RESTRICTED

GENERAL INFORMATION

INCLUDING DESCRIPTIONS AND
TESTS OF ELECTRIC AUXILIARIES

U. S. S. TORPEDO BOAT DESTROYERS
Nos. 125 to 130 and 157 to 160

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

RESTRICTED

~~CONFIDENTIAL!~~

Serial No. 45

GENERAL INFORMATION

INCLUDING DESCRIPTION AND TESTS
OF ELECTRIC AUXILIARIES

TORPEDO BOAT DESTROYERS

No. 125—U. S. S. TATTNALL
No. 126—U. S. S. BADGER
No. 127—U. S. S. TWIGGS
No. 128—U. S. S. BABBITT
No. 129—U. S. S. DE LONG
No. 130—U. S. S. JACOB JONES
No. 157—U. S. S. DICKERSON
No. 158—U. S. S. LEARY
No. 159—U. S. S. SCHENCK
No. 160—U. S. S. HERBERT

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

INTRODUCTION.

HISTORICAL DATA.

Authorized by act of Congress, August 29, 1916, and March 4, 1917.
Vessel built by New York Shipbuilding Corporation, Camden, N. J.
Contract signed July 11, 1917.
Contract date of completion to be constructed as expeditiously as practicable.

U. S. S. Tattnall, torpedo boat destroyer No. 125.

Keel laid December 1, 1917.
Vessel launched September 5, 1918.
Christened by Miss Sara C. Kollock, descendant of Commodore Josiah Tattnall, United States Navy.
Date of delivery to Government, June 26, 1919.
Date of official preliminary trial, June 19, 1919.
Vessel commissioned June 26, 1919.

U. S. S. Badger, torpedo boat destroyer No. 126.

Keel laid January 9, 1918.
Vessel launched August 24, 1918.
Christened by Mrs. Henry F. Bryan, granddaughter of Commodore Oscar Badger, United States Navy.
Date of official preliminary trial, May 15, 1919.
Vessel commissioned May 29, 1919.

U. S. S. Twiggs, torpedo boat destroyer No. 127.

Keel laid January 23, 1918.
Vessel launched September 28, 1918.
Christened by Miss Lillie S. Getchell, granddaughter of Maj. Levi Twiggs.
Date of delivery to Government, July 28, 1919.
Date of preliminary trial, July 22, 1919.
Vessel commissioned July 28, 1919.

U. S. S. Babbitt, torpedo boat destroyer No. 128.

Keel laid February 19, 1918.
Vessel launched September 30, 1918.
Christened by Miss Lucile Burlin.
Date of delivery to Government, October 24, 1919.
Date of official preliminary trial, September 23, 1919.
Vessel commissioned October 24, 1919.

U. S. S. Herbert, torpedo boat destroyer No. 160.

Keel laid April 9, 1918.
Vessel launched May 8, 1919.
Christened by Mrs. Benjamin Micou, daughter of former Secretary of the Navy, Hilary Herbert.
Date of delivery to Government, November 21, 1919.
Date of official preliminary trial, November 10, 1919.
Vessel commissioned November 21, 1919.

DIMENSIONS AND DISTANCES.

Length over all, 314 feet 4½ inches.
Length between perpendiculars (9 feet ½ inch W. L.), 310 feet.
Breadth, molded, 30 feet 11½ inches.
Breadth, over guards, 31 feet 7¾ inches.
Depth, molded at side (frame No. 89), 20 feet 7¾ inches.
Depth, molded at center (frame No. 89), 21 feet 9⅝ inches.
Tons per inch (9 feet 4 inches W. L.), 15.50 tons.
Displacement (designed 9 feet 4 inches W. L.), 1,215 tons.
Wetted surface (9 feet 4 inches W. L.), 10,150 square feet.
Coefficient block (designed 9 feet 4 inches W. L.), 0.478.
Coefficient prismatic (designed 9 feet 4 inches W. L.), 0.628.
Coefficient midship (designed 9 feet 4 inches W. L.), 0.762.
Coefficient waterline (designed 9 feet 4 inches W. L.), 0.683.
Area of rudder, 68 square feet.
Length of buoyancy (9 feet 4 inches W. L.) above bottom of keel, 5 feet 9 inches.
Center of buoyancy (9 feet 4 inches W. L.) forward of middle perpendicular, 0.83 foot.
Transverse metacenter above C. B. (9 feet 4 inches W. L.), 8.64 feet.
Longitudinal metacenter above C. B. (9 feet 4 inches W. L.), 738 feet.
Center of gravity of 9-foot 4-inch water line abaft middle perpendicular, 5.18 feet.
Center of gravity of full-load water line abaft middle perpendicular, 5.80 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.
After end of straight keel, from A. P., 30 feet.
Length of straight keel, 268 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., 51 feet 5 inches.
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 $4\frac{7}{8}$ inches.
Bridge deck at outboard end (frame No. 42), 21 feet $8\frac{7}{8}$ inches.
Forward smokestack on center line, 39 feet $5\frac{1}{2}$ inches.
Crows nest, 66 feet.
Signal yard, 86 feet $5\frac{11}{16}$ inches.
Radio: Upper wireless aerial, 92 feet 8 inches.
Lower wireless aerial from about 46 feet on masts to smokestack.
Main deck, at side (frame No. 89), 11 feet $3\frac{3}{4}$ inches.
Main deck at center line (frame No. 89), 12 feet $5\frac{5}{8}$ inches.
Top of after deck house (frame 150), 16 feet $5\frac{11}{16}$ inches.
Freeboard at stem, 17 feet $1\frac{1}{16}$ inches.
Freeboard at stern, 8 feet $1\frac{3}{16}$ 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 designer's water line viz, 9 feet 4 inches, contemplates the condition of loading given under the heading "NORMAL."

	Normal.		Full.		Emergency.	
	Quantity.	Weight.	Quantity.	Weight.	Quantity.	Weight.
	Rounds.	*Tons.*	*Rounds.*	*Tons.*	*Rounds.*	*Tons.*
4-inch .50-caliber ammunition	400	15.35	400	15.35	528	19.7[illegible]
3-inch .23-caliber ammunition	400	3.56	400	3.56	614	5.2[illegible]
Torpedo	12	10.7	12	10.7	12	10.7
Warheads	12	2.3	12	2.3	12	2.3
Exercise and collapsible superheater detonators, etc.	....	.8	....	.8	....	.8
4-inch dummy cartridges	....	.2	....	.2	....	.2
3-inch dummy cartridges	....	.1	....	.1	....	.1
.30-caliber dummy	....	.03	....	.03	....	.0[illegible]
.30-caliber ball	....	1.6	....	1.6	....	1.6
.30-caliber blank	....	.1	....	.1	....	.1
.45-caliber colt automatic pistol	....	.1	....	.1	....	.1
Supplies and Accounts stores	$\frac{2}{3}$	8.0	Full.	12.1	Full.	12.1
Construction and Repair stores	$\frac{2}{3}$	1.06	Full.	1.6	Full.	1.6
Navigator stores	$\frac{2}{3}$	.26	Full.	.4	Full.	.4
Medical stores	$\frac{2}{3}$	.2	Full.	.3	Full.	.3
Steam engineering stores	$\frac{2}{3}$	1.66	Full.	2.5	Full.	2.5
Equipment stores	$\frac{2}{3}$	.9	Full.	1.35	Full.	1.3[illegible]
Ordnance stores	$\frac{2}{3}$	.66	Full.	1.0	Full.	1.0
Marine stores	$\frac{2}{3}$	1.78	Full.	2.68	Full.	2.6[illegible]
Fresh water	....	9.90	Full.	20.46	Max.	32.9[illegible]
Reserve feed water	....	14.0	Full.	24.23	Max.	40.6[illegible]
Fuel oil	$\frac{2}{3}$	15.0	Full.	225.0	Max.	274.01

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

Bridge deck at center (frame No. 42), 22 feet $4\frac{7}{8}$ inches.
Bridge deck at outboard end (frame No. 42), 21 feet $8\frac{7}{8}$ inches.
Forward smokestack on center line, 39 feet $5\frac{1}{2}$ inches.
Crows nest, 66 feet.
Signal yard, 86 feet $5\frac{1}{16}$ inches.
Radio: Upper wireless aerial, 92 feet 8 inches.
Lower wireless aerial from about 46 feet on masts to smokestack.
Main deck, at side (frame No. 89), 11 feet $3\frac{3}{4}$ inches.
Main deck at center line (frame No. 89), 12 feet $5\frac{5}{8}$ inches.
Top of after deck house (frame 150), 16 feet $5\frac{1}{16}$ inches.
Freeboard at stem, 17 feet $1\frac{1}{16}$ inches.
Freeboard at stern, 8 feet $1\frac{3}{16}$ 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 designer's water line, viz, 9 feet 4 inches, contemplates the condition of loading given under the heading "NORMAL."

	Normal.		Full.		Emergency.	
	Quantity.	Weight.	Quantity.	Weight.	Quantity.	Weight.
	Rounds.	*Tons.*	*Rounds.*	*Tons.*	*Rounds.*	*Tons.*
4-inch .50-caliber ammunition	400	15.35	400	15.35	528	19.74
3-inch .23-caliber ammunition	400	3.56	400	3.56	614	5.27
T[illegible]lo	12	10.7	12	10.7	12	10.7
[illegible]s	12	2.3	12	2.3	12	2.3
[illegible]nd collapsible superheater detonators, [illegible]	....	.8	....	.8	....	.8
[illegible]my cartridges	....	.2	....	.2	....	.2
[illegible]my cartridges	....	.1	....	.1	....	.1
[illegible]lummy	....	.03	....	.03	....	.03
[illegible]all	....	1.6	....	1.6	....	1.6
[illegible]	....	.1	....	.1	....	.1
[illegible]atic pistol	....	.1	....	.1	....	.1
[illegible]ts stores	$\frac{2}{3}$	8.0	Full.	12.1	Full.	12.1
[illegible]air stores	$\frac{2}{3}$	1.06	Full.	1.6	Full.	1.6
[illegible]	$\frac{2}{3}$	.26	Full.	.4	Full.	.4
[illegible]	$\frac{2}{3}$	.2	Full.	.3	Full.	.3
[illegible]es	$\frac{2}{3}$	1.66	Full.	2.5	Full.	2.5
[illegible]	$\frac{2}{3}$	.9	Full.	1.35	Full.	1.35
[illegible]	$\frac{2}{3}$	.66	Full.	1.0	Full.	1.0
[illegible]	$\frac{2}{3}$	1.78	Full.	2.68	Full.	2.68
[illegible]	....	9.90	Full.	20.46	Max.	32.96
[illegible]	....	14.0	Full.	24.23	Max.	40.68
[illegible]	$\frac{2}{3}$	15.0	Full.	225.0	Max.	274.01

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
Coxswain	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
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

(B) MISCELLANEOUS COMPARTMENTS.

Ventilation is obtained by natural draft through cowls and ventilators, as follows:

Crew's wash room aft is ventilated by means of a 10-inch mushroom type ventilator fitted in the top of after deck house. This ventilator has two hinged covers, one top and one bottom. The bottom cover is watertight and is fitted with a ¼-inch drain cock.

Natural ventilation is provided for the auxiliary radio room by means of a 3-inch screw-down mushroom vent, operated from the room. Crew's water-closet in after deck house, crew's space D–202, and steering gear compartment are ventilated by means of 10-inch cowl ventilators, two of which are fitted in the top of after deck house and one for the steering gear compartment, which is portable, fitted in the main deck. One supplies the crew's space D–202 on the first platform deck through a trunk leading therefrom. A portable cover is provided for closing the opening in the main deck when the ventilator to steering gear compartment is removed. This cover is stowed in close proximity to the ventilator. The paint and oil room forward on the second platform is provided with an exhaust duct of lap-welded watertight tubing, terminating in the storeroom A–302.

The M. V. tubes' listening booth in the hold, between frames 12 and 15, is provided with an exhaust pipe 3 inches in diameter covered with hair felt and canvas between the first and second platform decks, and terminating in crew's washroom A–303.

(C) MAGAZINES.

The magazines are provided with natural supply and exhaust ducts of 3-inch lap-welded tubing, terminating forward in the wardroom and pantry and on the main deck in the diagonal bulkheads abreast the pilot house and radio room, and aft in the torpedo repair room and passage in the after deck house. Galvanized steel wire, ¼-inch mesh, is fitted at all terminals except on those which terminate in bulkheads where plating is perforated with ½-inch diameter holes.

(D) BOILER ROOMS.

Air for ventilation and forced draft enters each boiler room through three rectangular vent trunks abreast the galley deck house. Shutters are provided for these trunks with duplicate sets of hinges, so that the shutters may be swung inboard or forward at will. Dogs are provided to hold the shutters in the closed position. Wire mesh screens are provided in each trunk.

Immediately below each trunk a turbine-driven fan is installed for forced-draft service.

(E) ENGINE ROOMS.

Each engine room is ventilated by means of 30-inch ventilators of the cowl type. There is one for the forward engine room located at frame 109 on the port side of engine hatch. The center of cowl is approximately 5 feet 6 inches above the main deck. The duct in the engine room is led forward for discharging air near the gauge board. The ventilators for the after engine room are located one at frame 118 near the center line of ship; the other at frame 129 starboard. The center of these cowls is approximately 5 feet 6 inches above the main deck.

A drip pan is provided under the duct in the forward engine room to catch any condensation from the duct. This pan is provided with a drain connection leading to the bilge.

The bottom of each ventilator in the after engine room is provided with a drain connection to the bilge.

AMMUNITION HANDLING AND LOADING ARRANGEMENTS.

(Section U–2)

The forward davit on the port side, at frame No. 108, and the after davit on the starboard side, between frames Nos. 129 and 130, are used for handling torpedoes from the ship's side and transferring them to the trolley tracks which extend from the forward to the after tubes on the port and starboard sides. These tracks are 6 by 3.33 by 3.33 inches, 12.25-pound I-beam attached to the under side of the 8 by 4 by 4 inches 18-pound I-beam boat skids, and are so located at ends as to support the torpedo while loading into tubes.

Two trolleys are provided for use on these tracks and have been tested to a load of 5,600 pounds, which is twice the working load. The torpedoes are normally stowed in the triple tubes, provision being made in the forward and after magazines, compartments A–112m and D–105m for warheads. These warheads are handled in the magazines by purchase hooked into padeyes suitably located for that purpose.

A davit, tested to 1,000 pounds is provided for striking down ammunition and warheads to their stowage spaces.

LIST OF AMMUNITION STOWAGE.

(Section U–1.)

Type.	Compartment.	Total capacity.	Allowance.	Number in each box or tank.	Length.	Stowage sizes, width.	Depth or diameter.	Weight of each box or tank.
					Inches.	*Inches.*	*Inches.*	*Pounds.*
4-inch, 50 ammunition	A–109M	238	214	1	51.92	....	6.64	83.75
Do	D–106M	188	186	1	51.92	....	6.64	83.75
3-inch antiaircraft	A–109M	[1] 21	[1] 20	6	20	12	$9\frac{1}{2}$	[2] 119
Do	D–106M	[1] 30	[1] 48	6	20	13	$9\frac{1}{2}$	[2] 119
30 cal. ball, model 1906	A–110M	[1] 20	[1] 20	1,200	$16\frac{1}{2}$	14	8	[2] 100
Do	A–110M	[1] 11	[1] 10	1,200	$34\frac{1}{2}$	$9\frac{1}{2}$	$8\frac{1}{4}$	[2] 100
30-cal. ball, model 1898	A–110M	[1] 4	[1] 4	1,200	$34\frac{1}{2}$	9	$7\frac{1}{2}$	[2] 99.75
30-cal. blank, model 1898	A–110M	[1] 4	[1] 4	1,000	$9\frac{3}{4}$	$13\frac{1}{8}$	8	[2] 44.5
30-cal. blank, model 1909	A–110M	[1] 1	[1] 1	2,000	12.45	$17\frac{1}{8}$	$11\frac{3}{4}$	[2] 84
30-cal. dummy, model 1906	A–110M	[1] 1	[1] 1	1,000	$21\frac{5}{8}$	$12\frac{1}{2}$	7	[2] 66
45-cal. ball, model 1911	A–110M	[1] 3	[1] 3	2,000	$16\frac{1}{4}$	$12\frac{3}{4}$	$7\frac{5}{8}$	[2] 110
Warheads	A–112M	6	6	....	$28\frac{15}{16}$	....	21	426
Do	D–105M	6	6	....	$28\frac{15}{16}$	....	21	426
Torpedo detonator	Above main deck	9	6	4	$4\frac{3}{8}$	$3\frac{3}{8}$	$3\frac{3}{8}$	2
Impulse primers	A–110M	6	6	24	4.82	3.036	3.32	$2\frac{1}{4}$
Superheater fuses	A–110M	7	7	20	8.42	3.036	3.32	$1\frac{1}{6}$
50-pound impulse powder	A–110M	1	1	50	$16\frac{3}{4}$	$10\frac{1}{4}$	$10\frac{1}{4}$	58

[1] Boxes.

[2] Per box.

In addition to the above therc is provision on the main deck and above for ready-service stowage of 102 tanks of 4-inch ammunition and 200 rounds 3-inch antiaircraft ammunition.

BATTERY.

GUNS.

(Section A–5.)

Caliber.	Location. Deck.	Location. Frame.	Gun No.
4-inch rapid-fire gun	Main deck	28 center line	1
Do	Galley house top	76 port	2
Do	do	76 starboard	3
Do	Main deck	163 center line	4

AIRCRAFT.

3-inch antiaircraft gun	Main deck	36 center line	
Do	do	62–63 port	

TORPEDO TUBES.

21 feet by 21 inches D triple torpedo tube	Main deck	99–100 port	
Do	do	107–108 starboard	
Do	do	127–128 port	
Do	do	137–138 starboard	

SMALL ARMS.

30-inch caliber machine gun	Main deck	60–61 starboard	
Do	After deck house	156–157, center line	
25 rifles, .30 caliber	Second platform, small-arms magazine.	41–45 port	
25 automatic pistols, .45 caliber	do	do	

BOATS.

(Section U–5.)

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

MINE-LAYING WINCH.[1]

(Section U-7.)

Builder, Orr & Sembower (Inc.).
Type, double-engine winch.
Number of cylinders, 2.
Diameter of cylinders, 5 inches.
Stroke of pistons, 7 inches.
Working steam pressure, 75 pounds per square inch.
Gear ratio, 15 to 58.
Size of gypsy heads, diameter, 8½ to 9 inches.
Capacity of gypsy heads, 3,000 pounds at 180 feet per minute.

MINE-LAYING GEAR.[1]

(Section U-2d.)

(See plans Nos. 30, 31, 32, and 33 in portfolio No. 2.)

The mine-laying gear consists essentially of two tracks, one on each side of the vessel, and a mine-laying winch. The tracks are bolted to angles or doublings on the deck and the tracks may be entirely removed from the vessel when not required for laying mines. The starboard track carries about 30 mines and the port track about 34 mines.

When the destroyer is not actually engaged in mine laying the mines are securely held in place by wedges and lashings. During the operation of mine laying all wedges and lashing are removed, leaving the mines free to move in the tracks. The mines are moved aft by means of wire ropes, which lead to the two gypsy heads on the winch.

At the after end of each track is a mine-tilting table for launching the mines. Each tilting table is operated manually and launches one mine at a time over the side of the vessel. Immediately forward of the tilting tables are two locking devices, one on each track. These locking devices are also manually operated and will only allow a mine to slide onto the tilting table when the locking lever is thrown in the proper direction.

TOWING ARRANGEMENT.

(See plan No. 21 in portfolio No. 1.)

Arrangements are provided for towing and for being towed. For being towed, a 7 by 3.45 by 3.45 inch by 20.9 pound channel bar is worked around the base of the 4-inch gun foundation on the main deck at frame No. 28, center line. A towing bridle of 5 inch circumference steel-wire rope, made in two sections and fitted with thimble and shackle at ends, is provided. The sections of bridle are 44 feet and 68 feet in length.

This bridle is given one and one-half turns around the channel bar on the gun foundation, and both ends lead forward on the outboard side of the riding bitts to a shackle. The 8 inch circumference manila hawser connects to this shackle and leads out through the bow chock.

For towing, a similar channel is provided in way of the 4-inch gun foundation at frame No. 163 on the main deck, center line. One section of the towing bridle referred to above (the short length) is used for towing. It is given one and one-half turns around the channel on the gun foundation and is led aft and connected by means of a heart-shaped shackle to the 8 inch circumference manila hawser. The hawser leads out through the stern chock.

[1] Applies to U. S. S. *Tattnall*, U. S. S. *Badger*, and U. S. S. *Twiggs* only.

MACHINERY.

(A) Engines: Parsons 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, inches	11¼
Diameter of line shafting, inches	11¼
Diameter of axial hole in shafting, inches	7¼
Number of propellers	2
Number of blades, each propeller (cast solid)	3
Diameter of propellers (designed)	9′ 2″
Pitch of propellers, fixed (designed)	10′ 2″
Ratio of diameter to pitch (designed) =P=	1. 109
Area, projected (designed) D, square feet	36. 2975
Area, helicoidal (designed), square feet	43. 75
Area, disk (designed), square feet	65. 995
Lower tip of blades below bottom of keel, inches	21½
Tips of blades below W. L. at 9 feet, inches	19½

Material of propellers, cast manganese bronze.
Starboard propeller is right hand.
Port propeller is left hand.

(C) Boilers:

Kind of boiler (oil burning), 4 Thornycroft Express, water tube, oil burning.

Number (2 in each boiler room)	4
Designed working pressure, pounds	260
Heating surface, each boiler, square feet	6, 762
Cubical contents of combustion chamber, each boiler, cubic feet	727
Diameter of main steam pipes, inches	11¼
Diameter of steam pipe from each boiler, inches	8
Number of oil burners, each boiler	14
Number of furnaces, each boiler	14
Smokepipes, height above main deck, feet	25
Number of smokepipes	4
Area of section through one smokepipe, square feet	203