U.S.S. VOYAGER’S AEROSHUTTLE

AUXILIARY VESSEL
LAUNCHED: 2369
CREW: FOUR
MAX SPEED: WARP 5
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Stand assembly:

Hook the stand over the wings at the back.
AEROSHUTTLE
SPECIFICATION

- **TYPE:** AUXILIARY VESSEL
- **ATTACHED TO:** U.S.S. VOYAGER NCC-74656
- **LAUNCHED:** 2369
- **LENGTH:** 20 METERS (APPROX.)
- **CREW:** FOUR
- **TOP SPEED:** WARP 5
- **WEAPONRY:** PHASERS, TWO FORWARD, MICROTORPEDO LAUNCHERS
The Aeroshuttle was a small, warp-capable vessel designed to be integrated with the underside of the saucer section on Intrepid-class vessels such as the U.S.S. Voyager.
The Aeroshuttle, a multi-mission spacecraft that was based on the Danube-class Runabout hull, was integrated with the Intrepid-class starship design in 2368, just as the U.S.S. Danube was completing its flight trials. The mission requirements included independent warp flight operations, defense of the home vessel, extended planetary landing and reconnaissance tasks, and crew evacuation. The Runabout plan was chosen for its rugged central structure and available components, onto which new wings and warp nacelles would be grafted.

While Starfleet called for seven Aeroshuttles to be fitted to Intrepid-class starships to serve a similar function to the Captain’s Yacht on the Galaxy class, eight others would be used as independent flyers or assigned to other heavy starship classes as hangered shuttles. Unlike the Runabouts, the Aeroshuttles did not enjoy unique vessel class status, nor did they receive commissioning names. Construction and integrated systems followed basic Starfleet standards of the period. Spaceframe and plating included tritanium, duranium and polyborane composites, chosen for their wide availability in distant locations and ease of repair by the ship’s crew.

Modularity as in the Runabout was not a requirement. All necessary ship’s stores and mission-specific gear could be loaded through normal hatches and consumables ports. Most major systems were accessible through hull plates or, in the case of the warp core, could be exposed on the Aeroshuttle exterior. All hull sections vulnerable to weapons fire were reinforced structurally and with shield emitters.

**DEFENSIVE TESTING**

Prior to full production, one of the two test vehicles was equipped with all standard systems plus telemetry gear and a remote piloting system. In order to test its defenses and structural integrity, it was fired upon by a recovered Klingon Vor’cha-class attack cruiser manned by a Starfleet crew. Although hopelessly overmatched, the Aeroshuttle was destroyed by three torpedoes only after a 15-minute running battle, providing invaluable performance data for Starfleet engineers.

The Aeroshuttle’s warp propulsion system (WPS) consisted of a single racetrack dilithium swirl chamber, two plasma conduits and twin nacelles with eight verterium titanide coils each.
Fuel included 2,725 kilograms of deuterium in a compartmentalized tank plus six magnetic containment pods holding a total of 790 kilograms of antimatter. The impulse drive (IPS) was situated behind each coil set and shared the WPS deuterium fuel supply.

Atmospheric flight often involved the heating of intake gases, requiring lateral scoops which led through the wings to the impulse chambers. Impulse exhaust could be temporarily stored in a clamshell nozzle for stealth operations, minimizing its telltale ion trails and hiding it from enemy sensors. Completing the engine systems were six reaction control thruster blocks and standard Bussard matter collectors.

Computer, flight control and all other medium-energy systems were adapted from proven Runabout components. The main computer core was made triply-redundant and given 12 bio-neural gel pack processors to aid in flight control and tactical decision-making.

**TACTICAL SOFTWARE**

Advanced software algorithms allowed sensor readings from all-sky views to be synthesized into a complete tactical picture 233 times per second. This allowed the Aeroshuttle crew to react to a changing situation at least three seconds earlier than a Runabout in a similar setting. Improved hull skin sensors added to the computer’s awareness of subspace pressure, electromagnetic fields, gravitational forces and acoustics.

The high-energy devices, including defensive shields, navigational deflector and phasers, drew power directly from the warp core or adjacent EPS capacitors. The shield grid, embedded below the skin, was capable of dissipating Type X phaser energy for up to 63.4 seconds total dwell time, or

▲ When the Aeroshuttle was docked with Voyager, the only visible area was the lower hull. This was flush with the lower decks of the saucer section, and structural integrity fields were designed to insure that it was completely integrated with the mother ship. When it was launched, it dropped away from the saucer’s hull before its engines fired and it became a completely independent warp-capable vessel.
In 2376, Dala, an alien con artist who impersonated Captain Janeway, showed a schematic of the U.S.S. Voyager which displayed the Aeroshuttle. Dala and her partners Mobar and Zar offered a starship captain named Varn membership of the Federation, which they said would help protect him from his many enemies. They showed him the impressive weaponry and technologies of their mother ship, Voyager, but it was all a scam designed to fleece him of money.

The navigational deflector, proportionally smaller than those on shuttles, emitted nearly the same energy as the larger units, and was augmented by biasing the shield energy forward. The Type VI phasers, collocated with four pairs of wing sensors for increased aerodynamic efficiency, covered 80 percent of the Aeroshuttle sky. Two microtorpedo launchers were also set within wing cut-ins, just outboard of the warp nacelles. Mission loadouts of three different types of torpedoes could be dropped into the magazines while the Aeroshuttle was docked with its starship.

**VESSEL LONGEVITY**

The Aeroshuttle continued to serve Starfleet in various capacities. With ongoing maintenance and upgrades of its systems, the craft could continue to fly well into the late-2400s with transfers to training and science missions near the fourth quarter of its lifetime. Lessons learned with Aeroshuttle and Waverider technology were already facilitating new propulsion schemes and vessel configurations, including subspace-generated power and continuum sail transport. Other innovations would undoubtedly follow.

*The interior lighting of the Aeroshuttle bay could clearly be seen when the craft dropped away. Once the Aeroshuttle was clear, it moved quickly away to avoid any chance that there might be a collision between the two vessels.*

**DATA FEED**

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**PLANETARY FLIGHT**

Atmospheric operations were improved 450 percent in total hover time with the use of the Aeroshuttle’s large wings. Energy from the impulse system drove both direct-exhaust vents as well as electrostatic airflow coils, allowing the Aeroshuttle to generate lift at a standstill. While traditional starship and shuttle impulse fields accomplished hovering with a brute gravity-canceling force, the manipulation of airflow was considered a more elegant solution. The multiple benefits of better fuel use, lower stress and stealth could not be ignored.

The Aeroshuttle’s landing gear was a tricycle leg system operated by electrohydraulics. Unlike the Intrepid footpad structure, which only held the vessel steady while under impulse field support, the shuttle legs supported the entire mass of the craft. In case of gear failure, the shuttle could make touchdown on a relatively flat or soft surface with minimal damage to the hull plating.

△ The Aeroshuttle was designed for atmospheric flight and was given true aerodynamic properties. It was also equipped with three landing legs, and was capable of landing on the surface of a planet.
The Captain’s Yacht on the U.S.S. Enterprise NCC-1701-D was only capable of impulse speeds. Advances in the miniaturization of warp technology allowed the Aeroshuttle to reach warp speeds.

Aeroshuttles were initially attached to two Intrepid-class ships – the U.S.S. Intrepid and the U.S.S. Bellerophon. They were also used by several space facilities including Utopia Planitia Fleet Yards, Starbase 375, Jupiter Station, Starbase 524 and Starfleet Headquarters.

The Aeroshuttle’s various sensor pallets received upgraded detectors and optical data cabling just prior to its commissioning. This extended the craft’s reliable long-range scanning abilities to 3.2 light years.

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DATA FEED

Construction of the Aeroshuttle began in 2369 after impulse and warp flight simulations had validated the concept. The initial procurement order was for two structural testing units, two flying prototypes and 15 production vehicles.
The Aeroshuttle was developed by Adam ‘Mojo’ Lebowitz and Rob Bonchune, two digital artists based at Foundation Imaging, one of the special effects houses that worked on STAR TREK: VOYAGER. It was based on a Rick Sternbach illustration, but it never appeared as a separate ship in any episodes.

Lebowitz and Bonchune were already aware that a Captain’s Yacht-like craft was located on the underside of the U.S.S. Voyager’s saucer section. Certainly the ‘STAR TREK: THE NEXT GENERATION Technical Manual’ written by Rick Sternbach and Mike Okuda had established that a UFO-like impulse craft had existed on the U.S.S. Enterprise NCC-1701-D, and it seemed logical that most fully-fledged Starfleet ships had one.

It was only when Bonchune was working on building the Delta Flyer that the idea of creating a Captain’s Yacht for Voyager came up. Obviously, the people working in the same office...
as Bonchune saw him developing the Delta Flyer, and it was then that Lebowitz began to think out loud about a Captain's Yacht for Voyager. "If there'd never been a Delta Flyer, I don't think we would have done an Aeroshuttle," said Bonchune. "When Mojo saw it, he said, 'Why would they build a whole new ship when under the saucer of Voyager there's this Runabout-sized spaceship just sitting there? Why wouldn't they use that?'"

LOGICAL THINKING
This set them thinking and they came up with a perfectly logical scenario for introducing an Aeroshuttle to the show. "It could have started just as it did with the Delta Flyer," said Bonchune. "You'd have Tom Paris wanting to build a cool new spaceship, and as he walked around Voyager he'd stumble across the Aeroshuttle. When Voyager was launched, it wasn't quite complete. They certainly didn't expect to disappear from any Starfleet facilities for the next seven years, so they thought it didn't matter. This was why the Aeroshuttle wasn't fully complete, and maybe it would take a month's worth of work to finish it. Paris could then have decided he was going to fix it. I believe that would have been valid - the ship was already there and it made sense. Plus I think it would have been a little treat for the audience. The Captain's Yacht was something that was never explained except in the 'Technical Manual,' and if you hadn't seen that then you would have never known it existed. Don't get me wrong, I liked the

Senior illustrator Rick Sternbach drew up a quick sketch of what the Aeroshuttle could look like. The middle section was based on a Runabout, and then he added the wings.
Bonchune built the actual model of the Aeroshuttle, although he did not get a chance to finish off the finer details. If they had got the go-ahead to use it in an episode, he would have continued to make it look more realistic.

The center part of the ship was deliberately styled to look like a Runabout. This was because if they filmed inside the cockpit, they could use an existing set and save money.
Delta Flyer, but to me it was more logical to have the Aeroshuttle.”

Having worked out the logistics, they decided to build the Aeroshuttle on spec. That is to say, they weren’t commissioned to do it and they weren’t paid. Working in their own time in the evenings and weekends, they wanted to put together a short sequence of the Aeroshuttle detaching from Voyager and flying through the atmosphere of a planet. They hoped that by showing the producers a sequence of its launch that was 90 percent finished, it would persuade them to use it.

**CREATING A CONCEPT**

Rick Sternbach drew some concept sketches of what it could look like and labeled the design as the ‘Manta Shuttle.’ He deliberately designed it so that the cockpit looked like a Runabout, meaning the people building it could just adapt an existing Runabout set instead of building one from scratch.

Bonchune found that he could not build this ship exactly as Sternbach had drawn it because it did not match the existing silhouette of the craft that was already imprinted on the underside of Voyager. “I had to redo it,” said Bonchune. “I kept the center part that was like a Runabout though. I think it took me less than three weeks to do, but I didn’t fully complete all the details.”

Once Bonchune had finished the model, Lebowitz animated a little sequence of it being launched from Voyager and then flying through the atmosphere of a planet. He tried to show the clip to as many people as he could in the hope that if everybody liked it, maybe it could sway the producers into using it.

Eventually the sequence was shown to Rick Berman. Bonchune wasn’t in the meeting, but it was relayed to him that the Aeroshuttle was not going to be used. “I heard that Rick Berman would have almost certainly said ‘yes’ to it but for the fact they were using a Captain’s Yacht in STAR TREK: INSURRECTION, and they didn’t want to take away from that,” said Bonchune.

It was a pity that the audience never got to see the Aeroshuttle in action, especially after all the work that was done. It has, however, seen the light of day in various publications and given fans a glimpse of what might have been.
DESIGNING STAR TREK:
VOYAGER SETS

Production designer Richard James was responsible for the look of every set on the U.S.S. Voyager from main engineering to sickbay.

Production designer Richard James knew that the U.S.S. Voyager would need a new look for its interior sets, but as he remembered, it couldn’t be too new ... "Mr. Berman said, 'I want it to be different. I don’t want it to look like THE NEXT GENERATION or DEEP SPACE NINE,'" said James. "But he also said that if people were flipping channels, then he wanted them to instantly recognize the fact that it was STAR TREK."

The locations would all be familiar – since Captain Kirk’s first year on the U.S.S. Enterprise NCC-1701, most of the action had taken place in main engineering, sickbay, the briefing room and the crew quarters.

James was uniquely qualified to design a starship’s interior because, unlike his predecessors, who had effectively had to invent their starships from scratch, he had spent six years working on established STAR TREK sets. Consequently, he knew what the limitations of each design were, and, now that he had a chance to reinvent them, he was determined to open up new spaces and put the camera where it had never been before. James’ desire to expand on the available spaces could probably be best seen in the design for main engineering. To make it look bigger he decided to concentrate on its height, and had illustrator Jim Martin produce drawings that
showed the set with an upper level. This approach was approved, and in the final version James pushed the design even further, taking engineering up to a third level around the warp core.

Core Energy

This increased emphasis on verticality also applied to the design of the core itself. It had been established that this was an enormous device that ran almost the entire height of the ship, but on the U.S.S. Enterprise NCC-1701-D this wasn’t immediately apparent. In the new design, the core disappeared into a well in the floor and rose far above the actors’ heads.

James said he also concentrated on giving the core a new look that emphasized how much energy it was generating. “You wanted the warp core to be very much the focal point of the room,” said James. “We spent a great deal of time playing around and coming up with the look of it. I didn’t want neons going in a relay because that had been done before, so I talked with my special effects guys. I wanted it to look like gases mixing together inside and we came up with a way of using moving foil and lights. The foil basically rotated and the lights shone and hit it. Then on the back side of the curved Plexiglas there was a rear screen fabric; when it hit that it was like back projection. It created a movement that really looked like gases moving around inside. We could go faster, slower, and we had colored gels and so forth. And, it was on set rather than having to be done by visual effects.”

Medical Center

James’ early designs for Voyager’s sickbay had echoes of the original Enterprise. As it was conceived, it was distinctly reminiscent of Dr. McCoy’s medical center, which combined an office with a lab and a hospital ward. “Sickbay was designed almost 50 percent larger than it turned out,” James explained. “I’m having to rely on memory here, but the office was in the center and sickbay was off to one side, and on the other side what we had was the medlab. Well, in the original designs, we had a space as large as sickbay on the side where the lab was. It was still...

The new design for the warp core made it clear that it was a substantial component that crossed many decks. It went through both the floor and ceiling, emphasizing just how large it was and the power it generated.

Illustrator Jim Martin produced several drawings showing possible designs for the warp core in detail. One of the major innovations was allowing crew members to walk all around the core.
the medlab; it was just a bigger space. We were running out of room, so the medlab became a smaller space. We put the office in the center so that the Doctor could view both sides. I positioned it so he could see his patients, kind of like a nurse’s station. He could survey his kingdom, as it were.”

**STRUCTURAL ELEMENTS**

Engineering and sickbay were both buried deep inside the ship and didn’t really have to take account of the ship’s architecture. The remaining sets were a different matter. Rick Sternbach’s design for Voyager’s exterior dictated certain shapes that were found in the briefing and ready rooms, the crew quarters, and the mess hall. As James explained, the art department went to a lot of trouble to ensure that the Voyager sets created the impression that this was a working ship, where everything had a logical place.

“We coordinated the interiors with the exteriors, and we’d give locations to the sets,” said James. “You have to in STAR TREK! A lot of that was done for our own development, but it was also done because we had to look like we were thinking it through. We certainly showed the architecture of the ship in rooms like the ready room, the briefing room and mess hall, where the windows took the shape of the ship.”

If you looked closely, you’d see that the briefing room and Janeway’s ready room had identical front walls, and the shape of the mess hall made it easy to locate it along the front of deck two.

In the briefing room, the shape of the hull even suggested the design of the table that the crew sat around. “We had the curved wall at the end and I wanted the conference table to reflect

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▲ James said that the Doctor’s holographic nature did not influence the design for sickbay. The holodecks had already established that holograms could appear without the need for obvious projectors.

▲ The Doctor was given a circular office in the center of sickbay that allowed him to look out on the hospital beds and the medlab, which in the original plans would have been much larger.
that,” said James. “It was almost like a teardrop. Instead of being symmetrical, it funneled right down to the captain. Nobody was hidden from her sight.”

The plans placed the crew quarters around decks four to eight in the saucer section. As they had on THE NEXT GENERATION, the art department adopted a modular design that could be adapted for each crew member. As James explained, they designed a large set that could be broken up into smaller rooms by adding walls.

CUSTOMIZED LOCATIONS

“The basic space was permanent, but the interior walls had beams across the top and we had channels in there that the walls could go in and out of,” said James. “Each segment we called a bay. Because the design was modular, you could give it two bays, three bays or one bay. How big it was would depend on the importance of the character. Of course, Janeway had, I think, four bays. The beams made niches in the walls and a lot of the furniture could play into those niches and come and go.

“Each character had their own furnishing. There were some elements that were the same, but we would give everyone something different so the rooms had a personality. For example, Janeway had collected antiques and scientific things.”

Voyager’s sets were expanded over the years that followed, with the addition of astrometrics and a significant redesign of the cargo bay, which became Seven of Nine’s home. Some rooms, such as the shuttlebay, only existed as computer-generated models, but the basic sets James designed stayed in place for seven years. They were only torn down after VOYAGER had finished, when they were swept away to make space for another STAR TREK series.
While the Aeroshuttle was never directly referred to in STAR TREK: VOYAGER, it was shown in the episode ‘Live Fast and Prosper.’ A schematic of Voyager identifying its Aeroshuttle was shown to Captain Varn by Dala [pictured below] and Zar, who were posing as Captain Janeway and Commander Chakotay. Similarly, a graphic showing the Aeroshuttle appeared in Daniels’ database when Captain Archer and T’Pol viewed it in the STAR TREK: ENTERPRISE episode ‘Future Tense.’

The Aeroshuttle was originally going to be called the Aerowing. It had to changed after it was discovered that the name had already been trademarked to a Mighty Ducks toy aircraft that had a nose like a hockey mask.

First appearance: ‘CARETAKER, PART I’ (VOY)

TV appearances: STAR TREK: VOYAGER

Designed by: Rick Sternbach, Rob Bonchune

**Key appearances**

**Star Trek: Voyager**

In one sense the Aeroshuttle did not appear in any episodes of STAR TREK: VOYAGER. In another sense, it appeared in every episode, or at least those that showed the underside of Voyager’s primary hull, as that was where the outline of it could be seen.

There was certainly the opportunity to create another auxiliary ship for the show. The crew of Voyager managed to get through a considerable number of shuttles during their time in the Delta Quadrant. By the end of season five, they had either crashed, destroyed or somehow managed to lose a total of 18 shuttles. It was clear that a more robust craft was needed, but this was why the Delta Flyer was created.

To make it more robust, the Delta Flyer featured a tetraburnium alloy hull, parametallic hull plating and Borg-inspired weapon systems. To upgrade the Aeroshuttle with these advancements may have involved stripping it down to such an extent that there would have been little left of it. This is perhaps why the crew decided to build the Delta Flyer rather than utilize the Aeroshuttle. It was either that or the fact that Janeway realized how many shuttles they had lost and she wasn’t prepared to leave a giant Aeroshuttle-shaped hole in Voyager’s hull.
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