



U.S. Coast Guard History Program

36-Foot Motor Lifeboat-Type TR

Number: 69 completed; numbers not known
Completed: 1931-1937
Remarks: This model craft was stationed throughout the United States

Cost: \$15,703 (1934)

Hull

Displacement (lbs): 19,372 lbs.
Length: 36' 8" oa
Beam: 10' 8 7/8" max
Draft: 3' 4"

Machinery

Main Engines: Sterling Petrel; 6-cylinder, 4-cycle
BHP: 90 at 1000 RPM

Performance

Cruising Radius: 280 miles at 8 knots

Logistics

Complement: 3
Passengers: 30

Design

As Alfred Hansen indicated in his report on the trial runs of the Type T, there was still some room for further design improvement, and by mid-1931 the first of a new, modified Type T, the Type TR (meaning Type T-Revised), was under construction at Curtis Bay. This boat (No. 3824) in general appearance looked almost identical to the Type T; however, her overall length had been increased to 36'8", and beam at its widest point to the outside of planking increased to 10' 1 1/4". These changes also increased hull weight exclusive of outfit and machinery from 16,424lbs. to 18,425lbs.

Hull lines followed closely those of the Type T except that the sheer forward and aft was increased very slightly. More flare was added in the forward sections above the waterline as actual field experience indicated that dryness under severe weather conditions could be improved upon. With the increased sheer aft, the height of the after compartment was also increased slightly. This resulted in shifting the centers of gravity and buoyancy to more near the mid-waterline length and improving somewhat the lifeboat's stability and behavior when working in a seaway, as Hansen as proposed in his report on the Type T lifeboat tests.

No major changes were made in the lifeboat's layout or propulsion plant, and construction features and scantlings generally followed those of the Type T. Self-bailing in the aft cockpit was improved by adding one more freeing scupper on the port and starboard sides for a total of eight on each side instead of the seven on each side of the Type T. In the Type TR, the faired bronze spray shield was replaced with a folding, wood-framed glass windshield with a collapsible canvas canopy for better protection of the coxswain in the aft cockpit steering station. The Type TR retained the same sailing rig as the Type T, again for use in emergency situations.

The new windshield/canopy combination, along with the additional scupper on each side, are the primary visual means of distinguishing a Type TR from the Type T motor lifeboat, although many contemporary published sources often confused the two types. The authoritative Report of the 3rd International Lifeboat Conference shows a photograph on Page 28 captioned as a "Type TR Motor Lifeboat" although in actual fact it was a Type T. The same identification error was made in a photograph accompanying an article on the Type TR lifeboat published on Page 113 of the February 1934 edition of *Motorboating* magazine.

Although the Type TR had the same Sterling Petrel Model L-6 gasoline engine as the Type T, there was an improved exhaust system which resulted in lower engine exhaust noise. The exhaust pipe went through the hull near the waterline and, to prevent water backing up in the pipe to the motor, a special muffler or silencer was developed. This muffler was installed vertically on the after end of the exhaust manifold, where it was secured to a heavy water-jacketed elbow. The cooling water from the engine was discharged into a cap at the top of the muffler, providing a completely water-jacketed surface for the exhaust to pass through. The exhaust gases, after passing up through the central tube of the muffler, passed through the water jacket, which developed a cooling spray of water from thirty-two 3/16" holes, and after cooling the exhaust passed out and overboard. A similar exhaust or muffler design had been perfected for use on the 78ft. patrol boats powered by twin Sterling Viking engines of 600HP each. The lower exhaust noise levels was particularly useful in the patrol boats as these craft were designed for anti-smuggling operations, at which they proved very successful.

The engine compartment of the Type TR had a ventilating system consisting of a powerful motor-driven blower, suction ducts, and a discharge fitting, all of which were arranged to suck explosive gasoline vapors from the lifeboat's bilges. This system could provide a complete change of air within the compartment in less than 3 minutes. The Type TR lifeboats were also provided with an installed fire extinguishing system consisting of two carbon dioxide gas-filled cylinders mounted in the forward survivors compartment. Piping connected the cylinder with six Monel metal nozzles in the engine compartment and gasoline tank compartment. A control pull box to remotely operate the system was located on the exterior side of the survivor compartment aft bulkhead.

Trials of the first Type TR lifeboat (No. 3824) gave a maximum speed of 9.5 statute MPH, and at normal cruising power (800RPM) 8.5 statute MPH. With a gasoline tank capacity of 200 gallons, cruising range was 280nm. Self-righting tests showed that the Type TR re-righted itself in about 5sec., and self-bailed in about 20sec.

Between the first boat (No. 3824) completed in 1931, and the last boat (No. 4928), completed in late 1936, a total of 69 Type TR lifeboats were built; all at the Curtis Bay Yard. Initially, these boats cost about \$16,000 each, but by the end of production the cost had risen to about \$20,000. The Type TR was a more widely distributed lifeboat model than the earlier Type T, generally replacing earlier Type E and H lifeboats that then remained in service. This was accomplished despite the lower Coast Guard construction budgets available as a result of the economic depression that gripped the United States during this time period.

The Type TR lifeboat was a very successful design and, in a report on U.S Coast Guard lifeboats submitted to the 4th International Lifeboat Conference in July 1936, C.L. Jennison, a technical aide at Coast Guard headquarters, stated that:

“The type ‘TR’ 36-foot 8-inches motor lifeboat described in the notes presented at the International Lifeboat Conference of 1932, remains unchanged as to hull arrangement and type of power plant; it is the Coast Guard standard design for the self-bailing, self-righting motor lifeboat, and personnel [have] reached a high degree of efficiency in handling this type of boat. In operation the Type ‘TR’ Motor Lifeboat has proven eminently satisfactory for the sea coasts and the Great Lakes; forms the major life-saving boat for the Pacific Coast where the contour of the coast makes it necessary to launch in sheltered inlets or harbors and approach the sea over a bar.”

Despite the overall ruggedness of both the Type T and TR designs, by the late 1930s there had been sufficient reports from individual stations of cracked or broken bilge keels that a class-wide repair program was necessary, which was undertaken by the Curtis Bay Yard.

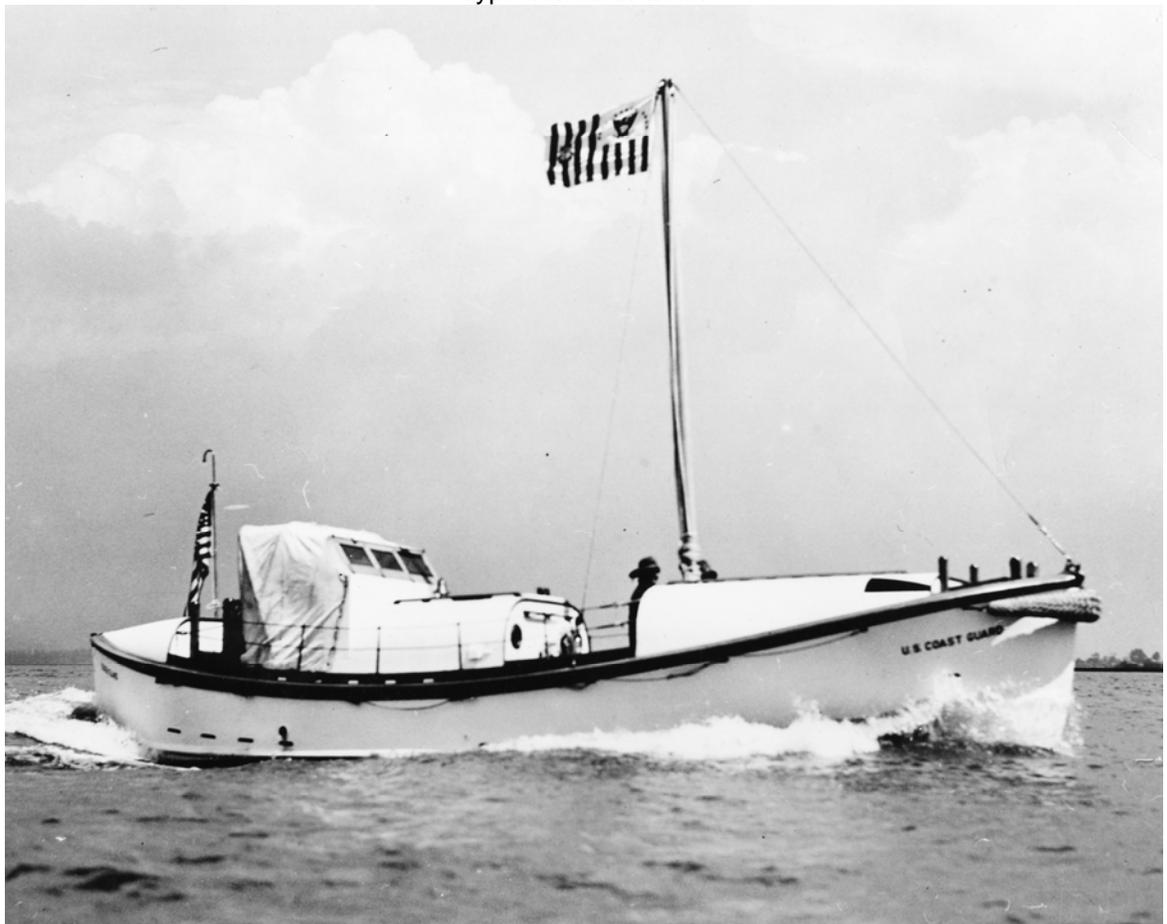
Images



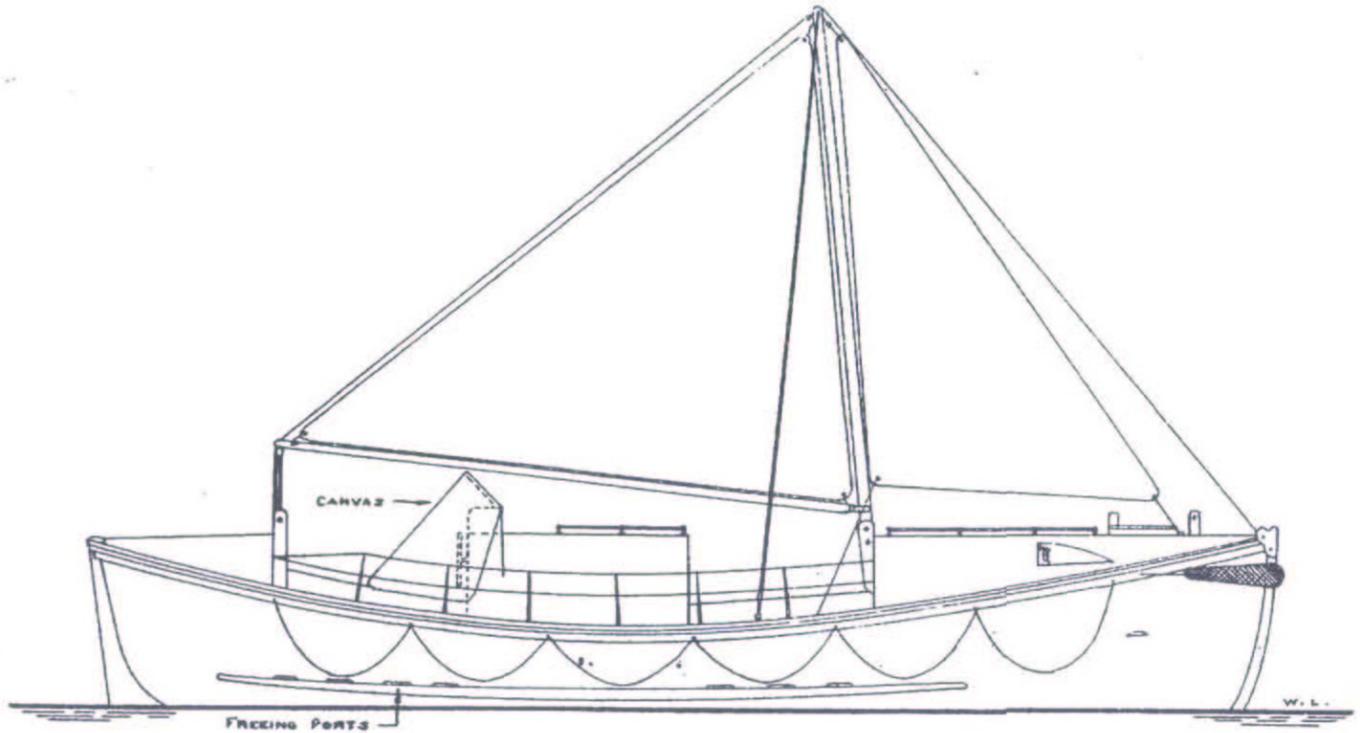
Type-TR underway



Type-TR out of water



Type-TR underway with hood and mast deployed



36-Foot Type TR MLB- Line Drawing

Sources

Boat Files, U.S. Coast Guard Historian's Office.

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Wilkinson, William D., and Timothy R. Dring. *American Coastal Rescue Craft: A Design History of Coastal Rescue Craft Used by the United States Life-Saving Service and the United States Coast Guard*. Gainesville: University Press of Florida, 2009.

