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U.S.S. ENTERPRISE™  
**NCC-1701**

CLASS: CONSTITUTION

LENGTH: 289 METERS

LAUNCHED: 2245

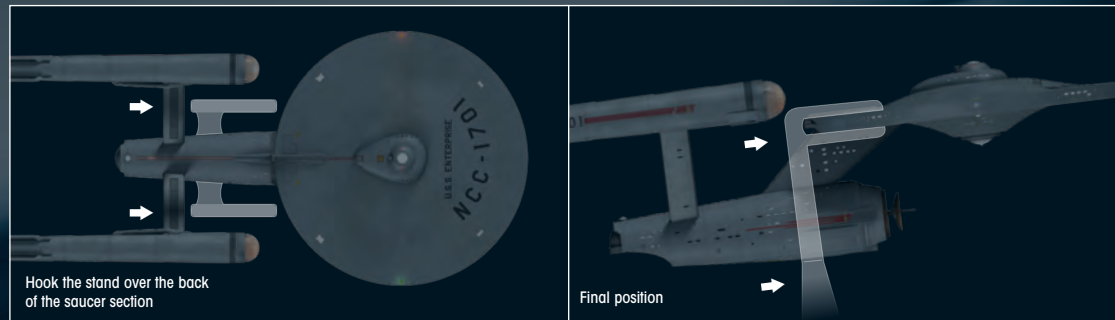
CREW: 430 (2264)

# U.S.S. ENTERPRISE NCC-1701

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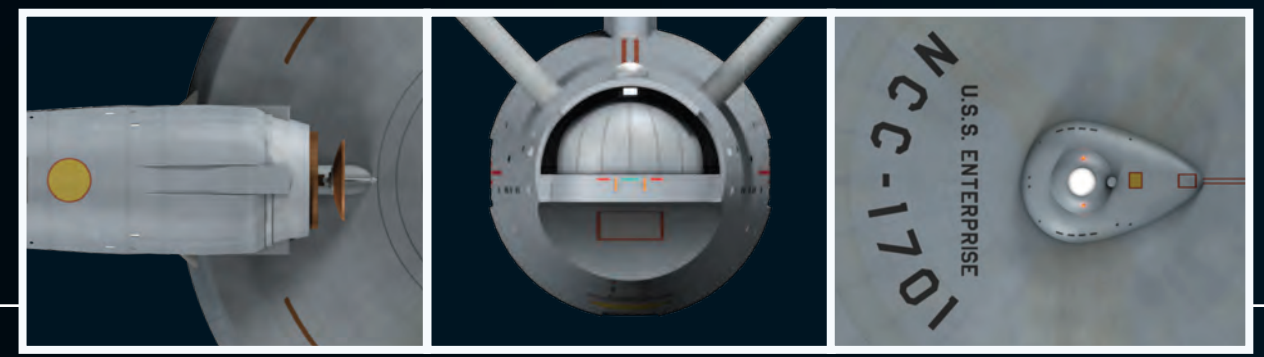
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# U.S.S. ENTERPRISE SPECIFICATION

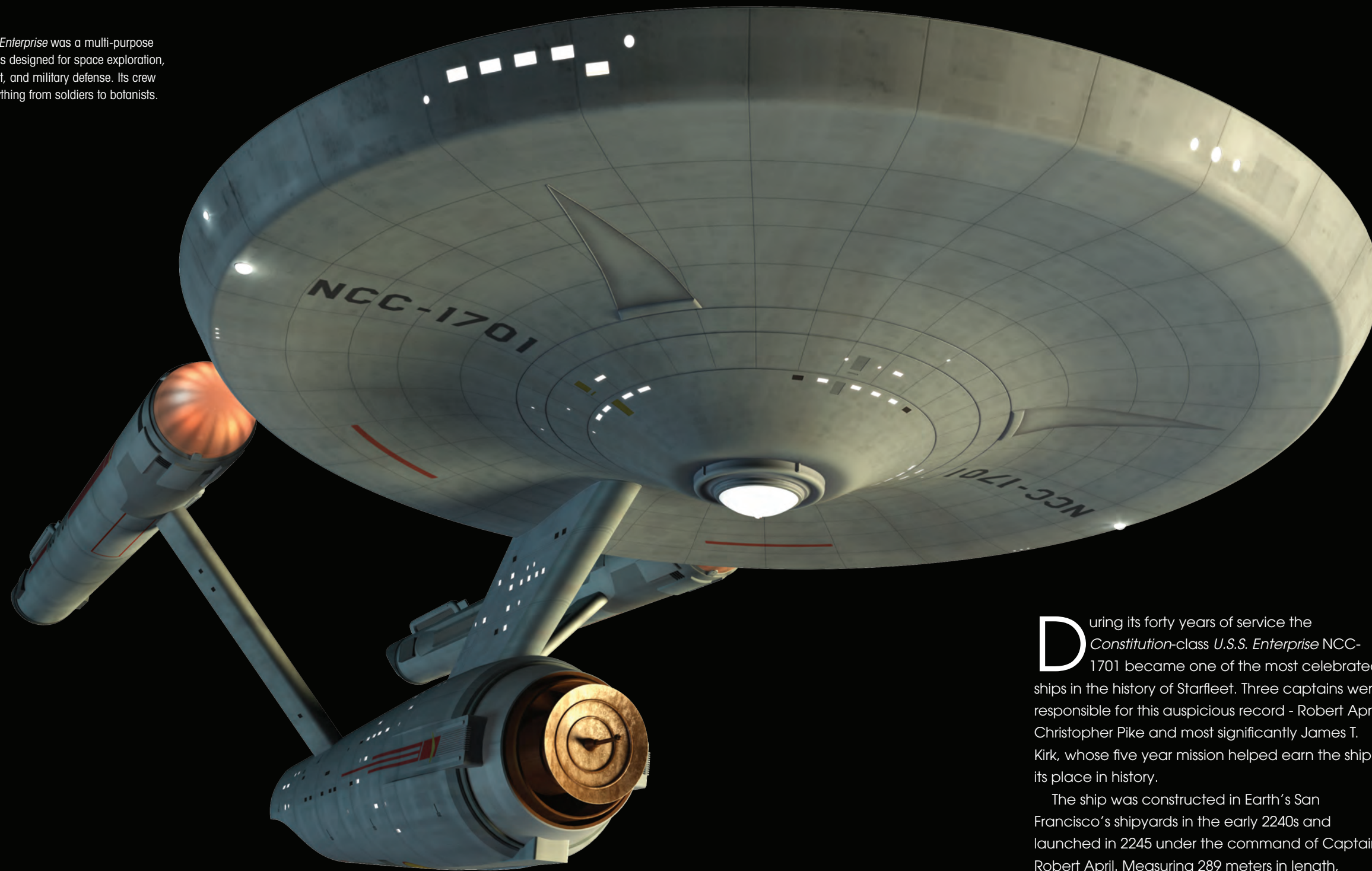


REGISTRY:	NCC-1701
CLASS:	CONSTITUTION
LAUNCHED:	2245
LENGTH:	289 METERS
DECKS:	23
CREW:	203 (2254), 430 (2264)
WEAPONRY:	PHASERS
	PHOTON TORPEDOES
CAPTAINS:	APRIL, PIKE, KIRK (PRIOR TO 2269)



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► The *U.S.S. Enterprise* was a multi-purpose vessel that was designed for space exploration, colony support, and military defense. Its crew included everything from soldiers to botanists.



# U.S.S. ENTERPRISE

The *Constitution-class Enterprise* spent nearly 30 years exploring the final frontier and defending the Federation.

During its forty years of service the *Constitution-class U.S.S. Enterprise* NCC-1701 became one of the most celebrated ships in the history of Starfleet. Three captains were responsible for this auspicious record - Robert April, Christopher Pike and most significantly James T. Kirk, whose five year mission helped earn the ship its place in history.

The ship was constructed in Earth's San Francisco's shipyards in the early 2240s and launched in 2245 under the command of Captain Robert April. Measuring 289 meters in length, the *Enterprise* had 23 decks and was fitted with state of the art technology rivaling that of any

starbase. It boasted an extremely powerful duotronic computer system, which was designed by Doctor Richard Daystrom. As was typical of Starfleet vessels, the ship was designed to have three distinct areas: a saucer section where the main bridge was located together with the crew quarters and impulse engines, an engineering hull containing the warp drive systems, a shuttlecraft hangar and the main navigational deflector, and twin nacelles that generated the warp field.

## MISSION PARAMETERS

The ship was designed primarily for deep space exploration with a view to making first contact with alien species, but was also tasked with supplying Federation colonists, delivering medical supplies, transporting diplomats and patrolling

◀ Many of the *Enterprise's* missions took it to planets such as Sigma Iotia II that Earth had contacted in the past but because of the difficulties of early warp travel had never visited again. The crew often found themselves trying to correct the mistakes of the past, and to establish new and productive relationships.





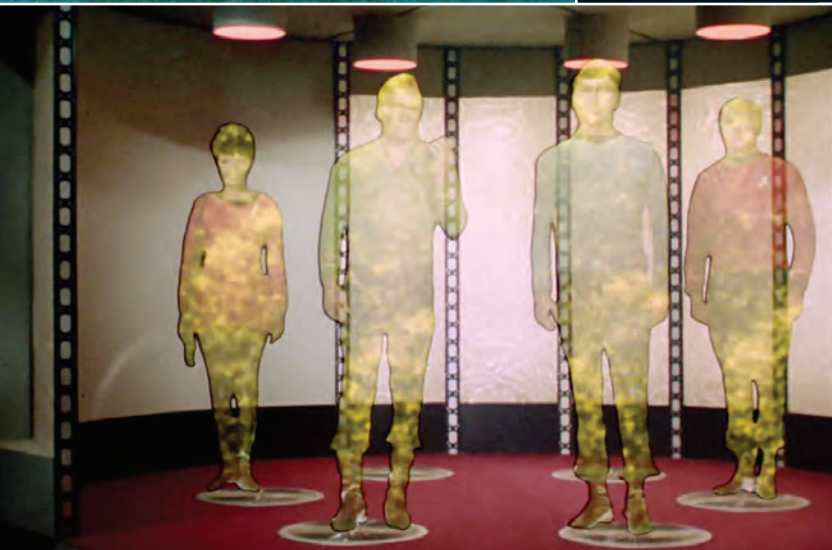
◀ Captain Christopher Pike assumed command of the *Enterprise* in 2250, and stayed in charge until 2263, when he was promoted to Fleet Captain and replaced by James T. Kirk.

▶ Under Pike's command, the ship had a crew of 203, was armed with lasers rather than phasers, and had a different design of bridge module and Bussard collectors.



▶ Dr McCoy joined the crew in 2266, replacing Dr Mark Piper. His research during his time on the ship formed the basis of his seminal work *Comparative Alien physiology*.

◀ The *Enterprise* was commanded from the Main Bridge, which was located in Deck 1 on the top of the saucer section. Consoles around the edge of the room provided access to all of the ship's systems.



◀ The *Enterprise's* main engineering room was given a major refit in 2267, when the matter-antimatter integrators were moved to the center of the room and a gantry was added that allowed access to the upper level.

▶ The *Enterprise* completed many historic missions. One of the most notable was being the first ship to survive crossing the barrier that surrounds the Galaxy.



▲ By the 2260s transporters were commonplace and it was standard procedure for the crew to use them to visit the surface of planets and even other ships. The *Enterprise* did also carry shuttlecraft that could be used for longer-range missions.

the Federation's border in order to defend it against hostile alien forces. Another of the ship's objectives was scientific research and she had 14 fully equipped science labs. As well as the science labs, the ship carried a range of medical facilities, which included a full surgery as well as a medical research lab located on Deck 7. To accomplish all this the crew included a number of mission specialists, including psychologists, tactical experts, botanists, physicists, geologists and historians.

The *Enterprise* was powered by both warp and impulse engines. The warp reactor was situated in main engineering on Deck 19 in the secondary hull along with life support, power distribution and inertial dampening. In the event of the engines breaking down, the ship was able to run on battery power for about a week to keep essential systems such as life support or sickbay in operation. All the ship's systems were monitored and adjusted from a

bank of consoles in engineering and control could be transferred to the main bridge.

#### WEAPONS AND DEFENSES

The *Enterprise* was equipped with extensive weapons systems, which had the power to destroy the surface of an entire planet. Under Captain Pike's command the ship had been fitted with an array of laser cannons but by 2267 these had been upgraded to more sophisticated phasers. Mounted on the underside of the saucer section, they had an effective range of 300,000 km. The ship also carried a number of photon torpedoes, which could be fired when the travelling at warp speed.

Rather than the polarized hull plating found on ships of the previous century the *Enterprise* used deflector shields, which surrounded the entire ship. The strength of the shields could be altered to provide increased protection to particular areas of

the ship. Rounding out the weapons system was a powerful tractor beam, which enabled the vessel to take smaller ships into tow.

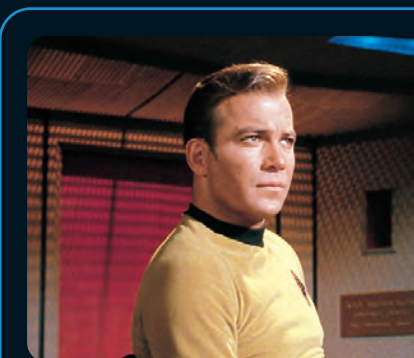
The ship initially carried a compliment of 203 crew members but over time that number was increased to 430. The majority of the crew areas were located in the saucer section, while the VIP and senior officers quarters were housed on Decks 4, 5 and 6. As it was normal for crews to spend long periods in space, a concerted effort was made to ensure their comfort. This resulted in even the most junior ensign and yeoman being allocated private quarters. These generally consisted of a single cabin divided into sleeping and living areas with a small bathroom attached.

The crew was also provided with recreational areas where they could gather for meals, or to socialize. Food was provided by synthesizers located in various areas around the ship, but there

was also a commissary where a catering team provided freshly cooked meals.

In 2269 and following the end of Kirk's five-year mission, the now 25-year-old ship underwent a major upgrade. It was completely refurbished to the point where it where it was virtually unrecognizable but its legacy continued.

▲ The helmsman sat on the port side of the console at the front of the bridge and was responsible for operating the ship's weapons.



#### DATA FEED

James T. Kirk was the most famous captain of the *Enterprise*. He assumed command in 2264, and led the ship on an historic five-year mission of exploration. When the ship returned to Earth, Kirk was promoted to Admiral and the *Enterprise* began an 18-month refit that transformed her.

**WARP SPEEDS**

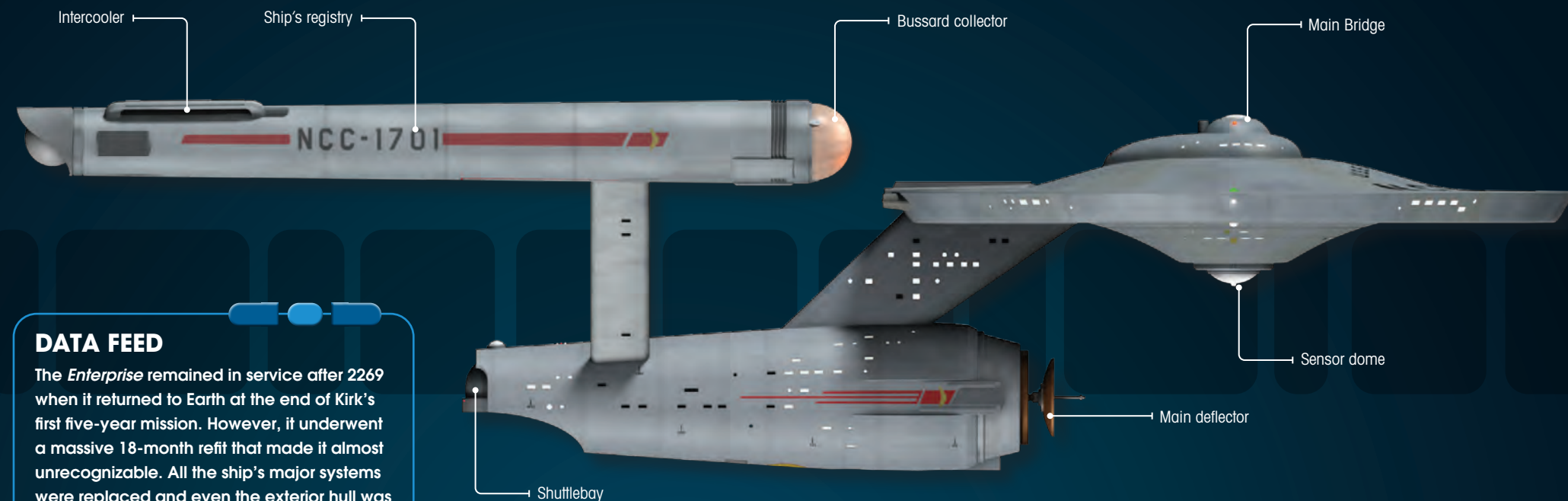
The *Enterprise* was fitted with state of the art warp engines, that were upgraded several times during its decades of service. By the time Kirk was in command in the late 2260s, she had a regular cruising speed of warp 6 but could maintain warp 8 and above for extended periods of time. There were several occasions on which the *Enterprise* achieved speeds in excess of warp 10 on the old warp scale that was used until the 24th century. On the revised scale these speeds in the upper warp 9.9 range. These speeds were only possible due to modifications made by extremely advanced beings including the Cheronians and the Kalandans.



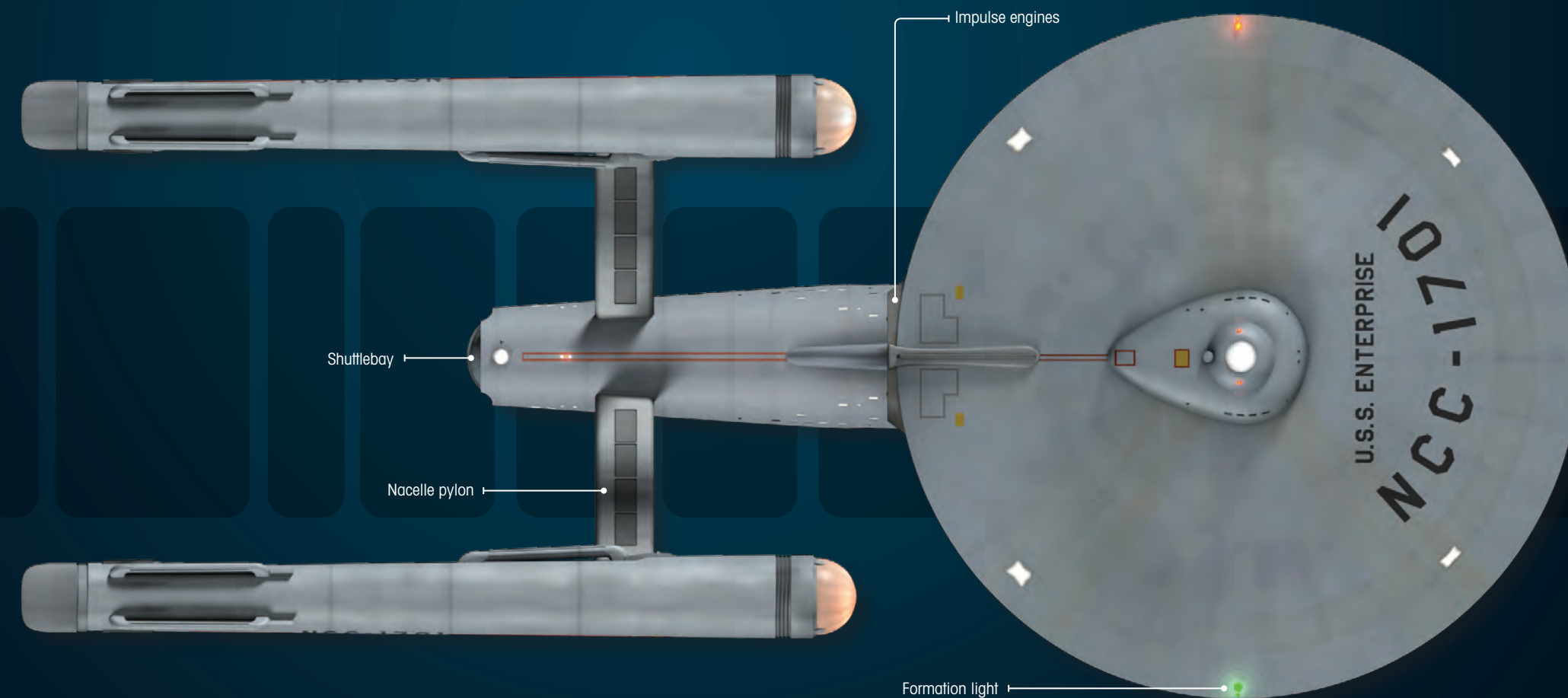
▲ In 2268 the Kelvans modified the *Enterprise's* engines so it could reach warp 11, a speed that would eventually allow them to reach their own Galaxy.



▲ Nomad increased the efficiency of the *Enterprise's* engines by adjusting the matter/anti-matter injectors and the energy release valves. After the modifications the ship could reach warp 11.

**DATA FEED**

The *Enterprise* remained in service after 2269 when it returned to Earth at the end of Kirk's first five-year mission. However, it underwent a massive 18-month refit that made it almost unrecognizable. All the ship's major systems were replaced and even the exterior hull was upgraded. The ship was finally destroyed in 2285 in orbit around the Genesis Planet.

**TIME TRAVEL**

The *Enterprise* was the first Starfleet vessel to discover how to travel through time, when Spock and Mr Scott initiated a cold start of the warp engines. The ship later made several trips to the past.

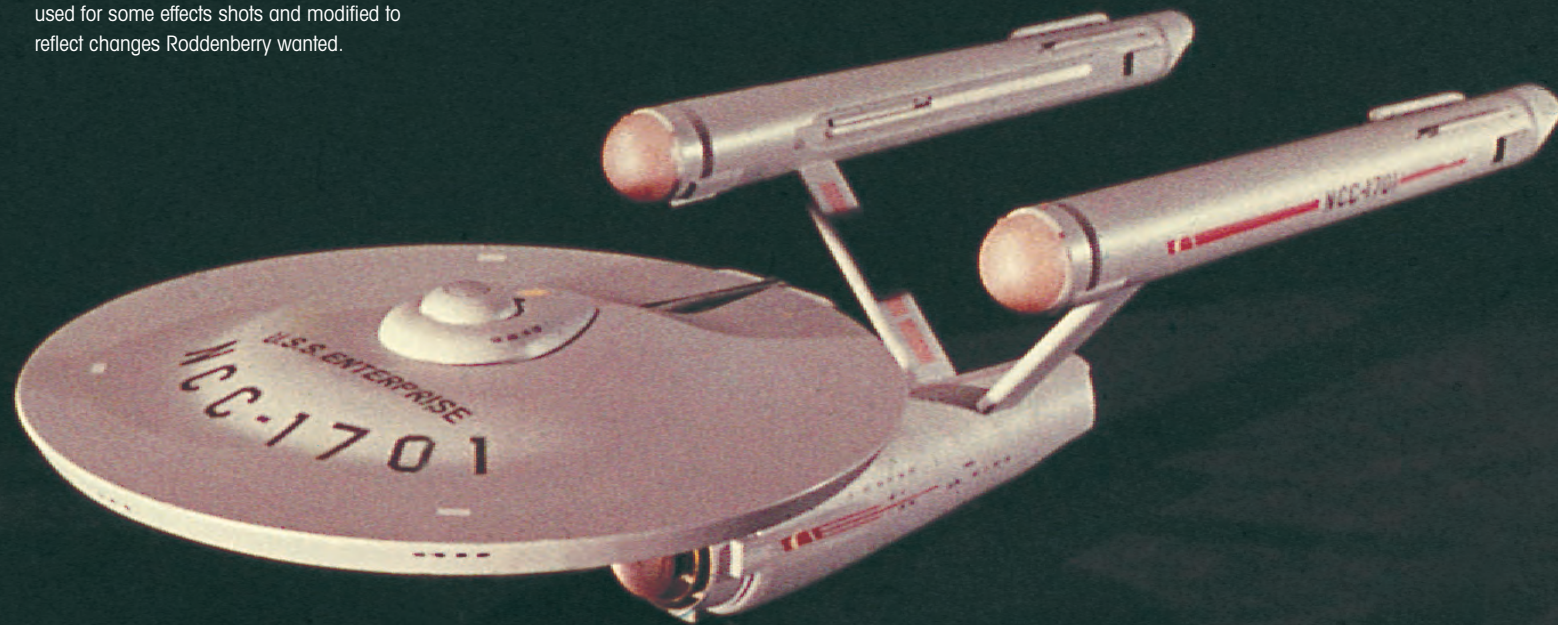
**KLINGON BORDER**

During Kirk's first five-year mission the *Enterprise* was on the front line of the conflict with the Klingons. She was nearly involved with the beginning of a war during the encounter at Organia, and was involved with diplomatic incidents near Sherman's planet, Capella IV and Neural.

**NEUTRAL ZONE**

The *Enterprise's* mission took her close to the Romulan Neutral Zone and she pursued and destroyed a Romulan marauder that crossed it in 2266.

▼ Matt Jefferies sketches were handed over to Richard Datin, who made a three-foot model showing what the finished design would look like. This model was used for some effects shots and modified to reflect changes Roddenberry wanted.



# DESIGNING THE ENTERPRISE

Matt Jefferies' design for the *U.S.S. Enterprise* set the standard for every starship that follow, but the finding the design was not easy.

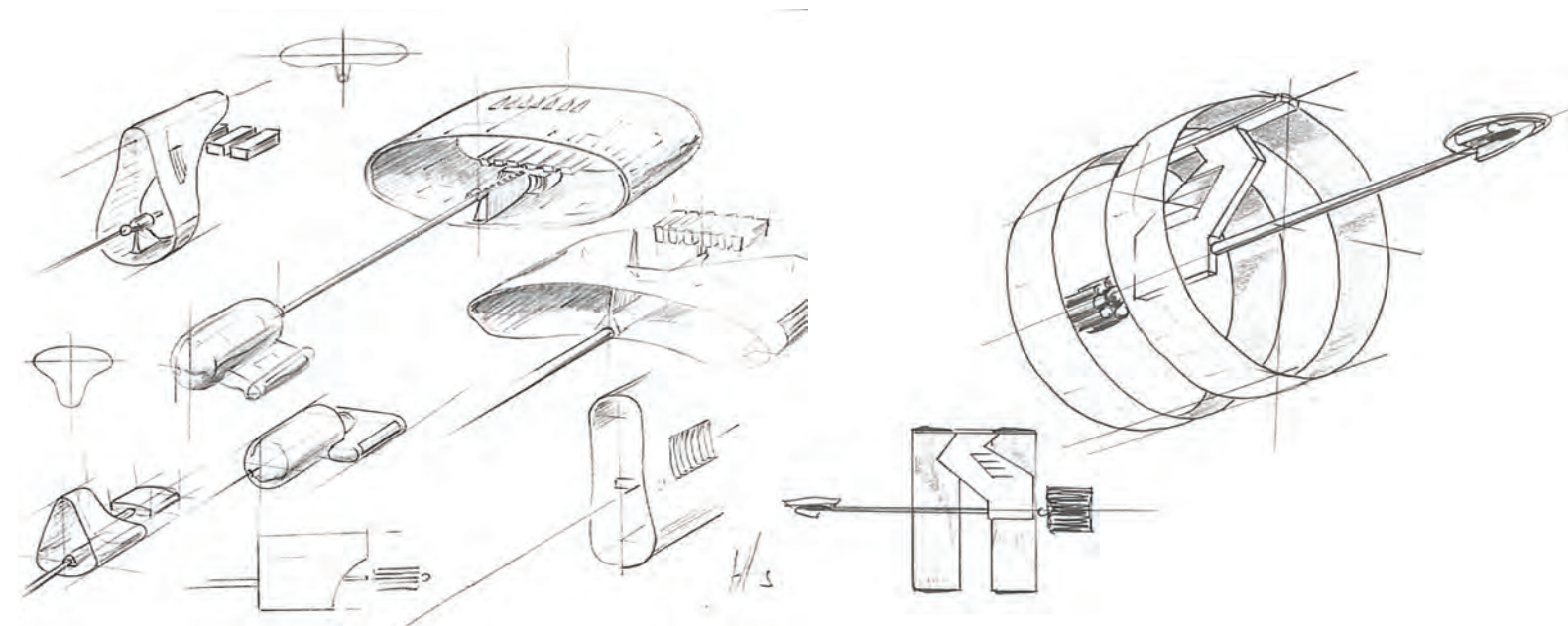
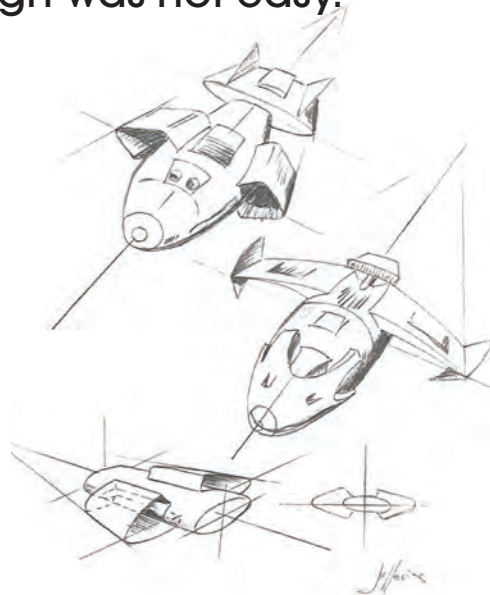
It was a typical Gene Roddenberry request: he wanted something no-one had ever seen before, and typically for Roddenberry, he couldn't tell you much more than that. Remarkably, Matt Jefferies, the first man to design an *Enterprise*, took that brief and created an iconic shape that would be used as a blueprint for almost every Starfleet vessel that followed. For a man who'd never even been a fan of science fiction it was a huge challenge.

"To be honest, I didn't know quite where to start," admitted Jefferies when

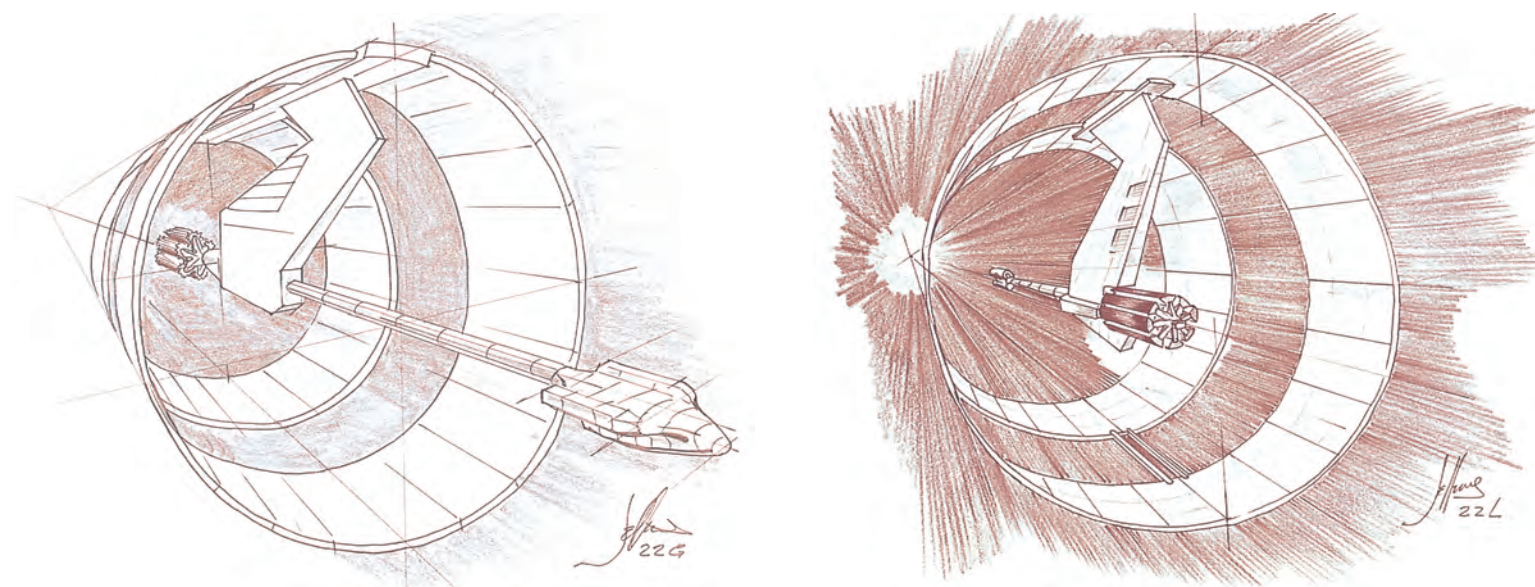
we met at his home in 1999. "I knew the *Enterprise* was going to be on the cutting edge of the future and that essentially Roddenberry had given me that job of deciding what shape that future was going to take, but it was hard to work out what exactly that was going to be."

Although Roddenberry couldn't give Jefferies an idea of what the ship would

▶ Roddenberry's initial instructions to Jefferies were to avoid any designs that looked like familiar spaceships from series such as *Flash Gordon*. Jefferies, however, needed something that looked fast.



▶ Early on in the design process, Jefferies decided to separate the engines from the habitable parts of the ship. This would eventually lead to the concept of warp nacelles, but the engines started out as rings.



look like, he could provide some information to work with. He had a fairly detailed idea of how he believed the ship would function – that it would carry a 100–150 man crew, operate for the most part in outer space, and have the ability to travel at unheard of speeds. Roddenberry was also clear about what he didn't want and he told Jefferies that in no way would his ship bear even the slightest resemblance to the 1950s type of rocket ship much beloved of movie makers and TV shows alike.

"I recall Gene emphasising that there

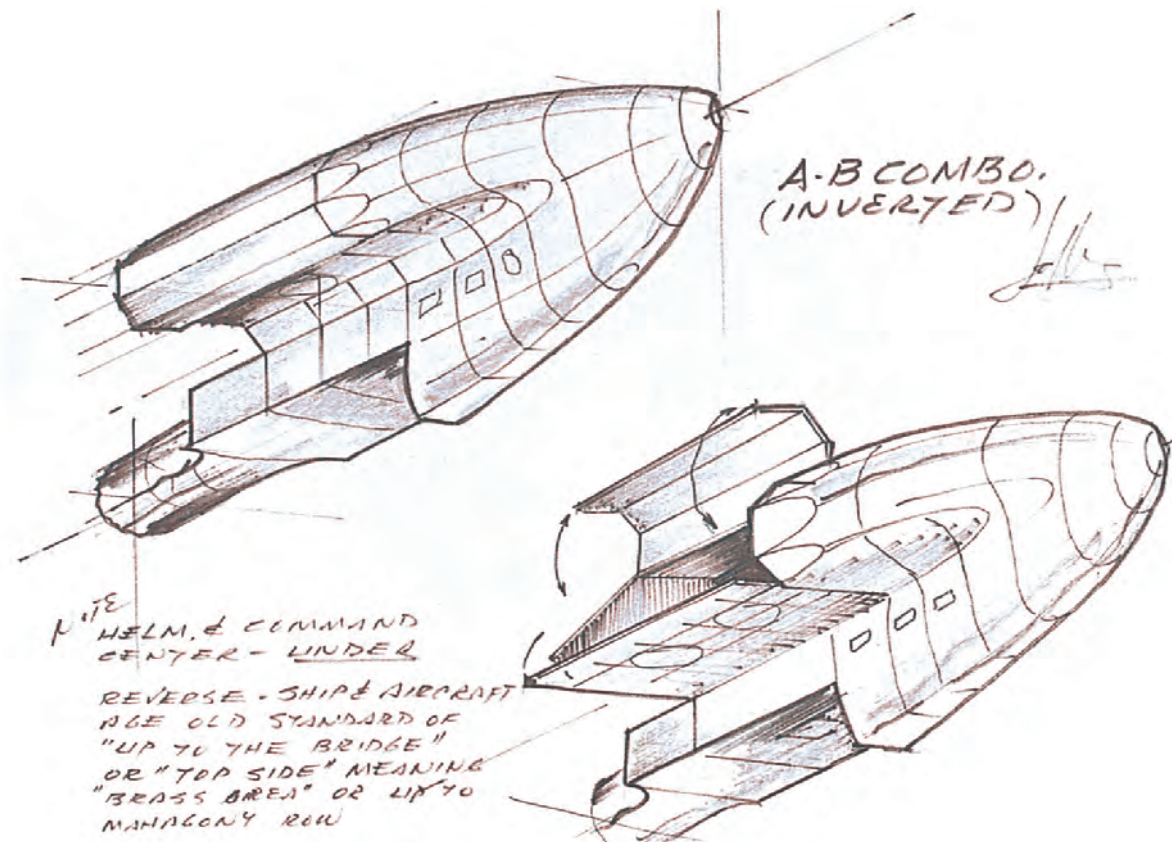
would be no fins, no wings, no smoke trails, no flames and most importantly of all no rocket," said Jefferies. "That led to a lot of floundering around on my part because with all that off the table I didn't know where the hell we were going to even start to come up something that instantly said spaceship. So after some thought I decided the best thing to do was to come up with an envelope to work inside based on the snippets of information I did have."

One of those snippets was Roddenberry's determination that the

ship would be capable of unearthly speeds. "To show the fantastic speeds Gene wanted I knew we were going to need flash cuts; you can't sell speed by holding a vehicle, automobile, plane whatever and moving the background. It just doesn't work; it's going to have to come from infinity to you or the other way. So I wanted to keep it very simple, but immediately identifiable – a shape that you could instantly pick out."

With that as a starting point, Jefferies produced countless sketches of different ships in an attempt to find a

► The bridge or command module wasn't always on top of the ship. This version can be seen in several different iterations of the ship. In it, Jefferies suggested that the bridge would actually be on the underside, which would have put it in a protected position.



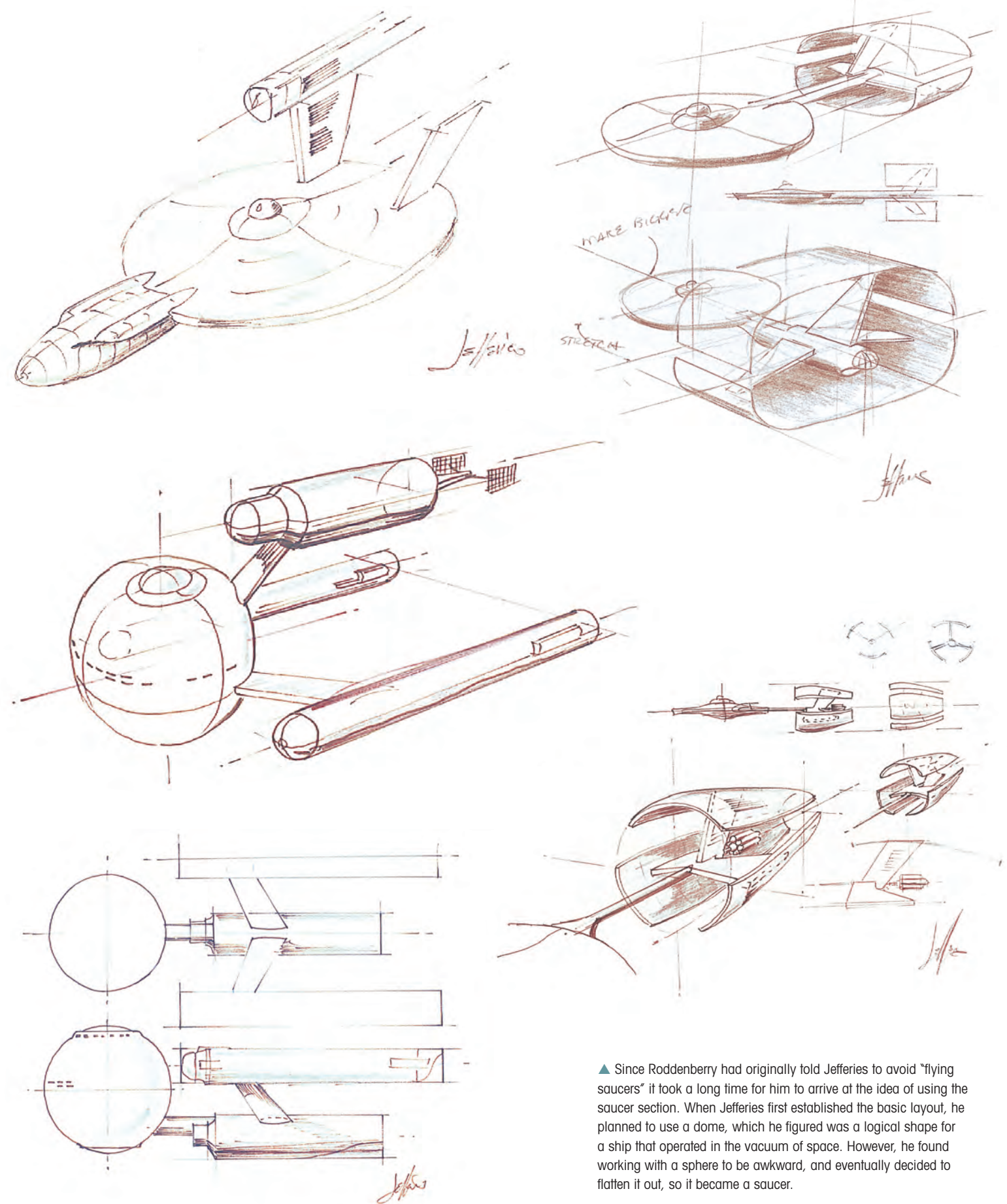
general direction. Being a member of the Aviation Space Writers' Association and active as a consultant with the Air Force Museum in Dayton helped as it gave him a source for a lot of design ideas. However many of his earliest attempts were rejected outright by Roddenberry as being too conventional, but pieces of some designs did offer promise. Jefferies then

set about collecting these pieces and applying them to new designs. "It went on like that for over three weeks," says Jefferies. "And I remember getting more and more frustrated but I struggled on and finally I came up with something I thought had possibilities. My thinking was that because of the ship's speed there had to be terrifically powerful engines. Their size would make

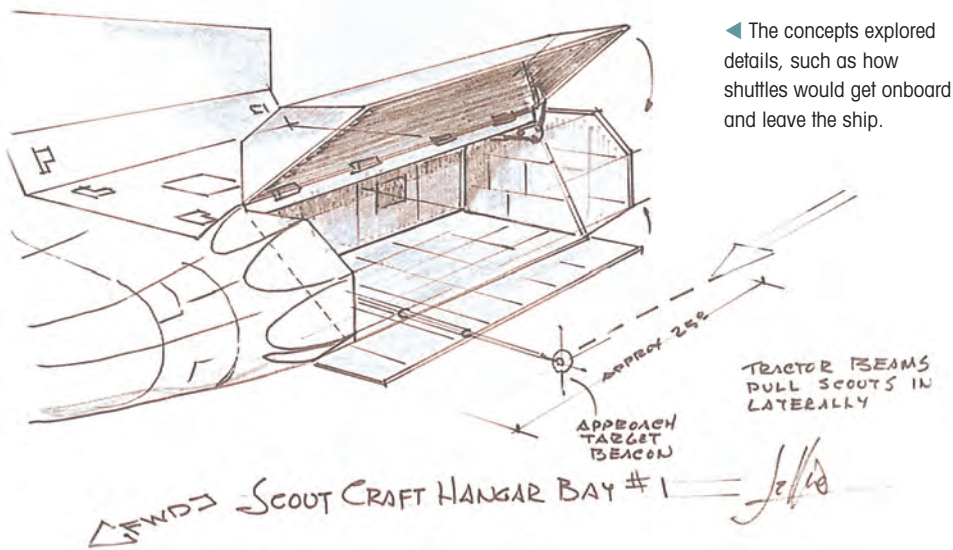
them dangerous to be around, so maybe we'd better put them out of the way, which in aviation circles would make them QCU - quick change units - where you could easily take one off and put another on." Jefferies decided that the safest place for the engines was underneath what would be the hull area. But despite that breakthrough, he struggled with a basic shape for the hull or the living area of the ship, initially rejecting the idea of a saucer.

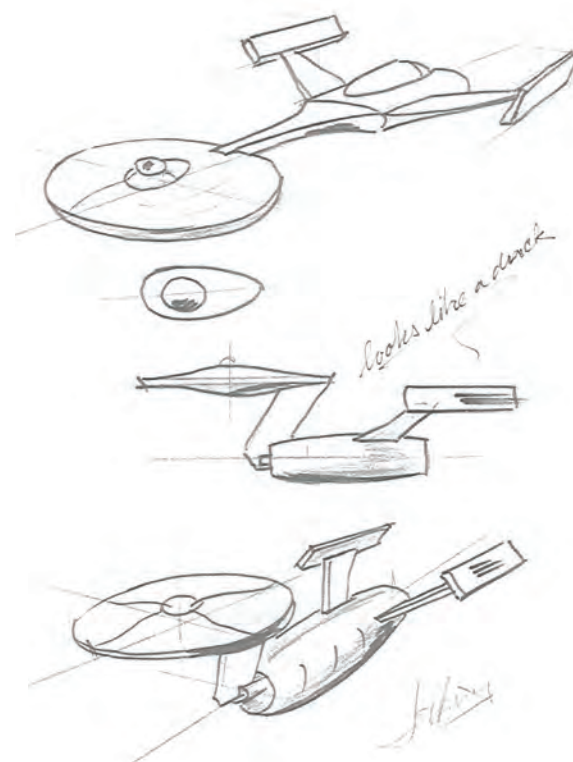
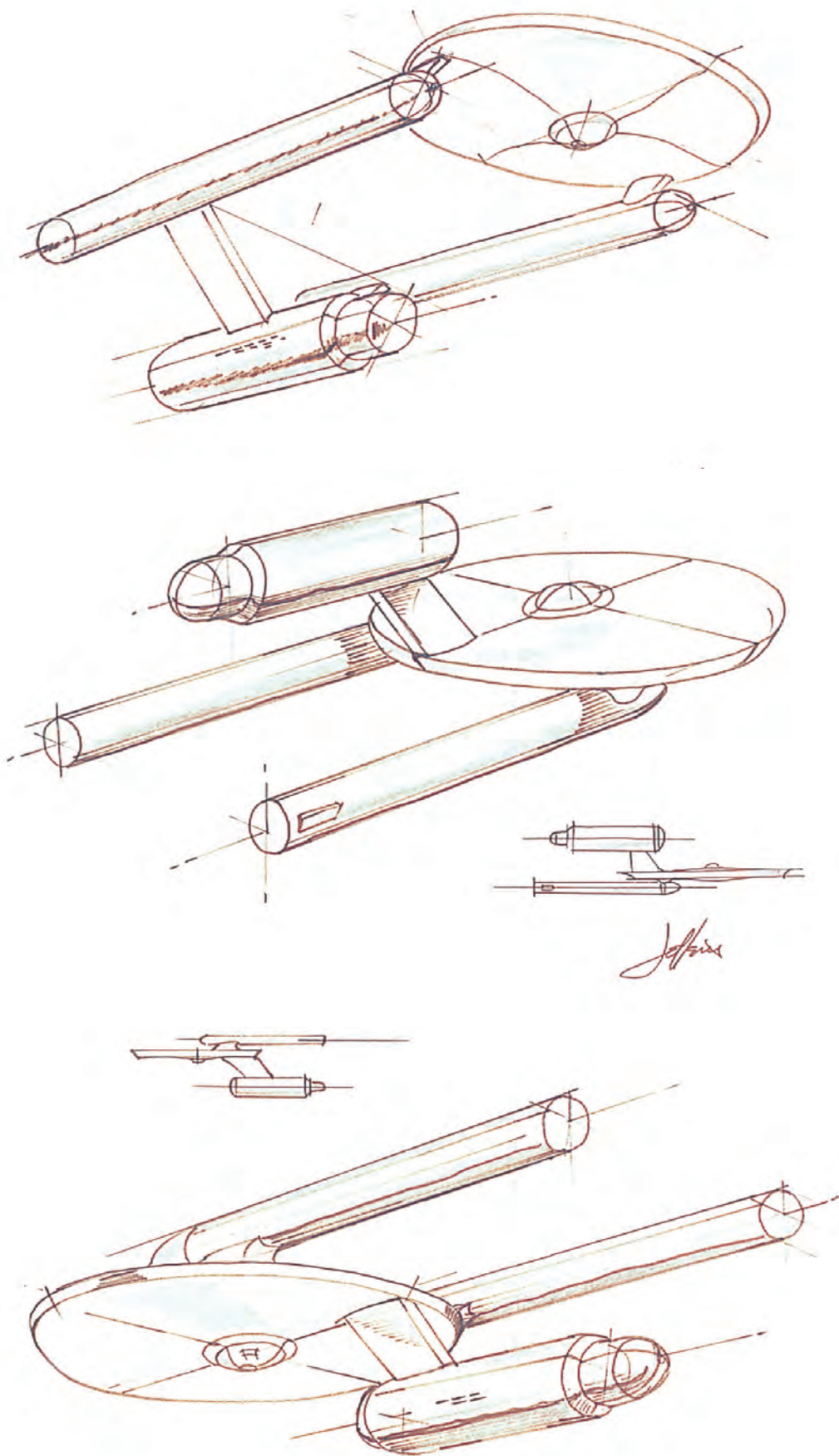
"I didn't like the idea of the flying saucer," he explains. "It was too much like the rocket ships that Roddenberry was so set against. I also thought that the best pressure vessel is a ball so I started playing that as a basic shape. But the bulk got in the way and the ball just didn't work. I flattened it out and I guess we wound up with a saucer."

Jefferies produced a colour sketch of the ship against a black matt board



▲ Since Roddenberry had originally told Jefferies to avoid "flying saucers" it took a long time for him to arrive at the idea of using the saucer section. When Jefferies first established the basic layout, he planned to use a dome, which he figured was a logical shape for a ship that operated in the vacuum of space. However, he found working with a sphere to be awkward, and eventually decided to flatten it out, so it became a saucer.

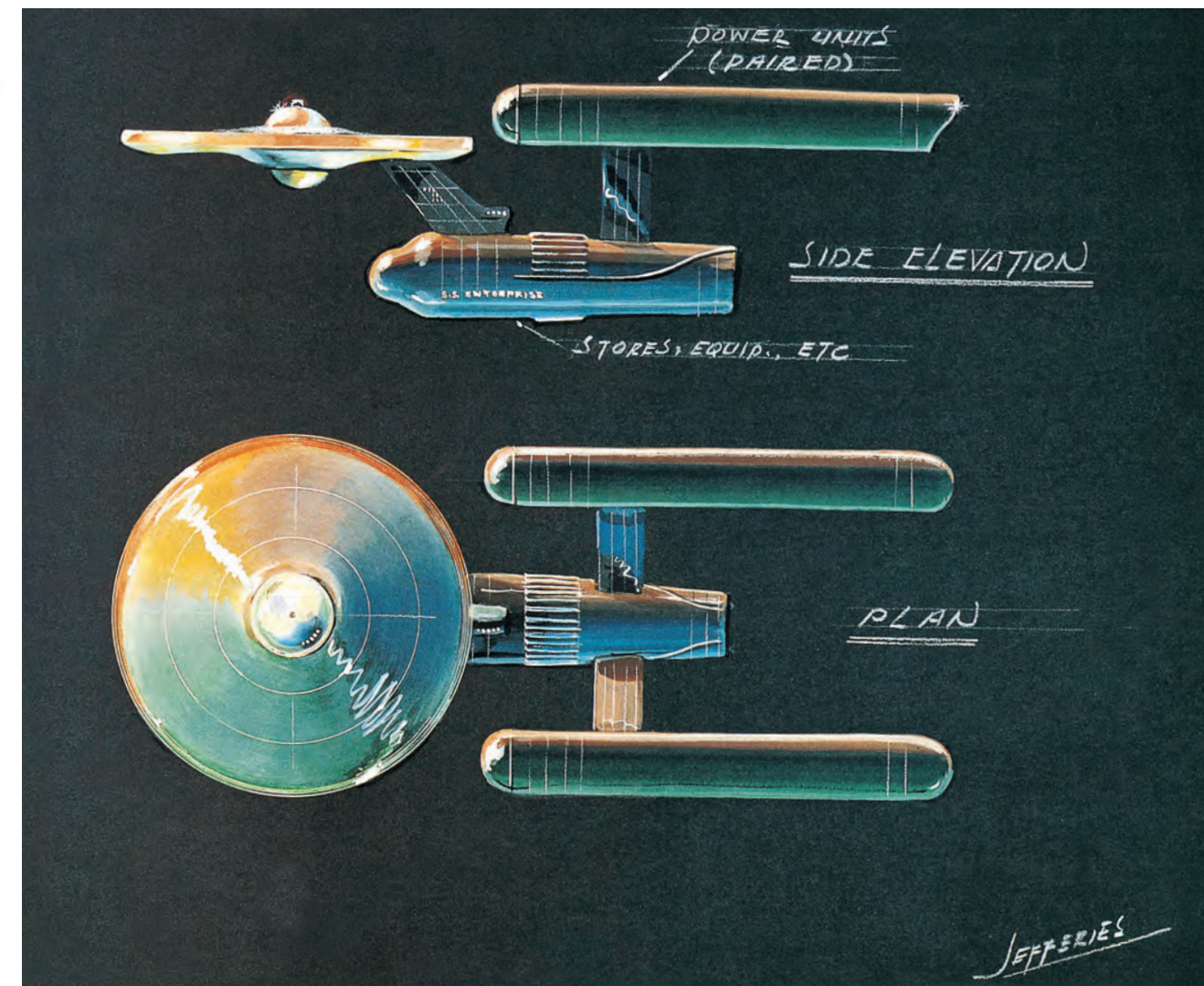




◀▲ Even after Jefferies had settled on the idea of using a saucer, a secondary hull, and warp nacelles, he continued to experiment with different ways that they could be arranged.

and then handed it over to the studio mill where a model of the dish and the lower hull were fashioned out of a balsa wood. As soon as the lathes were open the engine pods would be done. But in order to save time Jeffries suggested using birch dowel. As a finishing touch a hook and string were attached to the top.

"When Gene and the NBC people came to take a look, they immediately gravitated to the colour sketch," recalled Jefferies. "Then I told them that if they liked that they would definitely like this and held up the model. Gene took hold of it by the string and it immediately flopped over because the birch dowels were so heavy. I had an awful time trying to 'unsell' that look and it wasn't much of a surprise that when the first show hit the air and TV guide came out, they ran a picture of the ship on the front cover upside down."



Once that misunderstanding was sorted out Jefferies found himself facing another one, this time involving the hull. Jefferies theorised that since space was after all a very dangerous place, starship engineers would naturally avoid placing any important machinery on the outside of their vessel. This meant that logically, the hull would be smooth. This didn't go down well with the powers that be, who pushed Jefferies to add details. However Jefferies stuck to his guns.

"An advantage of the smooth hull was that it would reflect light, and at this point it wasn't a foregone conclusion that the ship would be white. I thought the atmosphere or lack of it out there in space might produce different colours

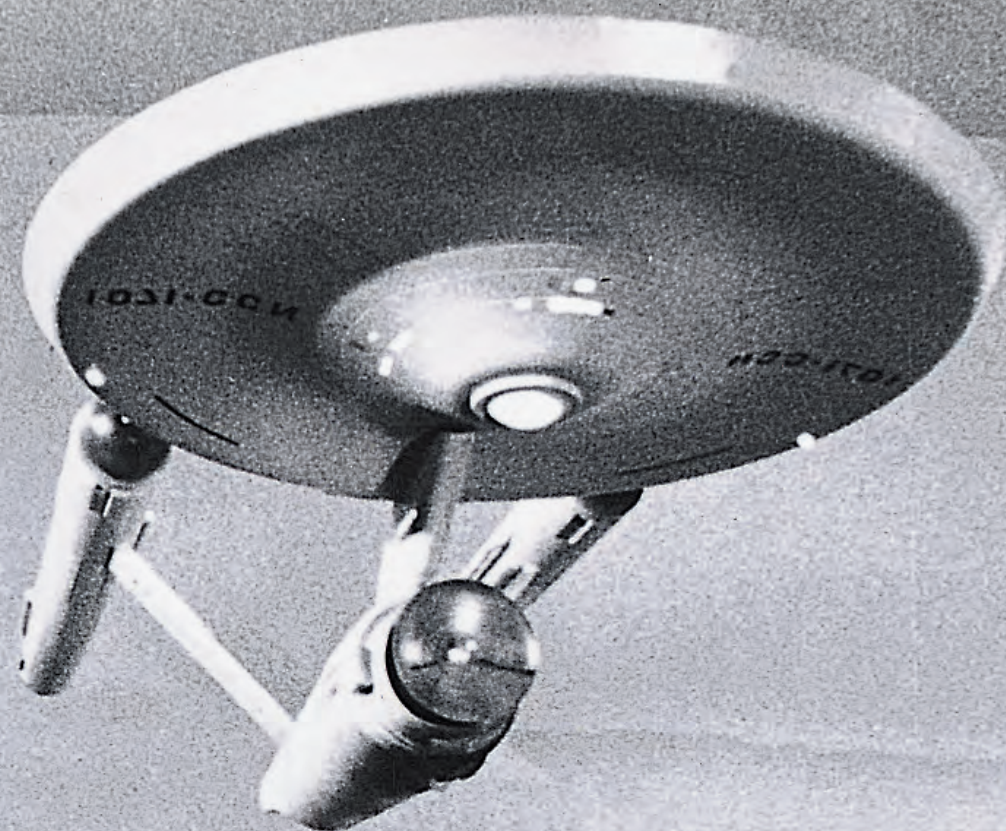
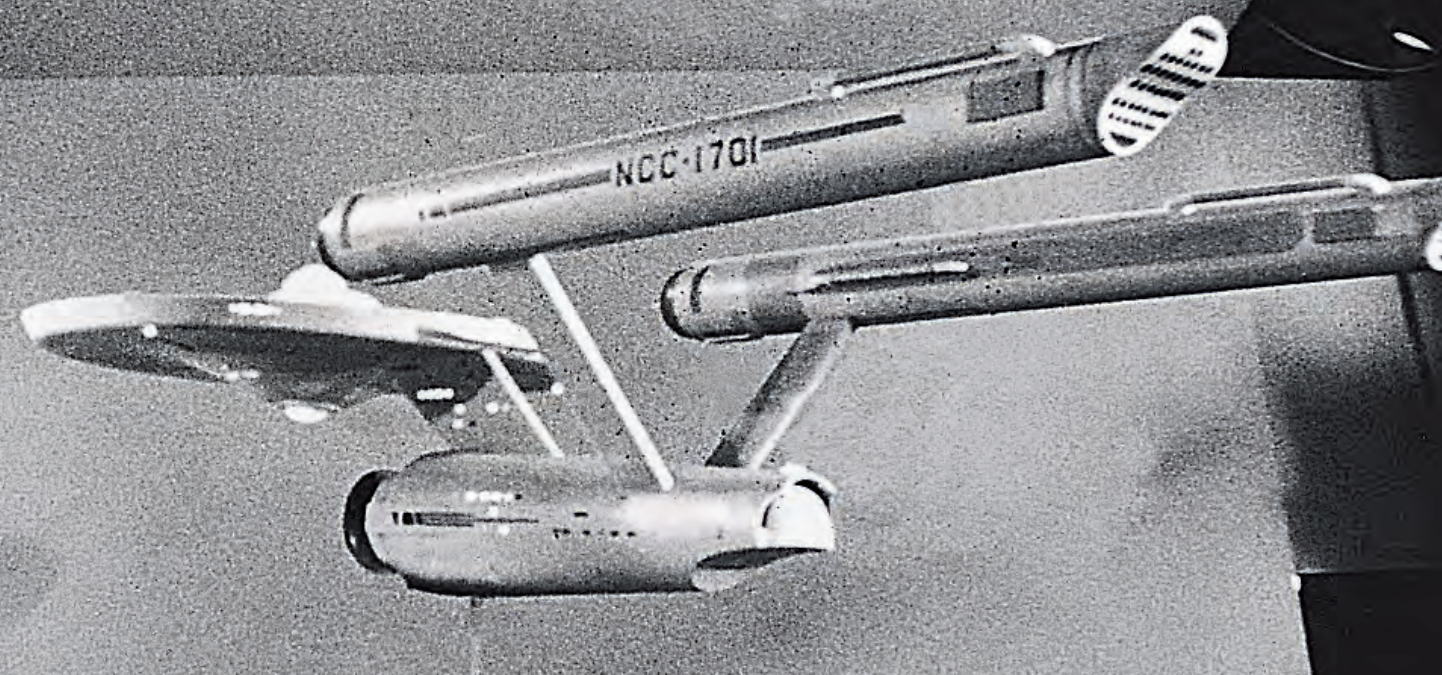
and this gave us a chance to be able to play light and to throw colour on it."

With the design and look of the ship locked only one thing remained - to pick out a registry number. "Rumor had it that I just used the number on my airplane but the truth was I wanted a very simple number that could be spotted quickly. So I eliminated 3, 6, 8, and 9. I also thought of the ship as being the 17th starship design and that it was the first in the series."

Jefferies was left with the numbers 1701, which, incidentally, and coincidentally, just happened to be very close to the license number on his airplane. NC-17740 and a legend was born.

◀ When the basic direction for the design was finally approved, Jefferies produced a color artwork on a black background that was shown to Roddenberry and the studio executives. The design would still be refined, notably with the introduction of what would become the deflector dish, but all the important elements were in place.





MAKING THE



NCC-1701



It took three attempts to get *STAR TREK* on air, and every new launch resulted in subtle changes to the model of the *Enterprise*.

**G**ene Roddenberry always knew that *STAR TREK* would stand or fall on the model of his *Starship Enterprise*. If the audience didn't believe in it, they wouldn't believe in the series at all. So getting it right was a major priority. Effects for the series were handled by the Howard Anderson Company. They brought in a specialist modelmaker, Richard Datin, who started work on a 33" prototype in November 1964. The original plan didn't call for this model, known as the three-footer, to be used for filming but in the end it was used for several shots. Datin built it from pattern pine with a Plexiglas dome for the bridge and brass strips for the deflector dish.

This version was used as the template for the full-scale filming model, which was four times the size. Datin's own model shop was too small to make a model of this scale so he took the work to Production Models Shop, a company that specialized in making models for patent applications, and occasionally picked up work in the movie industry. This larger, 11-foot model was made of a combination of wood, metal and vacuformed plastic, which was used for the saucer section. All the details, including the registry, were painted on rather than being decals.

When NBC commissioned the second pilot Roddenberry took the opportunity to ask for some revisions. Datin added running lights to the saucer and Roddenberry was so impressed that he asked

him to add more lighting to the bridge module and to show windows around the ship. The design of the rear of the nacelles was altered too: the original shape showed a series of flat rectangles, and this was replaced with a grille pattern.

When *STAR TREK* went to series, Roddenberry asked for another set of revisions. The spray-masked ship's registry was replaced with a version made using decals made from artwork supplied by Jefferies and the registries on the underside of the saucer were switched so they faced the other way. More lights were added. At the same time, the painted wooden nacelle caps were removed and replaced with illuminated versions. The new caps had spinning units inside and lacked the antennae that had been on their predecessors. The plan was originally to do something similar for the rear of the nacelles but the budget meant that although the design was altered, with the grille pattern being replaced with spheres, they would never light up. The design of the intercoolers on the rear of the nacelles was revised. Datin added detail to the fantail doors for the shuttlebay, and reduced the size of the deflector dish. Finally, the bridge was lowered and more detail was added to the nacelle support struts.

The three-footer has been lost, but the eleven foot version now has a permanent home in the Smithsonian Museum, where it is being carefully restored in honor of the series' 50th anniversary.



▲ The three-foot study model, with modifications that were made following the second pilot.



▲ When *STAR TREK* was reissued in high definition all the effects shots had to be remade and as a consequence the original model (left) was replaced with a CG version (right).

# ON SCREEN



## TRIVIA

Changes were made to the model of the *U.S.S. Enterprise* after both the pilots, but because of the huge costs involved, the team couldn't afford to reshoot all of the visual effects they had created. As a result the design of the *Enterprise* actually changes during the opening titles. It is particularly noticeable when you look at the back of the nacelles with the design changing between the version with the grilles and the version with the spheres. Another way of identifying the different models is the addition of a serif to the 1 in the ship's registry.



The first episode that the *Enterprise* appears in is 'The Man Trap', but only because it was broadcast first. The second pilot, 'Where No Man Has Gone Before' was broadcast weeks later and is clearly set earlier in time.



The *Enterprise's* first captain, Robert April, only appeared in the Animated Series. The name April is taken from Roddenberry's early notes for the series. Those same notes suggest that the *Enterprise* might have been called the Yorktown, or as can be seen on the front of some of Matt Jefferies' concept drawings, the Independence.

- FIRST APPEARANCE: 'THE MAN TRAP' (TOS)
- LAST APPEARANCE: 'TURNABOUT INTRUDER' (TOS)
- DESIGNED BY: MATT JEFFERIES

### KEY APPEARANCES

#### STAR TREK

##### 'Where No Man Has Gone Before'

The *U.S.S. Enterprise* is approaching the edge of the Galaxy, when the crew pick up a disaster recorder from the *S.S. Valiant*, a ship that destroyed itself after crossing the barrier that surrounds the Galaxy. Despite the danger, the *Enterprise* enters the barrier. Although the sensors can't detect anything, some kind of energy field burns out most of the ship's systems, leaving her crippled. The barrier also affects the helmsman Gary Mitchell, leaving him with growing psychic powers and no conscience. The ship's only chance is to make it to Delta Vega when they can salvage supplies.

#### STAR TREK

##### 'The Ultimate Computer'

Kirk is summoned to a space station where Commodore Wesley tells him that the *Enterprise* is going to be used to test an advanced computer called the M-5. The M-5's creator Dr Richard Daystrom installs the machine, which he tells Kirk will make starship captains unnecessary, since it can run a ship with a crew of less than 20. Kirk is uncomfortable but can't be sure whether his doubts about the M-5 are based on his own insecurities or something more serious. The M-5 takes control of the *Enterprise* and performs brilliantly, but before long it and Daystrom start to behave erratically.

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