GENERAL INFORMATION
INCLUDING DESCRIPTIONS AND
TESTS OF ELECTRIC AUXILIARIES

U.S.S. LITTLE, TORPEDO BOAT
DESTROYER No. 79

INFORMATION RELATIVE TO ITEMS UNDER COGNIZANCE OF
THE BUREAU OF CONSTRUCTION AND REPAIR
NAVY DEPARTMENT
GENERAL INFORMATION
INCLUDING DESCRIPTION AND TESTS
OF ELECTRIC AUXILIARIES

TORPEDO BOAT DESTROYER No. 79
U. S. S. LITTLE

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

1918
Finished Plan No. 41

BUREAU OF SHIPS
NATIONAL ARCHIVES FILES

WASHINGTON
GOVERNMENT PRINTING OFFICE
1918
INTRODUCTION.

HISTORICAL DATA.

Vessel built by Fore River Shipbuilding Corporation, of Quincy, Mass.
Contract date of completion, as soon as practicable.
Keel laid June 18, 1917.
Vessel launched November 11, 1917.
Christened by Mrs. Edith Viekery Wakeman.
Date of delivery to Government, April 5, 1918.
Date of official preliminary trial, February 22, 1918.
Vessel commissioned April 6, 1918.

DIMENSIONS AND DISTANCES.

Length over all, 314 feet 4½ inches.
Length between perpendiculars, 310 feet 11½ inches.
Breadth, molded, 30 feet 11½ inches.
Breadth, over guards, 31 feet 8½ inches.
Depth, molded at side (Frame No. 88), 20 feet 8½ inches.
Depth, molded at center (Frame No. 88), 21 feet 10 inches.
Tons per inch (9 feet 1½ inches W. L.), 15.50.
Mean trial displacement, tons, 1,185.
Wetted surface (9 feet 1½ inches W. L.), square feet, 10,370.
Coefficient block (designed 9 feet 1½ inches W. L.), 0.469.
Coefficient prismatic (designed 9 feet 1½ inches W. L.), 0.627.
Coefficient midship (designed 9 feet 1½ inches W. L.), 0.748.
Coefficient water line (designed 9 feet 1½ inches W. L.), 0.686.
Area of rudder, 69.3 square feet.
Center of buoyancy (9 feet 1½ inches W. L.), above bottom of keel, 5 feet 6½ inches.
Center of buoyancy (9 feet 1½ inches W. L.), aft of middle perpendicular, 6 inches.
Transverse metacenter above C. B. (9 feet 1½ inches W. L.), 7 feet 8½ inches.
Longitudinal metacenter above C. B. (9 feet 1½ inches W. L.), 754 feet.
Center of gravity of water line abaft middle perpendicular (9 feet 1½ inches W. L.), 5 feet 1 inch.
Center of gravity of full load water line abaft middle perpendicular (designed displacement, 1,278 tons), 5 feet 7½ inches.
Frame spacing, 21 inches.

LONGITUDINAL DISTANCES.

Projection of stern at main deck, forward A. P., 15½ inches.
Axis of rudder, forward of A. P., 7 feet 4 inches.
Forward end of straight keel, from F. P., 11 feet.
Afterend of straight keel, from A. P., 30 feet 8½ inches.
GENERAL INFORMATION.

Length of straight keel, 268 feet.
Forward end of bilge keel, from F. P., 92 feet 7½ inches.
After end of bilge keel, from A. P., 79 feet 9½ inches.
F. P. to center of foremost, at main deck, 90 feet 12 inches.
F. P. to center of stack No. 1, at main deck, 107 feet, 6½ inches.
F. P. to center of stack No. 2, at main deck, 121 feet 10½ inches.
F. P. to center of stack No. 3, at main deck, 146 feet 3½ inch.
F. P. to center of stack No. 4, at main deck, 160 feet 3½ inch.
Center of mainmast, at main deck, to A. P., 52 feet 5½ inches.
Center of shaft struts forward of A. P., 21 feet 1 inch.
Propellers, forward of A. P., 17 feet.

HEIGHTS ABOVE DESIGNER’S WATER LINE.

Bridge at center (Frame No. 48), 29 feet 8½ inches.
Bridge at outboard ends (Frame No. 48), 29 feet 3 inches.
Forward smokestack on C. L., 38 feet 7½ inches.
Lookout platform, 66 feet 4 inches.
Signal yard, 88 feet 3 inches.
Upper radio, aerial, 93 feet.
Lower radio, aerial, 66 feet 4 inches.
Main deck, at side (Frame No. 62), 12 feet 11½ inches.
Main deck, at side (Frame No. 124), 9 feet 11½ inches.
Top of after deck house, 15 feet 8 inches.
Freesboard, at stern, 17 feet 3½ inches.
Freesboard, at stern, 8 feet 3½ 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. foot inches contemplates the condition of loading given under the heading "NORMAL."

<table>
<thead>
<tr>
<th>Kind</th>
<th>Normal</th>
<th>Full</th>
<th>Emergency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Quantity</td>
<td>Weight</td>
<td>Quantity</td>
</tr>
<tr>
<td>Hull, complete</td>
<td></td>
<td>367.3 Tons</td>
<td>367.3 Tons</td>
</tr>
<tr>
<td>Hull fittings</td>
<td></td>
<td>56.1 Tons</td>
<td>56.1 Tons</td>
</tr>
<tr>
<td>Steam engineering (wet)</td>
<td></td>
<td>443.0 Tons</td>
<td>443.0 Tons</td>
</tr>
<tr>
<td>Reserve fuel</td>
<td></td>
<td>41.4 Tons</td>
<td>41.4 Tons</td>
</tr>
<tr>
<td>Battery</td>
<td></td>
<td>39.1 Tons</td>
<td>39.3 Tons</td>
</tr>
<tr>
<td>Ammunition and ordnance stores</td>
<td></td>
<td>37.8 Tons</td>
<td>37.8 Tons</td>
</tr>
<tr>
<td>Equipment and two-thirds equipment</td>
<td></td>
<td>32.7 Tons</td>
<td>33.1 Tons</td>
</tr>
<tr>
<td>Outfit, crew and two-thirds stores</td>
<td></td>
<td>150.0 Tons</td>
<td>225.0 Tons</td>
</tr>
<tr>
<td>Oil fuel</td>
<td></td>
<td>1,191.1 Tons</td>
<td>1,284.0 Tons</td>
</tr>
</tbody>
</table>

Displacement
DEIGNED 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 ....................................... 2
- Quartermasters, second class .................................... 2
- Seamen .................................................................... 16
- Ordinary seamen .................................................... 13
- Total ...................................................................... 42

Artificer branch:
- Electrician, first class ........................................... 1
- Electrician, first class, radio .................................... 2
- Electrician, second class, radio ................................. 1
- Carpenter's mate, second class ................................. 1
- Total ...................................................................... 5

Artificer branch (engine-room force):
- Chief machinists 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
- Tinner ...................................................................... 4
- Firemen, first class .................................................. 10
- Firemen, second class ............................................. 1
- 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

Mesmen 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.
GENERAL INFORMATION.

STEERING ARRANGEMENTS.

(Section U-8.)

(See plan No. —.)

(a) GENERAL.

The steering gear is of the horizontal right and left screw type with single thread 3⁄4-inch pitch. The traveling nuts are bolted and keyed to guide sleeves, which are connected to the rudder crosshead by links secured to the crosshead and the sleeves by 4-inch pins. At the forward end of the screw shaft is the main spur gear, which is connected to the engine pinion through intermediate gears.

The engine is a horizontal two-cylinder 8 by 8 inch steam-steering engine, located athwartships beneath the screw gear. It is provided with automatic follow-up type of control, and may be operated by wire rope transmission from the pilot house and bridge, by wire rope from the top of afterdeck house, or by a trick wheel mounted on the steering engine. A clutch is provided between the main spur gear and the hand gear wheels, which connects the screw gear with the engine for steam operation, or with the 5-foot handwheels for hand operation, or which can be put in middle position to permit turning over the engine free from the screw gear. Clutches are also provided overhead for connecting the outside stations.

The transmission rope is 3⁄4-inch diameter plow steel wire, made in accordance with Navy Department specifications 22R3, Type AA. The leads from forward stations are run over sheaves and through bushings in rail stanchion sockets and other fittings above the main deck on the starboard side; and the leads from the afterdeck house are run on sheaves under the main deck near center line; the two sets of leads terminating on separate Hanscom drums equipped with automatic tighteners and supported by brackets on the port side of steering engine. A clutch located between the gears connecting these drums with the automatic-control shaft allows the distant control of the engine from either forward or after station, or the disconnecting of both drums to permit operation by hand wheel on engine. There are rope drums inside the steering stands in pilot house and on afterdeck house which are turned by the steering wheels, and on which are wound the transmission ropes operating the engine-reverse valves. A shaft extension from the pilot house stand runs up to the bridge-steering stand, a clutch being provided in pilot house for disconnecting same.

To operate the screw gear by hand, two 5-foot wheels are installed forward of the screw shaft and directly connected to it by means of a sliding clutch held in place by stop pins.

An emergency spare tiller, stowed on the side of the afterdeck house, is provided to be fitted over the top of the rudder stock above the main deck, and operated by a relieving tackle arranged as shown on outboard fittings plan, portfolio index No. 8.

REFERENCE PLANS.

Fore River Shipbuilding Corporation plan No. H-274-22A-1.—Arrangement of steering-gear leads.

Fore River Shipbuilding Corporation plan No. H-274-22A-2.—Arrangement of steering-gear compartment, portfolio index No. 25.

American Engineering Co.—General arrangement and detail plans of steering engine and screw gear, portfolio index No. 45.

(b) INSTRUCTIONS FOR STEERING FROM THE VARIOUS STATIONS.

(1) To steer by steam from pilot house: Disconnect the clutch over the stand in pilot house, throw aft the clutch in the steering compartment connecting main spur gear to the screw shaft, and throw inboard the clutch between gears connecting transmission-rope drums with automatic control shaft.
(2) To steer by steam from bridge: Proceed as above, except that the clutch over pilot-house stand is to be connected and the pilot-house wheel disconnected.

(3) To steer by steam from afterdeck house: Throw aft the clutch in the steering compartment connecting the main-spur gear to the screw shaft, and throw outboard the clutch between the gears connecting transmission-rope drums with automatic-control shaft.

(4) To steer by steam from steering engine room: Throw into middle position the clutch in the steering compartment between the main spur gear and the hand wheels, and the clutch between the gears connecting the transmission-rope drums with automatic-control shaft, and throw in the clutch on the trick wheel on engine.

(5) To steer by hand from steering engine room: Disconnect trick wheel, throw into middle position the clutch between the gears connecting the transmission-rope drums with the automatic control shaft, and throw forward the clutch on main shaft connecting the handwheels with screw gear.

METHODS OF UNSHIPPING RUDDER AND STOCK.

(1) Hoist stock through deck; shackle into holes in top edge of rudder and make fast; unbolt and remove the two-piece crosshead; remove the split gland just below the crosshead and packing ring inside of the stuffing box just below the split gland; take weight of rudder and stock on lifting link at the top of stock; remove split collar and bearing ring and loose keys at top of stock; lower until rudder rests on gudgeon; disconnect lifting tackle and remove the bearing ring, and the carrier just below it located at the top of stock; remove bolted stanchions and crosshead; connect tackle to lifting link again and take out the fid key holding rudder to stock; loosen stock from rudder with the use of starting keys provided for the purpose, and hoist the stock out.

(2) Lower rudder and stock together; slack off crosshead bolts and raise crosshead until its keys can be removed; remove stuffing box gland and the split packing ring inside the same, just below crosshead; cut away rivets connecting gudgeon to stern frame; take weight of rudder on lifting link; remove split collar, bearing ring, and keys at top of stock; the stock and rudder are now free.

STEERING-GEAR DATA

| Builders | 2 |
| Type | 6 |
| Number of cylinders | 8 |
| Diameter of cylinder, inches | 8 |
| Stroke of pistons, inches | 300 |
| Working steam pressure, pounds | 265 |
| Designed to withstand full boiler pressure, pounds | 2 |
| Steam supply pipe diameter, inches | 215 |
| Steam exhaust pipe diameter, inches | 35 |
| Angle of steering engine stops, degrees | 33.64 |
| Angle of rudder stops, degrees | 127.5 |
| Revolutions of screw shaft from extreme right to extreme left, 70° | 14 |
| Revolutions of engine pinions, extreme right to extreme left, 70° | 80 |
| Revolutions of steering stand wheels, 70° | 33.64 |
| Revolutions of trick wheel on engine, 70° | 1 to 379 |
| Ratio of screw spur gear to engine pinion | 1.5 |
| Lead of screw, inches | 54 |
| Depth of Acme thread | 11.54 |
| Radius of rudder crosshead, inches | 65.3 |
| Diameter of rudder stock, outside, inches | 12.4 |
| Diameter of rudder stock, inside, inches | 5.4 |
| Total area of rudder, square feet | 69.3 |
| Area of balanced portion, square feet | 12.4 |