

RESTRICTED

Serial No. 61

GENERAL INFORMATION

INCLUDING DESCRIPTION AND
TESTS OF ELECTRIC AUXILIARIES

U. S. TORPEDO BOAT DESTROYERS

Nos. DD 336 to DD 341

INFORMATION RELATIVE TO ITEMS UNDER COGNIZANCE
OF THE BUREAU OF CONSTRUCTION AND REPAIR
NAVY DEPARTMENT

RESTRICTED

CONFIDENTIAL!

Serial No. 61

GENERAL INFORMATION

INCLUDING DESCRIPTION AND TESTS
OF ELECTRIC AUXILIARIES

TORPEDO BOAT DESTROYERS

Nos. DD336 to DD341

U. S. S.

LITCHFIELD (DD336)

ZANE (DD337)

WASMUTH (DD338)

TREVER (DD339)

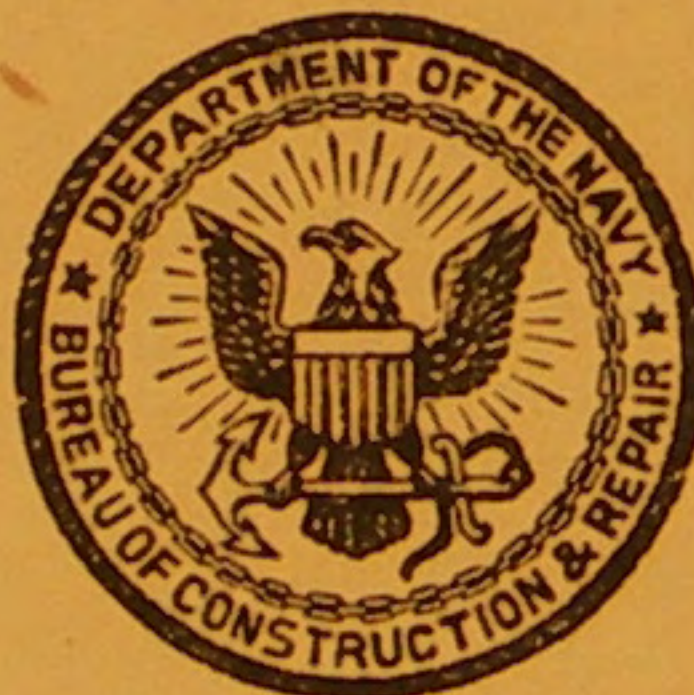
PERRY (DD340)

DECATUR (DD341)

Information relative to items under cognizance of
Bureau of Construction and Repair
Navy Department, Washington, D. C.

1922

Finished Plan No. 41



WASHINGTON
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1923

BUREAU OF SHIPS

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HISTORICAL DATA.

DESTROYERS 336-341.

Authorized by Act of Congress, January 22, 1918.
Vessels built by navy yard, Mare Island, Calif.

Keel laid:

<i>Litchfield</i> (336) and <i>Zane</i> (337)	Jan. 15, 1919.
<i>Wasmuth</i> (338) and <i>Trever</i> (339)	Aug. 12, 1919.
<i>Perry</i> (340) and <i>Decatur</i> (341)	Sept. 15, 1920.

Vessels launched:

<i>Litchfield</i> (336) and <i>Zane</i> (337)	Aug. 12, 1919.
<i>Wasmuth</i> (338) and <i>Trever</i> (339)	Sept. 15, 1920.
<i>Perry</i> (340) and <i>Decatur</i> (341)	Oct. 29, 1921.

Christened:

<i>Litchfield</i> (336)	by Mrs. Martha D. Litchfield.
<i>Zane</i> (337)	by Miss Marjorie Zane.
<i>Wasmuth</i> (338)	by Miss Gertrude Elizabeth Bennett.
<i>Trever</i> (339)	by Mrs. Bess McMillan Trever.
<i>Perry</i> (340)	by Miss Anne Bandolph Scudder.
<i>Decatur</i> (341)	by Mrs. J. S. McKean.

Date of delivery to Government:

<i>Litchfield</i> (336)	May 12, 1920.
<i>Zane</i> (337)	May 15, 1921.
<i>Wasmuth</i> (338)	Dec. 16, 1921.
<i>Trever</i> (339)	Aug. 3, 1922.
<i>Perry</i> (340)	Aug. 7, 1922.
<i>Decatur</i> (341)	Aug. 9, 1922.

Date of official preliminary trial:

<i>Litchfield</i> (336)	Jan. 18, 1921.
<i>Zane</i> (337)	May 26, 1921.
<i>Wasmuth</i> (338)	Not known.
<i>Trever</i> (339)	Oct. 17, 1922.
<i>Perry</i> (340)	Oct. 19, 1922.
<i>Decatur</i> (341)	Oct. 21, 1922.

Vessels commissioned:

<i>Litchfield</i> (336)	May 12, 1920.
<i>Zane</i> (337)	Feb. 15, 1921.
<i>Wasmuth</i> (338)	Dec. 16, 1921.
<i>Trever</i> (339)	Aug. 3, 1922.
<i>Perry</i> (340)	Aug. 7, 1922.
<i>Decatur</i> (341)	Aug. 9, 1922.

GENERAL INFORMATION.

DIMENSIONS AND DISTANCES.

Length over all.....	314 feet 4 $\frac{3}{4}$ inches.
Length between perpendiculars.....	310 feet.
Breadth, molded.....	30 feet 11 $\frac{1}{2}$ inches.
Breadth, over guards.....	31 feet 8 $\frac{1}{2}$ inches.
Depth, molded at side (frame No. 89).....	20 feet 7 $\frac{3}{4}$ inches.
Depth, molded at center (frame No. 89).....	21 feet 9 $\frac{3}{4}$ inches.
Tons per inch (9 feet 8 $\frac{1}{2}$ inches water line).....	15.36 tons.
Mean trial displacement (9 feet 8 $\frac{1}{2}$ inches water line).....	1,284 tons.
Wetted surface (9 feet 8 $\frac{1}{2}$ inches water line).....	10,559 square feet.
Coefficient block (9 feet 8 $\frac{1}{2}$ inches water line).....	0.48308.
Coefficient prismatic (9 feet 8 $\frac{1}{2}$ inches water line).....	0.63029.
Coefficient midship (9 feet 8 $\frac{1}{2}$ inches water line).....	0.76628.
Coefficient water line (9 feet 8 $\frac{1}{2}$ inches water line).....	0.68498.
Area of rudder.....	77.65 square feet.
Center of buoyancy (9 feet 8 $\frac{1}{2}$ inches water line) above bottom of keel.....	5 feet 10 $\frac{1}{2}$ inches.
Center of buoyancy (9 feet 8 $\frac{1}{2}$ inches water line) forward of middle perpendicular.....	0.34 foot.
Transverse metacenter above C. B. (9 feet 8 $\frac{1}{2}$ inches water line).....	8 feet 4 inches.
Longitudinal metacenter above C. B. (9 feet 8 $\frac{1}{2}$ inches water line).....	706.0 feet.
Center of gravity of water line abaft middle perpendicular.....	0.54 foot.
Center of gravity of full-load water line abaft middle perpendicular.....	5.40 feet.
Frame spacing.....	21 inches.

LONGITUDINAL DISTANCES.

Projection of stern at main deck, abaft after perpendicular.....	1 foot 4 $\frac{3}{4}$ inches.
Axis of rudder, forward of after perpendicular.....	6 feet 4 $\frac{1}{2}$ feet.
Forward end of straight keel, from forward perpendicular.....	12 feet 3 $\frac{1}{8}$ inches.
After end of straight keel, from after perpendicular.....	42 feet 3 inches.
Length of straight keel.....	255 feet 5 $\frac{7}{8}$ inches.
Forward end of bilge keel from forward perpendicular.....	92 feet 6 inches.
After end of bilge keel, from after perpendicular.....	78 feet 9 inches.
Forward perpendicular to center of foremast, at main deck.....	90 feet 1 $\frac{7}{16}$ inches.
Forward perpendicular to center of stack No. 1, at main deck.....	107 feet 4 $\frac{11}{16}$ inches.
Forward perpendicular to center of stack No. 2, at main deck.....	123 feet 4 $\frac{3}{8}$ inches.
Forward perpendicular to center of stack No. 3, at main deck.....	145 feet 10 $\frac{1}{8}$ inches.
Forward perpendicular to center of stack No. 4, at main deck.....	161 feet 10 $\frac{1}{2}$ inches.
Center of mainmast, at main deck, to after perpendicular.....	59 feet 8 inches.
Center of shaft struts forward of after perpendicular.....	21 feet 3 inches.
Propellers, forward of after perpendicular.....	16 feet 10 $\frac{5}{8}$ inches.

HEIGHTS ABOVE 9 FEET 8 $\frac{1}{2}$ INCHES WATER LINE.

Bridge at center (frame No. 40).....	22 feet 1 $\frac{1}{4}$ inches.
Bridge at outboard ends (frame No. 52).....	21 feet 6 $\frac{1}{8}$ inches.
Forward smokestack on center line.....	38 feet 6 $\frac{1}{8}$ inches.
Lookout platform.....	65 feet 1 inch.
Signal yard.....	85 feet 10 inches.
Upper wireless aerial.....	89 feet 4 inches on foremast, 49 feet 4 inches on mainmast.
Lower wireless aerial.....	About 74 feet 4 inches on masts and 3.4 feet 4 inches on stocks
Main deck, at side (frame No. 52).....	13 feet $\frac{5}{8}$ inches.
Main deck, at side (frame No. 89).....	10 feet 11 $\frac{5}{8}$ inches.
Top of after deck house.....	16 feet 10 $\frac{1}{2}$ inches.
Freeboard at stem.....	16 feet 8 $\frac{3}{8}$ inches.
Freeboard at stern.....	7 feet 8 $\frac{7}{8}$ inches.

CONDITIONS OF LOADING.

Ship complete, ready for service in every respect, with full complement of officers and crew with their effects, and consumable load, is tabulated below, for normal, full, and emergency conditions.

In the design of the vessel the mean draft corresponding to the "9 feet 8½ inches water line" contemplates the condition of loading given under the heading "normal."

Kind.	Normal.		Full.		Emergency.	
	Quantity.	Weight. (Tons).	Quantity.	Weight. (Tons).	Quantity.	Weight. (Tons).
Hull.....		445.25		445.25		445.25
Hull fittings.....		75.55		75.55		75.55
S. E. and water.....		461.65		461.65		461.65
Reserve feed water.....		14.00		21.00		40.76
Battery.....		40.10		40.10		40.10
Ammunition and ordnance stores.....		37.80		38.15		38.15
Equipment stores.....		15.80		33.40		33.40
Outfit and stores.....		31.40		40.37		54.12
Fuel oil.....		150.00		225.00		383.39
Officers, crew, and effects.....		12.64		12.64		12.64
Total.....		1,284.19		1,393.11		1,585.01

DESIGNED COMPLEMENT.

Officers:

Commanding officer.....	1
Wardroom officers.....	5
Total.....	6

Seamen branch:

Chief boatswain's mate.....	1
Boatswain's mate, first class.....	1
Boatswain's mate, second class.....	1
Coxswains.....	2
Chief gunner's mate (torpedo).....	1
Gunner's mates, first class (two torpedo).....	3
Gunner's mates, second class (two torpedo).....	3
Gunner's mates, third class (two torpedo).....	3
Chief quartermaster (navigating).....	1
Quartermaster, first class (signal).....	1
Quartermaster, first class.....	1
Quartermaster, second class.....	1
Quartermaster, third class.....	1
Seamen.....	17
Ordinary seamen.....	8
Total.....	45

Artificer branch:

Electrician, first class.....	1
Electrician, third class.....	1
Chief electrician (wireless).....	1
Electrician, first class (wireless).....	1
Electrician, second class (wireless).....	1
Electrician, third class (wireless).....	1
Carpenter's mate, first class.....	1
Storekeeper, first class.....	1
Total.....	8

Chief machinist's mates.....	3
Machinist's mates, first class.....	2
Machinist's mates, second class.....	3
Chief water tender.....	1
Water tenders.....	6
Boilermaker.....	1
Blacksmith, second class.....	1
Coppersmith, second class.....	1
Enginemen, first class.....	5
Enginemen, second class.....	8
Firemen, first class.....	12
Firemen, second class.....	8
Total.....	51

Yeoman, first class, commanding officer.....	1
Yeoman, second class, engineer department.....	1
Hospital steward.....	1
Total.....	3

Ship's cook, first class.....	1
Ship's cook, second class.....	1
Total.....	<u>2</u>

Cabin steward.....	1
Cabin cook.....	1
Mess attendant.....	3
Total.....	<u>5</u>

RECAPITULATION.	
Officers.....	6
Crew.....	114
Total.....	<u>120</u>

(Section B-1.)

All of the following plans are a part of the ship's regular allowance of articles under cognizance of the Bureau of Construction and Repair, Equipage, Title B, Class 35.

All plans issued to the vessel shall be receipted for, and shall be considered as a charge on the books of the executive officer, under the same regulation as governing articles of equipage.

The prints are taken on 30-inch wide blue-print paper, folded "bellows fashion," 13 inches wide, arranged so that the top fold presents the title of the plan without unfolding.

The inside front cover of the portfolio carries a list of plan numbers and a list of portfolio numbers and titles of the plans.

MACHINERY.

(A) ENGINES.

The vessel is fitted with the latest type Parsons turbines, in combination with reduction gears, and placed in two common watertight compartments.

The power is divided on two shafts. The high-pressure turbine is designed with cruising stage at the forward end. Cruising stages have a by-pass fitted around them.

Each propeller shaft is driven through gearing by one single-flow high-pressure turbine and one double-flow low-pressure and single-flow astern turbine.

The astern turbines are fitted in the same rotor casings as the low-pressure ahead turbines, and the astern turbines together are capable of driving the vessel astern at a speed of 20 knots.

For "full speed" steam is admitted into the main belt or steam chest of the high-pressure turbines, expanded into the low-pressure turbines, and then discharged into the condensers.

For "cruising speeds" steam is admitted into the cruising-stage belts of the high-pressure turbines, pressure being reduced at the throttle valves to suit.

The designed shaft horsepower of the engines is 24,200 horsepower when they are turning both propellers over at the rate of 430 revolutions per minute.

(B) PROPELLERS AND SHAFTS.

Diameter of propeller shafting.....	11 inches.
Diameter of line shafting.....	11½ inches.
Diameter of axial hole in shafting.....	7¼ inches.
Number of propellers.....	2.
Number of blades, each propeller (cast solid).....	3.
Diameter of propellers (designed).....	110 inches.
Pitch of propellers, fixed (designed).....	122 inches.
Ratio of diameter to pitch (designed) = P=.....	1:1.109.
Area, projected (designed) D.....	5,226.84 square inches.
Area, helicoidal (designed).....	6,300.00.
Area, disk (designed).....	9,503.34 square inches.
Lower tip of blades below bottom of keel.....	22½ inches.
Tips of blades below 9-foot water line.....	19½ inches.
Material of propellers.....	Manganese bronze.
Starboard propeller is right hand.	
Port propeller is left hand.	

(C) BOILERS.

Kind of boiler (oil burning).....	Normand water tube.
Number (two in each boiler room).....	4.
Designed working pressure.....	260 pounds.
Heating surface, each boiler.....	6,750 square feet.
Cubical contents of combustion chamber, each boiler.....	718 cubic feet.
Diameter of main steam pipes.....	10½ inches.
Diameter of steam pipe from each boiler.....	7½ inches.
Number of oil burners, each boiler.....	14.
Number of furnaces, each boiler.....	1.
Smoke pipes, height above base line.....	48 feet 1¾ inches.
Number of smoke pipes.....	4.
Area of section through one smoke pipe.....	20.29 square feet.