United States Department of the Interior
National Park Service

National Register of Historic Places Registration Form

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in National Register Bulletin, *How to Complete the National Register of Historic Places Registration Form.* If any item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions. **Place additional certification comments, entries, and narrative items on continuation sheets if needed (NPS Form 10-900a).**

1. Name of Property

historic name Motor Torpedo Boat PT-658

other names/site number

2. Location

street & number Navy & Marine Corps Reserve Readiness Center, Swan Island, 6735 Basin Avenue ☐ not for publication

city or town Portland ☐ vicinity

state Oregon code OR county Multnomah code 051 zip code 97213

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended,

I hereby certify that this _X_ nomination ___ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60.

In my opinion, the property _X_ meets ___ does not meet the National Register Criteria. I recommend that this property be considered significant at the following level(s) of significance:

_X_ **national** ___ **statewide** __**local**

Signature of certifying official/Title: Deputy State Historic Preservation Officer Date

Oregon State Historic Preservation Office
State or Federal agency/bureau or Tribal Government

In my opinion, the property __ meets ___ does not meet the National Register criteria.

Signature of commenting official Date

Title State or Federal agency/bureau or Tribal Government

4. National Park Service Certification

I hereby certify that this property is:

___ entered in the National Register ___ determined eligible for the National Register

___ determined not eligible for the National Register ___ removed from the National Register

___ other (explain:)

Signature of the Keeper Date of Action

Motor Torpedo Boat PT-658
Name of Property

Multnomah Co., OR
County and State

5. Classification

Ownership of Property
(Check as many boxes as apply.)

- [X] private
- [ ] public - Local
- [ ] public - State
- [ ] public - Federal

Category of Property
(Check only **one** box.)

- [ ] building(s)
- [ ] district
- [ ] site
- [X] structure
- [ ] object

Number of Resources within Property
(Do not include previously listed resources in the count.)

Contributing	Noncontributing	
		buildings
		district
		site
1		structure
		object
1	0	**Total**

Name of related multiple property listing
(Enter "N/A" if property is not part of a multiple property listing)

N/A

Number of contributing resources previously listed in the National Register

None

6. Function or Use

Historic Functions
(Enter categories from instructions.)

DEFENSE: Naval Facility

Current Functions
(Enter categories from instructions.)

RECREATION AND CULTURE: Museum

7. Description

Architectural Classification
(Enter categories from instructions.)

NO STYLE

Materials
(Enter categories from instructions.)

foundation: N/A
walls: N/A
roof: N/A
other: HULL: WOOD: Mahogany; Spruce

Narrative Description

(Describe the historic and current physical appearance of the property. Explain contributing and noncontributing resources if necessary. Begin with **a summary paragraph** that briefly describes the general characteristics of the property, such as its location, setting, size, and significant features.)

Summary Paragraph:

Built during World War II in 1945 at Higgins Industries Boatworks in New Orleans, PT-658 is a fully-restored and -operational example of a rare 625 Class Higgins Patrol Torpedo Boat (PT Boat). (Photos 1 and 2 of 12) Only 36 boats of this type were constructed. PT-658 is floating on the north bank of the Willamette River, housed in a custom-built boathouse at Swan Island in north Portland, Oregon. (Photo 3 of 12.) Constructed almost entirely of wood, the V-shaped planing hull is fitted over mahogany frames and constructed of spruce and mahogany planks with canvas between the two layers. The main feature of the deck is the Deckhouse, which is located on the first third of the boat, (Photo 4 of 12). The space contains the Chartroom, Radar Room and Helm (steering and propeller control station). Two circular 4-foot diameter plywood machine-gun tubs are set on either side of the Deckhouse, and the radar mast is centered behind it. Weapons mounted on the deck include machine guns, cannons, depth charges, torpedoes, and a smoke generator canister. The interior of PT-658 is divided below deck into eight watertight compartments separated by built-up plywood bulkheads (walls). Listed in order from bow to stern, they are: Forepeak (Chainlocker), Forward Crew's Quarters/Galley, Officers Wardroom, Forward Tank Room/Head, Engine Room, Aft Tank Room/Head, Aft Crews Quarters and Lazarette (Rudder Room). The Engineroom contains three model 5M-2500 Packard V12 marine engines. The first three compartments after the forepeak and the last three in the stern are joined by four functioning watertight doors, but separated by the engine room which can only be accessed by ladder from the deck. The period interior is constructed almost completely of painted wood and retains a high level of integrity, including the retention and/or careful restoration of the fully functional electrical system and interior fixtures and replication of the original interior paint scheme.

Narrative Description

Overall Dimensions and Hull:

Built in 1945 near the end of WW II by Higgins Industries Boatworks in New Orleans, PT-658 is constructed according to standard dimensions of the Higgins-type PT boat. PT-658 is 78.75 feet long, with a 20.25-foot beam and a 5.6-foot draft. When fully loaded, PT-658 displaced 55 tons.[1] The overall hull form is a classic planing hull, which consists of two layers of wood planks (3/8" spruce and 3/4" mahogany) fitted over 1-1/2-inch mahogany frames spaced 15 inches apart.[2] (Photo 5 of 12.) The main structure of the hull contains no plywood. The interior spruce layer is laid at 45 degree angles to the outer layer of mahogany planks. The outer layer is parallel to the waterline, and is connected to adjacent planks through the use of oval-shaped "joiner-plates" used to join the butt joints from the inside of the boat. To improve the watertight integrity of the hull, "a layer of canvas, impregnated with glue, was ironed on between the two layers of planking."[3] The three layers are held together using two rows of copper rivets between each frame for a total of 6,000 rivets, and bronze screws. The hull is painted red below the waterline and gray above this point.

Main Deck:

Painted gray, the major structure on the main deck of the boat is the Deckhouse. The Deckhouse contains the Chartroom and Radar Room, and is constructed of mahogany frames and plywood. (Photos 6 and 7 of 12) The aft end of the Deckhouse contains the Helm equipment (steering and propeller control station), along with a windscreen and storage compartments within the bulwarks (wall above boats deck). Each side of the

[1] United States Navy, "Motor Torpedo Boat PT625 Class Drawing Hull Construction Details, Bureau of Ships Plan No. S-1100 587003 Alt-9" (Washington D.C.: United States Government Printing Office, 25 June 1944).

[2] Robert J. Bulkley, *At Close Quarters: PT Boats in the United States Navy* (Washington, DC: Naval History Division, 1962), 33.

[3] United States Navy, Division of Naval Intelligence, "Standard Reference Manual on United States Men-of-War Confidential Release (ONI 222-US)" (Washington D.C.: United States Government Printing Office, 1 September 1945), 135.

Deckhouse contains two windows with cover plates that can be dogged down using hinged securing bolts for light control. The rear of the Deckhouse is faired into two circular 4-foot diameter machine gun tubs. On the chart board inside the Chartroom are a parallel motion protractor, parallel rules and other navigation instruments. The Pioneer AN-B16 Magnetic Compass (Whiskey Compass) is identical to those used on aircraft, and is mounted inside a cylindrical aluminum binnacle just above the steering wheel. Installed near the binnacle is the Mark 14 Mod 0 remote torpedo firing panel. Additionally, two sets of U.S. Navy binoculars, a Navigators Divider and Compass set, a US Navy Bu. Nav. Mark II Sextant, a Hamilton Model 22 PT Boat Chronometer, and Voice Megaphone complete the equipment supplied with the Helm.

Other deck equipment includes the original 75-pound Danforth anchor stored near the Chainlocker. Ready Service Ammunition Storage Lockers supply the 20mm Cannon, and the 37mm and the 40mm cannons on deck. Two cast-able life rings with their bronze storage hooks are installed on the outboard side of the Deckhouse. The original SO radar mast and radar dome are located amidships (middle part of the boat) just aft of the Helm. The boat's original operating 24-volt DC searchlight is installed next to the Helm. The 20-foot radio whip antenna is attached using the original mounting hardware on the outboard side of the Deckhouse. Survival and navigation equipment are also mounted on the deck, and include the original two-man muslin-covered balsa-wood life raft, which is outfitted with a wooden 5-gallon water cask, survival ration can, oars, first aid kit, fishing kit, and tarp.

Below-deck spaces are supplied with fresh air ventilation through operating and original adjustable vent air scoops mounted on the deck behind the Deckhouse on either side. Two flagstaffs, one on the stern and one on the bow, provide the historically accurate location to display the forty-eight-star Navy Jack and the National Ensign. The deck also contains original escape hatches from the Forward Crew Quarters and the two Emergency Escape Hatches from the Engine Room.

Interior Below Deck:
The interior of PT-658 is divided with built-up plywood bulkheads painted reflective white. Wood ladders, railings, and the openings to the watertight doors and bunks are painted brown. Conduit, metal fittings, and equipment are mounted to the outside of the bulkheads. The space is divided below deck into eight watertight compartments from bow to stern.[4] Starting at the bow is the Forepeak (or Chainlocker), where anchor chains, lines, and deck gear are stowed. Next is the Forward Crew's Quarters and Galley, which contain eight bunks, 4 on each side; lockers; a folding mess table; galley equipment, including a metal sink and refrigerator and plywood cabinetry; and the fluxgate gyrocompass sensing unit. (Photo 8 of 12) The next compartment aft, to the rear, is the Officer's Wardroom, which contains two berths, a desk, a transom seat, radar equipment, small-arms weapons and ammunition lockers. (Photo 9 of 12) Aft of the Wardroom is the Forward Tank Room, which contains two 800-gallon rubber-lined self-sealing 100-octane aviation-gasoline tanks which flank either side of the Officers' head. The next major compartment aft is the Engine Room, which contains the three Packard 5M-2500 Packard V12 marine engines, auxiliary electric generators, and electrical DC switchboard. (Photo 10 of 12) The three engines are liquid cooled, supercharged, 12-cylinder engine operating on a 4-stroke cycle. Each is furnished as a complete marine power plant with a direct connected reverse gear in which is embodied a double cone-type clutch and positive-forward drive.[5] Each engine consumes up to 150 gallons per hour. Exhaust is vented through either side of the hull through the original mufflers. The boat carries 3,000 gallons, or 9 tons, of 100 plus high-octane aviation fuel, giving it a maximum cruising radius of 550 miles. Fuel is carried in the Forward Tank Room and in the Aft Tank Room, located just aft of the Engine Room. Both tank rooms are similar in construction. Located near the stern (back end of the boat) is the Aft Crews Quarters (Photo 11 of 12), which contains four bunks,two on each side, and the Lazarette (or Rudder

[4] United States Navy, "Motor Torpedo Boat PT625 Class Drawing Inboard Profile & Arrangement, Bureau of Ships Plan No. S-1100 769675" (Washington D.C.: United States Government Printing Office, 15 November 1944).

[5] Packard Motor Company, "Operating Manual, Packard Marine Engine 4M-2500, Types W8 Through W17 (Detroit: Packard Motor Company, Inc., 1944), 101; Vincent, J.G. "Development of the Packard Marine Engine During World War II (September 1938-April 1945)" (Detroit: Packard Motor Car Co., 1945), 10.

Room) which contains two bunks. (Photo 12 of 12) Five square-shaped deck hatches and ladders provide access to the Forward Crews Quarters, the Wardroom, the Engine Room, the Aft Crews Quarters, and the Chainlocker. The Chainlocker does not have a ladder. Watertight doors join the Forward Crews Quarters to the Wardroom, and another joins the Wardroom with the Officer's Head in the Forward Tank Room. Two more watertight doors join the Aft Crews Quarters to the Lazarette and the Aft Tank Room/Crew's Head located similarly between the aft gas tanks. The Engine Room and Forepeak are separated from the rest of the below deck compartments and can only be reached from the deck.

Combat Electronics:
PT-658 is equipped with Raytheon SO3 Surface Search Radar mounted on the main mast centered behind the Deckhouse inside of a radome that sits17 feet above the waterline. The radar is supplemented by the installation of US Navy IFF (Identification Friend or Foe) equipment. Radio communications equipment is supplied by Collins. A "TCS"-type transmitter and receiver is installed inside the Charthouse. The boat's electronic navigation gear consists of a Pioneer Flux Gate Gyrocompass which includes the power supply, the flux gate sending unit, a caging switch for the gyro, an adjustable "Master Compass Indicator" found inside the Deckhouse, and a "Repeater" mounted on the Helm near the steering wheel.[6]

Weaponry:
PT-658 mounts a wide variety of weapons systems on the deck. Two twin Browning 50-caliber belt-fed machine guns are mounted in Mark 17 Mod 2 turret rings atop gun tubs on either side of the Deckhouse.[7] Also mounted are two single barrel Oerlikon Cannons (of Swiss design) supplied by a spiral-fed drum magazine and served by two crew members.[8] Mounted centerline on the bow is the 37mm Browning/Oldsmobile Mk4 Automatic Cannon with a unique horse-collar shaped endless belt magazine and served by a crew of two. Located on the stern is the single air-cooled Bofors Mk 1 anti-aircraft cannon, served by a crew of four. Two 300-pound depth charges are installed aft on the stern in roll-off racks. The Smoke Generator, mounted on the set on roll-off style launching racks, are 22-1/2 inches in diameter and 13 feet 5 inches long. Of the four torpedoes on board, one torpedo has been cut-away to allow visitors to view the internal propulsion system. Small arms carried on PT-658 include a crew-issued 45-caliber pistol, Browning Automatic Rifle, U.S. M 1 Springfield 30 caliber Rifle, two Thompson 45-caliber submachine guns, and grenades, all of which are kept in a small arms rack in the Officers wardroom and ammunition locker.[9] All weapons are inoperable and/or demilitarized.

Restoration of PT-658:
In September 1994, an extensive multi-year effort was undertaken to restore PT-658. The boat returned to its authentic war-time condition using original materials salvaged from other boats and in-kind replacement of wood and other materials and equipment that are true-to-the-period. Restoration and preservation of PT-658 was guided by primary sources including original plans and specifications from Higgins and Packard, detailed drawings and photographs from the Naval archives, historical documents, and from the memories of those who served on PT boats. Restoration efforts are guided by the established guidelines of the Historic Naval Ships Association, of which PT-658/Save the PT Boat is a Fleet Member.

During 1993-2010, Save the PT Boat, Inc. dismantled, cleaned, and painted PT-658 inside and out, and rehabilitated, repaired, or reconstructed key features. The work above deck included replacing the rub rail,

[6] United States Navy, "Motor Torpedo Boat PT625 Class Drawing Gyro Compass Installation, Bureau of Ships Plan No. S-1100 587112 Alt-1" (Washington D.C: United States Government Printing Office, 6 November 1944).
[7] United States Navy. "Ordinance Pamphlet No. 951 50 Caliber Mount, MARK 17 MODS. 1 AND 2," prepared from Bureau of Ordnance drawings, and the material furnished by the Bell Aircraft Corp and the Electric Boat Company (Washington D.C.: United States Government Printing Office, 8 March 1943).
[8] United States Navy. "Ordinance Pamphlet T No. 911 "20 mm. A.A. GUN" Description 20 mm. Machine Gun Mechanisms Marks 2 and 4, Gun Barrels Marks 2, 3, and 4 Mod. 1, Sights Marks 2, 4, 4 Mod. 1, and 5, Magazines Marks 2 and 4, Shoulder Rests Marks 2, 4, 5 and 5 Mod. 1" (Washington D.C.: United States Government Printing Office, March 1943).
[9] United States Navy, Division of Naval Intelligence, "Standard reference manual on United States men-of-war Confidential Release (ONI 222-US)" (Washington D.C.: United States Government Printing Office, 1 September 1945).

chine, and gunwale; reconstructing the Deckhouse; refurbishing the propellers, repairing and installing the 40mm cannon, torpedoes, torpedo racks, radio, radar, and gyro; patching the side of the hull; and replacing the deck from the Deckhouse to the bow. The organization's volunteer members built the 50 caliber gun tubs on either side of the Deckhouse. Below deck, the group overhauled the engines and installed operational engine cooling water and exhaust systems. Volunteers also rehabilitated the auxiliary electrical generators, the main DC electrical distribution panel, fuel tanks, water storage tank, range and refrigerator, heads and sinks, oil tanks, heat exchangers, steering system, salt water strainers, fire suppression system, and all thru-hull fittings.[10]

Despite the extensive work needed to restore PT-658 to working order and her war-time configuration, the great majority of the boat's original historic materials, fittings and systems have been retained or were salvaged from other period ships. The hull and bottom is 98 percent original, with the exception of two small patches, and 75 percent of the sides are original, as are the struts and exhaust mufflers. The gunwale and rub rail and 25 percent of the side planking were replaced, and the deck, radar mast, and ready boxes were rebuilt. On the interior, the deck beams, longitudinal bulkheads, interior hatches, galley, bunks, storage lockers in the forward officers and aft and crews quarters, and the configuration of all eight water-tight compartments were retained. The interior deck floorboards and electrical system were rehabilitated. Original equipment includes the gun and Chainlocker, radar with power units, electrical distribution panel, instrumentation, wiring, duct work, heat exchangers, engine room control panels, cooling systems, fire suppression system, fuel tanks and associated equipment, steering equipment, one of the 4KW Auxiliary Generators, a refrigerator and stove. The on-board water tanks, smoke generator and mounting for the 37mm cannon were rebuilt. The engines, propellers and shafts, rudders, 20 mm anti-aircraft guns, life raft, radio receiver, depth charges, 40 mm cannon, and other mechanical equipment, were salvaged from other ships or are on permanent loan from other museums.

[10] Save the PT Boat, Inc. "Situation report on P.T. Boats 658 and 659 to John Scott, Curator Oregon National Guard Military Museum, Camp Withycome, Oregon." (Portland, OR: Save the PT Boat, Inc. 21 March 1994); Save the PT Boat, Inc. "Outline for restoration of PT Boat 658" (Portland, OR: Save the PT Boat, Inc., July 1993).

8. Statement of Significance

Applicable National Register Criteria

(Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing.)

- [x] A Property is associated with events that have made a significant contribution to the broad patterns of our history.
- [ ] B Property is associated with the lives of persons significant in our past.
- [x] C Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
- [ ] D Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria Considerations

(Mark "x" in all the boxes that apply.)

Property is:

- [ ] A Owned by a religious institution or used for religious purposes.
- [ ] B removed from its original location.
- [ ] C a birthplace or grave.
- [ ] D a cemetery.
- [ ] E a reconstructed building, object, or structure.
- [ ] F a commemorative property.
- [ ] G less than 50 years old or achieving significance within the past 50 years.

Areas of Significance

(Enter categories from instructions.)

MILITARY

ENGINEERING

Period of Significance

1945, the year of construction and service

Significant Dates

July 30, 1945, date of completion

Significant Person

(Complete only if Criterion B is marked above.)

N/A

Cultural Affiliation

N/A

Architect/Builder

Higgins Industries Boatyard, New Orleans, LA

Period of Significance (justification)

The period of significance includes the year that Motor Torpedo Boat PT-658 was constructed and assigned to PT Boat Squadron 45 and later reassigned to the Lend-Lease Program through the end of the war on September 2, 1945. PT-658 never saw combat action.

Criteria Considerations (explanation, if necessary)

Not Applicable

Statement of Significance Summary Paragraph (Provide a summary paragraph that includes level of significance and applicable criteria.)

Motor Torpedo Boat PT-658 is nationally significant under Criterion A, military, for its association with the Pacific War against Japan during WW II as an example of the Navy's combat doctrine that incorporated the use of inexpensive, fast, versatile, heavily-armed, and lightly-protected boats to support a variety of combat missions including harassing enemy shipping, rescuing downed pilots, assisting in shore landings, and attacking larger more heavily-armed and -armored ships. The boat is also nationally significant under Criterion C, engineering, as a rare example of a 625 Class Higgins PT boat, one of only 36 constructed and the best preserved of the two remaining hulls. These few boats incorporated the latest technologies and armaments that were developed in direct response to the changing nature of the combat mission in the European and Pacific theaters, and thus represent the apex of PT-boat design before construction of these ships ceased at the end of WW II. The period of significance is 1945, the year PT-658 was constructed and assigned to PT Boat Squadron 45 and then later reassigned to the Lend-Lease Program; however, PT-658 never saw combat because the war ended before delivery was completed.[11]

_____b_____

Narrative Statement of Significance (Provide at least **one** paragraph for each area of significance.)

First developed by the European powers in the early-twentieth century for coastal defense, PT boats became an indispensible part of the U.S. war strategy during WWII. Seeking a versatile and inexpensive weapon to defend the Philippines, General Douglas MacArthur secured 15 million dollars from Congress in 1941 to produce 100 PT boats to defend the islands. Considered ideal because these wood ships could be produced cheaply and quickly without utilizing steel needed for larger ships, the boats provided distinct advantages over aircraft, including being able to operate during foul weather and having a longer range. While PT-boats were unarmored, the use of a V-shaped planing hull and powerful engines enabled the boats to quickly attack better-armed and -armored targets and flee before they could be pursued. To aid in these hit-and-run attacks, PT boats boasted the heaviest armament of any U.S. Navy ship compared to their size. These versatile weapons and their crews served in the Pacific Ocean, Aleutian Islands, Mediterranean Sea, and coastal Europe, and played a key role in hampering the Japanese and German war effort by destroying enemy shipping. Other missions included supporting landings, harassing shore installations, and rescuing downed-pilots among other missions. Cheap to produce, fast, maneuverable, and heavily armed, PT boats carried out a variety of critical battlefield roles and were a key part of the overall strategy to win the war.[12]

Throughout their use in WW II, PT boat design was constantly changing to meet the needs of the crews and commanders that depended on them. As a late-model 625 Class Higgins Patrol Boat, PT-658 incorporates the latest hull, engine, and weapons designs, including mahogany exterior planking and strengthened structural

[11] The Lend-Lease Program, passed by Congress as Public Law 77-11, was the name of the program under which the United States supplied the United Kingdom, the Soviet Union, China, France and other Allied nations with vast amounts of war material between 1941 and 1945.

[12] PT Boats gained additional fame almost 20 years after World War II ended during the Presidential campaign of President John F. Kennedy. PT Boats were associated with Kennedy's wartime exploits as the commanding officer of two different PT boats, PT-109 and PT-59. His success in the Solomon Islands was instrumental in Kennedy's political career and the basis for several books and movies about his experiences. The movie "PT-109" released in 1963 starring Cliff Robertson was based on a book of the same name by Robert J. Donovan.

system; the 1850 HP 5M-2500 V-12 Packard Marine Engine and upgraded intercoolers, shafts, and propellers to handle the additional power; and the roll-off Mark 13 torpedo launcher racks that reduced overall weight allowing for more and heavier weapons to be carried. As designed, the Higgins 625 class is the fastest, most maneuverable, and heavily armed of the Higgins wood-construction planning-hull PT Boats and represents significant achievements in design. Only thirty-six 625 Class PT Boats were built, and PT-658 has the highest level of integrity of the two remaining boats known to exist.

Developmental history/additional historic context information (if appropriate)

The Development of the PT Boat by the US Navy:
Motor Torpedo Boats were first developed in the early-twentieth century by several European naval powers as an indispensable part of their naval coastal defenses. These small boats were developed as an inexpensive way to deliver torpedoes which could destroy ships as heavy as battleships without requiring a bigger ship necessary for large-caliber guns.

The European success led to adaptation of the motor torpedo boat concept by the United States Navy in the form of Patrol Torpedo (PT) Boats in the months preceding the outbreak of World War II. In the late 1930s, the US Navy requested competitive bids for several different concept torpedo boats. This competition led to eight prototypes being built in two different classes: a 55-foot boat and a 70-foot boat. Entries in the competition included the Electric Launch Company (ELCO), Higgins Industries, and the Huckins Yacht Company. All boats were to be constructed of wood in an effort to conserve steel. Known as the “Plywood Derby,” comparative service tests were conducted off New London from July 21-24, 1941, and included an open-sea run of 190 miles at full throttle. Based on these tests, all three companies were offered contracts. The Navy awarded Elco a contract for 350 boats, another to Higgins for 199 boats, and Huckins would construct 18.[13]

Once the contracts were let, it was pressure from General Douglas MacArthur that helped move a $15 million appropriation through Congress to develop the PT boat. Upon appointment to organize and build up the Filipino Army, General MacArthur became cognizant of the ever-growing danger from Japanese aggression and the role that small, fast, motor torpedo boats might play in strengthening the islands’ defenses. He reasoned that the motor torpedo boat might provide a solution, as they could be built quickly at a minimum cost, and, in conjunction with aircraft, could provide the Philippines with a good defense and striking force. Gen. MacArthur returned to the U.S. to press his plan. But remote from any danger, he found few supporters and little enthusiasm for the program. MacArthur then turned to his old friend Admiral Leahy, then Chief of Naval Operations, to lobby for 100 of these small, fast boats to defend the Philippine Islands. As a result, Congress funded an appropriation to develop the craft.[14]

Part of the Navy’s impetus for building the PT boat fleet was for economic and material reasons. Due to their wood construction, ten PT boats could be built for the cost of one modest-sized destroyer escort. The use of wood also conserved steel that was in critically short supply and needed in the construction of other larger classes of ships that required steel. By the end of WW II, the Navy had built a massive naval fleet, a feat made possible, in part, by the judicious use of materials. PT boats also offered distinct operational advantages. Bad weather, including fog and darkness, often grounded aircraft; however, PT boats could operate in these conditions and remain at sea much longer than aircraft could remain in the air. They were also highly effective in executing their missions, which led to the building of a large number of boats during the war.

PT Boat Design:

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[13] Robert J. Bulkley, *At Close Quarters: PT Boats in the United States Navy* (Washington, DC: Naval History Division, 1962), 57 and Appendix A.

[14] JCS Group, “Something About Everything Military-Motor Torpedo Boat,” http://www.jcs-group.com/military/navy/ptboats.html, (accessed 13 July 2010).

During WW II, two companies built the vast majority PT boats for combat use. Higgins constructed a 78-foot boat and Elco built a slightly larger 80-foot craft. Both were known by their makers, referred to as either "Higgins" or "Elco," but were similar in many respects. In total, 350 Elco and 199 Higgins boats were built. Among the 199 Higgins boats were three major sub classes: PT 205 class, PT 450 class, and PT 625 class, each an improvement in armament and or/performance over the previous design. The last, and most advanced design of the war, were the thirty-six 625 Class Higgins PT Boats.

Unlike larger ships, small vessels produced in large numbers did not receive names, but instead were identified by their hull numbers painted on either side of the bow and other visible locations. In the case of PT Boats, boats from all makers received hull numbers starting with the first number of the class with each subsequent boat numbered sequentially through the production run. For example, PT 625 was the first ship of its class, and PT-658 was the 33rd. It was not unusual for manufactures to skip hull numbers between runs.

Both the Elco and Higgins designs utilized a planing-type hull form, which was originally developed for racing boats. This was a departure from the Pre-WW II torpedo boats that were designed with a traditional "displacement" hull, which displaced up to 300 tons and limited top speeds to a sluggish 25-27 knots. In contrast, the "planing hull" design featured a sharp V at the bow that softened to a flat bottom at the stern, which allowed PT boats to plane, or lift up out of the water, at higher speeds. Boats using these hulls were smaller and lighter, but much faster, which enabled them to strike at larger warships with torpedoes, using their relatively small size to avoid being hit by gunfire, and their high speed to get close enough to attack and retreat. To withstand the stresses of combat, these wooden boats were constructed with a layered hull over a wood frame. The result was a light, strong hull, resilient enough to stand up in heavy seas," and that could be easily repaired close to the front lines.[15] The strength of this type of construction also helped many PT boats withstand catastrophic battle damage, allowing them to remain afloat. For example, PT-305, a Higgins Boat operating in the European theater, had its stern sheered off by a collision in the Mediterranean Sea, yet returned to base for repairs.[16]

In addition to their innovative hull construction, Higgins PT boats had other unique features which enabled crews to successfully complete their missions. Perhaps most important were the powerful engines that enabled crews to attack and retreat quickly. All PT boats were powered by three gasoline-fueled engines built by the Packard Motor Car Corporation, which were a modified design of the 3A-2500 V-12 liquid cooled aircraft engine. Packard modified them for marine use in PT boats, hence the "M" designation instead of "A" for aircraft. Three successive versions of these engines were designed for PT boats, including the 3M-2500, 4M-2500, and 5M-2500, each having slight improvements over the previous version.

PT-658 has three original 5M-2500 engines representing the final improvements made during WW II. This engine reflected the upgrade from the 4M-2500 model, which included the installation of an intercooler. located downstream of the supercharger and just upstream of the intake manifold. This cooler allows the pressurized intake air to be denser, allowing even more oxygen to be rammed into the cylinders and boosting horsepower up to 1,850. This much power could push a fully-loaded boat to 45-50 knots, up from the maximum designed speed of 41 knots. Fuel consumption required carrying 3,000 gallons of 100+ octane aviation fuel. A normal patrol would last a maximum of 12 hours.

While rugged design and speed were important to the success of PT boats in combat, their armament gave the small ships a decisive edge. Naval Historian Robert J. Bulkley notes that, "in relation to its size, the PT carried the heaviest armament of any naval vessel."[17] Throughout WW II, the type and arrangement of armament fitted to PT boats changed to fit the evolving nature of the conflict. As the war progressed, more and heavier armaments were added to PT boats. As a late-war PT boat, PT-658 has a full complement of these armaments, including guns, torpedoes, depth charges, and other weapons systems designed to meet

[15] United States Navy, Division of Naval Intelligence, "Standard Reference Manual on United States Men-of-War Confidential Release (ONI 222-US)" (Washington D.C.: United States Government Printing Office, 1 September 1945), 135.
[16] JCS-Group, "Something About Everything Military-Motor Torpedo Boat."
[17] Bulkley, 34.

specific operational needs; however, various sizes of guns make up the majority of the armament. Ships of this class were fitted with two twin Browning M2 50 caliber machine guns, which have a maximum effective range of 2500 yards, and can shoot 550 rounds per minute per gun. The twin guns are mounted in a Mark 9 Bell Aircraft cradle. Each gun is belt fed and mounted in a 360 degree traversing Mark 17 Mod 2 turret ring.[18] Each of the two Mk 4 20mm Oerlikon Cannons holds a 60 round spiral-fed magazine and delivers 480 rounds per minute.[19] The maximum effective range of the 20mm cannon is 5,500 yards.[20] The mountings of these cannons, one amidships center of boat, and one on the port bow, are constructed to be trained vertically and used as an anti-aircraft weapon. Mounted centerline on the bow of PT-658 is the 37mm Browning/Oldsmobile Mk 4 Automatic Cannon, which was originally built for the Bell P39 "Airacobra" fighter plane. "Early in 1943 experimental installation of single-shot 37mm antitank guns were made in both theaters. Soon afterwards, automatic 37mm's were made available by the Army Air Corps. Mounted on the bow, the automatic 37mm became a standard installation."[21] These cannons were very effective when used in anti-supply barge missions. The largest gun on PT-658 is the single air-cooled Bofors Mk 1 40mm anti-aircraft cannon mounted on the stern.[22] It has the largest projectile of any gun on the boat. Shooting a projectile of 2 pounds, the Bofors automatic cannon has a range of 5,400 yards and can fire up to 120 rounds per minute. The cannon is operated by a crew of four men: a Pointer, Trainer, Loader, and Assistant Loader.[23] The Bofors could be used in either anti-barge or anti-aircraft roles.

The "heavy hitter" that gives PT-658 the ability to knock out larger vessels are the four Mark 13 Mod 2 torpedoes, mounted in side launching racks that allowed the torpedo to roll off the rack into the water instead of being launched through a heavier torpedo tube. Each 22-1/2-inch diameter torpedo contained 600 pounds of Torpex explosive in the warhead. Torpex,or Torpedo Explosive, is TNT mixed with aluminum powder. The torpedoes could travel at a set speed of 39.8 knots with a range of 6,300 yards, about 3.5 miles. Because 625 class boats used these lighter Mark 13 torpedoes with roll-off racks they were able to move faster and carry more weapons of other types. The smaller roll-off racks also reduced the silhouette of the boats, making it easier to conceal operations.

In addition to guns and torpedoes, late-war boats carried other weapons essential to fulfilling their combat role. PT-658 carries 2 US Navy Mark 6 Mod 2 depth charges mounted in Type "C" Racks. These depth charges can be set to explode anywhere between 30 and 600 feet. They have a 300 pound charge of TNT and a total weight of 420 pounds.[24] PT boats used these weapons to sink barges by dropping one alongside a target barge, or to discourage enemy destroyers from chasing a fleeing PT boat after it had attacked an enemy formation. Another effective piece of equipment installed on PT-658 is the Smoke Generator. This 35-gallon liquid-titanium tetrachloride-filled smoke-generator tank is mounted on the stern, and creates huge volumes of billowy white smoke lasting long enough to cover 7 miles at top speed. The smoke was used to screen landing craft from enemy shore guns or a close-in torpedo attack by the PT boat. Toward the end of the war, PT boats were fitted with radar, which allowed them to develop superior night-fighting tactics. Boats equipped with radar were able to locate and destroy many enemy targets, often lying in wait to ambush a target from torpedo range (around 1,000 yards). Small arms are also carried by PT-658. Each crewmember was issued a 45 caliber pistol, and the boat carried a Browning Automatic Rifle, U.S. M1 Springfield 30 cal Rifles, two Thompson .45 cal auto submachine guns, and grenades.[25] Also carried was an M1 Flare Gun.

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[18] United States Navy, "*ORDNANCE PAMPHLET* No. 951 50 caliber MOUNT, MARK 17 MODS. 1 AND 2," prepared from Bureau of Ordnance drawings, and the material furnished by the Bell Aircraft Corp and the Electric Boat Company (8 March 1943).

[19] The Mk 4 20mm Oerlikon Cannon was a Swiss design manufactured these under license in the U.S.

[20] United States Navy, *ORDNANCE PAMPHLET No. 911 "20 mm. A.A. GUN" Description 20 mm. Machine Gun Mechanisms Marks 2 and 4, Gun Barrels Marks 2, 3, and 4 Mod. 1, Sights Marks 2, 4, 4 Mod. 1, and 5, Magazines Marks 2 and 4, Shoulder Rests Marks 2, 4, 5 and 5 Mod. 1.* dated MAR 1943.

[21] Bulkley, 34.

[22] The Bofors Mk 1 40mm anti-aircraft was Swedish design manufactured under license in the U.S.

[23] 22 United States Army, "War Department Technical Manual. TM 9-252 40-mm Automatic Gun M1 (AA) and 40-mm Antiaircraft Gun Carriages M2 and M2A1" (Washington D.C.: United States Government Printing Office, 17 January 1944), 268-269.

[24] 23 United States Navy, "Ordinance Pamphlet No. 747, 1st Revision, Depth Charges, MARK 6, MARK 6 MOD. 1, MARK 7 AND MARK 7 MOD 1" (Washington D.C.: United States Government Printing Office, 22 December 1943).

[25] 24 United States Navy, Division of Naval Intelligence, "Standard reference manual on United States men-of-war Confidential Release (ONI 222-US)" " (Washington D.C.: United States Government Printing Office, 1 September 1945).

Throughout the war the Navy sought to improve the design and performance of all its ships, including PT boats. In 1943, the Navy held an inquiry to discuss planing hull design and fuel consumption, but no major modifications were required or authorized before the end of the war. Toward the end of the war, both Higgins and Elco came up with stepped-up hull designs that achieved significant increases in top speed, but the Navy rejected them for full production due to their increased fuel consumption, among other considerations. After the war, the Navy initiated the design of a new series of PT boats. The 800 Series had aluminum hulls and were powered by four Packard engines. Four prototype boats were built, but none operated under the American flag during the Korean War between 1950-1953 because these prototypes were not considered suitable for an overseas deployment in a combat environment.[26]

PT Boats in Combat:
Although they were small and crewed by only 16 sailors, the PT boat was an indispensible part of combat actions throughout the Pacific and European theaters. The first Higgins boats were used in the Battle for the Aleutian Islands and in the Mediterranean. They were also used to support the D-Day landings on June 6, 1944.

PT boats captured public attention and admiration in the dark days at the beginning of the war, by providing the means for General Douglas MacArthur's escape from Corregidor. Gen. MacArthur and his staff boarded four PT boats at Corregidor and escaped under the cover of darkness. Their escape took 36 hours and avoided patrolling Japanese destroyers during the 600-mile trip to Mindanao, where they were able to board long-range bombers for final evacuation to Australia. These four PT boats saw further action in the vicinity of the southern Philippines until they ran out of gasoline and ammunition. This celebrated rescue and escape was immortalized in the popular book and movie "They Were Expendable," which helped to personalize the favor that the American public showed towards PT boats. Lt. (later Admiral) John D. Bulkley was awarded the became the darling of the Press Corps during the early days of WW II when the story of David vs. Goliath paralleled the seemingly overwhelming odds of the US Navy defeating the Imperial Japanese Navy in the dark days after the attack on Pearl Harbor. As WW II continued, PT boats were involved in nearly every naval combat area of the Pacific, including actions off Midway, the Aleutians, Guadalcanal, the Solomon Islands, New Guinea, New Britain, New Georgia, and the Philippines. In the Atlantic, PT boats fought against the Axis powers in the English Channel and the Mediterranean.

PT boats were extremely successful in their numerous fighting roles against the Axis powers. The initial mission of the PT boat was to battle destroyers, which themselves were originally created as a defense against torpedo boats. Missions included interdicting enemy supply lines, harassing shore installations, supporting friendly troop landings, destroying floating mines, sinking enemy shipping targets, destroying enemy landing barges, rescuing downed pilots, landing partisans behind enemy lines, and attacking enemy island outposts.

One of the most effective uses of PT boats was as a “barge buster.” Both the Japanese in the New Guinea area and the Germans in the Mediterranean lost numerous resupply vessels to Allied airpower during daylight hours, and each attempted to resupply their troop concentrations by using shallow-draft barges at night in very shallow waters. Allied destroyers were fitted with more and heavier guns, which were able to sink the barges. In fact, along the coast of Japanese-held New Guinea re-supply efforts by the Japanese Army were almost completely cut off in large part due to the overwhelming success of McArthur's PT boat navy.

PT boats were also used to patrol the coast of the Normandy beaches during the D-Day landings to protect allied shipping from German torpedo-boat attacks. In 1943-44, the coasts of Sicily and France saw nightly battles between radar equipped US PT boats and German shipping boats, thus preventing their re-supply efforts. These events and others like it led to PT boats becoming a vital key to the US Navy's victory over both

[26] JCS-Group, “Something About Everything Military-Motor Torpedo Boat.”

Japan and Germany. These boats gained additional fame after the War by being associated with the wartime exploits of President John F. Kennedy, skipper of two Elco-type PT boats, PT-109 and PT-59.

Duty on PT boats was on a volunteer basis. Due to their front-line combat role and light armament, casualties among PT boat squadrons were high. In the annals of twentieth-century naval warfare, on a per capita basis, PT boat crews were among the most highly decorated sailors in the Navy and suffered more casualties (killed and wounded) than any other surface units. On many boats, more than half of the crewmembers were entitled to wear the Purple Heart Medal because of previous combat wounds.

The 625 Class Higgins Boat:
Class 625 PT boats evolved from the lessons learned from boat building throughout WW II, and included several features unique to this final design that emphasized speed, a PT boat's main offensive and defensive weapon. Unique to the 625 class was the horizontal outer 3/4" mahogany planking that both increased hull strength and eased repair. The end joints of end planks were reinforced using "joiner plates that connected the end of each plank to the next one in line." Prior to this class of boat, diagonal outer planks were used, which took longer to build and repair, and were not as strong as the horizontal planking. In addition, the center ribs in these improved boats were laminated to add strength in the area where the highest pressure existed when the boat was on plane. In addition to hull improvements, the 625 class boats mounted a larger *1850 HP 5M-2500 V-12* Packard Marine Engine. This engine was the final war-time example in the development of large-bore gasoline reciprocating boat engines. It incorporated a larger supercharger and intercooler which added 300 horsepower over the previous 4M design. This enabled PT-658 to achieve 5550 horsepower using all three engines, raising her top speed to 50+ knots with full weapons load out. The upgraded engines required improved heat exchangers to keep the engines from overheating, another unique feature of the 625 class. Engine upgrades also necessitated strengthening the props and shafts and developing new connections between the couplings and shafts at the engines to handle the additional stress. As a result of improved hull and engine design, the 625 Class PT Boat was faster and lighter than previous classes of Higgins PT boats.

In addition to performance upgrades, the 625 class also boasted improved armament. The use of more and heavier weapons was made possible by the development of a reinforced internal-support structure that allowed the deck to handle more weight. One of these heavier weapons systems was the roll-off Mark 1 torpedo launcher racks which were installed at the factory. The 625 class is the only Higgins PT class that was designed from the outset to utilize new lightweight racks, resulting in a larger armament load. Other heavier weapons that the 625 class could accommodate included rockets and the large Bofors Mk 1 40mm anti-aircraft cannon. To increase survivability, designers included self-sealing gasoline tanks which were constructed of thick rubber. Used in airplanes, these tanks could absorb some small-arms fire without exploding like traditional aluminum gas tanks, thus affording the crew a degree of protection.

History of PT-658:
PT-658 was built at Higgins Industries Boatworks in New Orleans. Completed July 30, 1945, the boat was originally slated to join Squadron 45 and assigned to the Pacific Fleet. As WW II neared its end, the boat was rescheduled to be "lend-leased" to the USSR, but the transfer was halted when hostilities ceased. PT-658 was then reclassified as a Crash Rescue Boat in August 1946, and later assigned to the Bureau of Aeronautics as a target towing craft at Naval Air Facility, Pt. Mugu California. In 1958, the boat was sold to Earl C. Brown of National Machinery in Oakland, CA. as surplus equipment. Upon his death, the boat was gifted to Save the PT Boat, Inc. in May of 1992 by his son, Orlando Brown.

Until PT-658 was moved to its permanent home in Portland in September 1994, it was moored in the water in Oakland CA in the Alameda Estuary for 35 years, without protection from rain, sun, dry rot, or vandalism. During those years, vandals had broken through the hull fitting and the boat took on water. A storm tore her loose from moorings at Treasure Island and bounced the stern on the rock levee, tearing a hole through the planking. As a result, electrical and distribution lines were polluted with salt water. Motor oil covered two-thirds of the engine room, tank room, and lazarette bulkheads. Silt and gravel came into the bilges.

When former PT Boaters in Oregon learned of its existence, many Oregon and Washington companies and National Guard units assisted the group's efforts to rescue the boat. Sause Bros. Ocean Towing Co. in Coos Bay moved the barge from San Francisco Bay to the Columbia River. The 144th Transportation Unit of the Washington National Guard transported PT-658 aboard the Army Logistics Support Vessel, USAT General Brehan B. Sommervell (LSV-3) to the US Army Corps of Engineers dock, where the Engineers lifted the boat onto a barge. At no charge, Foss Towing Co. then towed the boat, cradle and barge to Swan Island where it is currently moored at the Navy & Marine Corps Reserve Readiness Center.

Comparative Analysis:
As a late-World War II, 78-foot 625 Class Higgins PT boat, PT-658 is a complete and functioning representative of the warship that made a large impact upon the history of the United States during WW II. It encompasses all improvements developed for this type of vessel that were learned through the hard lessons from beginning to end of the war. The historic authenticity and accuracy of its restoration showcase PT-658 as an exemplary representative of this late-WW II 625 Class Higgins PT boat.

PT boats today are extremely rare for several reasons. During the war, many PT boats were lost when they ran aground in enemy waters and were destroyed to prevent their capture. Accidents also took a major toll on PT boats. Their highly volatile fuel,100+ octane gasoline, made the boats vulnerable to enemy gunfire as well as to mishaps.[27] At the end of the war, almost all surviving PT boats were destroyed shortly after Victory in Japan Day. They were stripped of useful equipment, dragged up on the beach, and burned. This was done to minimize the amount of upkeep the US Navy would have to do to maintain the fleet, as PT boats were small inexpensive craft and not considered worth caring for. In addition, their level of gasoline consumption relative to the boat's small size made their operational expense impractical for a peacetime Navy. Finally, these wooden PT boats were meant to be expendable. As a result of these factors, all PT boats are exceedingly rare, especially in a floating and functioning condition.

Of all the WW II PT boats, only half as many Higgins boats were produced, but far more of them survived than the more numerous Elco boats. This may be the result of more rugged construction techniques or perhaps that more were located inside the US near the end of the war, or both. Of the Higgins boats, there are only four hulls known to still exist. Two are of the 625 class, PT-658 in Portland, and PT-796 in a museum in Fall River, MA. PT-309 is at the Nimitz Museum, and PT-305 is under restoration in New Orleans, LA at the WW II Museum. Both of these are of the earlier 265 class. PT-796 was nominated to the National Register of Historic Places in 1985. At the time of its nomination to the National Register, it was the only 625 class PT boat that had been restored. At this same time, PT-658 had been sitting in the Alameda Estuary in Oakland, CA for 25 or more years. During the 25 years since PT-796 was nominated to the Register, PT-658 has been discovered, retrieved, and restored. PT-658's comprehensive restoration has been done according to original plans and historic documents, and using items that are original to PT-658, items salvaged from other boats, materials and methods that are true to the period, and items that have been restored as comparable to authentic.

In many ways, the restoration of PT-658 is more complete and historically accurate. In contrast to PT-658, the hull of PT-796 is non-operational, incomplete, and is housed out-of-water in a museum. As part of the display, the hull has been cut away to display the interior. In contrast, PT-658 retains its original setting floating at its berth at Swan Island and is complete enough to be fully operational. PT-658 retains all of the original materials and features seen in PT-796, but also exhibits historically accurate air scoops, wings, gun tubs, ready-service ammo lockers, steering system, anchoring system, a period painting scheme, and a full compliment of period armaments mounted in the correct positions. In addition, PT-658's interior arrangement and furnishings are original, including water tight compartments, gauges, ice box, lighting fixtures, electrical generators, switchboards (DC and AC), galley stove, refrigerator, folding leaf galley table, and other galley equipment, blowers and fans, CO desk, navigational lights, panels and equipment, compasses (Magnetic and Fluxgate Gyrocompass), chart board, Collins TCS Radios, Raytheon SO3 Radar, Farnsworth Mark III ABK IFF Unit,

[27] JCS-Group, "Something About Everything Military-Motor Torpedo Boat."

signal horns, Engine Room, Crews Quarters and Conn, and Crew and officer bunks, including mattresses, pipe racks, blankets, linens, and bunk curtains. Finally, PT-658 was constructed during World War II on July 30, 1945, and was officially assigned to PT Boat Squadron 45 and later to the lend-lease program, whereas PT-796 was produced on October 26, 1945, a full 2 months after the war had ended.

Conclusion:
Developed on the eve of WW II, the planing-hull PT boat played an integral role in WW II by fulfilling a variety of combat missions in all theaters across the globe, including attack, rescue, supply-line harassment, and support of landing troops. The versatility of these boats was due to their inexpensive, yet amazingly resilient, wood construction that made the boats fast and maneuverable, allowing these diminutive vessels to bring their formative armament in range of targets quickly and to escape before being overwhelmed by better-armed and armored ships. As the last existing 625 Class Higgins PT boat constructed during WW II, PT-658 is nationally significant under Criterion A, military for its association with WW II and the development and use of PT boats during the conflict and Criterion C, engineering, as a representative of the pinnacle of wood PT boat development as demonstrated in its upgraded hull, engines, and weapons systems.

9. Major Bibliographical References

Bibliography (Cite the books, articles, and other sources used in preparing this form.)

Note: Technical manuals from manufactures and the U.S. Navy and Army are cited in the footnotes

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Previous documentation on file (NPS):

____preliminary determination of individual listing (36 CFR 67 has been requested)
____previously listed in the National Register
____previously determined eligible by the National Register
____designated a National Historic Landmark
____recorded by Historic American Buildings Survey #_____
____recorded by Historic American Engineering Record # _____
____recorded by Historic American Landscape Survey # _____

Primary location of additional data:

____State Historic Preservation Office
____Other State agency
__X__Federal agency
____Local government
____University
____Other
Name of repository: _____

Historic Resources Survey Number (if assigned): Not Applicable

10. Geographical Data

Acreage of Property Less than one
(Do not include previously listed resource acreage.)

UTM References
(Place additional UTM references on a continuation sheet.)

	Zone	Easting	Northing		Zone	Easting	Northing
1	10	521258	5049068	3			
2				4			

Verbal Boundary Description (Describe the boundaries of the property.)

The boundary of the nominated property includes the entire volume of Motor Torpedo Boat PT-658 contained within the extreme length and breadth of the boat itself.

Boundary Justification (Explain why the boundaries were selected.)

The Boundary includes the entire volume of the historic vessel as she floats at her berth, but does not include the non-contributing non-historic dock, boathouse, or associated structures.

11. Form Prepared By

name/title Bob Alton, Barbara Brunkow
organization Save the PT Boat, Inc. date June 12, 2010
street & number PO Box 13422 telephone (503) 209-8203
city or town Portland state OR zip code 97213
e-mail rcalton@comcast.net, brunkow@pacifier.com

Additional Documentation

Submit the following items with the completed form:

- **Maps:** A **USGS map** (7.5 or 15 minute series) indicating the property's location.

  A **Sketch map** for historic districts and properties having large acreage or numerous resources. Key all photographs to this map.

- **Continuation Sheets**

- **Additional items:** (Check with the SHPO or FPO for any additional items.)

Photographs:

Submit clear and descriptive photographs. The size of each image must be 1600x1200 pixels at 300 ppi (pixels per inch) or larger.

Name of Property: Motor Torpedo Boat PT-658

City or Vicinity: Portland

County: Multnomah **State:** OR

Photographer: Wally Boerger

Date Photographed: June 12-14, 2010

Description of Photograph(s) and number:

1 of 12: OR_MultnomahCounty_PT658_0001
Head-on shot with Swan Island in the background

2 of 12: OR_MultnomahCounty_PT658_0002
Right side (starboard) view with Willamette River in background

3 of 12: OR_MultnomahCounty_PT658_0003
Boat from aft above with 40mm gun, depth charges, 20mm gun, smoke generator, torpedoes with boat house in background.

4 of 12: OR_MultnomahCounty_PT658_0004
Radar mast, 50 Cal gun tubs, with Bridge and Deckhouse

5 of 12: OR_MultnomahCounty_PT658_0005
Detail of cutaway of hull with canvas layer and hull in background

6 of 12: OR_MultnomahCounty_PT658_0006
Right side (starboard) of Deckhouse

7 of 12: OR_MultnomahCounty_PT658_0007
Left side (port) of Deckhouse

8 of 12: OR_MultnomahCounty_PT658_0008
Forward Crew Cabin, looking aft (rear)

9 of 12: OR_MultnomahCounty_PT658_0009
Officer's Quarters, looking to port side (left)

10 of 12: OR_MultnomahCounty_PT658_0010
Engine Room from behind center engine looking toward control panel and bow

11 of 12: OR_MultnomahCounty_PT658_0012
Rear crew quarters, looking toward Lazarette

12 of 12: OR_MultnomahCounty_PT658_0011
Lazarette with steering pole to rudders

Motor Torpedo Boat PT-658
Name of Property

Multnomah Co., OR
County and State

Property Owner: (Complete this item at the request of the SHPO or FPO.)

name Save the PT Boat Inc., c/o Bob Alton and Barbara Brunkow

street & number PO Box 13422 telephone (503) 286-3083

city or town Portland state OR zip code 97213

Paperwork Reduction Act Statement: This information is being collected for applications to the National Register of Historic Places to nominate properties for listing or determine eligibility for listing, to list properties, and to amend existing listings. Response to this request is required to obtain a benefit in accordance with the National Historic Preservation Act, as amended (16 U.S.C.460 et seq.).
Estimated Burden Statement: Public reporting burden for this form is estimated to average 18 hours per response including time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding this burden estimate or any aspect of this form to the Office of Planning and Performance Management. U.S. Dept. of the Interior, 1849 C. Street, NW, Washington, D.C.

Index of Figures and Appendixes:

Figure 1: General Location Map
Figure 2: Diagram of PT-65
Appendix 1: Glossary

Figure 1: General Location Map

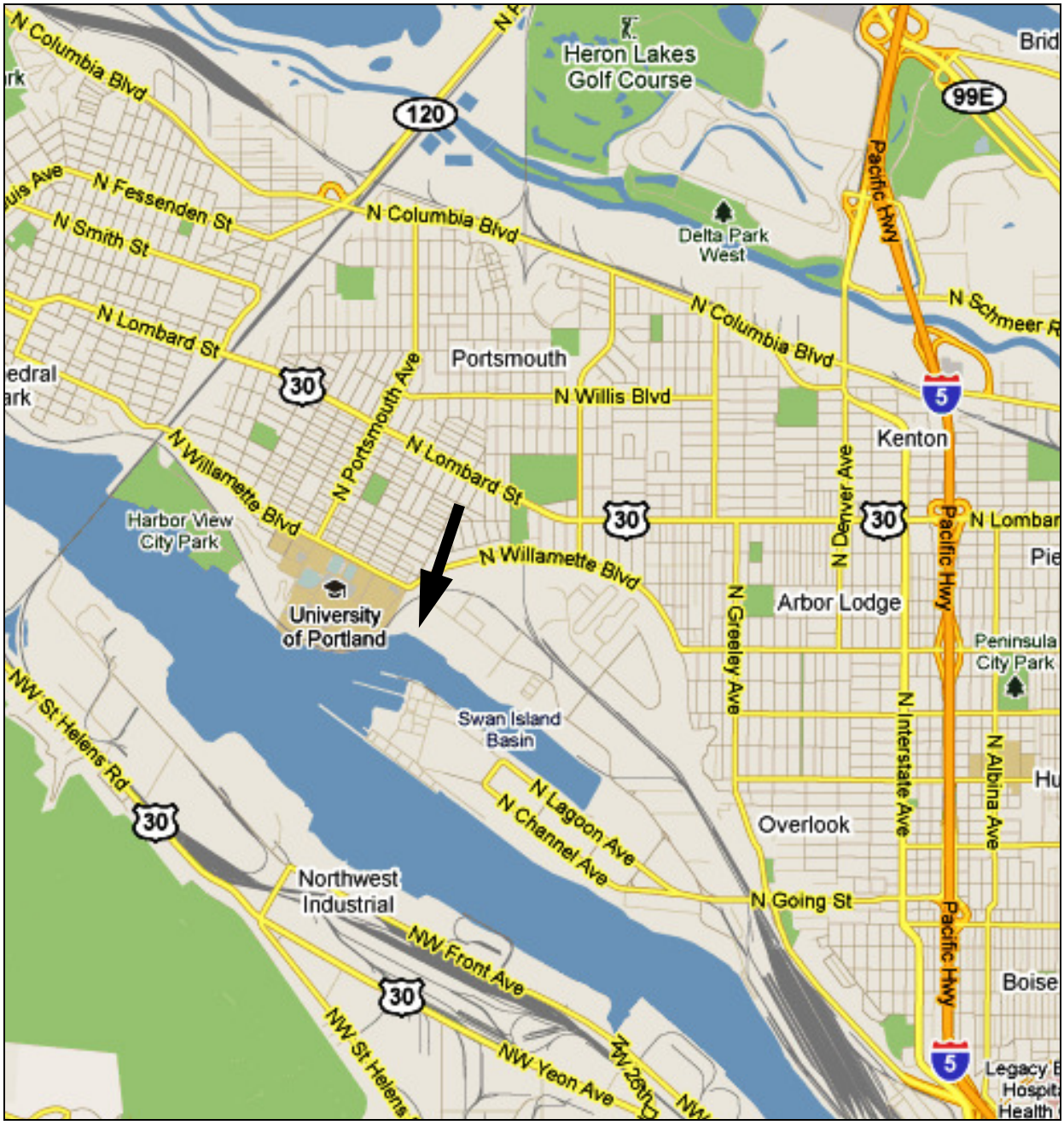
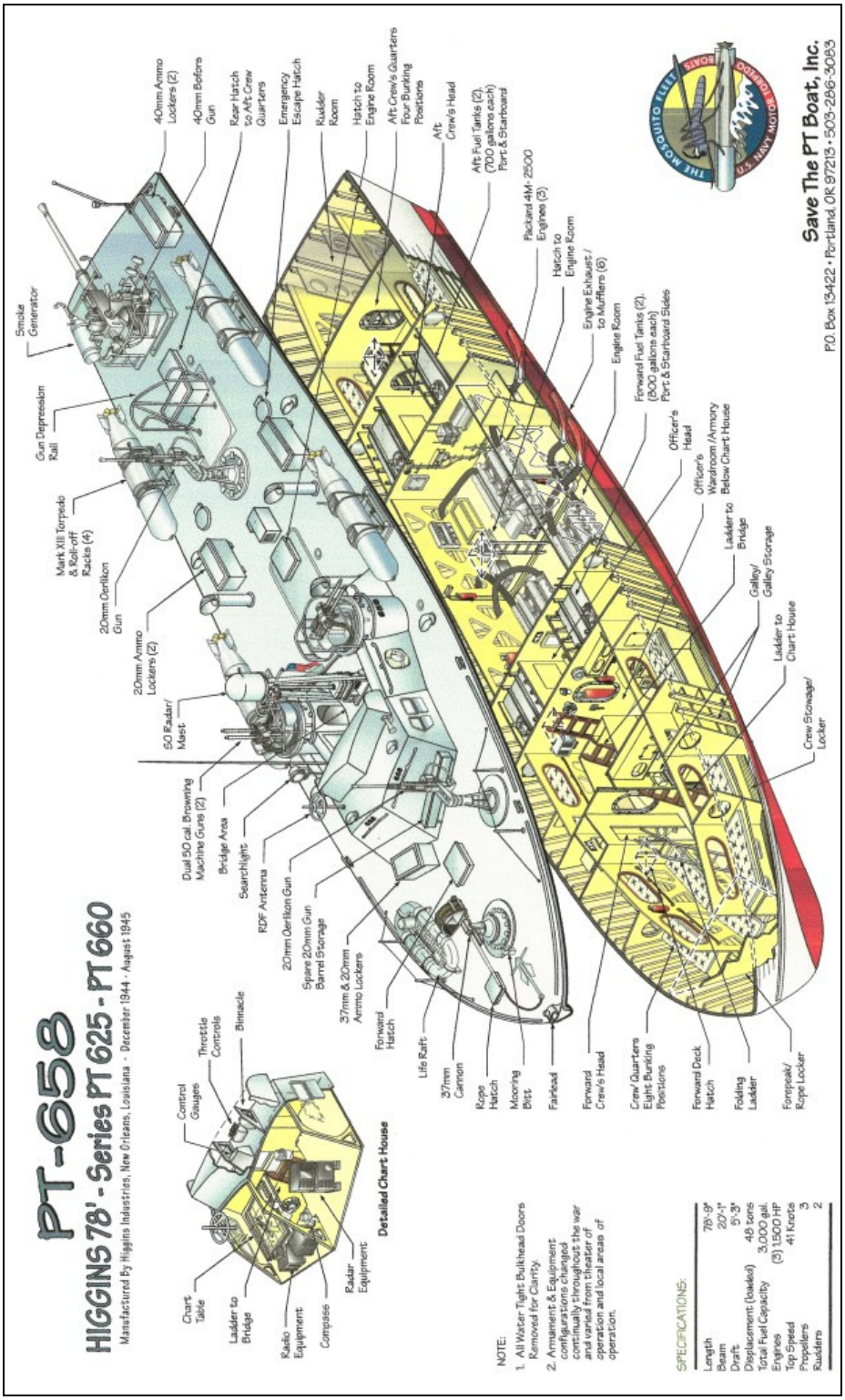


Figure 2: Diagram of PT-658 as currently configured. Illustrated and Copyrighted 2008, Richard J. Washichek


PT-658
HIGGINS 78' - Series PT 625 - PT 660
Manufactured By Higgins Industries, New Orleans, Louisiana - December 1944 - August 1945
Detailed Chart House
Chart Table
Ladder to Bridge
Radio Equipment
Compass
Radar Equipment
Control Gauges
Throttle Controls
Binnacle
Smoke Generator
Gun Depression Rail
Mark XIII Torpedo & Roll-off Racks (4)
20mm Oerlikon Gun
20mm Ammo Lockers (2)
50 Radar/ Mast
Dual 50 cal. Browning Machine Guns (2)
Bridge Area
Searchlight
RDF Antenna
20mm Oerlikon Gun
Spare 20mm Gun Barrel Storage
37mm & 20mm Ammo Lockers
Forward Hatch
Life Raft
37mm Cannon
Rope Hatch
Mooring Bitt
Fairlead
40mm Ammo Lockers (2)
40mm Bofors Gun
Rear Hatch to Aft Crew Quarters
Emergency Escape Hatch
Rudder Room
Hatch to Engine Room
Aft Crew's Quarters Four Bunking Positions
Aft Crew's Head
Aft Fuel Tanks (2), (700 gallons each) Port & Starboard
Packard 4M-2500 Engines (3)
Hatch to Engine Room
Engine Exhaust / to Mufflers (6)
Engine Room
Forward Fuel Tanks (2), (800 gallons each) Port & Starboard Sides
Officer's Head
Officer's Wardroom / Armory Below Chart House
Ladder to Bridge
Galley/ Galley Storage
Ladder to Chart House
Crew Stowage/ Locker
Forward Crew's Head
Crew Quarters Eight Bunking Positions
Forward Deck Hatch
Folding Ladder
Forepeak/ Rope Locker
THE MOSQUITO FLEET
U.S. NAVY MOTOR TORPEDO BOATS
Save The PT Boat, Inc.
P.O. Box 13422 • Portland, OR 97213 • 503-286-3083
NOTE:
1. All Watertight Bulkhead Doors Removed for Clarity.
2. Armament & Equipment configurations changed continually throughout the war and varied from theater of operation and local areas of operation.
SPECIFICATIONS:
Length 78'-9"
Beam 20'-1"
Draft 5'-3"
Displacement (loaded) 48 Tons
Total Fuel Capacity 3,000 gal.
Engines (3) 1,500 HP
Top Speed 41 Knots
Propellers 3
Rudders 2

Glossary of Nautical Terminology

Airacobra: Bell P-39 fighter plane, of WW2 vintage, was equipped with the same 37mm cannon utilized on PT Boats.

Amidships: Located near the centerline of the boat between the forward and aft ends.

Aft: Towards the back of the boat.

Beam: The width of the boat at its widest point.

Bofors 40mm cannon: Single-barrel Anti-Aircraft gun made in the US under license from Sweden.

Bow: The front end of the boat.

Bulkhead: A wall on a boat that is below the main deck.

Bulwark: A wall like structure above the deck on a boat or ship.

Bunks: Sleeping area for crew.

Chainlocker: A place where anchor chain or mooring line is stored, same as Forepeak.

Compartment: A room on a boat, usually below deck.

Deck: The floor on a boat

Deckhouse: The main structure above the deck of the boat or ship, can contain rooms or controls

Draft: The depth in the water to which the lowest part of the boat extends.

Displacement: Weight of water that a boats hull will equal when it is floating in the water.

Forepeak: A compartment or tank located at the extreme front of the boat, which is not normally filled except sometimes with anchor chain and mooring line, same as Chainlocker.

Frame: A strength member or beam that lies across the width of the boat.

Galley: The kitchen on a boat.

Gunwale: Pronounced "gunnel." The portion of the boats structure where the deck surface joins the sides of the boat, sometimes the gunwale has a raised lip to channel drainage.

Gyro: Abbreviation for gyroscope, a navigational instrument that is similar to a compass, used for tracking what direction the boat is travelling in.

Head: The bathroom on a boat, usually contains a toilet (water closet) and a Lavatory but no shower.

Helm: The station for primary control of a boats steering and engines.

Hull: The exterior portion of the boat or ship that floats in the water.

Knot: Nautical speed measurement, approximately 1.17 miles per hour.

Lazarette: A room near the back of the boat in which steering equipment and other storage is kept.

Lines: Ropes that are larger than 1 inch in diameter.

Longitudinal: A strength member or beam that lays in along the length of the boat.

Navy Jack: The stars and blue field portion of the flag of the United States, displayed at the bow of all US Navy vessels while moored or anchored. World War II US Navy Jacks have 48 stars. This has changed to the historic "Don't Tread on Me" snake flag in memory of the attacks of Sept 11, 2001 by Secretary of the Navy Directive on modern day US Navy vessels.

National Ensign: The flag of the United States.

Oerlikon 20mm Cannon: Single-barrel Anti-Aircraft gun made in US under Swiss license.

Planing Hull: A specific shape of the boats hull which causes the boat to rise up out of the water at high speeds thus saving fuel and allowing higher speed to be achieved.

PT Boat: US Navy hull classification for Patrol Torpedo, also sometimes called Motor Torpedo Boats.

Props: The propellers of a ship.

Rub Rail: The portion of the boats structure around the edge of the deck that would first contact nearby objects, usually made from a durable material and/or edged with metal.

Struts: Cast bronze external support bearings for the propeller shafts and bolted to the boats bottom.

Stern: The back end of the boat.

Toe rail: Low ankle-high railing installed near the edge of the deck, provides surface for securing items and tactile feel for the location of the edge of the deck for the crew.

U.S.A.T. General Brehan B. Sommervell (LSV-3): USAT stands for U.S. Army Transport this is not the same as the Navy ship designation U.S.S. which stands for a commissioned United States Ship. LSV stands for Logistics Support Vessel: this ship transported PT658 from California to Portland, Oregon in 1994.

Wardroom: The sleeping or eating area assigned to Officers on a boat or ship.