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DECLASSIFIED

SERIAL NO. 46

DOD Dir. 5200.9 Sept. 27, 1958
NM by Hilmar Date 5-2-69

GENERAL INFORMATION

DESTROYER NUMBER 397 U. S. S. BENHAM

DESTROYER NUMBER 398 U. S. S. ELLET

DESTROYER NUMBER 399 U. S. S. LANG

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.
Federal Shipbuilding and Dry Dock Company,
Kearny, N. J.

1940
BUREAU OF SHIPS
NATIONAL ARCHIVES FILES

50752

SECTION A-1

GENERAL

BASES OF HULL MEASUREMENTS

DESIGNER'S WATERLINE (D.W.L.) IS THE WATERLINE WHICH CORRESPONDS, APPROXIMATELY, TO THE DESIGNED NORMAL LOAD AND DRAFT. THE LENGTH BETWEEN PERPENDICULARS IS OBTAINED FROM THE DESIGNER'S WATERLINE. This waterline is parallel to the molded base line, and is at draft 10'-8-1/4" from the lowest point on the base line for draft marks.

THE FORWARD PERPENDICULAR (F.P.) is located at the intersection of the designer's waterline and the outline of the stem.

THE AFTER PERPENDICULAR (A.P.) is located at the intersection of the designer's waterline and the outline of the stern.

THE MIDDLE PERPENDICULAR (M.P.) is located 8" forward of Frame 97.

THE MOLDED BASE LINE (B.L.) is located 3/4" above the bottom of the midship portion of the keel.

DRAFTS are measured from base line for draft marks as per plan No 1380-28040-1, Basic C&R No. 227237

PROJECTIONS: BELOW BOTTOM OF KEEL

Description	Projection Below M.B.L.	Frame	Location From <u>L</u> Side
Propeller	3' 11-1/4"	181	8' 6" Port
Propeller	3' 11-1/4"	181	8' 6" Stbd.
Rudder	0	184-191	On <u>L</u>
Rotating Supersonic Transceiver	See Note Below	15" Fd. of 28	Port & 18" Stbd.

Note: L of Projector, when in operating position, is 15-3/4" below bottom of Keel.

SECTION A-1

GENERAL (Cont'd.)

PRINCIPAL DIMENSIONS OF HULL

	<u>DD397</u>	<u>DD398</u>	<u>DD399</u>
Length overall	341' 2"	341' 2-9/16"	341' 1-1/8"
Length between perpendiculars = (length on D.W.L.)	333' 11 $\frac{1}{2}$ "	334' 0-1/16"	333' 10-5/8"
Extension of vessel forward of F.P.	5' 0"	5' 0"	5' 0"
Extension of vessel aft of A.P.	2' 2-1/2"	2' 2-1/2"	2' 2-1/2"
Breadth, molded, maximum	35' 5"	35' 5"	35' 5"
Breadth, outside of plating, maximum	35' 6-1/8"	35' 6-1/8"	35' 6-1/8"
Depth at side, molded, at M.P. 8" fwd. of Fr. #97	19' 8"	19' 8"	19' 8"
Freeboard at bow (To D.W.L.)	21' 2-3/4"	21' 4-1/4"	21' 4-1/4"
Freeboard at stern (To D.W.L.)	10' 7-3/8"	10' 7-3/8"	10' 7-1/4"
Displacement, Standard (designed)	1500 Tons	1500 Tons	1500 Tons
Displacement, to D.W.L.	1702 Tons	1702 Tons	1702 Tons
Displacement, normal (Bu. Est.)	1725 Tons	1725 Tons	1725 Tons

FRAME SPACING

Frames are numbered from 0 at the forward perpendicular to 18" aft of Fr. 190, which is at 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.

Part frames in the forward overhand are designated as "A" and "B" and are spaced 21" forward of the forward perpendicular.

Frame spacing is various, as follows:

Extent	Space Between Successive Frames
From F.P. to frame #68	21"
From frame #68 to frame #72	19-1/2"

SECTION A-1

GENERAL (Cont'd.)

FRAME SPACING (Cont'd.)

Extent	Space Between Successive Frames
From frame #72 to frame #76	21"
From frame #76 to frame #84	19-1/4"
From frame #84 to frame #88	21"
From frame #88 to frame #93	20"
From frame #93 to frame #97	21"
From frame #97 to frame #105	19-1/4"
From frame #105 to frame #111	23"
From frame #111 to frame #114	22"
From frame #114 to frame #118	22-1/8"
From frame #118 to frame #127	23"
From frame #127 to frame #131	21-3/8"
From frame #131 to frame #190	21"
From frame #190 to A.P.	18"

CALCULATED DATA AT DESIGN DRAFT 10 FOOT 8-1/4 INCH
WATERLINE (BASED ON DESIGNED DIMENSIONS)

Tons per inch immersion	20.56 Tons
Area of water plane	8655 Sq. Ft.
C.G. of water plane aft of M.P. 8" Fwd. of Fr. #97	19.00 Feet
Moment to change trim one inch	387 Ft. Tons
C.B. above bottom of keel	6.56 Feet
C.B. aft of M.P. 8" Fwd. of Fr. #97	4.20 Feet
Transverse metacenter above C.B.	11.04 Feet
Longitudinal Metacenter above C.B.	908 Feet
Area of greatest section (No. 22)	301.5 Sq. Ft.
Wetted Surface	13460 Sq. Ft.
Ratio, length between perpendiculars to beam, maximum	9.42
Block coefficient	.4724
Prismatic coefficient	.5916
Greatest section coefficient (No. 22)	.7986
Water plane coefficient	.7308

Note: Coefficients of fineness are with mean thickness of plating. The calculated data given above applies only at a specified draft, 10 Ft 8-1/4 Inches. For data on stability, see Booklet of Inclining Experiment Data and the Damage Control Book.

SECTION A-1

GENERAL (Cont'd.)

APPROXIMATE CAPACITIES

	<u>DD397</u>	<u>DD398</u>	<u>DD399</u>
Oil fuel and Diesel oil - normal load	206.47 tons	200.00 tons	200.00 tons
Oil fuel - full load (95% capacity)	490.01 tons	490.01 tons	490.01 tons
Diesel oil - full load (95% capacity)	37.40 tons	37.40 tons	37.40 tons
Potable water (full capacity)	16.34 tons	16.34 tons	16.34 tons
Reserve feed water (full capacity)	38.97 tons	38.97 tons	38.97 tons
Reserve Feed water or potable water (full capacity)	21.64 tons	21.64 tons	21.64 tons

MISCELLANEOUS DATA

DD397

DD398

DD399

SECTION A-1

GENERAL (Cont'd.)

HEIGHTS ABOVE DESIGN DRAFT 10 FOOT 8-1/4 INCH WATERLINE

MAIN BATTERY	<u>DD397</u>	<u>DD398</u>	<u>DD399</u>
5" Gun Mount No. 1	26' 1-1/8"	26' 1-1/2"	26' 1-1/8"
5" Gun Mount No. 2	33' 3-1/8"	33' 2-7/8"	33' 3-1/8"
5" Gun Mount No. 3	24' 3-1/2"	24' 3-5/8"	24' 3-5/8"
5" Gun Mount No. 4	16' 11-3/8"	16' 11-15/16"	17' 0-1/2"

SECONDARY BATTERY

.50 Cal. A.A. Mach. Gun No. 1	30' 9-1/2"	30' 9-11/16"	30' 10-3/4"
.50 Cal. A.A. Mach. Gun No. 2	30' 9-1/2"	30' 9-11/16"	30' 10-3/4"
.50 Cal. A.A. Mach. Gun No. 3	29' 7-3/8"	29' 7-3/4"	29' 8-1/8"
.50 Cal. A.A. Mach. Gun No. 4	29' 7-3/8"	29' 7-3/4"	29' 8-1/8"

TORPEDO TUBES

Quadruple Mount No. 1	12' 5-7/8"	12' 5-1/4"	12' 5-1/4"
Quadruple Mount No. 2	12' 5-7/8"	12' 5-1/4"	12' 5-1/4"
Quadruple Mount No. 3	12' 4"	12' 4-1/8"	12' 3-7/8"
Quadruple Mount No. 4	12' 4"	12' 4-1/8"	12' 3-7/8"

BATTERY CONTROL
AND OBSERVATION
FEATURES

C/L Range Finder	(port)	46' 10-11/16"	46' 10-13/16"	46' 10-7/8"
	(stbd)	46' 10-7/16"	46' 10-7/16"	46' 10-1/2"

SECTION A-1

GENERAL (Cont'd.)

HEIGHTS ABOVE DESIGN DRAFT 10 FOOT 8-1/4 INCH WATERLINE
(Cont'd.)

BATTERY CONTROL AND OBSERVATION FEATURES (Cont'd.)	<u>DD397</u>	<u>DD398</u>	<u>DD399</u>
C/L 5" Gun Director	51' 6-3/16"	51' 6-7/16"	51' 5-11/16"
C/L Torpedo Director (port)	41' 4-5/8"	41' 5-1/4"	41' 5-1/2"
(stbd)	41' 4-15/16"	41' 5"	41' 5-1/4"
C/L 12" search- light: Top of Pilot House			
(port)	39' 10"	39' 10-3/4"	39' 10-3/8"
(stbd)	39' 10-5/8"	39' 10-3/4"	39' 10-5/8"
C/L 24" search- light: Top of Pilot House			
(port)	46' 11-1/2"	47' 0"	47' 0"
(stbd)	46' 11-7/8"	47' 0-3/4"	47' 0-1/4"
C/L 36" search- light: After Searchlight Platform	38' 9-1/2"	38' 9-11/16"	38' 10-3/8"
NAVIGATION AND SIGNALING FEATURES			
Top of Flag and Pennant Staff			
Cap Polemast	99' 5"	99' 5-1/2"	99' 5"
Top of Battle Staff Cap			
Top Aft Dk.House	47' 5-3/8"	47' 6-1/4"	47' 7-1/8"
Center of Truck Light on Polemast	95' 0-1/8"	95' 0-5/8"	95' 0-1/8"
Signal Yard on Polemast to C/L of Yard	87' 10-3/8"	87' 10-7/8"	87' 10"

SECTION A-1

GENERAL (Cont'd.)

HEIGHTS ABOVE DESIGN DRAFT 10 FOOT 8-1/4 INCH WATERLINE
(Cont'd.)

NAVIGATION AND
SIGNALING

FEATURES (Cont'd.)

DD397DD398DD399

Center of Masthead Light on Pilot House	53' 10"	53' 11"	53' 4-7/16"
Center of Speed Light on Aft end of Deck House	28' 3-1/4"	28' 3-1/4"	28' 2-1/2"
Center of Towing Light on Pilot House	47' 10"	47' 10-3/4"	47' 9"
Center of Range Lights	71' 5-1/4"	71' 5-1/4"	71' 7-1/2"

MISCELLANEOUS

Top of Smoke Stack - Aft Side at C/L	48' 3-1/4"	48' 2-1/4"	48' 1-9/16"
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DECKS, PLATFORMS, AND BRIDGES
(UPPER SIDE OF PLATING AT $\frac{1}{2}$ OF SHIP)

Second Platform (level below designed draft) (Fr. #6) Below D.W.L.	DD397	DD398	DD399
(Fr. #48) " 3' 0"	1' 7-7/8"	1' 7-15/16"	1' 7-13/16"
First Platform at Fr. #6 Above D.W.L.	4' 4-1/8"	4' 4-7/16"	4' 4-1/4"
First Platform at Fr. #60 "	2' 8-1/8"	2' 8-1/8"	2' 8-1/16"
First Platform at Fr. #135 "	1' 9-3/8"	1' 9-13/16"	1' 9-1/2"
First Platform at Fr. #179 "	2' 2-7/8"	2' 2-1/4"	2' 2-3/8"

SECTION A-1

GENERAL (Cont'd.)

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

	Above D.W.L.	<u>DD397</u>	<u>DD398</u>	<u>DD399</u>
First Platform at A.P.				
Main Deck at F.P.	"	3' 1-1/2"	3' 2-1/16"	3' 1-7/8"
Main Deck at Fr. #68	"	12' 6-3/4"	12' 7"	12' 6-7/8"
Main Deck at Fr. #104	"	10' 6"	10' 6-1/2"	10' 6-9/16"
Main Deck at Fr. #134	"	9' 11-7/16"	9' 11-3/4"	9' 11-5/8"
Main Deck at A.P.	"	9' 9-3/8"	9' 9-1/16"	9' 9-1/8"
Focle. Deck at F.P.	"	10' 7"	10' 6-7/8"	10' 6-15/16"
Focle. Deck at Fr. #68	"	21' 1-1/8"	21' 1-1/4"	21' 1-3/16"
Top of After Deck House Fr. #134	"	18' 0-1/8"	18' 0-3/8"	18' 0-1/4"
Superstruc- ture Deck at Fr. #68	"	17' 3-3/16"	17' 3-1/4"	17' 3-1/8"
Top of Upper Aft Deck House Fr. 135	"	25' 11-5/8"	26' 0-1/4"	26' 0-1/4"
Nav. Bridge at Fr. #68	"	24' 9-1/4"	24' 9-1/4"	24' 9-3/8"
Top of Searchlight Platform Fr. #135	"	35' 5-1/2"	35' 6-1/8"	35' 5-7/8"
Top of Pilot House at Fr. #68	"	34' 2-1/2"	34' 2-5/8"	34' 2-1/4"
		43' 1-1/8"	43' 1-1/8"	43' 1-3/16"

SECTION A-1

GENERAL (Cont'd.)

DISTANCES FROM FWD. PERPENDICULAR TO
MASTS, GUNS AND TORPEDO TUBES

POLEMMAST AT MAIN DECK 131' 6"

MAIN BATTERY, AXIS OF EACH GUN

	<u>DD397</u>	<u>DD398</u>	<u>DD399</u>
Gun No. 1	52' 5"	52' 5-11/16"	52' 4-5/8"
Gun No. 2	71' 8"	71' 8-11/16"	71' 7-5/8"
Gun No. 3	262' 3"	262' 3-11/16"	262' 2-5/8"
Gun No. 4	290' 3"	290' 3-11/16"	290' 2-5/8"

SECONDARY BATTERY, AXIS OF EACH GUN

	<u>DD397</u>	<u>DD398</u>	<u>DD399</u>
Guns Nos. 1 & 2	92' 8"	92' 8-11/16"	92' 7-5/8"
Guns Nos. 3 & 4	243' 3"	243' 3-11/16"	243' 2-5/8"

TORPEDO TUBES, AXIS OF EACH TUBE

	<u>DD397</u>	<u>DD398</u>	<u>DD399</u>
Tubes Nos. 1 & 2	191' 10-3/4"	191' 11-7/16"	191' 10-3/8"
Tubes Nos. 3 & 4	224' 7-3/4"	224' 8-7/16"	224' 7-3/8"

DISTANCES BETWEEN GUNS
AND TORPEDO TUBES

MAIN BATTERY, FROM AXIS OF GUN TO AXIS OF ADJACENT GUN

Gun No. 1 to Gun No. 2	19' 3"
Gun No. 2 to Gun No. 3	190' 7"
Gun No. 3 to Gun No. 4	28' 0"

SECONDARY BATTERY, FROM AXIS OF GUN TO AXIS OF ADJACENT GUN

Guns Nos. 1 & 2, Athwartship	11' 9"
Guns Nos. 3 & 4, Athwartship	7' 6"
Guns Nos. 1, 2 and 3, 4, Fore and Aft	150' 1"

SECTION A-1

GENERAL (Cont'd.)

DISTANCES BETWEEN GUNS
AND TORPEDO TUBES (Cont'd.)

TORPEDO TUBES, FROM AXIS OF TUBE TO AXIS OF ADJACENT TUBE

Tubes Nos. 1 and 2, Athwartship	26' 2-1/2"
Tubes Nos. 3 and 4, Athwartship	25' 8"
Tubes Nos. 1, 2 and 3, 4 Fore and Aft	32' 9"

SECONDARY BATTERIES FROM GUN
TO TUBE

SECONDARY BATTERIES FROM GUN
TO TUBE

SECONDARY BATTERIES FROM TUBE

SECONDARY BATTERIES FROM TUBE

SECONDARY BATTERIES FROM TUBE

SECONDARY BATTERIES FROM GUN
TO TUBE

SECONDARY BATTERIES FROM GUN TO TUBE, YACHTS KIAN

"G-101" 8' 0" from G-100
"G-102" 8' 0" from G-101
"G-103" 8' 0" from G-102

SECONDARY BATTERIES FROM GUN TO TUBE, YACHTS BATHMOUS

"G-11" 8' 0" from G-10
"G-12" 8' 0" from G-11
"G-104" 8' 0" from G-12

SECTION A-1

GENERAL (Cont'd.)

PROPELLING MACHINERY

DD397 - U.S.S. BENHAM

BOILERS

		Manu-	Type	Designed Working Pressure
	#1 Boiler			
Steam Drum	- Z-23432	Babcock		
R.H. Water Drum	- Z-23524	& Wilcox		
L.H. Water Drum	- Z-23525			
	#2 Boiler			
Steam Drum	- Z-23435	Babcock		
R.H. Water Drum	- Z-23436	& Wilcox		
L.H. Water Drum	- Z-23437			
	#3 Boiler			
Steam Drum	- Z-23438	Babcock		
R.H. Water Drum	- Z-23527	& Wilcox		
L.H. Water Drum	- Z-23531			

TURBINES

		Manu-	No. Stages of Expan-	Designed
Number		facturer	Turbine	R.P.M.
	Stbd.			
H.P.-1A-6083-1	Westing- house E.	Impulse Re- action Cross	2 Row Impulse 9968	
I.P.-1A-6084-1	& M. Co.	Compound with H.P.	7 Rateau Stages 2 Row Impulse 6041	
L.P.-1A-6085-1		Turbine for Cruising	15 Reaction 8 Double Flow 4984	
Astern-1A-6085-1			Reaction 2 Row Impulse 3130	
			at Each End of L.P. Turbine	

SECTION A-1

GENERAL (Cont'd.)

PROPELLING MACHINERY (Cont'd.)

DD397 - U.S.S. BENHAM (Cont'd.)

TURBINES (Cont'd.)

Number	Manu- facturer	Type	No. Stages of Expan- sion Per Turbine	Designed R.P.M.
Port				
H.P.-1A-6083-2	Westing- house E. & M. Co.	Impulse Re- action Cross Compound with H.P. Turbine for Cruising	2 Row Impulse 7 Rateau Stages 2 Row Impulse 15 Reaction 8 Double Flow Reaction 2 Row Impulse at each end of L.P. Turbine	9968 6041 4984 3130
I.P.-1A-6084-2				
L.P.-1A-6085-2				
Astern-1A-6085-2				

NOTE: The astern elements assembled at each end of the L.P. Turbine and enclosed in the same casing, have the same Serial Number as the L.P. Turbine

SECTION A-1

GENERAL (Cont'd.)

PROPELLING MACHINERY (Cont'd.)

DD398 - U.S.S. ELLET

BOILERS

		Manu-	Type	Designed Working Pressure
	#1 Boiler			
Steam Drum -	Z-23441	Babcock	Oil Fired Ex-	665#
R.H. Water Drum -	Z-23533	& Wilcox	press with	
L.H. Water Drum -	Z-23537		Superheater &	
			Economizer	
	#2 Boiler			
Steam Drum -	Z-23444	Babcock	Oil Fired Ex-	665#
R.H. Water Drum -	Z-23445	& Wilcox	press with	
L.H. Water Drum -	Z-23446		Superheater &	
	#3 Boiler			
Steam Drum -	Z-23447	Babcock	Oil Fired Ex-	665#
R.H. Water Drum -	Z-23536	& Wilcox	press with	
L.H. Water Drum -	Z-23540		Superheater &	
			Economizer	

TURBINES

Number	Manu-	Type	No. Stages of Expan-	Designed
Stbd.	facturer		sion Per	R.P.M.
H.P.-1A-6083-3	Westing- house E.	Impulse Re- action	2 Row Impulse	9968
I.P.-1A-6084-3	& M. Co.	Cross Com- pound with	7 Rateau Stages	
L.P.-1A-6085-3		H.P. Turbine for Cruising	2 Row Impulse	6041
Astern-1A-6085-3			8 Double Flow Reaction	4984
			2 Row Impulse at Each End	3130
			of L.P. Turbine	

SECTION A-1

GENERAL (Cont'd.)

PROPELLING MACHINERY (Cont'd.)

DD399 - U.S.S. LANG

BOILERS

		Manu-	Type	Designed Working Pressure
	#1 Boiler			
Steam Drum	- Z-23450	Babcock	Oil Fired Ex-	665#
R.H. Water Drum	- Z-23539	& Wilcox	press with	
L.H. Water Drum	- Z-23543		Superheater &	
			Economizer	
	#2 Boiler			
Steam Drum	- Z-23453	Babcock	Oil Fired Ex-	665#
R.H. Water Drum	- Z-23534	& Wilcox	press with	
L.H. Water Drum	- Z-23545		Superheater &	
			Economizer	
	#3 Boiler			
Steam Drum	- Z-23456	Babcock	Oil Fired Ex-	665#
R.H. Water Drum	- Z-23530	& Wilcox	press with	
L.H. Water Drum	- Z-23546		Superheater &	
			Economizer	

TURBINES

Number	Manu-	Type	No. Stages of Expan-	Designed
	facturer		sion Per	R.P.M.
	Stbd.			
H.P.-1A-6083-5	Westing- house E.	Impulse Re- action	2 Row Impulse	9968
I.P.-1A-6084-5	& M. Co.	Cross Com- pound with	7 Rateau Stages	
L.P.-1A-6085-5		H.P. Turbine for Cruising	2 Row Impulse	6041
Astern-1A-6085-5			15 Reaction	
			8 Double Flow	4984
			Reaction	
			2 Row Impulse	3130
			at Each End	
			of L.P. Turbine	

SECTION A-1

GENERAL (Cont'd.)

PROPELLING MACHINERY (Cont'd.)

DD399 - U.S.S. LANG (Cont'd.)

TURBINES (Cont'd.)

Number	Manu-facturer	Type	No. Stages of Expan-sion Per Turbine	Designed R.P.M.
Port				
H.P.-1A-6083-6	Westing-house E. & M. Co.	Impulse Reaction Compound with H.P. Turbine for Cruising	2 Row Impulse 7 Rateau Stages 2 Row Impulse 15 Reaction 8 Double Flow Reaction	9968 6041 4984
I.P.-1A-6084-6				
L.P.-1A-6085-6				
Astern-1A-6085-6			2 Row Impulse at Each End of L.P. Turbine	3130

NOTE: The astern elements assembled at each end of the L.P. Turbine and enclosed in the same casing, have the same Serial Number as the L.P. Turbine.

CONTINUE

B-2803-A1-4.1	B-2803-A1-4.1	B-2803-A1-4.1

SECTION A-1

GENERAL (Cont'd.)

PROPELLING MACHINERY (Cont'd.)

PROPELLERS

No.	Type	Manufacturer	No. Blades	Dia.	Pitch	Shaft Dia.	Des. RPM	Des. Shaft H.P.
2	Solid	Cramp Brass & Iron Foun-dries	3	11'3"	12'-4-1/2"	15 1/4" Inside Sleeve	400	50,000 2-Shafts

Complete information and instructions concerning the propelling machinery should be obtained from the instruction books for the main propulsion machinery furnished each of the vessels by the contractor in accordance with the requirements of the General Specifications for machinery.

BATTLE CONDITION

Information as to the procedure required to place the ship in Battle Condition is included in the "Damage Control Book".

SECTION A-5

ORDNANCE AND ORDNANCE OUTFIT

MAIN BATTERY

Gun No.	Bore	Cal.	Location			Ele-va-tion	De-pres-sion	Train
			Deck	Frame	Side			
1	5"	38	Forecastle	30	On ℓ	85°	15°	300°
2	5"	38	Super-structure	41	On ℓ	85°	15°	300°
3	5"	38	Top of After Deck House	150	On ℓ	85°	15°	300°
4	5"	38	Main	166	On ℓ	85°	15°	300°

A 5" loading machine, Mark XIV Mod. I is located on the top of general workshop between frames 97-103 on ℓ .

SECONDARY BATTERY (A.A. GUNS)

Gun No.	Bore	Cal	Location			From ℓ of Ship	Ele-va-tion	De-pres-sion	Train
			Deck	Frame	Side				
1	.50"	63.8	Super-structure	53	Stbd.	5' - 10 $\frac{1}{2}$ "	80°	15°	360°
2	.50"	63.8	Super-structure	53	Port	5' - 10 $\frac{1}{2}$ "	80°	15°	360°
3	.50"	63.8	Top of After Upper Deck House	139	Stbd.	3' - 9"	80°	15°	360°
4	.50"	63.8	Top of After Upper Deck House	139	Port	3' - 9"	80°	15°	360°

The angle of train of the .50 A.A. Guns has been given as 360° since the train of these guns is limited to 180° each way by the hose of the cooling system, though it is otherwise unlimited.

SECTION A-5

ORDNANCE AND ORDNANCE OUTFIT (Cont'd.)

TORPEDO TUBES

Torpedo Tube Number	Diam- eter Torpedo	Length Torpedo	Location			From C of Ship	Train	
			Deck	Frame	Side		Fwd.	Aft
1 Quad- tuple	21"	22'- 7-1/16"	Main	110-111	Stbd.	13'- 1-1/4"	60°	60°
2 Quad- tuple	21"	Ditto	Main	110-111	Port	13'- 1-1/4"	60°	60°
3 Quad- tuple	21"	Ditto	Main	128-129	Stbd.	12'- 10"	60°	60°
4 Quad- tuple	21"	Ditto	Main	128-129	Port	12'- 10"	60°	60°

SMALL CALIBER GUNS

Quan.	Cal.	Name	Stowage Location			Remarks
			Deck	Frame	Side	
1	1 Pdr.	Sub caliber gun	Foc'sle.	37	Port	Stowed Gun Foundation #2
1	1 Pdr.	Sub caliber gun	1st Plat.	163	Stbd.	Stowed Gun Foundation #4