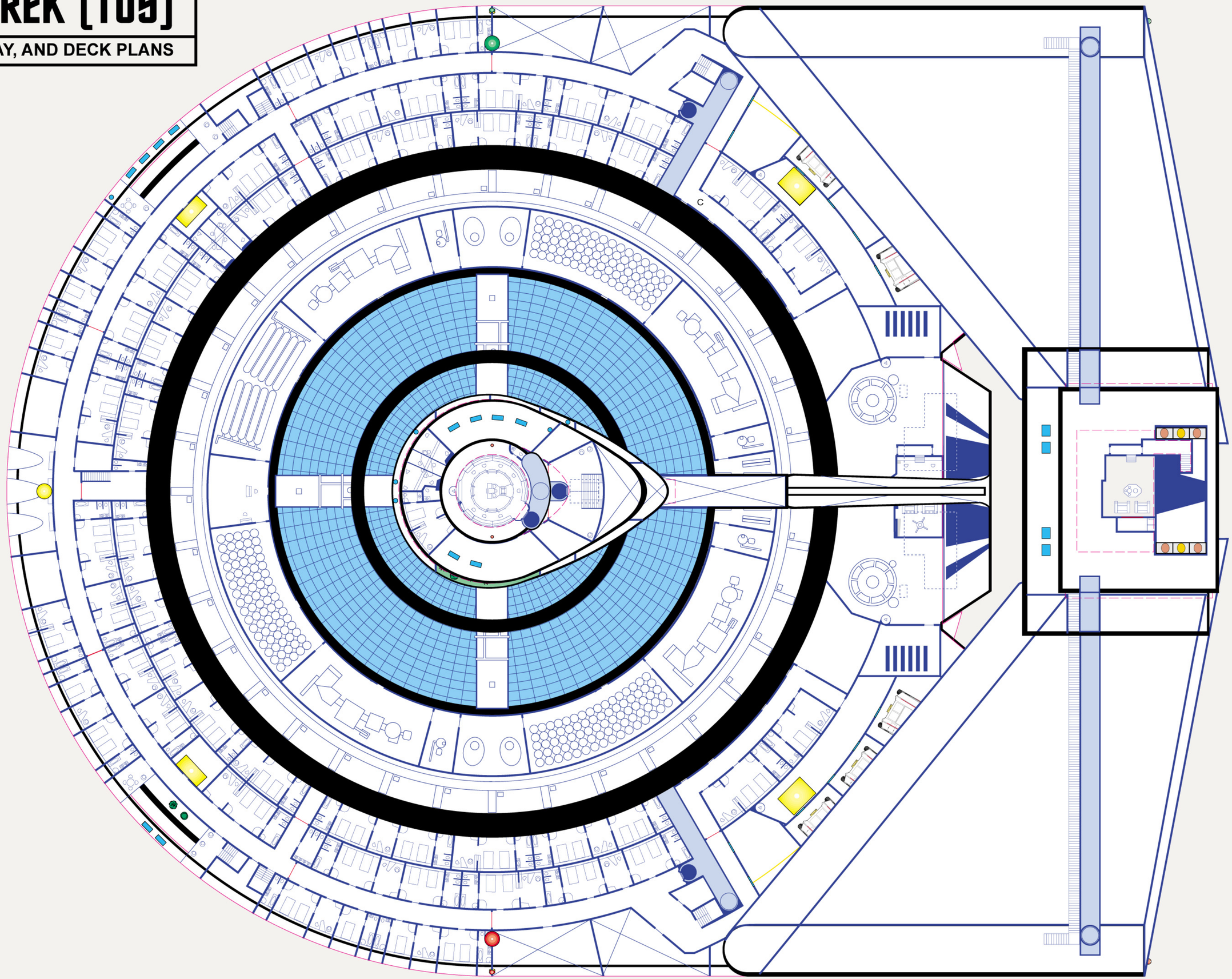
LARSON DESTROYER
from STAR TREK (TOS)

PROFILE, CUTAWAY, AND DECK PLANS



DRAWN BY: Jim Botaitis

STAR TREK - LARSON-CLASS DESTROYER

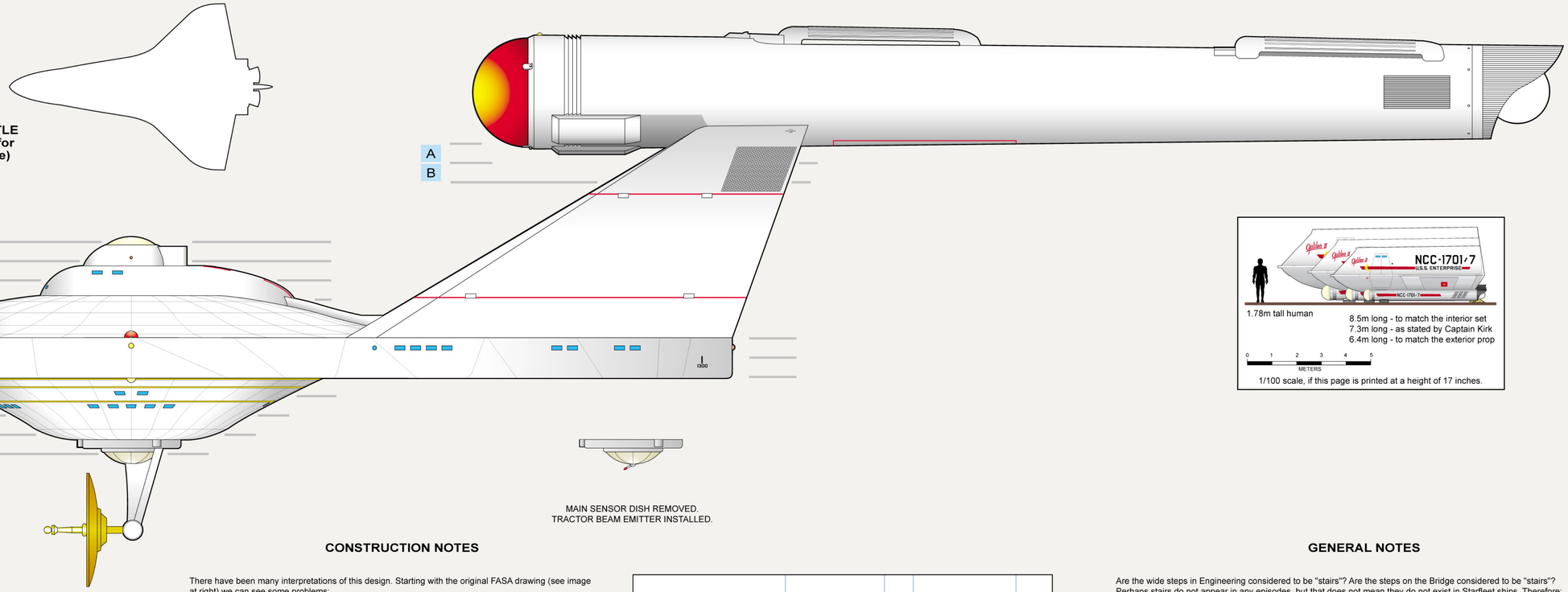
LAYOUT: PORT PROFILE — PAGE 1 of 17

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0 5 10 15 20
METERS



1.78m tall human

8.5m long - to match the interior set
7.3m long - as stated by Captain Kirk
6.4m long - to match the exterior prop

0 1 2 3 4 5
METERS

1/100 scale, if this page is printed at a height of 17 inches.

MAIN SENSOR DISH REMOVED.
TRACTOR BEAM EMITTER INSTALLED.

BACKGROUND HISTORY

This project is an extrapolation of the U.S.S. ENTERPRISE drawings developed in the year 2020. Those drawings were governed by 3 criteria:
(1) The 11-foot-2.08-inch (3.4-meter) studio model,
(2) The Writer's Guide, and
(3) The 79 episodes plus the original pilot.
There are no such criteria to guide these drawings, but the basic design philosophy is to complete this ship in the same style that Franz Joseph (FJ) developed for his Technical Manual and in the same style as his Heavy Cruiser blueprints. The goal is to try and fit all the components inside the hull. But what are "all the components"? What are the roles of "Destroyers" in the STAR TREK universe?

A "Destroyer" was a type of ship used on Earth. It was a fast, maneuverable, long-endurance warship intended to escort larger vessels in a fleet, convoy or battle group and defend them against powerful short range attackers.
Some countries use the term "Frigate" for their "Destroyers" which leads to some confusion.
With the advent of missiles, "Guided Missile Destroyers" were developed to carry these weapons and protect the fleet from such threats. By the late 20th Century, many "Destroyers" were built with helicopter flight decks and hangars.

According to the FASA Ship Recognition Manual, the Larson-class Destroyer was designed at the same time as the Constitution-class Heavy Cruiser and therefore shares many of the same features.
The Larson-class Destroyer has three Phaser Banks and one Photon Torpedo Bank.
The FASA Manual says this ship carries 6 shuttlecraft.

This layout retains the lines as established by FASA, but there were some problems which had to be resolved, and some modifications that had to be made to ensure the details on the 3-view drawings are consistent.

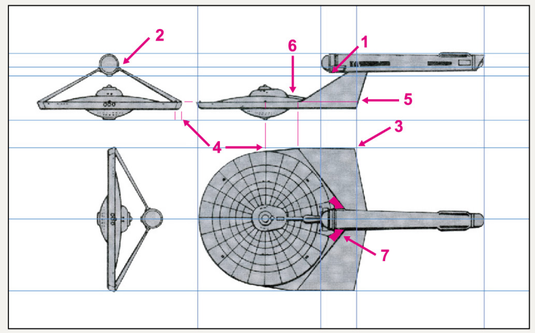
CONSTRUCTION NOTES

There have been many interpretations of this design. Starting with the original FASA drawing (see image at right) we can see some problems:
(1) Depending on the view, the Warp Engine is not at a consistent height above the Primary Hull,
(2) Depending on the view, the pylon does not attach to the Warp Engine at a consistent location,
(3) The trailing edge of the Primary Hull does not coincide in top and side views,
(4) The Primary Hull extends beyond the original diameter but it is not drawn correctly (see pink lines),
(5) The angles between the Primary Hull and the pylon are not shown properly (see pink line),
(6) There is a bulge shown behind the B-C decks,
(7) The Impulse Engine is shown embedded, not at the trailing edge of the Primary Hull. There should be an open space behind the Impulse Engine (see pink areas).

Finally, the dimensions stated in the FASA manual do not match the proportions in the drawing.

Here are the corrections:
(1) To satisfy the proportions, the pylons are shorter; the Warp Engine is closer to the Primary Hull,
(2) The pylon (and hence the attachment point) is thicker,
(3) The discrepancy created by the side view is ignored,
(4) The Primary Hull is not extended to the sides, only to the rear,
(5) Lines are added to clearly demonstrate the changes in angles, slopes, directions, etc,
(6) This bulge raises the Piping / Wiring Trunk, which allows Deck 5 to continue further aft,
(7) A notch is introduced in the extended trailing edge of the Primary Hull (see Decks 6 and 7).

One thing not considered is the undercut on the Primary Hull. If there are no decks below the Primary Hull to connect to a Secondary Hull, then Deck 7 is not flattened at the rear. The flat portion allows a turbo-elevator shaft to reach the outer ring of Deck 7, where Main (Impulse) Engineering is located in Constitution-class ships. Without that flat portion, the outer ring of Deck 7 can only be reached from above, via stairs, and perhaps via a turbo-elevator system (which would have to be extended aft).



Why are there 2 pylons? Can the engine nacelle be disconnected in an emergency? Can the Primary Hull make an emergency landing? Should the 2 Main Landing Legs be deleted, or should more legs be added? What is the function of the rearward extension of the Primary Hull? How can this ship carry 6 shuttlecraft? Why so many? Where are they stored? How are they deployed and recovered? Why is there no Main Sensor Dish? Does the ship have a Tractor Beam? Where is Main (Warp) Engineering?

GENERAL NOTES

Are the wide steps in Engineering considered to be "stairs"? Are the steps on the Bridge considered to be "stairs"?
Perhaps stairs do not appear in any episodes, but that does not mean they do not exist in Starfleet ships. Therefore:
1. After engine nacelle disconnection and an emergency landing, stairs on Decks 4, 3, and 2 lead up to the hatch, thus allowing the crew to leave the ship quickly.
2. Each of the 2 Recreation Rooms on Deck 7 have balconies on Deck 6. Those balconies have stairs that lead down to their respective Recreation Rooms.
3. Stairs connect the two levels of the Deflector Equipment at the front of the hull.
4. Stairs near the Hangar Bay entrances help connect the outer ring of Deck 7 to Deck 6.

Aside from these stairs, the rectangular ladders (within rectangular alcoves) and the triangular ladders (within circular alcoves) supplement the turbo-elevator system. If that system fails, or in some other emergency, ladders alone would not be very efficient; it is easier to carry something up stairs than up a ladder.

There are external features that do not need to be marked: hatches for the Phasers, hatches for the Photon Torpedo Launchers, and the Primary Hull / Warp Engine disconnection line, to name a few.
These drawings attempt to make sense of the markings that ARE visible on the studio model of the ENTERPRISE, all of which are then extrapolated onto this ship.

More notes relevant to each deck appear on the following pages.

Contradictions and errors exist within the episodes. I am sure 100% continuity is not possible.

I hope these pages provide you with some pleasure, information, and ideas for contemplation / consideration.

If I missed something, please let me know.

Jim Botaitis
jbot@rogers.com
October 2021

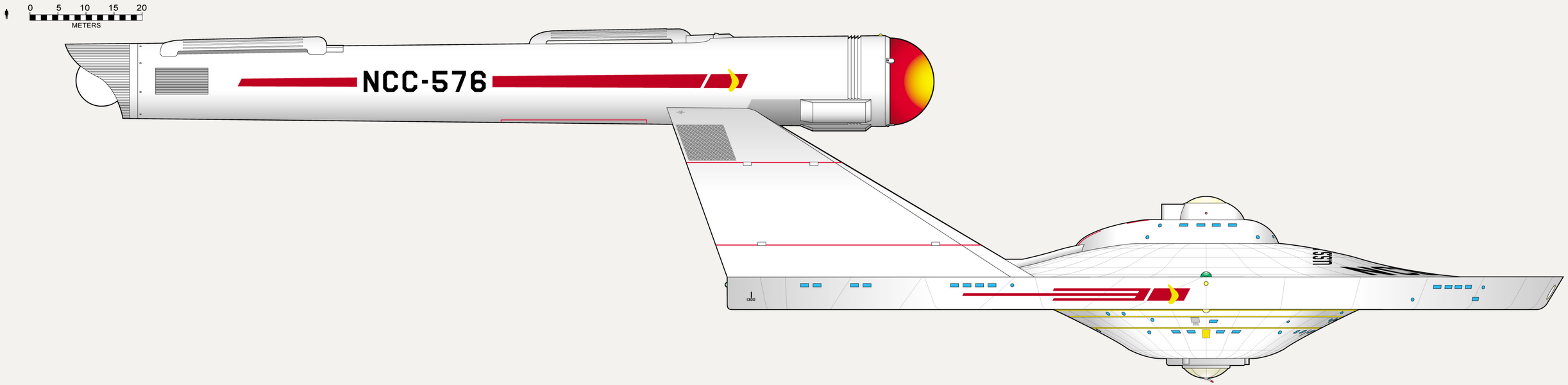
STAR TREK - LARSON-CLASS DESTROYER

LAYOUT: STARBOARD PROFILE PAGE 2 of 17

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STAR TREK - LARSON-CLASS DESTROYER

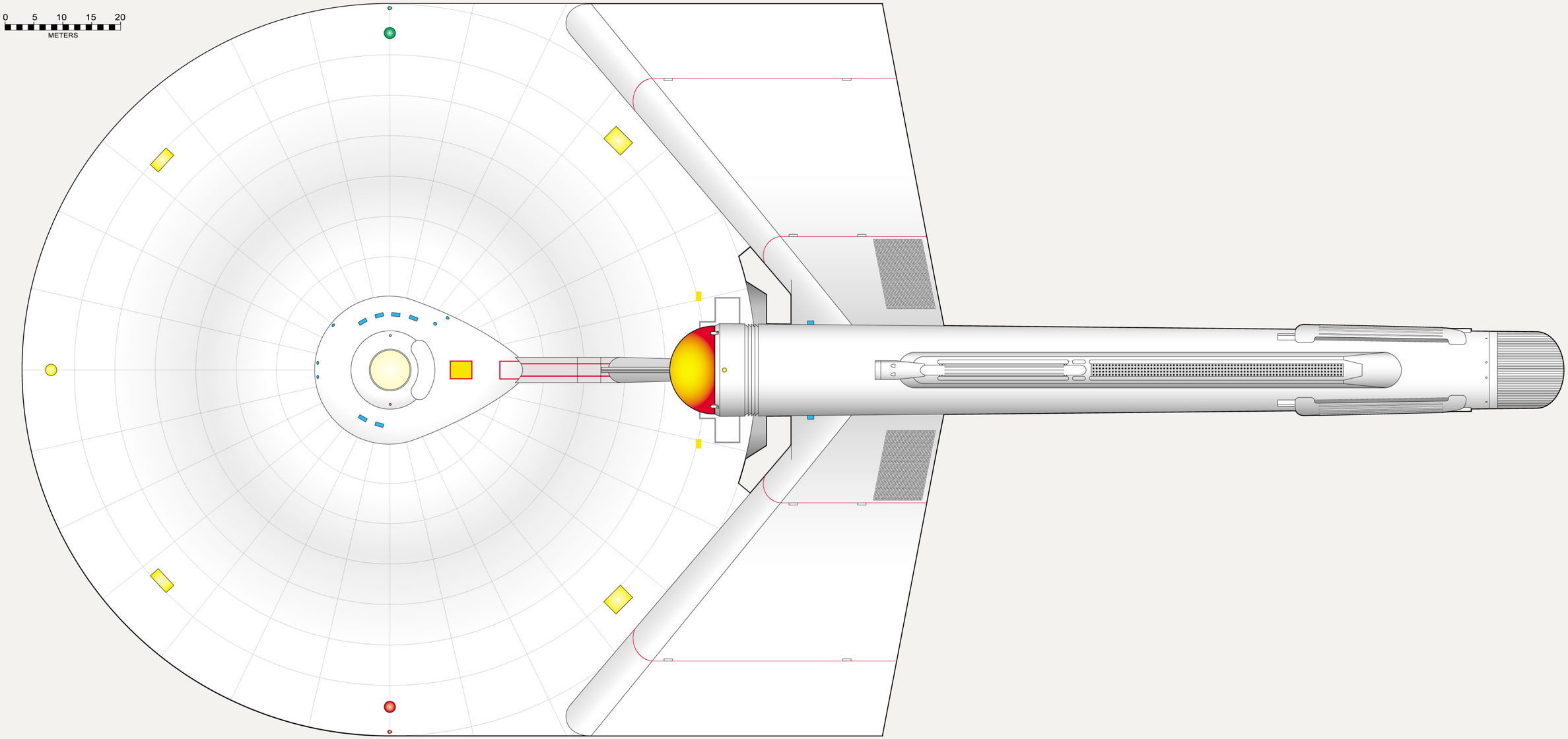
LAYOUT: TOP

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0 5 10 15 20
METERS



STAR TREK - LARSON-CLASS DESTROYER

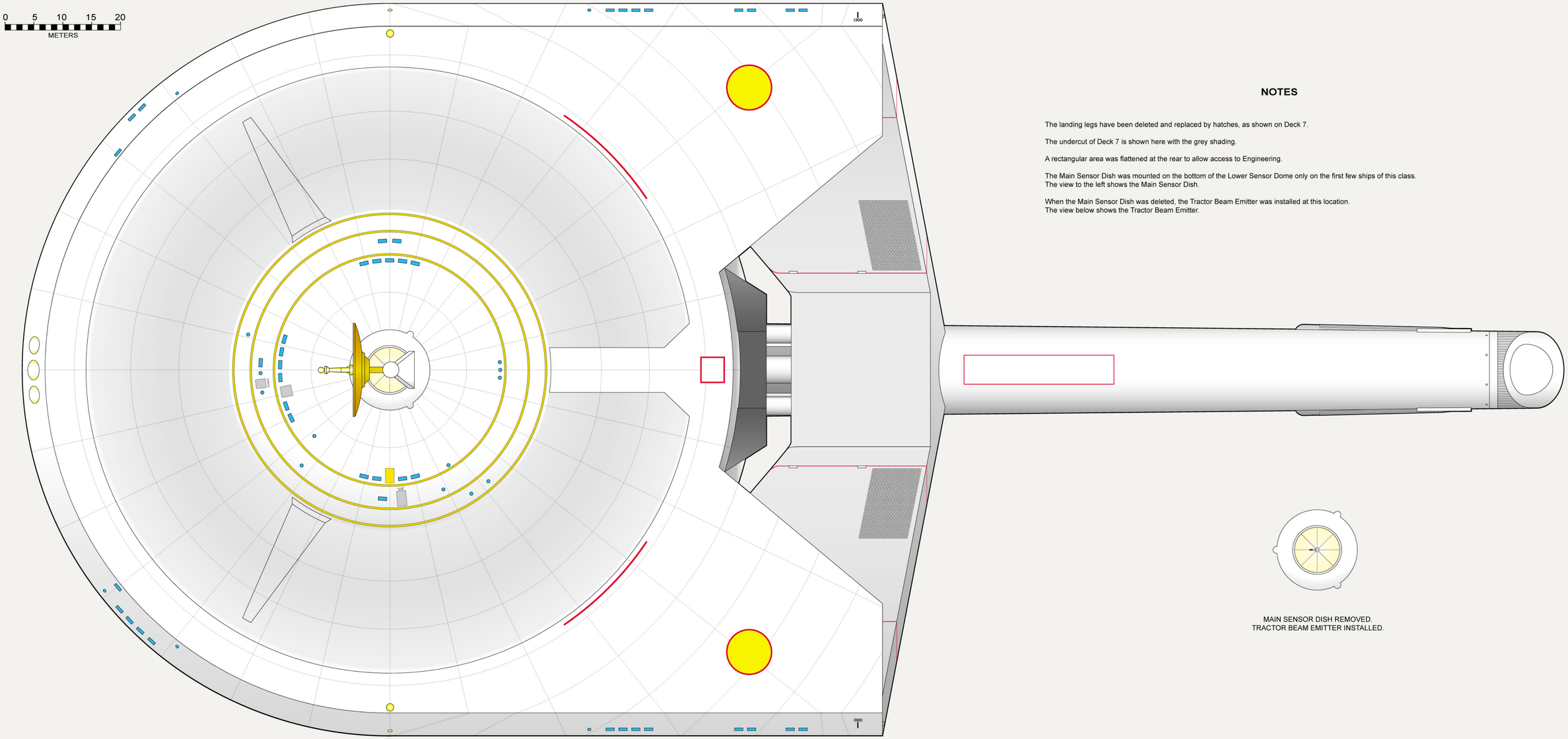
LAYOUT: BOTTOM PAGE 4 of 17

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0 5 10 15 20
METERS



NOTES

The landing legs have been deleted and replaced by hatches, as shown on Deck 7.

The undercut of Deck 7 is shown here with the grey shading.

A rectangular area was flattened at the rear to allow access to Engineering.

The Main Sensor Dish was mounted on the bottom of the Lower Sensor Dome only on the first few ships of this class.
The view to the left shows the Main Sensor Dish.

When the Main Sensor Dish was deleted, the Tractor Beam Emitter was installed at this location.
The view below shows the Tractor Beam Emitter.

MAIN SENSOR DISH REMOVED.
TRACTOR BEAM EMITTER INSTALLED.

STAR TREK - LARSON-CLASS DESTROYER

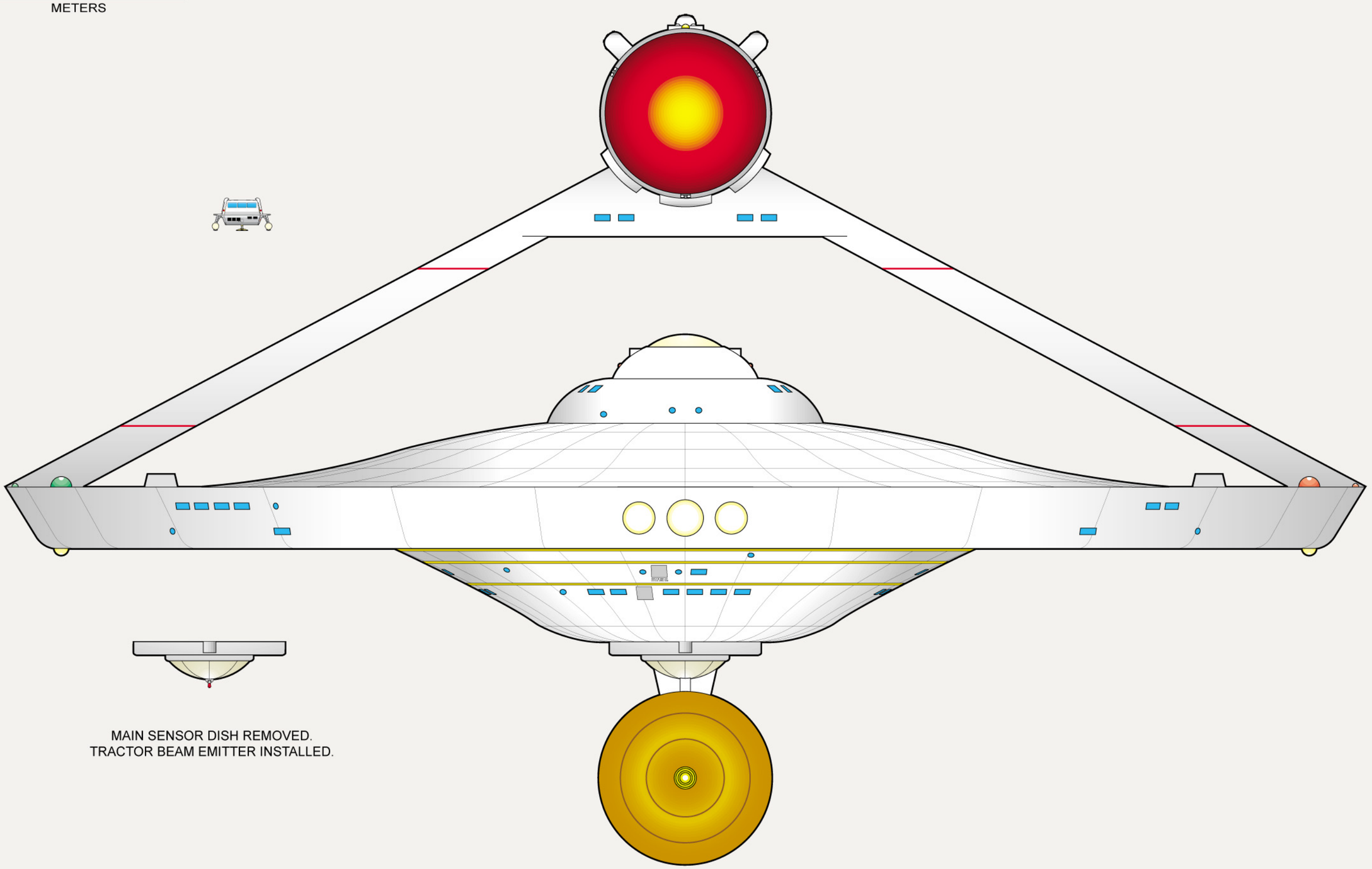
LAYOUT: FRONT **PAGE 5 of 17**

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MAIN SENSOR DISH REMOVED.
TRACTOR BEAM EMITTER INSTALLED.

NOTES

DECK 6
The layout of this deck is similar to the FJ design for the Constitution-class ship. I like the tri-radial symmetry. As on Deck 5, the turbo-elevator shafts are separated by 120°. I also added 4 more turbo-elevator storage spaces. This network is not as extensive as the FJ design; walking a few hundred feet or meters should not be an issue. However, it did need to reach further aft (and then drop down) so as to service the Hangar Bays.

Over half of this deck is devoted to Crew Quarters. Extensions at the rear contains VIP rooms, Observation Galleries, a Chapel, 2 Hangar Bays plus their related equipment.

The windows around the edge of the Primary Hull governed the location of the two Recreation Rooms / Lounges. They have balconies (on Deck 6) which overlook the main level (on Deck 7). Stairs lead down from the balconies to each Lounge.

DECK 6 (continued)
There are stairs at the bow, behind the Deflector Equipment, and also near the Hangar Bay entrances.

In the center are 3 relaxation areas. The one at the front is a Lounge. The other two are Messrooms because they are serviced by food dispensers which are directly connected to the Food Preparation area on Deck 8.

The Impulse Engines and Impulse Engineering are at the rear of the original Primary Hull, while the Hangar Bays occupy the extensions located on each side.

Machine shops are to port. Turbo-elevator maintenance is in the middle. Environmental Engineering is to starboard. The Engineering Computers are to port and starboard of Impulse Engineering.

STAR TREK - LARSON-CLASS DESTROYER

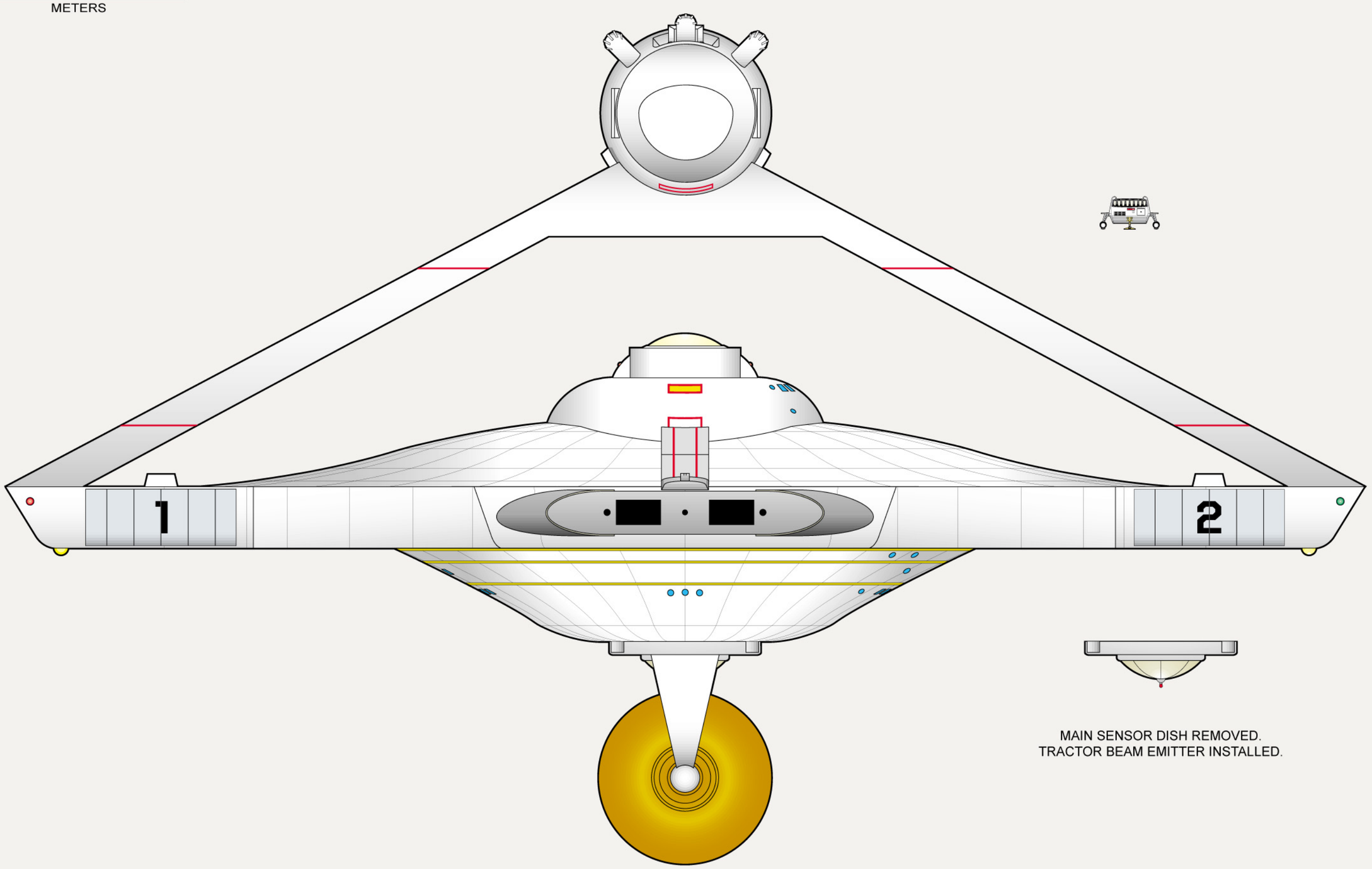
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LAYOUT: REAR

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MAIN SENSOR DISH REMOVED.
TRACTOR BEAM EMITTER INSTALLED.

NOTES

DECK 7
The windows around the edge of the Primary Hull governed the location of the two Recreation Rooms / Lounges. They have balconies (on Deck 6) which overlook the main level (on Deck 7). Stairs lead up from each Lounge to the balconies.
There are stairs at the bow, behind the Deflector Equipment, and also near the Hangar Bay entrances.

The grey area represents the concave cutout on the underside of the Primary Hull. This area could be used to store water, or fuel, or air, or more general cargo. I leave the area grey (for the most part) so as to clearly set it apart from the rest of the deck. The 2 Main Landing Legs found on Constitution-class ships were deleted and a hatch was installed at each location.

The center of this Deck contains the ship's Main Computers. The machinery for the Food Conveyors is located aft of the Main Computers. The ring around the Computers contains Sickbay. Sickbay includes various labs, offices, and a post-surgery recovery area.

The ring around Sickbay contains the Armory, Briefing Room, Brig, a few more offices, and airlocks

DECK 7 (continued)
leading to the 2 hatches. Four Transporters (for 6 people) as well as three Emergency Transporters (for 22 people) are also located in this ring. The Chapel has been moved to the deck above.

The extensions to the rear on each side of the Impulse Engines are for the Flight Deck and Maintenance Bay.

HANGAR BAYS

Shuttlecraft maintenance occurs on the Flight Deck. Fuel and parts are stored in bays behind the shuttlecraft. There are also Work Bees in separate bays.

There is no elevator platform for the Shuttlecraft; the markings on the Flight Deck are for targeting / landing.

STAR TREK - LARSON-CLASS DESTROYER

LAYOUT: PORT CUTAWAY PAGE 7 of 17

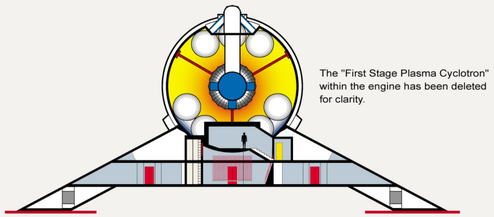
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0 5 10 15 20
METERS

ENGINE INSPECTION STATION (Cross-section, Looking Forward)



ENGINE INSPECTION STATION (Cross-section, Looking Forward)

CUTAWAY VIEW OF STARBOARD PYLON

NOTES

A SEE PAGE 1

These 3 pale gold-coloured recessed rings are part of the Tractor Beam system. See Page 15 for more information.

B

The Tractor Beam Emitter is built into the Main Sensor Dish. The Main Sensor Dish was installed only on the first few ships of this class. See Page 15 for more information.

C

The height of the bump behind the Bridge has been increased to allow a turbo-elevator to fit. See Page 8 for more information.

D

This is the "Emergency Crew Escape" hatch, to be used after the Primary Hull has detached from the Warp Engine and made an emergency landing.

E

The undercut on the bottom of the Primary Hull affects access to the outer ring of Deck 7. The undercut was flattened at the rear to allow access to Engineering.

F

Main (Warp) Engineering is located at the top of the pylons immediately below the Warp Engine. See Page 16 for more information.

G

The details of this pylon are shown separately in the view to the right.

H

The Matter-Antimatter Reaction Chamber is heavily shielded and recessed within the Warp Engine nacelle.

I

Antimatter is created / stored in the engine nacelle. In an emergency, the red-outlined panel swings open and the antimatter is ejected down and to the rear.

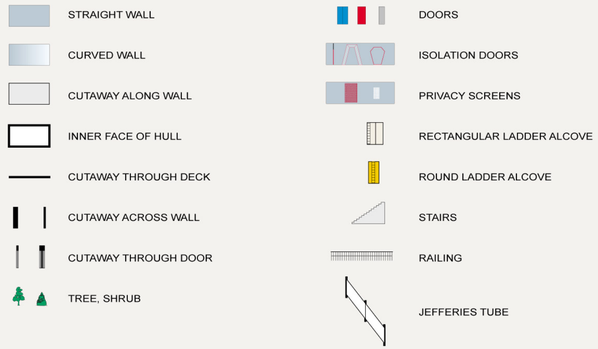
J

The Shuttlecraft used here measure 28 feet (8.5 meters) in length, as suggested by the size of the interior set. The studio prop was 21 feet (6.4 meters) which was about 3/4 of the intended size. In one episode of STAR TREK, Captain Kirk mentioned the Shuttlecraft is 24 feet (7.3 meters) long.

K

The upper "Separation Plane" is activated first. The pylons can provide some atmospheric control, or the pylons can be jettisoned using the lower "Separation Plane" if so desired.

CUTAWAY SYMBOLS



STAR TREK - LARSON-CLASS DESTROYER

LAYOUT: DECK 1 (BRIDGE)

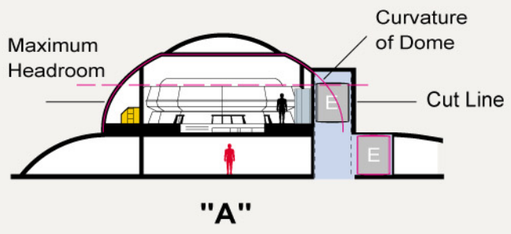
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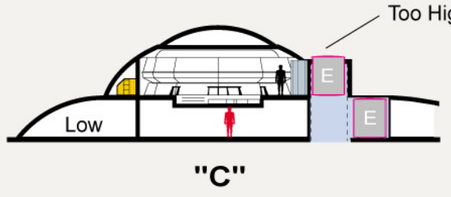
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ORIGINAL BRIDGE

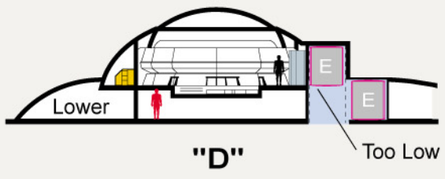


"A"

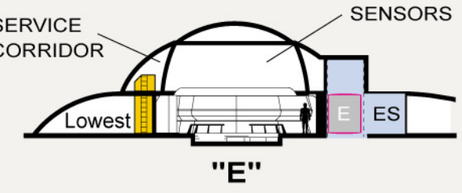


"C"

REVISED BRIDGE (3 possibilities)



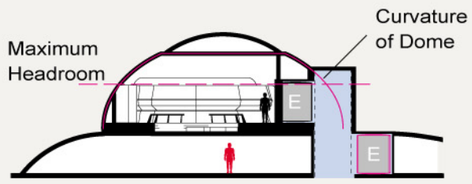
"D"

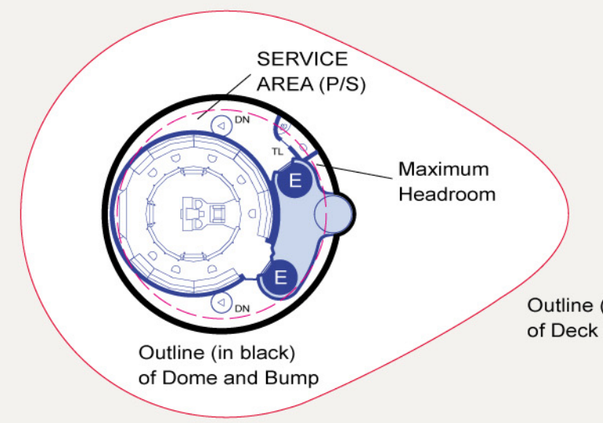


"E"

NOTES

ORIGINAL BRIDGE
The Bridge of the U.S.S. ENTERPRISE was intended to be under the dome on the studio model, as per the special effect in the first scene of THE CAGE. The original dome was taller. The bump aft of the dome

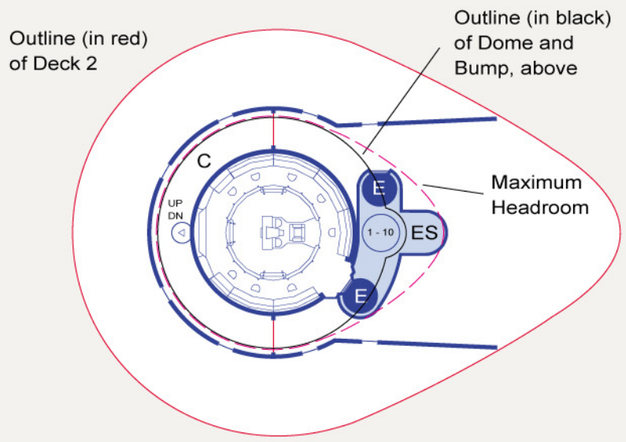




DECK 1: ORIGINAL BRIDGE ("B")

ORIGINAL BRIDGE (continued)
was also taller. A turbo-elevator car easily fits inside the bump even if the recessed floor of the Bridge is above the ceiling of Deck 2 (see "A"). However, the curvature of the dome does not allow a lateral turbo-elevator tube to fit behind the Bridge; the car has to remain inside the bump. Therefore, the Bridge has to be rotated 36° counter-clockwise.

A forward-facing Bridge CAN fit (see "B") but it has to be shifted toward the front. It is the only way a turbo-elevator car can fit under the curvature of the dome. This shift allows a lateral turbo-elevator tube and even a spare turbo-elevator car to fit behind the Bridge.



DECK 1: REVISED BRIDGE ("E")

REVISED BRIDGE (Low)
When the shape of the Bridge on the model was modified, material was removed from the bottom of the dome and the bump. The lower curvature of the dome's ceiling means the Bridge cannot be shifted forward. Placing it back in the middle means there is no space for a lateral turbo-elevator tube behind the Bridge, so the Bridge has to be rotated 36° to ensure the turbo-elevator car remains inside the bump. However, the material that was removed reduced the height of the bump too much. A turbo-elevator car no longer fit even if the recessed floor of the Bridge is dropped below the ceiling of Deck 2 (see "C").

REVISED BRIDGE (Lower)
If the main floor of the Bridge is also dropped below the ceiling of Deck 2, the turbo-elevator car does finally fit inside the bump. But, this makes the ceiling for most of Deck 2 too low. The Bridge is still rotated 36° but now the turbo-elevator car waiting inside the bump (to serve the Bridge) is too low, obstructing the shaft and preventing service to Deck 2 (see "D").

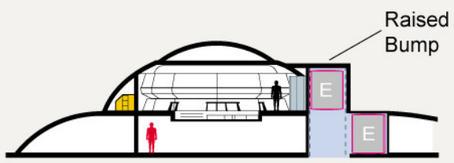
REVISED BRIDGE (Lowest)
If the Bridge is lowered all the way to Deck 2 a lateral turbo-elevator tube and even a spare turbo-elevator car fits (see "E"). But what of the dome? It could contain sensors and a service corridor . . . and now the Bridge is not as vulnerable, so all this might be a good thing.

In at least one episode, a character left the Bridge and a moment later a turbo-elevator car was available for another character to leave. Spare turbo-elevator cars must be stored somewhere close, very close.

The Bridge shown in "E" is used only in the U.S.S. ENTERPRISE Heavy Cruiser plans.

ALTERNATE BRIDGE CONFIGURATIONS
A simpler, more practical solution is to raise the bump slightly (see "F"). This is a good start. Extending the bump to the port side, or to both sides, is even better. Now a lateral turbo-elevator tube fits behind the Bridge.

The "Auxiliary Door" is optional, added here to satisfy what we see in the Animated Series. Think of it as being hidden behind the display panel to port of the main viewing screen.



MODIFIED BUMP ("F")

Such changes allow for smoother turbo-elevator operations, turbo-elevator storage spaces closer to the Bridge, and other (better, more logical) Bridge configurations. To the right are three such designs.
One of these is used in each of my starship blueprint sets.

v1.
A storage space for spare turbo-elevators exists to starboard. The bump is much bigger but is symmetrical.

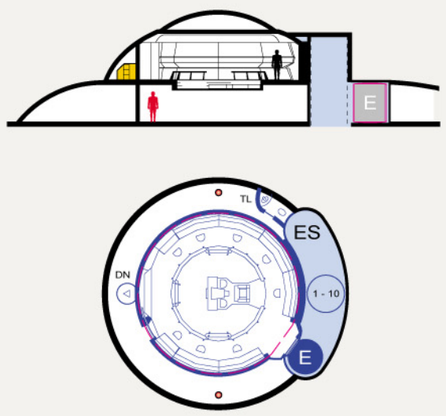
v2.
This second design minimizes the change to the size and shape of the bump but it is now asymmetrical.

v3.
The turbo-elevator storage space has been replaced by a second access

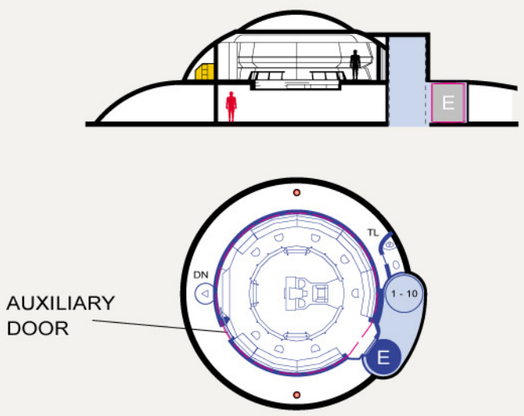
v3. (continued)
point for the Bridge. The stations have been re-arranged around the Bridge, but overall, one station has to be deleted.

In all these Bridge designs, access to the Service Corridor is via removable panels, or the auxiliary door, or the ladder.

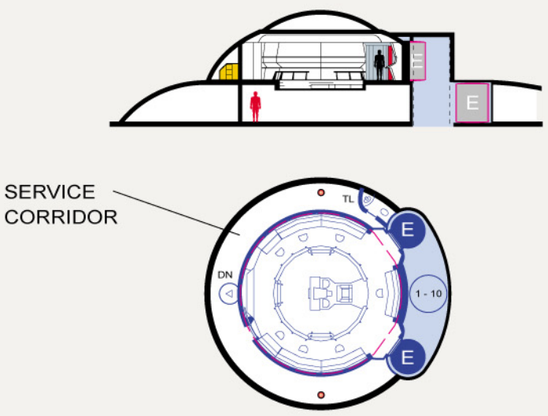
In all these alternate versions, the Bridge faces forward ... as it was always meant to be (in my humble opinion).



DECK 1: BRIDGE (v1)



DECK 1: BRIDGE (v2)



DECK 1: BRIDGE (v3)

STAR TREK - LARSON-CLASS DESTROYER

LAYOUT: DECKS and 3 **PAGE 9 of 17**

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NOTES

DECK 2
Even after adjusting the spacing of the top 4 decks, the recess in the center of the Bridge still affects the ceiling of Deck 2. The ceiling in the center of Deck 2 is so low that it can only be used for storage. That area is labeled EL (Environmental Lockers) and contains full spacesuits, partial suits, air-testing kits, etc ... useful if exiting via the hatch.

In at least one episode, a character left the Bridge and a second later a turbo-elevator was available for another character to leave the Bridge. Spare turbo-elevators must be stored somewhere nearby, so one such storage spot is on Deck 2.

A Briefing Room, the Captain's Ready Room, and other stations help support whatever military duties are assigned.

Stairs allow many people to exit the ship quickly. I can't imagine people trying to exit a ship (especially in an emergency situation) by using ladders. We never saw stairs but that does not mean stairs do not exist. The location of the hatch for these stairs coincides with an external marking on the studio model of the U.S.S ENTERPRISE.

DECK 3
Stairs for the emergency exit on Deck 2 start on Deck 4 and continue up from there past this level. On either side are storage spaces (labeled EL) containing full spacesuits, partial suits, air-testing kits, etc ... useful if exiting via the hatch on Deck 2.

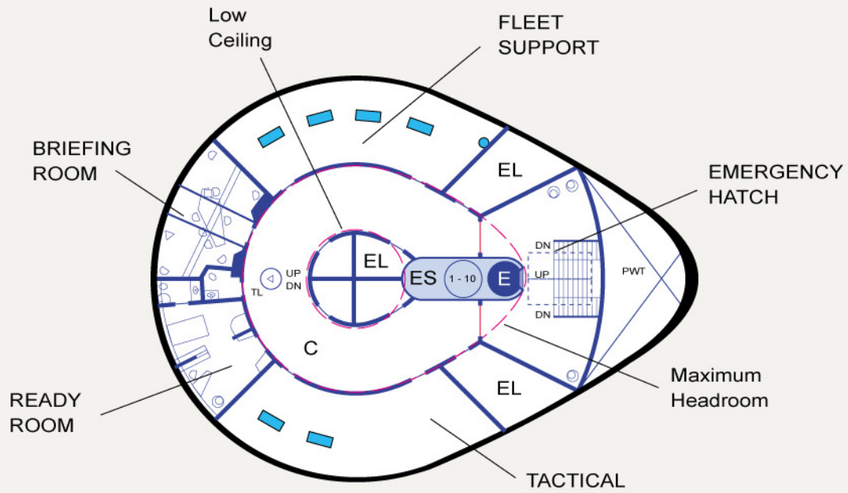
An Officers' Lounge occupies the forward part of this deck.

Some Science Labs will exist regardless of the exact role or class of the ship. They could be reconfigured depending on the mission requirements.

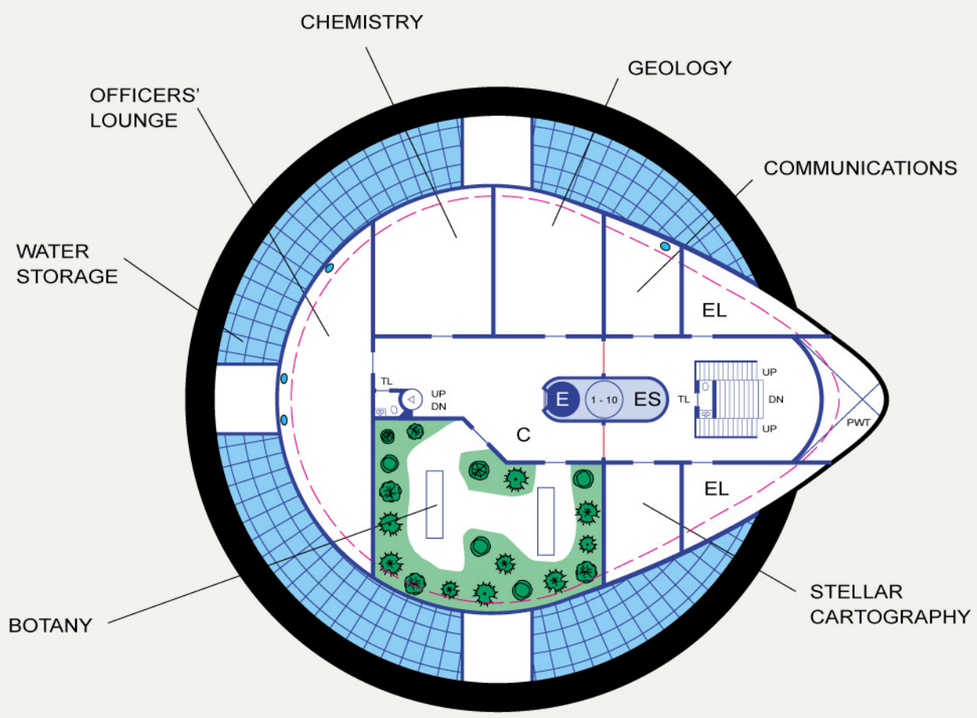
Water storage surrounds this deck.

SHIP DATA

LENGTH:	269 m
WIDTH:	127 m
HEIGHT:	62 m
TRANSPORTERS	
6-person:	4
22-person:	3
cargo:	1
SHUTTLECRAFT:	6
PHASERS	
banks of 2:	3
TORPEDO TUBES:	2



DECK 2: BRIEFING ROOM / READY ROOM



DECK 3: SCIENCE LABORATORIES / LOUNGE

STAR TREK - LARSON-CLASS DESTROYER

LAYOUT: DECK 4 **PAGE 10 of 17**

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0 5 10 15 20
METERS

NOTES

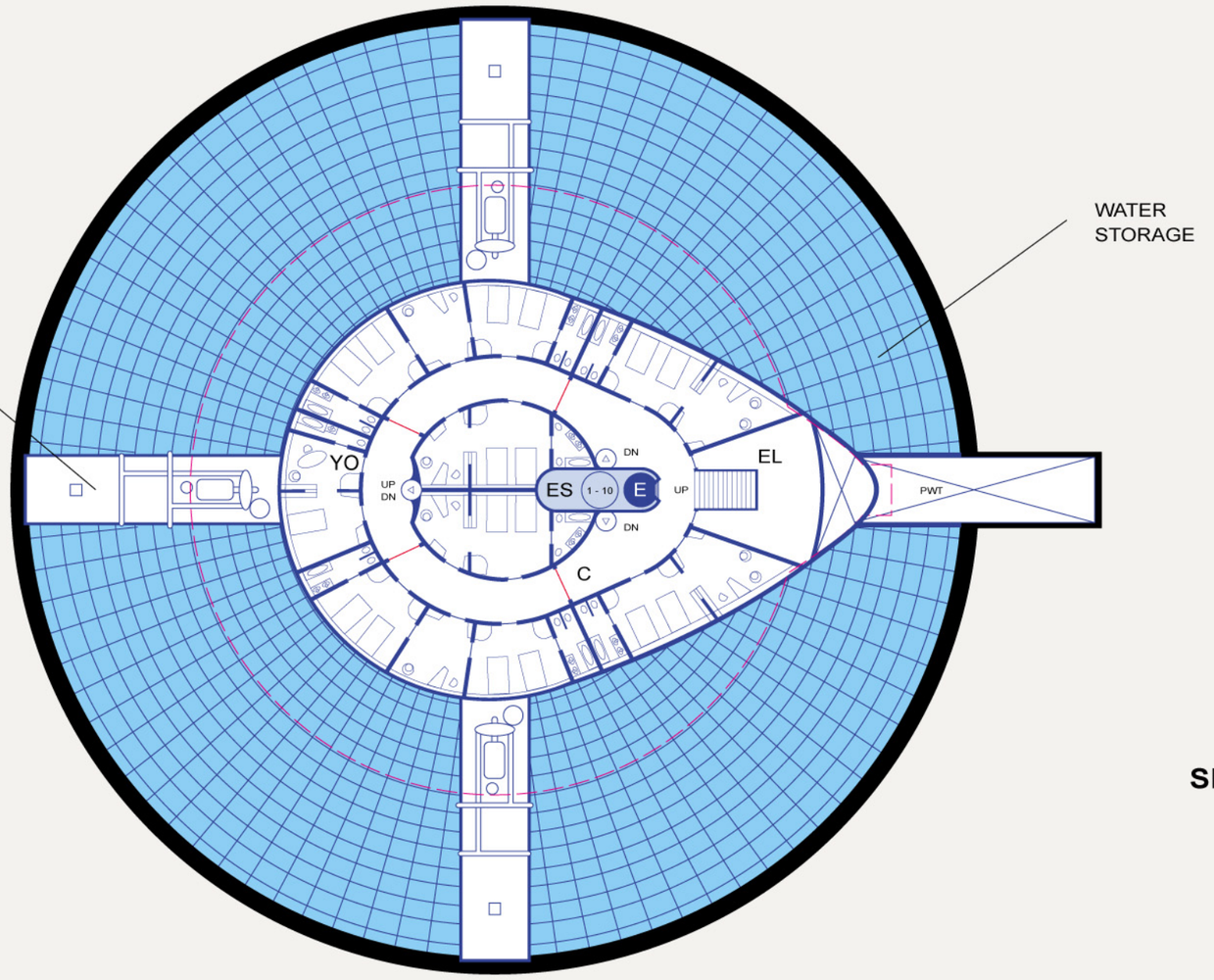
DECK 4
The stairs for evacuating the crew after an emergency landing via the hatch on Deck 2 start on this deck. Around, behind, and beneath these stairs is a storage space (EL).

TMoST mentions that Water Storage is on Deck 7. Of course, water can be placed there too, but the shallow space around this deck lends itself well to this function.

Most of the Crew's Quarters in the Primary Hull are laid out in rings. The rings are labeled from the center outwards, starting with A, then B, then C, and so on.

DECK 4 (continued)
TMoST mentions Junior Officers have quarters on Deck 4. There are sufficient accommodations in the Primary Hull for the crew complement of this type of ship. Crew members do not have to share quarters with anyone else.

This layout varies from the Constitution-class ship starting on this deck. The Piping / Wiring Trunk is raised so as to allow the turbo-elevator system on Deck 5 to reach further aft.



DECK 4: JUNIOR OFFICERS' QUARTERS

ACCOMMODATIONS

DECK 4 -	Ring A -	4
	Ring B -	13
DECK 5 -	Ring A -	12
	Ring B -	12
	Ring C -	14
DECK 6 -	Ring A -	12
	Ring B -	18
	Ring C -	30
	Ring D -	42
	Ring E -	32
	Ring F -	36
	Ring G -	35
	Ring H -	20
TOTAL:		300

SHIP'S COMPLEMENT

OFFICERS	20
ENLISTED	175
TOTAL	195

In JOURNEY TO BABEL, over 100 diplomats were transported by the U.S.S. ENTERPRISE.
In THIS SIDE OF PARADISE, over 150 colonists were transported off-planet by the ship.

Gene Roddenberry imagined a higher standard of living for everyone, even enlisted crew members. There are more than enough rooms and beds on the ship to accommodate diplomats, colonists, etc. It would only be in such situations that crew members might be asked to share quarters.

STAR TREK - LARSON-CLASS DESTROYER

LAYOUT: DECK 5 **PAGE 11 of 17**

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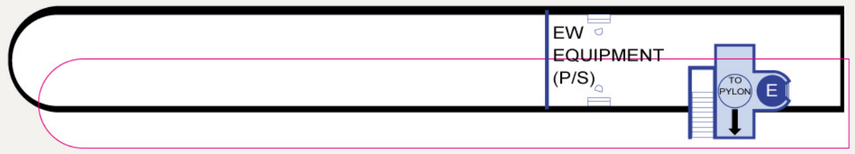
If printed 17 inches tall (from black-outlined edge to black-outlined edge) the scale of these drawings is 1/350.

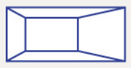
0 5 10 15 20
METERS

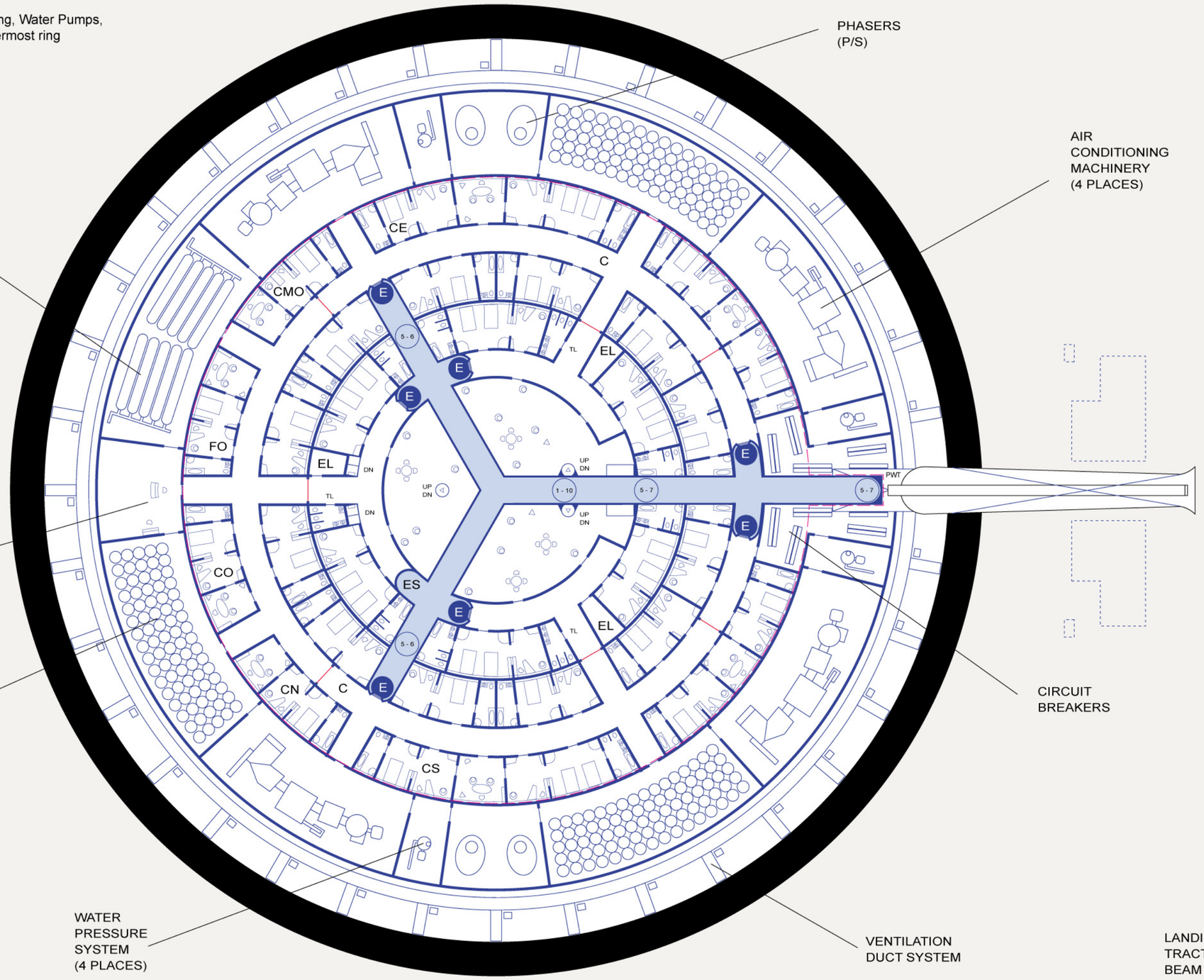
NOTES

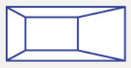
DECK 5
The layout of this deck is very similar to the FJ design. I like the tri-radial symmetry of his design. However, his turbo-elevator shafts were not set at 120° so I adjusted them.
There is also one turbo-elevator storage space.

I retained the Batteries, Air Conditioning, Water Pumps, etc. as well as the Phasers in the outermost ring around the Officers' Quarters.







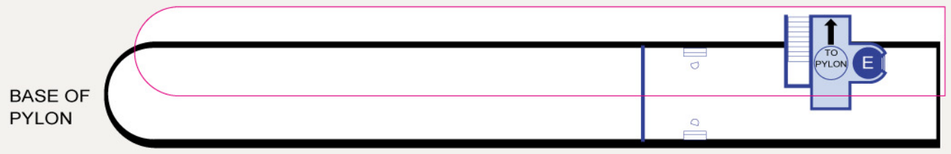


DECK 5 (continued)
In the center are 3 relaxation areas. The one at the front is a Lounge. The other two are considered to be Messrooms because they are serviced by food dispensers which are directly connected to the Food Preparation area on Deck 8.

Environmental Lockers (EL) are distributed all around the deck. They can also be used as storage spaces.

Tactical & Warfare Countermeasures Equipment (EW) is located in each pylon. Work stations related to this equipment are also located in each pylon.

DECK 5: SENIOR OFFICERS' QUARTERS



STAR TREK - LARSON-CLASS DESTROYER

LAYOUT: DECK 6 **PAGE 12 of 17**

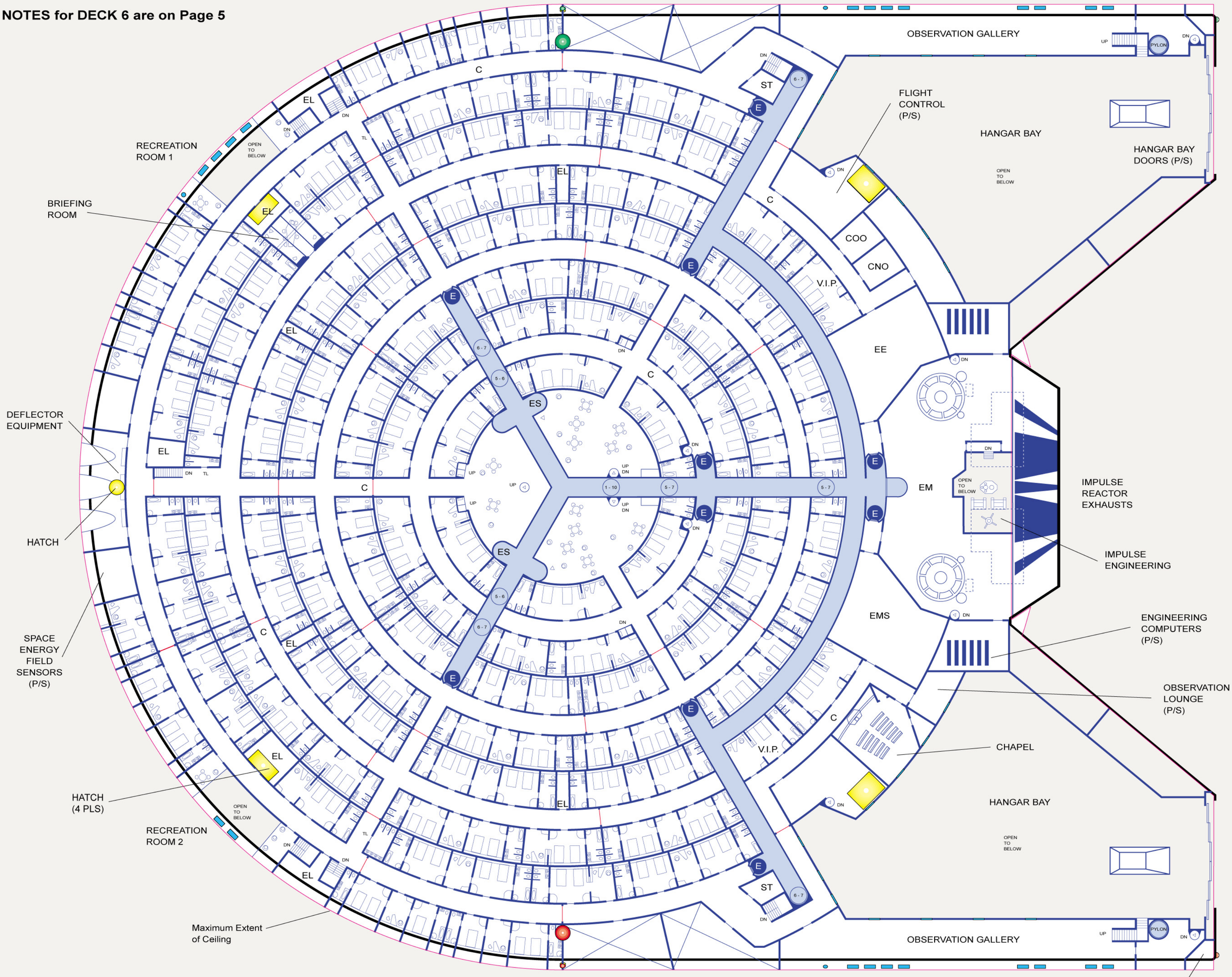
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0 5 10 15 20
METERS

NOTES for DECK 6 are on Page 5



DECK 6: CREW'S QUARTERS / ENGINEERING

STAR TREK - LARSON-CLASS DESTROYER

LAYOUT: DECK 7 **PAGE 13 of 17**

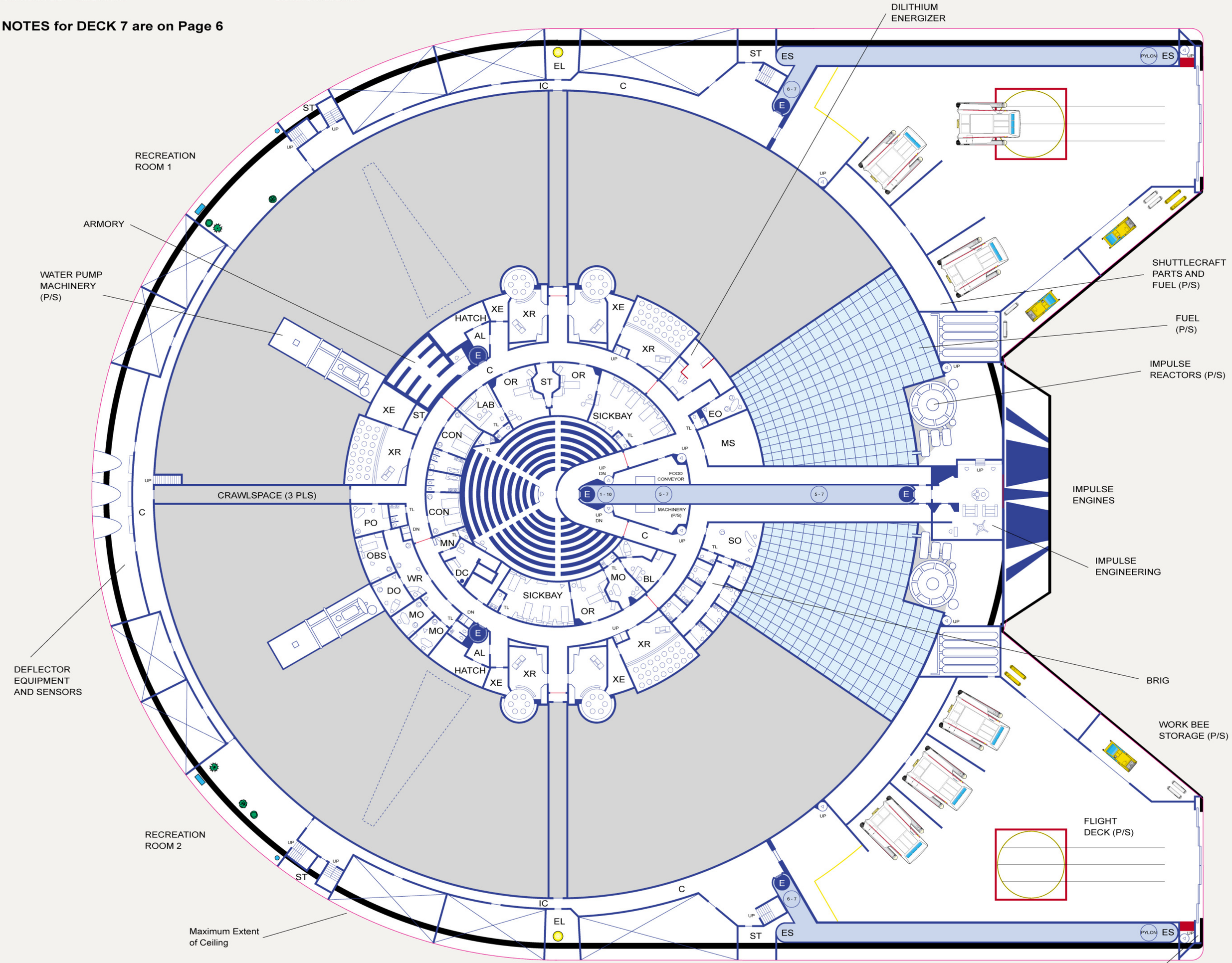
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0 5 10 15 20
METERS

NOTES for DECK 7 are on Page 6



DECK 7: SICKBAY / ENGINEERING / HANGAR BAY

STAR TREK - LARSON-CLASS DESTROYER

LAYOUT: DECKS 8 and 9 **PAGE 14 of 17**

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0 5 10 15 20
METERS

NOTES

DECK 8
Most of this deck is unchanged from the configuration of the Constitution-class ship. Laundry, Food Preparation, Main Recreation and Entertainment areas are here.

The Auxiliary Control is surrounded by the ship's Main Computers which continue here from the center of Deck 7.

The Water Storage found here is an extension of the Water Storage on Deck 7.

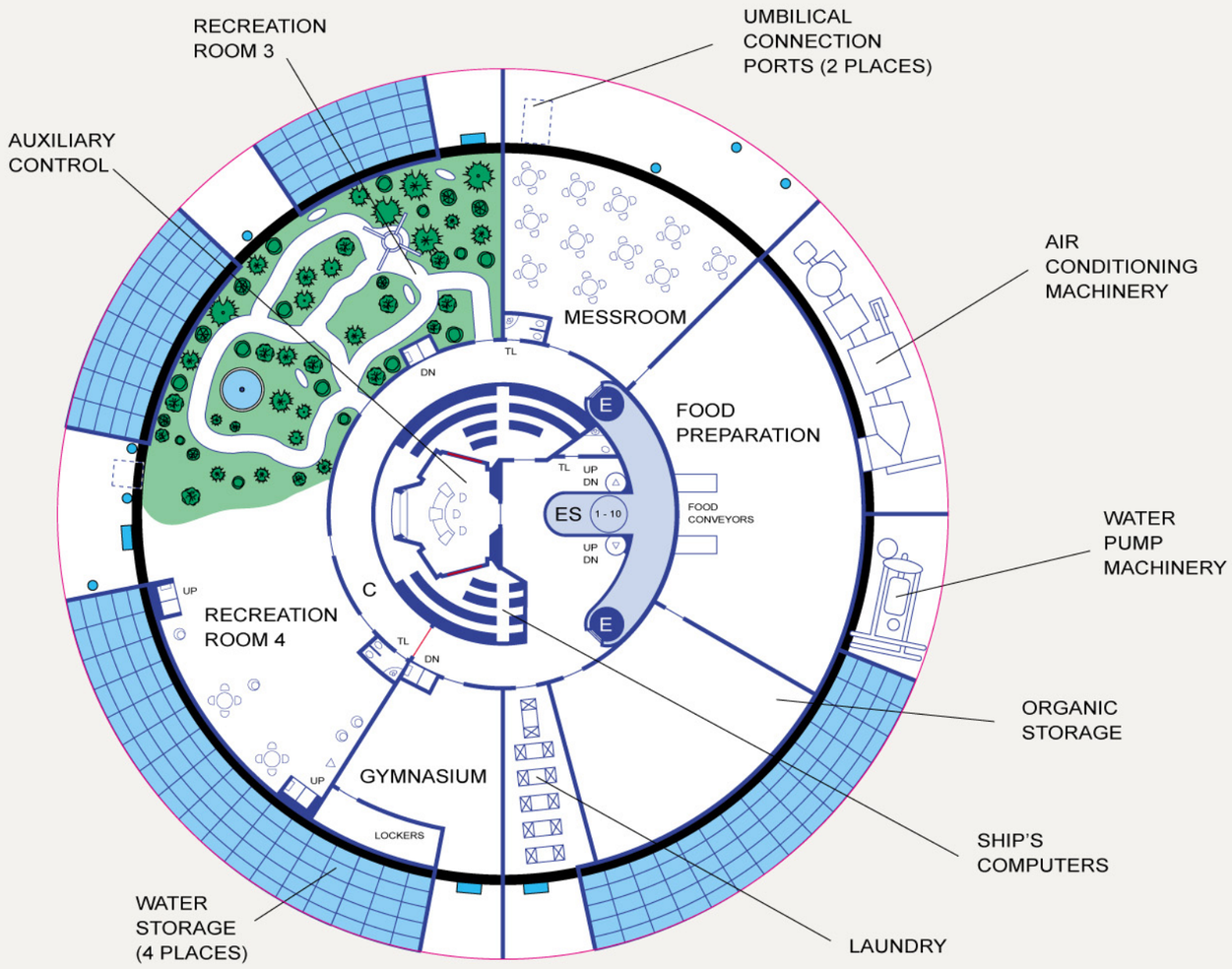
The Food Preparation area has two "conveyors" which distribute food upwards into the Messrooms located on Deck 6 and Deck 5.

There are four hatches or ports on the studio model. Two of them are on Deck 8. The other two are on Deck 9. Images of these hatches are below, left. Their distribution on the studio model is asymmetric, as are the windows around them. The hull is at such an extreme angle that even the longest hatch results in an opening only 4 feet (1.2 meters) tall. A crew member in a spacesuit can not fit through any of these hatches. Instead, these 2 hatches probably have a function similar to the Umbilical Connection Panels as on the Space Shuttle (below, right).

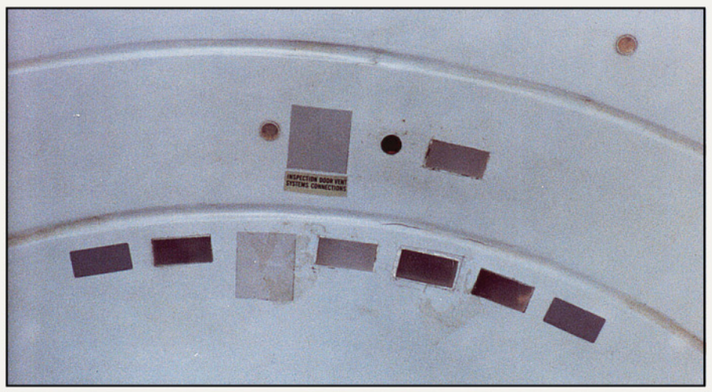
DECK 9
Most of this deck is unchanged from the original configuration of the Constitution-class ship. Material Reclamation and Fabrication is probably not a 100% efficient process. Therefore, these 2 hatches could allow for transfer of rare elements required in various manufacturing processes.

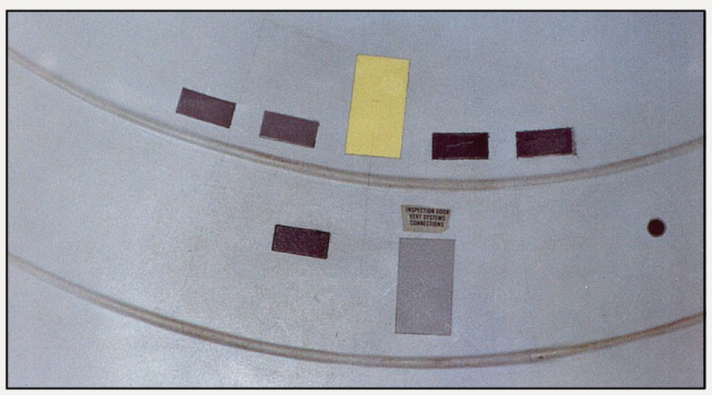
Deflector Equipment is located in the center of the deck.

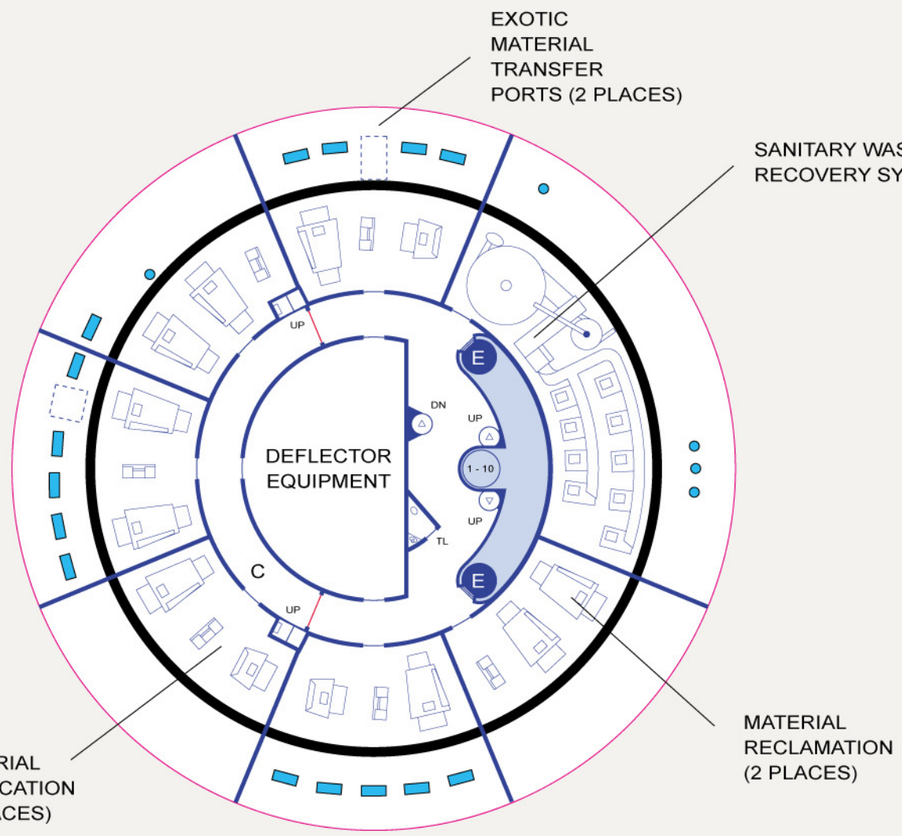
The Main Sensor Dish was only installed on the first few ships of this class. It was not installed on later versions because the Deflector System and Sensors in the bow of the Primary Hull were found to be adequate. On those later versions, the Deflector Equipment on Deck 9 was replaced was replaced with Material Reclamation equipment.

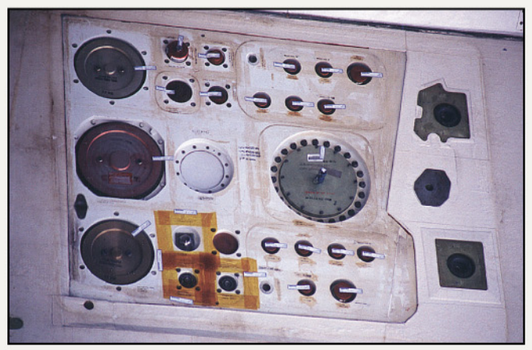


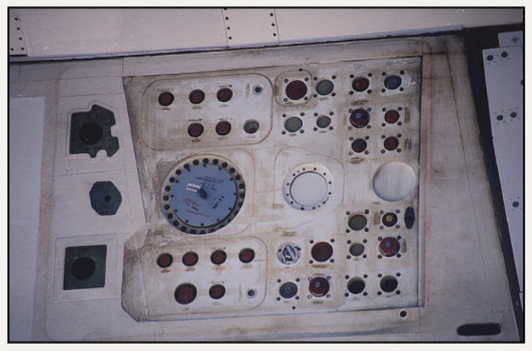
DECK 8: ENTERTAINMENT / RECREATION FACILITIES











DECK 9: FABRICATION FACILITIES

STAR TREK - LARSON-CLASS DESTROYER

LAYOUT: DECKS 10, 11, and 12

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NOTES

DECK 10
The Deflector Equipment located in the center of the deck work with the Deflector Equipment and the Space Energy Field Sensors located in the bow of Deck 6 and Deck 7 and with the Main Sensor Dish.

The Main Sensor Dish was only installed on the first few ships of this class. It was not installed on later versions because the Deflector System and Sensors in the bow of the Primary Hull were found to be adequate. On those later versions, the Deflector Equipment on Deck 10 was replaced with Cargo Holds.

TMoST mentions Photon Torpedoes but not their location. Photon Torpedoes were shown in various episodes of STAR TREK to emanate from the underside of the Primary Hull, approximately the same place as the Phasers. Since TMoST states Phaser Banks are on Deck 11, the logical spot for Photon Torpedoes and their launch system is on Deck 10.

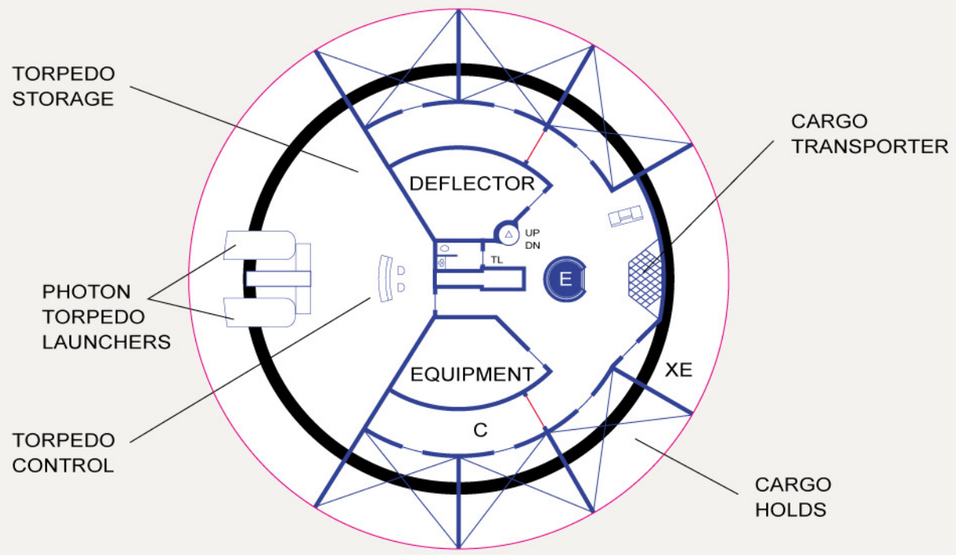
TMoST states that miscellaneous activities and cargo spaces are on Deck 10. Since cargo spaces are on this deck, it is logical to place a Cargo Transporter here.

DECK 11
Phasers are located on this deck.

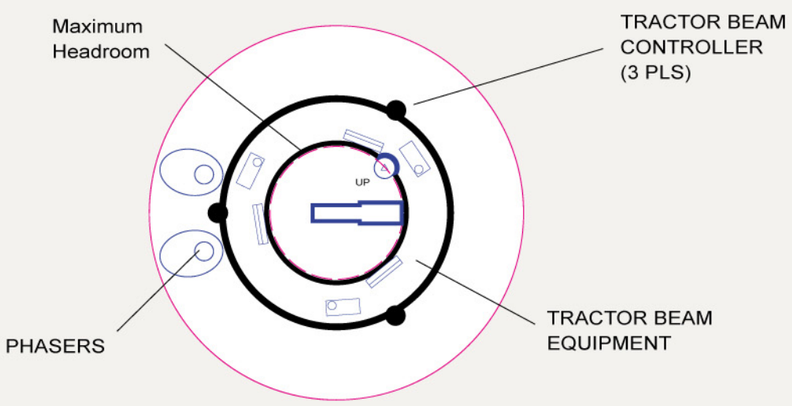
The equipment around the perimeter is for the Tractor Beam. The 3 Tractor Beam Controllers direct the Emitter so that the beam can locate and lock onto the object being towed.

The 3 pale gold-coloured recessed rings on the underside of the Primary Hull absorb and re-direct any back-scatter created by the Tractor Beam.

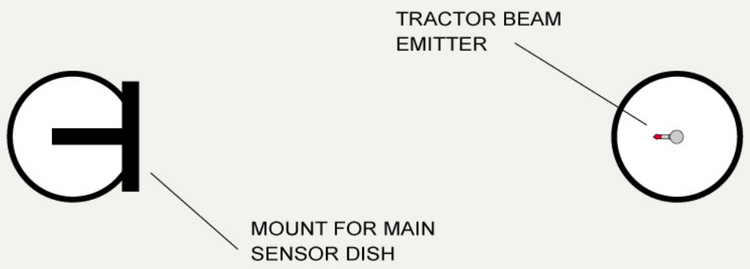
DECK 12
The Lower Sensor Dome is located here.
The Main Sensor Dish was mounted on the bottom of the Lower Sensor Dome only on the first few ships of this class. When the Main Sensor Dish was deleted, the Tractor Beam Emitter was installed at this location.



DECK 10: PHOTON TORPEDO LAUNCHERS / CARGO TRANSPORTER



DECK 11: PHASERS / TRACTOR BEAM



DECK 12: SENSORS / TRACTOR BEAM

STAR TREK - LARSON-CLASS DESTROYER

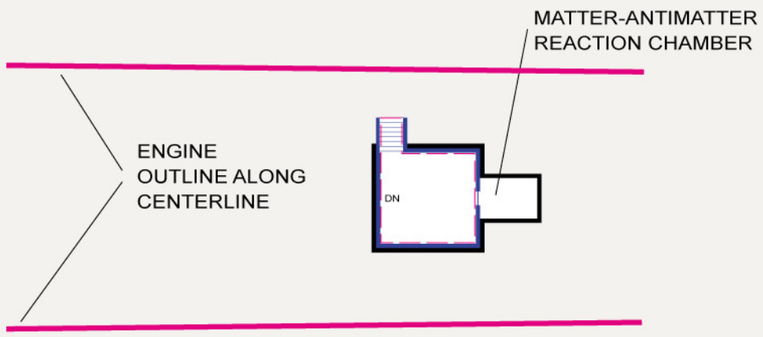
LAYOUT: A and B DECKS, PYLON PAGE 16 of 17

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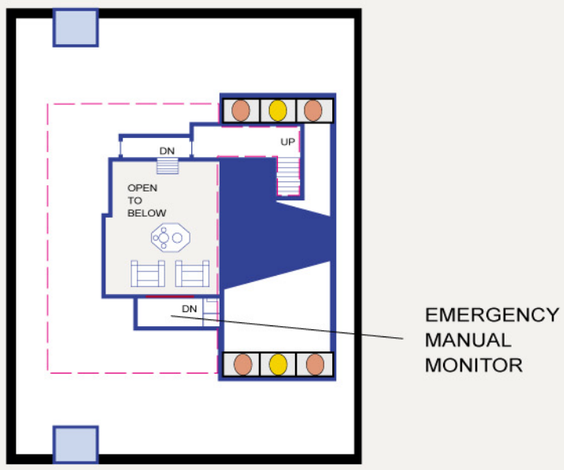
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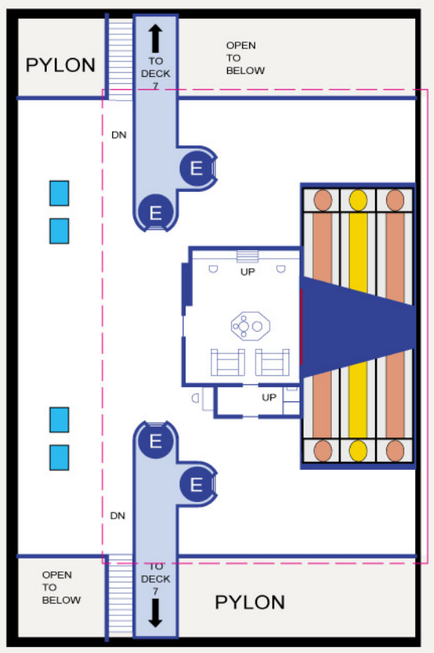
0 5 10 15 20
METERS



ENGINE INSPECTION STATION



**"A" DECK:
WARP ENGINEERING
HIGHBAY**



**"B" DECK:
WARP ENGINEERING**

NOTES

Warp Engineering is located at the top of the pylons immediately below the Warp Engine. This may seem controversial and unconventional, however, even though the power conduits could have traveled down the pylons they would not have been able to reach into the Primary Hull because the Hangar Bay occupies the entire volume at the base of the pylon. So, if the power cannot be brought to Engineering, move Engineering to the power source.
Extra shielding is installed all around Warp Engineering.

ENGINE INSPECTION STATION
The Matter-Antimatter Reaction Chamber is accessed by stairs to starboard from "A" Deck.

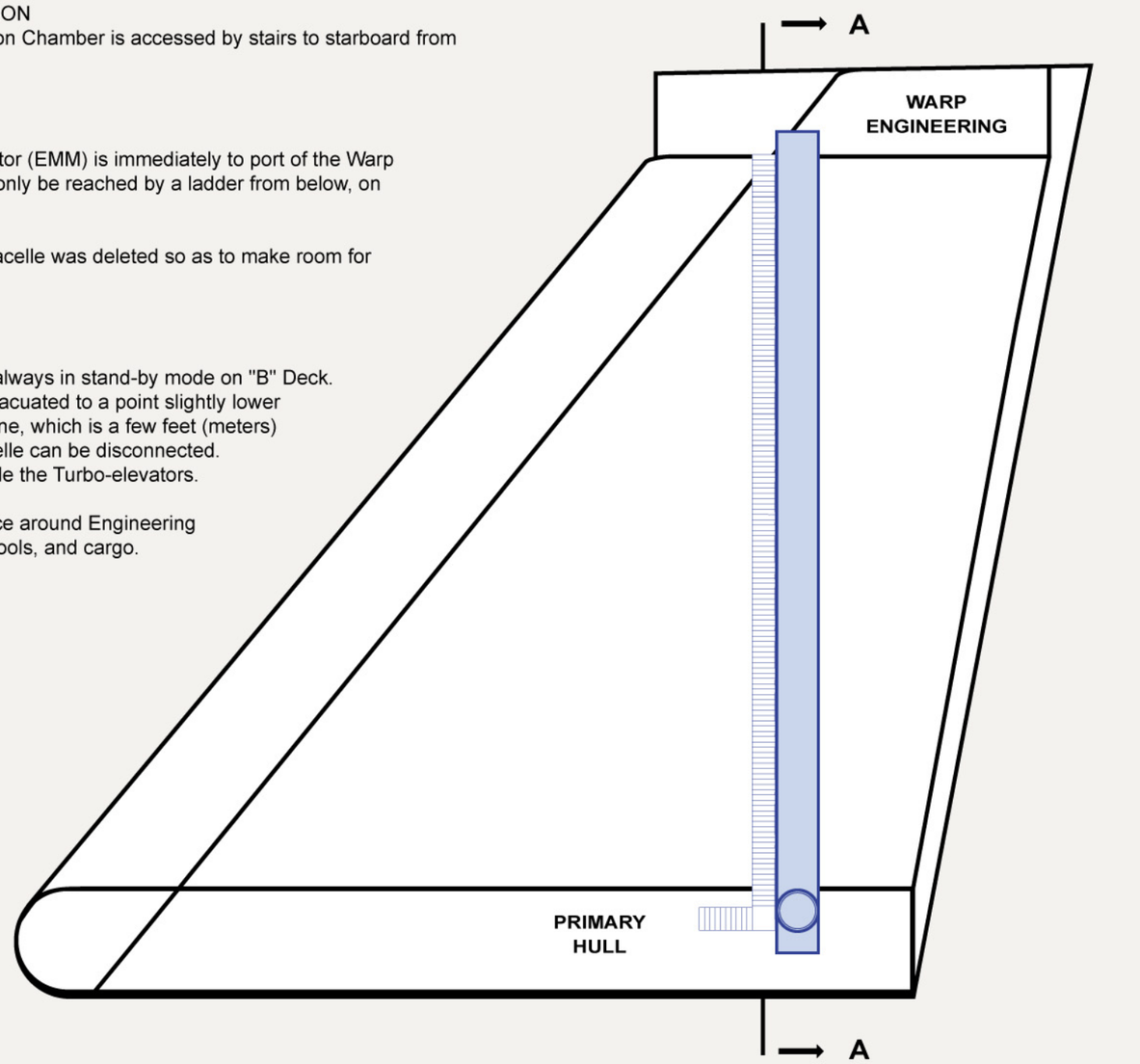
"A" DECK
The Emergency Manual Monitor (EMM) is immediately to port of the Warp Engineering High Bay. It can only be reached by a ladder from below, on "B" Deck.

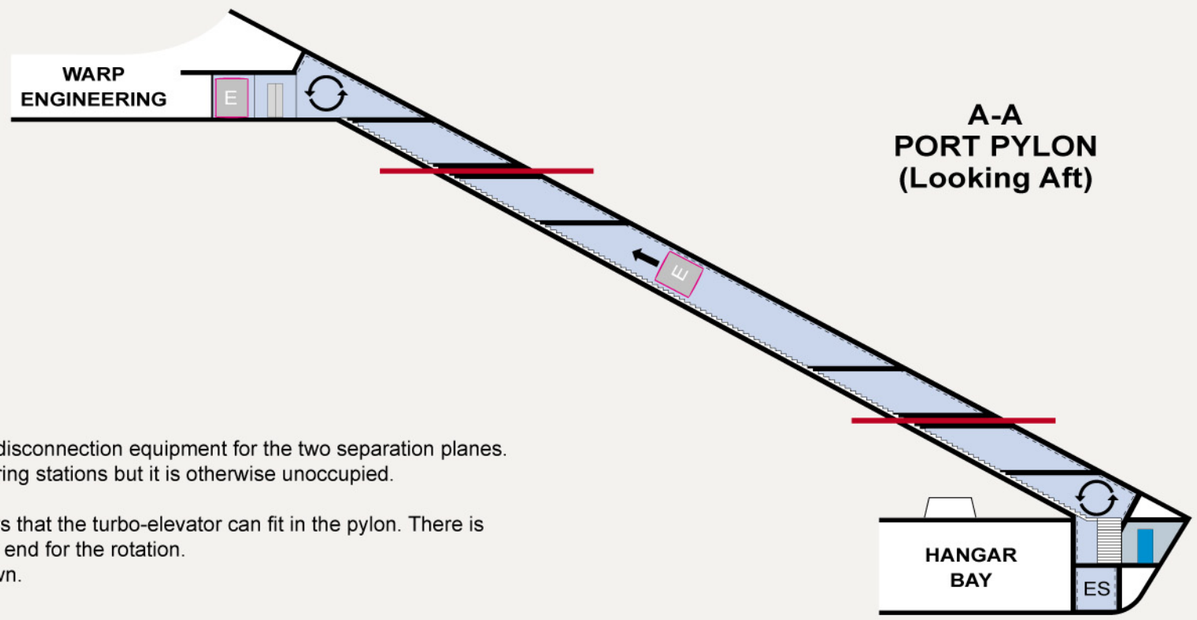
One fuel tank in the engine nacelle was deleted so as to make room for the EMM.

"B" DECK
Four (4) Turbo-elevators are always in stand-by mode on "B" Deck. The crew only needs to be evacuated to a point slightly lower than the upper separation plane, which is a few feet (meters) below, before the engine nacelle can be disconnected. Stairs are also available beside the Turbo-elevators.

In many cases, the extra space around Engineering is filled with machine shops, tools, and cargo.

**PORT PYLON
(Looking Down)**





**A-A
PORT PYLON
(Looking Aft)**

PYLON
The pylon contains the disconnection equipment for the two separation planes. There are some monitoring stations but it is otherwise unoccupied.

View A-A (at right) shows that the turbo-elevator can fit in the pylon. There is space set aside at each end for the rotation.
The stairs are also shown.

STAR TREK - LARSON-CLASS DESTROYER

LAYOUT: NOTES, SYMBOLS, etc. **PAGE 17 of 17**

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GENERAL NOTES

When Matt Jefferies designed the U.S.S. ENTERPRISE, he wanted a smooth hull. He reasoned that if anything needed to be accessed, it would be done so from inside the ship. But if red rectangles and yellow circles exist on the hull, they must be there for emergency situations, quick identification, or some aspect of ship's operations.

Matt Jefferies understood that incredible energies would be required to propel a ship faster than light. If this is accomplished with antimatter, why store it in the habitable section of the ship? He and Gene Roddenberry both loved airplanes; they understood and agreed on the importance of isolating dangerous components, yet still making them accessible if required. Yes, Dilithium Crystals are stored in or near Engineering and help modify / channel the energy, but why does the antimatter need to be stored in or near Engineering?

The idea of a Bussard Ramjet was developed in 1960. This label was applied to the U.S.S. ENTERPRISE engines retroactively, after the series ended. A Bussard Ramjet compresses matter for fusion. The grey area on the engine nacelle could indicate where that matter is stored. But on the U.S.S. ENTERPRISE the matter is then mixed with antimatter. Therefore, the red rectangle on the engine nacelle could indicate where the antimatter is stored.

The red rectangle on the engine nacelle could be an access hatch, or an "Emergency Jettison" hatch. Dialogue in various episodes of STAR TREK corroborates the idea of disengaging, discarding, or jettisoning the warp engine nacelles. Dialogue also mentions ejecting the antimatter pod.

The idea of a "Warp Core" came along much later, when the ENTERPRISE was refit for the movies. Will Decker told Kirk, "This is an almost totally new ENTERPRISE." The idea of "ejecting a Warp Core" was introduced in STAR TREK THE NEXT GENERATION. These drawings make no attempt to "retcon" such concepts.

The huge pipes / conduits (visible through the grille behind Engineering) was a set built with forced perspective to suggest immense size and power. The angle on the conduits suggests they continue up the pylons of the U.S.S. ENTERPRISE.

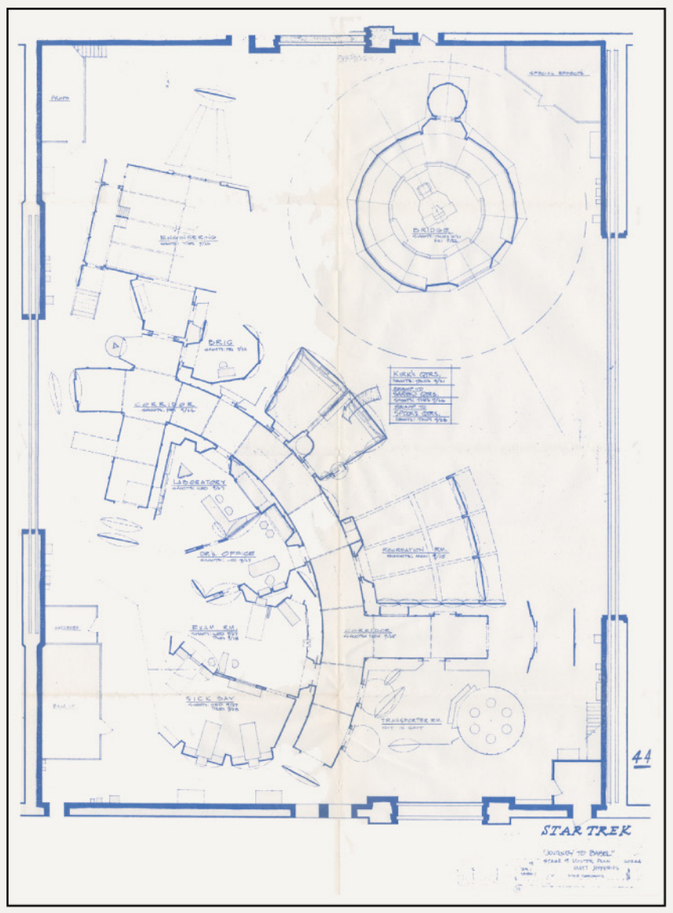
Regarding the antimatter:
CASE 1. Collect matter in the engine nacelle, send the matter to Engineering, mix it (in the habitable section of the ship) with antimatter (stored in the habitable section of the ship!), pass the energy through the Dilithium Crystals, then send the energy up to the engine nacelles to create the warp field.
CASE 2. Collect matter in the engine nacelles, mix it (in the engine nacelles) with antimatter (stored in the engine nacelles), send the energy to Engineering, pass the energy through the Dilithium Crystals, then send the energy up to the engine nacelles to create the warp field.

In both cases, energy is being transmitted. There is no need to move the fuel too (as in Case 1).
Case 1 is unnecessarily complicated.
Case 2 is simpler, and as a bonus, the antimatter is kept away from the habitable section of the ship.

ABBREVIATIONS

AL	-	AIRLOCK
BL	-	BIO LAB
C	-	CORRIDOR
CE	-	CHIEF ENGINEER
CMO	-	CHIEF MEDICAL OFFICER
CN	-	CHIEF NURSE
CNO	-	CHIEF NAVIGATOR'S OFFICE
CO	-	COMMANDING OFFICER
COO	-	COMMUNICATIONS OFFICER'S OFFICE
CON	-	CONVALESCENT WARD
CS	-	CHIEF OF SECURITY
DC	-	DECOMPRESSION CHAMBER
DN	-	DOWN
DO	-	DENTIST'S OFFICE
E	-	TURBO-ELEVATOR CAR
EE	-	ENVIRONMENTAL ENGINEERING
EL	-	ENVIRONMENTAL SUIT LOCKER
EM	-	TURBO-ELEVATOR MAINTENANCE
EMS	-	ENGINEERING MACHINE SHOPS
EO	-	CHIEF ENGINEER'S OFFICE
ES	-	ELEVATOR STANDBY / STORAGE
FO	-	FIRST OFFICER
IC	-	INSPECTION CORRIDOR
LAB	-	LABORATORY
LL	-	LANDING LEG
LLM	-	LANDING LEG MACHINERY
MN	-	DUTY NURSE
MO	-	DOCTOR'S OFFICE
MS	-	MEDICAL SUPPLIES
OBS	-	OBSTETRICS
OR	-	OPERATING ROOM
P	-	PORT (LEFT)
PLS	-	PLACES
PO	-	PSYCHIATRIST'S OFFICE
PWT	-	PIPING / WIRING TRUNK
S	-	STARBOARD (RIGHT)
SO	-	SECURITY OFFICE
SCO	-	SECURITY CHIEF'S OFFICE
ST	-	STORAGE
TL	-	TOILET
WR	-	WAITING ROOM
XE	-	TRANSPORTER EQUIPMENT
XR	-	TRANSPORTER ROOM

THE DESILU STAGE AT THE SAME SCALE



PLAN SYMBOLS

CHAIRS

TABLES

DINING TABLE

SHOWER, TUB

DRESSERS

BED

ROOM PARTITIONS
- White circular grille
- Red hexagonal grille

TOILET, SINK

LADDERS

STAIRS, RAILING

WALL and DOOR

AIR CONDITIONING EQUIPMENT

BATTERIES

MEDICAL DIAGNOSTIC BED

CONTROL CONSOLES

ISOLATION DOOR

CIRCUIT BREAKERS

COMPUTERS

WATER PRESSURE SYSTEM

LAUNDRY UNIT

WATER PUMP MACHINERY

HULL THICKNESS AT FLOOR LEVEL (Varies depending on hull curvature)

TREE, SHRUB

FOUNTAIN

SANITARY WASTE RECOVERY SYSTEM

MATERIAL FABRICATION / RECLAMATION MACHINERY

STANDARD GASES

INNER FACE OF HULL
(Used to show the undercut on Deck 7)

STAR TREK - LARSON-CLASS DESTROYER

LAYOUT: THE U.S.S. RICHTHOFEN PAGE BONUS

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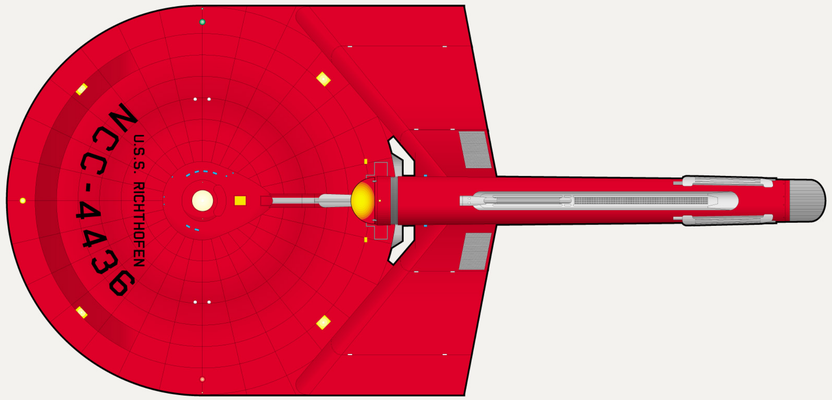
If printed 17 inches tall (from black-outlined edge to black-outlined edge) the scale of these drawings is 1/1000.

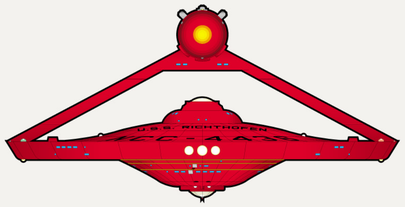
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METERS

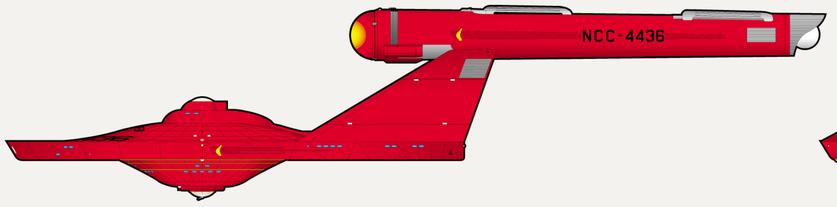
CLASS DATA

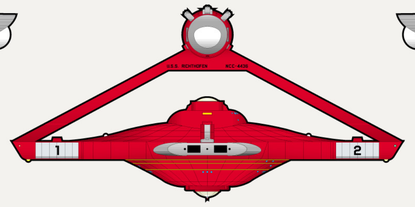
VERSION	STARDATE	QUANTITY
Mark I	1 / 8801	109
Mark II	1 / 9804	34
Mark VI	2 / 0912	6
Mark VII	2 / 1403	13

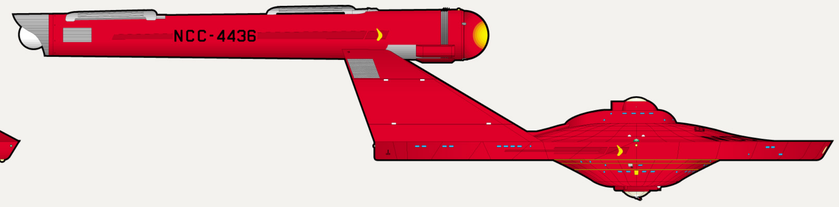
Production stopped Stardate 2 / 1808





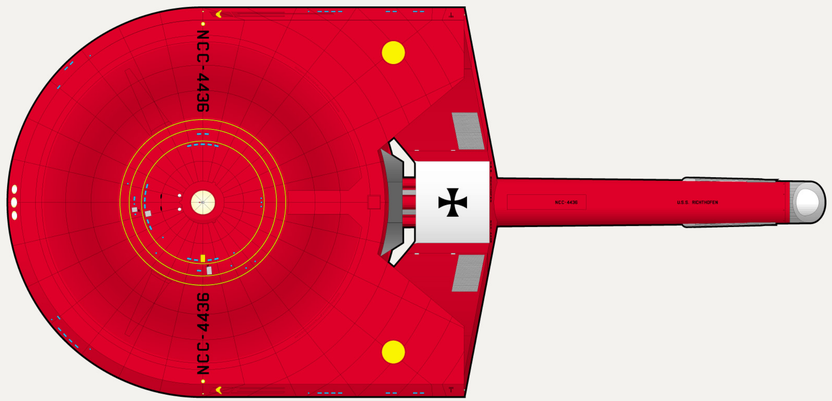






SHIP DATA

LENGTH:	269 m
WIDTH:	127 m
HEIGHT:	62 m
TRANSPORTERS	
6-person:	4
22-person:	3
cargo:	1
SHUTTLECRAFT:	6
PHASERS	
banks of 2:	3
TORPEDO TUBES:	2



NOTES

Designed at the same time as the NELSON-class Scouts and the CONSTITUTION-class Heavy Cruisers, the LARSON-class Destroyers share many of the same physical features of these ships.

The LARSON-class Mark I was introduced into service on Stardate 1 / 8801, remaining unchanged until the introduction of the Mark II. There were 109 Mark I ships built.

The Mark II introduced on Stardate 1 / 9804, replaced laser weaponry with the newer phaser and photon technology. All Mark I vessels were refitted with the new weapons by 2 / 0109.
There were 34 Mark II ships built.

The Mark VI, introduced on Stardate 2 / 0912, mounted a more powerful impulse drive system, improved phaser weapons and the more efficient FSD shield generators.
There were 6 Mark VI ships built.

The Mark VII, introduced on Stardate 2 / 1403, mounted a newer style engine nacelle and a more powerful impulse drive system.
There were 13 Mark VII ships built.

As of Stardate 2 / 2205, all LARSON-class ships in active service have been upgraded to the Mark VI, and several have been modified to the Mark VII. Production was halted on Stardate 2 / 1808.

The U.S.S. RICHTHOFEN, constructed on Stardate 2 / 0111, started as a Mark II Destroyer.

On Stardate 2 / 1311, the U.S.S. RICHTHOFEN was recalled for its Mark VI upgrade.

On Stardate 2 / 1502, the U.S.S. RICHTHOFEN was recalled for an engine refit and scheduled maintenance to shipboard systems.
As the ship's refit and maintenance checks neared completion, spirited Ensigns and sympathetic workers painted the ship bright red in honor of its namesake. Starfleet Command has decided to leave the ship in this color despite the breach of regulations. However, all the Ensigns were mildly disciplined.

On Stardate 2 / 1712, the U.S.S. RICHTHOFEN was recalled for its Mark VII upgrade.

So, the U.S.S. RICHTHOFEN existed as shown here between Stardate 2 / 1502 and Stardate 2 / 1712.
It is not clear if the new engine (the Mark VII upgrade) was also painted red.

The vessel is still in service and is assigned to the Klingon sector.

The ship is shown here with all weapons deployed.