

RESTRICTED

SERIAL N^o. 49

GENERAL INFORMATION

INCLUDING DESCRIPTIONS AND
TESTS OF ELECTRIC AUXILIARIES

U. S. S. TORPEDO BOAT DESTROYERS
Nos. 186 TO 199

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

DECLASSIFIED

Authority AND 7143r 2

By JLNARA Date 1-22-10

RESTRICTED
CONFIDENTIAL!

Serial No. 49

GENERAL INFORMATION

INCLUDING DESCRIPTION AND TESTS
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TORPEDO BOAT DESTROYERS

Nos. 186-199

U. S. S.

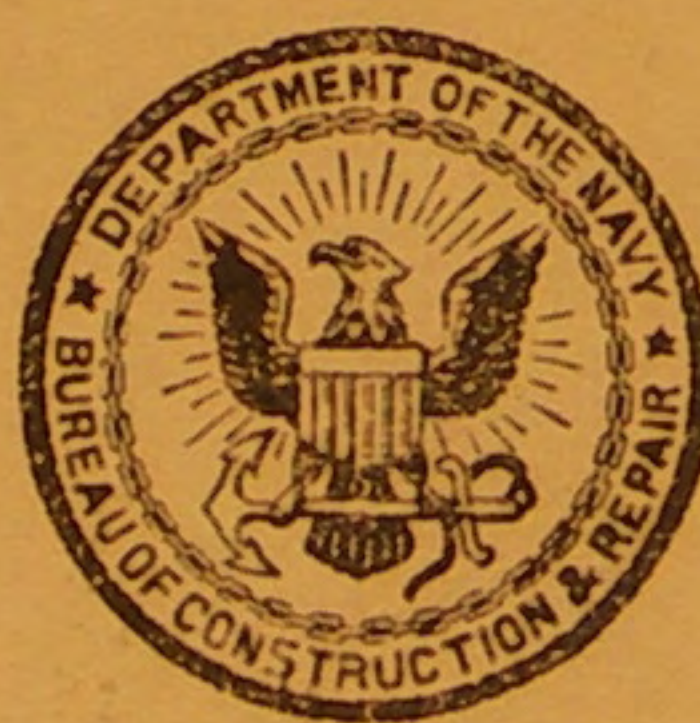
CLEMSON
DAHLGREN
GOLDSBOROUGH
SEMMES
SATTERLEE
MASON
GRAHAM

ABEL P. UPSHUR
HUNT
WELBORN C. WOOD
GEORGE E. BADGER
BRANCH
HERNDON
DALLAS

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

1920

Finished Plan No. 41



WASHINGTON
GOVERNMENT PRINTING OFFICE
1920

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NATIONAL ARCHIVES FILES
50731

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Authority NND 974382
By 16NARA Date 9-22-10

INTRODUCTION.

HISTORICAL DATA.

Authorized by acts of Congress March 4, 1917, and October 6, 1917.

Vessels built by Newport News Shipbuilding & Dry Dock Co.

Contract signed February 15, 1918.

Supplementary contract signed July 1, 1919.

Contract date of completion, none set.

	Clemson, 186.	Dahlgren, 187.	Goldsborough, 188.	Semmes, 189.	Satterlee, 190.
Keel laid.....	May 11, 1918	June 8, 1918	June 8, 1918	July 10, 1918	July 10, 1918
Vessel launched.....	Sept. 5, 1918	Nov. 20, 1918	Nov. 20, 1918	Dec. 21, 1918	Dec. 21, 1918
Official trial.....	Apr. 4, 1919	Dec. 30, 1918	Jan. 20, 1920	Feb. 10, 1920	Dec. 15, 1919
Delivered to Government.....	Nov. 17, 1919	Jan. 6, 1920	Jan. 26, 1920	Feb. 21, 1920	Dec. 22, 1919
Vessel commissioned.....	Dec. 29, 1919	Jan. 6, 1920	Jan. 26, 1920	Feb. 21, 1920	Dec. 23, 1919

U. S. S. *Clemson* christened by Miss Mary Cleaves Daniels.

U. S. S. *Dahlgren* christened by Mrs. Josiah Pierce.

U. S. S. *Goldsborough* christened by Miss Lucetta P. Goldsborough.

U. S. S. *Semmes* christened by Mrs. John H. Watkins.

U. S. S. *Satterlee* christened by Miss Rebecca E. Satterlee.

	Mason, 191.	Graham, 192.	Abel P. Upshur, 193.	Hunt, 194.	Welborn C. Wood, 195.
Keel laid.....	July 10, 1918	Sept. 7, 1918	Aug. 20, 1918	Aug. 20, 1918	Sept. 24, 1918
Vessel launched.....	Mar. 8, 1919	Mar. 22, 1919	Feb. 14, 1920	Feb. 14, 1920	Mar. 6, 1920
Official trial.....	Feb. 24, 1920	Mar. 9, 1920	May 18, 1920	June 3, 1920	June 22, 1920
Delivered to Government.....	Feb. 28, 1920	Mar. 13, 1920	May 21, 1920	June 8, 1920	June 25, 1920
Vessel commissioned.....	Feb. 28, 1920	Mar. 13, 1920			

U. S. S. *Mason* christened by Miss Mary Mason Williams.

U. S. S. *Graham* christened by Mrs. Robert F. Smallwood.

U. S. S. *Abel P. Upshur* christened by Mrs. George J. Benson.

U. S. S. *Hunt* christened by Miss Virginia Hunt.

U. S. S. *Welborn C. Wood* christened by Miss Virginia Mary Tate.

	George E. Badger, 196.	Branch, 197.	Herndon, 198.	Dallas, 199.
Keel laid.....	Sept. 24, 1918	Oct. 25, 1918	Nov. 25, 1918	Nov. 25, 1918
Vessel launched.....	Mar. 6, 1920	Apr. 19, 1919	May 31, 1919	May 31, 1919
Official trial.....		Mar. 30, 1920	Apr. 13, 1920	Apr. 27, 1920
Delivered to Government.....	June 8, 1920	Apr. 3, 1920	Apr. 17, 1920	Apr. 30, 1920
Vessel commissioned.....	July 28, 1920			

U. S. S. *George E. Badger* christened by Miss Mary Badger Wilson.

U. S. S. *Branch* christened by Miss Laurie O. Branch.

U. S. S. *Herndon* christened by Miss Lucy Taylor Herndon.

U. S. S. *Dallas* christened by Miss Wathen Dallas Strong.

GENERAL INFORMATION.

DIMENSIONS AND DISTANCES.

Length over all, 314 feet $4\frac{1}{2}$ inches.
 Length between perpendiculars, 310 feet.
 Length on 9 foot 4 inch designer's water line, 311 feet 3 inches.
 Breadth, molded, 30 feet $11\frac{1}{2}$ inches.
 Breadth, over guards, 31 feet $8\frac{1}{4}$ inches.
 Depth, molded at side (frame No. 88), 20 feet $8\frac{3}{8}$ inches.
 Depth, molded at center (frame No. 88), 21 feet $10\frac{1}{4}$ inches.
 Tons per inch (9 feet 4 inches W. L.), 15.50.
 Mean trial displacement, 1,215 tons at 9 feet 4 inches draft.
 Wetted surface (9 feet 4 inches W. L.), 9,760 square feet.
 Coefficient block (designed 9 feet 4 inches W. L.), 0.472.
 Coefficient prismatic (designed 9 feet 4 inches W. L.), 0.630.
 Coefficient midship (designed 9 feet 4 inches W. L.), 0.755.
 Coefficient water line (designed 9 feet 4 inches W. L.), 0.680.
 Area of rudder, 76 square feet.
 Center of buoyancy (9 feet 4 inches W. L.) above bottom of keel, 5.70 feet.
 Center of buoyancy (9 feet 4 inches W. L.) forward of middle perpendicular, 0.54 foot.
 Transverse metacenter above C. B. (9 feet 4 inches W. L.), 8.65 feet.
 Longitudinal metacenter above C. B. (9 feet 4 inches W. L.), 746 feet.
 Center of gravity of water line abaft middle perpendicular, 4.76 feet.
 Center of gravity of full-load water line (9 feet $9\frac{3}{4}$ inches draft), abaft middle perpendicular, 5.48 feet.
 Frame spacing, 1 foot 9 inches.

LONGITUDINAL DISTANCES.

Projection of stern abaft A. P., 1 foot $4\frac{3}{4}$ inches.
 Axis of rudder, forward of A. P., 6 feet $4\frac{1}{2}$ inches.
 Forward end of straight keel, from F. P., 12 feet 3 inches.
 After end of straight keel, from A. P., 42 feet 6 inches.
 Length of straight keel, 255 feet 3 inches.
 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 $1\frac{7}{8}$ inches.
 F. P. to center of stack No. 1, at main deck, 107 feet $4\frac{9}{16}$ inches.
 F. P. to center of stack No. 2, at main deck, 121 feet $7\frac{1}{16}$ inches.
 F. P. to center of stack No. 3, at main deck, 145 feet $10\frac{3}{4}$ inches.
 F. P. to center of stack No. 4, at main deck, 160 feet 2 inches.
 Center of mainmast, at main deck, to A. P., 55 feet $2\frac{7}{16}$ inches.
 Center of shaft struts forward of A. P., 21 feet 3 inches.
 Propellers, forward of A. P., 17 feet 2 inches.

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

Bridge at center (frame No. 40), 22 feet $1\frac{3}{8}$ inch.
 Bridge at outboard ends (frame No. 52), 22 feet $1\frac{3}{8}$ inch.
 Forward smokestack on C. L., 39 feet 10 inches.

Lookout platform, forward,
 Signal yard, 86 feet $5\frac{1}{4}$ inches
 Radio, 17 feet.
 Upper wireless aerial, 92 feet
 Lower wireless aerial, 54 feet
 Main deck, at side (frame No. 88), 20 feet $8\frac{3}{8}$ inches
 Main deck, at centerline (frame No. 88), 21 feet $10\frac{1}{4}$ inches
 Top of afterdeck house, (frame No. 88), 21 feet $10\frac{1}{4}$ inches
 Freeboard at stem, 17 feet $\frac{1}{2}$ inch
 Freeboard at stern, 8 feet $\frac{1}{2}$ inch

Ship complete, ready for
 crew with their effects, and
 agency conditions.

In design of the vessel to
 9 feet $3\frac{5}{8}$ inches, contemplated

Hull weights and fittings.....
 Steam-engineering weights, except water in all machinery.....
 Feed water.....
 Drinking water.....
 Fuel oil.....
 Battery complete.....
 Ammunition, including torpedoes.....
 Construction and repair stores furnished by Government.....
 Steam-engineering stores furnished by Government.....
 Equipment stores furnished by Government.....
 Outfits furnished by Government.....
 Supplies stores furnished by Government.....
 Officers, crew, and effects.....
 Total.....

Officers:
 Commanding officer.....
 Wardroom officers.....
 Seaman branch:
 Chief boatswain's mate.....
 Boatswain's mate, second class.....
 Coxswain.....
 Chief gunner's mates.....
 Gunner's mates, first class.....
 Gunner's mates, second class.....
 Chief quartermaster, navigating.....
 Quartermaster, first class.....
 Quartermasters, second class.....

TORPEDO BOAT DESTROYERS 186-199.

3

Lookout platform, forward, 60 feet 1 $\frac{3}{4}$ inches.
 Signal yard, 86 feet 5 $\frac{1}{4}$ inches.
 Radio, 17 feet.
 Upper wireless ariel, 92 feet 8 $\frac{1}{4}$ inches.
 Lower wireless ariel, 54 feet 10 $\frac{3}{4}$ inches.
 Main deck, at side (frame No. 89), 11 feet 3 $\frac{3}{4}$ inches.
 Main deck, at centerline (frame No. 89), 12 feet 5 $\frac{5}{8}$ inches.
 Top of afterdeck house, (frame 150), 16 feet 5 inches.
 Freeboard at stem, 17 feet $\frac{1}{2}$ inch.
 Freeboard at stern, 8 feet $\frac{1}{2}$ inch.

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 design of the vessel the mean draft corresponding to the "designer's water line," viz, 9 feet 3 $\frac{5}{8}$ inches, contemplates the condition of loading given under the heading "Normal."

Kind.	Normal weight.	Full weight.	Emergency weight.
	<i>Tons.</i>	<i>Tons.</i>	<i>Tons.</i>
Hull weights and fittings.....	482	482	482
Steam-engineering weights, except water.....	456	456	456
Water in all machinery.....	38	38	38
Feed water.....	14	21	40
Drinking water.....	10	15	30
Fuel oil.....	150	225	275
Battery complete.....	48	48	48
Ammunition, including torpedoes.....	36	36	36
Construction and repair stores furnished by contractor.....	8	8	8
Steam-engineering stores furnished by contractor.....	2	2	2
Equipment stores furnished by Government.....	13	13	13
Outfits furnished by Government.....	8	10	12
Supplies stores furnished by Government.....	12	15	18
Officers, crew, and effects.....	10	10	10
Total.....	1, 287	1, 379	1, 468

DESIGNED COMPLEMENT.

(Section X-3.)

Officers:			
Commanding officer.....	1	Seamen.....	16
Wardroom officers.....	5	Ordinary seamen.....	13
Seaman branch:		Total.....	42
Chief boatswain's mate.....	1		
Boatswain's mate, second class.....	1		
Coxswain.....	1	Artificer branch:	
Chief gunner's mates.....	2	Electrician, first class.....	1
Gunner's mates, first class.....	2	Electricians, first class, radio.....	2
Gunner's mates, second class.....	2	Electrician, second class, radio.....	1
Chief quartermaster, navigating.....	1	Carpenter's mate, second class.....	1
Quartermaster, first class.....	1	Total.....	5
Quartermasters, second class.....	2		

GENERAL INFORMATION.

Artificer branch (engine-room force):

Machinist's mates.....	3
Machinist's mates, first class.....	3
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 regulations 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.

Plan No.	Contractor's No.	Plan numbers and titles
8263	8264	Docking plan.
8267	8268	Midship and type sections.
8269	8270	Cross sections. (Shown on Nos. 5 and 22 b)
8271	8272	Inboard profile, lighting, stanchions, comp
8273	8274	of storerooms.
8275	8276	Deck plans and hold, lighting, stanchi
8277	8278	ment of storerooms.
8279	8280	Hold, joiner plan.
8281	8282	Second platform, joiner plan, hammocks,
8283	8284	stowage.
8285	8286	First platform, joiner plan, hammocks, berth
8287	8288	Main deck, joiner plan, hammocks, berth
8289	8290	Bridges and top of deck houses, joiner plan
8291	8292	and general stowage.
8293	8294	Shell plating, bilge keel and fender, sheet
8295	8296	Shell plating, bilge keel and fender, sheet
8297	8298	Torpedo arrangement and boat stowage.
8299	8300	General arrangement of steering gear.
8301	8302	Arrangement of forward magazine.
8303	8304	Arrangement of after magazine.
8305	8306	Arrangement of mechanical ventilation.
8307	8308	Steel and zinc protectors are not shown on a
8309	8310	stern-post and sea chests.
8311	8312	Arrangement of drainage, fresh and salt w
8313	8314	Elevations and sections.
8315	8316	Arrangement of drainage, fresh and salt w
8317	8318	Arrangement of fuel oil filling and section
8319	8320	Torpedo air piping.
8321	8322	Displacement and other curves. (Bu. C. &
8323	8324	Inclining experiment. (Booklet to be furn
8325	8326	Booklet of general information, including de
8327	8328	Booklet of general plans.
8329	8330	Draft diagram. (Not required, as ship has
8331	8332	Capacity curves, oil and water tanks.
8333	8334	64 by 8 inch vertical engine for steering ge
8335	8336	Windlass, steam.
8337	8338	Electric motors and controlling appliances.

SUBCON

METHOD OF NUMBERING CO

Appendix No. 14 of General Spec

The ship is considered as divided into four princip

Each compartment between the stem and the forward

Each compartment is designated by the letter "A," at

Each compartment between the forward transverse

Each compartment and the after transverse bulkhead of the af

the letter "B" and a number, thus: B-101.

STEERING ARRANGEMENTS.

(Section U-8.)

(See plan No. 25 in portfolio.)

GENERAL.

The steering gear is of the horizontal screw type, driven by a $6\frac{1}{2}$ by 8 inch two-cylinder steam engine. It is located in the steering-engine room, between bulkhead 164 and the stern. The ship may be steered by steam from the bridge, from the after steering station on top the after-deck house, or from the steering-engine room. Hand steering gear is installed in the steering-engine room.

1. *To steer from bridge by steam.*—Disconnect the handwheel clutch forward of the screw shaft; connect the engine pinion clutch; connect the bevel gear on the forward steering stand rope drum shaft with the bevel gear on the vertical valve control shaft, which simultaneously disconnects the after steering stand rope drum.

2. *To steer by steam from afterdeck house.*—Proceed as for steering from bridge except to connect the bevel gear on the after steering stand rope drum shaft, instead of the forward stand rope drum shaft, with the gear on the valve-control shaft.

3. *To steer by steam from steering-engine room.*—Disconnect the gears on both the forward and aft steering stand rope drum shafts from the gear on the valve-control shaft; disconnect the hand-wheel clutch; connect the engine pinion clutch.

4. *To steer by hand from steering-engine room.*—Disconnect the engine pinion clutch; connect the hand-wheel clutch to the screw shaft.

METHODS OF UNSHIPPING RUDDER.

The flat tapered cotter connecting the stock to the rudder frame will be removed and a reverse acting key or drift inserted and used in starting the stock loose from the rudder frame.

STEERING-GEAR DATA.

Builders, Hyde Windlass Co., Bath, Me.

Type, horizontal screw gear with vertical steam engine.

Number of cylinders.....	2.
Diameter of cylinder, inches.....	$6\frac{1}{2}$.
Stroke of pistons, inches.....	8.
Working steam pressure, pounds.....	200.
Designed to withstand full boiler pressure, pounds.....	265.
Steam supply-pipe diameter, inches.....	2.
Steam exhaust-pipe diameter, inches.....	$2\frac{1}{2}$.
Angle of steering-engine stops, degrees.....	38.
Angle of rudder stops, degrees.....	38.
Revolutions of screw shaft from extreme right to extreme left, 70°	31.32.
Revolutions of engine pinions, extreme right to extreme left, 70°	198.97.
Revolutions of steering stand wheels, 70°	8.
Revolutions of trick wheel on engine, 70°	8.
Revolutions of handwheel, 70°	31.32.
Ratio of screw spur gear to engine pinion.....	6.35 to 1.
Lead of screw, inches.....	$\frac{3}{4}$ inch.
Depth of Acme thread.....	0.77.
Radius of rudder crosshead, inches.....	$20\frac{1}{2}$.
Diameter of rudder stock, outside, inches.....	$11\frac{1}{2}$.
Diameter of rudder stock, inside, inches.....	Rudder stock solid.
Total area of rudder, square feet.....	76.
Area of balanced portion, square feet.....	15.7.

TORPEDO BOAT DESTROYERS 186-199.

41

LIST OF AMMUNITION STOWAGE.

(Section U-1. See portfolio plans Nos. 11 and 12.)

Item.	Compartment.	Total capacity.	Allowance.	Number in each box.	Stowage dimensions.	Weight of each box or tank.	Total weight.
4-inch .50-caliber cartridges	{ A-111-M. A-114-M. D-108-M.	256 71 183	400	1	{ 51.92 by 6.64 inches dia.	{ 84	33,600.
4-inch .50-caliber drill cartridges		6	6	1	51.92 by 6.64 inches dia.	84	504.
3-inch .23-caliber antiairship ammunition.	D-107-M.	51 boxes.	300	6	20 by 13 by 9½ inches.	119	5,950.
3-inch .23-caliber antiairship dummy.	D-107-M.	1 box	6	6	20 by 13 by 9½ inches.	119	119.
.30-caliber ball, Model 1906, machine gun.	A-112-M.	20 boxes.	24,000.	1,200		91.5	1,830.
.30-caliber ball, Model 1906, rifle.	A-112-M.	11 boxes.	13,200.	1,200		91.5	1,006.5.
.30-caliber blank, Model 1909	A-112-M.	1 box	2,000	2,000	17.125 by 11.75 by 12.45 inches.	84	84.
.30-caliber dummy, Model 1906	A-112-M.	1 box	1,000	1,000	21.625 by 12.5 by 7 inches.	66	66.
.30-caliber ball, Model 1898	A-112-M.	4 boxes	4,800	1,200	34.5 by 9 by 7.5 inches.	99.75	399.
.30-caliber blank, Model 1898	A-112-M.	4 boxes	4,000	1,000	19.75 by 13.125 by 8 inches.	44.5	178.
.45-caliber ball, Model 1911	A-112-M.	3 boxes	6,000	2,000	16.25 by 12.75 by 7.625 inches.	110	330.
War heads	D-109-M.	12	12	1 not boxed . .	21 inches dia. by 2 feet 8 inches.	430	5,160.
Torpedo detonators	Bridge		24	4		2	12.
Impulse primers	A-112-M.	6	144	24	4.86 by 3.32 by 3.036 inches.	3	18.
Superheater fuses	A-112-M.	7	140	20	4.86 by 3.32 by 3.036 inches.	3	21.
War-head attachments	D-109-M.	3 boxes	12	4	31½ by 9½ by 7½ inches.	57	171.
Impulse powder, pounds	A-112-M.	1 tank	30	50	10½ by 10½ by 16½ inches.	58	58.
Rifles	A-112-M.	5 racks	25	6	45.25 by 13.75 by 8 inches.		
Automatic pistols	A-112-M.	5 racks	29	6	15½ by 16 inches . .		
Machine guns	D-104-M.	2	2				

BATTERY.

GUNS.

(Section A-5.)

Caliber.	Location.		Gun No.
	Deck.	Frame.	
4-inch rapid-fire guns	Main	Center line 9 inches forward frame 28.	1
Do	Top of galley house	Port 6 inches forward frame 76	2
Do	do	Starboard 6 inches forward frame 76 . .	3
Do	Main	Center line 8½ inches aft frame 162 . .	4

ANTIAIRCRAFT.

3-inch antiaircraft gun	Top of after deck house . .	Center line frame 152	1
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TORPEDO TUBES.

6.8 M by 21 inches diameter triple torpedo tubes.	Main	Starboard 7 inches aft frame 106	1
Do	do	Port 4½ inches aft frame 98	2
Do	do	Starboard 18 inches aft frame 137	3
Do	do	Port 13 inches aft frame 127	4

GENERAL INFORMATION.

BATTERY—Continued.

SMALL ARMS.

Caliber.	Location.		Gun No.
	Deck.	Frame.	
.30-caliber Lewis machine gun..... 25 rifles, .30-caliber, Model 1903. 25 pistols, Colt automatic, .45-caliber.	Top of aft deck house...	Center frame 156.....	1

BOATS.

(Section U-5.)

Name.	No.	Carrying capacity (each).
24-foot motor sailing launch.....	1	19
24-foot whale boat.....	1	23
21-foot motor boat.....	1	10
10-foot punt.....	1	

LIFE RAFTS.

(Section A-5.)

No.	Carrying capacity.
5.....	About 125 persons.

SEA OPENINGS BELOW LOAD WATER LINE.

Name of valve.	Location.	Location of center of opening.			Girths.	Size of opening in ship's side in inches.
		Side.	Above bottom of keel.	From center line of ship.		
Fire and bilge pump suction.	8-inch forward frame No. 67.	P....	1.9	7.4	34.0	6½ inches diameter.
Fire and bilge pump discharge.	7½-inch forward frame No. 68.	P....	1.2	5.6	35.3	3½ inches diameter.
Boiler blows discharge.....	10½-inch forward frame No. 68	S....	0.4	2.5	38.4	2 inches diameter.
Fire and bilge pump suction..	8-inch forward frame No. 87..	P....	1.5	7.4	24.1	6½ inches diameter.
Fire and bilge pump discharge.	7½-inch forward frame No. 88.	P....	1.06	5.6	25.9	3½ inches diameter.
Boiler blows discharge.....	10½-inch forward frame No. 90	S....	0.2	2.5	29.0	2 inches diameter.
Torpedo air compressor suction.	7-inch forward frame No. 95.	S....	1.6	7.8	23.3	5¼ inches diameter.
Torpedo air compressor discharge.	6-inch aft frame No. 95.....	S....	1.6	7.8	23.2	1½ inches diameter.
Main injection.....	2-inch forward frame No. 98.	S....	4.9	13.3	16.1	24 by 75 inches.
Do.....	1½-inch forward frame No. 114	P....	5.4	12.8	14.7	24 by 70 inches.
Main discharge.....	6-inch forward frame No. 116.	S....	5.5	12.8	14.4	24 by 50 inches.
Do.....	7-inch aft frame No. 129.....	P....	6.6	11.8	13.0	24 by 41 inches.
Auxiliary engine room injection.	10½-inch aft frame No. 112..	S....	1.6	7.0	22.7	3½ inches diameter.
Do.....	10½-inch aft frame No. 113..	P....	3.1	10.2	18.8	9 inches diameter.
Auxiliary engine room discharge.	10½-inch aft frame No. 114...	P....	1.8	7.3	21.8	6 inches diameter.
Fire and bilge pump suction.	11½-inch forward frame No. 129.	P....	4.0	9.2	17.1	6½ inches diameter.
Fire and bilge pump discharge.	11½-inch forward frame No. 130.	P....	4.1	9.3	16.1	3½ inches diameter.

LIST OF LOCATION OF STENCILS FOR WATER LINE.

(Draft for location of L. W. L. is 9 feet 2 inches forward and 10 feet 2 inches aft.)

Stencil mark.	Compartment.	Frame.	Remarks.
L. W. L.	A-103	13-14	Port and starboard.
L. W. L.	B-101	59-60	Do.
L. W. L.	B-101	65-66	Do.
L. W. L.	B-101	72-73	Do.
L. W. L.	B-102	78-79	Port.
L. W. L.	B-102	80-81	Port and starboard.
L. W. L.	B-102	87-88	Do.
L. W. L.	B-102	94-95	Do.
L. W. L.	C-102	102-103	Do.
L. W. L.	C-102	110-111	Do.
L. W. L.	C-103	118-119	Do.
L. W. L.	C-103	125-126	Do.
L. W. L.	D-105 and 106	138-139	Do.
L. W. L.	D-108-M	143-144	Port.
L. W. L.	D-109-M	143-144	Starboard.
L. W. L.	D-110	147-148	Port and starboard.
L. W. L.	D-111	153-154	Do.

MACHINERY.

(A) Engines:

The propelling machinery consists of Westinghouse-Parsons marine steam turbines with Westinghouse mechanical reduction gears. It is contained in two engine compartments, in each of which is installed a high and a low pressure turbine, a reduction gear, a scoop condenser, and auxiliaries. The port propeller shaft is coupled to the gear in the forward engine room and the starboard shaft to the gear in the aft engine room.

(B) Propellers and shafts:

Diameter of propeller shafting	12 $\frac{1}{2}$ inches.
Diameter of line shafting	11 $\frac{1}{2}$ inches.
Diameter of axial hole in shafting	7 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 11 inches.
Ratio of diameter to pitch (designed)=P=	1 to 1.102.
Area, projected (designed) D	38.28 square feet.
Area, helicoidal (designed)	44.98 square feet.
Area, disk (designed)	63.617 square feet.
Lower tip of blades below bottom of keel	20 $\frac{3}{8}$ inches.
Tips of blades below 9 foot W. L.	1 foot 8 $\frac{3}{8}$ inches.
Material of propellers	Composition "M _n C," grade A.
Starboard propeller is right hand.	
Port propeller is left hand.	

(C) Boilers:

Kind of boiler (oil burning); B. & W. White-Forster, water tube.	
Number (2 in each boiler room)	4.
Designed working pressure	265 pounds per square inch.
Heating surface, each boiler	6,875 square feet.
Cubical contents of combustion chamber, each boiler	661 cubic feet.
Diameter of main steam pipes	10 $\frac{1}{2}$ inches.
Diameter of steam pipe from each boiler	7 $\frac{1}{2}$ 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	20.29 square feet.