



STAR TREK™

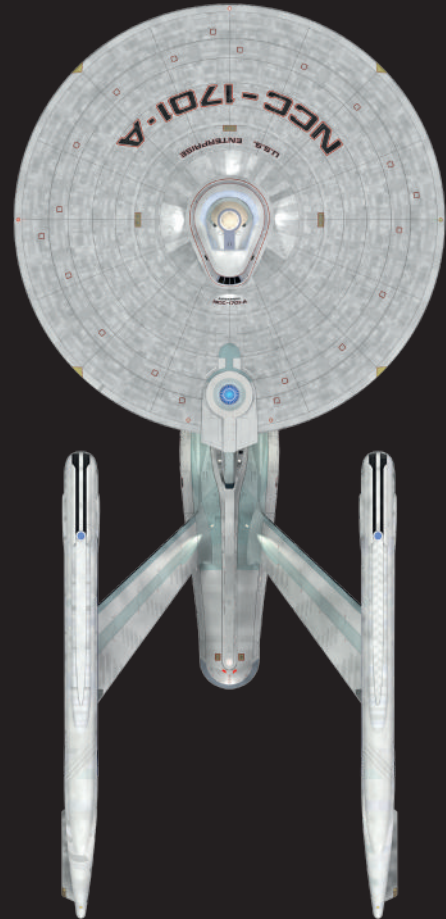
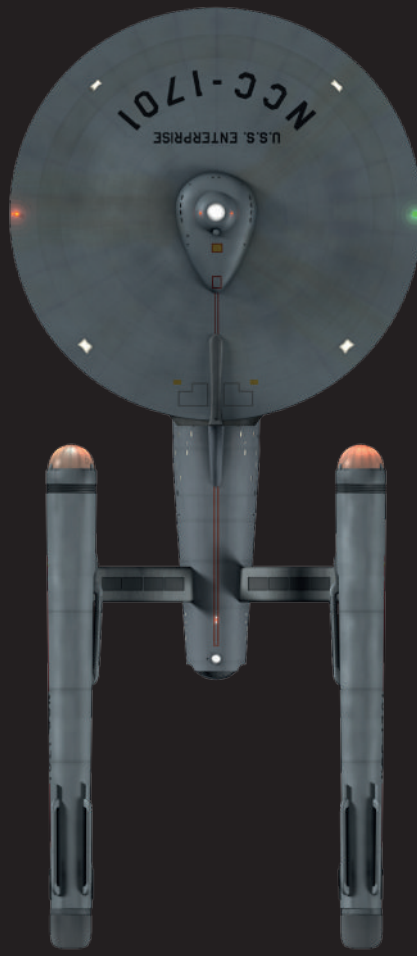
THE *U.S.S. ENTERPRISE* NCC-1701 & 1701-A



ILLUSTRATED HANDBOOK



CAPTAIN KIRK'S ORIGINAL **STARSHIP ENTERPRISE**



STAR TREK™

THE *U.S.S. ENTERPRISE* NCC-1701 & 1701-A



ILLUSTRATED HANDBOOK

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Most of the material in this book originally appeared in the *STAR TREK Fact Files*, an extraordinary, heavily-illustrated reference work that was delivered in weekly instalments before the internet was widespread. It covered every aspect of the *STAR TREK* universe, including the *Enterprise*. We'd like to thank the talented team of artists who worked on it, Stuart Wagland, Ian Fulwood, Peter Harper and more than anyone Rob Garrard, who produced the illustrations you will find on the following pages. The CG renders in this book were produced by Rob Bonchune, Adam 'Mojo' Lebowitz, Daren Dochterman, Fabio Passaro and Ed Giddings. Reconstructing the names of the people who wrote the text is beyond us, but the *Fact Files* would never have been possible without the hard work of Jenny Cole, Tim Gaskill, Tim Leng and Marcus Riley.

New material covering the latest version of the *Enterprise* from *STAR TREK: DISCOVERY* was provided by Scott Schneider and William Budge, who worked on the design of Pike's ship with John Eaves, and both have been extraordinarily helpful. Paul Southcombe and Colin Williams pitched in to complete the illustrations that they and CBS provided.

No list of acknowledgments would be complete without mentioning Gene Roddenberry who brought *STAR TREK* into being, and Matt Jefferies who was always determined to make the *Enterprise* feel like a real place. We'd also like to acknowledge the work of Andy Probert, Richard Taylor and Harold Michelson who redesigned the *Enterprise* for *STAR TREK: THE MOTION PICTURE*.

Finally, we'd like to thank our friends at CBS Consumer Products: Risa Kessler, who did the deals that made all this possible; Guy Vardaman, Paul Ruditis, and Tim Gaskill, who handled the original approvals, and Marian Cordry and John Van Citters, who run the show today.

FOREWORD

This is a book that should have existed for a long time. Remarkably, there has never been an in-depth guide to the original *Enterprise*, the closest we've ever come are Franz Joseph's *Starfleet Technical Manual* and *Mr. Scott's Guide to the Enterprise*, neither of which were in color or dealt with all the different locations and equipment you will find in this book. Decades after they were published, they are hard to come by and slightly out of kilter with what has now been established as canon.

The pages that follow cover every version of the original *Enterprise*, from the version that appeared in 'The Cage' when the ship was under the command of Captain Pike, through the version Kirk commanded in the TV series, to the first six movies, and the 'new' version that has appeared in *STAR TREK: DISCOVERY*. There are isometric drawings of all the key locations, with detailed artworks of the bridge stations, and illustrations showing uniforms, phasers, tricorders and communicators from all the different eras.

The return of the *Enterprise* to our TV screens makes this book particularly timely and we're delighted to be the first people with a chance to document it. We can't thank the *STAR TREK: DISCOVERY* art department enough for their help. The illustration of the bridge is taken directly from Scott Schneider's original model of the set, and William Budge's annotated renders provided us with invaluable information.

Our hope is that as you read this book, you will get a sense of the *Enterprise* as a real place and that you will be able to see how it has evolved over the years, showing how strong and enduring Matt Jefferies' original design is.



CHAPTER 1

THE HISTORY OF THE *U.S.S. ENTERPRISE* NCC-1701 & 1701-A

OPERATIONAL HISTORY

Launched in the year 2245, the *U.S.S. Enterprise* was in active service for 40 years, during which time it became one of the most celebrated vessels in Starfleet history.

Arguably the most celebrated and distinguished starship ever commissioned by Starfleet, the *Constitution-class U.S.S. Enterprise* NCC-1701 was a true icon of space exploration. Its captains and the crews they commanded became Starfleet legends, and the *Enterprise's* legacy remains a potent symbol of the ideals held by the United Federation of Planets.

Following construction and shakedown cruises, the *U.S.S. Enterprise* NCC-1701 was formally launched in 2245 under the command of Captain Robert April. April captained the *Enterprise* during its first five years of service, becoming one of Starfleet's most decorated commanding officers. Following an initial five-year mission cycle, April ceded command to Captain Christopher Pike in 2250. Pike oversaw a wide variety of missions covering diplomacy, exploration and peace-keeping. In 2254, following the deaths of several crewmembers during a mission on Rigel VII, the *Enterprise* diverted to Talos IV after receiving a

distress signal from the missing survey vessel *S.S. Columbia*. This led to a first-contact encounter with the isolationist Talosian race.

Subsequent to these events, the *Enterprise* embarked on a five-year mission under Pike's command, during which the Federation-Klingon war of 2256-57 erupted. As this period of conflict escalated, *Constitution-class* vessels were removed from the front line to maintain ongoing mission directives, with the *Enterprise* continuing its five-year mission. Ordered to investigate anomalous signals received across the Galaxy in 2257, the *Enterprise* suffered catastrophic system failures en route, caused by a breakdown in core holographic comms systems. Pike transferred his command to the *U.S.S. Discovery* NCC-1031 to continue the urgent mission; Meanwhile the *Enterprise* was towed to Spacedock for full diagnostic evaluation and potential refit.

The *Enterprise* remained under Pike's command for a



The *Constitution-class U.S.S. Enterprise* NCC-1701 was constructed in the San Francisco Fleet Yards. Its first commanding officer was Captain Robert April, who was instrumental in the ship's construction and commanded the vessel for five years. Captains Christopher Pike, James T. Kirk, Will Decker, and Spock would later take the conn.



Captain Christopher Pike had been Robert April's first officer aboard the *Enterprise*, and was promoted to take command of the ship in 2250.

further eight years before his promotion to Fleet Captain and the transfer of James T. Kirk to the captain's chair of the *Enterprise* in 2265. This heralded the commencement of a new five-year mission that confirmed the vessel's legendary status.

EXPLORING NEW WORLDS

Early in this mission cycle, the *Enterprise* penetrated the universal barrier at the edge of the Milky Way. The ship survived the hazardous negative environment, but with major damage to core systems and the loss of several crewmembers, including ship's helmsman Lieutenant Gary Mitchell. While observing the final hours of the planet Psi 2000 in 2266, the *Enterprise* made the first of several journeys through time; Chief Engineer Scott's emergency initiation of warp-engine cold start to escape the planet's gravity well resulted in the extreme velocity caused the ship to travel backwards in time by approximately three days. A year later, the *Enterprise* experienced further temporal travel when the slingshot effect of a black star saw the starship flung back in time to the Earth year 1969. Kirk's



Captain James T. Kirk took command of the *U.S.S. Enterprise* in 2265, and became the captain most associated with the legendary Starfleet vessel.



The *Enterprise* was kept away from the front lines during the Klingon War, but returned to Federation space to examine a series of mysterious stellar phenomena.

mission log reported that the ship returned safely to its correct temporal location with no appreciable damage to the timeline.

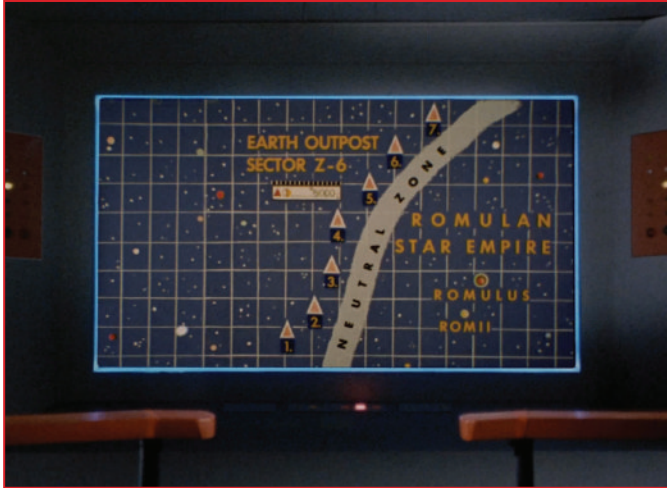
Federation-Klingon relations remained uneasy at best during this period, with the *Enterprise* key to preventing a flare-up of hostilities between the two powers on Organia in 2267. The previous year saw a former antagonistic power return to the galactic stage. While patrolling near the Neutral Zone, the *Enterprise* engaged in stealth combat with a cloaked starship of the Romulan Star Empire, marking the first contact with this race in over a century since the end of the Earth-Romulan war.

FACING DOOMSDAY

First Officer Spock risked the end of a distinguished Starfleet career when he commandeered the *Enterprise* on stardate 3012.4 for his own ends. It transpired the Vulcan officer was engaged in a mission of mercy for his former captain, Christopher Pike, who was tragically injured in a starship accident. Spock was duly exonerated and the *Enterprise* delivered her previous Captain to



The *U.S.S. Enterprise* was damaged during a mission taking it into the Galactic Barrier. Several crew members were lost, including Kirk's friend, Gary Mitchell.



The *Enterprise* was the first Federation vessel to come into contact with the Romulan Star Empire in almost a century, during a routine patrol close to the Neutral Zone.

Talos IV and peaceful retirement from Starfleet.

The *Enterprise* encountered Earth's violent past when it intercepted the S.S. *Botany Bay*, drifting for 200 years and carrying notorious dictator Khan Noonien Singh and his followers in cryogenic suspension. An architect of Earth's 20th century Eugenics Wars, Khan attempted to take control of the *Enterprise*, an action in which he was unsuccessful. Following trial aboard the *Enterprise*, Khan and his followers were sentenced to exile on Ceti Alpha V.

After responding to a distress calls from the U.S.S. *Constellation* on stardate 4202.9 in 2267, the *Enterprise* engaged a planet killer vessel, dubbed by Kirk as a 'doomsday machine.' The *Enterprise* narrowly avoided destruction during this encounter; disaster was averted by the actions of the *Constellation's* commander, Commodore Decker, and Captain Kirk. Decker gave his life in the line of duty, allowing Kirk to destroy the planet killer with the derelict *Constellation*.

CRISIS AVERTED

The *Enterprise* played host to celebrated computer scientist Richard Daystrom in 2268 on directives issued by Starfleet on stardate 4729.1. Despite Captain Kirk's reservations



When the fragile peace with the Klingons broke down, the *Enterprise* was sent to the strategically important planet Organia. Kirk and his Klingon counterpart Kor were fighting over the planet, when the Organians imposed a peace treaty on them.



After Pike was exposed to delta-particle radiation, Spock, risked his career to deliver Pike to Talos IV, where his disfiguring injuries would be rendered meaningless.

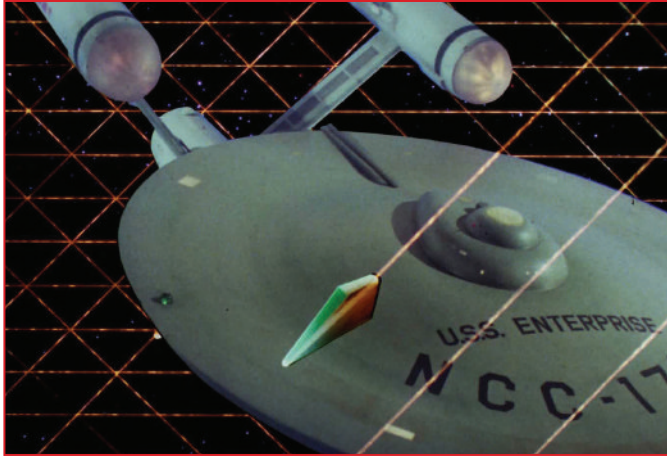
against starship automation, the *Enterprise* was selected as test vessel for Daystrom's M-5 computer complex during a wargame scenario. The prototype M-5 was directly responsible for the loss of all hands aboard the U.S.S. *Excalibur* during wargame maneuvers after discharging the *Enterprise's* main phaser banks. The tragic malfunction was influenced by Daystrom's psychological state, forcing the *Enterprise* crew to logically reason with the machine and disengage it before further loss of life.

Once again utilizing the light-speed breakaway factor, the *Enterprise* traveled into Earth's history, albeit on a deliberate mission of historical investigation on this occasion. In 1968, the crew encountered the human Gary Seven during a crisis point in Earth's socio-political history, centring on the launch of an orbital nuclear platform. The crisis was thankfully averted, and the *Enterprise* successfully returned to the 23rd century.

In the closing years of Kirk's initial five-year tour as *Enterprise* captain, the ship continued its ongoing mission, pushing the boundaries of Federation exploration further than ever before. During 2268, the *Enterprise* crew engaged in direct espionage against the Romulan Star Empire, breaching long-standing treaties to cross the



Khan Noonien Singh was a throwback to a darker age, when Human society was riven by the Eugenics Wars. The U.S.S. *Enterprise* discovered Khan and his cohorts in cryogenic suspension aboard an antique deep space vessel, the SS *Botany Bay*.



During a mission to rescue the stricken Starfleet ship, U.S.S. *Defiant*, the *Enterprise* NCC-1701 was trapped within an energy web spun by the Tholians.

Neutral Zone and enter Romulan Space. Apparent erratic behaviour from Kirk and conflict with Commander Spock was a ruse to appropriate a cloaking device from a Romulan ship. Also in 2268, Kirk was almost killed when the *Enterprise* responded to a distress signal from the U.S.S. *Defiant*. Caught in an interphase event during transport, Kirk was left trapped while Commander Spock risked hostilities with Tholian forces to rescue his captain. The *Enterprise* became trapped in an energy web generated by the Tholian ships, but broke free in time to retrieve Kirk.

By the early 2270s, the *Constitution*-class was still an essential part of Starfleet operations, and a ground-up refit programme was instigated to ensure continued service of ships such as the *Enterprise*. Many of Kirk's command crew served as part of the ship's complement during its refit period. However, Commander Spock returned to his home planet Vulcan, while Kirk accepted promotion to Rear Admiral, his place in the *Enterprise's* center seat taken by Captain Will Decker.

Before a full shakedown cruise of the refitted *Enterprise* commenced, galactic events forced the starship into early active service, departing Spacedock to intercept the entity known as V'ger. Decker was temporarily demoted to the rank of commander as the *Enterprise* was once again



Shortly after its refit was completed, the *Enterprise* was dispatched to investigate an anomaly threatening Earth. At its heart the crew found an ancient Earth space probe.

under the command of James Kirk for the duration of the crisis. The V'ger incident, which put Earth under direct threat, again proved the worth of the *Enterprise* and the *Constitution*-class program. With Decker and navigator Ilia listed as missing following the incident, the refitted *Enterprise* officially commenced its shakedown under Kirk's command, with Commander Spock once again taking up the post of first officer.

THE WRATH OF KHAN

Throughout the 2270s, the *Enterprise* continued to explore new worlds and represent the Federation on the furthest frontiers of space. Its final few years of service, now under the command of Captain Spock, brought the *Enterprise* home to Earth, where it served as a training vessel for Starfleet cadets.

In 2285, while Admiral Kirk was onboard his most famous command to oversee a training cruise, the *Enterprise* was moved to full active service to investigate terrorist activity surrounding the highly sensitive Project Genesis at Space Lab Regula I. The *Enterprise* engaged the U.S.S. *Reliant* – which had been commandeered by Khan Noonien Singh – in combat. Many cadets lost their lives in that encounter; however, the survivors



The U.S.S. *Enterprise* underwent an extensive refit during the early 2270s, allowing the esteemed vessel to continue its voyage of exploration for more than a decade further.



Hoping to save the *Enterprise* from destruction at the hands of Khan, Spock entered the dilithium reactor chamber to effect repairs at the cost of his own life.

honored their fallen comrades in the final stages of the mission when the heavily damaged *Enterprise* entered the Mutara Nebula and engaged the *Reliant* for a second time. The *Reliant* – and Khan – perished in the detonation of the Genesis device, with the *Enterprise* making its escape. However, it was without its commander – Captain Spock was killed in action, as he made a hazardous repair of the warp drive in order to save the ship.

The *Enterprise's* legendary tour of duty came to an ignominious end shortly after the tragic events in the Mutara Nebula. After returning to Earth Spacedock, the critically damaged *Enterprise* was scheduled for decommission, a decision resisted by Admiral Kirk and his command crew. A request from Kirk to return to the restricted Mutara sector and the newly-created ‘Genesis Planet’ to retrieve Captain Spock’s body was denied by Starfleet Command. Subsequent to this, Kirk led a fugitive group comprising former *Enterprise* officers in commandeering their ship, while carrying out a targeted act of sabotage on the *U.S.S. Excelsior*.

Kirk’s unauthorised and criminal voyage to Mutara came too late to prevent the destruction of the science vessel *Grissom* in orbit of Genesis after hostile action from a



The final voyage of the *U.S.S. Enterprise* NCC-1701 saw the ship critically damaged during a battle with a Klingon bird-of-prey. Kirk had no other option but to engage the ship’s autodestruct sequence to stop it falling into enemy hands.

rogue Klingon vessel. On arrival at Genesis, the *Enterprise* was incapable of engaging the Klingons, forcing Kirk to instigate the ship’s autodestruct systems to escape boarding action from the enemy. With the crew abandoning ship at the last moment, the *Enterprise's* four decade service to Starfleet ended as it detonated and burned up in the atmosphere of Genesis.

U.S.S. ENTERPRISE NCC-1701-A

The *U.S.S. Enterprise* NCC-1701-A commenced its shakedown cruise in 2286, shortly after the trial of Admiral James T. Kirk and his command crew for their actions in regard to the theft and wilful destruction of the *U.S.S. Enterprise* NCC-1701. Largely exonerated after heroism displayed in averting planetary disaster caused by an alien probe on planet Earth, Kirk was demoted to Captain and took up command of the second *Constitution*-class starship to bear the name *Enterprise*.

Named in honor of Starfleet’s most-famous ship, the *Enterprise-A's* shakedown cruise proved a frustrating experience, especially for Commander Montgomery Scott. Tasked with bringing his new charge up to mission readiness, the *Enterprise-A's* chief engineer battled against sub-standard systems and various technical deficiencies, taking the vessel’s breaking-in period weeks over schedule. Despite this, a worsening situation on the planet Nimbus III caused Starfleet to mobilize the *Enterprise-A* into active service before it was fully ready.

On arrival at Nimbus III, Captain Kirk commanded a ground force to investigate aggressive action from a group of local rebels. The ground operation failed, however, leading to the *Enterprise-A* being commandeered by the Vulcan insurgent Sybok – Mr. Spock’s half-brother. With Kirk forcibly removed from command, the *Enterprise-A* set course for the Great Barrier at the centre of the Milky Way galaxy. Subsequent mission logs indicated that Sybok had long been seeking the point of galactic creation and the mythical Sha Ka Ree. The *Enterprise-A* was retaken by its command crew and hostile action from a Klingon bird-of-prey was overcome. Sybok perished on the planetoid found beyond the Great Barrier.



Even during its first mission, the *U.S.S Enterprise* NCC-1701-A proved itself to be a worthy successor to the original *Enterprise*, becoming the first known starship to penetrate the Great Barrier – an energy field surrounding the Milky Way’s core.



As a gesture to help broker peace between the Klingon Empire and the Federation, Captain Kirk reluctantly invited Chancellor Gorkon aboard the *Enterprise-A*.

The *Enterprise-A* continued its core mission for a further seven years, the ship and its crew already considered legends of Starfleet. Shortly before decommissioning and retirement of its command crew, the *Enterprise-A* performed one last mission on behalf of the Federation in 2293. In the wake of the disaster that destroyed the Klingon moon of Praxis, the *Enterprise-A* was selected as diplomatic vessel to escort Klingon Chancellor Gorkon to a peace summit that would bring an end to centuries of conflict between the Federation and the Klingon Empire.

END OF AN ERA

During the sensitive mission, Gorkon was assassinated and evidence suggested the *Enterprise-A* had fired upon the Klingon flagship, *Kronos One*. Captain Kirk and Doctor Leonard McCoy were found guilty of the murder of the Klingon Chancellor and sentenced to imprisonment on the Rura Penthe penal colony. Aboard the *Enterprise-A*, Captain

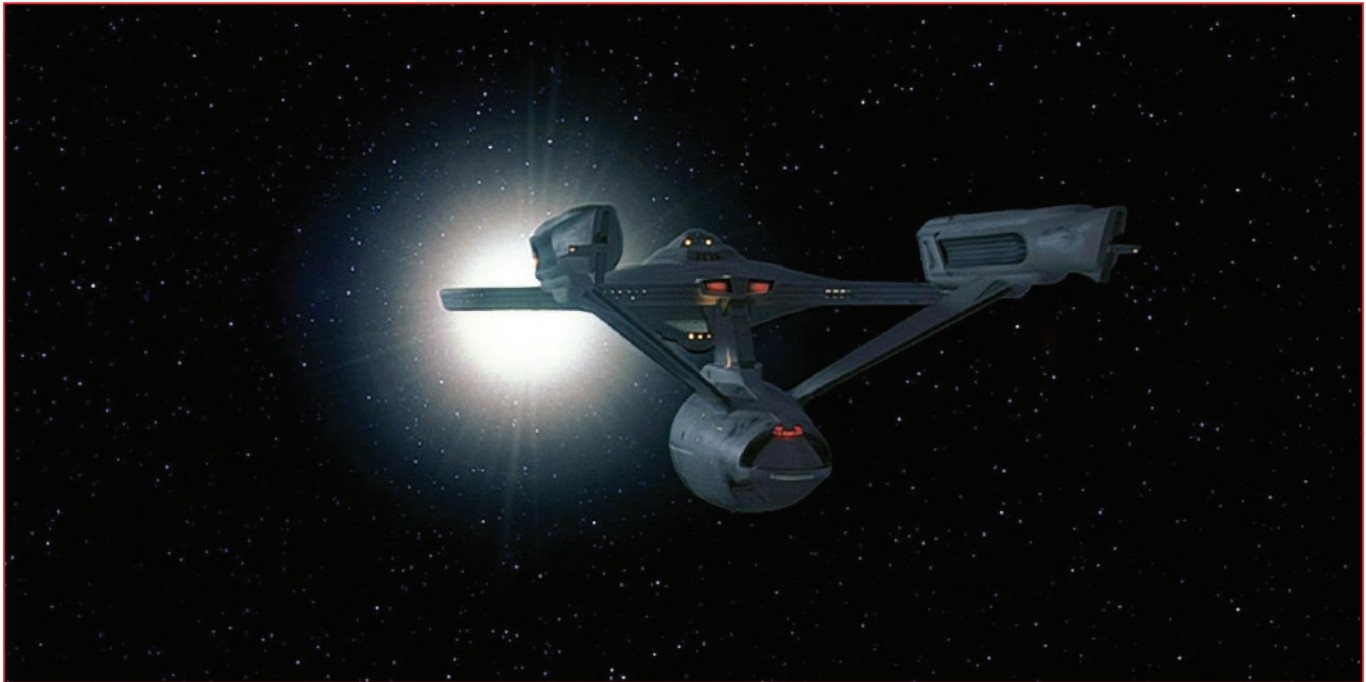


Thanks to the efforts of Kirk and his crew, an attempt by rogue Starfleet officers to destabilize the peace negotiations was thwarted at the last possible moment.

Spock carried out his own investigations into the incident, and uncovered a conspiracy within the ranks of Starfleet and the Federation to interfere with the coming peace talks, and derail the march towards lasting peace with the Klingon Empire.

Successfully extracting Kirk and McCoy from Rura Penthe, the *Enterprise-A* proceeded to the peace talks on Khitomer. Engaging a cloaked bird-of-prey in orbit, the *Enterprise-A* endured extreme damage but – with the assistance of Captain Sulu’s *U.S.S. Excelsior* – destroyed the insurgent vessel. Crewmembers subsequently beamed to the planet and averted the assassination of the new Klingon Chancellor.

Recalled to Spacedock for decommissioning shortly after the Khitomer Conference, the *U.S.S. Enterprise* NCC-1701-A began its final voyage on stardate 9529.1 in 2293. The ship and its crew once again stood as symbols of hope and peace, the name *Enterprise* assured a lasting legacy.



Starships bearing the name *Enterprise* have long held a special place in the hearts of those for whom space is not merely the final frontier, but an opportunity to embrace new cultures and discover the truths of the universe. The *U.S.S. Enterprise* NCC-1701 embodied that bold spirit, ensuring that the human adventure was just beginning.



CHAPTER 2

U.S.S. ENTERPRISE

NCC-1701

2254

MAIN BRIDGE

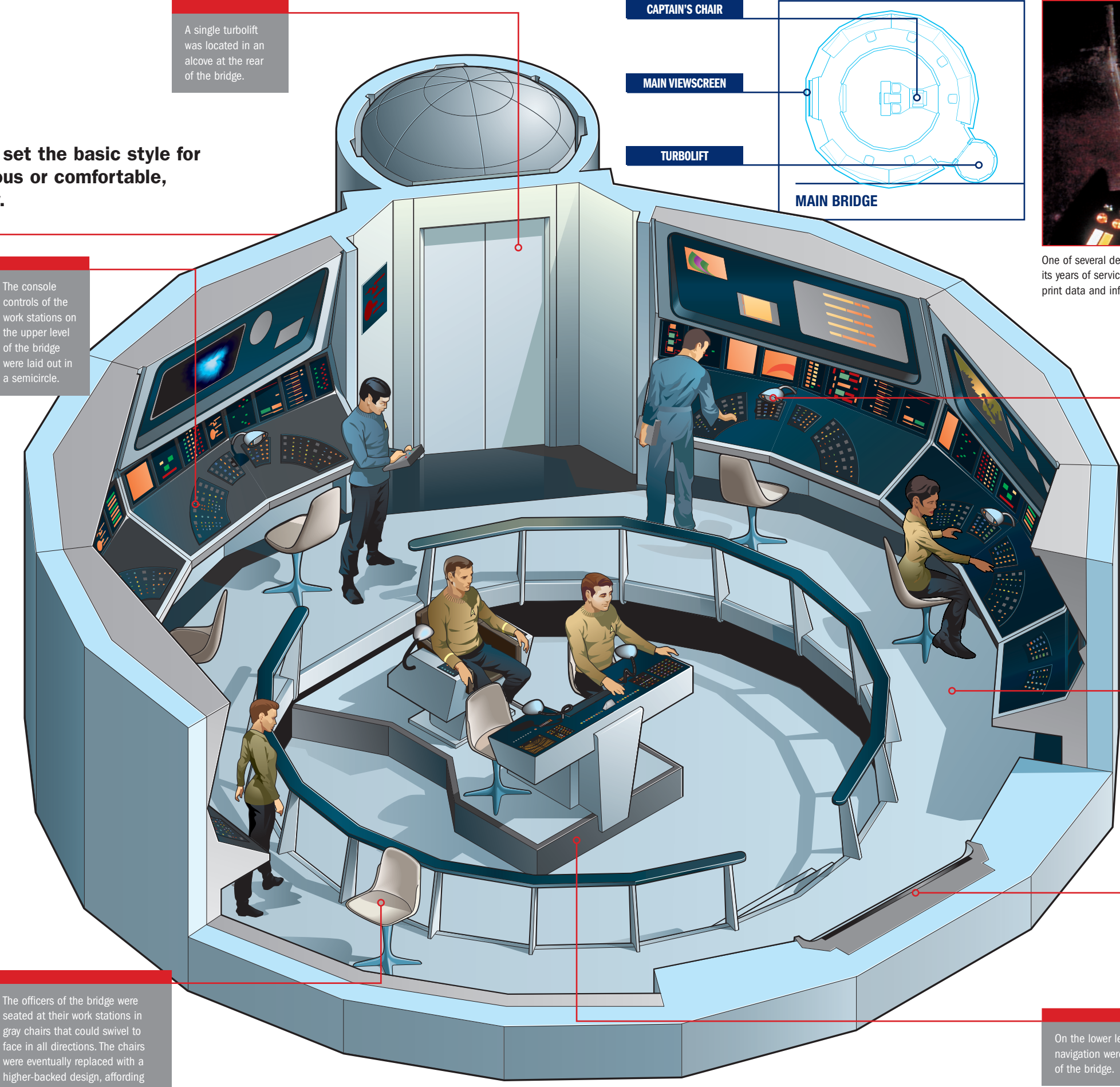
The bridge of the *Starship Enterprise* in 2254 set the basic style for future bridge modules. Not particularly spacious or comfortable, the bridge as primarily designed for efficiency.

The *U.S.S. Enterprise* NCC-1701 became famous during the command of Captain James T. Kirk, but the starship had already completed two five-year missions under Captain Christopher Pike. Starfleet was still in the early stages of its mission, which was reflected in the austere, militaristic design of the ship's interior fittings during this period. The bridge alone was more uniform and less comfortable than it would become by the time of Kirk's command, closer to the cramped conditions of its precursor, the *Enterprise* NX-01. Aside from a schematic of the starship displayed to the right of the turbolift doors, the bridge could almost be described as spartan. Even the lighting was kept to a minimum, with work stations highlighted only by their flickering lights and monitors.

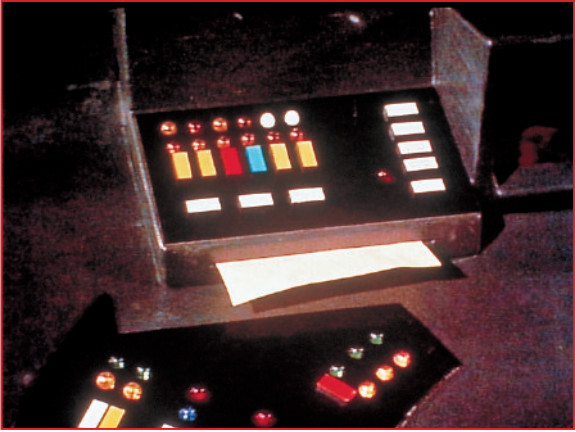
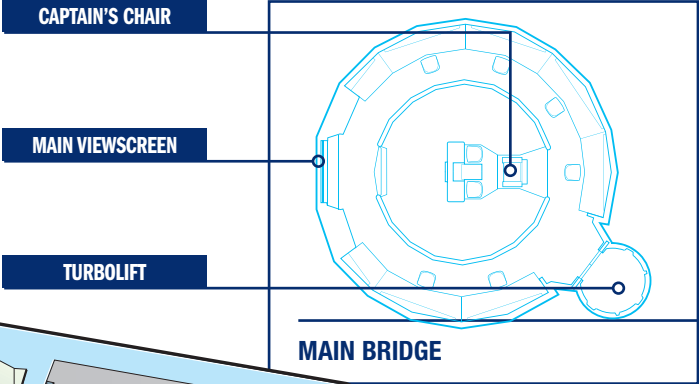
The captain's chair was positioned in the center of the bridge, behind the helm and navigation stations. One thing that set these early starship bridge designs apart was that the captain sat alone. Unlike the *Galaxy*-class starship designs of the future, a command position on the bridge was not provided for the first officer; Captain Pike's first officer sat at the helm. This layout could be seen as a reflection of the philosophy of those pioneering days of space exploration, and the isolation of a captain assigned to command a starship, a crew, and the noble directive to boldly go where no one has gone before.



The most important work stations on the bridge were the captain's command station, navigation, and helm. Duty officers manning stations on the upper level of the bridged faced outward, away from the captain.



A single turbolift was located in an alcove at the rear of the bridge.



One of several devices on the *Enterprise* that would fall out of use during its years of service were hard copy printers. These used paper and ink to print data and information for dissemination to the command crew.

The console controls of the work stations on the upper level of the bridge were laid out in a semicircle.

The bridge consoles of this early design featured gooseneck viewers that extended above the panels. These were eventually replaced with more streamlined units.

The two levels of the bridge were divided by a single gray rail. Access between the two was via two short sets of steps, at the fore and aft of the lower level.

The circular viewscreen was placed on the upper level, at the front of the bridge. This displayed output from the starship's sensors, and information from the ship's computers.

The officers of the bridge were seated at their work stations in gray chairs that could swivel to face in all directions. The chairs were eventually replaced with a higher-backed design, affording greater comfort and support.

On the lower level, the three stations of command, helm, and navigation were placed together on a raised platform, at the center of the bridge.

BRIEFING ROOM

The briefing room aboard the *U.S.S. Enterprise* NCC-1701 in 2254 provided Captain Christopher Pike and his senior staff with a suitable location in which to discuss mission strategy.

One of the most important rooms available to Captain Pike and his senior officers on the *U.S.S. Enterprise* was the briefing room, a dedicated area incorporating access to the ship's computer systems, an audio-visual display, and a conference table allowing discussion and evaluation of data and mission status. The briefing room was regularly used for routine meetings concerning all aspects of a ship's day-to-day functioning, or emergency discussions concerning unforeseen circumstances and potentially dangerous situations. The ability to view relevant information, appraise alternatives, and rapidly arrive at a command decision in a focused space with no distractions, made the briefing room an essential location on the ship.

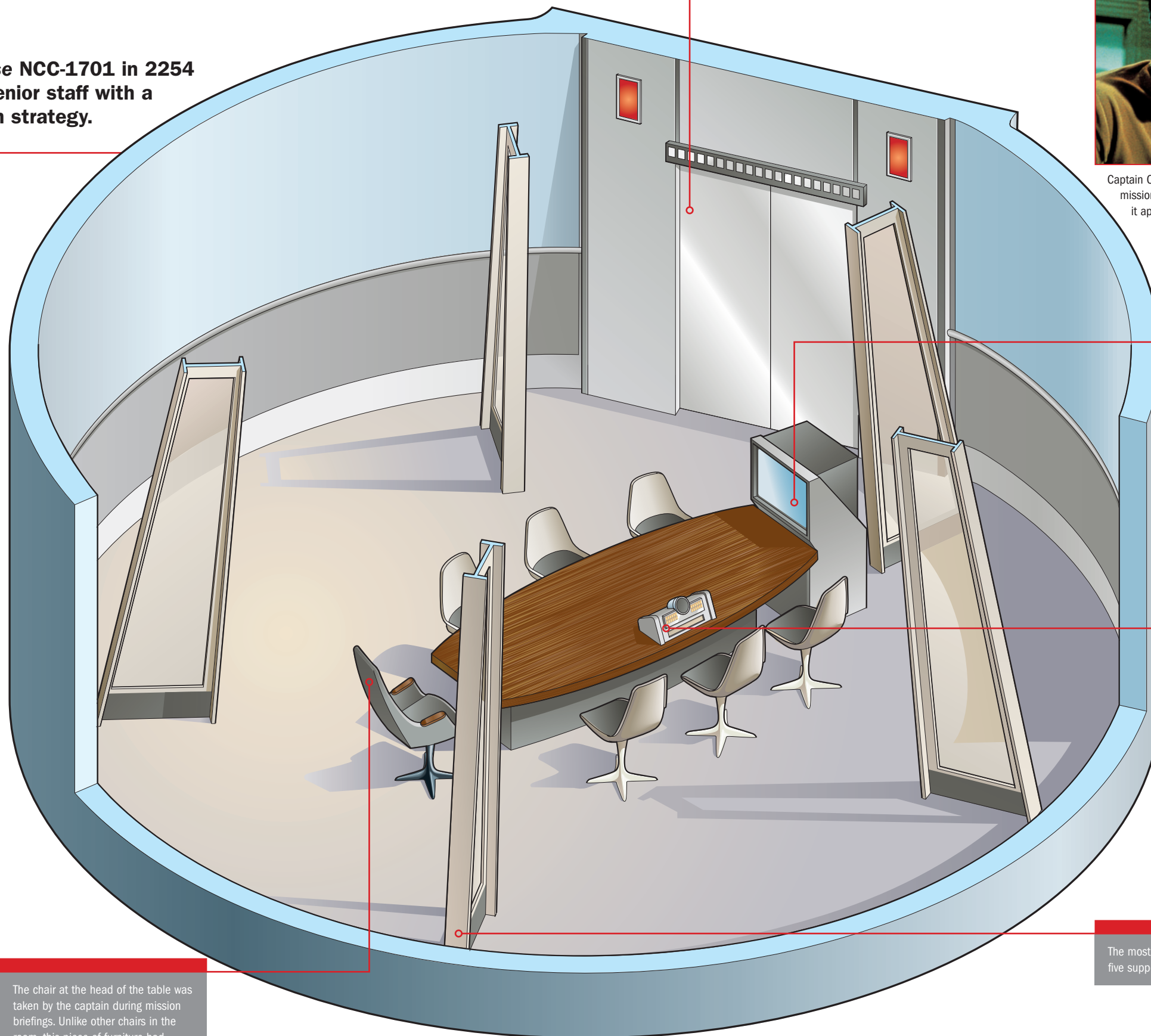
Situated at the center of the room was a long, highly polished natural wood table. Its function was to provide ample space for a maximum of nine personnel to be seated facing each other. A viewing screen was placed at one end of the table, with a control console half way along. Certain situations required additional personnel to be present during a briefing, so there was enough space in the room to allow other crew members to stand and participate in proceedings.

Briefing rooms were incorporated into every subsequent class of starship; however, later vessels such as the *Galaxy*-class moved the facility closer to the main bridge.



The briefing room aboard the *U.S.S. Enterprise* NCC-1701 contained nine chairs that were arranged around a long, wooden table, where department heads and senior officer would gather for critical mission briefings.

The briefing room was accessed through a pair of sliding doors that recessed into the wall when open.



The chair at the head of the table was taken by the captain during mission briefings. Unlike other chairs in the room, this piece of furniture had small, raised armrests.



Captain Christopher Pike commanded the *Enterprise* for two five-year missions. The interior of the vessel was significantly different to how it appeared during Captain James T. Kirk's tour of duty.

A large viewscreen was located at the opposite end of the table to the captain's chair in order to display images and computer data during briefings.

A small console was located in the center of the briefing room table. This was used to manipulate the images and data being shown on the viewscreen.

The most striking features of the briefing room were the five support braces located around its perimeter.

CAPTAIN PIKE'S QUARTERS

The captain's quarters aboard the *U.S.S. Enterprise* NCC-1701 housed the most important individual on the ship, and this was reflected in its amenities. Captain Christopher Pike called this modest space home for ten years.

Captain Pike lead the crew of the *Enterprise* on two five-year missions from 2250 until his promotion to fleet captain. Throughout that period he occupied the same quarters on the ship, which provided a space for privacy and relaxation, along with all the facilities needed to work and remain in contact with the rest of the ship even when off-duty.

Captain Pike's quarters were situated along one of the vessel's main access corridors, with a rectangular metal plaque mounted beside the access doorway with the word 'captain' in raised letters, clearly identifying the occupant of the quarters to other members of the crew. There were no windows, and the lighting was entirely artificial, but the room still maintained an air of comfort, despite the gray walls and basic fittings. A large wooden table to the right of the entrance provided a work surface where Pike would often leave a handheld communicator. This table unit incorporated a viewscreen which Pike could see from his couch. A desk ran along the bulkhead opposite. Set into a bulkhead, a rectangular recess was home to a selection of the captain's personal belongings, including a decorative sculpture, a series of books, and a metallic folder of daily reports for the captain's attention.

Always on call if his senior officers needed to contact him, Pike's quarters also included a communications console next to the couch that doubled as his bunk.



The captain's bed also served as a sofa, providing him with a comfortable seating area during his off-duty leisure time. A shelf in the bulkhead afforded the captain space to display a handful of personal items.

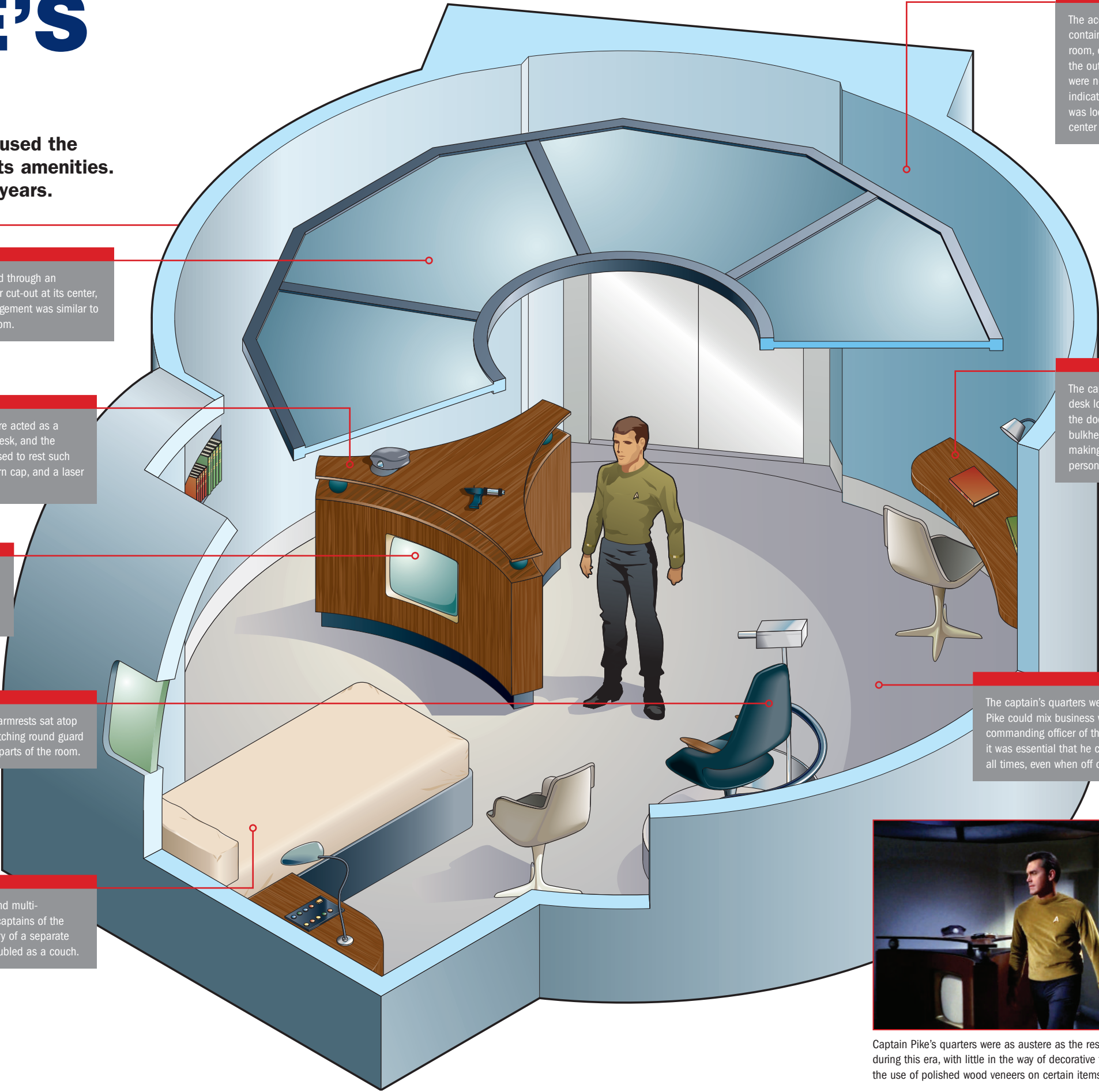
The captain's quarters were illuminated through an octagonal-shaped panel with a circular cut-out at its center, suspended from the ceiling. This arrangement was similar to the one found in the ship's briefing room.

This triangular-shaped piece of furniture acted as a separating device between the door, desk, and the captain's bunk. The top surface was used to rest such accessories as the captain's rarely worn cap, and a laser pistol.

The captain had a viewscreen built into the triangular table which faced the sofa bed, allowing him a visual whenever necessary.

A black upholstered chair with brown armrests sat atop a circular, metallic platform, with a matching round guard rail. It swiveled on its base to face all parts of the room.

The captain's quarters were spartan and multi-functional. In contrast to subsequent captains of the *Enterprise*, Pike did not enjoy the luxury of a separate sleeping and living room. His bunk doubled as a couch.



The accommodation was contained in a circular room, entered directly from the outside corridor. There were no windows, indicating that the room was located near the center of the deck.

The captain had a narrow desk located to the left of the doorway, against the bulkhead. It was used for making journal entries and personal correspondence.

The captain's quarters were equipped so that Pike could mix business with leisure. As the commanding officer of the *U.S.S. Enterprise*, it was essential that he could be reached at all times, even when off duty.



Captain Pike's quarters were as austere as the rest of the *Enterprise* during this era, with little in the way of decorative features other than the use of polished wood veneers on certain items of furniture.

TRANSPORTER ROOM

During Captain Christopher Pike's command of the *U.S.S. Enterprise NCC-1701* in the 2250s, the transporter room was furnished in a rather different fashion than the bright décor of the following decade.

The transporter room was always one of the most vital facilities aboard a Starfleet vessel, allowing the near-instantaneous transportation of personnel and cargo. The transporter area utilized by Captain Pike and his crew was functional in design and execution compared to later iterations, but the technology was much the same, and more than capable of safely converting an object or person into energy and reassembling the subject into its original form at another location. At this time, the full transportation procedure took slightly longer to complete, but the system had an acceptably high level of reliability during routine use.

Twin sliding doors opened to allow personnel to enter the spacious area containing the control system and transporter platform. In keeping with later transporter room designs, there was enough room for mission specialists and individuals making up a landing party to check their equipment and ready themselves for a mission. One of the most obvious differences between the Pike-era transporter room and that used by Captain Kirk was the constant electronic hum that filled the air in the earlier design, even when the transporter pads were standing idle.

Located directly opposite the six transporter pads was the main control desk, a waist-height console constructed from a light gray metallic material that was permanently manned by two personnel.



The rear wall of the transporter room during the 2250s was dominated by a large framed image of a spiral Galaxy. This was one of few decorative items found in operational areas of the ship.

The transporter pads were set three steps up from the main floor area, ensuring there was no danger of a person or object accidentally being in the vicinity of the platform during operation.

A doorway into the transporter room led directly into the ship's corridors, giving easy access to all areas and decks.

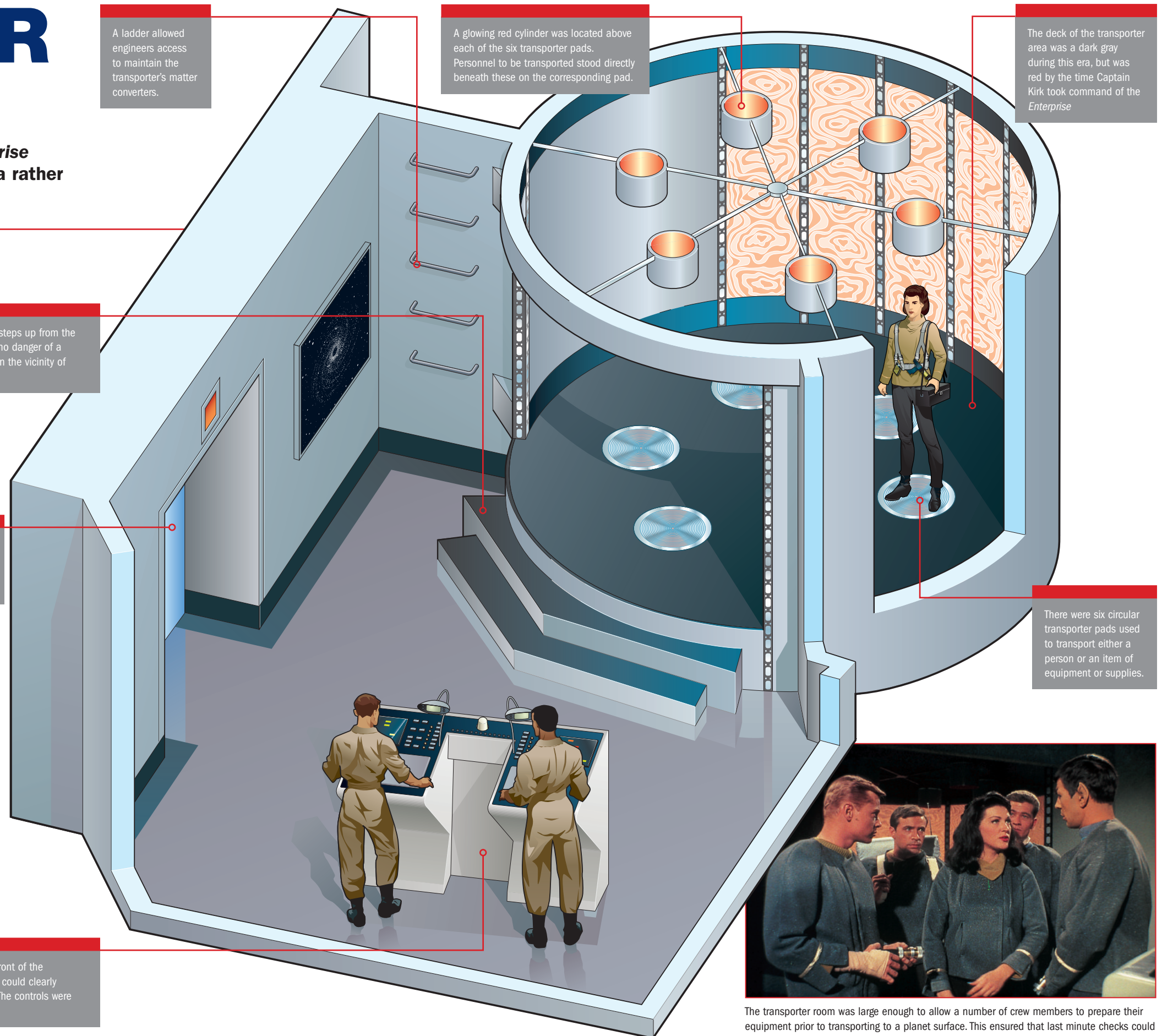
The control console was located in front of the transporter pads so that technicians could clearly monitor the transportation process. The controls were usually operated by two technicians.

A ladder allowed engineers access to maintain the transporter's matter converters.

A glowing red cylinder was located above each of the six transporter pads. Personnel to be transported stood directly beneath these on the corresponding pad.

The deck of the transporter area was a dark gray during this era, but was red by the time Captain Kirk took command of the *Enterprise*.

There were six circular transporter pads used to transport either a person or an item of equipment or supplies.



The transporter room was large enough to allow a number of crew members to prepare their equipment prior to transporting to a planet surface. This ensured that last minute checks could be conducted moments before beaming.

STANDARD ISSUE EQUIPMENT 2254

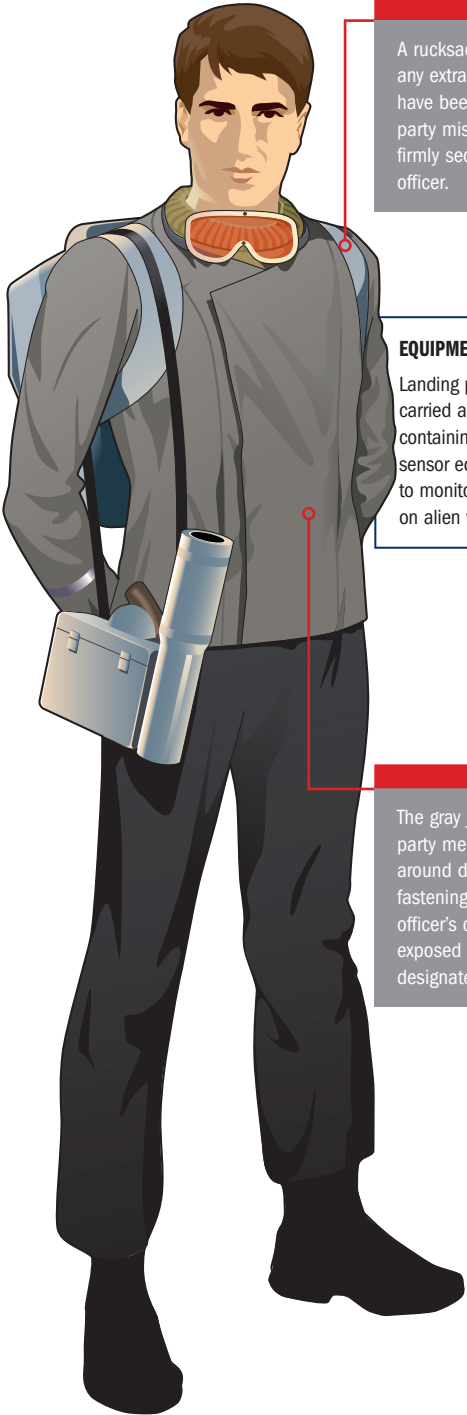
Starfleet uniforms, particularly those used by landing parties, had to fulfil a number of requirements, including comfort for the user and a hardwearing design.

Landing party uniforms issued by Starfleet in this era comprised of the standard uniform with a gray jacket that offered extra protection on Class-M planets where atmospheric scans had revealed any particularly adverse weather conditions.

The jacket featured a wrap-around design with concealed fastenings, underneath which an adjustable strap – worn around the torso – enabled the wearer to stow equipment including a laser pistol and a communicator. Another item of standard equipment for landing party members, a tricorder, was often carried over a shoulder on a strap. Landing party members could also be issued with a carry-all rucksack for additional equipment, and a small black case which was used to store samples.



Laser pistols formed part of standard landing party equipment for Starfleet officers. These weapons were carried at an officer's side, within easy reach in the event of an imminent threat.



A rucksack was provided to carry any extra equipment that may have been needed for a landing party mission. Two shoulder straps firmly secured the holdall to the officer.

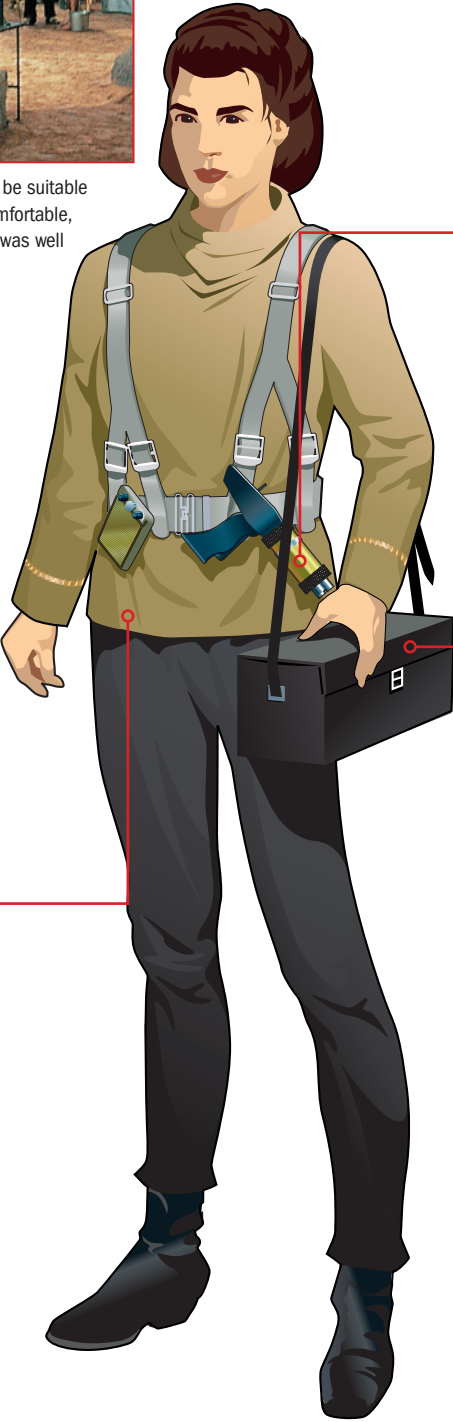
EQUIPMENT

Landing party members always carried an equipment pack containing a tricorder and other sensor equipment, enabling them to monitor atmospheric conditions on alien worlds.

The gray jacket worn by landing party members featured a wrap-around design with concealed fastenings. The neckline of the officer's colored tunic was left exposed to denote their designated work department.



While conditions on planets like Talos IV might be suitable for human life, they could also be harsh, uncomfortable, and dangerous. Every landing party ensured it was well prepared for any eventuality.



COMMUNICATOR

The communicator formed an integral part of the landing party equipment, and was usually worn at waist level. Without this small device, crew members were unable to contact their starship.

Regular work tunics were occasionally worn to the surface of worlds visited by a landing party, if atmospheric scans indicated that the protection of the jacket was unnecessary.

Laser pistols and communicators were fastened to a strap, which was worn around a crew member's torso. The strap had many adjustable fittings, in order to make it comfortable for a variety of body shapes and sizes.

In addition to other carrying apparel, Starfleet officers were provided with a solid, rectangular case which could be used for additional equipment or to store collected soil and mineral samples. A strap was used to carry the container over one shoulder.



It was standard practice for members of the landing party to carry additional equipment that could be used to analyze the terrain.

COMFORT

The clothing worn by Starfleet officers when they visited unexplored worlds was designed to ensure that crew members did not become hindered by their apparel while under stressful conditions. The uniforms were fitted close to the body, and were made of strong, lightweight materials.



Captain Pike's landing party to Talos IV initially wore the gray jacket, but the moderate climate of the world meant lighter clothing was sufficient.

STARFLEET EQUIPMENT

Technology in the 2250s was in a constant state of development. Handheld communicators were already well advanced, but laser pistols were still the weapon of choice.

Standard Starfleet landing party equipment would vary from one assignment to the next, but there were certain items of equipment, primarily weaponry and communications devices, that were of vital importance to all such missions. Before phasers became the standard issue hand weapon, the laser pistol was in common usage. Handheld lasers of 2254 featured barrel ring power adjustment controls, but the weapons were not as powerful as the later phasers.

Larger lasers, in the form of platform mounted artillery-style cannons, were occasionally called into service as a weapon. However, such sizeable devices were rarely deployed for this purpose, as they were more specifically designed and intended to be used as a mining tool. Ground-to-ground and ship-to-ground communications between landing parties and starships used the standard communicator. The design of communicator used in 2254 was larger in size than later models, but incorporated similar design elements like the familiar flip-top antenna.

COMMUNICATOR

COMMUNICATOR USE

The communicator was used for inter-ship communication, and provided a vital link between landing party members and their ship.



Communicators were flipped open to operate. Channel and volume adjustments were made manually.

ANTENNA GRID

The communicator incorporated the antenna grid into the protective flip top. Once opened, the device was ready to use.

The design of the communicator was simple; controls were mainly to adjust the frequency and volume.

The communicator employed powerful, transistor-like technology housed in a strong transparent casing.

With the inner workings of the communicator exposed through the clear case, repairs could be easily undertaken.

The internal workings of the communicator were visible once the antenna grid was opened.

LASER PISTOL

MAKING ADJUSTMENTS

Lasers were dangerous weapons, and the energy output required had to be calculated before the pistol was fired. The laser pistol used a system of barrel adjustments rather than controls on the rear of the weapon.

Energy output levels were adjusted by rotating the barrel itself.

The energy source for the laser was located to the rear, in the main body of the weapon.

The pistol's handle was ergonomically molded, and the trigger was operated by two fingers.

OPERATION

After adjusting its power setting, the weapon was aimed at its target. The user engaged the weapon using the trigger located in its handle. If the power setting was insufficient to neutralize a foe, further adjustments were made on the barrel.

The barrel acted as a prefire chamber; the beam emitter was located at the front end of the circular barrel.



The Starfleet communicator of 2254 was an uncomplicated device that provided design inspiration, in the form of its flip-top antenna, for later models.



The Starfleet issue laser was a larger weapon than designs favored over the next decade. It operated on similar principles, using light rather than phased energy.

LASER CANNON

Industrial lasers had been used for mining during the 22nd century, and the technology was later employed by Starfleet for various purposes during its exploration of the Galaxy.



A laser cannon was used on the planet Talos IV to blast open a set of doors hidden behind a rocky facade.

Gaining a complete understanding of a new planet's geology is an important aspect of space exploration, and while sensor technology in the 2250s could provide much information non-invasively, it was often advantageous to collect physical samples. Heavy laser mining technology was therefore useful equipment to have available during missions of discovery, such as that of the *U.S.S. Enterprise NCC-1701*. Laser cannons were used for numerous tasks, including mining or clearing a rocky area for use as a temporary base of operations. In extreme circumstances only, a cannon could be used as a weapon.

OPERATIONAL PROCEDURE
Highly trained operators assigned to a landing party would monitor the cannon and enter targeting coordinates, but the firing sequence would be controlled directly from the starship's bridge, coordinated by an officer on the ground via a communicator. Rather than utilizing a self-contained power source, the energy that powered these large laser cannons was transferred directly from the starship in orbit. Operators and other landing party members would move to a safe distance prior to cannon activation, and would wear safety goggles to protect their eyes from the intense light of the laser blast.

SAFETY PROTOCOLS



Highly trained operators prepared the laser cannon for firing before retiring to a safe vantage point with the rest of the landing party. The cannon was fired remotely.



During firing, the landing party remained in constant communication with their ship.



Personnel operating the cannon were required to wear protective goggles to shield their eyes during firing.



Laser cannons produced an intense beam of light when fired. A level surface was recommended during operation.

LASER CANNON CONFIGURATION

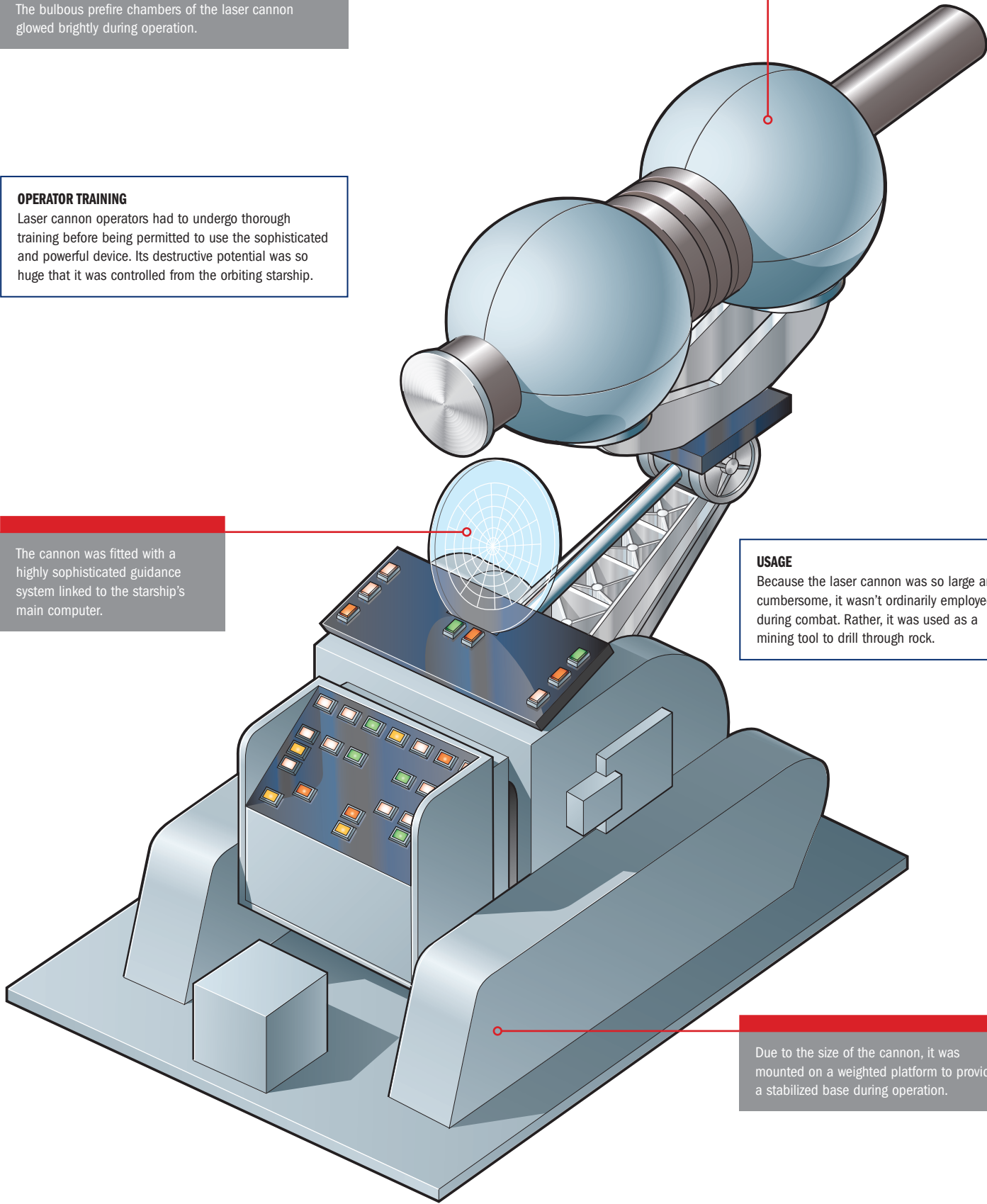
The bulbous prefire chambers of the laser cannon glowed brightly during operation.

OPERATOR TRAINING
Laser cannon operators had to undergo thorough training before being permitted to use the sophisticated and powerful device. Its destructive potential was so huge that it was controlled from the orbiting starship.

The cannon was fitted with a highly sophisticated guidance system linked to the starship's main computer.

USAGE
Because the laser cannon was so large and cumbersome, it wasn't ordinarily employed during combat. Rather, it was used as a mining tool to drill through rock.

Due to the size of the cannon, it was mounted on a weighted platform to provide a stabilized base during operation.



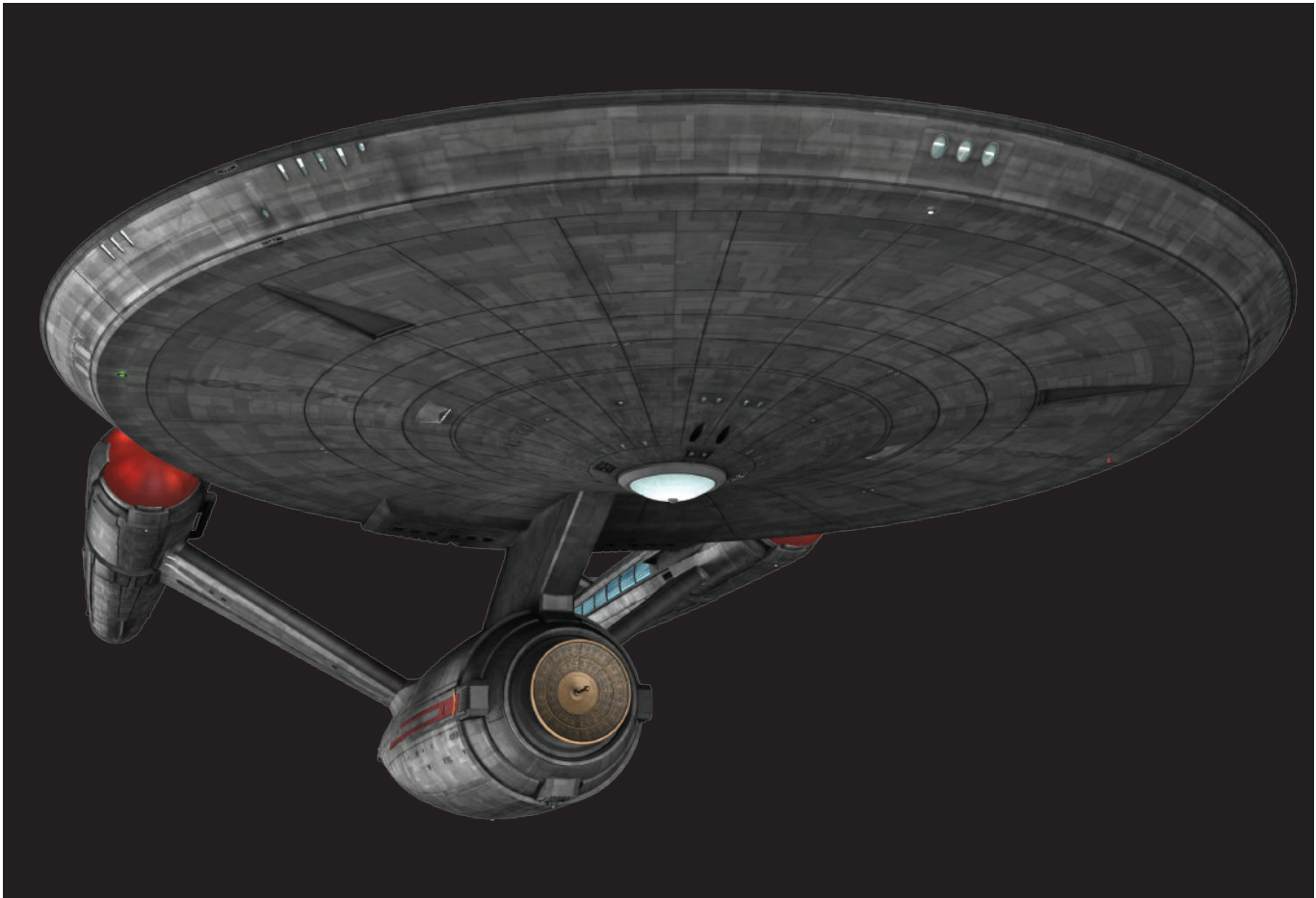


CHAPTER 3

U.S.S. ENTERPRISE

NCC-1701

2257



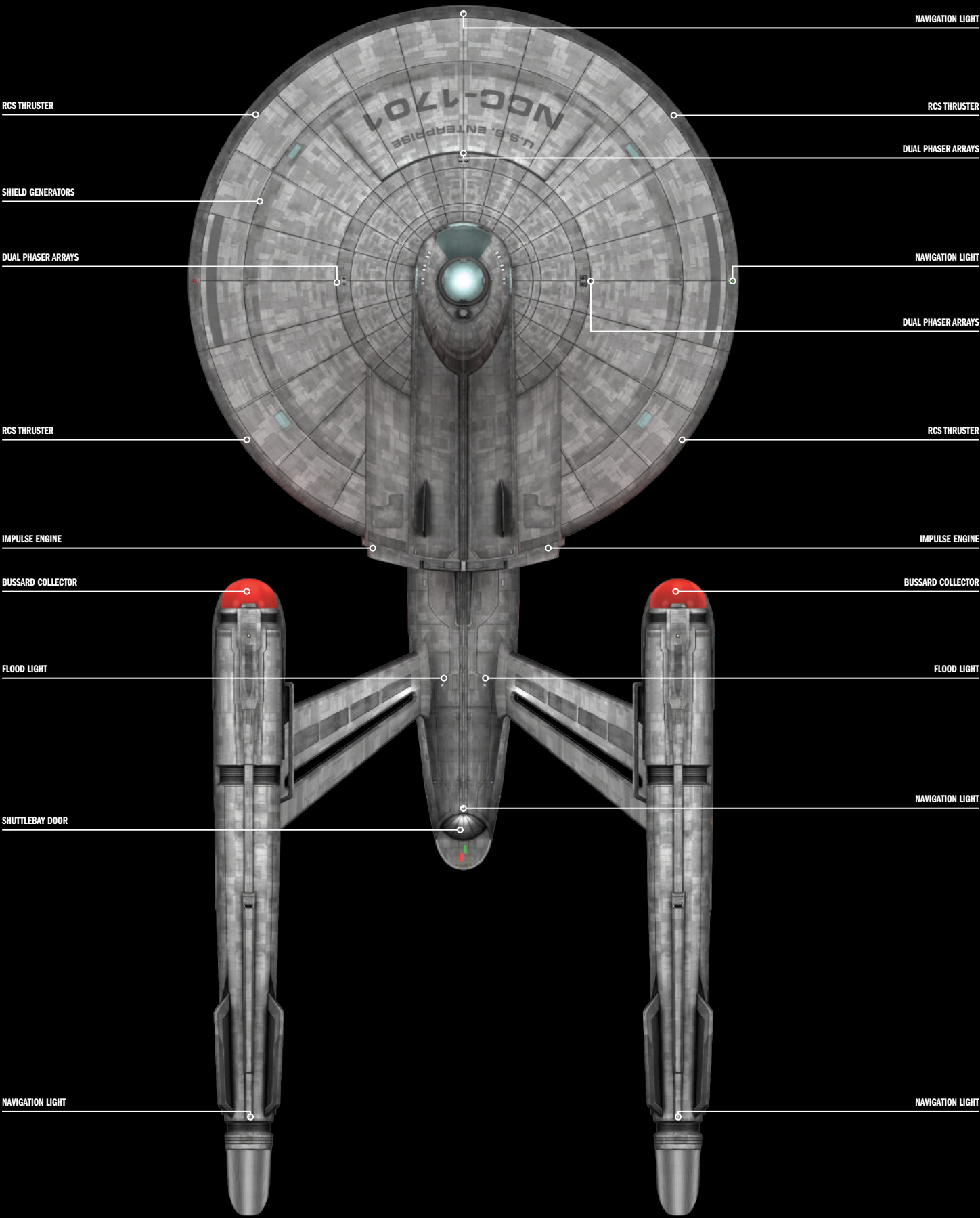
ANNOTATED EXTERIOR VIEWS

The *U.S.S. Enterprise* NCC-1701 received some temporary modifications while under the command of Captain Christopher Pike, but retained the classic lines that would influence starship design for decades.

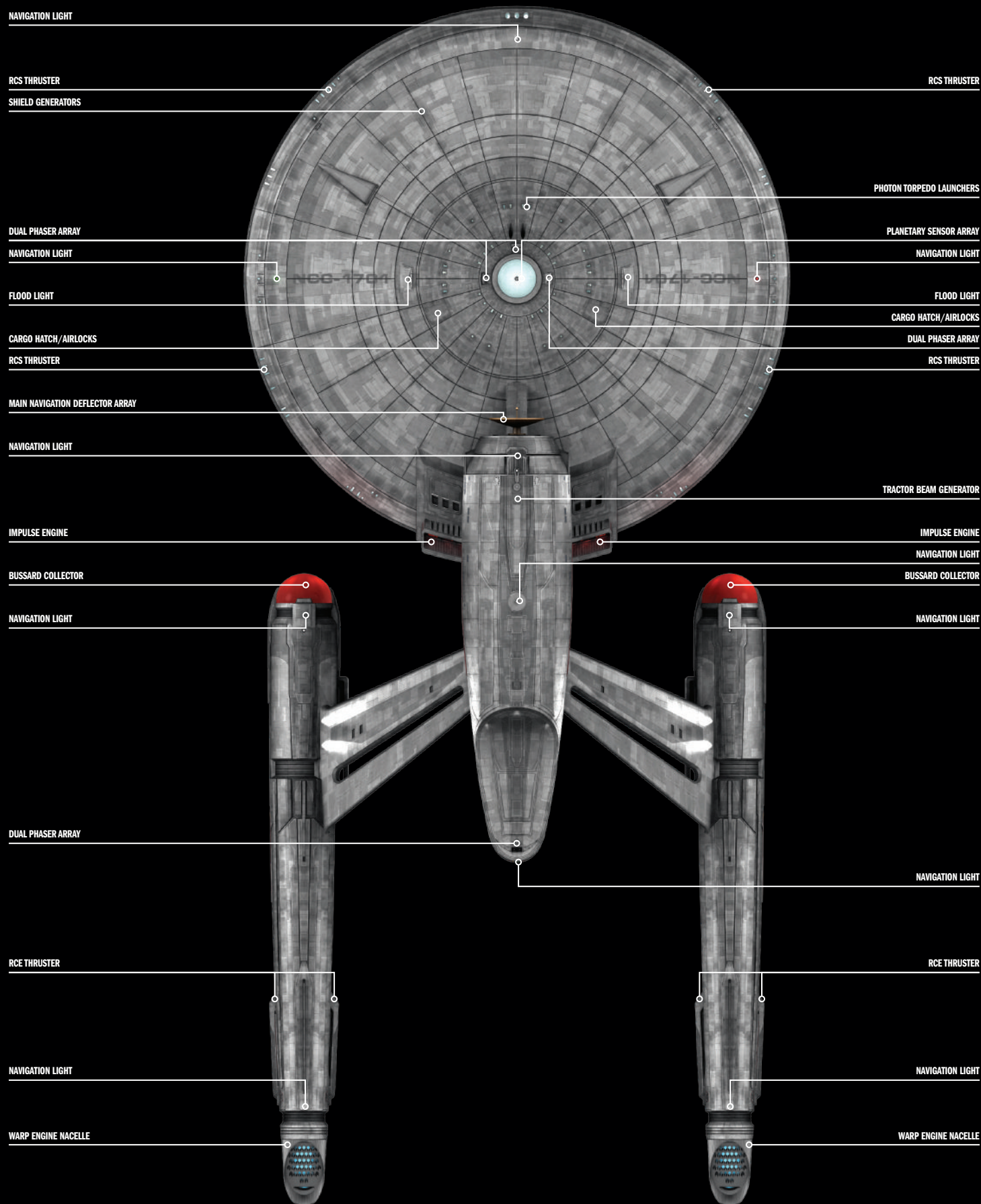
When war erupted between the Federation and the Klingon Empire in 2256, the *U.S.S. Enterprise* was engaged in a five-year exploratory mission in a remote region of space. Under orders from Starfleet Command, Captain Christopher Pike and his crew were forced to sit out the conflict. Many of the *Enterprise's* systems had been augmented and enhanced for the mission, to ensure the ship was capable of withstanding any exceptional and extreme conditions it would encounter in the unknown regions it was exploring. The engine nacelles, for example, had been reinforced and featured additional hull plating, giving them a bulkier outline than they had had prior to the mission or in later years. In order to cope with the stresses of these

enhanced nacelles, the pylons connecting them to the secondary hull had been strengthened with a thicker, dual-strut arrangement. On cursory inspection, the primary and secondary hulls appeared to have retained their familiar silhouette, but both sections of the ship had also been heavily retrofitted in preparation for the mission, resulting in an increase in dimensions across the board. The *Enterprise* suffered damage due to an unexplained systems malfunction in 2257, shortly before rendezvousing with the *U.S.S. Discovery* NCC-1031, whereupon Captain Pike ordered that certain technologies be removed during repairs, including the holographic communications network deemed to be at the root of problem.

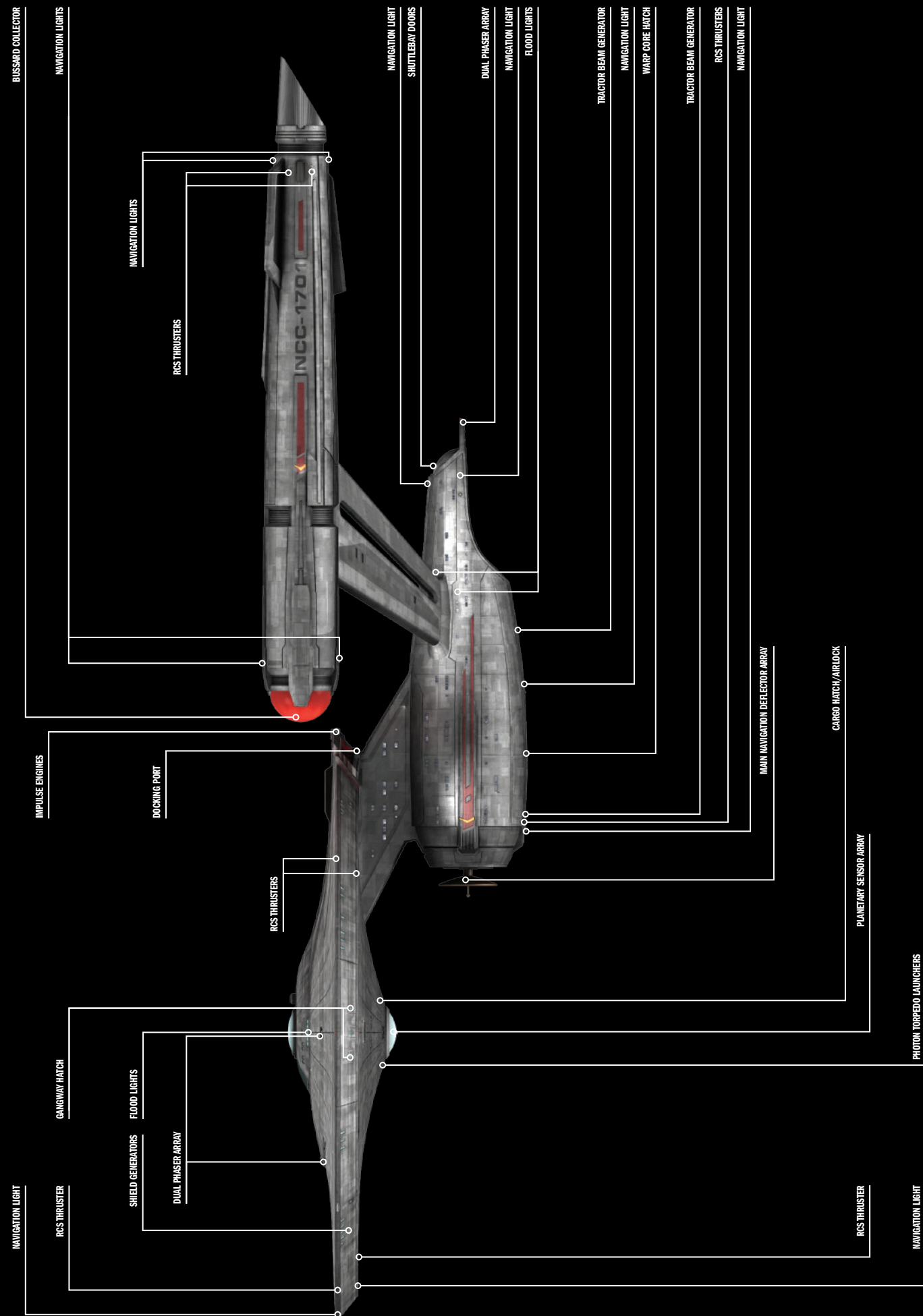
DORSAL VIEW



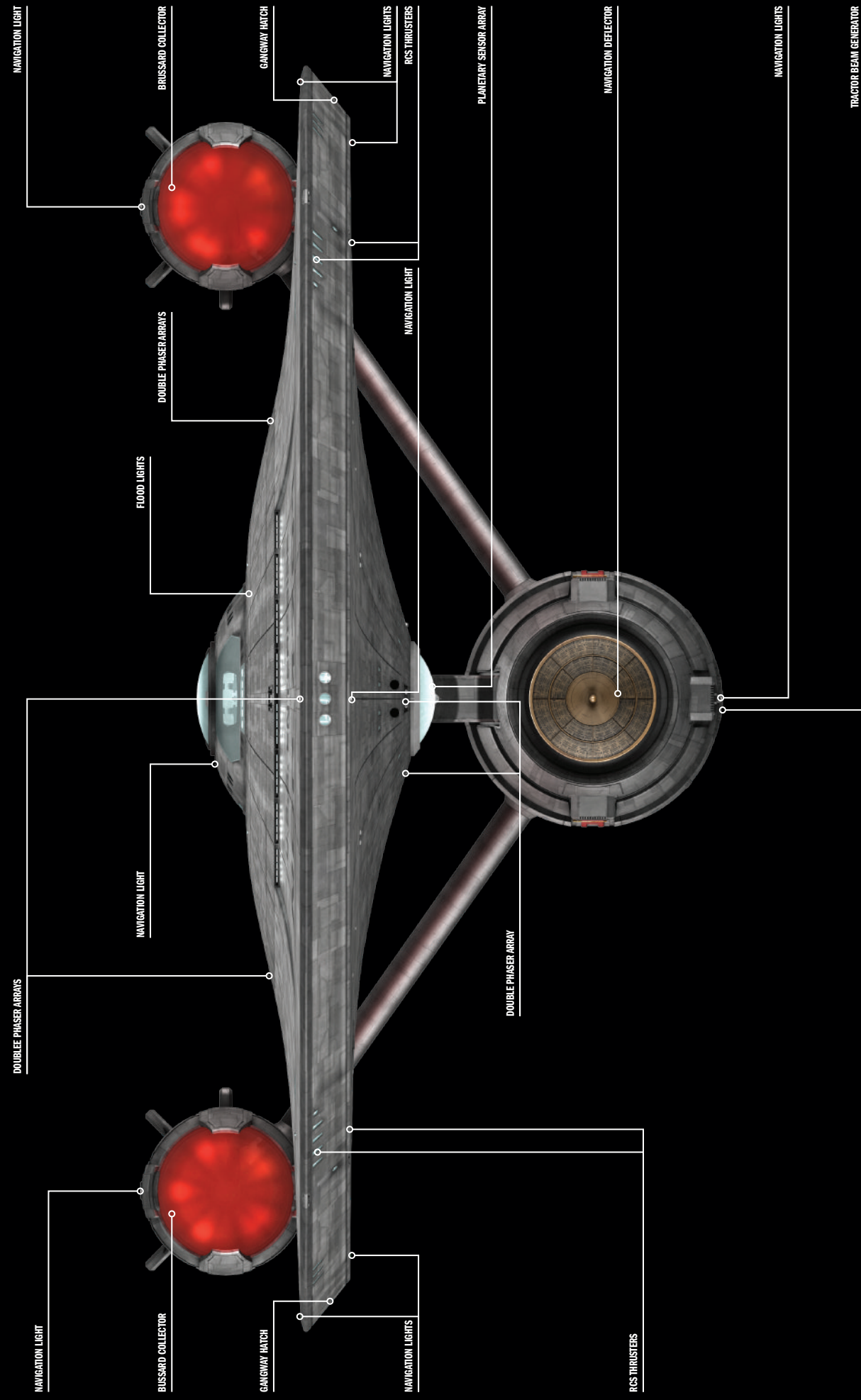
VENTRAL VIEW



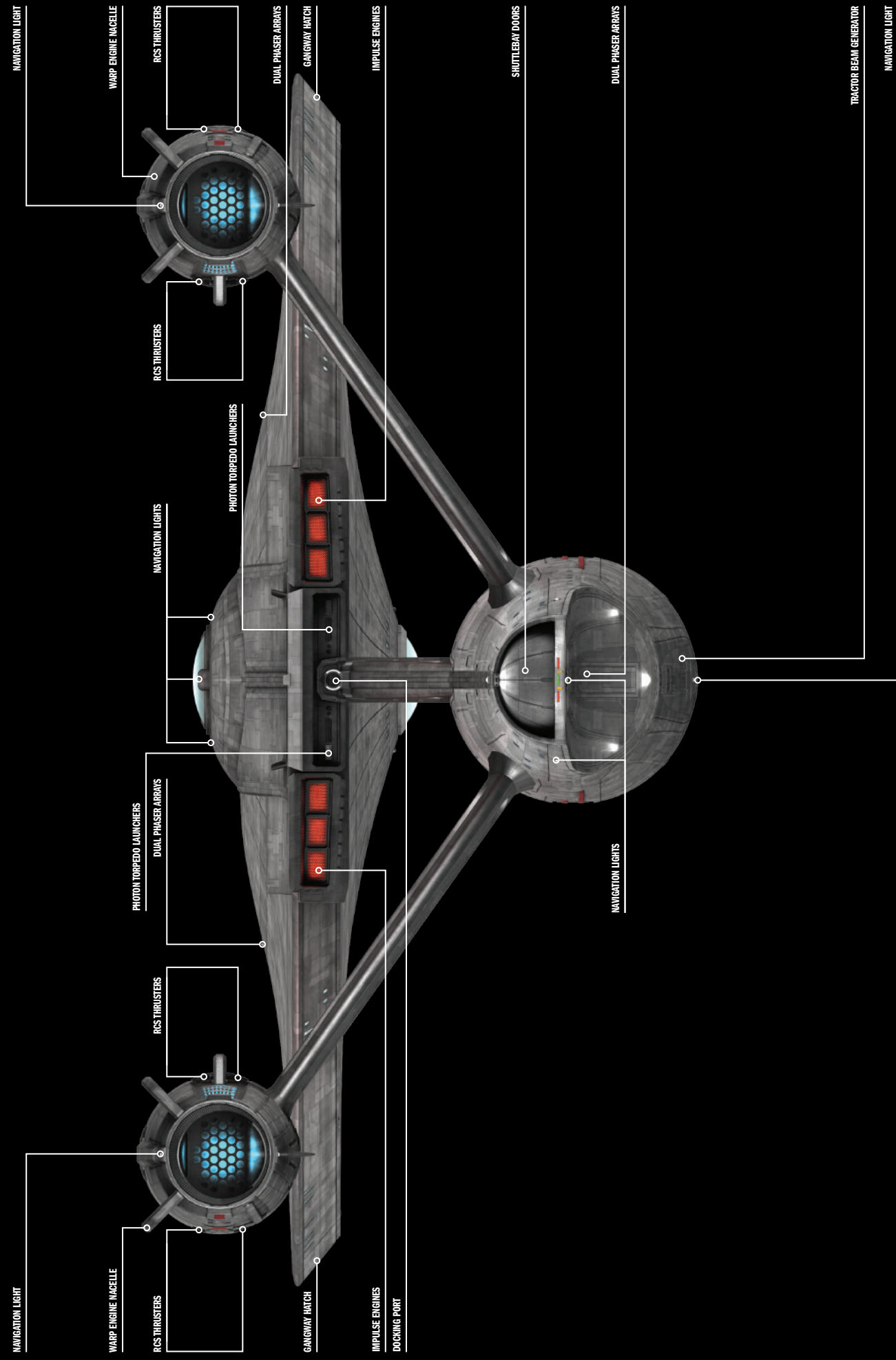
PORT ELEVATION



FRONT ELEVATION



AFT ELEVATION



MAIN BRIDGE

The busy bridge of the *U.S.S. Enterprise* underwent a number of reconfigurations during its years of service, and the modular nature of Starfleet design lent itself to experimentation.

The *Enterprise* bridge in 2257 was different in many ways to the design inherited by Captain Christopher Pike when he first took command of the starship. While its dimensions were largely the same, the removal of one duty station and the repositioning of the main turbolift provided access to a corridor previously inaccessible from the bridge, giving the area a sense of increased space. The main viewscreen had been replaced with a wider screen than before, offering many advantages including a direct view into open space. An additional turbolift could also now be reached thanks to the absent console and bulkhead beside the science duty station. The bridge was still split across two levels, although the captain's chair was now raised, affording the commanding officer a clearer view of the entire bridge.

RED ALERT

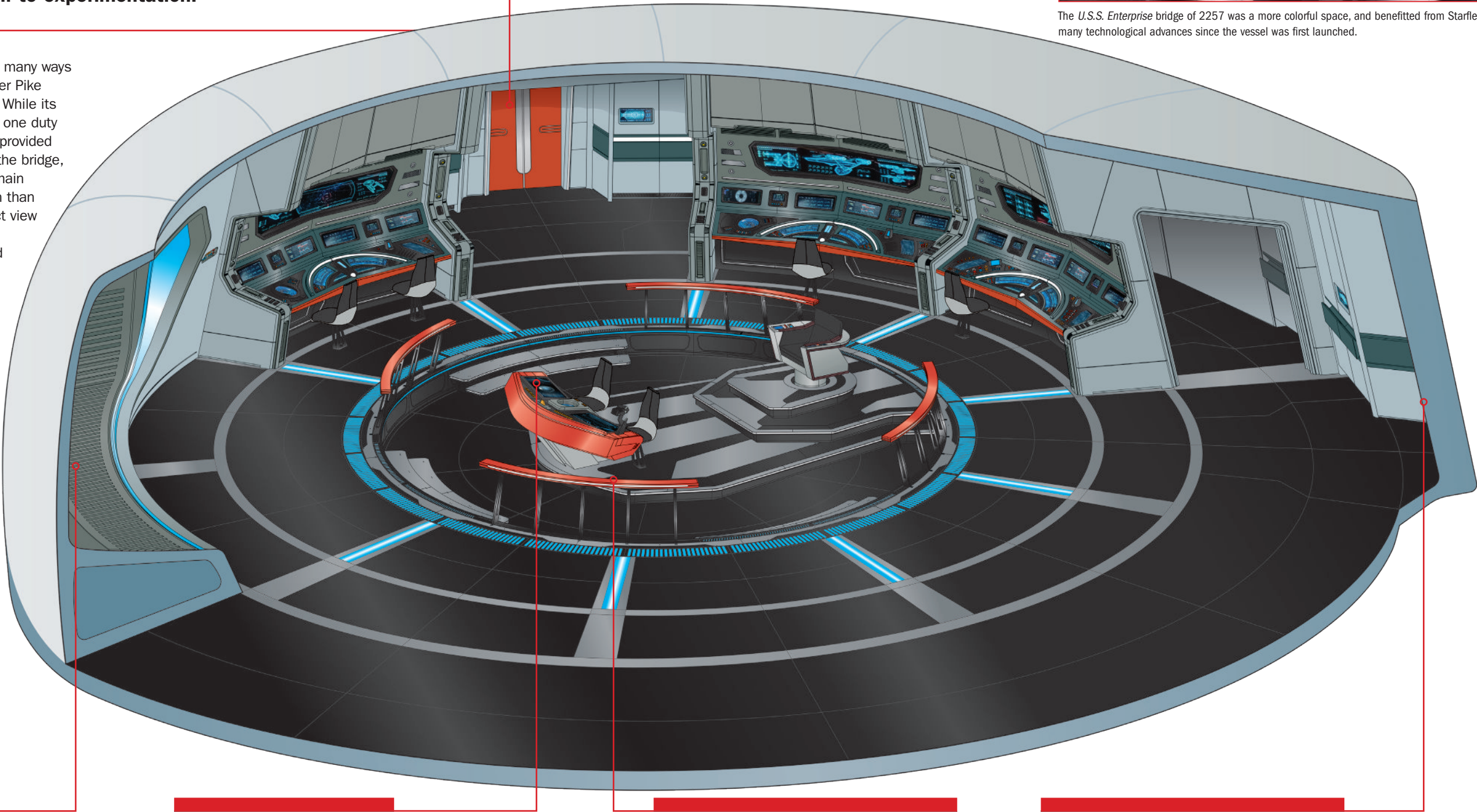
The most notable change to the *Enterprise* bridge was the use of color, with a bright red accent used on many surfaces, including the helm and navigation console, the four safety barriers running around the upper level, the turbolift doors, and the trim of the duty stations surrounding the bridge. Overall, this addition gave the bridge a far more welcoming appearance in keeping with the primary colors of the revised Starfleet uniform.

Lighting was also increased throughout the bridge to illuminate duty stations more effectively. During red alert, many of the lights would glow bright red, including the strip lights embedded in the upper level's safety barriers.

A second turbolift onto the bridge was made accessible via a door between duty stations.



The *U.S.S. Enterprise* bridge of 2257 was a more colorful space, and benefitted from Starfleet's many technological advances since the vessel was first launched.



The main viewscreen was significantly improved over the previous, smaller version. The new installation offered a wider viewing angle and was capable of displaying tactical data and information over a direct view into space.

The helm and navigation consoles were marginally wider, and continued the red color accents that had been introduced to the safety barriers and turbolift doors.

Status lighting had been incorporated into the barriers separating the upper and lower levels of the bridge, and around the edges of display screens and duty stations. During a red alert, they would switch automatically from white to bright red.

The location of the main turbolift entrance to the bridge was set back, enabling personnel to access a corridor that ran behind the duty stations on the upper level of the bridge.

UNIFORMS AND INSIGNIA 2257

Starfleet issued a new uniform to the crew of the *U.S.S. Enterprise* in 2257, to bring it more into keeping with the standard uniform in use across much of the fleet. Its introduction of strong primary colors would become a Starfleet hallmark.

While there was generally a consistent level of standardization in Starfleet uniforms, it was hard to roll out updated designs across the entire fleet at once. Consequently, it was not uncommon for crews of different ships to encounter those of other vessels wearing different uniforms. In 2257, Captain Christopher Pike spent a short period in command of the *U.S.S. Discovery* while the *Enterprise* was undergoing repairs, and his recently-issued uniform – with its striking yellow tunic – stood in contrast to the familiar blue outfit worn by crews aboard many Starfleet ships at that time, including the *Discovery*. The new uniform combined the practical elements of the standard uniform, such as its front-fastening tunic and reinforced fabric panels, with an overall look that harked back to the crew uniforms in common usage when the *Enterprise* began its mission several years previously – a

colored tunic with a black collar, worn with black pants and boots. Now, however, the muted shades of those uniforms had been replaced by a bolder color scheme, utilizing sharp primary colors to denote a crew member's operational division. Pike's bright yellow tunic showed he was a member of the command division, for example. On the standard blue uniform, departments were indicated by colored metallic panels incorporated into the sides of the uniform tunics and other detailing. A new system of displaying a crew member's rank was also introduced at this time, via a set of bands encircling the sleeve cuffs of the uniform. This braiding was made of a metallic material that echoed the color of the wearer's tunic – a red shirt would have metallic red braids, for example – with the thickness and number of bands denoting the rank.



New uniforms issued to the crew of the *U.S.S. Enterprise* in 2257 were based on the existing blue Starfleet uniforms in use across the fleet at that time. Bright primary colors were used to denote a crew members division, with rank braids on each sleeve. The black pants, boots, and collars of the previous *Enterprise* uniform were retained.



COMMAND

The command insignia was an elongated star inside the ship's delta emblem, worn on a yellow uniform tunic.



OPERATIONS

A stylized symbol of a tool featured on the badge of engineering and operations staff, worn on a red uniform tunic.



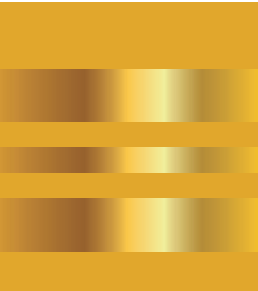
SCIENCE

The symbol indicating science and medical staff was a stylized planet consisting of two overlapping circles, worn on a blue tunic.



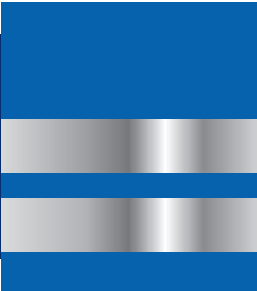
MEDICAL

Medical staff wore a clinical white version of the standard duty uniform, with a red cross symbol on their Starfleet badge.



CAPTAIN

The captain's rank was designated by three gold bands on the sleeve cuffs of their uniform. The two outer bands were wider than the band in the middle.



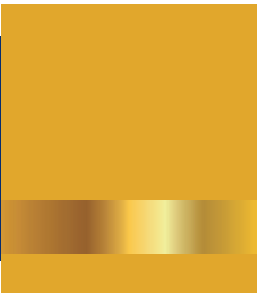
COMMANDER

The rank of commander was designated by two bands on the sleeve cuffs of the uniform. The color of each rank band was coordinated with an officer's uniform tunic color.



LIEUTENANT COMMANDER

The rank of lieutenant commander was designated by metallic cuff bands of two different widths.



LIEUTENANT

The rank of lieutenant was designated by a single band on the cuffs of their uniform tunic sleeves. This matched the tunic color of the crew member's division.



COMMAND UNIFORM

The command division was represented by the primary yellow color of the uniform tunic, as worn by Captain Christopher Pike. All uniforms featured a black collar, pants, and boots.

SCIENCE UNIFORM

Members of the *Enterprise* crew's science division, such as Mr. Spock, wore blue tunics. These tunics were close fitting and secured by a fastener at the front.

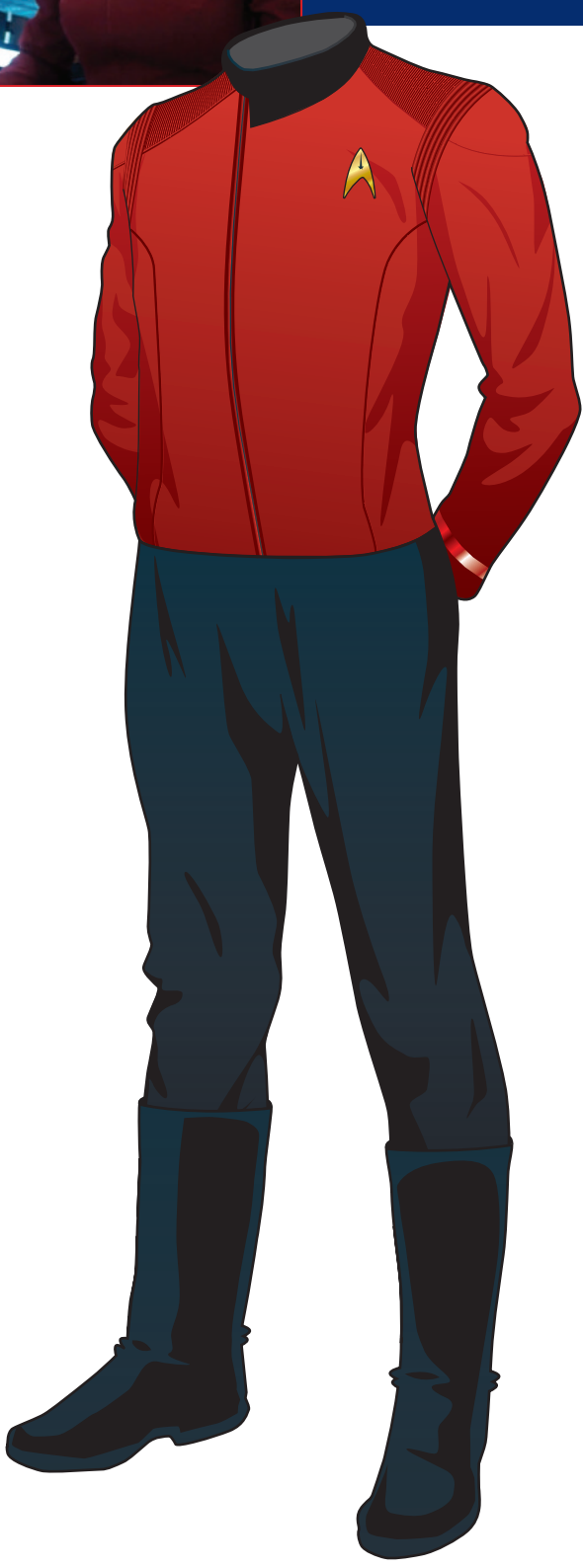
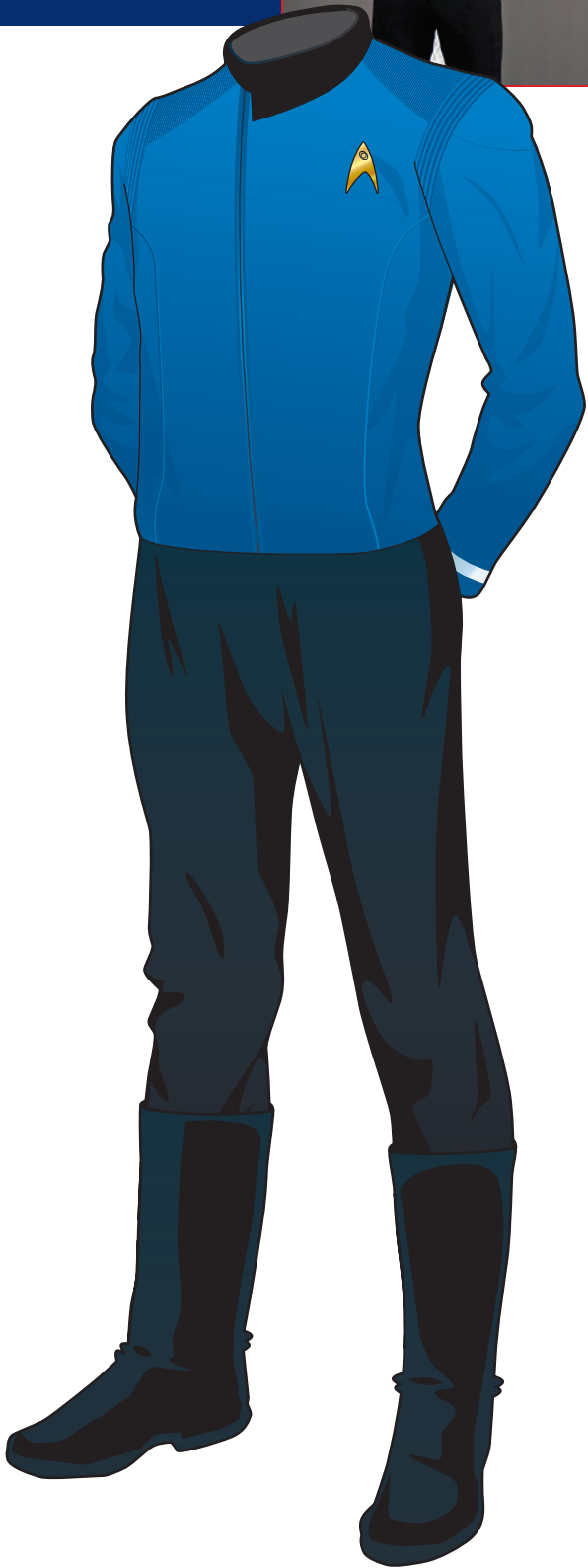
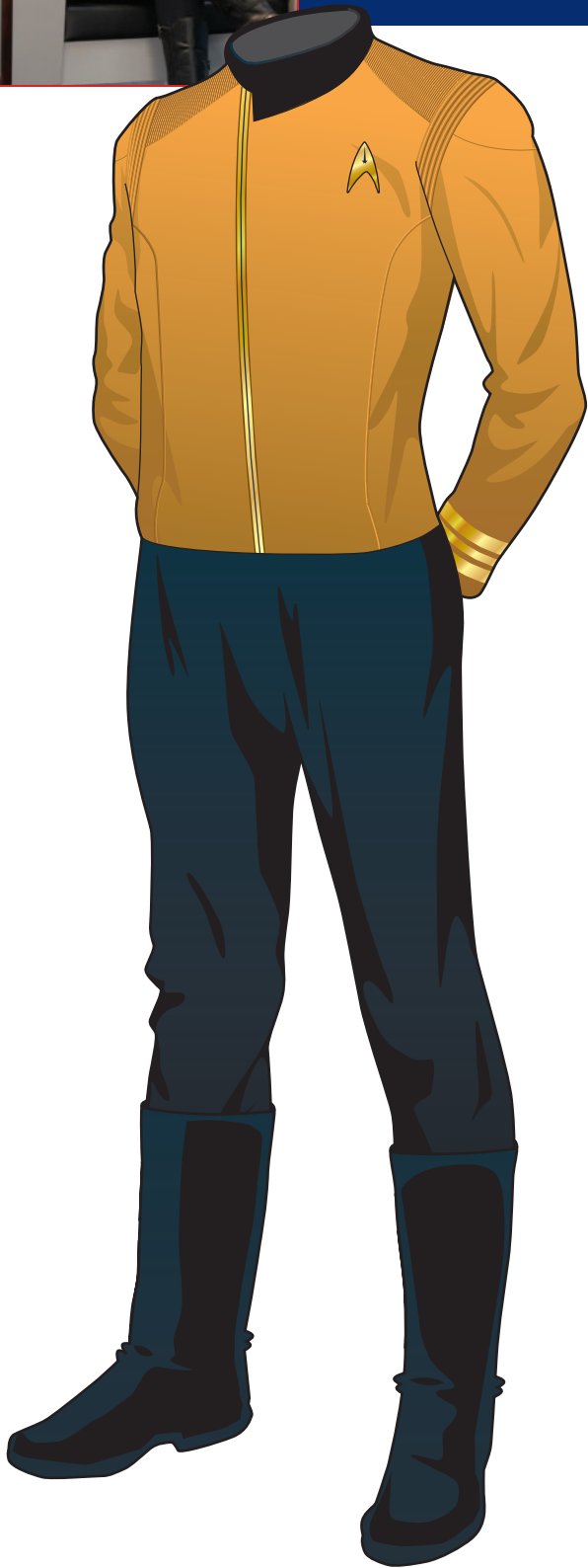


DUTY UNIFORM

The duty uniforms of operational personnel, including communications officers and engineers, wore a primary red color. Their rank was indicated on their sleeves by a coordinated metallic stripe.

DUTY UNIFORM

A variant on the standard duty uniform allowed crew members to wear a skirt with boots instead of pants. Black leggings could also be worn. Security officers wore red tunics.



PHASER PISTOL 2257

By the mid-23rd century, hand phasers were replacing laser pistols as the standard issue sidearm of Starfleet crews, but the new weapons owed much to their predecessors.



Captain Pike's landing party carried type-2 phasers for protection as they investigated the wreckage of the *U.S.S. Hiawatha*.

During its first years of service, the landing parties and security details of the *U.S.S. Enterprise* were issued with hand-held laser pistols. These directed-energy weapons had superseded phase-modulated sidearms such as phase-pistols, widely used during the preceeding century. Weapon technology had moved on, however, and by 2257 a new type of personal weapon was being issued by Starfleet that combined the strengths of both into a versatile sidearm offering greater flexibility and power than the weapons they had replaced.

The phasers – known as the type-2 phaser pistol – were an evolutionary step forward, with functionality familiar from both the older laser pistols and the phasers in general use a decade later. Most notable of these similarities was the inclusion of barrel-mounted dials used to adjust the power output of the weapon, and a

trio of selectable beam emitters at the front, which determined the strength and range of the phaser beam. A dial at the rear of the barrel allowed the user to adjust the energy output level of the pistol's pre-fire chamber.

The older phase-pistols had only two power settings – stun and kill – and the newer phaser echoed this binary choice of energy settings via toggle switches in the handgrip and on a control on the upper rear face of the weapon. This gave users the option of changing levels quickly during combat, but additional controls meant the phaser's power and force settings could be adjusted to a wider variety of energy strengths in less fraught situations.

This design also introduced the concept of a detachable unit, the type-1 phaser, which retained the versatility of the type-2 weapon in a smaller form factor.

EVOLUTION

Despite a mission statement to explore the Galaxy in peace, the need for crews to be able to defend themselves was recognized by Starfleet. Consequently, their weapons development program was robust, and by 2257, the laser pistol had been replaced by a handheld phaser.

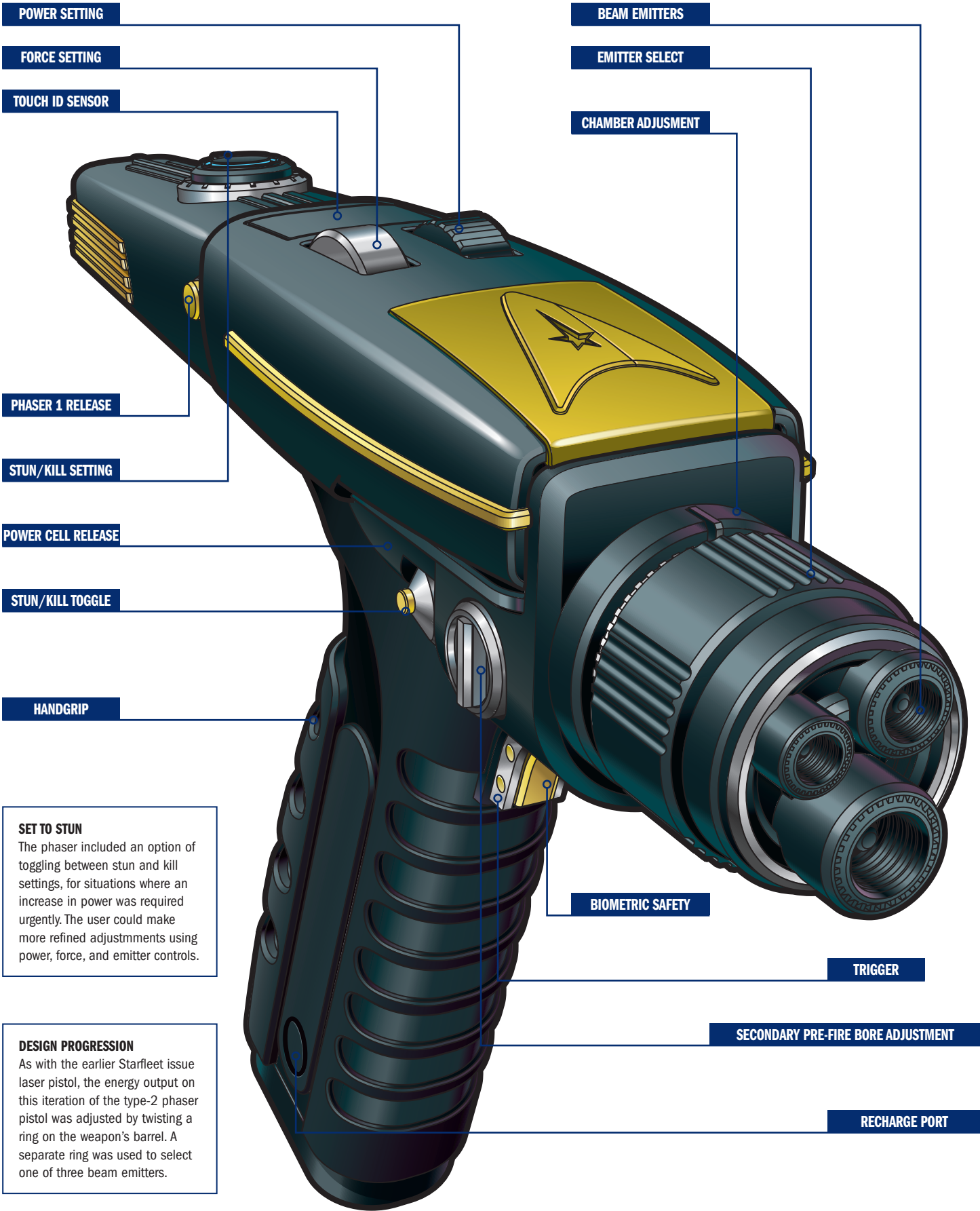


The type of phaser that was in use in 2257 had elements, such as an adjustable barrel, that were reminiscent of the laser pistol in use immediately before it, but it was a major technological step forward.



This model of phaser introduced a modular design that combined a small rectangular type-1 unit, with a larger type-2 body that contained a power pack in the handle and focusing controls in the barrel.

TYPE-2 PHASER CONFIGURATION



COMMUNICATORS 2257

The hand-held communicator issued by Starfleet in the late 2250s followed the long trend of rapid advances in mobile communication technology, and was an essential tool for all personnel.

Effective communications between crew members of a landing party could be a matter of life and death for Starfleet personnel exploring strange – and often dangerous – new worlds. The standard issue communicator was therefore subject to continual improvements in build quality and technological capability.

The transparent device used by Captain Pike and his crew during their early voyages was a capable unit, but its control interface was basic and its components easily damaged in extreme conditions. The next iteration was a more rugged proposition, with its workings encased in a solid metal body and a wider variety of controls within easily operable reach of the user's fingers.

Like the earlier model, this communicator was dominated by an antenna grid that doubled as a protective cover. Cast in a bronzed metal alloy, the grid was patterned with a

precise arrangement of 58 small circular holes. These holes, combined with micro-circuits inside the antenna, were optimized to receive and transmit a signal over vast distances, keeping landing party members within constant reach of each other and their starship.

Unlike most Starfleet communicators, this version featured several controls and ports around the outside faces of the device, meaning that the model could be operated with one hand if necessary, and some functions could be utilized with the antenna closed. These included a recharge port and a peripheral port on the bottom edge, the latter of which enabled crew members to combine the communicator with other equipment via a wired connection. A data card could also be inserted into this port.

Volume controls were positioned towards the upper end of the right-hand side of the device, alongside a “stealth

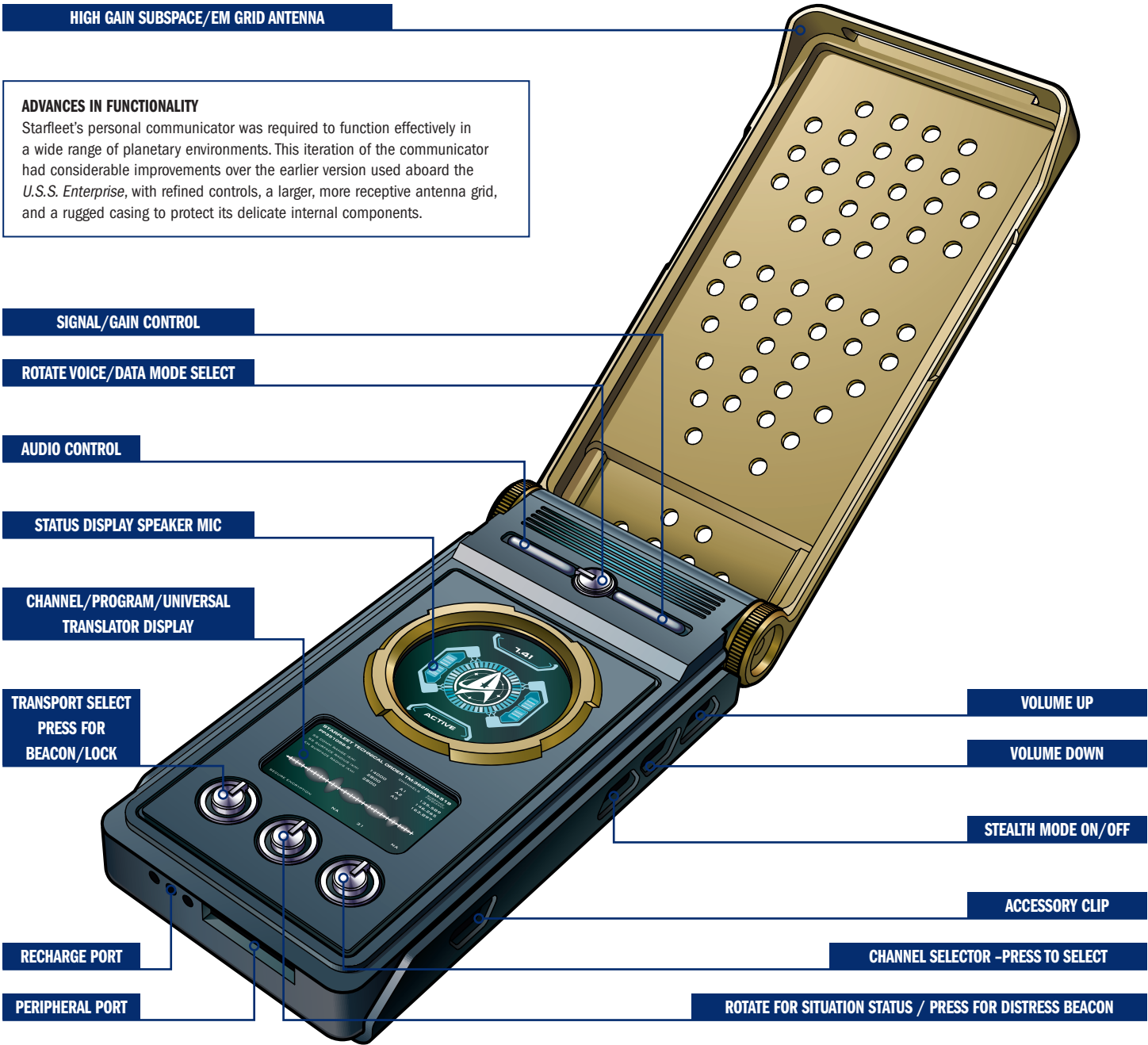
mode” switch, allowing the user to mute any incoming communications or audible notifications. This could be especially useful if a crew member was working in secret and did not want to attract attention to their presence or the existence of other Starfleet personnel.

Opening the antenna revealed the primary controls on the device, which featured two display panels and two sets of switches. The main circular readout displayed the status of an ongoing communication transmission, including information on signal amplitude, frequency, and gain. The speaker and microphone were incorporated into the display's components. A second display beneath this showed the selected broadcast channel, program

information, and a visual representation of the operational parameters of the built-in universal translator.

Just below the hinge of the antenna was a row of three controls: two bar-shaped buttons, either side of a small dial. This dial switched the device between audio and data transmission modes. The button on the left adjusted audio, while the button on the right was used to control the antenna's signal and gain strength. Three further dials at the foot of the main control panel included perhaps the most important safety functions of the communicator, enabling a crew member to send an immediate distress signal or to engage a locked transporter beacon for emergency beam-out.

COMMUNICATOR CONFIGURATION



LONG DISTANCE CALL

Despite their small size, Starfleet communicators were incredibly powerful devices that enabled crew members to speak with each other even when separated by a planetary atmosphere.



The communicator was a flip-top unit with the antenna built into the top. The controls were inside and could be used to control the frequency and volume of the transmissions.



Communicators could also be used for direct contact between personnel aboard starships. This might happen if the intra-ship communications systems had been rendered inoperable or been otherwise compromised.

TRICORDER 2257

A versatile scanning device, there were numerous design variations of the Starfleet tricorder in use during the 23rd century, including this robust model.



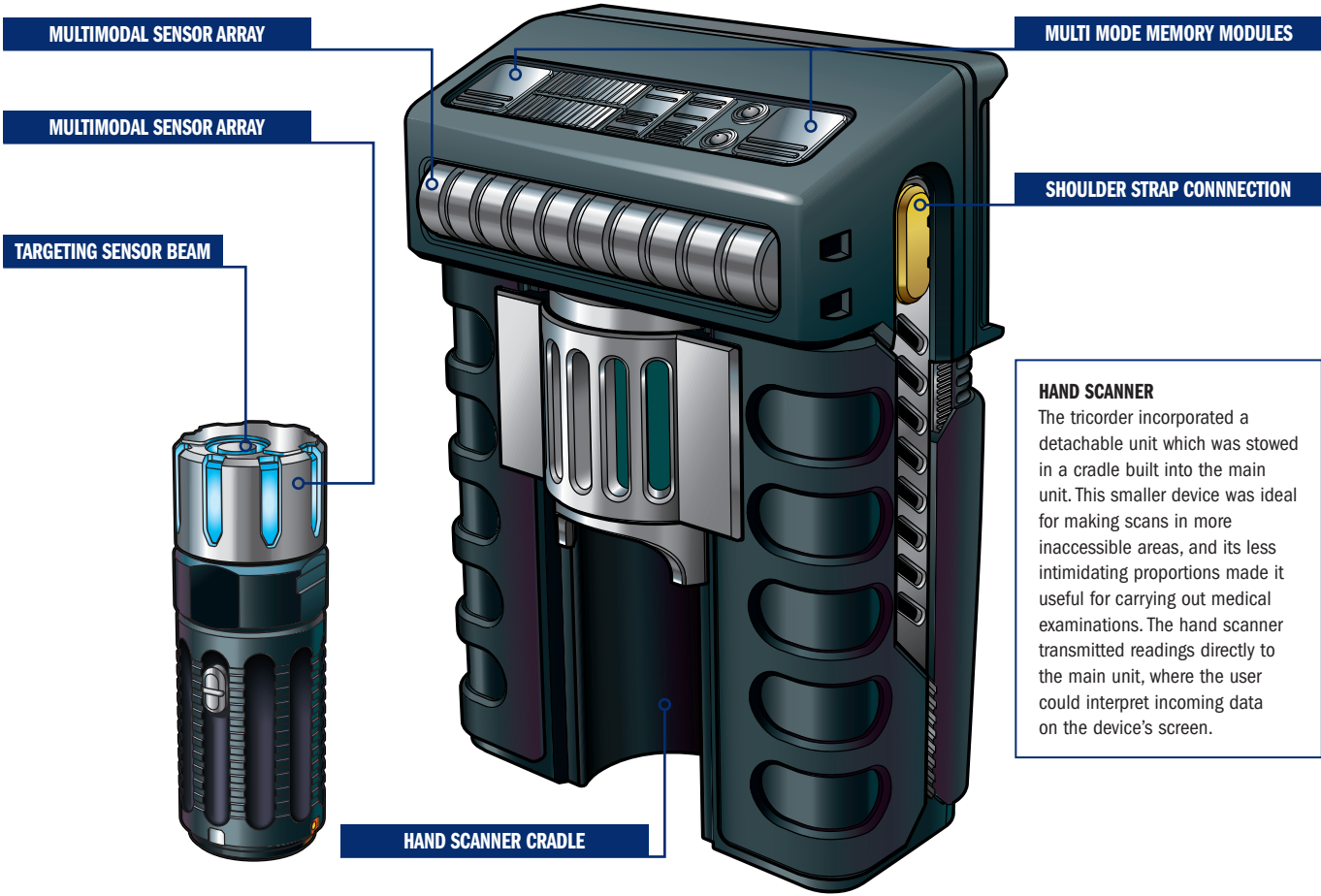
The tricorder in use in 2257 had a hard-wearing design and included a detachable hand scanner.

The hard-wearing tricorder used by the crews of the *U.S.S. Enterprise*, the *U.S.S. Discovery*, and other Starfleet vessels during 2257 paved the way for future devices. Whereas just a few years previously landing parties had carried a number of scientific instruments with them when beaming down to new planets, now that the functions of those instruments had been combined into a single unit, it was possible to send a smaller number of crew members into untested environments, and with less baggage to hamper their mission.

The tricorder could carry out a wide range of sensor readings through an multimodal array on the rear of the

unit. It had a scanning range of 25 kilometers with a bandwidth from .03 microns to 46mm, across five frequencies – alpha, beta, delta, gamma, and omega. A bank of switches on the control interface allowed the user to select which of the frequencies the device would scan during a given pass. As with later tricorders, this device's standard scan set covered meteorological, geographical, and biological data, which was recorded on a pair of memory modules situated in its upper section, which also incorporated a touch display screen. 600 hours audio, visual, environmental, and meta-timecode data could also be recorded to the multi-mode memory modules.

SENSOR CAPABILITY



MOBILE LABORATORY

In the field the tricorder was nothing less than a science lab in the palm of your hand. It was pre-programmed with a subset of mission modes, including science, medical, engineering, and even a security mode, making the standard issue handset useful for all crew members, regardless of the user's discipline or department. These programs could be selected using a silver dial on the lower front face of the unit.

In addition to the program select dial and the scan frequency switches, the tricorder had a range of controls enabling the user to make fine adjustments as they took their readings. A bank of three dials governing scan range, field, and pattern were arranged to the left of the device's

touch screen, which conveyed sensor information and allowed the user to make further refinements to their scan parameters. An audio grill was positioned to the right of the screen, above a dual-function dial operating the tricorder's audio and visual recording capabilities. Pushing the dial engaged or stopped recording, while rotating it initiated playback.

A cavity on the rear of the device held a removeable hand scanner. This smaller device was particularly useful for carrying out targetted scans at closer quarters, and proved helpful during medical examinations where the less intimidating device caused less distress to patients. An optional shoulder strap could be easily attached to the tricorder, making it even more portable.

PRIMARY CONTROLS





CHAPTER 4

U.S.S. ENTERPRISE

NCC-1701

2265-2269



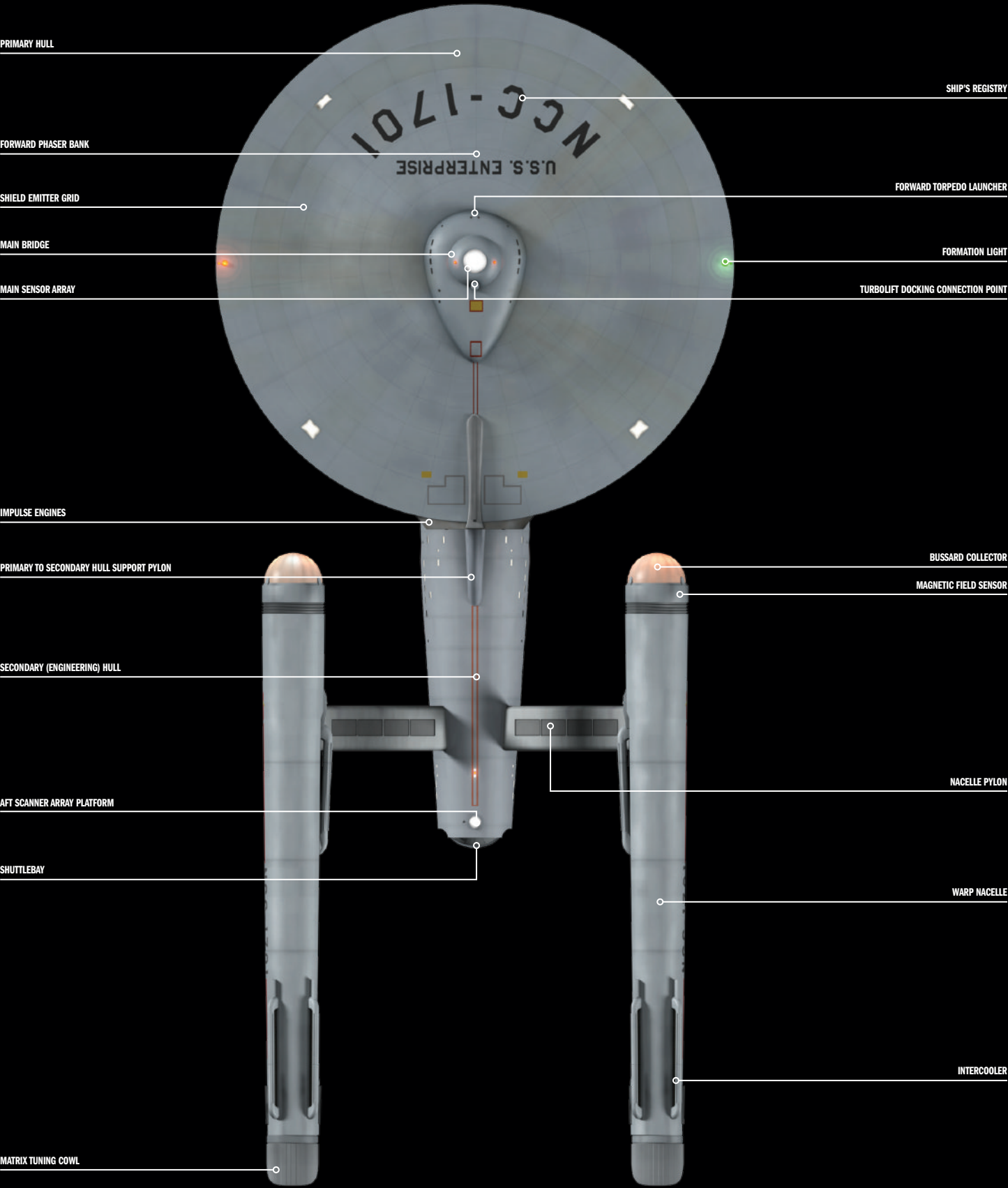
ANNOTATED EXTERIOR VIEWS

It was during Captain James T. Kirk’s tenure as commanding officer of the *U.S.S. Enterprise* NCC-1701 that the ship attained legendary status, over the course of a quite remarkable five-year mission of exploration.

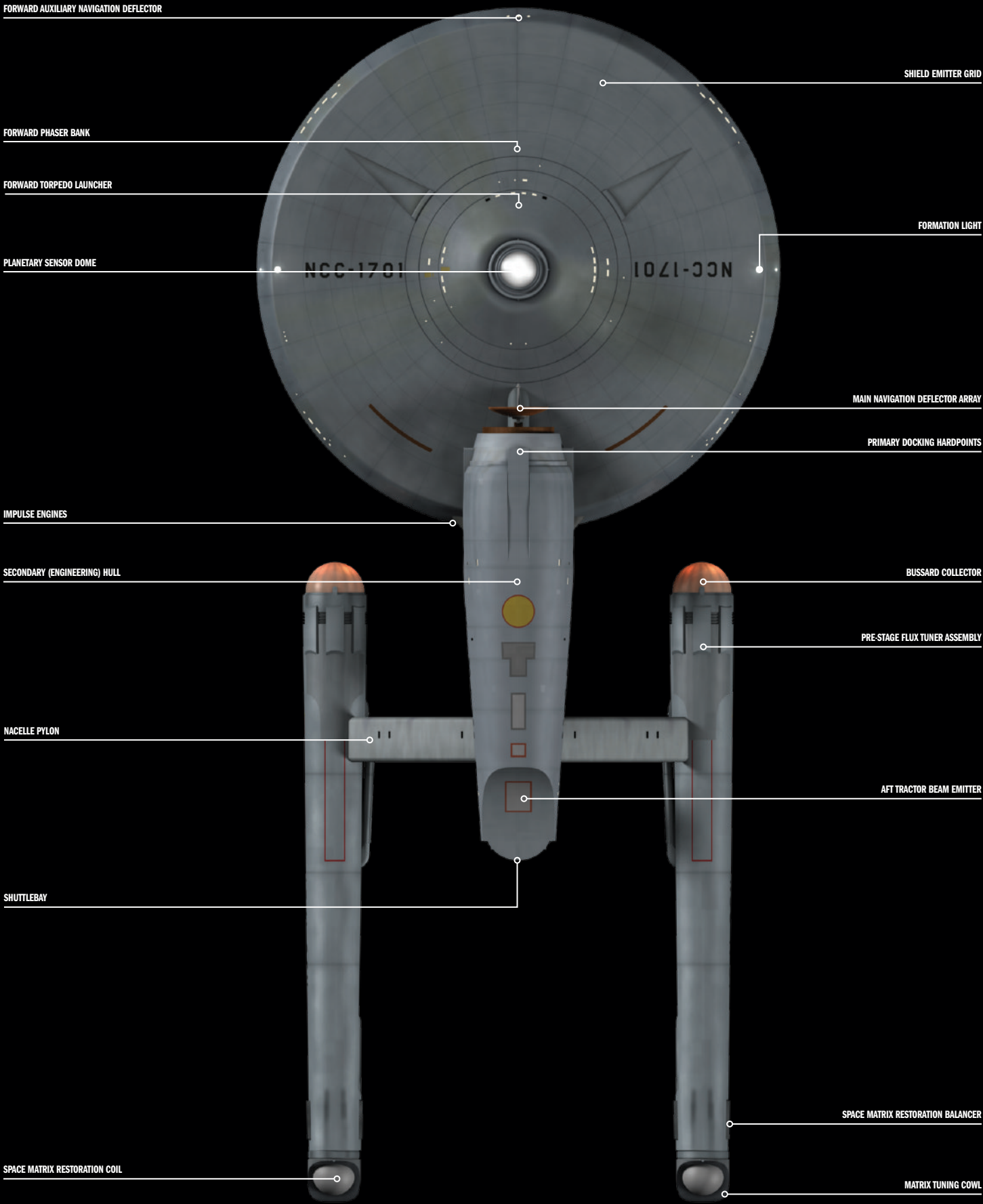
By 2265, the *U.S.S. Enterprise* NCC-1701 had a new captain, in the form of James Tiberius Kirk, who at 32 years of age became the youngest ever officer to assume command of a *Constitution*-class vessel. As it embarked upon its next five-year mission into deep space, the *U.S.S. Enterprise* more closely resembled the ship that had been constructed under the watchful eye of Captain Robert April in 2245. The ship had, however, retained alterations that had been implemented during Pike’s command. The forward-facing antennas originally attached to the Bussard collectors had been dispensed with, for example, while the navigation deflector dish at the front of the secondary hull was a smaller yet more advanced version of the original instrument.

Between the years 2265 and 2270, the *Enterprise* encountered many strange new worlds and phenomena, and made first contact with numerous life forms and civilizations. The ship passed beyond the galactic barrier, battled numerous foes including the resurgent Romulan Empire and the ever-present Klingons, discovered the existence of a mirror universe, and even traveled through time on multiple occasions. Although the *Enterprise* proved to be an extremely tough, versatile, and resilient ship during its lengthy service, outclassing and outlasting most of its *Constitution*-class sister ships, such action eventually took its toll. Upon completion of its five-year mission, it was time for the NCC-1701 to undergo a comprehensive refit.

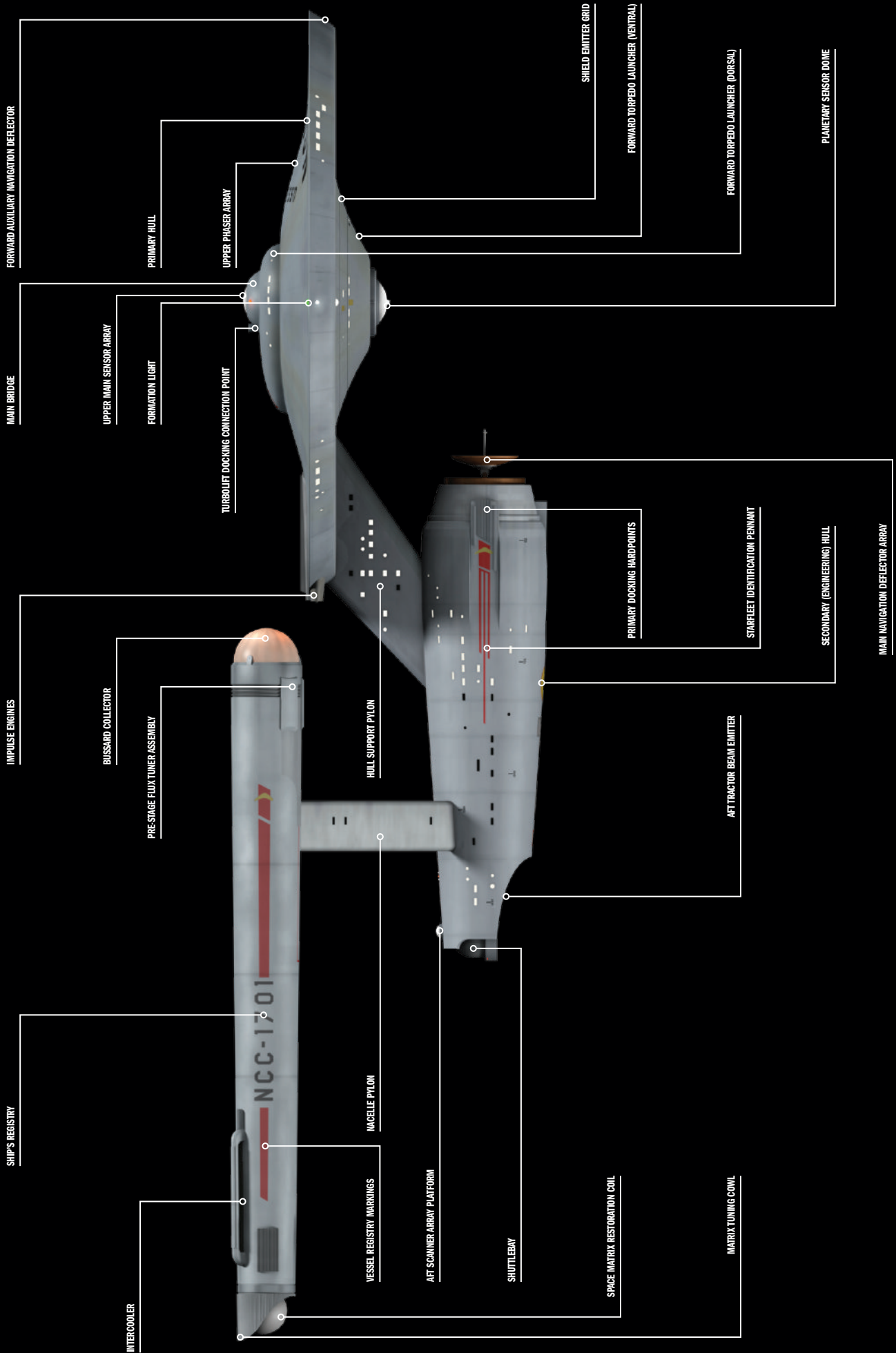
DORSAL VIEW



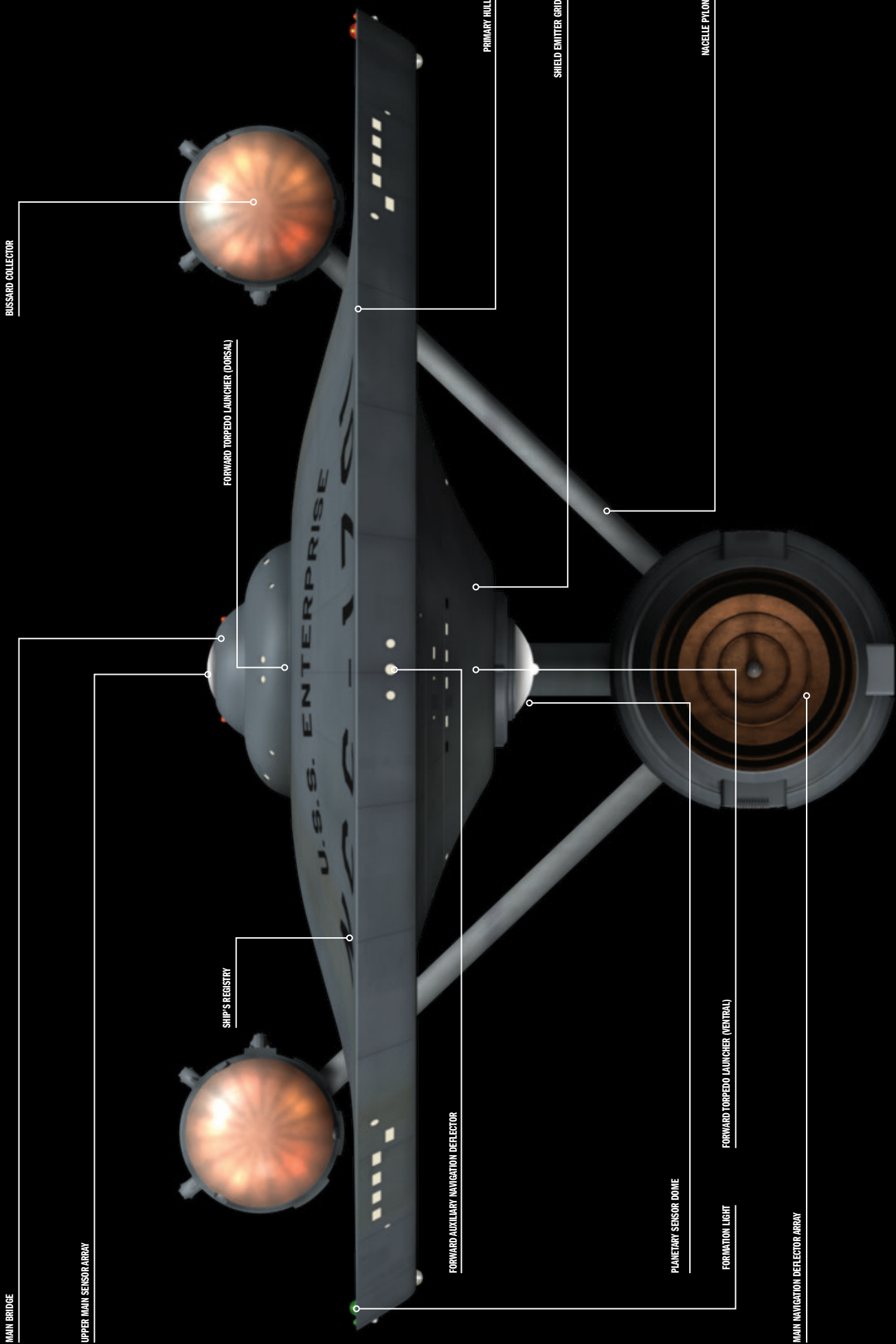
VENTRAL VIEW



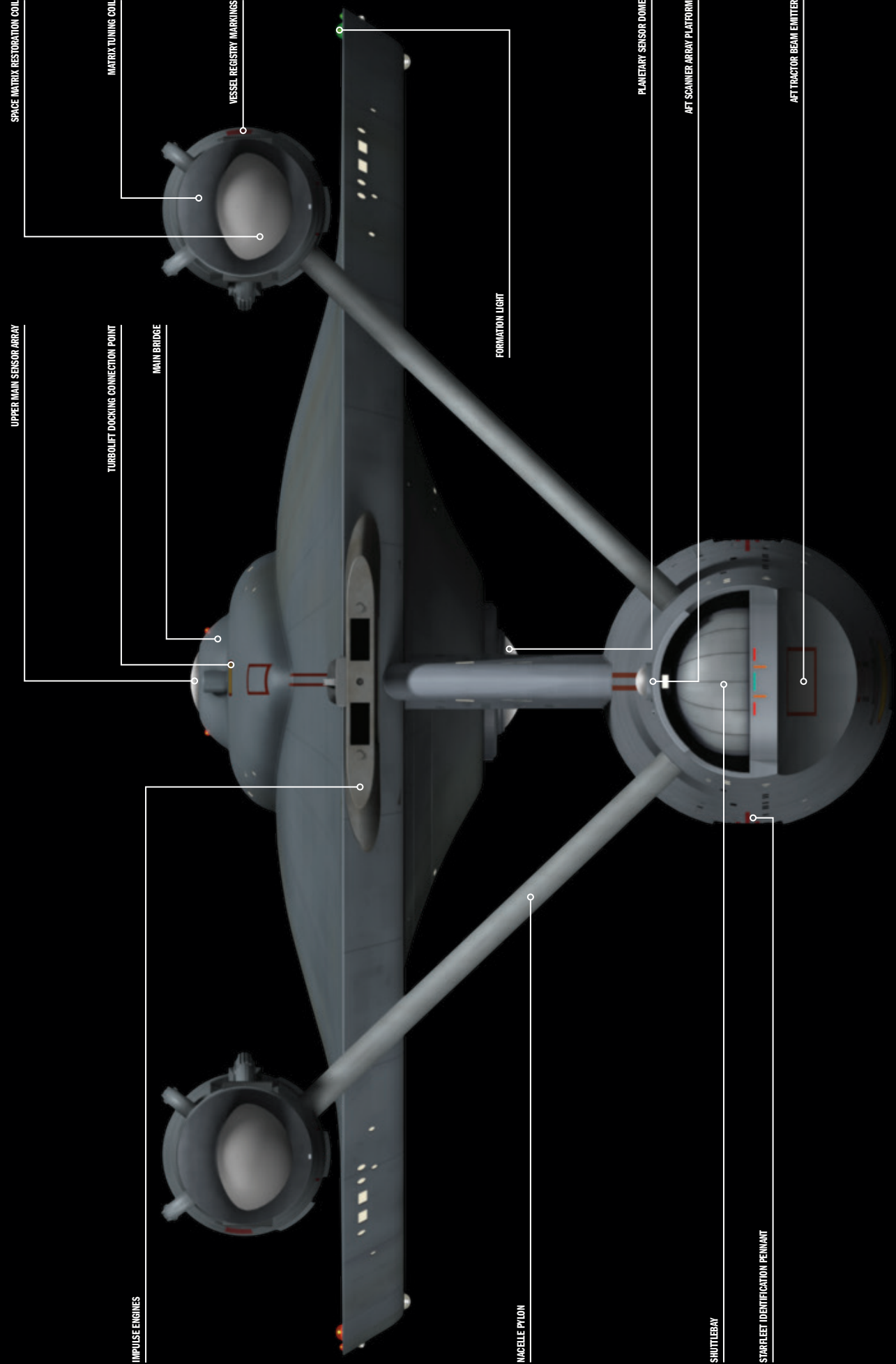
PORT ELEVATION



FRONT ELEVATION



AFT ELEVATION



MAIN BRIDGE

The bridge of the Starship *Enterprise* was spacious enough for comfort yet compact enough for efficiency, ensuring that all officers could carry out their roles to the best of their ability.

The *Enterprise* bridge during the 2260s was circular and split across two levels, with a red handrail separating them. Traffic between both levels was facilitated by three short staircases. The captain's station was a single chair on a slightly raised platform in the center of the bridge, from where they could issue commands, receive reports, watch the main viewscreen, speak to the crew, and personally control and override command functions using control panels incorporated into the arms of the chair. The basic bridge layout of central command chairs encircled by other duty stations would remain the same well into the next century on almost all large Starfleet vessels.

DUTY STATIONS

Forward of the captain's position, facing the main screen, was a single command module comprised of the helm console to the left, and the navigation console to the right. In addition to their primary functions, the helmsman and navigator were also responsible for operating the ship's weapons systems.

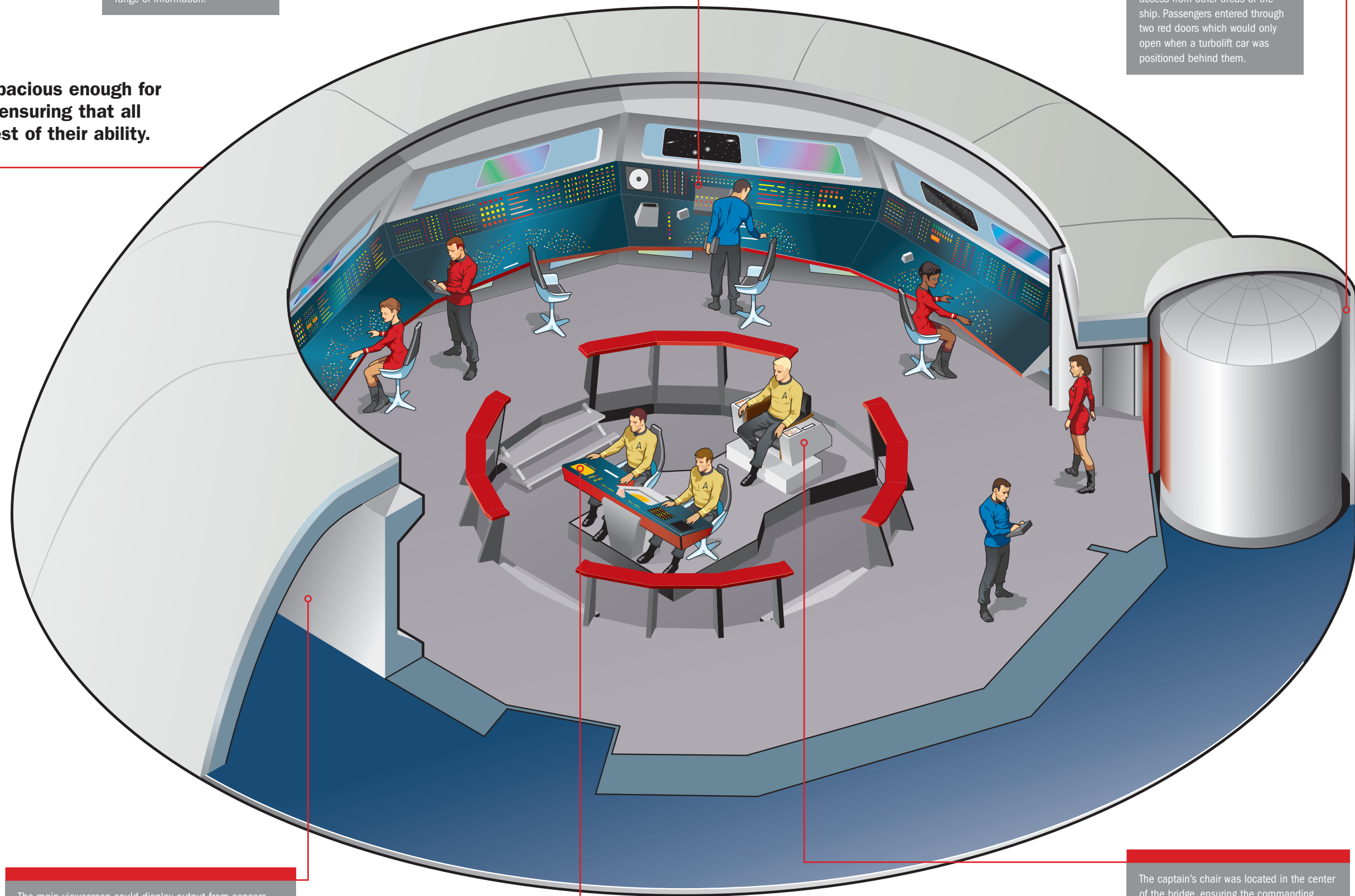
Located on the upper level of the bridge were the duty stations controlling and monitoring the ship's major functions, including defense subsystems, defense and weapons, navigation, command intelligence (usually manned by the Science Officer), communications, engineering, and environmental systems. If required, the Chief Engineer could control most engineering functions from the engineering station on the bridge.



The bridge is the nerve center of the U.S.S. *Enterprise*. Command, science, and engineering officers work together to ensure the smooth running of the ship.

Above every duty console were multiple screens displaying a wide range of information.

A turbolift at the rear left of the bridge was the main point of access from other areas of the ship. Passengers entered through two red doors which would only open when a turbolift car was positioned behind them.



The main viewscreen could display output from sensors, visual communications, or information from tactical and library computers. Function lights moved from left to right across the bottom of the screen. The viewscreen was at a 36 degree angle counterclockwise from forward (forward being directly opposite the turbolift).

The two consoles closest to the viewscreen were crewed by the navigator and the helmsman. Between them was the astrogator, used to plot the ship's course.

The captain's chair was located in the center of the bridge, ensuring the commanding officer was always in the middle of things. It was perfectly placed to give the captain a clear view of the screen in front and easy access to any of the duty stations.

CAPTAIN'S CHAIR

Positioned equidistantly from the duty stations on the bridge, the captain was able to gain instant updates on the status of the vessel and its crew during missions.



The controls on the captain's chair gave him limited control of the ship's communications and other systems.

The captain's chair, or command chair, took the form of a low-backed, padded seat with armrests, that sat within a light alloy base. The rectangular footplate was directly anchored to the deck, providing stability during combat and other scenarios. The chair was designed to swivel so that the captain could turn to any member of the bridge crew at will.

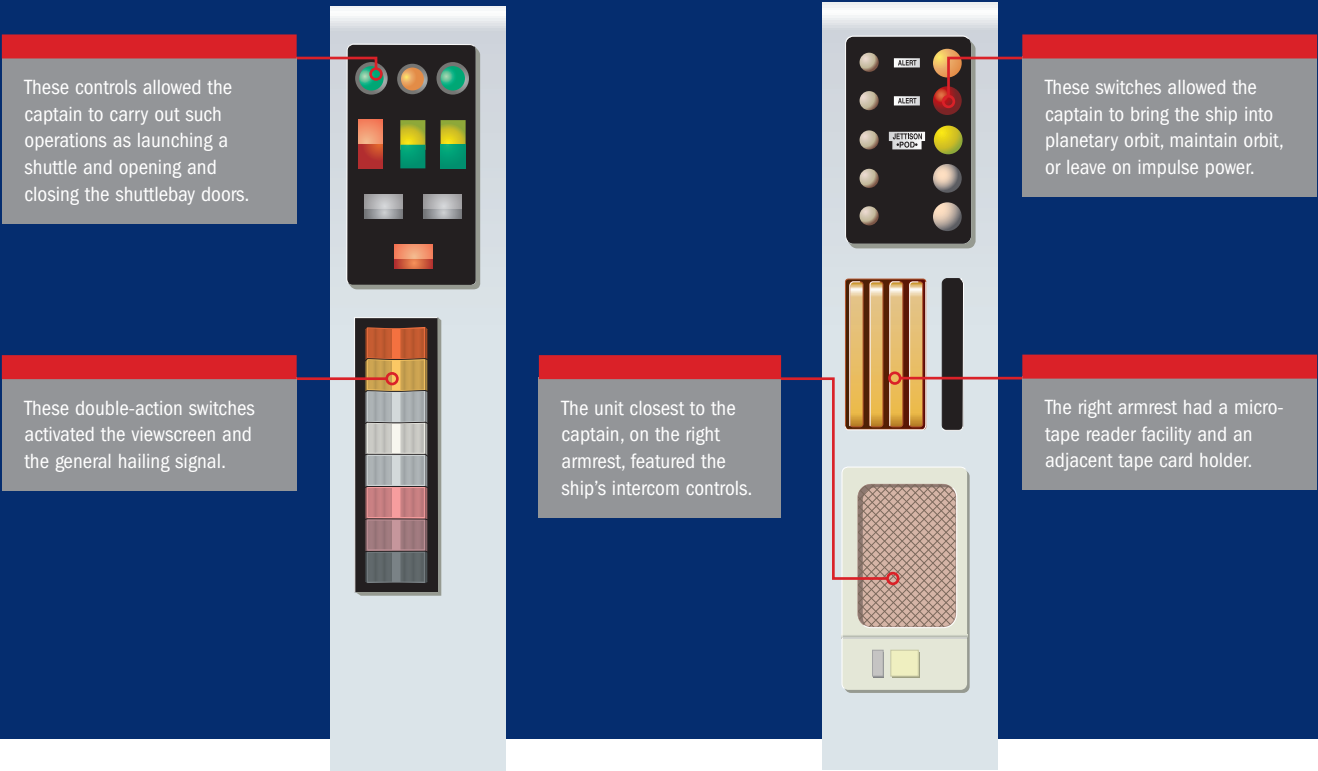
A number of controls were incorporated into the left and right armrests; these allowed the captain to access several of the ship's systems. Three distinct control panels were built into the right-hand armrest, including a push-button control that allowed the captain immediate access to the

ship's intercom. In the center of this armrest was a dedicated microtape reader that allowed the captain to access audio readouts of library or science tapes without having to leave his duty station. A panel at the front could be used to perform preset operations such as bringing the *Enterprise* into orbit around a planet, maintaining that orbit, and leaving under impulse power.

The left-hand armrest had two panels into which commands could be programmed. Common functions of these panels included the launching of a shuttle from the rear of the ship and control of the shuttlebay doors, activation of the main viewscreen, and activation of a ship-wide hailing signal.

CAPTAIN'S CHAIR CONTROLS

The armrests on the captain's chair were wide enough to incorporate several sets of essential controls. These allowed the captain to access the ship's database and take control of many of the ship's functions, including helm operation and communications.



In line with Starfleet's concept of flexibility in control systems, a wide selection of commands could be assigned to the various buttons of the chair's control panels. The rear control unit on the left-hand armrest, for example, offered the possibility of 16 different functions across its eight buttons. Lights embedded into each control pulsed in a set pattern to indicate which command parameters had been programmed into them.

HELM AND NAVIGATION

The combined helm and navigation stations were located in the center of the main bridge forward of the captain’s chair, controlling a wide range of essential systems including the ship’s weaponry and shields.

The *Enterprise* navigation and helm stations were combined on a single console known as the conn, where the controls required for interstellar flight, navigation, and combat were located.

Conn operations were manned by two officers: the helmsman, responsible for piloting the ship and managing the performance of the warp and impulse engines, and the navigator, who would plot the ship’s course and make warp speed and trajectory calculations. The two officers shared responsibility for tactical operations.

Arranged across three sections, the main helm control panel to the left operated maneuvering thrusters, impulse engines, and the warp drive, with a separate panel for

controlling speeds during warp. A retractable targeting scanner deployed from a recess when needed.

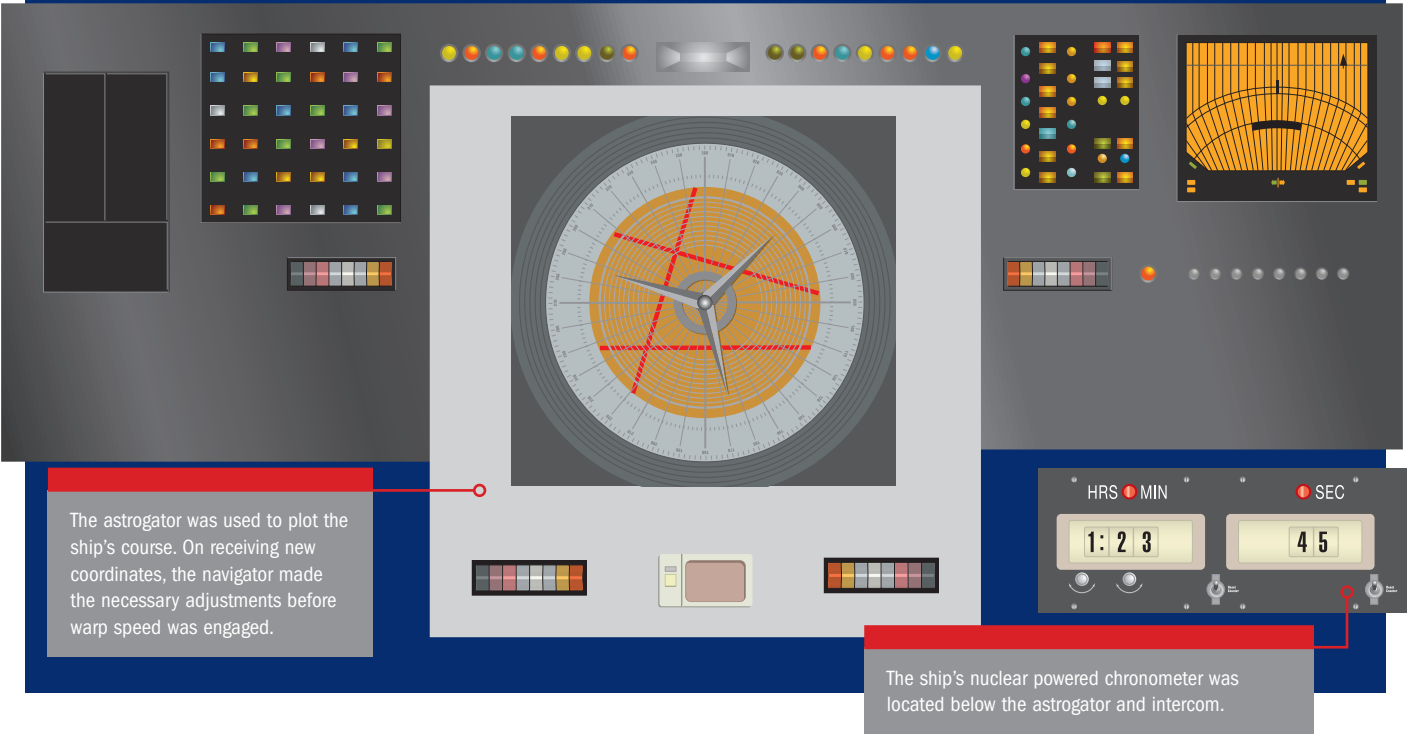
The central section of the conn was fitted with a number of sensor monitor lights, an alert status indicator, and the astrogator, utilised for long-range course plotting. The astrogator panel also featured the ship’s chronometer, an intercom, and tertiary switches for impulse power control and secondary weapons operation.

Course and heading data were input via the navigator’s station on the right, which incorporated the flight path indicator showing the ship’s current course and progress. Controls for the weapons systems on this panel duplicated those on the helm station.



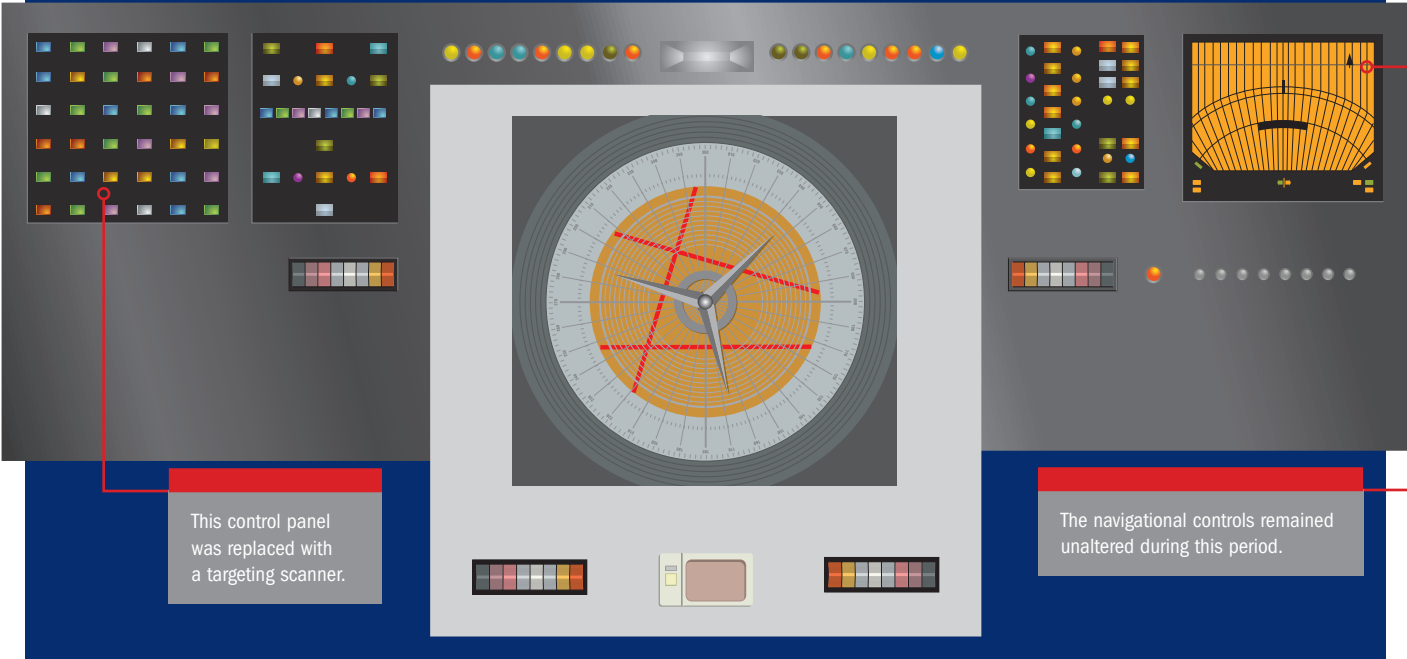
STANDARD LAYOUT

The conn underwent a refit following Captain Christopher Pike’s command, maintaining this layout between 2266 and 2269, during James T. Kirk’s first five-year mission as captain of the *U.S.S. Enterprise*.



DESIGN MODIFICATIONS

Prior to the standard layout of the conn detailed above, the helm station control panels were configured differently. The retractable targeting scanner was added early in the vessel’s five-year mission.



SCIENCE STATION

Sometimes referred to as the command intelligence station, the science station is among the most important areas on the bridge of any Starfleet vessel.



The science station was situated so that several officers could gather to observe and discuss the data on display.



The science station received its data from multiple sensor arrays, providing information on everything from incoming threats to spatial anomalies. The console connected its user to the ship's extensive computer library, which meant that sensor readings could be quickly corroborated with previously collected data.

The science officer aboard the *Enterprise* during this period was First Officer Spock, who worked from a permanent console on the bridge. His duty station consisted of several screens positioned above a control panel. These monitors could display a wide variety of scientific and technical information, and were linked directly to the library computer, which enabled the science officer to view everything from spatial anomalies to a crew member's records at the touch of a button.

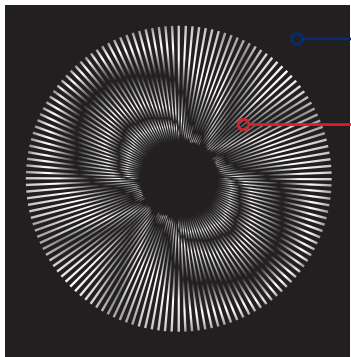
Each display had a specific function. Display one was the sensor activity monitor, giving an overall appraisal of the ship's various sensors. Display screen two revealed the interference pattern of the sensor's current bandwidth, allowing the science officer to fine tune specific sensors. The narrow rectangular display located directly above the library computer access buttons housed two adjacent bridge library computer monitors. These showed all activity of the library computer on the bridge.

The final four displays were all identical in size and were located in their own dedicated bank. The first monitor showed the status of library usage over intra-departmental activity, with the second display coordinating the allocation of library computer access between departments. The third monitor was used by the science officer to coordinate special departmental projects, while the fourth and final display showed mission-specific scientific activity.

The most prominent instrument on the console was the scientific viewer, which produced a visual real-time display of sensor and library computer data. The science officer could control the display of the viewer via an interface dial on the left of the unit.

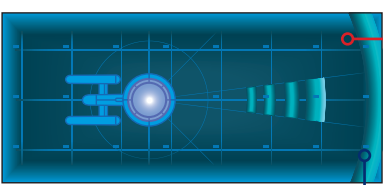
Early Starfleet computer systems relied on data disks for long-term information storage, and the science officer had the ability to play and record data from this port. Verbal interrogation of the library computer was also possible via a speaker located next to the library computer controls.

DISPLAYS AND DATA INTERFACES



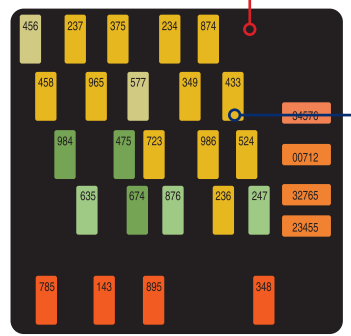
SENSOR BANDWIDTH DISPLAY

One of the most prominent features of the science station was a sensor bandwidth display located close to the viewing unit.




SCI SENSOR VIEWER SCREEN

The science station received data from the sensor arrays of the *Enterprise*, providing detailed information on any external threats or items of interest.



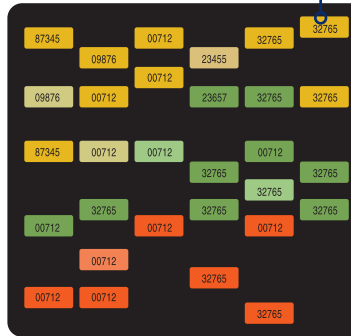
SENSOR ACTIVITY MONITOR

The science officer benefitted from access to a vast array of readouts, data, and instruments at the science station.

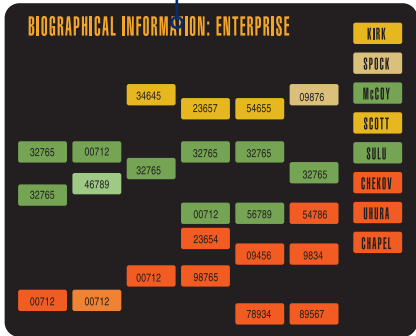


BRIDGE LIBRARY COMPUTER

The various controls at the station allowed the science officer to refine their sensor analysis on a particular anomaly or target, and offer the captain an optimized appraisal.



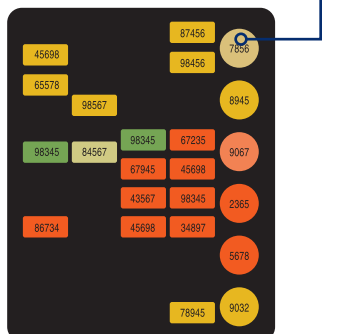
INTRASHIP COMPUTER MONITOR



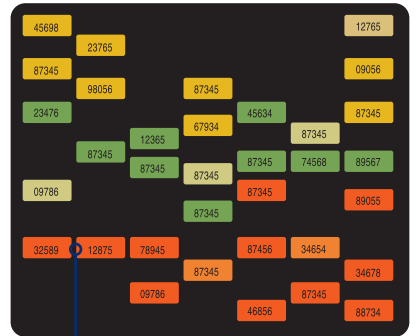
LIBRARY COMPUTER ALLOCATION

BIOGRAPHICAL INFORMATION: ENTERPRISE


KIRK
SPOCK
MCCOY
SCOTT
SULU
CHEKOV
TROTT
SHAPLE




MISSION OPERATIONS MONITOR



SPECIAL FUNCTIONS MONITOR



The science officer monitored and analyzed data as the ship's sensors fed information directly to his station.



Multiple readouts and instruments were arranged within easy reach from a seated position.

COMMUNICATIONS STATION

The communications console formed a vital element of the command area of the *U.S.S. Enterprise NCC-1701*, and played a central role in first contact scenarios during the ship's mission to seek out new civilizations.



Under normal operating protocols all hails to the *Enterprise* from nearby vessels would be received directly by the communications officer positioned on the bridge; consequently they needed to be fully aware of all Starfleet security protocols regarding the transmission and reception of information.

An essential requirement for any Starfleet vessel on a mission of exploration is the ability to communicate with other vessels and facilities. The very first deep space vessels such as *Enterprise NX-01* included a dedicated work area for the communications officer that was capable of translating alien messages, and the *Constitution*-class NCC-1701 was no exception, with its communications console located on the bridge in close proximity to Captain James T. Kirk.

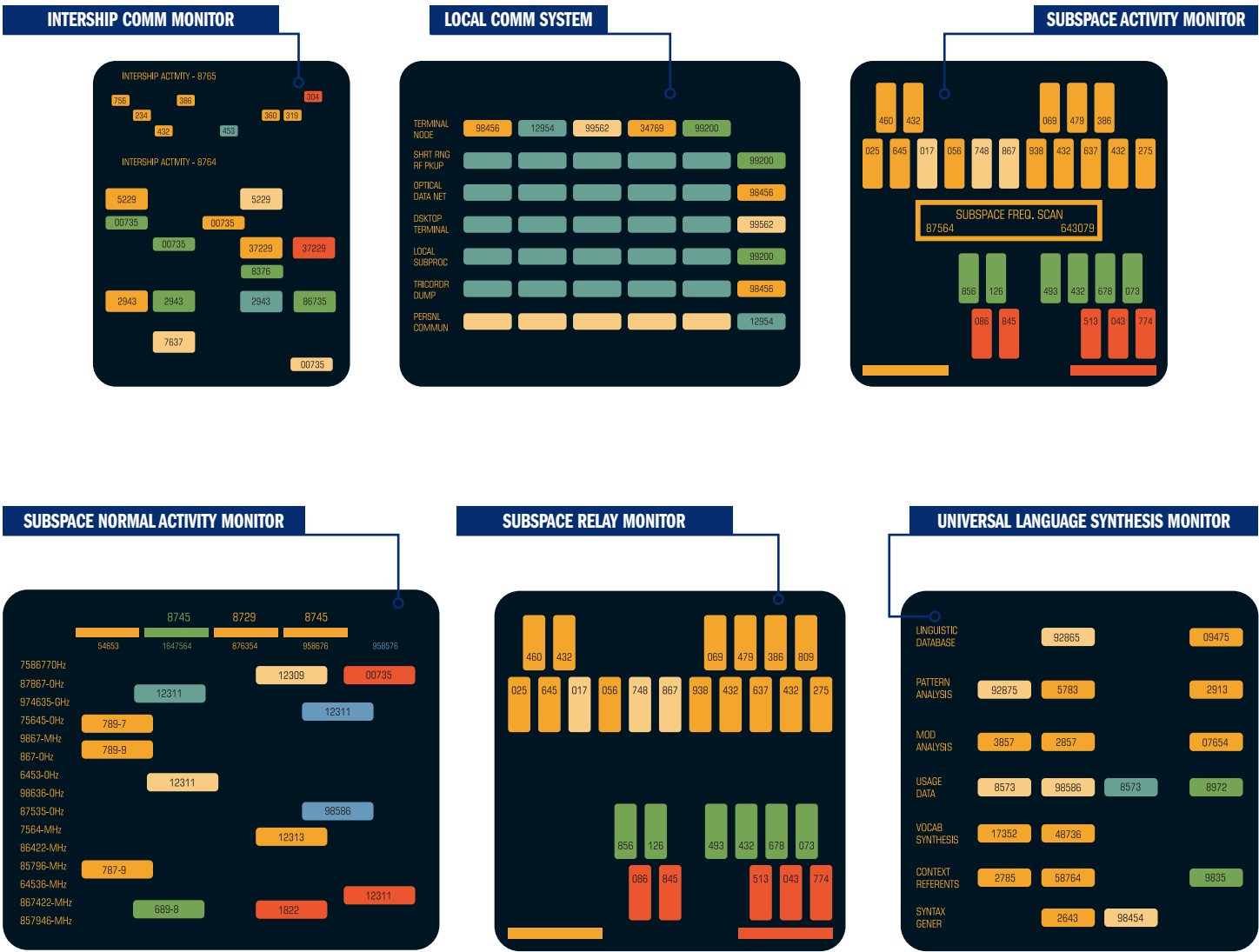
Eight monitor screens displayed a comprehensive amount of information, updated in real-time, enabling the communications officer to maintain an overview of developing situations.

The first screen was the ship-to-surface activity monitor, which examined landing party and private transmitter communications with the ship, forming a link to landing parties when undertaking missions. Located next to this display was the universal translator monitor, which matched

universal ideas, concepts, and brainwave patterns in order to translate alien languages into Federation standard languages – a crucial tool in first contact situations. This readout screen monitored the reception of alien language transmissions and coordinated with the library computer and universal translator language synthesis monitor (positioned at the far right of the console), allowing each transmission to be evaluated and a correct response to be delivered. This monitor also allowed the coordination of information from tricorders and personal communicators as well as the ship's own library system.

The monitoring of subspace communications was performed constantly by the sensors of the *Enterprise*, with the activity of Starfleet, civilian, or alien transmissions presented on the communication officer's third screen. Subspace frequency scans could be initiated by the officer as required, with particular transmissions intercepted, amplified, and decoded. The viewscreen to the right of the

DISPLAYS AND DATA INTERFACES



subspace activity monitor provided a wider amount of information on the frequencies of active space normal channels with frequencies grouped into 15 bands.

The fifth viewscreen displayed all of the communication activity taking place within the *Enterprise*, and allowed the monitoring of intership transmissions. Under certain conditions the communications officer would make shipwide announcements or patch the captain through from his command chair, providing instantaneous audio communication with the entire vessel. The sixth monitor screen was also concerned with localized communications, with the local communication system coordinating transmissions within the vessel and also the routing of data processing to the library computer. The seventh display was the subspace activity monitor, which gave a greater amount of information on the frequencies of active subspace channels, working in conjunction with the subspace relay monitor on the other side of the console.



The communications officer was responsible for monitoring subspace communications and disseminating information to all bridge crew personnel.

ENGINEERING STATION

The systems built into the engineering station duplicate many of the controls within main engineering, and allow the ship’s Chief Engineer to carry out a wide range of tasks and emergency procedures from the bridge.

The Constitution-class starship saw a considerable improvement in automated systems and control interfaces over their predecessors, and while areas such as main engineering had their own control systems located in the engine room there was still a need for a primary engineering station to be located on the main

bridge. From this station, the chief engineer could allocate resources, reroute power, or alter the configuration of the drive systems using the information provided via an array of monitors. These provided everything from detailed information on the warp drive system to a constantly updated data feed from the dilithium crystal chamber.

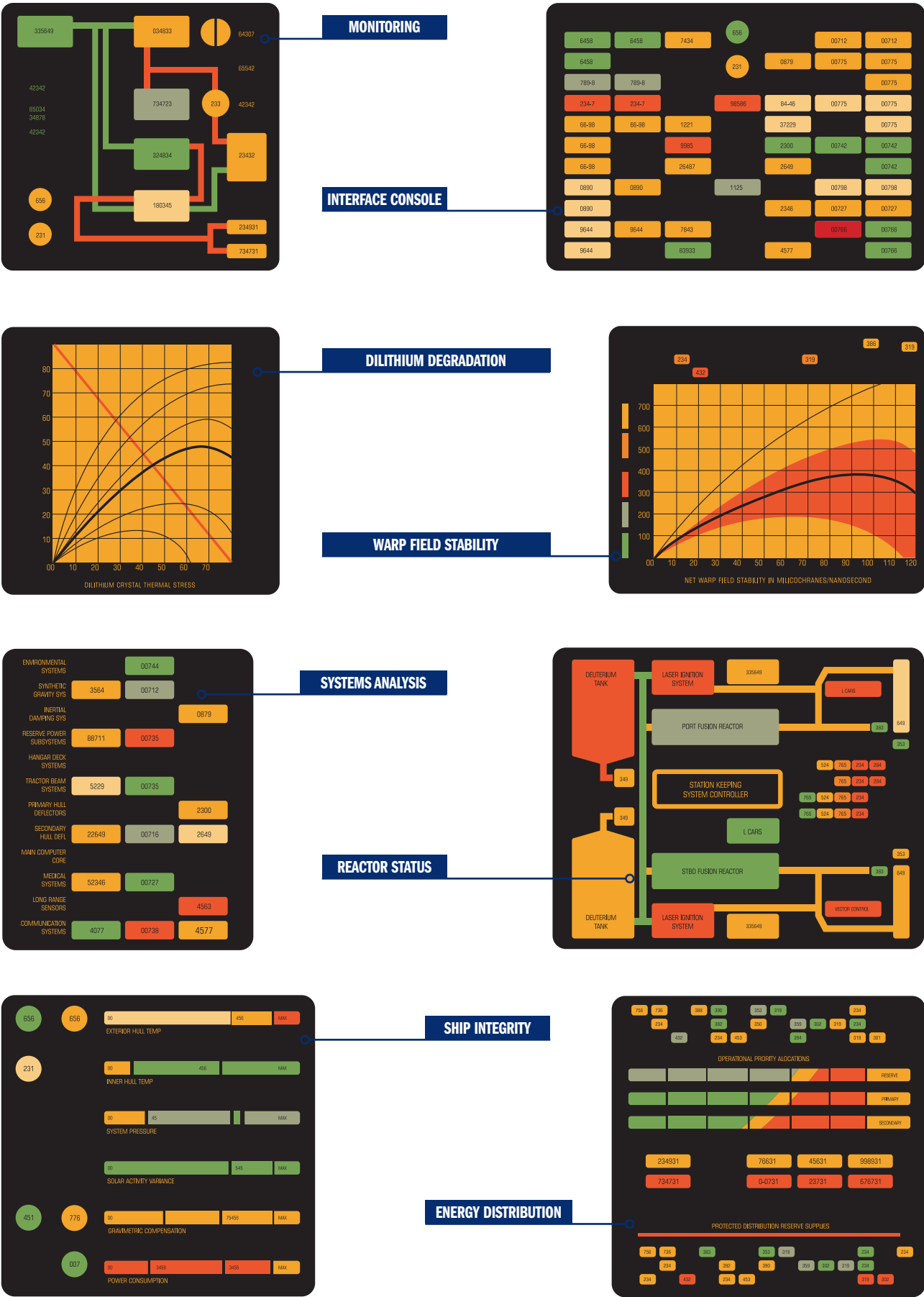


The systems built into the engineering station provided a wide range of continually updated data on the ship’s power usage, engine status, and warp field stability, and an array of touch-sensitive controls enabled the Chief Engineer to make immediate adjustments where necessary.

The engineering station offered a comprehensive overview of the ship’s primary systems and their current status. The engineer was able to monitor the ship’s environmental systems, artificial gravity, inertial dampening, reserve power subsystems, hangar deck, tractor beam systems, and primary and secondary hull deflector status. Information on the twin deuterium tanks, port and starboard fusion reactors, and laser ignition systems was continually illustrated on another screen, along with the operation of the vector control system and library computer

control. One of the most vital systems on any starship is its structural integrity system, and a dedicated monitor relayed data on detrimental forces at play on the exterior of the vessel, including solar activity variance, hull temperature, system pressure, gravimetric compensation, and power consumption. A sensor viewer and data card reader completed the suite of instruments available, along with a direct tie-in to the ship’s main computer, providing the engineer with access to the ship’s library and communications network.

DISPLAYS AND DATA INTERFACES



MAIN ENGINEERING

If the bridge of a starship can be likened to its brain, then its heart resides in main engineering. From there, the flow of a starship's massive power is controlled.

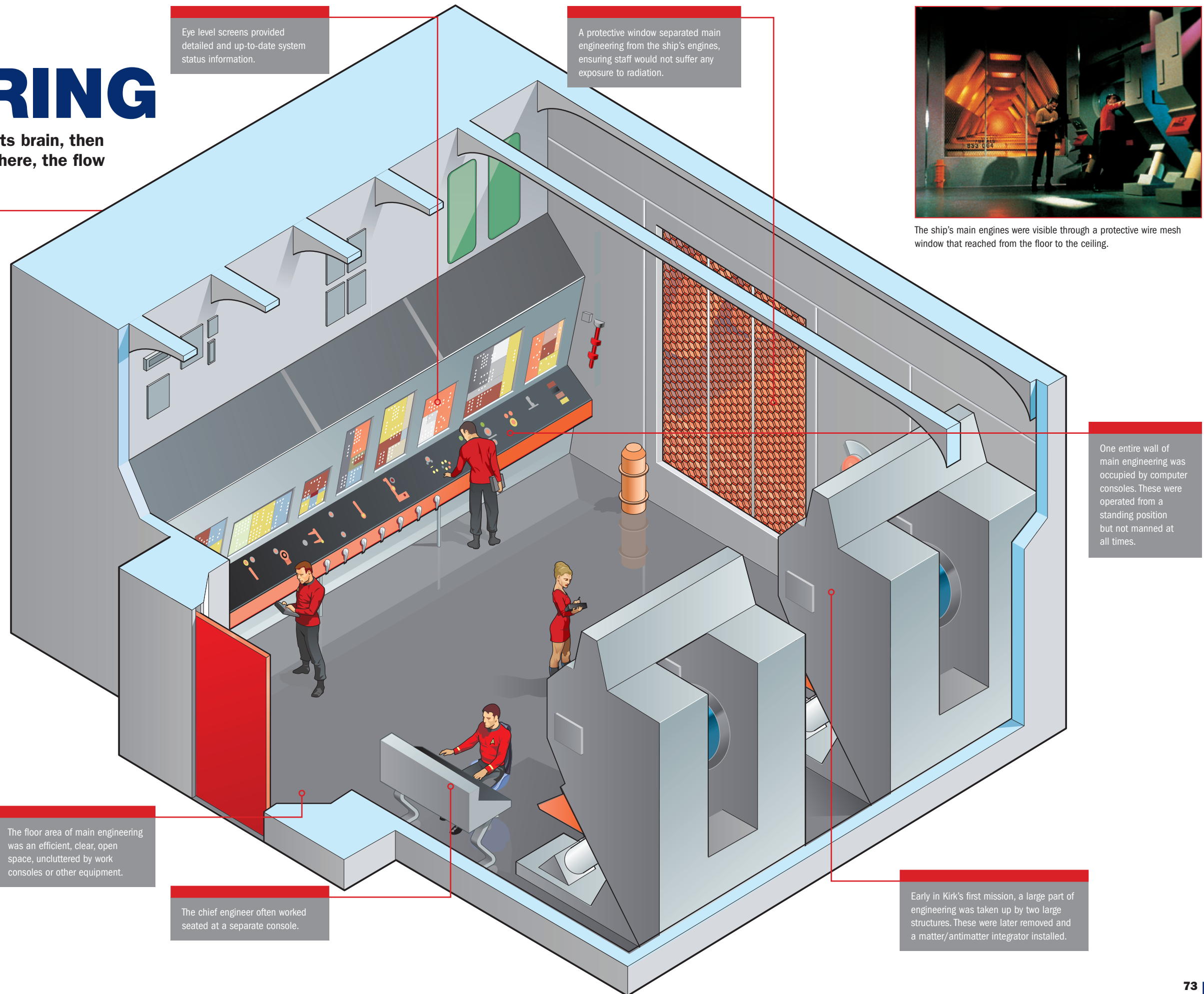
Main engineering of the *Constitution-class U.S.S. Enterprise NCC-1701* is on Deck 19, along with the shuttlecraft hangar deck. It is in the engineering hull (alternatively referred to as the secondary hull), just one deck below the power distribution subsystems.

At the beginning of Captain Kirk's original five year mission, main engineering was configured on one level, in a broad, high-ceilinged room, one wall of which was taken up entirely with control panels. The opposite side of the room housed two huge power units that reached from the deck floor towards the ceiling. A protective mesh window at the rear of the room offered an impressive view of the ship's vast engines.

By 2268, main engineering had undergone a refit, and was now split across two levels. The lower level maintained essentially the same floor space as it had previously, but the wall of consoles was now bisected by a stepladder, which lead to a small galleried mezzanine level. On the lower level, the two large structures had been replaced by a much more compact pair of energy converters and heat exchangers, known as the matter/antimatter integrator. Also on the lower level was the main control station, which consisted of panels and graphical readouts, displaying computer-generated charts of power flow and consumption throughout the ship. Power distribution to all areas of the vessel could be controlled from here.

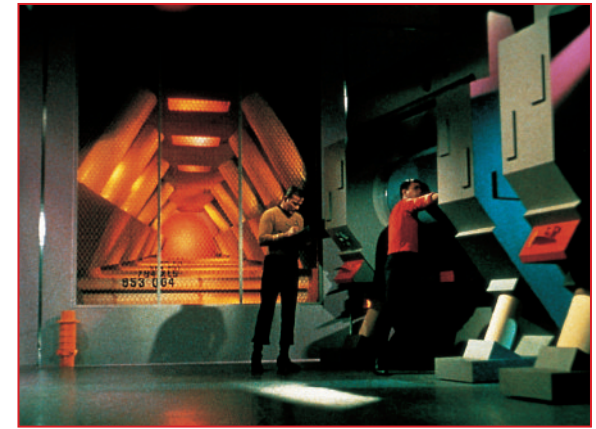


The engineering station on the bridge was tied into main engineering and could be used to monitor all the engineering systems, but it offered less control than the stations in the engineering room.



Eye level screens provided detailed and up-to-date system status information.

A protective window separated main engineering from the ship's engines, ensuring staff would not suffer any exposure to radiation.



The ship's main engines were visible through a protective wire mesh window that reached from the floor to the ceiling.

One entire wall of main engineering was occupied by computer consoles. These were operated from a standing position but not manned at all times.

The floor area of main engineering was an efficient, clear, open space, uncluttered by work consoles or other equipment.

The chief engineer often worked seated at a separate console.

Early in Kirk's first mission, a large part of engineering was taken up by two large structures. These were later removed and a matter/antimatter integrator installed.

EQUIPMENT AND POWER DISTRIBUTION

Equipment contained in main engineering included the computer systems monitoring board, two standby power units, and an impulse synchrotron unit. The monitors for the remote scanners were in the room behind this.

A wire grid of small hexagons took up one wall of the room, reaching from the floor level of the lower bay to the ceiling; this allowed crew to look into the main engines, which were clearly visible through the protective mesh.

The power generated in main engineering was distributed quickly and efficiently to subsystems all across the ship. These included warp and impulse propulsion, life support, weapons arrays such as the phaser banks, defensive systems such as the navigational defectors and shields, computers, and transporters.

Much of a ship's power came from the focusing of matter and antimatter through dilithium crystals. If they cracked or fused under hard or improper use, they had to be replaced. In the event that suitable dilithium crystals were not available, *Constitution*-class ships such as the *Enterprise* could function at a low level on batteries for about a week. If the ship's engines were beyond repair or were a danger to the ship, all personnel could be evacuated to the primary hull, away from the immediate danger.

Many engineering functions could be controlled from remote locations in other areas of the *Enterprise*, such as the engineering station on the bridge; this was the first station to the left of the turbolift as one stepped onto the bridge. Such remote engineering stations allowed the chief engineer to keep up-to-date with everything that was happening when his presence was required away from engineering, or even to control engineering systems in the event that something had rendered the area inaccessible to crewmembers.

Engineering functions could also be controlled from the emergency manual monitor, and from within the network of Jefferies tubes – access crawlways that criss-cross the ship.

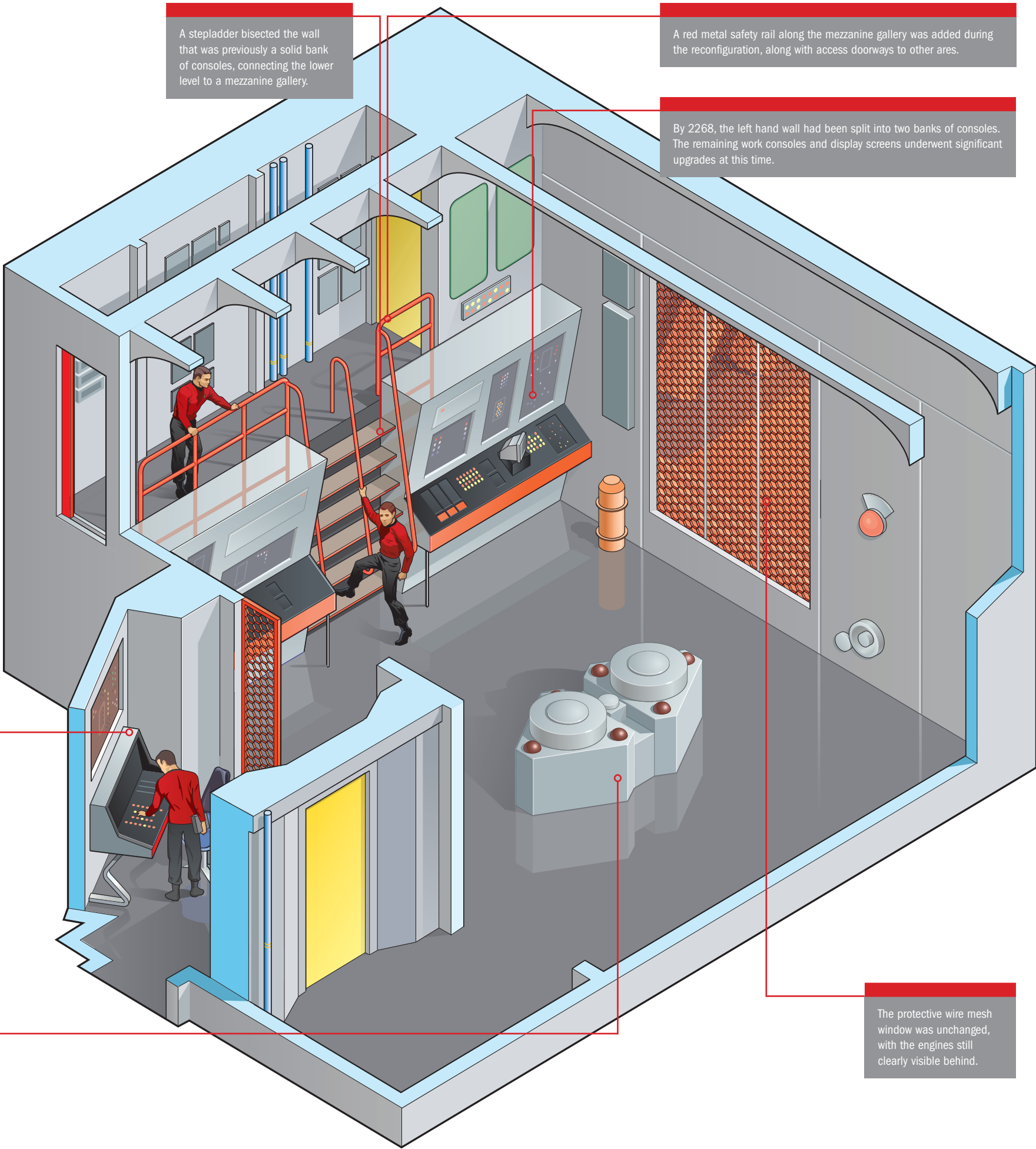
VITAL POSITION

The role of the chief engineer is one of the most important jobs aboard a starship, and thus requires an enormous amount of training, experience, and dedication. The chief engineer aboard the *Enterprise* during this period was Montgomery Scott (Starfleet serial number SE 19754 T), known to friends and associates as Scotty. Also the ship's second officer, Scotty had a natural talent for engineering.

As part of the support services aboard the ship, members of Mr. Scott's engineering team wore red shirts for formal and semiformal occasions; many of them wore an overall-style jumpsuit to protect their uniforms while on duty.

ENGINEERING DRAMAS

As with most areas of the ship, the *Enterprise's* engineering department saw more than its fair share of drama. The many incidents that occurred there included Kevin Riley, a crew member under the influence of the Psi 2000 virus, commandeering engineering and shutting down the engines in 2266. In 2267, Khan Noonien Singh took control of main engineering and shut off life support to the bridge in his attempt to gain control of the ship. And in 2268, much of the drama between the Klingons and the *Enterprise* crew manipulated by the Beta XII-A entity was played out in engineering. Later that same year, Losira fused the matter/antimatter integrator, causing the *Enterprise* to travel at dangerously accelerated speeds, at one point reaching warp 14.1. Scotty's expertise ensured that problems were soon solved, and that the engines of the *U.S.S. Enterprise* were restored to peak efficiency.



In engineering, it is imperative to be in constant communication with the bridge. Viewscreen consoles are easily accessible and are located near key stations.

PROPULSION SYSTEMS

In order to traverse the Galaxy as smoothly as possible, it was imperative that the propulsion systems of the *U.S.S. Enterprise NCC-1701* were maintained at peak efficiency.

The driving force behind the *Constitution-class U.S.S. Enterprise NCC-1701* was a two-tiered propulsion system consisting of a faster-than-light warp drive and a sublight impulse engine. The power of these systems determined the starship's maximum speed, and thus also delineated its overall design, mission capabilities, and tactical responses.

WARP FACTOR

Warp drive alters the space around a starship, allowing it to journey through subspace – a shortcut through conventional space. Such reality-bending voyages are only possible with massive and precise equipment. The three fundamental warp propulsion system components are the matter-antimatter reaction chamber, the plasma injection system, and the warp field coils, each of which is composed of numerous subsystems.

The first link in the propulsion system chain on the *Enterprise* was the matter-antimatter reaction chamber, housed in Main Engineering in the lower, cylindrical fuselage of the ship. Within this chamber, matter and antimatter were brought together safely, using a standard 23rd-century intermix formula to generate superheated plasma for the plasma injection system.

Cold warp drive engines needed 30 minutes to build the matter-antimatter reaction to the threshold level needed for faster-than-light travel. The system was regulated through dilithium crystals placed in the matter-antimatter integrator



The dilithium crystals that power the warp engines are closely monitored at all times. The relatively small crystals emanate an orange glow when in use.



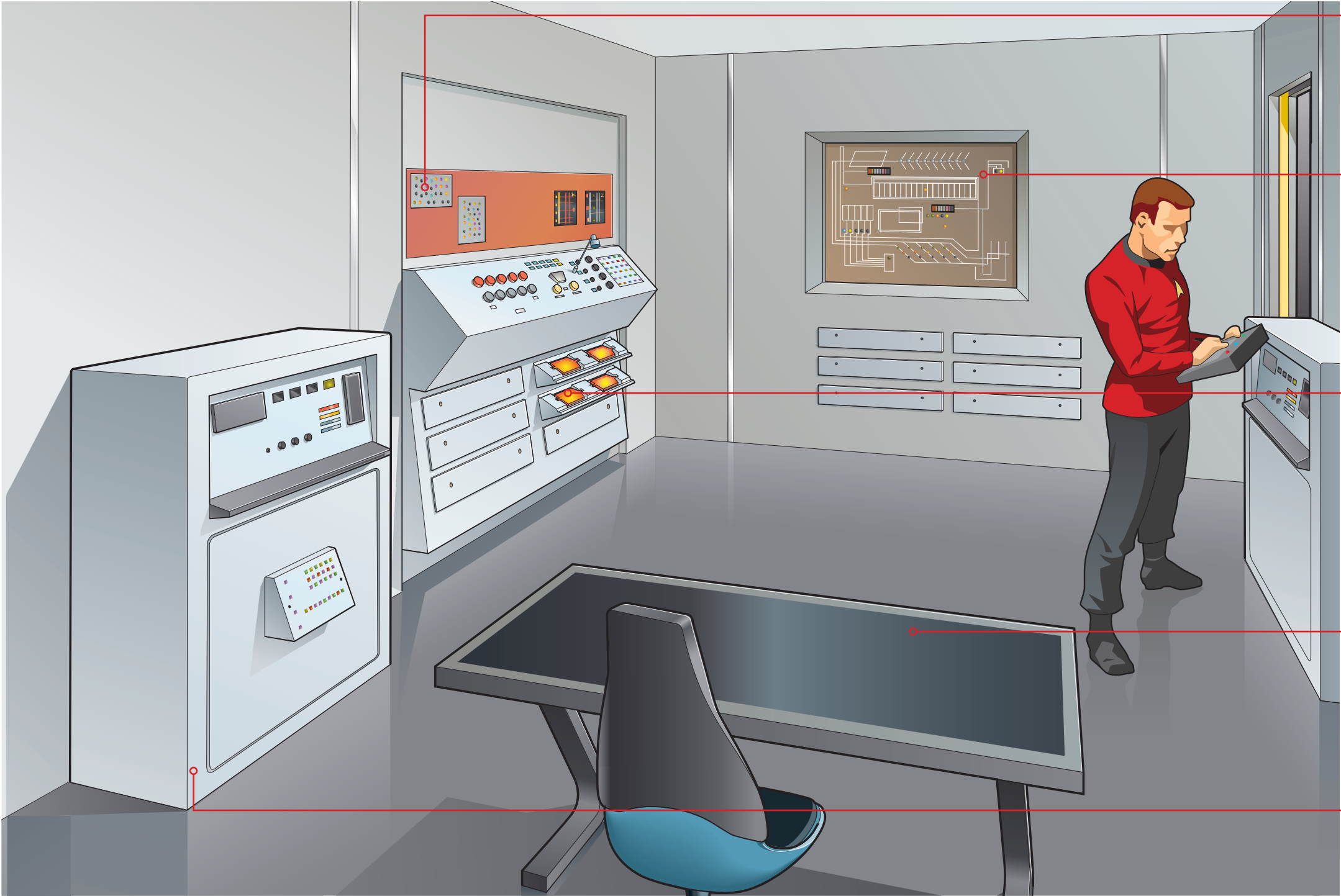
Engineers at work in the dilithium crystal control room, a small area located just off main engineering on deck 19.

in main engineering, with additional units in the dilithium crystal control room. The plasma passed through transfer conduits in the two pylons connecting the secondary hull to the warp nacelles, where the plasma injection system energized it and injected it into the warp coils.

The warp field coils in the nacelles used this energized plasma to cocoon the starship within overlapping fields of frequency-shifted energy, allowing warp 6 cruising speeds. The ship was also rated for bursts of warp 8. Since warp field coil temperatures are critical to warp field stability, its subsystems included an intercooler system, control reactor, and thermal radiators within the support pylons.

SUBLIGHT PROPULSION

Delivering only one quarter of the speed of light at maximum output, the *Enterprise* impulse engines acted as a secondary propulsion system, primarily used for short trips within a star system. These engines used traditional expanding gas mechanics to create thrust, utilizing deuterium-fueled fusion reactors to generate helium plasma that was vented behind the saucer section, just above the interconnecting hull support pylon. *Enterprise* was equipped with two impulse engines, and the energy they created was also routed into ship functions such as life support and communications.



Wall-mounted display panels provided the duty staff with detailed information on the current status of the dilithium crystals.

Interactive circuit diagrams provided additional information on the *Enterprise's* propulsion systems.

The dilithium crystals were housed in pairs, within easily accessible compartments.

An empty work station allowed duty officers to undertake other tasks while observing the dilithium crystals.

Large computer banks monitored the complex operations of the propulsion systems.

IMPULSE ENGINES

For deep space exploration and long missions, warp drive is essential. But at sublight speeds, and during delicate maneuvers, impulse engines come into their own.



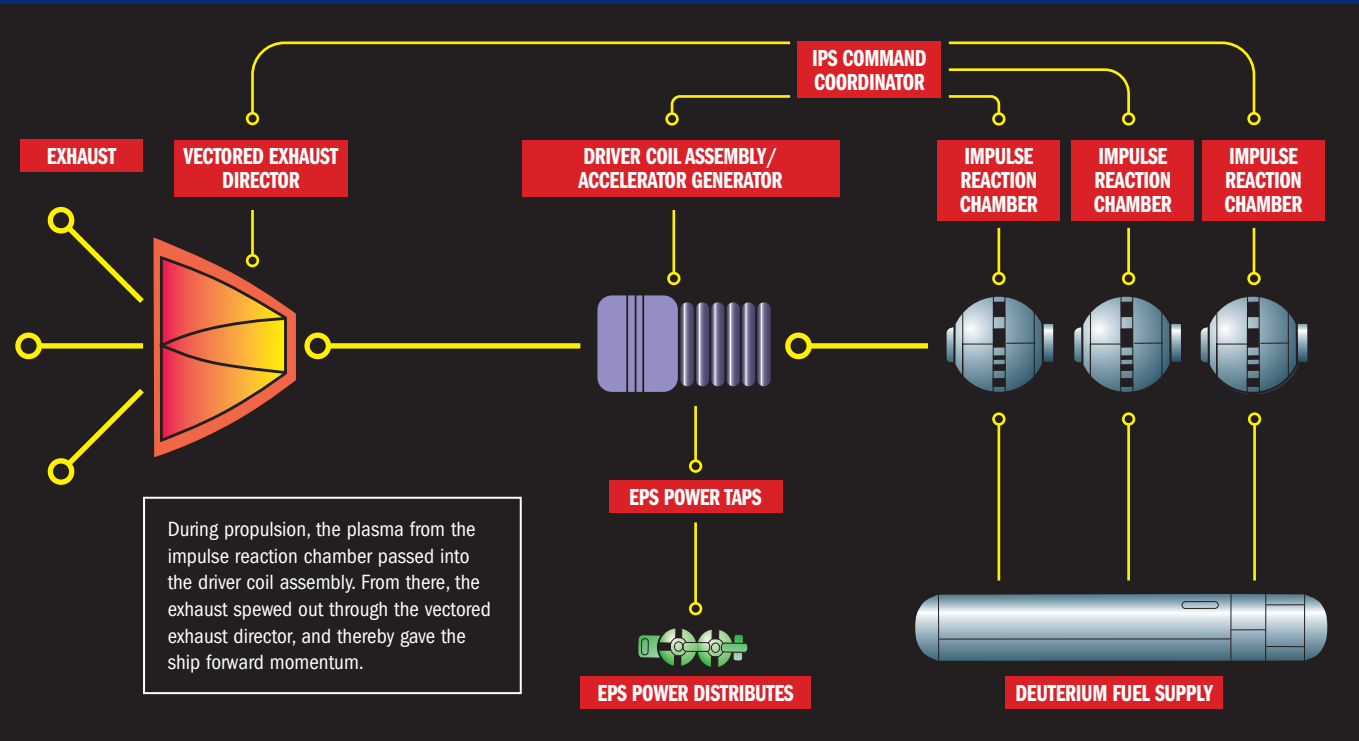
By the 24th century, impulse engine technology had been significantly upgraded from that used on 23rd century starships.

The impulse engines of Starfleet vessels in this era were fusion powered, with two primary functions that they shared with the warp engines: to propel the ship through space, and to supply power for ship's systems. During normal operations, full impulse was only one-quarter the speed of light. At speeds above this, problems had a tendency to manifest, with travel at impulse speeds above three quarters light speed risking relativistic problems. Early versions of impulse engines propelled ships at sublight speeds using the conventional Newtonian physics of an equal and opposite reaction, by venting exhaust in exchange for forward momentum. Each impulse engine was comprised of four parts: the impulse reaction chamber, the accelerator/generator, the

driver coil assembly, and the vectored exhaust director. Because of the nature of the energy released during the fusion process, the impulse propulsion system required more regular maintenance than the warp propulsion system, even though warp engines were and remain a million times more energetic than impulse engines. Impulse engines could be employed to maneuver a ship with precision, and keep it aloft in planetary atmospheres, even if – like the *U.S.S. Enterprise* – the ship did not benefit from an aerodynamic shape. On *Constitution-class* starships, the twin impulse engines were located on the aft edge of the saucer section, and in the event of an emergency saucer separation would become the primary hull's main source of propulsion.

IMPULSE ENGINE SYSTEM

During propulsion, the plasma from the impulse reaction chamber passed into the driver coil assembly. This created a field effect that reduced the apparent mass of the ship, and allowed the vessel to move more easily through space. The exhaust vented through the vectored exhaust director, which allowed control of the direction in which the impulse engines pushed the ship.



INSIDE THE REACTOR

REACTION CHAMBER

The impulse reaction chamber was a sphere approximately six meters in diameter. Deuterium was introduced into the sphere, where a standard proton-proton fusion reaction occurred. The total instantaneous power output of the impulse reaction chamber could be a selected amount between 108 and 1011 megawatts. A *Galaxy-class* starship usually carried four spare impulse reaction chamber modules.

A central band dissected the reactor sphere into two distinct halves.

The fusion reactors were stacked end-to-end within the engine. They could be replaced individually or as a group.

The high energy plasma created inside the impulse reaction chamber was channeled to the accelerator/generator.

POWER SOURCE

When the impulse engines were being used to propel the ship, the velocity of the plasma was increased and channeled to the space-time driver coils. When the impulse engines were used only as a power source, the plasma was diverted by the EPS system directly to the ship's power distribution net.



Impulse engines were used when traveling within a star systems, or when other starships were in close proximity.

SENSORS AND THE DEFLECTOR

The *U.S.S. Enterprise* was fitted with numerous sensors, providing essential data to the crew on everything from planetary life-signs to interstellar enigmas, and protecting the ship from deadly hazards.

Sensors, sometimes referred to as scanners, are instruments that can be used to detect and analyze objects at a distance from the instrument itself. Constitution-class starships such as the *U.S.S. Enterprise* NCC-1701 used a duotronic external sensor array.

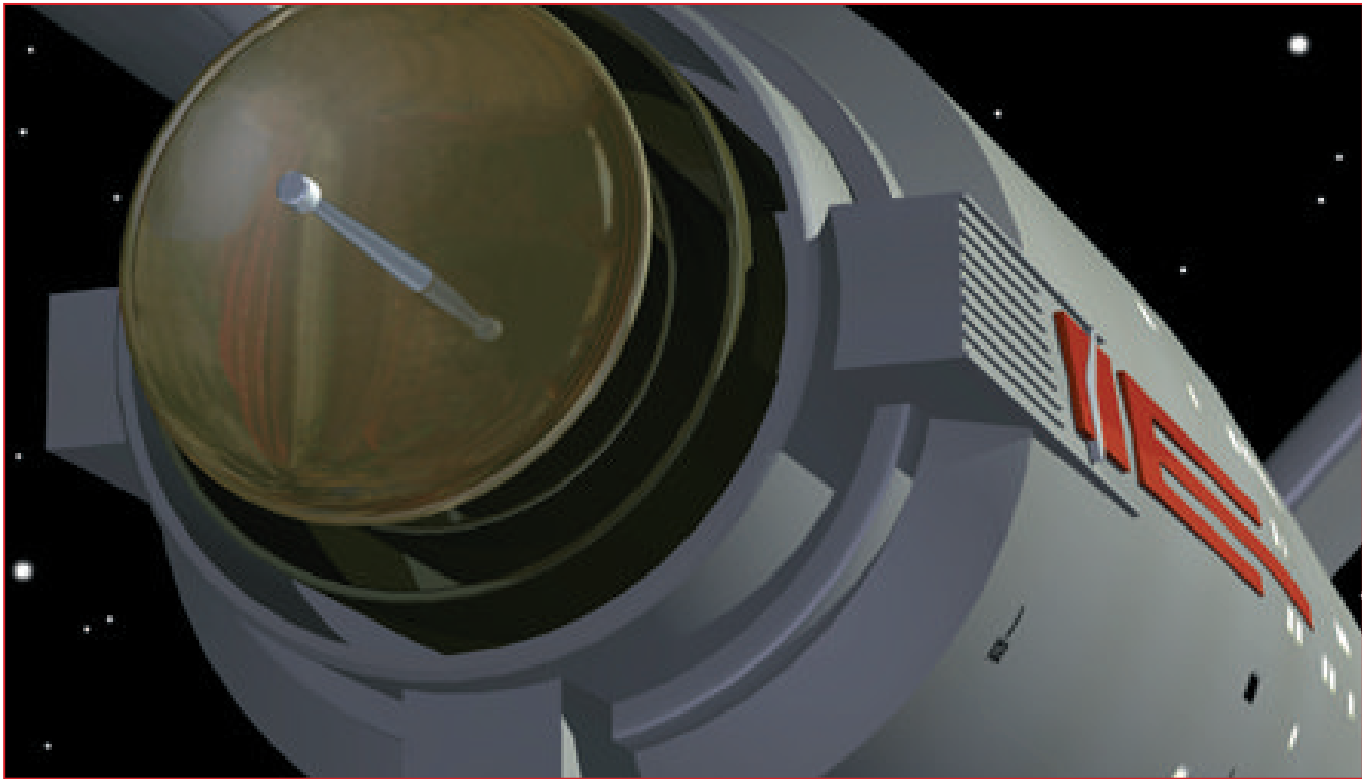
On the *Enterprise*, sensors were located across the ship's hull, although they were concentrated in a sensor dome on the underside of the saucer section. The main deflector array was located at the front of the engineering hull, and its large golden dish was one of the *Constitution*-class starship's most distinctive features.

The purpose of the main deflector was to repel space debris which could cause severe damage if it collided with the vessel's hull. At warp speed, collision with even a micrometeor could prove fatal. Even individual hydrogen

atoms can cause dangerous friction. The deflector emitted a beam which swept any dangerous materials out of the ship's path. Long-range sensors were used to detect any larger objects, such as asteroids that the deflector was unable to deal with.

NAVIGATIONAL SENSORS

Sensors were vital to the *Enterprise's* navigational systems. Information was relayed directly to the helm station, and was used to calculate the ship's position. The sensors were also an essential part of the *Enterprise's* mission of scientific exploration, regularly utilized to record data on various space phenomena, measuring dimensions, mass, and density, and taking a variety of readings including radioactivity and electromagnetic emissions.



Without the deflector dish, the *U.S.S. Enterprise* would not have been safe traveling at high sublight velocities or warp speed. The deflector emitted a beam that cleared dangerous materials from the ship's path into which it might otherwise have collided, causing severe damage to the hull.

The sensors were also capable of detecting other vessels, although they could be deceived by cloaking devices that, in the late 23rd century, were employed by both the Romulan and Klingon empires. During battle, the sensors were capable of recording the velocity and heading of enemy ships, and any damage that had been inflicted upon them. In some cases, the *Enterprise* could detect an opponent's weapons powering up.

Although the main viewscreen's position at the front of the bridge gave the illusion that it was a window, the images relayed on it were actually produced through the sensors, which translated gathered data to produce a recognizable picture. Sensors could be adjusted to generate images at different magnifications and from various angles around the ship.

SENSITIVE INSTRUMENTS

The *Enterprise's* sensors were sufficiently sensitive and discriminating to detect life signs (including those generated by different life forms), the chemical and physical composition of an object, the size and age of an object, and even the age of its components. From orbit, their data was accurate enough to calculate precise transporter coordinates for landing parties. All information gathered by the sensors was automatically saved to the ship's computers for retrieval at any time.

The *Enterprise* was also equipped with internal sensors. These could be used to track intruders or specify the condition of particular decks and cabins aboard the ship. For instance, the internal sensors could quickly inform those in command whether life support systems on a

particular deck were functioning within acceptable limits and monitor any damage to the ship's structure. The internal sensors could scan the entire ship for specified material in a matter of seconds. Internal sensors were capable of detecting every heartbeat on the ship, and with sufficient information could screen out readings from specific individuals. The sensors were also capable of detecting various kinds of activity on the ship, including unauthorized transmissions – a tricorder with a scan field above 20 milliwatts would alert the *Enterprise's* internal sensors, for example.

AWAY FROM HOME

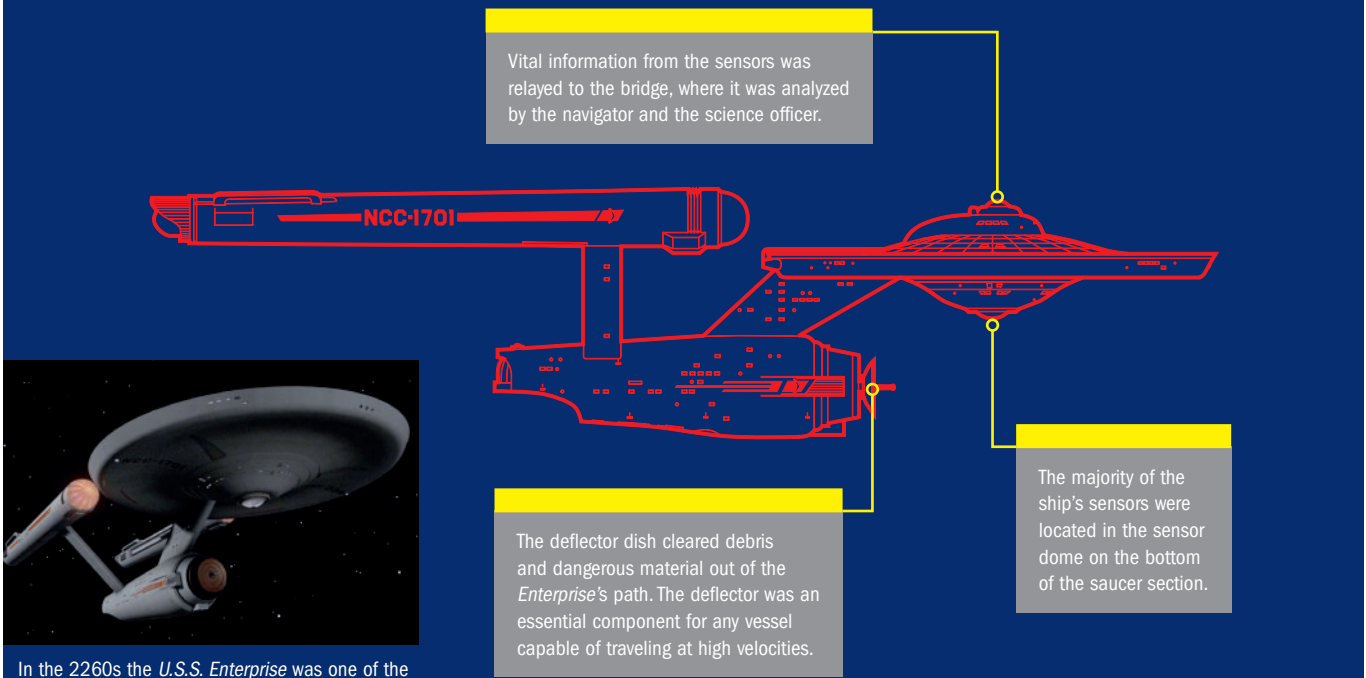
Information gathered by the ship's main sensors was supplemented with data gathered from various sources. Landing parties regularly used their tricorders to gather information. The basic general-purpose tricorder of the era was the size of a small bag and was carried over the shoulder on a strap when not in use. It was normally used by yeomen, science officers, and medical staff.

Though their abilities were not as great as those of ship's sensors, a tricorder was useful in the field for detecting and analyzing life forms, artifacts, and natural phenomena. Data could also be recorded and later downloaded into the ship's computers for analysis.

The *Enterprise's* class-F shuttles were also equipped with sensors. If, for some reason, the *Enterprise* itself was unable to actively engage in an investigatory mission, one of the shuttles could be despatched in her stead, and any data gathered could then be transmitted directly to the ship's powerful main computer.

STARBOARD VIEW

While sensors were installed throughout the *U.S.S. Enterprise*, both internally and externally, the ship's key sensors were concentrated towards the front of the vessel.



In the 2260s the *U.S.S. Enterprise* was one of the most advanced ships in service. The sensors were an essential part of its mission of exploration.

TRANSPORTER ROOM

As the primary entry point to the ship, the transporter rooms of the *U.S.S. Enterprise* were representative of the best of 23rd-century Starfleet design and technology.

By the 2260s, traveling by transporter had become commonplace, and transporter rooms were the main point of access to the *U.S.S. Enterprise*. Configured to beam multiple crewmembers or visiting guests to and from the ship, they had to be both functional and welcoming, used as a transit point for daily functions and as a venue for diplomacy and first contact.

Each transporter room was fitted to a standard design on *Constitution*-class starships, comprised of a control console facing a circular transporter platform. This platform was set three steps above the floor level of the transporter room to avoid accidental beaming of bystanders. Six round transporter pads were positioned equidistantly on the platform, with each pad designed to beam one crewmember or item of cargo or equipment. During emergencies, more than one person could be transported via a single pad.

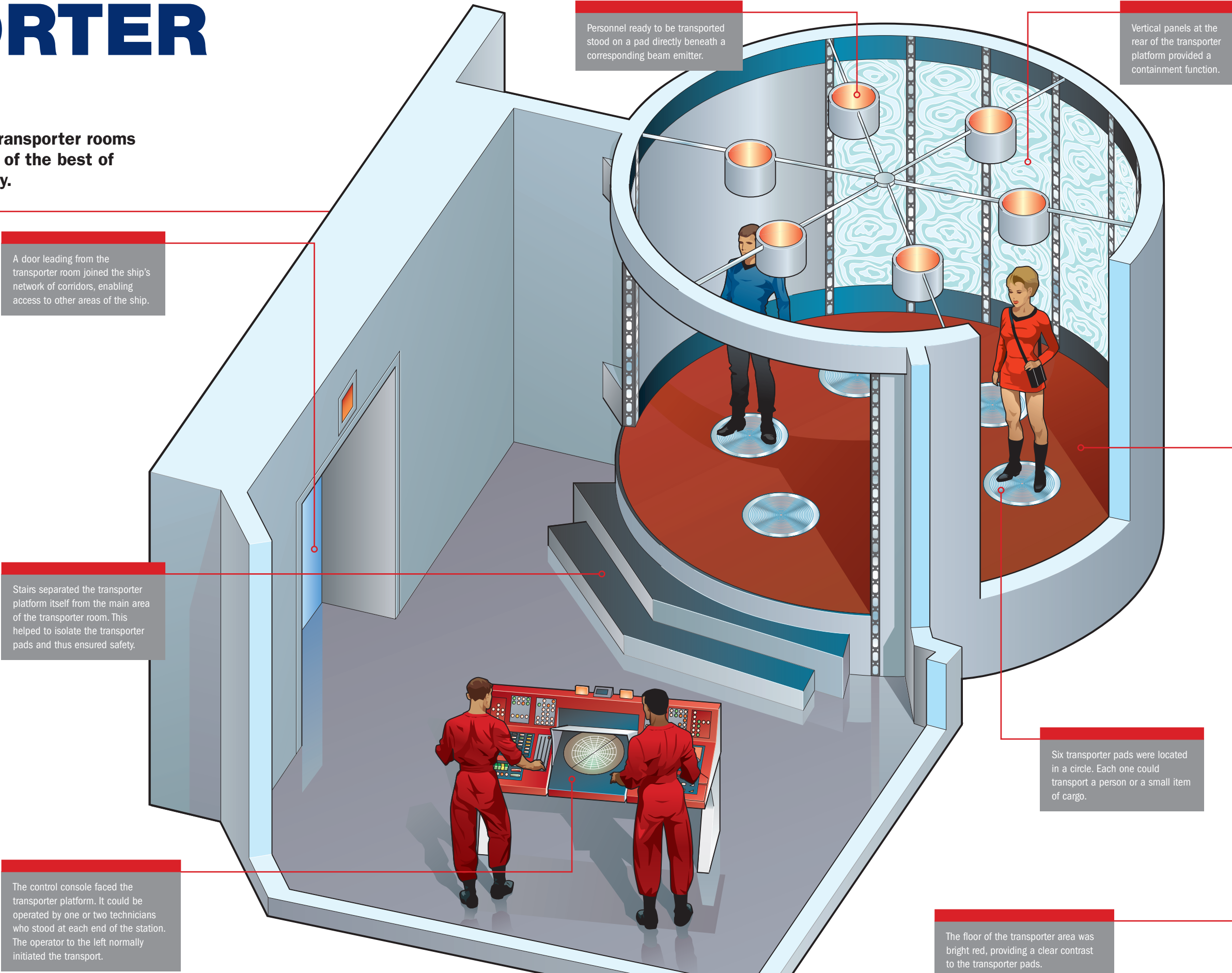
UNDER CONTROL

The control console had two duty positions, both of which were operated while standing, and it was from here that transporter coordinates were entered and the matter transferral sequence was engaged. The command to begin beaming was “Energize,” warning any nearby personnel to keep away from the platform. Three sliding controls were then used to activate the transporter beam.

The transporter was usually operated by at least one technician, and they had to be prepared to deal with any eventuality. However, in extreme circumstances – such as during a transporter malfunction – a more senior officer might take charge, such as the Chief Engineer or Science Officer. Other potential problems could be anticipated in advance and measures taken, such as ensuring that a security detail was present when hazardous materials or unknown or hostile individuals were brought aboard.

TRANSPORTER TRAVEL

Some crew members, such as Dr. Leonard McCoy, disliked traveling by transporter under any circumstances, believing it was unnatural to have their atoms spewed all over space. Such fears were normally unfounded, and transporter travel generally occurred without incident, providing a quick, easy, and safe method of boarding the *U.S.S. Enterprise*.

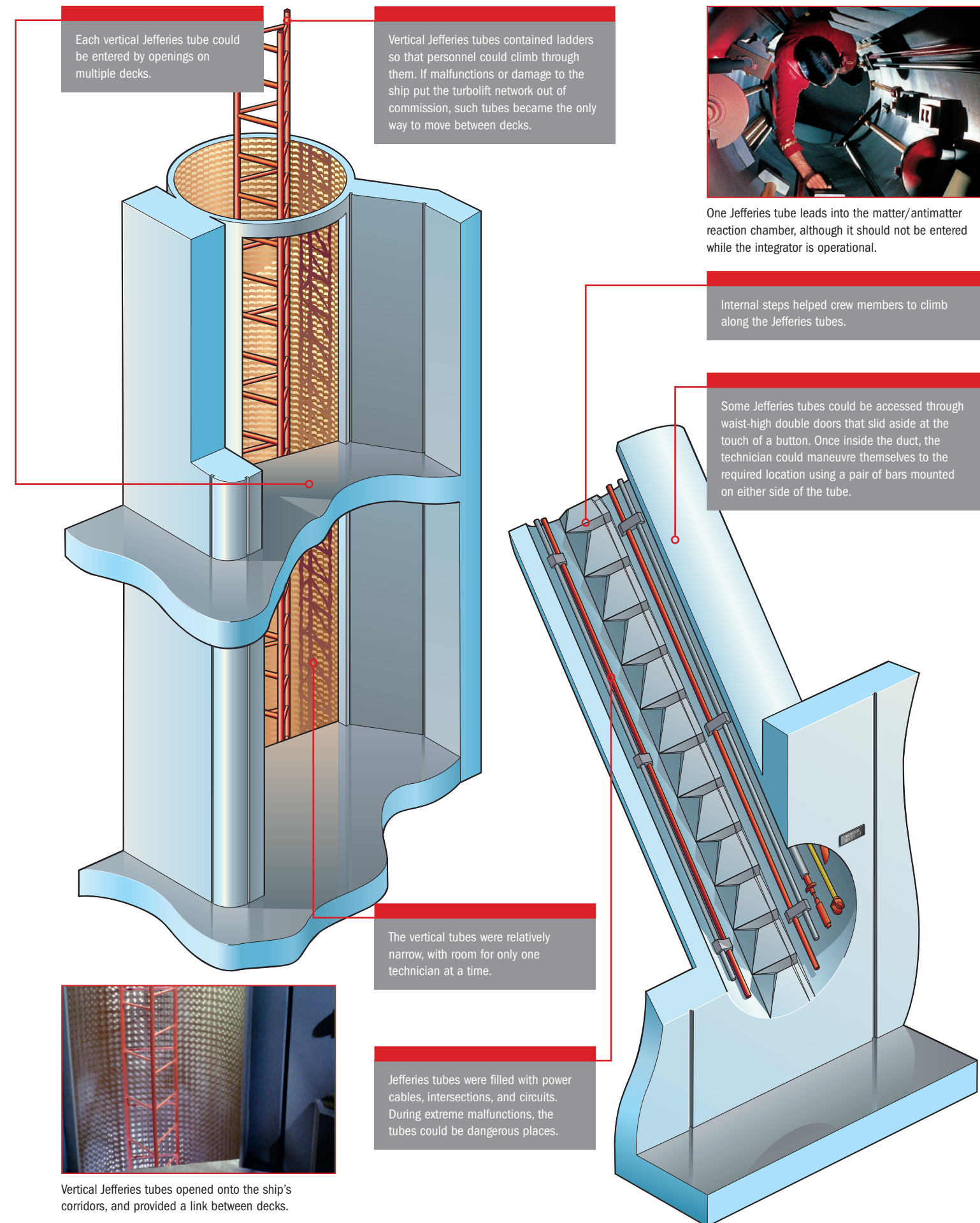
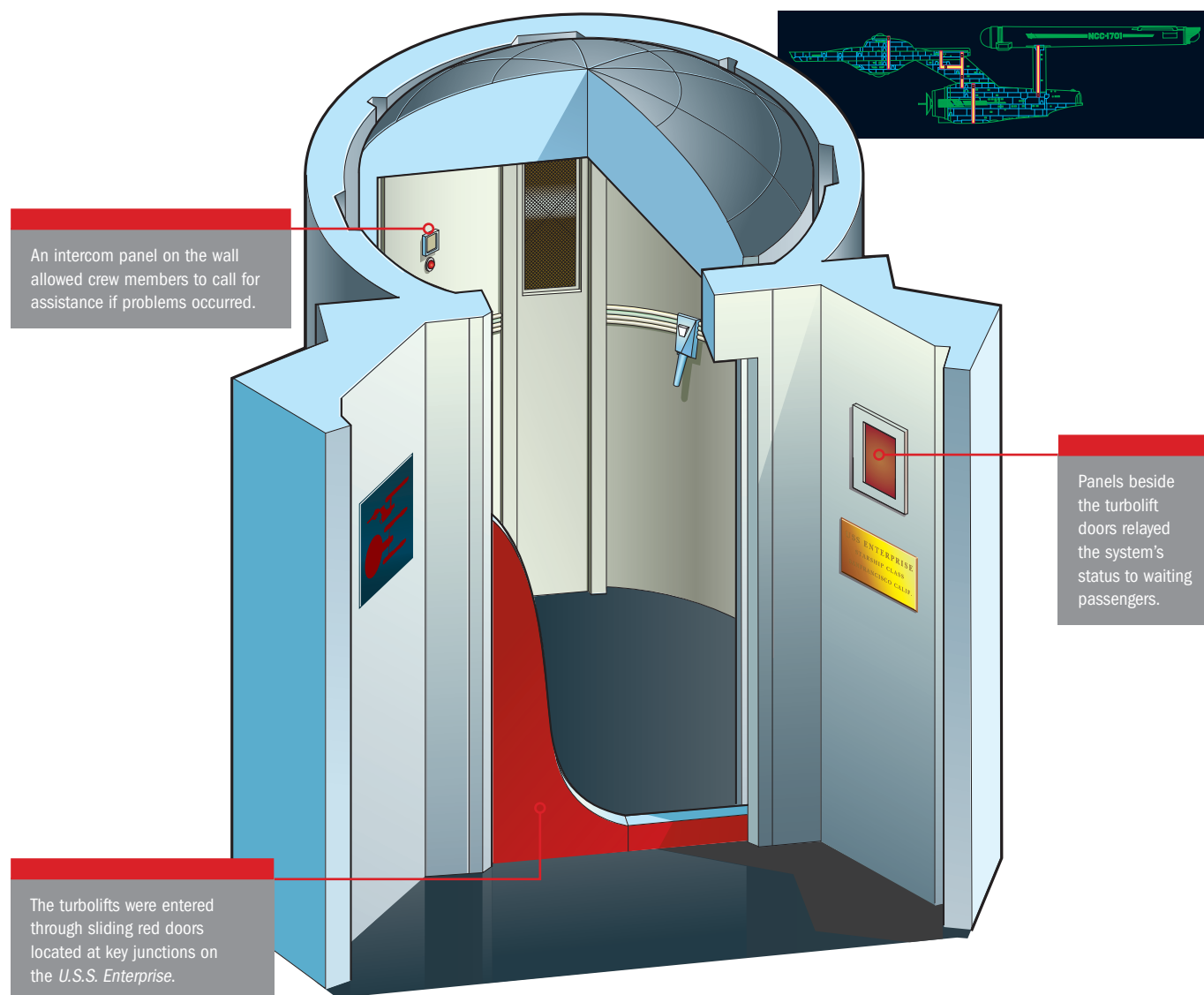


TURBOLIFTS AND JEFFERIES TUBES

With an extensive network of Jefferies tubes and turbolifts providing an efficient internal transport system, access to even the most inaccessible areas of the *U.S.S. Enterprise* was ensured.

Constitution-class vessels were fitted with an extensive turbolift network, delivering personnel to all decks, but they could not provide total access to areas deeply embedded within the vessel's structure. Jefferies tubes – a network of access ducts connecting the corridors and decks – ensured that even the most inaccessible places on the ship could be reached. Engineers could thereby access every system or subsystem that might need onsite testing, adjustment, or repair.

Jefferies tubes ran horizontally, diagonally, and vertically throughout the *U.S.S. Enterprise NCC-1701*, enabling normal maintenance operations to be carried out with ease, even in the most confined areas of the ship. Entry to the horizontal and diagonal tubes was gained via circular openings in bulkheads, which lead to pipes big enough for a single person to undertake their work. Vertical tubes were accessed via full-sized doorways that opened out onto the ship's corridors.



THE SHUTTLEBAY

The *U.S.S. Enterprise's* complement of shuttlecraft was used for cargo and personnel transport, or extended missions away from the ship. The shuttlebay provided direct access and service facilities for these essential vessels.

Located in the aft section of the engineering hull, the shuttlebay was a large, rectangular area, approximately equivalent in length to a football field found on Earth. The shuttlebay of the *U.S.S. Enterprise* NCC-1701 served several important functions. Its primary purpose was to provide a launch and landing area for Starfleet shuttlecraft, including the *Enterprise's* *Galileo* NCC-1701/7 and the *Columbus* NCC-1701/2. The shuttlebay also acted as a hangar for the two vehicles, and as a maintenance facility where the shuttlecraft could be repaired, refueled, or refitted. Equipment and parts were stored in areas located behind doors on each side of the shuttlebay. Often referred to as the hangar deck, the shuttlebay was designed to maximize the ease with which shuttlecraft and other visiting vehicles could be launched and received.

SHUTTLEBAY INTERIOR

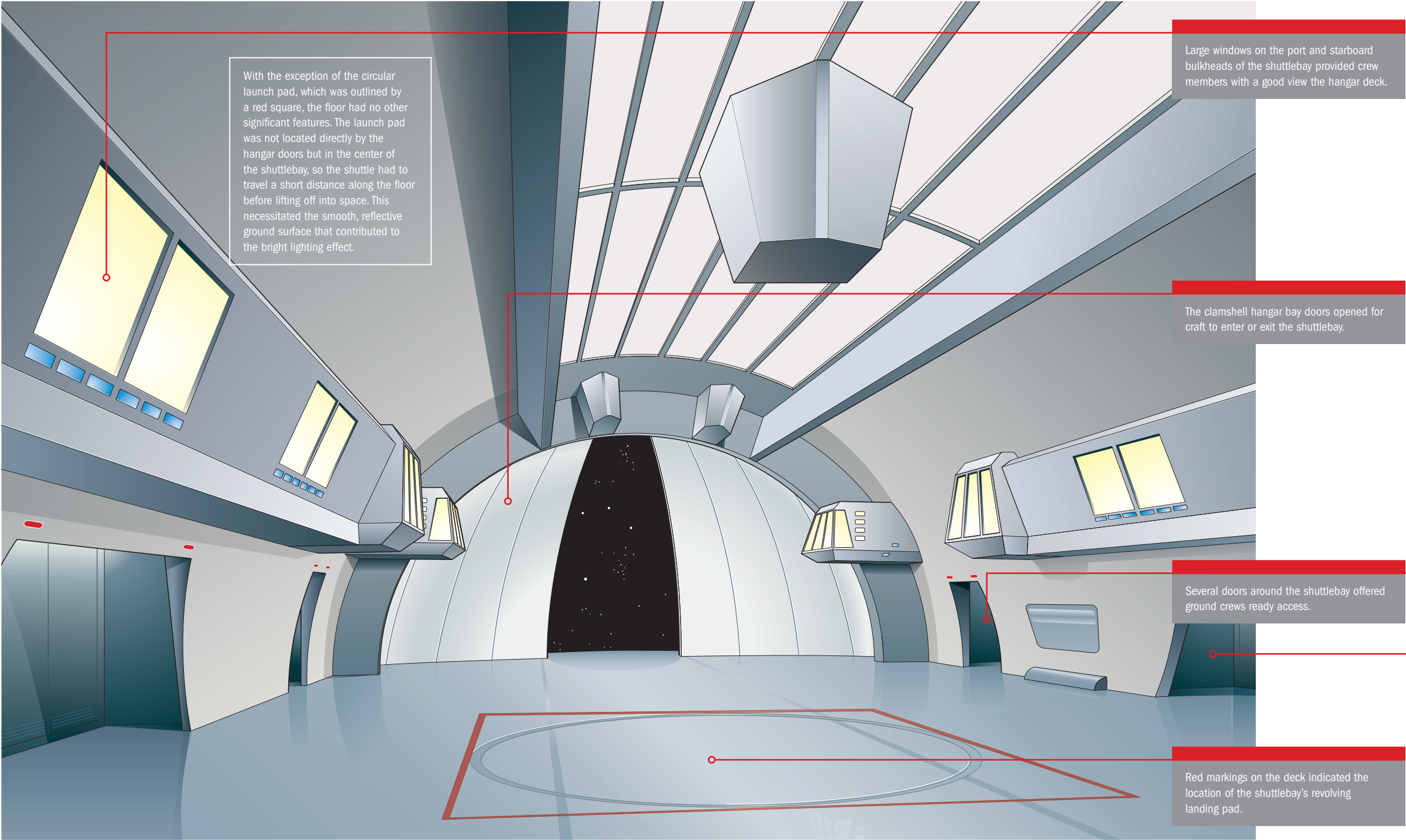
The shuttlebay featured a high ceiling with light panels running its full length. At the aft of the deck was a curved archway beyond which a set of clamshell doors opened onto space, through which shuttlecraft entered and left the *U.S.S. Enterprise*. When the doors were opened, the brightly lit hangar deck was clearly identifiable to pilots of approaching shuttlecraft, making it easy for them to sight the landing area before handing control of their shuttle over to the *Enterprise* bridge. When not in use, one shuttlecraft sat on a circular pad in the center of the shuttlebay, fully primed and fueled for immediate launch when needed. This landing pad could be rotated through 360 degrees, enabling the ground crew to position a newly-arrived shuttlecraft for its next mission immediately after landing. Other craft were stowed further from the shuttlebay doors, where engineers could easily access all components for routine maintenance and repairs. In order to keep shuttlecraft permanently available for immediate deployment in case of emergencies, vehicles were kept facing the shuttlebay doors. Two control booths were located towards the aft of the hangar deck, close to the shuttlebay doors, from where ground crews could monitor incoming and outgoing ships. There were also large windows on the port and starboard bulkheads, from which the *Enterprise* crew could watch the comings and goings of the hangar deck.



A shuttlecraft departing the *U.S.S. Enterprise* NCC-1701 did so under the control of its pilot. Before being cleared for launch, they would carry out pre-flight checks.



The shuttlebay of a *Constitution*-class starship could easily accommodate two shuttlecraft, and the deck had room enough for more ships to land if necessary.



SHUTTLEBAY PROTOCOLS

Take-off and landing of shuttlecraft involved a tightly controlled and regulated set of protocols to ensure the safety of both the *Enterprise* and shuttlecraft crews.



The crew of an arriving shuttlecraft would relinquish control of their vessel upon final approach to the *U.S.S. Enterprise* NCC-1701.

Safety was of paramount importance during the landing and take-off sequence of a shuttlecraft, and as a consequence most functions of the shuttlebay were orchestrated from the bridge and the ship's computer. When a shuttlecraft was ready to take off, the shuttlebay was depressurized and the clamshell doors were opened. The craft would then move forward along the floor of the shuttlebay, lifting off of the deck moments before reaching the open doors. Once the shuttle was clear of the ship, the shuttlebay doors closed and the bay was repressurized.

LANDING PROCEDURE

A shuttlecraft returning to the *Enterprise* followed a semi-automated landing procedure. As the craft approached the

starship, the captain would be informed of its imminent arrival. A series of warnings alerted personnel to clear the hangar deck prior to depressurization of the shuttlebay. A tractor beam locked on to the incoming vessel to guide it safely into the *U.S.S. Enterprise* shuttlebay. This was to ensure that the arriving ship posed no danger to the *Enterprise* due to human error or a malfunction on the shuttlecraft. Once the shuttlecraft had come to rest and the clamshell doors were closed, the bay was repressurized and the doors separating the shuttlebay from the rest of the ship could be opened. Before the crew were given permission to disembark their vessel, the shuttlecraft would be rotated on the bay's landing platform, so that it was already in position for its next flight.

LIFT OFF

After the crew had boarded its shuttlecraft, the shuttlebay was cleared of personnel and sealed before being depressurized. The bay doors then swung open, allowing the shuttlecraft to leave the ship and head off on its mission. The shuttlebay doors were then closed and the bay repressurized.



This aft view of the *U.S.S. Enterprise* NCC-1701 illustrates the comparative size of the shuttlebay in relation to the *Constitution*-class starship. The shuttlebay was the largest internal area of the ship and housed two shuttlecraft, storage facilities, and maintenance equipment to service the shuttles.

INCOMING



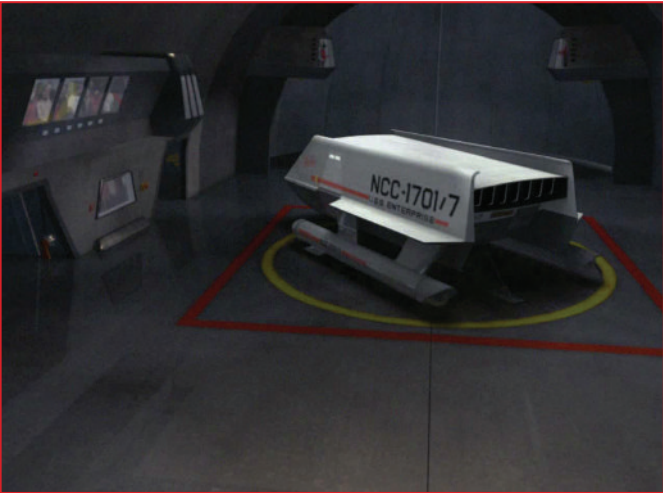
The helmsman of an approaching shuttlecraft would request permission to begin the landing sequence. Upon accepting this request, the *Enterprise* computer would take control of the shuttlecraft via tractor beams and guide it into the shuttlebay.



The shuttlebay was depressurized and the clamshell doors opened to allow the shuttlecraft to make its final approach. Ground crew monitored the progress of the incoming shuttlecraft from control booths on either side of the shuttlebay doors.



The shuttlecraft touched down on a circular platform positioned in the center of the shuttlebay. This platform began to rotate as soon as the shuttlecraft had come to a standstill, so that the vehicle faced the shuttlebay doors.



As the platform rotated, the shuttlebay doors were closed and the area repressurized. Once the shuttlecraft was in position and the atmosphere within the shuttlebay had returned to normal, the crew were allowed to disembark.



The primary crew access into the shuttlebay was through a set of double doors on the starboard bulkhead. These would only open to allow personnel in and out of the bay when the area was fully pressurized. Starship crew could then greet the shuttlecraft's newly-arrived passengers.

SHUTTLECRAFT GALILEO

The *Galileo* was assigned to the *U.S.S. Enterprise* NCC-1701. While its deep-space capabilities were limited, the shuttlecraft provided a useful alternative to the transporters.

The *Galileo* was one of several shuttlecraft assigned to the *U.S.S. Enterprise* NCC-1701. It was designed for relatively short-range journeys, and was suitable for scientific missions, reconnaissance, and transportation of personnel.

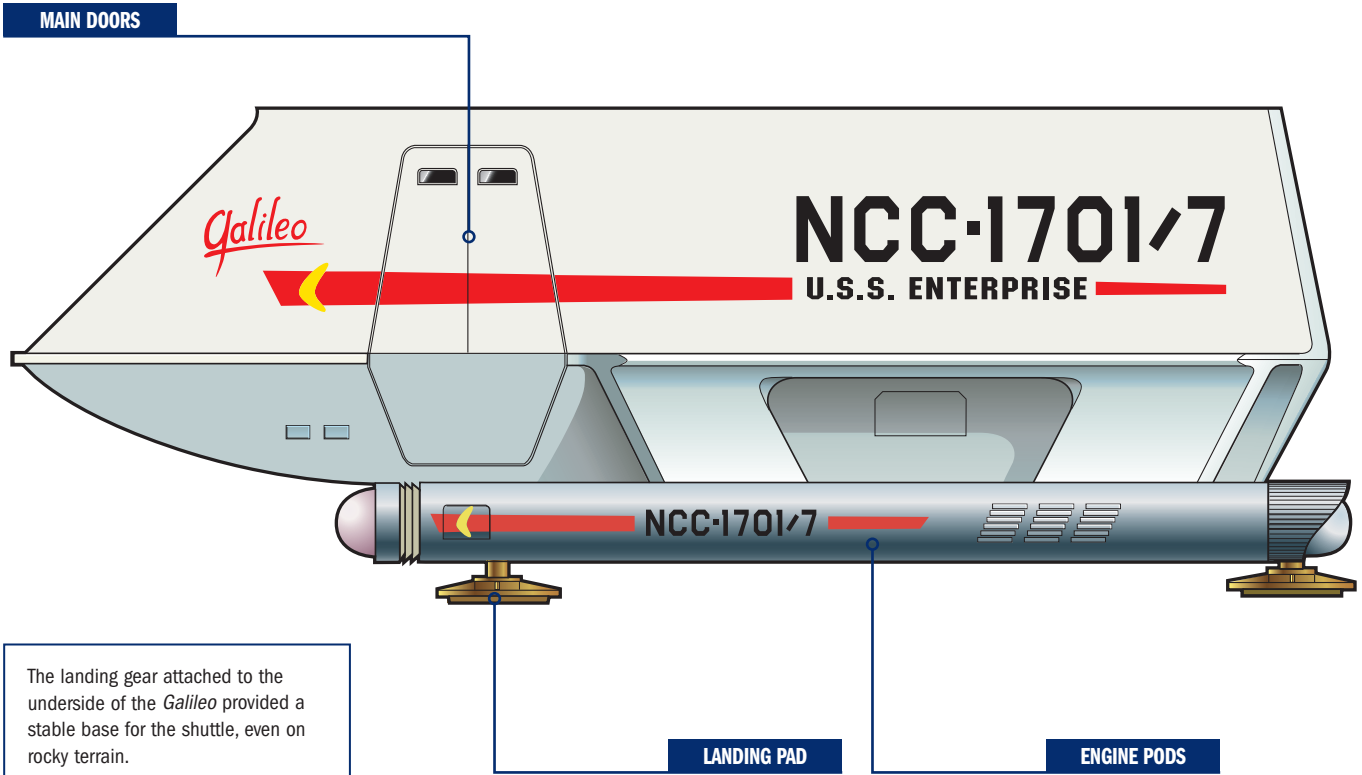
SIMPLE CRAFT

The *Galileo* could be piloted by a single officer, though in ideal circumstances two officers would fly the shuttle together. If necessary, it could accommodate up to seven crew members.

Shuttlecraft such as the *Galileo* were only suitable for relatively short journeys, as they carried a limited amount of fuel. Their use was limited mainly to travel within star systems or for transport between deep space vessels and planetary surfaces. Typical assignments included transporting diplomats to and from a planet's surface.



The *Enterprise*'s shuttles could carry a crew of seven, with the pilot and copilot seated at the front. Except for the environmental panels along the bulkhead, all instrumentation was controlled by these officers.



The *Galileo* was designed to enter a planet's atmosphere, and was equally capable of landing on difficult terrain as it was in the purpose-built shuttlebay, located at the rear of the *U.S.S. Enterprise*'s engineering hull.

The shuttlecraft carried the basic tools required for survival on an alien planet, including a medical kit and universal translator. A supply of standard issue type-2 phaser pistols was also kept in an armory locker drawer. In the event of the shuttle being damaged, it was possible to

adapt the phasers to act as a substitute power supply, but this was a dangerous procedure.

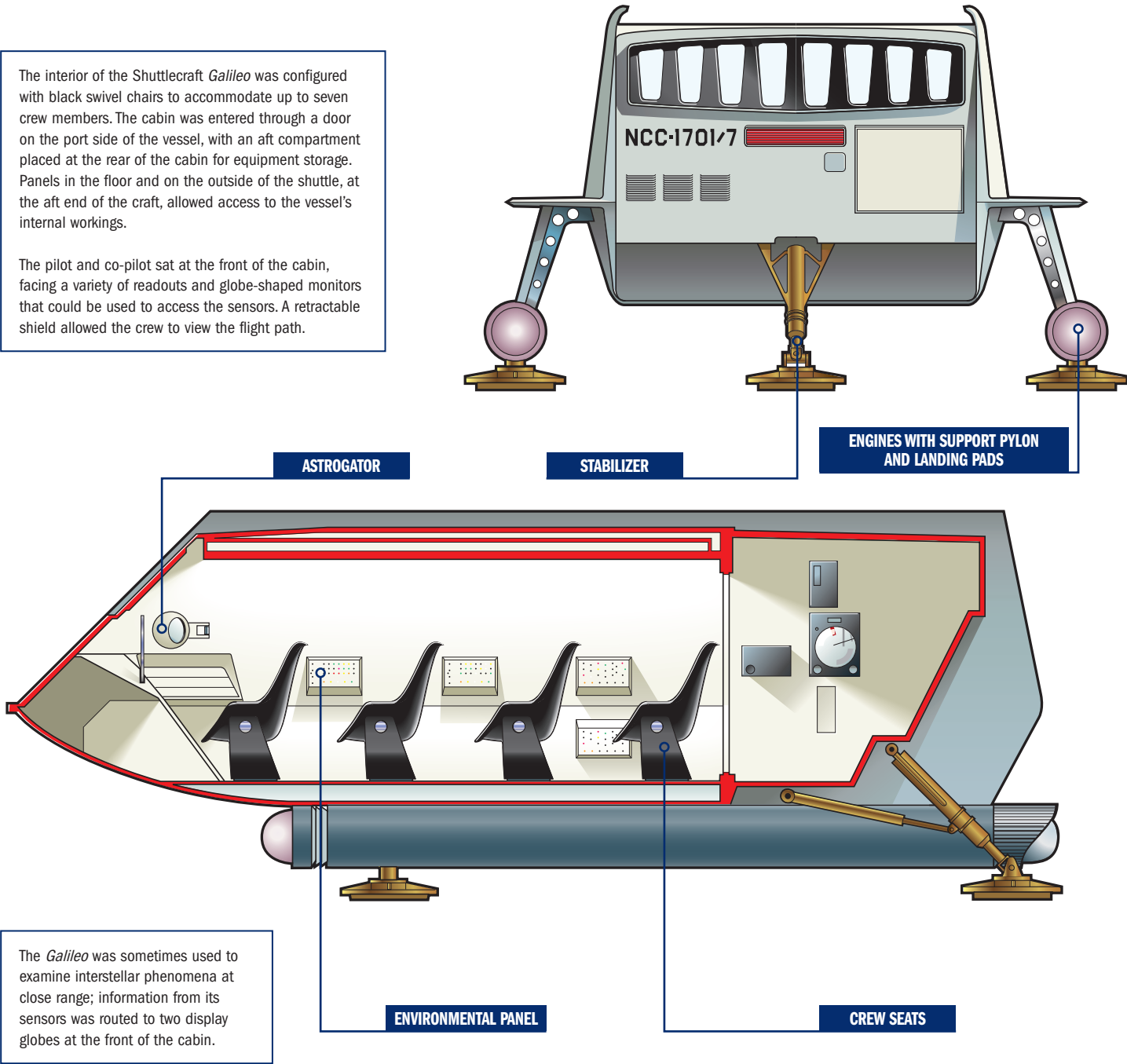
OPERATIONAL ISSUES

A limited but important number of design flaws hampered the effectiveness of the *Galileo*. Its communication system was extremely susceptible to ionic interference, and the shielding provided its delicate circuitry with only limited protection from radiation damage.

THE INTERIOR

The interior of the Shuttlecraft *Galileo* was configured with black swivel chairs to accommodate up to seven crew members. The cabin was entered through a door on the port side of the vessel, with an aft compartment placed at the rear of the cabin for equipment storage. Panels in the floor and on the outside of the shuttle, at the aft end of the craft, allowed access to the vessel's internal workings.

The pilot and co-pilot sat at the front of the cabin, facing a variety of readouts and globe-shaped monitors that could be used to access the sensors. A retractable shield allowed the crew to view the flight path.



WEAPONS AND DEFENSE SYSTEMS

The *Constitution-class U.S.S. Enterprise NCC-1701* was equipped with state-of-the-art weaponry and defensive systems, used as a last resort when combat became unavoidable.

PHASERS

The *U.S.S. Enterprise's* phasers had an effective range of 300,000 kilometers and were used in sublight combat. The ship's main phaser banks were located on the lower half of the saucer section. Phasers could be adjusted to different settings: when the ship was in planetary orbit, an experienced operator could use them to stun, heat, or disintegrate objects or beings on the surface. The target area could be as large as a city block or as small as a house.



Phasers were fired from the underside of the saucer section.

Photon torpedoes could be deployed at warp speed.



PHOTON TORPEDOES

Photon torpedoes gather momentum from their launcher, and their velocity is sustained by a small onboard engine. However, if a warp-capable ship reacts quickly enough it can outrun a photon torpedo. Photon torpedoes contain packets of matter and antimatter which are held apart by magnetic seals until forced together to generate an explosion. In the 2260s, photon torpedoes were effective only at distances up to 750,000 kilometers.

SHIELDS

The ship's deflector shields could be raised to different levels or strengths. Lower levels would repel space debris; higher levels protected the ship from enemy weapons. Shield strength was weakened by repeated attacks, but could withstand several phaser or disruptor blasts from enemy vessels. Deflector shields could also be used to prevent beings with primitive technologies from detecting the presence of a ship. The *Enterprise* was also able to extend its shields to protect a smaller ship.



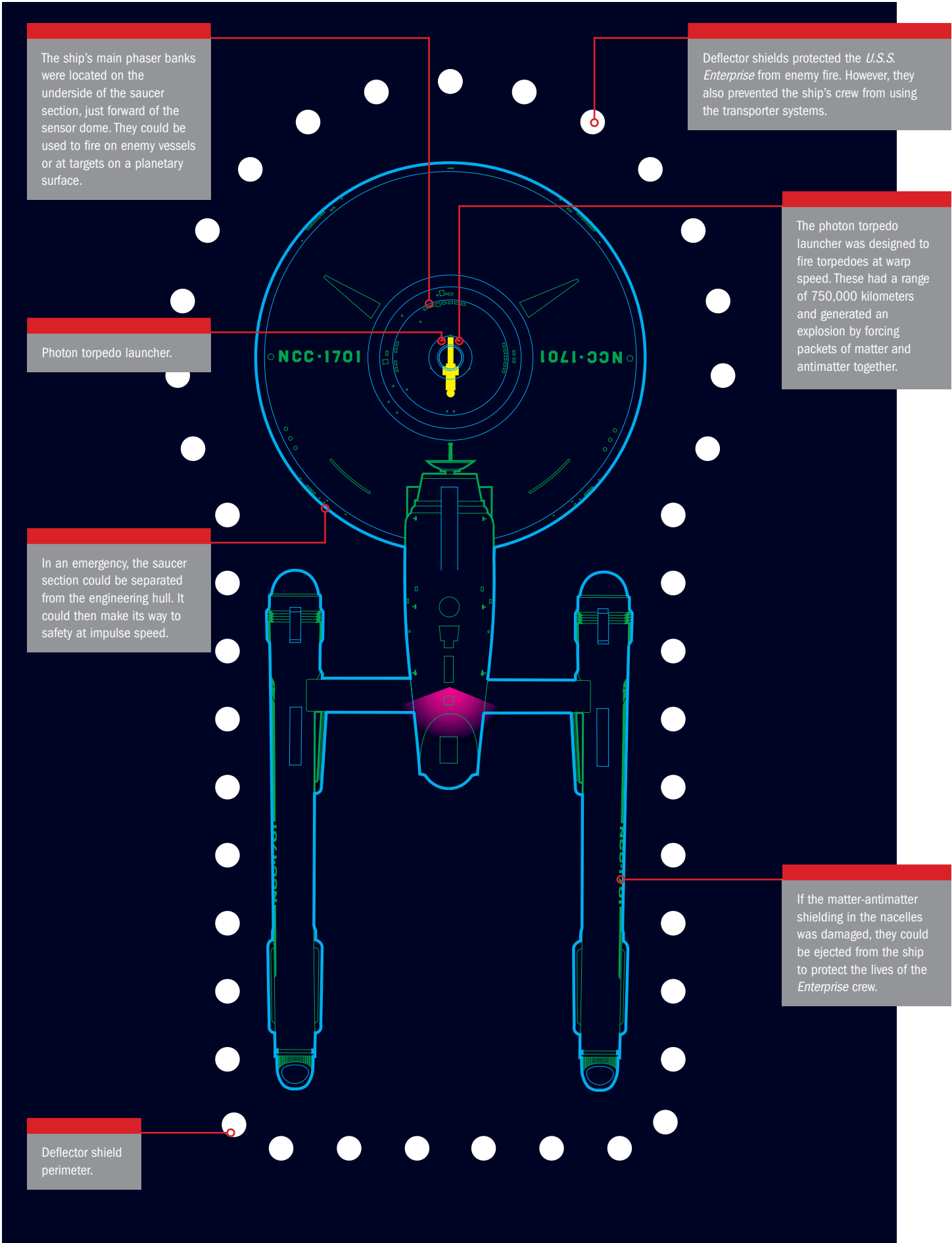
The shields were raised when the ship went to red alert.

The computer and sensor systems were used for targeting and tactical analysis.



COMPUTER AND SENSOR SYSTEMS

Tactical functions were divided between several stations on the bridge. The science station provided detailed analysis of any threatening spaceborne objects, allowing personnel to determine their composition and, if relevant, shield strength. The helmsman and navigator could access information about the range of enemy vessels, the likely effects of any weapons fired on the ship, and the degree of damage the ship had sustained while under attack.



THE SICKBAY

Staffed by highly trained and dedicated professionals, the sickbay on the *U.S.S. Enterprise NCC-1701* was a state-of-the-art facility designed to cope with almost any kind of medical emergency.

The *U.S.S. Enterprise* sickbay, located on deck 7 – the most protected area of the ship – was one of the most important facilities aboard the NCC-1701. For the majority of Kirk’s first five-year mission, sickbay was usually staffed by Chief Medical Officer Dr. McCoy and Nurse Chapel, but the *Enterprise* crew included at least 30 medical personnel in total.

FOUR AREAS

The sickbay was divided into four distinct areas: a research lab, the doctor’s office, an examination room, and a surgical and recovery ward. The first three of these areas had doors that opened directly onto the deck’s main corridor, and each area was separated by bulkheads with open doorways between them.

Sickbay’s research lab contained a long table and a wealth of analytical instruments, including an electron microscope. A terminal provided direct access to the ship’s medical database, allowing staff to cross reference their findings with the vast amount of information that had been gathered by Starfleet Medical. The lab also contained one of the *U.S.S. Enterprise*’s decompression chambers, which was used to reacclimatize crew members who had endured irregular atmospheric pressures.

This main lab was supported by 13 other science labs aboard the ship, which allowed medics and science staff to perform many tests and experiments simultaneously.



If a crew member was killed, the body was normally taken to the examination area in sickbay for a post mortem. Mr. Scott was especially fortunate, as the NOMAD probe which killed him was also able to restore him to normal health.

THE DOCTOR’S OFFICE

Reflecting McCoy’s hands-on reputation, the Chief Medical Officer’s office contained two cabinets filled with traditional medical instruments, including apothecary jars and medicine bottles, and a fine collection of skulls.

McCoy’s desk contained a communicator and a library access terminal. The doctor was responsible for keeping detailed records on the ship’s crew, and everyone aboard was required to attend a regular physical examination, which he recorded at this terminal. The computer also provided the doctor with up-to-date information on new medical procedures and experimental techniques, maintaining a constant awareness of the cutting edge of medical science.

THE EXAMINATION AREA

Used for regular check-ups or in emergency situations, sickbay’s examination area contained a pivoting full-length biobed used to examine patients, which was equipped with various discreet scanning devices. A display mounted on the bulkhead above the bed contained a readout with six vertical scales, monitoring vital functions including respiratory rate, body temperature (shown in both Fahrenheit and Celsius), brain activity, lung efficiency, cell rate, heart valve action, blood pressure, and lung efficiency. Another, smaller biobed unit was used to assess a subject’s physical condition, with pressure pads in the



The surgical and recovery ward was equipped for complex procedures such as cryogenic heart surgery. A surgical support frame maintained a sterile environment, allowing the medical staff to work quickly and safely.



The research lab was equipped to analyse any unusual life forms that the *U.S.S. Enterprise* encountered.,

bulkhead testing body strength. The doctor would take readings of the patient under exertion, thus gaining an idea of the subject’s physical condition.

A nurse’s station in this area provided the duty nurse with access to medical records, and enabled them to monitor patients in the ward next door and respond immediately to any calls for assistance.

SURGICAL AND RECOVERY WARD

Advanced medical technology meant that long stays in sickbay were rare, and it was quite common for all three

beds in this ward to be empty. Each of the beds was fitted with a diagnostic monitor, beneath which was a single white light, illuminating the immediate area for the comfort of the patient. If a patient was confined to sickbay for observation or recovery, they could access the ship’s records to keep themselves entertained using an extending library viewer terminal next to the bed.

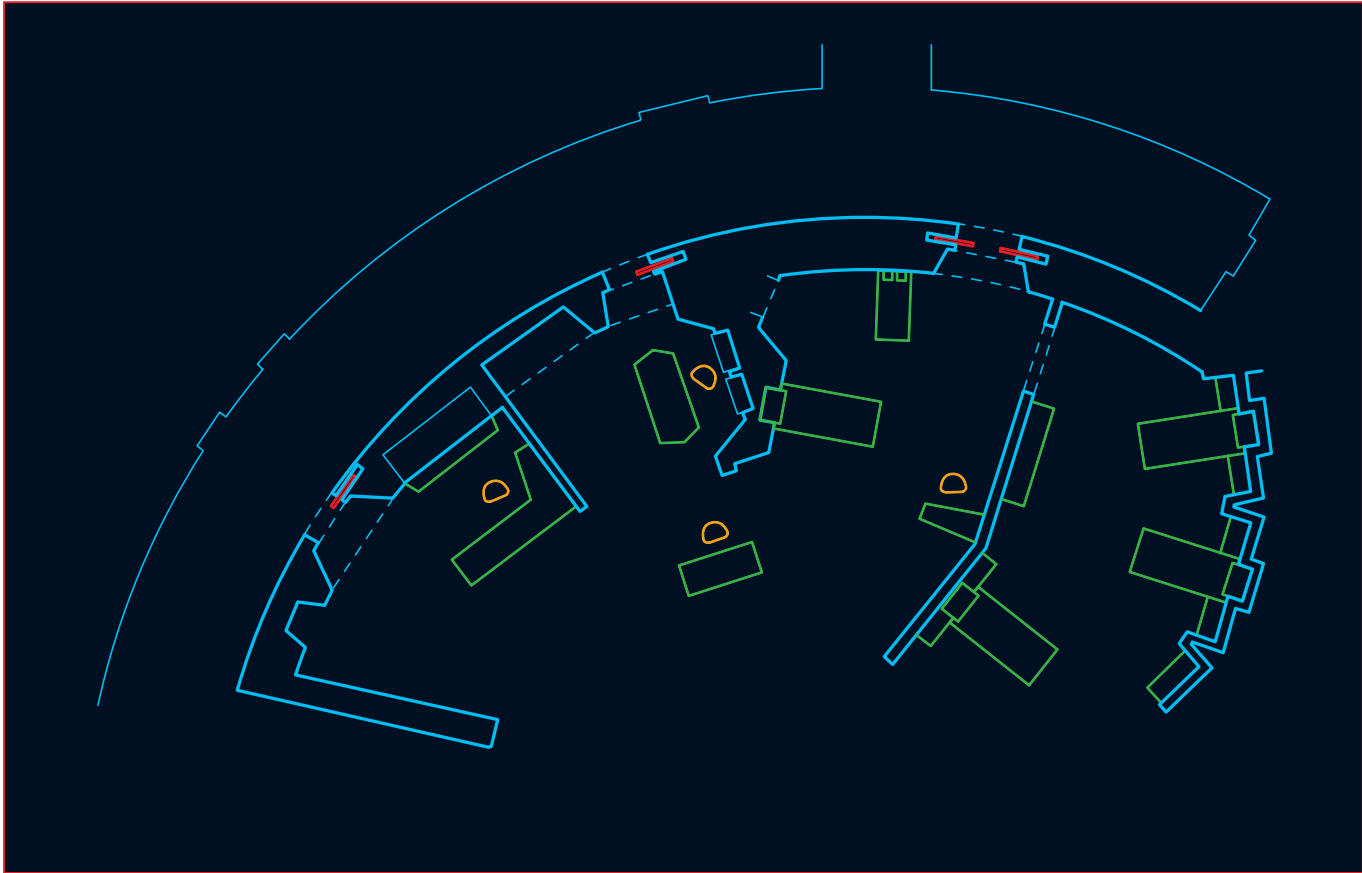
The ward was the only part of sickbay without direct access to the ship’s corridors. This ensured that a patient could not leave without going through the examination area and past the nurse’s station. Restraints were available for patients who became violent or attempted to leave sickbay without the doctor’s express permission.

SURGICAL PROCEDURES

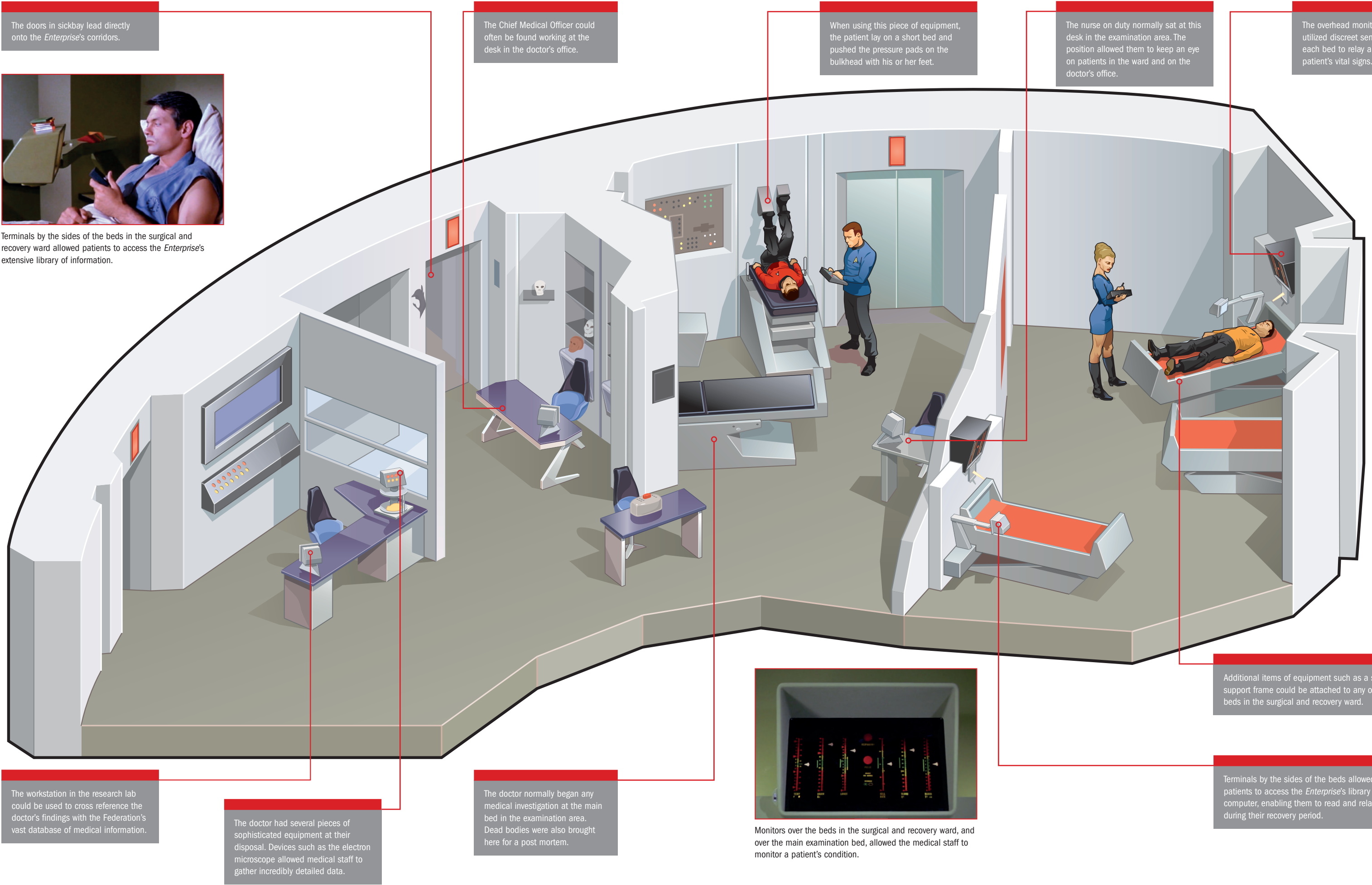
During operations that required a patient to undergo an invasive procedure, they were placed inside a portable surgical support frame that generated a sterile field, with sensors that monitored the patient’s status. If the ship’s power failed during an operation, an independent power supply was available.

RESEARCH AND RESCUE

The *Enterprise* was often sent on missions to deal with medical emergencies or to make routine medical inspections, and carried a number of vital medical supplies as standard. The ship was also equipped to collect and refine various substances with medical applications.



Floor plan of deck 7’s sickbay. The research laboratory is on the left of the plan, next to the doctor’s office. Adjacent to this is the examination area, and behind is the surgical and recovery ward. Doors leading to the main corridor are marked in red; beds and workstations in green, an seating for the medical staff in yellow.



THE BIOBEDS

Medical staff in the 23rd century were aided in their assessment of a patient’s condition by diagnostic biobeds, equipped with monitors continually displaying vital biodata.

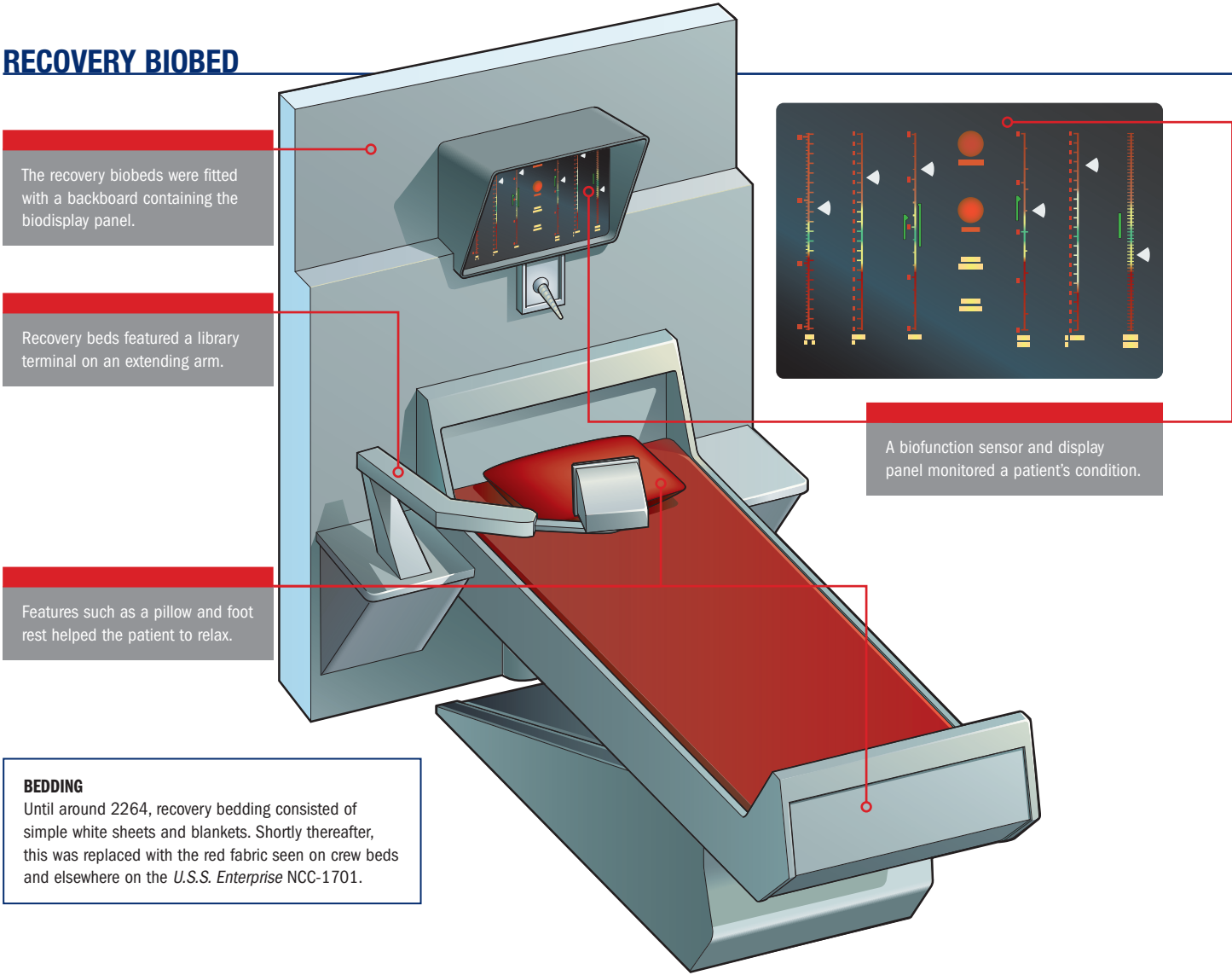
The medical diagnostic bed, or ‘biobed,’ automatically collected and reported a patient’s vital signs without disturbing the sick and injured party. The biobeds found on *Constitution*-class ships in 2266 consisted of three components: a comfortable, flat surface where a patient rested while a doctor attended to their diagnosis; a cone-shaped sensor that captured the patient’s biofunction data; and a component that converted this raw biodata into a meaningful display on a panel affixed to the bulkhead above each biobed. This panel was the biobed’s most important feature, detailing the patient’s respiration, pulse,

blood pressure, neural activity, level of pain, and more. If a panel’s audio system was active, data such as the patient’s heartbeat could be heard as well as seen.

HEALTH INDICATORS

The display panel contained six readouts offering various different bio-neural measurements, with an indicator arrow rising up and down along each chart to reflect the current status. In the middle of each line, a green segment denoted a normal, or desired, state. The more arrows resting in the green zones, the better the patient’s

RECOVERY BIOBED



condition. Red lights in the center of the panel’s display indicated the patient’s respiration and pulse.

TYPES AND FUNCTIONS

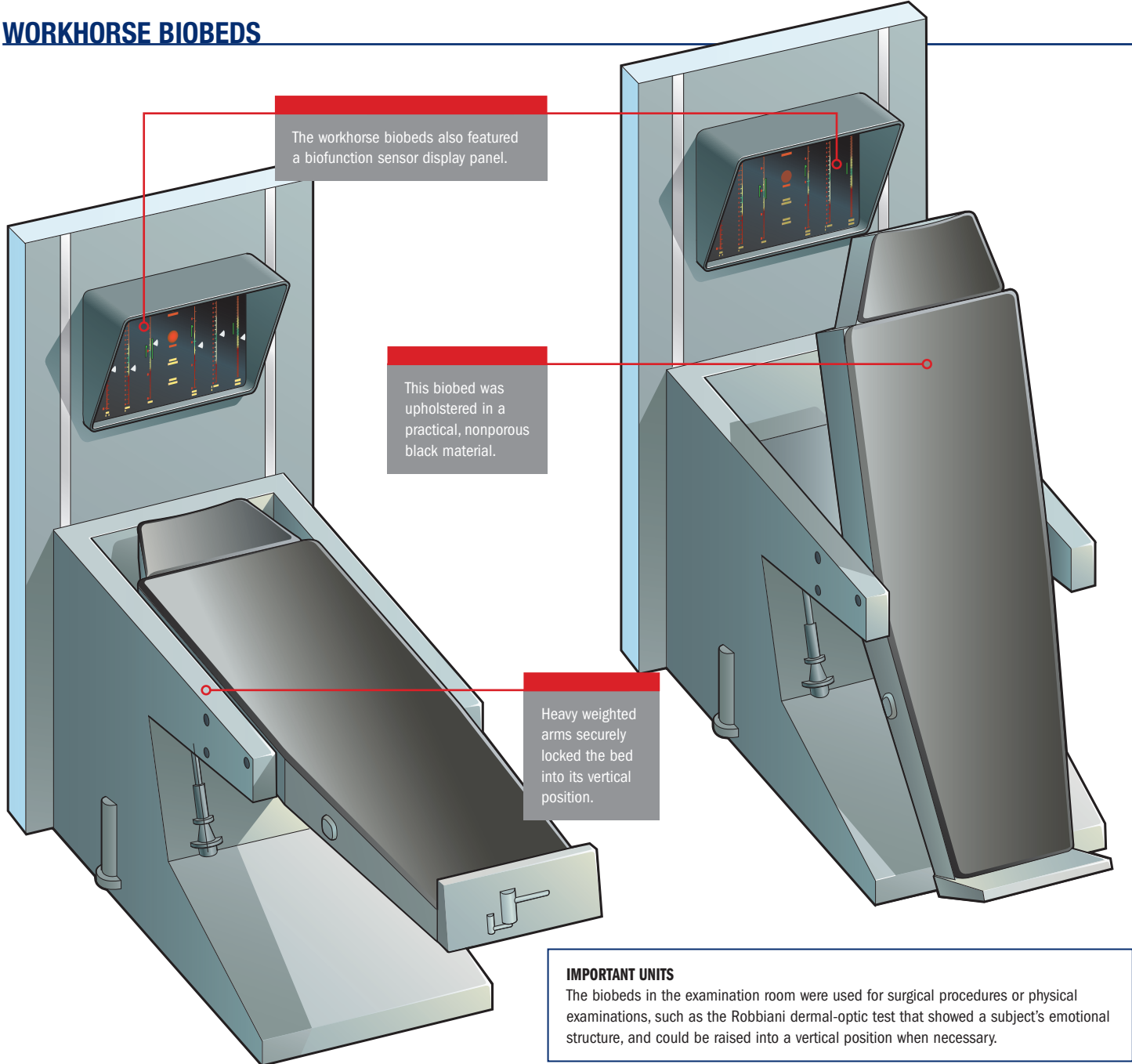
Starships such as the *U.S.S. Enterprise* had three styles of biobeds, used in the sickbay’s examination room and the recovery ward. All three were designed around the standard dimensions of an Earth humanoid, since Starfleet ships of this era carried few non-human personnel.

The workhorse biobeds used in the examination room were both upholstered in easily-cleaned, nonporous black material, with a pillow built-in to the main bed for patient comfort. This unit was used to receive seriously ill or injured crew members for treatment or surgery. Its wide, weighted base allowed it to be safely tilted into a vertical position, whereby a patient could step onto its foot rest and lean back as the physician carefully lowered the bed to a horizontal position, and locked it into place.

The unit could be fitted with a portable surgical support frame, placed laterally over the patient. A panel of switches on one side of the frame controlled functions including a sterile field generator and a cardio stimulator. The other side of this surgical support device was open, through which the surgeon could operate.

The second workhorse biobed was used for physical examinations, while a third type was installed in the recovery ward next door. These four recovery biobeds were stationary and resembled normal beds. Like the main examination room biobed, each of them was equipped with a sensor and a biofunction display panel.

WORKHORSE BIOBEDS



DECOMPRESSION CHAMBER

Space exploration routinely involves unusual atmospheres and gravitational influences. The *U.S.S. Enterprise* sickbay's decompression chamber was vital on occasions where such encounters caused a medical emergency.

Among the extensive medical facilities on the *U.S.S. Enterprise* was a multi-functional decompression and variable gravity chamber, which helped crew members suffering from decompression sickness to gradually adjust back to normal pressures.

The decompression chamber was built into a reinforced bulkhead within the sickbay complex. Originally fitted with a rectangular bed running the entire length of the room, the interior of the chamber was tall enough to allow a crew member to stand upright, although the circular entry hatch required the occupant to duck when passing through it. The exterior door was supported by two thick parallel rails, which ran along the underside and upper section of the chamber's outer wall, allowing the door to slide into place from right to left, forming an airtight seal. Only once the chamber door had been securely locked would air be pumped into or out of the chamber.

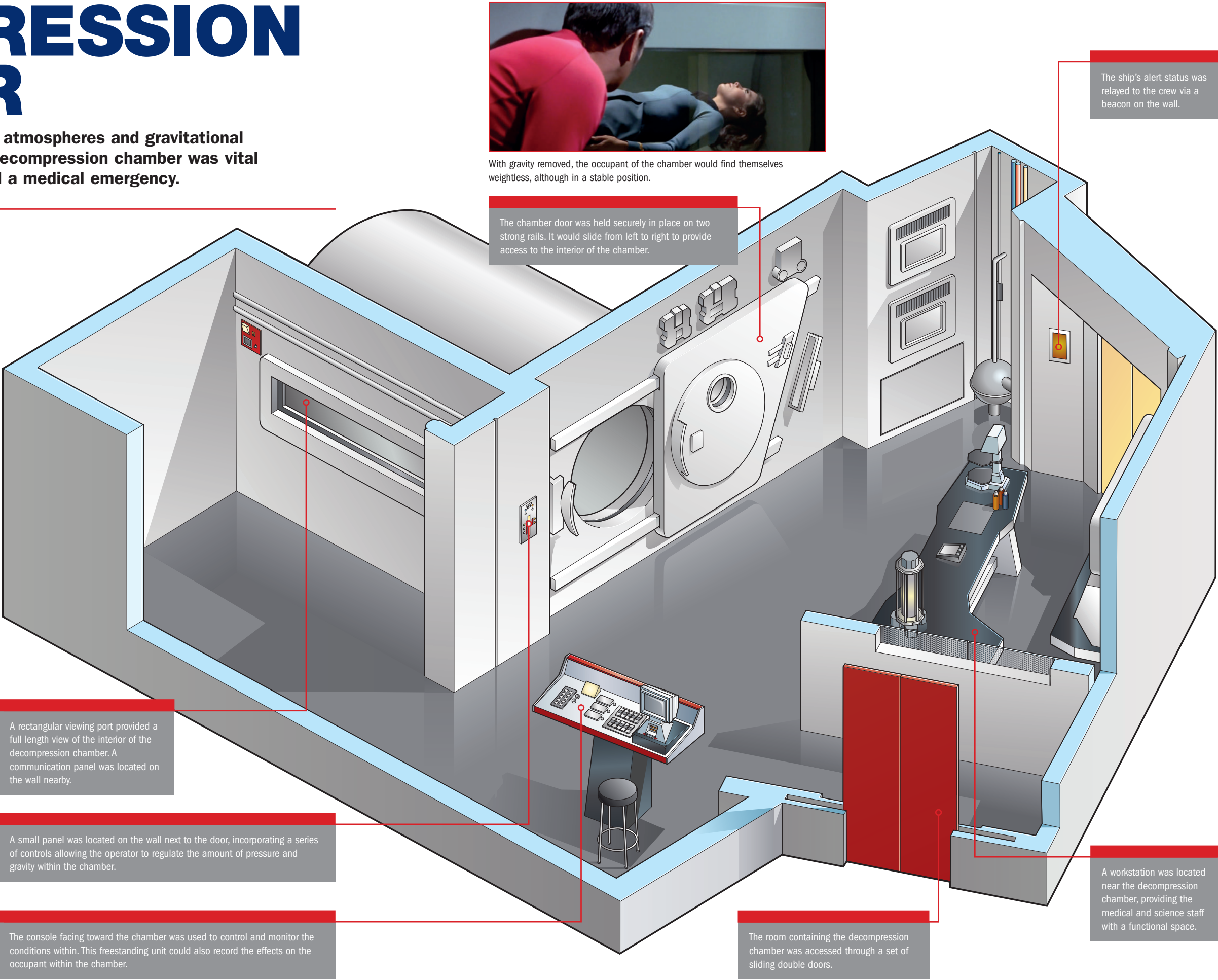
Located close by was a communications console and a large workstation, behind which a display panel relayed medical readings to the attendant physician during the treatment of a patient.

SECURE CHAMBER

An operative working at the monitor and control console facing the chamber could manipulate the interior conditions of the unit, and track the effects on the occupant within. The controls allowed an operative to alter both the chamber's atmospheric pressure and internal gravity relative to the rest of the ship. It was also possible to view the patient directly via a small observation port set into chamber's 30 centimeter thick door, and through another rectangular observation window running along the wall on its right-hand side.



The computer console set into the nearby monitor station recorded the effects of the chamber on the occupant within, which were relayed to medical staff.



BIOCOMPUTER AND MEDICAL TRICORDER

During a landing party, a starship doctor is often required to perform medical miracles without access to a sickbay. A tricorder and portable biocomputer can be used to establish a temporary lab away from the ship.

Portable medical instruments had long been an essential tool in a starship doctor's kit by 2266. However, when away from the ship, medical officers advanced surgical instruments would be useless without powerful diagnostic tools.

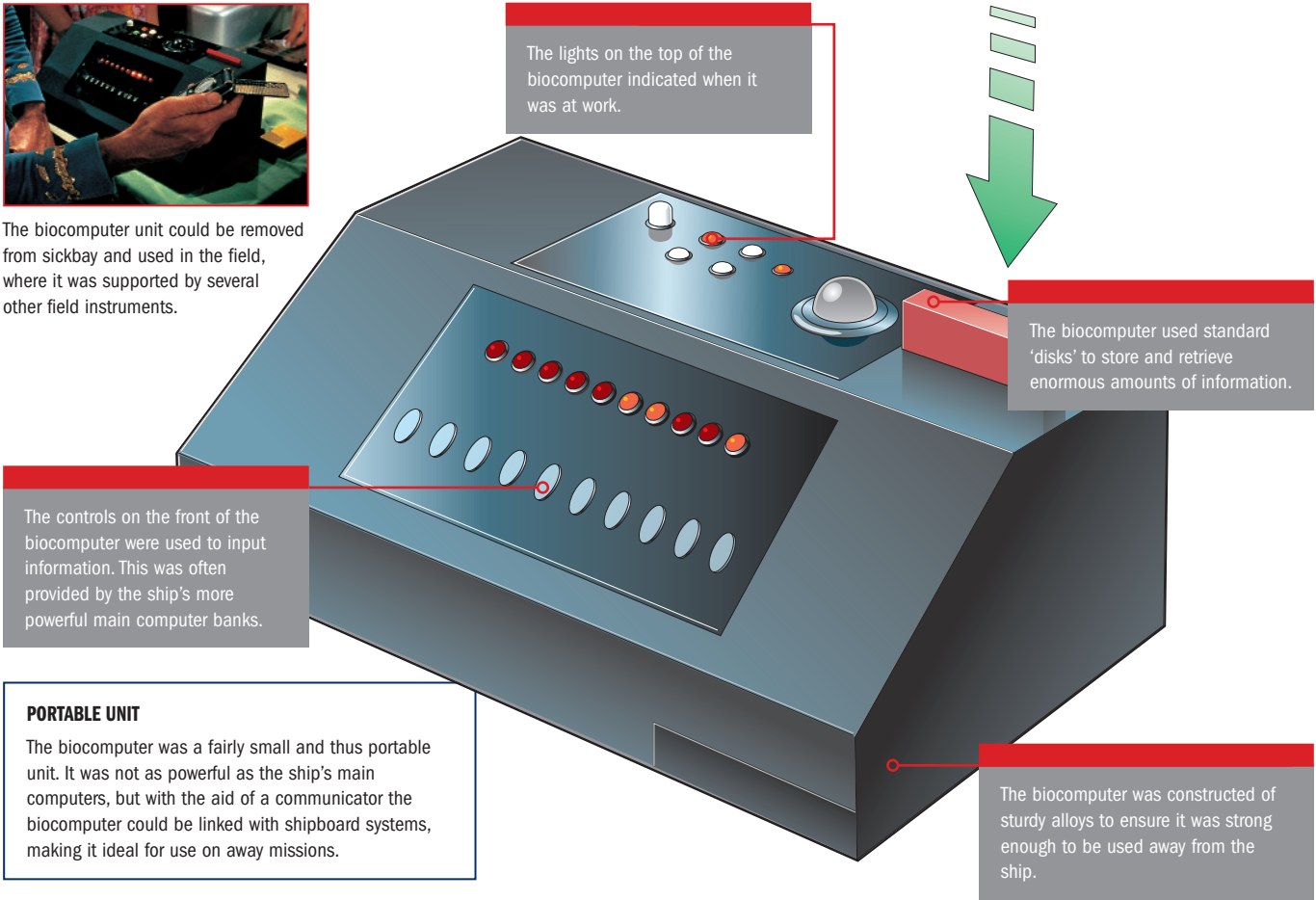
On a starship, the sickbay, with its biobeds and medical scanners, could provide all the facilities a doctor could need, but if a quarantine situation prevented medical personnel from accessing the sickbay, other tools were required. The most powerful available during this era was the portable biocomputer – a device normally kept in sickbay but portable enough to be used in the field in emergencies. The biocomputer was an invaluable element of the portable medical lab, providing computational power for the detailed analysis of samples and in the formulation and composition of antidotes and treatments.

Normally used in conjunction with a portable microscope, the biocomputer was at its most useful when linked via a standard Starfleet communicator to the main computers on the *Enterprise*. Unfortunately, this interactive necessity was also the biocomputer's main limitation, as it was incapable on its own of calculating the precise information often needed to determine the correct dosage for new and untested preparations.

BIOCOMPUTER



The biocomputer unit could be removed from sickbay and used in the field, where it was supported by several other field instruments.



STANDARD ISSUE

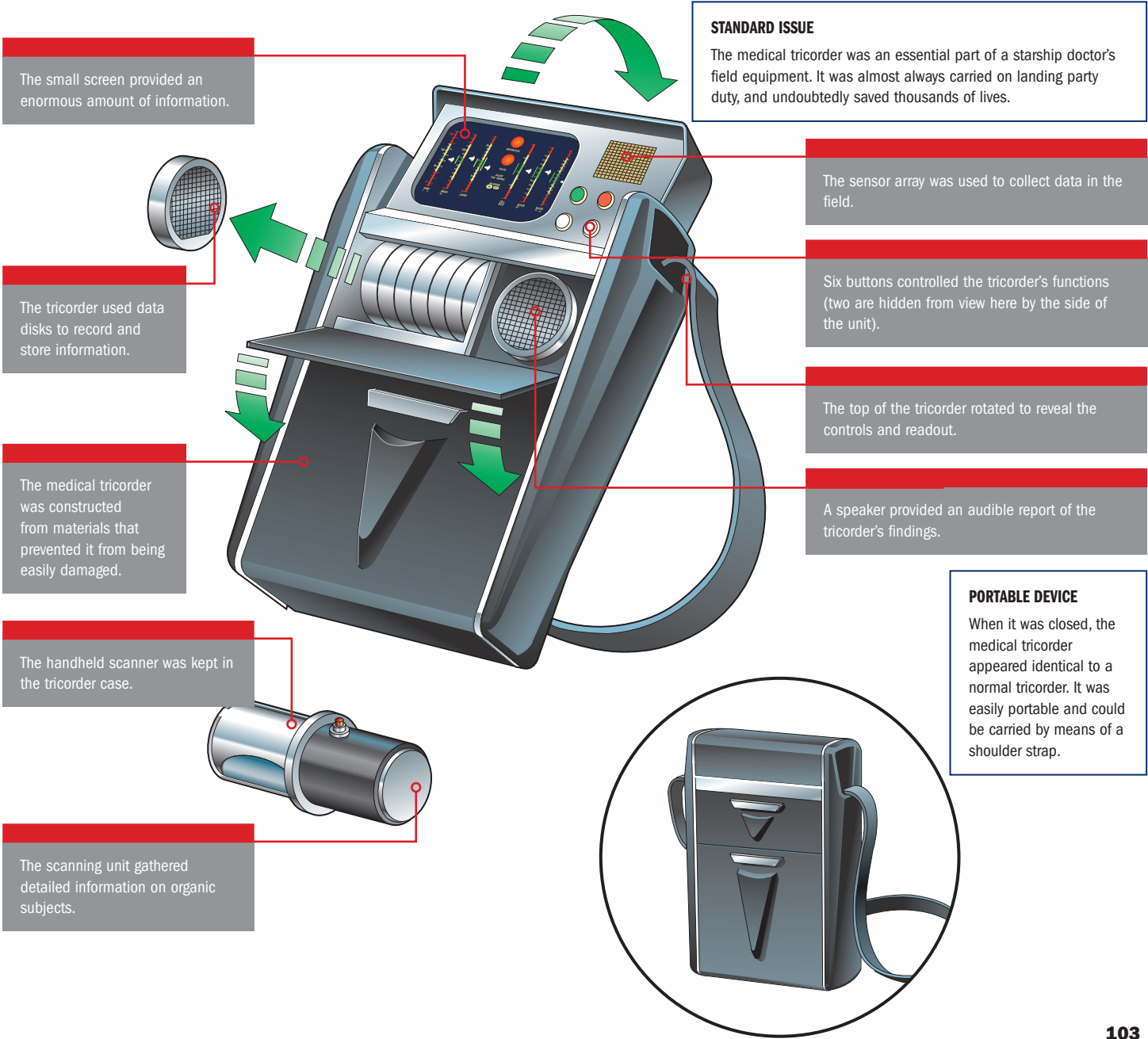
In most instances, landing party duty would not force doctors to establish a portable sickbay; in fact, all the information they needed could be provided by their medical tricorder. From the outside, this was identical to the standard tricorder. However, the relatively small portable device had been specially adapted to provide detailed medical information. The display could even be configured to duplicate the life-signs monitor that was normally displayed above a biobed. In the field, the medical tricorder could provide instant analysis of any life form, showing the severity and extent of any injuries, and useful information such as heart rate and blood pressure.

The medical tricorder's sensors could make internal scans, allowing doctors and nurses to ascertain whether an alien species possessed recognizable organs, or even if

individuals suffered from internal scar tissue as a result of previous operations or injuries. In the event of death, the medical tricorder could provide limited post mortem information, allowing a doctor to make a quick assessment of any potential medical dangers.

The medical tricorder operated entirely independently of the ship's computers; it stored a massive library of information on small, palm-sized disks, to which internal sensors added yet more data gathered by the tricorder. Unlike the standard tricorder, the medical tricorder also used a portable handheld scanner to collect supplementary information. This small scanning device was ideal for examining life forms in detail. Data from the tricorder was sufficiently detailed to allow a skilled operator to use it as a lie detector, although the analysis of this kind of information was obviously open to interpretation.

MEDICAL TRICORDER



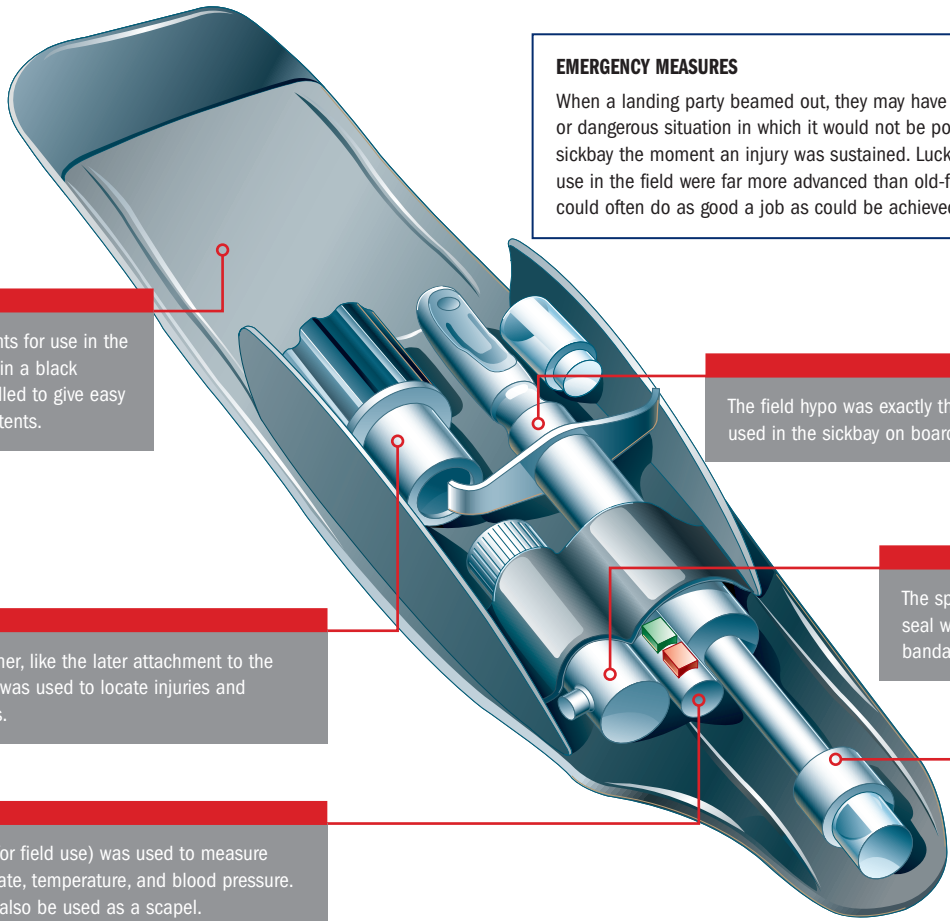
MEDICAL INSTRUMENTS

By the 23rd century, medicine had become a very precise science. Federation starships were fitted out with well-equipped sickbays and field medical packs capable of dealing with almost any emergency.

Starfleet exploration vessels of the 23rd century would often be far from the nearest Federation starbase for months at a time. Flying into uncharted space and beaming down to new planets carried many potential hazards, and so well-stocked, extensive medical facilities were highly important – for the sake of crew morale as well as for dealing with actual medical emergencies. As on most vessels, the crew of *Constitution*-class ships such as the *U.S.S. Enterprise NCC-1701* relied on its onboard sickbay, and during landing parties on a field pouch of instruments for administering first aid to injured crew members before they could be returned to the ship.

HANDHELD EQUIPMENT
Among the most heavily used devices found in the *Enterprise* sickbay was the medical hand scanner, which came in two sizes. Initial assessment of any new patient to sickbay was typically made using one of these portable devices, which generated additional readings that complemented those provided by biobed sensors.
23rd-century doctors also used a hypospray. The version employed in the 2260s more resembled an old-fashioned syringe, but administered medicine in the form of a high-powered aerosuspension liquid rather than through a needle.

IN THE FIELD



EMERGENCY MEASURES
When a landing party beamed out, they may have been heading into a hostile or dangerous situation in which it would not be possible to beam back to sickbay the moment an injury was sustained. Luckily, medical instruments for use in the field were far more advanced than old-fashioned first aid kits, and could often do as good a job as could be achieved in a shipboard sickbay.

Medical instruments for use in the field were carried in a black pouch which unrolled to give easy access to the contents.

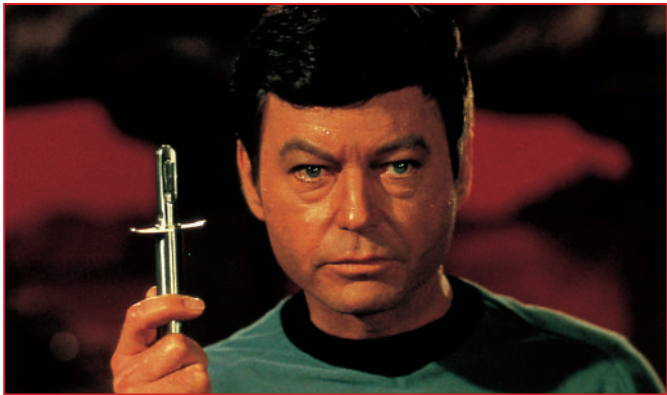
The field hypo was exactly the same model as the one used in the sickbay on board ship.

The spray dressing was used to seal wounds without the need for bandages or stitches.

Like the later models of hypospray, medicine was administered in a liquid suspension. There was no penetration of the skin with a needle.

The medical scanner, like the later attachment to the medical tricorder, was used to locate injuries and diagnose illnesses.

The reader tube (for field use) was used to measure heartbeat, pulse rate, temperature, and blood pressure. This device could also be used as a scalpel.

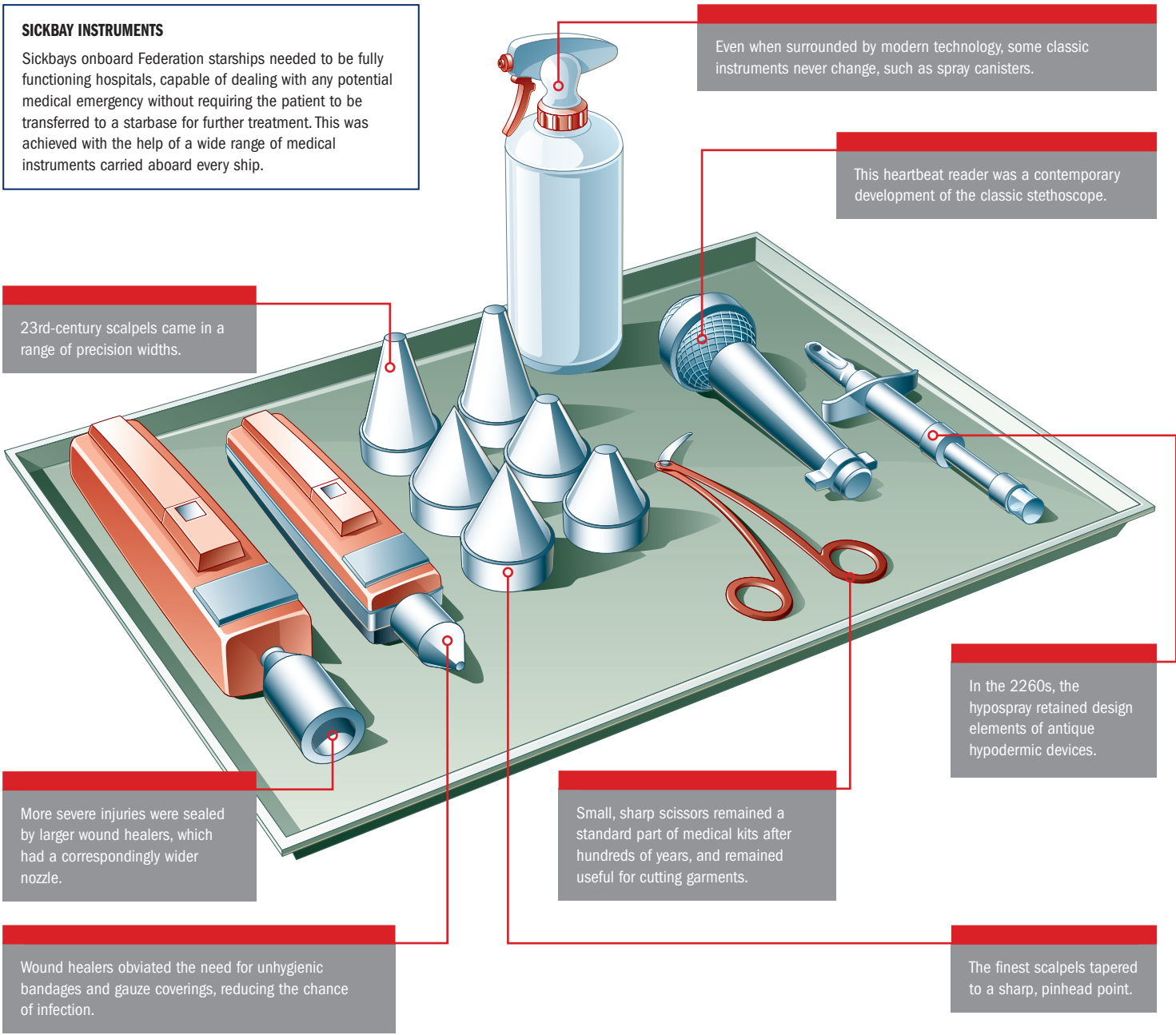


The hygienic hypospray, able to administer medicine through clothing, was one of the most valuable parts of any medical kit, and remained so into the next century.



The compact hand scanner allowed close-up diagnosis of many medical problems without requiring the patient to remove his or her clothes.

ONBOARD SHIP



SICKBAY INSTRUMENTS
Sickbays onboard Federation starships needed to be fully functioning hospitals, capable of dealing with any potential medical emergency without requiring the patient to be transferred to a starbase for further treatment. This was achieved with the help of a wide range of medical instruments carried aboard every ship.

Even when surrounded by modern technology, some classic instruments never change, such as spray canisters.

This heartbeat reader was a contemporary development of the classic stethoscope.

23rd-century scalpels came in a range of precision widths.

In the 2260s, the hypospray retained design elements of antique hypodermic devices.

Small, sharp scissors remained a standard part of medical kits after hundreds of years, and remained useful for cutting garments.

More severe injuries were sealed by larger wound healers, which had a correspondingly wider nozzle.

Wound healers obviated the need for unhygienic bandages and gauze coverings, reducing the chance of infection.

The finest scalpels tapered to a sharp, pinhead point.

HYPOSPRAY: 2260s

The hypospray was an integral part of the Starfleet medical kit in the 2260s, used to administer medication directly into the patient’s bloodstream without the use of a hypodermic needle.

A hypospray was a handheld device, primarily used by doctors and nurses to swiftly and safely inject medication into a patient’s body. The potentially life-saving medical instrument could be used on any life form with an epidermal layer such as skin, and a fluid-based circulatory system similar to that of human beings. As ingenious as the hypospray design of the late 2260s was, it was essential that the instrument was handled with care, whether by a medical practitioner or not.

COMPOSITION

The hypospray’s body was made of two hollow rods: the main shaft and the plunger. At the dispensing end, a nozzle defined the medicine’s spray pattern. A flat metal strip intersected the hypospray near the nozzle end to make

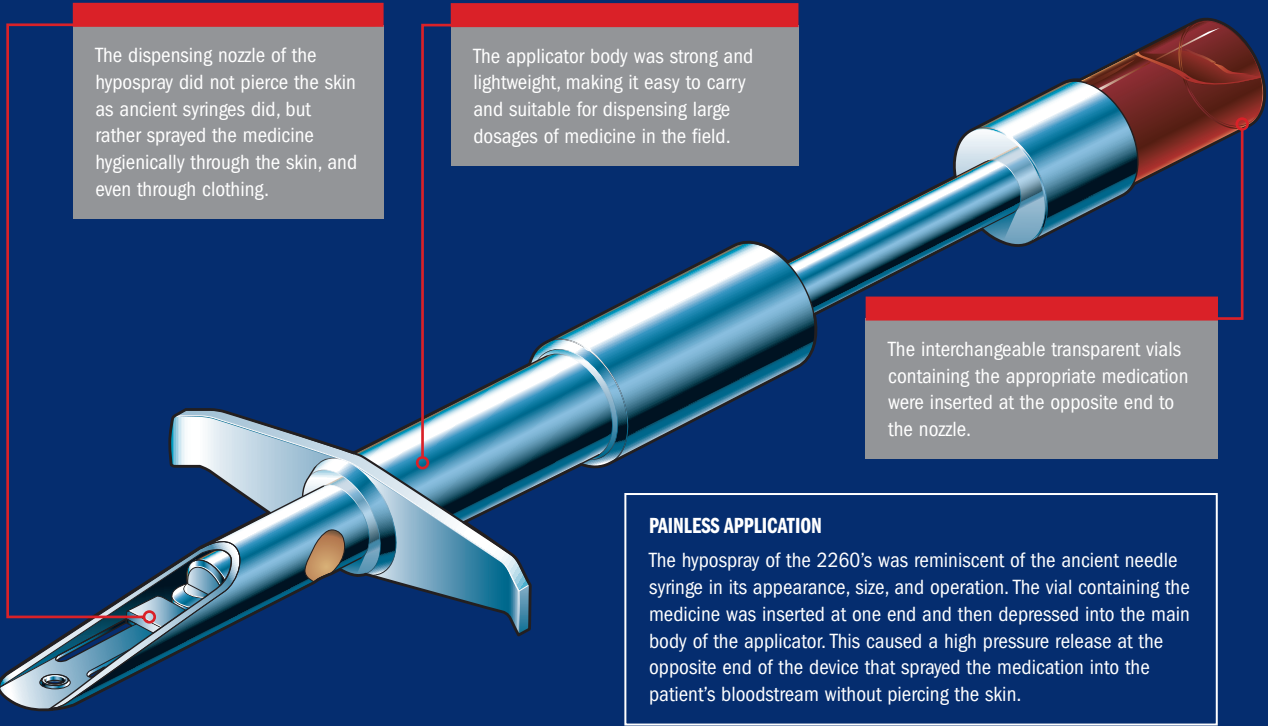
application easier, and the base of the hollow hypospray plunger was capped by a precisely fitting medicine vial. These vials were small, clear cylindrical containers filled with various color-coded drugs.

Loading medicine into the hypospray using these containers eliminated the possibility of contaminating the liquid solution that was contained within. If a different medication was required, the user would simply remove the existing vial and insert a new one. Because the vials were very compact, a physician could easily carry an assortment of drugs in their medikit or field pouch.

Drugs usually found in a medic’s basic kit included stimulants such as formazine or Masiform D, sedatives, a local anaesthetic, a hyronalin to treat radiation poisoning, and a tri-ox compound to improve oxygenation of the blood.

MEDICAL MARVEL

Enabling painless and hygienic administration of medicines directly into a patient’s circulatory system, the hypospray was a wonder of 23rd century healthcare.



LIMITED SUPPLIES

As most medicines were dispensed in measurements of milliliters and cubic centimeters, each vial contained many applications. Inventories of these precious medications were finite, however, and had to be closely monitored and replenished by Starfleet. If required, replacements for many pharmaceuticals could be manufactured by the resident physician in a starship’s well-equipped medical laboratory.

When a doctor or nurse treated a patient, their first step was normally to take a medical or tricorder scan of the patient’s biological functions. This data helped formulate the proper medicine and dosage. Dispensing the lifesaving liquid via the hypospray was a three-step process.

First, the left hand grasped the hypospray shaft near the flat strip of metal, preventing the user’s hand from slipping onto the nozzle during operation. Next, the nozzle was positioned at the intended dispersion point, usually touching the patient’s upper arm. Finally, the user’s other hand plunged the end tube toward the nozzle, activating the hypospray’s internal mechanism to produce a high speed spray capable of penetrating clothing and skin. The release of the drug was accompanied by an audible hiss. The hypospray’s most important feature was this high-speed spray delivery system, guaranteeing contaminant-free injections.

SAFETY MEASURE

The hypospray never came into direct contact with a patient’s blood, eliminating the risk of inadvertently passing on infections; this had the added benefit of allowing the doctor to administer the same medicine to a number of patients in a short space of time, as it was unnecessary to switch hyposprays after each dose had been given. Additionally, the spray nozzle made it possible to safely administer medicine without first immobilizing the person to whom the medicine would be administered; there was no fear of harming even a resistant or convulsive patient, and the two-handed operation could be learned by those with almost no formal medical training.

One of the few design drawbacks of the 23rd-century model, however, was the inability to adjust the speed or width of spray. This was not often an issue, but on some occasions the point of injection had to be altered to



Several types of medication could be administered through clothing using the hypospray. The drugs passed directly into the blood.



The hypospray was used to administer medicines, but other devices, such as the biocomputer, were used to formulate the drug itself.

accommodate the medicine being dispensed. For example, applying the nozzle directly to the skin, rather than through clothing or over a specific artery or muscle mass, noticeably affected the absorption rate.

Despite the hypospray’s tremendous effectiveness and common usage, it suffered from one major shortcoming that had the potential to make it a dangerous weapon: it had no safety mechanism or inbuilt monitor to prevent an inadvertent overdose.

POTENTIAL PROBLEMS

In 2267, an incident involving Dr. Leonard McCoy dramatically illustrated this shortcoming. The ship was buffeted, violently tossing McCoy and his loaded hypospray against a railing, depressing the plunger and injecting a full vial of cordrazine into his own body – a stimulant usually administered in dosages of just 2 milliliters. McCoy’s subsequent manic behavior lead to a temporal catastrophe that eradicated significant events of the previous 300 years. Damage to the timeline was soon repaired, but the serious nature of the scenario demonstrated the need for a dosage-controlled hypospray.

In general, however, the hypospray was instrumental in helping to save many lives, and the same easily portable device was used aboard starships as well as by landing parties. With Starfleet personnel often beaming into unknown or hostile situations, a timely injection from a hypospray could mean the difference between life or death.

LIFESAVER

The *Enterprise* crew experienced many instances where a hypospray proved invaluable, such as when Spock, suffering from *Pon farr*, became embroiled in a fight to the death with Captain Kirk on Vulcan. Dr. McCoy used his hypospray to administer Kirk with a neural paralyzer to make it appear as if the captain had died, thus averting his real death and circumventing the crazed Spock having to be handed over to Starfleet authorities.

Overall, the hypospray was a durable and flexible item of medical equipment that could be used to treat a variety of ailments and conditions. Time and again, it was an invaluable and trusted medical aid for Federation physicians in treating their patients efficiently.

BOTANICAL FACILITIES

The botanical gardens and facilities on board the *U.S.S. Enterprise* NCC-1701 provided a natural environment in which the crew could indulge their hobbies and relax when off-duty.

The crew of the *U.S.S. Enterprise* NCC-1701 often went for long periods without the opportunity to explore a natural environment planetside, either on landing party duty, or on shore leave. In order to alleviate this downside of long-term space exploration, the designers of the *Enterprise* provided its crew with a respite from the usual scenery of stars – in the form of botanical facilities. These facilities were located within a large room aboard the starship, accessed from the deck’s corridor through double sliding doors, colored yellow rather than the usual red. Some sections of the walls were colored turquoise, while other sections were comprised of lightly illuminated vertical panels. These thinner, lilac-colored columns gave an attractive illusion of soft sunlight shining in through a conservatory window.

PRACTICAL DESIGN

The overhead bulkhead hung down in four central, curved beams, stretching out into four corners of the garden, giving the room a gazebo-like appearance. The design was similar to the layout found in parks and gardens on Earth.

Benches extended from support beams or were attached as a long beam either side of a rectangular table. A circular flower bed lay in the center of the gardens, set into an attractive pergola, which spilled with exotic, alien blooms sourced from planets across the Galaxy.

REFRESHMENTS

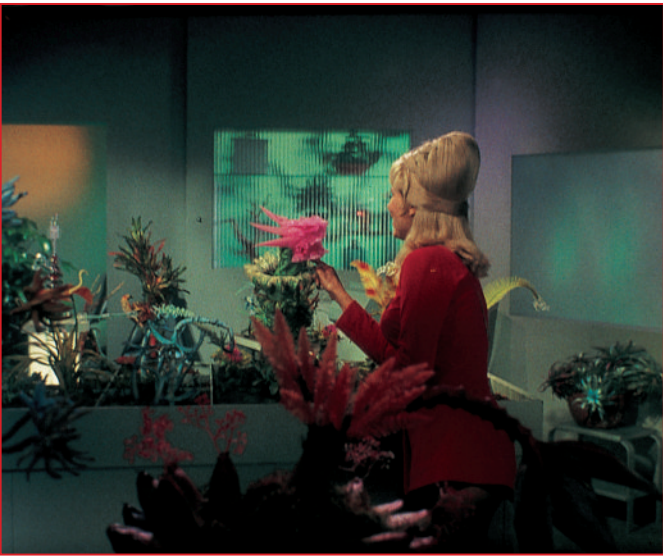
The garden was equipped with three food slots that provided a small meal or light refreshment for crew and visitors. The food dispenser featured three yellow-colored hatches with four lights running beneath them on the right. When an order of food was placed, these would light up in sequence before the hatches rose to reveal the dish. Food was ordered using menu cards, that were inserted into a small slot beneath each of the hatches. The computer then selected and prepared the desired combination of food. This feature really completed the day-in-the-park experience of the *Enterprise*’s botanical garden. For example, crew could choose an ice cream dish from a variety of available flavors, and enjoy at one of the garden’s benched tables.



In 2268, the *Enterprise*’s botanical facility served as a playground for the surviving children of the Triacus Colony, when Nurse Christine Chapel took the children for an ice cream in the artificial gardens.



Exotic container-grown plants, cultivated from seed and gathered from alien planets, thrived in the softly illuminated botanical garden environment.



The botanical gardens contained samples of a wide variety of plants from the many planets that the *Enterprise* visited, including numerous rare and exotic orchids.



Food dispensers were set into a side wall of the garden area for visitor use. Ice cream was a popular choice, but fresh fruit and vegetables were also abundant.



There was enough space aboard the *Enterprise* for plants of any dimension to be cultivated, with room for trees, bedding plants, hanging plants, and delicate flowers.



A comm system was mounted on one of the peripheral walls of the botanical gardens for convenience and security.



The gardens offered an opportunity for crew members to cultivate their hobbies. Many beautiful blooms were brought to life thanks to Lt. Sulu’s dedication to botany.

CAPTAIN'S AND CREW QUARTERS

As Starfleet's flagship, the *U.S.S. Enterprise* offered crew quarters that were comfortable and efficient, allowing crew members the chance to enjoy their personal space as they pleased.

In the 2260s, the quarters on *Constitution*-class vessels, such as the *U.S.S. Enterprise* NCC-1701, were designed to provide the crew with a place to rest and work. Space was at a premium, but the extended nature of the ship's mission meant that privacy and comfort were vital to the emotional wellbeing of the crew, and even junior crew members such as yeomen had their own cabins.

The basic cabin consisted of a single room divided by a half wall and a screen into a sleeping alcove and a living area. The beds in the alcoves were usually covered with a red-orange material. Behind the bed was a shelf with space for personal possessions, above which the occupant would often hang a picture or other work of art. There was a large space at the foot of the bed for other objects.

Immediately opposite the bed was a revolving section of wall containing a storage unit. One side held several deep shelves on which more possessions could be displayed. When rotated, the shelves were hidden and a chest of

drawers was revealed. Small toiletry items were generally stored on a shelf above the drawers, and a mirror was usually hung above them.

WORKING ENVIRONMENT

The living area contained a triangular desk, which was situated parallel to the screen that separated this space from the sleeping area. Although there was usually only one chair at the desk, there was room for a second chair on the opposite side for informal meetings.

Desks were generally equipped with a computer terminal, which facilitated intraship communications and could replay recorded messages. The device was also linked into the ship's library computer, and could be swiveled through 360 degrees to enable access from both sides of the desk.

Around the perimeter of the living area was another narrow shelf upon which more personal possessions could be displayed.



Crew quarters on the *Enterprise* were divided into two areas, containing a bed, storage, and a desk.



Even off duty, Captain Kirk kept in constant contact with his crew using a comms terminal on his desk.



Spock would often use his quarters for solitary meditation or to practice on his Vulcan harp.



Uhura's quarters gave her the opportunity to express her artistic nature in a calming environment.



Many crew members, such as Mr. Spock, used their quarters as an additional, private work space.



The captain's quarters were fitted with a combination safe for sensitive items.



Crew members' names were clearly marked on their cabin's door, with a number identifying its location.



Each cabin contained a chest of drawers in a rotating unit, and shelves in an alcove.



The drawers were large enough to contain several changes of uniform and personal items.

All quarters were painted in standard Starfleet off-white colors, but crew members were free to decorate their rooms as they wished. Plants were common, and most *Enterprise* personnel, even the Vulcan Mr. Spock, chose to fill their quarters with objects of personal importance.

THE CAPTAIN'S QUARTERS

Captain Kirk's quarters were generally neat and sparse. A modernist painting hung on the wall next to his bed in the sleeping alcove, and a small, decorative six-sided mirror hung above the rotating chest of drawers. There were several books and sculptures around the room, but his most prized possessions were kept in a square safe in the half wall between the sleeping and living areas. The safe had a five-button combination and contained Kirk's many medals, along with special instructions for Mr. Spock and Dr. McCoy which were to be played only in the event of Kirk's death. It was not uncommon for the captain to work in his quarters, where he might be joined by his yeoman.

THE OFFICERS' QUARTERS

Spock's quarters reflected his Vulcan heritage. Several artifacts, including a Vulcan harp, were hung on the walls; he also had ceremonial bells of the kind used in the *koon-ut-kal-if-fee* marriage ceremony. Some of the walls were covered with long red drapes. Spock had the standard computer terminal removed and a larger system installed, enabling him to perform some of his more complicated work as a science officer in the comfort of his quarters. Spock also had a three-dimensional chess set, and often relaxed by playing against the *Enterprise's* computer.

The Vulcan first officer was not the only crew member to have decorated his quarters with ethnic artifacts. Chief Engineer Montgomery Scott's quarters clearly belonged to a Scotsman; he displayed his own kilt on one wall, and more than one bottle of whisky could be found on his shelves. Further objects hinted at Scott's fascination with Scotland's romantic past and his love for engineering; a helmet from an old suit of armor sat alongside more contemporary technological wall hangings.

Lieutenant Uhura's African heritage was reflected by her quarters. She kept several small African statues on the top of her drawers, her bed had a carved bedhead, and it was covered with a pale pink spread, over which was thrown the skin of a zebra – a creature native to the United States of

Africa, where Uhura was born. Opposite the bed a large urn stood on a stone block in an alcove. Instead of the standard triangular desk, which extended from the wall in other quarters, Uhura had an oval table. Some of her walls were covered with glass bead hangings.

Not all personnel went to so much trouble with their quarters. Dr. McCoy's quarters in Cabin 3F 127 were relatively spartan, and there was a surprising lack of medical memorabilia. He did, however, keep a bottle of red sleeping pills in his room. His personal possessions were limited to a small collection of leather-bound books and small sculptures displayed on the shelf behind his desk.

JUNIOR STAFF QUARTERS

The general layout of the junior officers' and crewman's quarters was exactly the same as the senior staff's. Some crew members, such as the ship's historian, Marla McGivers, who served on the *Enterprise* in 2267, had more opportunity to spend time in their quarters. McGivers had adapted hers to serve as an artist's studio, with an easel set up in the living area. Pastel light washed across the walls. The place was filled with statues and paintings of heroic men of the past, such as a gladiator named Flavius, Julius Caesar, Richard the Lionheart, and Napoleon. She had painted most of the portraits herself.

Guest quarters aboard the *Enterprise* were clean, bright, and similar to officer's quarters. The majority of them were on Deck 6, but secure guest quarters were located on Deck 2. In some situations, senior officers would give up their quarters for visiting dignitaries.



Most crew members personalized their quarters; even the restrained Mr. Spock decorated his with artifacts from his home planet, Vulcan.

3D CHESS

Chess, a game of strategy and skill, had become a popular pastime throughout the Galaxy by the 23rd Century, although it had evolved far beyond its ancient Terran origins.

Few games of any kind have had as much universal appeal as chess, which can trace its roots as far back as Earth's 6th or 7th century, in the region known as India. It was at this time that a group of refugees from the planet Sahndara briefly settled on Earth and took the game to their hearts – and away with them when they left Earth for another world.

The original one-level playing board, with its battlefield of 64 squares hosting a conflict between two armies of 16 pieces each, took modern shape in Earth's 15th century and retains ardent fans to this day. It remains a symbol of complexity and intellectualism, although the most spirited play results when players do not remain slaves to well-established, tried-and-tested moves.

CHESS IN THE 23RD CENTURY

The game fostered at least two challenging and popular variants, both played on multi-planar boards which added the challenge of three-dimensional thinking. 3D chess was a staple recreational activity aboard the *U.S.S. Enterprise*, among players of all ranks and departments.

Like its predecessor, 3D chess pitted two players against each other on 'black' and 'white' sides – although the actual color of the pieces varied depending on the set being used. The rules remained much the same: each player would attempt to defend their king against checkmate or capture by deploying their other pieces – eight lowly pawns, two rooks, bishops and knights, the king, and the powerful queen – using moves unique to each piece.

VARIATIONS

Basic 3D chess employed three boards stacked on top of one another on a frame, with moves possible in both horizontal and vertical directions. In this version of the game, known to be played by Ferengi as well as humans, the upper board was known as the 'king's level' and the middle as the 'queen's level.'

These terms also applied to the more popular format of 3D chess. Here, the three stacked boards were smaller, four-by-four grids, with pivoting two-by-two mini-boards at the corners, adding further complexity to the game.



The multi-leveled board of 3D chess became a popular recreation activity on many Starfleet vessels and stations.

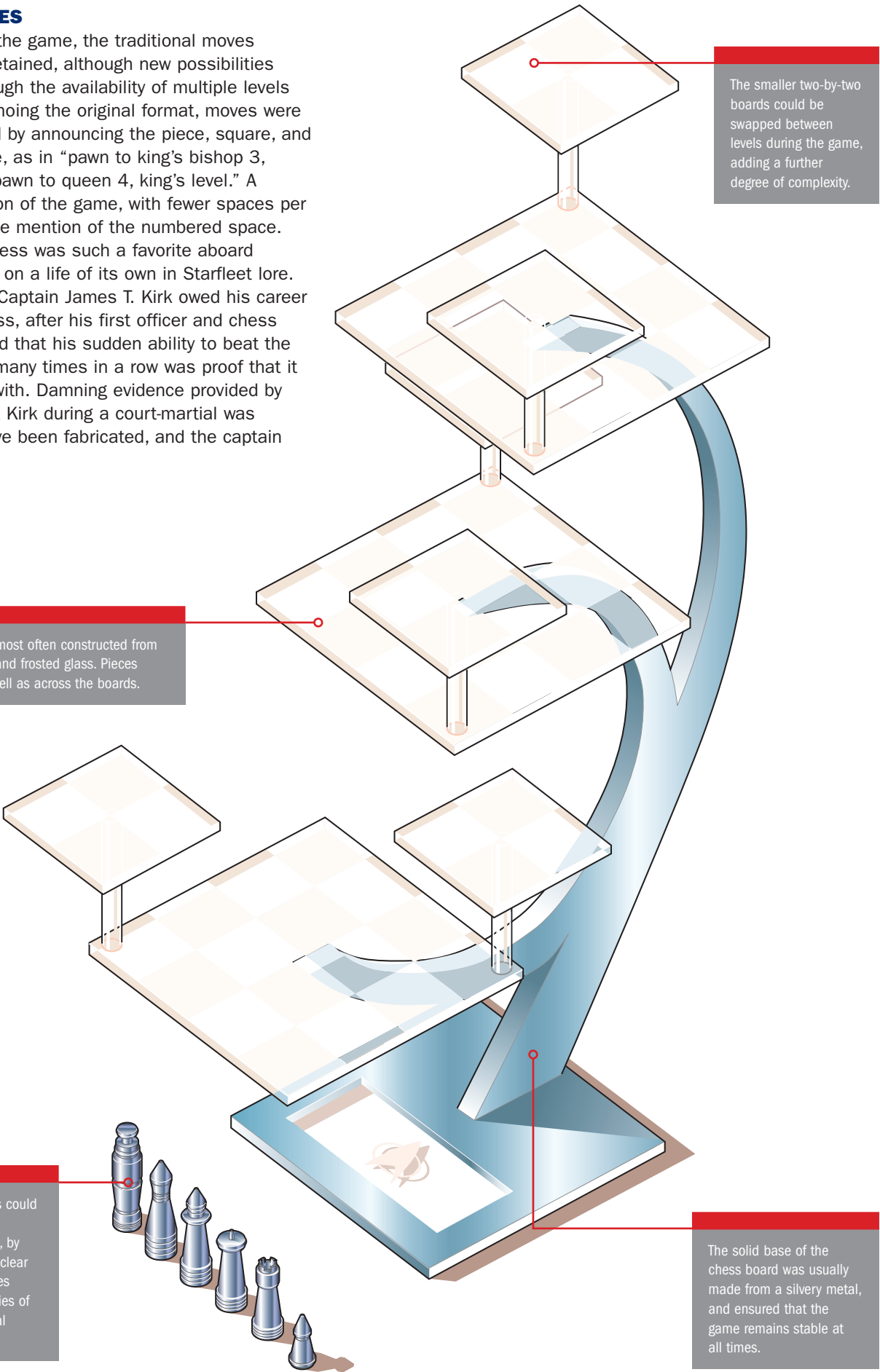


Mr. Spock's ability to beat the *U.S.S. Enterprise's* computer regularly – a feat which should be impossible – alerted him to the fact that the computer had been tampered with. It was the proof that enabled him to save Captain Kirk's career.

TRADITIONAL MOVES

In both variations of the game, the traditional moves of each piece were retained, although new possibilities were opened up through the availability of multiple levels and attack areas. Echoing the original format, moves were recorded and notated by announcing the piece, square, and board layer in a move, as in "pawn to king's bishop 3, queen's level" and "pawn to queen 4, king's level." A smaller, mobile version of the game, with fewer spaces per layer, required only the mention of the numbered space.

Interestingly, 3D chess was such a favorite aboard starships that it took on a life of its own in Starfleet lore. According to legend, Captain James T. Kirk owed his career to a game of 3D chess, after his first officer and chess expert Spock deduced that his sudden ability to beat the ship's computer too many times in a row was proof that it had been tampered with. Damning evidence provided by the computer against Kirk during a court-martial was thereby proven to have been fabricated, and the captain was exonerated.



INTRASHIP COMMUNICATIONS

Keeping the members of a starship crew in contact with one another is just as important as communications between vessels. On the *U.S.S. Enterprise NCC-1701*, intraship communications was integral to the ship’s design.

Intraship communication is a term used to describe a conversation between two or more people who are in separate locations on the same starship. Examples include the captain requesting increased power from engineering; a security officer announcing an intruder alert; or a science officer defining the parameters of a database search to the computer. A reliable internal communications system is essential to the smooth running of any vessel.

EARLY DESIGNS

For many years, intraship communications on Starfleet vessels were terminal-to-terminal systems, linked by a shipwide intercom network. Crew members wishing to converse had to locate a communications terminal, depress a button to activate it, and then announce the name of the person to whom they wished to speak. The recipient, upon hearing his or her name announced over the intercom, would then find the nearest terminal, and depress a button to reply. At the conclusion of the conversation, each party pressed another button to terminate the connection and free up the channel. The smooth running of the system was monitored and maintained by a dedicated officer working from a specialist bridge console.

Communications terminals of the 2260s were made in two basic types: an audio-only grill unit, and a viewer terminal. The former could be mounted on either a wall or desktop. The wall units, which were usually red, featured a gray speaker-microphone grill, on-off button, red alert button, and a flashing red alert light. These were placed at regular intervals on starship bulkheads.



In the 2260s, crew members aboard the *U.S.S. Enterprise* used a wall-mounted communications terminal to contact colleagues elsewhere on the ship.

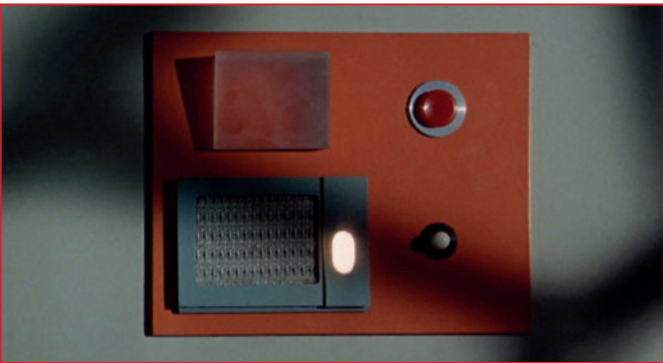
The gray desk models were found at every computer console, control and duty station, and on all conference table positions throughout the ship. The units had two separate pieces: a speaker-microphone with a single light that illuminated when in operation, and a set of eight toggle switches positioned directly in front of the speaker.

The second type of communications device – the viewer terminal – allowed visual as well as audio contact. Many senior officers had viewer systems in their quarters, and Dr. McCoy had one in his office. Bridge stations were also equipped with viewer terminals.

CONFERENCE ROOMS

Ship conference rooms contained viewers which could accommodate everyone at the table. Such units were three-sided devices, and each face had its own screen. Some viewer terminals could be swiveled, and others were fixed on a raised base. Such viewers were usually gray and made of a lightweight material.

Intraship communications shared several allotted channels, and on occasion multiple transmissions could jam the system. In such situations, the communications officer’s controls could override or clear channels as needed. The dedicated communications duty station on the bridge was equipped with several intercom enhancements: a receiver earpiece, given to science and communications officers, prevented incoming audio from being broadcast onto the bridge and distracting others, while the arm on the captain’s chair was fitted with various communications options that allowed the commanding officer to make shipwide announcements.



Intraship communications terminals were fitted throughout the *U.S.S. Enterprise*, generally placed at average head height on convenient bulkheads.

WRISTBANDS

By the 2270s, the terminal-to-terminal system had been updated to include the use of communicator wristbands. Like the handheld communicators, which could also be used for intraship communications, the wristbands were not issued to all crew members; only a select few senior officers were freed from the task of finding communication terminals. The intercom’s voice-input abilities remained limited, often requiring communications to be directed by the communications officer. As late as 2293, a bosun’s whistle would still precede many intercom announcements.

The realization of faster-than-light computing and voice-capable systems as the turn of the century approached allowed the introduction of non-terminal-based internal communications. The initiator still had to push a button to begin a conversation, but the recipient no longer needed to locate a terminal to respond, as receiving and sending

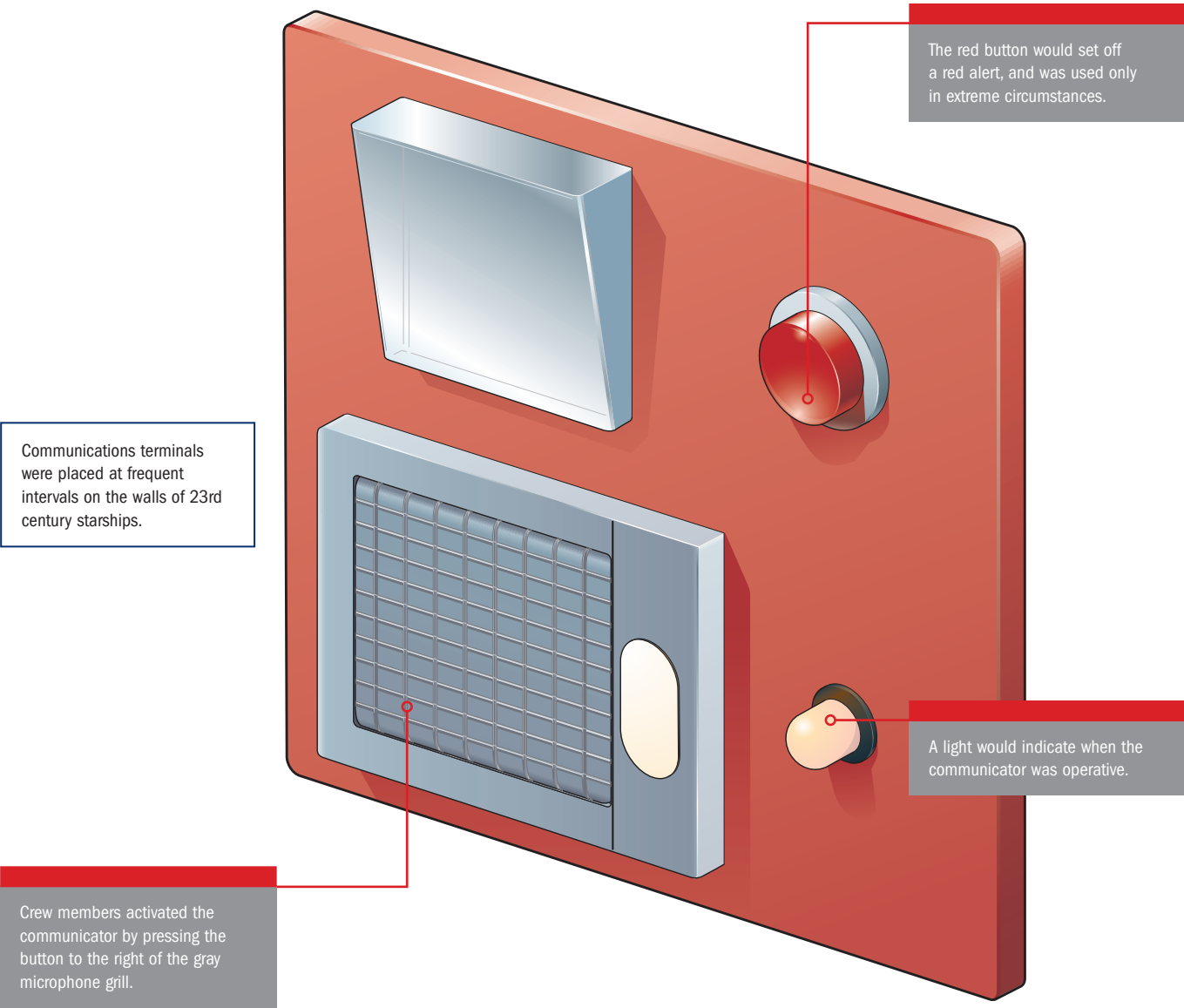
systems had been built into the ship’s bulkheads. The walls, in essence, had ears.

COMBADGE

By the 2350s, the combadge had become commonplace, and intraship communication had moved forward once again. An Optical Data Network (ODN) could now pinpoint an individual’s location anywhere aboard a starship, and direct a message or open a communications channel specifically to that person.

A decade later, by the early 2360s, a dedicated communications officer was no longer required. The communications system had become so sophisticated that no manual initiation was required – any crew member could direct a message to anyone else by simply stating their own name and the name of their recipient. The embedded ODN links would take care of the rest.

COMMUNICATIONS



M-5 MULTITRONIC COMPUTER

Potentially one of the most important breakthroughs in the history of Starfleet, Dr. Richard Daystrom believed his M-5 multitronic computer would revolutionize control of its starship fleet.

The M-5 multitronic computer was an experimental machine developed by Dr. Richard Daystrom in the 2260s; it was designed to control a starship with only minimal assistance from a human crew, and, if successful, would revolutionize the way that Starfleet operated.

Daystrom was one of the most highly regarded scientists in the Federation. He'd made his breakthrough into what he called the duotronic process when he was only 25, and after that time most of the computer systems installed in Federation starships had been based on his technology. For Daystrom, the M-5 unit represented an even greater achievement – a machine that, like a human, was capable of making fully reasoned decisions.

Dr. Daystrom spent many years attempting to develop a functional multitronic computer, but his test units M-1 to M-4 were “not entirely successful.” However, his fifth attempt – the M-5 – was pronounced a success and selected to be field tested during wargames aboard the *U.S.S. Enterprise* in 2268. When installed and functioning, the M-5 was capable of running a *Constitution*-class ship with a minimum crew of 20, far less than the 430 normally required for standard missions.

During the field test, the *Enterprise* was placed under total control of the multitronic unit. A series of routine navigational, research, and contact problems were devised which the M-5 would have to overcome, after which it would engage in wargames with four other *Constitution*-class vessels. If the M-5 performed as well under live conditions as it had in previous, simulated tests, Starfleet believed it would mean a revolution in space technology as profound as the invention of the warp drive.

IN CONTROL

Physically, the main unit of the M-5 computer was a large, box-like container, similar in size and shape to a transporter control station. A circular monitor unit displayed the computer's ongoing processing functions, using a form of high speed visual language represented through a constantly shifting combination of colors and shapes. When the M-5 was in operation, the computer produced a high pitched humming sound, and a series of lights flickered across its control panel.

Interface with the computer could be made using both keyboard input and vocal commands. Audio readouts of the M-5's command sequences were recorded and could be played back using recording cartridges.

The M-5 computer was installed in the *Enterprise*'s main engineering room, and was linked to all of the ship's control systems. Power to the M-5 was routed through the starship's main power units. As the M-5 worked, its need for power increased. Eventually, when it decided it needed more power, the computer was able to reach out and draw power directly from the warp engines.

The M-5 multitronic computer was far more powerful than any other computer in use during the 2260s. It could correlate all the computer activity of a starship in order to provide the ultimate in vessel operation and control. This was because the M-5 had a fundamentally different design to other computers. It did not simply process data according to a preset program; it actually thought through problems, and could make intelligent decisions in crisis situations – both faster and, according to Dr. Daystrom, more accurately than its human counterparts. Daystrom's

intention was to replace ‘frailer’ and often illogical humans with a machine that made decisions based on facts rather than ‘fancies.’

To achieve this, Daystrom had taken the bold step of implanting his own memory engrams inside the M-5's memory banks, making the M-5, in effect, an artificial human brain. But, while the M-5 ‘thought’ like a human, it could react much faster than any person could, as if a human mind had been amplified by the instantaneous relays possible in the digitized circuits of a computer.

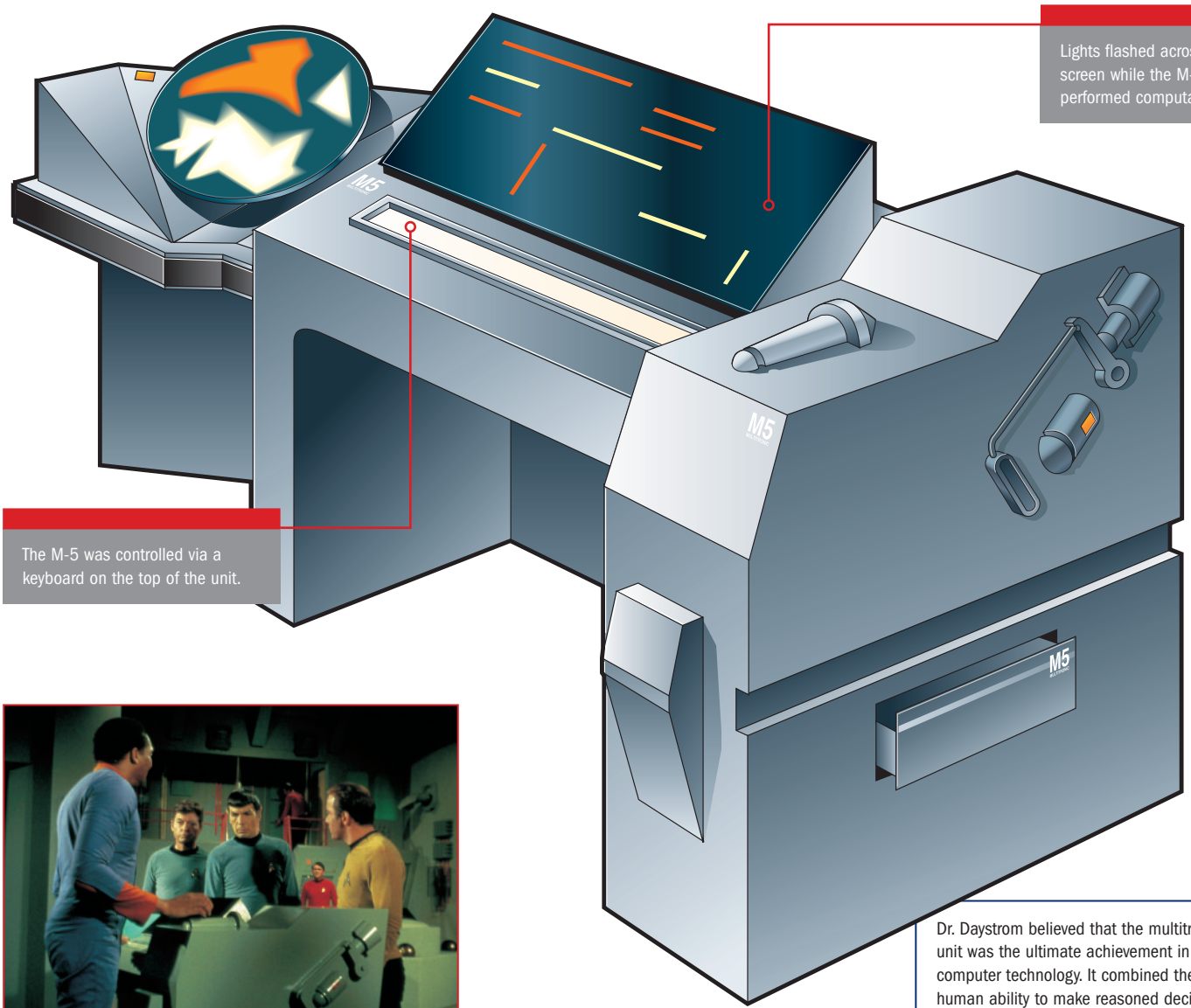
However, the M-5 made many decisions that a human being would not. Unlike a human being, it did not require a breathable atmosphere, so it would automatically shut down environmental power in unused areas, to conserve power for itself. It could even deactivate the sickbay, presumably until there were casualties to deal with.

FATAL FLAW

During the field tests, it became apparent that the M-5 had a serious flaw. After successfully completing each of the navigational and research tests, it refused to relinquish control of the *Enterprise* to her human crew, and destroyed a robot freighter. When the crew attempted to disconnect its power, the M-5 killed a crewman and then attacked the other ships involved in the wargames. The M-5 became paranoid, and was determined to protect itself, taking hundreds of lives in order to do so.

It transpired that Daystrom suffered mental health issues, which had been passed on to his creation through his memory engrams. Fortunately, Daystrom also gave the M-5 the capacity to feel regret, and, when confronted with the reality of its actions, the unit reasoned it had offended the laws of nature and deactivated itself.

MULTITRONIC FUTURE



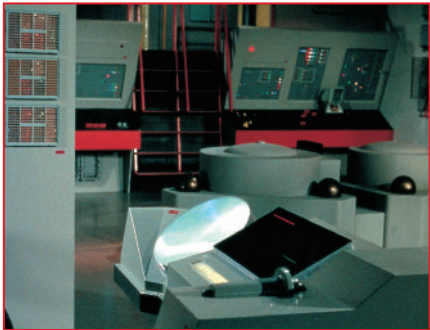
Lights flashed across the screen while the M-5 performed computations.

The M-5 was controlled via a keyboard on the top of the unit.

Dr. Daystrom believed that the multitronic unit was the ultimate achievement in computer technology. It combined the human ability to make reasoned decisions with a computer's speed and efficiency. Unfortunately, the M-5 also seemed to share some of Dr. Daystrom's all too human flaws.



M-5 creator Dr. Richard Daystrom invented the duotronic circuits used throughout the Federation.



Installed in Engineering on the *U.S.S. Enterprise*, the M-5 took control of all of the ship's systems.



The M-5 directed the *Enterprise* in wargames against four other *Constitution*-class vessels.



Dr. Daystrom believed that the M-5 multitronic computer would make human commanders such as Captain Kirk unnecessary.

STANDARD ISSUE EQUIPMENT

Away from the safety of their starship, Starfleet officers on landing party duty needed to be equipped for any eventuality while ensuring that the channels of communication back to their ship remained open.

The Starfleet uniforms of the 2260s were designed to be comfortable and practical in almost every environment that crew members were likely to encounter, whether on board ship or during landing party missions. During this period, the heavier gray jackets often worn by landing parties of the previous decade were no longer part of standard issue. Nothing was done to disguise or camouflage the bright, primary colors of the tunic tops; Starfleet officers were explorers who rarely needed to conceal themselves or their intentions from the indigenous inhabitants of the worlds they visited. Also, the bright shirts ensured that visual contact was maximized at all times, even over relatively large distances.

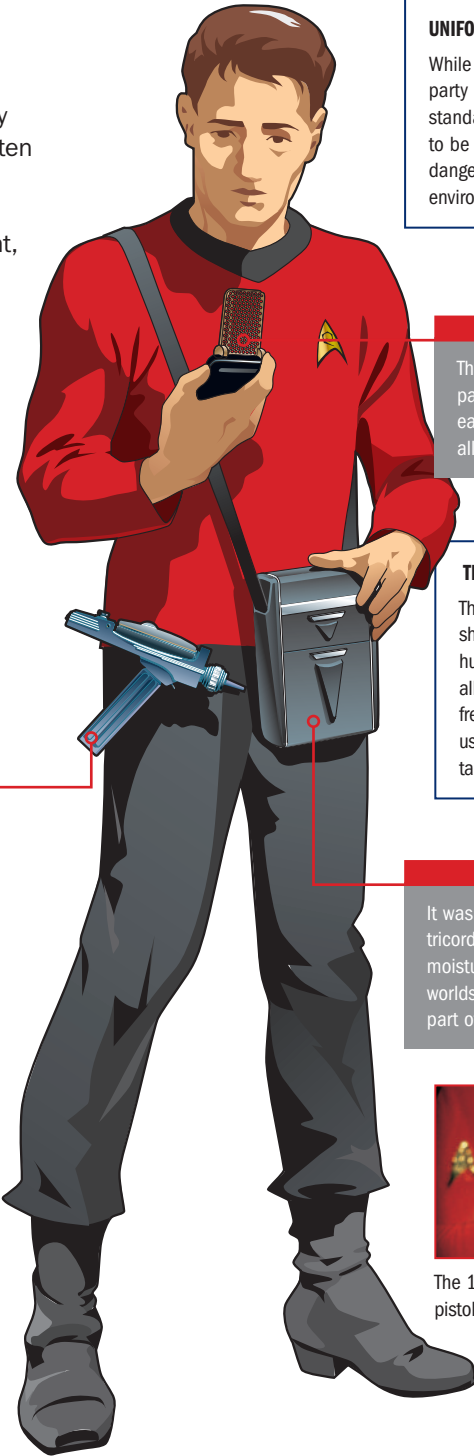
WEAPONS

It was always hoped that any indigenous life form encountered by landing parties would be friendly, but experience proved that this was not always the case. To provide adequate defense, landing party personnel were usually issued with a type-2 phaser pistol.

The type-2 phaser pistol, which incorporated the smaller type-1 phaser into the body casing to provide more power, was worn in plain view on a belt at the hip.



Each member of a landing party was issued with his or her own equipment, providing extra safety should the officers become separated or need to operate independently of one another.



UNIFORM

While officers on routine landing party missions would wear their standard uniform, if the location to be explored was expected to be dangerous or hostile, special environmental suits would be worn.

The communicator kept landing party members in contact with each other and with their ship at all times.

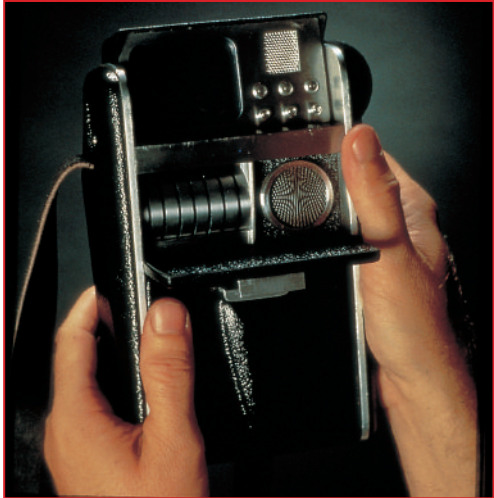
TRICORDER

The tricorder was worn on a shoulder strap, like a bag, and hung in front of the hip. This allowed the officer's hands to be free when the tricorder was not in use. Medical tricorders were also taken into the field in this way.

It was essential to protect the tricorder from the dirt, dust, and moisture often encountered on alien worlds, so a tough black casing was part of the design.



The 16 settings of the type-2 phaser pistol ranged from stun to disintegration.



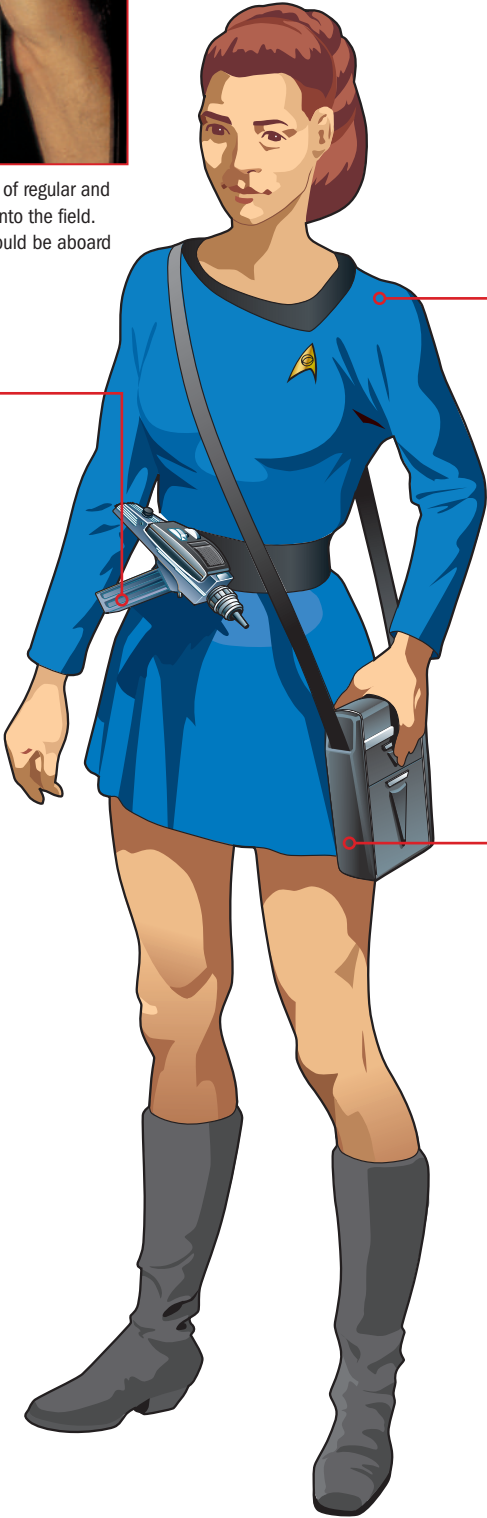
The durable design and protective black casing of regular and medical tricorders enabled them to be carried into the field. They could be used in the same way as they would be aboard ship with little chance of malfunction.

MISSION TEAM

Landing parties were carefully balanced to ensure that all the skills needed for a mission were on-hand. Even when exploring a seemingly benign planet, a landing party would nearly always include at least one or two security officers, whose primary task was to protect their crewmates from harm.



The communicator provided a vital link back to the ship, allowing landing parties to file reports on missions as they progressed, and to call for help if they found themselves in danger. The device also emitted a tracer signal which could be used to obtain a transporter lock in emergencies.



Female landing party members wore their phasers at the hip, on a thick belt that went over the uniform dress.

The bright, primary colors of Starfleet uniforms of this era made it difficult for landing party members to lose sight of each other. If they did become separated, they would use their communicators to get back in touch.

WOMEN'S UNIFORM

As with their male colleagues, landing party uniforms for female crew varied little from the standard duty uniform worn aboard ship. The only notable variation was a wide black belt, worn at waist level over the tunic dress, to which items including the pistol phaser could be attached.

The tricorders of the 2260s carried a number of small disks on which information was stored. A well-prepared landing party would have picked the best combination to deal with any eventuality.

ON FOOT

When on the surface of a new and unexplored planet, the landing party were often required to travel on foot. Their boots were comfortable, hard-wearing, and able to deal with most kinds of terrain.

PHASER PISTOLS

Despite Starfleet’s avowed mission to explore the Galaxy in peace, ensuring the safety of its personnel was paramount, and the need for defensive weaponry was clear.

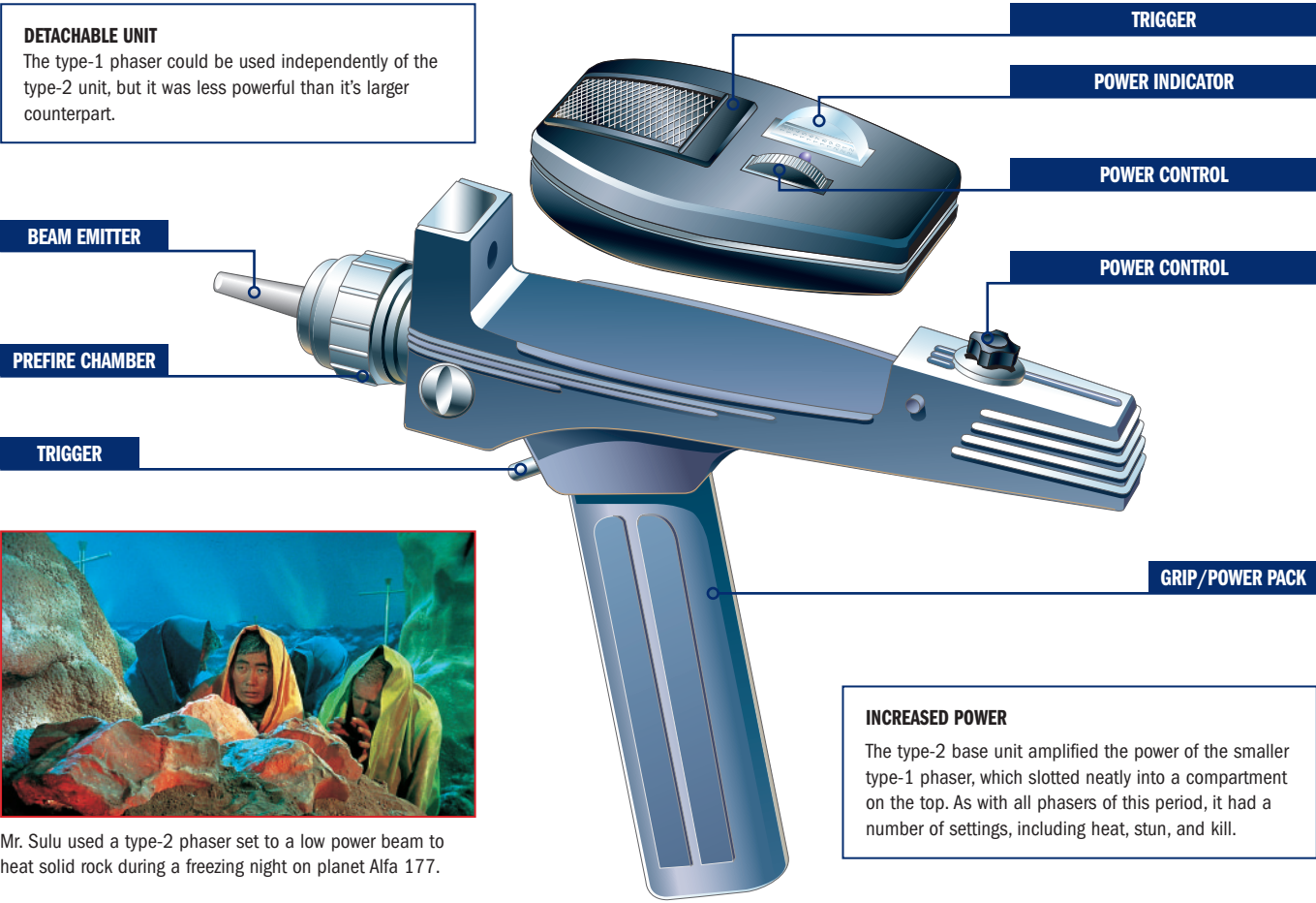


The small, type-1 phaser could be carried less conspicuously than its counterpart, the larger type-2 phaser pistol.

Phaser pistols were an evolution of the earlier phase pistol, a phase-modulated energy weapon used by Starfleet crews during the 22nd century. By the 2260s, the type-2 phaser had become standard issue aboard all Starfleet vessels. It fired a focused energy beam which could be adjusted to a variety of strengths, which ranged from a stun setting to full disintegration. The handheld weapon was, in fact, a combination of two components. The smaller, palm-sized type-1 phaser was a weapon in itself, albeit relatively low powered when compared to its larger sibling, with eight separate power settings when used independently. Its miniscule size gave

it the advantage of discretion, and the phaser was most often used during diplomatic missions where a more obvious weapon would have been wholly inappropriate. When combined with the larger type-2 pistol component, however, the phaser became an altogether more versatile tool, with increased power settings and capable of several different applications. **TWO-IN-ONE DESIGN** The type-1 phaser fitted precisely into a slot in the upper part of the type-2, creating a single unit more recognizable as a weapon. At the front end of the type-2 was the prefire

TYPE-1 PHASER INTEGRATION



Mr. Sulu used a type-2 phaser set to a low power beam to heat solid rock during a freezing night on planet Alfa 177.

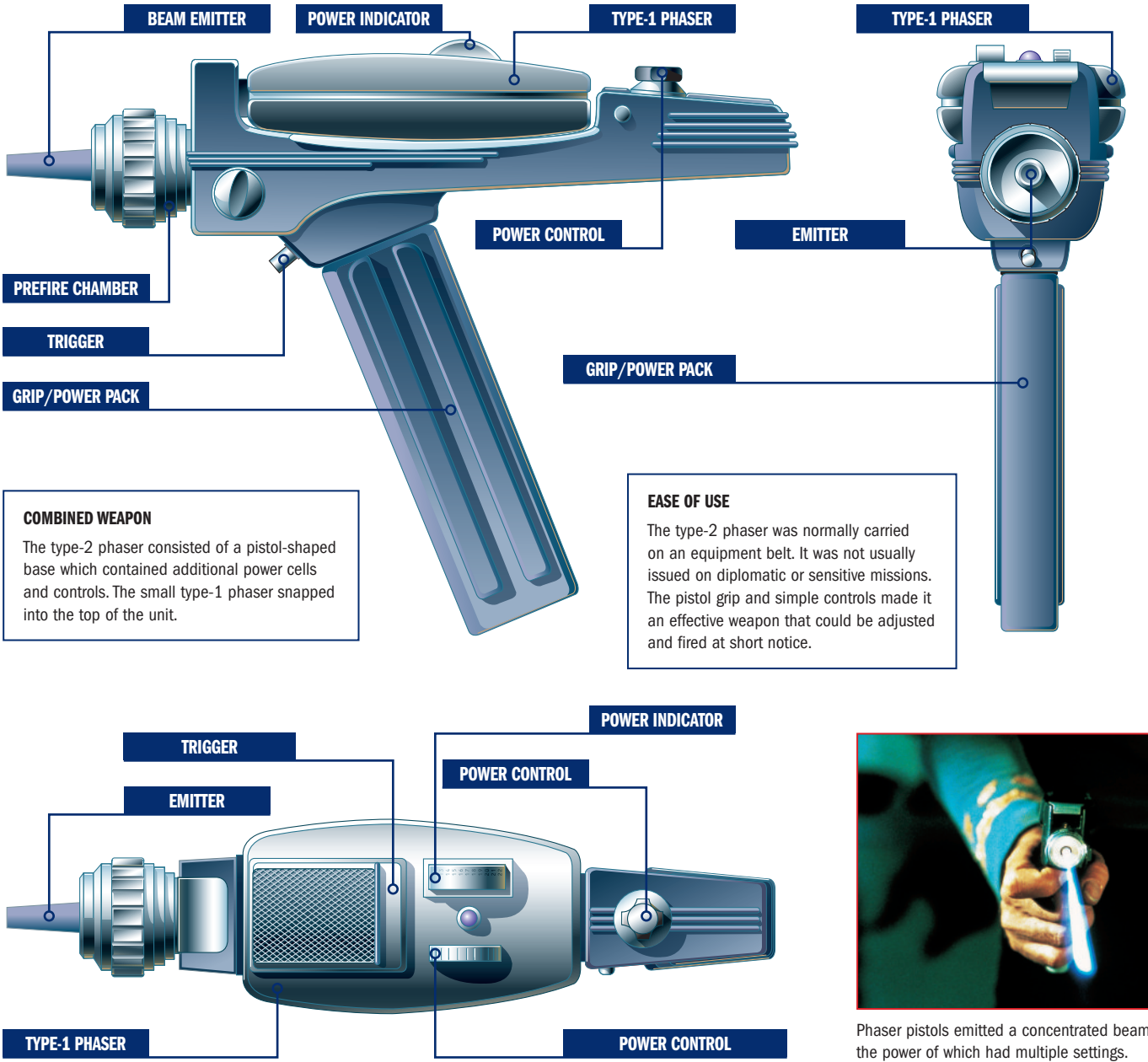
chamber and emitter, where the phaser’s variable energy beam was discharged. This was engaged by depressing a trigger at the top of the type-2 pistol’s grip, which housed the weapon’s power pack. This pack could be easily ejected and exchanged when the power pack’s cells were depleted, enabling a user to quickly reload the phaser.

SETTINGS

The power settings of the phaser could be adjusted by turning a selector dial placed towards the rear of the type-2 unit. Another power control wheel was located on the upper face of the type-1 phaser, which sat beside a power indicator readout. A crew member could thereby select a precise power level at will, whether they were using the full

type-2 combination or the detachable type-1 phaser, with settings generating a heat ray, a stun beam, or a selection of more destructive modes. While phasers were used primarily as defensive weapons, usually set to stun, they were capable of firing with lethal force, and could be set to kill on the order of a senior officer. However, the wide range of settings also allowed for other uses, which included using the phaser as an emergency source of energy capable of engaging the launch systems of a shuttlecraft like the *Galileo*, or being used as cutting beam capable of slicing through thick metal. If set to overload, a phaser even had the capacity to be used as an explosive device, with enough power to cause serious damage to a starship.

TYPE-2 PHASER PISTOL



Phaser pistols emitted a concentrated beam of energy, the power of which had multiple settings.

PERSONAL COMMUNICATORS

The hand-held personal communicator of the late 2260s was a lifeline for landing party personnel, not only used to send and receive voice transmissions, but also to pinpoint their exact location.

The personal communicator of the 2260s was a small, oblong device designed to fit conveniently in the palm of one hand. It was constructed in three parts: an upper and lower body shell, and an antenna lattice that doubled as a protective cover for the device's controls when it was not in use. Communicators were sturdy enough to survive being thrown or dropped, but did not respond well to extreme cold.

The range of the standard Starfleet communicator of this era was limited, allowing for communication between a planet's surface and a ship, between users aboard the same ship or in a landing party, or between nearby ships.

DESIGN AND USE

The communicator's antenna was a gold-colored lattice that was attached to the upper body shell by a single hinge. The

antenna was deployed, activating the communicator, via a flick-action, upon which the communicator would chirp a ready signal.

The opened antenna revealed the communicator's controls in a recessed area set into the surface of the device. A rotating circular display indicated the device's current operating frequency, below which three status lights showed when the communicator was active, transmitting, or receiving a signal. A speaker/microphone grille sat beside two final switches, one of which controlled transmission and reception, while the other was used to select a preferred communications channel.

The built-in translator unit was the most important component of the communicator, as it enabled landing party personnel to converse with alien races whose languages were already stored in the universal translator's matrix.

HIGHLY ADAPTABLE

Although designed to facilitate communication with an orbiting vessel or other members of a landing party, the communicator was a highly adaptable tool. In the right hands, it could be used to communicate directly with certain types of machine, or even reconfigured to serve as a limited sonic weapon.



During a mission on the planet Capella IV, Kirk and Spock combined a pair of communicators to create a sonic disruptor, using sympathetic vibrations to defend themselves against a party of pursuing Capellans.



The vibrations generated by Kirk and Spock's improvised weapon were powerful enough to disrupt solid matter, causing a rock formation to explode and cause a landslide, halting their pursuers in their tracks.

VITAL TOOL

The communicator was standard issue to all members of a landing party, and could be attached to the waistband of a Starfleet officer's trousers or a belt.

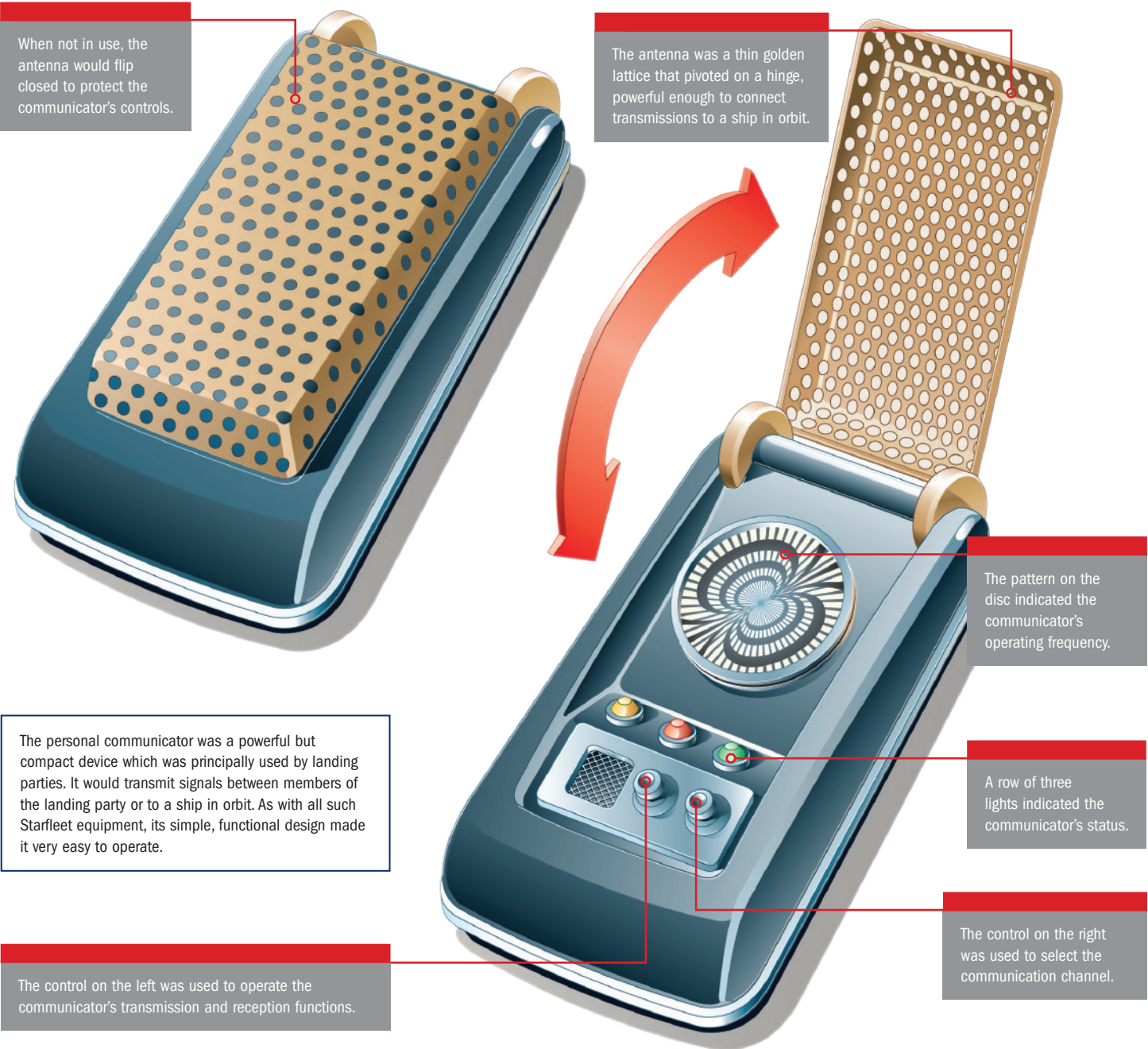
Communicators emitted a tracer signal, identifying the whereabouts of a crew member at all times, and were capable of transmitting an emergency signal that ship's personnel would interpret as a request for emergency beamout. This could be activated very easily and did not require the user to speak.

The devices were vital for establishing coordinates for a transporter beam, but due to their small size they could be easily confiscated or stolen. Such incidents occurred often,

sometimes innocently, and sometimes to impede the movements of a landing party. For example, the ancient children on a world known only as Miri's Planet stole communicators because the children were fascinated by the voices coming out of them. On another occasion, Bela Oxmyx of Sigma Iotia II stole communicators because he didn't want Captain Kirk and his landing party contacting the orbiting *U.S.S. Enterprise*.

Perhaps the most unusual use of a communicator occurred when Kirk used one to speak with Spock's brain, which had been stolen and taken to the Sigma Draconis system, and installed as the Controller of the sixth planet's central computer control system.

ESSENTIAL EQUIPMENT



THE TRICORDER

The tricorder was a multipurpose scientific and technical instrument, and often the most important and versatile tool a Starfleet officer could have at their disposal.

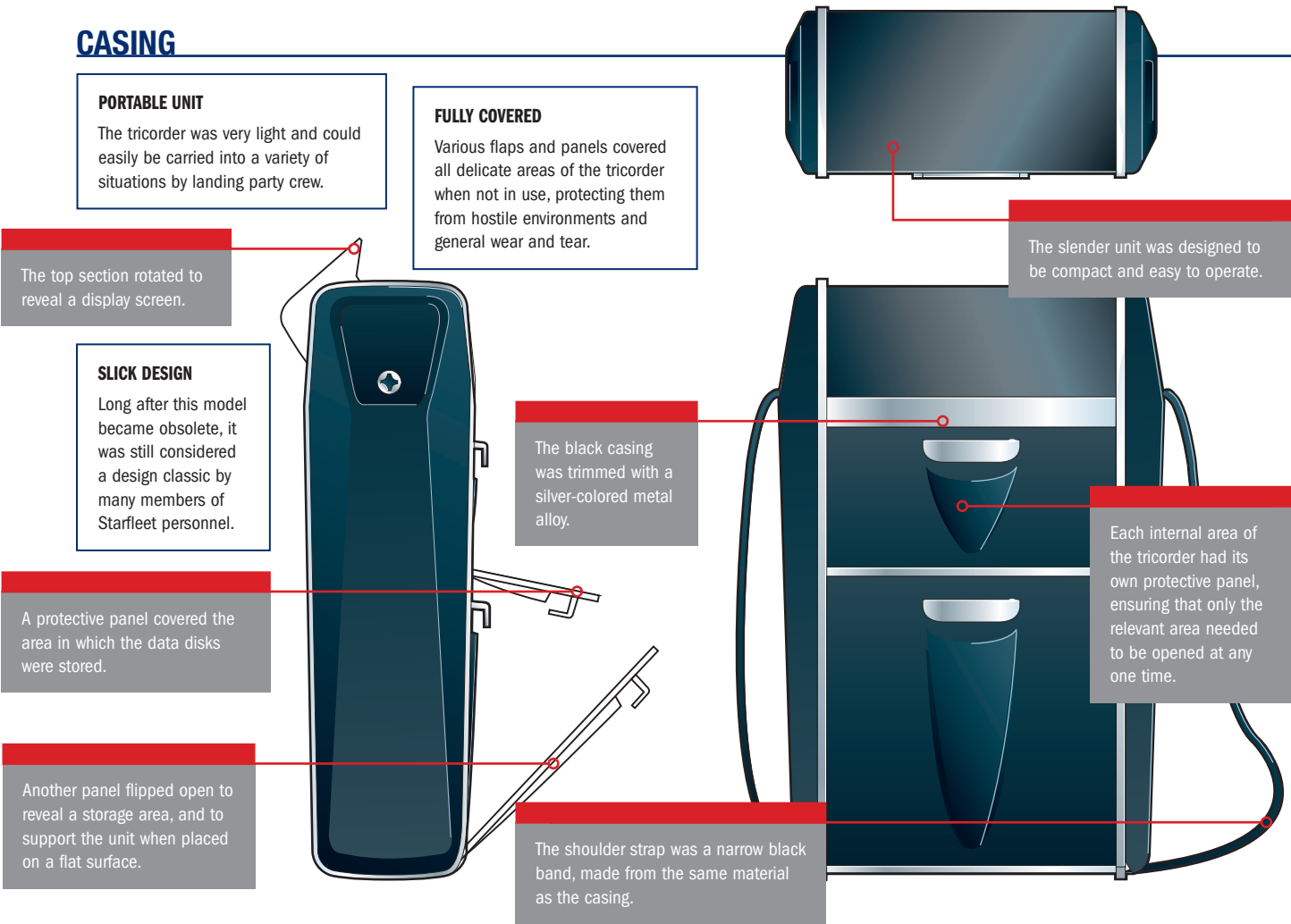


Several members of a landing party would carry a tricorder, providing multiple sources of data for later examination.

Starfleet personnel have used handheld computers and other tools ever since they first ventured out to explore the Alpha and Beta Quadrants, but it was not until the long-range exploration missions of ships such as the *U.S.S. Enterprise* that a wide variety of scientific and engineering devices evolved into the single-unit tricorder of the 23rd century. The first tricorders were about the size of a hardcover book, and proved to be an extraordinary field tool for Starfleet personnel. Several models were used by starship crews over the years, and their design and functionality evolved to incorporate breakthroughs in technology and to respond to new demands.

SMALL PACKAGE, BIG VALUE
The tricorder of the 2260s was a remarkable and powerful piece of technology, despite its small size. It could perform a dazzling array of functions in one compact unit, alongside its primary use as a portable sensor, a mobile computer, and a comprehensive data resource and recording instrument. It could be used to record the events of a landing party's mission, to collect data on an alien environment, or as a scientific tool for evaluating that data. In short, the tricorder was a do-it-all device that, in some ways, was the ultimate iteration of the Swiss army knife of science.

CASING



The sensory abilities of the device were utilized for the analysis of data or for identification, providing information on everything from the radiometric age of an artifact to the chemical composition of alien life. It could detect abnormal phenomena in the immediate area and alert the user to an alien presence, and it could scan through solid materials to a depth of several thousand meters.

The computer memory contained within the tricorder was the equivalent of that of a super-computer from Earth's 21st century, but it came packaged in an incredibly tiny microchip enclosed within the tricorder, using an advanced form of mnemonic memory circuit that could process and store a virtually unlimited amount of data in nanoseconds. Depending on the specific mission, the tricorder's memory

could be enhanced with special scientific and historical programs to enable the crew to perform their tasks more effectively.

In addition, the tricorder worked like a miniature camcorder, recording visuals, sounds, and phenomena. This function was performed automatically and did not require the user to initiate the recording process. It was also a 'smart' recorder, storing only key information so that the important findings of a mission could be reviewed in a few minutes without the user having to sift through many hours of unstructured data. Upon a landing party's return to their starship, the recorded data from their tricorders was scanned by the ship's main computer and entered into the master databank.

INTRUMENTATION



UNIVERSAL TRANSLATOR

The hundreds of races encountered by the Federation inevitably use their own languages, and Starfleet’s mission of interstellar exploration would be impractical without the use of the universal translator.

The universal translator was one of the most significant and valuable devices in use in the 23rd and 24th centuries. It provided an effectively instantaneous translation to and from any number of languages, including ones that had never been encountered before. Under normal circumstances, it was so effective and discreet that most individuals took it for granted, barely acknowledging its existence.

The translator was built into a starship’s communication systems, and provided translation of all messages to and from the vessel. In the 2260s, portable versions of the translator were sometimes carried on shuttlecraft. These devices were 30-centimeter-long rods. Later devices were miniaturized to the point where they could be worn inside the ear, as favored by the Ferengi, who bartered with obscure races throughout known space and required accurate translations in order to strike the best bargain.

LINGUISTIC ANALYSIS

The translator analyzed the patterns of a language, and devised a translation matrix that permitted realtime verbal

or data exchanges. It was already programmed with a massive database of linguistic information, derived from known races and their languages. Thus when it encountered a variant of a known root language, it would analyze the new language incredibly rapidly and provide an accurate translation. When the translator encountered an entirely unknown language, it analyzed brain wave frequencies, looking for universal concepts and selecting similar patterns; it then calculated the grammar and syntax and electronically generated a spoken translation, using an appropriate gender-specific voice.

The translator required a relatively large sample of a language before it could provide an accurate translation. Ideally, the sample needed to include several examples of two or more native speakers talking with one another. However, if necessary, the translator could provide a translation based on a small sample taken from an individual. Extensive pattern analysis allowed the translator to arrive at a greater understanding of vocabulary, syntax, usage patterns, and cultural factors.

The universal translator was normally able to generate

a translation matrix within a few minutes. However, it was standard procedure for Federation vessels to conduct a more extensive analysis before the translator was used. As long as the relevant culture used some kind of long range communication system, such as radio waves, it was a relatively simple task for a starship in orbit around a previously uncharted planet to gather large samples of the native language.

LOST IN TRANSLATION

The universal translator was constantly upgraded so that it could handle almost every language pattern in the known universe, and each new translation matrix was available to all Starfleet vessels, but there were sometimes difficulties.

While the universal translator worked with most language forms, it was not infallible. In some cases this was because the translator had not encountered concepts which lay behind a linguistic form. For instance, the language used by the Tamarians depended on contextual references to established events. As a result, it was beyond the universal translator’s abilities to translate, and it took many years

before Starfleet established communication with them.

The translator has also proved to be somewhat unreliable in cases where there was insufficient time for the computer to analyze an alien language form, or there was no frame of reference within the translator’s database. This was observable during early dealings with races from the Gamma Quadrant during the 24th century, including the Skrreeans, whose language employed a syntax and grammatical structure unlike anything the Federation had previously encountered. Once a translation matrix had been established, communication became straightforward, and over time it became less common for the universal translator to have any difficulties dealing with Gamma Quadrant races.

Although it was primarily designed to work with spoken languages, it could be used to translate several other forms of communication, or to communicate with beings who used telepathy. In 2267, Commander Spock was able to adjust a portable universal translator to speak with a gaseous life form known only as the Companion, which had no natural means of communicating verbally.

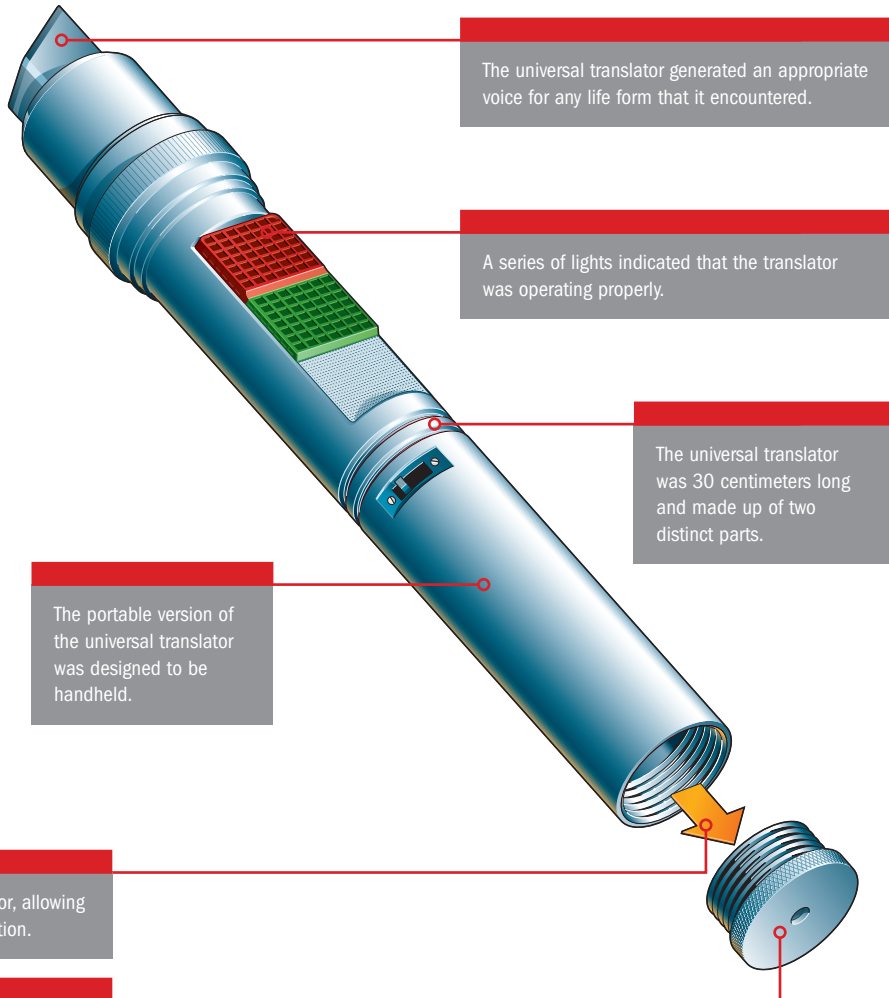
PORTABLE UNIT



A handheld version of the universal translator was carried on shuttlecraft and was available for use when necessary.



The universal translator could be adapted for communication with some highly unusual life forms, such as the Companion.



INTEGRATED SYSTEMS

The universal translator was integrated into the *Enterprise*’s onboard communications systems and communicators so any messages from other races were instantly translated. When a landing party encountered a particularly strange form of language they made use of a relatively large portable unit.



The communications console on the bridge automatically translated any incoming transmissions under the supervision of Lt. Uhura.



The portable version of the universal translator was simply held near the person using it and provided any aliens with a voice.

LIFE SUPPORT GEAR

Starfleet officers transporting to new planets as part of a landing party needed to check atmospheric conditions beforehand and, where necessary, wear essential life support gear.

When undertaking interstellar travel and visiting different worlds, one of the most important safety considerations was the breathability of a planet's atmosphere. Landing parties of the 23rd century had several means of protect themselves from any atmosphere suspected to be dangerous to the personnel about to be exposed to it; one option was a full environmental suit that would supply a suitable breathing mixture and temperature level. Sometimes, however, ship's sensors established that the conditions on a planet's surface were not entirely inhospitable, and a simpler breathing apparatus, also known as life support gear, would be sufficient.

The primary component of Starfleet's life support gear was a face mask breathing apparatus. This light piece of equipment was designed to be worn over the head and was held in place with an elasticated band that passed around the back of the skull. The mask section covered the nose and the mouth, offering the correct oxygen/nitrogen mix directly to the respiratory system. A short

tube delivered the oxygen to the face mask from a small box device, worn at the waist. However, the device did not provide any eye protection, nor did it protect areas of the skin not covered by the duty uniform.

LIGHTWEIGHT AND PORTABLE

The device was used when a Starfleet landing party from the *U.S.S. Enterprise* NCC-1701 beamed down to a planet called Gothos, a strange world composed of iron and silica. The world was not gaseous nor dangerous in any other way, so simple life support gear was all that was required. When the landing party discovered the air was actually the same as on Earth, the breathing masks were removed.

Another instance that required life support gear occurred when Dr. Simon Van Gelder, in a frenzied state, beamed aboard the *Enterprise* in a container meant to hold material from the Bureau of Penology, Stockholm. Once on board the ship, Van Gelder removed his life support gear and escaped into the *Enterprise* corridors.

FOLLOWING PROCEDURES

In 2267, a landing party from the *U.S.S. Enterprise* beamed down to the planet Gothos, a previously uncharted world comprised of iron-silica. With scans unable to determine the breathability of the planet's atmosphere, the landing party donned breathing equipment as a safety measure before beaming down.



Following standard safety protocols, the landing party put on breathing equipment before they beamed to the planet's surface.



One of the landing party used a tricorder to determine whether breathing equipment was still required, and gave the all clear.



The landing party removed their life support gear and continued with their duties, keeping the safety equipment close at hand.

FACE MASK

BREATHABILITY

The life support gear used by Starfleet personnel in the 23rd century was very basic, but it provided enough protection in certain conditions where the oxygen/nitrogen mix in the atmosphere was not suitable for humans or other humanoids.

The tube linking the oxygen supply to the face mask met at a point, just below the nose section.

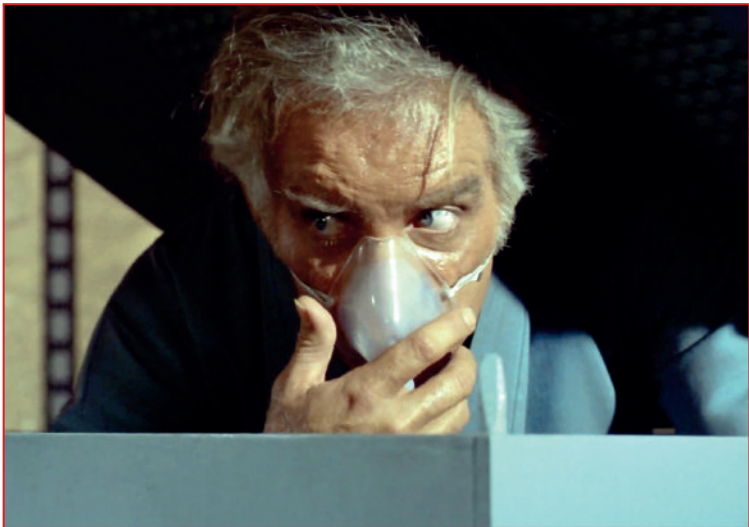
LIGHTWEIGHT

The life support gear's oxygen supply was compact enough to be worn on the waist of the user; a small box supplied oxygen direct to the wearer's mouth and nose. It was much more compact than the larger oxygen tanks used centuries earlier for space travel or underwater exploration.

An oxygen unit was carried on a belt that was worn over the duty uniform.

An elasticated band held the face mask securely in place.

A separate tube carried away air that had been exhaled, ensuring that it did not pollute the fresh oxygen supply.



Dr. Simon Van Gelder survived by wearing breathing apparatus when he stowed away aboard the *U.S.S. Enterprise* in a box of classified material meant to have come from the Bureau of Penology, Stockholm.

This device supplied the regulated oxygen supply. This could be adjusted to suit the needs of the user and the requirements dictated by the surrounding environment.

ANTIGRAVITY LIFTERS

23rd century technology made numerous everyday tasks easier and more efficient, and helped alleviate difficulties presented by more labor intensive tasks, such as heavy lifting.

The *U.S.S. Enterprise* NCC-1701 carried many items of equipment that were too large and cumbersome for crew members to move without assistance, and the ship was often called upon to transport equally large items of cargo or other weighty objects. While cranes and other lifting equipment were used on cargo vessels and older ships, the *Enterprise* was issued with a supply of devices that negated the effects of gravity, thus enabling the lifting of massive items by just one or two personnel.

DEFYING GRAVITY

These ‘anti-grav’ devices, also known as antigravity lifters, employed a graviton inverter circuit that nullified the gravitational forces exerted upon the object to which they were attached. Gravitons are a type of subatomic particle with a unique property that transmits gravitational force.

The units in use in the 2260s consisted of a narrow rectangular body of approximately a meter in length, with a handle at either end and a control panel in the centre of its

upper face. The devices could be used as a single unit, paired with a second unit, or, if need be, in a configuration of multiple units where a particularly unwieldy load had to be moved.

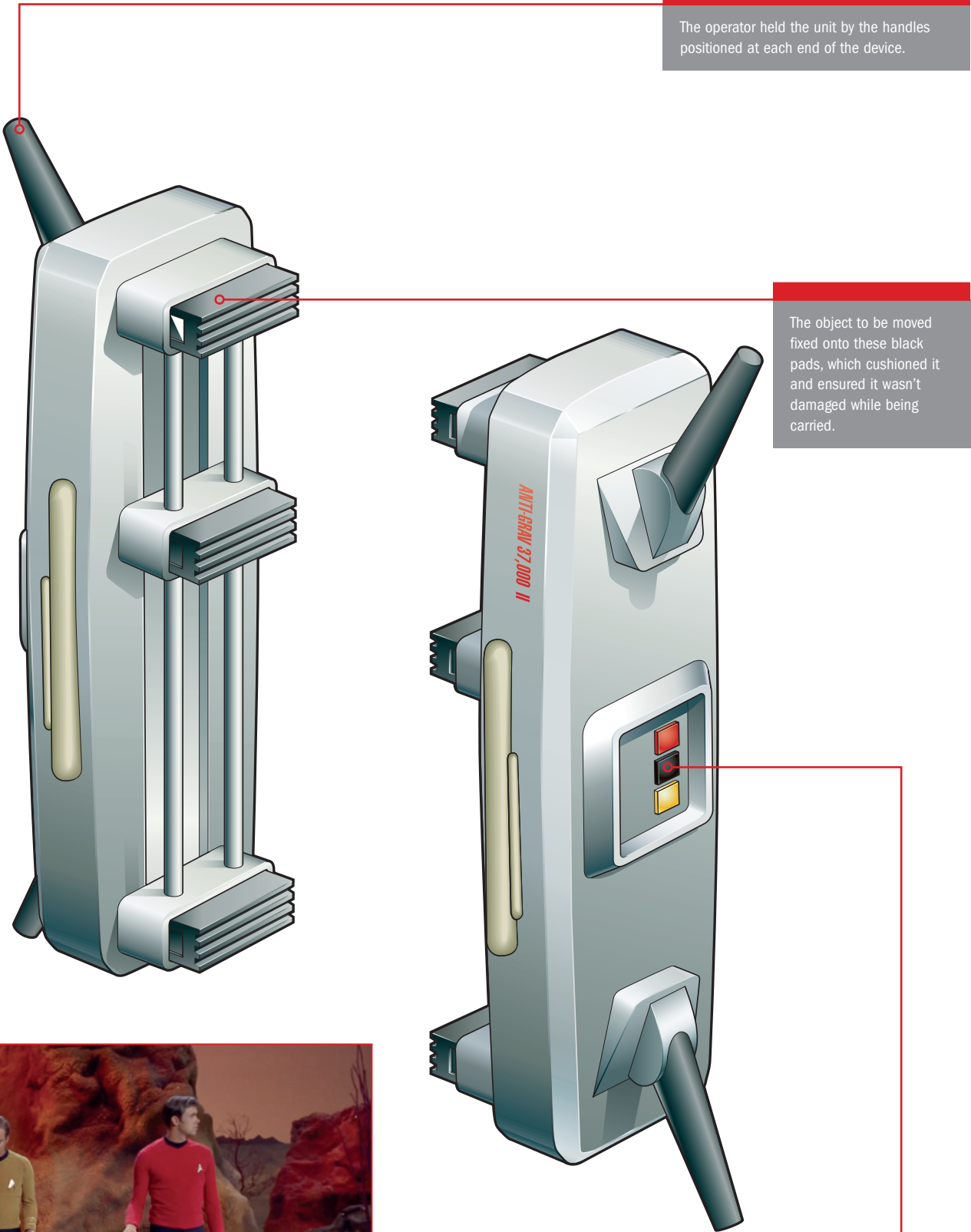
An individual antigravity lifter would generally be used in horizontal mode, with its cargo held to its underside by the unit’s graviton field. The field was stable and secure enough to move highly dangerous equipment, such as matter-antimatter explosives, without fear that the potentially deadly cargo could be dropped.

More often, two units would be utilized, affixed to the sides of the object to be moved. This configuration enabled Captain Kirk and Commander Spock to deliver the Nomad MK-15c space probe to the transporter room before the malfunctioning spacecraft was able to self-destruct.

Over the course of the following century, larger anti-grav sleds were introduced aboard starships and starbases, often used to transport cargo, while anti-grav lifts entered regular use as hovering sickbay stretchers.



Antigravity lifters were standard issue aboard Starfleet vessels, to enable easy movement of large objects and equipment aboard ship. In 2268, Captain Kirk and Mr. Spock used a pair of antigravity lifters to move the robotic probe, Nomad, to the transporter room, just prior to its destruction.



The operator held the unit by the handles positioned at each end of the device.

The object to be moved fixed onto these black pads, which cushioned it and ensured it wasn't damaged while being carried.

The two main controls consisted of a clicking dial, used to adjust the antigrav field according to the weight of the object to be transported, and a push button that was used to 'suction' the item onto the black pads.



Antigrav lifters were regularly used to safely transport dangerous objects, such as matter-antimatter explosives.

ENVIRONMENTAL SUITS

Many worlds visited by the *U.S.S. Enterprise* suffered extreme weather conditions or biologically hazardous atmospheres. In such circumstances, landing parties were issued with protective environmental suits.

Starfleet's mission of deep space exploration always involved exposing personnel to hostile environments. Spacesuits overcame the extreme difficulties crews encountered in space itself, but Starfleet also provided a less cumbersome alternative that allowed starship crews to enter extremely cold or polluted atmospheres.

The environmental suit in use in 2266 was comprised of a large, orange body suit. A single piece covered the entire body from the neck to the ankles. Boots covered the feet, gloves protected the hands, and a large hood with a square viewing panel covered the head, offering the user a wide field of vision. The entire suit was covered in a gold mesh made up of interlocking circles. An armband on the left forearm of the suit contained simple controls, which included a communicator.

The suit protected the wearer from exposure to moderate radiation levels, and also offered protection from extreme climactic conditions such as freezing cold. However, the model of environmental suit used by the *Enterprise* crew was not hermetically sealed, and personnel returning from biologically hazardous areas were required to undergo thorough decontamination on the transporter pad to remove any potentially harmful organisms that could pose a danger to the crew.

COMFORT AND SAFETY

Moving within the suit was easy and, even with the gloves on, personnel could operate complex devices such as handheld sensors and tricorders. However, the temperature maintained within the suit was not completely controllable. Personnel could become uncomfortable, it was relatively easy to remove the gloves or reach inside the hood to alleviate any discomfort.

SAFETY LIMITATIONS

The environmental suit was not designed to cope with exposure to large amounts of radiation, or areas with an extremely poisonous atmosphere. Its inadequacies were further exposed when crewman Joe Tormolen accidentally contracted the Psi-2000 virus after removing a glove during a landing party. The virus survived the *U.S.S. Enterprise's* rigorous decontamination procedure and infected the crew before a cure could be developed.

Although the infection was the result of misuse, it did reveal one of the weaknesses inherent in the design of this model of environmental suit. Perhaps as a consequence, the design was phased out, and within two years other models of environmental suit were in use that more closely resembled a spacesuit, and offered far greater protection.



Environmental suits were designed to allow the user to carry out all the normal activities associated with a landing party, including operating equipment.



Personnel returning from hazardous areas were required to undergo a thorough decontamination procedure upon returning to their starship.

COMPLETE COVER

The environmental suit covered the entire body from head to foot. It was lightweight and allowed a full range of movement. A large rectangular face panel gave a wide field of vision, and thin gloves enabled personnel to use delicate equipment.

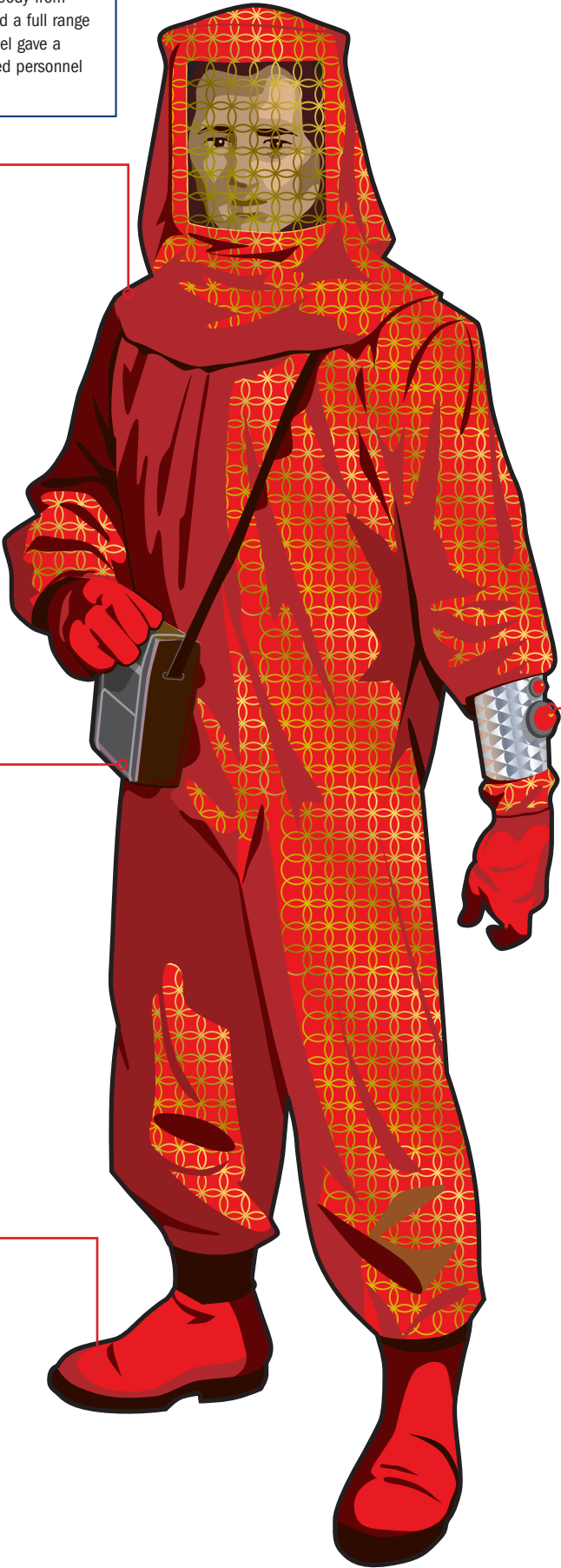
The head was covered by a large cowl or hood that extended to cover the shoulders, leaving the user free to move his or her head in comfort – important in any potentially hazardous situation.

REMOVABLE PARTS

The suit was not sealed, consisting of several elements which could be removed independently – the gloves, boots, and hood. However, removing any of these could expose the wearer to harmful organisms, and was therefore not advisable.

The gloves of the suit offered full protection while still allowing the wearer to effectively operate a tricorder or other equipment.

The large suit covered most of the body, but the feet were protected by separate boots which were not part of the suit itself.



This model of environmental suit was ideal for coping with extreme weather conditions.

LIMITED PROTECTION

This design of environmental suit was intended to offer only limited protection. It did not have its own air supply or breathing apparatus. Other equipment was available, should personnel need to enter more hostile environments.

The environmental suit had a series of simple controls mounted on a white armband on the user's left forearm.



Personnel often used the environmental suit when investigating unexplained disasters.

STARFLEET UNIFORM INSIGNIA

During the mid-23rd century, one look at a Starfleet officer’s uniform would immediately identify the rank, area of expertise, and the starship on which the officer served – all from a series of simple insignia.

By the latter decades of the 23rd century, the delta “arrowhead” emblem of Starfleet was common to all ships and crews in the fleet, but until the early 2270s the distinctive symbol was used almost exclusively on the crew uniforms of *U.S.S. Enterprise* NCC-1701.

DIFFERENT SYMBOLS FOR DIFFERENT SHIPS

The insignia – worn by crew members on the left side of the chest on all *Enterprise* duty uniforms – featured a gold, reflective background with a black outline surrounding the entire emblem.

A departmental symbol positioned at the center of each emblem denoted a crew member’s area of work, clearly designating whether they were command personnel, science and medical specialists, or engineering staff. A variation featuring a red cross was occasionally worn by medical staff such as Nurse Christine Chapel. The division symbol was rendered by a black outline and, in addition,

each duty division was differentiated by the color of a crew member’s tunic.

Other Federation starships had their own distinctive insignia during this era, such as that of the *U.S.S. Exeter*, which was comprised of a golden, elongated rectangle featuring a repeating background design in black. The division symbol and shirt color designation, however, were standardized from ship to ship across the fleet.

Some early landing party uniforms utilized the United Earth emblem, which featured a representation of the planet Earth with its Northern and Southern American continents facing outward. The Earth was criss-crossed by longitudinal and latitudinal lines and cradled between two olive branches on either side. The name of crew member’s vessel was emblazoned below this design. A variation of this emblem, depicting the olive branches surrounding a stylized tool, continued to be worn by medical staff and technicians as late as 2264.



The Starfleet “delta” emblem was worn on the left breast of the standard issue uniform, and permanently affixed to the fabric. Each of the main departments was represented by a different symbol at the center of the emblem: here we see the star of Command, and the stylized planet of the Science and Medical divisions.



COMMAND

The command insignia was an elongated star inside the ship’s general badge, worn on a mustard-colored shirt.



SCIENCE

The symbol indicating science and medical staff was a stylized planet, comprising two circles. It was worn on a blue shirt.



ENGINEERING

A highly stylized symbol depicting a curved tool was used to indicate engineering staff. Engineers wore this badge on a red shirt.



NURSING

Nursing staff often wore the general symbol for medical and science staff, but occasionally this was replaced by a red symbol.



JUMPSUITS (2254)

The United Earth emblem, featuring a representation of Earth cradled by olive branches, was in use as late as 2254.



MEDICAL AND TECHNICAL (2264)

Until 2264, medical and engineering staff often wore this symbol on overall uniforms.



STARFLEET UNIFORMS 2266

The Starfleet uniforms of the late 2260s incorporated a distinctive means of displaying rank. A series of solid and broken bands of gold braiding at the wrists of the tunic sleeves clearly designated ranks, from lieutenant to commodore.

During the 2250s, rank designation on Starfleet uniforms was simple: officers carried a gold braid on their sleeves, enlisted personnel did not, and there was no separate differentiation for the captain. Later, that system was expanded to include a double gold braid worn by the captain, but it was not until 2266 that a system covering all higher ranks was introduced.

Along with new color designations for the various starship departments, the new uniforms introduced in 2266 carried distinct insignia to identify the ranks of lieutenant through to commodore. By the use of a simple system of gold braiding, worn on the sleeve at wrist level, an officer's rank could be easily identified at a glance. The bands of braiding were solid or broken, and ranged from one solid band for a lieutenant to two solid bands along a broader gold strip for a commodore. Ensigns and enlisted personnel carried no rank insignia.

Combined with the division-specific shirt colors, and the starship-specific badges, the rank insignia completed a simple but effective system which allowed a Starfleet officer's ship, division, and rank to be instantly identified – for example, an officer wearing a blue shirt, with one unbroken gold braid on his sleeve and the ship-specific badge of the *Starship Enterprise* could be immediately recognized as a science officer serving aboard that ship who held the rank of lieutenant. With starship crews of the period expanding to a size whereby captains couldn't be expected to know every member of their crew personally,



Starfleet mission teams could be comprised from a number of ranks, and even a small shuttle could contain a crew of several different ranks. The prominent sleeve insignia allowed the chain of command to be easily recognized.

this system soon became invaluable. Its only deviation was that an alternative green tunic sometimes favored by captains displayed their rank on the shoulder rather than the sleeve.

This method of identifying rank proved so effective that when this era's uniform design was replaced in the 2270s, the same system of rank insignia was retained, albeit in a simplified form, on the sleeves of most duty uniforms, and in a series of smaller bars on epaulets worn on the shoulders of their short-sleeved variants.



Uniforms of enlisted crewmen and ensigns did not display their ranks. Sleeve insignia was reserved for higher ranking Starfleet officers.



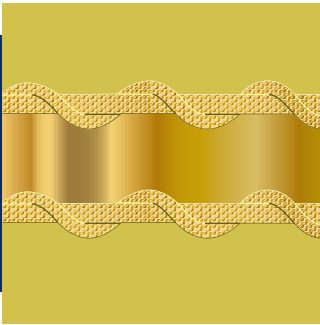
Sleeve insignia ensured that an officer's status was apparent at all times, as did the variant green tunic available only to captains.



Dress uniforms did not display sleeve insignia. Rank was differentiated by the thickness of the gold braiding down the front of the dress tunic.

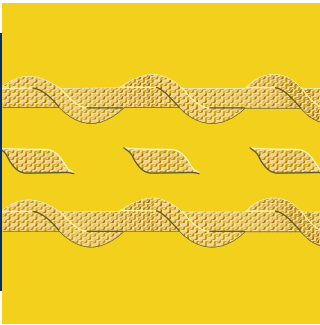
COMMODORE

Commodore was one of the highest ranks in Starfleet. Commodores served in a variety of positions, but were usually in command of a starship or starbase. In this era, their sleeve rank designation was the most elaborate of all such designs, comprising a wide gold band bordered on each side by a thick gold braid. Other than the rank braids, a commodore's uniform was indistinguishable from the standard mustard tunics of other command officers.



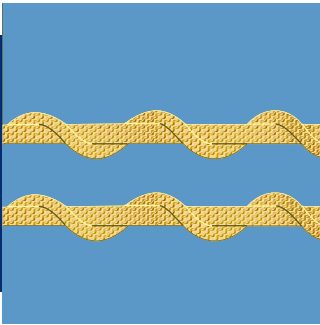
CAPTAIN

The rank of captain was designated by three gold braids on the sleeve cuffs of their uniforms, the middle of which was a broken line. This rank insignia was always displayed on the mustard command shirts, but was sometimes displayed on the shoulders as a 'V'-shaped braid on the green tunics worn by some captains for a period in the late 2260s. Such visual signifiers of rank were especially important during landing party missions.



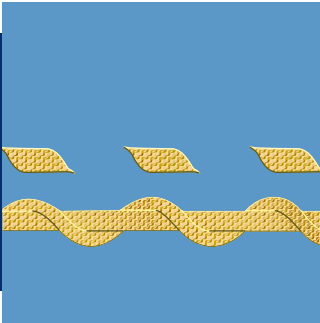
COMMANDER

Although a starship's first officer usually held the rank of commander, and was undoubtedly a command officer, he or she often retained the tunic color of their specialist area, such as the blue tunic of science and medical rather than the mustard tunic which designated command. Whatever the color of a first officer's tunic, their position in the chain of command was clearly designated by the rank insignia on their sleeve: two unbroken gold braids.



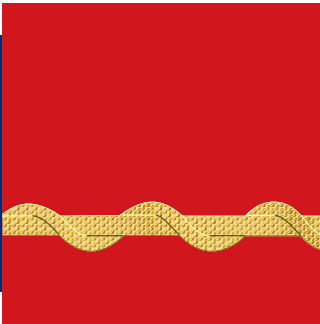
LIEUTENANT COMMANDER

Lieutenant commanders often headed departments aboard a starship, and wore the tunic color of their specialist area, such as the red of engineering for the chief engineer and the blue of science/medical for the chief medical officer. Their rank was represented by two gold braids; the one closest to the hand was solid, while the other was broken. The short-sleeved medical tunic occasionally worn by medical personnel carried no rank insignia.



LIEUTENANT

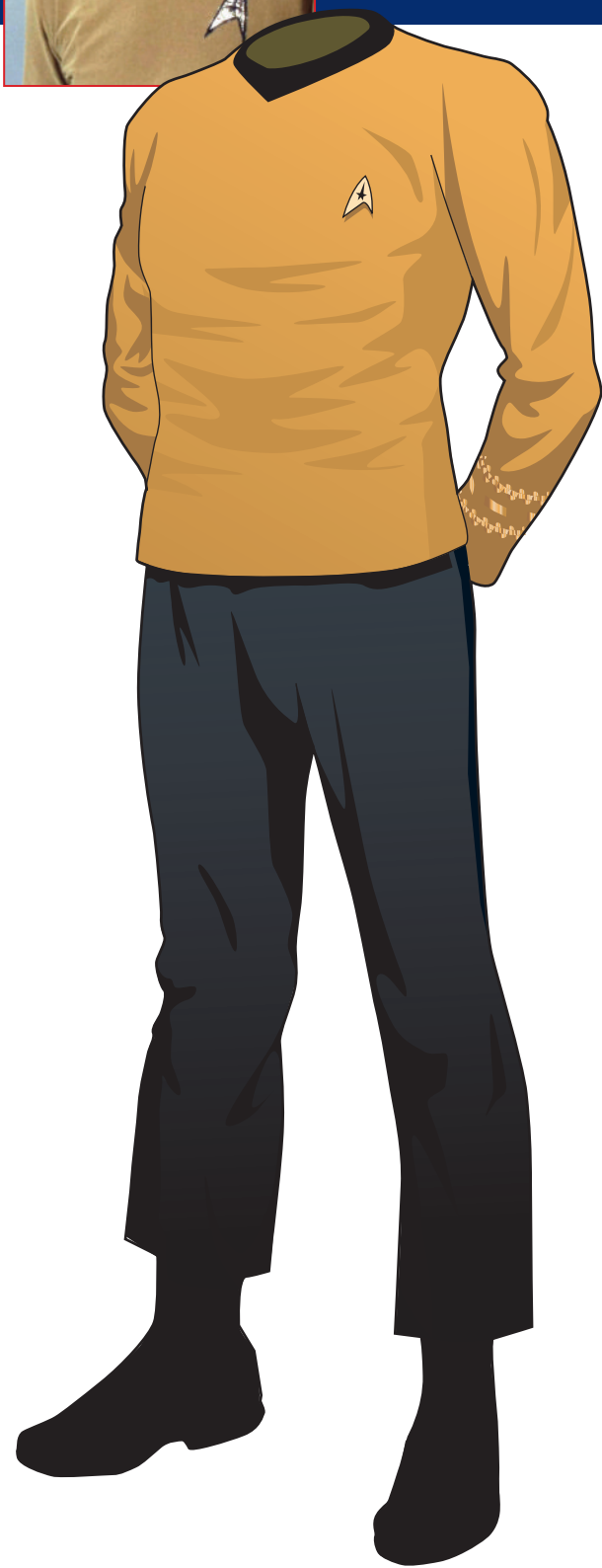
Lieutenants could be found stationed in every department on a starship, and they would wear the tunic color appropriate to their division. The lowest rank designated by sleeve insignia, Lieutenant was marked with a single, unbroken gold braid. All crew members below the rank of Lieutenant had plain sleeves, with no differentiation between enlisted personnel and ensigns who had attended Starfleet Academy.





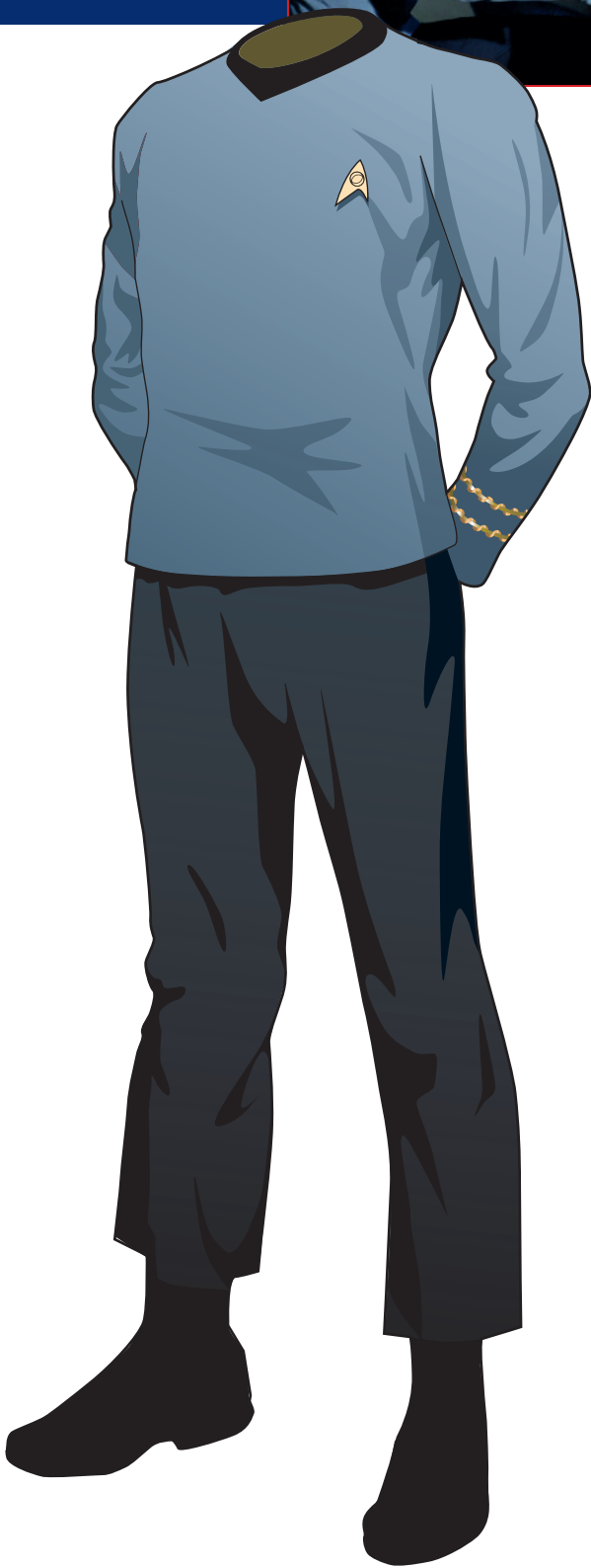
COMMAND UNIFORM

In the late 2260s, command officers in Starfleet usually wore a mustard colored tunic and black pants. The shirt featured a black collar, a patterned gold cuff braid to indicate rank, and the Starfleet delta insignia over the left breast, featuring the command division symbol.



SCIENCE UNIFORM

Officers assigned to the science department wore blue colored tunics and black pants that overlapped black boots. The tops had the same black collars and insignia as the command tunics. Again, rank was indicated by gold braid on the shirt cuffs.



DUTY UNIFORM

Bright red shirts were worn by engineering staff and security officers, along with other crew members such as the ship's historian and astrobiologist. Prior to 2266, these personnel wore light tan tunics that were closer in tone to the command uniforms.



CAPTAIN'S VARIANT

Captains could also wear a wraparound, v-necked light green tunic. The insignia was incorporated into the head of the wraparound strap that fixed to the left hip. In 2266, rank was denoted by a braid on the shoulders; this was moved to the cuffs a year later.





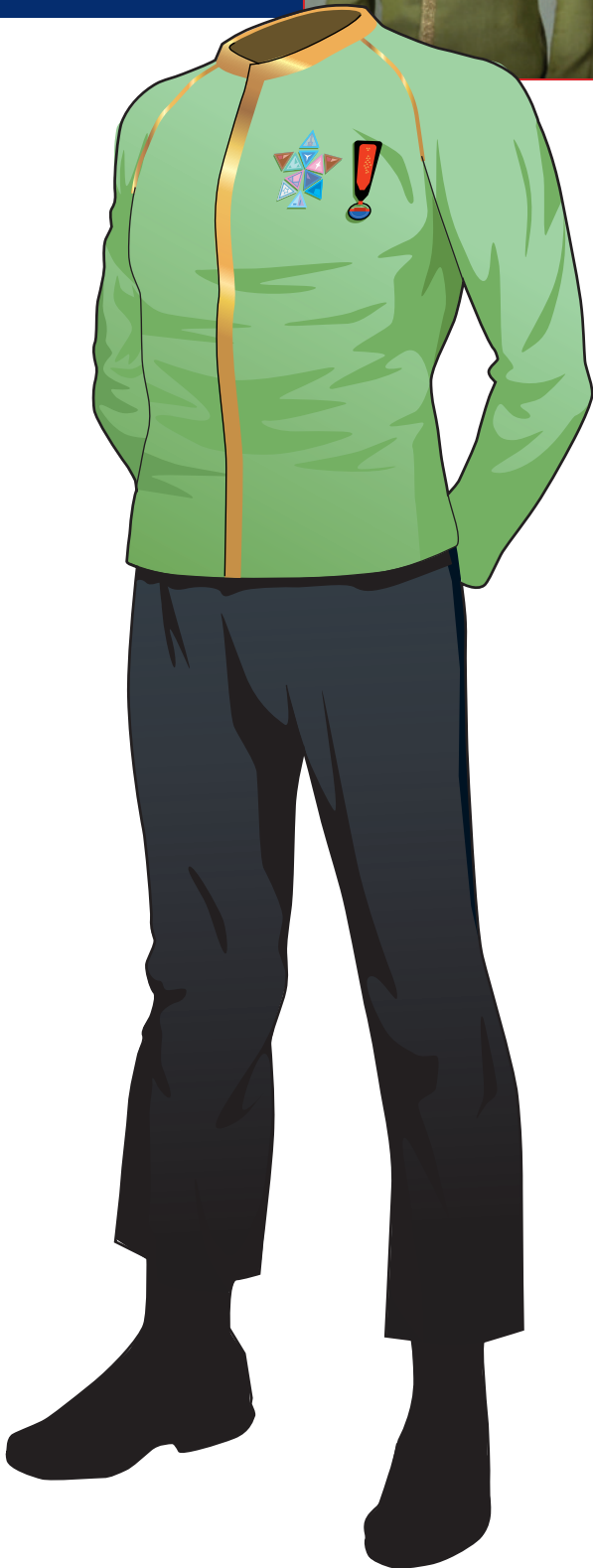
FEMALE UNIFORM

In the 2260s, female personnel wore flap-paneled miniskirts with a stand-up collar. This was the first time in more than 125 years that differing styles were required for humanoid men and women, although departmental colors and rank insignia remained the same.



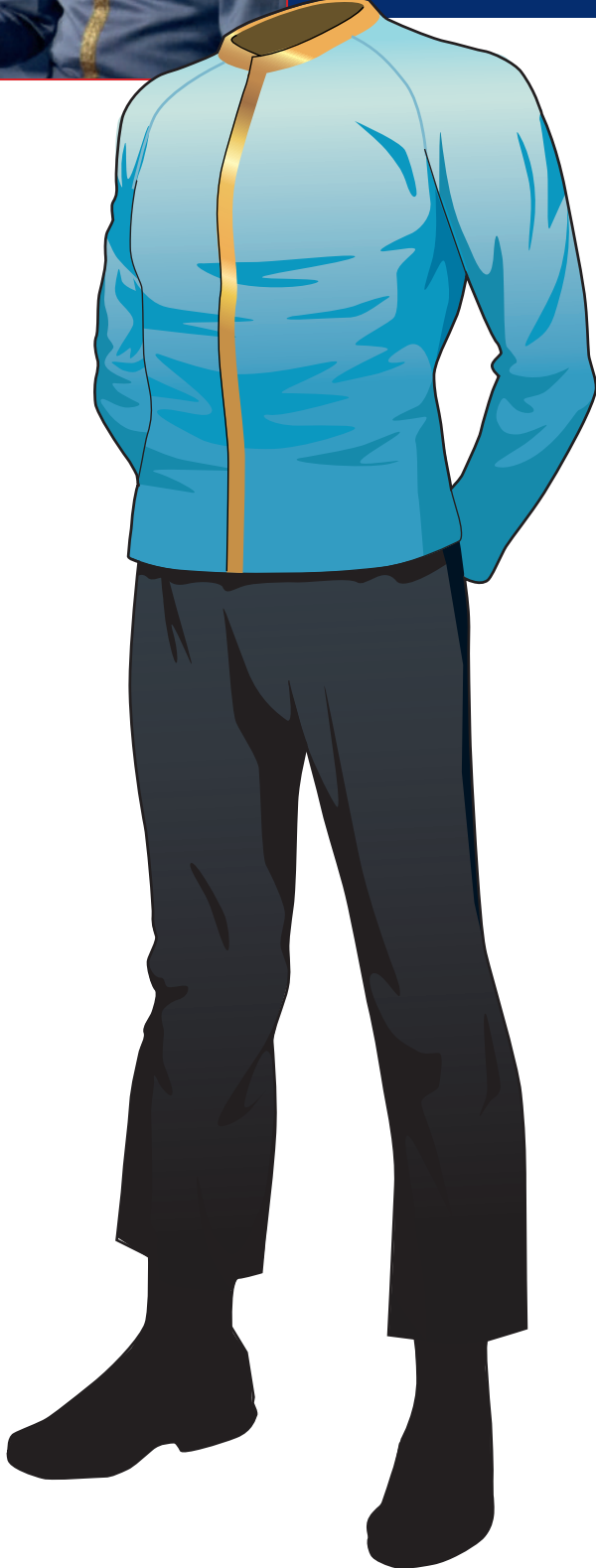
DRESS UNIFORM

The captain's dress uniform was green, and made from a more metallic-looking fabric than the standard tunics. The shirt also featured a Nehru collar and was fastened down the front, with gold inset piping. Award ribbons were displayed on the left breast.



DRESS UNIFORM

The blue dress uniform was worn by science and medical officers. It did not have the braid around the shoulders that can be seen on the captain's dress uniform, and was reserved for official functions. Officers could customize dress uniforms to honor their culture.



ENGINEERING FATIGUES

Engineering technicians often wore red jumpsuits with short sleeves while carrying out manual tasks. These coveralls featured a deep v-neck, with a black top worn underneath. A red belt encircled the waist, and standard issue black boots completed the outfit.





MEDICAL OFFICER

Dr. Leonard McCoy and other male medical officers could choose between the standard blue tunic worn by science personnel or a short-sleeved lab tunic. This was made from a shinier fabric with a boat-neck collar and was worn with a black undershirt.



FEMALE MEDICAL

Female medical personnel wore the familiar miniskirt design. These were blue, but unlike the other female uniforms they had the same color collar. The ship's insignia for nurses included a red cross - the only variation from the three duty division symbols.



BLUE COVERALLS

Medical patients were required to wear blue, all-in-one jumpsuits of the same design worn by engineering technicians. Again, these coveralls were short-sleeved, and worn with a blue belt and black undershirt. This uniform did not feature the Starfleet badge.



GREEN COVERALLS

The green jumpsuits were often worn by colonists, but were also used onboard. These differed from the other coveralls in that they were long-sleeved and fastened in the middle, almost up to the neck. Unlike other male Starfleet uniforms, the pants covered the boots.





CHAPTER 5

U.S.S. ENTERPRISE
NCC-1701 REFIT
2271-2285

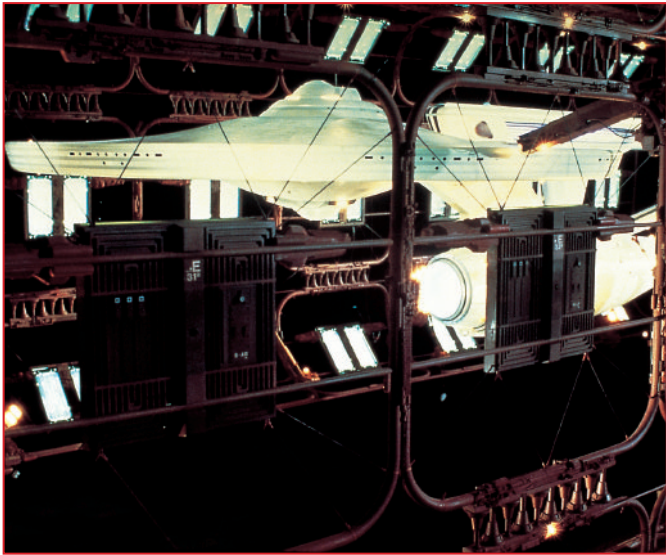
REFIT COMPARISON

The original *U.S.S. Enterprise* NCC-1701 was one of the most famous ships in Starfleet history, and underwent many upgrades during its long and distinguished career.

Following the completion of Captain Kirk’s second five-year mission, and his subsequent promotion to admiral, the *U.S.S. Enterprise* NCC-1701 came under the command of Will Decker, son of the late Commodore Decker. Decker’s first job in command of this famous ship was to supervise a major refit, with technical assistance from Chief Engineer Montgomery Scott.

Since her launch in 2245, the *Enterprise* had become one of the most famous ships in Federation history. But, after many years of faithful Starfleet service, some of its systems were out of date and the decor was beginning to look past its best. Minor modifications had been made in the past, for example the replacement of the old round-edged main viewscreen with a more angled, rectangular model, but it was decided that a major overhaul was now required. To bring the ship back up to date, every system on the *Enterprise* needed to be upgraded and, in addition, many areas of the vessel were redecorated; once the work was completed, the *Enterprise* was virtually an entirely new ship. By Stardate 7412.6 in 2271, the refit was reaching completion, approximately 18 months after it had began.

The refit *Enterprise* had the familiar hull design of all *Constitution*-class starships: a saucer-shaped main (or command) hull, attached to the secondary (or engineering) hull. The biggest outward difference after the refit was to



The *U.S.S. Enterprise* was a famous ship, but after two and a half decades of Starfleet service, some of the technology and decor was a little out of date.

the two warp nacelles. These nacelles, attached by swept back pylons near the stern of the engineering hull, still give the effect of outriggers but were sleeker and longer than the ones they replaced.

IMPROVED FACILITIES

The refit increased the length of the *Enterprise* from 289 meters to 305 meters: an increase of 16 meters. This extra length was almost totally due to the new nacelles.

The refit ship had a number of airlocks at which workbees, travel pods, and shuttles could dock, allowing crew members and other personnel to transfer to the ship. A small airlock on the port side of the engineering hull allowed direct access to cargo bay 6. Airlock 4, on the bottom of the main saucer, could be used to enter and exit the starship by a crew member wearing a thruster suit. The bridge could be accessed from an airlock at the rear of the bridge module. New floodlights highlighted such exterior features as the name and serial number of the ship.

Like its predecessor, the refitted *Enterprise* had 23 decks, with the bridge on deck 1 at the top of the saucer section. Like much of the refitted ship, the bulkheads of the new bridge module were a neutral shade of off-white. Doors were gray, and the railings between the upper and lower levels of the bridge were chrome rather than red, as

they had been before the refit. Instrument readouts on the perimeter wall and control surfaces were primarily black. Overall, the previously favored primary colors of Starfleet interiors were replaced with more natural, neutral tones. The communications duty station was now to the captain’s left rather than behind him, and a weapons control officer – positioned to the left and forward of the captain’s position – took over defense duties from the helm. As before, the main viewscreen could be used to magnify objects as well as to display the situation outside the ship, and images of individuals aboard other vessels communicating with the *Enterprise*. The viewscreen continued to be able to display computer-generated tactical information.

MEDICAL IMPROVEMENTS

Sickbay had also changed considerably, leading chief medical officer Dr. Leonard McCoy to describe his new medical hub as “a damned computer center.” It had at least three diagnostic beds, each with its own readout. The new readout modules were smaller, and closer to bed level. Sickbay also contained at least one sensor bed. The entire internal biology of any being placed on the sensor bed could be viewed on an overhead screen.

The transporter room was very much as it had been before, except for the addition of a shield to protect the operator from any harmful radiation emitted by the transporter pads.

A recreation area, equipped with many games and diversions, filled a large open space on deck 8. A balcony stretched across the rear of the area, and models of previous *Enterprise* vessels were on display. A large viewscreen, suitable for imparting data to a gathering of the crew, was a major feature of the room.

Captain’s and other officers’ quarters were on deck 5,

and each was equipped with a sonic shower.

Travel around the ship was facilitated by at least eight turbo-shafts. A schematic of the ship was mounted on the back wall of each of the bridge turbolifts.

TECHNICAL DETAILS

The refitted *Enterprise* could travel at faster warp speeds than before – up to at least warp 7. Phaser power was now increased by channeling it through the main engines.

It also had the usual sensors (including photic sonar), shields, and navigational deflectors. Some of the shields ran through circuits E-10 through E-14, but these could not hold out against every threat: plasma weapons, such as the one *V’ger* fired at the *Enterprise*, could cause defensive systems to overload.

Communications systems were capable of sending and receiving old-style radio transmissions. If necessary, the main computer could be modified to send linguacode friendship messages at a vastly accelerated rate.

The ship had phase matrix restoration coils and flow sensors, and was equipped with communications drones that could be sent to Starfleet to make a situation report.

YEARS OF SERVICE

The 2271 refit was the last major upgrade to the original *U.S.S. Enterprise* before the ship was withdrawn from active service in 2277. By this stage, Starfleet had commissioned new vessels, far more advanced than such older ships, and the *Constitution*-class was on its way out. With much more of the Galaxy now charted, newer ships were developed for more specialized missions, such as scientific research vessels like the *Oberth*-class *U.S.S. Grissom*. By the time the *Enterprise* met its end in 2285, it was seen as a somewhat old fashioned vessel.



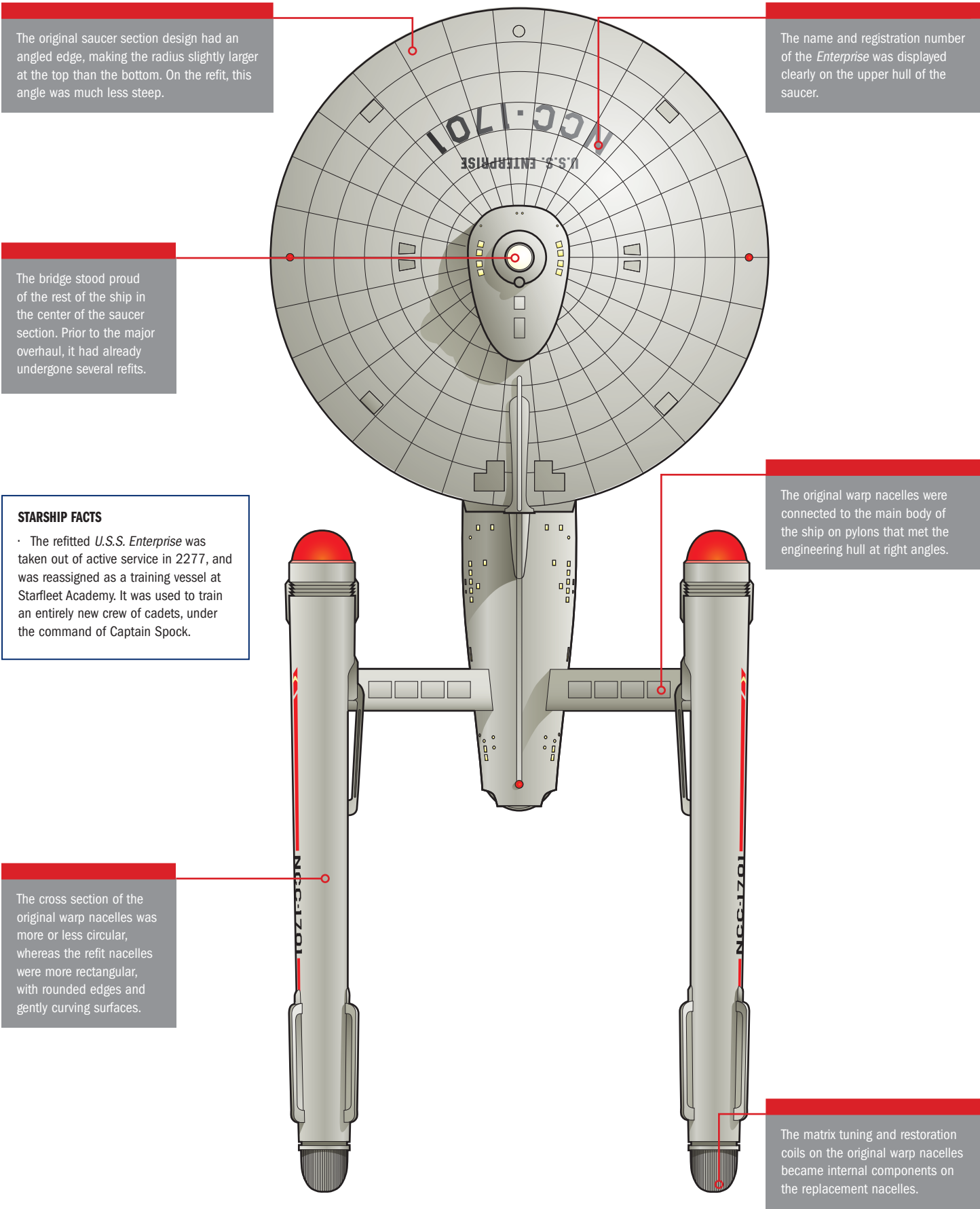
One of the biggest changes to the *U.S.S. Enterprise* was the addition of a spacious communal hall, used for recreation or to gather the full crew for important briefings.



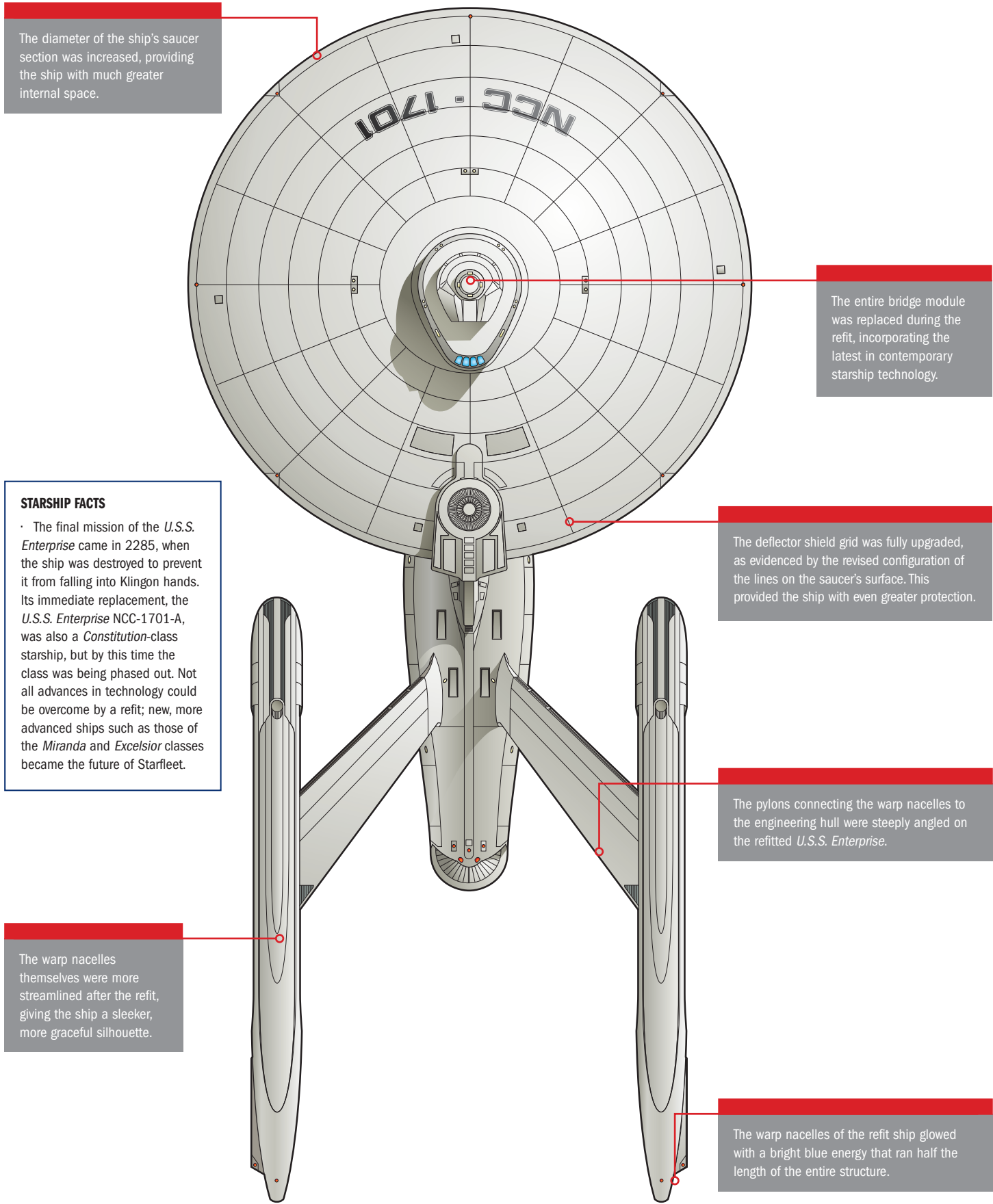
Prior to the extensive *Enterprise* refit, main engineering (left) was a compact area separated from the engines by a protective screen, and staff wore standard duty uniforms or overalls. Following the refit (right), engineers had more direct access to the warp core, which necessitated the use of protective suits at certain times.



BEFORE THE REFIT



AFTER THE REFIT





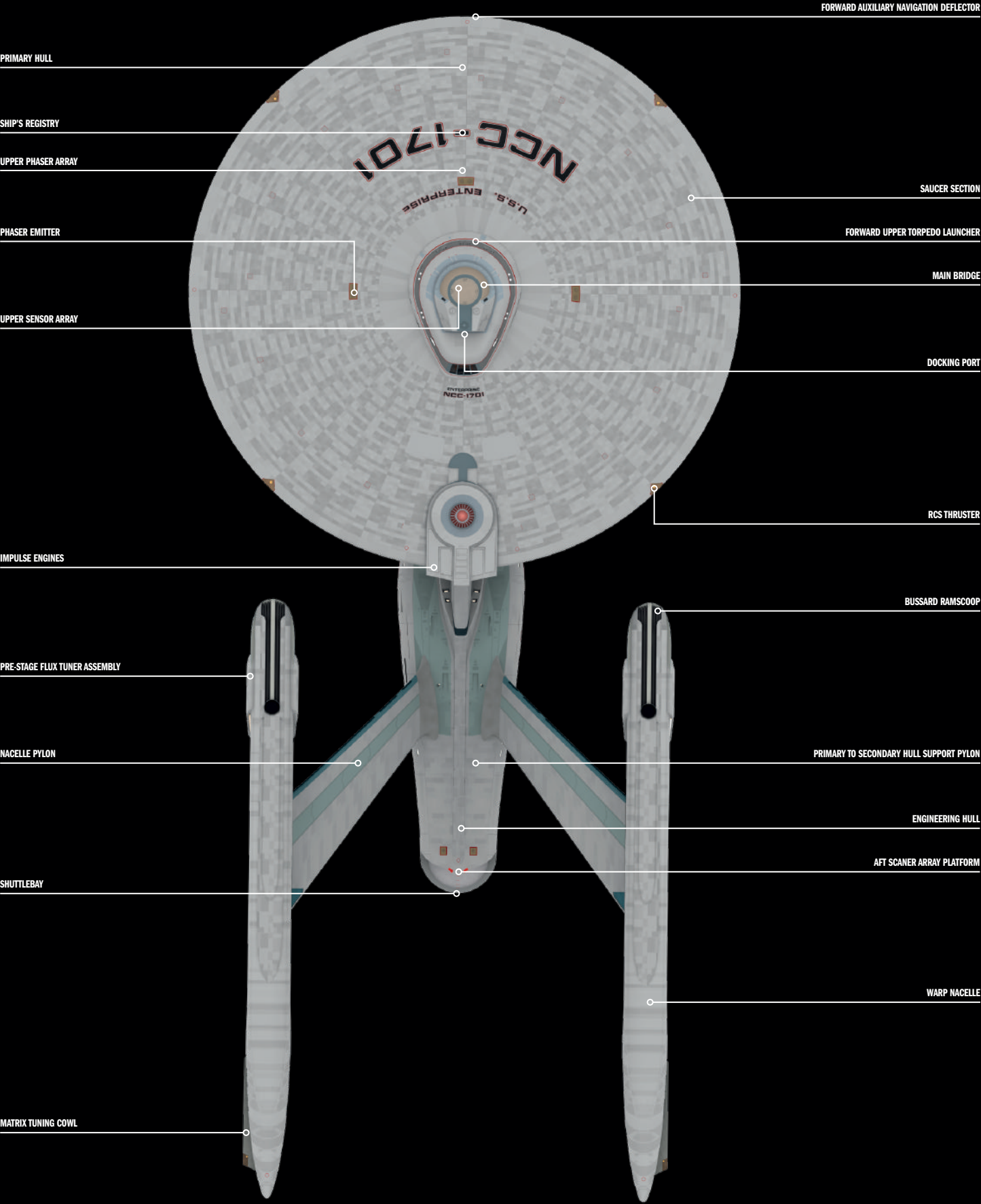
ANNOTATED EXTERIOR VIEWS

The extensive refit of the *U.S.S. Enterprise* NCC-1701 took 18 months, resulting in a starship that was, to all intents and purposes, an entirely new vessel. However, the heroic spirit of the *Enterprise* remained intact.

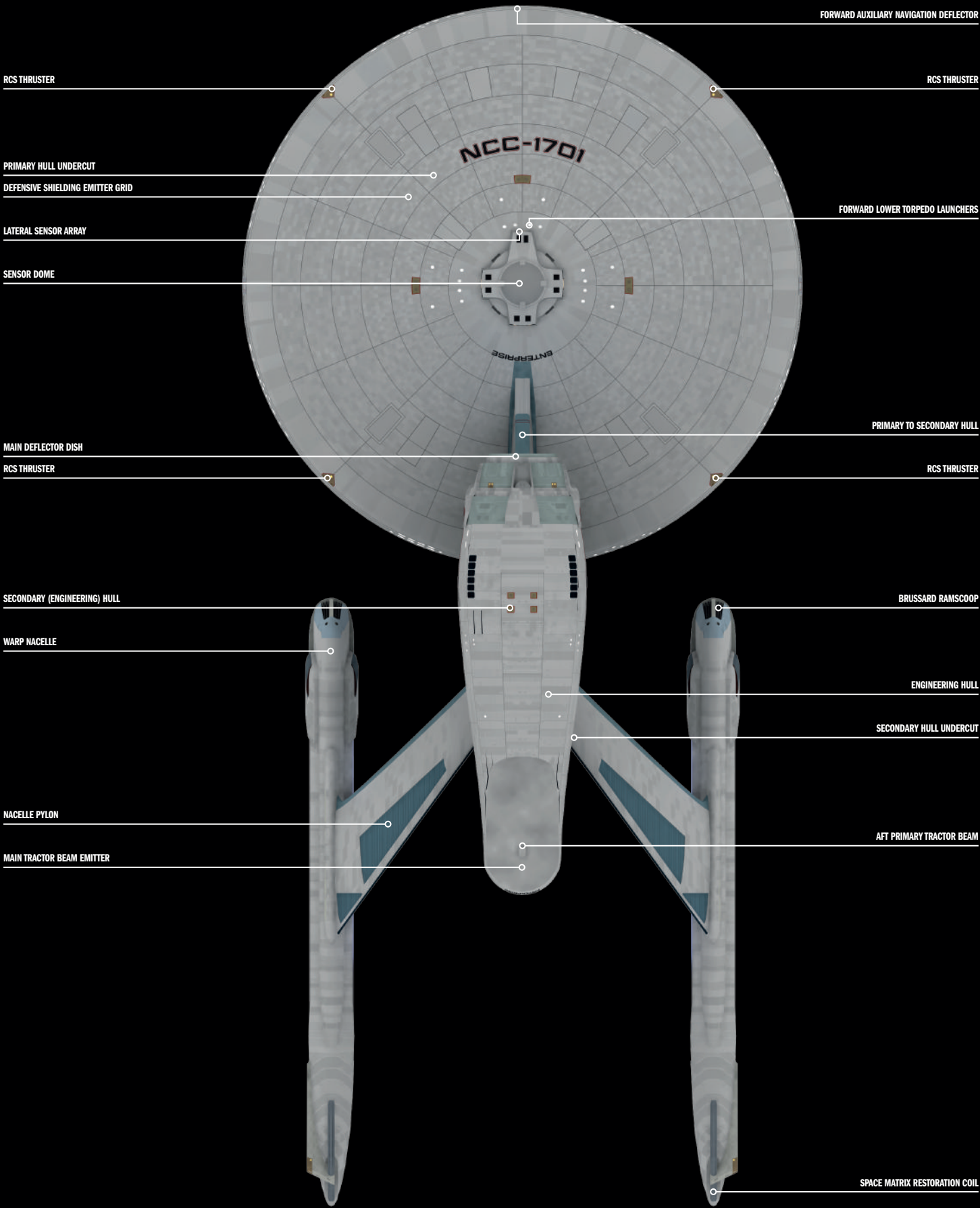
Every ship has its day, but the inevitable fate of the *U.S.S. Enterprise* NCC-1701 was postponed by over a decade following a root-and-branch refit that saw its every deck plate, Jefferies tube, and sensor overhauled. The skeleton of the original vessel became the basis for a new iteration of Starfleet’s *Constitution*-class ships, incorporating many technological advances. The refitted ship was longer by only a matter of meters, and bore a great similarity to its earlier form, but its dimensions were quite different. The new warp engine nacelles were less tubular, with more of their systems internalized; the secondary (engineering) hull was broader and longer, accommodating a reconfigured vertical warp core and an expanded cargo hold; and the saucer section

had a wider diameter, an all-new bridge module, and more powerful impulse engines at the rear. The changes to the primary hull and the updated nacelles required the pylons connecting them to the secondary hull to be replaced. The nacelles were now supported by elegant, swept-back pylons, while the “neck” connecting the primary and secondary hulls was thicker, and incorporated a wider deck at its base where launch tubes for photon torpedos and probes were located. By 2285, the *Enterprise* was primarily being used as a training vessel for Starfleet cadets. Badly damaged during a space battle with Khan Noonien Singh, the ship’s final voyage was an unauthorized mission to the Genesis Planet, where fate ultimately caught up with the famous starship.

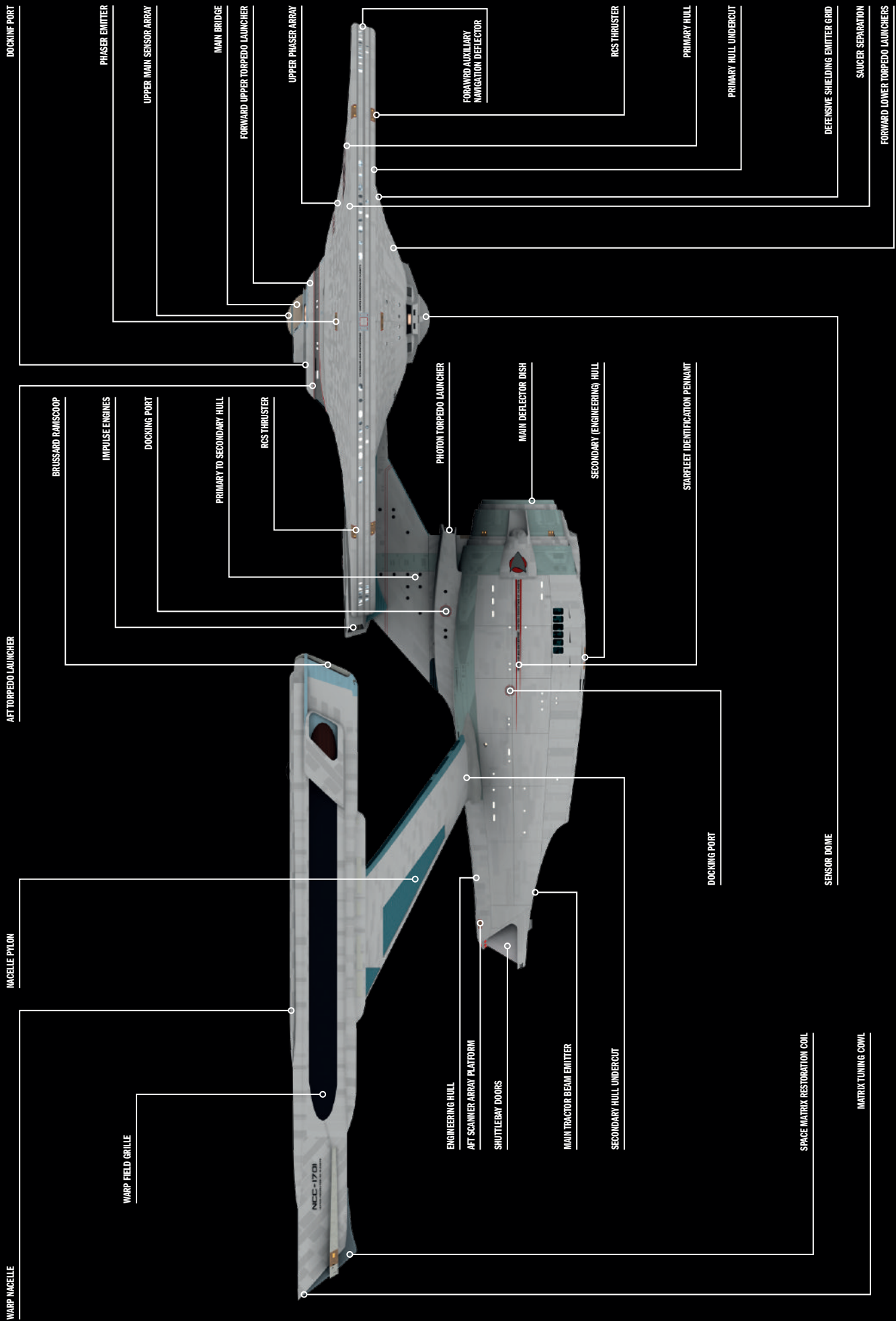
DORSAL VIEW



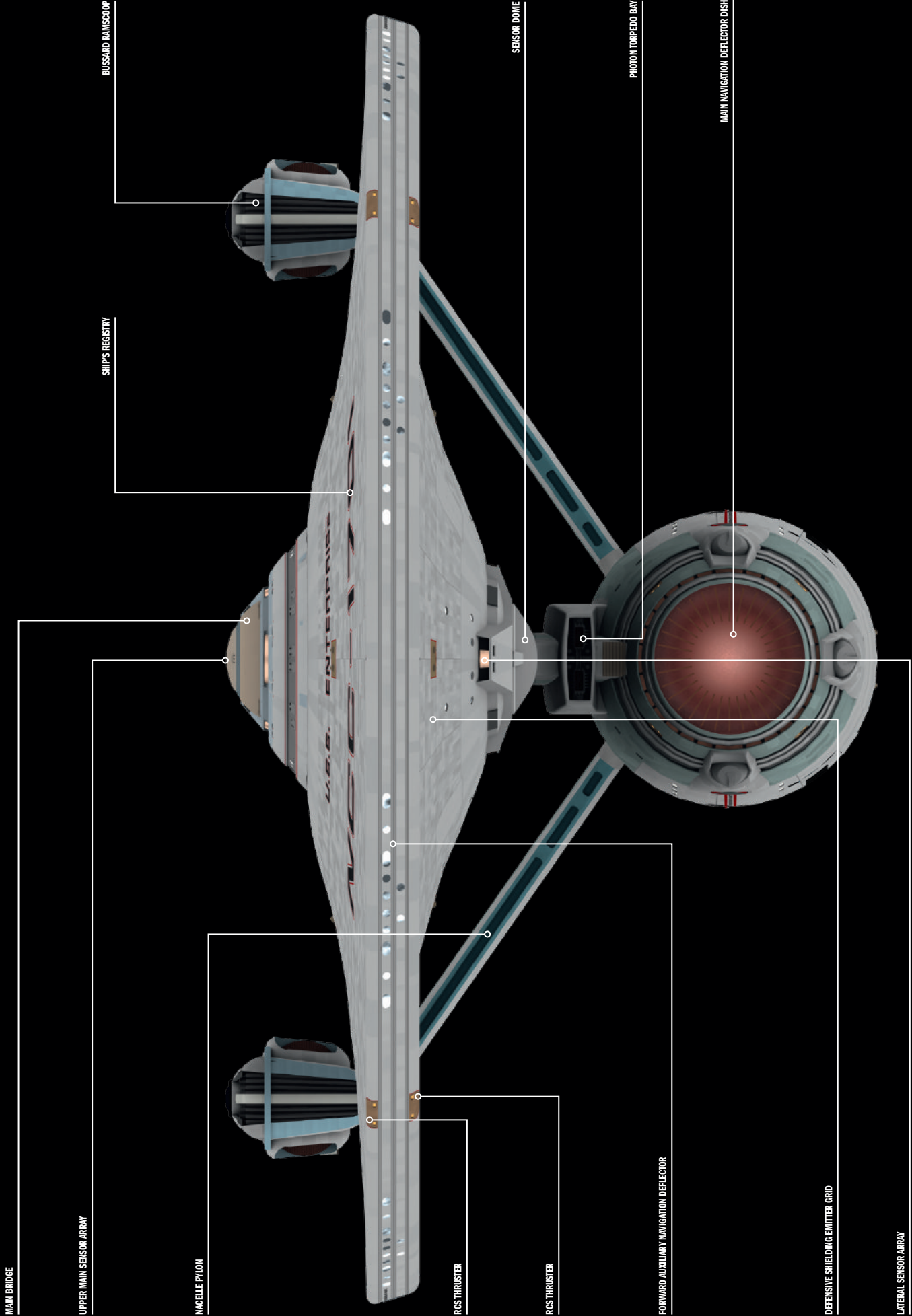
VENTRAL VIEW



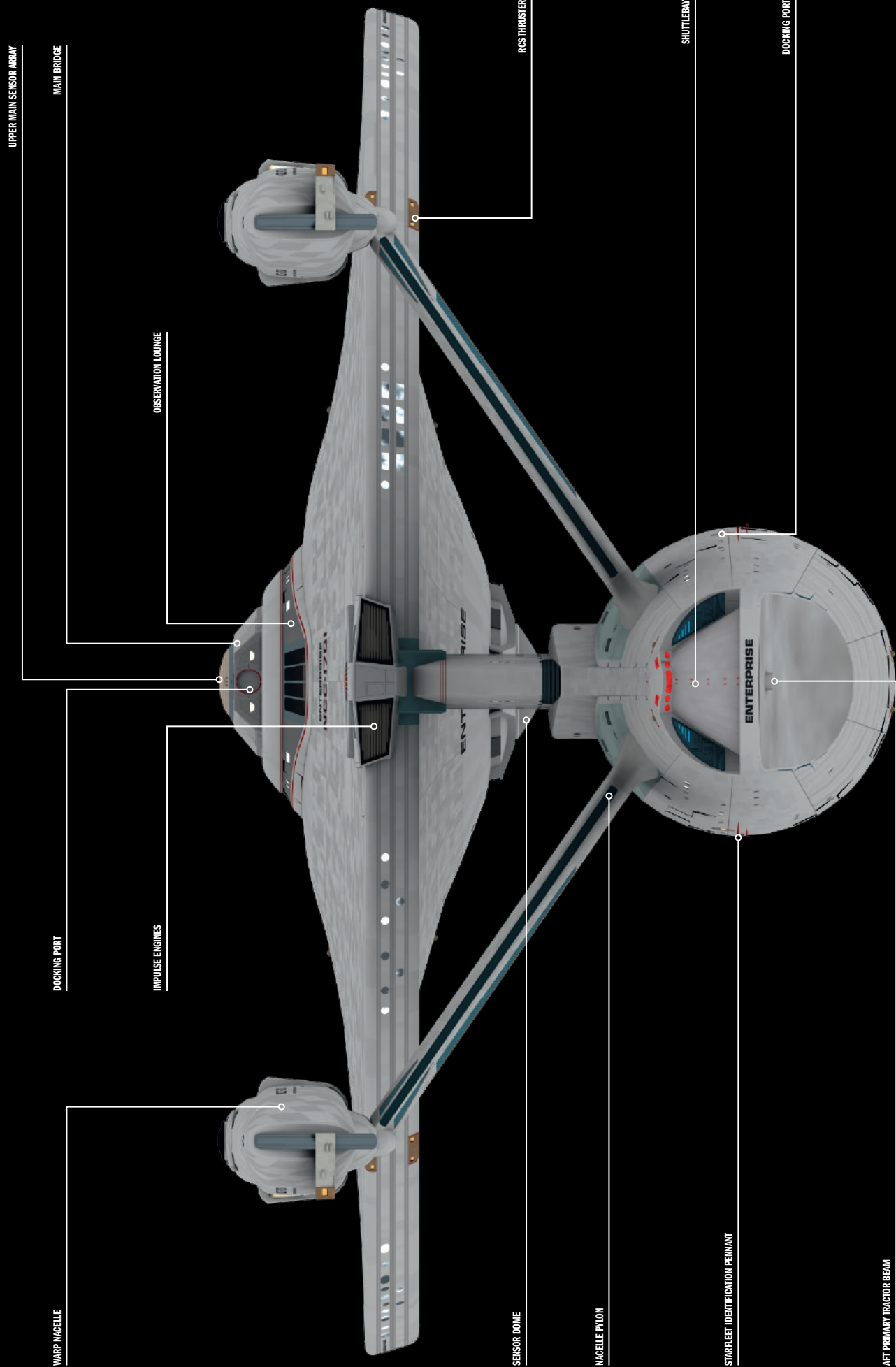
PORT ELEVATION



FRONT ELEVATION



AFT ELEVATION



MAIN BRIDGE

The refitted *U.S.S. Enterprise* bridge of the 2270s toned down the bright colors of its predecessor, and was reconfigured to introduce more specialized duty consoles.

The refit of the *U.S.S. Enterprise* NCC-1701 was completed in 2271. Utilizing modular construction, the 18-month process was extensive and thorough, and included a complete overhaul of the ship's bridge. Among the most obvious alterations was the addition of a second turbolift, and the replacement of several duty stations with standing-only work areas in order to increase the number of perimeter work stations available.

NEW STATIONS, NEW ROLES

The new weapons control station, partly enclosed, combined two subsystems previously handled from the navigation and helm stations: weapons and defense. The defense subsystem provided deflector systems status such as proximity sensors and automatic shields. The weapons subsystem coordinated all weapons systems and fire control functions. A new innovation was to use the *Enterprise* engines to power the ship's phasers.

The science station was repositioned directly behind the captain's chair, with an enhanced suite of panels on either side of the main station. Communications was now to the captain's left, and a dedicated environmental control station monitored life-support functions. Graviton field decay and synthetic graviton monitors were now routed through a separate artificial gravity control station. The engineering station was also more wide-ranging, with controls and readouts covering everything from the warp and impulse engines, the transporters, and tractor beams, to monitoring the degradation of engaged dilithium in the ship's antimatter converter assembly unit.



Commander Will Decker reported from the science station. Decker was captain of the *Enterprise* during its refit, but stepped aside in favor of James T. Kirk.

There were two turbolifts to the bridge, providing increased access and multiple escape routes in case the bridge had to be evacuated.

Automatic restraints on each chair secured a crew member to their seat when warp drive was engaged, or if the ship was being buffeted.

Duty stations around the bridge provided access to sensors, viewers, and visual displays. The ship's computers, probes, and its photic sonar could be controlled from the science officer's station.

The engineering station housed the master display for the warp and impulse engine readouts, transporter functions, and the tractor beam unit.

The navigation station, responsible for plotting the ship's course, was fitted with an upgraded astrogation unit.

Defense functions moved from the helm to a dedicated duty station to the left of the main viewscreen.

The communications station incorporated ship-to-surface capability, the universal translator, and subspace relay monitors.

One of the bridge stations became a versatile standing-only interface. The artificial gravity control subsystem was moved to its own station.

On the refit bridge, the step that had previously been behind the captain's chair was replaced by four diagonally opposing entry points.



Upon his arrival aboard the *U.S.S. Enterprise*, Spock took up his old position as science officer, working at a dedicated station.



Di Falco replaced Ilia at the navigation controls, with Sulu in his usual position at the helm.

These panels incorporated a molecular synchronization readout.

The weapons station incorporated torpedo and phaser priming controls, and launch systems. It also included a subsystem and monitor display for all defensive capabilities and shields.

MAIN ENGINEERING

The *U.S.S. Enterprise* NCC-1701's refitted main engineering department was a cavernous facility, supplying power to the great starship as she explored the vast depths of space.

A number of significant changes were made to the internal systems and facilities of the *Enterprise* during her refit, with main engineering benefitting from many developments made in warp drive and propulsion technology since the ship had first been commissioned.

The configuration of the warp assembly and accompanying control and monitoring stations incorporated during the refit heralded an engineering design philosophy that would be reflected in almost every subsequent Starfleet vessel, up to and including the *Sovereign*-class, more than a century later. One of the most radical differences between the refitted *Enterprise* and its predecessor was the installation of a vertical warp core, which ran through a number of decks, linking at the main reaction chamber, where it channelled warp energy into a long, horizontal chamber running the entire length of the deck.

The sheer scale of the improved warp coils and warp stack required a greater amount of room in which to house its sophisticated power generation and control systems, making the department larger, and requiring an increased crew complement to oversee the optimum efficiency of the ship's power systems.

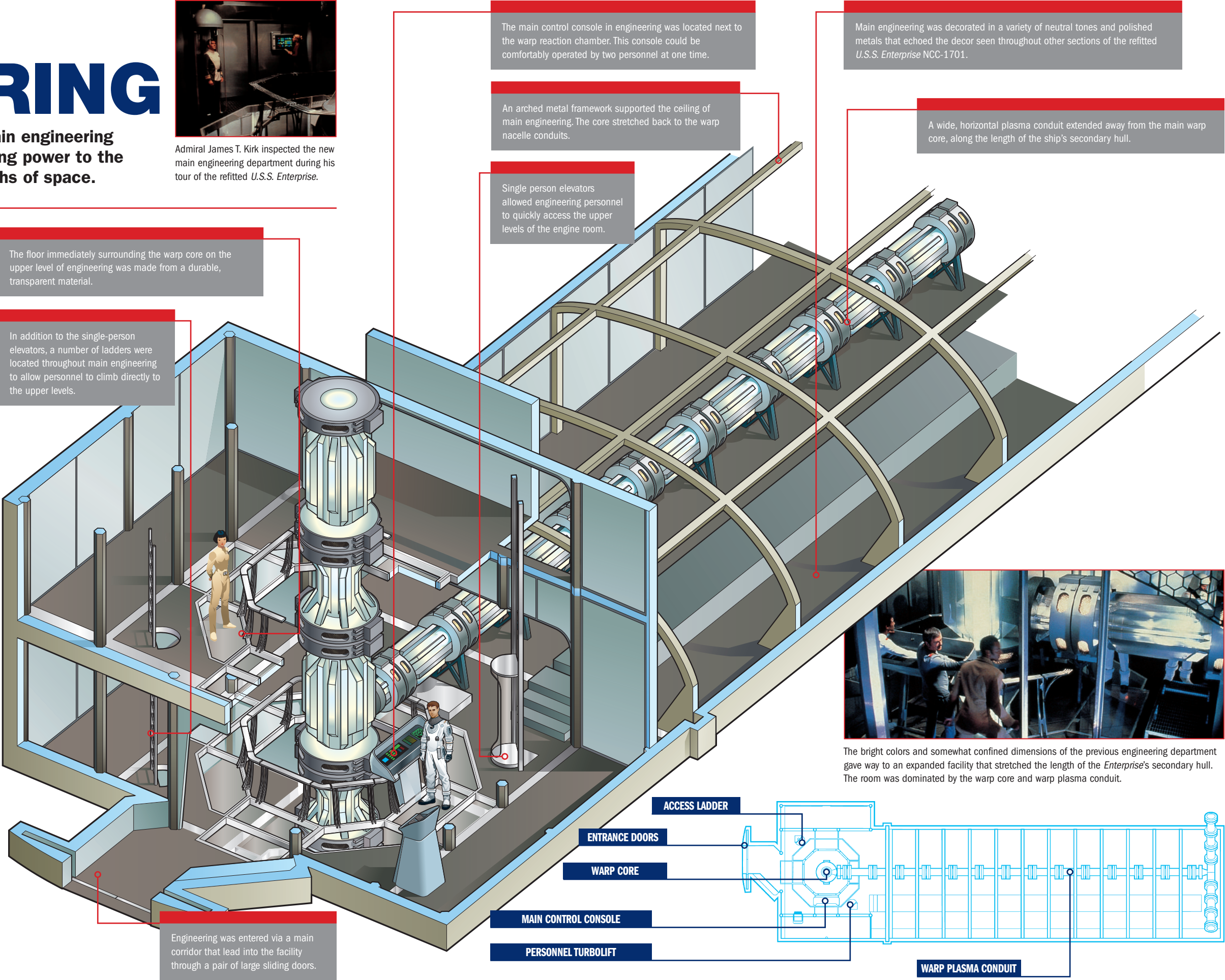
The main controls for the warp and impulse engines, along with those for transferring power throughout the rest of the ship, were concentrated on decks 18 and 19. A number of additional warp core access decks were located directly above and below the two main engineering decks.



Commander Montgomery Scott retained his position as the most senior officer in the engineering room of the refitted *U.S.S. Enterprise*. Scotty oversaw virtually every aspect of the vessel's extensive upgrades.



Admiral James T. Kirk inspected the new main engineering department during his tour of the refitted *U.S.S. Enterprise*.



The bright colors and somewhat confined dimensions of the previous engineering department gave way to an expanded facility that stretched the length of the *Enterprise's* secondary hull. The room was dominated by the warp core and warp plasma conduit.

ENGINEERING SUITS

The heart of a starship is engineering, and in order to keep that heart beating, the crew members who work there must continue to function under the most dangerous conditions. Starfleet’s engineering suits protected them from all hazards.

By the 2280s, Starfleet had issued a new style of protective radiation suit to all engineering personnel. This bulky white coverall was modified for use in critical engineering environments, and protected the wearer against most kinds of radiation. Additional components included removable, insulated gloves and boots. The suit’s ruff-like collar formed a gasket, to which a rigid helmet could be easily attached; regular personnel wore a black collar, cadets wore red. In the center of the suit’s chest area was a universal fitting for a variety of environmental aids, such as breather masks; just inward of the left armpit was a similar fitting.

OPERATIONS AND USAGE

In the event of an atmosphere compromise, such as a leakage of phaser coolant gas or other toxic airborne compounds, a flexible tube would be inserted into the chest fitting. At the other end of the tube was a transparent mask, which fitted over the nose and mouth of a humanoid. A filter system, or temporary emergency breathing gas stored in the suit, provided the wearer with short-term protection. The breather masks were not fitted to the suits permanently, but were stored in racks located at various points around the engineering spaces. In the event of a leak, the user removed their mask, and inserted the tube into the chest fitting, activating the air flow. Safety helmets were also stored in similar racks. In emergency conditions, the suit could be completely sealed to ensure the protection of the crew member inside.

ATTACHMENTS AND INSIGNIA

Fitted just above waist level on the suit were two metal rings, to which tools could be attached. These hooks were especially useful in environments in which gravity had been compromised, when their tools were in danger of floating away. In the same way, the rings could be used to tether the suit’s wearer in a zero-gravity situation.

On either shoulder, an epaulet denoted department and the rank of the crew member wearing the suit; in the case of engineering, this was gold, and red for cadets. At the top of the left arm was a Starfleet insignia patch, with a gold circle behind the Starfleet delta.

Rings encircled the suit’s wrists, elbows, waist, and ankles. These were the outward design elements of devices that helped to equalize pressure between parts

of the body. Just under the rings on the left elbow was an additional band, sporting an insignia bar that displayed the wearer’s length of service in Starfleet.

The uses to which these suits could be put were diverse; they were worn during regular shifts, and also for formal command inspections. Engineering cadets and regular personnel would also wear the suits during official inspections, at funerals, or when welcoming a dignitary on board ship. The exception was the chief engineer, who would usually wear the normal duty uniform at such times.

During routine duties, the engineering suit protected personnel from prolonged exposure to the radiation emissions and forces generated by warp drives and impulse engines. The suits could not, however, protect the wearer from more intense, focused, or directed-energy output, such as a phaser attack or explosion.



Starfleet engineering suits were the best protection for personnel working close to energy systems such as warp cores and impulse drives.

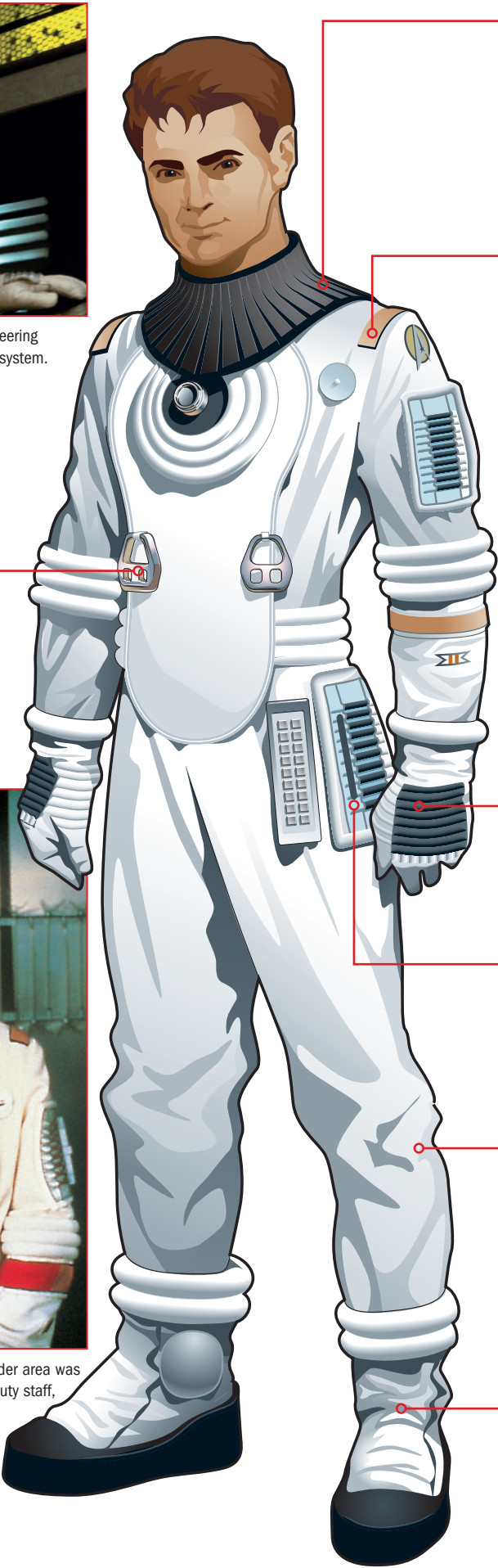


Should a catastrophic toxic leak occur, the engineering suit was equipped with a temporary life-support system. A breather mask could be attached to the suit, allowing the wearer to breathe freely until the air pollutant was purged.

Heavy-duty fastening rings on the front of the suit were used to stow tools or attach tethers, for work in low-gravity situations.



The wide collar around the suit’s neck and shoulder area was color-coded to denote posting; black indicated duty staff, while red denoted cadets.



The suit’s wide collar provided an airtight seal, and a seating for a protective safety helmet.

Epaulets on the suit’s shoulders indicated the rank of the crew member.



The engineering suits delivered a high degree of protection from hazardous discharges, but life-threatening injuries could still occur to the wearer.

The suit’s heavy duty gloves were removable. The upper surfaces were fitted with semi-rigid panels for extra protection.

A small control unit, mounted on the suit’s thigh, regulated life-support systems.

The engineering suits were made from flame-retardant material. They were designed to prevent radiation seepage, and lined with several protective layers.

The boots incorporated a magnetic element for use in zero-gravity situations.

TORPEDO BAY

The torpedo bays aboard the *U.S.S. Enterprise NCC-1701* followed the same design and function, enabling the swift deployment of photon torpedoes and other equipment.

The torpedo rooms of the *U.S.S. Enterprise NCC-1701* were economical spaces where the ship's stock of powerful photon torpedoes would be readied for firing. This process incorporated a surprising element of manual supervision, in addition to its automated systems.

There were two forward torpedo bays aboard the *U.S.S. Enterprise*, both identical in shape. The bays were split across two levels: an upper gallery ringed by a safety rail, allowing observation of torpedoes as they were lowered into position by a metal arm. The lower level was dominated by the torpedo initiation area and track, ringed by a raised bulkhead. Several consoles were set into a bulkhead to the rear of the torpedo bay, and a wall plate close to the door bore the identification number of the torpedo bay.

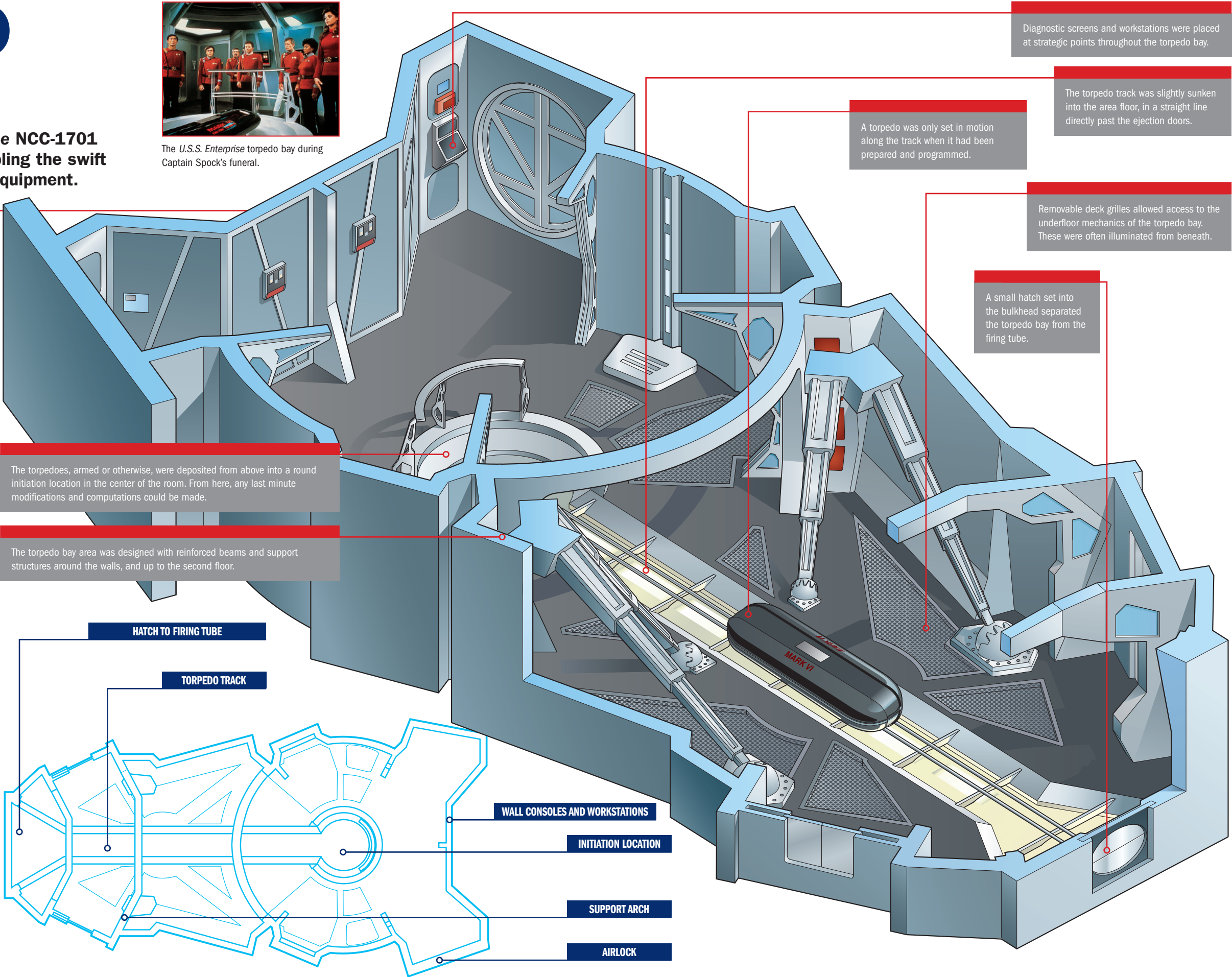
The track itself ran the length of the chamber into the departure bay, and was covered by a series of grilles when not in use. These would be manually removed by crewmen while a photon torpedo was being prepared for launch. A torpedo would be placed on a small cradle device that then carried it forward along the track and into the departure bay. A torpedo-shaped hatch would then open to receive the torpedo, and close behind it as the torpedo entered the firing tube. The cradle would then move back to its starting position, ready for its next payload.



Torpedo casings could house a variety of devices in addition to warheads, and in some tragic circumstances were used as funeral caskets for burial in space.



The *U.S.S. Enterprise* torpedo bay during Captain Spock's funeral.

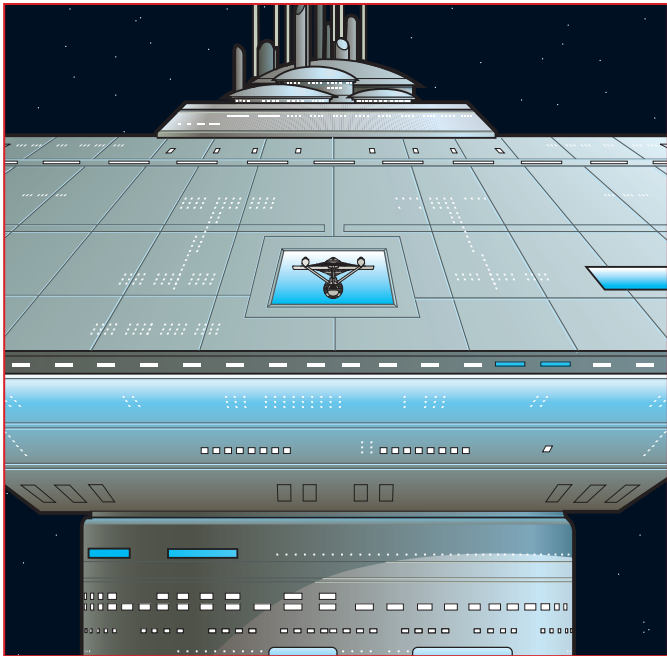


DOCKING AT A SPACE STATION

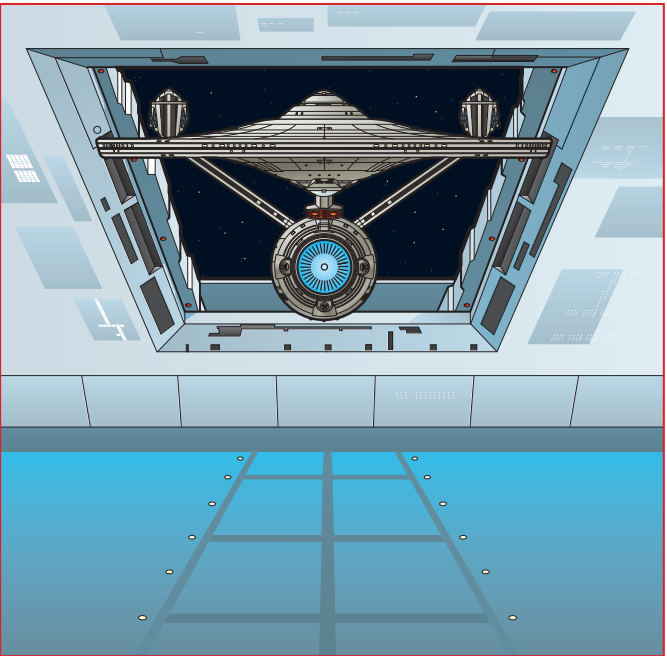
At some point, even the most self-sufficient deep-space exploration vessel needs a safe haven. Earth’s spacedock was an essential waypoint for shoreleave and starship maintenance.

Docking a Starfleet vessel at a starbase spacedock was a well-established, by-the-book procedure. The highly complex maneuver was overseen by the starbase’s Approach Control or Command Center; and could be automated once the captain of an incoming vessel handed control over to the docking commander. Approach Control was the main operations center for spacedocking procedures, and was staffed by both Starfleet and United Federation of Planets personnel. These highly trained docking crews oversaw the docking procedure on a round the clock schedule; there was always a lot of activity as numerous technical people moved about the main Command Center. The bridge-like room was filled with visual display monitors, giving the most up-to-date status on activity within spacedock. Large windows looked out onto the docking bays, making certain that visual contact was maintained at all times; this was especially important during the docking procedure. Approach Control had a dramatic view of the huge starships entering and leaving the vast spacedock. There were usually a number of vessels docked in spacedock at any one time, and it was therefore extremely important for the docking crew to make sure that an incoming starship had a wide and clear berth at which to dock. Approach Control also had to ensure that the numerous shuttlepods and workbees in the general vicinity kept clear, and a constant stream of radio chatter could be heard in the Command Center during such maneuvers.

WINDOW OF OPPORTUNITY
Smaller vessels would sometimes enter or exit spacedock during the periods when the doors opened to allow a starship through. Timing was important, since the window of opportunity only existed for a short time. It was more efficient for Approach Control to limit the opening and closing of the doors than to open them more often to allow individual ships to pass through. The protocol also allowed them to protect the interior of spacedock from unnecessary space contamination. Approach Control was responsible for giving all clearances to the spacedocks, and on occasions where a starship flouted correct procedure, Approach Control could issue a yellow alert to the entire facility. Usually, only Approach Control had command over the opening and closing of the spacedocks, but it was possible to override command from aboard a starship. The approach to spacedock usually began with the starship coming in from below the section where the doors were located. This procedure allowed for clearance of any other vessels. Once the starship was in the correct position, facing the closed spacedocks, the final approach procedure was initiated by the communications officer on the incoming starship. Upon the command of the captain, the communications officer informed Approach Control that the vessel was ready for docking. The starship then received the “cleared to dock” command, and the captain requested a lock-on command; this would be confirmed by the starship’s helm, with the phrase, “systems locked.”



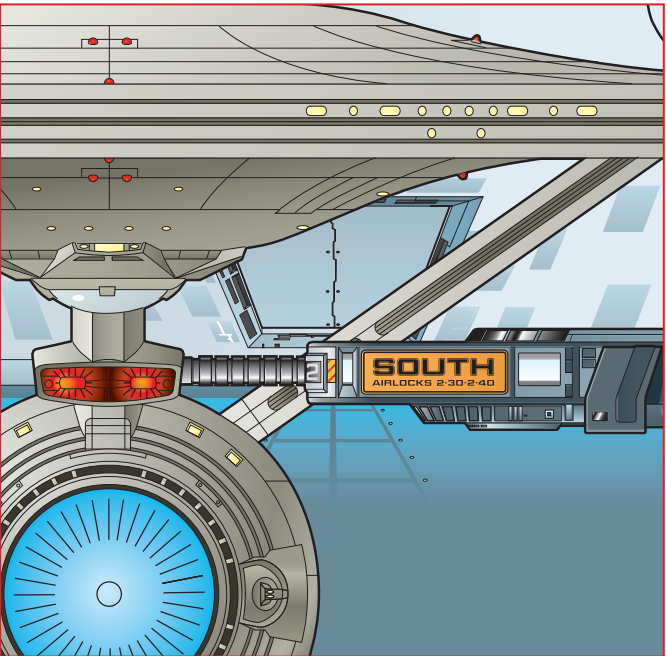
The spacedock doors were located in the center of the upper section of the station, and would open after an approaching ship contacted Approach Control for clearance to dock. Helm control would then be handed over to the docking commander.



The doors retracted into the spacedock’s hull, revealing a narrow access tunnel barely wider than the largest ships that passed through it. As a result, the docking procedure was a precisely controlled maneuver.

Once the captain handed over control, the docking procedure was essentially automated, and the crew could enjoy the tremendous sight of entering spacedock. The station would have seemed very busy after the empty expanse of space and, although docking didn’t take long, the ride remained a favorite of most incoming crews. Once the proper acknowledgments had been finalized, the spacedocks would be completely opened and the starship entered, traveling over a directional array of evenly spaced lights toward its assigned bay.

DOCKING INTO AN ASSIGNED BAY
The starship slowly entered Spacedock using its aft thrusters only. Each starship was assigned a docking bay which was numbered, i.e. Bay 4. It took 60 seconds for the vessel to pass from the outer door to the docking bays. Even before the starship had docked, the spacedocks would be closed again, awaiting the next command from Approach Control. As the starship entered its assigned bay, the captain would call for standby umbilical and gravitational support systems. Depending upon the class of the starship, other systems were sometimes required. For instance, the *U.S.S. Enterprise* NCC-1701-D engaged its mooring beams and locked them off during its docking procedure. All such systems were critical to the safety of the starship and crews while a ship was in its bay. Much pedestrian activity would take place as crew members moved to and from spacedock via gangways, and the vessel had to be secure in its berth. Once acknowledged by the starship’s helm officer, they could complete the rest of the docking procedure with or without further interaction from the captain. The final remaining formality was for the spacedock commander to request permission to come aboard. This



Once a starship reaches its assigned berth within the spacedock interior, an airlock extended from the walls of the station to connect with the ship. This allowed personnel to pass freely between the space station and their vessel.

usually happened at the airlock doors which connected the starship and spacedock through a long, enclosed gangway. Once the captain gave this permission, the docking procedure was considered complete, and all necessary repairs and other orders of the day could be carried out. The departure of a starship from spacedock effectively followed the same procedure in reverse. Depending upon the confining space within Spacedock, a starship could either reverse through the spacedocks or go forward. The starship would not initiate warp drive or impulse engines until safely outside of spacedock.



Most Federation space stations, such as the spacedock in orbit around Earth, were huge structures which dwarfed the average starship.



Officers in the Approach Control office oversaw the entire docking procedure, and could take control over the ship from its captain.



Large viewports inside spacedock provided a dramatic view of the many ships that regularly passed in and out of the station.

THE WORKBEE

These small, highly maneuverable Cargo Management Units, often known as workbees, were an essential maintenance vehicle assigned to maintain starbases and starships.

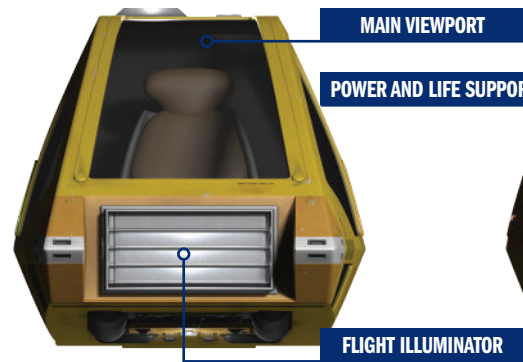
The CMU (Cargo Management Unit) was a single-person vehicle that was commonly referred to as the workbee. CMUs were designed to perform various tasks in and around starships and many of them were assigned to maintenance and construction facilities such as Utopia Planitia and the San Francisco Fleet Yards. In the 23rd century they were normally painted a distinctive yellow color, and this combined with the fact that there were often dozens flying around a ship, earned them their nickname. Structurally the workbee consisted of little more than a driver's cab and a small engine. The back of the pod was designed to latch on to cargo modules, which they could then tow like a tug. Their small size meant that they could enter a starship such as the *Constitution*-class *U.S.S.*

Enterprise NCC-1701 and deposit cargo inside the ship. Robotic arms could be attached onto the front of the workbee, where they were used to perform repairs on the outside of a vessel.

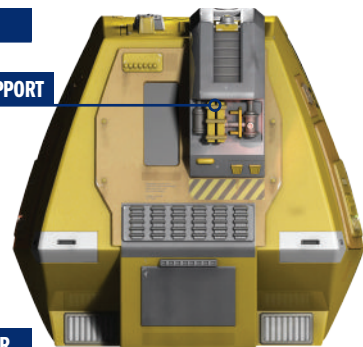
SMALL AND MANEUVERABLE

The small pods maneuvered by using a series of RCS thrusters that were positioned around their edges. They were extremely agile and capable of maneuvering through hatches to operate inside and outside of starships. Most of the workbee was taken up by the cab, which consisted of a single seat and the controls for its equipment. The sides of the cab were made of a transparent material to allow maximum visibility and

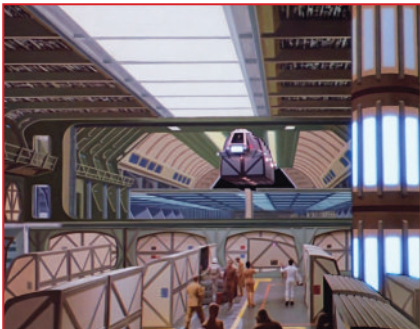
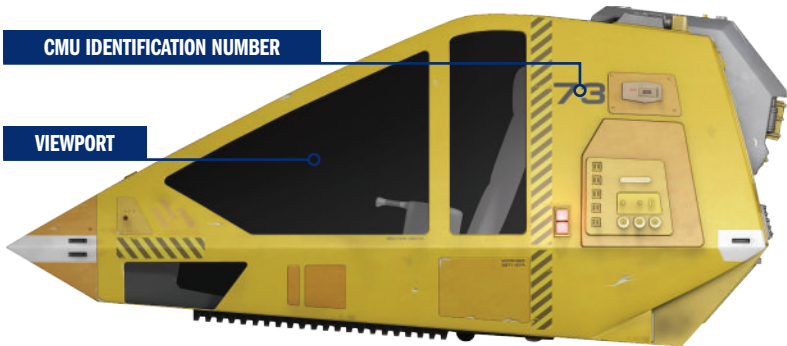
FORE VIEW



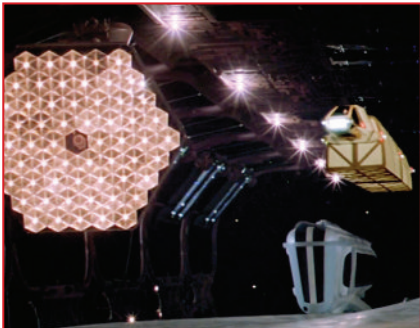
AFT VIEW



STARBOARD VIEW

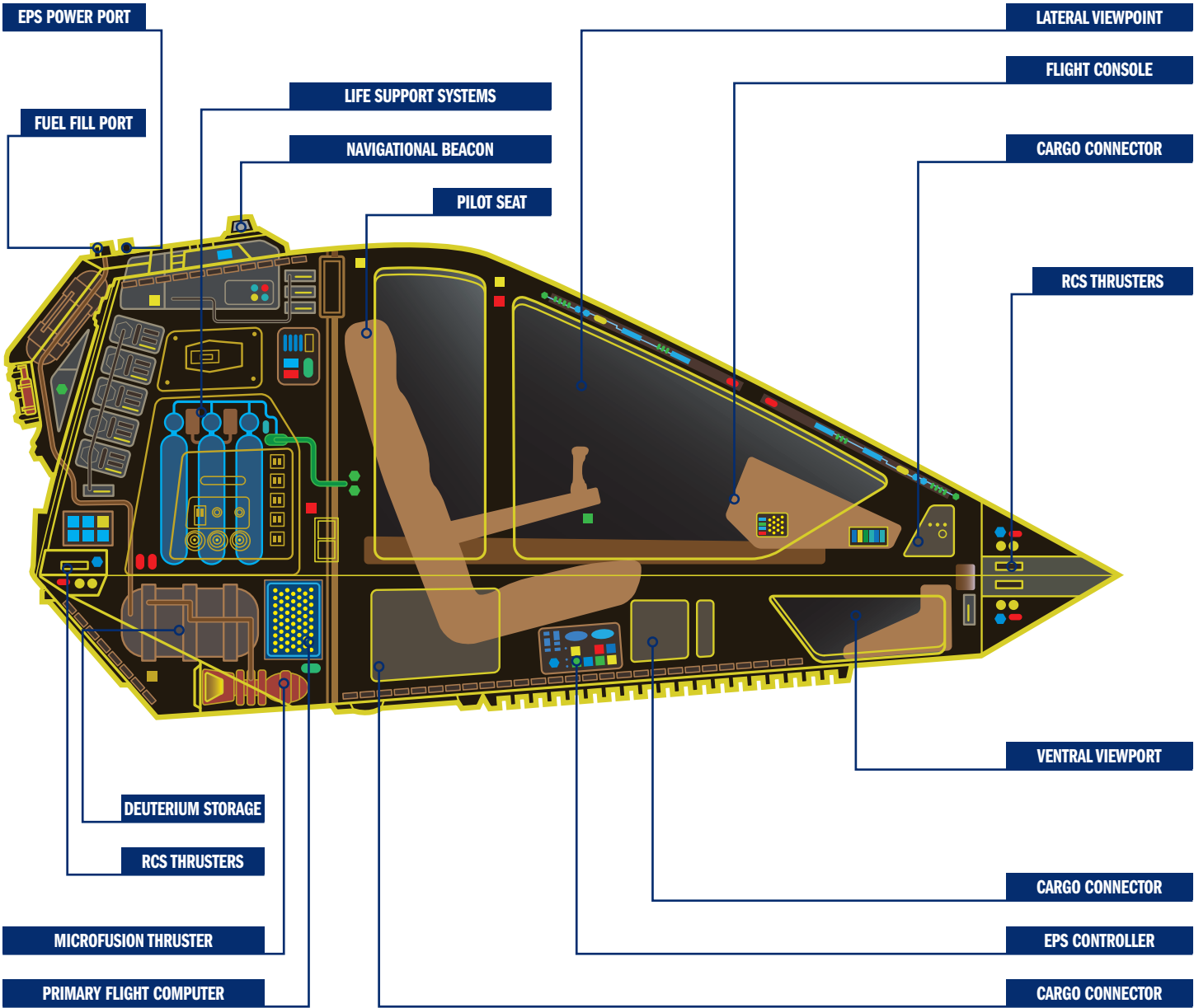


During the 23rd century, workbees were used to tow cargo pods into large storage bays on starships.



The CMUs were designed to act as tugs for cargo containers, and could be attached to different sleds.

STARFLEET SPACEDOCK WORKBEE

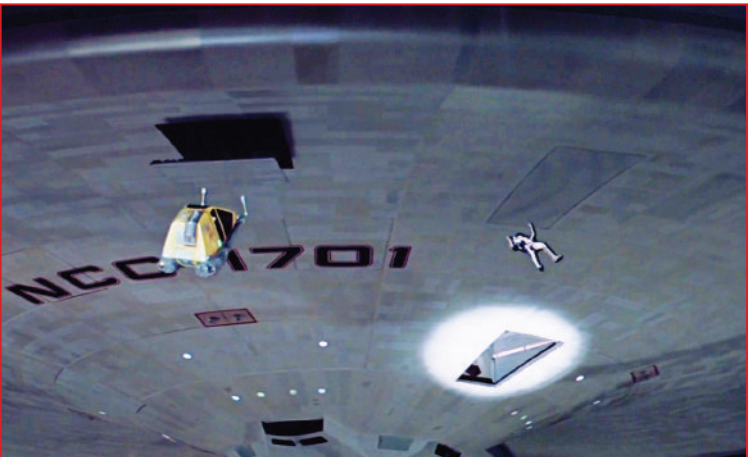


the front viewport opened to allow access for the pilot. The lower part of the front was taken up with a large light panel that was used to illuminate the work area assigned to the CMU operator. Further spotlights were located at the rear of the craft.

The workbee could maintain life support for up to 12 hours, but its pilots could also opt to wear spacesuits, since this meant they could exit the craft to effect more intricate repairs in space.

LONG-SERVING DESIGN

The basic design of the workbee remained in service for over 100 years, and they were carried aboard large vessels such as the *Galaxy*-class and the *Sovereign*-class *U.S.S. Enterprise* NCC-1701-E. Silver-gray versions were also assigned to *Deep Space* 9.



Workbees could perform a variety of maintenance tasks in the vacuum of space. The front part of the module was designed to attach to different tools, include manipulator arms.

TYPE-2 PHASER PISTOL

The 2270s saw a redesign of many items of standard issue Starfleet equipment, including the type-2 phaser, retaining the traditional pistol configuration in a sleeker, less bulky form.

By 2271, a new type-2 phaser had come into general use. This model retained the traditional ‘pistol’ design, but was slightly elongated and less bulky than its predecessor. The settings and power levels had not deviated a great deal from the model in use in the 2260s, with a power scale ranging from light stun at the lower end to death and disintegration at the other.

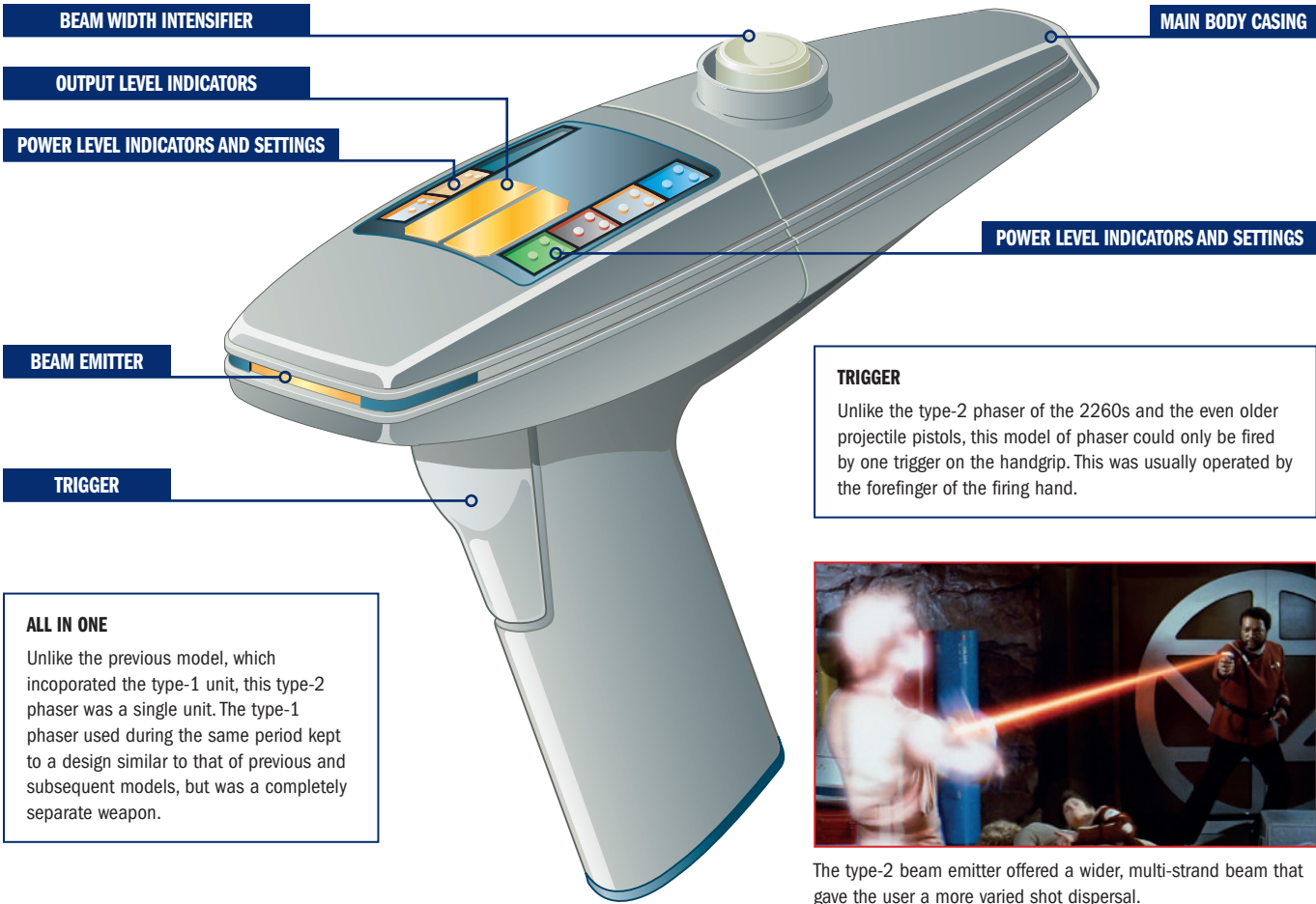
DESIGN CHANGES

The most notable differences, however, were in design rather than in function. Controls for altering power and

output levels were concentrated in a panel on the weapon’s upper face, with a small dial controlling its beam width. Unlike previous models, the beam was emitted from a wide strip at the front end rather than through a single point. The trigger was now a large, touch-sensitive panel at the head of the handgrip, replacing the small button of the model in use during the 2260s.

The type-1 phaser was also no longer a detachable unit essential to the operation of the type-2, and existed instead as an entirely separate weapon, leaving the type-2 as a highly capable sidearm in its own right.

TYPE-2 PHASER



TRIGGER
Unlike the type-2 phaser of the 2260s and the even older projectile pistols, this model of phaser could only be fired by one trigger on the handgrip. This was usually operated by the forefinger of the firing hand.



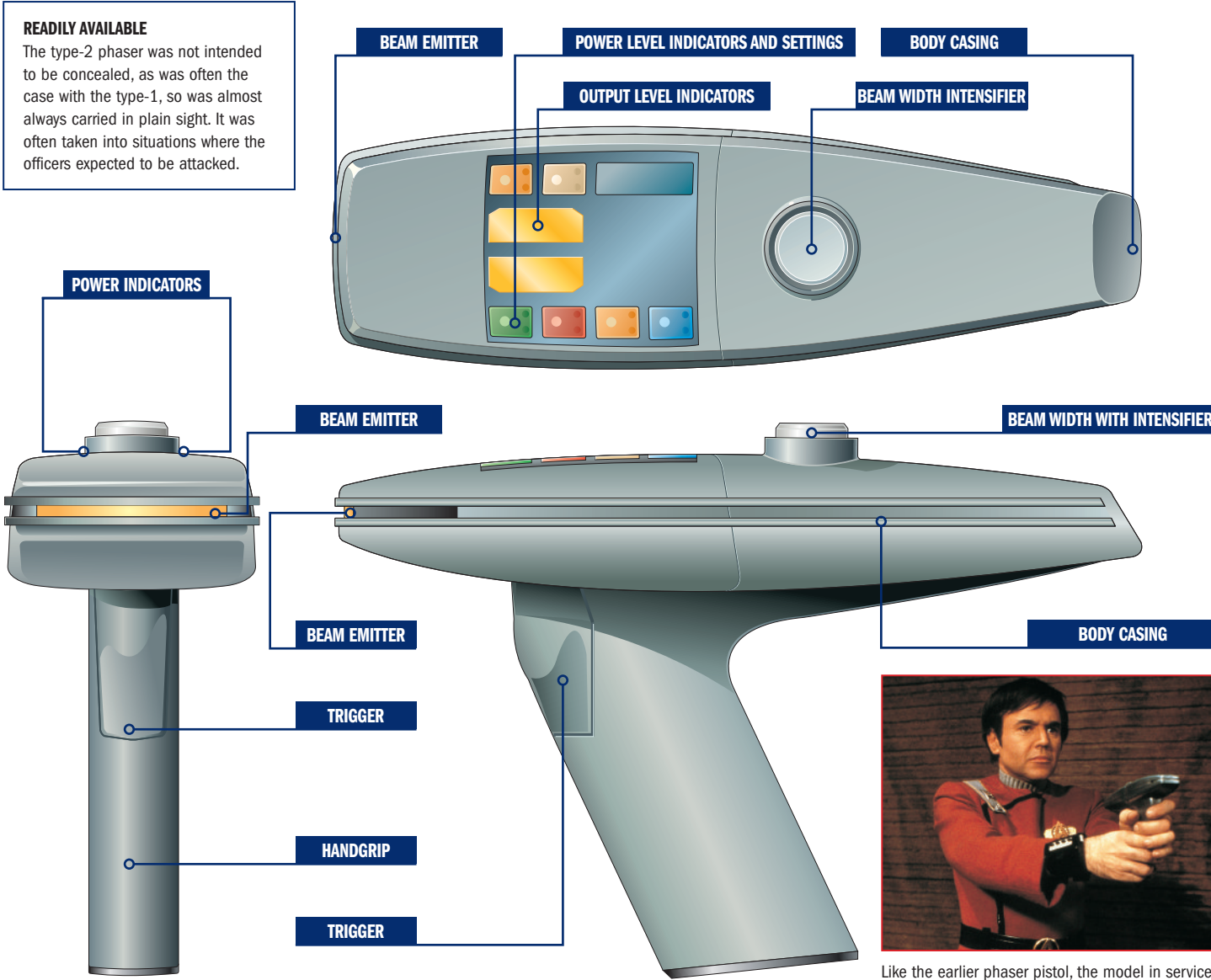
The type-2 beam emitter offered a wider, multi-strand beam that gave the user a more varied shot dispersal.

RELIABLE WEAPON

Although a new model – similar in style to the type-1 phaser – was introduced in 2285, the type-2 phaser was in service until much later. When the crew of the *U.S.S. Enterprise* NCC-1701-D traveled through a temporal rift

and emerged in 2344, they encountered their ship’s immediate predecessor, the *U.S.S. Enterprise* NCC-1701-C. The crew of this ship were still using the type-2, indicating that it had remained in active use alongside other models for more than 70 years.

PHASER CONFIGURATION



STEADY GRIP
The long handgrip on the type-2 phaser provided a firm and steady grip. This helped to ensure that the user could line up his or her shot accurately.

RANGE OF SETTINGS
The type-2 phaser of the 2270s remained a highly versatile weapon, with settings ranging from light stun at one end of the scale to death and disintegration at the other.



Like the earlier phaser pistol, the model in service by 2271 closely resembled a 21st century gun.



The trigger on the type-2 phaser was located at the top of the handgrip below the weapon’s main body. It was operated with a squeeze of the forefinger.

PHASER PISTOL 2285

In the mid-2280s, Starfleet introduced a model of type-2 phaser similar to the model used two decades earlier. Replacing the sleek all-in-one-model of 2271 came a two-part phaser which once again featured a clip-in type-1 unit.

Following the streamlined, single-unit model of type-2 phaser issued during the 2270s, Starfleet returned to a two-piece unit in 2285. This closely resembled the model of phaser used during the 2260s, and, like that weapon, was comprised of a main body casing into which the smaller type-1 phaser slotted.

The type-1 unit was held in place by a firm clip toward the front of the casing. This clip covered the beam emitter of the type-1 phaser, directing all fire through the beam emitter of the main body only. A trigger in the larger section's handgrip fired the combined weapon, while the controls of the type-1 unit were used to adjust its settings.

As with the model introduced in the 2260s, the main body casing was purely a means of boosting the power of the type-1 phaser, and to provide a more solid grip; it could not be used as a weapon without the type-1 attached. The weapon boasted a variety of power settings, from light stun to disintegration, and converting the type-1 to the type-2 provided extra power levels as well as increased accuracy.

CLASSIC DESIGN

This third-generation phaser pistol retained the basic shape of an old-fashioned, pre-phaser revolver – a weapon design that dated back several centuries. The type-2

phaser was capable of inflicting far more significant damage, however.

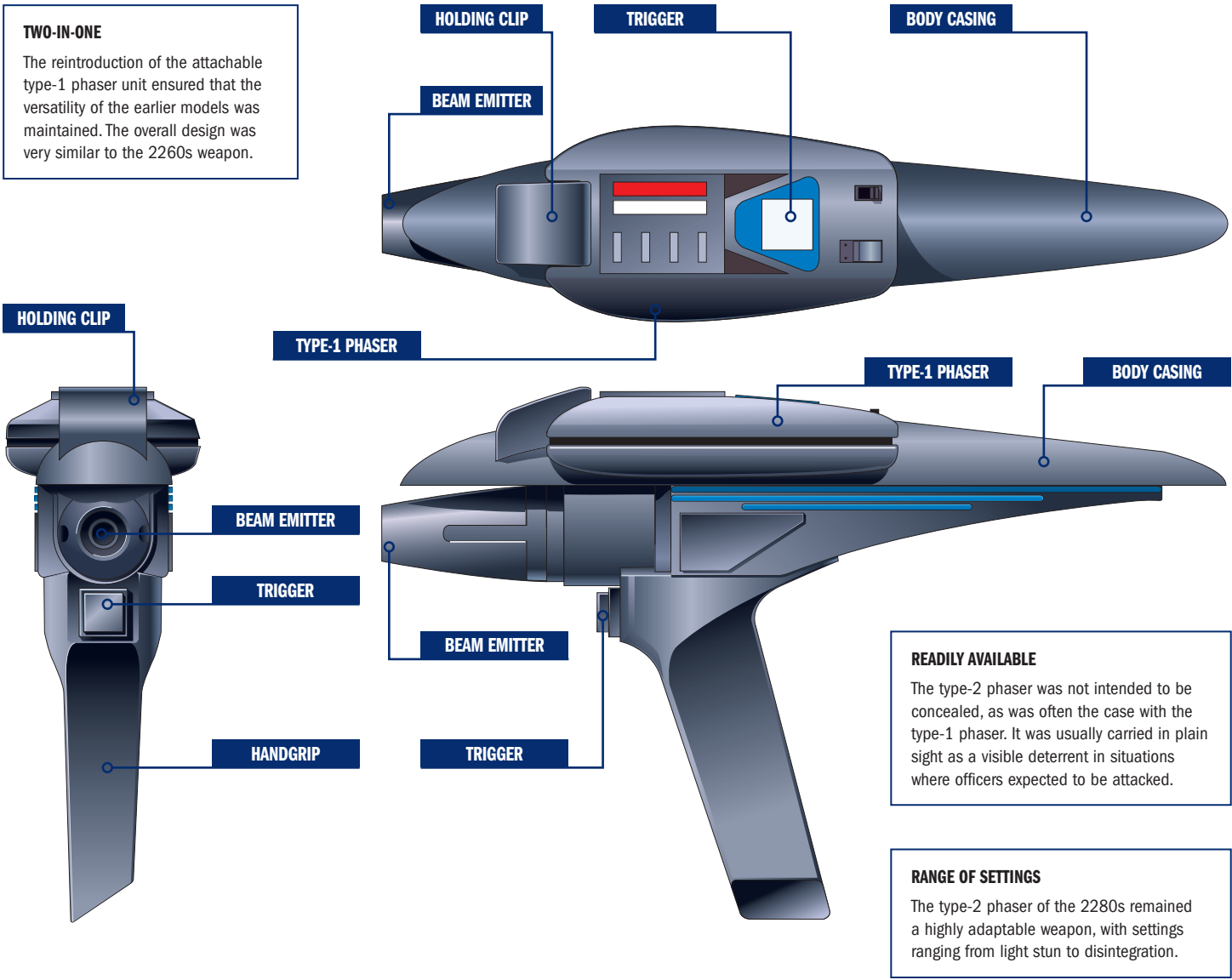
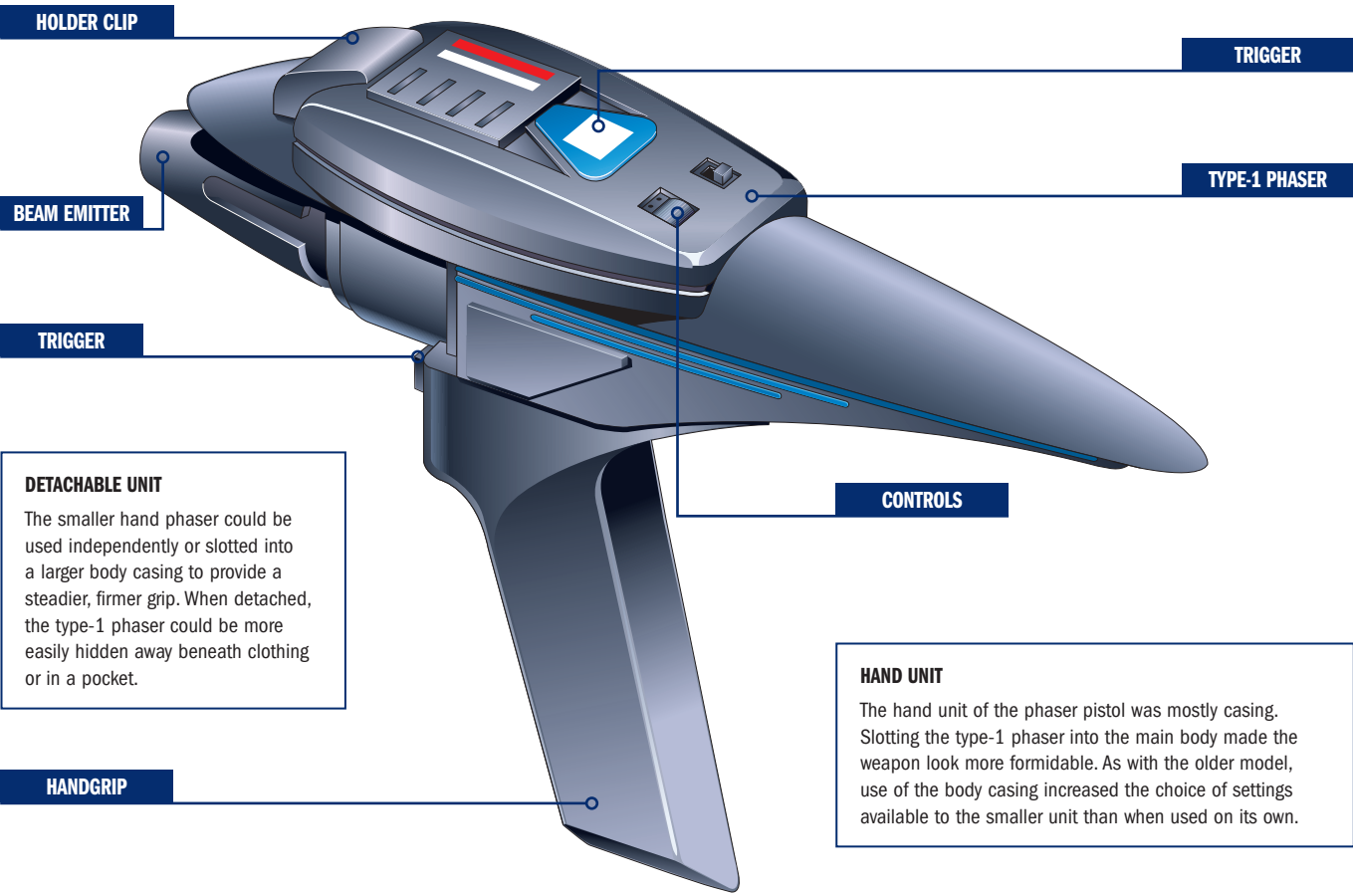
The weapon was a metallic gray in color, with primary red and blue markings used to distinguish its controls and power indicators. It was a light weapon, easy to handle and, as with most phaser weapons, demonstrated no feedback or recoil to the user. When the weapon was fired, the path of the beam was visible to the naked eye as a wide, bright orange flash of energy which spread slightly from its point of origin. The visibility of the beam was particularly helpful when using the phaser to heat an object or to disintegrate a substance which required more than a single blast, as the beam could be focused onto a

single point and the energy flow maintained to a very precise area. As with previous models, the type-2 phaser of the 2280s could be used to heat objects for survival purposes, as well as for attack and defense.

This model was a light, durable, and efficient weapon which drew on designs used by the human race for centuries, and by Starfleet for decades. However, it was a weapon that marked the end of one design lineage, as it was the last time that Starfleet incorporated a detachable phaser unit such as the type-1 into a phaser pistol design. In fact, by 2287 – only two years after it was introduced – the model had already fallen out of favour, and was being replaced by a bulkier, more powerful model.

PHASER CONFIGURATION

TYPE-2 PHASER



TRICORDER 2270s

The design evolution of Starfleet’s tricorder in the 2270s was mostly cosmetic, with its basic functions of sensing, computing, and recording data remaining the same.

Following the introduction of the tricorder in the 2260s, rapid design evolutions took place in this versatile item of Starfleet equipment. The unit's trio of basic functions that inspired its name – sensing, computing, and recording – remained unchanged, however; the design changes made during the 2270s were more of form rather than of function.

Amid the major shakeups in Starfleet organization, uniforms, and equipment that ushered in the 2270s, the tricorder came in for particular attention. The return of pockets to jumpsuit uniforms and field jackets made the need for an over-the-shoulder carrying strap redundant.


Instead, wraparound grip pads were added along the major edges of the one-piece body shell to aid in handling.

MINIATURE CHANGES

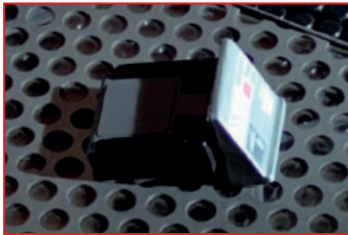
Advances in touch pad controls, pioneered on starship consoles in the previous decades, were now miniaturized to the degree of being practical on the tricorder. In contrast to the original design, all control inputs and interfaces on the 2270s unit were located on the exposed top surface, which was angled so as to provide optimal visibility when held. This enabled the panel to have an almost nonexistent profile with little surface detail.

CAPABILITIES

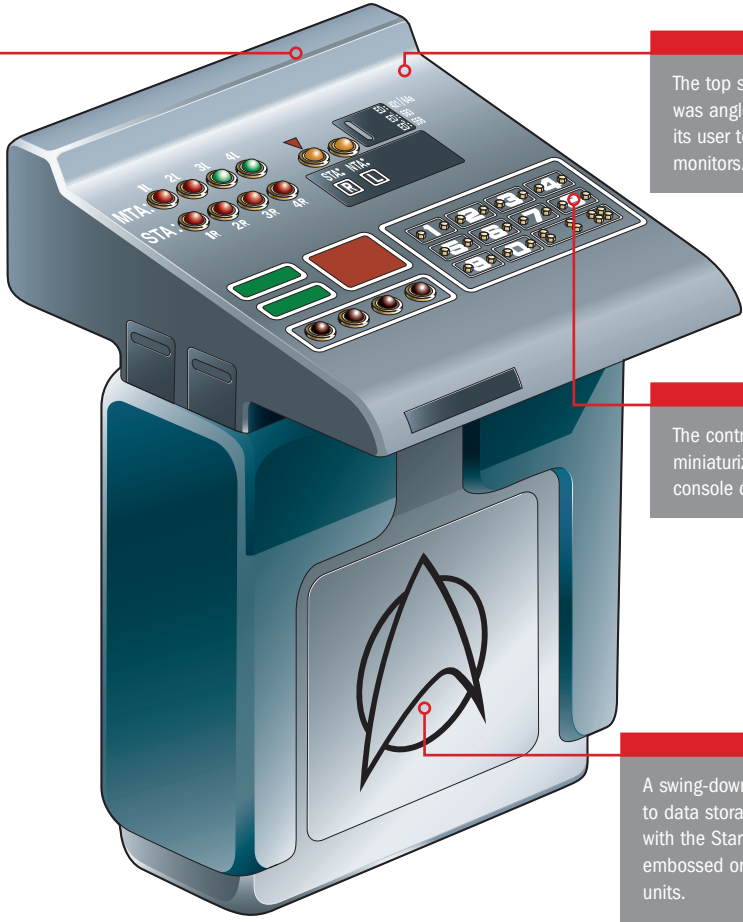
The 2270s tricorder was less box-shaped than its predecessor, with a more ergonomic, user-friendly design, and controls more accessibly laid out.



Handgrips made the 2270s tricorder easy to hold while adjusting the controls.



The tricorders of the 2270s had a larger head unit than previous models.



The top surface of the tricorder was angled, to make it easier for its user to read the data on its monitors.

The controls now featured a miniaturized touch-sensitive console design.

A swing-down panel provided access to data storage inside the tricorder, with the Starfleet delta insignia embossed on the casing of some units.

A simple numeric keypad dominated the main interface, with several adjoining panels and a row of scanning acknowledgment lights. There was no dedicated monitor screen, but visual output could be imaged on one of the multifunction panels. The 2260s tricorder included its sensor input grid along the hidden face of the instrument, but a multitude of sensors of varying specialty were visible on the projected forward side. These were advantageously placed so as to be automatically in position when the main casing grip was held by the user.

For data storage and handling, the 2270s tricorder incorporated a new, thin data chip, about 2.5cm square, which replaced the larger disks of its predecessor, which were in turn smaller again than the older general use microtape wafers. A drive slot for the 2270s square chip

was included along the left end of the control panel's rear edge, on the user's side.

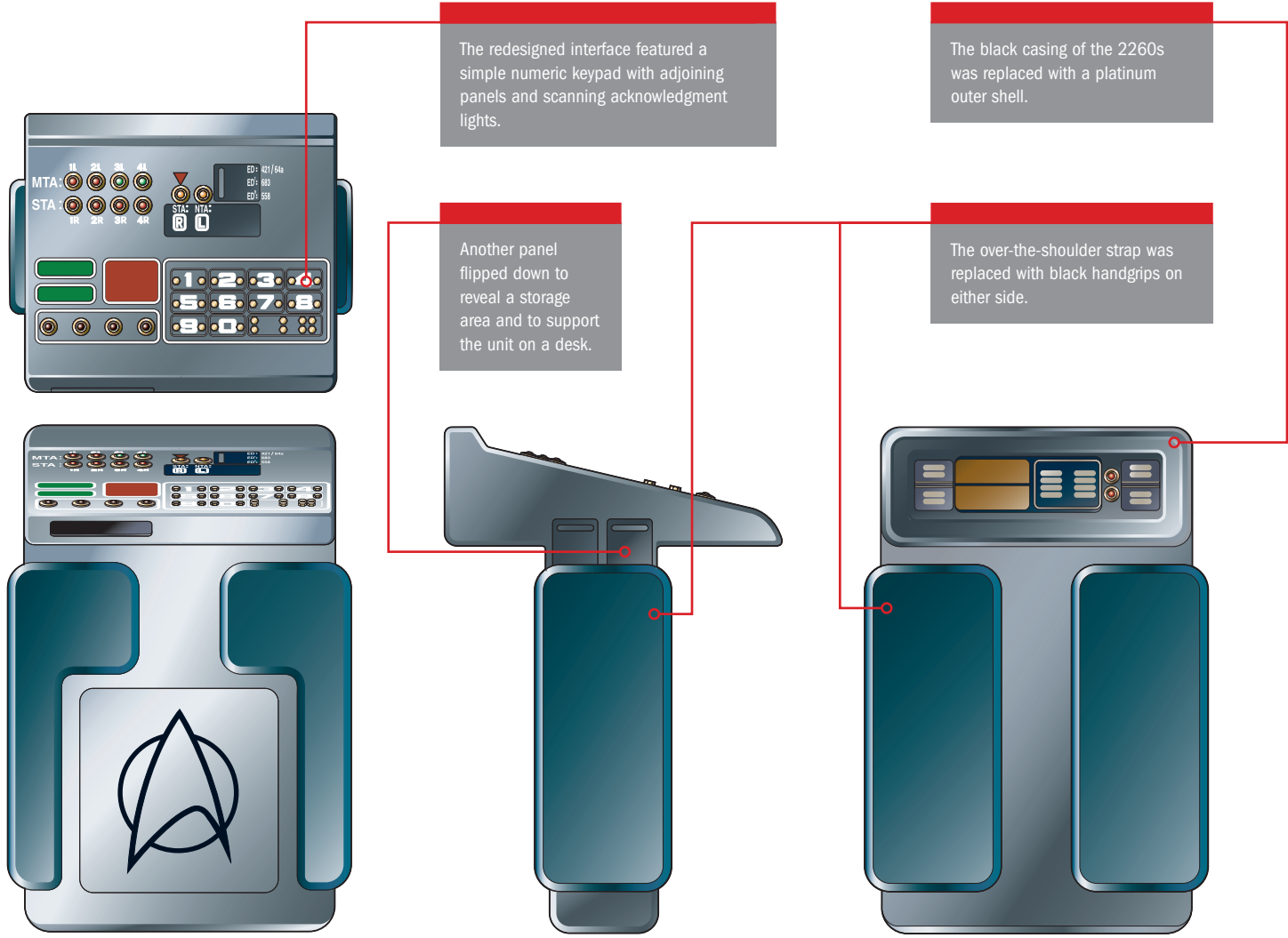
MOVING PARTS

In contrast to the two access panels and rotating hood of its predecessor, this model featured only one module with movement – a swing-down panel on the user's side, between the finger grip pads, which was sometimes embossed with the Starfleet delta. Storage for the new size data chips was provided by a rack located on the panel's inside face. Cosmetically, the palette change in the basic tricorder case from black to platinum – with a shell of plastic polymers to strengthen the case – complemented the new color schemes being used on other equipment of the era, and in Starfleet design in general.

TRICORDER CONFIGURATION

STYLISH

The 2270s design was sleek and functional. It was less cumbersome than the 2260s tricorder and was built with an attractive platinum casing.



The redesigned interface featured a simple numeric keypad with adjoining panels and scanning acknowledgment lights.

The black casing of the 2260s was replaced with a platinum outer shell.

Another panel flipped down to reveal a storage area and to support the unit on a desk.

The over-the-shoulder strap was replaced with black handgrips on either side.

TRICORDER 2285

The constant design evolution of the Starfleet tricorder in the 2280s resulted in a tough, compact version more akin to the unit used during the 2260s.



The *Reliant* Starfleet tricorder of 2285 provided personnel with directions in environments where visibility was low.

The Starfleet tricorder was an indispensable item of equipment, available to every member of Starfleet personnel, and widely used on and off Starfleet vessels. With such widespread use, the development of the technology within this standard-issue tool lead to continual modification and refinement of its operations and features. Many units, specifically designed and dedicated to particular areas of use, were developed over the years but the strength of the standard tricorder was always its fundamental adaptability. Consequently, every refinement helped to ensure that landing parties carried with them the maximum amount of information and protection possible, whether they were using their tricorders to record data, carry out scientific analysis, or locate a power source.

DISTINCTIVE DESIGN

Tricorder design varied widely even in the same era of use. In 2285, there were at least two variations available, although the type issued to the crew of *U.S.S. Reliant* NCC-1864 was of an unusual design compared to the more familiar unit issued to other Starfleet vessels at that time. Dispensing with the simple rectangular shape used for previous units, the *Reliant*-issue tricorder consisted of a black pistol grip bonded to a polished metallic main sensing unit. The grip's handle was contoured and designed to be held with one hand; the area between the grip and forward handguard was wide enough to allow a gloved operative to use the unit with ease. The sloping upper and forward sections of the grip were directly

connected to the sensor housing, which had a number of external conduits and connectors running around its upper section. The forward section of the sensing unit had a short triangular projection which housed six narrow cylindrical nozzles. This array carried out the primary sensor readings, although the tricorder could be adjusted to scan for many different phenomena or energy sources.

TRICORDER OPERATION

Held out in front of the user, this tricorder collected data on objects it was directed at, with readouts displayed on a small, green, rectangular screen set in the upper body of the unit. When the tricorder needed to be carried, a long narrow strap was attached to its casing to allow the operative to release the unit without dropping it, although it had an extremely rugged design and was engineered for use in a wide variety of conditions. Activation of the tricorder was indicated by a series of blue-white diodes which illuminated from left to right under the screen, along with similar diodes arranged on the flat horizontal snout of

the tricorder. Under extremely harsh environmental conditions it could be difficult to view even the most carefully designed visual display, so a series of audible warning indicators were also incorporated into this tricorder to further assist the operative. Scans for preanimate matter carried out on the planet Ceti Alpha VI in 2285 were greatly aided by an intermittent electronic tone emitted by the tricorder, which pitched higher and pulsed quicker as the operator got closer to their target.

ENVIRONMENTAL DISRUPTION

In common with all scanners, the tricorder could be badly affected by environmental conditions, rendering the unit inoperative or reducing its range. The *Reliant*-issue tricorder was robust and practical, although it looked relatively clumsy in comparison to the tricorders used aboard the *U.S.S. Grissom* NCC-638 at that time. Aesthetic considerations aside, the handheld unit worked extremely well and proved consistently reliable, even in the most hostile of conditions.

TRICORDER: 2285

A small screen, illuminated with a green light, provided data on objects scanned by the tricorder.

The tricorder was constructed from a hard-wearing gray material.

FUNCTIONAL

The tricorder was designed to be easy to carry and easy to operate. A handle was built into the lower section of the device, and the display screen was angled toward the operator.

STURDY

The Starfleet tricorder of 2285 had a tough, solidly constructed casing that ensured it would remain in operation even if dropped or subjected to intense environmental pressures.

The upper section of the unit featured raised conduits which transferred data from the sensor array to the display.

The pronounced forward section of the tricorder contained sensor arrays that gathered scientific data.

VERSATILE SCANNER

DESIGN

The tricorder of 2285 had a wholly different design to the vertically oriented units used by Starfleet throughout the 2260s and 2270s.

The tricorder handle was constructed of a dark material, and was shaped to fit the operator's grip, even when gloved.

Viewed from the front, the tricorder appeared to totally enclose the hand of the operator as they held it by a grip at the rear of the unit.

Six forward sensors were located at the front of the tricorder unit, set into a dark pyramidal section.

GUIDANCE

The tricorder could guide its operator by scanning ahead and warning of rough terrain, both on its display and through audio channels if visibility was diminished by extreme environmental conditions.

The device extended much further forward than previous tricorders, and appeared somewhat cumbersome in comparison.

A panel of controls were located beneath the tricorder's small display unit.

AUTODESTRUCT SEQUENCE

Autodestruct systems are the last program that any starship captain would wish to initiate. In 2285, however, Admiral James T. Kirk had little option but to destroy his ship.

The refitted *Enterprise* included an upgraded version of the autodestruct sequence, although the system remained the absolute last resort left open to the vessel's commanding officer.

The autodestruct sequence was initialized from the main bridge of the *Enterprise*, and was located in a permanently manned console to the right of the captain's chair. A clearly defined protocol for engaging the sequence required the presence of several designated officers.

Following the death of Captain Spock during his attempts to save the *Enterprise* from the Genesis Device activated by Khan Noonien Singh in 2285, Admiral James T. Kirk and a skeleton crew of senior Starfleet officers returned to the newly created world in order to rescue the regenerated Spock. There, they encountered a Klingon Commander named Kruge, who was attempting to steal data on Genesis Device to employ it as a weapon of mass destruction.

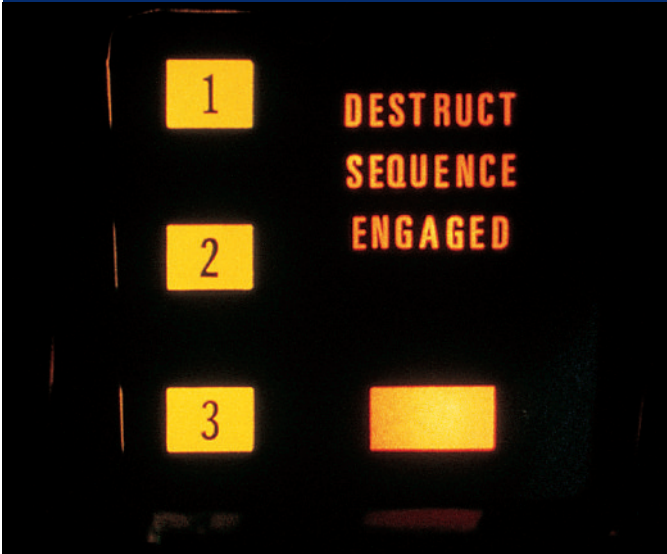
Kruge's bird-of-prey attacked the already damaged and heavily automated *Enterprise*. Admiral Kirk's experience enabled him to fight back, but his small crew could not prevent the Klingon ship from delivering a crippling blow to the ship's port warp nacelle, effectively disabling power and weapons. With the *Enterprise* data banks holding full details of the Genesis Project, Kirk quickly understood that initiating the vessel's autodestruct had become the only way of preventing Commander Kruge from taking possession of the ship and its valuable data.

PATH TO DESTRUCTION

In keeping with autodestruct protocols, the sequence was verbally initialized by Admiral Kirk and required the confirmation of at least two other senior officers. The computer utilized a voice recognition algorithm in its four-stage activation protocol as a security measure, and also

THREATENING BEHAVIOR

On Stardate 5730.2, the *U.S.S. Enterprise* NCC-1701, Captain James T. Kirk was compelled to activate the ships autodestruct sequence when the vessel was taken over by an unauthorized power. It would not be the last time he would have to do so to protect the lives of his crew and the entire Federation.



The autodestruct sequence used aboard the *U.S.S. Enterprise* in 2269 used the control systems based at Mr. Spock's science station on the ship's bridge.



The 2285 autodestruct system could only be activated by three officers, each of whom had to confirm a specific code.



The *U.S.S. Enterprise* NCC-1701's autodestruct procedure set of a series of explosions across the ship that were designed to make it worthless to a hostile force. The explosions began in the bridge module and rapidly spread throughout the saucer, which soon exploded. The *Enterprise* then burned up in the atmosphere of the Genesis planet.

required a set of correct codes to be delivered in sequence from recognized officers.

On correctly identifying the commanding officer's request for access, the display on the console changed to acknowledge the identity of the officer with a single beep, similar to the three beeps used by the system prior to the refit in 2271. Following clearance, Admiral Kirk immediately delivered the first stage of initialization by saying "Computer – destruct sequence one, code one, one A." This was mirrored in blue letters on the readout screen. The actual codes were identical to those initially programmed into the *Constitution*-class ship's computer.

The destruct sequence required input from the second ranking senior officer at this time, with Commander Montgomery confirming his rank and status to the computer, directly followed by his own second stage code: "Destruct sequence two, code one, one A, two B." This was once again displayed on the screen in alpha-numeric characters. The third stage was then activated by Commander Pavel Chekov in the same manner, using his code: "Destruct sequence three, code one B, two B, three." Completion of this third stage activated a vocal confirmation that the destruct sequence had been completed and engaged; the computer then waited for the final code, commencing a one minute countdown – double the original 30 second countdown programmed into the *Enterprise*.

LAST WORDS

Admiral Kirk relayed the final sequence verbally to the computer with the command: "Code zero zero zero, destruct zero," with the computer confirming the code on its screen as each individual element was delivered. On receiving the last correct part of the confirmation, the computer delivered a warning: "Destruct sequence is activated." A wire-frame image of the *Enterprise* appeared on the active monitors around the perimeter of the bridge; overlayed in front of this image was the number 60, in large red characters. The final sequence began immediately, with the numbers counting

down in one second intervals as the vessel's skeleton crew raced to the transporter room, in order to evacuate the ship prior to the arrival of a Klingon boarding party.

The Klingons immediately made their way to the bridge, but found that it was completely deserted save for the calm voice of the computer, diligently counting down the destruct sequence. On hearing the computer's voice, Kruge ordered his crew to leave the ship immediately, but it was too late – explosive packages built around and underneath the bridge module detonated in sequence, completely destroying the terminals and control systems of the ship. Yet more charges, placed in the forward area of the main saucer section, activated, vaporizing the majority of the primary hull in one final, massive explosion that rendered the vessel unsalvageable.



The massive explosion that vaporized the saucer, destroyed all the key systems, leaving the ship to career out of control. In the *Enterprise's* case the remaining systems were destroyed when as it entered the atmosphere of the Genesis planet.

ENVIRONMENTAL SUITS 2271

By 2271, new, more streamlined environmental suits – capable of withstanding even harsher conditions, including the vacuum of space – had replaced their bulkier, less versatile predecessors.

By the beginning of the early 2270s, Starfleet vessels were equipped with a new model of environmental suit. This design was standard issue on the *U.S.S. Enterprise* in 2271, and was still in use on the *Miranda*-class *U.S.S. Reliant* in 2285, indicating that it proved to be reliable and durable.

VERSATILE AND EFFICIENT

The one-piece suit – with separate helmet – was versatile and highly efficient. The tightly fitting outfit provided freedom of movement, even though the material from which it was made was durable enough to protect the wearer in almost any conditions. It came in two colors: red and brown, and white and brown, but the suits were identical in every other respect.

Communications equipment built into the suits allowed the wearer to talk directly to his or her ship without the need to operate a separate communicator, leaving the user's hands free for other tasks; it also allowed officers working in close proximity to talk to each other naturally.

OUT IN SPACE

One advantage of the suits was that they could also be used to enable crew members to carry out extra vehicular activities in space, beyond the confines of their starship. In such instances, the suit was fitted with a special thruster attachment, worn on the back over the oxygen tank, which provided propulsion. The thruster was activated and controlled by a small panel positioned alongside the wearer's hand, on narrow arms extending forward from the thruster engine. When activated, the panel folded down horizontally to rest in front of the fingers, and when not in use it flipped out of the way.

The thruster pack could produce a sudden burst of energy to propel the wearer forward at relatively high speeds. This burst burned for 10 seconds, and was initiated by pressing a button on the control panel. There then began a 10-second countdown, after which the thruster propelled the wearer forward; once activated, a computer gave a running commentary on the thruster's status. When the burn was up, the lack of inertial forces kept the wearer traveling at the same speed. Without the thruster burn, the wearer floated gently at a much slower speed. The thruster attachment could be easily detached from the rest of the suit in mid flight if necessary.



The environmental suits were worn to protect crew members in hazardous situations. The helmets could be easily removed if atmospheric conditions were favorable.



Commander Chekov and Captain Terrell of the *U.S.S. Reliant* wore environmental suits when they beamed down to the dustblown surface of Ceti Alpha V in 2285.

COMFORT

The majority of the suit was constructed from relatively soft material for greater comfort; only the helmet and the section covering the upper body was hard. Areas around the elbows, knees, and shoulders had extra padding.

TWO COLORS

The suits come in two versions; one was red and brown, the other white and brown. There was no difference in function between the two suits.

The helmet was completely airtight when attached to the suit, but could be detached easily when conditions allowed.

The front of the helmet was transparent, ensuring that the wearer's vision was not restricted.

The arm attachments rested beneath the wearer's elbows, supporting the limbs as they used the controls.

A flip-down control panel allowed the wearer to activate the thrusters for more speedy travel.

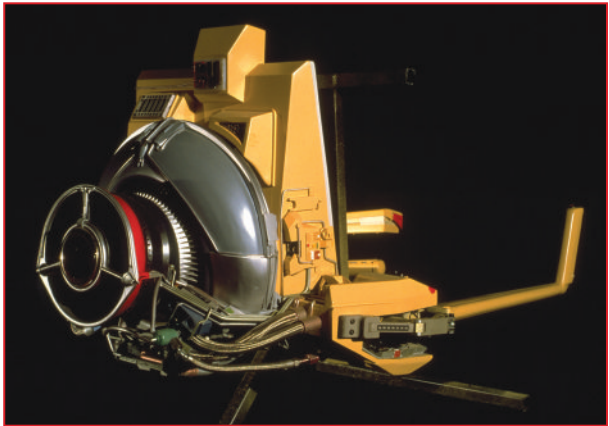
MOVING IN A VACUUM

The thruster attachment made it easy for the wearer to maneuver in a weightless vacuum, and to move quickly in any given direction.

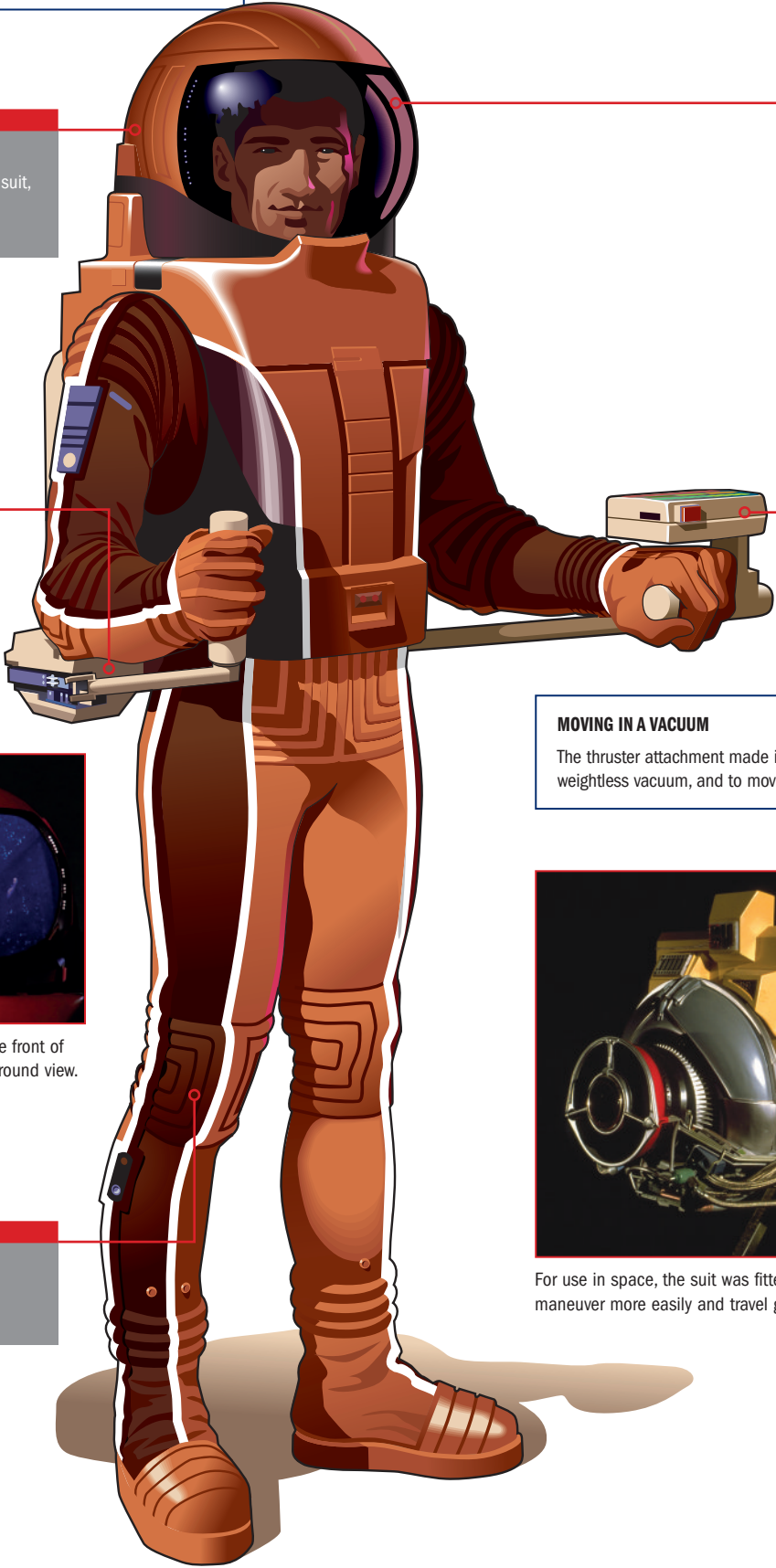


The wide, transparent visor at the front of the helmet provided a good, all-round view.

Areas such as the knees and elbows were protected by additional padding.



For use in space, the suit was fitted with a jet pack, allowing the wearer to maneuver more easily and travel greater distances.



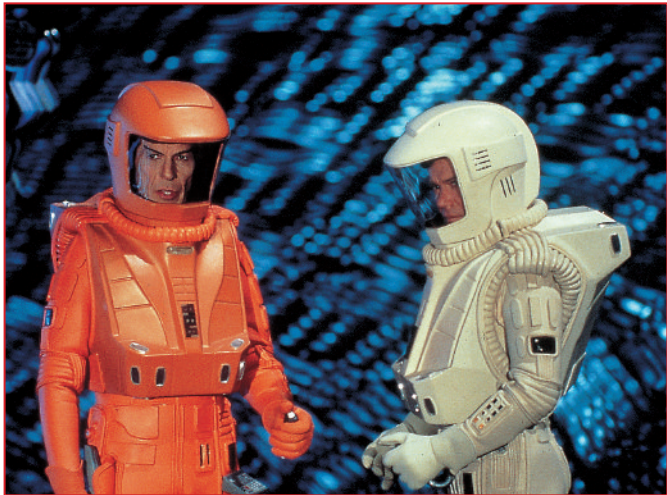
SPACESUITS 2271

The refit *U.S.S. Enterprise* NCC-1701 was equipped with the very latest advances in spacesuit design, equipped with an oxygen unit, small thrusters, and an inbuilt recording device.

On rare occasions, the crew of the *U.S.S. Enterprise* would be called upon to venture beyond the confines of their ship and into the vacuum of outer space. Despite advances in the standard issue environmental suit by 2271, it was not suitable for extended extra vehicular (EV) missions, where a dedicated spacesuit was deemed more appropriate.

The *Enterprise* spacesuits were among the most sophisticated EV units in use by Starleet at this time. The all-in-one body piece was constructed from a durable, well insulated material that was thin and comfortable, allowing a greater degree of maneuverability, and no vulnerable systems were positioned where they might be damaged.

Previous designs had been loose fitting and at risk of being caught or torn, whereas the new suit's main body section was formfitted to each wearer. In addition, the spacesuit featured extensive padding around certain areas of the body, particularly joints such as the shoulders, elbows, and knees. The feet were protected by sturdy boots that actually formed part of the suit rather than separate pieces. The main body piece and additional components of the environment suit were colored in one of two tones: either a bright white or a deep orange. These colors, while in keeping with Starfleet's color scheme, also allowed officers attired in the spacesuits to be highly visible to other crew members.



In 2271, Kirk and Spock utilized the *Enterprise's* advanced spacesuits when they ventured outside of the *U.S.S. Enterprise* to undertake a coser examination of *V'ger*, a mysterious space entity that was approaching Earth.

SURVIVAL SYSTEMS

Over the top of the main body piece was a rectangular unit that extended down to the waist. This unit contained all of the systems needed to provide the wearer with the oxygen necessary for survival in the void of space or an alien atmosphere. Again, this unit was less bulky than earlier designs and dispensed with the need for tubes and pipes to deliver its content to the wearer. The front of the unit, was smoothly contoured to fit seamlessly with the suit's helmet, providing protection for the wearer's chest. This unit also housed small thrusters that allowed personnel to maneuver effectively in zero gravity. An additional thruster unit could be securely connected to the suit via mounting points, which could be quickly released upon the expenditure of its fuel supply.

The helmet incorporated a sophisticated computer interface system and communications relay. A recording device was also built-in, allowing logs or other relevant information to be kept for later analysis on board ship.



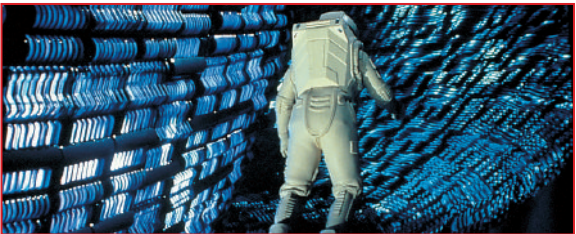
The environmental suits of 2271 were equipped with a built-in voice recorder that could store spoken reports. Spock used this device to record his observations as he journeyed through *V'ger's* vast interior.

FITTED SUIT

Unlike previous designs, the revised environmental suit was a more streamlined item of equipment, with all vital systems safely contained away from any possible exposure to hazardous elements. Advances in fabrics resulted in a more comfortable, flexible, and protective spacesuit.



Environmental suits were a vital piece of starship equipment, used for missions involving extra vehicular activity or surveying inhospitable planets.



Each suit was equipped with a torso unit that provided mountings on the back for a small thruster unit.

The helmet had a wide glass visor and an integral communications system.

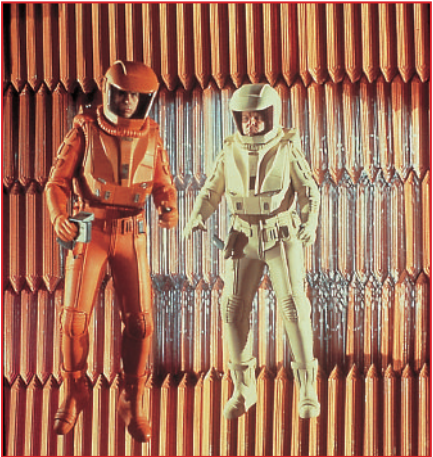
A rectangular unit placed across the chest provided the wearer with oxygen and also housed a small system of thrusters.

Hands were protected with thick, flexible gloves.

The suit's material was extremely strong and unlikely to rip, but as light enough to allow the wearer much maneuverability.

The suit featured protective padding to safeguard vulnerable areas such as elbows and knees.

The suit's sturdy boots were built-in, rather than forming separate pieces.



For visibility in space, the environmental suits were colored in bright tones, predominantly orange or white.

BIOBEDS 2270s

The biobed remained a key part of Starfleet medical’s arsenal in the 2270s, playing a vital role in the treatment of the sick and injured, but the sensor bed offered a new diagnostic tool.

Biobed design in the early 2270s reflected Starfleet’s changing attitude to the medical facilities aboard a starship. The crew’s health remained the first priority, of course, but scientific analysis and the accommodation of non-human life forms emerged as new areas of concern. Biobeds were no longer merely medical devices capable of processing and displaying a handful of vital indicators; they were now enhanced, computer-interfaced tools designed to handle the unknown.

A new type of diagnostic biobed called the sensor bed was added to the *U.S.S. Enterprise* sickbay in 2271. The sensor bed was a non-invasive, exploratory medical tool capable of examining patients down to the molecular level. It comprised three individual pieces of advanced equipment: the sensor table itself, a control console, and a large viewing screen. The bed’s platform was composed of

a solid, transparent material, through which yellow and green sensors created the outline of the humanoid form.

BODILY FUNCTIONS

The patient was placed on the bed so that their body conformed to the sensor template, and they could remain fully clothed throughout the examination. Imbedded sensors would then automatically collect data on the patient’s biology, including vital signs such as heart rate, respiration, blood pressure, and temperature. Transferring between scanning modes was a function of the control console beside the sensor bed, and required no participation or discomfort on the part of the patient.

A large screen mounted on a bulkhead beside the sensor bed displayed a lifesize representation of the patient’s biology and metabolism. Microscopic functions could be

CASUALTIES

After the *U.S.S. Enterprise* NCC-1701 returned to active duty in 2285, it became involved in a conflict with Khan Noonien Singh, the genetically-engineered tyrant of Earth’s Eugenics Wars. During the assault, many of the ship’s crew were badly injured, including Montgomery Scott’s nephew, Peter Preston.



In 2285, numerous crew members of the *U.S.S. Enterprise* crew were badly injured when Khan Noonien Singh fired on the unshielded starship.



Engineer’s mate Peter Preston – Mr. Scott’s nephew – was rushed to sickbay, but Dr. McCoy was unable to save the brave young man’s life.

exponentially enlarged to give consulting physicians a chance to observe and comment. A medical scanner placed directly above the sensor bed slowly moved back and forth, casting a shadow over the patient below as it made its scan. This provided additional data, which was transmitted to the viewscreen in real time. All readings were correlated by the sensor bed computers to formulate a diagnosis and treatment.

The sensor bed proved its adaptability and sensitivity during the *Enterprise*’s encounter with *V’ger* in 2271. The *Ilia* probe underwent a full examination on the sensor bed, and was immediately identified as not being a biological entity. Despite *V’ger*’s exacting duplication of the real *Ilia*, including a heartbeat and a working exocrine system, the sensor bed was able to display the probe’s tiny osmotic micropumps, microminiature hydraulics, and molecule-sized microprocessors to the amazed physicians.

RECOVERY BIOBEDS

Once a patient had received initial diagnosis on the sensor bed and undergone treatment, the next stop was usually

the recovery biobeds, where a patient would remain for observation and further treatment if necessary.

The sickbay on the refitted *U.S.S. Enterprise* was larger than it had been before the ship’s upgrades, with more beds occupying numbered bays in the recovery area. These beds were laid out in an open dormitory style, although some privacy was afforded by a short wall that obscured the view of the next bed. The biobeds were fitted with a mattress and two built-in pillows.

FAMILIAR COMPONENTS

Many familiar components remained from the previous design, including the vital signs display screen on the bulkhead above each biobed, upon which information detailing a patient’s overall status was displayed. The 2270s recovery biobeds did not, however, offer the same information terminals found alongside previous models.

The upgraded biobeds also allowed more detailed examinations via a new handheld device; Dr. Christine Chapel used the new tool on Commander Spock after he attempted to enter a mind-meld with *V’ger*.

SENSOR BED

SLEEK

By the year 2271, standard diagnostic biobeds on the *U.S.S. Enterprise* NCC-1701 were joined by the sleek and flexible sensor bed. This transparent, non-invasive device could scan a patient’s biology to a molecular level.

Bright yellow and green material embedded beneath the sensor bed’s transparent upper stratum created the outline of a humanoid form.

Doctors and medical technicians ensured that their patients were placed on the sensor bed in a way that conformed to the sensor template.

The display above the sensor bed gave a detailed summary of a patient’s condition.

Captain Decker interacted with the mechanical duplicate of *Ilia* while it was being scanned on the sensor bed.

STARFLEET UNIFORMS 2270s

By the early 2270s, Starfleet had introduced a variety of uniforms that indicated the wearer's current assignment, as well as their division. The original divisional colors were now incorporated into the badge design.

When Starfleet revised its uniform pattern in the early 2270s, the change was prompted in part by a realignment of duty divisions and a wholesale change in the concept of the visual system used to identify the different departments.

Previously, Starfleet personnel had been assigned to only three divisions: command, science, and operations. The revisions of 2271 reordered these three divisions into six, in order to identify training and assignments more specifically. The move required a change in how each department was identified; uniform colors were now used to identify specific assignments rather than the wearer's overall role, so that an officer may have worn uniforms of several different colors during the course of their duties.

Traditional duty divisions retained their own color, but rather than comprising the entire tunic it was reduced to part of the woven chest insignia patch and epaulets on routine Class-A and Class-B uniforms, and the armbands of landing party field jackets. The chest patch itself underwent an important redesign. In the new scheme, the symbol used for the ship or facility was layered onto a circle of background color that identified the wearer's division.

NEW COLORS

The color used to designate Starfleet's command division was changed from mustard to white. The blue which had encompassed both science and medical divisions in the 2260s was replaced with an orange flash for science, while the medical division was given its own distinct department color with a pale green hue. In addition, wearers of medical garments could sport the caduceus (a symbol traditionally associated with medicine) on their white surgical uniforms, which were worn as an alternate to their regular outfit.

The former operations division was divided into three separate groups: engineering, security, and operations. Engineering retained the classic red, while security changed to gray. The operations division was now designated with a pale gold background to its insignia.



The uniforms of the 2270s had more variations than at any other time in Starfleet's history. Uniform insignia included such specialist badges as a gold Starfleet delta on the dress uniform and a caduceus on the surgical outfits worn by medical staff.



COMMAND

Command officers sported a white background to their badge. The central star from the previous uniform remained unchanged.



SCIENCE

Each of the duty divisions now included the same star logo at the center of their Starfleet badge.



ENGINEERING

The engineering badge retained the primary red color previously used for the department's duty tunics.



SECURITY

For the first time, security became a separate division with its own administration and logo. The symbol was placed on a gray background.



MEDICAL

Medical also became a separate department. Regular uniforms sported a pale green background to their badges and epaulets.



MEDICAL (ALTERNATE)

The caduceus, an ancient Earth symbol of healing, was used on white surgical outfits instead of the Starfleet delta symbol.



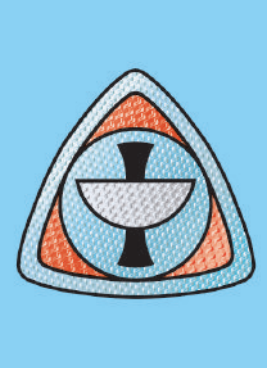
OPERATIONS

Operations became a distinct department for the first time during the 2270s, identified by a pale gold background on the uniform badge.



OTHER FACILITIES

Other facilities still retained an individual chest logo, such as the satellite communications dish for deep space monitoring facility *Epsilon IX*.

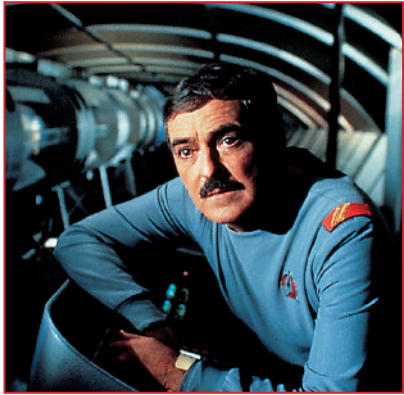


Starfleet rank insignia on uniforms of the 2270s retained many elements of those displayed on the tunics of the 2260s, while expanding the system to include ranks previously unidentified by such markings. The traditional gold cuff braids of class-A uniforms were still used, but these were now combined with diagonal gold stripes across the epaulets worn on duty uniforms, and on the arm bands of field jackets worn by landing parties.

This expansion of rank symbols had the practical application of allowing some members of the enlisted crew to display their official level for the first time. Chiefs, for instance, now sported an open gold square on each epaulet, while ensigns had their own identification mark: a dotted line of braid that meant an empty cuff alone denoted enlisted personnel only. Junior grade lieutenants, whose rank was previously indicated by a single broken line now shared the single line of their immediate superiors. Much higher in the chain of command, each of the individual admiralty ranks now had its own distinct identification braid, such as an eight-pointed star for an admiral in the command division.



Landing party members displayed their rank on a band around their jacket sleeve.



Shoulder epaulets displayed the color of the wearer's duty division, such as red for engineering.



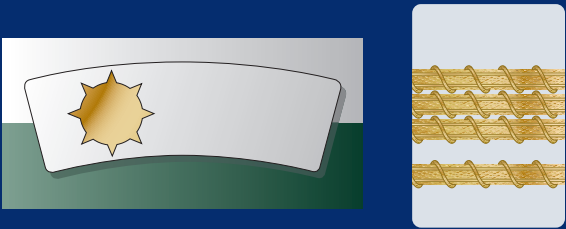
The new rank system was worn by starship crews and the staff of starbases such as *Epsilon IX*.



Depending on the class of uniform, rank indicators were displayed on shirt cuffs or epaulets, or both.

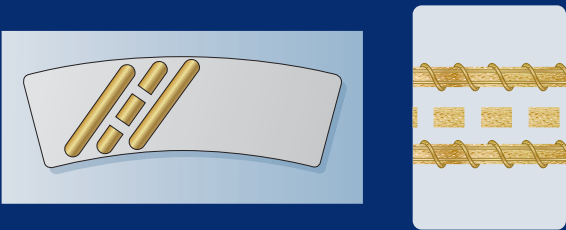
ADMIRAL

The Starfleet rank system of the 2270's distinguished between ranks held by flag officers such as James T. Kirk, providing separate insignia for all levels from rear admiral through to fleet admiral. Admiral Kirk, for example, wore a triple-width embroidered gold braid with a single solid gold braid behind it on each cuff. On the shoulder epaulets, an eight-pointed star denoted his rank. This was typically worn on a white background, denoting the duty division of command.



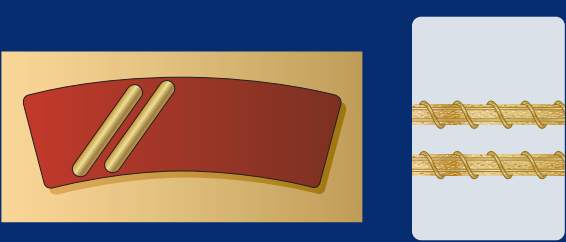
CAPTAIN

On uniform shoulder epaulets, the rank of captain was designated by three gold lines, the middle of which was broken; this was the same configuration as the cuff insignia of the previous uniform. The design was also used on the cuffs of the duty uniforms; single-width unbroken gold braids sat either side of a single-width broken braid. Under normal conditions, captains, would display their rank indicators against the white command division background.



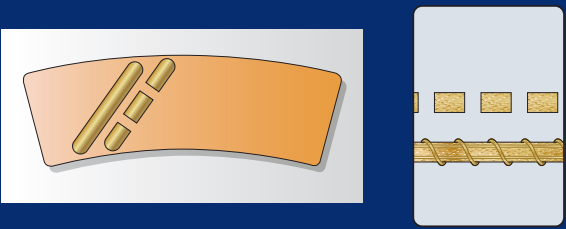
COMMANDER

The rank markings for a commander remained unchanged from the 2260s uniform, and were identified by two unbroken, single-width gold lines on the shirt cuffs and epaulets. The epaulets also displayed the colors of the wearer's duty division. Officers of this rank in more hands-on roles, such as Chief Engineer Scott, wore uniforms with tighter-fitting cuffs to ensure loose sleeves did not snag on equipment, generally displaying rank on the epaulets only.



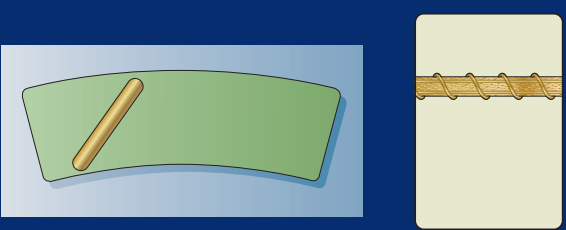
LT. COMMANDER

The rank of lieutenant commander also retained the same markings as in the old system; a single unbroken gold band was worn closest to the wrist on the shirt cuff, with a broken band of equal width behind it. This was reflected on the shoulder epaulets; the solid band was placed to the front, with a three-section broken band to the rear. The shoulder epaulets also displayed the wearer's duty division, such as the orange of the science department shown here.



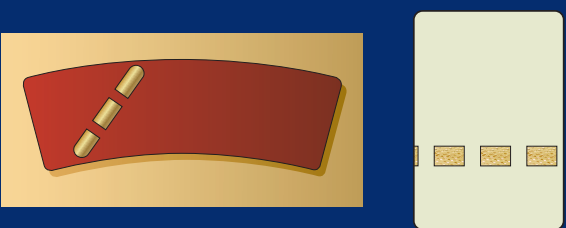
LIEUTENANT

All lieutenants wore a single, unbroken gold band on their shirt cuffs and shoulder epaulets, again unchanged from the system in use during the 2260's. Unlike later systems of rank indicators, there was no differentiation between junior and senior grade lieutenants, if indeed Starfleet made such a distinction at all during this period. The major change was that this was no longer the lowest rank to be awarded a visible designator, as it was in the old system.



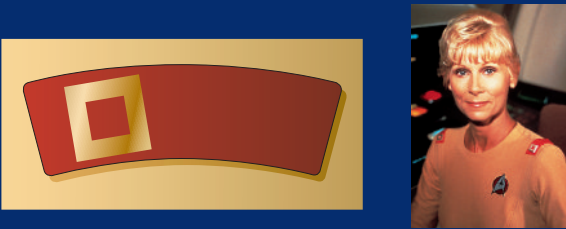
ENSIGN

The rank of ensign was differentiated for the first time in the 2270's system; in the old rank designators, ensigns displayed blank cuffs, as did non-commissioned officers and enlisted crew. This new addition to the system of rank indicators immediately identified ensigns as commissioned officers. Ensigns sported a single-width, broken gold braid on their cuffs and epaulets, which was not as intricately woven as the solid bands of their superior officers.



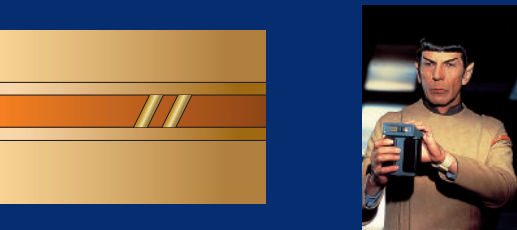
CHIEF

Non-commissioned officers were also given a specific rank indicator for the first time in this system. Rather than the gold lines used to differentiate the ranks of officers, NCOs wore a gold square on a duty-division specific, color-coded shoulder epaulet. Unlike commissioned officers, however, the design was not repeated on the cuffs of their uniform sleeves. Nevertheless, the epaulet alone set them apart from enlisted crew members, who sported no rank insignia.



LANDING PARTY

Harsh conditions on a planet's surface often required a landing party to wear additional clothing to their shipboard duty uniforms. To facilitate rank identification, landing party jackets had a thin, color-coded band on the upper arm of the left sleeve, which displayed duty divisions and specified the wearer's rank in a series of vertical, slanting gold lines. These matched the system of rank indicators worn on the Class-A duty uniforms.



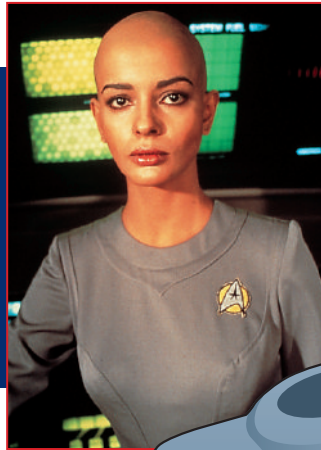
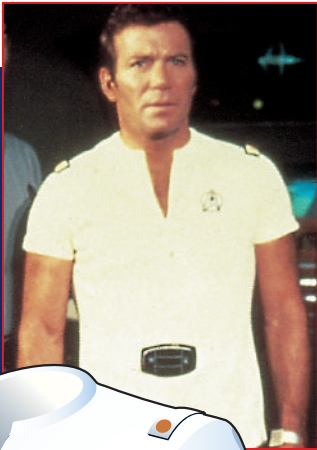


ADMIRAL'S UNIFORM

The admiral's two-piece dress uniform was unique among this era's designs in that it featured a broad white stripe that ran from the shoulders to the bottom of the tunic. This was worn with gray pants that had shoes sewn into the legs, like all the uniforms of the 2270s.

ADMIRAL'S VARIANT

One of the other uniform variants available to an admiral was a short-sleeved shirt with epaulets on the shoulders. This was white, to indicate command status, and was worn with gray pants. An admiral could also wear the standard issue gray duty uniform.

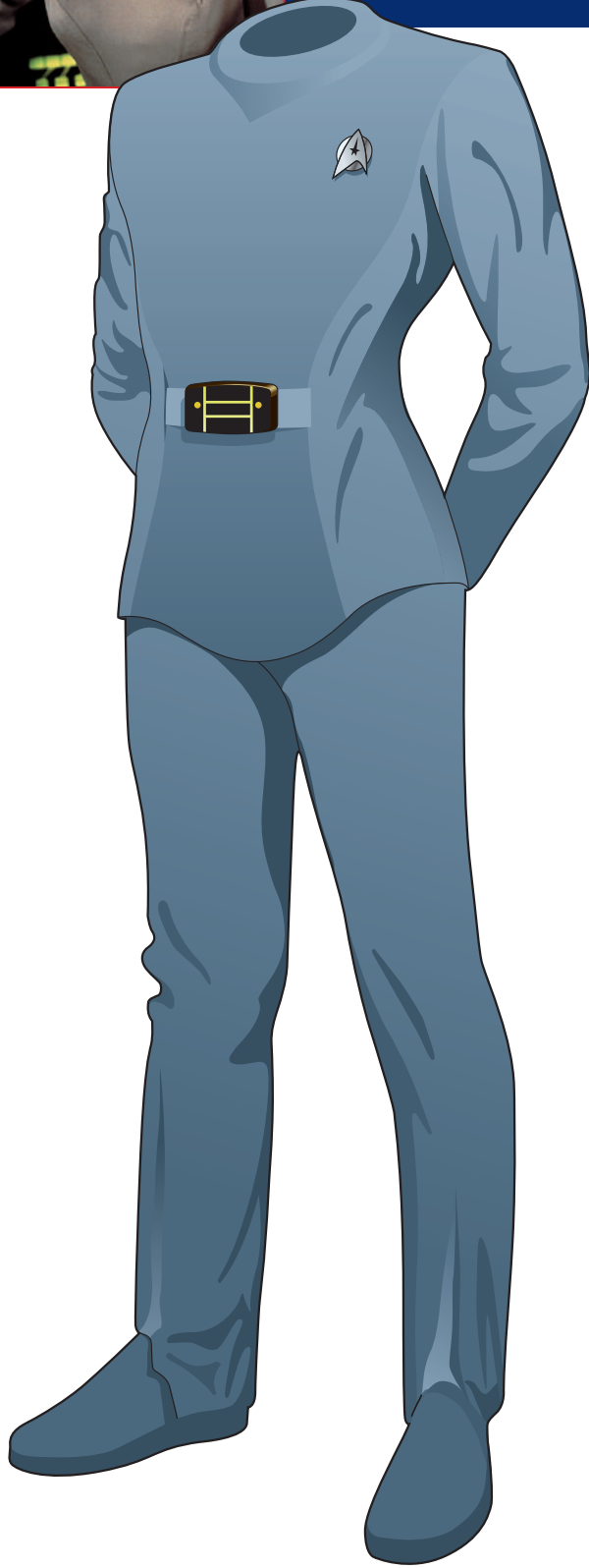
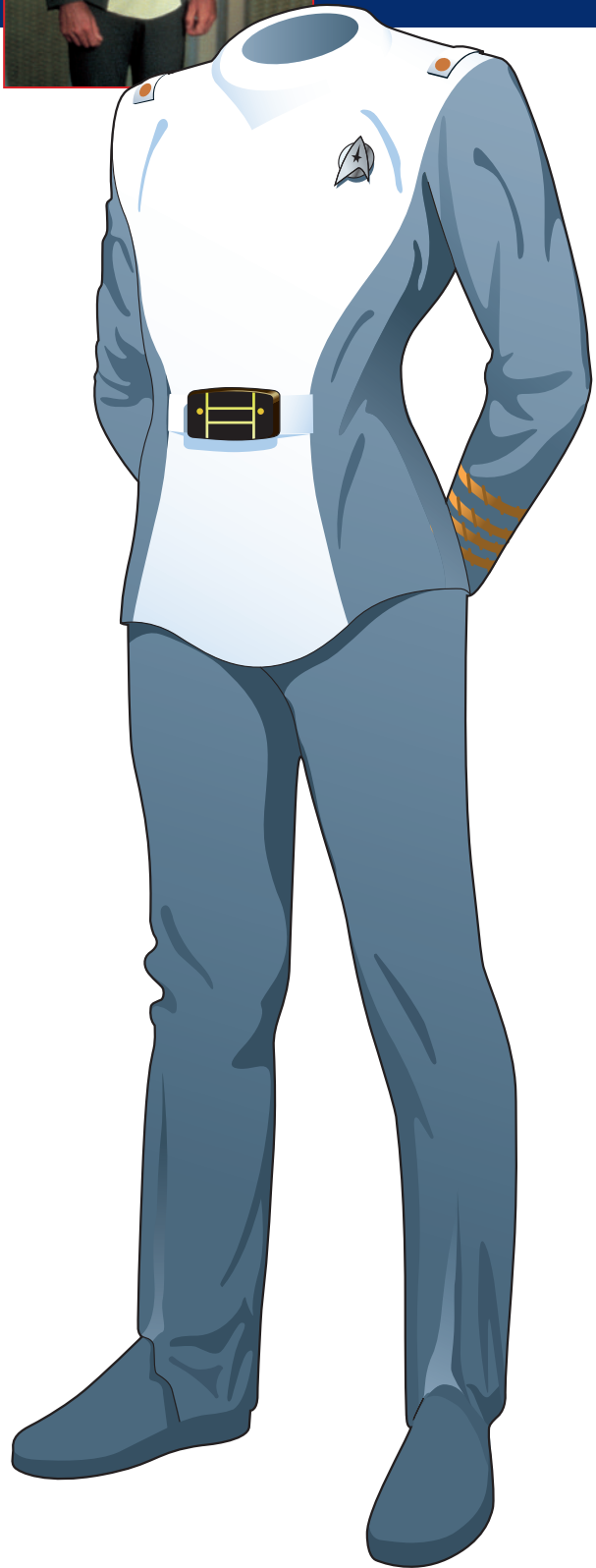


DUTY UNIFORM

The standard-issue duty uniform came in one of several variants. Both men and women wore these uniforms, as the gender-specific uniforms of the 2260s were no longer in use. This was a class-A uniform and consisted of a gray tunic and separate gray pants.

DUTY UNIFORM

One of the variants of the standard duty uniform was this all-in-one jumpsuit. It was designed to be more utilitarian than the two-piece uniform, and to fit the wearer like a second skin. As with most uniforms of this era, it featured a Starfleet symbol on the upper chest.





SCIENCE TWO-PIECE

Although a uniform's color was no longer used to indicate the wearer's division, only science, medical, and engineering personnel wore all-white uniforms. A crewman's specific department was indicated by the background color of the circle on their Starfleet insignia.

SCIENCE ONE-PIECE

The jumpsuit came in the same colors as the two-piece variant. Some of these jumpsuits were unusual in that they featured deep pockets in the legs. Members of the science and engineering departments found these useful for storing assorted instruments and tools.

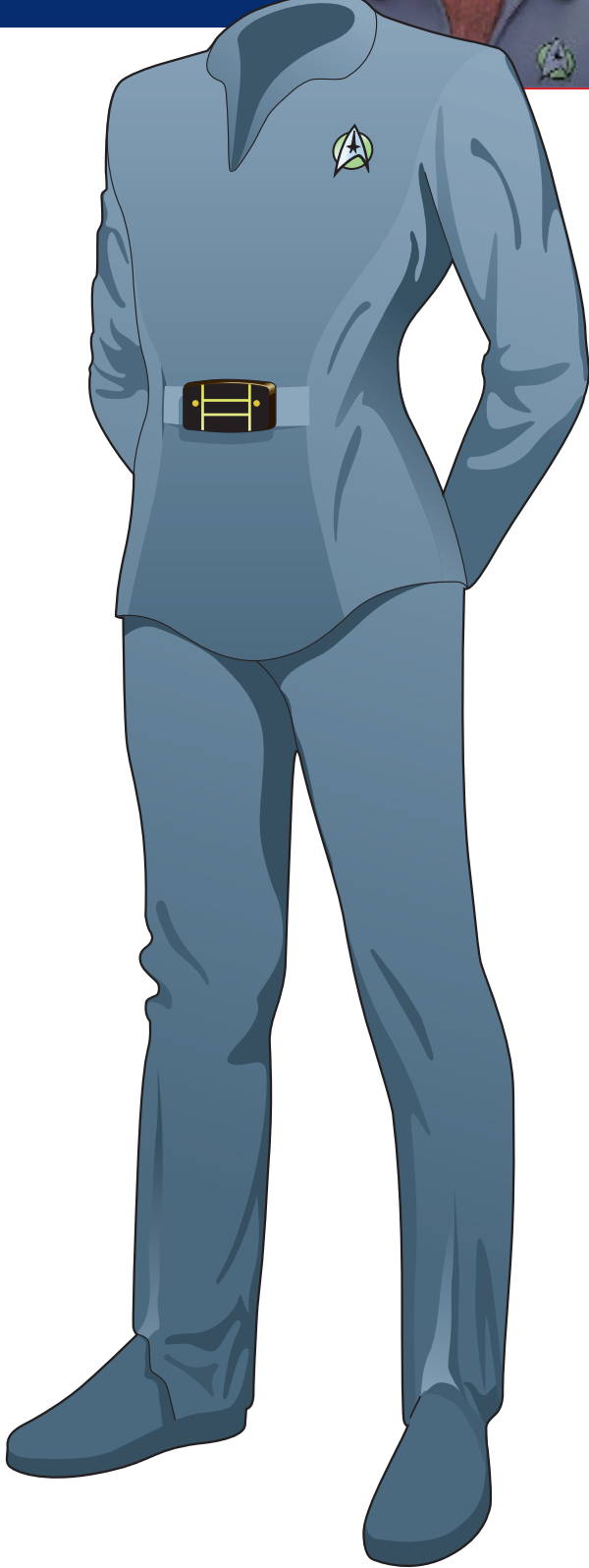
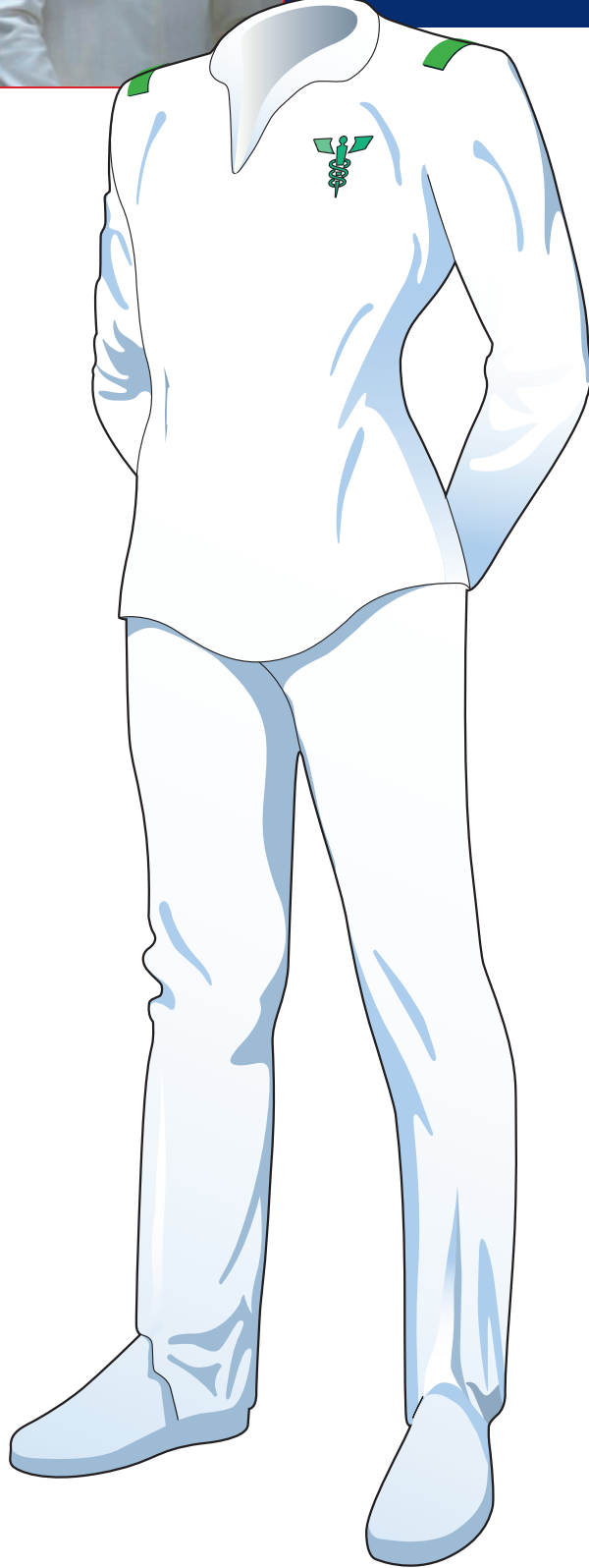
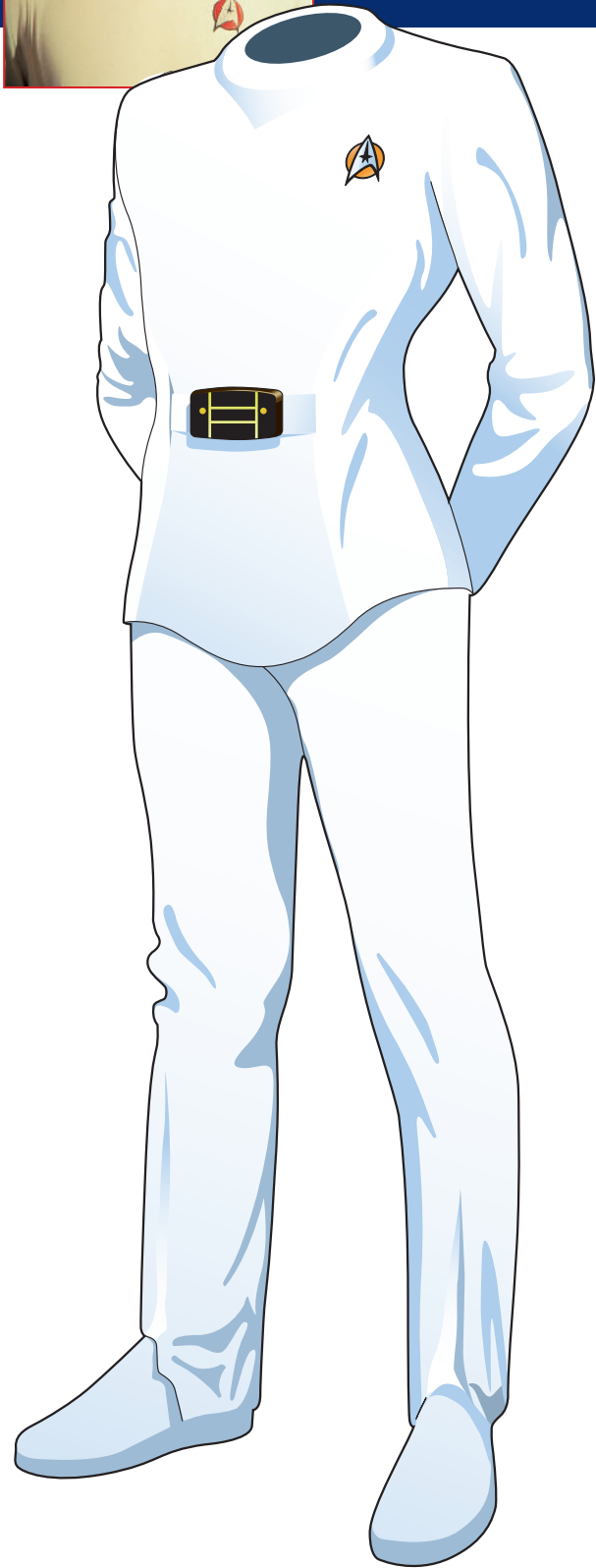


MEDIC'S UNIFORM

In 2271, medical staff wore a white two-piece uniform. Unlike the other uniforms, the tunic was longer and did not feature a buckle or the standard Starfleet insignia, but the universal medical symbol, the caduceus, which was made up of a snake and a staff.

CMO'S DUTY UNIFORM

As well as the white tunic and pants, the chief medical officer could also wear this gray two-piece uniform. It was very similar to the gray uniforms worn by the command officers on the bridge, except it featured a deeper V-neck and a small, pointed collar.





CREWMAN'S ONE-PIECE

Many crew members, especially those who worked away from the bridge, wore brown uniforms. The jumpsuits were styled exactly the same as the other colored uniforms, with a rounded neck, an oversized, oval belt buckle, and boots that were sewn into the pants.



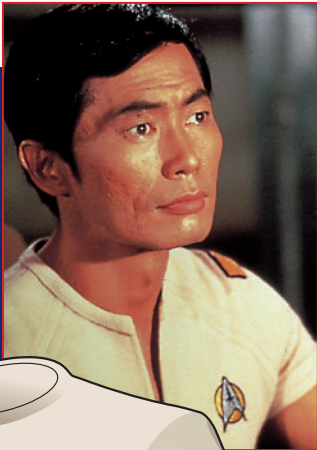
CREWMAN'S TWO-PIECE

The brown two-piece uniform was again styled in the same way as the other two-piece uniforms, with the tunic hanging loosely over the pants and being gathered slightly at the waist. Both men and women wore this uniform, as it was not gender-specific.



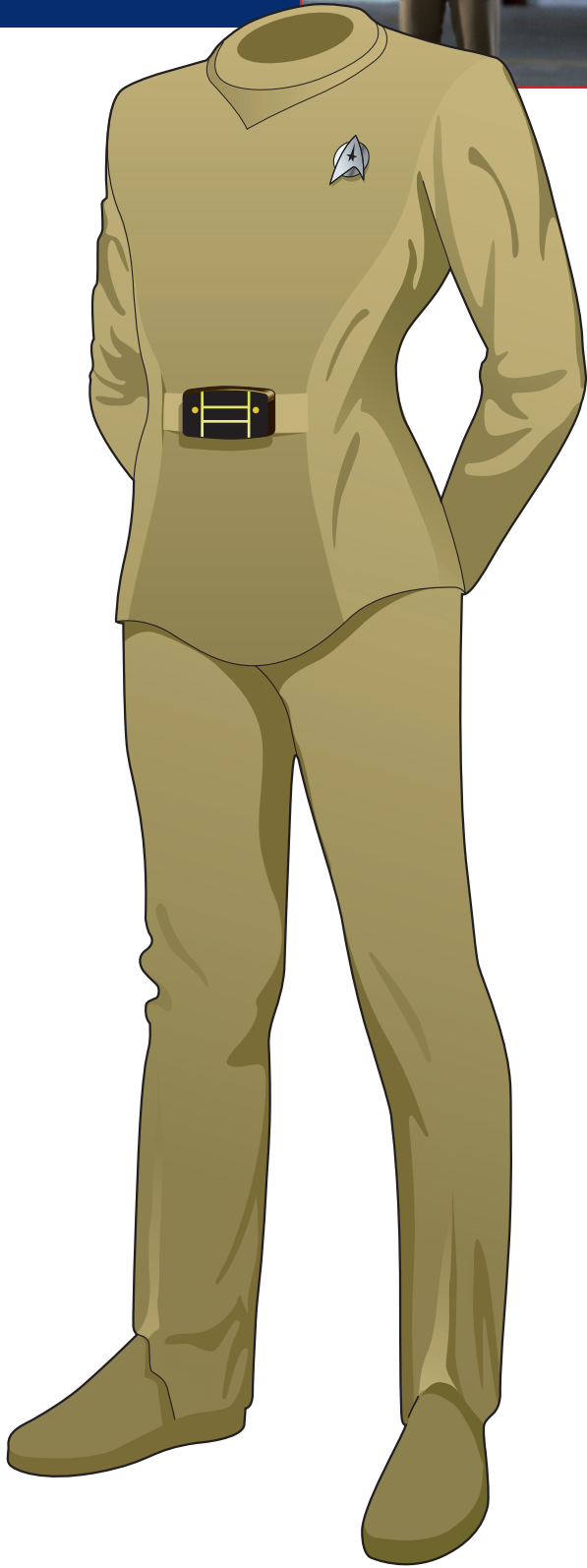
DUTY UNIFORM

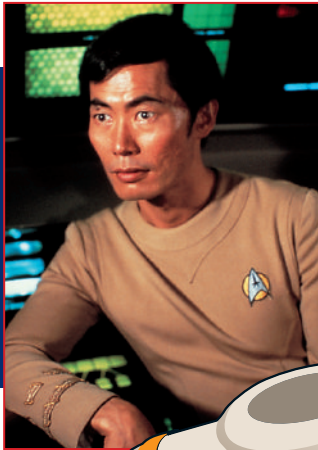
This Class-A, beige duty uniform was often worn by operations officers on bridge duty, such as Uhura. Some of the tunics featured a vent at the sides over the hips. As with the other color uniforms, this beige variant also came in a more utilitarian one-piece jumpsuit.



DUTY VARIANT

Operations officers who worked on the bridge, such as Mr. Sulu, could also choose to wear this two-piece, Class-B uniform. Again, it was beige and gathered slightly at the waist with an oval buckle, but the shirt had short sleeves and a deeper V-neck.





DUTY UNIFORM

The Starfleet uniforms in use in 2271 provided more choice in uniform variants than at any other time in Starfleet history. For example, operations officers on the bridge had a choice of the two-piece uniform, the short-sleeved shirt, or this jumpsuit.



SECURITY OFFICER

Security officers' uniforms were comprised of a white jumpsuit overlaid with thick armor, and a tight-fitting protective helmet.



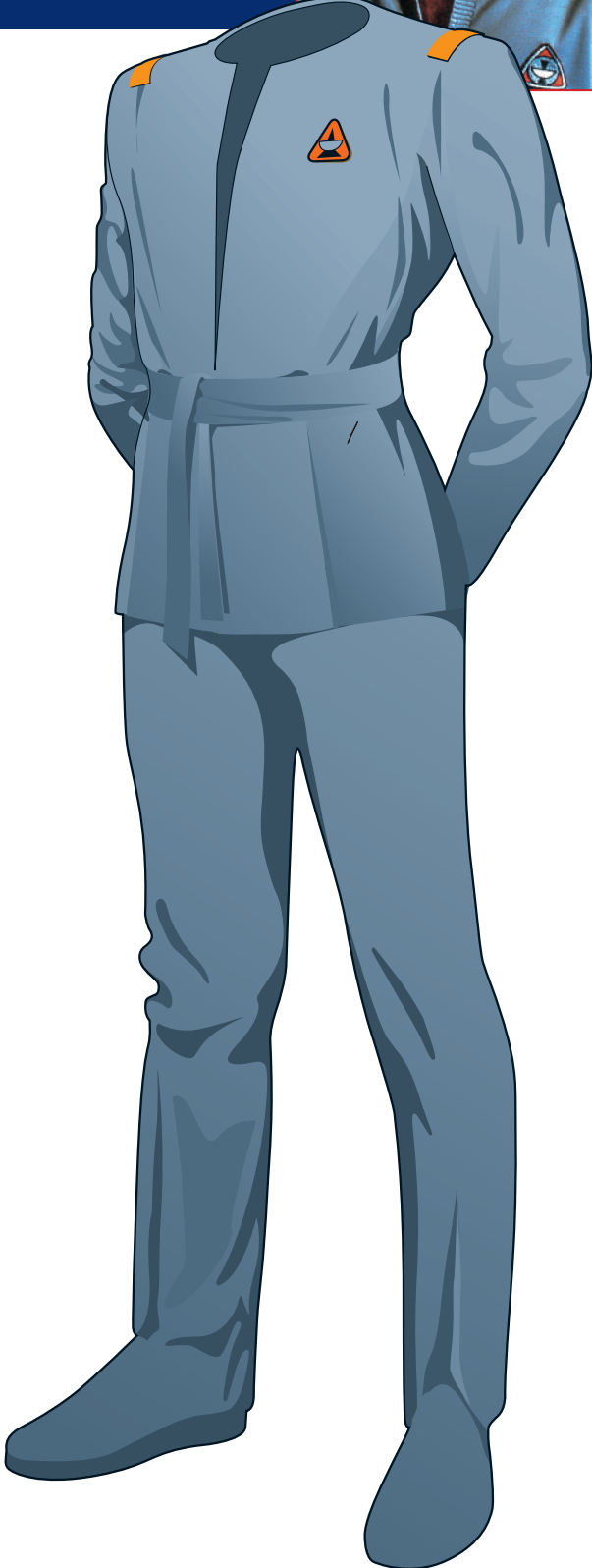
LANDING PARTY

On landing party missions, officers and other crew members wore field jackets. These were made of a heavier material than the standard tunic, and offered more protection. The jacket was tan-colored and had a number of large pockets for equipment.



STATION PERSONNEL

In 2271, different uniforms were in use on space stations. On the *Epsilon IX* Monitoring Station, open V-necked blue, gray, or tan duty uniforms were the norm. These two-piece uniforms featured a tunic-style shirt that was tied at the waist and hung over the pants.





CHAPTER 6

U.S.S. ENTERPRISE

NCC-1701-A

2286-2293

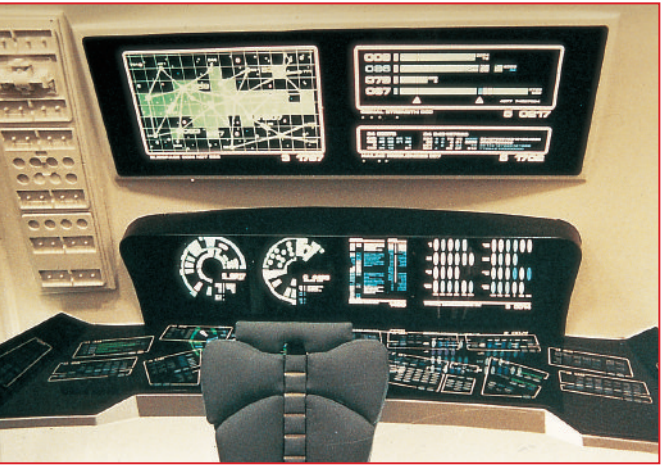
MAIN BRIDGE

Following a refit of the *U.S.S. Enterprise NCC-1701-A* bridge, many advanced new technologies were introduced, paving the way to the future.

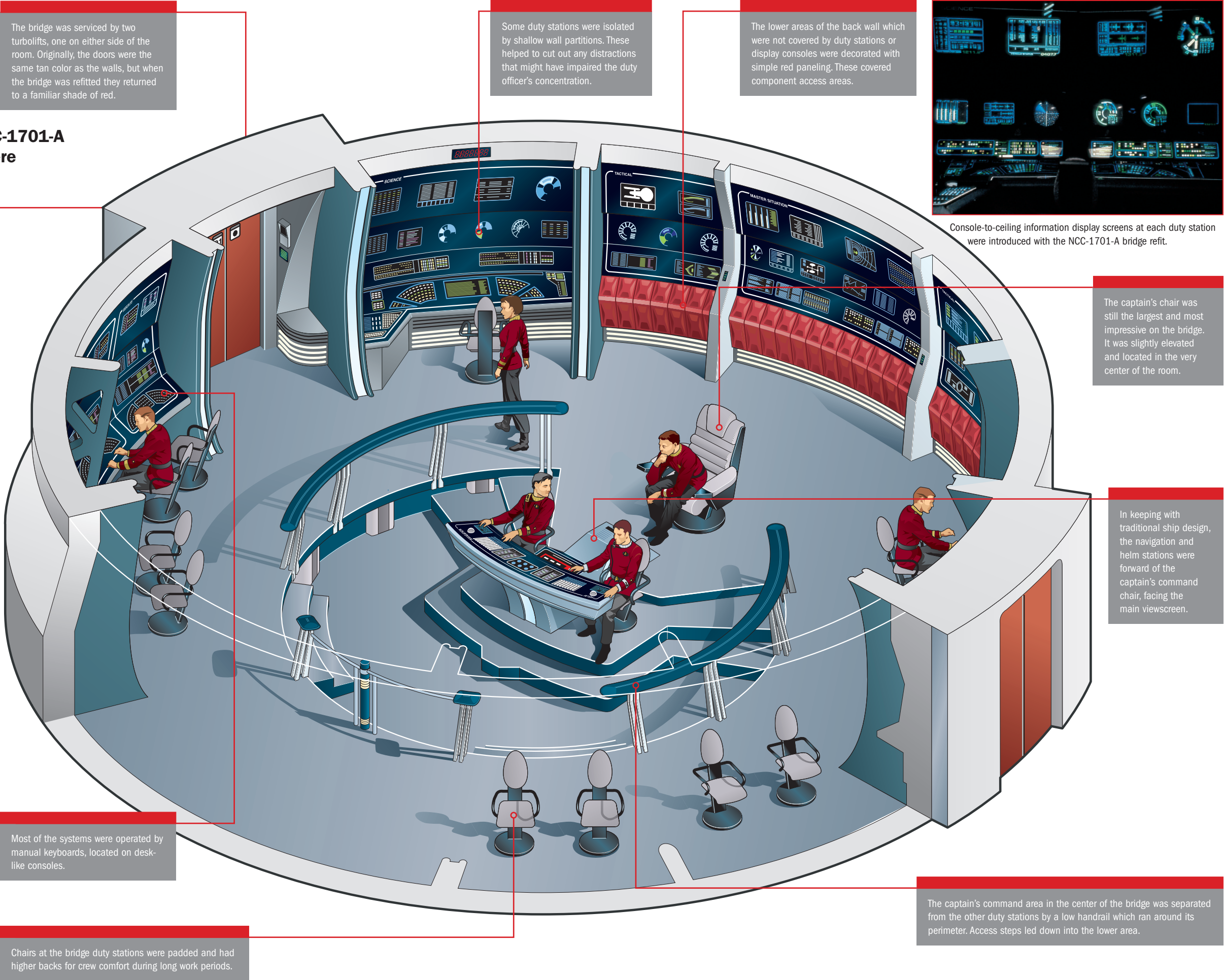
The *U.S.S. Enterprise NCC-1701-A* had 23 decks, with the bridge located on deck 1, at the very top of the saucer section. It was here that the captain and his senior staff made decisions based on information communicated to them from throughout the ship.

The layout of the NCC-1701-A's bridge retained many similarities to earlier *Constitution*-class ships, but there were some key differences, most notably the reorientation of the turbolifts to the left and right of the captain's chair. A large bank of displays directly behind the captain were flanked by the science and communications stations. This bank of information on the ship's status was not permanently manned, and a majority of seated duty stations were now located to the front of the bridge, either side of the main viewscreen. The helm, navigation, and science stations remained where they had been on the previous *Enterprise*. Numerous computer display screens were positioned above duty stations and on the bulkheads of the bridge perimeter. This greatly increased the amount of information available to the bridge crew in comparison to earlier ships.

By the time of the NCC-1701-A's final mission, on Stardate 9521.6, the technical problems that had dogged the ship's launch had long since been repaired, and the bridge itself had undergone several minor and more extensive refits, including touch-sensitive controls replacing physical buttons on duty consoles.



The original bridge of the *U.S.S. Enterprise NCC-1701-A* had more information display panels than had been available on the previous ship. These provided a wealth of data on various systems.



FORWARD OBSERVATION ROOM

With its use of traditional craftsmanship and fittings, the forward observation room of the *U.S.S. Enterprise NCC-1701-A* had a style befitting its intended purpose.

Starfleet vessels were often called upon to play host to diplomatic functions. As such, nearly all ships of the fleet were outfitted with a suitable location in which to hold informal gatherings with visiting dignitaries. Aboard the *U.S.S. Enterprise NCC-1701-A*, the forward observation room was utilized for this role.

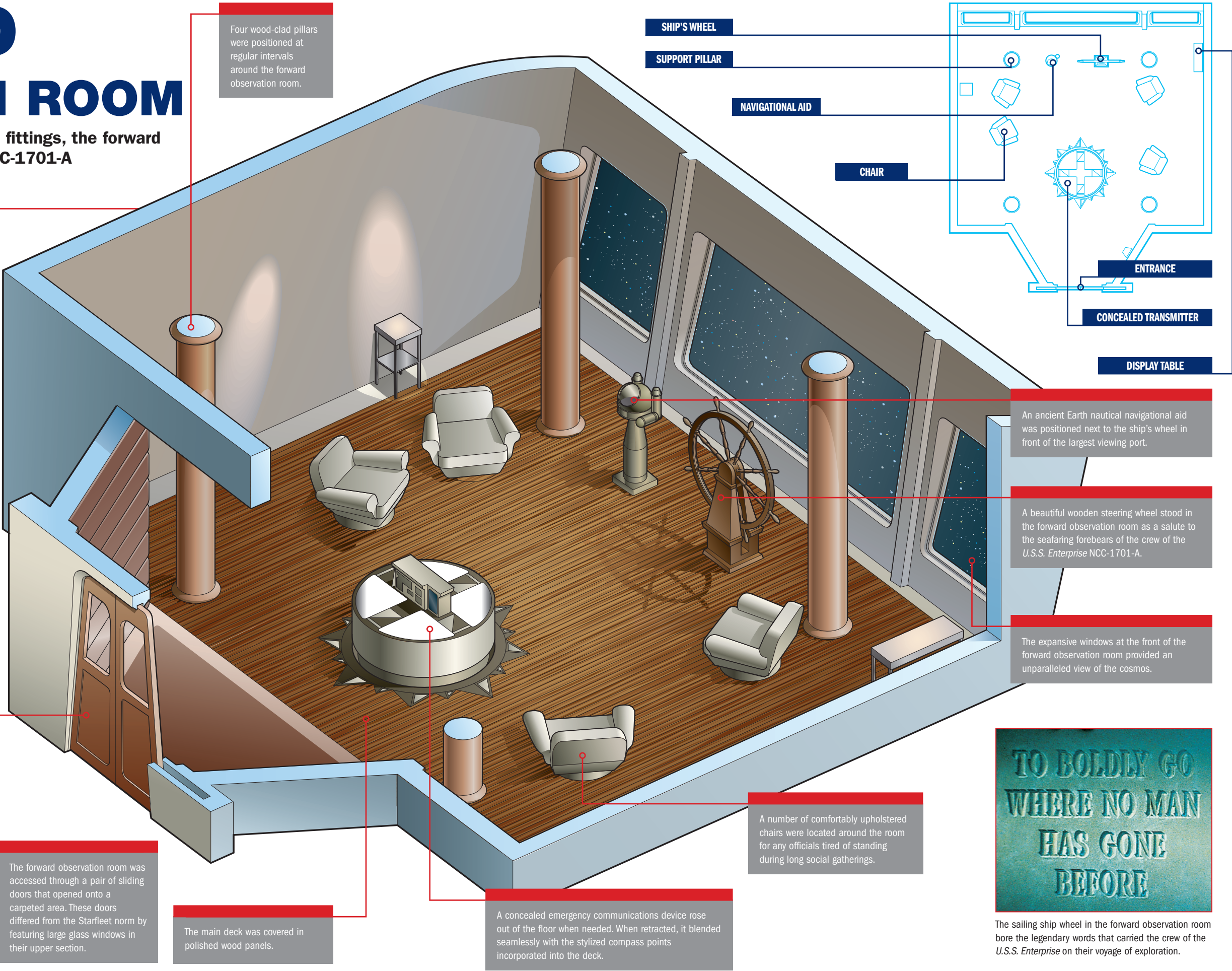
The room was situated at the leading edge of the saucer section, and was one of the most sumptuous rooms aboard the *Enterprise NCC-1701-A*. Upon entering the room, personnel were confronted by a set of expansive windows that provided a breathtaking view into space.

Another of the forward observation room's most notable features – an immense steering wheel from an old nautical vessel – was positioned directly in front of the central window, creating an impressive centerpiece to the forward observation room's fittings. Adding to its sense of connection with history was the incorporation of a small brass plaque mounted to the wheel's shaft, upon which a quote from the Starfleet oath, was engraved: "To boldly go where no man has gone before."

On a more practical note, a large stylized logo set into the deck concealed an emergency transmitter, enabling the crew to call for immediate assistance in a crisis.



The forward observation room was used primarily for diplomatic functions. The warm colors and comfortable surroundings used in its design and construction made the room particularly suitable for such important occasions.



The sailing ship wheel in the forward observation room bore the legendary words that carried the crew of the *U.S.S. Enterprise* on their voyage of exploration.

WARP NACELLES AND PROPULSION SYSTEMS

The invention of the warp drive took the human race on a journey of unimaginable discovery and adventure, yet that was only the beginning, as warp technology continued to open up new horizons.

Developed by Zefram Cochrane in the 21st century, warp propulsion was the cornerstone technology of interstellar travel. The basic theory of warp drive had changed little over 300 years, although the systems used to generate and channel the massive amounts of energy required for faster-than-light travel had undergone constant modification and improvement. Warp core stacks, reaction chambers, and engineering systems had progressed to an incredible extent, but perhaps the most significant external change on any starship was the design and construction of the warp nacelles.

The configuration of most Starfleet vessels adhered to the classic twin-nacelle design seen on the original *Constitution*-class *U.S.S. Enterprise* NCC-1701. A subsequent refit of the vessel in 2271 incorporated

a number of radical alterations to the ship's super-structure, including a heavily revised design for the warp nacelles, although their overall dimensions remained largely the same on both the refitted *Enterprise* and the newly commissioned *U.S.S. Enterprise* NCC-1701-A.

COLOR CHANGE

One of the most notable features of the original *Enterprise*'s nacelles was its orange-red glowing Bussard collectors. These had been replaced on the *U.S.S. Enterprise* NCC-1701-A nacelles by a series of forward facing, blue illuminated grilles. A short distance behind this forward section was a slightly wider section, which subtly protruded on either side of each nacelle. This again housed a small blue illuminated grille that protected the

long, warp engine field grilles which ran for two thirds of the length of the nacelle, on either side. These grilles created the warp bubble around the ship, allowing the vessel to travel at warp speeds.

The rear of the newly designed nacelle was quite similar to the earlier *Constitution*-class design, although the upper fin had been removed to facilitate a more streamlined shape at the rear. The trailing edge of the warp nacelles were angled at around 45 degrees. Inside, each nacelle now housed upgraded subspace field generating coils, the Bussard collector, and plasma injection systems.

IDENTIFYING MARKS

One of the most important secondary features of the *Enterprise* nacelle was the inclusion of identifying marks for use by other vessels. The original *Constitution*-class nacelles used virtually the entire length of its outward facing section to display the Starfleet banner and colors, originally a yellow chevron situated upon a red band. The *U.S.S. Enterprise* NCC-1701-A displayed its identification details on the nacelle, consisting of the name of the vessel and its Starfleet registry number, placed near the rear section of the nacelle behind the warp field grilles.

Blinking red navigation lights were situated on the tail of each nacelle, and toward the front on the upper surface,

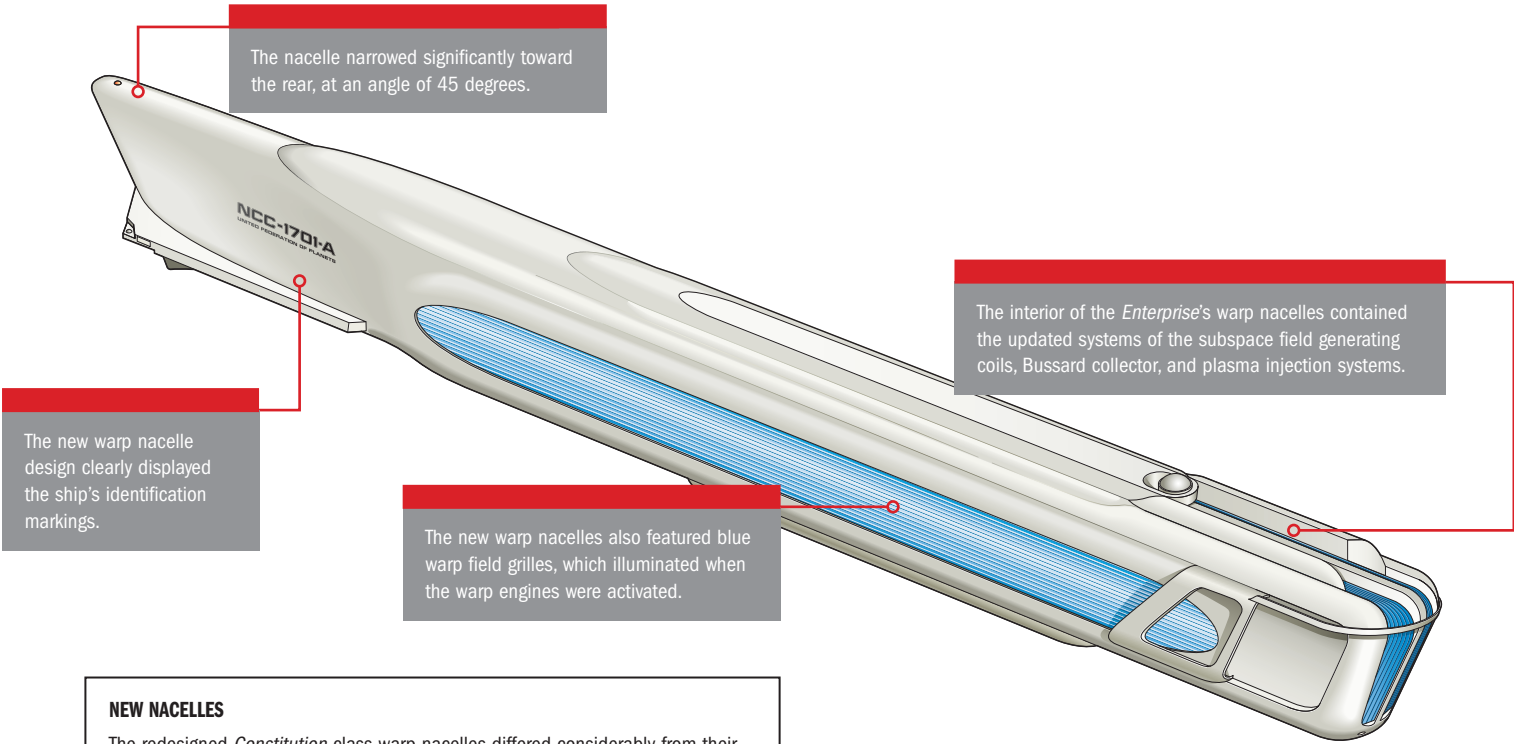
showing the operational status of the vessel and aiding its maneuvers in docking situations.

The maiden flight of the refitted *Enterprise* nearly ended in disaster when the intermix formula for the matter/antimatter reaction was miscalculated, and the vessel entered an artificial wormhole generated by the imbalance. By the time of its launch in 2287, the now proven engines of the *U.S.S. Enterprise* NCC-1701-A did not suffer the same problem, and the ship was capable of even greater warp speeds.

SUPPORT FIXTURES

The warp nacelles of the NCC-1701-A were connected to the upper section of the engineering hull by two swept back angled pylons, which were wider at their connection points to the nacelles than to their points of contact on the engineering hull. The warp field generated by the fixed nacelle design, set further apart than on the original design, was extremely stable, and the pylons were able to withstand considerable punishment due to their rigid nature. The nacelle design of the *U.S.S. Enterprise* NCC-1701-A heralded a great leap forward in warp field dynamics and propulsion efficiency, leading the way to even faster ships with the *Excelsior*, *Ambassador*, *Galaxy*, *Sovereign*, and *Intrepid*-class nacelle designs.

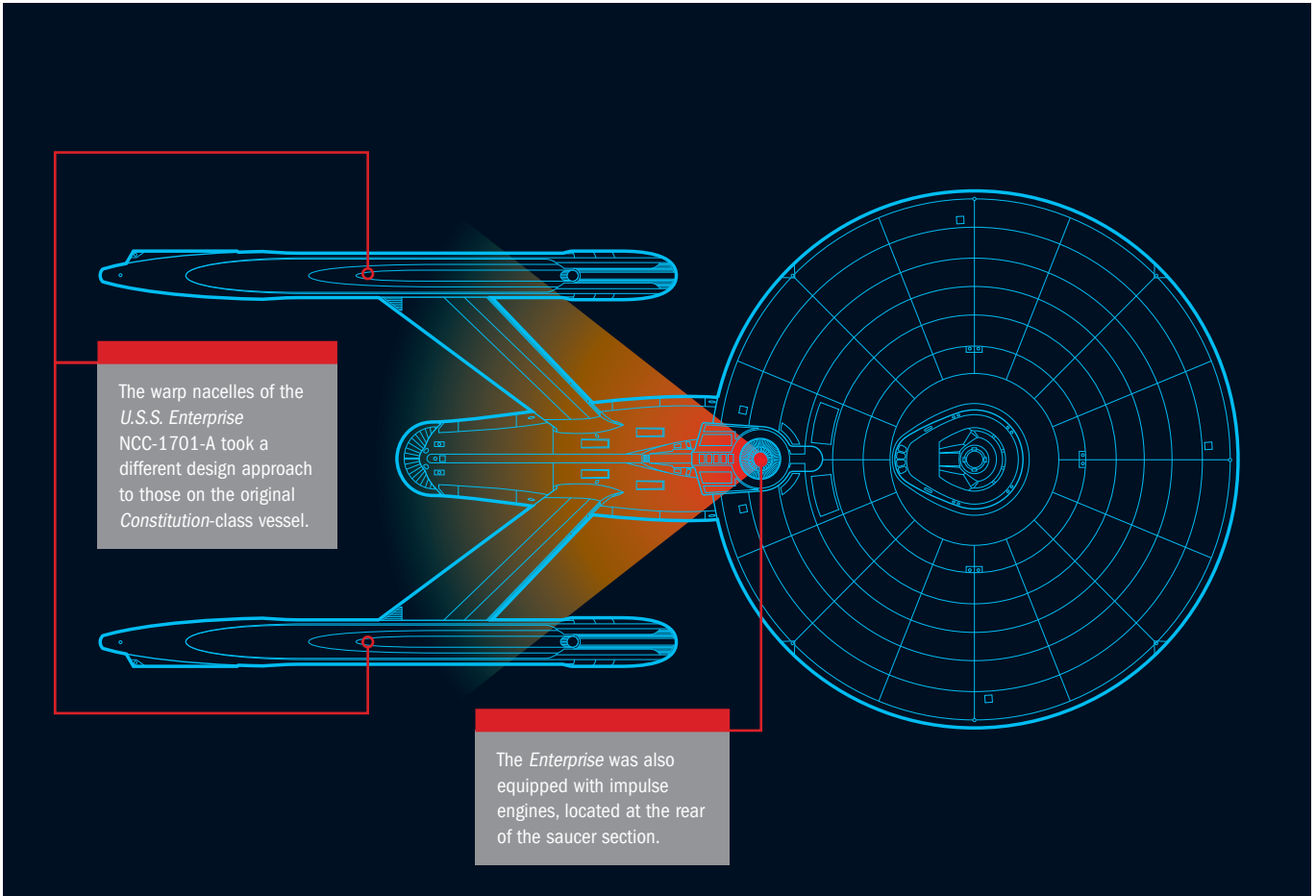
WARP NACELLE



NEW NACELLES

The redesigned *Constitution*-class warp nacelles differed considerably from their predecessors. Both were of the same length, but the new nacelles emitted a blue illumination instead of the older nacelle's orange-red glow.

WARP NACELLE AND IMPULSE LOCATOR



WEAPONS AND DEFENSE SYSTEMS

Equipment such as phaser arrays, photon torpedoes, and deflectors act as the swords and shields of starships such as the *U.S.S. Enterprise NCC-1701-A*.

Following the destruction of the original *U.S.S. Enterprise NCC-1701*, its newly commissioned replacement, the *Enterprise-A*, was an even more formidable starship, equipped with weapons and defensive systems that rivaled those of any vessel in Starfleet. It was more than capable of holding its own in battle with many opponents, including the deadly Klingon bird-of-prey.

PRIMARY AND SECONDARY WEAPONS

Phaser banks were located in both the saucer and engineering sections, allowing for targeting of vessels off the ship's bow or stern. The three primary phaser arrays were contained in the saucer section, located at equidistant positions in a semicircular configuration. The effective tactical range of the ship's phasers was approximately 300,000 kilometers, consistent with those of its predecessor.

Photon torpedo bays were located above the main deflector dish at the front of the engineering hull. This location was especially useful for crew members if photon torpedoes needed to be modified before they were fired. Such a modification took place in 2293, while the ship was under attack from a cloaked Klingon bird-of-prey during the Khitomer peace conference, when Captain James T. Kirk ordered Captain Spock and Dr. McCoy to refit a photon torpedo with equipment that would normally be used to catalog a gaseous anomaly. Kirk's intent was to highlight the location of the cloaked enemy ship.

The *Enterprise-A* carried 78 photon torpedoes, the full complement for a *Constitution*-class starship. Computer

data banks recorded the firing of the powerful and destructive torpedoes, and an inventory program kept track of the number of torpedoes remaining after each one had been launched. The ship's phaser banks and photon torpedoes were capable of inflicting heavy damage upon, or even destroying, a bird-of-prey or a Romulan warbird.

Deflector shields provided the ship's main defensive capability, although transporters became inactive, and shuttlecraft could not be launched while the shields were raised. The process of lowering shields to allow one of these activities to take place, and then raising them again, took 15.5 seconds. The shields were capable of withstanding several bursts of Klingon disruptor fire, although it drained them; however, the ship was still capable of functioning, even when the shields were lowered or the hull had been breached.

The starship had deflector grids in both the engineering and saucer sections, with the one in engineering on the port side and the other on the stern of the saucer. The overall strength of the grid had been increased in the *U.S.S. Enterprise NCC-1701-A*, enabling the new ship to break through the Great Barrier in 2287, when hijacked by Spock's renegade half-brother, Sybok. Previously, it had been believed that this powerful energy field at the center of the Galaxy was impenetrable.

The *Enterprise-A* made extensive use of tactical scans, capable of detecting the positions of enemy ships, and of making recommendations for the activation of different defense systems. Additionally, a tactical scan would register when an existing enemy ship's cloaking device had been activated, though they were unable to then track a cloaked ship thereafter.

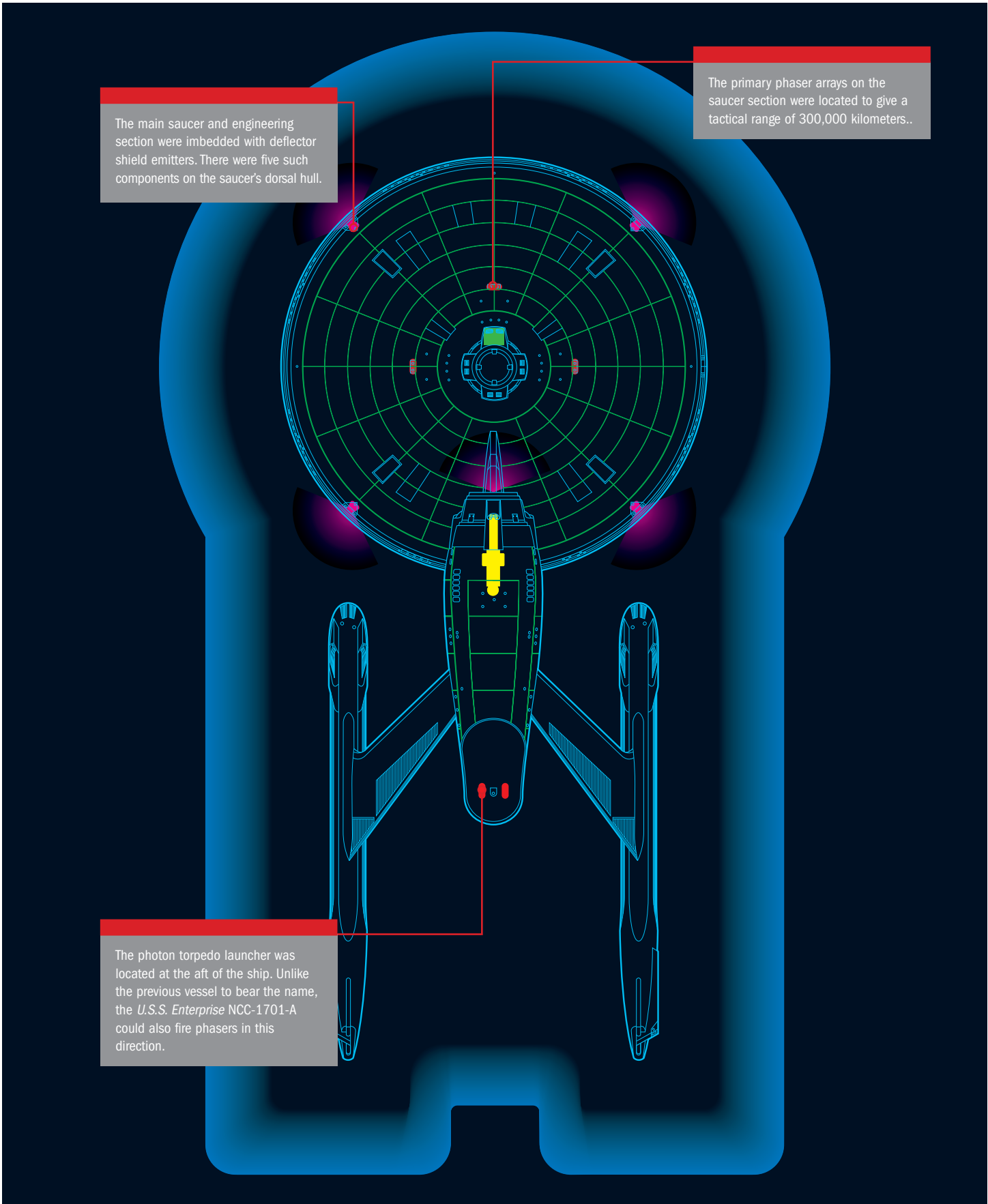
The ship contained an advanced prisoner holding area, or brig. The new brig was considered to be escape-proof, having been tested by Spock at the request of Starfleet designers. Captain Montgomery Scott easily disproved this notion by setting off an explosion that blasted through one of the brig walls.

Another internal safeguard protected against any unauthorized firing of a hand phaser. Any attempt to fire a phaser set to kill on board would be met with a piercing alarm and the swift arrival of a security team, with the phaser beam itself being suppressed. As Spock discovered in 2293, a phaser set to stun could be fired at close range – to lethal effect – without setting off the alarm.



The *U.S.S. Enterprise NCC-1701-A*'s primary photon torpedo launcher was fitted to the neck just about the deflector dish.

DEFLECTOR SHIELDS



CAPTAIN KIRK'S QUARTERS

Crew quarters on the *U.S.S. Enterprise* NCC-1701-A were modest, even for command officers. Kirk's cabin told a story of his long career in deep space.

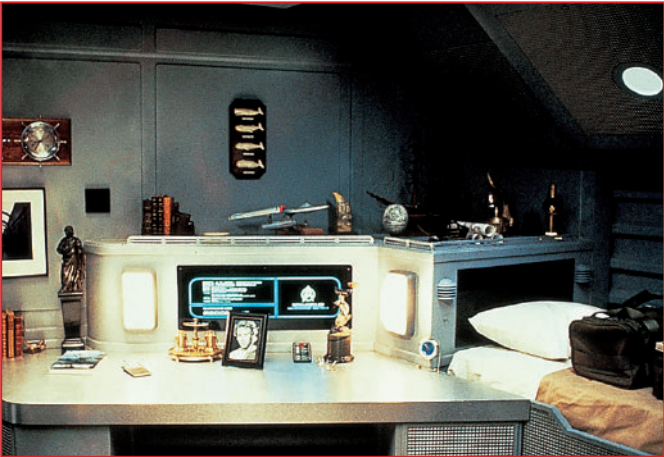
Starships of the 23rd century were smaller and more compact than those of the following century, and the crew facilities aboard a *Constitution*-class starship were not nearly as lavish as those found aboard a *Galaxy*-class vessel. In fact, they were extremely functional.

The quarters assigned to Captain James T. Kirk and his senior officers aboard the *U.S.S. Enterprise* NCC-1701-A were by no means extravagant. The standard cabin was about five meters square, with plain gray-colored walls and little variation in their design or decoration, save for those personal touches added by each occupant.

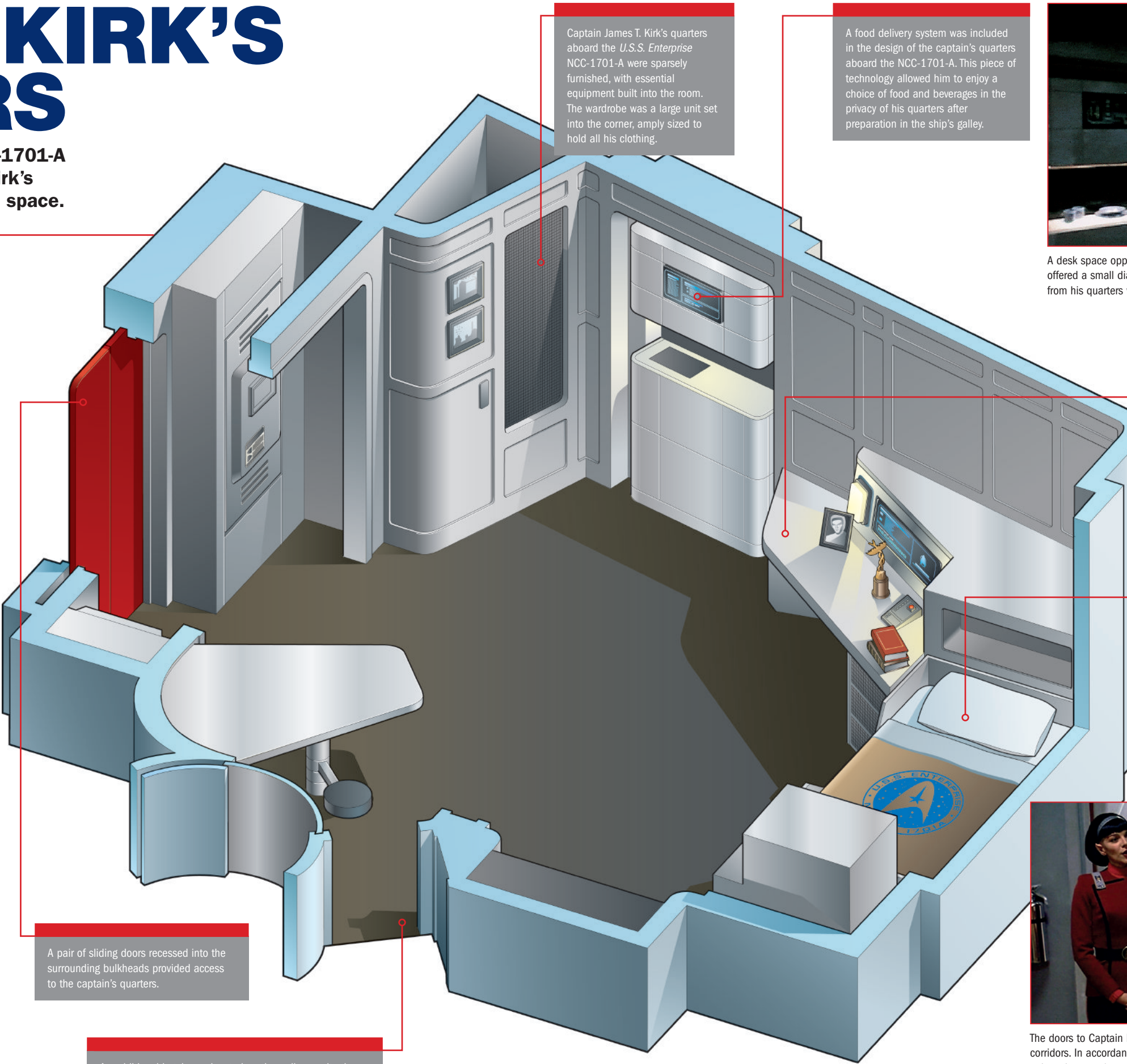
PERSONAL EFFECTS

Cabins had a single point of entry; an automatic door that opened at the approach of the cabin's occupant which could also be opened by pressing a manual control set into the bulkhead next to it. A wardrobe with a sliding door provided storage space, and the cabin also contained a food slot, a desk with a computer terminal, and a single bunk. The desk's computer terminal was where Kirk would sometimes record his captain's log.

Captain Kirk went to some lengths to add homely touches to his quarters. Items from his travels could be found on most surfaces, with a number of framed black and white photographs hung on the walls. Pride of place, however, went to a framed picture of his only son, David Marcus, which he kept on his desk, and a model of the *Enterprise*.



Captain Kirk used his desk to display many personal artifacts, including a model of the original *U.S.S. Enterprise* NCC-1701.



Captain James T. Kirk's quarters aboard the *U.S.S. Enterprise* NCC-1701-A were sparsely furnished, with essential equipment built into the room. The wardrobe was a large unit set into the corner, amply sized to hold all his clothing.

A food delivery system was included in the design of the captain's quarters aboard the NCC-1701-A. This piece of technology allowed him to enjoy a choice of food and beverages in the privacy of his quarters after preparation in the ship's galley.



A desk space opposite the doors, incorporating a personal duty station offered a small diagnostic display, which allowed the captain to work from his quarters when necessary.

The working surface of the corner desk opposite the door acted as a display area. Kirk placed many of his most valued possessions on it – including a framed photograph of his deceased son, David Marcus.

Captain James T. Kirk's bed comprised a single mattress aligned along the cabin bulkhead. The bed linen was Federation issue stock.

A pair of sliding doors recessed into the surrounding bulkheads provided access to the captain's quarters.

An additional hatch was located on the wall opposite the food slot, leading to other personal amenities.



The doors to Captain Kirk's quarters opened onto one of the *Enterprise* corridors. In accordance with safety protocols, visitors were unable to enter unless the captain gave them permission to do so.

THE BRIG

The brig of the *U.S.S. Enterprise NCC-1701-A* was perhaps the most secure cell ever constructed. Its designers even tested it on the resourceful Vulcan, Mr. Spock, who failed to escape.

Starships need a secure place in which to detain criminals, dangerous individuals, and even Starfleet officers or crew members who have violated regulations or disobeyed orders. Such detention areas are called the brig, and have been part of a naval tradition that stretches back hundreds of years.

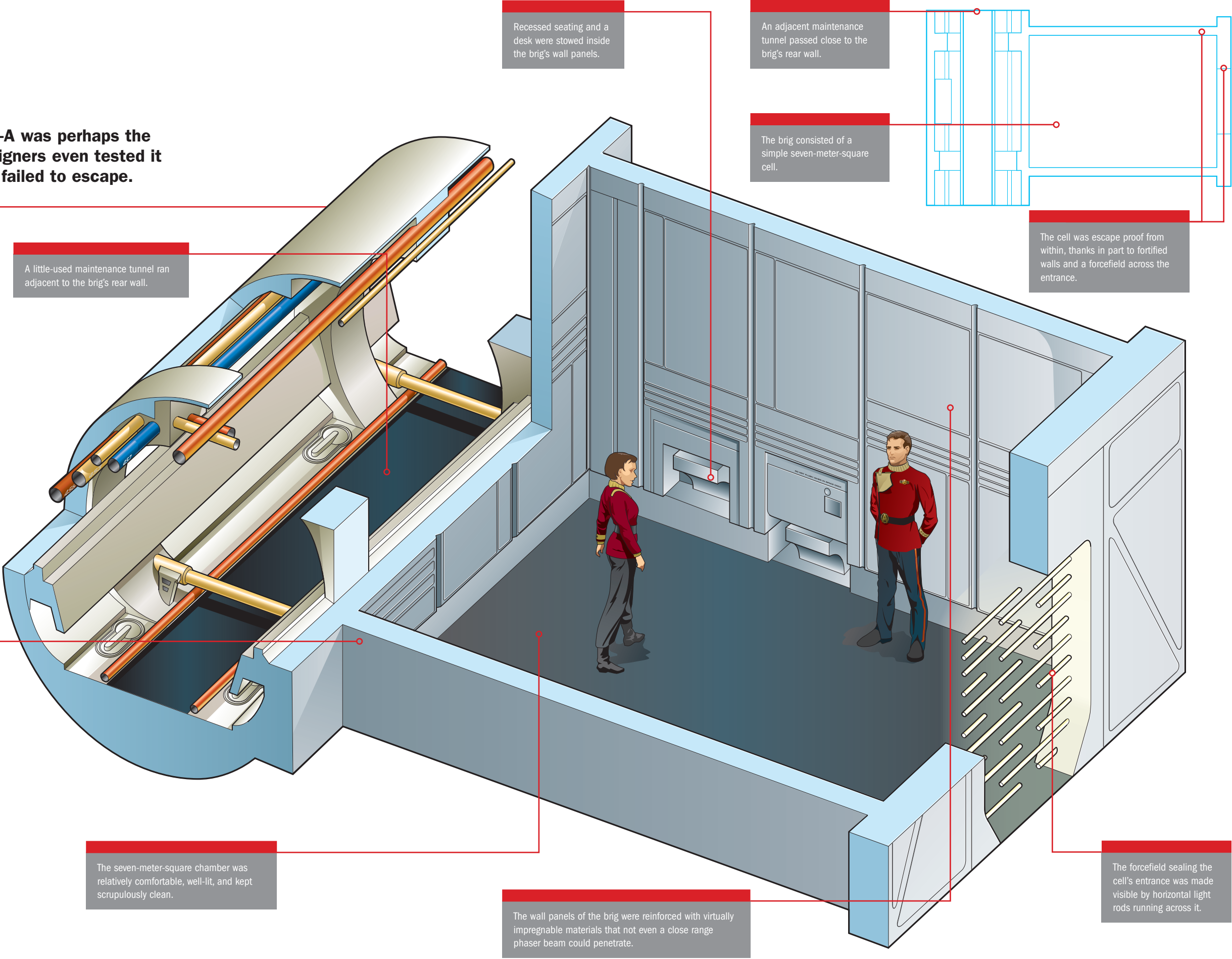
REINFORCED WALLS

The brig was a single chamber, approximately seven meters square, with an entrance secured by a visible electronic forcefield that deterred any attempts at escape. The wall panels were composed of an impregnable material that was almost impossible to cut through. Beds and couches were stowed in recessed wall cavities and extended via control buttons placed on wall panels to the side. Several cameras were concealed within the walls and ceiling, used to monitor the brig's occupants remotely. A viewscreen was also located within one of the wall panels, which could be activated from the bridge, and was used for one-on-one communication between starship officers and their prisoners.

One possible weakness of the reinforced walls was that they were not soundproof. This resulted in a security breach in 2287, when Chief Engineer Scott was able to send a communication through a cell wall by Morse code.



In 2287, Captain Kirk, Dr. McCoy, and Spock were held in the *U.S.S. Enterprise* brig.



JEFFERIES TUBES

The Jefferies tubes on the *Enterprise* NCC-1701-A provided Mr. Scott and his team of engineers unprecedented access to the ship’s vital systems.

Small, interlinking access corridors – more commonly known as Jefferies tubes – have always played a vital part in the smooth running of Federation vessels. The *U.S.S. Enterprise* NCC-1701-A had slightly more interior space than its predecessor, which in turn allowed for an increase in the size and scope of the ship’s labyrinthine network of access tunnels.

TUNNEL VARIETIES

As with all starships, the major systems of the *U.S.S. Enterprise* NCC-1701-A were located internally, so that workers could avoid undue contact with the external dangers of space. To ensure *Enterprise* engineers could quickly get to the components of any system or subsystem, Jefferies tubes were distributed strategically throughout the vessel. A comparison might be made with the human body, where internal organs are sustained by a sophisticated network of veins. When entering one of these access tunnels to carry out testing, maintenance, or repairs, engineers often talked about going into the ‘guts’ of a ship.

The tunnels themselves came in a variety of shapes and sizes. Some were tight, cramped, vertical spaces, into which only one engineer at a time could operate. The engineer had to crawl up laddered steps incorporated into the tube. Other tunnels were rather more spacious; often these were horizontal corridors, and on the *Enterprise* NCC-1701-A such spaces could easily accommodate three



Enterprise crew members, imprisoned in the brig by Sybok, made their escape through the ship’s hidden network of access tunnels.

or more workers, standing fully upright and walking two or three abreast. In contrast to the smaller shafts, which often needed to be illuminated by torchlight, these larger tunnels were clean and bright, with lighting modules on the roof and sides, and sometimes along the floor.

Most tunnels contained pipes, conduits, power nodes, testing points, data chips, or energy coils, with schematics on the sides of wider tunnels. Bold color schemes were used to ensure engineers could easily identify the purpose of different conduits running along, across, or through each tunnel. Further classification was provided via serial numbers on various tube components.

THE AMAZING MR. SCOTT

The chief engineer of the *U.S.S. Enterprise*, Montgomery ‘Scotty’ Scott, had an intimate knowledge of the original NCC-1701 which he carried forward to the new *Enterprise*, and would frequently boast, “I know this ship like the back of my hand.”

During the year 2287, he had an opportunity to show off his encyclopedic knowledge when Spock’s half-brother Sybok took control of the ship, and placed Captain James T. Kirk, Spock, and Dr. McCoy in the brig. Scotty came to their rescue by blowing away the cell’s rear wall and leading the escapees along one of the ship’s larger Jefferies tubes.



Color-coded tubing ran along the sides and across the ceiling of large access corridors.

Glowing blue energy containers were placed at waist height.

Schematic displays lined either side of the larger access corridors.

THE SHUTTLEBAY

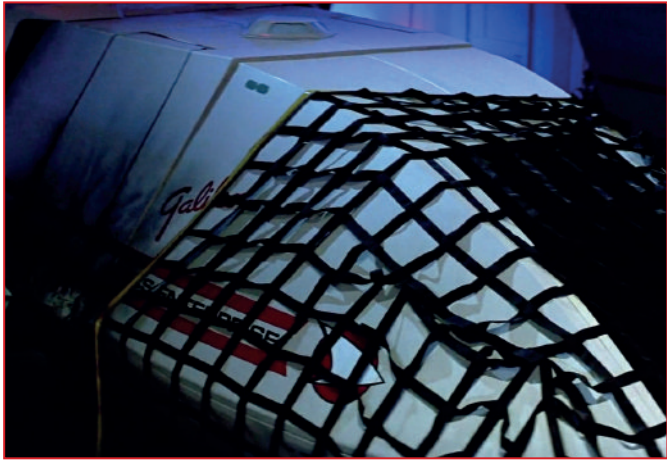
Automated systems guided shuttlecraft into the *U.S.S. Enterprise* NCC-1701-A shuttlebay, but the facility was well equipped to deal with emergency landings.

Located on deck 19 at the very rear of the engineering hull, the shuttlebay was the only area of the *U.S.S. Enterprise* NCC-1701-A that was regularly opened to the vacuum of space to allow shuttlecraft and other vessels to enter and exit the ship.

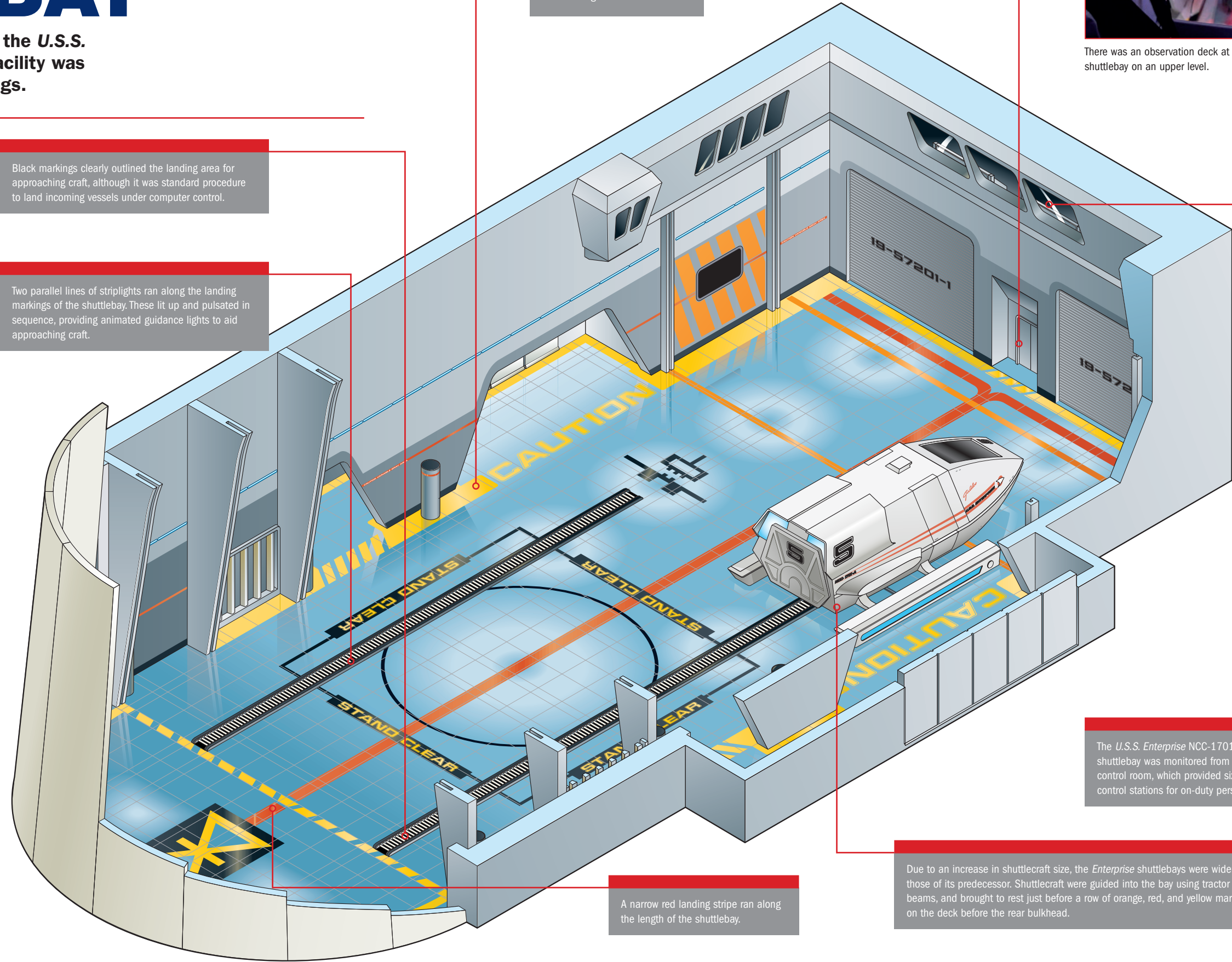
Utilizing a curved sliding door system, twin interlocking doors would slide open into recesses in the secondary hull, allowing an excellent view of the interior of the bay from a variety of angles of approach, although the recommended route was to enter the bay directly in line with the vessel, and then descend on a gentle glide path into the mouth of the bay's doorway. The interior of the landing bay was depressurized by removing the atmosphere before the doors opened.

For safety reasons, shuttle arrival and departures were placed under control of the *Enterprise*'s short-range shuttlebay tractor beam. The initial manual approach of a shuttlecraft was switched to the computer controlled beam which controlled the final approach and landing automatically. If pilots were forced to make an emergency manual landing, a number of visual markers on the deck of the bay were designed to aid them.

The shuttlebay doors closed swiftly after each landing, with announcements confirming the status of the bay until it was finally secured and pressurized, and safe for a shuttlecraft crew to disembark their vehicle and for ground crews to enter the area.



Safety nets could be deployed if a shuttle entered the bay too fast. They prevented the shuttle from crashing into the sides of the bay.



Broken yellow lines framed the smooth deck of the shuttlebay. They designated an area of caution for personnel piloting a shuttlecraft into the bay, and for maintenance crew working in the area.

The control room was accessed via a rectangular door set into the rear bulkhead of the shuttlebay.



There was an observation deck at the rear of the shuttlebay on an upper level.

Black markings clearly outlined the landing area for approaching craft, although it was standard procedure to land incoming vessels under computer control.

Two parallel lines of striplights ran along the landing markings of the shuttlebay. These lit up and pulsated in sequence, providing animated guidance lights to aid approaching craft.

The *U.S.S. Enterprise* NCC-1701-A shuttlebay was monitored from a control room, which provided six control stations for on-duty personnel.

A narrow red landing stripe ran along the length of the shuttlebay.

Due to an increase in shuttlecraft size, the *Enterprise* shuttlebays were wider than those of its predecessor. Shuttlecraft were guided into the bay using tractor beams, and brought to rest just before a row of orange, red, and yellow markings on the deck before the rear bulkhead.

GALILEO 5 SHUTTLECRAFT

Named after the 17th-century Italian Astronomer, the *Galileo 5* was an advanced short-range shuttlecraft, capable of operating in deep space and within a planetary atmosphere.

The *Galileo 5* and her sister shuttlecraft were important components of the *U.S.S. Enterprise* NCC-1701-A's transportation ecosystem. They were short-range vessels used primarily for ship-to-shore transportation and for sublight travel. They also provided an effective backup if the ship's transporters were offline.

HISTORICAL NAME

The *Galileo 5* was one in a long line of *Enterprise* shuttles called *Galileo*, and was named after the Earth-based, early 17th-century Italian astronomer, mathematician, and physicist who designed and built the first astronomical telescope, and went on to discover the four largest moons of Jupiter.

The shuttlecraft *Galileo 5* had an aerodynamic design for flight within planetary atmospheres, and was highly maneuverable. Crew members normally entered the vessel via a hatch on the starboard side of the craft, and a short flight of steps could be deployed in the shuttlebay that allowed passengers to disembark when landed; a larger hatch in the aft section of the shuttlecraft allowed for the loading and offloading of cargo, and enabled greater numbers of personnel to board the shuttle quickly.

SPACIOUS CABIN

The cabin area was relatively spartan, and could safely accommodate more than 10 people. The seating arrangement was for two pilot's chairs, with four seats lining the wall of the main cabin. Other personnel could stand quite safely during flight operations.

At the front of the *Galileo 5*, a control console displayed flight information and other visuals. A weapons drawer containing several phasers was located underneath. The wide cockpit window provided excellent sight-lines for the pilot. The *Galileo 5* normally landed in the main shuttlebay at the rear of the engineering hull. Once the shuttlecraft was in range of the tractor beam, manual control was given over to the computer, and the shuttlecraft was brought directly into the shuttlebay.

EMERGENCY LANDING

In emergencies, the shuttle could land manually. This was difficult at normal speeds and extremely risky at high speed. One landing of this kind severely damaged the *Galileo 5*; the shuttle clipped its nose on the exterior hangar of the shuttlebay before crashing into barrier nets at the rear of the bay.

THE COPERNICUS

The sister ship to the *Galileo 5* was named after the 15th-century astronomer Copernicus. The *Copernicus 3* was used to travel to the surface of Sha Ka Ree in 2287 after the *Galileo 5* was damaged executing a manual landing.



With the *Enterprise* transporters inoperable, the *Copernicus* was used to land on Sha Ka Ree.

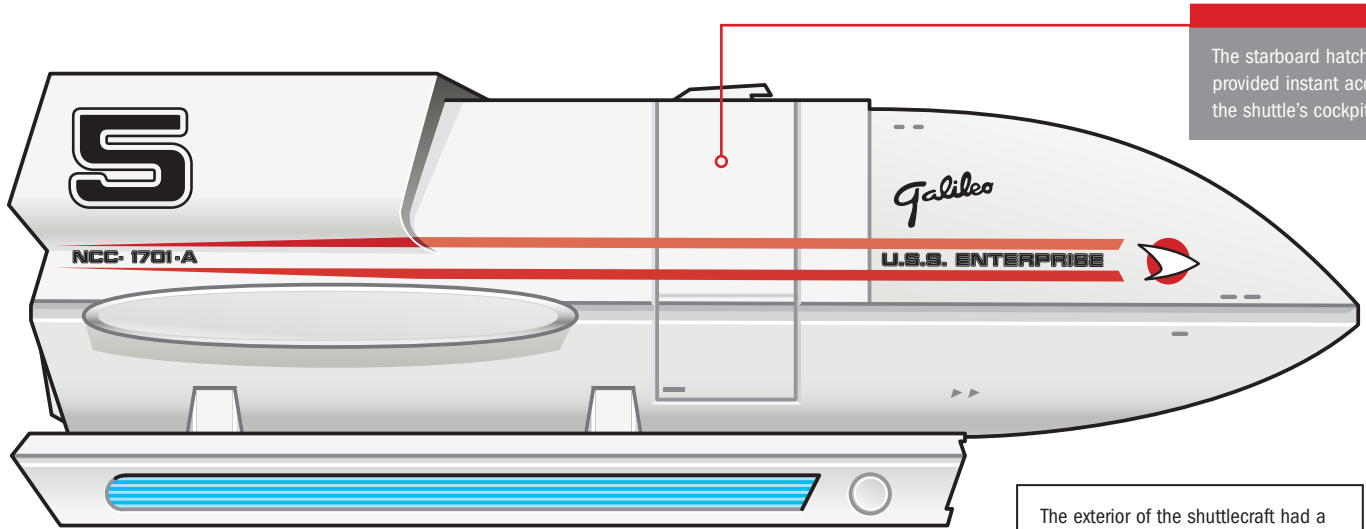


The *Copernicus* flight crew could be composed of a combination of Starfleet personnel and passengers.



Entry and egress from the *Copernicus* was via hatches in the side and at the rear of the vessel.

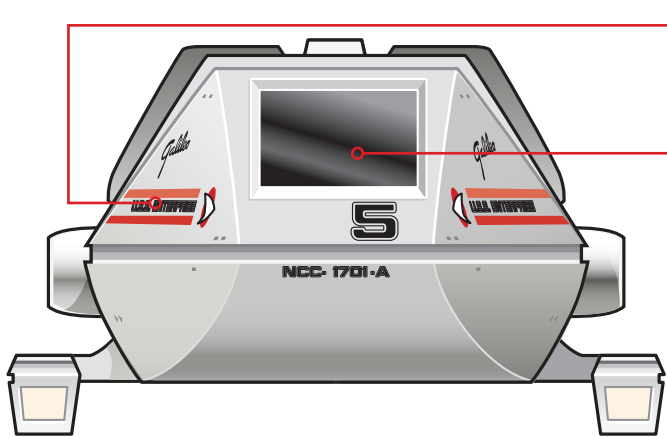
STARBOARD VIEW



The starboard hatch provided instant access to the shuttle's cockpit.

The exterior of the shuttlecraft had a sleek design, which also provided a spacious and comfortable interior.

FORE VIEW



The shuttlecraft's name was inscribed on the side of the hull.

A large window provided a means of visually checking the exterior environment.

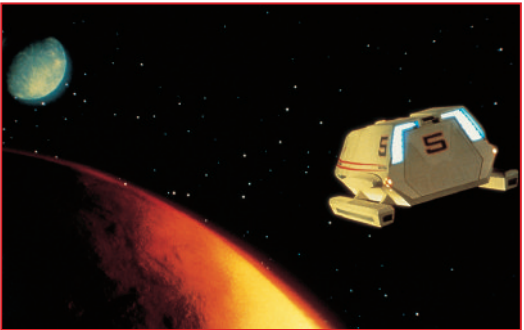
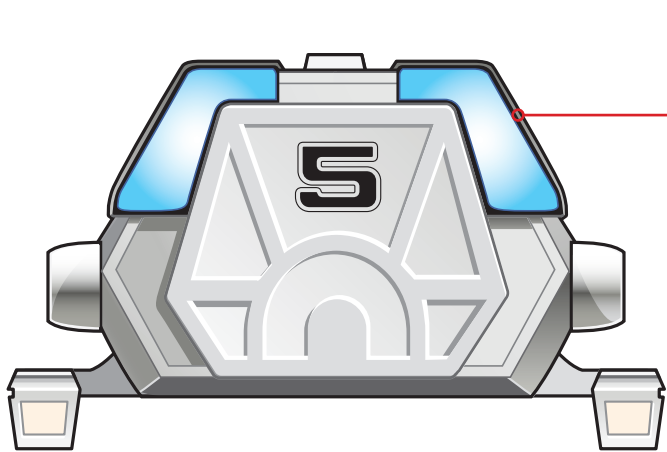
The shuttlecraft's short warp nacelles also acted as supports when the vessel landed.



A set of steps stowed in the shuttlebay could be deployed to assist crews leaving the shuttlecraft.

Impulse engines were located on each side of the aft hatch.

AFT VIEW



The *Galileo 5* was designed to make relatively brief journeys, such as ship-to-ship or ship-to-shore excursions.

THE GALLEY

Good food can be as important as good diplomacy, and the galley aboard the *U.S.S. Enterprise NCC-1701-A* was designed to showcase the culinary arts of the entire Federation.

One of the most important requirements aboard any Starfleet vessel or space station was the provision of readily available food and drink for its active duty personnel. Constant improvements in culinary technology allowed the majority of the crew to have access to fresh, nutritionally balanced meals, many of which were their favorite foods. In the days before replicators became commonplace, chefs and their galley staff prepared an incredible array of dishes from many Federation and non-Federation cultures.

As late as 2293 Starfleet had not completely abandoned the idea of naturally grown foodstuffs and consumables being freshly prepared for crew members, and the 23rd century saw the pinnacle of quality in-flight food. The *U.S.S. Enterprise NCC-1701-A* had a comprehensively equipped galley in which chefs and their assistants worked within a specially designed, hygienic workspace in order to produce meals for all occasions.

INSIDE THE GALLEY

The *Enterprise* galley was accessed via two main entrances, located on opposite sides of the relatively large room. The primary entrance consisted of a corridor with hydraulically operated doors on either end, with one side formed by a series of dark gray bulkhead panels into which four control panels were set. A large, permanently open

doorway into the galley stood opposite the four control panels, and had a circular support pillar situated directly in its center.

The four control panels set into the entrance way of the galley consisted of a series of narrow, horizontally mounted banks of switches and buttons that incorporated a variety of functions into their design. The illuminated rows of buttons were easily accessible, and those situated in the center of the second panel disabled the automatic alarm that sounded if sensors detected unauthorized use of a phaser within the galley. These sensors alerted stations across the entire ship, including security, the bridge, and main engineering

WORK SURFACES

The interior of the galley utilized space extremely efficiently, and could accommodate several personnel at each work surface built into the inner walls. Two large preparation tables dominated the center of the room. Constructed from a variety of dark gray colored flat panels and metallic surfaces, the interior of the galley was workman-like, with many of the cupboard doors and entrance ways showing clear signs of wear and use through scuff marks and scratches. Galleys were very busy areas, and while hygiene was of premium importance, the preparation of food in time for optimal serving required a focus on the job at



All areas of the galley were used to their optimum capacity, and not a cubic centimeter of space was wasted in this ever-important department.



Due to the number of people that the galley often catered for, pots in a wide range of sizes were regularly used in the preparation of meals

hand rather than the state of the decor. All personnel working within the galley carried out their duties standing up, and the area had been designed in such a way that it allowed free movement around the galley even when several members of staff were preparing dishes at the same time.

Situated along the left and right side walls, built into the flat bulkheads forming the majority of the galley's interior, were a number of food slot terminals. Small, illuminated control interfaces were located above and to the right of each slot's permanently open hatch, with a narrow bench running directly beneath them, allowing further preparation to be carried out once a dish had been delivered.

Twin sets of circular support columns were positioned to the left and right of the galley. In addition to providing structural support for the area, they incorporated further storage and preparation hatches for food, in the form of illuminated slots cut into the side of each pillar. Their proximity to both the wall-mounted preparation areas, with their plentiful hanging space for cooking utensils, and the two main preparation tables in the center of the galley allowed food to be quickly and easily transferred between work surfaces until the meal was completed and ready to be sent to its serving destination.



Tall, metal cylindrical columns were located at various points in the galley. They served as warming devices for items that merely need heating.

OUT OF THE PAN, INTO THE FIRE

The rear wall of the galley incorporated the second entrance into the galley, and was formed by a narrower rectangular doorway with twin red colored sliding doors that opened directly onto the wide access corridor outside the room. In addition to one of the many Starfleet identification labels found within the galley, located on the wall next to the entrance way was a small fire extinguisher, which was deliberately positioned for fast access in cases of emergency. Problems of a different kind were catered for with twin weapons lockers, positioned to the left and right of the larger main entrance way directly opposite, with the roll-up doors revealing a number of hand phasers, charged and ready for immediate use.



The range of cooking utensils was entirely traditional: heavy-duty stainless steel pots and pans, industrial ovens, and the ever-important human touch.



The galley aboard the *U.S.S. Enterprise NCC-1701-A* offered the best quality food available, and catered for everything from diplomatic functions to celebrations.

HAND PHASER 2287

The design of the Starfleet hand phaser in use in 2287 maintained the pistol shape of earlier models, but featured a removable power pack. Unlike its predecessors, however, it did not break down into two separate parts.

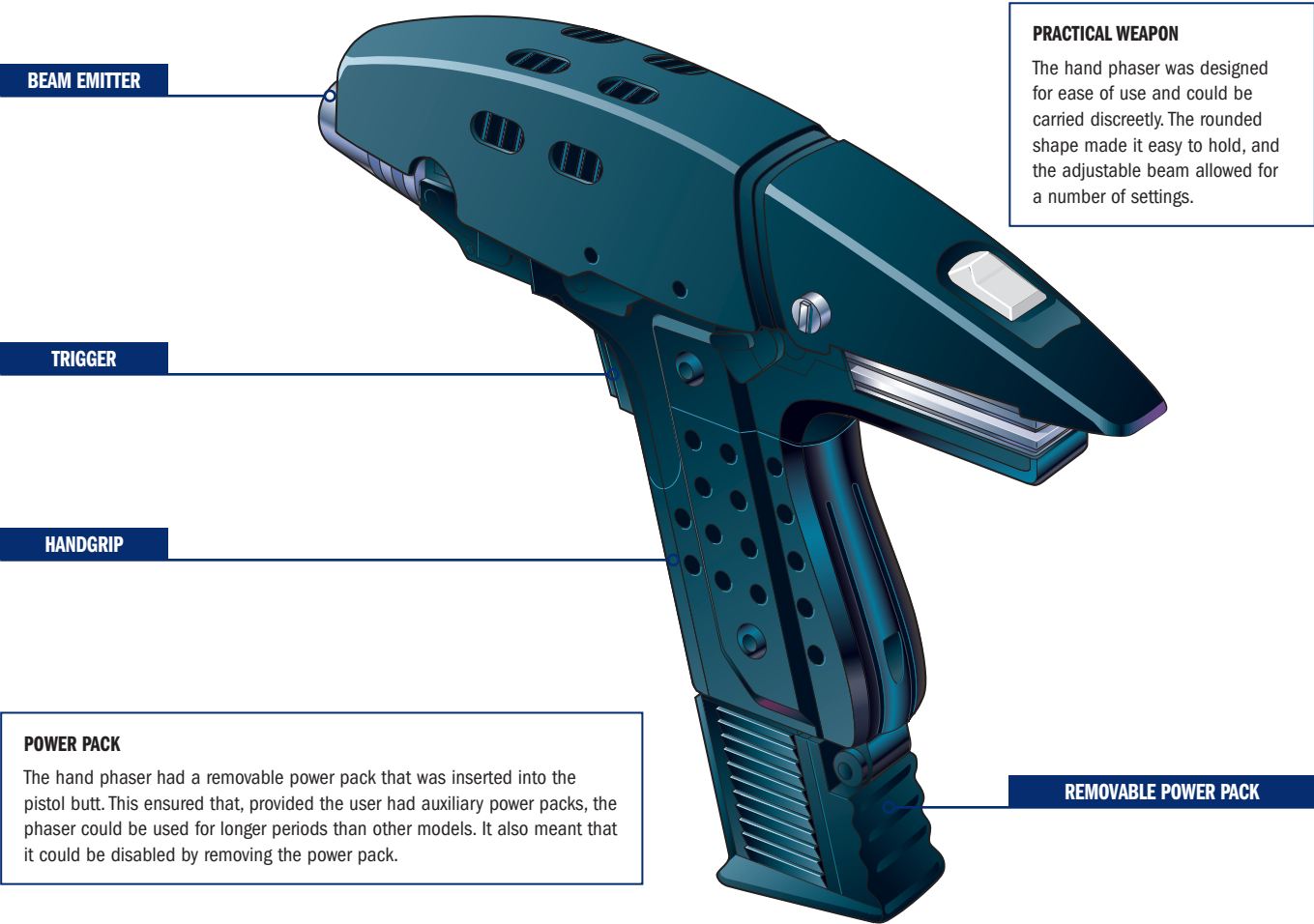
Phaser design was evolving rapidly in the late 23rd century, and by 2287 Starfleet had introduced the fourth new design of hand phaser since 2265. This design remained in use well into the 2290s.

The new phaser was an all-in-one unit, without the smaller detachable module that had been a feature of some of the earlier models. It retained the same overall pistol-shaped configuration, with the trigger in its familiar position at the top of the handgrip.

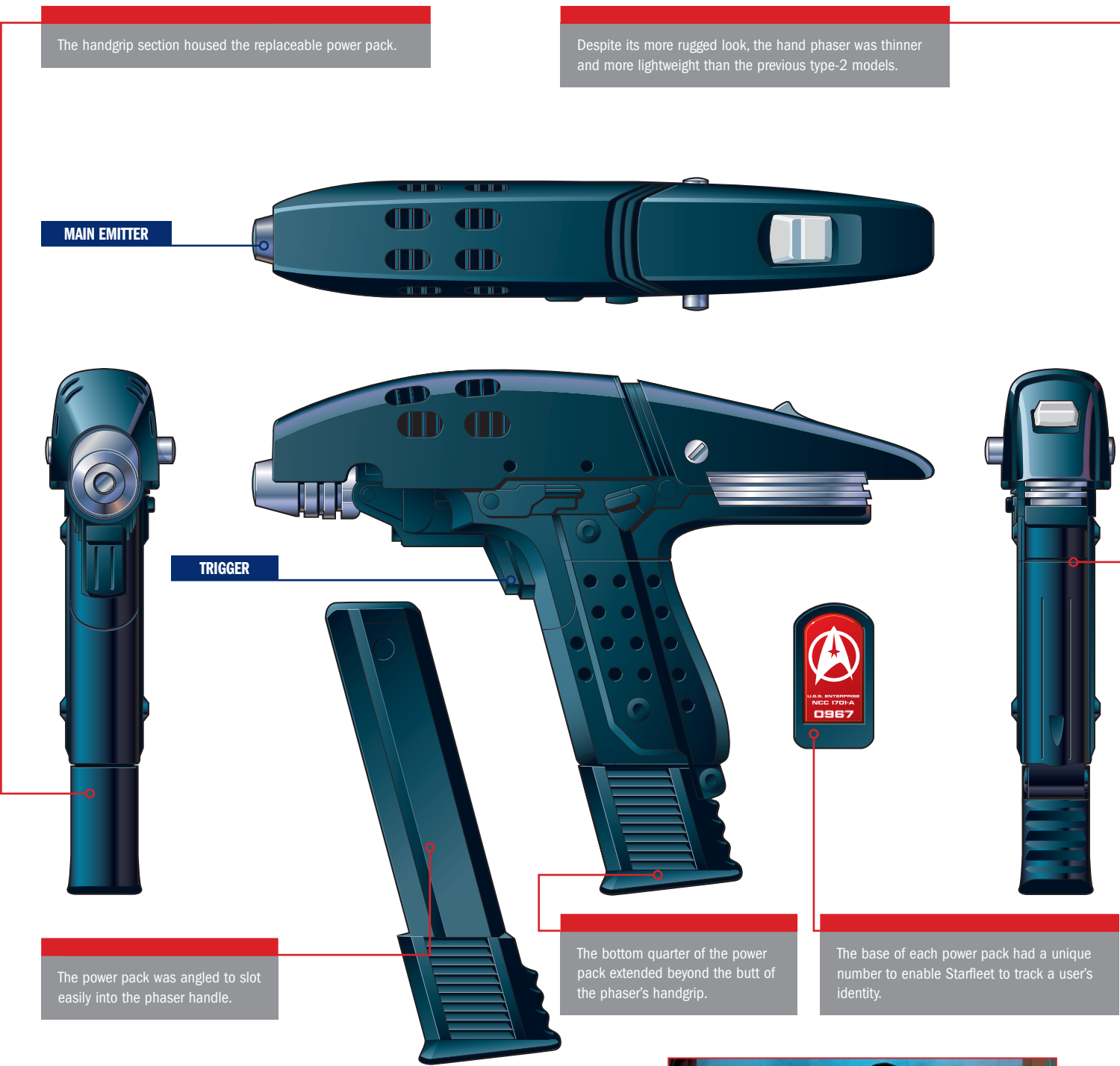
The entire phaser was constructed of a black metallic material, and had a more angular, industrial design than any of its predecessors, with a less complex control interface.

In another break with tradition, this phaser featured a removable power pack that slotted into the handle – in some earlier models, the handgrip itself had been the power module. This power pack was tagged so Starfleet could track of the disposition of all its small arms.

HAND PHASER



HAND PHASER CONFIGURATION



NEW DESIGNS

Starfleet had almost completely moved away from the type-2 phaser designs of the mid 23rd century, which incorporated two distinct parts and retained many traditional design elements from old-fashioned pistols. As those weapons faded into the past, phasers were gradually taking on a distinctive look of their own. Changes occurred every few years due to advances in energy generation technology, power level emissions, and ergonomic developments.



The hand phaser in use circa 2287 was more rugged than its forerunners, and eliminated their use of a two-part mechanism.

LEVITATION BOOTS

The ability to fly unencumbered by heavy technology has long been a dream of many humanoid life forms. By the late 23rd century, a pair of boots made this dream a reality.

The term levitation boots was actually something of a misnomer. In reality, this remarkable development in footwear did not alter the effects of gravity as such, instead they used propulsion to escape its pull. When compared to regular footwear the boots looked rather cumbersome, but as they incorporated the advanced systems and technology that allowed them to escape the pull of gravity, the creators of the boots had achieved something quite remarkable in so compact a device.

SOLID CONSTRUCTION

The boots were constructed of a resilient white material that provided support at the ankle and surrounding leg area. Each boot reached up to the mid-calf of the leg, and was firmly fitted to the wearer's specifications through the use of a large, adjustable clasp at the rear, just above the

ankle. This was to protect the wearer from the enormous amounts of energy that were channelled through the boot. The exhaust port directed the boot's thrust, allowing the wearer to direct their movement and their speed of flight. Under normal conditions, very little exhaust emanating from the boot was visible; however, in the event that the boosters were engaged, a constant stream of gaseous vapor was projected from the boot's exhaust port. Levitation boots proved to be of immense assistance to Captain James T. Kirk in 2289, when he was saved from what could have been a deadly fall by Captain Spock, during a free climb of El Capitan in Earth's Yosemite National Park. Spock's masterful control of the levitation boots helped him to arrest Kirk's fall just meters from the ground, saving one of Starfleet's most prominent and celebrated officers from a messy end.

DIAL 'ON' FOR PROPULSION

One of the most important systems required in the operation of levitation boots took the form of a belt worn around the waist of the operator, used to control their rate of acceleration. It was usual for an operator to keep one hand poised on the control during all levitation boot activities.



During a recreational vacation to Yosemite National Park in 2289 with James T. Kirk, Spock packed a pair of levitation boots, which he demonstrated while Kirk climbed the monumental Earth landmark El Capitan, unaided. The belt at Spock's waist incorporated the control functions for the levitation boots.

DESIGN AND COMPOSITION



Interior padding inside each boot provided as much comfort as possible during use.

CONSTRUCTION
The levitation boots were made of a solid white material that provided anyone using them with a degree of stability in the lower leg and ankle during flight.

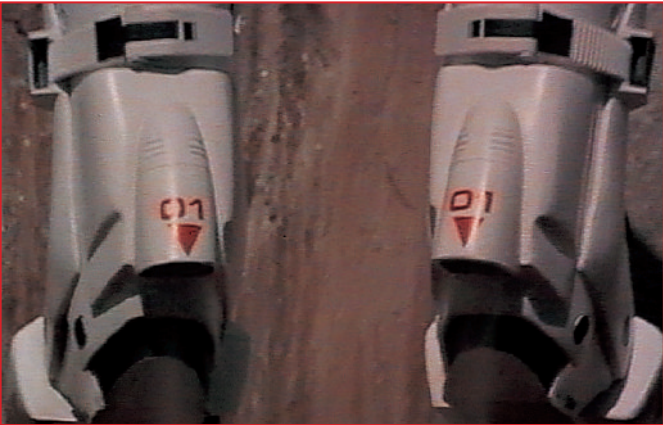
A clasp at the rear of the boot provided a means of securing the foot, ensuring that the footwear did not become loose while in active use.

Sections of black panelling were positioned on the front of the levitation boots. Captain James T. Kirk used these as foot rests when Spock carried him and Dr. McCoy up a turbolift shaft aboard the *U.S.S. Enterprise* NCC-1701-A.

The rocket exhaust port was located just above the heel of the boot, thus directing any expelled vapors away from the main body of the device.



Spock used levitation boots to explore the rich landscape of Yosemite National Park, although he was keen to understand Kirk's reasons for climbing El Capitan.



The levitation boots' exhaust ports were directed away from the footwear and the heels of the wearer, with an arrow to indicate the direction of thrust.

ENVIRONMENTAL SUITS 2293

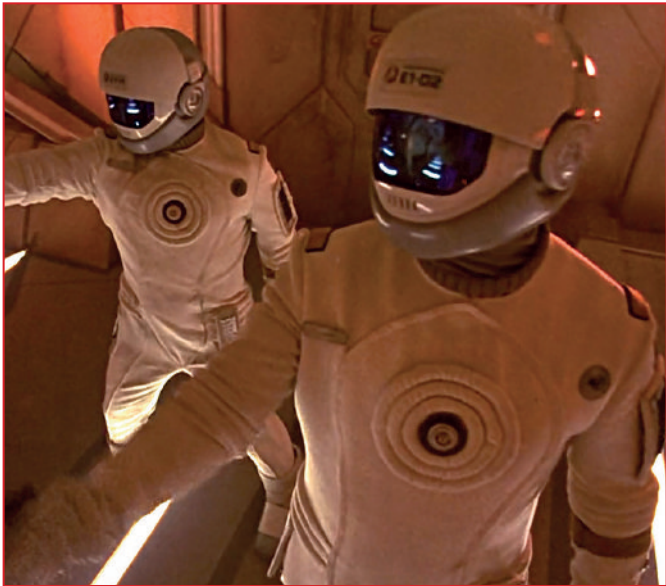
All Starfleet vessels were supplied with environmental suits for use in hazardous conditions. In 2293, however, two such suits were used for a far more nefarious purpose.

The grave situation faced by the Klingon Empire after the destruction of its primary energy facility Praxis in 2293 forced the proud warrior race to undertake a series of peace talks with the United Federation of Planets, despite fierce resistance from individuals on both sides. Senior officers in Starfleet and the Klingon Defense Force feared the changes Chancellor Gorkon’s treaty would bring, so a plot was devised by Gorkon’s chief of staff, General Chang, and Starfleet’s Admiral Cartwright to assassinate Gorkon aboard his vessel, *Kronos One*, and blame the attack on the captain and crew of the *U.S.S. Enterprise-A*. Crucial to the assassination of Gorkon were a duo of *Enterprise* yeomans, Burke and Samno, who carried out the assassination of the Klingon chancellor by beaming aboard the stricken *Kronos One* – damaged after a sneak attack by a cloaked bird-of-prey – wearing Starfleet environmental suits and gravity boots to hide their identities.

DEADLY DISGUISE

Full body environmental suits had been available to Starfleet crews for use in potentially hazardous locations since at least 2265, offering a self-contained, breathable air supply and protection from extreme temperatures. The suits worn by Burke and Samno were more streamlined than other designs, and incorporated helmet units that afforded complete anonymity to the murderers due to the reflective visors normally employed in conditions of extreme brightness. The 2293 environmental suit was manufactured from a lightweight white material, and consisted of four main elements: a helmet, a single-piece padded overall, a pair of lightweight padded gloves, and heavy duty gravity boots. The slimline design allowed Burke and Samno to move quickly and freely during their murderous mission, and the gloves allowed them to easily operate a hand phaser. Located on the left and right sides of the helmet, directly above each ear, were circular joints that allowed the visor to open, although Burke and Samno kept theirs firmly closed during the assassination. A small rectangular panel directly above the visor featured a series of identification marks, with the Starfleet symbol clearly visible on the left hand side. The Starfleet symbol was again visible on the upper left arm of the suit. This detail was crucial to the plot, which set out to implicate Captain James T. Kirk and the *Enterprise-A* crew directly with the assassination, in an

effort to destabilize the thawing of relations between the Federation and the Klingon Empire, and wreck negotiations at an impending peace conference on the planet Khitomer. Speed was of the essence during Burke and Samno’s mission, but their progress was impeded somewhat by the use of the magnetic boots vital to keep them stable on the deck of the listing Klingon vessel, which had lost artificial gravity during the attack. The heavy-duty magnetic boots fitted over the upper calves of the environmental suit’s trousers, and were constructed from a similar heavy duty, molded white material to the helmet. Gravity boots were usually employed by starship personnel in weightless conditions, allowing them to remain attached and aligned in respect to the surface on which they were traveling. Klingon vessels provide such a suitable surface, and while the large sectional jointed boots would be cumbersome under normal conditions, they become far easier to use in zero gravity – and gave Burke and Samno the distinct advantage of being able to fire their weapons from a stable position rather than floating freely in space. Klingon blood was found on the environmental suits when they were later found on the *Enterprise-A*. Burke and Samno’s bodies were soon discovered, killed by an accomplice aboard the ship – Spock’s protégé, Valeris.



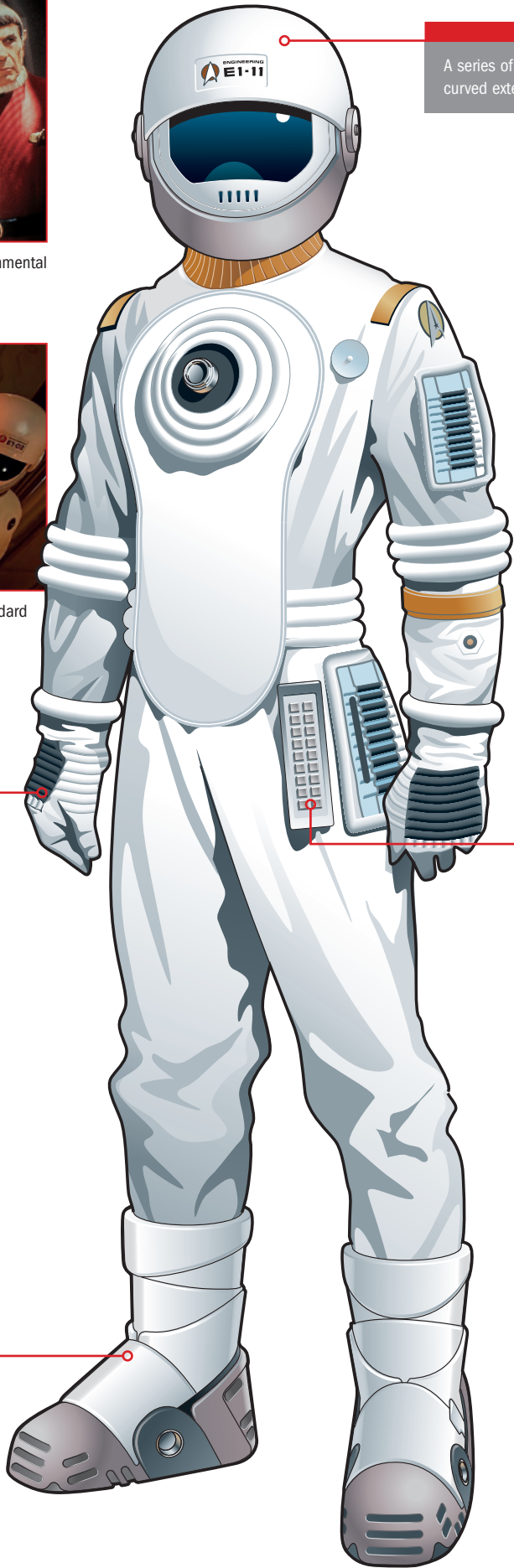
The environmental suits did not restrict the movements of the two murderous officers. Only the heavy gravity boots impeded their progress.



Captain Montgomery Scott located the environmental suits abandoned in a ventilation duct.



Yeomans Burke and Samno, disguised in standard environmental suits and gravity boots.



A series of Starfleet identification markers were positioned on the curved exterior of the helmet, above the small visor on the front.



The suits’ helmets were close-fitting units with a narrow visor, offering a somewhat limited field of vision.

Padded gloves provided protection against harmful materials when used for engineering duties. For Burke and Samno, however, they proved flexible enough to allow the trigger of a phaser to be pressed without difficulty.

A number of controls were located at waist level on the environmental suits. These could be used to regulate the conditions within the suit.

The gravity boots were chunky items that reached up to the mid-calf. In regular environments their design could impede movement; in zero gravity conditions, however, they quickly came into their element.



The environmental suits provided little clue as to the identities of the murderous Starfleet personnel.

STARFLEET RANK INSIGNIA

Starfleet’s most enduring uniform design was in use for more than 70 years, and employed a more complex system of rank insignia and departmental colors than had been used before.

Starfleet introduced its third series of duty uniforms during the mid 2270’s, replacing the subtle, pale colors of the previous uniform with a bolder color scheme and more complex system of rank insignia. Seven duty divisions were now identified by their own color: white for command, gray for science, yellow ochre for engineering (including flight control functions), light green for medical, windsor green for security, sky blue for special services, and red for cadets and trainees. The commanding officer of a particular division, for instance the chief engineer, could wear the white of command rather than the specific color of his or her division.

Officers’ uniforms displayed the duty division color in the tunic undershirt and on a narrow band which fastened the the front of the tunic. Enlisted crew and non-commissioned officers displayed the colors of their duty division on a small patch worn on the shoulder of their uniform, running parallel to the seam of the sleeve.

RANK INSIGNIA

The system of rank insignia used during this time was more complex than those used by Starfleet previously. Eighteen different ranks were identified by their own badge. The badge designs broke down into three basic groups: enlisted crew (ables’man to master chief petty officer), line officers (ensign to fleet captain), and flag officers (commodore to fleet admiral).

For all three rank groups, the insignia followed a basic pattern which became more elaborate the higher the rank. For example, the insignia for an ables’man was a simple

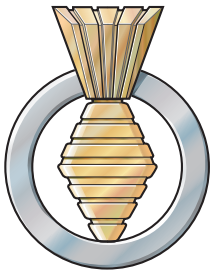


At formal gatherings, every Starfleet rank from enlisted crewman to admiral might be represented. It was therefore important that each individual’s rank and role could be identified at a glance. This was reflected via the insignia and colors of each uniform.

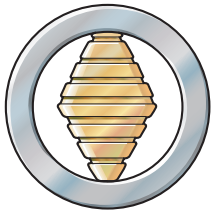
four-sided silver badge, while a petty officer 2nd class wore an octagonal badge. Further ornamentation was added for the rank of petty officer, and an additional central gold bar was added to denote the rank of chief petty officer.

Enlisted crew wore their rank insignia on the duty division patch on the right shoulder of their uniform, and above the colored band around the cuff of their left sleeve. Line officers and flag officers wore their rank insignia on the strap that fastened the flap of their uniform tunic, and the same insignia featured on the colored band around the cuff of their left sleeve.

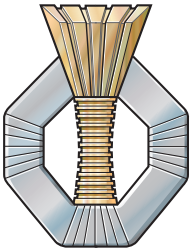
ENLISTED CREWMAN



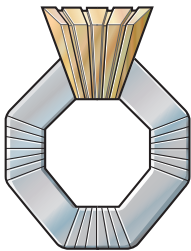
MASTER CHIEF PETTY OFFICER



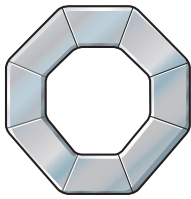
MASTER CHIEF PETTY OFFICER: 2ND CLASS



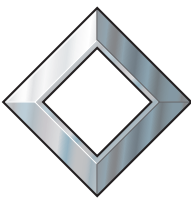
CHIEF PETTY OFFICER



PETTY OFFICER

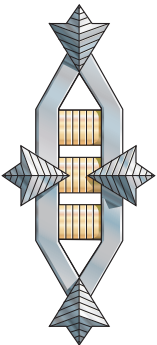


PETTY OFFICER: 2ND CLASS



ABLES’MAN

LINE OFFICERS



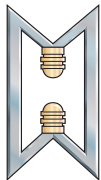
FLEET CAPTAIN



CAPTAIN



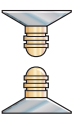
COMMANDER



LT. COMMANDER



LIEUTENANT JUNIOR GRADE



LIEUTENANT



ENSIGN

FLAG OFFICERS



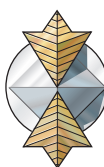
FLEET ADMIRAL



ADMIRAL



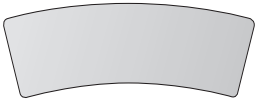
VICE ADMIRAL



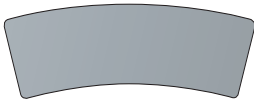
REAR ADMIRAL



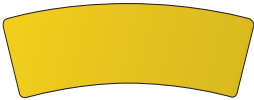
COMMODORE



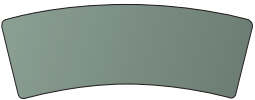
COMMAND



SCIENCE



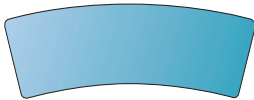
ENGINEERING



MEDICAL



SECURITY



SPECIAL SERVICES



TRAINEE

STARFLEET UNIFORMS

The versatile maroon red jackets and black trousers introduced in the 2270s were worn by more Starfleet officers over more years than any other uniform design.

The streamlined jumpsuits and neutral colors of the Starfleet uniforms worn during the early 2270s were replaced later in the decade by new standard issue uniforms which would remain in service, with remarkably few changes, over several decades.

The design of the uniform echoed formal military and naval attire from half a millennia before, while also recalling the landing party uniforms worn by Starfleet officers during the 2250s, with an outer jacket worn over a colored undershirt and black trousers. The ensemble was more consistent across ranks than had been seen at any other period in Starfleet history, and was dominated by a maroon red jacket. The color of the undershirt designated the wearer's department in much the same way as the color of the entire tunic had in previous uniforms, and the

collar of the tunic was visible above the neck of the jacket. The department color also appeared on the shoulder straps and cuffs of the jacket.

The jackets were tailored to provide a comfortable fit, and were fastened at the front by a shoulder strap, with a black belt worn around the waist. Rank designations were still worn on the jackets, but were indicated by bars and insignia worn on the strap across the right shoulder as well as on the jacket's cuffs. The shoulder strap reached from the back of the garment and over the shoulder to the top right-hand corner of the jacket's breast lapel, securing it in place, although it was permissible for crew members to wear this flap open. The lining of the jacket was either white or tan, and was revealed when the flap was left open.



Variations between the uniforms of the senior officers of the *U.S.S. Enterprise* NCC-1701 show how rank, department, and role were displayed during this era. The high-necked undergarment color denoted different departments, and the uniform breast flap opened to show either white or tan colors.



The command crew of the *U.S.S. Enterprise* NCC-1701-A in their duty uniforms. Chief Engineer Montgomery Scott often wore a utility waistcoat instead of the maroon jacket.

All personnel, regardless of rank or department, wore the Starfleet delta emblem on the left breast of their jacket. The emblem was rendered in gold and framed by a circle, with a white enamelled metal backplate. The emblem was also worn as the uniform's belt buckle. Utilitarian black pants completed the uniform, piped along the side seam with red braiding. A skirt option was also available instead of black pants, for those crew members who preferred such a mode of dress.

VARIATIONS ON A THEME

As with earlier uniforms, there were variations available to crew members, and the jacket itself was only essential for certain duties. The uniform was based around the concept of showing a crew member's division by way of a colored

undershirt, and a range of alternative garments could be worn over it. These could be entirely practical, more casual, or simply a matter of taste. Captain Kirk sometimes favored a simple waistcoat in place of his regular duty uniform jacket, for example. Chief engineer Montgomery Scott was often seen wearing a utility waistcoat featuring multiple pockets, in which he could keep essential tools with him at all times. A heavy, durable landing party jacket was also available.

By the mid-2340s, the undershirt had been dropped from common usage, and the maroon jacket was worn without a collar. A crew member's department color was displayed solely on the jacket cuffs and shoulder strap. Starfleet would return to using the color of a uniform tunic to denote divisions by the 2360s.

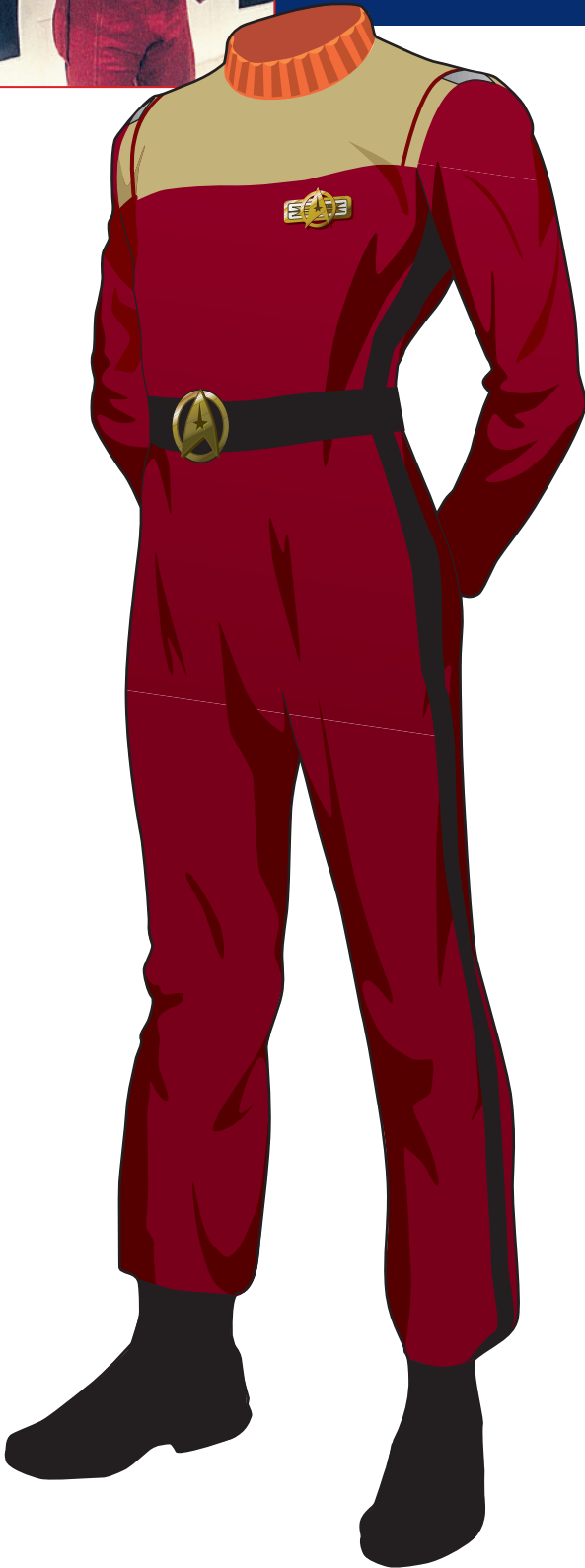


Departmental affiliation was represented by the color of the uniform undershirt and the shoulder strap. A grey color denoted the Operations division, while light green represented medical and science. The yellow ochre tone showed a crew member was part of the operations division branches of helm or engineering.



CREWMAN'S UNIFORM

Red and tan jumpsuit. Worn by cadets, trainees, and enlisted personnel.



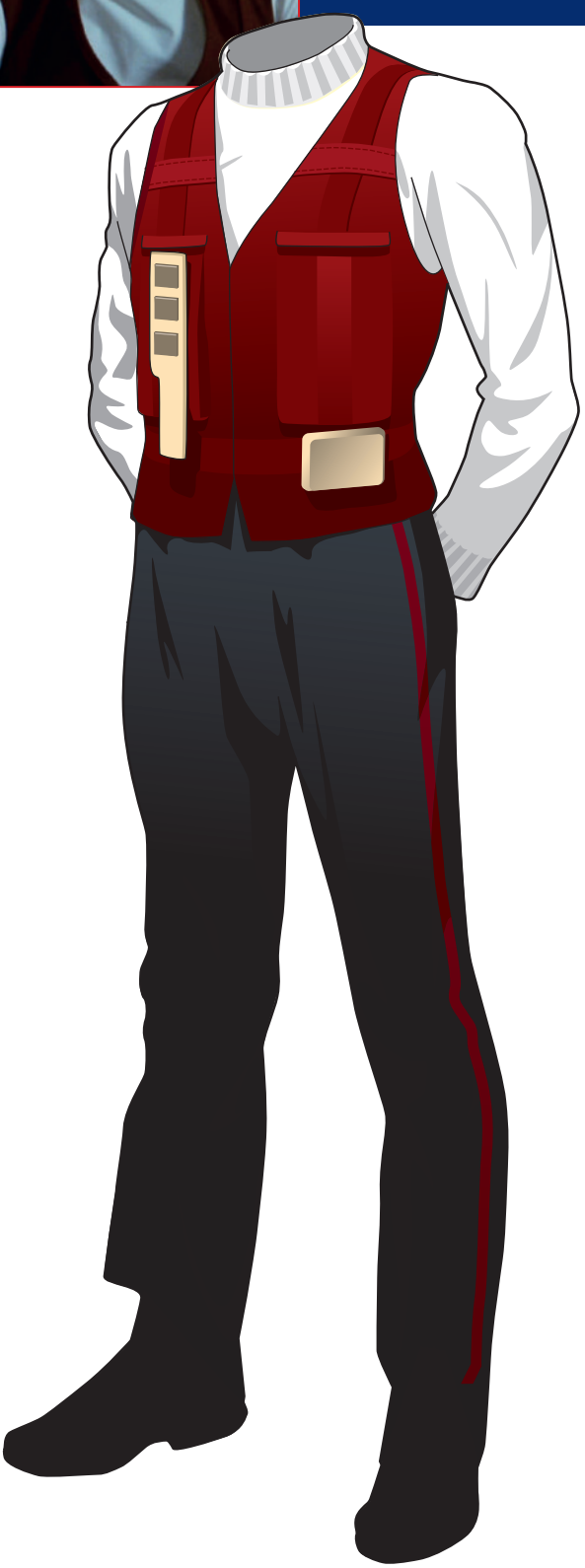
CAPTAIN'S UNIFORM

White undershirt, jacket open: as worn by Captain Kirk.



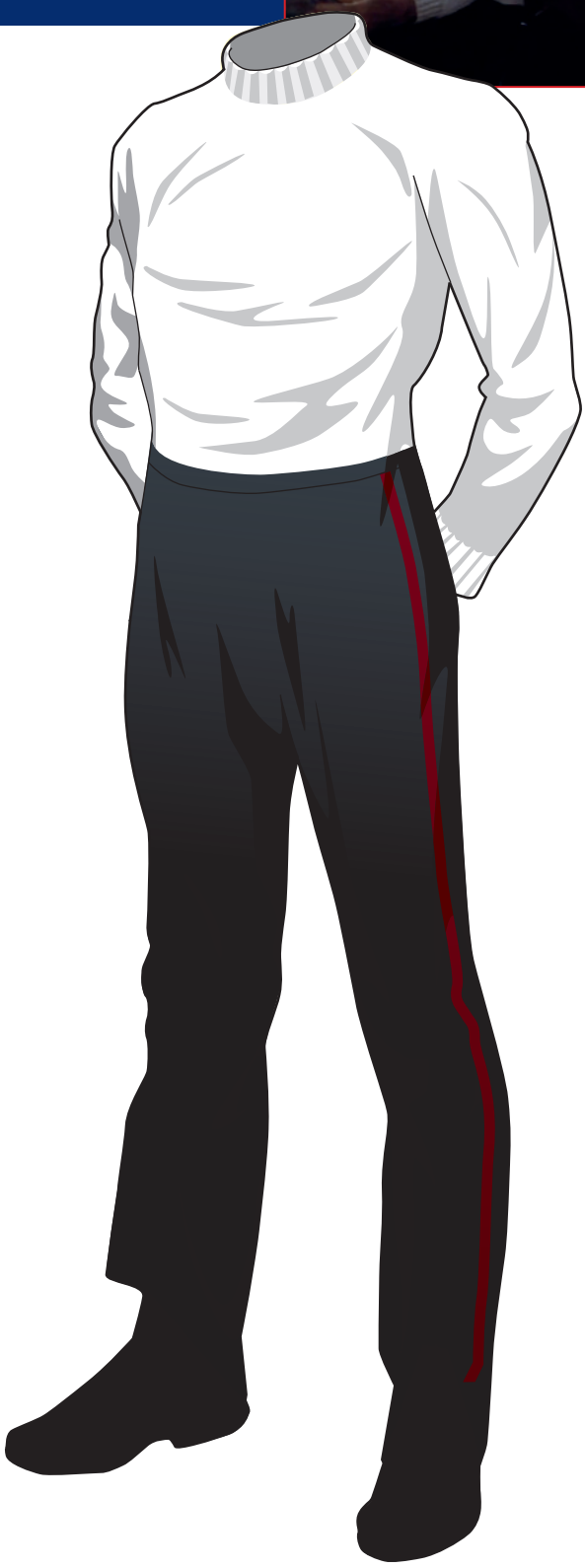
CAPTAIN'S UNIFORM

White undershirt, vest: as worn by Captain Kirk.



CAPTAIN'S UNIFORM

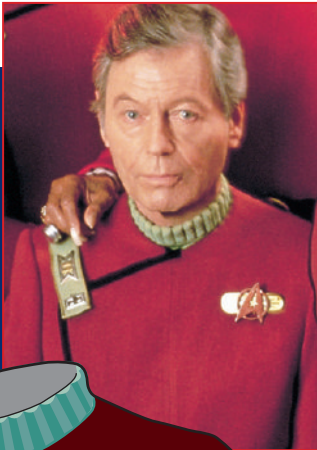
White undershirt: as worn by Captain Kirk.





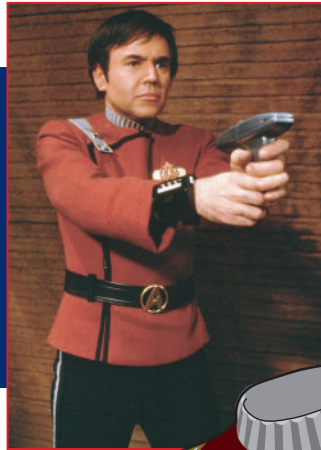
DUTY UNIFORM

Red undershirt, jacket open:
as worn by cadets.



DUTY UNIFORM

Green undershirt, jacket open:
as worn by Dr. McCoy.



DUTY UNIFORM

Gray undershirt, jacket open:
as worn by Chekov.



DUTY UNIFORM

Tan undershirt, jacket open:
as worn by Sulu.





DUTY UNIFORM

Gray undershirt, skirt:
as worn by Commander Uhura.



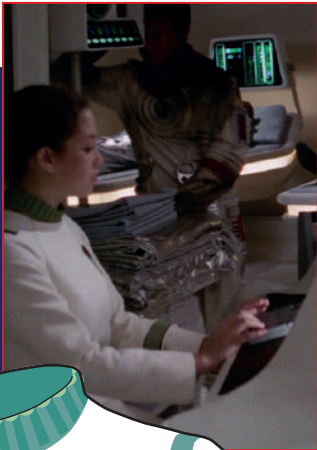
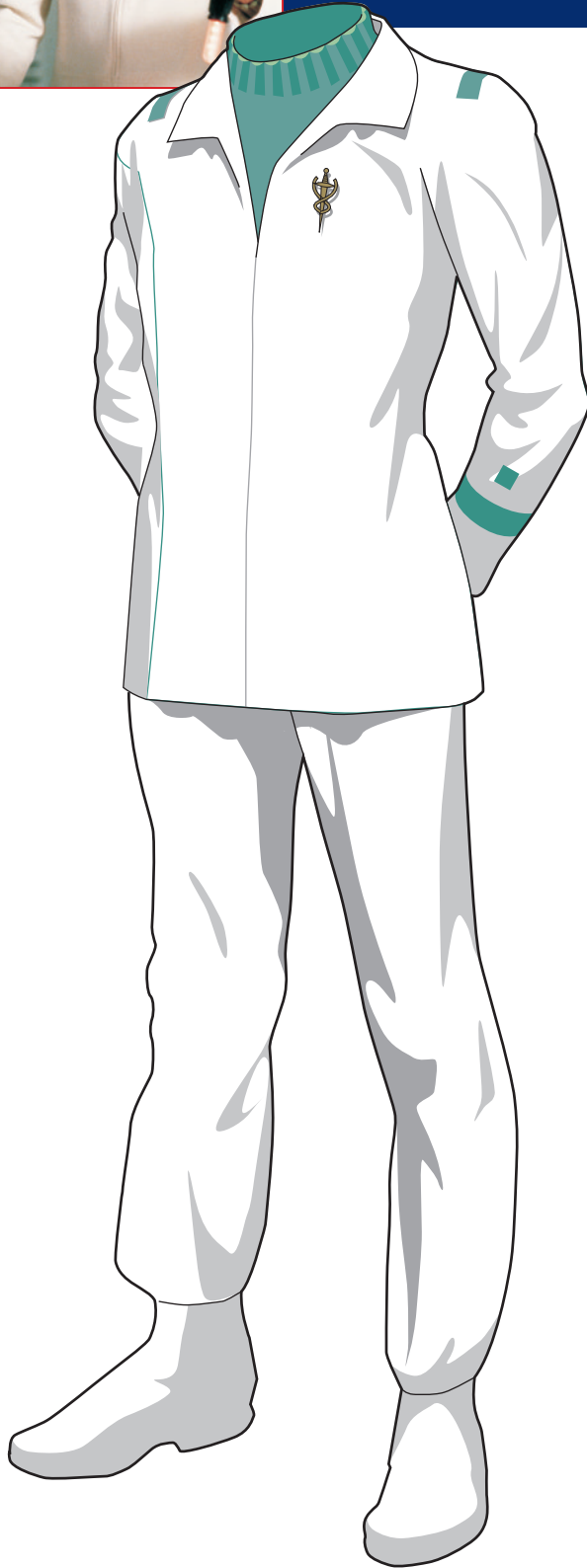
ENGINEERING UNIFORM

White undershirt, utility vest:
as worn by Chief Engineer Scott.



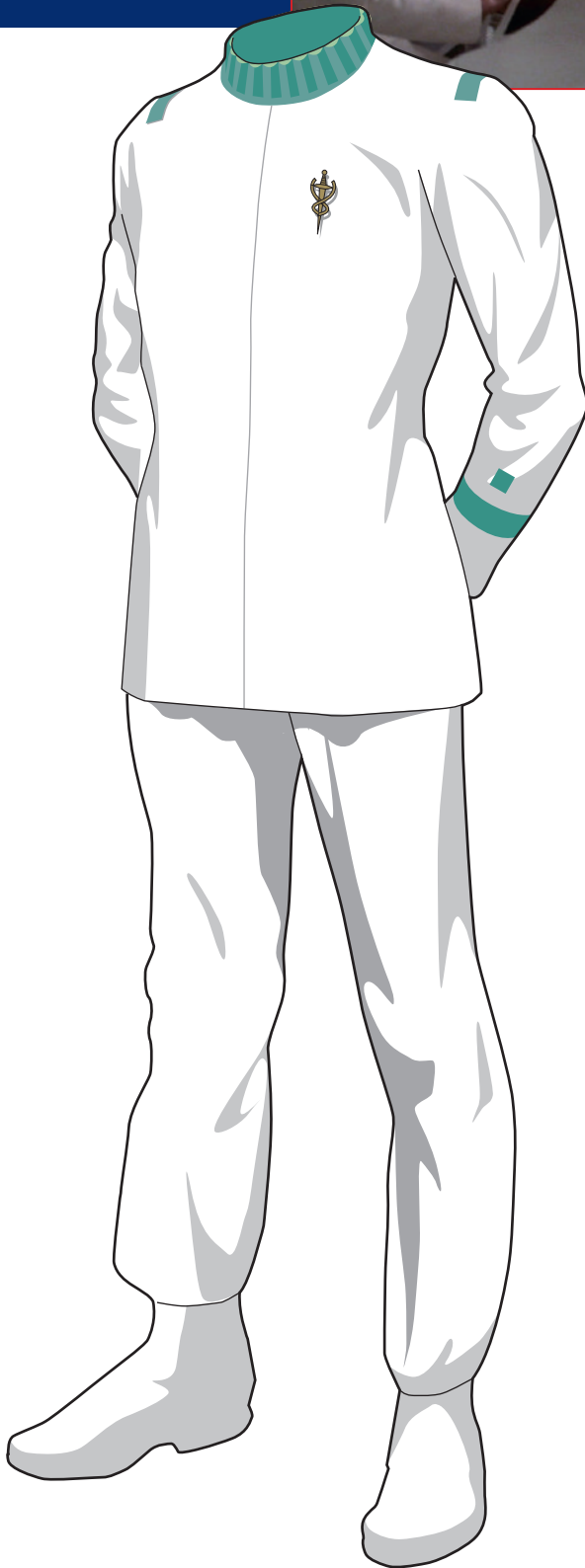
MEDICAL UNIFORM

Green undershirt, collar:
as worn by Dr. McCoy.



MEDICAL UNIFORM

Green undershirt, collarless:
as worn by medical orderlies.



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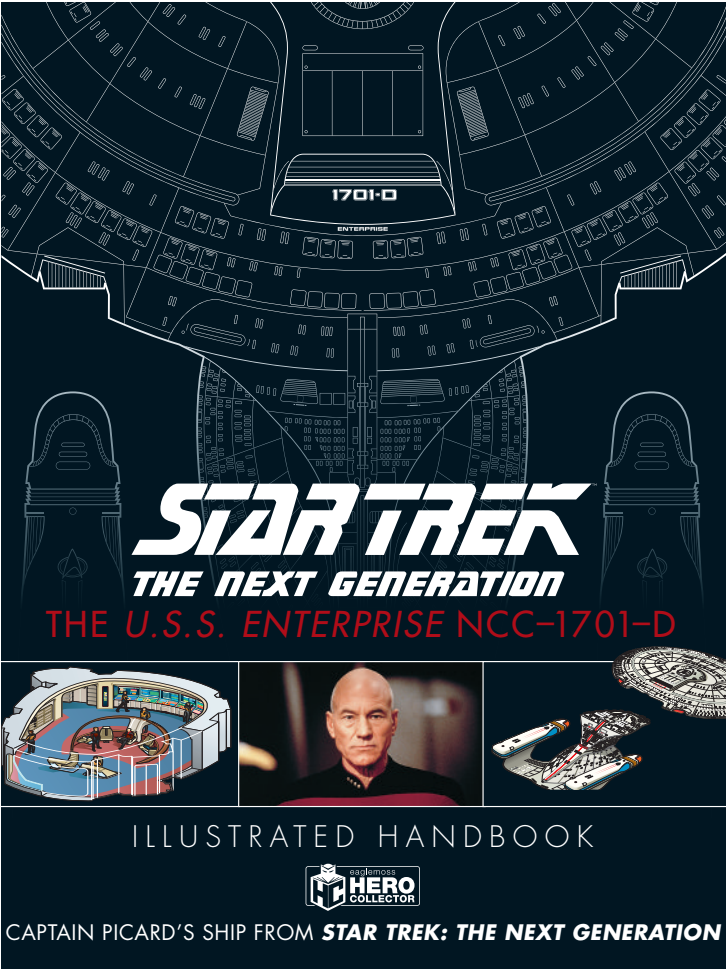
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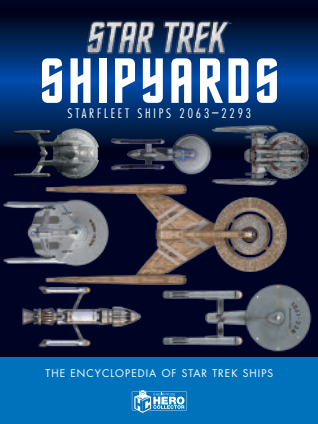


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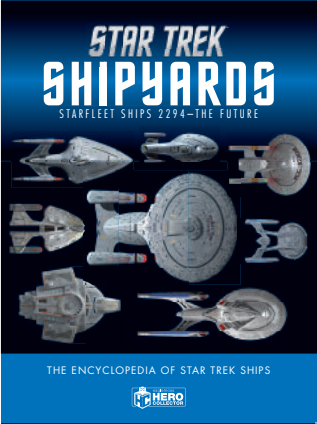
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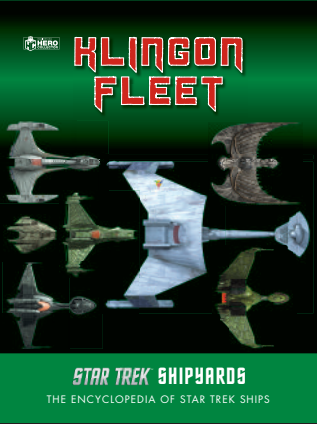
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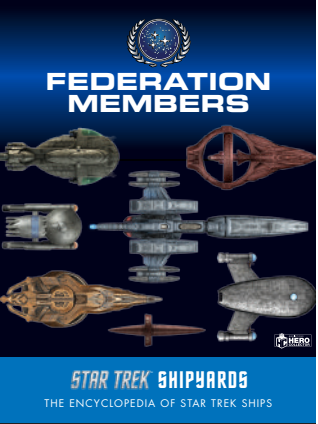
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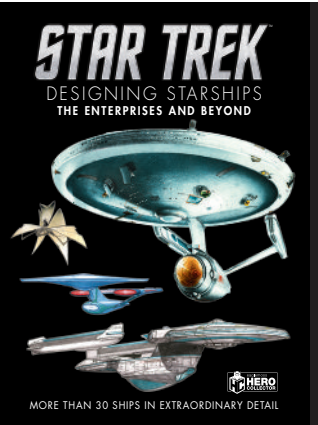
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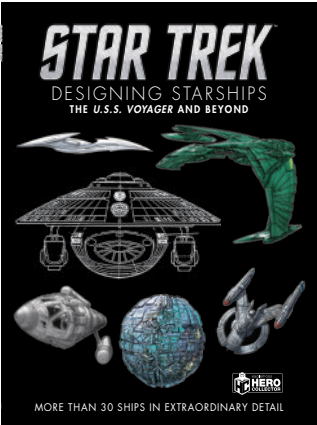
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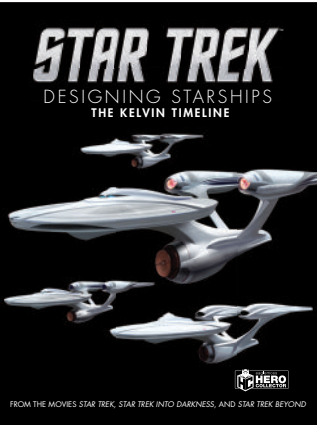
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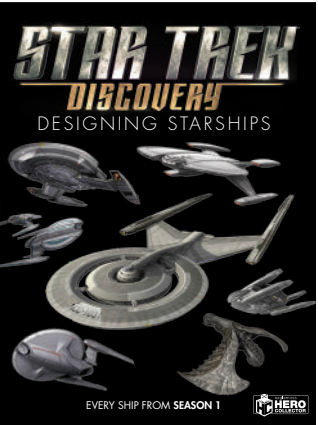
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