

INTERNAL SYSTEMS

SECTION 1.0 SPACECRAFT STRUCTURE

The spaceframe of the Intrepid-class starship is tritanium/duranium macrofilament truss frames, averaging 0.65 m² in cross section. These are placed at the tops of Decks 2,4,6,8,10, 12 and 14 for all three axis of the ship. Smaller trusses are spaced between quarters, at hall junctions, and at the turbolift shafts, measuring 0.25 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 Aledium 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.

SECTION 1.2 STRUCTURAL INTEGRITY FIELD

The physical integrity of the spaceframe is augmented by the SIF. The SIF is created by two main field generators on Deck 4, two secondary field generators on Deck 8, and two secondary type field generators are located in the pylons, used strictly for low level continuous-duty there. Each consists of a pair of 2 megawatt graviton polarity sources. These feed a pair of 150 millicochrane subspace field distortion amplifiers. Any two units are capable of supporting the entire SIF grid at 100% for 48 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 150,000% of their usual tensile strength. In addition to the waveguides within the internal spaceframe, there is a series of SIF emitters on the hull.

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.

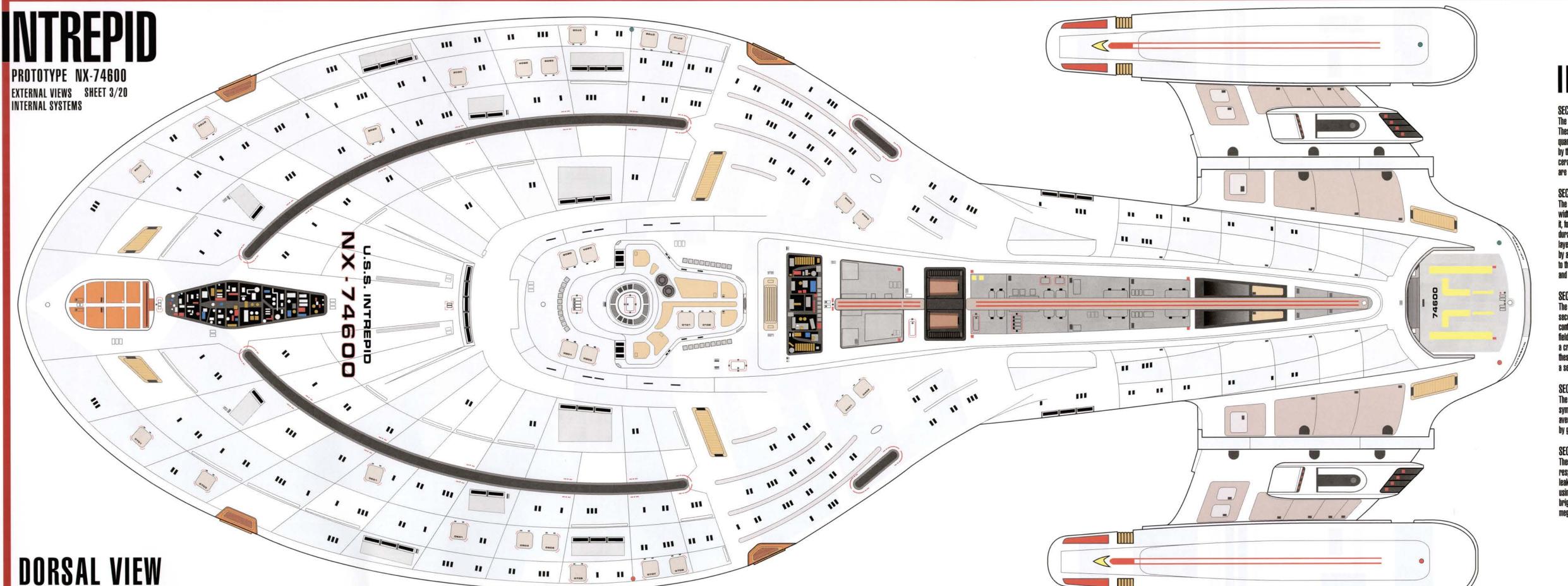
SECTION 1.4 SECURITY & CONTAINMENT FORCE FIELD GENERATORS

There are secondary force-field generators mounted within the vessel, filling a variety of roles. Main Engineering has a series responsible for maintaining containment for the Warp Core - with standby units for emergency containment in the event of coolant leakage and other hazards endemic to Antimatter and 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 75 millicochrane field generators.

Seals 0 1 2 3 4 5 10 20

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SECTION 2.0 COMPUTER SYSTEMS

The Main Computer Cores (MCC) are located on Decks 10 through 12 in the Engineering hull. The MCCs consist of 672 dedicated modules of 144 isolinear optical storage chips, which, under LCARS control provide dynamic access at a rate of 4,800 kiloquads/sec. The total storage capacity for each module is 64,000 to 128,000 kiloquads, depending on software configuration and data compression rates. The two Secondary Computer Cores (SCC) are located on Decks 6 and 7 in the primary hull, and can take over from the Main Computer Cores with the loss of non-critical functions, such as the holodeck. The SCCs consist of 224 dedicated modules of 144 isolinear optical storage chips, with the same characteristics as the MCCs modules. Both the MCCs and SCCs are joined to the Optical Data Network (ODN) by triple redundant Micron Junction Links (MJL) on each module. The usual 12% Doppler loss in transmission has been reduced to 5.5% by the use of Bio-Neural Circuitry replacing 35% of the optics in the ODN. Bio-Neural Circuitry (BNC), also know as gel-packs, have the ability to organize, process, and transmit complex information faster than the ODN can with pure optics. BNCs are made from synthetic neural cells designed explicitly for data processing. They are also the main part of the Sub-Processors Nodes (SPN) located on the Bridge, Engineering, Sickbay, and emergency shelters throughout the ship. These SPNs can run the entire ship for 8 hours in the event of complete loss of all MCCs and SCCs. 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 dectecting/analyzing systems). Each of these is further subdivided into long-range (faster-than-light) and short-range (lightspeed). Omni-directional packages are generally mounted on sensor pallets - which are located on the vessel's dorsal and ventral Z-axis poles as well as along the vessel's z-axis equator. Directional packages (including tactical scanners) are mounted along the vessel's x-axis - fore and aft.

SECTION 3.0 CREW FACILITIES - OUARTERS

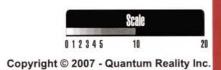
Crew quarters have been standardized for the past half-century, and are modular. Enlisted quarters consist of 2 compartments (sleeping area and dining/relaxation area), plus closet and head. Officer quarters consist of 3 compartments (sleeping area, dining area, and relaxation area), plus closet and head. Senior Officer quarters consist of 4 compartments (sleeping area, dining area, relaxation area, social/office area), plus closet and head. V.I.P. quarters are similar to Senior Officer quarters, but are somewhat roomier and more elegantly appointed.

SECTION 3.1 SCIENCE FACILITIES

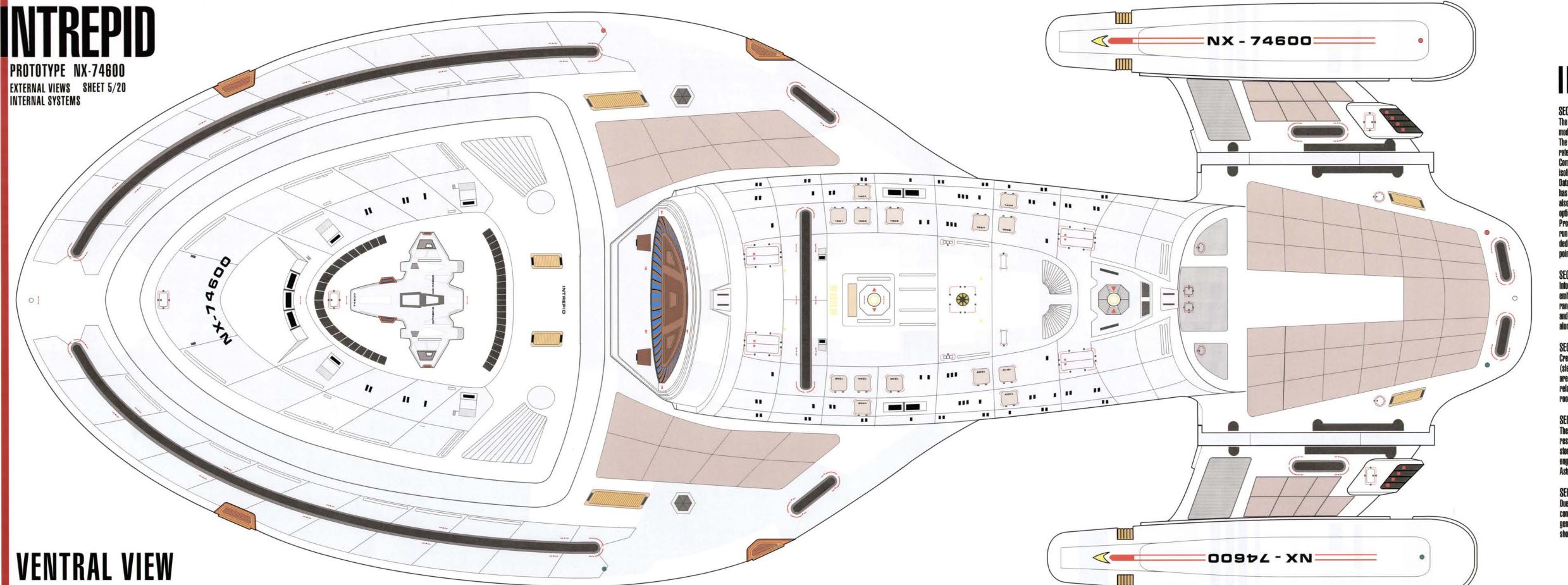
The Intrepid-class starships are outfitted with 16 Type 1 Science Labs, consisting of an office area, independent computer micro-core, research area/kiosk equipped withcircular quarantine field, tandem operator's stations/LCARS terminals, and instrument/specimen storage locker. As well there are 2 Diagnostics & Repair Engineering Workshop/Labs, similar to the Type 1 lab but also holding an engineering worktable. Two Medical Labs are contained within the Sickbay Complex. A pair of Type 2 Labs (Stellar Cartography and Astrometrics - specially-outfitted for holographic display) completes the list.

SECTION 3.2 LIFE SUPPORT

Due to the size of the vessel and crew complement, there are several main Life Support systems, which contain the vessel's atmosphere conditioning systems (Air refresh/recycle, temperature/humidity/ionization control), plus controls for gravitational and inertial damping generators. Additionally, most decks have or share a smaller emergency life support room, which will handle that deck(s) needs should the main system go down.



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EXTERNAL VIEWS SHEET 7/20 Specifications Design History

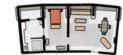
CROSS-SECTION

SYMBOL CHART

AUXILLARY ENGINEERING - COMPARTMENTS



Captain's & Vip Quarters: - Steeping Area - Relaxation Area - Lounge & Work Area - Dining Are - Closet - Head



- Dining Area - Closet - Head







Enlisted Quarters: - Sleeping Area - Lounge & Dining Area







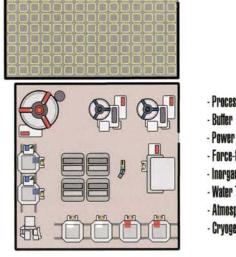


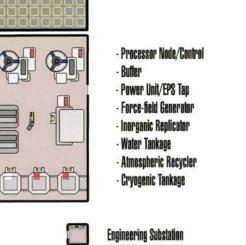
Sickbay Complex:
Containment Area
Surgical Bed
Surgical Bed
Replicator
Doctor's Office - Medical Lab - Morgue - Head

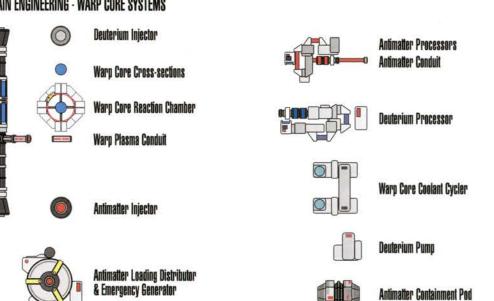


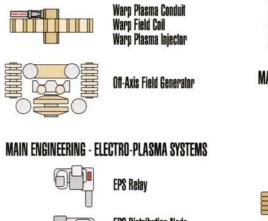


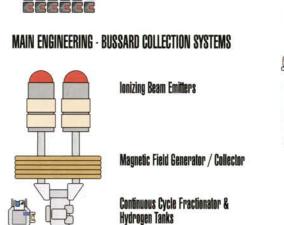


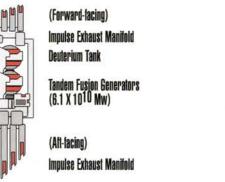






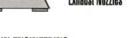












Deck 01

Deck 02

Deck 03

Deck 04

Deck O5

Deck 06

Deck 07

Deck 08

Deck 09

Deck 10

Deck 11

Deck 12

Deck 13

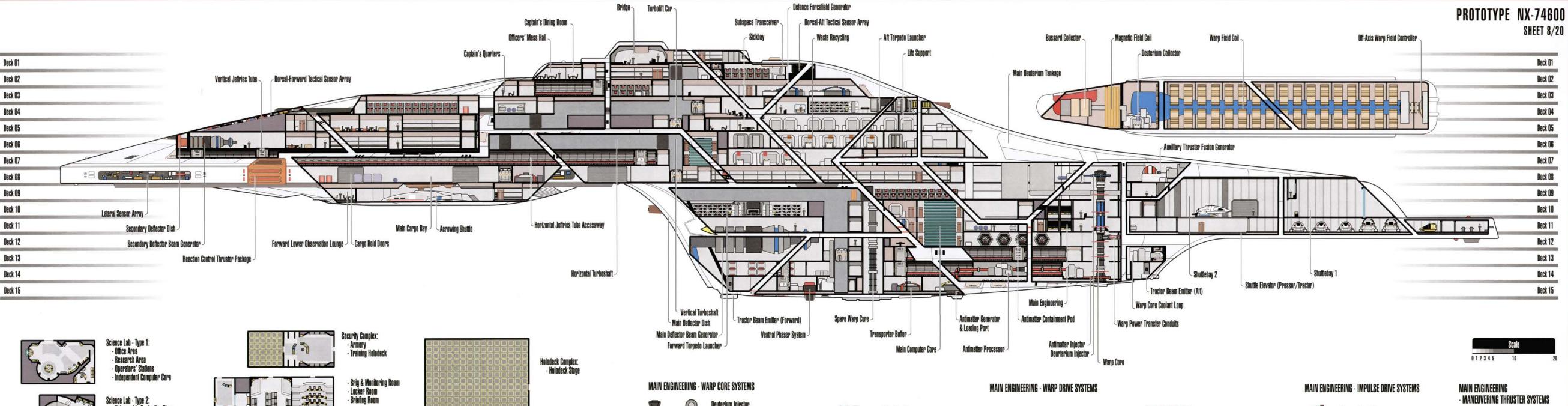
Deck 14

Deck 15





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AUXILLARY ENGINEERING - INFORMATION SYSTEMS

INTERNAL VIEWS SHEET 9/20 SYMBOL CHART







ESCAPE











SYMBOL CHART **AUXILLARY ENGINEERING - EXTERNAL FEATURES & MARKINGS**



Equipment Access Panel



External Personnel Access Hatch

DECK 3



Navigation Sensor Pallets



ft-Dorsal Tactical Sensor Array - (External Sensor / Scanner Heads)



Aft-Dorsal Tactical Sensor Array - (Subsystems)



Lateral Sensor Array - (External Sensor / Scanner Heads)



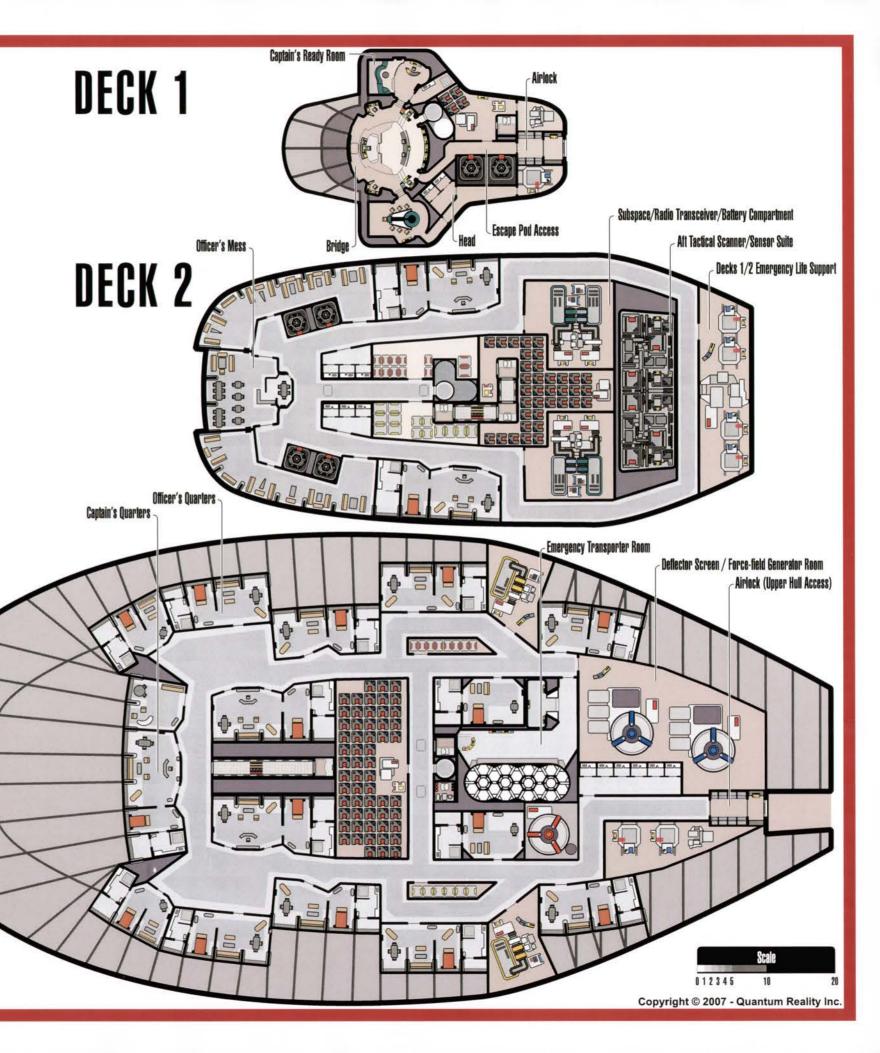
Lateral Sensor Array - (Subsystems)

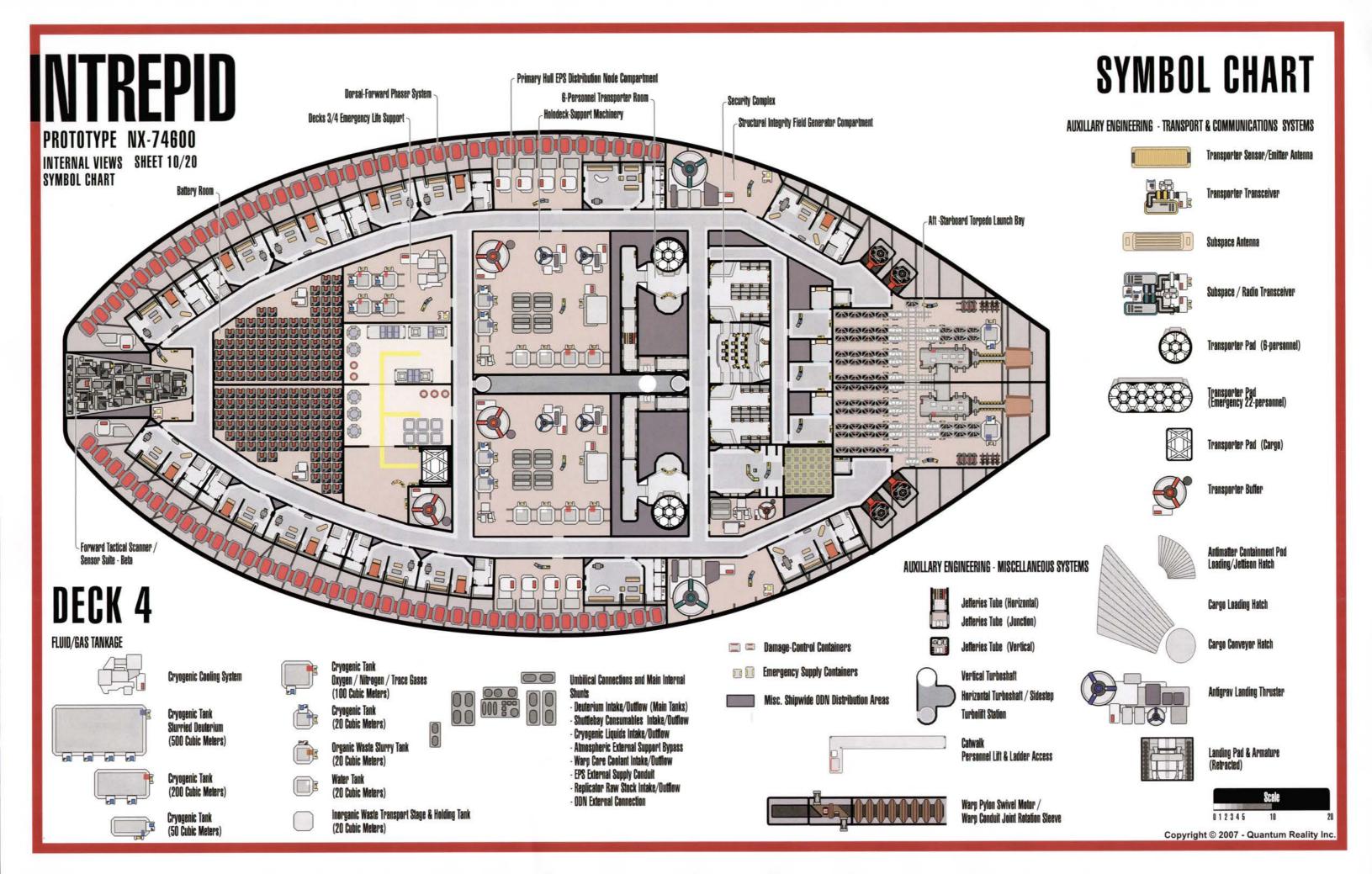


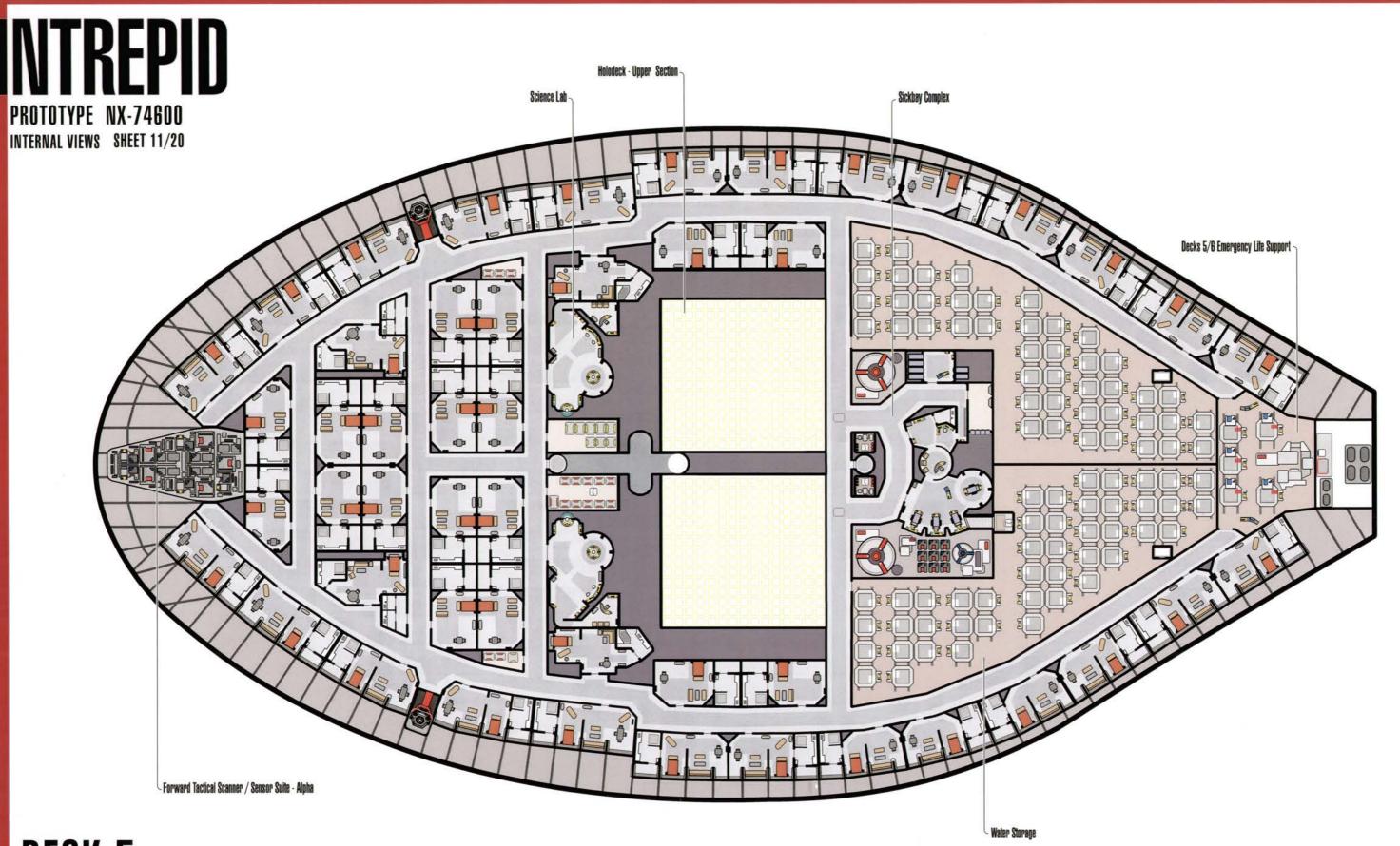
Forward-Dorsal Tactical Sensor Array - (External Sensor / Scanner Heads)



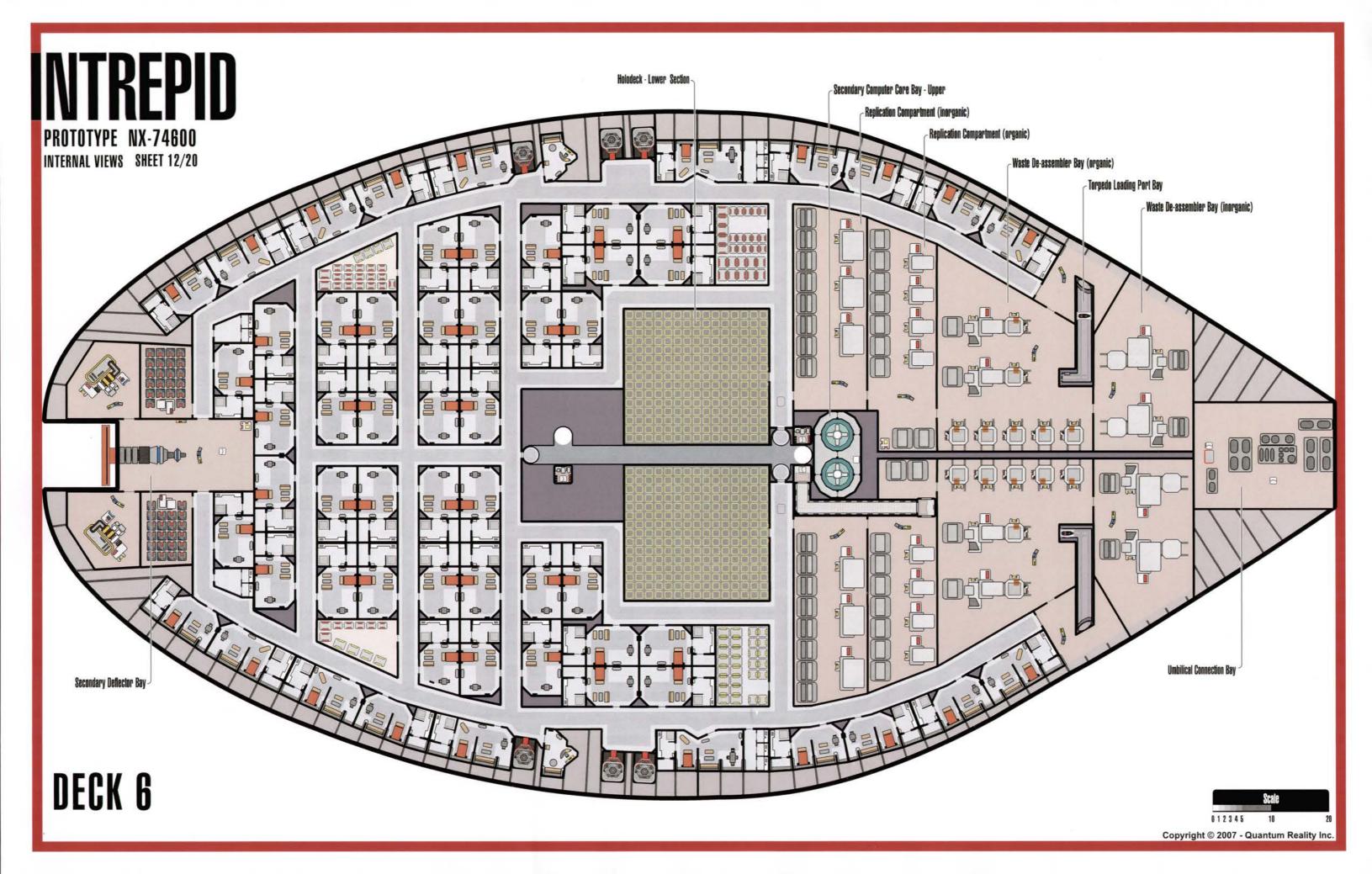
Forward-Dorsal Tactical Sensor Array - (Subsystems)

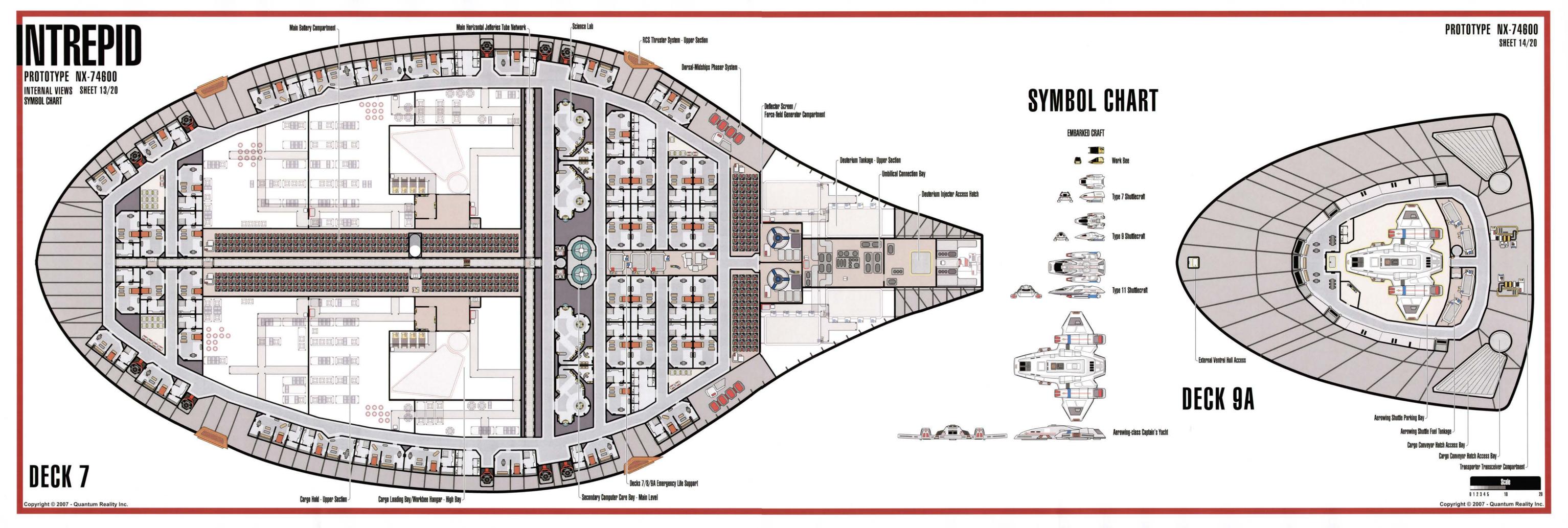


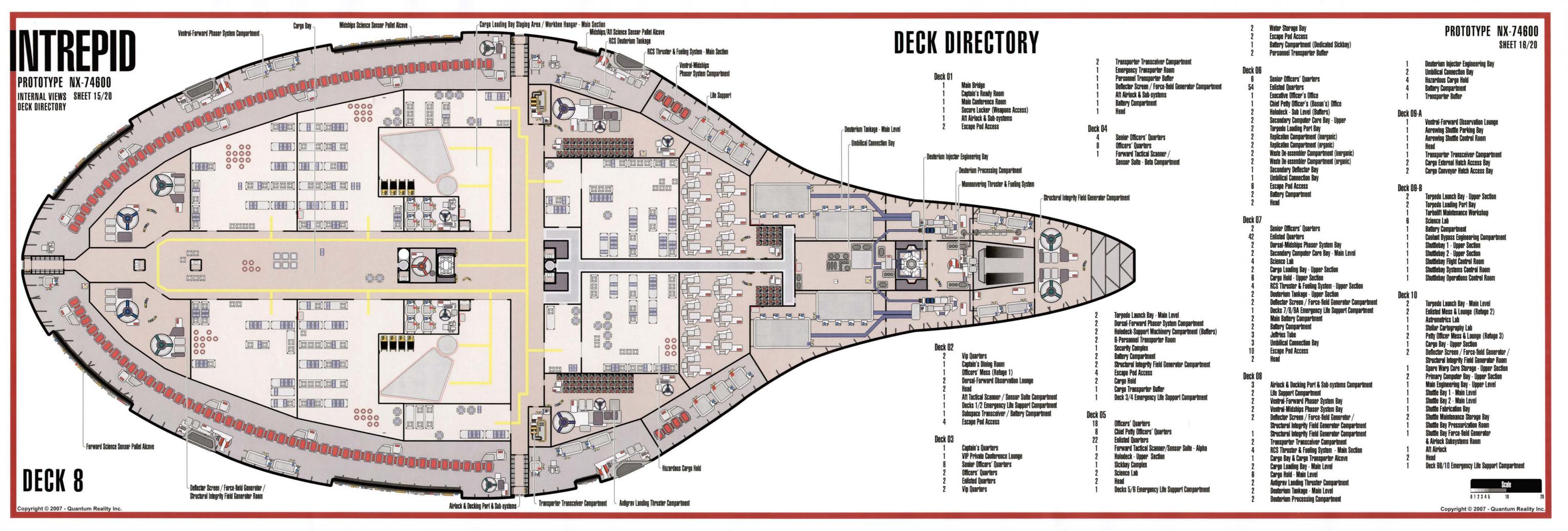


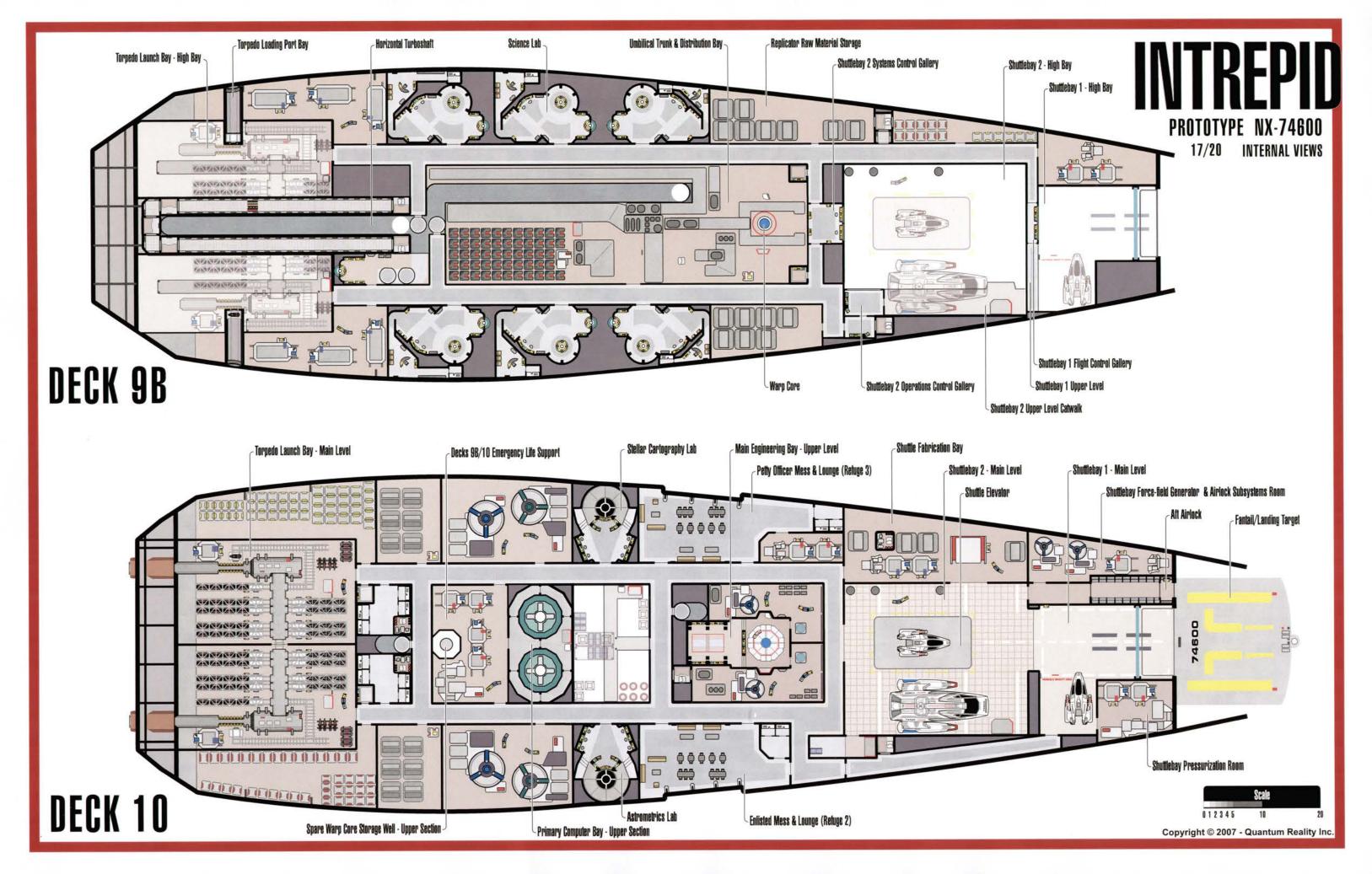


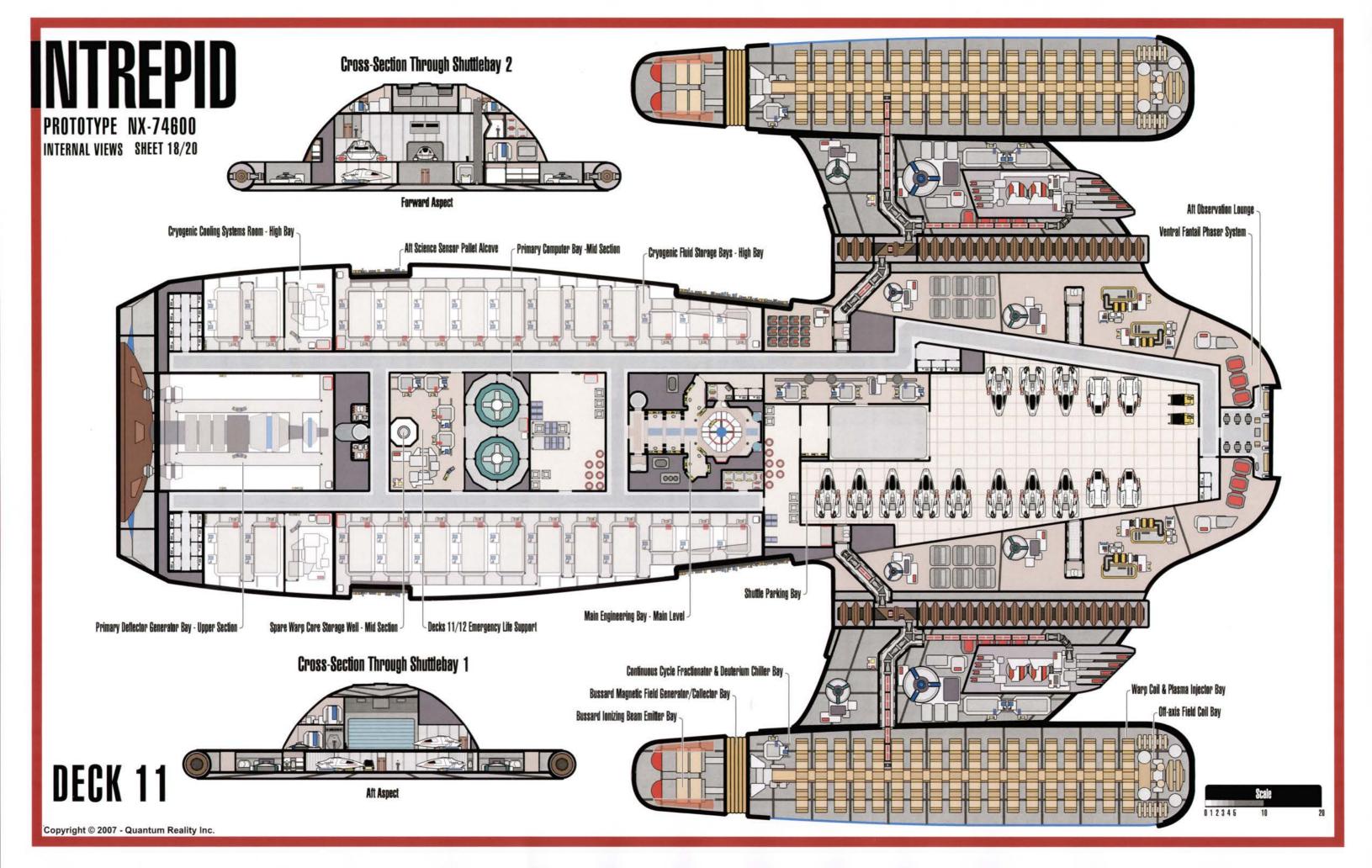
DECK 5

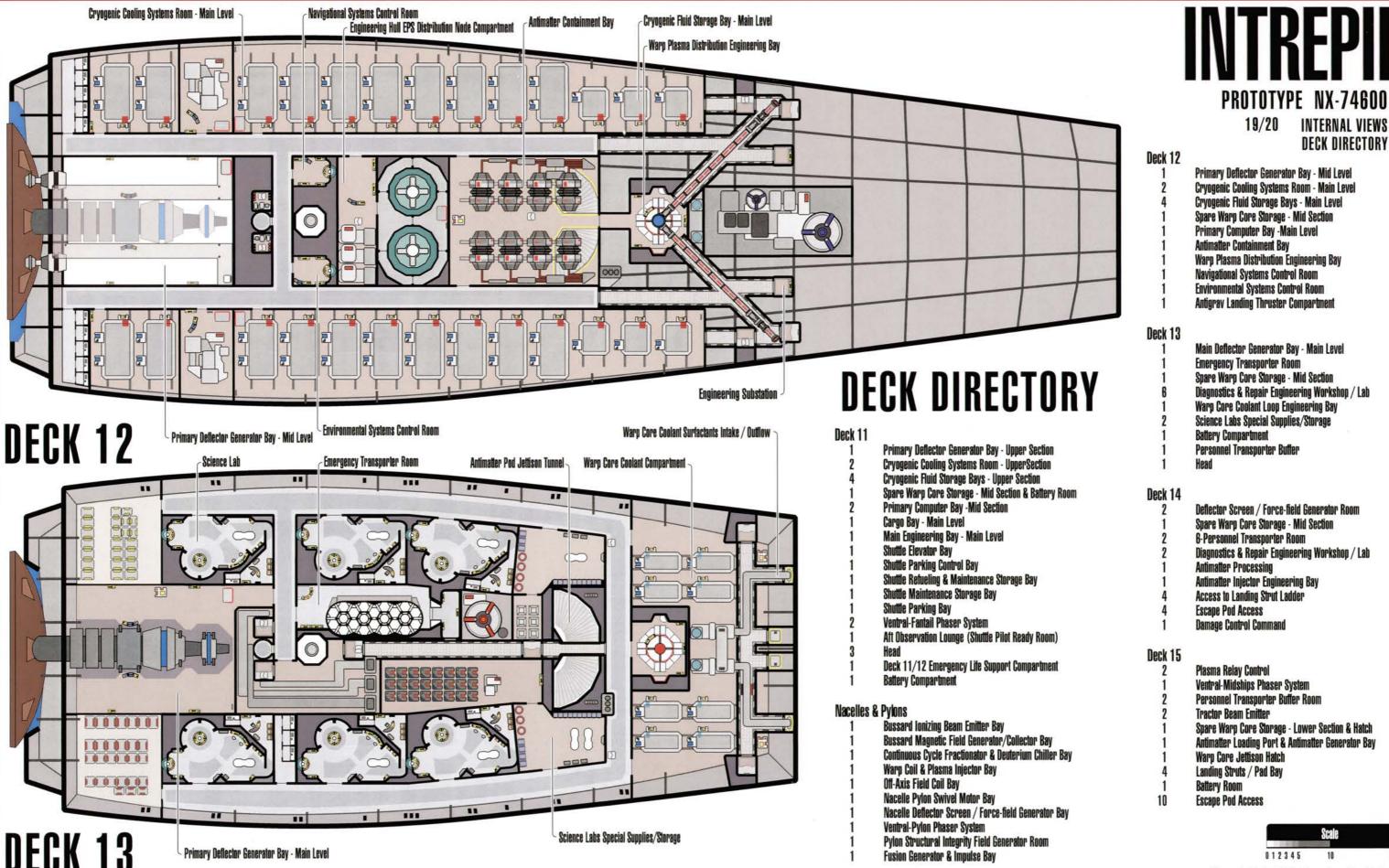












Scale

