

FH 1860



"Eternal vigilance is the price of liberty."
U.S.S. Avenger Motto

PRODUCTION CREDITS

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CONSTRUCTION HISTORY

In 2242 Starfleet was about to enter what would be later known as **The Great Awakening**. Thirteen years had passed since the publishing of the landmark study, completed for the Federation Council's Office of Public Information, which reported that the next generation of starships would eventually permit a thorough exploration of all sectors within the Federation's sphere of influence. This finding further strengthened Starfleet's political clout and brought with it renewed and increased funding for the exploration component of its organization. The **Constitution-class** project was well into its design stage, with delivery of the first new cruisers expected within the next three years. The technological breakthroughs made with the Larson, Loknar, Saladin, and Detroyat-class starships, which had made the Constitution-class cruiser a theoretical possibility, were now trickling down into the Federation's industrial base.

All of these factors were accounted for in November of 2242 when the United Federation of Planets' **Advanced Starship Design Bureau** proposed the construction of a new vessel to meet an ever-increasing demand from Starfleet Command. The ASDB was seeking to procure a large number of medium-sized vessels to patrol the Federation's border space areas. The Bureau's design criteria required that the ships be simple, easy to maintain, and inexpensive to operate. As the Federation's top engineers, both civilian and those in Starfleet, completed their designs, Starfleet Command decided to use the Detroyat-class heavy destroyer **USS Resolution (DH 1101)** as a testbed for the systems to be utilized in this new class of frigate. She was dry-docked on March 11, 2243 at the **San Francisco Fleet Yards** orbiting Earth and began an extensive overhaul. Originally 72 ships of the newly approved design were authorized. This number was reduced to 28 on November 15, 2245 as cost-overruns became apparent. Initially, the ASDB had planned to redesignate the **USS Resolution** FR 1850, but as testing problems on board the destroyer continued it became apparent that she would not be ready for recommissioning on time. In fact re-engineering of the Resolution became so problematic that it was soon suggested that the first production ships of the new frigate line would be well in service long before the Resolution was even made spaceworthy. Therefore it was decided in December of 2245 that the Resolution would be redesignated **FR 1877** to place it at the end of the procurement line of 28 units.

On March 19, 2246 the hull of Naval Construction Contract 1850 was laid down at **Vickers Shipbuilding Group**, based out of New London on Earth. Work on the frigate continued ahead of schedule and later that year it was announced that **NCC-1850**, and therefore the entire frigate line, would be named "Surya". On November 6, 2247, exactly one month after the ill-fated **USS Resolution** was relaunched, the United Federation of Planets produced funds for the construction of several more Surya-class frigates. The lead ship, NCC-1850, was not even launched when the funding for these vessels was approved, but Starfleet Command was so enthusiastic about this particular design, despite the problems aboard the Resolution, that it had lobbied for a total of eight such frigates in 2247. To Starfleet's chagrin, it was granted funds for two additional Surya-class starships in lieu of three lesser scout-class vessels the ASDB was not entirely satisfied with. Vickers, along with a number of competing Federation ship yards, put forth bids for construction of these new frigates. The historic British firm was awarded Naval Construction Contract 1860, along with five additional bids to build Surya-class frigates the following year. Vickers successfully launched

the **USS Surya** on January 12, 2248, and commissioned it **FR 1850**, later that year on December 14. Meanwhile, nine other Surya-class frigates were in various stages of procurement and construction. On November 12, 2249, with the **USS Kanaris (NCC-1854)** awaiting its launch the following spring, Vickers laid down the hull of **NCC-1860** at its pier #1, where the **USS Surya** had been berthed a few months before. As construction continued at the Vickers facility, Starfleet Command's Starship Registry Division decided on a name for NCC-1860. She was to be called "Avenger".

On August 19, 2251, Vickers successfully launched the hull of NCC-1860. Soon afterward, Starfleet Command moved up the construction schedules for all its licensed ship builders. Less than six months later, on February 3, 2252, the **USS Avenger (FR 1860)** was commissioned as the eleventh Surya-class frigate. Over the next twenty years, the Avenger completed five flawless 4-year missions for Starfleet Command, serving as both an exploratory vessel and distinguished combatant. Upon completion of its fifth four-year mission in January of 2272, the Avenger returned to the Vickers orbital facility for what its crew believed to be standard repairs.

The ASDB had radically different plans for the Avenger, however. Over the next seven months, Starfleet technicians installed a myriad of high-technology diagnostic equipment aboard FR 1860 for use in its next deployment. This mission would prove to be one unlike any other the frigate had yet undertaken. During the past twenty years, the Federation's top engineers had made a number of revolutionary breakthroughs in starship design theory. These hypotheses, derived during the Great Awakening of the 2250s and 2260s, were now ready to be transformed into workable technology and installed onto a physical starship. The birth-child of this so-called **new technology** was slated to be the famed **USS Enterprise (CH 1701)**. Its Chief Engineer, Commander Montgomery Scott, was the author of most of the design breakthroughs and headed what was now being informally called the **Enterprise-class Project**. However, Starfleet Command was already looking ahead. If the Enterprise's conversion was successful, Starfleet intended to further apply their new technology and retrofit a number of other vessels of various designs rather than construct an entirely new fleet from scratch. The ASDB chose the Avenger to be the testbed for a frigate-based new technology conversion project.

In August of 2272, FR 1860 was ready for its next deployment. Over the next two years its crew implemented and tested Starfleet's new equipment, designs, and theories, which were soon being referred to as **Project Avenger**. As the famed frigate returned to Earth, Starfleet engineers were already drawing conclusions regarding the testing. The experiments were ultimately considered a success and plans were set in motion for the Avenger's new technology refit. On December 2, 2275, barely two years after the successful recommissioning of the **USS Enterprise (CH 1701)**, the Avenger was placed in dry-dock at the San Francisco Fleet Yards orbital facility. With most of the complications of new technology conversion worked out by the shakedown cruises of the Enterprise and seven of her sister ships, refitting of the smaller Surya-class vessels was completed in record time. NCC-1860 was relaunched on February 16, 2277 and after nine months of finishing work, on November 3 of that year, the **USS Avenger** was recommissioned and redesignated **FH 1860**. Halfway through the Avenger's refit, the ASDB decided to make it the lead vessel in a new class of starship. The displacement and power output of the frigate almost prompted Starfleet to redesignate the Avenger a cruiser. However, to keep the ship's historic lineage intact, NCC-1860 was recommissioned as a heavy frigate. While Starfleet engineers readied the Avenger to set forth on its shakedown cruise, another twenty-one Surya-class frigates were in various stages of conversion, including the old Detroyat-class heavy destroyer **USS Resolution**.

During the design phase of the Avenger refit, two layouts for the warp engine nacelles were studied and proposed. Starfleet engineers Lundar Wright and Horatio Corder had used a revolutionary warp drive theory which necessitated a sleek layout of curved support pylons for the engine nacelles. The rest of the redesign team proposed a more conventional angled approach. When the time came for actual realignment of the Avenger's nacelles, Starfleet engineers were no closer to a decision than they had been at the start of the design phase. The Wright-Corder configuration was ultimately approved by the ASDB as a means of evaluating the operational effects of a more fluid design on warp field formation and balance. However, the extra funds needed to implement this new arrangement throughout the entire Avenger line were not available. This prompted Starfleet to apply it on a limited scale. It was therefore decided to install the Wright-Corder design onto the three Surya-class frigates scheduled to be converted by the San Francisco Fleet Yards, the **USS Avenger** (FR 1860), the **USS Endurance (FR 1862)**, and the **USS Sarpeidon (FR 1874)**. Upon completion of their refits, the external lines of these vessels proved noticeably different from those of their sister ships.

In December of 2277, the Avenger began an extended two-year shakedown cruise to weed out any design flaws in the new technology refit. More importantly its crew was to fully test the Wright-Corder warp engine nacelle layout. After this brief deployment, the ship's crew had high marks for nearly all of the Avenger's new systems. Oddly enough, the one exception was the adequate rating for the ship's matter/antimatter intermix shaft configuration. Although FH 1860 and the other two Avenger-class frigates of the Wright-Corder design reported slower rates of dilithium decay than the other vessels, maintenance aboard these ships proved to be far more cumbersome than expected. Also, safety standards were substantially compromised by the unconventional nacelle layout. The ASDB ultimately decided that current technology could not support what was in fact a sound theory to make the Wright-Corder design an operational success. These theories were shelved for the time being, but would prove valuable in later starship design. In January of 2280, after a brief

overhaul, FH 1860 set out on its seventh four-year mission and its first as an Avenger-class heavy frigate.

In late 2284, as the Avenger returned from assignment, Starfleet Command appropriated funds for the conversion of FH 1860 to the class standard. From January through June of 2285, the Avenger underwent yet another refit. During this upgrade the support pylons for the ship's warp nacelles were replaced, along with the roll-bar for its weapons mount. Other minor alterations were made to the Avenger's external configuration, bringing the ship to match the class standard. New mission requirements necessitated a number of internal changes which limited the Avenger's fighter complement. Starfleet engineers also upgraded its scientific and exploratory capabilities, and extended its standard mission duration. Future deployments for the Avenger-class heavy frigates were now to last five years instead of four. In the months to follow, when FH 1862 and FH 1874 underwent similar refits, the Wright-Corder design was finally retired to the ASDB archives. This brought the entire line of 22 Avenger-class heavy frigates to share a common configuration.

In June of 2285, the Avenger began its eighth assigned mission. After four years of flawless service, FH 1860 was dry-docked at Starbase 29 for a three-week period of equipment and software upgrades. The main computer banks were replaced with the **Daystrom Duotronic III** logic core, which utilized the Multitronic M-9 Supplement. Also, all of the ship's control systems were outfitted with the new programmable workstations. All transporter systems aboard the Avenger were also upgraded to the latest Starfleet standards. Finally, the navigational system was equipped with the new **RAV/ISHAK** configuration. In July of 2289, FH 1860 deployed once again, eventually returning to Earth in June of the following year. After a record-breaking refurbishment, the Avenger set forth on its next five-year mission in July of 2290. In May of 2294, FH 1860 began a layover at the Rhadamanthus II dry-dock facility, undergoing extensive reconditioning and repairs. One of the ship's design flaws was then remedied with the installation of additional reaction control thrusters on the aft raised hull. Additionally, a fourth docking port was mounted on the saucer section, opposite the main gangway hatch. In June of the following year, the Avenger returned to Earth upon completion of its ninth deployment for Starfleet, only to set forth on its latest five-year mission in July of 2295. **USS Avenger** (FH 1860) is currently on station and is not scheduled for any upgrades until its present five-year mission ends in mid-2300.

June 2298

The Avenger and her sister ships have proven to be some of the most versatile hulls in Starfleet's inventory. The performance of these vessels in the past twenty years has been extraordinary. Among them was the **USS Reliant (FH 1864)**, which was unfortunately lost in March of 2286 in the Mutara sector, after being commandeered by terrorists. Later that year, the **USS Courageous (FH 1861)** was fitted with the enhanced **B-series CGCP/SCDS** system and assigned to TacFleet. Beginning in 2288, the **USS Endurance** (FH 1862) and seven other Avenger-class heavy frigates underwent extensive refits. Many of the defensive systems on these ships were removed, in lieu of additional scientific research equipment. These eight ships were down-graded in class to make up the Endurance-class line of exploratory frigates. The **USS Ardana (FH 1868)** was assigned to the Starfleet Reserve Force in 2297 and the **USS Resolution** (FH 1877) followed her in 2298. Other than the one incident involving the Reliant, the Avenger and her sister ships have performed admirably in their role of patrolling the inner Federation territory. The remaining twelve Avenger-class heavy frigates remain on active duty in Starfleet to this date.

In November of 2281, following the ASDB's final evaluation of the unsuccessful Wright-Corder warp nacelle layout, Starfleet began to procure a class of new-build cruisers, precisely matching the Avenger-class specifications. The first unit of this new line was **Naval Construction Contract 1833**, awarded to the San Francisco Fleet Yards. Less than two years later, the lead vessel **USS Miranda (CA 1833)** was commissioned. Most consider the raised hull arrangement of the Avenger-class heavy frigate the ultimate form of the design introduced in the **USS Surya** (FR 1850). Since its unveiling in 2277, the layout has been considered one of the most successful in Starfleet history. Its versatility has proven so effective that numerous sub-classes have been built, based upon the original Avenger-refit design. In addition to the aforementioned Miranda-class, these include the Athabaska, Comanche, Cyane, Daran, Endurance, Hatfield, Hensley, Knox, Kresta, Soyuz, and Triumph-classes. The ASDB has further plans for this raised hull arrangement, ensuring the presence of the Avenger-class design within the ranks of Starfleet for decades to come.

DISCLAIMER

This package is a set of general plans for the Federation starship of the line **USS Avenger (FH 1860)**. They should not be confused with actual construction drawings or full engineering schematics, and are intended to help familiarize the reader with the internal layout of the starship in question. Certain structures and equipment are not detailed for purposes of clarity. Although specific features differ from ship to ship, they can in fact be used as a basic reference for any starship of the Avenger-class and Miranda-class lines. Any questions regarding the ship's design should be forwarded to the Layout Engineer and Technical Consultant. The contents of this document are confidential property of the **San Francisco Fleet Yards**. Any unauthorized use or duplication of this material is prohibited by the United Federation of Planets. All rights to design and/or invention are hereby reserved.