CONFIDENTIAL

SERIAL NO. 36

GENERAL INFORMATION

DESTROYER NUMBER 381 U. S. S. SOMERS

DESTROYER NUMBER 383 U. S. S. WARRINGTON

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.

1938

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 11' 4-1/2".

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 9" forward of Frame 93.

THE MOLDED BASE LINE (B.L.) is located 1-5/16" above the bottom of the midship portion of the keel.

DRAFTS are measured from base line as per plans No. 381-5508 - C&R No.243338 and No. 383-5511 - C&R No.243409.

PROJECTIONS BELOW BOTTOM OF KEEL

Description	Projection Below Keel	Location Frame	Location From ℄	Side
Propeller	3' 9-3/16"	176	8' 6"	Port
Propeller	3' 9-3/16"	176	8' 6"	Stbd.
Rudder	0	178-185	On ℄	
Rotating Supersonic Transceiver	See Note Below	9" aft of 18	18"	Port & Stbd.

Note: ℄ of Projector, when in operating position, is 23-1/16" below bottom of keel.

SECTION A-1

GENERAL (Cont'd.)

PRINCIPAL DIMENSIONS OF HULL

	DD381	DD383
Length overall	381' 2-1/4"	381' 0-1/2"
Length between perpendiculars (= length on D.W.L.)	372' 2-1/4"	372' 0"
Extension of vessel forward of F.P.	5' 0"	5' 0"
Extension of vessel aft of A.P.	4' 0"	4' 0-1/2"
Midship section (at M.P.) fwd of Fr. #93	9"	9"
Breadth, molded, maximum, at D.W.L.	36' 6"	36' 6"
Breadth, outside of plating, maximum, at D.W.L.	36' 6-1/2"	36' 6-1/2"
Depth, molded, at M.P. (9" fwd of Fr. #93)	21' 0-1/16"	21' 0-1/16"
Freeboard at bow	23' 7-15/16"	23' 7-7/8"
Freeboard at stern	12' 8-3/8"	12' 9-3/8"
Displacement, standard (designed)	1800 Tons	1800 Tons
Displacement, to D.W.L.	2130 Tons	2130 Tons
Displacement, trial		

FRAME SPACING

Frames are numbered from 0 at the forward perpendicular to 186, 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.

One part frame in the forward overhang is designated as "A", and is 24" forward of the forward perpendicular.

Frame spacing is various, as follows:

Extent	Space Between Successive Frames
From F.P. to frame #68	24"
From frame #68 to frame #74	24-1/2"
From frame #74 to frame #78	24"
From frame #78 to frame #90	24-1/2"
From frame #90 to frame #94	24"

SECTION A-1

GENERAL (Cont'd.)

FRAME SPACING (Cont'd.)

Extent	Space Between Successive Frames
From frame #94 to frame #100	24-1/2"
From frame #100 to frame #113	24"
From frame #113 to frame #117	22-1/2"
From frame #117 to frame #126	24"
From frame #126 to frame #130	22-1/2"
From frame #130 to frame #186	24"

CALCULATED DATA AT DESIGN DRAFT 11 FOOT 4-1/2 INCH WATERLINE

Tons per inch immersion	24.19	Tons
Area of water plane	10160	Sq.Ft.
C.G. of water plane aft of frame #93	21.87	Feet
Moment to change trim one inch	513	Ft.Tons
C.B. above bottom of keel	7.04	Feet
C.B. aft of frame #93	4.85	Feet
Transverse metacenter above C.B.	11.39	Feet
Longitudinal metacenter above C.B.	1079	Feet
Area of greatest section (No. 22)	333	Sq.Ft.
Wetted Surface	15880	Sq.Ft.
Ratio, length between perpendiculars to beam, maximum	10.18	
Block coefficient		
Prismatic coefficient		
Greatest section coefficient (No. 22)		
Water plane coefficient		

Note: Coefficient of fineness are with mean thickness of plating.
For data on stability, see Booklet of Inclining Experiment Data and the Damage Control Book.

APPROXIMATE CAPACITIES

Oil fuel and Diesel oil - normal load	240.0	tons
Oil fuel - full load (95% capacity)	618.99	tons
Diesel oil - full load (95% capacity)	24.21	tons
Potable water (full capacity)	35.80	tons
Reserve feed water (full capacity)	85.25	tons

SECTION A-1

GENERAL (Cont'd.)

MISCELLANEOUS DATA

Inclination of propeller shafts		
Vertical - down and aft	(Stbd.	2 Deg. 36 Min. 29 Sec.
	(Port	3 Deg. 19 Min. 33 Sec.
Horizontal -		0 Deg.
Area of rudder (projected)		100.4 Sq.Ft.
Length of signal yard		29'-0"

HEIGHTS ABOVE DESIGN DRAFT 11 FOOT 4-1/2 INCH WATERLINE

MAIN BATTERY	DD381	DD383
5 inch twin gun mount number 1	26' 0"	25' 11"
5 inch twin gun mount number 2	33' 0"	32' 9-1/8"
5 inch twin gun mount number 3	25' 2"	25' 1-3/4"
5 inch twin gun mount number 4	17' 7-3/4"	17' 7-7/8"
SECONDARY BATTERY		
1.1 inch A.A. machine gun number 1	38' 4-7/8"	38' 6"
1.1 inch A.A. machine gun number 2	31' 5-3/8"	31' 5-1/2"
0.50 inch gun number 1	23' 5"	23' 5"
0.50 inch gun number 2	23' 5"	23' 5"
TORPEDO TUBES		
Quadruple mount number 1	20' 5-3/4"	20' 5-1/8"
Quadruple mount number 2	20' 5-3/4"	20' 4-7/8"
Quadruple mount number 3	20' 5-1/4"	20' 4-7/8"
BATTERY CONTROL AND OBSERVATION FEATURES		
Centerline range finder (port)	47' 6-1/8"	47' 6-1/2"
(stbd)	47' 6-1/8"	47' 6-1/2"
Centerline 5" gun director	53' 5"	53' 5-5/8"
Centerline torpedo director (port)	41' 8-1/2"	41' 8-1/2"
(stbd)	41' 8-1/2"	41' 8-1/2"
Centerline 12 inch searchlight: Top of pilot house (port)	47' 8-1/2"	47' 8-3/4"
(stbd)	47' 8-1/2"	47' 8-7/8"
Centerline 24 inch searchlight: Top of pilot house (port)	47' 4-3/4"	47' 5-1/8"
(stbd)	47' 5-3/4"	47' 6-1/8"
Centerline 36 inch searchlight on after searchlight platform	40' 3-1/2"	40' 3-1/2"

GENERAL (Cont'd.)

HEIGHTS ABOVE DESIGN DRAFT 11 FOOT 4-1/2 INCH WATERLINE (Cont'd.)

NAVIGATION AND SIGNALING FEATURES	DD381	DD383
Top of flag and pennant staff cap polemast	102' 6-3/8"	102' 6-1/4"
Top of battle staff cap	51' 8-1/4"	51' 8-1/4"
Center of truck light on polemast	94' 1-3/8"	94' 1-1/4"
Signal yard on polemast to ℄ of yard	87' 3-3/8"	87' 3-1/4"
Center of mast head light	54' 11-3/4"	54' 11-3/4"
Center of speed light, aft end of deck house	36' 9"	36' 9"
Center of towing light on polemast	48' 11-3/4"	48' 11-3/4"
Center of range lights	71' 11-3/8"	71' 11-3/8"
MISCELLANEOUS		
Top of smoke stack - Aft side at ℄	49' 1"	49' 1"
DECKS, PLATFORMS, AND BRIDGES (UPPER SIDE OF PLATING AT ℄ OF SHIP)		
Second platform (level below designed draft) (Fr. #6)	1' 4-1/4" Below D.W.L.	1' 7"
(Fr. #55)	3' 3-1/4" "	3' 3"
(Fr. #134)	4' 11-3/4" "	4' 10-1/2"
(Fr. #158)	3' 1-3/4" "	3' 1-3/4"
First platform at F.P.	7' 2" Above D.W.L.	6' 11-1/2"
First platform at Fr. #59	2' 9" "	2' 9-1/4"
First platform at Fr. #130	6' 9-1/4" "	6' 9-1/4"
First platform at A.P.	4' 5-1/2" "	4' 5-1/4"
Main deck at F.P.	15' 8" "	15' 5-1/2"
Main deck at Fr. #61	10' 9" "	10' 9-1/4"
Main deck at Fr. #103	10' 9-1/4" "	10' 9"
Main deck at Fr. #147	11' 2" "	11' 2"
Main deck at A.P.	12' 5-1/2" "	12' 5-1/4"
Forecastle deck at F.P.	23' 5-3/4" "	23' 3"
Forecastle deck at Fr. #71	18' 3" "	18' 3"
Top of after deck house at Fr. #144	18' 9-1/4" "	18' 9-1/4"
Superstructure deck at Fr. #68	26' 9" "	26' 9"
Navigating bridge at Fr. #68	35' 10" "	35' 9-1/2"
Top of pilot house at Fr. #68	43' 6-3/4" "	43' 7"

SECTION A-1

BENCH MARKS

Bench marks for the periodic checking and alignment of navigational and ordnance equipment are provided, on suitably inscribed label plates fitted at the bases of the respective units, as follows:

Item	No. of Plates	Inscription	Deck	Frame	Side
5" Gun, Mount #1	4	C.L. of Gun	Focle. Dk.	Fr.31	℄ of Ship
5" Gun, Mount #2	4	C.L. of Gun	Sup. Dk.	Fr.43	℄ of Ship
5" Gun, Mount #3	1	C.L. of Gun	Top of Aft.Dk. House	Fr.144	℄ of Ship
5" Gun, Mount #4	4	C.L. of Gun	Main Dk.	Fr.156	℄ of Ship
5" Gun Director	4	C.L. of Gun Director	Top of Pilot House	13-11/16" For'd Fr. 63	℄ of Ship
1.1" Mach. Gun, #1	4	C.L. of Mach. Gun	For'd Mach.Gun Platf'm	3" For'd Fr. 53	℄ of Ship
1.1" Mach. Gun, #2	4	C.L. of Mach. Gun	Aft Mach. Gun Platf.	11-1/2" Aft. Fr. 134	℄ of Ship
.50 Cal.Mach. Gun, #1	4	C.L. of Mach.Gun	Focle.Dk.	Fr. 39	9'11" Stbd.
.50 Cal.Mach. Gun, #2	4	C.L. of Mach.Gun	Focle.Dk.	Fr. 39	9'11" Port
Torpedo Tube, Mount #1	4	C.L. of Torp. Tube	Torpedo Load. Platf'm.	12-1/4" Aft Fr. 79	℄ of Ship
Torpedo Tube, Mount #2	4	C.L. of Torp. Tube	Torpedo Load. Platf'm.	18"For'd Fr. 101	℄ of Ship
Torpedo Tube, Mount #3	4	C.L. of Torp. Tube	Torpedo Load. Platf'm.	12"For'd Fr. 117	℄ of Ship
Stbd. Torpedo Director	4	C.L. of Torp. Director	Nav.Br.	12-1/2" For'd Fr. 70	12' 8-1/2" Stbd.
5" Gun Mount #3	3	C.L. of Gun	Near Top of House	Fr.144	℄ of Ship

SECTION A-1

BENCH MARKS (Cont'd.)

Item	No. of Plates	Inscription	Deck	Frame	Side
Port Torpedo Director	4	C.L. of Torp. Director	Nav.Br.	12-1/2" For'd Fr. 70	12' 8-1/2" Port
Stbd. Range Finder	4	C.L. of Range Finder	Top of Pilot House	Fr. 63	10' 9" Stbd.
Port Range Finder	4	C.L. of Range Finder	Top of Pilot House	2" Aft Fr. 64	10' 9" Port
Stbd. Pelorus Range Finder	4	C.L. of Pelorus	Nav.Br.	12"Ford. Fr. 65	13' 7-1/2" Stbd.
Port Pelorus Range Finder	4	C.L. of Pelorus	Nav.Br.	12"Ford. Fr. 65	13' 7-1/2" Port
For'd Compass	4	C.L. of Compass	Nav.Br.	6" Aft Fr. 58	℄ of Ship
Aft Compass	4	C.L. of Compass	Aft Steering Station	6" Aft Fr.124	℄ of Ship
Master Gyro Compass	4	C.L. of Gyro Compass	2nd Platform	1" Ford. Fr. 53	24" Stbd.
36" Search-light	4	C.L. of Search-light	Aft Search-light Platform	13" Ford. Fr. 128	℄ of Ship
24" Search-light Stbd.	4	C.L. of Search-light	Top of Pilot House	6" Ford. Fr. 67	4'5" Stbd.
Port	4	C.L. of Search-light	Top of Pilot House	3-1/2" Ford. Fr. 61	7'3" Port

SECTION A-1

CENTERLINE AND WATERLINE PLATES (Cont'd.)

Inscription	No. of Plates	Compt. No.	Frame	Deck	Remarks
℄-18 ft. W.L.	1	A-206-1L	Bhd.51	1st Platf.	For'd. side of Bhd.
26(DD381)" ℄ 28(DD383)	1	A-106-1L	Bhd.52	Main Deck	Aft side of Bhd.
℄-43 ft. W.L.	1	Weather	Bhd.54½	Sup. Dk.	Aft side of Gun Found.
℄-20 ft. W.L.	1	A-207L	Bhd.59	1st Platf.	For'd. side of Bhd.
℄-27 ft. W.L.	1	Weather	Bhd.62	Main Deck	For'd. side of Bhd.
℄-16 ft. W.L.	1	B-1-1	Bhd.68	Boiler Room	Aft side of Bhd.
℄-36 ft. W.L.	1	Weather	Bhd.68	Focsle Deck	Aft side of Bhd.
℄-43 ft. W.L.	1	Weather	Bhd.68	Sup. Deck	Aft side of Bhd.
51(DD381) " ℄ 52(DD383)	1	Weather	Bhd.68	Nav. Br.	Aft side of Bhd.
℄-29 ft. W.L.	1	Weather	Bhd.71½	Focsle Deck	Aft side of Bhd.
℄-19 ft. W.L.	1	B-1-1	Bhd.84	Boiler Room	For'd. side of Bhd.
℄-19 ft. W.L.	1	B-2-1	Bhd.84	Boiler Room	Aft side of Bhd.
℄-18 ft. W.L.	1	B-2-1	Bhd.100	Boiler Room	For'd. side of Bhd.
18(DD381) " ℄ 16(DD383)	1	C-5	Bhd.104	Engine Room	Aft side of Bhd.
℄-18 ft. W.L.	1	C-5	Bhd.117	Engine Room	For'd. side of Bhd.
℄-18 ft. W.L.	1	C-7	Bhd.117	Engine Room	Aft side of Bhd.
℄-28 ft. W.L.	1	C-105E	Bhd.123	Main Deck	For'd. side of Bhd.
℄-36 ft. W.L.	1	Weather-	Bhd. 6" Fwd.124	Top of Aft Dk House	For'd. side of Bhd.
℄-20 ft. W.L.	1	C-7	Bhd.130	Engine Room	For'd. side of Bhd.
℄-12 ft. W.L.	1	D-301M	Bhd.130	2nd Platf.	Aft side of Bhd.

SECTION A-1

CENTERLINE AND WATERLINE PLATES (Cont'd.)

Inscription	No. of Plates	Compt. No.	Frame	Deck	Remarks
℄-21 ft. W.L.	1	D-201AL	Bhd.130	1st Platf.	Aft side of Bhd.
℄-28 ft. W.L.	1	C-106L	Bhd.130	Main Dk.	For'd. side of Bhd.
℄-37 ft. W.L.	1	Weather	Bhd.137	Top of Aft Dk House	Aft side of Bhd.
℄-12 ft. W.L.	1	D-305M	Bhd.142	2nd Platf.	Aft side of Bhd.
℄-19 ft. W.L.	1	D-202L	Bhd.146	1st Platf.	Aft side of Bhd.
℄-27 ft. W.L.	1	Weather	Bhd.146½	Main Dk.	Aft side of Gun Found.
℄-12 ft. W.L.	1	D-308M	Bhd.158	2nd Platf.	For'd. side of Bhd.
℄-21 ft. W.L.	1	D-205L	Bhd.166	1st Platf.	Aft side of Bhd.
℄-12 ft. W.L.	1	D-317A	Bhd.182	2nd Platf.	Aft side of Bhd.
℄-21 ft. W.L.	1	D-206E	Bhd.182	1st Platf.	For'd. side of Bhd.
℄-21 ft. W.L.	1	D-207A	Bhd.182	1st Platf.	Aft side of Bhd.

SECTION A-1

GENERAL (Cont'd.)

PROPELLING MACHINERY

DD381 - U.S.S. SOMERS

BOILERS

	Manufacturer	Type	Designed Working Pressure
#1 Boiler			
Steam Drum - Z-23330 R.H. Water Drum - Z-23331 L.H. Water Drum - Z-23332	Babcock & Wilcox	Oil Fired Express with Superheater & Economizer	665#
#2 Boiler			
Steam Drum - Z-23333 R.H. Water Drum - Z-23334 L.H. Water Drum - Z-23335	Do.	Do.	Do.
#3 Boiler			
Steam Drum - Z-23336 R.H. Water Drum - Z-23337 L.H. Water Drum - Z-23338	Do.	Do.	Do.
#4 Boiler			
Steam Drum - Z-23339 R.H. Water Drum - Z-23340 L.H. Water Drum - Z-23341	Do.	Do.	Do.

TURBINES

Number	Manufacturer	Type	No. Stages or Expansion Per Turbine	Designed R.P.M.
Stbd.				
Cruising - 33182	General Electric Co.	Impulse Cross Compound with cruising turbine.	8	10510
H.P. - 33184			12	5850
L.P. - 33186			7 double flow	4926
Astern - 33186			1	2956
Port				
Cruising - 33181	General Electric Co.	Do.	8	10510
H.P. - 33183			12	5850
L.P. - 33185			7 double flow	4926
Astern - 33185			1	2956

NOTE: The astern element, assembled at the Forward end of the L.P. Turbine and enclosed in the same casing, has the same Serial Number as the L.P. Turbine.

SECTION A-1

GENERAL (Cont'd.)

PROPELLING MACHINERY

DD383 - U.S.S. WARRINGTON

BOILERS

		Manufacturer		Designed Working Pressure
#1 Boiler				
Steam Drum	Z-23342	Babcock & Wilcox	Oil Fired Express with Superheater & Economizer	665#
R.H. Water Drum -	Z-23343			
L.H. Water Drum -	Z-23344			
#2 Boiler				
Steam Drum -	Z-23345	Do.	Do.	Do.
R.H. Water Drum -	Z-23346			
L.H. Water Drum -	Z-23347			
#3 Boiler				
Steam Drum -	Z-23348			
R.H. Water Drum -	Z-23349	Do.	Do.	Do.
L.H. Water Drum -	Z-23350			
#4 Boiler				
Steam Drum -	Z-23351			
R.H. Water Drum -	Z-23352	Do.	Do.	Do.
L.H. Water Drum -	Z-23353			

TURBINES

Number	Manufacturer	Type	No. Stages or Expansion Per Turbine	Designed R.P.M.
Stbd.				
Cruising - 33188	General Electric Co.	Impulse Cross Compound with cruising turbine	8	10510
H.P. - 33190			12	5850
L.P. - 33192			7 double flow	4926
Astern - 33192			1	2956
Port				
Cruising - 33187	General Electric Co.	Do.	8	10510
H.P. - 33191			12	5850
L.P. - 33191			7 double flow	4926
Astern - 33191			1	2956

NOTE: The astern element, assembled at the Forward end of the L.P. Turbine and enclosed in the same casing, has the same Serial Number as the L.P. Turbine.

SECTION A-1

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 Foundries Co.	3	11'3"	12'2"	15 1/4" Inside Sleeve	400	52000 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-5

ORDNANCE AND ORDNANCE OUTFIT

MAIN BATTERY

Gun No.	Bore	Caliber	Location			Elevation	Depression	Train
			Deck	Frame	Side			
1&2	5"	38	Forecastle	31	On ℄	35°	10°	300°
3&4	5"	38	Superstructure	43	On ℄	35°	10°	300°
5&6	5"	38	Top of After Deck House	144	On ℄	35°	10°	300°
7&8	5"	38	Main	156	On ℄	35°	10°	300°

Two 5" loading machines, mark XII & mark XII Mod. I are located on the main deck between frames 108-115 on ℄

SECONDARY BATTERY (A.A. GUNS)

Gun No.	Bore	Caliber	Location			From ℄ of Ship	Elevation	Depression	Train
			Deck	Frame	Side				
1	.50"	63.8	Forecastle	39	Stbd.	9'11"	80°	15°	720°
2	.50"	63.8	Forecastle	39	Port	9'11"	80°	15°	720°
3	1.1"	75	Forward Machine Gun Platform	3" Fwd. 53	On ℄		110°	15°	720°
4	1.1"	75	After Machine Gun Platform	11½" Aft 134	On ℄		110°	15°	720°

ORDNANCE AND ORDNANCE OUTFIT (Cont'd.)

TORPEDO TUBES

Torpedo Tube Number	Diameter Torpedo	Length Torpedo	Location		Train		
			Deck	Frame	Side	Fwd.	Aft
1 Quadruple	21"	22'-7 1/16"	Main	79-80	On ℄	45°	42°
2 Quadruple	21"	Ditto	Main	100-101	On ℄	45°	42°
3 Quadruple	21"	Ditto	Main	116-117	On ℄	45°	42°

SMALL CALIBER GUNS

Quan.	Cal.	Name	Stowage Location			Remarks
			Deck	Frame	Side	
4	1 Pdr.	Sub caliber gun	Focsle		℄	Stowed Gun Foundation #2