**PT Boat**

From Wikipedia, the free encyclopedia



*PT-105* at high speed

**PT boats** were a variety of torpedo-armed fast attack craft used by the United States Navy in World War II to attack larger surface ships. "PT" is the US hull classification symbol for "Patrol Torpedo". The PT boat squadrons were nicknamed "the mosquito fleet". The Japanese called them "Devil Boats".

The original pre–World War I torpedo boats were designed with "displacement" hulls. They displaced up to 300 tons and the top speed was 25 to 27 km (29 to 31 mph; 46 to 50 km/h). The PT boats used in World War II were built using the planning-type hull form developed for racing boats. They were much smaller (30–75 tons) and faster (35–40 knots). Both types were designed to strike at larger warships with torpedoes, using relatively high speed to get close, and small size to avoid being spotted and hit by gunfire. They were much less expensive than large warships. PT boats were much faster, smaller, and cheaper than conventional (displacement hull) vessels.

During World War II, American PT boats engaged enemy destroyers and numerous other surface craft, ranging from small boats to large supply ships. PT boats also operated as gunboats against enemy small craft, such as armored barges used by the Japanese forces for inter-island transport.

**History**

In the late 1930s, the U.S. Navy requested competitive bids for several different concepts of torpedo boats. This competition led to eight prototype boats built to compete in two different classes. The first class was for 55-foot (17 m) boats, and the second class was for 70-foot (21 m) boats. The resulting PT boat designs were the product of a small cadre of respected naval architects and the Navy.

On June 8, 1939, contracts were let to the Fogal Boat Yard, Inc., later known as the Miami Shipbuilding Co., of Miami, Florida, for *PT-1* and *-2* "Crash Boats", and to the Fisher Boat Works, Detroit, Michigan, for *PT-3* and *-4*. These four boats were essentially the Crouch design, modified in some details by the Bureau of Ships. At the same time the Philadelphia Navy Yard began construction of two other designs (*PT-7* and *PT-8*), created by designers at the Navy Yard and the Navy Bureau of Ships.

Henry R. Sutphen of Electric Launch Company (Elco) and his designers (Irwin Chase, Bill Fleming, and Glenville Tremaine) visited the United Kingdom to see British motor torpedo boat designs. While visiting the British Power Boat Company, they purchased a 70-foot (21 m) design(*PV70*) (later renamed *PT-9* during the competition), designed by Hubert Scott-Paine.



PT-9 in June 1940.

Other entries in the competition were three boats built by Andrew Jackson Higgins of Higgins Industries in New Orleans. These boats were *PT-5* and *PT-6* (built using government-required Sparkman and Stephens design, scaled to an overall length of 81 feet (25 m)) and then PT-6 "Prime" which was redesigned by Higgins personally using his own methods. The final competitor for the contract was Huckins Yacht Corporation, which came up with competing 70-foot (21 m) boat class designs.

The results of the competition found that none of the boats, as built, was up to the necessary performance specifications identified by the Navy.

**The Plywood Derby**

The Board of Inspection and Survey decided to conduct comparative service tests. The following boats were tested off New London, July 21 to 24, 1941:

* *PT-6*: 81 ft (25 m) Higgins; 3 Packard 1,200-hp engines.
* *PT-8*: 81 ft (25 m) Philadelphia Navy Yard; aluminum hull; 2 Allison 2,000-hp engines, 1 Hall-Scott 550-hp engine.
* *PT-20*: 77 ft (23 m) Elco; 3 Packard 1,200-hp engines; equipped with special propellers; special strengthening added to hull framing and deck.
* *PT-26*, *-30*, *-31*, *-33*: Same as *PT-20*, except with standard propellers and without special strengthening.
* *PT-69*: 72 ft (22 m) Huckins; 4 Packard 1,200-hp engines.
* *PT-70*: 76 ft (23 m) Higgins; 3 Packard 1,200-hp engines.
* One 70 ft (21 m) boat built for Britain by Higgins; 3 Hall-Scott 900-hp engines.

The test included an open-sea run of 190 miles (310 km) at full throttle, forever after referred to by PT personnel as the "Plywood Derby." The course started around New York Harbor, at Sarah Ledge, then led around the eastern end of Block Island, then around Fire Island Lightship, finishing at Montauk Point Whistling Buoy.

This was a shakedown to see which company would be contracted to build the Navy PT boats. At the completion of the trials, the Navy considered all three designs. The Elco 77-footer (23 m) (*PT-20*) came in first with an average speed of 39.72 km (45.71 mph), followed by the Huckins 72-foot (22 m) boat (*PT-69*) and the Higgins 76-footer (23 m) (*PT-70*) the Navy saw the merits of the other two boats and decided to offer all three companies contracts. Elco received the largest share of the contract with contracts for 350 boats, Higgins was awarded contracts for 199 boats, and Huckins was awarded a contract for 18 boats.

The Elco Company may have had an advantage owing to their experience in small-boat building, having built 550 80 ft (24 m) sub chasers for the Royal Navy during World War I. Additionally, in 1921, they introduced the famous 26 ft (7.9 m) "Cruisette", (a gasoline cabin cruiser). This success in small-boat building was followed in the 1930s with 30-ft to 57-ft "Veedettes" and "Flattops", which were gasoline-powered boats that set the highest standard in a golden era of boating. This small-boat experience helped Elco obtain a contract for 10 boats based on the 70-foot (21 m) Scott-Paine Model PT boat. These 70 ft (21 m) boats were tested and determined to be too light for open sea work, but Elco got a contract for 24 larger boats based on a lengthened 77 ft (23 m) design.

**Elco**

The Elco Naval Division boats were the largest in size of the three types of PT boats built for the Navy used during World War II. By war's end, more of the Elco 80 ft (24 m) boats were built than any other type of motor torpedo boat (326 of their 80 ft (24 m) boats were built). The 80 ft (24 m) wooden-hulled craft were classified as boats in comparison with much larger steel-hulled destroyers, but were comparable in size to many wooden sailing ships in history. They had a 20 ft 8 in (6.30 m) beam. Though often said to be made of plywood, they were actually made of two diagonal layered 1 in (25 mm) thick mahogany planks, with a glue-impregnated layer of canvas in between. Holding all this together were thousands of bronze screws and copper rivets. This type of construction made it possible for damage to the wooden hulls of these boats to be easily repaired at the front lines by base force personnel. Five Elco Boats were manufactured in knock-down kit form and sent to Long Beach Boatworks for assembly on the West Coast as part of an experiment and as a proof of concept.

**Higgins**

Higgins produced 199 78 ft (24 m) boats. The Higgins boats, built by Higgins Industries in New Orleans, Louisiana, were 78 ft (24 m) boats of the *PT-71* or *PT-235* or *PT-625* classes. The Higgins boats had the same beam, full load displacement, engine, generators, shaft power, trial speed, armament, and crew accommodation as the 80 ft (24 m) Elco boats. Many Higgins boats were sent to the Soviet Union and Great Britain at the beginning of the war, so many of the lower-numbered squadrons in the U.S. Navy were made up exclusively of Elcos. The first Higgins boats for the U.S. Navy were used in the Battle for the Aleutian Islands (Attu and Kiska) as part of Squadron 13 and 16, and others (RON15 and RON22) in the Mediterranean against the Germans. They were also used during the D-Day landings on 6 June 1944. A somewhat odd footnote is that even though only half as many Higgins boats were produced, far more survive (seven hulls, 3 of which have been restored to their World War II configuration), than of the more numerous Elco boats, thus seemingly demonstrating the superior construction of the Higgins boat. Of the remaining Elco boats only three hulls (one restored) are known to exist at this time.

**Huckins Yacht Corporation**

Frank Pembroke Huckins and his innovative Quadraconic hull helped convince the Navy Board of Inspection and Survey to accept the PT designs. After proving that the planning hull was faster, and it provided a platform for the armament requirements of a war boat, the navy awarded Huckins Yacht Corporation a PT design contract in 1941 for a total of 18 boats.

Huckins built two squadrons of PT boats during World War II. A total of 18 78-foot (24 m) boats for squadrons 14 and 26 were commissioned in early 1943. They were assigned to specific outposts in the Panama Canal Zone, Miami, Florida, the Hawaiian Sea Frontier at Pearl Harbor, in the Central Pacific, and a training center in Melville, Rhode Island.

Huckins licensed the use of the Quadraconic hull in PT boat construction. Huckins also granted permission for Elco, Higgins and the Philadelphia Navy Yard to use their patented laminated keel, which increased hull strength. Although neither Elco nor Higgins ever chose to use the Huckins design on their boats, rather choosing to use designs of their own.

The handcrafted Huckins PT, was produced at a speed of one per month. The Elco boats made the best showing with Elco edging the Huckins in light and heavy loaded speed tests (45.3 km (52.1 mph) versus 43.8 km (50.4 mph)), however the Huckins had a tighter turning circle (Huckins 336-P/368-S yards in diameter compared to Elco 432-P/382-S yards in diameter) and pounding factor (Elco pounded 61% more than Huckins). The Elco 77 ft (23 m) was considered acceptable for future construction provided changes were made to reduce pounding in a seaway, and also strengthen the structure in a manner acceptable to the Bureau of Ships.

**Vosper and other types of PT boats**

During World War II, the Vosper Boat Company of Great Britain arranged for several boatyards in the U.S. to build British-designed 70 ft (21 m) motor torpedo boats under license to help the war effort. 146, armed with 18 in (460 mm) torpedoes, were built for Lend Lease, exported to Allied powers such as Canada, Britain, Norway, and the Soviet Union. They were never used by the U.S. Navy, and only about 50 were used by the Royal Navy, and most were passed to other countries.

In addition, the Canadian Power Boat Company produced five Scott-Paine designed PTs for the U.S., which were also sent as Lend Lease to the UK.

**Construction**

With accommodation for three officers and 14 enlisted men, the crew varied from 12 to 17, depending upon the number and type of weapons installed. Full-load displacement late in the war was 56 tons.

The hull shape of a PT boat was similar to the "planning hull" found in pleasure boats of the time (and still in use today): a sharp V at the bow softening to a flat bottom at the stern. PT boats were intended to plane at higher speeds, just like pleasure boats. The Elco and Higgins companies both used lightweight techniques of hull construction which included two layers of double diagonal mahogany planking utilizing a glue impregnated cloth layer between inner and outer planks. These planks were held together by thousands of copper rivets and bronze screws. The overall result was an extremely light and strong hull, yet it could be easily repaired from battle damage at the front lines.

As a testament to the strength of this type of construction, several PT boats withstood catastrophic battle damage and still remained afloat. For example, the forward half of future President John F. Kennedy's *PT-109* (Elco) stayed afloat for 12 hours after she was cut in half by the Japanese destroyer *Amagiri*. *PT-323* (Elco) was cut in half by a *kamikaze* aircraft on December 10, 1944 off Leyte, yet remained floating for several hours. Another was *PT-308* (Higgins), had her stern sheared off by a collision with PT-304 during a night mission in the Mediterranean on 9 March 1945 and yet returned to base for repairs. *PT-167* (Elco) was holed through the bow off New Georgia on August 10, 1943, by a torpedo which failed to detonate; the boat remained in action and was repaired the next day.

In 1943, an inquiry was held by the Navy to discuss planning, hull design, and fuel consumption issues, but no major modifications were made before the end of the war. (Wooden Boat Forum) During the war, both Elco and Higgins came up with stepped hull designs which achieved significant increases in top speed, ("ElcoPlane" & "Higgins Hellcat") but the Navy rejected them for full production due to their increased fuel consumption and other considerations.

**Armament**

The primary anti-ship armament was two to four Mark 8 torpedoes, which weighed 2,600 pounds (1,179 kg) and contained a 466-pound (211 kg) TNT warhead. These torpedoes were launched by Mark 18 21-inch (530 mm) steel torpedo tubes. Mark 8 torpedoes had a range of 16,000 yards (14,630 m) at 36 knots (41 mph). These torpedoes and tubes were replaced in mid-1943 by four lightweight 22.5-inch-diameter (570 mm) Mark 13 torpedoes, which weighed 2,216 pounds (1,005 kg) and contained a 600-pound (270 kg) Torpex filled warhead. These torpedoes were carried on lightweight Mark 1 roll-off style torpedo launching racks. The Mk13 torpedo had a range of 6,300 yards (5,800 m) and a speed of 33.5 knots (38.6 mph).

PT boats were also well armed with numerous automatic weapons. Common to all US PT boats were the two twin M2 .50 cal (12.7 mm) machine guns. Early PT boats (Elco PT20 through PT44) mounted Dewandre Plexiglas enclosed hydraulically operated rotating turrets. Almost immediately after the attack on Pearl Harbor, the Dewandre turrets were replaced on the entire PT boat fleet with open ring twin mounts. The ring mount was designed by both Elco and Bell, and designated Mark 17 Twin 50 caliber aircraft mount. Part of the Mark 17 Mod 1 and Mod 2 ring mount consisted of the Bell Mark 9 twin cradle.

Another automatic weapon commonly mounted on PT boats was the 20 mm Oerlikon cannon. On early series of boats, this cannon was mounted on the stern. Later in the war, several more of these 20 mm cannons were added amidships and on the forward deck.

Forward of the chart house of some early Elco 77-foot (23 m) boats (PT20 through PT44) were twin .30 cal (7.62 mm) Lewis machine guns on pedestal mounts. Beginning in mid-1943, some boats were fitted with one or two .30 cal Browning machine guns on the forward torpedo racks on pedestal mounts.

Occasionally, some front line PT boats received *ad hoc* up-fits at forward bases, where they mounted such weapons as 37mm aircraft cannons, rocket launchers, or mortars. When these weapons were found to be successful, they were incorporated onto the PT boats as original armament. One such field modification was made to Kennedy's *PT-109* which was equipped with a single-shot Army M3 37mm anti-tank gun that her crew had commandeered; they removed the wheels and lashed it to 2x8 timbers placed on the bow only one night before she was lost. The larger punch of the 37mm round was desirable, but the crews looked for something that could fire faster than the single shot army anti-tank weapon. Their answer was found in the 37mm Oldsmobile M4 aircraft automatic cannon cannibalized from crashed P-39 Airacobra fighter planes on Henderson Field, Guadalcanal. After having demonstrated its value on board PT boats, the M4 (and later M9) cannon was installed at the factory. The M4/M9 37mm auto cannon had a relatively high rate of fire (125 rounds per minute) and large magazine (30 rounds). These features made it highly desirable due to the PT boat's ever-increasing requirement for increased firepower to deal effectively with the Japanese *daihatsu* barges, which were largely immune to torpedoes due to their shallow draft. By the war's end, most PTs had these weapons.

The culmination of larger bore cannons resulted in the installation of the 40mm Bofors gun on the aft deck. Starting in mid-1943, the installation of this gun had an immediate positive effect on the firepower available from a PT boat. The Bofors cannon had a firing rate of 120 rounds/min (using 4 round clips) and had a range of 5,420 yards (4,960 m). This gun was served by a crew of 4 men, and was used against aircraft targets, as well as shore bombardment or enemy surface craft.

Towards the end of the war, beginning in 1945, PTs received two eight-cell Mark 50 rocket launchers, launching 5 in (130 mm) spin-stabilized flat trajectory Mark 7 and/or Mark 10 Rockets with a range of 11,000 yards (10,000 m). These 16 rockets plus 16 reloads gave them as much firepower as a destroyer's 5 in (130 mm) guns. By war's end, the PT boat had more "firepower-per-ton" than any other vessel in the U.S. Navy.

PT boats also commonly carried between two and eight U.S. Navy Mark 6 depth charges in roll-off stern racks. Additionally, a few PT boats were equipped to carry Naval Mines launched from mine racks, but these were not in common usage.

Although not a weapon, U.S. Navy PTs also were fitted with Raytheon SO radar, which had about a 17 nm range. Having radar gave Navy PTs a distinct advantage in intercepting enemy supply barges and ships at night.

**Engines**

All U.S. PT boats were powered by three 12-cylinder gasoline-fueled engines. These engines were built by the Packard Motor Car Company, and were a modified design of the 3A-2500 V-12 liquid-cooled aircraft engine. The 3A-2500 was an improved version of the 2A engine used on the Huff-Daland XB-1 Liberty bomber of World War I vintage. Packard modified them for marine use in PTs, hence the "M" designation instead of "A". (i.e., 3A-2500 then 3M-2500). The three successive versions of these engines were designated as 3M-2500, 4M-2500, and 5M-2500, each of which had slight improvements over the previous version. Their aircraft roots gave them many features of aircraft engines, such as superchargers, intercoolers, dual magnetos, two spark plugs per cylinder, and so on. Packard built the Rolls-Royce Merlin aero engine under license alongside the 4M-2500, but with the exception of the *PT-9* prototype boat brought from England for Elco to examine and copy, the Merlin was never used in PTs. The 4M-2500s initially generated 1200 hp (895 kW) each, together roughly the same power as a Boeing B-17 bomber. They were subsequently upgraded in stages to 1500-hp (1,150 kW) each, for a designed speed of 41 knots (76 km/h (47 mph)). The final engine version, the Packard 5M-2500, (late 1945) had a larger supercharger, aftercooler, and power output of 1850 hp. This much power could push the fully loaded boats at 45 to 50 knots. However, using the older 4M-2500 engines, increases in the weight of the boats due to more weaponry offset the potential increase in top speed. Fuel consumption of these engines was phenomenal; a PT boat carried 3,000 gallons (11,360 liters) of 100 octane avgas. A normal patrol for these boats would last a maximum of 12 hours. The consumption rate for each engine at a cruising speed of 23 knots was about 66 gallons (250 l) per hour (200 gallons [760 l] per hour for all 3 engines). However, at top speed, consumption increased to 166 gallons (628 l) per hour per engine (or 500 gallons [1,890 l] per hour for all 3 engines). Navy acceptance trials for every boat required it be able to demonstrate ability to achieve design speed of 41+ knots. Going at this speed, the 3,000 gallons of fuel would be used in only about 6 hours. Wartime conditions such as hull fouling and engine wear could sometimes cause the boats top speed to be degraded until maintenance could be performed.

**Service**

Originally conceived as anti-ship weapons, PT boats were publicly credited with sinking several Japanese warships during the period between December 1941 and the fall of the Philippines in May 1942. Attacking at night, PT crews may have sometimes failed to note a possible torpedo failure. Although the American Mark 8 torpedo did have problems with porpoising and circular runs, it could and did have success against common classes of targets. The Mark 3 and Mark 4 exploders were not subject to the same problems as the Mark 6 exploders on U.S. submarines' Mark 14 torpedoes. Introduction of the Mark 13 torpedo to PT boats in mid-1943 all but eliminated the early problems that PT boats had with their obsolete Mark 8s.



An 80-foot (24 m) Elco PT boat on patrol off the coast of New Guinea, 1943

PTs would usually attack under the cover of night. The cockpits of PT boats were protected against small arms fire and splinters by armor plate. Direct hits from Japanese guns could and did result in catastrophic gasoline explosions with near-total crew loss. They feared attack by Japanese seaplanes, which were hard to detect even with radar, but which could easily spot the phosphorescent wake left by PT propellers. Bombing attacks killed and wounded crews even with near misses. There are several recorded instances of PT boats trading fire with friendly aircraft, a situation also familiar to U.S. submariners. Several PT boats were lost due to "friendly fire" from both Allied aircraft and destroyers.

Initially, only a few boats were issued primitive radar sets. Later in the war, as more PTs were fitted with dependable radar, they developed superior night-fighting tactics and used them to locate and destroy many enemy targets. During the Guadalcanal and Solomon Island campaigns in 1942–1943, the PT boats of Squadron (RON) 2, 3, 5 and 6 would lie in wait to ambush a target from torpedo range (generally about 1,000 yards (910 m)). During some of these nighttime attacks, the PT boats' position may have been given away by a flash of light caused by grease inside the black-powder-actuated Mark XIII torpedo tubes catching fire during the launching sequence. In order to avoid return fire by the enemy ships, the PT boat could deploy a smoke screen using stern-mounted generators as they escaped and evaded the enemy ships. The enemy forces would use searchlights or seaplane-dropped flares to locate the fleeing PT boat, illuminating them for destruction by their heavy-caliber guns. Sometimes PT boats used depth charges as a last-ditch confusion weapon to scare off pursuing destroyers. They could adjust the depth charge setting to go off at 100 feet (30 m), and by the time it exploded the pursuing destroyer would be right above the explosion. Starting in mid-1943 and thereafter, the old black powder actuated Mk13 Torpedo tubes loaded with Mark 8 torpedoes were removed and replaced with a newer style of torpedo launcher. The new Mark 1 "Roll-off" Torpedo launcher rack (which was loaded with an improved Mark 13 aerial torpedo) effectively eliminated the problem of a flash of light giving away the position of the PT boat as a result of burning grease. The new launcher did not use any form of explosive to launch the torpedo, and it was about 1,000 pounds (450 kg) less weight than the old tube style launchers.

During the war, a few PT boats were modified to become a "PT Gunboat". In the PT Gunboat, the torpedoes were all removed and replaced with more and heavier guns. These versions mounted extra armor, though tests showed this was not very effective.

The effectiveness of PT boats in the Solomon Islands campaign, where there were numerous engagements between PTs and capital ships as well as against Japanese shipborne resupply efforts dubbed "The Tokyo Express" in "the Slot", was substantially undermined by defective Mark 8 torpedoes. The Japanese were initially cautious when operating their capital ships in areas known to have PT boats, since they knew how dangerous their own Type 93s were, and assumed the Americans had equally lethal weapons. The PT boats at Guadalcanal were given credit for several sinking and successes against the vaunted Tokyo Express. In several engagements, the mere presence of PTs was sufficient to disrupt heavily escorted Japanese resupply activities at Guadalcanal. Afterwards, the PT mission in the Solomon Islands was deemed a success.

Throughout World War II, PTs operated in the southern, western, and northern Pacific, as well as in the Mediterranean Sea and the English Channel. Some served during the Battle of Normandy. During the D-Day invasion, PTs patrolled the "Mason Line", forming a barrier against the German S-boats attacking the Allied landing forces. They also performed lifesaving and anti-shipping mine destruction missions during the invasion.



PT boat gunner mans his twin fifties off New Guinea

Perhaps the most effective use of PTs was as "barge busters". Since both the Japanese in the New Guinea area and the Germans in the Mediterranean had lost numerous resupply vessels to Allied air power during daylight hours, each attempted to resupply their troop concentrations by using shallow draft barges at night in very shallow waters. The shallow depth meant Allied destroyers were unable to follow them due to the risk of running aground and the barges could be protected by an umbrella of shore batteries. PTs had sufficiently shallow draft to follow them inshore and sink them. The efficiency of the PT boats at sinking the Japanese supply barges was considereda key reason why the Japanese had severe food, ammunition, and replacement problems during the New Guinea and Solomon Island Campaigns, and made the PT boats prime targets for enemy aircraft. The use of PT boat torpedoes was ineffective against these sometimes heavily armed barges, since the minimum depth setting of the torpedo was about ten feet (3 m) and the barges only drew five (1.5 m). To accomplish the task, PTs in the Mediterranean and the Pacific (and RN and RCN MTBs in the Med) installed more and heavier guns which were able to sink the barges. One captured Japanese soldier's diary described their fear of PT boats by describing them as "the monster that roars, flaps it wings, and shoots torpedoes in all directions."

Though their primary mission continued to be attack on surface ships and craft, PT boats were also used effectively to lay mines and smoke screens, coordinate in air-sea rescue operations, rescue shipwreck survivors, destroy Japanese suicide boats, destroy floating mines, and to carry out intelligence or raider operations.

After the war, American military interviews with captured veterans of the Imperial Japanese Navy, supplemented by the available partial Japanese war records, were unable to verify that all the PT boat sinking claims were valid. Like many other victory claims by all parties involved (aircraft pilots, surface ships, submarines) this unclear verification was due in part to the Japanese military's policies of destroying military records.

**Supply**

Although they did have a small refrigerator on board, PT boats lacked the larger capacity refrigerators of larger ships to store meat, milk, butter, and eggs, so crews depended on the ingenuity of their cook, who might also be quartermaster and signalman, and what he could do with sandwiches, Spam, Vienna sausage, beans, and orange marmalade. PT boat squadrons were supported by either PT boat tenders or PT boat bases which supplied the boat crews with hot meals cooked aboard the larger command's facilities. The PT boat crews were usually located at the end of the supply chain, and as a result, they became proficient at finding "alternative means" of meeting their needs. PT boat crews would often beg, borrow, or barter with nearby ships or military units for supplies. At the front lines, it was not uncommon to see crewmen fish by aiming rifles or tossing grenades into the water near the boat.

**PT gunboats**

In the Solomon Islands in 1943, three 77-foot (23 m) PT boats, *PT-59*, *PT-60*, and *PT-61*, were converted into "PT gunboats" by stripping them of all original armament except the two twin .50 cal (12.7 mm) gun mounts, then adding two 40mm and four twin .50 cal (12.7 mm) mounts. Lieutenant John F. Kennedy was the first commanding officer of *PT-59* after its conversion. On November 2, 1943, *PT-59* participated in the rescue of 40 to 50 Marines from Choiseul Island and a foundering landing craft (LCP(R)) which was under fire from Japanese soldiers on the beach.

In 1944, several Higgins 78-foot (24 m) boats ( *PT222*, *PT-283*, *PT-284*, *PT-285*, and *PT-282*) were converted, releasing *PT-59*, *PT-60*, and *PT-61* for transfer back home to the Motor Torpedo Boat Squadron Training Command (MTBSTC) school in Melville, Rhode Island for use in training in hull repair techniques.

**Notable PT boats**



Lieutenant (junior grade) John Kennedy (right) with his *PT-109* crew.

Many PT boats became famous during and after World War II:

* *PT-41*, commanded by Lieutenant John D. Bulkeley, carried General Douglas MacArthur in his escape from Corregidor Island, Philippines. Bulkeley was awarded the Medal of Honor for his operations in the Philippines before rescuing MacArthur. Bulkeley's story inspired the book *They Were Expendable*, and the movie of the same name. *PT-41* was the flagship of Motor Torpedo Boat Squadron Three (RON 3), based in the Philippine Islands 1941–1942 (*PT-41, -31, -32, -33, -34, -35*).
* *Life* magazine published an article about the PT boat captains in the battles off Guadalcanal, featuring the exploits of Lieutenants "Stilly" Taylor, Leonard A. Nikoloric, Lester Gamble, and Robert and John Searles; the article mentioned many boats in Squadrons Two and Five (in particular, *PT-36*, *PT-37*, *PT-39*, *PT-44*, *PT-46*, *PT-48*, *PT-59*, *PT-109*, *PT-115*, and *PT-123*).
* Other PT boats gaining fame during the war were *PT-363* and *PT-489*, the boats used by Lieutenant Commander Murray Preston to rescue a downed aviator in Wasile Bay,[16] off Halmahera Island, for which Preston was awarded the Medal of Honor.
* *PT-109*, commanded by future President John F. Kennedy, was made famous through the 1961 book *PT 109: John F. Kennedy in World War II* by Robert J. Donovan, and the 1963 film based on it.
* *PT-59*: Commanded by John F. Kennedy after the loss of *PT-109*
* *PT-105*: Commanded by Dick Keresey at the time of the loss of *PT-109*. Keresey wrote a book by the same name.
* "PT-373" Commanded by Lt. Belton A. Copp was the first boat, of a two boat squadron, to enter Manila Harbor in order to "test defenses" since the U.S. retreat in 1942. General McArthur honored Lt. Copp and the crew of PT-373 by using it to carry him back into Manilla Harbor on March 2, 1945.

**PT Boat Losses**

According to the book *"At Close Quarters: PT Boats in the United States Navy"* 99 of the 531 PT boats that served during WWII, were lost to various causes.

* Accident, friendly fire, sea conditions - 32
* Destroyed by own crew to prevent capture - 27
* Rammed, by the enemy - 8
* Kamikaze - 2
* Naval mines - 9
* Enemy Coastal artillery - 6
* Strafing by Aircraft - 8
* Enemy Naval Gunfire - 7

**Remaining WWII PT boats**

At the end of the war, almost all surviving U.S. PT boats were disposed of shortly after V-J Day. Hundreds of boats were deliberately stripped of all useful equipment and then dragged up on the beach and burned. This was done to minimize the amount of upkeep the Navy would have to do, since wooden boats require much continuous maintenance, and they were not considered worth the effort. The boats also used a lot of gasoline for their size, making them too expensive to operate for a peacetime navy. Much of this destruction (121 boats) occurred at PT Base 17, on Samar, Philippines, near Bobon Point.

A total of 11 PT boats, and 2 experimental PT boat hulls in various states of repair, survive today in the U.S.:

* ***PT-48***

*PT-48* is possibly the last surviving 77-foot (23 m) Elco PT boat. In July 1942, *PT-48* (nicknamed "Prep Tom" and "Deuce") was assigned to MTB RON 3. This second Squadron 3 was the first to arrive in the Solomon’s and saw heavy engagement with the "Tokyo Express". PT 48 was one of the first 4 boats to arrive at Tulagi, on 12 October 1942. On the night of 13/14 October 1942, PT-48 engaged a Japanese destroyer at 200 yards (180 m). This Squadron saw action in the Solomon Islands, Guadalcanal, and Funafuti. *PT-48* is today in need of major restoration, after having been cut down to 59 feet (18 m) and used as a dinner cruise boat. Because of this boat's extensive combat history, having survived 22 months in the combat zone at Guadalcanal (more time in combat than any other surviving PT boat), a preservation group, “Fleet Obsolete” of Kingston, New York, acquired and transported it to Rondout Creek in 2008 for eventual repair.

Lt. Jg. Raymond O. Sopher was the captain of both PT-48 and PT-60. (citation: Marti J. Sopher, Ph.D., Madison, WI 5/31/12)

* ***PT-305***

*PT-305* ("Half Hitch", "Barfly", "USS Sudden Jerk") is a Higgins 78-foot (24 m) boat, assigned during the war to RON22, and saw action against the Germans in the Mediterranean Sea. Squadron 22 was operating with the British Coastal Forces, and saw action along the northwest cost of Italy and southern coast of France. In June 1945 the squadron was shipped to the U.S. for refitting and transfer to the Pacific, but the war ended while still in New York. The *PT-305* was cut down to 65 feet (20 m) for use as an oyster seed boat in Crisfield, Maryland. *PT-305* was acquired by the Defenders of America Naval Museum (DOANM), and then sold in May 2007 to the National World War II Museum in New Orleans. *PT-305* is undergoing restoration (as of 2012) to become a permanent display in the new expansion of the museum.

* ***PT-309***

A 78-foot (24 m) Higgins, PT-309 ("Oh Frankie!") was assigned during the war to RON22, and saw action against the Germans in the Mediterranean Sea. The squadron was operating under the British Coastal Forces, and saw action along the northwest cost of Italy and southern coast of France. In April 1945 the squadron was shipped to the U.S. for refitting and transfer to the Pacific, but the war ended while still in New York. Coincidentally, the *PT-309* ("Oh Frankie!"), was named in honor of Frank Sinatra, with whom the boats' Commanding Officer met at a nightclub shortly before MTBRON22 left New York for the Mediterranean Theatre. *PT-309* is located at the National Museum of the Pacific War / Admiral Nimitz Museum in Fredericksburg, Texas, which was restored by the (now defunct) Defenders of America Naval Museum (DOANM). *PT-309* is restored (but non-operational) in a static diorama display without engines installed. Her external restoration was completed by the Texas group in 2002, and is to a high standard.

* ***PT-459***

*PT-459* ("MAHOGANY MENACE") a Higgins 78-foot (24 m) boat, was assigned to MTBRON 30 on 15 February 1944 under the command of LCDR Robert L. Searles. MTBRON 30 saw action in the English Channel as part of the Invasion of Normandy. In late June 1945 the squadron was shipped to the U.S. for refitting and transfer to the Pacific, but the war ended while still in New York. After the war, the ex-PT459 was cut down to 65 feet (20 m) and highly modified into a sightseeing boat and fishing trawler. She was acquired by Fleet Obsolete in June 2008 and moved to Kingston, New York for possible restoration.

* ***PT-486***

*PT-486*, an 80-foot (24 m) Elco boat, was place in service on December 2, 1943. It was used in the training squadron (MTBRON)4 in Melville, Rhode Island during World War II until it was placed out of service January 16, 1946. Along with PT-557, the vessel was purchased from BFM Industries (Brooklyn, NY) by Capt. George C. Sinn of Wildwood Crest, NJ on October 9, 1951 for $1,015.00. The vessel was sold in 1952 to Otto Stocker who operated the "Sightseer" as an excursion vessel from Otten's Harbor in Wildwood, New Jersey. The business was later sold to Capt. Charles Schumann in the 1980s. He named the vessel Schumann's "Big Blue" and ran the business until 2002. Remarkably, the PT486 was sold to the son of the original owner, Capt. Ronald G. Sinn, who is currently restoring the vessel to recreate the World War II appearance of PT-109, for which the PT-486 was renamed.

* ***PT-615***

*PT-615*, an 80-foot (24 m) Elco originally assigned to RON 42, was commissioned after the war ended. *PT-615* was returned to Elco after being sold and was heavily modified into a yacht, which was leased to actor Clark Gable. He named the boat *Tarbaby VI*, and used her through the 1950s. The boat was serviced and stored by Elco. She was sold several times, and moved to Kingston for possible restoration.

* ***PT-617***

*PT-617* is an 80-foot (24 m) Elco boat located in Battleship Cove Naval Museum in Massachusetts. She was obtained from the backwaters of Florida and moved to its current location by JM "Boats" Newberry, the founder of PT Boats Inc. "Boats" along with the team at Battleship Cove Museum restored her during 1984-89, inside and out, at a cost of US$1 million. The boat is owned by PT Boats, Inc., a World War II PT veterans organization headquartered in Germantown, Tennessee. The quality of the restoration was extremely high, and the boat is on display inside a weatherproof building, on blocks out of the water. She is available for public viewing, and has portions of her hull cut away to display the cramped interior of the crew's quarters. General visitors are not allowed inside the boat in order to help preserve her historic integrity.

* ***PT-619***

Served in the South Pacific as a downed pilot rescue boat. Now being restored by Randy Cunnigham in Vancouver B.C.

* ***PT-657***

*PT-657*, a Higgins 78-foot (24 m) boat, has been converted into a charter fishing boat. She is located in San Diego, California and is now named *Malahini*.



PT-658 in Measure 31-20L Camouflage May 2011 Portland, Oregon

* ***PT-658***

Perhaps the best example of a surviving Higgins 78-foot (24 m) boat is *PT-658*, which was completely restored to her original 1945 configuration from 1995 to 2005. *PT-658* is now fully functional and afloat, using the three original Packard V12 5M-2500 gas engines. It is the only 100% authentically restored U.S. Navy PT boat actually operational today. *PT-658* is located in Portland, Oregon at Navy Operational Support Center Portland's Swan Island Pier. The group wishes to maintain the boat as a living, breathing artifact dedicated to the history of the PT force of the Second World War.

* ***PT-728***

*PT-728*, a surviving Vosper boat built under license at the Annapolis Boat Yard in Maryland, was restored by in Key West, Florida. Her deck house was reconfigured to partially resemble an 80-foot (24 m) Elco instead of its original Vosper 70-foot (21 m) configuration. *PT-728* was acquired by Fleet Obsolete and moved to Kingston. There *PT-728* allows up to 49 tourists the chance to ride on a "PT boat". This boat is the only U.S. Coast Guard regulation-approved PT boat licensed to take passengers for hire, and the only surviving U.S.-built Vosper design. As of Feb 7. 2012, *PT-728* is for sale via the Hammacher Schlemmer catalog for $1 million. *PT658 Video*

* ***PT-796***

*PT-796* ("Tail Ender") is a 78-foot (24 m) Higgins. After the war ended PT-796 was used in the Key West/Miami area for experimental purposes. She was retired from service in the late 1950s. Shortly after her retirement from service, the *PT-796* was used as a float during President John F. Kennedy's inaugural parade to represent *PT-109*, with the *PT-109* hull number painted on the bow, and several of *PT-109'*s surviving crew members manning the boat. Today, *PT-796* is located at the Battleship Cove Naval Museum in Fall River, Massachusetts in a Quonset hut-style building, protected from the weather, and up on blocks. The boat is owned by PT Boats, Inc., a World War II PT veterans organization headquartered in Germantown, Tennessee.

**Experimental boats**

* ***PT-3***

Two of the experimental PT-Boats also still survive, *PT-3* (built by Fisher Boat Works) in Pennsylvania and *PT-8*. *PT-3* was a 59-foot (18 m) barrel-back boat that was rejected by the Navy during trials in 1941 after being deemed too short to carry 4 torpedoes. PT-3 and PT-8 were both part of Squadron 1 (RON 1) during the testing period. After testing was completed in 1941, PT-3 was reclassified into a Small Boat and transferred to Harbor Patrol duties for the duration of the war.

* ***PT-8***

*PT-8* (built at Philadelphia Naval Shipyard) in Louisiana was built entirely from aluminum but did not pass the speed acceptance criteria for use as a PT boat for the U.S. Navy due to its weight. She was reclassified as a harbor patrol boat for the duration of the war.

* ***UK Vosper***

The two Vosper boats in England were built by Vosper itself, and the first is in fairly good condition at Portsmouth. The second UK built boat is in private hands, floating on a canal north of London and being used as a private residence, though it is remarkably intact in its World War II configuration.

**Exported PT boats**

Ten Higgins boats were delivered in 1948 for use by the Argentine Navy ("Armada Argentina") during the late 1940s up until the late 1970s. All of these boats are now retired from naval use, with two still in service today as sightseeing boats on Mar del Plata: the *Leonardo da Vinci* #8 and the *Mar de la Plata* #9. The other six boats are in various states of disrepair or sunk or scrapped.

The PT boat design was also exported after the end of the second world war as an unarmed air-sea rescue launch for use by the South African Navy.