RESTRICTED

Serial No. 141

GENERAL INFORMATION

INCLUDING DESCRIPTIONS AND
TESTS OF ELECTRIC AUXILIARIES

TORPEDO BOAT DESTROYERS
Nos. 231 to 250

INFORMATION RELATIVE TO ITEMS UNDER COGNIZANCE
OF BUREAU OF CONSTRUCTION AND REPAIR
NAVY DEPARTMENT, WASHINGTON, D. C.

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GENERAL INFORMATION

INCLUDING DESCRIPTION AND TESTS
OF ELECTRIC AUXILIARIES

TORPEDO BOAT DESTROYERS

No. 231, U. S. S. Hatfield
No. 232, U. S. S. Brooks
No. 233, U. S. S. Gilmer
No. 234, U. S. S. Fox
No. 235, U. S. S. Kane
No. 236, U. S. S. Humphreys
No. 237, U. S. S. McFarland
No. 238, U. S. S. James K. Paulding
No. 239, U. S. S. Overton
No. 240, U. S. S. Sturtevant
No. 241, U. S. S. Childs
No. 242, U. S. S. King
No. 243, U. S. S. Sands
No. 244, U. S. S. Williamson
No. 245, U. S. S. Reuben James
No. 246, U. S. S. Bainbridge
No. 247, U. S. S. Goff
No. 248, U. S. S. Barry
No. 249, U. S. S. Hopkins
No. 250, U. S. S. Lawrence

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

1921

Finished Plan No. 41

WASHINGTON
GOVERNMENT PRINTING OFFICE
1921

INTRODUCTION.

HISTORICAL DATA.

Authorized by act of Congress March 4 and October 6, 1917.
Vessel built by New York Shipbuilding Corporation, Camden, N. J.
Contract signed December 29, 1917.
Contract date of completion, to be constructed as expeditiously as practicable.

U. S. S. "HATFIELD," TORPEDO-BOAT DESTROYER, NO. 231.

Keel laid June 10, 1918.
Vessel launched March 17, 1919.
Christened by Mrs. J. E. Haugh.
Date of delivery to Government, April 16, 1920.
Date of official preliminary trial, April 1, 1920.
Vessel commissioned April 16, 1920.

U. S. S. "BROOKS," TORPEDO-BOAT DESTROYER, NO. 232.

Keel laid June 11, 1918.
Vessel launched April 24, 1919.
Christened by Mrs. Emma C. Keyes.
Date of delivery to Government, June 18, 1920.
Date of official preliminary trial, May 27, 1920.
Vessel commissioned June 18, 1920.

U. S. S. "GILMER," TORPEDO-BOAT DESTROYER, NO. 233.

Keel laid June 25, 1918.
Vessel launched May 24, 1919.
Christened by Mrs. Elizabeth Gilmer Miles.
Date of delivery to Government, April 30, 1920.
Date of official preliminary trial, April 20, 1920.
Vessel commissioned April 30, 1920.

U. S. S. "FOX," TORPEDO-BOAT DESTROYER, NO. 234.

Keel laid June 25, 1918.
Vessel launched June 12, 1919.
Christened by Miss Virginia Blair.
Date of delivery to Government, May 17, 1920.
Date of official preliminary trial, April 28, 1920.
Vessel commissioned May 17, 1920.

U. S. S. "GOFF," TORPEDO-BOAT DESTROYER, NO. 247.

Keel laid June 16, 1919.
Vessel launched June 2, 1920.
Christened by Miss Katherine Goff.
Date of delivery to Government, January 19, 1921.
Dates of preliminary official trials, December 30, 1920, and January 10, 1921.
Vessel commissioned January 19, 1921.

U. S. S. "BARRY," TORPEDO-BOAT DESTROYER, NO. 248.

Keel laid July 26, 1919.
Vessel launched October 26, 1920.
Christened by Mrs. Shelton E. Martin.
Date of delivery to Government, December 28, 1920.
Date of preliminary official trial, December 12, 1920.
Vessel commissioned December 28, 1920.

U. S. S. "HOPKINS," TORPEDO-BOAT DESTROYER, NO. 249.

Keel laid July 30, 1919.
Vessel launched June 26, 1920.
Christened by Miss Sarah A. Babbitt.
Date of delivery to Government, March 21, 1921.
Date of preliminary official trial, March 8, 1921.
Vessel commissioned March 21, 1921.

U. S. S. "LAWRENCE," TORPEDO-BOAT DESTROYER, NO. 250.

Keel laid August 14, 1919.
Vessel launched July 10, 1920.
Christened by Miss Ruth Lawrence.
Date of delivery to Government, April 18, 1921.
Date of preliminary official trial, April 11, 1921.
Vessel commissioned April 18, 1921.

DIMENSIONS AND DISTANCES.

Length over all, 314 feet $4\frac{1}{2}$ inches.
Length between perpendiculars (9 feet $\frac{1}{2}$ inch W. L.), 310 feet.
Breadth, molded, extreme, 30 feet $11\frac{1}{2}$ inches.
Breadth, extreme, over guards, 31 feet $7\frac{3}{4}$ inches.
Depth, molded, at side (frame No. 89), 20 feet $7\frac{3}{4}$ inches.
Depth, molded, at center (frame No. 89), 21 feet $9\frac{5}{8}$ inches.
Tons per inch (9 feet $5\frac{1}{2}$ inches W. L.), 15.55.
Displacement (designed 9 feet $5\frac{1}{2}$ inches W. L.), 1,230 tons.
Wetted surface (9 feet $5\frac{1}{2}$ inches W. L.), 10,430 square feet.
Coefficient block (designed 9 feet $5\frac{1}{2}$ inches W. L.), 0.479.
Coefficient prismatic (designed 9 feet $5\frac{1}{2}$ inches W. L.), 0.627.
Coefficient midship (designed 9 feet $5\frac{1}{2}$ inches W. L.), 0.764.
Coefficient water line (designed 9 feet $5\frac{1}{2}$ inches W. L.), 0.680.
Area of rudder, 77 square feet.

Center of buoyancy (9 feet 5½ inches W. L.) above bottom of keel, 5 feet 9 inches.
Center of buoyancy (9 feet 5½ inches W. L.) forward of middle perpendicular, 0.72 foot.
Transverse metacenter above C. B. (9 feet 5½ inches W. L.), 8.54 feet.
Longitudinal metacenter above C. B. (9 feet 5½ inches W. L.), 725 feet.
Center of gravity of 9 feet 5½ inches water line abaft middle perpendicular, 5.36 feet.
Center of gravity of full load water line abaft middle perpendicular, 5.92 feet.
Frame spacing, 21 inches.

LONGITUDINAL DISTANCES.

Projection of stern at main deck, abaft A. P., 1 foot 4½ inches.
Axis of rudder forward of A. P., 6 feet 4½ inches.
Forward end of straight keel from F. P., 12 feet 6 inches.
After end of straight keel from A. P., 42 feet 3 inches.
Length of straight keel, 257 feet.
Forward end of bilge keel from F. P., 92 feet 6 inches.
After end of bilge keel from A. P., 78 feet 9 inches.
F. P. to center of foremast, at main deck, 90 feet $1\frac{7}{16}$ inches.
F. P. to center of stack No. 1, at main deck, 107 feet $4\frac{11}{16}$ inches.
F. P. to center of stack No. 2, at main deck, 123 feet 4⅜ inches.
F. P. to center of stack No. 3, at main deck, 145 feet $10\frac{13}{16}$ inches.
F. P. to center of stack No. 4, at main deck, 161 feet 10½ inches.
Center of mainmast, at main deck, to A. P., 58 feet.
Center of shaft struts forward of A. P., 21 feet 3 inches.
Center of propellers forward of A. P., 16 feet 11½ inches.

HEIGHTS ABOVE DESIGNER'S WATER LINE (9 FEET 4 INCHES. W. L.).

Bridge deck at center (frame No. 42), 22 feet 4⅛ inches.
Bridge deck at outboard end (frame No. 42), 21 feet 6⅛ inches.
Forward smokestack on C. L., 38 feet $10\frac{5}{8}$ inches.
Crows' nest, 65 feet 3 inches.
Signal yard, 87 feet 7¾ inches.
Upper wireless aerial, 94 feet.
Lower wireless aerial from abt., 53 feet on masts to smokestack.
Main deck at side (frame No. 89), 11 feet 3¾ inches.
Main deck at C. L. (frame No. 89), 12 feet $5\frac{5}{8}$ inches.
Top of after deckhouse (frame 150), 16 feet 4⅞ inches.
Freeboard at stem (molded), 17 feet ½ inch.
Freeboard at stern (molded), 8 feet ½ inch.

CONDITION OF LOADING.

The following table is tabulated for normal, full, and emergency conditions:

	Normal.		Full.		Emergency.	
	Quantity.	Weight.	Quantity.	Weight.	Quantity.	Weight.
		Tons.		*Tons.*		*Tons.*
5-inch shells [1]	400	8.93	400	8.93	558	12.46
5-inch powder charges [1]	400 tanks	8.39	400 tanks	8.39	669 tanks	14.04
3-inch .23-caliber ammunition	300 rounds	2.65	300 rounds	2.65	528 rounds	4.76
Torpedo	12	10.53	12	10.53	12	10.53
4-inch .50-caliber cartridges [2]	400	15.35	400	15.35	496	19.05
Warheads	12	2.73	12	2.73	12	2.73
Exercise and collapsible heads, superheater fuses, detonators, etc.		.77		.77		.77
Dummy cartridges	20 rounds	.45	20 rounds	.45	20 rounds	.45
Dummy tanks	20	.42	20	.42	20	.42
3-inch dummy cartridges	6 rounds	.05	6 rounds	.05	6 rounds	.05
.30-caliber dummy cartridges	1,000 rounds	.03	1,000 rounds	.03	1,000 rounds	.03
.30-caliber ball cartridges	42,000 rounds	1.56	42,000 rounds	1.56	42,000 rounds	1.56
.30-caliber blank cartridges	6,000 rounds	.12	6,000 rounds	.12	6,000 rounds	.12
.45-caliber Colt automatic-pistol cartridges.	do	.15	do	.15	do	.15
S. and A. stores	Two-thirds	8.08	Full	12.12	Full	12.12
C. and R. stores	do	1.06	do	1.60	do	1.60
Navigator stores	do	.27	do	.40	do	.40
Medical stores	do	.21	do	.31	do	.31
Engineering stores	do	4.11	do	6.17	do	6.17
Equipment stores	do	.90	do	1.35	do	1.35
Ordnance stores	do	.67	do	1.00	do	1.00
Officers' mess stores	do	.18	do	2.68	do	2.68
Fresh water		29.06	do	29.06	do	29.06
Reserve feed water		24.20	do	24.20	Maximum	91.52
Fuel oil	Two-thirds	150.00		225.00	do	376.20

[1] Applies to Destroyers Nos. 231 to 235, inclusive.

[2] Applies to Destroyers Nos. 236 to 250, inclusive.

DESIGNED COMPLEMENT.

(Section X–3.)

Officers:	
Commanding officer	1
Wardroom officers	5
Seaman branch:	
Chief boatswain's mate	1
Boatswain's mate, second class	1
Coxwain	1
Chief gunner's mates	2
Gunner's mates, first class	2
Gunner's mates, second class	2
Chief quartermaster, navigating	1
Quartermaster, first class	1
Quartermasters, second class	2
Seamen	16
Ordinary seamen	13
Total	42
Artificer branch:	
Electrician, first class	1
Electricians, first class, radio	2
Artificer branch—Continued.	
Electrician, second class, radio	1
Carpenter's mate, second class	1
Total	5
Artificer branch (engine-room force):	
Machinist's mates	3
Machinist's mates, first class	3
Chief machinist's mates, second class	3
Chief water tender	1
Water tenders	5
Boilermaker	1
Blacksmith	1
Coppersmith	1
Oilers	4
Firemen, first class	10
Firemen, second class	7
Total	39

Special branch:	
Yeoman, first class, commanding officer	1
Yeoman, second class, engineer department	1
Hospital steward	1
Total	3
Commissary branch:	
Ship's cook, first class	1
Ship's cook, third class	1
Total	2
Messmen branch:	
Cabin steward	1
Cabin cook	1
Mess attendants	2
Total	4

RECAPITULATION.

Officers	6
Crew	95
Total	101

PLANS.

(Section B–1.)

Furnished under the cognizance of the Bureau of Construction and Repair for ship use.

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.

Additional copies of any plan specified in this list may be issued to the commanding officer at his request for use on board ship. The booklet sets are issued to the commanding officer in sufficient number to provide one copy for each officer in charge of a department or division.

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.

All plans and booklets are to be considered as confidential documents.

The plans furnished the vessel are in portfolios 32 inches by 15 inches, bound on the 32-inch edge.

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.

An additional copy of the lists, inside the front cover of the portfolio, is made up into booklet form for use in finding plans, and is left loose in the front part of the portfolio.

Blue prints of electrical auxiliaries, steering engine, windlass, etc., obtained from outside sources, are of miscellaneous sizes. They are attached together and folded as one set, and the set assigned a single number in series of portfolio numbers.

There is one copy furnished of all the plans named in the list except Booklets of General Information and Booklets of General Plans, of which one copy is furnished for each officer.

Booklet of General Information and Final Inclining Experiment are not included with the plans made up in the portfolio; there is included, however, in the portfolio an uncut print of small-scale booklet plans of the vessel.

MACHINERY.

(A) ENGINES.

Westinghouse marine steam-turbine engines with reduction gears installed in two engine compartments. Each compartment contains a high-pressure and a low-pressure turbine with reduction gears to the propeller shaft, one scoop condenser, and an independent forced-oil lubricating system.

(B) PROPELLERS AND SHAFTS.

Diameter of propeller shafting	11¼ inches.
Diameter of line shafting	11¼ inches.
Diameter of axial hole in shafting	6¾ inches.
Number of propellers	2.
Number of blades, each propeller (cast solid)	3.
Diameter of propellers (designed)	9 feet.
Pitch of propellers, fixed (designed)	9 feet 10½ inches.
Ratio of diameter to pitch (designed) =P=	1.087.
Area, projected (designed) D	37.92 square feet.
Area, helicoidal (designed)	43.92 square feet.
Area, disk (designed)	63.62 square feet.
Lower tip of blades below bottom of keel	20½ inches.
Tips of blades below W. L. at 9 feet	20½ inches.
Material of propellers	Cast manganese bronze.

Starboard propeller is right hand.
Port propeller is left hand.

(C) BOILERS.

Kind of boiler: White-Forster Express, water tube, oil burning.

Number (2 in each boiler room)	4.
Designed working pressure	265 pounds.
Heating surface, each boiler	6,875 square feet.
Cubical contents of combustion chamber, each boiler	663 cubic feet.
Diameter of main steam pipes (I. D.)	10½ inches.
Diameter of steam pipe from each boiler (I. D.)	7½ inches.
Number of oil burners, each boiler	14.
Number of furnaces, each boiler	1.
Smoke pipes, height above main deck	25 feet.
Number of smoke pipes	4.
Area of section through one smoke pipe	20.3 square feet.

ELECTRIC PLANT.

GENERATORS.

Two 25-kilowatt, 125-volt, turbo-generators manufactured by the Westinghouse Electric & Manufacturing Co.

WIRING, ETC.

The wiring for lighting and power and interior communication circuits is in general leaded and armored wire. Semiportable leads are armored wire. Portable leads are plain braided duplex deck cable. All wiring for light and power is run on the "two-wire" system.