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## DELTA FLYER

SPECIAL ISSUE

TYPE: SHUTTLE

LAUNCHED: 2275

LENGTH: 21 M

TETRABURNIUM ALLOY HULL

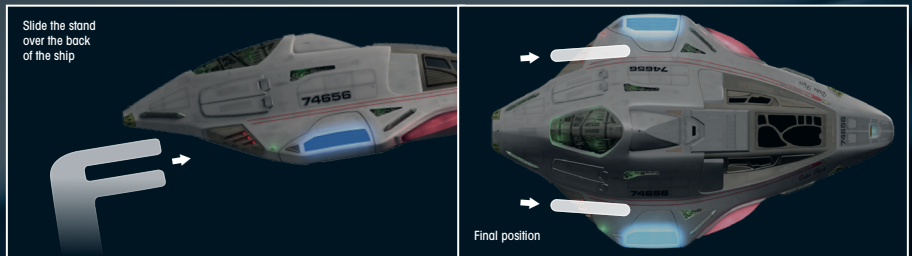
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# DELTA FLYER

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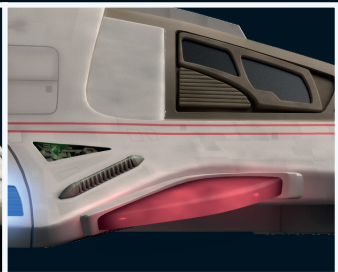
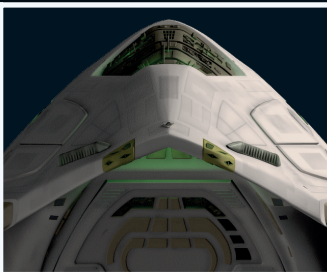
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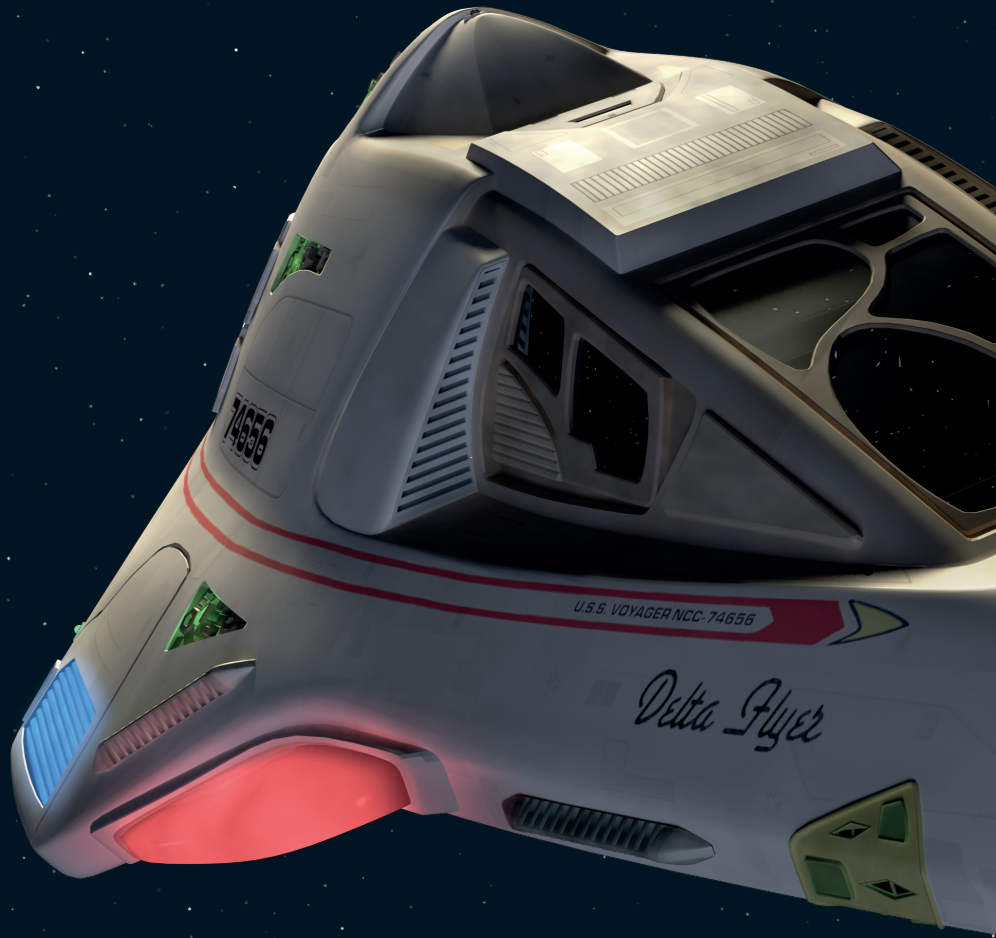
# DELTA FLYER

## SPECIFICATION




CONSTRUCTED:	DELTA QUADRANT
LAUNCHED:	2275
DESIGNED BY:	THOMAS PARIS, HARRY KIM, TUVOK, B'ELANNA TORRES, SEVEN OF NINE
TECHNOLOGY:	TETRABURNIUM ALLOY HULL, UNIMATRIX SHIELDING, PARAMETALLIC HULL PLATING





# THE DELTA FLYER

The *Delta Flyer* was designed to give *Voyager* a larger, tougher shuttle that took advantage of Borg technology.



The *Delta Flyer* was a small auxiliary vessel that was built by the crew of the *U.S.S. Voyager* in 2375. It combined Federation and Borg technology to create a vessel that could operate in extreme environments. The *Flyer* was a larger vessel than *Voyager* had originally carried and was well-suited to extended missions involving several crew members.

The ship was warp capable and was extremely maneuverable. It had a tetraburnium alloy hull, parametallic hull plating, and unimatrix shielding. The weapons were enhanced with Borg technology and it was armed with phasers and photonic missiles.

The original *Flyer* was destroyed in 2377 during an attack on a Borg tactical cube. The crew then built a replacement which included some upgrades such as additional impulse pods.



## Designing the **DELTA FLYER**

The Delta Flyer combined Starfleet and Borg technology that could take the crew places they had never been.

In *STAR TREK: VOYAGER*'s fifth season, the producers decided to introduce a new, larger "all-environment shuttlecraft." The original shuttles were small, cramped vehicles that were difficult to shoot in and could only really accommodate two characters at a time.

This new shuttle would comfortably take five people, who were arranged on different levels. This new shuttle would make its debut in the episode 'Extreme Risk,' when it would be used to retrieve one of *Voyager*'s probes from the atmosphere of a gas giant.

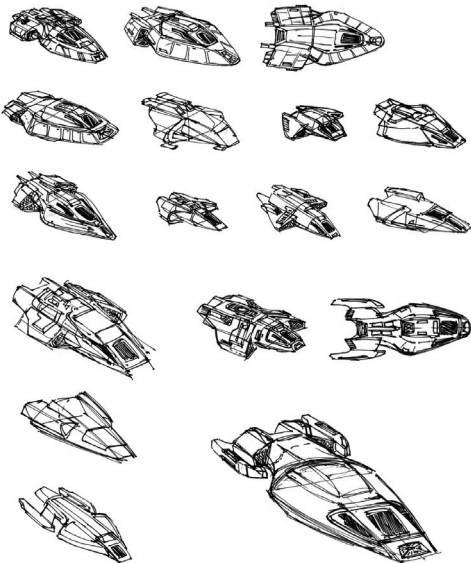
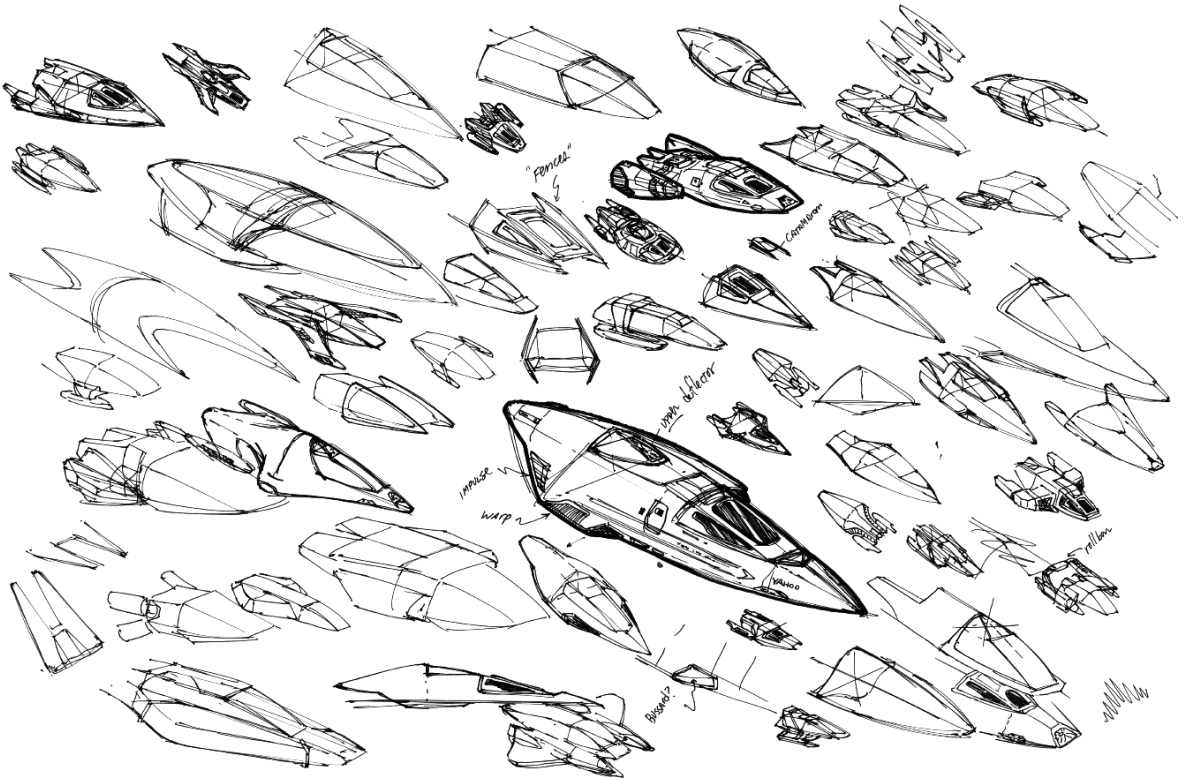


The story said that it had been designed by Tom Paris using Starfleet and Borg technology, so the interior could make a few departures from familiar Federation design. The finished design would also incorporate elements of Paris's Captain Proton holoprogram, meaning it could have obvious dials and levers rather than the usual Starfleet control panels.

The task of designing the exterior fell to VOYAGER's senior illustrator, Rick Sternbach. By

the time he could turn his attention to it, work had already begun on the interior sets. As a result, he knew how big the cockpit was and that he had to incorporate the work his colleagues in the art department had already done. "The set designers had the window and the cockpit well under way," Sternbach remembers, "I used those shapes in the exterior design. The forward windows they had come up with and some of the tech planted around the

▲ The *Delta Flyer* gave *Voyager* a larger vehicle that allowed the writers to send more crew members away from the ship and was more credible going up against powerful enemies.



◀ As usual, Sternbach began the design process by sketching a series of thumbnails, “chasing shapes.” In this case, VFX producer Dan Curry pointed at one of the designs and asked Sternbach to work it up in more detail.

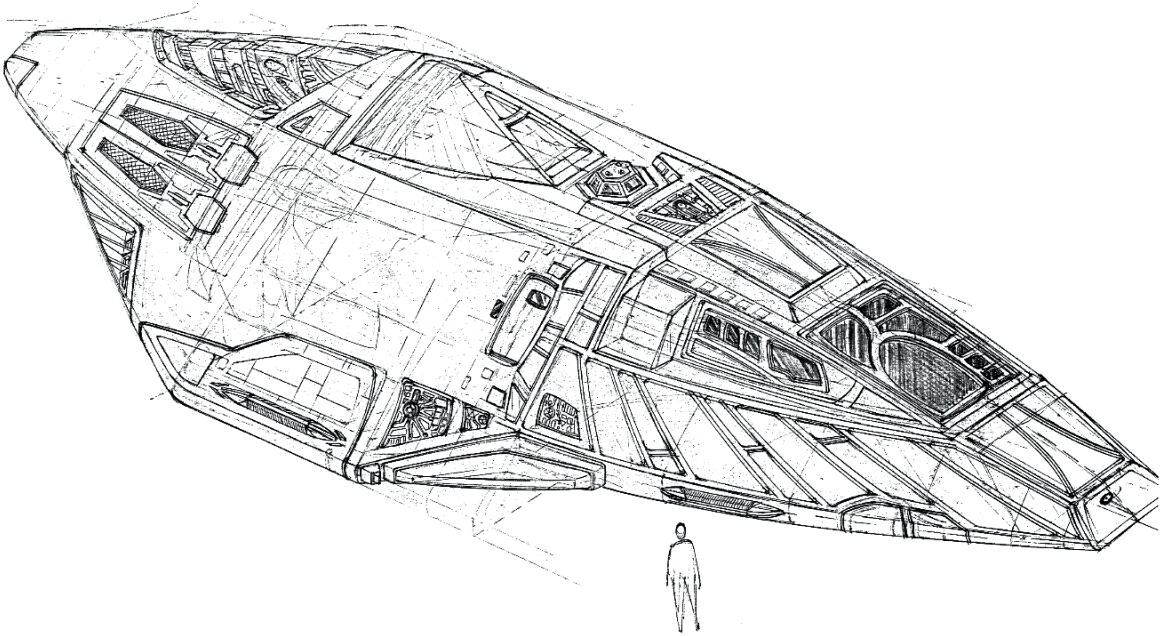
Flyer was supposed to be Borg inspired, so if you look at the cockpit window, it’s not entirely Starfleet.”

### FIRST THOUGHTS

As always, Sternbach began the design process by sketching a lot of rough thumbnails as he looked for a suitable shape. He bore the look of other earlier shuttles in mind, “I explored various simple shapes I thought might be plausible extensions of Starfleet hardware, from familiar wedges to streamlined darts. A few of the doodles looked like miniature *Voyagers*, others like larger versions of shuttles we already had. Some had elements of the runabout and the *Defiant* shuttle *Chaffee*.”

At this stage, Sternbach’s priority was finding an appealing shape. The script described the *Delta Flyer* as a “24th-century, warp-powered, ultra-responsive hot rod” so he knew that it had to look cool and fast, but, as always, he also put





thought into practical considerations. “Even in these preliminary sketches, a lot of questions popped up: warp pods or not? Where to put the nav deflector. Phasers? RCS thrusters? How do you even get in?”

#### DESIGN DIRECTION

As Sternbach recalls, he rapidly filled a few pages with thumbnails. “I was going through lots and lots of doodles, lots and lots of sketches. Dan Curry came up to the art department and was looking over my shoulder while I had a whole page of *Delta Flyer* doodles. He points at one and says, ‘I think this one could work.’”

The design that Curry pointed out was labeled ‘Yahoo,’ and had a streamlined shape that was pointed at both ends. It had warp engines blended into the body of the ship, somewhat like the *Defiant*, and, even at this early stage, Sternbach had made a note that perhaps they could extend from the body.

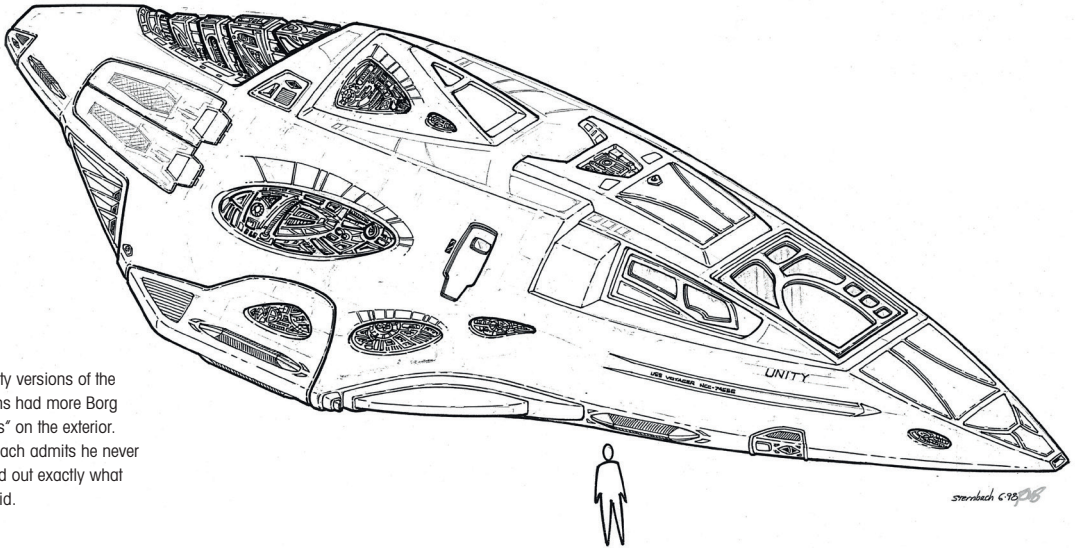
Rather than being at the front of the ship, the navigational deflector was in a domed section on the top of the hull.

The next step for Sternbach was to take the design and to work it up. He produced more fleshed-out drawings that showed how detail could be added to the surface and where all the familiar pieces of *STAR TREK* technology would go. “A few large blue pencil drawings followed,” he recalls, “refining the original doodle into a more solid mass onto which I could add details like impulse nozzles, blended warp pods in the wings, an entry hatch, Bussard fuel collectors, and phasers.”

As Sternbach worked on the design, it became more solid. He shortened the shape slightly, making it a little less thin, and scaled back some of the more radical thoughts he’d had about incorporating different kinds of technology. “The first few passes saw some rather heavy Klingon shield plating eliminated,

▲ The design Sternbach developed was for an elongated teardrop. The next stage was to start fleshing it out. From the beginning he knew that it had to incorporate windows that had already been designed for the sets, but the rest was up to him. This early version shows Klingon hull plating that would be eliminated as the design evolved.

Voyager<sup>5</sup> "Extreme Risk"  
Super Shuttle



► Early versions of the designs had more Borg "plants" on the exterior. Sternbach admits he never worked out exactly what they did.

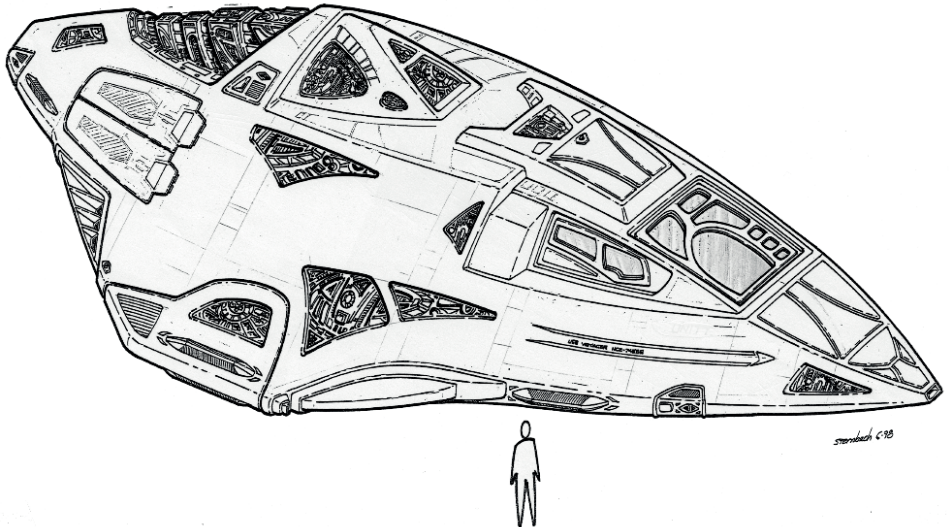
and far too many Borg enhancements (mounted in small cutouts) toned down to just a few, but still nicely visible. A nose-mounted torpedo launcher was moved underneath, and two pulse cannons were scratched, but these changes were easy to deal with."

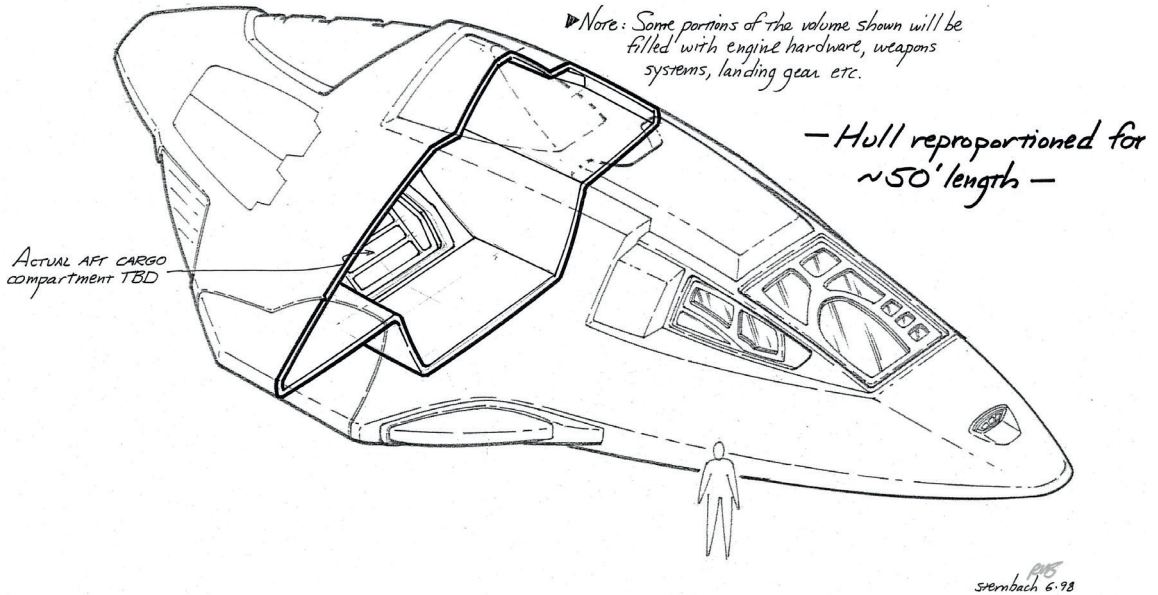
As well as making the design believable in terms of 24th-century technology, Sternbach wanted to future proof it, building in the kind of

elements he could anticipate the writers needing in stories that had not yet been written.

"A number of features were added just in case they were needed in later episodes. Vents and hatches delineated the warp reactor on the underside. At the time I figured the reactor itself was a flat 'pancake' matter-antimatter chamber built into the floor. Emergency plasma flush vents were cut into the lower wings and a

► As the design evolved, the ship became a little squatter and lost some of the Borg components.



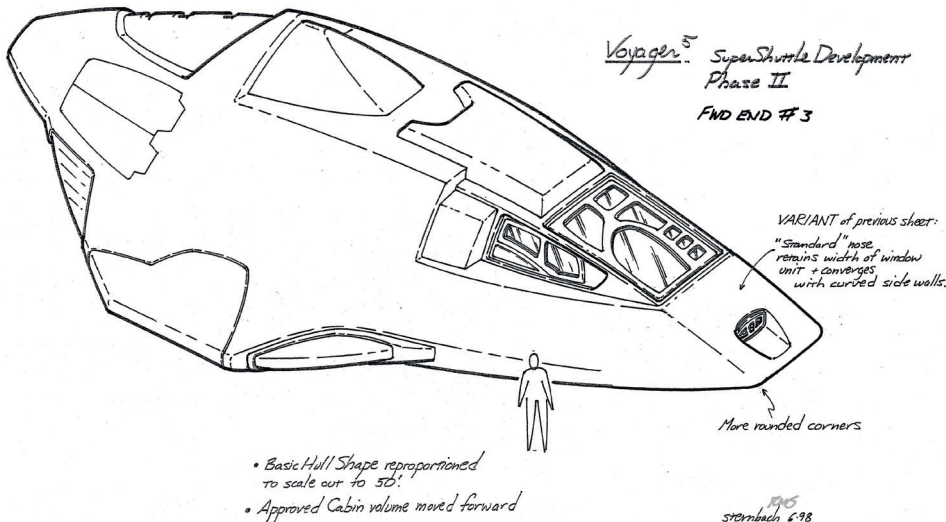


large drop-down Borg style hatch in the back allowed for entry and for 'mission modules' like the laboratory to be swapped in and out. A small escape hatch was built into the roof, should the transporters and aft hatch fail, and 'speed brakes' were scribed into the aft flanks, which could hide all sorts of new devices."

One area that received particular attention was the nose. By now Sternbach had moved

the navigational deflector to the front of the ship, but he wasn't certain what it should look like, so he produced a series of drawings showing alternatives, simultaneously offering the producers slightly different shapes for the nose section. The team eventually settled on a design that echoed the deflector on the standard shuttle and a more rounded version of the nose section.

▲ Although the set was yet to be built, Sternbach knew the *Delta Flyer* needed room for a rear compartment so he created a cross-section showing how it would fit into the ship. When it was finally built, the producers decided to make it bigger than he had allowed for, which causes some confusion about how big the *Flyer* actually is.

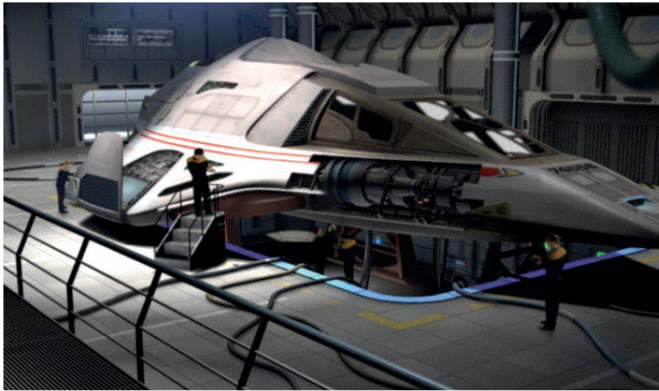
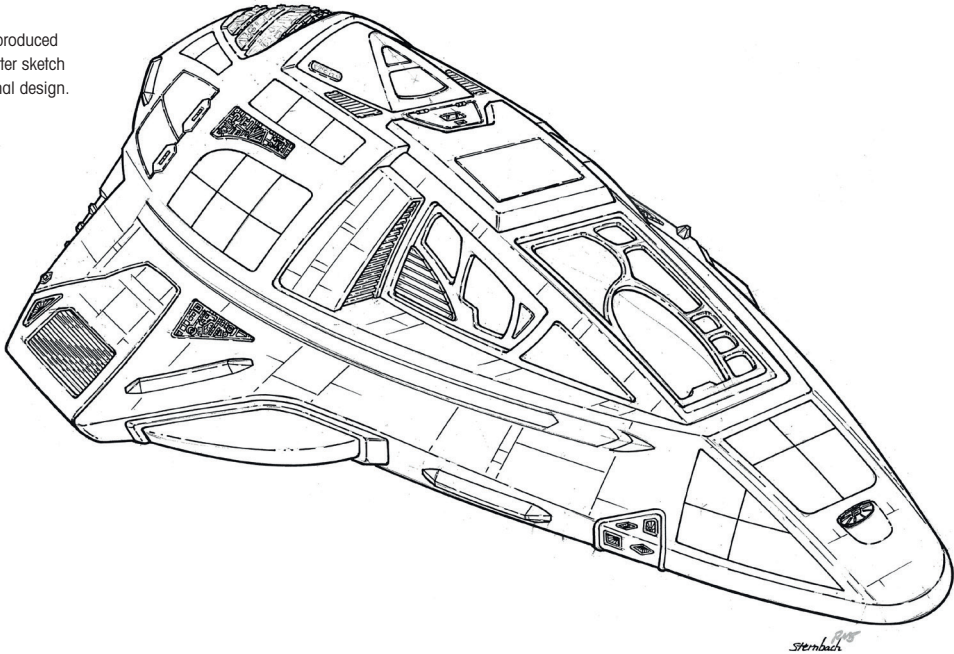


◀ Sternbach produced a series of drawings showing different kinds of navigational deflector and suggesting subtly different shapes for the ship's nose.

- Basic Hull Shape reportioned to scale out to 50'
- Approved Cabin volume moved forward

Sternbach 6-98

► Sternbach produced this three-quarter sketch to show the final design.



▲ The *Delta Flyer* was the first major *STAR TREK* ship that wasn't built in a physical form. The shuttles and runabout had all been built as full size pieces, but when the *Delta Flyer* was seen in the shuttlebay it was always as part of a matte painting.

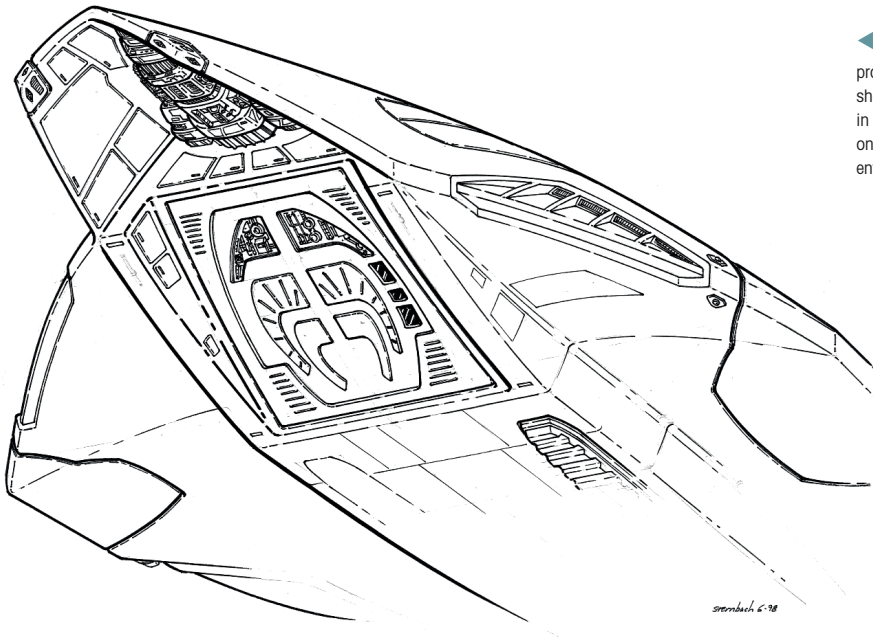
The sets also dictated almost exactly how big the ship would be. Sternbach re-proportioned his drawing to make the *Delta Flyer* 50-feet long, and shunted the main cockpit forward. This created more space for a rear cabin that he rationalized could be swapped out to meet the needs of specific missions.

Once the final design had been signed off, Sternbach prepared a set of detailed drawings for the team at Foundation Imaging who would be building the model. "I worked up the blueprints as if the ship were to be built as a physical miniature," Sternbach explains, "since

precise orthographic views are often necessary for both methods. The art department also provided detailed blueprints of the cockpit windows that had been built as part of the set and detailed painting instructions, calling out typical Starfleet colors for the hull

When the drawings arrived at Foundation, CG supervisor Rob Bonchune decided that rather than handing the ship over to one of his model makers he would tackle it himself. "I wanted to do it so I was able to say I built a hero ship for the show," he laughs. "We had dedicated model builders who usually would have done that but I really wanted to do one of the important ships. We had Rick's sketches for the *Delta Flyer* – the three-quarter views, side views, blueprint views of what the *Flyer* should look like, which made it much easier to follow."

Sternbach stayed in close touch with Bonchune as the ship was built, providing him with additional notes and sketches throughout the process. "Rick was great." Bonchune recalls, "I won't say it was easy to build, but at least I knew what every shape should be. For me as a modeler it was a little bit challenging because it's not a blocky shape, it's all organic and curves."



◀ Sternbach also produced sketches that showed parts of the *Flyer* in detail, including this one showing the rear entry hatch.

For his part Sternbach remembers using every method he could to show Bonchune what was needed. “A few hull parts that were somewhat difficult to convey in the blueprint views were worked out in small-scale foamcore models,” he recalls. “Some modifications were made on the fly, such as the addition of the familiar blue warp grilles and the relocation of the wing phaser strips. In the areas of lighting and articulated parts, such as extendable landing pads, the speed brakes, hatches, and the warp pods, suggestions were given to visual effects to be passed on to Foundation. I remember we made minor changes to the set windows, and insignias and markings.”

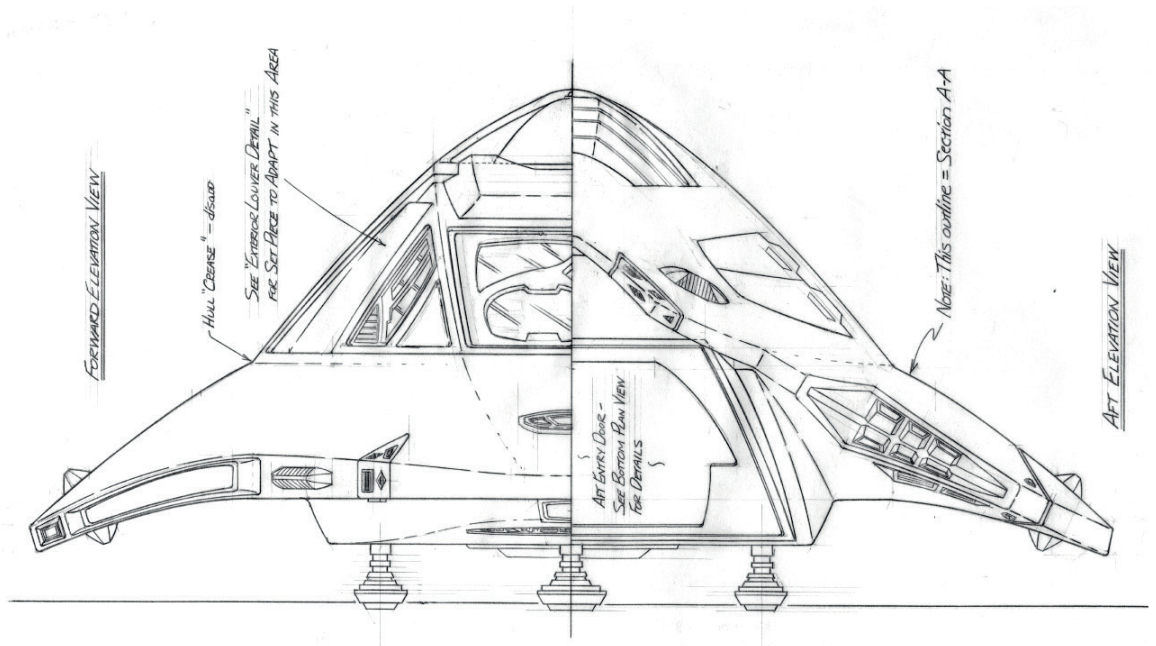
Once the model was finished, it was supplied to the art department who used it as reference to make additional panels that were needed to cover up some welded steel frames that could be seen outside the cockpit windows.

*Voyager*'s other shuttles existed as full sized mock ups that the actors could walk around and sit inside, but the exterior of the *Delta Flyer* would only ever be built in CG. When it was seen in the shuttlebay in ‘Extreme Risk,’ it was part of a matte painting that was created by Eric Chauvin.

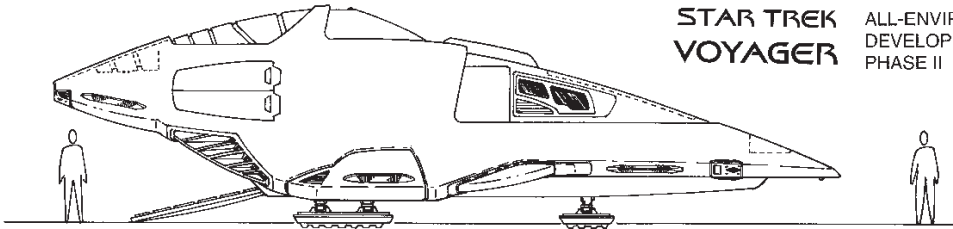
Much as Bonchune loved the *Delta Flyer*, he and his fellow CG supervisor Adam ‘Mojo’ Lebowitz were nearly responsible for replacing it. When they heard about the *Delta Flyer* they were a little puzzled that the producers were going to the trouble of designing a new shuttle. As Lebowitz pointed out, *Voyager* already had a larger shuttle, it was just that we hadn’t seen it. When Sternbach had originally designed the ship he had given it a “captain’s yacht” known

▼ From the beginning of the process, Sternbach had wanted parts of the ship to animate. This was something that was much easier to achieve with a CG model. On a traditional model the motion would have to be repeated perfectly for the VFX process using mechanical systems.





**STAR TREK VOYAGER** ALL-ENVIRONMENT SHUTTLE DEVELOPMENT DRAWINGS PHASE II

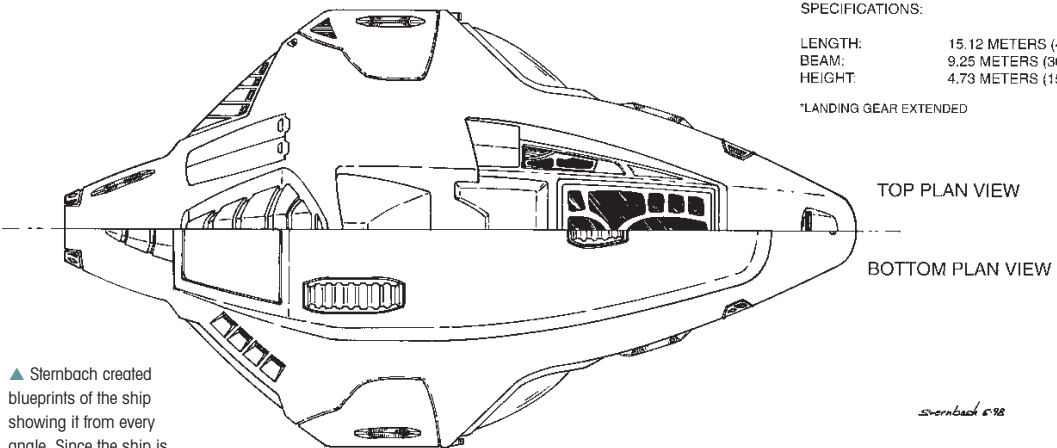


STARBOARD ELEVATION VIEW

SPECIFICATIONS:

- LENGTH: 15.12 METERS (49.62 FEET)
- BEAM: 9.25 METERS (30.34 FEET)
- HEIGHT: 4.73 METERS (15.51 FEET)\*

\*LANDING GEAR EXTENDED



TOP PLAN VIEW

BOTTOM PLAN VIEW

▲ Sternbach created blueprints of the ship showing it from every angle. Since the ship is symmetrical, he only had to draw half of each view.

*Sternbach 6/92*



▲ At Foundation Imaging Rob Bonchune used the drawings to build the model, calling Sternbach for extra reference as he needed it.

► Bonchune and Lebowitz suggested using *Voyager's* Aeroshuttle – a larger auxiliary vehicle that was docked to the underside of the saucer.



as the Aeroshuttle, which was docked to the underside of the saucer. Bonchune decided that it would be a cool addition to the show, so although the producers hadn't asked for it, they set about fleshing the design out in their own

time. Sternbach helped out by giving them sketches that showed the Aeroshuttle from above and underneath. Bonchune built a model and Lebowitz created an animation showing it being deployed, which they

► Lebowitz created an animation, which he and Bonchune presented to the producers, but it was rejected because a captain's yacht played a significant role in *STAR TREK: INSURRECTION*.

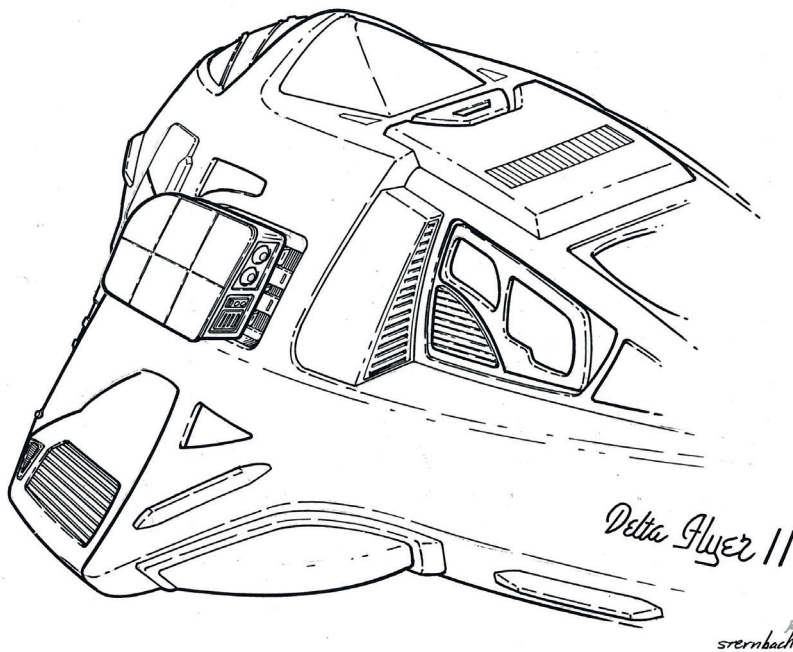






◀ Bonchune built the Aeroshuttle in his own time using drawings that Sternbach gave him.



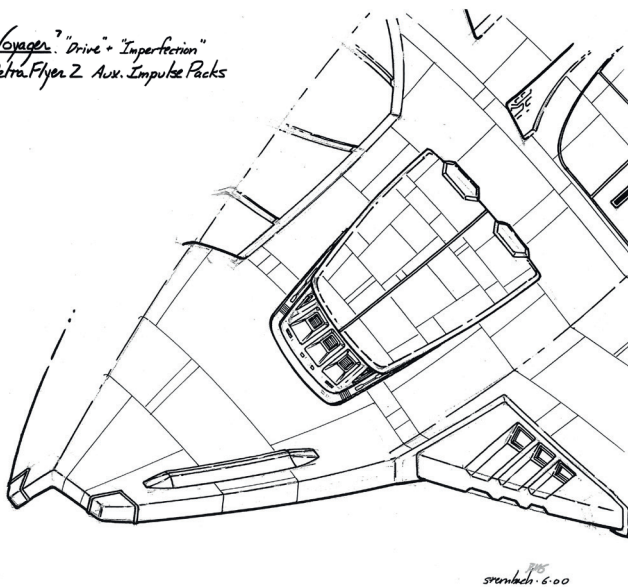


*Voyager's Delta Flyer  
IMPULSE POD WORKSHE*

► Pod built around Shield Grid,  
extends laterally.

◀ The Delta Flyer got some upgrades when the crew rebuilt it and added some impulse pods. Sternbach suggested two versions. In this drawing a section of what was originally part of the shield grid popped out sideways.

*Voyager's "Drive = Imperfection"  
Delta Flyer 2 Aux. Impulse Packs*



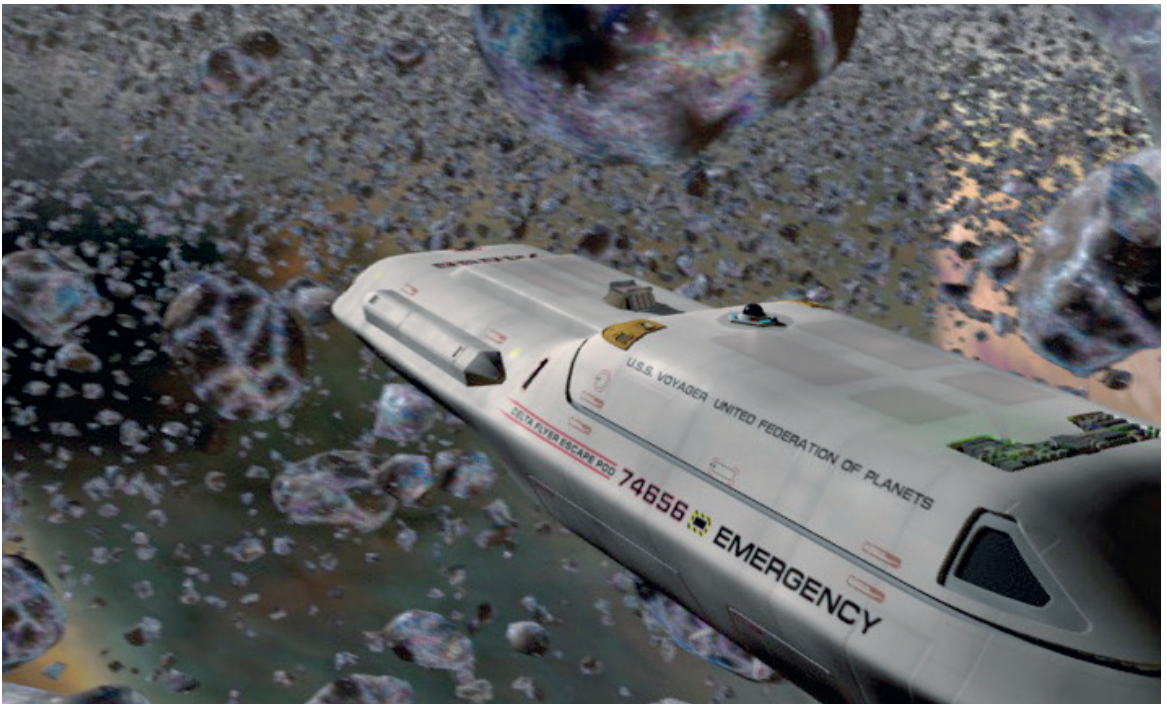
▲ In the version the producers chose, the "speed brakes" flipped out to reveal booster engines that gave the Flyer an extra burst of speed at impulse.

presented to the producers. However, even though the Aeroshuttle had been built for free, the producers felt that as the Captain's Yacht was playing a major role in the movie *STAR TREK: INSURRECTION*, which was just about to be released, this was the wrong time to have something similar appear on *VOYAGER*, so the Delta Flyer remained Voyager's only large shuttle. However, exactly how large would prove to be an issue.

### SCALE ISSUES

Sternbach had planned to give the ship a cabin in the back, but this wasn't needed for 'Extreme Risk,' so the details were left vague. When it was built for 'Timeless,' the producers decided that it needed to be bigger. As a result, theoretically, the rear cabin is too big to fit inside the exterior.

One solution would have been to scale the Flyer up. In order to accommodate the new module, it would have to be about 70-feet long. However, simply saying that the Flyer was a bigger ship wasn't an option, because if it was, then it would never have been able to get in or out of the shuttlebay. As Sternbach explains,



when he originally designed *Voyager*, he had ended up making the shuttlebay door smaller than would have been ideal. “We were almost going to build the shuttlebay full size on the soundstage,” he says, “that meant it was only going to be a certain number of feet wide. I applied that to the miniature blueprints of *Voyager* in 1994. When it came to the *Delta Flyer*, if you make it big enough to contain the rear cabin the nacelles on the *Flyer* will not fit through the door. You have to fudge these things. In my own head canon, somewhere along the seven seasons of *VOYAGER*, they widened the doors!”

There wasn't much that could be done about these issues though, and it was unlikely that most viewers would notice this level of detail.

Over the remaining three seasons, the *Delta Flyer* established itself as a regular feature of the show and, as Sternbach had anticipated, this led to storylines that called for it to do things that hadn't originally been envisaged, including operating underwater in 'Thirty Days.'

In 'Good Shepherd' Harren leaves the *Flyer* in an escape pod. Although we never saw it

launch, Sternbach worked out how it could fit into the cramped ship. “The pods were particularly fun to invent,” he says, “though they added to the thorny problem of how big the *Flyer* was. We had to mentally squeeze them into the aft section.”

#### ENGINE UPGRADE

The *Flyer* was destroyed in 'Unimatrix Zero,' but it was too good to abandon, so the writers had the crew build another version for 'Drive' which allowed Sternbach and the VFX crew to add a new feature. When the *Delta Flyer* first races Irina's ship in 'Drive' Tom and Harry deploy new impulse thrusters, which pop out from the side of the hull to give the ship a little extra boost. Sternbach identified two areas that could accommodate them: they could either be built into the “speed brakes”, in which case they could fold out on a hinge, or they could pop out of the hull following panel lines he'd originally intended to be part of the shield grid. The producers chose the former, making the *Delta Flyer* look even faster and cooler than it had before.

▲ In the sixth season, the *Delta Flyer* launched an escape pod. We never saw it being deployed, but Sternbach worked out how it could fit into his design.

# STAR TREK™

