



U.S. Coast Guard History Program

44-Foot Motor Lifeboat

Number: 44300 through 44409
Completed: 7 January 1963 to November 1972
Remarks: Stationed throughout the US.

Cost: \$125,000 (1967); \$225,000 (1972)

Hull

Displacement (lbs): 20 tons (fully loaded) (1972)
Length: 44' 2" oa
Beam: 12' 8"

Machinery

Main Engines: 2 Detroit diesels
BHP: 370
Propellers: twin

Performance

Max Sustained: 14 knots (164 mile radius)

Logistics

Fuel Oil (95%): 330 gallons
Complement: 4

Electronics

Radar: SPS-57

Design:

Probably one of the most legendary boats that was ever introduced into American coastal rescue service was the 44' motor lifeboat. The 44' motor lifeboat is a unique craft in the overall development of American coastal lifeboats, having been used successfully for the past forty-two years around the nation, as well as having had a worldwide influence on search and rescue craft designs. The development of the 44-footer is a prime example of a vessel being designed for very specific conditions, translating design concepts of seaworthiness, ease of handling, speed, weight, draft, strength and capacity into a much-loved boat that Coast Guard crews speak of in almost reverent tones.

A coastal lifeboat needs certain essential design characteristics to make it a sea boat for all weather. A high degree of stability, great strength of construction, rapid self-righting and self-bailing, reserve

buoyancy, a hull bottom reinforced against damage from grounding, moderate weight and, not so incidentally, speed are critical factors. These characteristics reached a peak in the 44' motor lifeboat design.

The design of the four 52' motor lifeboats that had been built in the 1950s emphasized strength, seaworthiness, and durability in order to operate on the dangerous bars of the Pacific Northwest Coast. These boats, the largest motor lifeboats ever built by the Coast Guard, were never intended, however, as a service-wide replacement for the 36' wooden hull motor lifeboat.

By the late 1950s, the 36' Type TRS motor lifeboats were averaging 25 to 30 years of active service, and the oldest boats had serious deterioration problems. Coxswains with experience in the Type TRS generally felt that, as a design, the 36' lifeboat was deficient in the following areas: 1) poor towing control due to the far aft placement of the towing bits; 2) relatively slow speed, even in fair seas; and 3) poor visibility from the aft steering station location. At the same time that maintenance costs for the 36' lifeboat were rising, the Coast Guard's operational needs were also changing. Their missions involved a growing number of fishing vessel and recreational boating search and rescue cases. Faster rescue craft with greater cruising range and towing capability were clearly needed. Those craft would come about in the early 1960s as a completely new motor lifeboat class. Given the slow and evolutionary progress in coastal lifeboat design, the most significant improvement up to the Type TRS had been the replacement of oar and sail by the gasoline motor and, later, the diesel engine. But the stage was set for a radical departure.

By the late 1950s, the art and science of small craft design had progressed significantly, with advancements in:

- reliable towing tank studies using precisely dimensioned models to simulate actual boat performance under different sea conditions
- metallurgy, with significant improvements in the qualities of steel and aluminum used for boatbuilding
- diesel engine design, which produced more powerful engines that were also smaller in size and lighter in weight

The Coast Guard, in establishing the requirements for a new lifeboat class undertook a most comprehensive design, construction and evaluation process. They consulted experienced lifeboat crewmen from throughout the country on the weaknesses as well as strengths of the 36' motor lifeboat. They also sought recommendations as to what features should be included in a new lifeboat design. The resulting set of requirements was published in July 1960.

The new motor lifeboat had to be self-righting and self-bailing, and able to operate successfully in coastal waters under unusually severe weather and sea conditions. It had to be able to negotiate large breaking surf and run into large seas without excessive pounding. It had to have increased power and speed, with a full-speed range of 150 miles, and twin-screw propulsion to provide greater reliability and improved handling. Improved rescue and towing capability, protected accommodations for survivors and crew, and more efficient, safer working areas were also called for. Structurally, the outer hull was to be of corrosion-resistant, welded Corten steel for greater strength, and the superstructure was constructed of marine-grade aluminum. It was designed to operate in light ice, and survive accidental groundings as well as the hard use of working in severe weather, heavy seas and surf. Similar to the 40' motor lifeboat prototype, the steering station was located amidships, but included an integrated steering and engine control console, special clamped compass and remote-controlled electronic equipment including a 100-mile range radio transceiver, direction finder, depth sounder and radar.

One individual whose involvement and efforts were key to the ultimate success of the 44' MLB design was (then) Lieutenant Commander Robert Witter of the Coast Guard. A 1951 graduate of the Coast Guard Academy, he had completed a Masters degree in naval architecture and marine engineering from the Massachusetts Institute of Technology in 1958 prior to his assignment to the 44' MLB project. His combination of practical shipboard engineering experience plus academic training, along with the design input he solicited from experienced Coast Guard lifeboat coxswains, served him well and were key factors in the successful completion of the lifeboat's design. LCDR Witter's involvement is notably reminiscent of that of CAPT Charles McLellan of the Revenue Cutter Service in the design of the Service's first motorized lifeboats, the 34' and 36' types in the beginning of the 20th Century, and demonstrates the positive contribution that some of the Service's officer corps have had in the development of coastal rescue craft designs.

After the preliminary design for the 44' MLB was developed, a 1/12-scale model was built for towing tank testing at the Stevens Institute of Technology. The results of these tests and further studies, as well as the construction of wooden mock-ups to determine the best arrangements for the mast platform, crew stations and the steering console, provided the additional data required to complete the final plans for the new 44' motor lifeboat. Construction of the prototype boat, CG-44300, began in April 1961 at the Curtis Bay Yard, and in February of 1962, CG-44300 was launched.

Key design improvements over earlier motor lifeboat types included:

- semi-displacement hull to provide increased speed and improved seakeeping in heavy seas, with hull lines in the forward section designed to minimize pounding while heading into heavy seas at higher speeds
- hull scantlings constructed so as to achieve a balance between higher strength and lowest practical weight, including amidships keel-to-cockpit web framing for added strength
- twin diesel engines to provide increased propulsion power reserve, increased towing capacity, improved maneuverability, and redundancy in case of engine breakdown
- twin rudders, with hydraulic power-assisted steering, for improved maneuverability
- coxswain's station with integrated steering and engine controls, as well as electronic equipment
- steel hull with increased scantlings to improve resistance to damage
- double-bottom installed in forward half of hull for protection in case of grounding
- increase in survivor accommodations
- improved accommodations and protection for crew
- improved towing bitt location
- installed fire pump

With the 44' MLB design along with the earlier 52' steel MLBs, the Coast Guard finally abandoned wood as a lifeboat building material. As with the earlier Type TRS motor lifeboat, the semi-tunnel stern was also not employed as a propeller protection feature, unlike many European lifeboat services which continue with this design practice today. In the 44' MLB design, lack of a semi-tunnel stern was compensated for, to some degree, by the hull bottom design, which placed the propellers up higher than the lowest portion of the hull bottom such that, in the event of a grounding, the propellers were less likely to be damaged.

The 44' MLB is 44'1.5" in overall length, with a beam of 12'8" and a draft of 3'2". Powered by twin 186BHP General Motors GM6V53 diesel engines, maximum speed was about 13-15kts. depending on loading and sea state (see Appendix X for detailed specifications and drawings). During initial trials at the Curtis Bay Yard, prototype CG-44300 self-righted in approximately 3 seconds, but took

approximately 55 seconds to self-bail the cockpit of water. This was rectified by the subsequent installation of larger scupper openings. In addition, the twin rudder design was revised to a balanced type rather than the original flat plate type, which provided better steering control.

Prototype CG-44300 completed her initial sea trials with flying colors, earning accolades from the Service as "...the most remarkable piece of equipment to bolster the operational capabilities of the Coast Guard since the development of the 52-foot MLB." Coast Guard Headquarters announced the completion of the CG-44300 on March 9, 1962, stating that it was the prototype for an 18-boat construction program, later expanded to 25 boats designated CG-44301 through CG-44324. In total, 110 of the 44' motor lifeboats were built over a ten-year period. During that time, inflation took its inevitable toll on the boat's cost; i.e., whereas the cost per boat in the first program was \$115,000, the last boat (CG-44409) was completed in 1972 at the cost of \$225,000; an increase of almost 100%.

On April 14, 1962, the CG-44300 left the Curtis Bay Yard for Station Chatham, Massachusetts, visiting a number of other lifeboat stations along the East Coast from Hatteras Inlet, North Carolina to Maine before reporting for duty. The delivery and station crews all evaluated the boat's performance capabilities. By October, the boat had left Chatham for the 13th Coast Guard District, arriving in Seattle, Washington on the October 19th. She then went to Station Yaquina Bay, OR for rough-water evaluation in the heavy breaking surf conditions of the Pacific Northwest. The 44300 turned in outstanding performances under conditions ranging from large ground swells offshore to strong ebb chop, moderate breaking seas, and large dangerous seas on the bars and reefs. Operation in following seas was also excellent. During the evaluation period she covered 3,000 miles at an average speed of 11.1kts., while consuming fuel at the rate of 20.4 gallons per hour.

CG-44300 served at Station Yaquina Bay from October 1962 to 1981. In July 1981, she was transferred to the National Motor Lifeboat School at Cape Disappointment, Washington, serving there for another 15 years. The boat always saw very hard duty, including episodes of going end-over-end (pitch-poling) and rolling over completely several times. But she also won the admiration and, indeed, the affection of her crews, training coxswains from stations throughout the United States in adverse weather and sea conditions.

While responding to a search and rescue mission out of Cape Disappointment on July 29, 1996, CG-44300 experienced a serious engine breakdown and was withdrawn from service. Although the boat itself was still in excellent condition, the cost of repairing or replacing the damaged engine could not be justified. By then the 44' motor lifeboats were being replaced by new 47' MLBs. After surveying the boat, the Coast Guard loaned the boat to the Columbia River Maritime Museum in Astoria, OR, where a display was created to recreate motor lifeboat operations in surf conditions.

Almost from the moment it was designed, the 44' motor lifeboat has been recognized as a major and historic step forward in lifeboat design. In June 1963, delegates to the 9th International Lifeboat Conference in Edinburgh, Scotland saw official Coast Guard movies of the CG-44300 being tested on the bar at the entrance to Yaquina Bay, and two papers were presented on the new 44' motor lifeboat design. Great interest among the delegates eventually resulted in the spread of the design to several other countries. The RNLI was deeply impressed, and purchased CG-44328 in May 1964, which served as the design prototype for more than twenty lifeboats that were built in England as the Waveney Class. The RNLI's production model Waveney lifeboat differed from the original Coast Guard 44' MLB design primarily in the use of aluminum for the main deck, rather than steel, the installation of a buoyancy chamber in the overhead portion of the coxswain's flat, and the installation of diesel engines from a different manufacturer. It is interesting to point out that, in this instance, history had made a complete circle since, in 1873, the RNLI lifeboat purchased by the USLSS had strongly influenced American lifeboat design, an influence that lasted until 1937! Other countries also adopted the new 44' MLB design; e.g., the Italian Coast Guard, the Canadian Coast Guard, and the

Norwegian Life Saving Service (which made a few modifications, such as an enclosed bridge, for better operation in the extreme cold of Norwegian waters).

Very few 44' motor lifeboats were lost or severely damaged enough to prevent restoration to service. Even during the worst incident of loss, CG-44363 from Station Quillayute River in 1998 with the horrible loss of life among its crew, the boat hull, although shorn of just about all of its superstructure and fittings, was not destroyed, but remained afloat and washed ashore.

CG-44300 itself, while stationed at Station Yaquina Bay, survived intact from having been rammed and pushed underwater under a pier by an out of control, outbound freighter. Once the pier wreckage had been cleared, the lifeboat popped up to the surface and automatically re-righted itself as designed. It would appear, then, that any losses of 44' lifeboats from service resulted from factors other than design failure, such as the extreme operating environment or from unavoidable damage incurred while responding to a rescue.

Over the forty years that they have been in use, the 44' MLB has been highly praised for its ruggedness and surf capabilities. Some less-desirable characteristics, however, that have been reported include: its susceptibility to rolling due to its relatively rounded/soft chine bottom compared to a hard chine design; its relative slowness (especially heading into swift tidal currents) compared to the faster planing hull lifeboat designs that emerged later in the 1980s and beyond, which could result in an unacceptable duration of transit to the scene of a rescue; and its semi-open coxswain's station that, while an improvement over the older wooden lifeboats, still exposed crews to the elements. Towing capacity, while still an improvement over the older Type TRS lifeboat, also could become a limiting factor as the size of offshore fishing vessels continued to increase over the years since the 44' MLB was designed.

The last 44' lifeboat in active Coast Guard service, CG-44301 (the first production boat), was located at Station Chatham, Massachusetts where prototype CG-44300 was initially tested, and where CG-44301 was first assigned in 1963. The reason that Station Chatham continued to utilize this lifeboat type is that the depth of the water over the bar at the inlet entrance cannot accommodate the newer 47' motor lifeboat, and with the channel constantly changing and an inherent risk of accidental grounding, a 44' lifeboat was the better choice of rescue craft until a shallower draft lifeboat type could be developed and introduced into service. CG-44301 was de-commissioned in Spring 2010.

Images



44-footer in the surf



44-footer in the surf



CG-44369



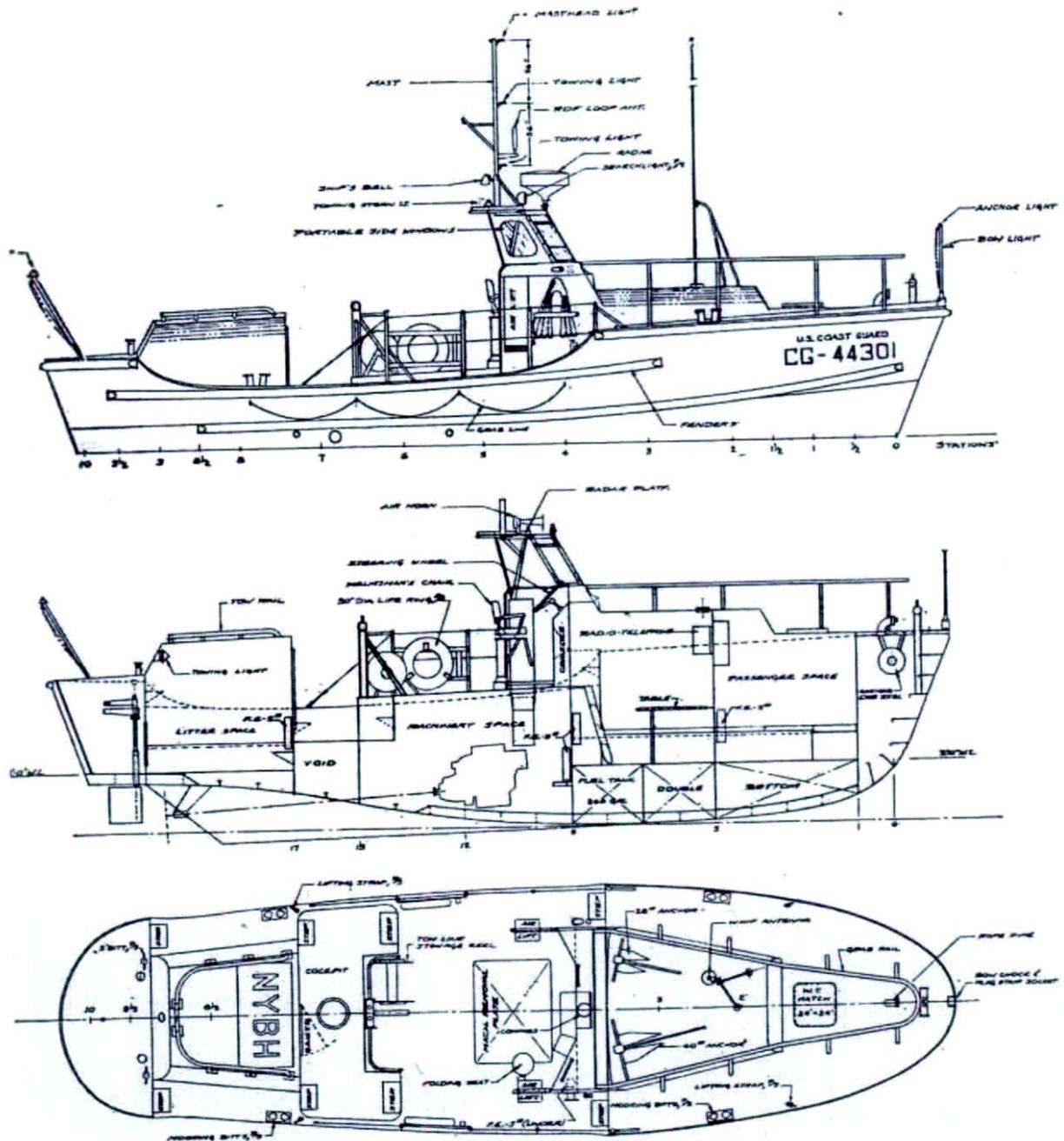
44-footer conducts training at the National Motor Lifeboat School



44-footer cooperating with USCG air assets



44-footer crew trains with a UH-60 Jayhawk crew



Sources

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