

**RESTRICTED**

**CONFIDENTIAL**

SERIAL NO. 26

GENERAL INFORMATION

DESTROYER NUMBER 348 U. S. S. FARRAGUT

Information relative to construction and equipment, and a description of electrical and other auxiliaries under the cognizance of the Bureau of Construction and Repair, Navy Department, Washington, D. C.

Office Of

Superintending Constructor, U.S.N.

Bethlehem Shipbuilding Corporation, Ltd.

Fore River Plant, Quincy, Massachusetts

- 1934 -

RETURN TO  
PUBLICATIONS  
U.S. SHIPS

## SECTION A-1

### GENERAL

#### BASES OF HULL MEASUREMENTS

THE DESIGNER'S WATERLINE (D.W.L.) IS THE NORMAL WATERLINE, NAMELY, THAT WHICH CORRESPONDS TO DESIGNED NORMAL LOAD AND DRAFT. This waterline is parallel to the base line, and is at draft 10'-2 13/16".

THE FORWARD PERPENDICULAR (F.P.) is located at the extreme forward end of the designer's waterline.

THE AFTER PERPENDICULAR (A.P.) is located at the extreme after end of the designer's waterline.

THE MIDDLE PERPENDICULAR (M.P.) is located midway between the forward and after perpendiculars.

THE MOLDED BASE LINE (B.L.) is located 7/16" above the bottom of the midship portion of the keel.

DRAFTS are measured from the bottom of the midship portion of the keel extended forward and aft.

#### PROJECTIONS BELOW BOTTOM OF KEEL

Description	Projection Below Keel	Location Frame	From $\frac{1}{2}$	Side
Propeller	3'10 1/16"	176-177	8'6"	Port
Propeller	3'10 1/16"	176-177	8'6"	Stbd.
Rudder	23 9/16"	180-186	On $\frac{1}{2}$	
Rotating Supersonic Transceiver	See Note Below	23-25	17"	Port

Note:  $\frac{1}{2}$  of Projector, when in operating position, is 23 9/16" below bottom of keel.

#### PRINCIPAL DIMENSIONS OF HULL

Length overall	341'3"
Length between perpendiculars (= length on D.W.L.)	334'0"

## SECTION A-1

## GENERAL (Cont'd.)

## PRINCIPAL DIMENSIONS OF HULL (Cont'd.)

Extension of vessel forward of F.P.	5'0"
Extension of vessel aft of A.P.	2'3"
Midship section (at M.P.) aft of Fr. #93	9"
Breadth, molded, maximum, at D.W.L.	34'2"
Breadth, outside of plating, maximum, at D.W.L.	34'2 7/8"
Depth, molded, at M.P. (9" aft of fr. #93)	19'7 3/4"
Freeboard at bow	21'9 5/8"
Freeboard at stern	10'6 11/16"
Displacement, standard (designed)	1500 tons
Displacement, to D.W.L.	1738 tons
Displacement, trial (actual)	1593.25 tons

## FRAME SPACING

Frames are numbered from 0 at the forward perpendicular to 186, which is eighteen inches forward of the after perpendicular.

Complete transverse frames do not exist at all of the intermediate numbered locations as the principal framing of this vessel is longitudinal.

Two part frames in the forward overhang are designated as "A" and "B", and are respectively 21" and 3'6" forward of the forward perpendicular.

Frame spacing is various, as follows:

Extent	Space Between Successive Frames
From F.P. to frame #21	21"
From frame #21 to frame #69	21 7/8"
From frame #69 to frame #93	21"
From frame #93 to frame #105	21 1/2"
From frame #105 to frame #109	21 1/4"
From frame #109 to frame #112	19"
From frame #112 to frame #116	19 7/8"
From frame #116 to frame #119	22 1/4"
From frame #119 to frame #122	21 1/2"
From frame #122 to frame #129	20 3/4"
From frame #129 to frame #139	21"
From frame #139 to frame #171	22 5/16"
From frame #171 to frame #186	21"

## SECTION A-1

### GENERAL (Cont'd.)

### APPROXIMATE CAPACITIES

Oil fuel - normal load	200 tons
Oil fuel - full load	600.07 tons
Gasoline	300 gallons
Potable water	32 tons
Reserve feed water	77.89 tons

### MISCELLANEOUS DATA

Inclination of propeller shafts	
Vertical - down and aft	3 Deg. 0 Min. 2.1 Sec.
Horizontal - out and aft	1 Deg. 11 Min. 35.2 Sec.
Area of rudder (projected)	80 Sq. Ft.
Center of forward mast from F.P. at forecastle deck	118'4 1/4"
Center of after mast from A.P. at main deck	73'11 1/2"
Distance between masts (at level of base of forward mast on fore- castle deck)	142'3 15/16"
Length of signal yard (between speed cone eyes)	22'10 1/4"

### HEIGHTS ABOVE DESIGN DRAFT 10 FOOT 2 13/16 INCH WATERLINE

#### MAIN BATTERY

5 inch gun number 1	26'0 5/8"
5 inch gun number 2	32'10 5/8"
5 inch gun number 3	24'4 3/8"
5 inch gun number 4	24'1 3/8"
5 inch gun number 5	16'9 3/4"

#### SECONDARY BATTERY

0.50 inch gun number 1	23'11"
0.50 inch gun number 2	23'11"
0.50 inch gun number 3	15'5 1/16"
0.50 inch gun number 4	15'5 1/16"

#### TORPEDO TUBES

Quadruple mount number 1	15'2 5/8"
Quadruple mount number 2	15'1 5/8"

## SECTION A-1

## GENERAL (Cont'd.)

HEIGHTS ABOVE DESIGN DRAFT 10 FOOT 2 13/16 INCH WATERLINE  
 (Cont'd.)

## BATTERY CONTROL AND OBSERVATION FEATURES

Centerline range finder	44'2"
Centerline 5" gun director	47'10 3/8"
Centerline torpedo director	38'8"
Centerline 24 inch searchlight on foremast	55'5 7/16"
Centerline 36 inch searchlight aft	35'5 7/16"

## NAVIGATION AND SIGNALING FEATURES

Top of flag and pennant staff cap foremast	103'6 9/16"
Center of truck light on foremast	99'1 7/16"
Center of truck light on mainmast	70'2 3/16"
Signal yard on foremast	91'4 3/16"
Signal searchlight on top of pilot house	46'0 3/16"
Center of range light on foremast	53'0 3/16"
Center of range light on mainmast	68'9 11/16"
Center of speed light on mainmast	27'11 5/8"
Center of towing light on foremast	59'1 3/16"

## MISCELLANEOUS

Top of forward smoke stack	46'0 15/16"
Top of after smoke stack	44'11 11/16"

DECKS, PLATFORMS, AND BRIDGES (UPPER SIDE OF PLATING AT  $\frac{1}{2}$  OF SHIP)

Second platform (level below designed draft)	2'2 1/4"
First platform at F.P.	5'0"
First platform at frame #61	3'6 3/8"
First platform at frame #144	2'9 1/8"
First platform at A.P.	2'6 5/8"
Main deck at F.P.	12'11 7/8"
Main deck at frame #61	11'6 1/4"
Main deck at frame #100	11'0"
Main deck at frame #144	10'9"
Main deck at A.P.	10'6 3/4"
Forecastle deck at F.P.	21'6 3/8"
Forecastle deck at frame #66	18'10 11/16"
Top of midship deck house at frame #102	18'2 3/16"
Top of after deck house at frame #163	17'0 9/16"
Superstructure deck at frame #66	26'1 15/16"
Navigating bridge at frame #66	33'8 15/16"
Top of pilot house at frame #66	41'2 3/16"

## SECTION A-1

## GENERAL (Cont'd.)

CALCULATED DATA AT DESIGN DRAFT 10 FOOT 2 13/16 INCH  
WATERLINE

Tons per inch immersion	20.10	
Area of water plane	8442	Sq. Ft.
C.G. of water plane (9" Aft of frame #93)	17.00	Feet
Moment to change trim one inch	368.0	Ft.Tons
C.B. above bottom of keel	6.13	Feet
C.B. aft of frame M.P. (9" Aft of frame #93)	5.76	Feet
Transverse metacenter above C.B.	10.30	Feet
Transverse metacentric height (Designed)	2.74	Feet
Longitudinal metacenter above C.B.	858	Feet
Longitudinal metacentric height	854.75	Feet
Area of midship section	292.09	Sq. Ft.
Wetted surface	13150	Sq. Ft.
Ratio, length between perpendiculars to beam, molded	9.78	
Block coefficient (To outside of plating)	0.5223	
Prismatic coefficient	0.6235	
Midship section coefficient	0.8377	
Water plane coefficient	0.7419	

Note: Coefficient of fineness are figured on a basis of W.L.  
beam over shell at midship section of 34'0 7/8".

## SECTION A-1

## PROPELLING MACHINERY

## BOILERS

Number	Manufacturer	Type	Designed Working Pressure
2	Bethlehem Shipbuilding Corporation, Ltd.	End fired, 3 drum Bethlehem yarrow with drum type single superheaters, desuperheaters and air heaters.	400#
2	Bethlehem Shipbuilding Corporation, Ltd.	Side fired, 3 drum Bethlehem yarrow with drum type single superheaters and desuperheaters.	400#

## TURBINES

Number	Manufacturer	Type	No. Stages or Expansions Per Turbine	Designed R.P.M.
2 High pressure	Bethlehem Shipbuilding Corp., Ltd.	Curtis Parsons	1-Curtis Stage 9-Parsons Expansions	3460
2 Low pressure	Bethlehem Shipbuilding Corp., Ltd.	Parsons	11-Expansions Double flow	2320
2 Astern in L.P. casing	Bethlehem Shipbuilding Corp., Ltd.	Curtis	1-Curtis Stage	2320 Ahd. 1580 Ast.

## SECTION A-1

## PROPELLING MACHINERY (Cont'd.)

## PROPELLERS

No.	Type	Manufac- turer	No. Blades	Shaft Dia.	Pitch	Shaft Dia.	Des. R.P.M.	Des. H.P.
2	Solid	Philadel- phia Navy Yard	3	10'9"	Vari- able	14 1/4" Inside Sleeve	392	42800 2- Shafts

Complete information and instructions concerning the propelling machinery may be obtained from the "General Operating Instructions covering Special Features of Machinery Installation", which was furnished the vessel by the contractor in accordance with the requirements of the General Specifications for Machinery.

## SECTION A-1

### GENERAL (Cont'd.)

#### STABILITY AND BALLASTING

VESSEL WHEN LIGHT, NAMELY CONDITION II OF THE INCLINING EXPERIMENT, HAS A REDUCED DISPLACEMENT AND RIGHTING ARM. THE NEAREST APPROACH TO THIS CONDITION IN SERVICE, WITH THE VESSEL INTACT, IS OBTAINED WHEN FUEL, RESERVE FEED WATER, AMMUNITION AND STORES ARE PRACTICALLY EXPENDED. THIS CONDITION IS AGGRAVATED IF TOPSIDE LOAD IS INCREASED FOR ANY REASON. AS A GENERAL GUIDE, UNDER SUCH CONDITIONS, THE POLICY SHOULD BE TO USE FUEL AND WATER FROM THE LOWEST TANKS LAST. FOR FURTHER INFORMATION AS REGARDS BALLASTING, ATTENTION IS INVITED TO THE INCLINING EXPERIMENT DATA.

ATTENTION IS ALSO INVITED TO INSTRUCTION PLATE "MINIMUM SAFE OPERATING DISPLACEMENT" LOCATED IN CHART HOUSE AND WHICH READS AS FOLLOWS:

"MINIMUM SAFE OPERATING DISPLACEMENT FOR THIS VESSEL IS 1650 TONS AND CORRESPONDS TO A DRAFT (BY AMIDSHIPS DRAFT FIGURES) OF 9'-10 1/2". THIS DISPLACEMENT SHOULD BE OBTAINED WITH NO FUEL IN A-413 AND A-414-F ABOVE FIRST PLATFORM. A-413 AND A-414-F SHALL NOT BE FILLED ABOVE FIRST PLATFORM EXCEPT WITH FULL LOAD OF FUEL ON BOARD AND SHALL BE EMPTIED TO FIRST PLATFORM BEFORE OTHER FUEL IS USED. WING TANKS (EXCEPT A-413 AND A-414-F) SHALL BE KEPT FILLED AS LONG AS POSSIBLE IN ORDER TO MINIMIZE HEEL WHEN DAMAGED. WATER BALLAST SHALL BE TAKEN ABOARD IN BALLAST OIL TANKS AS NECESSARY TO MAINTAIN THE DISPLACEMENT ABOVE 1650 TONS."

Tank Number	Fuel Oil Contents (Tons) Normal Load (Tons)	95% Full Load
A-409-F	47.30	51.94
A-410-F		58.37
A-411-F		58.37
A-412-F	34.27	51.87
A-413-F	44.97	77.62
A-414-F	44.97	77.47
D-406-F	28.49	28.85
D-407-F		33.78
D-408-F		33.78
D-410-F		28.16
D-411-F		28.16
D-416-F		35.85
D-417-F		35.85
<b>TOTAL</b>	<b>200.00</b>	<b>600.07</b>

## SECTION A-5

## ORDNANCE AND ORDNANCE OUTFIT

## MAIN BATTERY

Gun No.	Bore	Caliber	Deck	Frame	Side	Ele- va- tion	De- pres- sion	Train
1	5"	38	Fore- castle	27-28	On $\ell$	85°	15°	300°
2	5"	38	Super- struc- ture	40-41	On $\ell$	85°	15°	300°
3	5"	38	Top of Mid- ship Deck House	103	On $\ell$	85°	15°	290°
4	5"	38	Top of After Deck House	154-155	On $\ell$	85°	15°	300°
5	5"	38	Main	169-170	On $\ell$	85°	15°	300°

A 5" loading machine, mark X, is located on the top of the midship deck house between frames 78-86 near the centerline of ship.

## SECONDARY BATTERY (A.A. GUNS)

Gun No.	Bore	Caliber	Deck	Frame	Side	From $\ell$ of Ship	Ele- va- tion	De- pres- sion	Train
1	.50"	63.8	Super- struc- ture	50-51	Stbd.	8'0"	80°	15°	360°
2	.50"	63.8	Super- struc- ture	50-51	Port	8'0"	80°	15°	360°
3	.50"	63.8	Main	125-126	Stbd.	7'8"	80°	15°	360°
4	.50"	63.8	Main	125-126	Port	7'8"	80°	15°	360°

## SECTION A-5

## ORDNANCE AND ORDNANCE OUTFIT (Cont'd.)

## TORPEDO TUBES

Torpedo Tube Number	Diameter Torpedo	Length Torpedo (Without head)	Location		Train		
			Deck	Frame	Side	Fwd.	Aft
1 Quadruple	21"	22'6"	Main	116-117	On $\frac{1}{2}$	45°	45°
2 Quadruple	21"	22'6"	Main	135-136	On $\frac{1}{2}$	45°	45°

## SMALL CALIBER GUNS

Quan.	Cal.	Name	Stowage Location			Remarks
			Deck	Frame	Side	
1	1 Pdr.	Sub caliber gun	Main	42	Port	Stowed in passage
1	1 Pdr.	Sub caliber gun	Main	42	Stbd.	Stowed in passage
1	1 Pdr.	Sub caliber gun	Main	37	Stbd.	Stowed in passage