



## U.S. Coast Guard History Program

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### 52-Foot Wooden-Hulled Motor Lifeboat

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**Number:** 52300 & 52301  
**Completed:** 12 April 1935; 30 July 1935  
**Remarks:** *Invincible* (52300); 1935-1967, stationed at Point Adams, OR; transferred to USN 15 August 1967  
*Triumph I* (52301) 1935-1941 stationed at Sandy Hook, NJ; 1941-? stationed at Grays Harbor, WA; ?- 12 January 1961 stationed at Coos Bay, OR; 12 January 1961, lost.

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**Cost:** N/A

#### Hull

**Displacement (lbs):** 30 tons fl  
**Length:** 52' oa; 50' wl  
**Beam:** 14' 4" max  
**Draft:** 6' 8" max

#### Machinery

**Main Engines:** 1 Buda diesel  
**BHP:** 150  
**Propellers:** Single

#### Performance

**Max Speed:** 10.5 knots (1936)

#### Logistics

**Fuel Oil (95%):** N/A  
**Complement:** 4 (1936)

#### Electronics

**Radar:**

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#### Design

For the Coast Guard, lack of funding during the early Depression period combined with the need to respond to other vessel construction priorities resulted in delays to the completion of the design of a new, larger wooden-hulled lifeboat of 52' overall length, having grown in size from the 45' initially projected in Coast Guard annual reports of 1930 and 1931. In 1933, as a direct result of the Roosevelt administration's public works programs to help stimulate the Depression economy, funding was provided under Public Works Project F.P 32 for a program of lifeboat and surfboat construction to include completion of the 52' motor lifeboat model.

Ultimately, two new Type F (official Coast Guard designation) motor lifeboats were completed by the Curtis Bay Yard. Boat No. 4460, later named *Triumph*, was completed in Fiscal Year 1934-35, and boat No. 4000, later named *Invincible*, was completed in Fiscal Year 1936. The application of names to these lifeboats was a first for the Coast Guard, although the Lifesaving Service had done so for a number of the pulling/sailing and power lifeboats built during that era. During World War II, when the Coast Guard adopted a new system of boat numbering, the two Type F lifeboats were renumbered, with *Invincible* renumbered as CG-52300, and *Triumph* renumbered as CG-52301.

The Type F lifeboats were unique in terms of both their design as well as their propulsion plant (please see Appendix X for detailed specifications and drawings). In terms of design, they were double-ended with round bilges and considerable dead-rise to provide easy motion in a seaway. Substantial freeboard and much sheer resulted in a relatively dry deck. Initially installed bulwarks were later replaced by life rails to allow boarding seas in heavy weather to clear more readily, as well as to provide as much working deck space as possible for carrying out rescues. Deck structures were kept to a minimum in order to reduce the boat's profile and increase stability. A total of sixty survivors could be accommodated inside, while an additional one hundred survivors could, under good weather conditions, be carried up on deck.

The hull was of especially strong construction, designed to distribute external stress over large areas of framing and into bulkheads. Frames were of the double web type, and bulkheads divided the hull into eight watertight compartments, any two of which could flood and still leave the boat floating upright. The hull was single-planked of copper-fastened mahogany, and the deck was double-planked teak. No metal air cases, balsa, or cork buoyancy blocks were fitted, but the engine compartment, located amidships, was isolated from the hull sides by longitudinal watertight bulkheads. Although these lifeboats were not self-righting, they possessed a much higher degree of initial stability than the traditional 36' lifeboat designs.

The pilothouse and engineroom trunk were of welded manganese-silicon bronze. In addition to an inside steering station, an outside steering station was provided on the main deck aft of the pilot house. Communication with the engine compartment was via voice tube. Crew quarters were located in the watertight compartment forward of the engine compartment, and included a galley, heating and ventilation, and pipe-frame bunks for overnight accommodations.

In terms of propulsion plant, the new 52' lifeboats were the first Coast Guard lifeboats to have diesel engines installed. Each boat was powered by a single Buda, six cylinder, four stroke engine of 159HP at 900RPM. With 2:1 ratio reduction gearing and a 30" diameter/28" pitch, three-bladed propeller, the lifeboats gave a maximum trial speed of 10.5 statute MPH. Good towing ability and long cruising range were basic design requirements, which were met with this machinery installation. Having a fuel capacity of 680gal., a cruising range at maximum speed of 600nm. was achieved. In 1945, the original Buda diesel engine was replaced with a single Superior fresh water-cooled, eight cylinder, solid injection, 160HP diesel engine<sup>63</sup>.

These lifeboats were 52' in overall length (50' long at the waterline), with a 14' 3 1/2" beam over the guards, a 6'8" draft, and a displacement of about 30tons. Each boat cost about \$70,000 complete<sup>64</sup>.

Upon completion, *Triumph* was assigned to Station Point Adams, Oregon, at the entrance to the Columbia River, where her larger size, greater stability, and longer radius of action could prove useful. She responded to her first rescue case on the night of January 12, 1936. *Invincible* was at first assigned to Station Sandy Hook, New Jersey, but was later transferred to Station Grays Harbor, Washington where her capabilities could be of greater use. To be noted is that both lifeboats transited under their own power from Curtis Bay to the Pacific Northwest coast, a cruise of over 6000nm. In operation, these lifeboats provided good service, responding to rescue cases that were usually

beyond the capabilities of the 36' motor lifeboat, including the towing of disabled vessels over treacherous Pacific Northwest inlet bars.

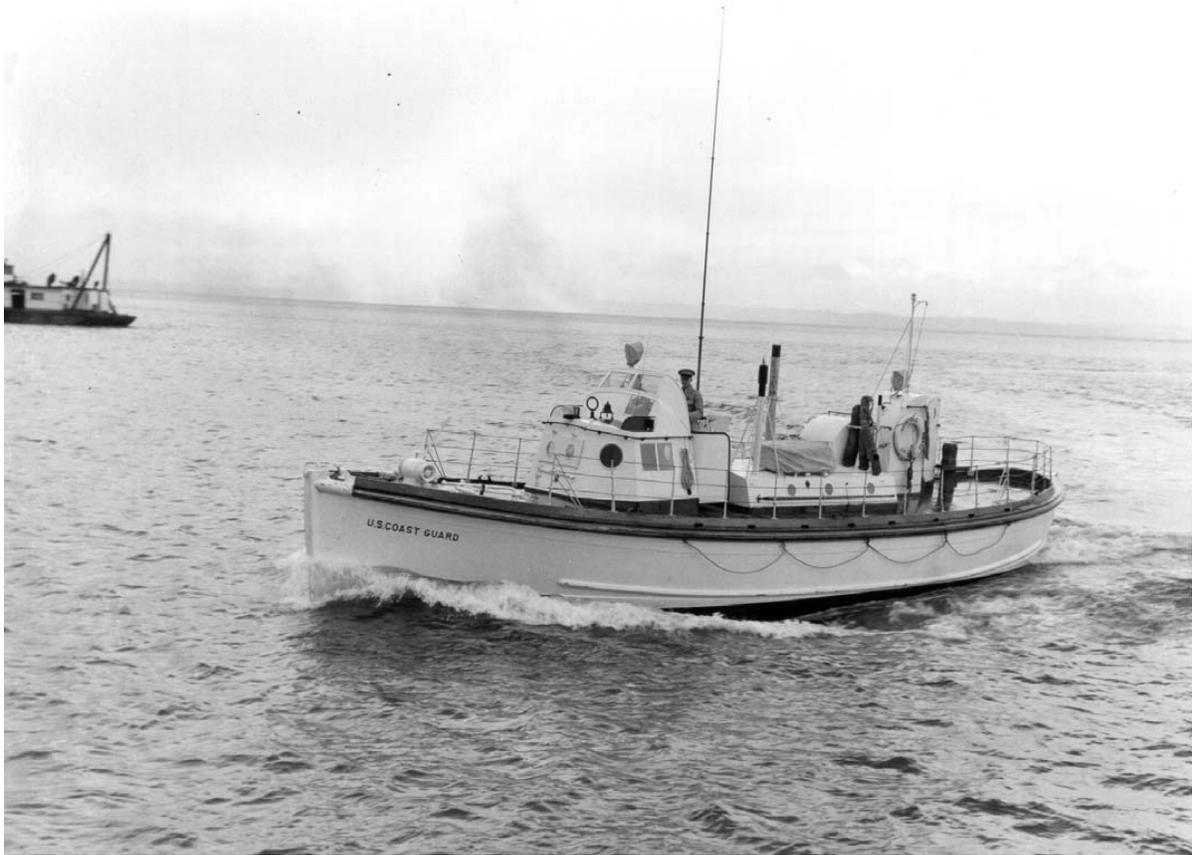
Despite their comparatively rugged construction, however, operations under Pacific Northwest surf conditions showed that these lifeboats had some limitations and/or design problems including: obstruction of view for the coxswain while towing, resulting from the aft companionway profile above the deck (this was later removed during post-World War II overhauls on the *Invincible*); the aft lifeline was too high, obstructing towlines, but when lowered resulted in greater risk of the crew being swept overboard; the engine exhaust stack and engine room vents were vulnerable to water entry (with resultant engine shutdown) from heavy seas or in the event of a significant roll; there was only one way of ingress/egress from each compartment, limiting the means of crew escape; when the original Buda diesel engine was replaced in the 1950s with a lighter weight GM diesel, insufficient ballast may have been incorporated to compensate for the reduction in weight, reducing the boat's righting ability in the event of a heavy roll.

During the night of January 12, 1961, the Coast Guard suffered one of its most serious lifeboat operational losses when *Triumph* capsized during a rescue mission in severe weather off of the Columbia River entrance bar in the vicinity of Astoria, Oregon. She was responding to a disabled local fishing vessel, *Mermaid*, and was attempting to take the vessel in tow when a large wave struck the *Triumph* broadside, causing her to capsize. Five out of her six crew were lost, and *Mermaid*, despite additional rescue efforts by other responding Coast Guard lifeboats, sank, adding her crew to the total number lost. Although *Triumph* later re-righted and washed ashore, it was believed that her lack of self-righting capability contributed to her loss and the loss of crew<sup>66</sup>. In addition, it is believed that the vulnerability of the engine exhaust stack and engine room vents to water entry also contributed to the tragedy, since it is reported that the engine shut down when the boat rolled, which would have hindered the coxswain's ability to maneuver the boat for recovery. *Invincible* also experienced a roll-over in 1959 (without loss of life among the crew), but was able to recover due to modifications that had been made to the engine exhaust and engine room vents to prevent water entry.

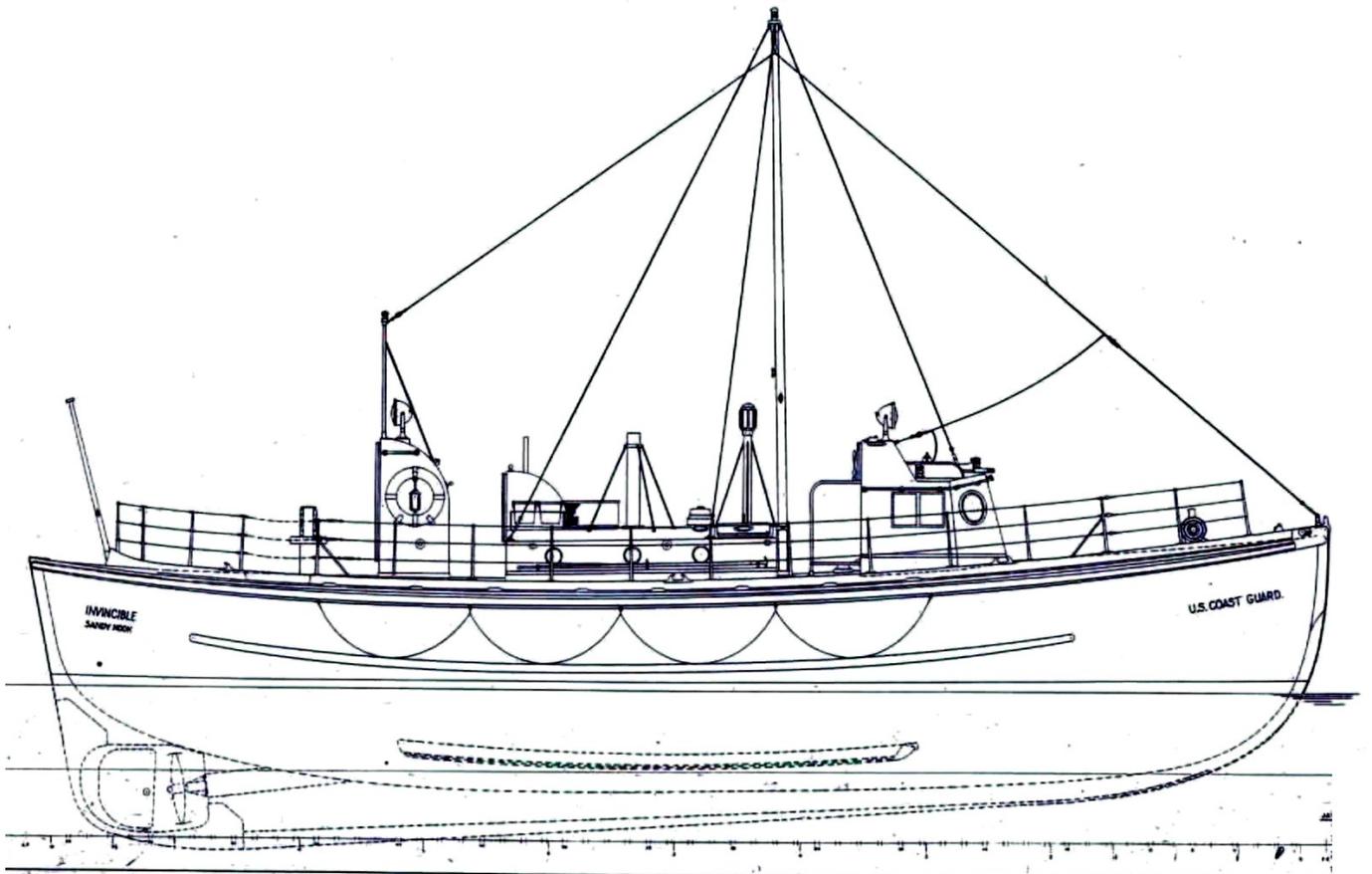
Despite their limitations and problems, the Type F motor lifeboats helped to validate the concept of a larger type of motor lifeboat for use in heavier sea and surf conditions than what the 36' Type T series was capable of, and where greater response radius and better towing capabilities were needed. The loss of *Triumph* also served to confirm the Coast Guard's long-standing belief that self-righting capability was, in fact, a critical design feature in coastal lifeboats. These superior qualities were certainly found in the later replacements for the wooden 52' lifeboats, the steel 52' motor lifeboats, of which more will be described in a subsequent chapter. *Invincible* still survives to this day, unfortunately, as a stripped-down hulk, having been used following Coast Guard service in the Pacific Northwest area as a fishing vessel.

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## Images



52' MLB *Invincible*, CG-52300.



Line Drawing of Wooden 52-Foot MLB

## Sources

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