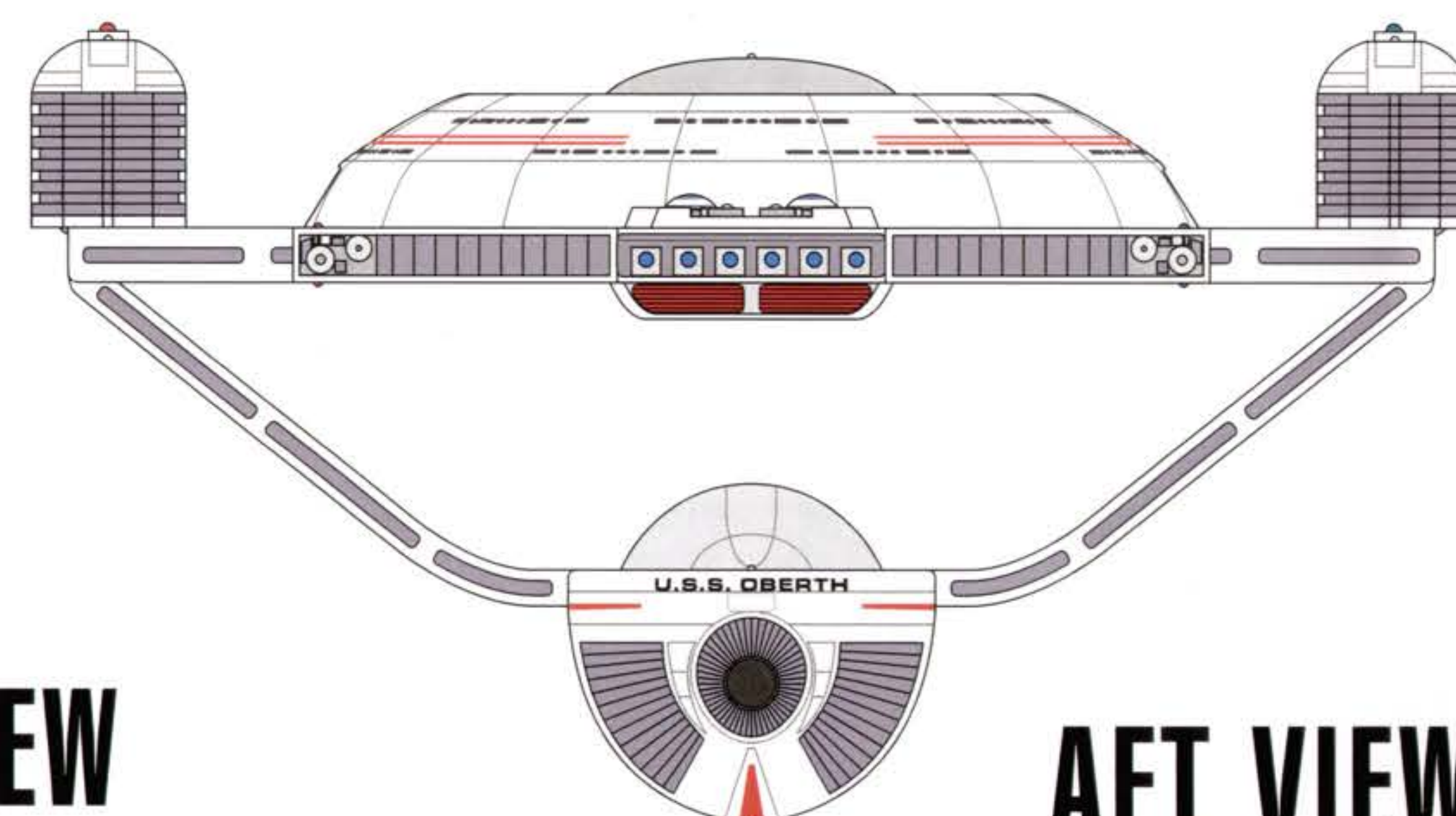
A major innovation in the Class II Starship is the Outrigger Hull-module. Since all Command/Navigation/Power & Propulsion/Personnel features are contained (some have said 'crammed') into the Integral Hull, the Outrigger Hull-module need not house any of these features and so can be entirely mission-specific in design. Thus each Class II version (there are four to date: Research Cruiser, Tug, Corvette, Clipper) is a specialist; designed and dedicated to one defined role and correspondingly inflexible/ill-suited for others.

The Outrigger Hull-module of the Oberth-class Research Cruiser has a greater volume than the Integral Hull, and is divided into 4 distinct sections. The forward section is an enormous 3-level bay enclosing the largest sensor array yet mounted on a self-propelled platform - the BX8997v. The mid section contains the transceiver/processing modules for the array. A single forward-firing photon torpedo launcher and magazine are located below this. The aft section encloses a Communications Relay Buoy Magazine, Photon Torpedo Magazine (for tactical retreat defence), and an oversized launcher for both. The fourth section is located above these three, and is comprised of two large deuterium tanks to supplement the Integral Hull's tanks - and thus extend the range of the Research Cruiser.

The first spaceframe components of the class' lead ship were gamma-welded at the Utopia Planitia Fleet Yards in 2273. On 21 February 2275, U.S.S. Oberth (NX-602) was launched from the San Francisco Orbital Yards. She immediately began shakedown trials in the home sectors, being formally commissioned on 11 October 2275.



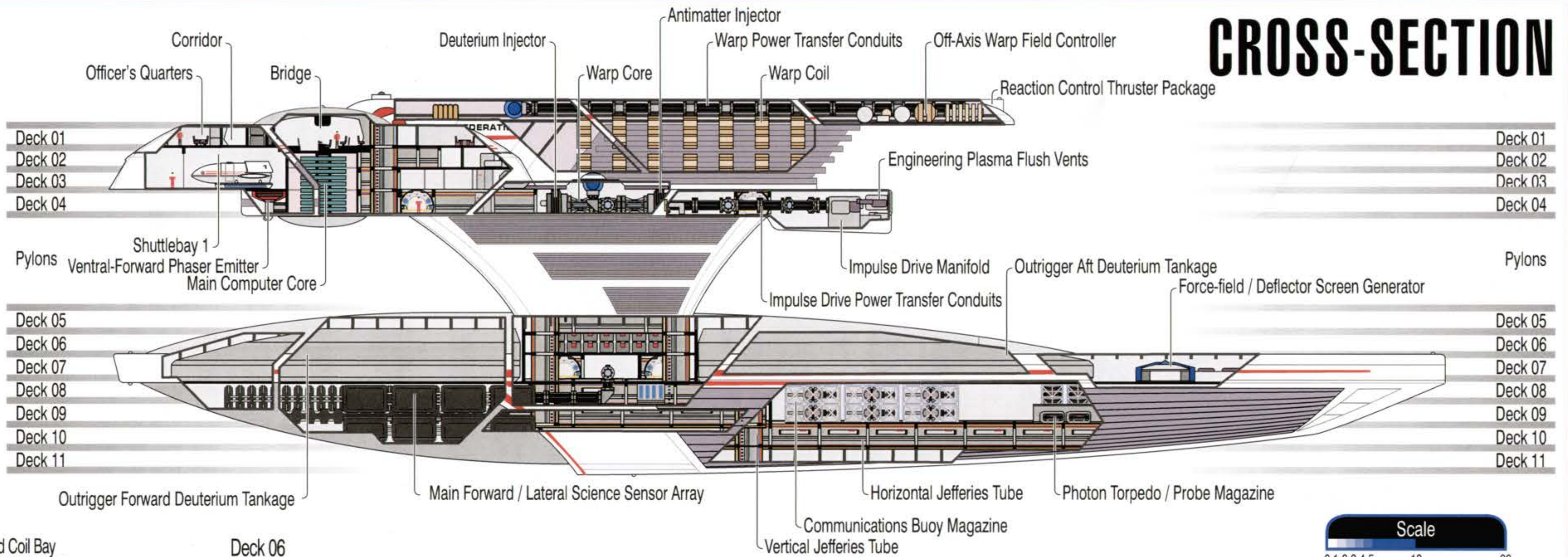
FORWARD VIEW



AFT VIEW

OBERTH

PROTOTYPE NX-602
CROSS-SECTION SHEET 3/7
DECK DIRECTORY
INTERNAL SYSTEMS



CROSS-SECTION

DECK DIRECTORY

Deck 01	1	Off-Axis Field Coil Bay	Deck 06	1	Forward Deuterium Tankage Bay (mid level)	
1	1	Navigational Deflector System	2	2	Vertical Jefferies Tube	
1	Deck 04	Ventral-Forward Phaser System Compartment	1	1	Outrigger Aft Deuterium Tankage Bay (mid level)	
11	1	Computer Core (main level)	1	1	Battery Compartment	
1	1	Food Stasis & Water Tankage Compartment	Port / Starboard Pylon	1	Buoy / Torpedo / Probe Workshop (upper level)	
Deck 02	1	Organic / Inorganic Synthesizer Raw Stock Tankage	1	1	Aft Photon Torpedo / Probe magazine Compartment (upper level)	
7	1	Deuterium Processor Compartment	1	1	Battery / Launch Tube Compartment (upper Level)	
1	1	Sickbay & Life Sciences Lab	1	Deck 09	1	Science / Cartography Sensor Array Bay (mid level)
2	1	Engineering Diagnostics Workshop	1	2	Science Sensor Processing Compartment	
1	2	Transporter Room	1	2	Vertical Jefferies Tube	
1	1	Transporter Buffer Compartment	1	1	Horizontal Jefferies Tube	
1	1	Main Engineering	1	1	Communications Buoys Magazine Compartment (main level)	
1	1	Structural Integrity Field Generator / Subspace Transceiver Bay	1	1	Buoy / Torpedo / Probe Workshop (main level)	
Deck 03	1	Structural Integrity Field Generator / Radio Transceiver Bay	1	1	Aft Photon Torpedo / Probe Magazine Compartment (main level)	
1	1	Deflector Screen Generator / Transporter Transceiver Compartment	1	1	Battery / Launch Tube Compartment (main Level)	
2	1	Synthesizer Compartment	2	Deck 10	1	Science / Cartography Sensor Array Bay (main level)
22	1	Life Support / Waste Recycling Bay	4	2	Vertical Jefferies Tube	
4	1	Impulse Engineering Compartment	1	1	Horizontal Jefferies Tube	
2	1	Impulse Manifold Bay	1	8	Battery Compartment	
2	1	Deuterium Tankage Compartment	1	1	Life Support Bay	
1	1	Engineering Plasma Flush Vent	1	1	Aft Sensor Compartment	
1	2	Deck 05	1	Deck 11	1	Science / Cartography Sensor Array Bay (sub level)
Port / Starboard Nacelle	6	Forward Deuterium Tankage Bay (upper level)	1	1	Vertical Jefferies Tube	
1	1	Vertical Jefferies Tube	2	4	Science Lab	
1	2	Horizontal Jefferies Tube	1	1	Site-to-Site Transporter Target Pad	
1	1	Outrigger Aft Deuterium Tankage Bay (upper level)	1	1	Communications Buoys Magazine Compartment (upper level)	



INTERNAL SYSTEMS

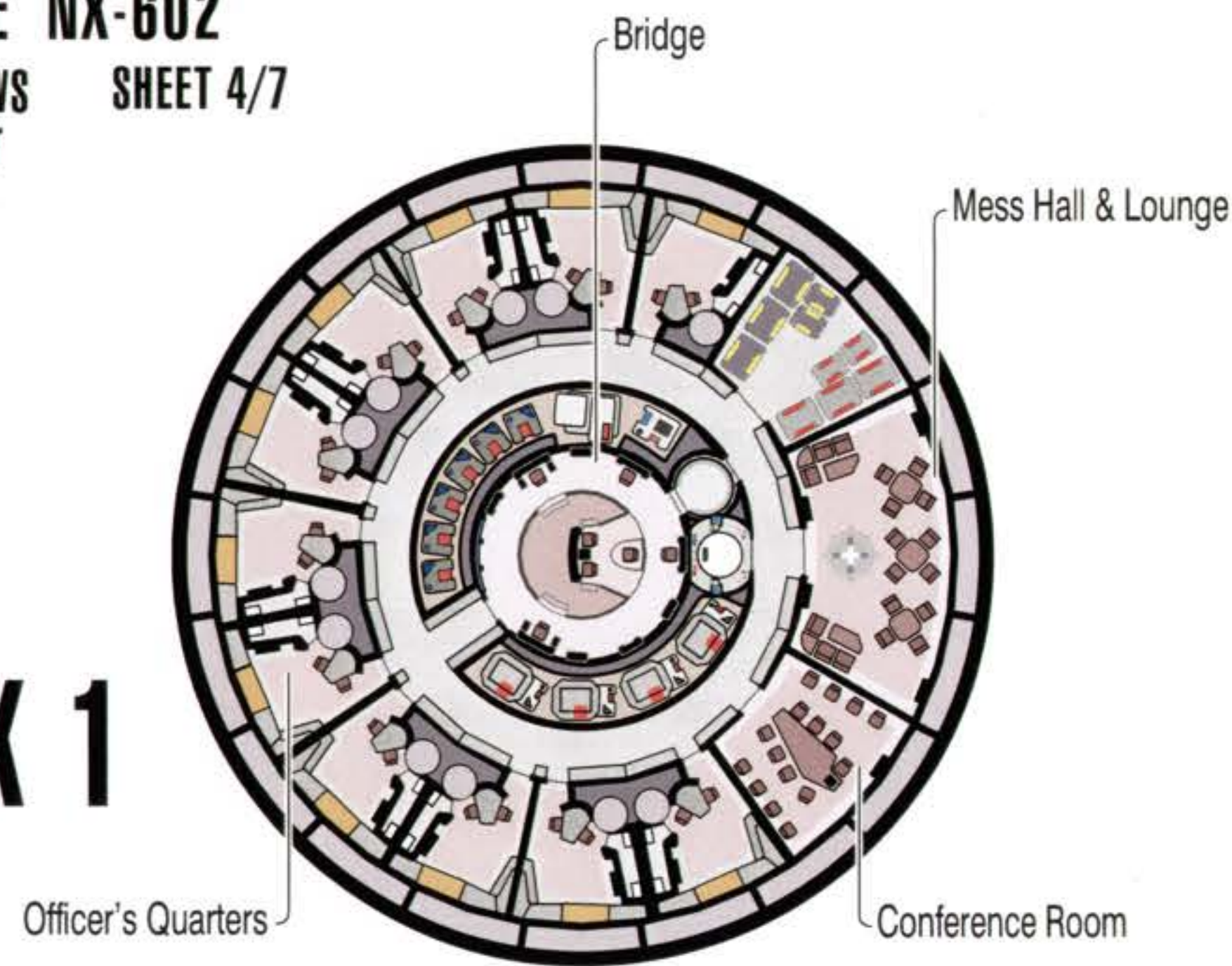
Section 1.0 Spacecraft Structure
The spaceframe of the Oberth-class starship is tritanium/duranium macrofilament truss frames, averaging 0.5 m² in cross section. These are placed at the tops of Decks 2,4,6,8 and 10 for all three axis of the ship. Smaller trusses are spaced between quarters, at hall junctions, and at the turbolift shafts, measuring 0.2 m² in cross section. This physical framework is reinforced by the Structural Integrity Field (SIF), using a network of Class 2 ceramic-polymer wave guides to distribute energy to Class 1 ceramic-polymer elements. The exterior hull substrate is poly bonded to 4 cm by 0.5 cm bands with 2 cm studs every meter that are gamma welded to the main frame.

Section 1.1 Spacecraft Hull Structure
The first hull layer is 5 cm thick and is composed of a poly microfoam with interwoven tritanium filaments (nominally 1.5 meters in width by 2.5 meters in length). The second layer is four sheets of 0.4 cm thick tritanium, each going 90 degrees to the layer above it, for torsion strength, a fifth sheet of Aladium foil is 0.4 cm thick also and used for radiation protection. The third layer is a honeycombed duranium alloy with a micro-ceramic polymer boded to each side used for thermal insulation and SIF conductivity. The fourth and outer layer is composed of a 2.0 cm ablative ceramic fabric with interwoven tritanium filaments. This is attached to a polycobhrams sheet by a chemical bonding process. This layer 3.0 meters wide by 3.0 meters in length and is attached with standard duranium fasteners to the first three layers after they are bonded together. This layer is replaced as needed, with no more than 8 years between oldest and newest sheets.

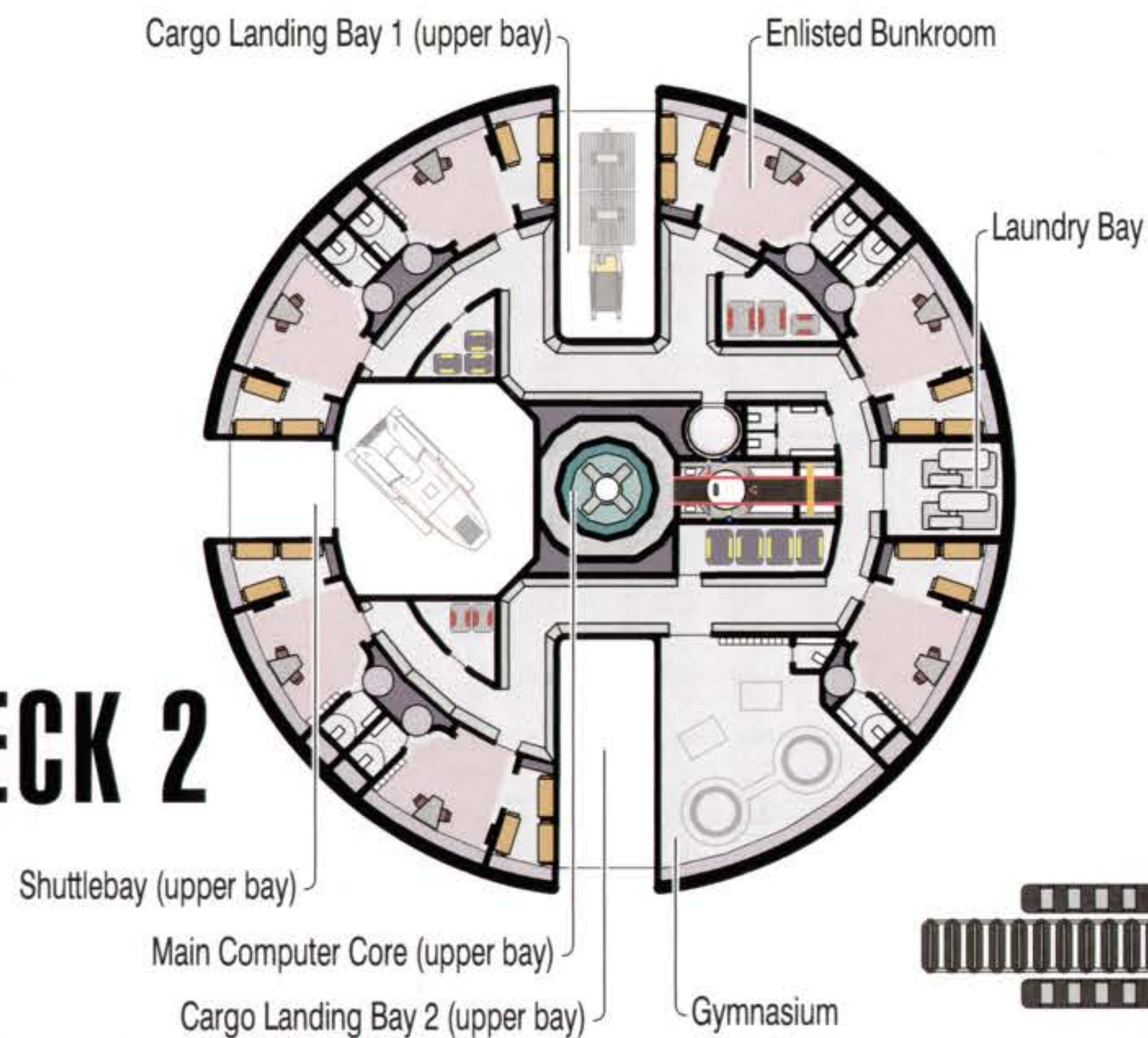
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PROTOTYPE NX-602
INTERNAL VIEWS SHEET 4/7
SYMBOL CHART

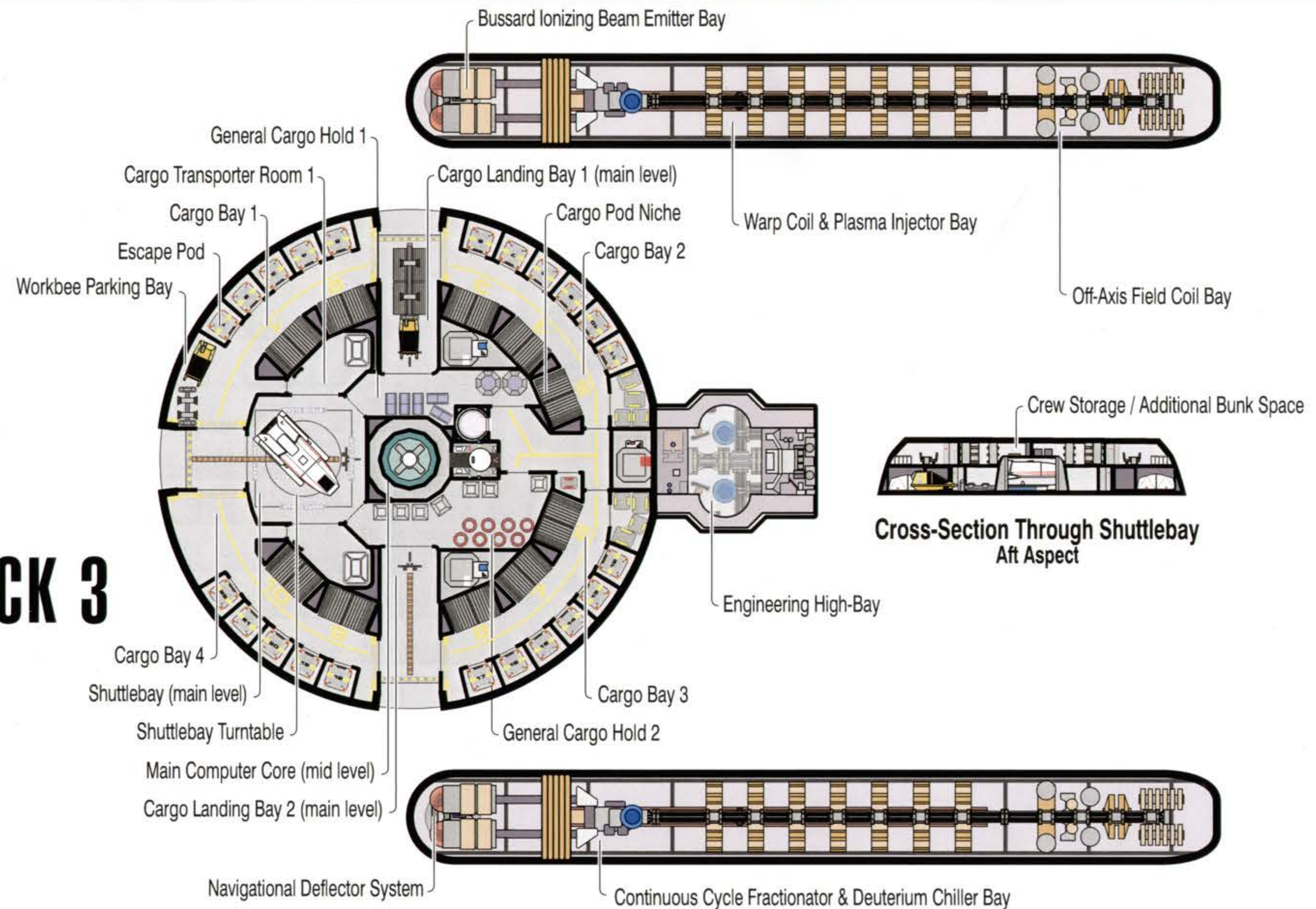
DECK 1



DECK 2

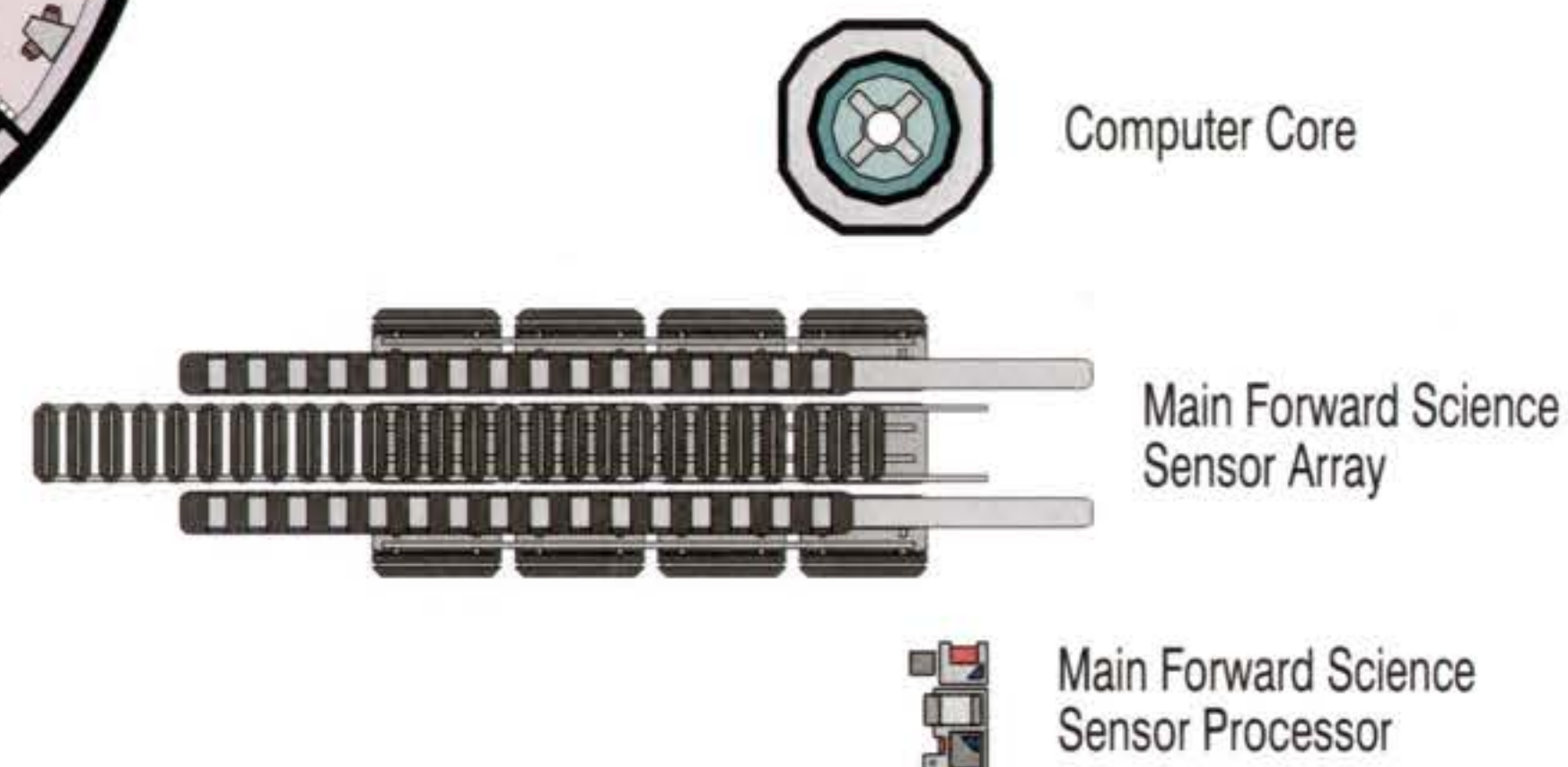


DECK 3



SYMBOL CHART

AUXILLARY ENGINEERING - INFORMATION SYSTEMS



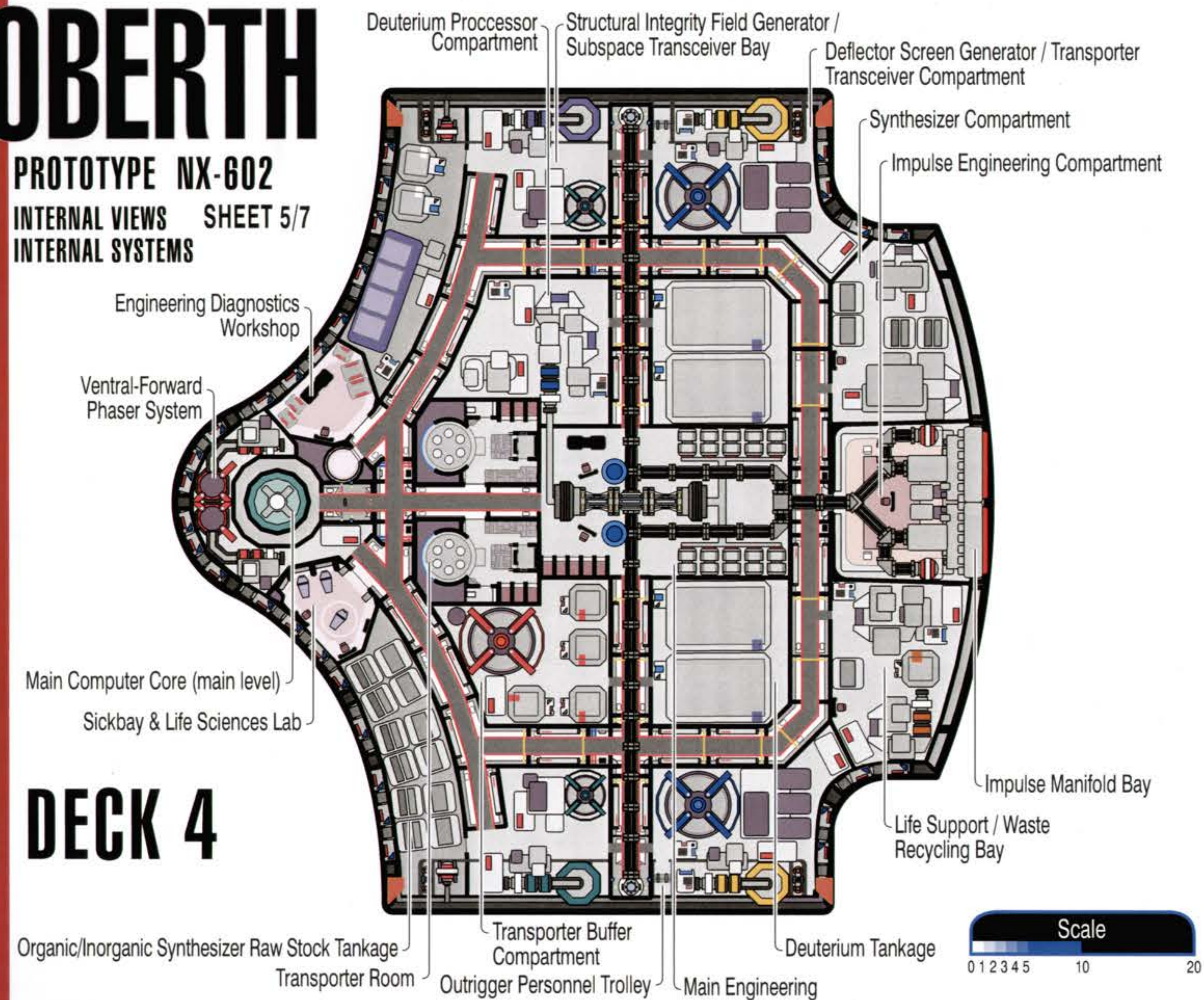
AUXILLARY ENGINEERING - COMPARTMENTS



OBERTH

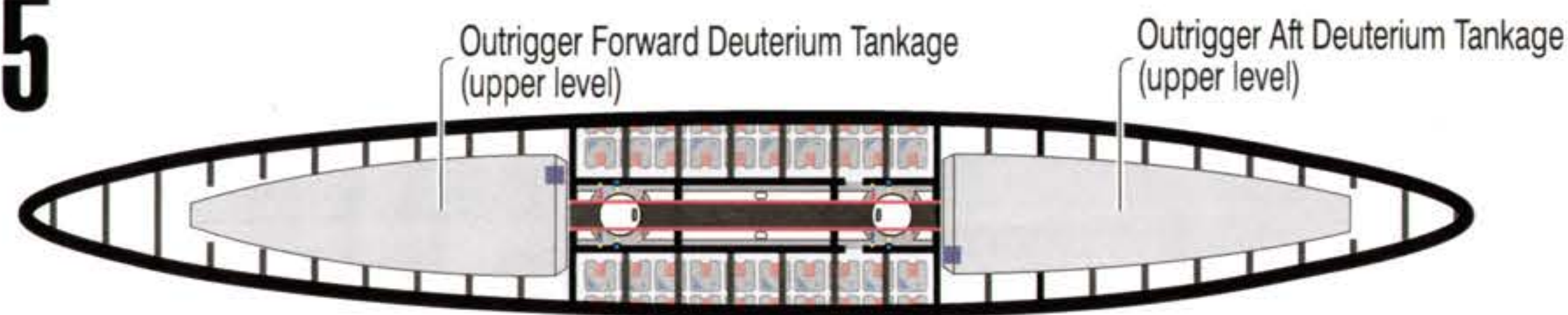
PROTOTYPE NX-602

INTERNAL VIEWS SHEET 5/7
INTERNAL SYSTEMS

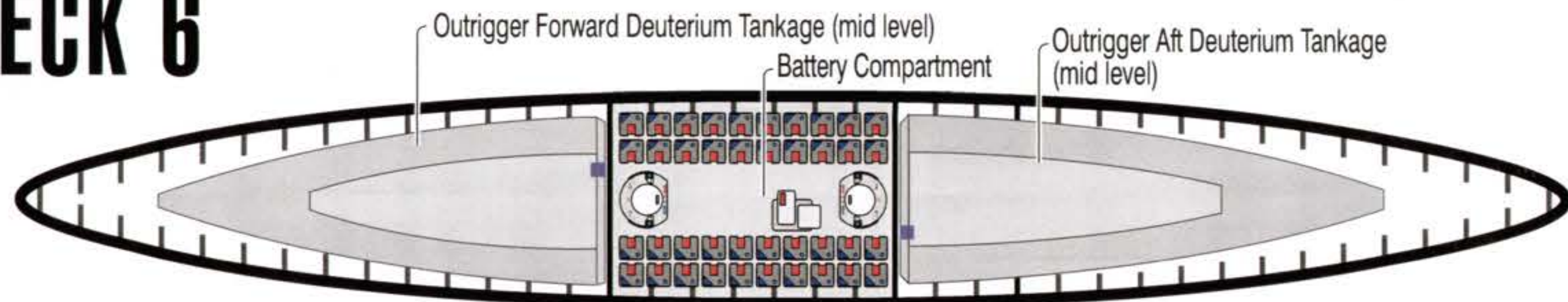


DECK 4

DECK 5



DECK 6



INTERNAL SYSTEMS

Section 1.2 Structural Integrity Field

The physical integrity of the spaceframe is augmented by the SIF. The SIF is created by two field generators on Deck 4 (within the Integral Hull) and one field generator on Deck 7. Each consists of a pair of 2 megawatt graviton polarity sources. These feed a pair of 100 millicochrane subspace field distortion amplifiers. Any two units are capable of supporting the entire SIF grid at 100% for 40 hours before gaussing causes a critical shut down. The SIF system creates a subspace distortion field that is guided along all trusses and hull plates, reinforcing these by a factor of 100,000% of their usual tensile strength.

Section 1.3 Inertial Damping Field & Synthetic Gravity Generators

The Inertial Damping Field (IDF) operates in parallel with the ship's artificial gravity generators, maintaining a series of variable-symmetry force fields that absorb external inertial forces. The force fields are maintained according to SFRA-standard 352.12, averaging 75 millicochranes with field differential of 5.26 nanocochranes/meter. Flux generation for IDF and gravity are provided by generators within the crawl space under each deck, in a hexagonal grid with nodes spaced 0.3 meters apart.

Section 1.4 Security & Containment Force Field Generators

There are secondary force-field generators mounted within the vessel, filling a variety of roles. Main Engineering and Impulse Engineering each have a pair responsible for maintaining containment for the Warp Core and Fusion Reactors - with standby units for emergency containment in the event of coolant leakage and other hazards endemic to Antimatter/Fusion reactions. Others scattered throughout the ship are non-dedicated, and using waveguides and sophisticated forming software can be routed to perform various tasks - including corridor security barriers, brig security barriers, and bulkhead life-support barriers (in the event of localized hull breaches), these units have a set of four 1 megawatt polarity sources feeding a pair of 50 millicochrane field generators.

Section 1.51 Ordnance: Phasers

Two Type VIII Phaser Turrets are located on the underside of the Primary Hull - on Deck 4.

Section 1.52 Ordnance: Photon Torpedoes

An oversized aft-firing launcher is capable of firing both photon torpedoes and the larger communications relay buoys, as well as doubling as a minelayer during wartime (the positioning of same being integral with the Research Cruiser's mandate).

Section 1.53 Ordnance: Force-field / Deflector Screen Generators

Two generators are located on Deck 4, and one more on Deck 7. These units have a set of four 4 megawatt polarity sources feeding a pair of 200 millicochrane field generators.

Section 2.0 Computer Systems

The Main Computer Core (MCC) is located on Decks 2 through 4 in the Primary hull. Although there are access catwalks every 2.5 m, the entire 7 m core is one integral unit. The MCC consists of 140 dedicated modules of 144 duotronic chips, which, under LCARS control provide dynamic access at a rate of 4,800 kiloquads/sec. The total storage capacity for each module is 16,000 to 64,000 kiloquads, depending on software configuration and data compression rates. The MCC is joined to the Optical Data Network (ODN) by triple redundant Micron Junction Links (MJL) on each module. The final layer to the computer systems is a dedicated short range Radio Frequency (RF) system that all cores and SPNs use to communicate with the control panels, access points, and PADDs.

Section 2.1 Information Gathering Systems

Information gathering systems are divided into sensors (passive energy/field detecting/analyzing) and scanners (active energy/field emitting-reflection detecting/analyzing systems). Each of these is further subdivided into long-range (faster-than-light) and short-range (lightspeed). Omni-directional navigation packages are generally mounted at the vessel's dorsal and ventral Z-axis poles. Directional packages (including tactical scanners) are mounted along the vessel's forward x-axis. The BX8997v Science Sensor Array is located in the Outrigger forward/ventral area - within a streamlined radiation-transparent fairing - along with an integral Deflector Emitter and Generator. The Array represents a benchmark in terms of power and resolution aboard starships. The steamlining allows for cartographic missions within nebulas - as well as high-atmospheric planetary cartographic mapping. The power demands of the BX8997v require plasma conduits feeding directly from the ship's warp core.

Section 3.01 Crew Facilities - Quarters

Crew quarters are modular. Enlisted and Petty Officer quarters consist of 2 compartments, a sleeping area (3, 3-tiered bunks) plus a dining/relaxation area (containing table and chairs, lockers and head). Officer quarters consist of a single compartment, with a sleeping area (single bunk) adjoining the dining/office/relaxation area (containing desk and chairs, computer system, closet and head).

Section 3.02 Crew Facilities - Recreation

A Gymnasium exists for Starfleet personnel enjoyment and exercise.

Section 3.03 Crew Facilities - Dining

Dining facilities consist of a Mess Hall/Lounge. Food and Beverages are prepared by protein/carbohydrate synthesizers on Deck 4, and delivered to terminals via a miniature turbolift network. Terminals are also located in the Transporter Rooms and Conference Room.

Section 3.05 Crew Facilities - Laundry

Laundry facilities are on Deck 2. Laundry drop-off terminals are located on Deck 2.

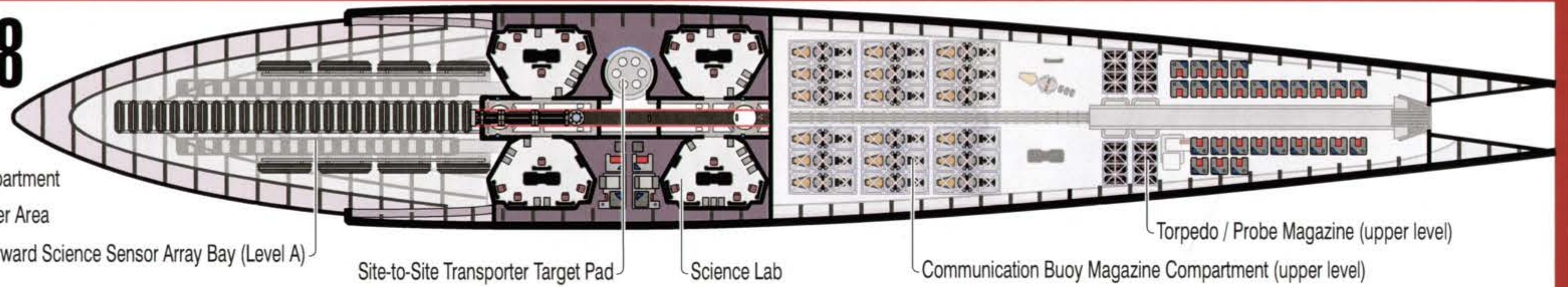
Section 3.1 Science Facilities

The Oberth-class starships are outfitted with 4 Type 1 Science Labs on Deck 8 - similar to those on the Constitution-class starships. Each consists

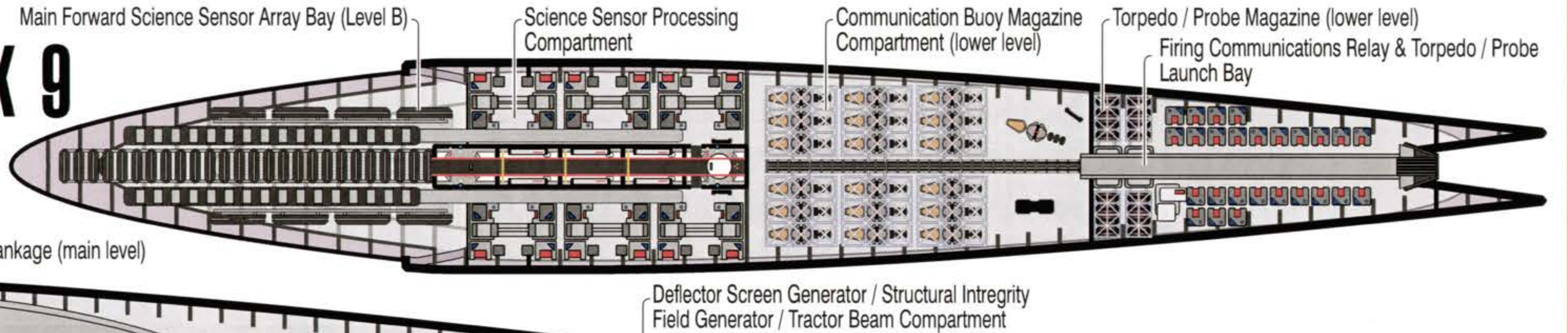
OBERTH

PROTOTYPE NX-602
INTERNAL VIEWS SHEET 6/7
INTERNAL SYSTEMS

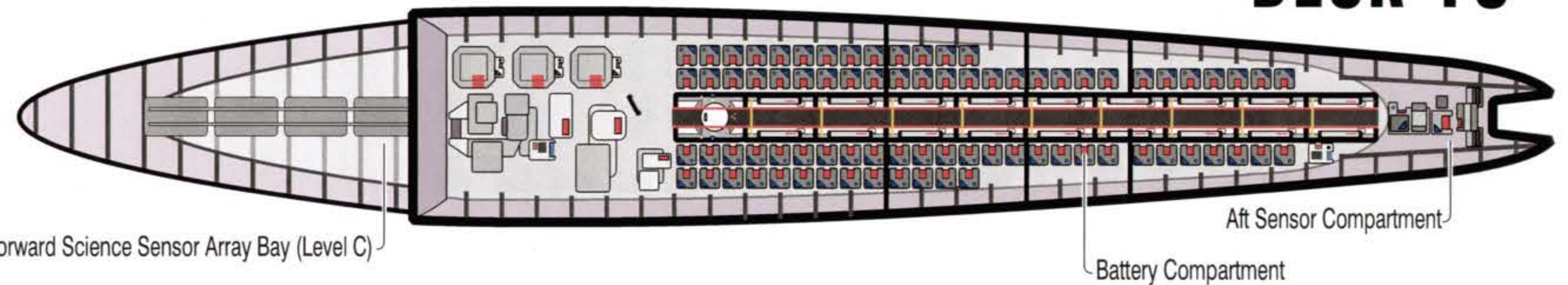
DECK 8



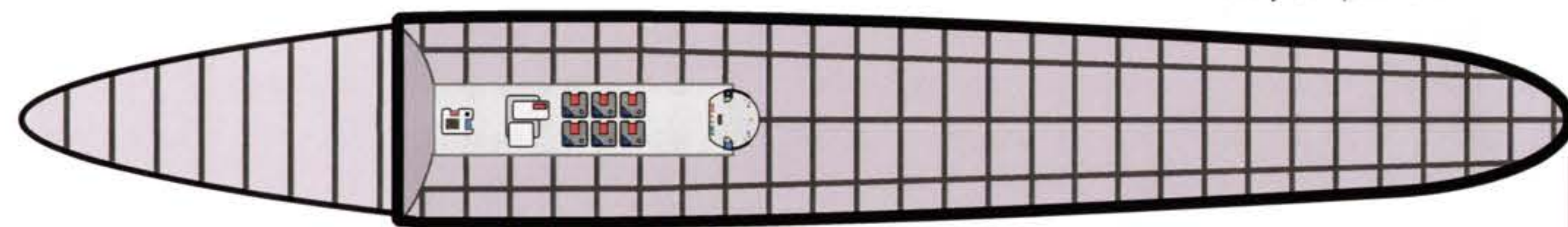
DECK 9



DECK 10



DECK 11



DECK 7

PYLON

INTERNAL SYSTEMS

of a quarantine field, tandem operator's stations/LCARS terminals, and instrument/specimen storage locker. As well there is a Diagnostics & Repair Engineering Workshop/Lab and a Sickbay/Life Sciences Lab on Deck 4.

Section 3.2 Life Support

Main life support and atmosphere conditioning systems (Air refresh/recycle, temperature/humidity/ionization control), plus controls for gravitational and inertial damping generators are located on Deck 4.

Section 3.3 Internal Personnel Transit

Due to the minimal cross-section utilized in the pylons connecting the Integral Hull and the Outrigger Hull-module, standard turbolifts cannot be used for personnel transit between these two sections. Two separate systems exist. The primary system utilizes the ship's two transporter rooms. In order to avoid subject risk from inter-ship transport, a dedicated Site-to-Site Transporter Target Pad is installed on Deck 8. This target pad is connected to the ship's Transporter Buffers by hardwired conduits, eliminating any danger of signal degradation due to interference. The secondary system utilizes a one-man sled on magnatonic rails (similar

to that used for photon torpedo/probe loading) known as an outrigger personnel trolley. One trolley trunk runs through the port and starboard pylons. These can be stopped by the rider at any point, facilitating engineering inspections.

Section 4.0 Shuttle Facilities

Deck 3 is dedicated to a Shuttlebay, and two Cargo Landing Bays (suitable for workbees and a cargo train consist of 4 pods), and two Parking Bays for embarked craft. All are connected to the 4 Cargo Bays via spacedoors. The three landing bays extend up into Deck 2.

Section 5.0 Cargo Facilities

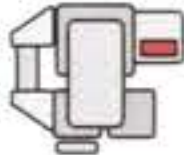

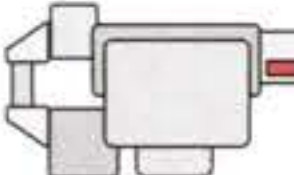



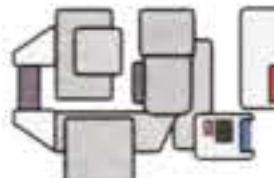

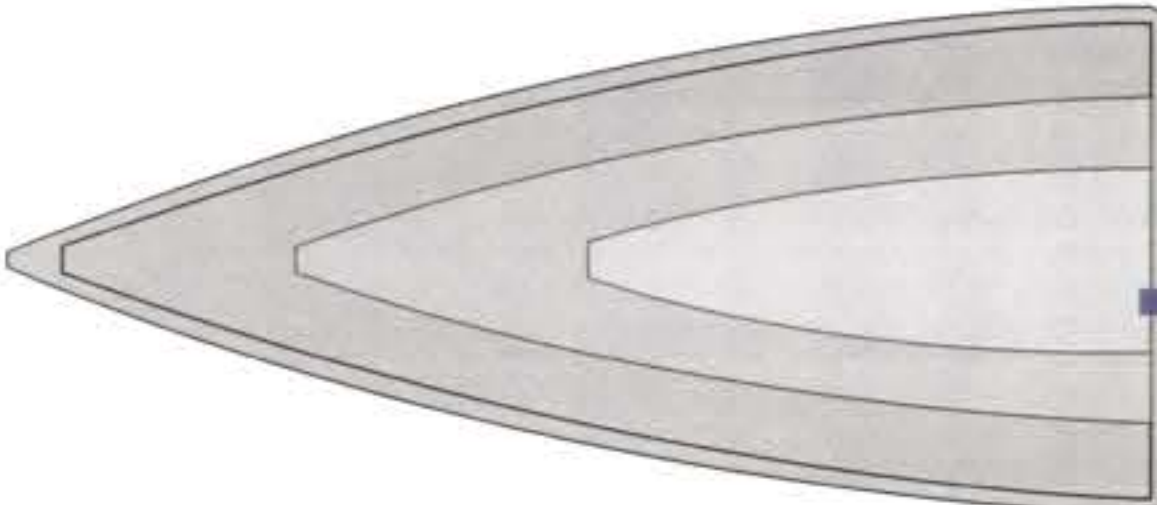




Deck 3 has four curving Cargo Bays (with bulkhead-mounted niches for standardized cargo pod quads), as well as two General Cargo Holds and two Cargo Transporter Rooms.

OBERTH


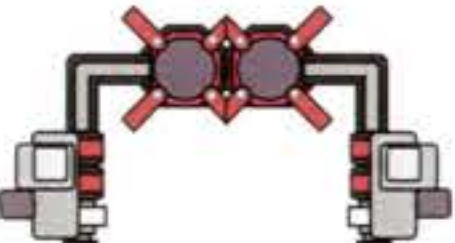



PROTOTYPE NX-602
SYMBOL CHART SHEET 7/7

SYMBOL CHART


LIFE SUPPORT & FLUID/GAS TANKAGE

-  Food Synthesizer
-  Food Synthesizer Raw Material Storage Tank (Organic)
-  Inorganic Synthesizer
-  Synthesizer Raw Material Storage Tank (Inorganic)
-  Organic Stasis Containment
-  Organic Waste Recycler
-  Atmospheric Recycler
-  Laundry Processor
-  Cryogenic Tank Slurried Deuterium (4000 Cubic Meters)
-  Cryogenic Tank Slurried Deuterium (500 Cubic Meters)
-  Cryogenic Tank Oxygen / Nitrogen / Trace Gases (20 Cubic Meters)
-  Water Tank (20 Cubic Meters)
-  Organic Waste Slurry Tank (20 Cubic Meters)


DEFENSE SYSTEMS

-  Phaser Emitter Turrets
-  Phaser Firing Chambers
-  Photon Torpedo Casing
-  Photon Torpedo Magazine
-  Photon Torpedo Launch Tube
-  Communications Relay Buoy
-  Communications Relay Buoy Magazine
-  Force-field / Deflector Screen Generator
-  Destruct Charge



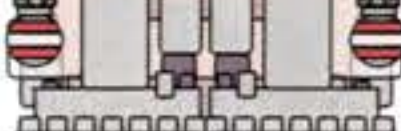
MAIN ENGINEERING - ELECTRO-PLASMA SYSTEMS

-  EPS Relay
-  EPS Distribution Node
-  Cold Fusion Battery Bank




MAIN ENGINEERING - REACTION CONTROL THRUSTER

-  Fusion Generator (6.1 X 1010 Mw)

MAIN ENGINEERING - IMPULSE DRIVE SYSTEMS

-  Warp Plasma Conduit
-  Auxillary Fusion Generators (6.1 X 1010 Mw)
-  Impulse Exhaust Manifold








MAIN ENGINEERING - WARP DRIVE SYSTEMS

-  Warp Field Coil
-  Warp Plasma Conduit
-  Off-Axis Field Generator









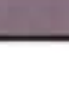

MAIN ENGINEERING - BUSSARD COLLECTION SYSTEMS

-  Continuous Cycle Fractionator
-  Ionizing Beam Emitters
-  Magnetic Field Coils
-  Magnetic Field Generator / Collector Continuous Cycle Fractionator



MAIN ENGINEERING - WARP CORE SYSTEMS

-  Deuterium Injector
-  Warp Plasma Conduit
-  Warp Core Cross-sections
-  Antimatter Injector
-  Antimatter Containment Pod
-  Anti-radiation Suit Locker
-  Deuterium Processor

AUXILLIARY ENGINEERING

-  Horizontal Jefferies Tube
-  Vertical/Horizontal Jefferies Tube
-  Vertical Jefferies Tube
-  Diagonal Jefferies Tube
-  Vertical Turboshaft
-  Horizontal Turboshaft
-  Turbolift Station
-  Hull-to-Hull Explosive Bolt Connection
-  Damage-Control Containers
-  Emergency Supply Containers
-  Misc. Shipwide ODN Distribution Areas

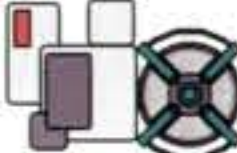

EMBARKED CRAFT

-  Work Bee
-  Type 5 Shuttle

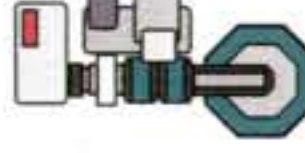





ESCAPE SYSTEMS

-  Escape Pod

AUXILLARY ENGINEERING - GRAVITONIC SYSTEMS

-  Structural Integrity Field Generator
-  Tractor Beam - Emitter - Aiming Gimbal

COMMUNICATIONS & TRANSPORTER SYSTEMS

-  Subspace Radio Transceiver
-  EM Radio Transceiver
-  Transporter Transceiver
-  Transporter Buffer
-  Transporter Pad (6-personnel)
-  Transporter Pad (Cargo)

