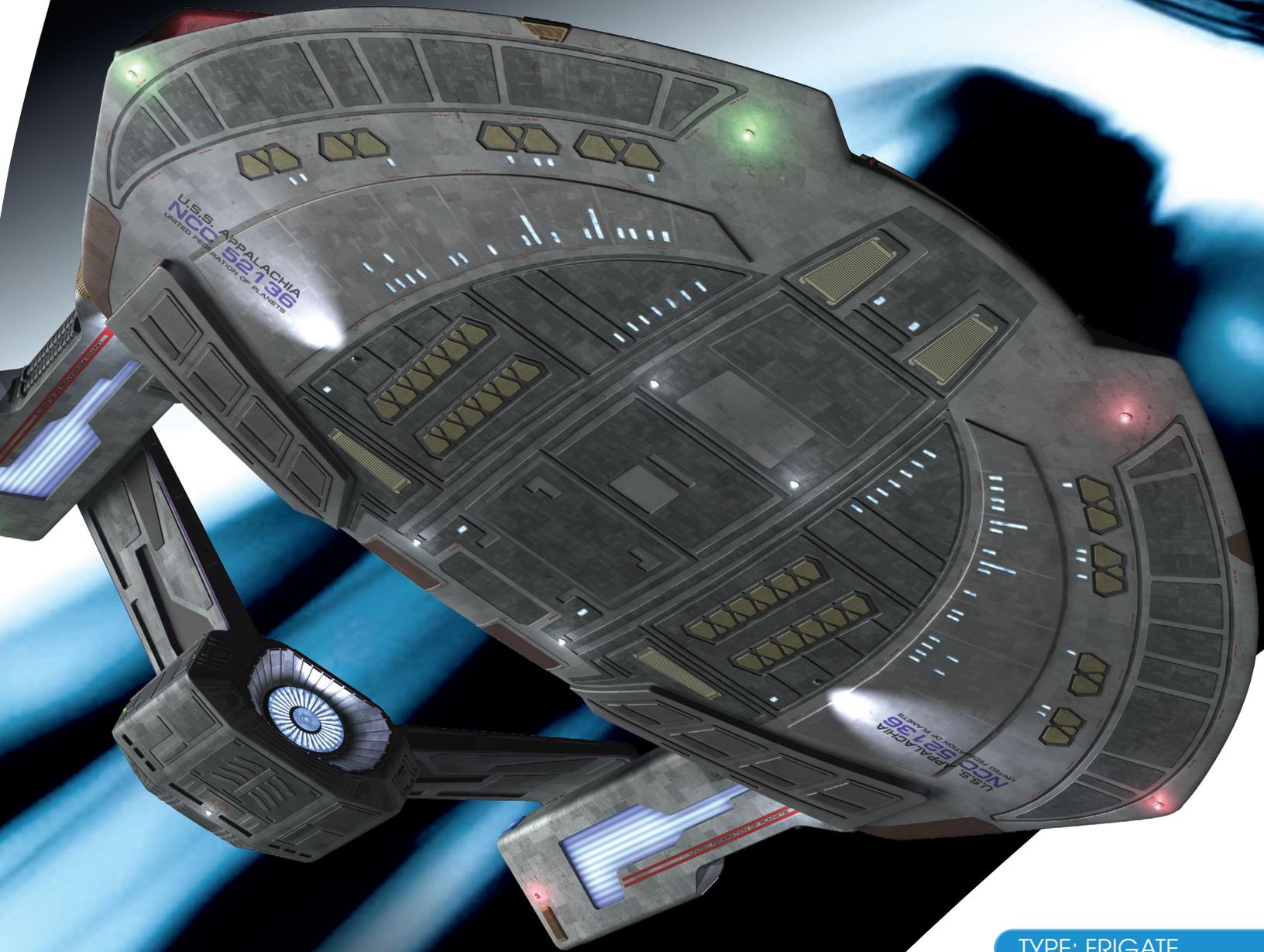


54

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STEAMRUNNER
CLASS

TYPE: FRIGATE

LAUNCHED: 24th C

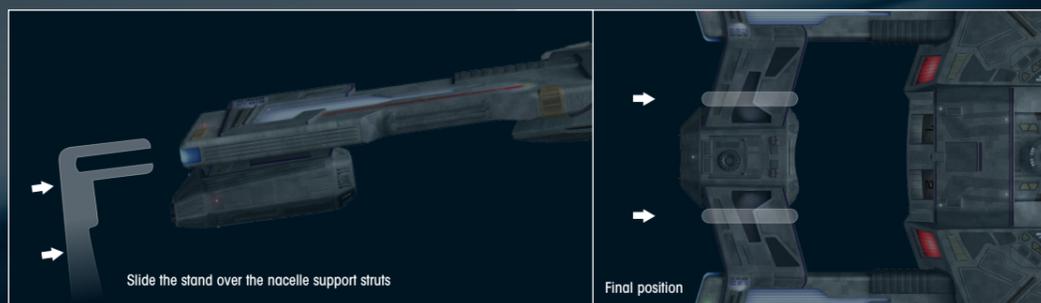
LENGTH: 356 METERS

MAX SPEED: WARP 9.6

Contents

- 04: **STEAMRUNNER CLASS**
- 10: **DESIGNING THE SHIP**
- 14: **BECOMING BORG**
- 18: **ON SCREEN**

Stand assembly:



STEAMRUNNER CLASS

SPECIFICATION



TYPE:	FRIGATE
IN SERVICE:	24th CENTURY
LENGTH:	356 METERS
CREW:	200 (APPROX.)
TOP SPEED:	WARP 9.6
WEAPONRY:	TYPE-10 PHASER EMITTERS, TORPEDO LAUNCHERS

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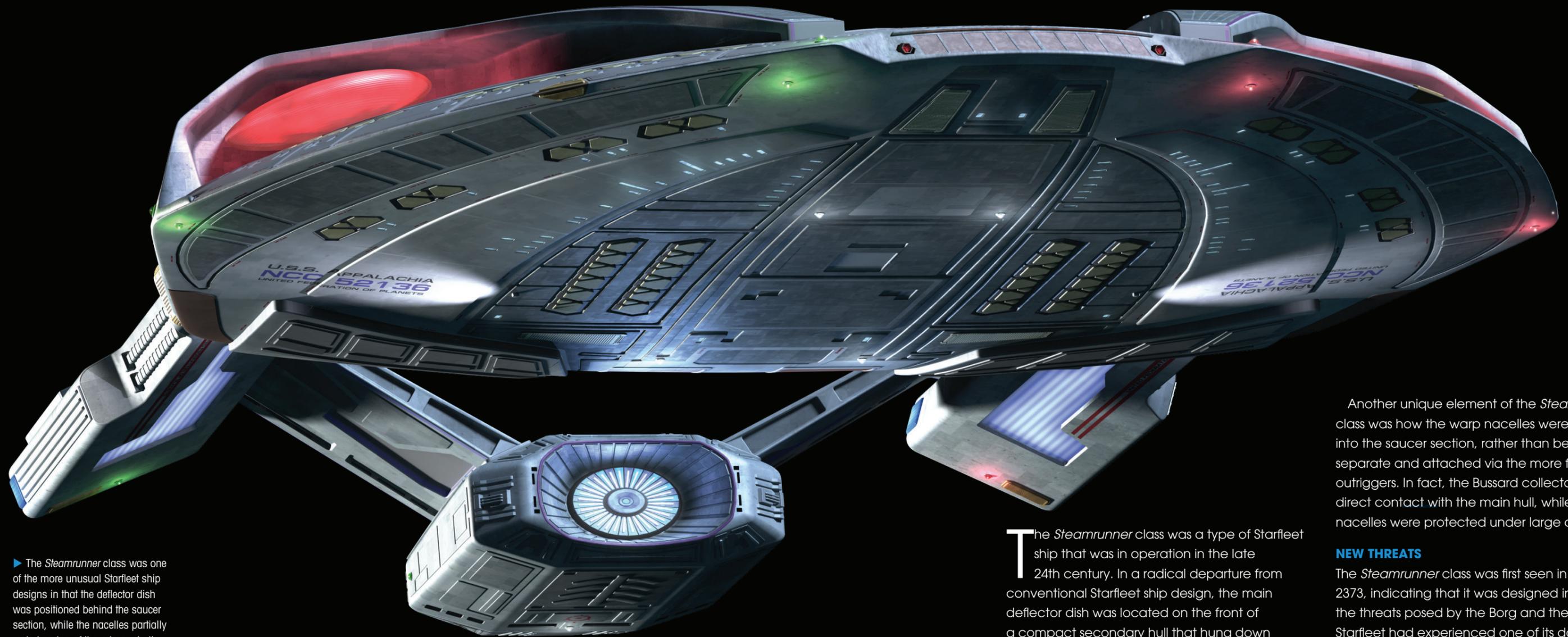
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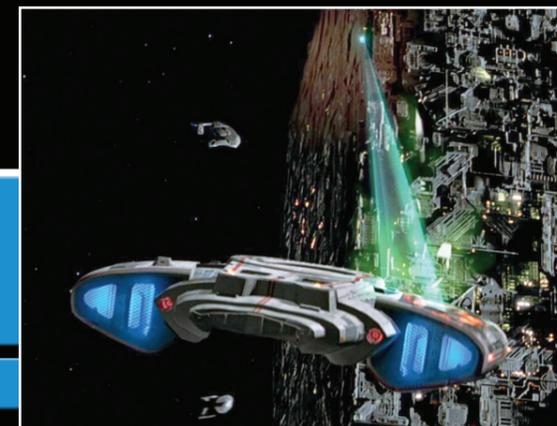
► The *Steamrunner* class was one of the more unusual Starfleet ship designs in that the deflector dish was positioned behind the saucer section, while the nacelles partially rested on top of the primary hull.

STEAMRUNNER CLASS

Steamrunner-class ships were involved in crucial battles with the Borg and the Dominion in the late 24th century.

The *Steamrunner* class was a type of Starfleet ship that was in operation in the late 24th century. In a radical departure from conventional Starfleet ship design, the main deflector dish was located on the front of a compact secondary hull that hung down below, and behind, the saucer section.

In a further departure from traditional Starfleet ship design, the engineering module was not directly connected to the saucer section. Instead the two hulls were joined together via support struts that angled down between the warp nacelles.



Another unique element of the *Steamrunner* class was how the warp nacelles were streamlined into the saucer section, rather than being entirely separate and attached via the more familiar outriggers. In fact, the Bussard collectors were in direct contact with the main hull, while the entire nacelles were protected under large cowlings.

NEW THREATS

The *Steamrunner* class was first seen in service in 2373, indicating that it was designed in response to the threats posed by the Borg and the Dominion. Starfleet had experienced one of its darkest days at the Battle of Wolf 359 in 2367 when a single Borg cube destroyed 39 Starfleet ships with the loss of 11,000 lives. In the wake of this devastation, Starfleet began a major ship building program in case the Borg returned. Realizing that new types of starship were needed to meet the tactical requirements of facing a far superior enemy, Starfleet designed vessels that were more focused on combat than exploration and discovery.

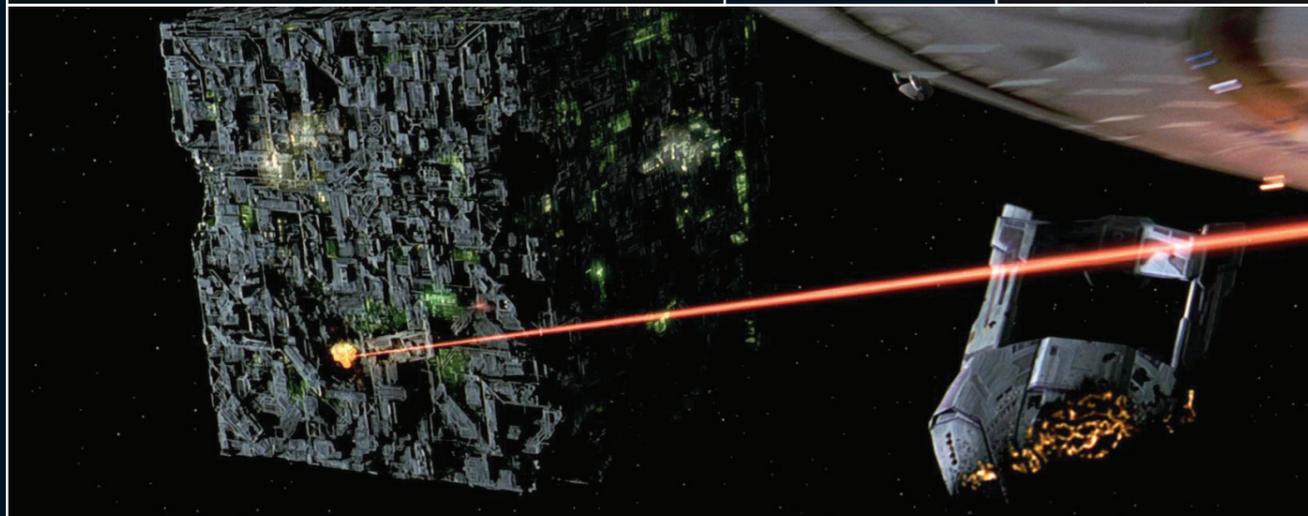
This new type of dedicated combat vessel

◀ The *Steamrunner* class was one type of ship, along with the *Defiant* class, that was rushed into service to meet the ominous threat posed by the Borg. These tactically advanced vessels that were designed mostly with combat in mind were part of the fleet that engaged an invading Borg cube at the Battle of Sector 001 in 2373.



▶ The main shuttlebay was located at the rear of the saucer section on the *Steamrunner* class. Its location, between the nacelles, provided a relatively sheltered entry and exit point for shuttles.

◀ The nacelles on the *Steamrunner* class were embedded into the saucer section in order to offer them greater protection. The bridge was also well sheltered by the raised sides of the saucer.



◀ Several *Steamrunner*-class ships were part of the fleet that fought the Borg cube at the Battle of Sector 001. At least one *Steamrunner*-class ship was among the 20 or so Starfleet vessels that were destroyed during the engagement. The losses were not in vain, however, as their actions bought enough time for the *Enterprise-E* to join the fray and defeat the Borg.

▲ The engineering hull on *Steamrunner*-class ships was much more compact than it had been on earlier designs of Starfleet vessels. Despite its smaller size, the engineering systems were just as powerful as they had been on larger ships, and *Steamrunner*-class ships were capable of reaching speeds of up to warp 9.6.

was best exemplified by the *Defiant* class, the prototype of which was so powerful that it almost shook itself apart during trial runs. Lessons learned during its development filtered down to other designs being fast tracked into production, one of which was the *Steamrunner* class, along with the *Akira*, *Saber* and *Norway* classes.

NARROW PROFILE

Like the *Defiant* class, the *Steamrunner* class featured a sleek profile by doing away with the long neck section between the primary and secondary hulls. This much narrower profile meant that the *Steamrunner* class provided less of a target in combat. This was made possible by advancements in warp technology, which meant that the engineering hull could be much more compact than it had been on earlier Starfleet ship designs, while providing similar levels of power.

While the dimensions of the engineering hull on the *Steamrunner* class were greatly reduced compared to earlier designs, there was still enough space to accommodate the deflector dish on the front of it. Its location towards the rear of the vessel may have appeared odd, especially as its primary function was to clear asteroids and assorted space debris from the ship's path, but as it hung down below the saucer it still had a 'clear line of sight' in front of the ship to do its job. The fact that a major component with the importance of the deflector dish was placed towards the rear of the ship also offered it more protection, a move that made a great deal of sense given the combat design considerations of the class.

The main bridge and shuttlebay on the *Steamrunner* class were also positioned and integrated in such a way as to offer them enhanced protection. Although not as protected

as the sunken command module on the *Defiant* class, the bridge on the *Steamrunner* class was still partially shielded by the raised sides of the saucer. Meanwhile, the main shuttlebay was located at the rear of the saucer, where its doors offered a safe and calm entry point as they were tucked down between the nacelles.

SHARED DESIGN

The shape and design of the hull plating and escape pods on the *Steamrunner* class closely resembled those found on *Sovereign*-class ships, such as the *U.S.S. Enterprise NCC-1701-E*. This clearly indicated that they were contemporary designs, having been developed and constructed around the same time. Indeed, the first time the *Steamrunner* class was seen was at the Battle of Sector 001 against the Borg in 2373, just after the *Enterprise-E* had completed its shakedown tests.

Steamrunner-class ships later saw action in many crucial battles during the Dominion War as part of the Second Fleet. This proved that the *Steamrunner* class, along with other types of Starfleet ships that were developed in the late 24th century, were a potent tactical force and a match for some of the most serious threats the Federation had ever faced.



DATA FEED

Vice Admiral Hayes was initially in command of around 30 ships that made up the armada tasked with engaging the Borg cube when it invaded Federation space in 2373. Captain Picard subsequently took command of the fleet after several Starfleet vessels, including Hayes' flagship, were destroyed.

FIGHTING THE DOMINION

In 2373, several *Steamrunner*-class ships belonged to the Second Fleet, an alliance of Federation and Klingon ships that fought the Dominion. During the second Battle of Deep Space 9, a number of *Steamrunner*-class ships made up part of a task force that crossed the Cardassian border and destroyed vital Dominion shipyards on Torros III.

Later, at least one *Steamrunner*-class ship was part of an Alliance fleet that attacked Cardassian space in the Chin'toka system. This invasion was ultimately successful even though the Cardassians had deployed hundreds of automated orbital weapon platforms in the system.

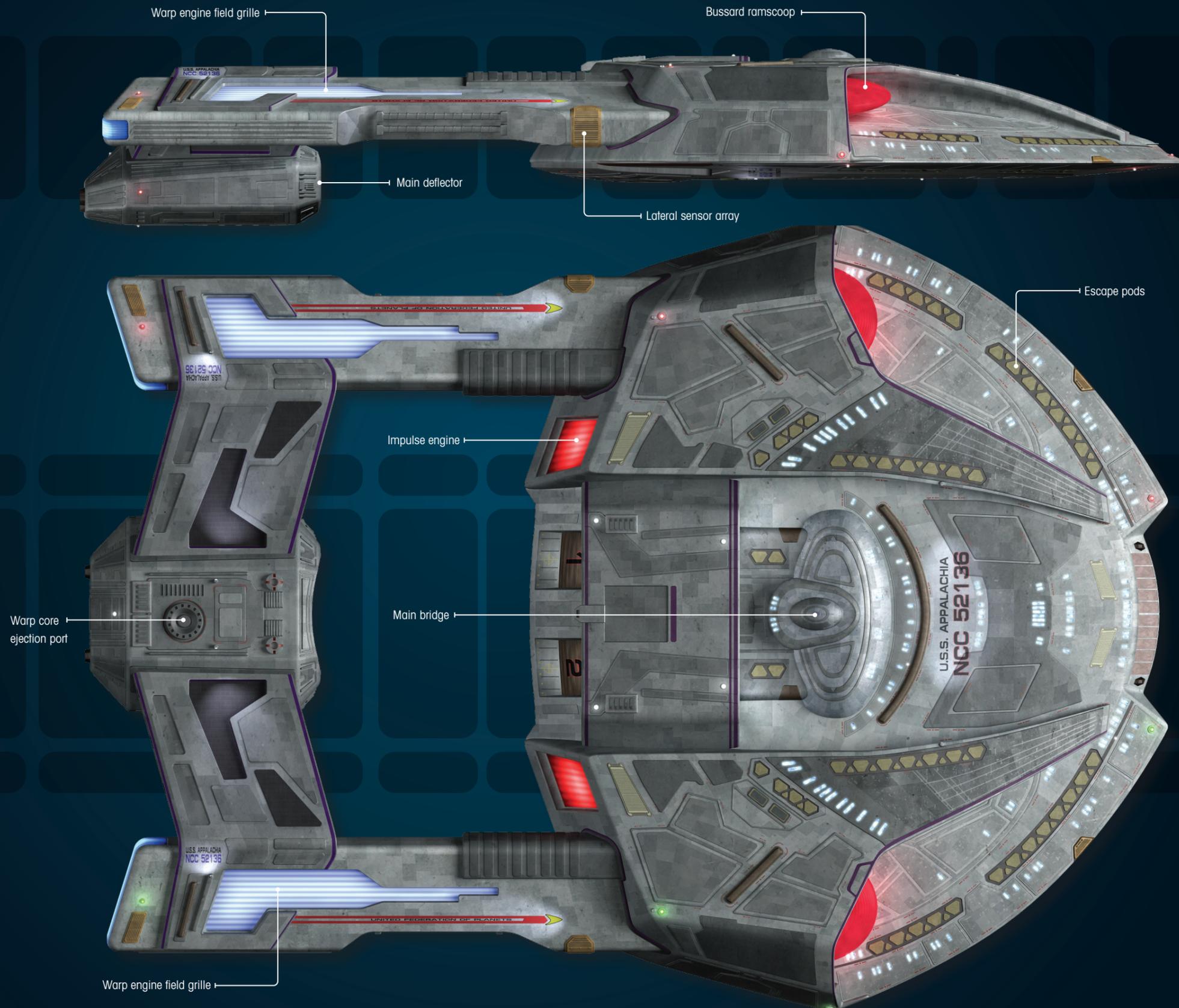
In late 2375, *Steamrunner*-class vessels were part of the huge combined Allied fleet that ultimately defeated the Dominion in the final battle of the war at Cardassia Prime.



▲ *Steamrunner*-class ships fought alongside several other classes of Starfleet vessel as part of the Second Fleet during the Dominion War.

DATA FEED

Although at least two *Steamrunner*-class ships were destroyed during the Battle of Sector 001, the remaining vessels in the fleet managed to coordinate a successful attack on the Borg cube. This was largely due to Captain Picard knowing precisely where to target the cube after he learned where it was most vulnerable during his time as Locutus.

**BLOWHARD OFFICER**

Vice Admiral Hayes survived the encounter with the Borg despite his flagship being destroyed. He was later described by Captain Janeway as a "good man, fine officer, a bit of a windbag."

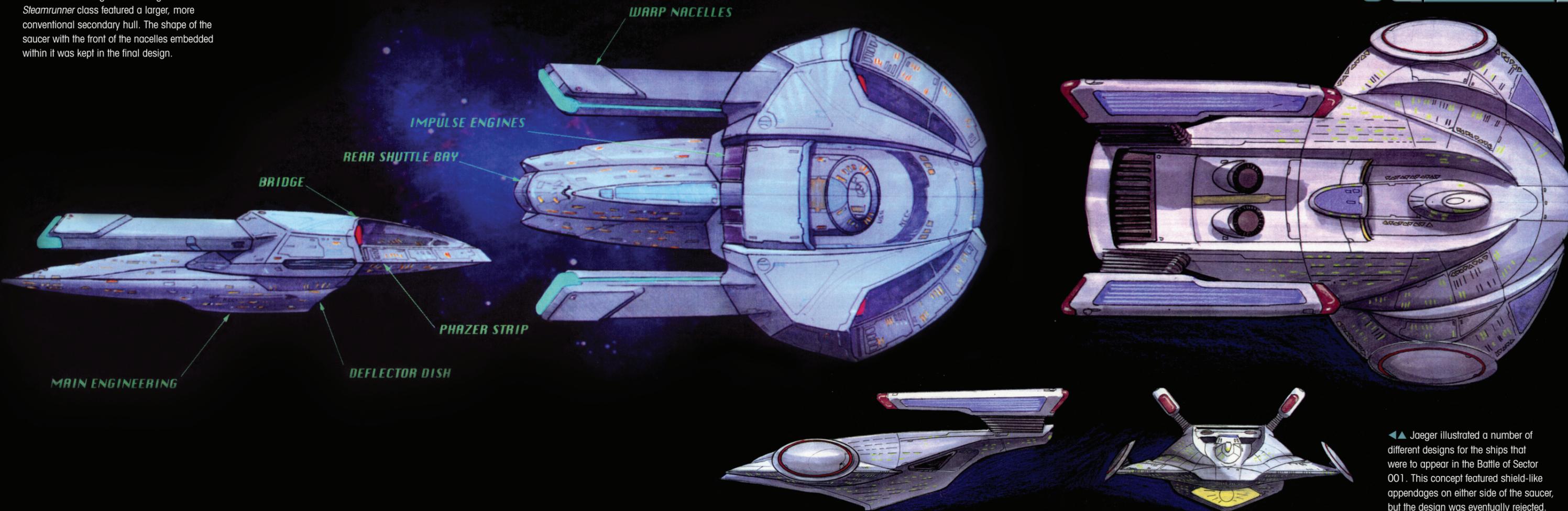
SECOND FLEET SHIPS

As well as ships from the *Steamrunner* class, the Second Fleet comprised vessels from the *Galaxy* class, *Defiant* class, *Miranda* class, *Excelsior* class, *Saber* class and *Akira* class, as well as ships from the Klingon fleet.

SINGLE NAME

Although several *Steamrunner*-class ships have been seen in action, only one has been officially named. That was the *U.S.S. Appalachia* NCC-52136, which was destroyed during the Battle of Sector 001.

▼ One of Alex Jaeger's first designs for the *Steamrunner* class featured a larger, more conventional secondary hull. The shape of the saucer with the front of the nacelles embedded within it was kept in the final design.



◀◀ Jaeger illustrated a number of different designs for the ships that were to appear in the Battle of Sector 001. This concept featured shield-like appendages on either side of the saucer, but the design was eventually rejected.

DESIGNING THE III

III

III

STEAMRUNNER CLASS

► Visual effects art director Alex Jaeger created several new ship designs for the *STAR TREK: FIRST CONTACT*.



The *Steamrunner* class was among a number of new Starfleet vessels designed by Alex Jaeger for *STAR TREK: FIRST CONTACT*.

Visual effects company Industrial Light & Magic were given the task of envisaging and creating the Battle of Sector 001, the epic opening sequence of *STAR TREK: FIRST CONTACT* where a Federation armada engages a Borg cube over Earth.

ILM's visual effects supervisor John Knoll quickly realized that the existing

variety of Starfleet ships they had at their disposal was not going to be enough, so he asked his colleague visual effects art director Alex Jaeger to come up with some new designs.

"This had to be the part of the job that was the most fun, and the most stressful," said Jaeger. "In the script there was a huge space battle raging

that described dozens of Starfleet vessels swarming around a Borg cube. The initial number of new ships to be designed was going to be 12. The problem was that since they had to put the *U.S.S. Enterprise* NCC-1701-E into this battle, Paramount was afraid that some of the new ships might be confused with it. So all the new ships had to look

completely different. Even all the old ships like the *U.S.S. Excelsior* and the *Enterprise-B* models were not going to be used."

DISTINCTIVE DESIGNS

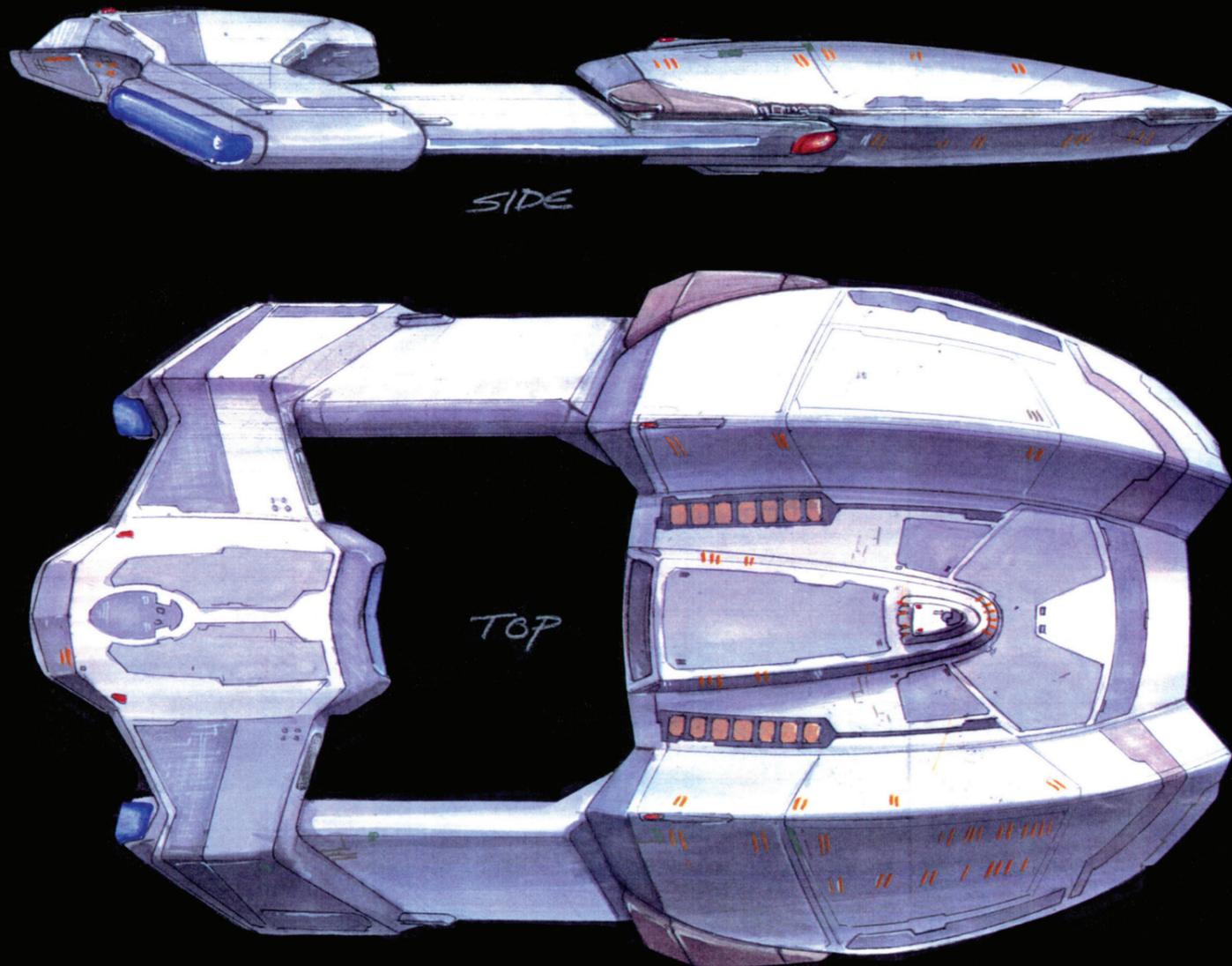
As Jaeger began designing the new vessels, he initially tried to keep them within the aesthetic that had already been established on *STAR TREK*. The problem was that the team at ILM wanted to make sure that they stuck

to Paramount's instructions, and this meant creating more radical designs. They did not want the new ships to get confused with the outline of the *Enterprise-E* as this was the first film to feature the *Sovereign*-class ship. Instead, they encouraged Jaeger to create vessels that had a more distinctive silhouette.

"I started just sketching basic shapes and then showing them to John Knoll," said Jaeger. "He would then pick what

he thought might make a good ship. So we would go back and flesh out the chosen shapes and tighten them up and start to add detail. All this was going on at the same time as all the storyboards were being done, so I was busy doing both."

At this point Jaeger had sketched out a number of illustrations including one for a ship named the 'U.S.S. Criterion,' which had two massive nacelles, and another that was named the 'U.S.S.



Zandura.' He intended this latter ship to be "a prototype science ship with separation capabilities for atmospheric flight." As might be expected, some of the designs, like these two, did not make it through the approvals process.

FINAL DESIGNS

"Eventually Paramount cut the number down to five or six new ships," said Jaeger. "Between me and (digital modeling artist) John Goodson we had about ten somewhat final designs. Then after another stage of refinement the number was cut further because one of mine, and one of John's designs, were deemed too *Enterprise*-like. So the

surviving four were initially named, the *Akira*, *Saber*, *Stingray*, and the 'Streamrunner.'

"At this point, the original name of the final design was 'Streamrunner,'" continued Jaeger. "This was a name inspired by one of my favorite bands – Fold Zandura. They have a song called Streamrunner and I liked it. It had a sci-fi feel to it and I thought it made a cool ship class name. Somewhere in the process the 'R' got dropped in one of the approval pages and it became the *Steamrunner*, which is still kind of a cool sounding name.

"This ship went through several major changes and ended up being a mix of

a model I had started to build and the drawing that was initially approved. The main difference was in the saucer and the deflector dish. The drawing of the deflector dish was raised so that it was on the same level as the bridge. I felt that gave the ship a very one level look and made the deflector hard to see. On the model I dropped the dish section down so that from a front view it looked more like a *STAR TREK* ship should, with the dish below the saucer. I textured mapped this ship using the textures from our now completed *Enterprise-E* model. I felt that in doing so would help the new *Enterprise* fit in better since it was so

different. So I basically took and pieced together a top, bottom and front map from *Enterprise-E* photos using the same colors and lifeboat details.

RADICAL LOOK

"The *Steamrunner* was a pretty radical design departure from other ships in that the engineering section was only connected to the saucer via the nacelles. Since the nacelles played as a structural support I chose to embed the front of the engines into the saucer as if there was an understructure running through them. I then cowled the tips to make it look more aggressive.

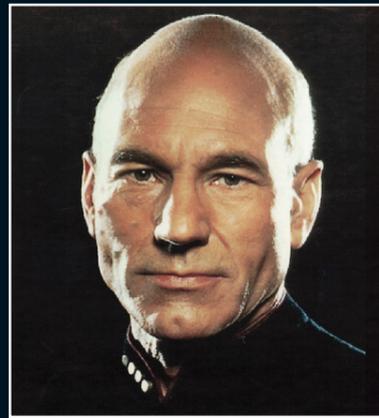
"This ship also had a sunken bridge,

like the *Akira* class, with only the very top section visible from the side. The bridge was wider and blended back into the aft shuttle bay. This was a fun ship to design."

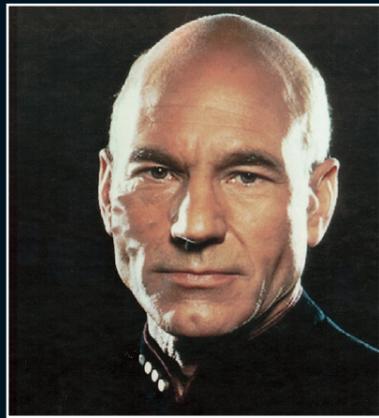
Once Jaeger's design for the *Steamrunner* had been finalized it was rendered as a CG model using 'formZ' software. This was done at a lower resolution than some of the other models, because the *Steamrunner* was only to be seen in the background in the movie. Later, visual effects house Digital Muse created a higher resolution model of the *Steamrunner* in LightWave 3D so it could be used in episodes of *STAR TREK: DEEP SPACE NINE*.

▲ Jaeger came up with several other ideas for ships that could feature in the Battle of Sector 001, including the 'U.S.S. Zandura' [top], which had four nacelles, and could separate for atmospheric flight. He also drew the 'U.S.S. Criterion' [bottom], which had two massive nacelles. Neither of these designs made it to screen.

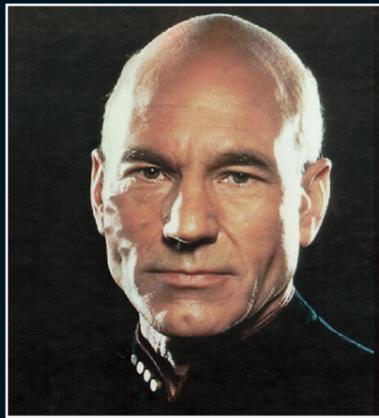
◀ FAR LEFT: A modified illustration of the *Steamrunner* class was much closer to the final design, but at this stage it featured a secondary hull on the same level as the bridge in the saucer section.



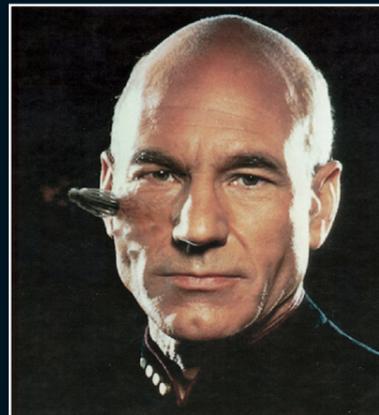
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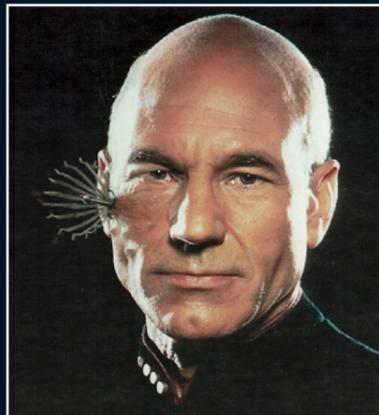
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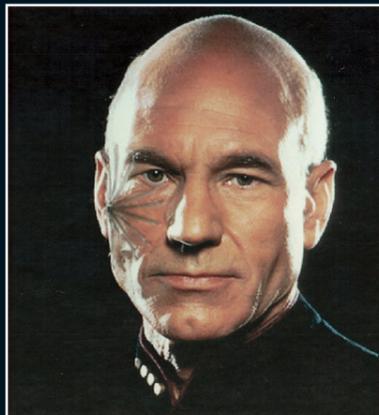
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▲ Jaeger took some publicity photographs of Patrick Stewart and used Photoshop to show how he thought the Borg implants could move, distorting his face, before erupting through his skin.



BECOMING BORG

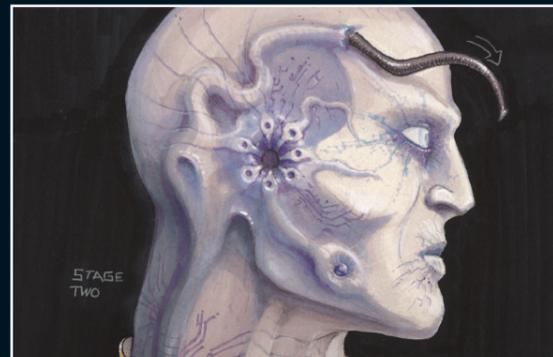
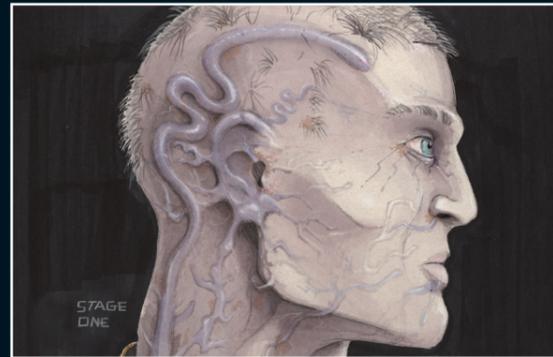
Alex Jaeger, who designed many of the new ships seen in *STAR TREK: FIRST CONTACT*, also designed the look of the Borg assimilation process.

Before *STAR TREK: FIRST CONTACT*, we hadn't really seen much of the assimilation process. There was a brief sequence in 'The Best of Both Worlds, Part II' that showed Captain Picard being transformed into a Borg. He was strapped to a table while surgical drones grafted a Borg attachment onto his arm, and an injection drained the color from his face, giving him the distinctive Borg pallor.

When the Borg made their debut on the big screen, everyone knew that the transformation from humanoid to drone needed to be as



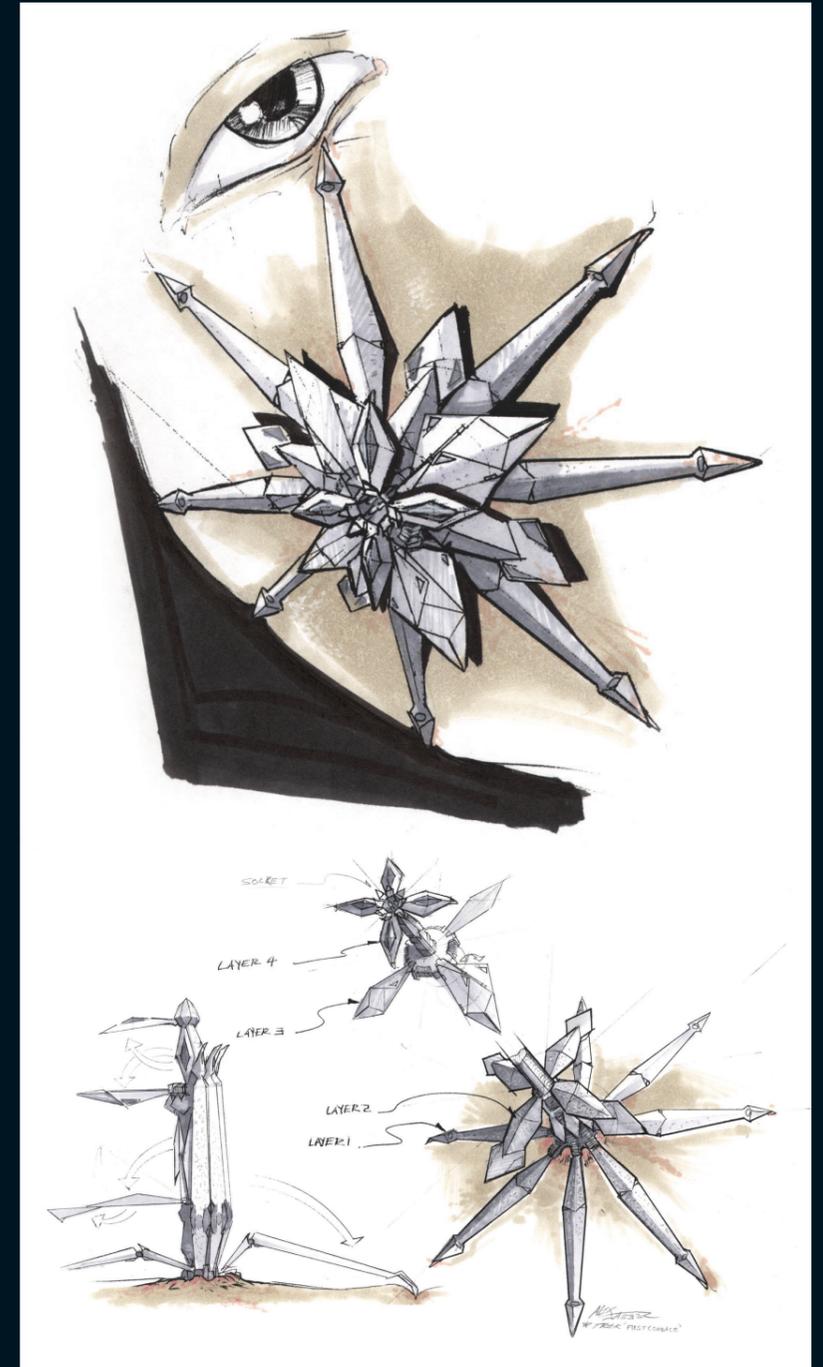
◀ One of Alex Jaeger's ideas was that Borg "face poppers" would break through the victim's skin as part of the assimilation process. In the end, this effect was only used in Picard's nightmare.



dramatic as possible. With a substantial movie budget at their disposal, the producers wanted to show us the true horror of the grisly assimilation process. Most of *FIRST CONTACT*'s effects were handled by Industrial Light & Magic, so the task was given to their visual effects art director, Alex Jaeger. He recalled that the initial brief gave him a lot of latitude to be creative.

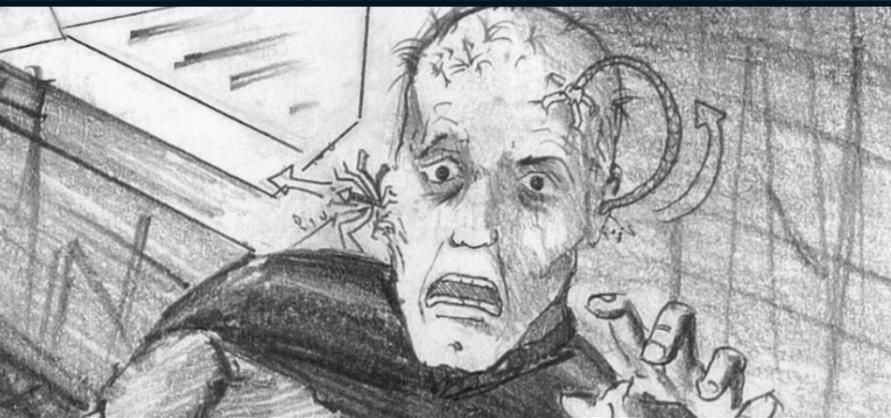
FIRST STEPS

"It was just briefly described in the script as the person is sort of taken over," said Jaeger. "There was the whole idea that the Borg injected nanotechnology into their victims and that was what turned them into Borg. It started rebuilding their cells and changing them so the Borg could fit



in all the mechanical components. Basically, my job was to come up with what that looked like. I started out with a few sketches of the veins turning black. It was as if you could see it moving under the skin and changing the cellular structure of the person by bruising. I also had lumps moving under the skin, the hair falling out, things like that. Then, eventually I had these tubes and stuff popping up from underneath the skin, and building the mechanical stuff you see on the final Borg."

▲ Jaeger's first sketches showed how the victim's veins would turn black before tubes burst out from under the skin. A later illustration showed how the "face poppers" would appear on the face.



When Jaeger submitted those sketches, he discovered that the producers and director Jonathan Frakes liked them, but wanted to see exactly what the effects would look like in the finished shot. To show them what they wanted, Jaeger abandoned pen and paper and started manipulating images in Photoshop.

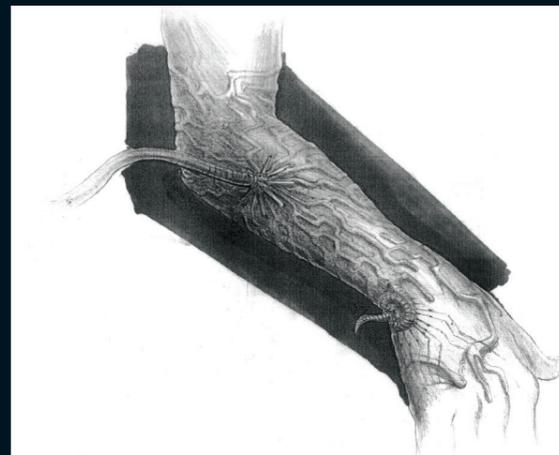
PHOTOREALISM

For one sequence, Jaeger took a publicity photograph of Patrick Stewart and created storyboards that showed a Borg "face popper," inspired by an ice cube holder, distorting Picard's face before bursting through the skin. For others, he took photographs of members of ILM's art department and transformed them into Borg with Photoshop's image manipulation tools. He explained that this photorealistic approach was very helpful for everyone concerned.

"It was not only a guide for showing the producers," said Jaeger, "but it was also a guide for showing our animators who were actually doing the shot - 'This is what the directors have seen, so this is what we want it to look like.' Once we got that approved then that was pretty much the look we were headed for. It went through fairly easily. The only thing that I probably had in the original sketches that didn't make it into the final design was stuff actually coming out from underneath the skin. Originally, the thing that popped out of Picard's face at the beginning was going to be part of the Borgification process; those things would pop out and form sockets. We used that in the dream sequence, but not in the actual transformation."

One thing that wasn't established at this point was exactly how the Borg would inject their victims with the all-powerful nanoprobes. It was agreed that tubules would appear from the Borg's hands and puncture the victims' skin. This concept may have sounded straightforward, but it wasn't easy for everyone to decide exactly where the tubules would come from.

"I did a series of drawings for that," said Jaeger. "The question was: do they break through the skin, or are there little hatches on the knuckles that they open up and come out of? I ended up doing a bunch of marker renderings of what those looked like. On set they shot that scene really not knowing



what was going to happen. Early on, I had taken a picture of the other art department guys; they posed for something, and I just kind of quickly had these tubes coming out of their fingers and into their necks. That was sort of the basis for the way they shot that. Once we knew the camera angle, we could design something that fit a little better to what was shot."

CG ATTACK

In the solution Jaeger arrived at, the tubules appeared from the knuckles. As he went on to explain, the tubules were actually computer models that were added in post-production.

"For the shot where we actually see the crew member being Borgified, we had to digitally add the little tubes that come out of the Borg's fingers and into his neck," said Jaeger. "That was basically done with a three-dimensional model of the tubes. Then, the actual puncture wound in his neck was a piece of two-dimensional Photoshop art that I painted and we tracked in."

Once a person had been injected with nanoprobes, their skin began to distort, as the Borg technology rewrote their DNA and created a series of cybernetic implants. Jaeger and his team used a variety of techniques to create this effect using two and three-dimensional images. The two-dimensional part was done by painting a Borgified image of the face, which was then combined with the actual footage shot on the sound stage. The three-dimensional elements were somewhat more complicated.

"For the scene of veins and implants moving underneath the skin, some of it was done two-dimensionally by just revealing pre-existing artwork that we had painted," said Jaeger. "Other stuff was done by actually mapping on patches of digital skin under the actor's face, so that we could bump it up and you could see the skin moving. That way you'd see the little highlights moving, and you'd get shadows across his face. That was the same process we used with the 'face popper' that appears on Picard in the dream sequence."

◀ One version of the assimilation effect showed a tube snaking out from a drone before a clamp attached to the victim's arm. When it was decided that the tubules should emerge from the drone's hand, Jaeger produced a series of sketches showing alternative versions of how this could happen.

▲ Jaeger's storyboards showing the process by which the Borg injected the nanoprobes were very close to the finished effect, with tubules emerging from their hands before piercing the victim's skin.

ON SCREEN



TRIVIA

The Battle of Sector 001 in which several *Steamrunner*-class ships took part was originally envisioned as being much more grand than what appeared in the final cut. An early draft of the script for *STAR TREK: FIRST CONTACT* described a battle "involving dozens of Starfleet and Borg vessels engaged in a fierce firefight as far as the eye can see. Ships turning, twisting, firing, exploding. Lots of movement. It's a spectacular sight." *STAR TREK: FIRST CONTACT* screenwriter Ronald D. Moore later explained that they wanted to feature a larger, more spectacular space battle, but there simply was not enough time.



The final shots of the *STAR TREK: DEEP SPACE NINE* episode 'Call to Arms' showing a huge Allied fleet was achieved using a combination of CG-created models and physical studio models.



According to the 'STAR TREK Encyclopedia' written by Michael and Denise Okuda, the *U.S.S. Hiroshima* was a *Steamrunner*-class ship, although it was never featured on screen. The name came from an illustration produced by concept artists Alex Jaeger and John Eaves at Industrial Light & Magic.

- FIRST APPEARANCE: STAR TREK: FIRST CONTACT
- TV APPEARANCES: STAR TREK DEEP SPACE NINE
- DESIGNED BY: Alex Jaeger

KEY APPEARANCES

STAR TREK: FIRST CONTACT

When a Borg cube is detected entering Federation space, a task force comprising around 30 ships, including *Steamrunner*-class vessels, is scrambled to intercept it. It is only when the *U.S.S. Enterprise* NCC-1701-E joins the battle, however, that the cube's progress is slowed thanks to Captain Picard's inside knowledge of the Borg's vulnerabilities. The cube is eventually destroyed, but not before it launches an auxiliary craft in the shape of a sphere. It proceeds to open a spatial vortex to travel back in time, and the *Enterprise-E* is forced to follow it in order to prevent the assimilation of humanity in Earth's past.

STAR TREK: DEEP SPACE NINE 'Call To Arms'

As the Dominion build up their forces, Captain Sisko realizes it's just a matter of time before they will attack *Deep Space 9*. A plan is hatched to block the wormhole with self-replicating mines, but before it can be completed a huge Dominion force attacks *Deep Space 9*. They are successful in taking control of the station, but not before the minefield is activated. The loss of the station has not been in vain, however, as while the Dominion have been preoccupied, a large fleet, including *Steamrunner*-class ships, has managed to destroy vital Dominion shipyards on Torros III.

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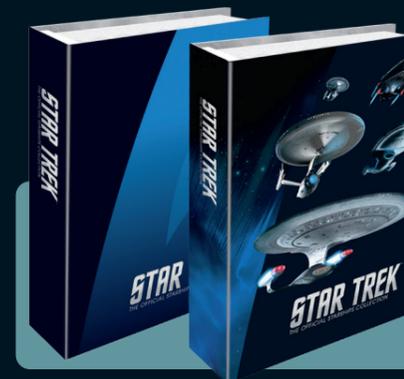
Inside your magazine

- In-depth profile of the *D'Kyr* class, a 22nd-century Vulcan combat cruiser that featured a circular warp nacelle
- Illustrator *John Eaves* explains how a submarine and an American football provided inspiration for the *D'Kyr* class
- Why the writing staff made the *Vulcans* oppose *Enterprise's* mission and how the *Vulcan reformation* changed everything

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