UNITED EARTH STARFLEET

NX-ALPHA

TYPE: TEST SHIP
LAUNCHED: 2143
LENGTH: 20 METERS
TOP SPEED: WARP 2.2
Stand assembly:

1. Hook the stand over the back of the ship.
The NX-Alpha was Earth’s first starship to break the warp 2 barrier. It was flown by test pilot A.G. Robinson in 2143, 80 years after the Phoenix had first achieved warp 1. In the years following the successful faster-than-light flight of the Phoenix, the United Earth Space Probe Agency merged with Starfleet and set up the Warp Five program. As its name suggested, this scheme was designed to develop a warp five engine. The main scientists involved in this project were Dr. Zefram Cochrane, the designer and pilot of the Phoenix, Dr. Tasaki, and Dr. Henry Archer, the father of Jonathan Archer, who would later become captain of Enterprise NX-01. These scientists did much of their work at the Warp Five Complex, which was located just outside of Bozeman, Montana, the site of the Phoenix’s construction and launch. The scheme was overseen by Commodore Maxwell Forrest and was supervised by the Vulcans. They helped in so far as they were willing to point out any dangerous mistakes that were made, but they were unwilling to share their knowledge of warp mechanics.

SLOW PROGRESS

The program evolved into the NX Project in the 2140s as the scientists sought to test their warp engines in prototype starships. Progress was frustratingly slow, especially as Cochrane retired and disappeared to “parts unknown,” while Henry Archer died due to advanced Clarke’s disease in 2124. Nevertheless, the warp engine that Henry Archer was primarily credited with designing was eventually fitted to an experimental starship.

In 2143, the prototype NX-Alpha was ready for its inaugural flight. Several commanders in Starfleet were in competition to pilot the ship in its attempt to break the warp 2 barrier: Gardner, Duvall, Robinson and Jonathan Archer. In the final weeks before it was launched, this was narrowed down to just two: Archer and Robinson. Archer dedicated himself to the project and spent 18 or even 20 hours in the flight simulator, but he was overlooked in favor of Robinson.

Despite Archer’s disappointment, he congratulated Robinson and monitored the flight from the Warp Five complex. Once NX-Alpha was launched and in orbit, problems arose in the warp field stabilization protocols, delaying the warp 2 attempt. It was not long before the problems were
The cockpit of the NX-Alpha had seating for two pilots, but the cost could be forgiven by just one. The technology and control systems inside the cabin were much more sophisticated than they had been in the Nineteen-forties, when it made its flight. The pilot’s seat was mounted on an X-axis, which could be tilted up to 45 degrees to the right. The instrument panels directly in front of the pilot’s seat were much more sophisticated than they had been at the time. The instrument panels directly in front of the pilot’s seat were much more sophisticated than they had been at the time. The instrument panels directly in front of the pilot’s seat were much more sophisticated than they had been at the time. The instrument panels directly in front of the pilot’s seat were much more sophisticated than they had been at the time.

Jonathan Archer monitored the progress of the NX-Alpha’s maiden flight as it displayed the warp jumps of the NX complex.

Once in orbit around Earth, various checks were made on the NX-Alpha’s warp engine before it began its attempt at reaching warp 2.

Problems arose in keeping the warp field steady, but these appeared to have been solved as the NX-Alpha accelerated to warp 2.

Jonathan Archer monitored the progress of the NX-Alpha’s maiden flight as it displayed the warp jumps of the NX complex.

Despite it working, they therefore decided to appropriate the NX-Alpha, an almost identical ship to the NX-Alpha without permission to perform a test flight. With the help of engineer Trip Tucker at the NX hangar, Archer and Robinson ‘stole’ the NX-Alpha. As they pushed past warp 2, the same fluctuations in the intermix chamber occurred as before, but this time they were able to make adjustments to keep the warp field stable. Moments later they reached and held steady at warp 2.5, proving the engine worked.

Once Archer and Robinson had calmed down, they tried to work out how they could keep the engine steady. They continued to accelerate, however, the craft began to shake alarmingly and the warp field integrity fell to 20 per cent. Robinson was ordered to slow down to sublight speeds while the problem was diagnosed.

When they returned to Earth, both men were suspended from duty. There was a real threat that they would be dismissed from Starfleet altogether, but the men felt it was worth it to keep the NX project on track.

DATA FEED

A.G. Robinson and Jonathan Archer were friends and great rivals. Robinson was somewhat arrogant and more of a maverick than Archer, attributes that he felt were the reason he was chosen to pilot the NX-Alpha. Robinson and Archer came to blows after the destruction of the NX-Alpha, but later made up.

The NX-Alpha was virtually identical to the NX-Beta, this control panel featuring the ratios in which the matter and antimatter were mixed. The warp field remained stable and it successfully reached warp 2.5.
SIMILARITIES AND DIFFERENCES

The NX-Alpha was similar in appearance to the Phoenix, Earth’s first warp ship. The cockpit module at the nose of the ship was almost identical from the outside, but the interior was much different. The command module of the Phoenix had seating for three occupants, and the technology was much more rudimentary as Dr. Cochrane had to make do with whatever parts could be scavenged on post-apocalyptic Earth. In contrast, the NX-Alpha had seating for two crew members, and its controls and interfaces were much more sophisticated. While the NX-Alpha’s cockpit had a pressurized and breathable atmosphere, the occupants wore full spacesuits and helmets in case of sudden depressurization.

Behind the cockpit module, the NX-Alpha still had a cylindrical main body like the Phoenix, but it had shorter and much more advanced nacelles, which were attached to thicker articulated wing-like structures.

The main differences between the two ships were to be found at the rear. The Phoenix was launched through Earth’s atmosphere and into space via rocket boosters that detached from the craft once it was in orbit. The NX-Alpha used rocket-like propulsion to speed along a horizontal sled-track that had an almost vertical launch ramp at the end. The combined effects of these launch systems powered the craft into orbit, and the rocket-like engines remained part of the ship rather than detaching and falling away.

Other people who were part of the NX Project included Captain W.M. Jefferies and Lt. Charles Tucker III. Jefferies wanted to fit powerful weapons to NX-class ships, something that Jonathan Archer was initially against, but later agreed was probably a good idea.

Commander Gardner, who was another of the test pilots in the NX Project, was Vulcain Ambassador Soval’s first choice to become captain of Enterprise NX-01. Soval felt Captain Archer was too impulsive to hold such an important position.
Designing the NX-Alpha was one of concept artist John Eaves’ favorite assignments. The script called for an experimental ship that was more primitive than the Enterprise NX-01. Like most of the rest of the art department, Eaves was deeply interested in real space flight and fascinated by everything that had ever been done by NASA so he was delighted that this ship represented a bridge between today’s experimental spacecraft and Matt Jefferies’s STAR TREK aesthetic. “My first pass was very plane-like,” Eaves recalls. “It had warp nacelles and a twin fuselage, like a catamaran, with the capsule suspended in the center. It’s got all your STAR TREK elements on it but it was also an evolution of an X-plane. It was kind of where those two things met.”

This first design was approved without any serious alterations, but now the art department had to work out how it would be launched. The script made it clear that the experimental NX base was on the ground so somehow the ship had to get into orbit. Massive rocket boosters didn’t seem appropriate. Eaves thought the answer might lie with NASA so he called them up.

“We went out to Edwards Airforce base to visit NASA and to research all their plans for that kind of spaceship. Two gentlemen named Tony Moore and Pete Merlin invited me up and we went through all of the NASA stuff at that time.” Moore suggested that the NX Alpha could be carried into the upper atmosphere by another ship, in much the way that the space shuttle had been mounted on the back of a 737. “It was kind of like a Spaceship One scenario,” Eaves says. “There was a mothership and then the Alpha would piggy back on the top. The mothership would get it off the ground then it would break off when it went into space.”

Moore also provided Eaves with inspiration for the design of the ship that would carry the Alpha into near-orbit, when he pointed him towards the design of an experimental craft called the X-48B. “It was a future ship idea,” Eaves explains. “NASA does this unusual thing where they make quarter-scale models. The X-48B was one of these model tests that we used as the basis of our design. It had what they call a blended body, with little winglets at the end. We came up with this kind of smooth, limping body and detailed that into a futuristic version with the Alpha on the back.”

Eaves produced a drawing showing the two ships together but around this time it became clear that the production couldn’t justify the cost of building two ships instead of one. There was another problem: the art department had to show the outside of the atmosphere by another ship, in much the way that the space shuttle had been mounted on the back of a 737. “It was kind of like a Spaceship One scenario,” Eaves says. “There was a mothership and then the Alpha would piggy back on the top. The mothership would get it off the ground then it would break off when it went into space.”

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When the producers decided to reuse elements from Earth’s first warp ship, the Phoenix, Eaves redesigned the NX-Alpha to look more like its illustrious predecessor, using elements of his original design for the Phoenix that had been rejected.

The decision was taken to reuse the nose cone and cockpit of the Phoenix because they had already been built and would allow the art department to put more on screen for the same budget.

The Phoenix was an experimental ship and didn’t have the kind of engines it would need to get into orbit. This meant it needed some kind of launch system. Eaves’ second suggestion was that it would be launched by magnetic rails.

A lot of open framework, with exposed tanks, fuselage and engines, so we carried a lot of those design elements over to the Alpha.”

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The production already had a model of the exterior and a set for the interior. And, importantly, it made sense that the NX-Alpha would be a direct descendant of Earth’s first warp ship.

Eaves produced drawings showing his new ship launching from the kind of flat terrain that can be found at Edwards but the process had a few last twists for him. A change in the script called for the base to be in a forest, so the massively long track he’d designed was no longer practical. “We did another version where you have a track with a ramp on it and that’s what we used in the final rendition.”

A final change came about because of the practical needs of the set that the art department had designed for the hangar bay. The ship Eaves had come up with simply couldn’t get out the doors. “The wings I designed were fixed and it made it too big so Doug [Drexler] designed these hinge points for the wings – it was a weird kind of L-shape so they folded up like an accordion.”

Finally, after all the twists, turns and redesigns the NX-Alpha was ready for its first flight.
The dream of interstellar travel became a reality on April 5, 2063, when warp pioneer Zefram Cochrane successfully tested the first faster-than-light starship. His seminal flight drew the attention of the Vulcans and the rest, as they say, is STAR TREK history.

The years between Cochrane’s daring mission, as portrayed in STAR TREK: FIRST CONTACT, and the voyages of the U.S.S. Enterprise NCC-1701 helmed by James T. Kirk, were something of a mystery in the STAR TREK universe. But all that changed with the debut of the fifth STAR TREK television series, ENTERPRISE.

Set in the year 2151, some 90 years after Cochrane inaugurated the warp age, ENTERPRISE followed the adventures of the crew of the first warp-5 starship. Before 2151, humans had been puttering around the nearby stars at low warp for nearly a century. They visited a handful of star systems, and established a few research stations and colonies. Cargo ships crewed by ‘space boomers’ – people born and raised on starships – transported supplies and exotic alien goods. But with the advent of the warp 5 engine, humans were finally ready to get out into really deep space.

The difference between warp 2 and warp 5 is significant. The warp speed scale isn’t linear; it’s geometric. Warp 1 is equivalent to the speed of light (commonly designated by the letter c). Warp 2, however, isn’t twice c; it’s nearly 10 times c. Warp 3 is about 40 times c, warp 4 is about 100 c, and warp 5 is a bit over 200 c (this speed scale was established during the first season of STAR TREK: THE NEXT GENERATION and didn’t exactly conform to the warp factors referenced in THE ORIGINAL SERIES, but it was followed on ENTERPRISE).

HABITABLE PLANETS

Our Galaxy, the Milky Way, is a big place; its spiral arms span 100,000 light years and contain several hundred billion stars. A sizable fraction of those stars are like our sun and have families of planets.

Proxima Centauri – the next nearest star beyond our solar system – is about four and a quarter light years away. At warp 2, about the maximum speed Earth ships could achieve in the early 22nd century, getting there would take 155 days, or about six months (this is about as long as it takes present-day spacecraft to get to Mars, the next planet out in our own tiny solar system!). But at warp 5 the journey time would be significantly reduced – in fact you could make the trip in just a week. This would be a significant game changer.
The warp speed graph had an exponential growth. This meant that warp 5 was not simply five times faster than warp 1 – it was actually 214 times faster than the speed of light. Although warp 5 made significant space exploration practical, it was still more than eight times slower than warp 9.6, which was the U.S.S. Voyager NCC-74656’s top sustainable speed.

NEW POSSIBILITIES
There are a dozen stars or so within 10 light years of Earth, including Alpha, Beta, and Proxima Centauri, and Sirius, the Dog Star. All are perfectly lovely places to visit, but a 10-light-year radius from Earth spans a pretty limited territory – galactically speaking. And at a measly warp 2, it would take a whole year to cover that distance. At warp 5, however, 10 light years would be a walk in the park: two and a half weeks.

At warp 5 you can cover a distance of 100 light years in less than six months. That makes a huge difference, as how many stars do you think are within a hundred light years of Earth? Thousands, including many that are familiar to STAR TREK fans: Aldebaran, Regulus, Arcturus and Vega, to name just a few. To coin a phrase, warp 5 pushes back the final frontier big-time.

DESIGNER MATERIALS
Warp coils were fashioned out of an artificial, composite material called verterium cortenide; composite materials are common in today’s world, one example being the graphite shafts of tennis and golf clubs. Scientists have made great strides lately in the creation of “designer” materials. They start with a set of requirements: tolerance to heat and cold, hardness and flexibility, resistance to corrosion, etc. and then design a compound, atom by atom, that has the desired properties. When Cochrane was dreaming about the creation of a faster-than-light engine, he presumably imagined a material that – under the proper conditions – could warp space. He then set about designing such a material, and eventually hit upon the formula for verterium cortenide. Channeling warp plasma through the coils of the warp nacelles thrust the ship into subspace, and off we went to the next star system. But achieving the level of power required to throttle up from warp 2 to warp 5 was no easy task. Given the geometric increase in speed, one can imagine how difficult it must have been to generate and control that much power. Taking another cue from history, it took tens of thousands of dedicated scientists and engineers several decades of hard work to evolve rocket technology from the V2 to the mighty Saturn V launch vehicles that carried men to the Moon. One would imagine that an even greater degree of effort was required from people like Henry Archer to achieve a reliable warp 5 engine after the initial invention of warp drive.

Like the square-rigged sail and the rocket motor of ages past, the development of the warp 5 engine marked the beginning of a totally new era in human exploration. Enterprise NX-01 was truly a quantum leap in space technology!
In the STAR TREK: ENTERPRISE episode ‘First Flight,’ we are introduced to Ruby, a waitress who works in the 602 Club. She had previously been mentioned in the season one episode ‘Shuttlepod One,’ when Trip Tucker and Malcolm Reed, fearing that they were about to die, confessed that they had both had a relationship with Ruby. According to Trip, Ruby had already picked out the names of her children and said she would marry the first man to guess them correctly. Trip guessed Cyrus, Chester and Rosalie, which turned out not to be right.

The 602 Club, where the members of the NX Program socialized, was named after a bar that was in operation between 1951 and 1991. It was a popular hangout for students from the University of Wisconsin-Madison, including one former student named Rick Berman. He of course went on to be executive producer and co-creator of several STAR TREK series, including ENTERPRISE. ‘First Flight’ revealed the reason behind Charles ‘Trip’ Tucker’s nickname. His father and grandfather were both named Charles, so he was Charles Tucker III – the third, or Triple, shortened to ‘Trip.’

Robinson successfully piloted the NX-Alpha past warp 2, but shortly after the ship broke apart and Robinson only just survived by deploying an escape pod. In the aftermath, Robinson blamed an inherent flaw in the warp engine, which Archer saw as an insult to his father, and the two came to blows in the 602 Club. The next day, the men settled their differences and formulated a plan to take the NX-Beta on a test flight without permission. The flight was a success and proved the engine works. Back in the future, Archer and T’Pol confirm that they have discovered a dark matter nebula, and Archer calls it the Robinson Nebula in honor of his friend.

**FEDERATION HOLOSHIP**

**In-depth profile of the Federation Holoship, a 24th-century vessel that had enough holoprojectors to recreate an entire Ba’ku village**

**How illustrator John Eaves went through several different looks for the Federation Holoship before he hit on the right design direction**

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